NEWTON
COMMUNITY DEVELOPMENT
FOUNDATION

July 6, 2023

Lara Kritzer, Community Preservation Program Manager
City of Newton Planning & Development Department
1000 Commonwealth Avenue
Newton, MA 02459

RE: Warren House Preservation and Rehabilitation Project

Dear Lara,

Your patience, as well as that of members of the Community Preservation Committee and the Trustees of the Newton Affordable Housing Trust, was much appreciated as we awaited updated construction estimates for the window replacement, masonry repairs and associated work at Warren House.

As discussed during our meetings in May, NCDF contracted with Gale Associates to continue with their design documents, update the construction estimate and obtain a Rough Order of Magnitude (ROM) budget to establish more sound numbers for our upcoming meeting. The cost estimates were due from contractors on June 30th, and I am pleased to report that the initial estimate of $4,186,000 provided by Gale in December 2022, which was based on field observations performed in 2019 and 2020, was reduced to $3,400,000 plus a 10% contingency for a total of $3,740,000. The budget is based on Gale's 85% design submission and estimates provided by two general contractors.

Attached please find the following documents:

- Gale's letter dated July 6, 2023;
- Gale's Estimated Construction Costs;
- Estimate provided by Essex Builders;
- Estimate provided by Sugrue & Associates;
- Gale's 85% design submission.

We took the opportunity to update the One Stop application and have attached that as well. While the request for CPA funds remains at $2,100,000, **we are able to reduce the request for AHT funds from $1,900,000 to $1,575,000**. NCDF remains committed to preserving the façade of this landmark structure as well as the affordability, and with a commitment from the NAHT, will extend the affordability of the six (6) expiring units to households earning 50% or below of AMI and will continue to make an additional four (4) units affordable to households earning 80% of AMI.

EQUAL HOUSING OPPORTUNITY

425 Watertown Street, Suite 205, Newton MA 02458
Tel: 617-244-4035 • TTY: 800-439-2370 • Fax: 617-244-2160 • info@ncdfinc.org • www.ncdfinc.org

Chris Musorofiti from Gale Associates will join us at the meeting on July 11, 2023, to present the updated information and answer any questions members may have about the scope of work and the proposed budget. In addition, Maureen Cavanaugh from The Public Archaeology Laboratory will join us to report on the Massachusetts Preservation Project Funds and MA Historic State tax credits that members had recommended NCDF seek for this project.

Please let me know if there is any additional information/documentation needed at this time and otherwise, we look forward to meeting with you and members of the CPC and NHAT next Tuesday, July 11th at 7:00 p.m.

Sincerely,

Jeanne Strickland
Executive Director

Attachments

July 6, 2023

Ms. Jeanne M. Strickland
Newton Community Development Foundation, Inc.
425 Watertown Street, Suite#205
Newton, MA 02458

RE: Revised Budget Estimates
Window Replacement, Masonry Repairs and Associated Work
Newton Community Development Foundation, Inc.'s
Warren House
1600 Washington Street
Newton, MA
Previous Gale JN's 835240, 837400
Gale JN 841460

Dear Ms. Strickland:

As you are aware, Gale Associates, Inc. (Gale) provided the Newton Community Development Foundation, Inc. (NCDF) with construction budget estimates on December 9, 2022, for the above referenced project. These budgets were established using preliminary evaluations of the building and estimates that were generated based on field observations performed in 2019 and 2020. Gale's budget was estimated at $3,488,800 (2022/2023 value) and suggested a twenty percent (20%) contingency in the event that unforeseen conditions were encountered either as a result of the design or construction phases of the project. Therefore, the recommended budget was estimated as $4,186,600.

As discussed, NCDF is in the process of soliciting funds to assist with supporting the renovations. As part of this process, NCDF has requested Gale to continue with the design documents, update the construction estimate, and request the assistance of local, open shop, general contractors to provide a Rough Order of Magnitude (ROM) budget for this project to establish more sound numbers for the joint meeting of Newton's Community Preservation Committee (CPC) and Affordable Housing Trust (AHT) scheduled on July 11, 2023. A summary of the updated information and services have been presented below:

Gale's Services:
To better understand the design requirements for this project, Gale performed additional evaluation and generated 85% design documents (technical specifications and design drawings) to establish the scope of work required at the project. The 85% design documents, dated June 14, 2023, were used to provide more accurate quantity takeoffs related to both the window replacement and masonry repair scopes of work. The basis of the design assumes that the entire project will be performed as one construction project in 2024, includes open shop, and establishes unit pricing based on discussion from manufacturers, suppliers, and contractors. Gale's revised construction estimate is valued at $3,400,000. It is Gale's opinion that NCDF budget an additional ten percent (10%) contingency in the event of pricing fluctuations due to the current economic world conditions, or should unforeseen conditions be encountered during construction. Therefore, Gale's suggested budget is estimated at $3,740,000.

Contractor Services:

To aid in receiving actual contractor ROM's, Gale forwarded the 85% design submission to two (2) general contractors who have provided construction operations with Gale and NCDF properties in the past. Both contractors are open shop, and both were able to receive some limited assistance from their respective sub-contractors.

Essex Builders; Canton, MA

Essex Builders (Essex) provided a detailed schedule of values (SOV) that established a ROM for the technical specifications that were identified in Gale's 85% design submission, as well as a detailed General Conditions, Requirements and Temporary Conditions SOV. Essex requested clarifications on several of the design scopes of work prior to presenting their estimate based on a seven (7) month construction duration for 2024 mobilization. Essex stated that due to some material escalation, their pricing has increased by approximately five percent (5%), and therefore provided a ROM range of $4,045,189 to $4,396,455. Though it is anticipated this upper ROM range could accommodate NCDF's construction contingency, it is Gale's opinion that NCDF carry an additional five percent (5%) above this upper range in the event unforeseen conditions are encountered during the bid or construction phase. Therefore, using Essex' ROM values, the recommended construction budget is suggested at $4,616,288. Please note that a number of qualifications were presented as part of Essex' June 30, 2023, submission, and are included as reference.

Sugrue & Associates, Inc.; Smithfield, RI

Sugrue & Associates, Inc. (Sugrue) provided a schedule of values similar, though not as detailed as Essex. Sugrue solicited several sub-contractors to assist with generating their ROM, though indicated that one (1) sub-contractor was not able to provide a ROM due to the size/dimensions of the windows, and therefore, did not receive multiple prices for the window renovations. Sugrue's schedule of values is slightly different with respect to the specifications and Essex' format, in which they provided a separate line item for the demolition of each building component in lieu of including it with the individual technical section, as indicted in the 85% design submission. Based on the values presented, there are differences between the trade services outlined between the two contractors. Please note that Sugrue confirmed that the estimates are ROM's only, and partially based on their past experience for some of the trade work. They suggested providing the complete design package and competitively bidding the project to provide more sound proposal numbers. Sugrue's ROM budget amount is $3,600,574. It is Gale's opinion that a ten percent (10%) contingency be applied to this number as well, and therefore, the recommended construction budget using Sugrue's values is suggested at $3,960,632.

	Gale Estimate	Essex Estimate	Sugrue Estimate
Window Replacement and Masonry Repairs	$3,400,000	$4,045,189 to $4,396,455	$3,600,574
Recommended Budget with Contingency:	$3,740,000	$4,616,288	$3,960,632

Again, these values are estimates based on Gale's 85% design submission and Rough Order of Magnitude estimates provided by two general contractors. They should not be used for sensitive budgets. Upon completion of the design documents, and NCDF's confirmation of the funding source, it is suggested that the project be competitively bid for 2024 construction as to receive actual construction values.

We trust this information serves your needs at this time. Should you have any questions or comments, please do not hesitate to contact me at this office.

Sincerely,

Gale Associates, Inc.

Christopher Musorofiti, RRC
Senior Associate

CM:cm

CC: Gale Team (CM, KRC)

Attachments:

I:\841460\02 Design\letters\01 Gale Estimate
I:\841460\02 Design\letters\02 Essex ROM
I:\841460\02 Design\letters\03 Sugrue ROM
I:\841460\02 Design\Submissions\2023 0614 85% ROM estimate package

Window Replacement , Masonry Repairs, and Associated Work at the Warren House

Project: Window Replacement, Masonry Repairs, and Associated Work at the Warren House		Date: July 3, 2023
Job No.: 841460	Prepared/Checked by: krc/cm	File Name: I:\841460\02 Design\cost estimate\841460 Cost Estimate 2

Window Replacement, Masonry Repairs, and Associated Work at the Warren House

Newton Community Development Foundation
Newton, MA

Window Replacement and Masonry Repairs	Construction Estimate	
	Base Bid	10% Contingency
Masonry Repairs Subtotal	**$423,000**	**$465,300**
Window Replacement Subtotal	**$2,977,000**	**$3,274,700**

Estimated Construction Cost **$3,400,000**

Gale recommends that an additional ten (10) percent contingency be budgeted for in the event that unforeseen conditions are encountered during the construction phase. Therefore the recommended budge is valued at **$3,740,000**

These estimates have been generated by various sources and may not reflect the actual conditions at the time of construction. All unit cost pricing presented in these estimates are based on average public sector bid amounts. Gale does not recommend using these numbers for sensitive budgeting.

Project Warren House - Exterior Renovations
Location Newton, MA
Date June 30, 2023

ESSEX BUILDERS

Budget Schedule of Values						
CSI DESIGNATION	SECTION	AMOUNT Rough Order of Magnitude				COMMENTS
	General Conditions	287,150	-	287,150		
	General Requirements	141,700	-	141,700		Based on (7) months of construction
	Temporary Conditions	48,150	-	48,150		
04 00 00	Masonry	341,625	-	375,788		
05 50 00	Misc. Metals	13,530	-	14,883		Loose lintel materials
06 10 00	Rough Carpentry	29,680	-	32,648		Window blocking
06 20 00	Finish Carpentry	57,979	-	63,777		Interior sills and jamb trims
07 22 00	Thermal Insulation	9,620	-	10,582		Insulation at headers and jambs
07 60 00	Flashing & Sheet Metal	6,039	-	6,643		Flashing materials, installed by Mason
07 92 00	Joint Sealants	25,001	-	27,501		
08 50 00	Windows	2,506,232	-	2,756,856		Removal and replacement of all windows
09 20 00	Drywall Assemblies	30,620	-	33,682		Misc. drywall patch & repair at all window openings
09 90 00	Painting	23,300	-	25,630		Paint trim and misc. drywall
12 00 00	Window Treatments	20,100	-	22,110		Remove, store, and reinstall window shades / blinds
32 90 00	Landscaping	15,000	-	16,500		Misc. lawn repairs
1.4%	General Liability Insurance	49,780	-	54,090		
2.0%	Building Permit	61,575	-	67,732		Per City of Newton - $20 / $1,000 (only applied to hard costs)
7.0%	Fee	256,696	-	278,980		
	Payment & Performance Bond	121,412	-	132,054		GC bond and subcontractor bonds
	TOTAL	$ 4,045,189	-	$ 4,396,455		

ESSEX BUILDERS

Warren House - Exterior Renovations	6/30/2023
General Conditions, Requirements & Temp. Conditions	
Schedule Duration (months)	**7**
GENERAL CONDITIONS	Total Cost
Project Management & Field Supervision	$ 282,100
Project Manager - 1/2 Time	
Assistant Project Manager - 1/2 Time	
Superintendent - Full Time	
Assistant Superintendent - 1/2 time	
Safety Coordinator	1,050
Procore / IT	4,000
Subtotal	**287,150**
GENERAL REQUIREMENTS	
Field Expenses	
Field Office Mobilization, Setup, and Rental	6,600
Field Office Expenses	2,800
Field Office Utilities	2,800
Field Office Furniture, Equipment, Supplies	1,800
Field Office Internet & Telephone	1,400
Site Security	1,000
Temp. First Aid / Safety	750
Storage Trailer Rental	5,000
Vehicle Expenses & Fuel	22,750
Misc. Tools & Supplies	18,000
Equipment Rental	10,500
Submittal Expenses	
Record Drawings/Close Out Materials	1,000
Plan Reproduction	1,400
Job Maintenance	
General Laborer	36,400
Dumpsters & Trash Chutes	19,500
Cleaning Expenses	
Final Clean	10,000
Subtotal	**141,700**
TEMPORARY CONDITIONS	
Temporary Construction	
Temporary Electrical	3,500
Temporary Water	3,500
Signage	1,000
Temporary Toilets	5,180
Temporary Protections / Enclosures	25,000
Rodent Protection	770
Fire Extinguishers	1,200
Temporary Fencing	8,000
Subtotal	**48,150**
TOTAL	**$ 477,000**

ESSEX BUILDERS
45 Dan Road, Suite 300, Canton, Massachusetts, 02021-2355
(781) 326-3466

QUALIFICATIONS

Warren House Renovations
Newton, MA
June 30, 2023

1. Budget is **BASED** on the following:
    a. Drawings prepared by Gale Associates dated 6/14/23.
    b. Specifications prepared by Gale Associates dated 6/14/23.
    c. Mutually agreed upon contract terms.
    d. No retainage being held on General Conditions, Fee, Insurance, Building Permit Fees, and Materials Purchased by Essex Builders Corp.
    e. Being provided with code compliant plans and specifications.
    f. Specified materials requiring advance deposits and or prepayments require funds to be deposited with the contractor as needed.
    g. Acceptance, unloading and debris of Owner provided materials / equipment will be handled by the Owner.
    h. Builder's Risk Insurance by Owner.
    i. Any costs related to utility delays, coordination issues, installation and inspections will be by the Owner. This also includes back charges, deposits and fees associated.
    j. NCDF provides access and security to the units during the time in which work is being performed in units.
    k. Batt insulation at window rough opening cavities / voids in lieu blown in.
    l. Drywall scope limited to repair of existing drywall assemblies around window openings. No added drywall coverage due to potential dimensional changes has been figured.

2. Budget **INCLUDES** the following:
    a. Open Shop Labor
    b. Building Permit Fee
    c. Full-time on-site Superintendent
    d. Payment and performance bond cost. Bonds have been carried on subcontractor line items with a value greater than $250,000.00.
    e. Air and water leak testing at windows.

3. Budget **EXCLUDES** the following:
    a. Survey, testing, removal, on-site handling, and disposal of all hazardous materials.
    b. Survey, testing, removal, on-site handling, and disposal (haul off-site) all unsuitable or contaminated soils.
    c. Concealed and unforeseen conditions.
    d. Third party independent testing.
    e. Winter Conditions.
    f. Removal and reinstallation of any MEP.FP components.
    g. Moving any tenant furniture. NCDF will need to provide Essex with a clear path and clear space around the windows in all units.

SUGRUE & ASSOCIATES, INC.

Builders – Construction Managers - Engineers
Registered in Rhode Island and Massachusetts
72 Hartford Pike
North Scituate, Rhode Island 02857
www.msugrue.com

401-647-3890 - tel
401-647-7067 - fax

July 3, 2023

To: Ms. Jeanne Strickland
Newton Community Development Foundation, Inc.
425 Watertown Street
Newton, MA 02458

Budget Proposal for Masonry & Window Renovations to Warren House 1600 Washington St. Newton, MA

Hello Jeanne,

The following is a Budget proposal for work to be performed at the above address. The scope of work is based on plans by Gale Associates, Inc. dated 6/14/2023.

01000 – General Conditions:

- *Site supervision and project management.*
- *Insurance*
- *General Site Overhead*
  Budget = $284,000.0
- *Scaffolding/Lifts/Hosting Budget = $350,000.0*
- *Landscaping Budget = $30,000.0*

02200 – Demolition Work:

- *Demolition of existing masonry.*
- *Demolition of existing windows.*
- *Demolition of existing interior drywall and framing.*
  Budget = $182,000.0

03000 – Concrete

- *N/A*

04000 – Masonry

- *As detailed.*
  Budget = $790,000.0

06000 – Carpentry:

- *Interior framing and blocking for window installation.*
  Budget = $130,840.0

07000 – Thermal and Moisture

- *Caulking for windows*
- *Insulation for windows*
  Budget = $68,000.0

08000 –Windows:

- *As detailed.*
  Budget = $1,423,000.0

09100 –Sheetrock, Plaster:

- *Sheetrock and taping for all disturbed areas at window returns.*
- *Cost = $47,200.0*

09900 – Painting:

- *Painting for all interior walls returns around windows.*
- *Cost = $38,600*

10000 – Specialties

- *N/A*

11000 – Equipment

- *N/A*

12000 – Furnishings

- *N/A*

13000 – Special

- *N/A*

14000 – Conveying

- *N/A*

15300– Wet Sprinkler System:

- *N/A*

15400- Plumbing and Heating
N/A

15800 - HVAC

- *N/A*

16000 – Electrical
N/A

Total of the Above = $3,343,640.0
Building Permit Budget = $40,000.0
Builders OHP = $216,934.0
Total Budget = $3,600,574.0

This budget has been provided based on the plans and SAI's experience with such projects. Due to the lack of time, we were unable to obtain any hard bids from subcontractors. There are a number of questions that will require an on-site meeting at your convenience. The above numbers are strictly budgetary. Please feel free to contact me with your questions and comments. Enjoy the Holiday.

Yours truly,

Michael P. Sugrue

WINDOW REPLACEMENT, MASONRY REPAIRS , AND ASSOCIATED WORK

AT THE WARREN HOUSE

1600 WASHINGTON STREET
NEWTON, MA 02465

PREPARED FOR

NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

DRAWING NO	TITLE
G100	COVER SHEET
G101	PHOTOGRAPHIC DOCUMENTATION
A201	ELEVATIONS - NORTHWEST WING
A202	ELEVATIONS - NORTHEAST WING
A203	ELEVATIONS - UPPER ROOF BELOW CUPOLA
A204	ELEVATION - NORTH (FRONT)
A205	ELEVATION - SOUTH (REAR)
A206	ELEVATIONS - EAST AND WEST AT SOUTH WING
A501	DETAILS
A502	DETAILS
A503	DETAILS
A504	DETAILS
A505	DETAILS
A506	STONE SCHEDULE
A601	WINDOW SCHEDULE
A602	WINDOW SCHEDULE
A603	WINDOW SCHEDULE

SITE MAP
NOT TO SCALE

LOCATION MAP
NOT TO SCALE

Gale Associates, Inc.
Engineers and Planners

300 LEDGEWOOD PLACE, SUITE 300 |
ROCKLAND, MA 02370
P 781.335.6465 F 781.335.6467
www.gainc.com
Boston Baltimore Orlando Hartford
Manchester Portland

85% SUBMISSION

PROJECT
WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK AT THE WARREN HOUSE
1600 WASHINGTON STREET, NEWTON, MA 02465

OWNER
NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 G100
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	NOT TO SCALE

GRAPHIC SCALE

SHEET TITLE

COVER SHEET

DRAWING NO.

G100

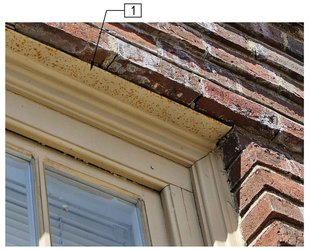


PHOTO 1 - VIEW OF EXISTING STEEL LINTEL

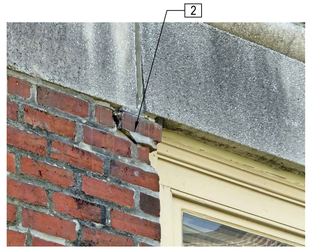


PHOTO 2 - VIEW OF BRICK BELOW CAST STONE

PHOTO 3 - VIEW OF PRECAST CONCRETE WINDOW SILL

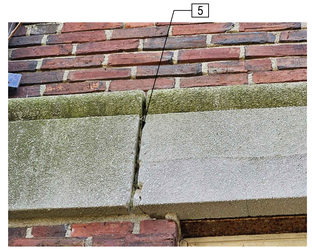


PHOTO 4 - VIEW OF DETERIORATED CAST STONE MORTAR JOINT

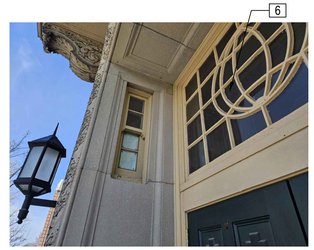


PHOTO 5 - VIEW OF EXISTING CUSTOM WINDOW AT FRONT ENTRY

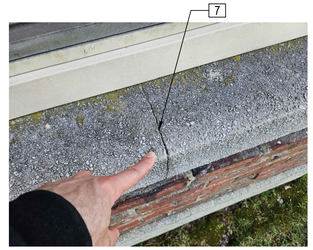


PHOTO 6 - VIEW OF PRECAST CONCRETE WINDOW SILL


PHOTO 7 - VIEW OF EXISTING DEEP INSET WINDOW WITH LOUVER


PHOTO 8 - VIEW OF EXISTING WINDOW SILL AND JAMB

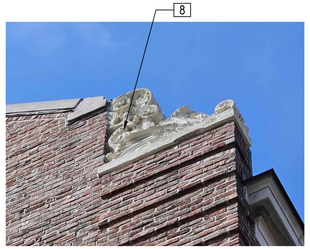


PHOTO 9 - VIEW OF CUSTOM CAST STONE ELEMENTS

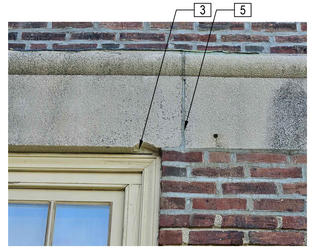


PHOTO 10 - VIEW OF CAST STONE AT LEVEL 1 WINDOW HEAD

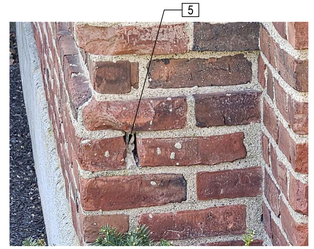


PHOTO 11 - VIEW OF EXISTING BRICK

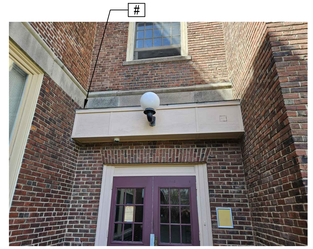


PHOTO 12 - VIEW OF EXISTING LOW ROOF AWNING AT ENTRY DOOR

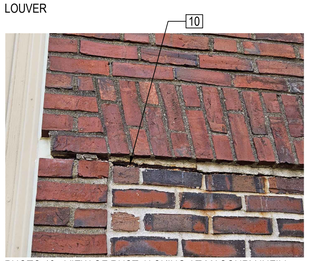


PHOTO 13 - VIEW OF RUST JACKING AT MASONRY INFILL

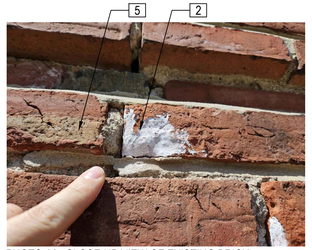


PHOTO 14 - CLOSE-UP VIEW OF EXISTING BRICK

PHOTO 15 - VIEW OF STEEL ANGLES AT INFILL ALONG BACK OF BUILDING

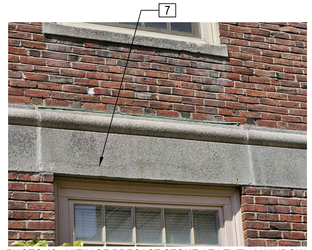


PHOTO 16 - VIEW OF PRECAST STONE AT LEVEL 1 WINDOW HEAD

PHOTO 17 - VIEW OF WINDOW SILL AT HALF-ROUND WINDOWS

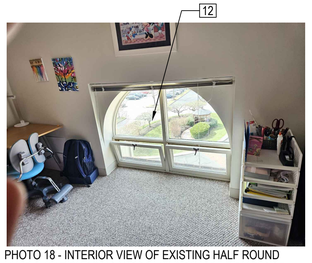


PHOTO 18 - INTERIOR VIEW OF EXISTING HALF ROUND WINDOW AT EXISTING WOOD WINDOW SPLIT BY FLOOR


PHOTO 19 - VIEW OF ROLLER SHADES AT ANGLED FINISHES WHERE WINDOW HEAD IS ABOVE CEILING

PHOTO 20 - INTERIOR VIEW OF EXISTING DEEP INSET WINDOW

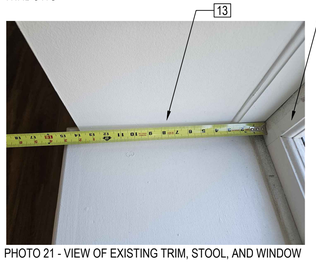


PHOTO 21 - VIEW OF EXISTING TRIM, STOOL, AND WINDOW

PHOTO 22 - VIEW OF EXISTING BLINDS INSTALLED ONTO EXISTING INTERIOR

PHOTOGRAPHIC INDICATORS

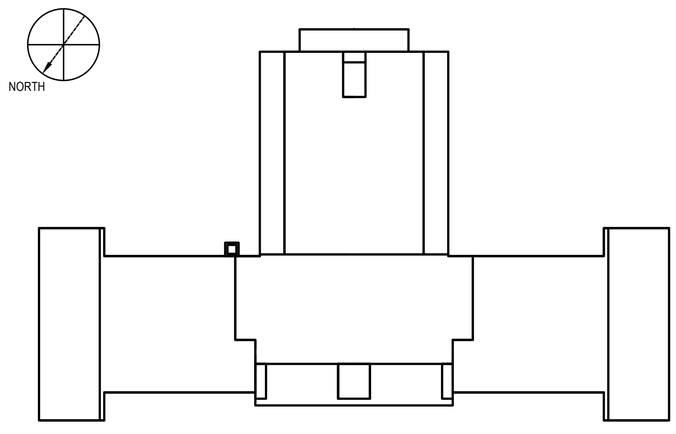
1	CLEAN AND COAT EXISTING STEEL LINTELS OR ANGLES
2	REMOVE AND REPLACE BRICK
3	PERFORM CONCRETE SPALL REPAIRS
4	CLEAN AND COAT EXISTING REINFORCING STEEL
5	REPOINT MORTAR JOINT
6	REMOVE AND REPLACE EXISTING CUSTOM WINDOW
7	PERFORM CONCRETE CRACK REPAIRS
8	REMOVE AND REPLACE EXISTING CUSTOM CAST STONE ELEMENTS
9	REMOVE AND REPLACE EXISTING FLASHING
10	REPAIR OR REPLACE EXISTING STEEL ANGLE
11	REMOVE AND REPLACE EXISTING CONCRETE WINDOW SILLS AT HALF-ROUND WINDOWS
12	REMOVE AND REPLACE WINDOW
13	EXISTING TRIM AND STOOL TO BE REMOVED AND REPLACED
14	REMOVE EXISTING MINI BLINDS. STORE BLINDS TEMPORARILY AND REINSTALL AFTER NEW WINDOW INSTALLATION. REFER TO WINDOW DETAILS FOR LOCATION OF REINSTALLED BLINDS.

PHOTOGRAPHIC DOCUMENTATION NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN COMPILED FROM VARIOUS SOURCES, AND MAY NOT REFLECT THE ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION.
2. PHOTOGRAPHIC INDICATORS ARE IN APPROXIMATE LOCATIONS. THEY ARE NOT INTENDED TO DEFINE THE LIMITS OF WORK.
3. THE PHOTOGRAPHS SHOWN ON THIS SHEET ARE BOTH UNIQUE AND TYPICAL CONDITIONS. THEY ARE NOT MEANT TO BE ALL ENCOMPASSING.

APPROXIMATE PHOTOGRAPH LOCATIONS

SCALE: NOT TO SCALE



LEGEND:

(#) PHOTO INDICATOR (EXTERIOR)

(-) PHOTO INDICATOR (INTERIOR)

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PROJECT
WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK AT THE WARREN HOUSE
1600 WASHINGTON STREET, NEWTON, MA 02465

OWNER
NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 G101
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	AS NOTED

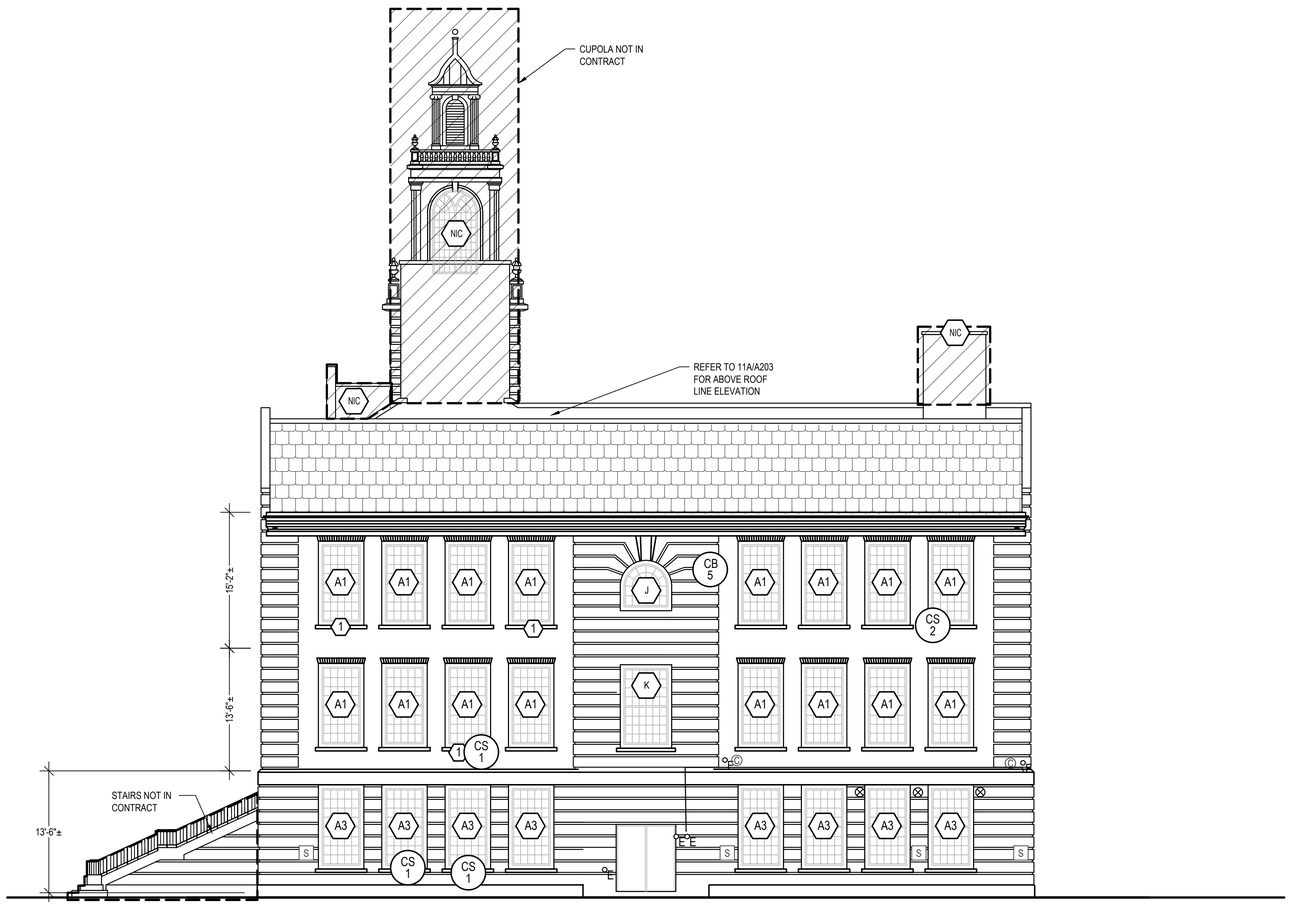
GRAPHIC SCALE

SHEET TITLE

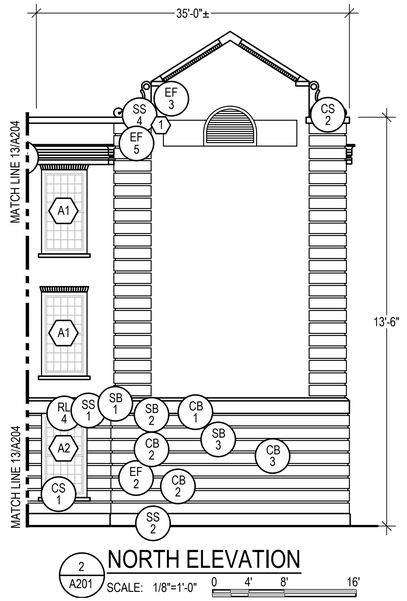
PHOTOGRAPHIC DOCUMENTATION

DRAWING NO.

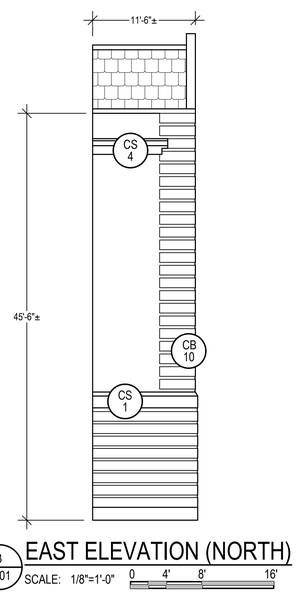
G101



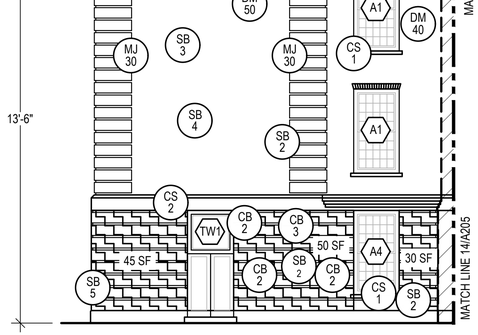
2 / A201 SOUTHWEST ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'



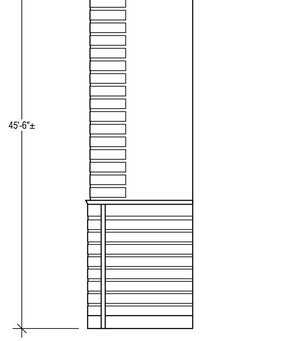
2 / A201 NORTH ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'



3 / A201 EAST ELEVATION (NORTH)
SCALE: 1/8"=1'-0" 0 4' 8' 16'



4 / A201 SOUTH ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'



5 / A201 EAST ELEVATION (SOUTH)
SCALE: 1/8"=1'-0" 0 4' 8' 16'

DEFECT LEGEND

DM #	DETERIORATED MORTAR JOINT; REPOINT # INDICATES SQUARE FEET
CB #	CRACKED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
SB #	SPALLED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
CS #	CRACKED STONE REPAIR; # INDICATES UNIT QUANTITY
SS #	SPALLED STONE REPAIR; # INDICATES UNIT QUANTITY
RL #	RUSTED LINTEL; REMOVE AND REPLACE; # INDICATES LINEAR FEET
EF #	EFFLORESCENCE; CLEAN; #INDICATES SQUARE FEET
DM #	DETERIORATED MORTAR JOINT; REPOINT; # INDICATES LINEAR FEET
⊗	REMOVE ANCHORS AND REPLACE BRICK MASONRY UNIT AS REQUIRED;
C Ⓒ / E S	EXISTING LIGHT FIXTURE, CAMERA, ELECTRICAL CONDUIT, OR SIGN
#	WINDOW DESIGNATION; REFER TO THE WINDOW RESTORATION SCHEDULE
	SLATE ROOFING;
NIC	NOT IN CONTRACT (N.I.C.)
	DETERIORATED MORTAR JOINT; REPOINT; # INDICATES SQUARE FEET

GENERAL NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN COMPILED FROM VARIOUS SOURCES, AND MAY NOT REFLECT THE ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION.
2. DISCREPANCIES NOTED BY THE CONTRACTOR IN THE DRAWINGS OR SPECIFICATIONS MUST BE BROUGHT TO THE OWNER'S ATTENTION PRIOR TO BID SUBMISSION.
3. FLASHING SHALL BE 100% WEATHER TIGHT ON A DAILY BASIS. REMOVE ONLY AS MUCH MASONRY/FLASHING AS CAN BE REPLACED ON THE SAME DAY.
4. JOB SITE SECURITY IS THE CONTRACTORS RESPONSIBILITY. GALE REPRESENTATIVES, INCLUDING SUBCONSULTANTS RETAINED BY GALE, MAY VISIT THE JOB SITE FROM TIME TO TIME. THESE VISITS ARE FOR CLARIFICATIONS OF SPECIFIC DESIGN RELATED ISSUES ONLY AND ARE NOT FOR THE PURPOSES OF JOB SITE SAFETY. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO COMPLY WITH ALL SITE SAFETY APPLICABLE REQUIREMENTS.
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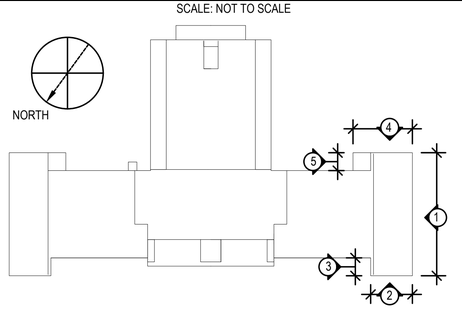
6. DETAILS NOT DEPICTED SHALL BE CONSTRUCTED IN A MANNER CONSISTENT WITH THE DETAIL DRAWINGS.
7. THE CONTRACTOR IS CAUTIONED THAT DUE TO BUILDING OCCUPANCY, THE OWNER REQUIRES COMPLIANCE WITH WORK HOURS, SCHEDULING, SET-UP, CLEANUP, PARKING, SECURITY, ETC. REFER TO SPECIFICATIONS FOR OWNER REQUIREMENTS.
8. NOTIFY THE OWNER OF WORK LOCATIONS A MINIMUM OF 72 HOURS IN ADVANCE IN ORDER THAT OCCUPANCY BELOW THE WORK AREAS MAY BE CONTROLLED.

KEY PLAN

SCALE: NOT TO SCALE



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OWNER
NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

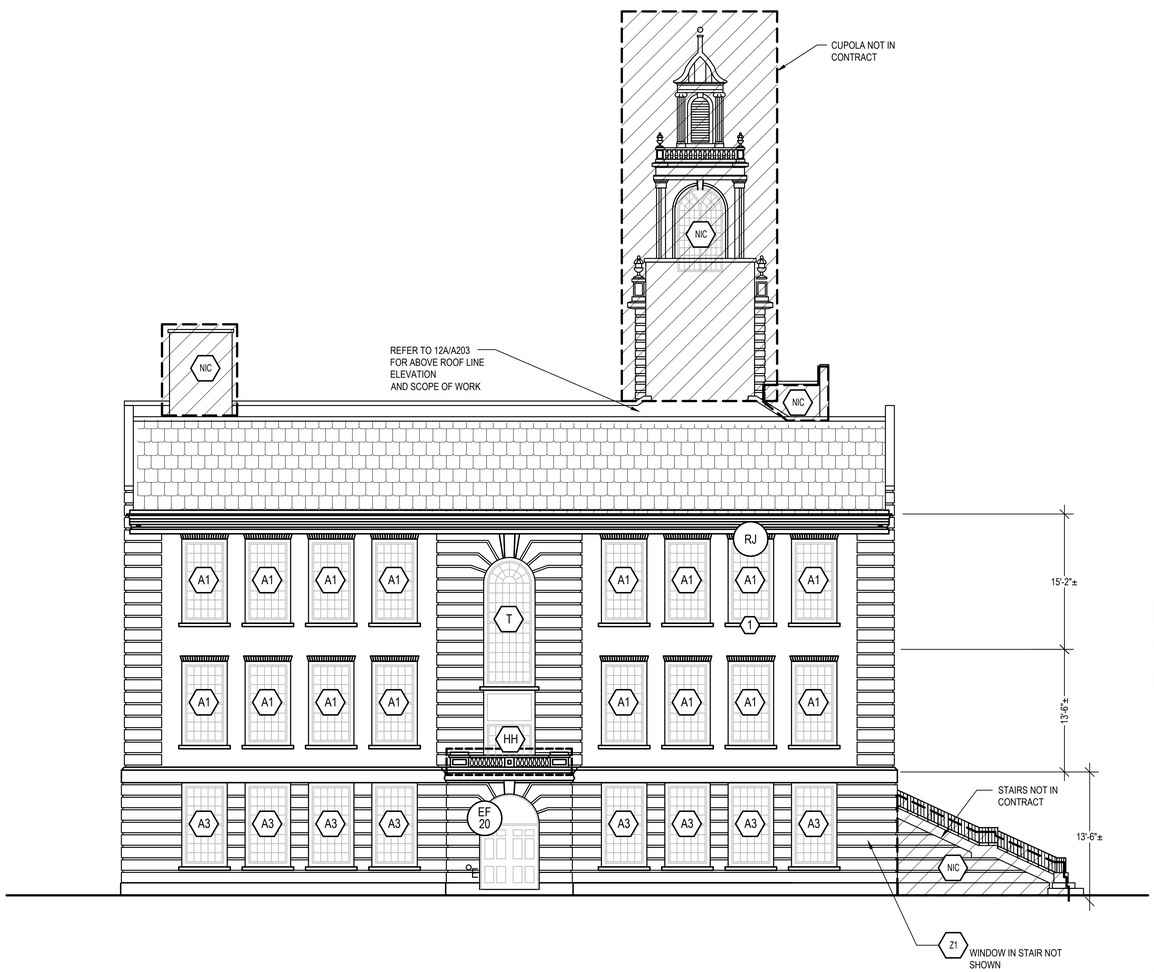
NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A200s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	AS NOTED

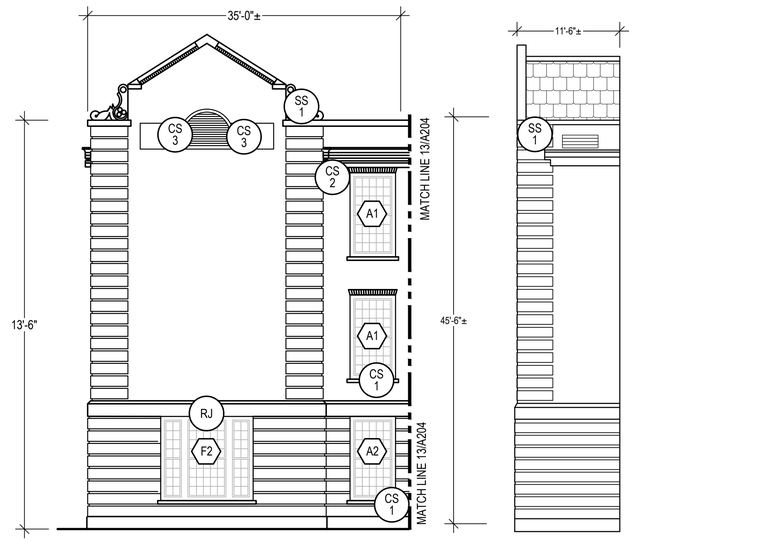
GRAPHIC SCALE

SHEET TITLE
ELEVATIONS - NORTHWEST WING

DRAWING NO.
A201



6 A202 NORTHEAST ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'



7 A202 NORTH ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'

8 A202 WEST ELEVATION (NORTH)
SCALE: 1/8"=1'-0" 0 4' 8' 16'

9 A202 SOUTH ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'

10 A202 WEST ELEVATION (SOUTH)
SCALE: 1/8"=1'-0" 0 4' 8' 16'

DEFECT LEGEND

- DM # — DETERIORATED MORTAR JOINT; REPOINT # INDICATES SQUARE FEET
- SB # — SPALLED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
- CS # — CRACKED STONE REPAIR; # INDICATES UNIT QUANTITY
- SS # — SPALLED STONE REPAIR; # INDICATES UNIT QUANTITY
- RJ — RUSTED JACKING; REMOVE AND REPLACE LINTEL
- EF # — EFFLORESCENCE; CLEAN; #INDICATES SQUARE FEET
- ⊗ — REMOVE ANCHORS AND REPLACE BRICK MASONRY UNIT AS REQUIRED; TOTAL OF 28 ON THIS SHEET
- C Ⓒ / E S — EXISTING LIGHT FIXTURE, CAMERA, ELECTRICAL CONDUIT, OR SIGN TO BE REMOVED AND REINSTALLED UPON COMPLETION OF THE WORK AS NECESSARY
- # — WINDOW DESIGNATION; REFER TO THE WINDOW RESTORATION SCHEDULE
- SLATE ROOFING; REFER TO A-1
- NIC — NOT IN CONTRACT (N.I.C.)

GENERAL NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN COMPILED FROM VARIOUS SOURCES, AND MAY NOT REFLECT THE ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION.
2. DISCREPANCIES NOTED BY THE CONTRACTOR IN THE DRAWINGS OR SPECIFICATIONS MUST BE BROUGHT TO THE OWNER'S ATTENTION PRIOR TO BID SUBMISSION.
3. FLASHING SHALL BE 100% WEATHER TIGHT ON A DAILY BASIS. REMOVE ONLY AS MUCH MASONRY/FLASHING AS CAN BE REPLACED ON THE SAME DAY.
4. JOB SITE SECURITY IS THE CONTRACTORS RESPONSIBILITY. GALE REPRESENTATIVES, INCLUDING SUBCONSULTANTS RETAINED BY GALE, MAY VISIT THE JOB SITE FROM TIME TO TIME. THESE VISITS ARE FOR CLARIFICATIONS OF SPECIFIC DESIGN RELATED ISSUES ONLY AND ARE NOT FOR THE PURPOSES OF JOB SITE SAFETY. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO COMPLY WITH ALL SITE SAFETY APPLICABLE REQUIREMENTS.
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7. THE CONTRACTOR IS CAUTIONED THAT DUE TO BUILDING OCCUPANCY, THE OWNER REQUIRES COMPLIANCE WITH WORK HOURS, SCHEDULING, SET-UP, CLEANUP, PARKING, SECURITY, ETC. REFER TO SPECIFICATIONS FOR OWNER REQUIREMENTS.
8. NOTIFY THE OWNER OF WORK LOCATIONS A MINIMUM OF 72 HOURS IN ADVANCE IN ORDER THAT OCCUPANCY BELOW THE WORK AREAS MAY BE CONTROLLED.

KEY PLAN

SCALE: NOT TO SCALE

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OWNER
NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

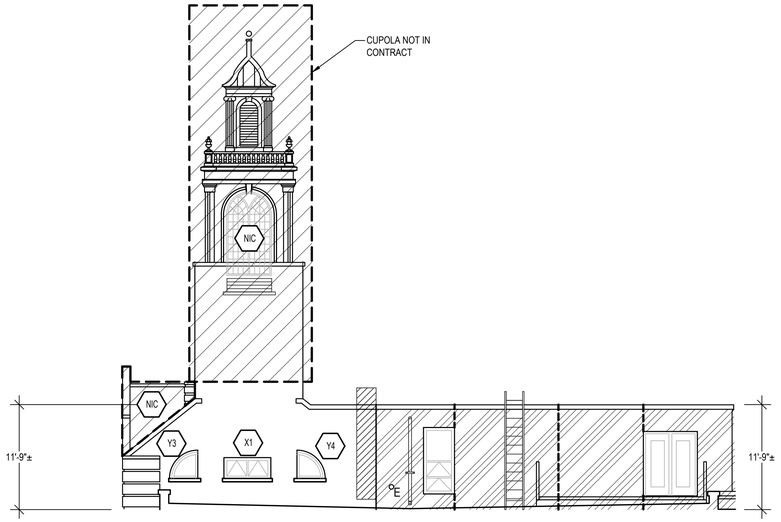
NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A200s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	AS NOTED

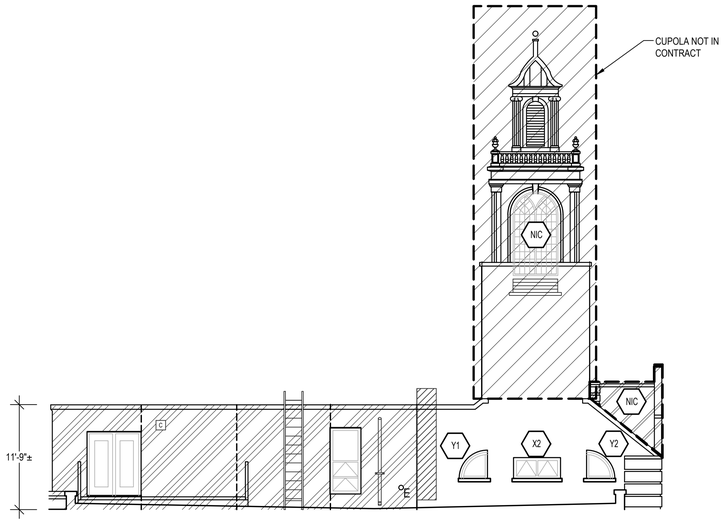
GRAPHIC SCALE

SHEET TITLE
ELEVATIONS - NORTHEAST WING

DRAWING NO.
A202



11 A203 WEST ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'



12 A203 EAST ELEVATION
SCALE: 1/8"=1'-0" 0 4' 8' 16'

DEFECT LEGEND

C Ⓒ E S — EXISTING LIGHT FIXTURE, CAMERA, ELECTRICAL CONDUIT, OR SIGN

— WINDOW DESIGNATION; REFER TO THE WINDOW RESTORATION SCHEDULE

SLATE ROOFING;

NIC — NOT IN CONTRACT (N.I.C.)

GENERAL NOTES

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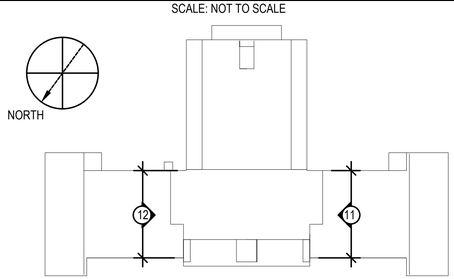
8. NOTIFY THE OWNER OF WORK LOCATIONS A MINIMUM OF 72 HOURS IN ADVANCE IN ORDER THAT OCCUPANCY BELOW THE WORK AREAS MAY BE CONTROLLED.

KEY PLAN

SCALE: NOT TO SCALE



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OWNER
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425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A200s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	AS NOTED

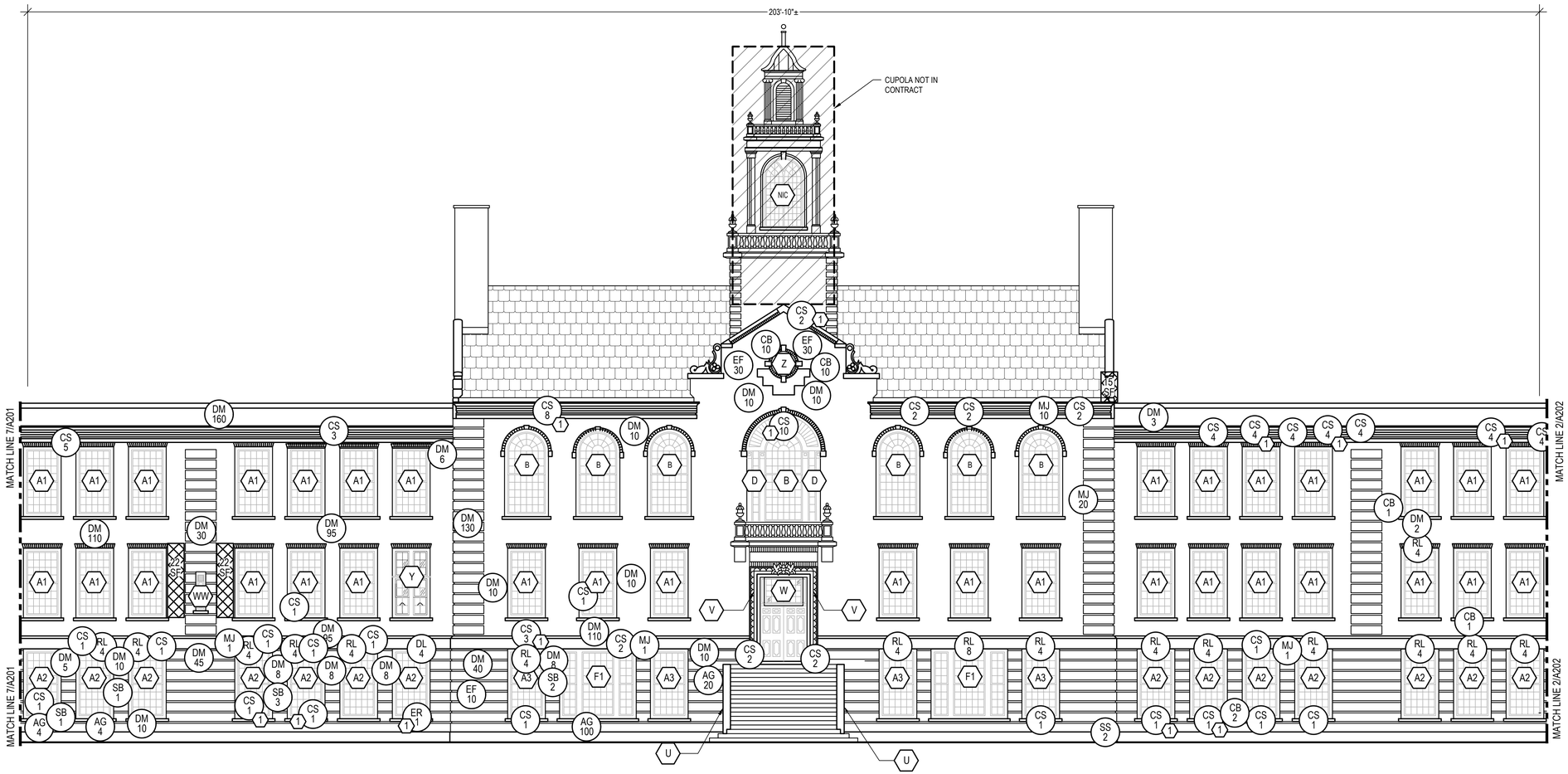
GRAPHIC SCALE

SHEET TITLE

ELEVATIONS - UPPER ROOF BELOW CUPOLA

DRAWING NO.

A203



13 A204 NORTH ELEVATION

SCALE: 1/8"=1'-0" 0 4' 8' 16'

DEFECT LEGEND

- DM # — DETERIORATED MORTAR JOINT; REPOINT # INDICATES SQUARE FEET
- CB # — CRACKED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
- SB # — SPALLED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
- CS # — CRACKED STONE REPAIR; # INDICATES UNIT QUANTITY
- SS # — SPALLED STONE REPAIR; # INDICATES UNIT QUANTITY
- RL # — RUSTED LINTEL; REMOVE AND REPLACE; # INDICATES LINEAR FEET
- DL # — DEFLECTED LINTEL; REMOVE AND REPLACE; # INDICATES SQUARE FEET
- EF # — EFFLORESCENCE; CLEAN; #INDICATES SQUARE FEET
- DM # — DETERIORATED MORTAR JOINT; REPOINT; # INDICATES LINEAR FEET

- C / E / S — EXISTING LIGHT FIXTURE, CAMERA, ELECTRICAL CONDUIT, OR SIGN
- # — WINDOW DESIGNATION; REFER TO THE WINDOW RESTORATION SCHEDULE
- SLATE ROOFING;
- NIC — NOT IN CONTRACT (N.I.C.)
- REBUILD BRICK MASONRY; # INDICATES SQUARE FEET

GENERAL NOTES

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3. FLASHING SHALL BE 100% WEATHER TIGHT ON A DAILY BASIS. REMOVE ONLY AS MUCH MASONRY/FLASHING AS CAN BE REPLACED ON THE SAME DAY.
4. JOB SITE SECURITY IS THE CONTRACTORS RESPONSIBILITY. GALE REPRESENTATIVES, INCLUDING SUBCONSULTANTS RETAINED BY GALE, MAY VISIT THE JOB SITE FROM TIME TO TIME. THESE VISITS ARE FOR CLARIFICATIONS OF SPECIFIC DESIGN RELATED ISSUES ONLY AND ARE NOT FOR THE PURPOSES OF JOB SITE SAFETY. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO COMPLY WITH ALL SITE SAFETY APPLICABLE REQUIREMENTS.
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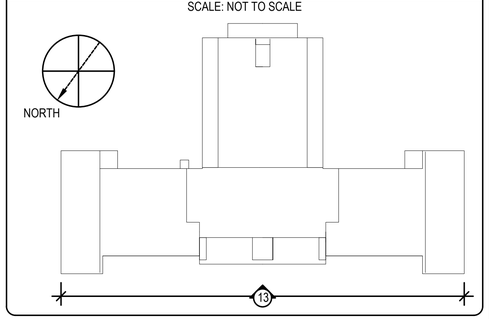
8. NOTIFY THE OWNER OF WORK LOCATIONS A MINIMUM OF 72 HOURS IN ADVANCE IN ORDER THAT OCCUPANCY BELOW THE WORK AREAS MAY BE CONTROLLED.

KEY PLAN

SCALE: NOT TO SCALE



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NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A200s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	AS NOTED

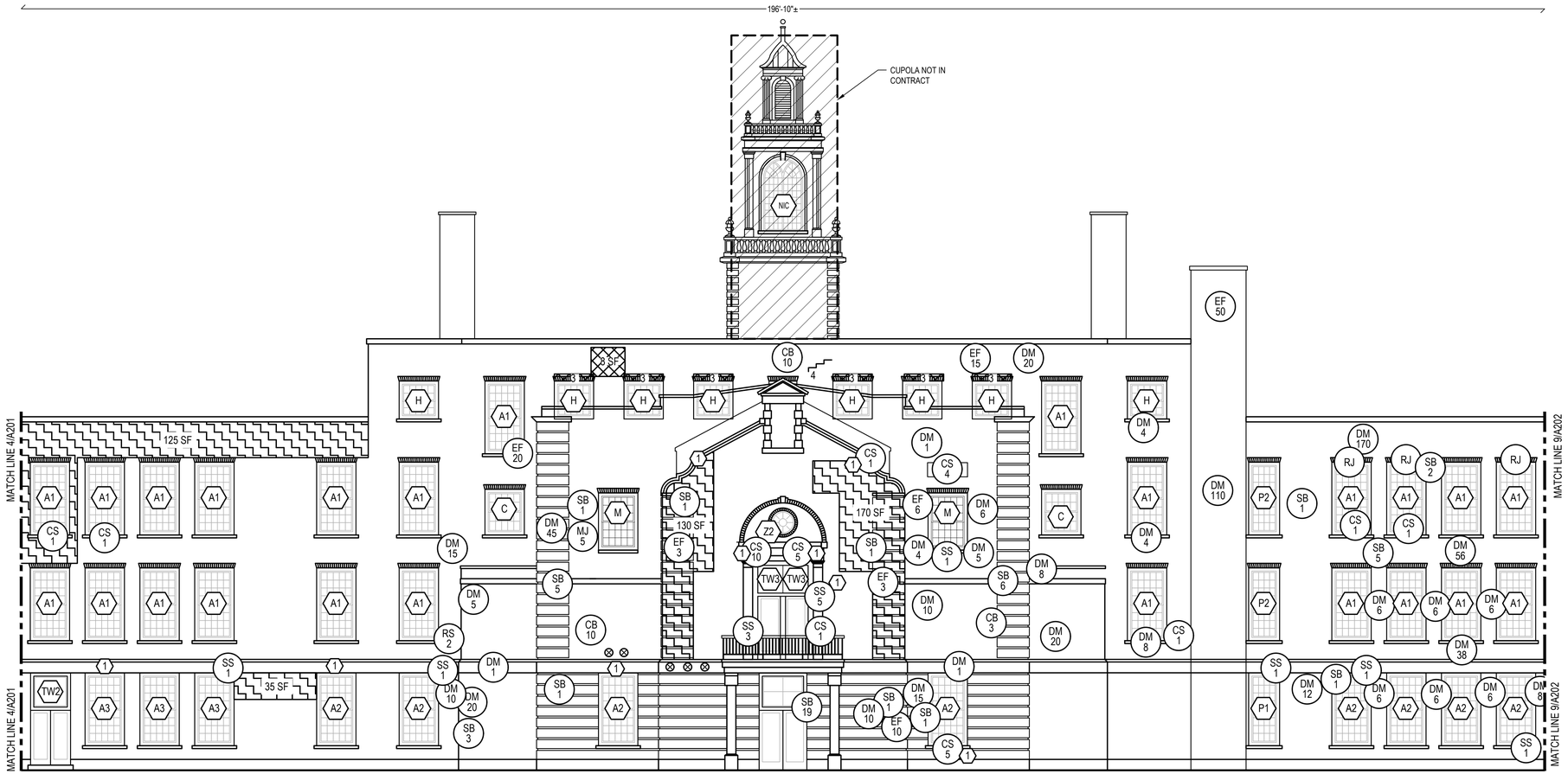
GRAPHIC SCALE

SHEET TITLE

ELEVATION - NORTH (FRONT)

DRAWING NO.

A204



14/A205 SOUTH ELEVATION

SCALE: 1/8"=1'-0" 0 4' 8' 16'

DEFECT LEGEND

- DM # — DETERIORATED MORTAR JOINT; REPOINT; # INDICATES SQUARE FEET
- CB # — CRACKED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
- SB # — SPALLED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
- CS # — CRACKED STONE REPAIR; # INDICATES UNIT QUANTITY
- SS # — SPALLED STONE REPAIR; # INDICATES UNIT QUANTITY
- RL # — RUSTED LINTEL; REMOVE AND REPLACE; # INDICATES LINEAR FEET
- EF # — EFFLORESCENCE; CLEAN; #INDICATES SQUARE FEET
- DM # — DETERIORATED MORTAR JOINT; REPOINT; # INDICATES SQUARE FEET
- RS # — RUST STAINING; CLEAN; # INDICATES SQUARE FEET
- C © E S — EXISTING LIGHT FIXTURE, CAMERA, ELECTRICAL CONDUIT, OR SIGN
- # — WINDOW DESIGNATION; REFER TO THE WINDOW RESTORATION SCHEDULE
- SLATE ROOFING;
- NIC — NOT IN CONTRACT (N.I.C.)
- DETERIORATED MORTAR JOINT; REPOINT; # INDICATES SQUARE FEET
- # — STEP CRACKED BRICK MASONRY; REBUILD; # INDICATES SQUARE FEET

GENERAL NOTES

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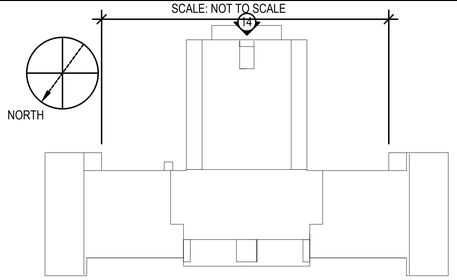
5. THE CONTRACTOR SHALL REPORT DETERIORATED OR UNSUITABLE STRUCTURAL SUBSTRATES TO THE OWNER PRIOR TO PERFORMING WATERPROOFING INSTALLATION WORK.
6. DETAILS NOT DEPICTED SHALL BE CONSTRUCTED IN A MANNER CONSISTENT WITH THE DETAIL DRAWINGS.
7. THE CONTRACTOR IS CAUTIONED THAT DUE TO BUILDING OCCUPANCY, THE OWNER REQUIRES COMPLIANCE WITH WORK HOURS, SCHEDULING, SET-UP, CLEANUP, PARKING, SECURITY, ETC. REFER TO SPECIFICATIONS FOR OWNER REQUIREMENTS.
8. NOTIFY THE OWNER OF WORK LOCATIONS A MINIMUM OF 72 HOURS IN ADVANCE IN ORDER THAT OCCUPANCY BELOW THE WORK AREAS MAY BE CONTROLLED.

KEY PLAN

SCALE: NOT TO SCALE



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PROJECT
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1600 WASHINGTON STREET, NEWTON, MA 02465

OWNER
NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A200s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	AS NOTED

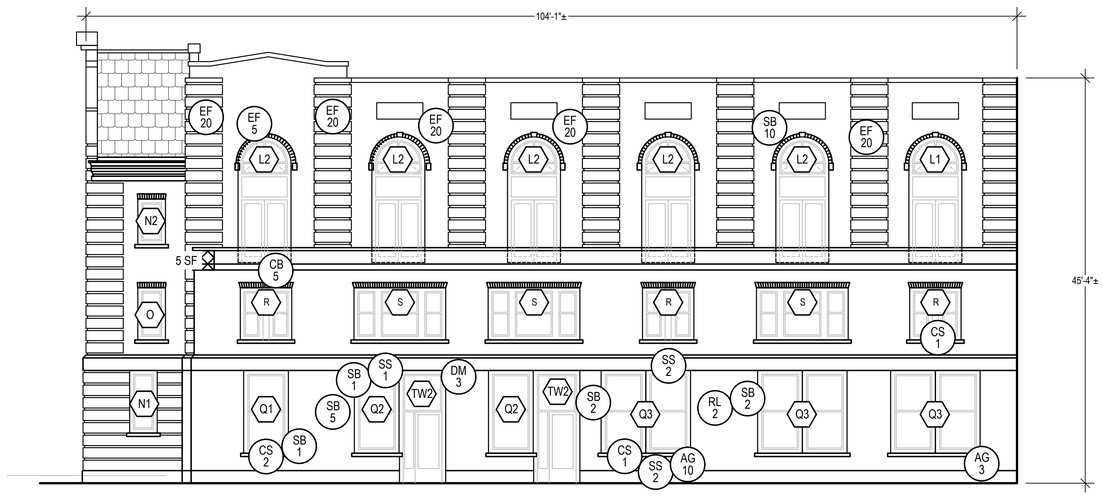
GRAPHIC SCALE

SHEET TITLE

ELEVATION - SOUTH (REAR)

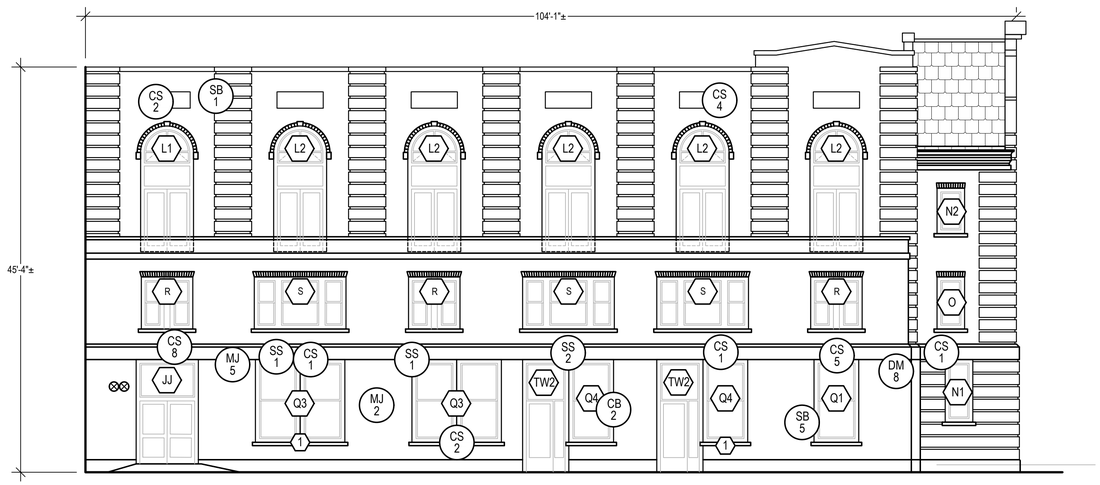
DRAWING NO.

A205



15 / A206 EAST ELEVATION

SCALE: 1/8"=1'-0" 0 4' 8' 16'



16 / A206 WEST ELEVATION

SCALE: 1/8"=1'-0" 0 4' 8' 16'

DEFECT LEGEND

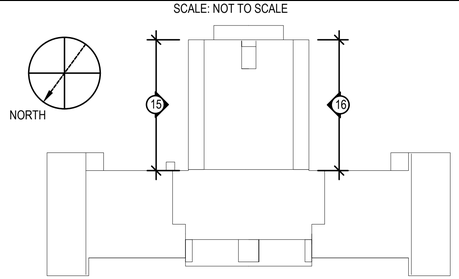
- DM # — DETERIORATED MORTAR JOINT; REPOINT; # INDICATES SQUARE FEET
- CB # — CRACKED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
- SB # — SPALLED BRICK REMOVE AND REPLACE; # INDICATES UNIT QUANTITY
- CS # — CRACKED STONE REPAIR; # INDICATES UNIT QUANTITY
- SS # — SPALLED STONE REPAIR; # INDICATES UNIT QUANTITY
- RL # — RUSTED LINTEL; REMOVE AND REPLACE; # INDICATES LINEAR FEET
- EF # — EFFLORESCENCE; CLEAN; #INDICATES SQUARE FEET
- DM # — DETERIORATED MORTAR JOINT; REPOINT; # INDICATES LINEAR FEET
- AG # — ALGAE GROWTH; CLEAN; # INDICATES SQUARE FEET
- ⊗ — REMOVE ANCHORS AND REPLACE BRICK MASONRY UNIT AS REQUIRED;
- C Ⓒ / E S — EXISTING LIGHT FIXTURE, CAMERA, ELECTRICAL CONDUIT, OR SIGN
- # — WINDOW DESIGNATION; REFER TO THE WINDOW RESTORATION SCHEDULE
- SLATE ROOFING;
- NIC — NOT IN CONTRACT (N.I.C.)
- REBUILD BRICK MASONRY; # INDICATES SQUARE FEET

GENERAL NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN COMPILED FROM VARIOUS SOURCES, AND MAY NOT REFLECT THE ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION.
2. DISCREPANCIES NOTED BY THE CONTRACTOR IN THE DRAWINGS OR SPECIFICATIONS MUST BE BROUGHT TO THE OWNER'S ATTENTION PRIOR TO BID SUBMISSION.
3. FLASHING SHALL BE 100% WEATHER TIGHT ON A DAILY BASIS. REMOVE ONLY AS MUCH MASONRY/FLASHING AS CAN BE REPLACED ON THE SAME DAY.
4. JOB SITE SECURITY IS THE CONTRACTORS RESPONSIBILITY. GALE REPRESENTATIVES, INCLUDING SUBCONSULTANTS RETAINED BY GALE, MAY VISIT THE JOB SITE FROM TIME TO TIME. THESE VISITS ARE FOR CLARIFICATIONS OF SPECIFIC DESIGN RELATED ISSUES ONLY AND ARE NOT FOR THE PURPOSES OF JOB SITE SAFETY. IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO COMPLY WITH ALL SITE SAFETY APPLICABLE REQUIREMENTS.
5. THE CONTRACTOR SHALL REPORT DETERIORATED OR UNSUITABLE STRUCTURAL SUBSTRATES TO THE OWNER PRIOR TO PERFORMING WATERPROOFING INSTALLATION WORK.
6. DETAILS NOT DEPICTED SHALL BE CONSTRUCTED IN A MANNER CONSISTENT WITH THE DETAIL DRAWINGS.
7. THE CONTRACTOR IS CAUTIONED THAT DUE TO BUILDING OCCUPANCY, THE OWNER REQUIRES COMPLIANCE WITH WORK HOURS, SCHEDULING, SET-UP, CLEANUP, PARKING, SECURITY, ETC. REFER TO SPECIFICATIONS FOR OWNER REQUIREMENTS.
8. NOTIFY THE OWNER OF WORK LOCATIONS A MINIMUM OF 72 HOURS IN ADVANCE IN ORDER THAT OCCUPANCY BELOW THE WORK AREAS MAY BE CONTROLLED.

KEY PLAN

SCALE: NOT TO SCALE



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DRAWING SCALE	AS NOTED

GRAPHIC SCALE

SHEET TITLE

ELEVATIONS - EAST AND WEST AT SOUTH WING

DRAWING NO.

A206

SHEET METAL THROUGHWALL FLASHING SHALL HAVE 2" MINIMUM INTEGRAL END DAMS. INSTALL END DAMS 8" MINIMUM BEYOND LIMITS OF THE NEW WINDOWS TO THE NEXT FULL BRICK HEAD JOINT.

EXISTING BRICK MASONRY
LEAD WEDGES AT 8" O.C.
BACKER ROD AND SEALANT
EXISTING STEEL CHANNEL
EXISTING CAST STONE; REMOVE AND REINSTALL AS REQUIRED TO INSTALL NEW FLASHING; REMOVE AND REPLACE WHERE SHOWN ON THE A200s
FABRIC-COATED COPPER FLASHING; SET IN A BED OF MASTIC
SHEET METAL THROUGHWALL FLASHING; PROVIDE INTEGRAL END DAMS AT LIMITS (SOLDER JOINTS)

REFER TO ELEVATIONS FOR EXTENT OF CAST STONE AND LINTEL SCOPE OF WORK

EXISTING STEEL LINTEL; PAINT EXPOSED SURFACES OF LINTEL TO MATCH WINDOW FRAME COLOR; REMOVE AND REPLACE WHERE SHOWN ON THE A200s
FILLET SEALANT
SELF-ADHERED MEMBRANE
SCROLL PANNING
EXISTING WOOD WINDOW FRAME
BLOWN IN INSULATION
ALUMINUM WINDOW
WOOD BLOCKING
GASKET SEALANT (AIR BARRIER)
2-PIECE ATTACHMENT ANGLE
EXISTING GYPSUM FINISHES

NEW ROLLER SHADE OR REINSTALL EXISTING MINI BLINDS

ONLY THE DESIGNATED CAST STONE OR LINTEL REPLACEMENT LOCATIONS SHOWN ON THE ELEVATION DRAWINGS ARE TO RECEIVE NEW THROUGHWALL FLASHINGS.

1 A501 ALUMINUM WINDOW HEAD DETAIL
SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING) 0 1" 2" 3" 4"

FILLET SEALANT
ALUMINUM SCROLL PANNING
SELF-ADHERED MEMBRANE
EXISTING WOOD WINDOW FRAME
BLOWN-IN INSULATION
WOOD BLOCKING
ALUMINUM WINDOW

1 1/4"±
2 1/2"±
PLAN - EXISTING TRIM

EXISTING FRAME DEPTH = 6"± (V.I.F.)
NEW FRAME DEPTH = 3-1/4"

USE 2" CLIP (V.I.F.) TO FLUSH OUT FINISHES

REMOVE AND REPLACE EXISTING WOOD STOOLS AND APRONS WITH PVC STOOLS AND APRONS.

STOOL DEPTH PROJECTS 1" BEYOND FACE OF INTERIOR GYPSUM SHEATHING. STOOL DEPTH VARIES WITH JAMB DEPTH

REFER TO WINDOW SCHEDULE FOR STOOL DEPTH

FINISH SEALANT
GASKET SEALANT (AIR BARRIER)
2-PIECE ATTACHMENT ANGLE
FINISH SEALANT
PVC TRIM TO MATCH EXISTING
EXISTING GYPSUM FINISH TO REMAIN

FILL EXISTING WINDOW POCKETS WITH BLOWN IN INSULATION

2 A501 ALUMINUM WINDOW JAMB DETAIL
SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING) 0 1" 2" 3" 4"

WINDOW SILL DIMENSIONS VARY; CONTRACTOR TO VERIFY DIMENSIONS IN THE FIELD.

CONTRACTOR TO REVIEW THE CONDITION OF THE EXISTING WOOD WINDOW FRAME. CONTRACTOR IS TO REPORT DETERIORATED WOOD ELEMENTS TO THE ENGINEER AND OWNER PRIOR TO INSTALLATION OF MEMBRANE FLASHING.

EXISTING FRAMING
PVC STOOL
2-PIECE ATTACHMENT ANGLE
GASKET SEALANT (AIR BARRIER)
ALUMINUM WINDOW
SHIM
EXISTING WOOD WINDOW FRAME
SELF-ADHERED MEMBRANE
SQUARE PANNING
FILLET SEALANT WITH WEEPS AT 24" O.C.

1"

3 A501 ALUMINUM WINDOW SILL DETAIL
SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING) 0 1" 2" 3" 4"

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DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
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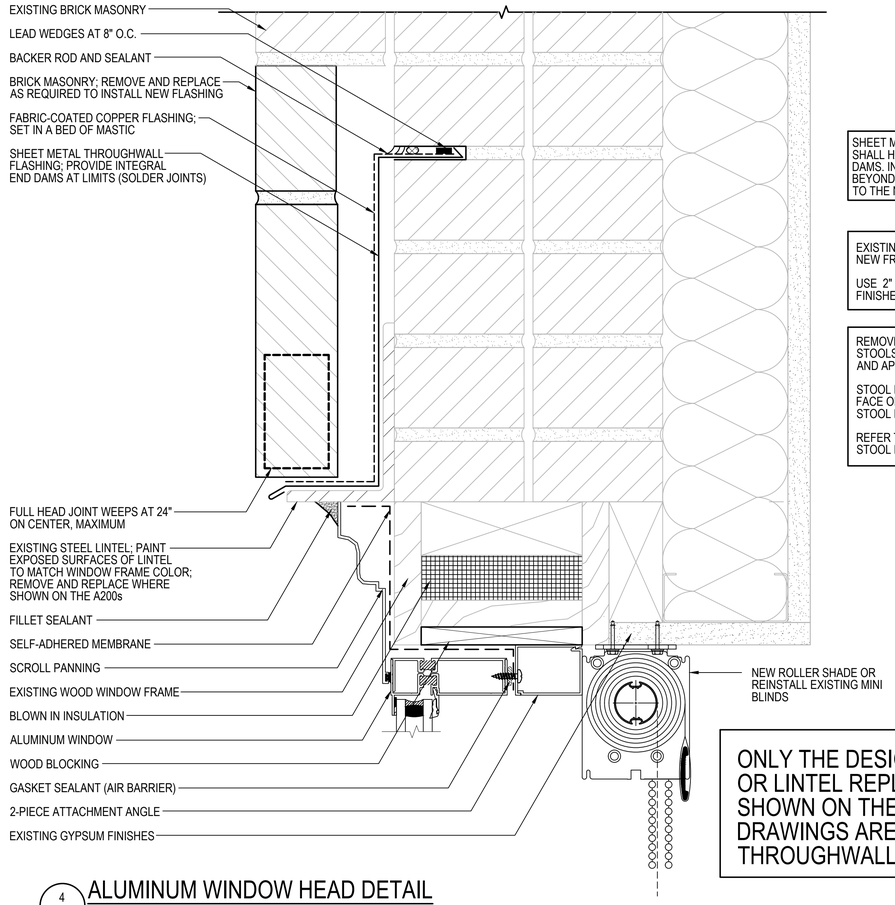
DRAWING SCALE	AS NOTED

GRAPHIC SCALE

SHEET TITLE
DETAILS

DRAWING NO.
A501



SHEET METAL THROUGHWALL FLASHING SHALL HAVE 2" MINIMUM INTEGRAL END DAMS. INSTALL END DAMS 8" MINIMUM BEYOND LIMITS OF THE NEW WINDOWS TO THE NEXT FULL BRICK HEAD JOINT.

EXISTING FRAME DEPTH = 6"± (V.I.F.)
NEW FRAME DEPTH = 3-1/4"

USE .2" CLIP (V.I.F.) TO FLUSH OUT FINISHES

REMOVE AND REPLACE EXISTING WOOD STOOLS AND APRONS WITH PVC STOOLS AND APRONS.

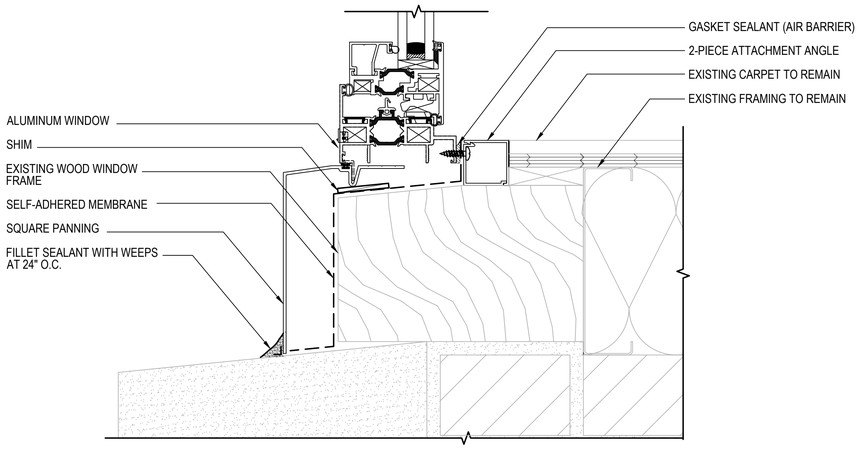
STOOL DEPTH PROJECTS 1" BEYOND FACE OF INTERIOR GYPSUM SHEATHING. STOOL DEPTH VARIES WITH JAMB DEPTH

REFER TO WINDOW SCHEDULE FOR STOOL DEPTH

ONLY THE DESIGNATED CAST STONE OR LINTEL REPLACEMENT LOCATIONS SHOWN ON THE ELEVATION DRAWINGS ARE TO RECEIVE NEW THROUGHWALL FLASHINGS.

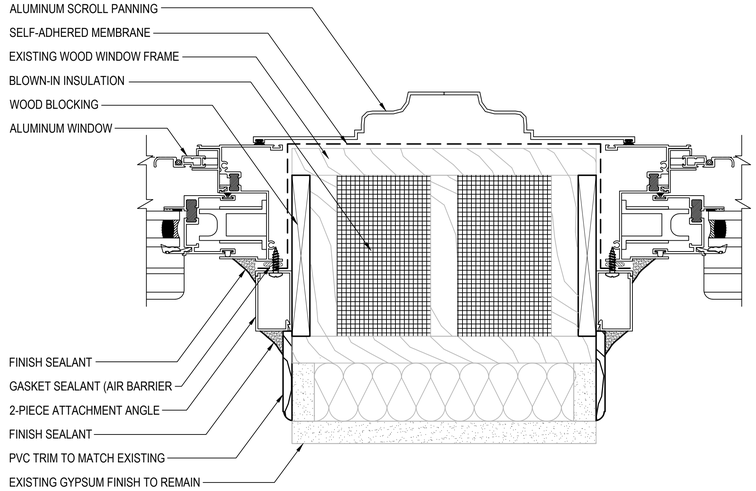
4 A502 ALUMINUM WINDOW HEAD DETAIL

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)



5 A502 HALF ROUND WINDOW AT FLOOR

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)



6 A502 PLAN - VERTICAL MULLION

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)

7 A502 PLAN - VERTICAL MULLION

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)

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DETAILS

DRAWING NO.

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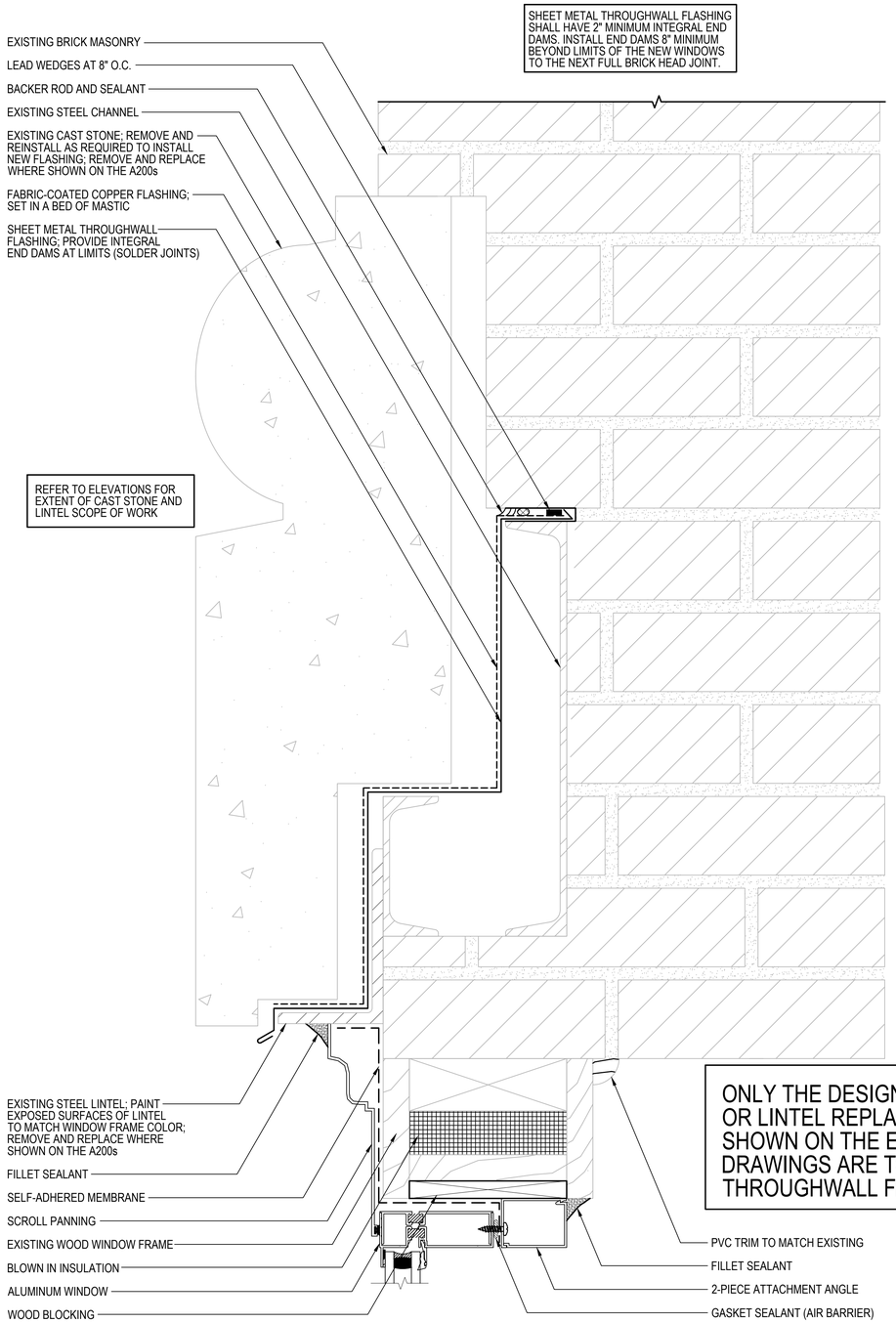

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EXISTING FRAME DEPTH = 6"± (V.I.F.)
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USE .2" CLIP (V.I.F.) TO FLUSH OUT FINISHES

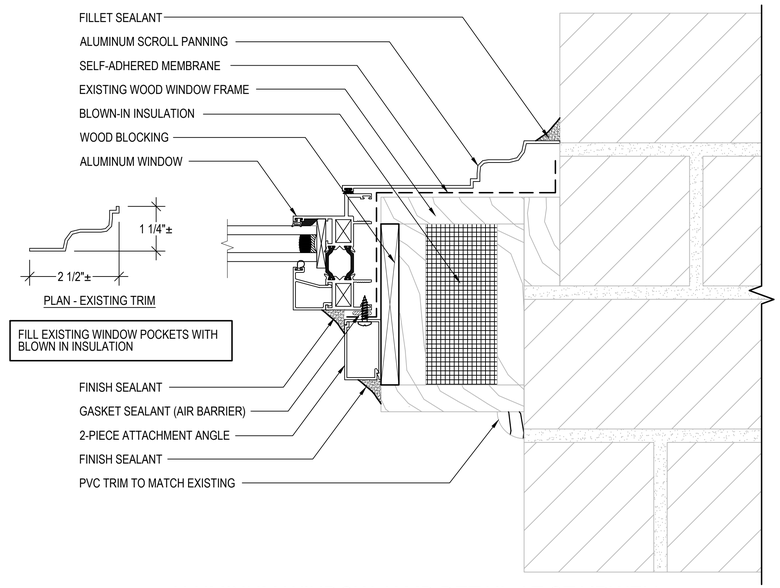
REMOVE AND REPLACE EXISTING WOOD STOOLS AND APRONS WITH PVC STOOLS AND APRONS.

STOOL DEPTH PROJECTS 1" BEYOND FACE OF INTERIOR GYPSUM SHEATHING. STOOL DEPTH VARIES WITH JAMB DEPTH

REFER TO WINDOW SCHEDULE FOR STOOL DEPTH

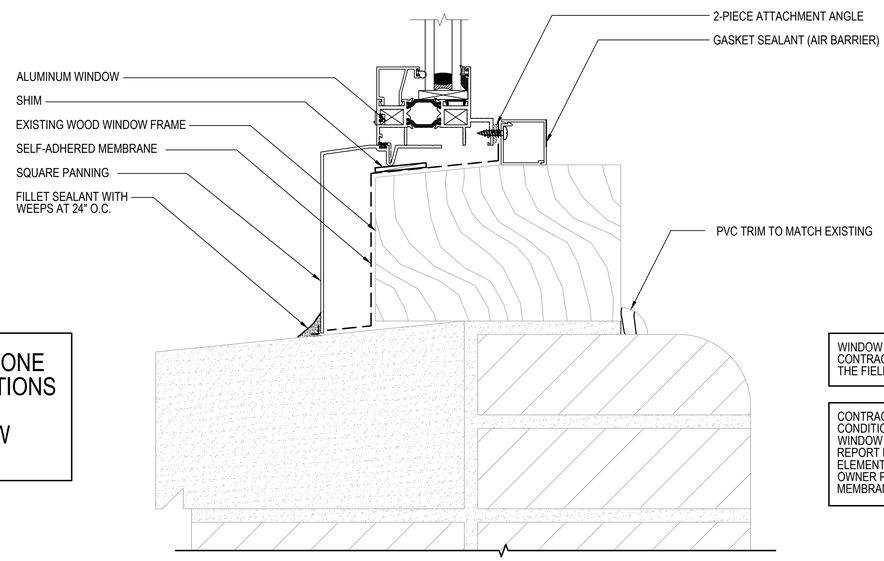
8 / A503 ALUMINUM WINDOW HEAD DETAIL AT STAIRWELL

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING) 0 1" 2" 3" 4"



9 / A503 ALUMINUM WINDOW JAMB DETAIL AT STAIRWELL

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING) 0 1" 2" 3" 4"



WINDOW SILL DIMENSIONS VARY: CONTRACTOR TO VERIFY DIMENSIONS IN THE FIELD.

CONTRACTOR TO REVIEW THE CONDITION OF THE EXISTING WOOD WINDOW FRAME. CONTRACTOR IS TO REPORT DETERIORATED WOOD ELEMENTS TO THE ENGINEER AND OWNER PRIOR TO INSTALLATION OF MEMBRANE FLASHING.

10 / A503 ALUMINUM WINDOW SILL DETAIL AT STAIRWELL

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING) 0 1" 2" 3" 4"

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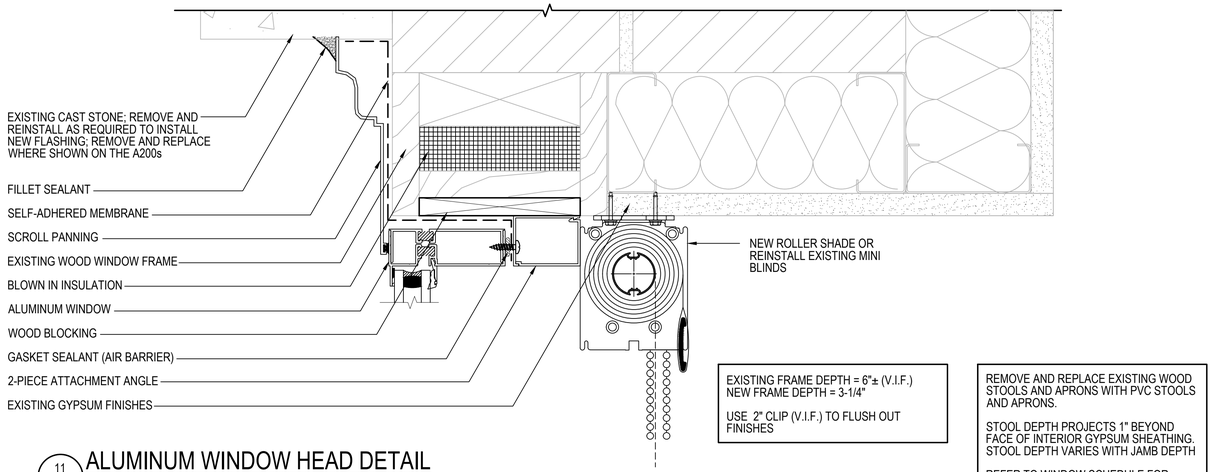

EXISTING FRAME DEPTH = 6"± (V.I.F.)
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USE 2" CLIP (V.I.F.) TO FLUSH OUT FINISHES

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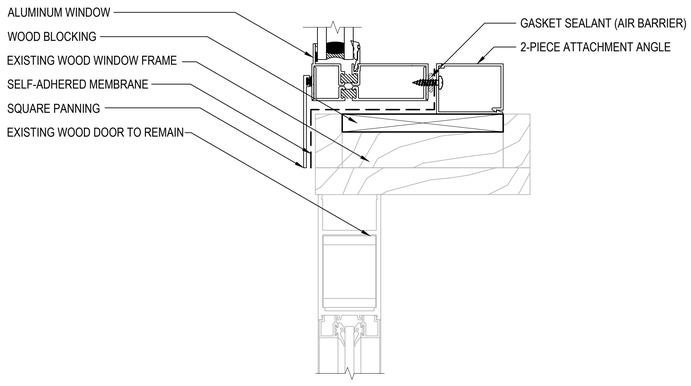
STOOL DEPTH PROJECTS 1" BEYOND FACE OF INTERIOR GYPSUM SHEATHING. STOOL DEPTH VARIES WITH JAMB DEPTH

REFER TO WINDOW SCHEDULE FOR STOOL DEPTH

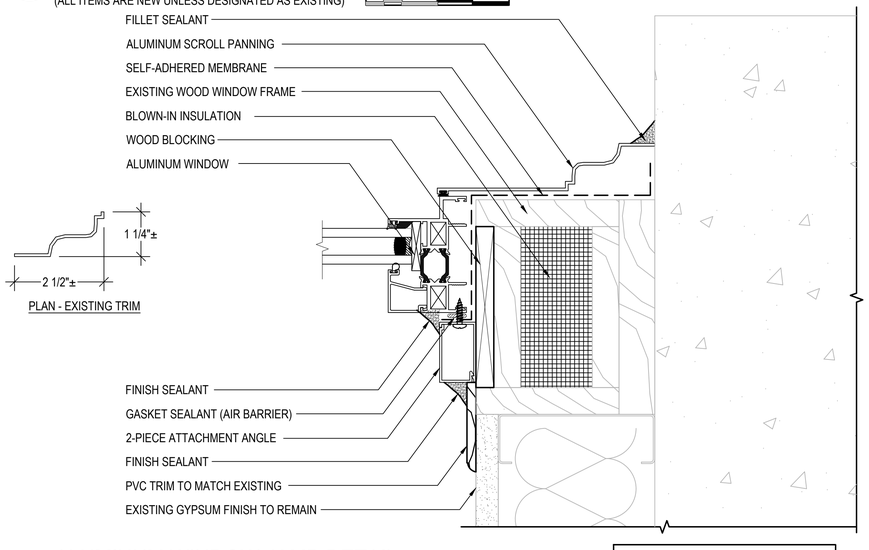
11 / A504 ALUMINUM WINDOW HEAD DETAIL

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)



12 / A504 ALUMINUM WINDOW SILL AT DOOR

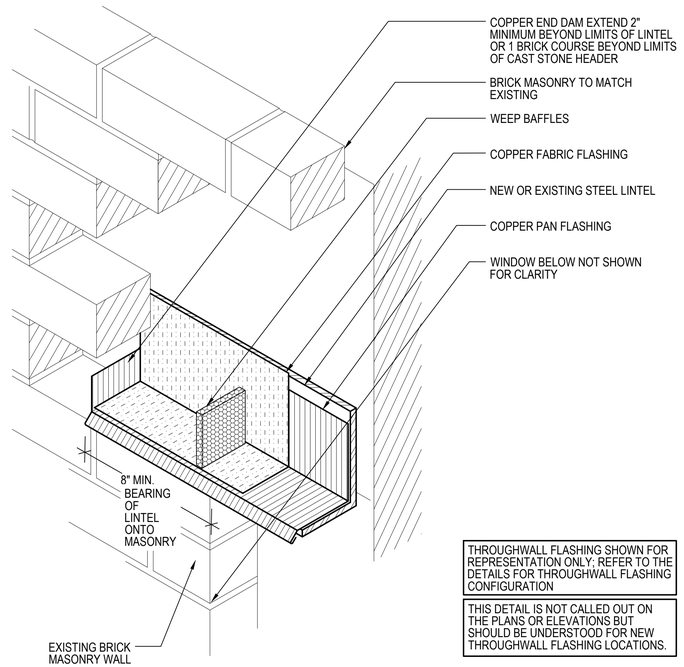
SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)



FILL EXISTING WINDOW POCKETS WITH BLOWN IN INSULATION

13 / A504 ALUMINUM WINDOW JAMB DETAIL

SCALE: 6"=1'-0"
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)



THROUGHWALL FLASHING SHOWN FOR REPRESENTATION ONLY; REFER TO THE DETAILS FOR THROUGHWALL FLASHING CONFIGURATION

THIS DETAIL IS NOT CALLED OUT ON THE PLANS OR ELEVATIONS BUT SHOULD BE UNDERSTOOD FOR NEW THROUGHWALL FLASHING LOCATIONS.

14 / A504 ISOMETRIC OF THROUGHWALL FLASHING END DAM

SCALE: NOT TO SCALE
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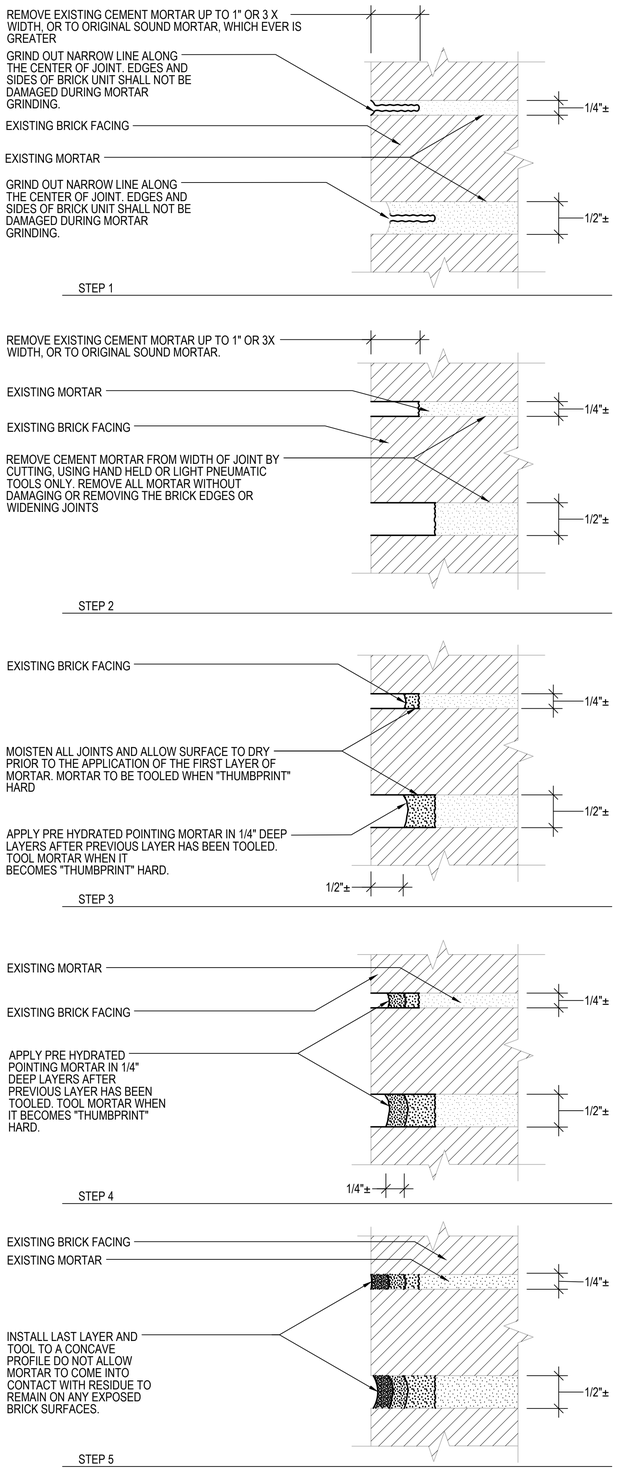

15 / A505 REPOINTING PROCEDURE

SCALE: NOT TO SCALE
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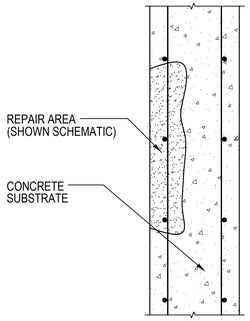
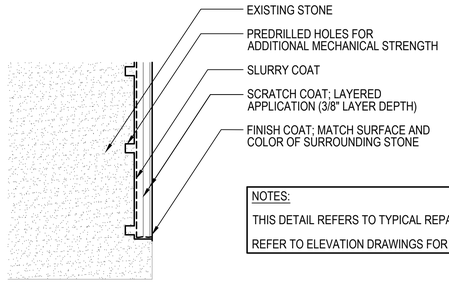


16 / A505 TYPICAL SPALL REPAIR

SCALE: NOT TO SCALE
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)

GENERAL PROCEDURES FOR SPALL REPAIR

1. BACK-ANGLE SAWCUT PERIMETER - POLYGON SHAPE (DO NOT CUT REINFORCEMENT).
2. CHIP OUT ALL DETERIORATED CONCRETE, EXTENDING 3/4" MINIMUM AROUND REBAR (OR MINIMUM AGGREGATE SIZE, IF NECESSARY; AS INDICATED IN NOTES BELOW SECTION).
3. CLEAN ALL EXPOSED REINFORCING STEEL TO BARE METAL CONDITION. (SSPC - SP11).
4. REMOVE ADDITIONAL SUBSTRATE TO EXPOSE AND CLEAN CORRODED STEEL WHICH HAS SCALED RUST (BARS WITH ONLY LIGHT SURFACE RUST AND SOLID CONCRETE COVER MAY BE LEFT ALONE.)
5. EXAMINE REBAR AND DETERMINE SECTION LOSS. BARS WITH 25% OR GREATER LOSS SHALL RECEIVE SUPPLEMENTARY REINFORCEMENT.(REFER TO DETAIL). REMOVAL OF ADDITIONAL SOUND CONCRETE TO ALLOW PLACEMENT OF SUPPLEMENTAL STEEL SHALL NOT BE INCLUDED IN SPALL REPAIR QUANTITIES.
6. EXAMINE SUBSTRATE FOR CRACKS. REFER TO CRACK REPAIR AS REQUIRED.
7. SCARIFY SUBSTRATE TO 1/8" MINIMUM SURFACE PROFILE (ICRI - CSP 8 OR 9). WASH SUBSTRATE AND LEAVE SSD (SATURATED SURFACE DRY) CONDITION.
8. APPLY EPOXY MODIFIED CEMENTITIOUS PRIMER/ BOND AGENT TO ALL CONCRETE SUBSTRATE (1 COAT) AND EMBEDDED STEEL OR REBAR (2 COATS).
9. AT VERTICAL SPALLS WITH A DEPTH GREATER THAN 1-1/2", DRILL AND EPOXY 1/4" MIN. DIAMETER STAINLESS STEEL PINS INTO SUBSTRATE OF REPAIR AREA. MAINTAIN 2" MIN. EDGE DISTANCE FOR EACH PIN. SPACE PINS 6" O.C. EACH WAY. DRAPE PINS WITH 2" x 2"x 14 (MIN.) GAUGE STAINLESS STEEL OR EPOXY COATED WIRE MESH WITH 1-1/2" COVER. MESH IS REQUIRED AT EACH 1-1/2" DEPTH OF REPAIR. TIE ALL MESH TO EACH PIN. PINNING IS ALSO REQUIRED AT CORNER AND PANEL PERIMETER SPALL REPAIRS, REGARDLESS OF SPALL DEPTH.
10. PREPARE SAMPLE OF REPAIR MORTAR FOR APPROVAL OF COLOR. ADJUST MIX UNTIL COLOR IS ACCEPTABLE. APPLY SPECIFIED REPAIR MORTAR AFTER BONDING AGENT TO ACHIEVE A "WET-ON-WET" APPLICATION.
11. WHERE CORRODED STEEL IS EVIDENT, OR WHEN MORE THAN HALF OF THE REBAR DIAMETER IS EXPOSED, SUBSTRATE SHALL BE CHIPPED 3/4" MINIMUM TO 1-1/2" MAXIMUM BEHIND REBAR.
12. CONCRETE SECTION SHOWN SCHEMATICALLY.



NOTES:

THIS DETAIL REFERS TO TYPICAL REPAIR, SS #

REFER TO ELEVATION DRAWINGS FOR WORK LOCATIONS.

GENERAL PROCEDURES FOR SHALLOW STONE SPALL REPAIR:

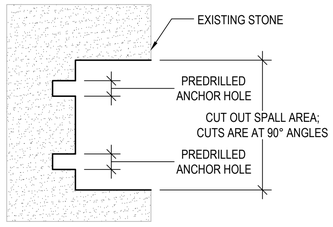
1. CUT OUT AREA OF SPALL TO CLEAN, SOUND SUBSTRATE. FOR A SPALL WITH A DEPTH OF LESS THAN TWO (2) INCHES, MECHANICAL ANCHORS MAY NOT BE REQUIRED. THE CUT OUT AREA SHOULD BE RECTILINEAR; WITH THE SIDES PARALLEL TO THE EDGES OF THE STONE BLOCK AND PERPENDICULAR TO STONE SURFACE.
2. SLIGHTLY UNDERCUT THE SIDES TO CREATE A DOVETAIL.
3. DRILL HOLES AT THE BACK WALL OF THE CUT FOR AN IMPROVED MECHANICAL BOND.
4. APPLY SLURRY COAT TO ENTIRE SURFACE OF THE SUBSTRATE TO RECEIVE PATCH. SUBSTRATE SHOULD BE SATURATED, SURFACE DRY.
5. INSTALL SCRATCH COATS OF COMPOSITE PATCH MATERIAL IN LAYERS UNTIL THE PATCH IS BUILT UP TO JUST BELOW THE SURFACE OF THE SURROUNDING STONE. REFER TO MANUFACTURERS INSTRUCTIONS FOR APPLICATION THICKNESSES AND CURING TIMES. SURFACE OF EACH OF THE LAYERS SHOULD BE SCRATCHED AND WETTED TO ENSURE PROPER MECHANICAL AND CHEMICAL BONDING; RESPECTFULLY.
6. APPLY FINISH COAT TO MATCH TEXTURE, COLOR, AND TOOLING OF THE SURROUNDING STONE AT DESIGNATED LOCATIONS. PATCH SHOULD WEATHER IN SAME MANNER AS ORIGINAL STONE.
7. CURE PATCH AS RECOMMENDED BY MANUFACTURER.

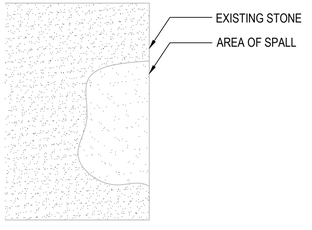
17 / A505 SHALLOW STONE SPALL REPAIR

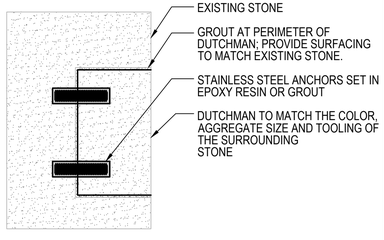
SCALE: NOT TO SCALE
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)

GENERAL PROCEDURES FOR DUTCHMAN STONE REPAIR

1. CUT OUT AREA OF SPALL TO CLEAN, SOUND SUBSTRATE.
2. THE CUT OUT AREA SHOULD BE RECTILINEAR; WITH THE SIDES PARALLEL TO THE EDGES OF THE STONE BLOCK AND PERPENDICULAR TO STONE SURFACE.
3. MEASURE AND CUT NEW STONE TO MATCH THE REPAIR AREA WITH MINIMUM SIZED JOINTS AROUND THE NEW STONE.
4. INSTALL ANCHORS AS REQUIRED DEPENDING ON SIZE OF THE DUTCHMAN. REFER TO TABLE BELOW. ANCHORS SHALL BE STAINLESS STEEL DOWELS OR CRAMPS AND SHALL BE SET IN EPOXY RESIN.
5. INSTALL DUTCHMAN; ADHERE WITH EPOXY RESIN OR POLYMER MODIFIED CEMENT GROUT.



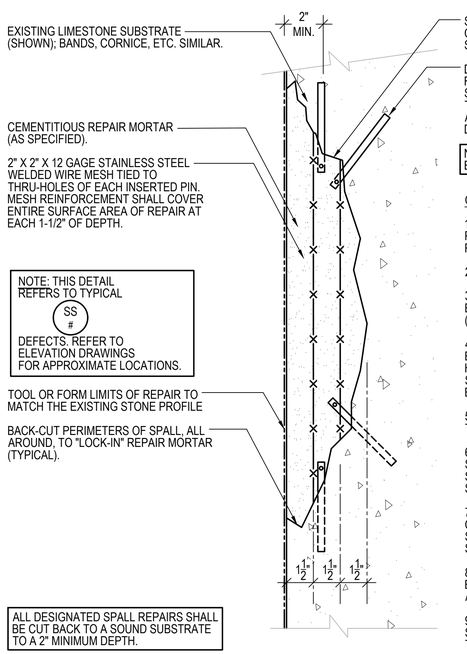




SIZE	# OF PINS
<0.5 S.F.	TWO (2)
0.5-1.0 S.F.	FOUR (4)
1.0-2.0 S.F.	SIX (6)

18 / A505 TYPICAL DUTCHMAN STONE REPAIR

SCALE: NOT TO SCALE
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)



NOTE: THIS DETAIL REFERS TO TYPICAL SS # DEFECTS. REFER TO ELEVATION DRAWINGS FOR APPROXIMATE LOCATIONS.

NOTE: MAXIMUM SPACING OF PINS SHALL BE 8" IN ANY DIRECTION.

ALL DESIGNATED SPALL REPAIRS SHALL BE CUT BACK TO A SOUND SUBSTRATE TO A 2" MINIMUM DEPTH.

GENERAL PROCEDURES FOR SPALL REPAIR

1. BACK-ANGLE SAWCUT PERIMETER - POLYGON SHAPE (DO NOT CUT REINFORCEMENT).
2. CHIP OUT ALL DETERIORATED STONE.
3. CLEAN ALL EXPOSED EMBEDDED STEEL, IF ENCOUNTERED, TO BARE METAL CONDITION. (SSPC - SP11).
4. REMOVE ADDITIONAL SUBSTRATE TO EXPOSE AND CLEAN CORRODED STEEL WHICH HAS SCALED RUST (BARS WITH ONLY LIGHT SURFACE RUST AND SOLID STONE COVER MAY BE LEFT ALONE.)
5. EXAMINE SUBSTRATE FOR CRACKS. REPORT TO ENGINEER.
6. SCARIFY SUBSTRATE TO 1/8" MINIMUM SURFACE PROFILE (ICRI - CSP 8 OR 9). WASH SUBSTRATE AND LEAVE SSD (SATURATED SURFACE DRY) CONDITION.
7. APPLY SLURRY COAT OR EPOXY MODIFIED CEMENTITIOUS PRIMER/ BOND AGENT TO ALL STONE SUBSTRATE (1 COAT) AND EMBEDDED STEEL OR REBAR (2 COATS).
8. APPLY SPECIFIED REPAIR MORTAR AFTER BONDING AGENT TO ACHIEVE A "WET-ON-WET" APPLICATION.
9. WHERE CORRODED STEEL IS EVIDENT, SUBSTRATE SHALL BE CHIPPED 3/4" MINIMUM TO 1-1/2" MAXIMUM BEHIND REBAR.
10. SECTION SHOWN SCHEMATICALLY.

19 / A505 TYPICAL SPALL REPAIR

SCALE: NOT TO SCALE
(ALL ITEMS ARE NEW UNLESS DESIGNATED AS EXISTING)

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PROJECT
WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK AT THE WARREN HOUSE
1600 WASHINGTON STREET, NEWTON, MA 02465

OWNER
NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A500s
DESIGNED BY	AS NOTED
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	

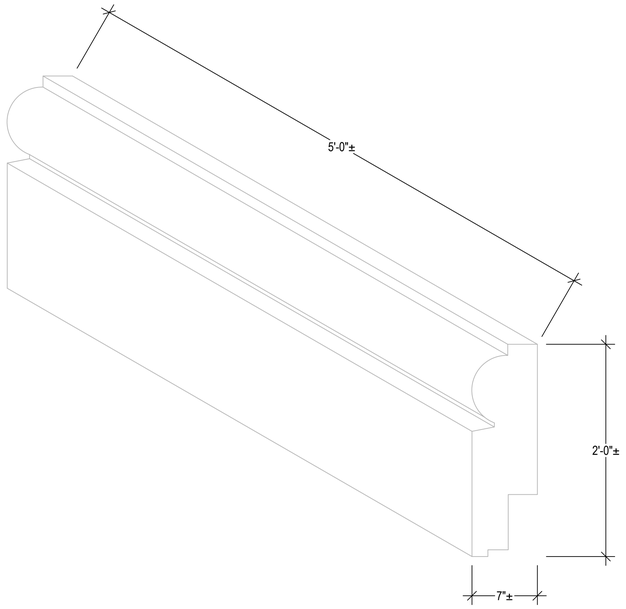
GRAPHIC SCALE

SHEET TITLE

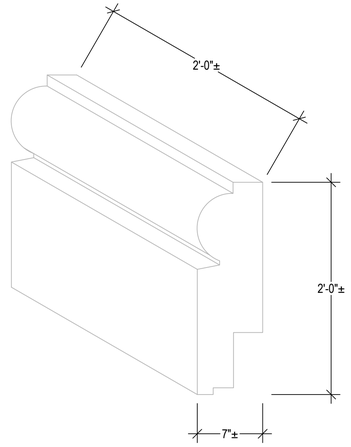
DETAILS

DRAWING NO.

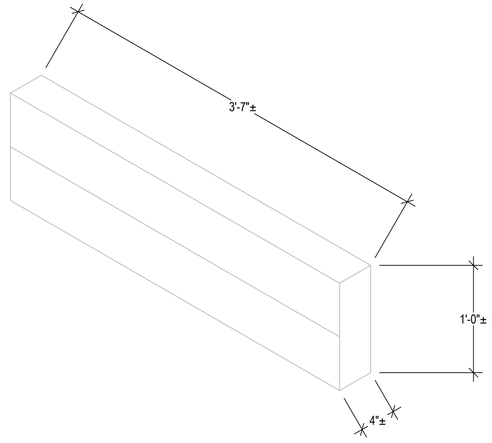
A505



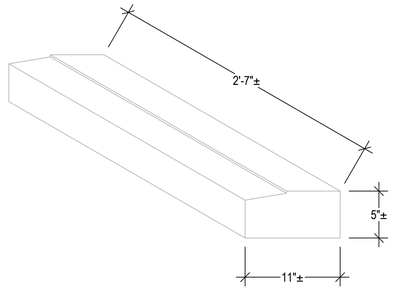
A A506 STONE ABOVE FIRST FLOOR WINDOWS
SCALE: 1-1/2"=1'-0"



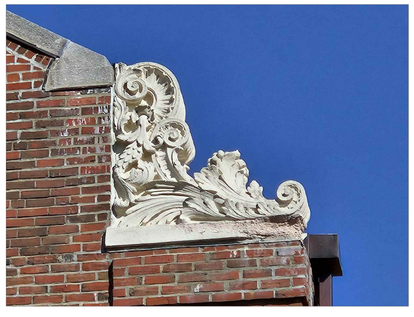
B A506 STONE ABOVE FIRST FLOOR WINDOWS
SCALE: 1-1/2"=1'-0"



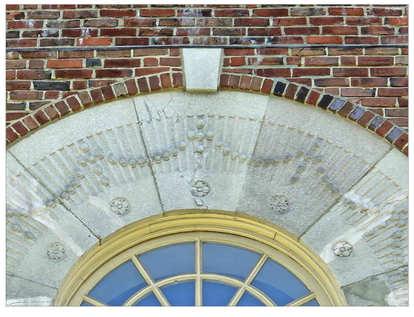
C A506 STONE ABOVE THIRD FLOOR WINDOWS
SCALE: 1-1/2"=1'-0"



D A506 TYPICAL WINDOW SILL STONE
SCALE: 1-1/2"=1'-0"



E A506 ORNAMENTAL STONE
SCALE: NOT TO SCALE



F A506 DECORATIVE KEYSTONE
SCALE: NOT TO SCALE

TYPICAL STONE SCHEDULE				
DESIGNATION	TYPE	HEIGHT	WIDTH	DEPTH
A	FLOORLINE	2'-0"±	5'-0"±	7"±
B	FLOORLINE	2'-0"±	2'-0"±	7"±
C	FLOORLINE	1'-0"±	3'-7"±	4"±
D	SILL STONE	5"±	2'-7"±	11"±
E	ORNAMENTAL STONE	4'-8"±	4'-8"±	8"±
F	KEYSTONE	1'-6"±	VARIES	4"±

GENERAL NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN COMPILED FROM VARIOUS SOURCES, AND MAY NOT REFLECT THE ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION.
2. HATCH PATTERNS ARE FOR REPRESENTATION ONLY AND SHOULD NOT BE USED A MEANS FOR QUANTIFYING
3. ALL DIMENSIONS ARE APPROXIMATE AND ARE TO BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO CASTING NEW ELEMENTS.
4. STONE DEPTHS HAVE BEEN ASSUMED BASED ON THE UNDERSTANDING THE BUILDING HAS A THREE (3) WYTHE BRICK MASONRY WALL CONSTRUCTION.

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NO.	DATE	DESCRIPTION	BY

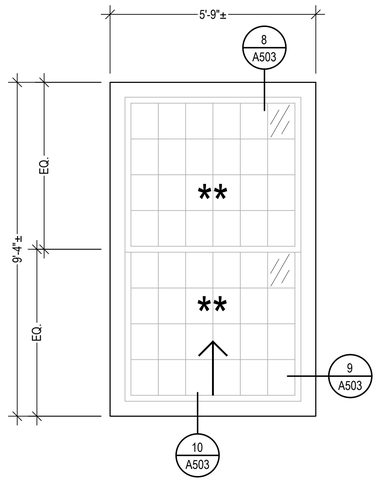
PROJECT NO.	841460
CADD FILE	841460 A500s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	AS NOTED

GRAPHIC SCALE

SHEET TITLE

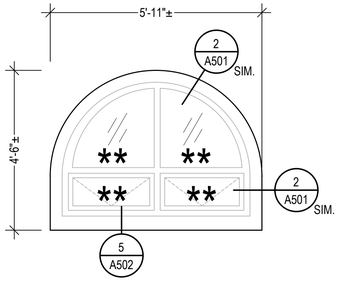
STONE SCHEDULE

DRAWING NO.
A506



K WINDOW TYPE K

AT STAIR LANDING SW ELEVATION (NO STOOL)

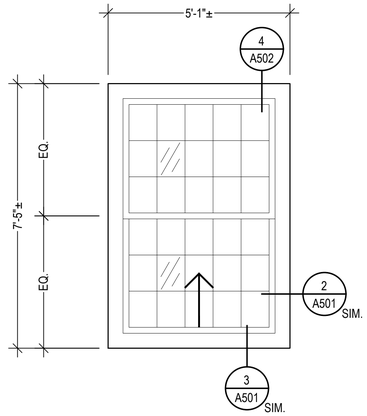


L1 WINDOW TYPE L1

HALF ROUND AT BEAM (NO STOOL, GYPSUM AT BEAM)

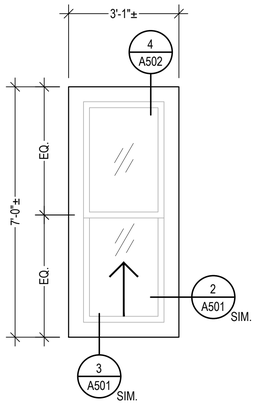
L2 WINDOW TYPE L2 **

HALF ROUND AT FLOOR LINE (NO STOOL)



M WINDOW TYPE M

STOOL DEPTH 14"±

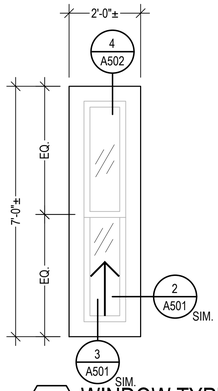


N1 WINDOW TYPE N1

AT LEVEL 1. STOOL DEPTH 15"

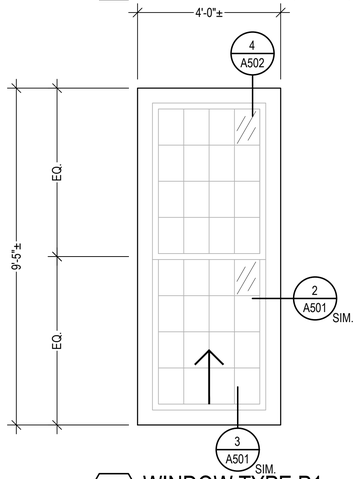
N2 WINDOW TYPE N2

AT LEVEL 3. STOOL DEPTH 13"



O WINDOW TYPE O

STOOL DEPTH: 11"

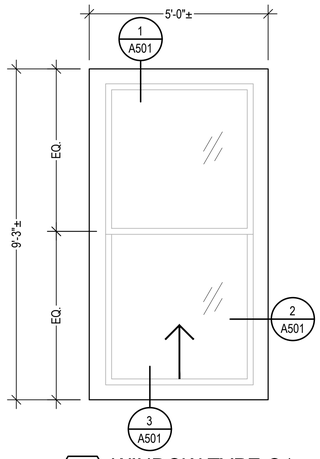


P1 WINDOW TYPE P1

LEVEL 1 LINTEL TYPE B. STOOL DEPTH 15-1/2"

P2 WINDOW TYPE P2

LEVELS 2 AND 3. STOOL DEPTH 13-1/2"



Q1 WINDOW TYPE Q1

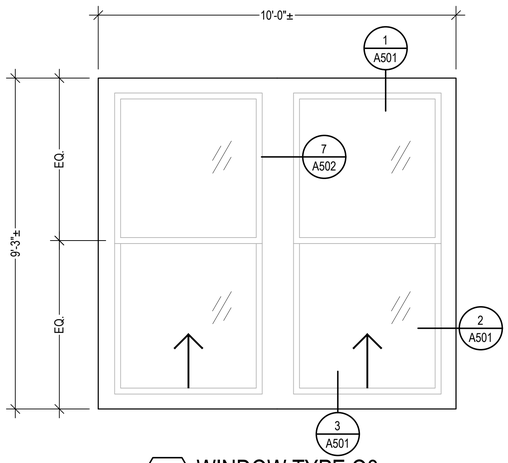
LEVEL 1 LINTEL TYPE B. STOOL DEPTH 15-1/2"

Q2 WINDOW TYPE Q2

DOOR RIGHT JAMB (EXTERIOR VIEW). STOOL DEPTH 15-1/2"

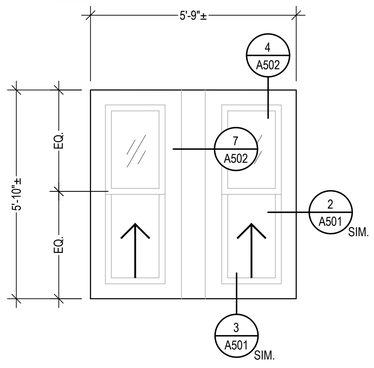
Q4 WINDOW TYPE Q4

DOOR LEFT JAMB (EXTERIOR VIEW). STOOL DEPTH 15-1/2"



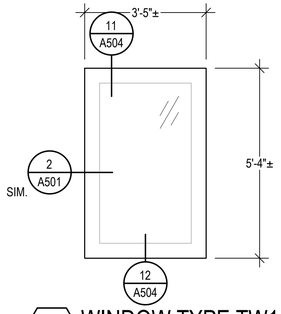
Q3 WINDOW TYPE Q3

LEVEL 1 LINTEL TYPE K. STOOL DEPTH 15-1/2"



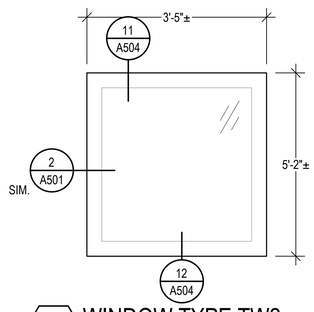
R WINDOW TYPE R

STOOL DEPTH 11-1/4"



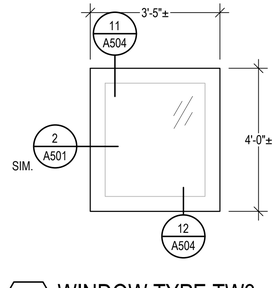
TW1 WINDOW TYPE TW1

UNIT 115 TRANSOM WINDOW. STOOL DEPTH: 15-1/2"



TW2 WINDOW TYPE TW2

STOOL DEPTH: 15-1/2"



TW3 WINDOW TYPE TW3

UNIT 222 & 223 TRANSOM WINDOWS. STOOL DEPTH: 15-1/2"

WINDOW NOTES

1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN COMPILED FROM VARIOUS SOURCES AND MAY NOT REFLECT THE ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION.
2. WINDOW OPENING DIMENSIONS ARE SHOWN AS APPROXIMATE AND ARE ROUGH OPENING DIMENSIONS. ACTUAL FIELD DIMENSIONS MAY VARY. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS PRIOR TO SUBMITTING SHOP DRAWING AND ORDERING WINDOWS.
3. REFER TO ELEVATION DRAWINGS FOR WINDOW TYPES AND LOCATIONS.
4. PATCH, REPAIR, AND PAINT EXISTING INTERIOR FINISHES OF WALLS AND CEILINGS TO MATCH SURROUNDING SURFACES RESULTING FROM THE WORK. PATCH ALL HOLES RESULTING FROM THE WORK.
5. ANY CONDITION NOT DETAILED SHALL BE CONSTRUCTED IN A MANNER SIMILAR TO THAT OF THE DETAILS.
6. EXHAUST VENTS, FANS, CONDUITS, OR PIPING THAT PENETRATE WINDOWS SHALL BE TEMPORARILY REMOVED AND REINSTALLED BY LICENSED TRADESMEN AS REQUIRED TO PERFORM THE WORK.
7. SCRAPE RUST, SCALE, AND DEBRIS FROM EXISTING WINDOW LINTELS AND REPAINT.
8. INSTALL INSECT SCREENS AT ALL OPERABLE WINDOW LOCATIONS.
9. REMOVE AND DISPOSE OF EXISTING PERIMETER SEALANTS, EXISTING WINDOW FRAMES AND SASHES, HARDWARE, GLAZINGS, STORM WINDOWS AND/OR INSECT SCREENS FROM MASONRY OPENINGS IN PREPARATION FOR WINDOW REPLACEMENT.
10. APRON DEPTH NOTED IS EXISTING DEPTH. NEW APRON SHOULD BE 1" PROUD OF INTERIOR RETURN. FIELD VERIFY ALL DIMENSIONS.
11. CARPET AT WINDOW TYPE L2 TO BE PULLED BACK TEMPORARILY FOR WINDOW REPLACEMENT AND REATTACHED. NO STOOL AT TYPE L2.
12. ALL UNITS (EXCEPT COMMUNITY ROOM) HAVE MINI BLINDS ATTACHED TO TRIM AT WINDOW HEAD. REMOVE EXISTING MINI BLINDS, STORE BLINDS TEMPORARILY, AND REINSTALL AFTER NEW WINDOW INSTALLATION. REFER TO WINDOW DETAILS FOR LOCATION OF REINSTALLED BLINDS.
13. AS A BID ALTERNATE, REMOVE AND DISPOSE OF EXISTING MINI BLINDS. AFTER WINDOW INSTALLATION, INSTALL NEW ROLLER SHADE.
14. THE FOLLOWING ARE ADDITIONAL WINDOW TREATMENTS TO BE REMOVED, STORED, AND REINSTALLED.
    - 14.1. UNIT 102: FACE MOUNTED CURTAIN ROD & CURTAINS, 3/4 WINDOW COVERAGE (5 WINDOWS)
    - 14.2. UNIT 114: CURTAIN RODS ATTACHED TO RETURN ABOUT 2/3 WINDOW COVERAGE (5 WINDOWS)
    - 14.3. UNIT 115: FACE MOUNTED CURTAIN ROD AND CURTAINS, FULL HEIGHT OF WINDOW (1 WINDOW)
    - 14.4. UNIT 118: TWO CURTAIN RODS ATTACHED TO INSIDE RETURN (1 WINDOW)
    - 14.5. UNIT 121: FACE MOUNTED CURTAIN ROD & CURTAIN, 1/2 WINDOW COVERAGE (1 WINDOW)
    - 14.6. LEVEL 1 COMMUNITY ROOM: 3 WINDOWS WITH NEW ROLLER SHADES AND 1 WINDOW WITH EXISTING MINI BLINDS
    - 14.7. UNIT 204: INSET CURTAIN RODS, 1/4 COVERAGE, ~1 FT CURTAINS (TWO WINDOWS)
    - 14.8. UNIT 201: FACE MOUNTED CURTAIN RODS & CURTAINS, FULL HEIGHT OF WINDOW (5 WINDOWS)

LEGEND

- GLAZED-IN INSULATED PANEL
- HUNG SASH
- * TEMPERED SAFETY GLAZING
- ** LAMINATED SAFETY GLAZING
- # / # DETAIL NUMBER / SHEET NUMBER

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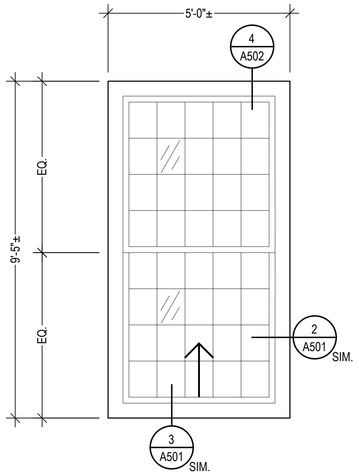
NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A600s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	1/2"=1'-0"

GRAPHIC SCALE
0 1' 2' 4'

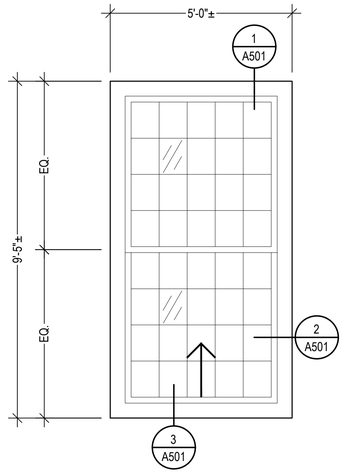
SHEET TITLE
WINDOW SCHEDULE

DRAWING NO.
A602



A1 WINDOW TYPE A1

LEVELS 2 AND 3. STOOL DEPTH 14"±



A2 WINDOW TYPE A2

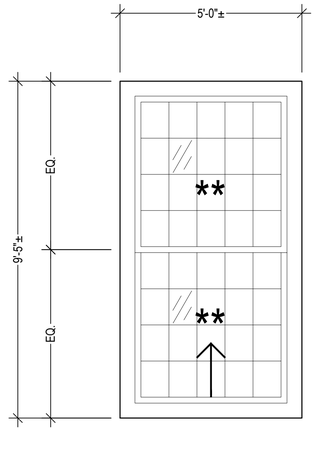
LEVEL 1. STOOL DEPTH 16"±

A3 WINDOW TYPE A3

LEVEL 1. STOOL DEPTH 16"±

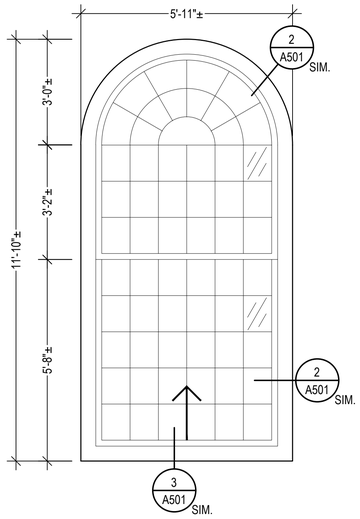
A4 WINDOW TYPE A4

LEVEL 1. STOOL DEPTH 16"±



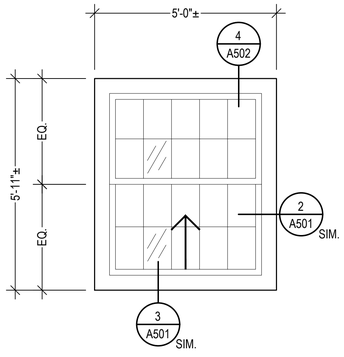
A5 WINDOW TYPE A5

LEVEL 1 LINTEL TYPE A. STOOL DEPTH 16"±



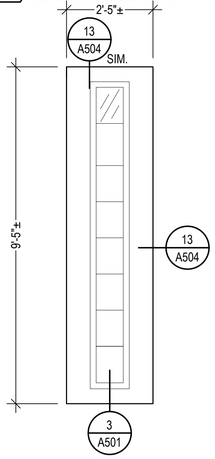
B WINDOW TYPE B

STOOL DEPTH 14"± (TYP.) 15"± AT UNIT 308



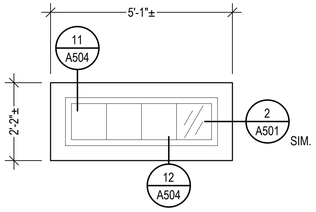
C WINDOW TYPE C

STOOL DEPTH: 14"±



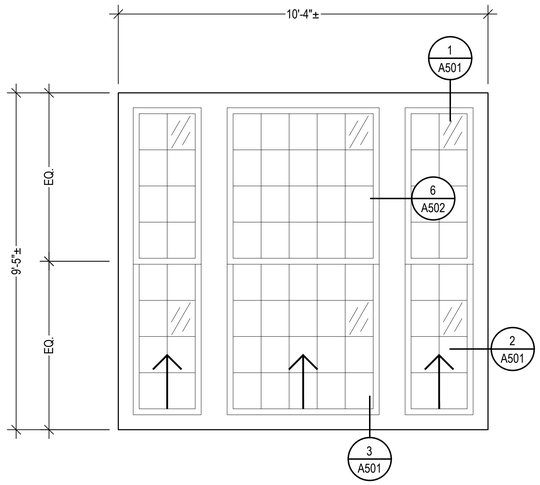
D WINDOW TYPE D

STOOL DEPTH 15"±



JJ WINDOW TYPE JJ

WINDOW ABOVE LEVEL 1 MAIN ENTRY PERGOLA. STOOL DEPTH: 6"±

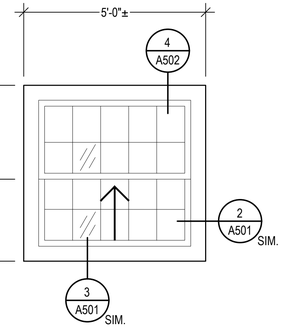


F1 WINDOW TYPE F1

UNITS 106 & 110 LEVEL 1 LINTEL TYPE F, STOOL DEPTH 16"±

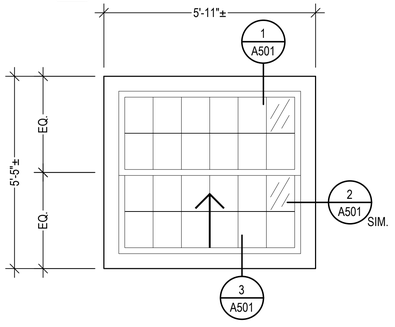
F2 WINDOW TYPE F2

UNIT 102, LEVEL 1 LINTEL TYPE G, STOOL DEPTH 13"±



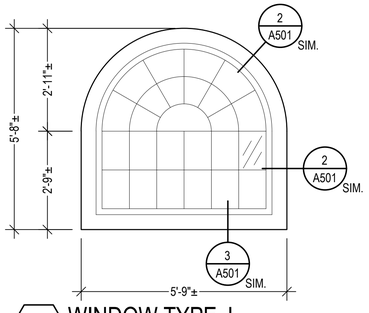
H WINDOW TYPE H

STOOL DEPTH 14"±



HH WINDOW TYPE HH

EAST STAIR. STOOL DEPTH: 6"±



J WINDOW TYPE J

ABOVE STAIR LANDING SW ELEVATION (NO STOOL)

WINDOW NOTES

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2. WINDOW OPENING DIMENSIONS ARE SHOWN AS APPROXIMATE AND ARE ROUGH OPENING DIMENSIONS. ACTUAL FIELD DIMENSIONS MAY VARY. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS PRIOR TO SUBMITTING SHOP DRAWING AND ORDERING WINDOWS.
3. REFER TO ELEVATION DRAWINGS FOR WINDOW TYPES AND LOCATIONS.
4. PATCH, REPAIR, AND PAINT EXISTING INTERIOR FINISHES OF WALLS AND CEILINGS TO MATCH SURROUNDING SURFACES RESULTING FROM THE WORK. PATCH ALL HOLES RESULTING FROM THE WORK.
5. ANY CONDITION NOT DETAILED SHALL BE CONSTRUCTED IN A MANNER SIMILAR TO THAT OF THE DETAILS.
6. EXHAUST VENTS, FANS, CONDUITS, OR PIPING THAT PENETRATE WINDOWS SHALL BE TEMPORARILY REMOVED AND REINSTALLED BY LICENSED TRADESMEN AS REQUIRED TO PERFORM THE WORK.
7. SCRAPE RUST, SCALE, AND DEBRIS FROM EXISTING WINDOW LINTELS AND REPAINT.
8. INSTALL INSECT SCREENS AT ALL OPERABLE WINDOW LOCATIONS.
9. REMOVE AND DISPOSE OF EXISTING PERIMETER SEALANTS, EXISTING WINDOW FRAMES AND SASHES, HARDWARE, GLAZINGS, STORM WINDOWS AND/OR INSECT SCREENS FROM MASONRY OPENINGS IN PREPARATION FOR WINDOW REPLACEMENT.
10. APRON DEPTH NOTED IS EXISTING DEPTH. NEW APRON SHOULD BE 1" PROUD OF INTERIOR RETURN. FIELD VERIFY ALL DIMENSIONS.
11. CARPET AT WINDOW TYPE L2 TO BE PULLED BACK TEMPORARILY FOR WINDOW REPLACEMENT AND REATTACHED. NO STOOL AT TYPE L2.
12. ALL UNITS (EXCEPT COMMUNITY ROOM) HAVE MINI BLINDS ATTACHED TO TRIM AT WINDOW HEAD. REMOVE EXISTING MINI BLINDS, STORE BLINDS TEMPORARILY, AND REINSTALL AFTER NEW WINDOW INSTALLATION. REFER TO WINDOW DETAILS FOR LOCATION OF REINSTALLED BLINDS.
13. AS A BID ALTERNATE, REMOVE AND DISPOSE OF EXISTING MINI BLINDS. AFTER WINDOW INSTALLATION, INSTALL NEW ROLLER SHADE.
14. THE FOLLOWING ARE ADDITIONAL WINDOW TREATMENTS TO BE REMOVED, STORED, AND REINSTALLED.
    - 14.1. UNIT 102: FACE MOUNTED CURTAIN ROD & CURTAINS, 3/4 WINDOW COVERAGE (5 WINDOWS)
    - 14.2. UNIT 114: CURTAIN RODS ATTACHED TO RETURN ABOUT 2/3 WINDOW COVERAGE (5 WINDOWS)
    - 14.3. UNIT 115: FACE MOUNTED CURTAIN ROD AND CURTAINS, FULL HEIGHT OF WINDOW (1 WINDOW)
    - 14.4. UNIT 118: TWO CURTAIN RODS ATTACHED TO INSIDE RETURN (1 WINDOW)
    - 14.5. UNIT 121: FACE MOUNTED CURTAIN ROD & CURTAIN, 1/2 WINDOW COVERAGE (1 WINDOW)
    - 14.6. LEVEL 1 COMMUNITY ROOM: 3 WINDOWS WITH NEW ROLLER SHADES AND 1 WINDOW WITH EXISTING MINI BLINDS
    - 14.7. UNIT 204: INSET CURTAIN RODS, 1/4 COVERAGE, ~1 FT CURTAINS (TWO WINDOWS)
    - 14.8. UNIT 201: FACE MOUNTED CURTAIN RODS & CURTAINS, FULL HEIGHT OF WINDOW (5 WINDOWS)

LEGEND

- GLAZED-IN INSULATED PANEL
- HUNG SASH
- * TEMPERED SAFETY GLAZING
- ** LAMINATED SAFETY GLAZING
- # / # DETAIL NUMBER / SHEET NUMBER

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PROJECT

WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK AT THE WARREN HOUSE
1600 WASHINGTON STREET, NEWTON, MA 02465

OWNER

NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A600s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	1/2"=1'-0"

GRAPHIC SCALE

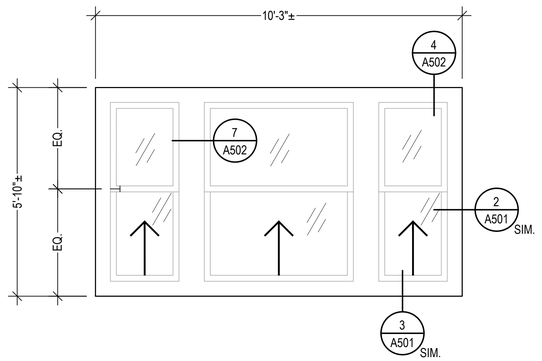
0 1' 2' 4'

SHEET TITLE

WINDOW SCHEDULE

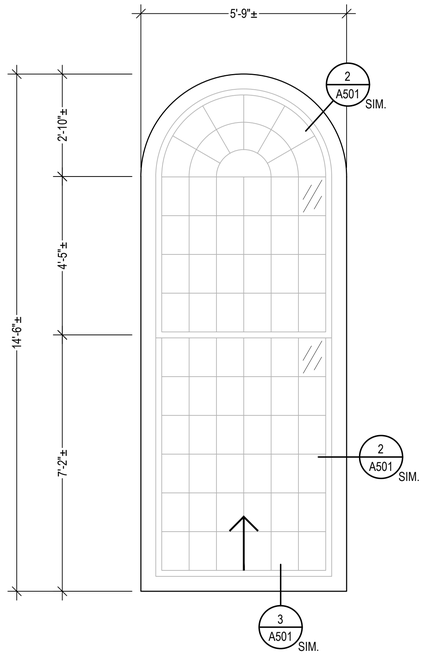
DRAWING NO.

A601



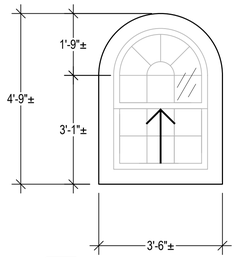
S **WINDOW TYPE S**

STOOL DEPTH 11-1/4"



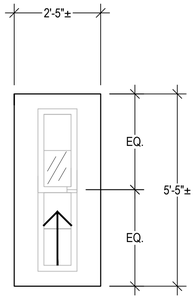
T **WINDOW TYPE T**

EAST STAIR. STOOL DEPTH: 6"



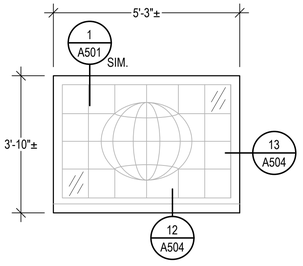
U **WINDOW TYPE U**

UNIT 106 BELOW MAIN STAIR, STOOL DEPTH 9-3/4"



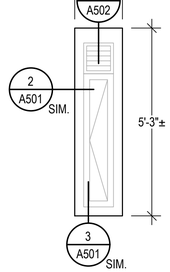
V **WINDOW TYPE V**

UNITS 206 & 210 BEDROOMS. STOOL DEPTH 30".
STOOL IS TRAPEZOIDAL (CUSTOM SHAPE)



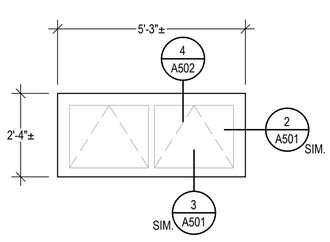
W **WINDOW TYPE W**

MAIN (FRONT) ENTRY WINDOW AT DOOR. STOOL DEPTH: 6" (V.I.F.)



WW **WINDOW TYPE WW**

UNIT 204 LIVING ROOM, STOOL DEPTH 11-1/2"

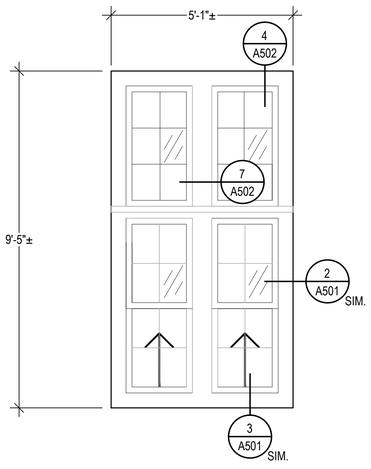


X1 **WINDOW TYPE X1**

UNIT P01, STOOL DEPTH 12"±

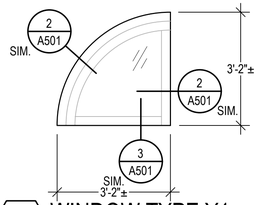
X2 **WINDOW TYPE X2**

UNIT P05, STOOL DEPTH 13"±



Y **WINDOW TYPE Y**

UNIT 206 BEDROOM. STOOL DEPTH: 13-1/2"

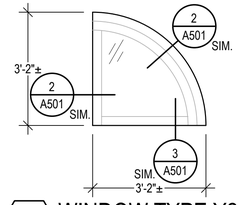


Y1 **WINDOW TYPE Y1**

UNIT P01, STOOL DEPTH 13"±

Y3 **WINDOW TYPE Y3**

UNIT P05, STOOL DEPTH 13"±

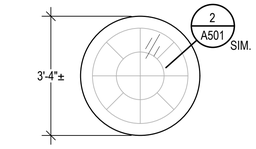


Y2 **WINDOW TYPE Y2**

UNIT P01, STOOL DEPTH 13"±

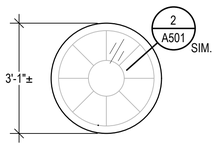
Y4 **WINDOW TYPE Y4**

UNIT P05, STOOL DEPTH 13"±



Z **WINDOW TYPE Z**

STOOL DEPTH: 6" (V.I.F.)



Z1 **WINDOW TYPE Z1**

STOOL DEPTH: 6" (V.I.F.)

Z2 **WINDOW TYPE Z2**

STOOL DEPTH: 6" (V.I.F.)

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LEGEND

- GLAZED-IN INSULATED PANEL
- HUNG SASH
- * TEMPERED SAFETY GLAZING
- ** LAMINATED SAFETY GLAZING
- # / # DETAIL NUMBER / SHEET NUMBER

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PROJECT
WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK AT THE WARREN HOUSE
1600 WASHINGTON STREET, NEWTON, MA 02465

OWNER
NEWTON COMMUNITY DEVELOPMENT FOUNDATION
425 WATERTOWN STREET, SUITE #205
NEWTON, MA 02458

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	841460
CADD FILE	841460 A600s
DESIGNED BY	JRN
DRAWN BY	JRN, DBB, CHG
CHECKED BY	CM
DATE	6/14/2023
DRAWING SCALE	1/2"=1'-0"

GRAPHIC SCALE
0 1' 2' 4'

SHEET TITLE
WINDOW SCHEDULE

DRAWING NO.
A603

WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK
THE WARREN HOUSE
1600 WASHINGTON STREET
NEWTON, MA

June 14, 2023

Prepared For:

Newton Community Development Foundation, Inc.
425 Watertown Street, Suite #205
Newton, MA 02458

Prepared By:

Gale Associates, Inc.
300 Ledgewood Place Suite 300
Rockland, MA 02370

Gale JN 841460

WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK
THE WARREN HOUSE
1600 WASHINGTON STREET
NEWTON, MA
GALE JN 841460

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Section 01 50 00
Weather Protection and Materials Storage
Section 01 63 00
Project Closeout
Section 01 70 00

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Concrete Repair
Section 03 70 00

DIVISION 4
Masonry
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WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK
AT WARREN HOUSE
1600 WASHINGTON STREET
NEWTON, MA
GALE JN 841460

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DIVISION 27 – 48 – NOT USED

WINDOW REPLACEMENT, MASONRY REPAIRS, AND ASSOCIATED WORK
THE WARREN HOUSE
1600 WASHINGTON STREET
NEWTON, MA
GALE JN 841460

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A201	BUILDING ELEVATIONS PLAN
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A203	BUILDING ELEVATIONS PLAN
A204	BUILDING ELEVATIONS PLAN
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SUMMARY OF WORK

SECTION 01 11 00

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

In general, the Contractor shall supply all labor, materials, equipment, staging, temporary protection, tools, and appliances necessary for the proper completion of the work in their respective Section(s), as required in the Specifications, in accordance with good construction practice, and as required by the materials manufacturer, as amended. The work under all Sections generally includes, but is not limited to, the following:

A. Supply all necessary chutes, disposal facilities, transportation, and labor necessary to dispose of all demolished materials, dirt, and debris off-site in a legal dumping area. Each Contractor or Sub-Contractor shall obtain all permits necessary to transport and dispose of all materials, rubbish, and debris affected by their scope of work.

B. Supply all shoring and protection necessary to protect the building areas, building systems, and landscape areas.

C. Provide 6'-0" high temporary fencing around set-up and storage locations. Set-up and lay down areas must be within areas designated by the Owner. Set-up and lay down areas should be sufficient for all trades to have adequate area to store materials and equipment. Fencing must be secure and weighted or anchored to the ground.

D. Due to the amount of work required at most window openings, temporary protection of the openings will be required. Temporary protection must be weather tight and secure at the end of each day. Due to the building being continuously occupied, temporary protection at window openings shall be left in place no longer than one (1) week maximum from the time of the existing window removal until the time of the installation of the new window.

E. Provide interior protection around the work area to mitigate dust and debris into the unit. Provide dust collection and a sealed polyethylene chamber with a zipper door for access or similar system to mitigate dust in the unit. Provide Masonite board or other protection of all flooring finishes in public hallways and private units as needed. Contractor is responsible for protection of existing flooring and cleaning after window installation. Owner is responsible for removing all items within the interior work zone in each unit. Contractor should coordinate with the owner and unit occupants on removal of personal items to allow access to the interior work area.

F. Provide and maintain temporary protection of all building components designated to remain or new components installed throughout the duration of construction.

G. Remove existing wood sash, glazing, parting beads, brick molds (window) systems, and all associated hardware at the designated openings, including all glass, fasteners, flashings, clips, jamb and mullion covers and window stools, down to the existing wood frame. Temporarily support and protect all interior fixtures to remain. Report all areas of structurally unsound or deteriorated wood blocking to remain to the Owner and the Engineer.

H. Supply all materials and labor to perform cast-stone and concrete spall and crack repairs at locations and as indicated in the Contract Drawings. Perform additional repairs or replacement under the Unit Price scope of work.

I. Remove and replace damaged, cracked or spalled brick masonry units at locations and as indicated in the Contract Drawings. Perform additional repairs under the Unit Price scope of work.

J. Remove and replace deteriorated cast stone units as indicated in the Contract Drawings. Perform additional replacement under the Unit Price scope of work.

K. Remove and replace deteriorated steel lintels and install new throughwall flashing components at designated locations and as indicted in the Contract Drawings.

L. Cut and point designated brick masonry mortar joints at locations and as shown in the Contract Drawings. Perform additional repointing under the Unit Price scope of work.

M. Clean all surfaces at locations and adjacent to where masonry renovations are performed.

N. Remove and repair interior gypsum wall finishes as required for window and flashing installation as indicated in the Contract Drawings.

O. Paint interior drywall finishes where damaged by the window installation as a result of the work to the limits of the adjacent wall.

P. Install new PVC stools and trim at locations and as indicated in the Contract Drawings.

Q. Install modified bitumen flashing membrane at window rough openings as indicated in the Contract Drawings.

R. Install new thermally improved, double glazed aluminum windows at locations and as indicated in the Contract Drawings. Install heavy duty insect screens to all operable units.

S. Temporarily remove, tag and store all existing window blinds, roller shades, curtain rods, and curtains. Reinstall after window and associated work has been completed. Coordinate with owner on removal, storage, and replacement of blinds & shades.

1.2 SPECIAL JOB CONDITIONS

A. The building occupants are highly sensitive to fumes, odors, noise, and disturbances. The Contractor shall submit a detailed sequence schedule for the work activities prior to the start of work and coordinate daily schedules with the Owner. **All repair materials (primers, adhesives, etc.) must be considered low volatile compounds (VOC).**

B. The Contractor is hereby notified that the Warren House is on the National Register of Historic Places. All reviews will be subject to approval by the local Historic Commission. Though not anticipated, multiple mock-ups may be required to provide approved aesthetics.

1.3 OWNER FURNISHED PRODUCTS

A. There will be no products furnished by the Owner. Refer to Temporary Facilities for supply of Electric and Water services.

1.4 CONTRACTORS USE OF PREMISES/WORK LIMITATIONS

Warren House is a residential establishment and will be occupied during the construction period. Therefore, consideration must be made to allow continued use of the residence.

1.5 WORK HOURS

A. The Contractor will be allowed to work at the project site between the hours of 8:00 a.m. and 5:00 p.m., local time, Monday through Friday. As the buildings are a residential establishment, no other work hours are considered at this time. The Owner reserves the right to disapprove or suspend a request to work outside of normal working hours. The cost of providing building maintenance personnel on site for weekend work, or after hour work, should they be deemed necessary, shall be borne by the Contractor.

B. Should the Contractor's work hours extend beyond the scheduled hours as stated above for the project due to improper staffing, a lack of daily on-site production, shortage of materials, or other factors within the Contractor's control, the Contractor shall be responsible for bearing the overtime cost for the Owner of providing custodial, engineering, construction monitoring and other services directly related to the construction.

C. As each individual apartment unit is occupied by different tenants, careful coordination will be required to provide access to each unit for interior work. The Contractor's two week look ahead must depict the areas which are going to require interior access, as well as the duration of each operation, to allow the Owner's Representative sufficient time to notify the occupants of the work activities. Should for any reason insufficient time be provided, or the occupant require a change to the schedule, the Owner's Representative will inform the Contractor and coordinate a

new time for access. As this is a residential establishment, last minute cancellations may occur.

1.6 PROJECT CONDITIONS

A. The Owner shall review the Contractor's work schedule submittal prior to the start of any work. After defining the locations of the work progress, the Owner shall arrange to control occupancy in the building area adjacent to each day's work. It shall be the responsibility of the Contractor to inform the Owner and Engineer if their work location(s) for each day is different from the schedule and to update any changes into the schedule.

B. The project superintendent will be required to discuss the work activities with the property manager on a daily basis. The Contractor is hereby notified that changes in the schedule may prevent access to the work areas, as prior notification to the building tenants will be required.

C. The Contractor shall be responsible for submitting all required permits. This shall include, but not be limited to, building, fire and dumping.

D. The building will be occupied and in use during construction. Take necessary precautions to create as little disturbance or disruption as possible to the building and its occupants during the work.

E. Supply, install and maintain barriers, protection, warning lines, lighting and personnel required to segregate the work area(s) from pedestrian or vehicular traffic, as well as, to prevent damage to the building, its occupants and the surrounding landscaped and paved areas. All applicable safety requirements shall be observed by the Contractor. Refer to Section 01 50 00 – TEMPORARY FACILITIES AND SITE MAINTENANCE for additional information.

F. The Contractor shall coordinate all mechanical and electrical disconnects/ reconnects with the mechanical and electrical contractors. The Contractor is to closely coordinate all roofing work with that of the mechanical and electrical work. This work shall be the responsibility of the Contractor and shall be performed by licensed tradesmen in accordance with applicable codes and standards.

G. The Owner requires the Contractor to conform to all requirements of this specification as well as those of the approved manufacturer(s).

H. The Contractor shall distribute all construction loads throughout the roof deck so as to avoid structural overloading. Do not store materials on the roof without the written consent of the Engineer.

I. All materials and workmanship shall be of the best construction practice. Refer to the requirements of the manufacturer, recommendations, and these specifications for handling and installation of all materials.

J. Protect the building and site areas not included in the construction. The Contractor shall replace or repair all building and site damage as a result of the construction to the satisfaction of the Owner at no cost to the Owner.

K. Supply all labor, vacuums, tools, appliances, shoring, supports or other items required to properly support, elevate and protect fixtures, equipment, and facilities affected by the work and to properly install the work.

L. Remove only as much work as can be completely replaced and made weathertight each day.

M. A disposal plan shall be submitted by the Contractor (for Owner and Engineer's approval) outlining all techniques to be used for the transportation of materials to ground level.

N. All debris, dust, and dirt shall be swept clean from all exterior and interior surfaces affected by the work. Any interior finishes and floors which are damaged, soiled, or affected by the work shall be cleaned, repaired, or replaced by the Contractor with a system equal in color, texture, and finish at no additional cost to the Owner.

O. Any open ducts, grills, thermostats, electric boxes or similar fixtures and items which can be soiled or affected by the work shall be masked, protected, and cleaned by the Contractor at no additional cost to the Owner.

P. Adequate number of skilled workmen who are trained and experienced in the necessary crafts and are completely familiar with the specified requirements and the methods needed for proper performance of the work of each trade shall be provided.

Q. Schedule and execute all work without exposing the interior of the building to the effects of inclement weather. Protect the building, its contents, and occupants against such risks, and repair/replace all work-related damage to the satisfaction of the Owner.

R. Upon completion of the work, all temporary protection installed by the Contractor shall be removed and areas shall be cleaned to the satisfaction of the Owner.

S. The Contractor is hereby placed on notice that accurate record drawings, outlining the actual repairs and renovation work will be required at the completion of this project. The intent of the record drawings is to outline areas of repairs that have been performed. The Contractor will be required to present the draft record drawing set at each of the project meetings to confirm the documentation is being complete. The Contractor will be required to submit the documents to the Designer at the completion of the project for review and final submission to the Owner.

T. Fully charged, inspected, and approved fire extinguishers shall be on site at all times. No cutting, grinding or welding of any kind shall proceed without an approved fully charged fire extinguisher.

1.6 REFERENCES

Applicable publications: Publications listed herein form a part of this Specification to the extent referenced and are indicated in the text by basic designation only. Applicable publications referenced shall be those that were issued and in use at the time of the Bid Submission.

1.7 PRECONSTRUCTION CONFERENCE

A. A preconstruction conference will be held with the Owner, Owner's Representatives, Contractor and involved trades to discuss all aspects of the project. The Contractor's foreman or field representative will attend this conference. The foreman must be able to effectively communicate in English (both written and spoken) and shall be on site at all times that work is performed. The conference will not be held until all shop drawings and submittals have been received and reviewed by the Owner.

B. The Owner shall reserve the right to require an alternate Superintendent and/or Foreman when deemed to be in the best interest of the Owner.

C. Delivery of materials and commencement of construction shall not proceed until the preconstruction conference is held. Delays in obtaining a complete set of submittals shall not extend the contracted completion date.

D. At the preconstruction conference, the Contractor shall provide a complete set of Manufacturer's Safety Data Sheets (SDS) and Health Production Declaration (HPD) (when available) to the Owner for all products to be used on the project. Information shall be provided in a labeled three ring binder. The providing of the SDS & HPD

information is in addition to any other contract requirement contained elsewhere in the Contract Documents.

1.8 EMERGENCY RESPONSE

A. The Contractor shall provide the Owner with after-hours (24 hour), emergency telephone numbers of the Contractor's Project Manager, Superintendent and Foreman.

B. The Contractor must respond to emergency situations or calls within two (2) hours.

1.9 CONSTRUCTION SCHEDULE

A. The restoration work of this project will be monitored by a representative of the Engineer for the Owner. Contractor shall notify the Engineer and the Owner a minimum of 48 hours prior to implementing changes to the construction schedule.

B. Proper coordination of all aspects of the work by the Contractor and any sub-trades is critical to ensure proper installation and performance of the work. The Contractor's Construction Schedule shall clearly outline the coordination between job tasks of all involved disciplines. Subject to review and acceptance by the Owner, this Schedule will be strictly adhered to by the Contractor and sub-trades.

C. The Contractor's Construction Schedule shall clearly identify the on-site crew foreman and the size of the crew to be utilized. The crew size shall remain consistent and work shall be continuous throughout the project, from start-up to completion.

D. The Contractor is responsible to provide the Owner and Engineer with a two (2) week look ahead schedule each week, with the intent and scope of work for all work to be performed on the interior of occupied units, clearly defined. The Owner shall review the Contractor's Construction Schedule prior to the start of any work. After defining the location(s) of the work progress, the Owner shall arrange to control occupancy in the Building to the greatest extent possible. It shall be the responsibility of the Contractor to supply the Owner with written notice, 72 hours in advance, if his work location(s) for a workday is different from the schedule. The Contractor shall update his Construction Schedule weekly, and submit a copy to the Owner for review. The Contractor, in conjunction with the Owner, shall control accessing areas of work as required to safe guard the Contractor’s employees and Subcontractor(s); residences, employees, and all other facility users.

E. The Contractor’s schedule shall incorporate diagrams (plans, elevations, or both) to depict the work areas and sequencing. These diagrams will be used to discuss work locations with the building occupants and may be distributed accordingly.

F. The Contractor shall schedule periodic site visits by the Material Manufacturer’s providing the warranty during the construction period. Visits by the Manufacturer's Representative shall be made prior to project start up, one week into the start of construction, at project completion and as requested by the Owner. In addition, the

Contractor is responsible to notify and obtain acceptance from the Material Manufacturer on detail changes that may affect the material warranty.

1.10 SCHEDULE OF VALUES

Provide a line item breakdown of construction labor and materials costs for each Specification Section included in these Contract Documents (Divisions 1 through 32). Additionally, provide line items values for Unit Prices included in these Specifications. Utilize AIA Forms G703 and G703A to prepare and submit the Schedule of Values (SOV). SOV shall be typewritten.

1.11 NOISE

Restoration work shall be performed in accordance with all local noise ordinances.

1.12 PROGRESS MEETINGS

The Owner shall schedule progress meetings as deemed necessary. The Contractor should expect a minimum of a weekly meeting for the majority of the project duration.

1.13 DIMENSIONS AND QUANTITIES

A. Verify dimensions and quantities in the field prior to bid submission. The Project Plans and Drawings have been compiled from various sources and may not reflect the actual field conditions at the time of construction.

B. The Contractor is solely responsible for means and methods of construction. Make necessary investigations (including core samples) and take necessary precautions to properly supply, fabricate, and install work.

C. Additional compensation due to unfamiliarity with project conditions will not be considered.

D. In case of inconsistency between Drawings and Specifications or within either document, the better quality and/or greater quantity of work shall be provided, as determined by the Owner.

1.14 GUARANTIES AND WARRANTIES

A. Refer to specific Sections of this specification for systems and product warranty requirements. Verify with Manufacturer of proposed systems and products that specified warranty requirements are acceptable, without exception, prior to selecting materials for use on this project.

B. Upon completion of the work, and prior to final payment, the Contractor shall submit a Full Warranty of all work performed under the Contract to be free from defect in materials and workmanship. This Warranty shall be for a period of two (2) years, from substantial completion of the final day of work on the specific warranty item, whichever is longer or greater. The warranty shall be signed by a Principal of the

Contractor's firm, and sealed if a Corporation. All repair work performed by the Contractor shall be done so as to return the envelope system, building and grounds to like new condition, as it existed prior to the requiring repairs.

1.15 CLEAN-UP

Restore property of the Owner to its original condition prior to project close-out. Refer to Section 01 50 00, TEMPORARY FACILITIES AND SITE MAINTENANCE. General clean-up of the site shall be performed on a daily basis.

A. Clean, restore and/or replace items stained, dirtied, discolored or otherwise damaged due to the Work, as required by the Owner.

B. Clean building (interior and exterior), roof areas, landscaped and parking areas so they are free of trash, debris and dirt caused by, or associated with the Work.

C. The Contractor will be required to repair all existing landscaping that is trafficked as required to complete the work. Brushes/trees damaged shall be pruned by a professional arborist prior to final payment.

D. Sweep paved areas clean.

E. Site clean-up shall be performed daily.

1.16 SUMMARY OF PROJECT REQUIREMENTS

The Work requirements of the Contract can be summarized by reference to Bid Forms, Contract, General Conditions, Supplementary Conditions, Specification Sections (1-32), Drawings and Details, Addenda and Modifications to the Contract Documents including, but not limited to, the printed matter referenced in these requirements. It is recognized that the Work is affected or influenced by governing regulations, natural phenomenon (including weather conditions), unforeseen conditions uncovered by the Work, and other forces outside of the Contract Documents.

1.17 INDEMNIFICATION AND WAIVER OF LIENS

A. Beginning with the second Application for Payment and thereafter, the Contractor, Subcontractors, Sub-Subcontractors, and Suppliers shall submit an indemnification and Waiver of Liens for the construction period covered by the previous application.

PART 2 - PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

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UNIT PRICES

SECTION 01 22 00

PART 1 – GENERAL

1.1 DESCRIPTION

This Section contains instructions and references other Contract Documents that relate to Unit Prices. The Owner may elect certain aspects of the work, whose quantities cannot be determined at this time, to be performed or deleted by the Contractor. If such work items are elected, the Contract price will be adjusted by the Unit Price amount shown for each item in the Bid Forms.

A. A Unit Price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be **added to or deducted** from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.

B. The Bidders shall submit with their Bids, prices for the performance of Unit Price work. The general scope of the Unit Price work is defined within this section. **Unit price entered by the Bidder for each of the unit price items and repair types must be the same value for either additional quantities (over-runs) or lesser quantities (under-runs). Different unit prices for the same unit repair type will not be allowed. Any bids submitted deemed by the owner and project engineer to be in non-compliance with this requirement will be rejected without exception.**

C. The successful Bidder shall coordinate related work and modify or adjust adjacent work as necessary to ensure that work affected by each Unit Price Item is complete and fully integrated into the project.

D. The specific quantities of Unit Price Work included in the Base Bid are provided herein. This applies to items whose exact quantities are unknown but are anticipated to exist, for example, deteriorated roof decking.

E. The quantities of Unit Price Work listed in this Section and the bid and contract forms **are in addition to the quantities shown on the Contract Drawings (if any).**

F. The Unit Prices requested herein shall include a pro-rata share of all costs for materials, labor, equipment costs, overhead, profit, and applicable taxes.

G. Where not otherwise specified, Unit Prices cover net costs and credits to the Owner for executing authorized changes in the Work. No separate adjustments are made for labor, materials, transportation, handling, storage, overhead, profit, or other related work expenses.

H. If unit price quantities vary greater than twenty (20) percent above the amounts carried in the Base Bid, the Owner reserves the right to re-negotiate lower unit price costs. The Contractor will be required to notify the Owner once they approach this limit as the work progresses.

1.2 SCOPE OF WORK

A. The Unit Prices for items of Work, as set forth in the Schedule of Unit Prices, shall be used to determine adjustments to the Contract Amount when changes in the Work involving said items are made in accordance with the Contract Documents.

B. Materials, methods of installation, and definitions of terms set forth under the various Unit Price items in the Schedule of Unit prices shall be as indicated in the Contract Documents.

C. The successful Bidder shall coordinate related work and modify or adjust adjacent work as necessary to ensure that work affected by each Unit Price Item is complete and fully integrated into the project.

1.3 APPLICABILITY OF UNIT PRICES

A. Prior to commencing removal or replacement of materials set forth in the schedule of Unit Prices, the Contractor shall notify the Owner in sufficient time to permit proper inspection and measurements to be taken. Only quantities that have been approved in writing by the Owner will be considered in the determination of adjustments to the Contract Sum.

B. Unit Price Work includes providing and installing all accessories and appurtenant work necessary to properly execute the Unit Price Work.

C. Performance of work not required by the Contract Documents, or which is not authorized by Change Order or Field Order, whether or not such work is set forth hereunder as a Unit Price item, shall not be considered cause for extra payment. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Owner.

1.4 VERIFICATION OF UNIT PRICE QUANTITIES

The following minimum procedures must be included by the Contractor for each of the indicated unit repair items for the duration of the project:

A. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices and estimated quantities. Methods of measurement and payment for unit prices and estimated quantities are as follows:

1. For work covered by scheduled quantities, notify the Owner and Architect a minimum of 24 hours in advance of the performance of such work.

2. Document such work in writing, identifying type of work, quantity and location of work. Submit documentation on Contractor's letterhead.

3. All documentation of work covered by scheduled quantities will be subject to verification and approval by the Owner and Architect.

4. In order to be considered for payment, documentation for work covered by scheduled quantities shall be submitted within one month of performance of such work. Requests for payment of such work submitted more than one month after the work has been performed will not be accepted.

5. Only documentation signed and verified by the Contractor, Trade, and the Owner's Representative will be considered valid. Documentation not signed by all these parties will be considered invalid.

B. The Contractor shall contact the Owner and Engineer if a Unit Price quantity is anticipated to be reached prior to exceeding that quantity. No additional costs will be awarded to the Contractor for additional Unit Price Work without written approval from the Owner and/or Engineer.

C. The Contractor must provide safe, adequate, and ample access to the Owner and Engineer for verification of the Unit Price Work throughout the course of construction.

D. The Contractor is required to track and record actual placed and completed Unit Price Work throughout the course of construction, and submit a breakdown to the Owner and Engineer on a weekly basis or as requested. The breakdown shall include the following for each Unit Price item:

1. Completed quantity to date
2. Remaining quantity to date
3. Percentage of total quantity remaining

1.5 SCHEDULE OF UNIT PRICES

The unit prices listed below are **above and beyond** that shown on the Contract Drawings and shall be included by the Contractor under the appropriate Base Bid or Alternate Scope of Work. The Contractor's Schedule of Values will carry each item under the bid amount selected for this project. Should the unit price work not be performed on this project, the total amount, or remaining amount if portions of unit price work are performed, shall be credited to the Owner.

Base Bid Unit Prices

Section	Item	Estimated Quantity (**beyond drawings**)	Unit of Measure	Unit Price Dollar/Cents	Total Amount Dollar/Cents
03 45 00	Replace first floor cast-stone banding elements (average five (5) feet per unit)	2	Units	$_____	$_____
03 45 00	Replace third floor cast-stone banding elements (average six (6) feet per unit)	2	Units	$_____	$_____
03 45 00	Replace window sill	2	Units	$_____	$_____
03 70 00	Preparation/Scarifying/Coating of reinforcement at cracked cast-stone elements	100	Linear Feet	$_____	$_____
03 70 00	Concrete spall repair on vertical surface.	10	Square Feet	$_____	$_____
03 70 00	Concrete crack repair on vertical surface.	100	Linear Feet	$_____	$_____
04 21 00	Remove and replace individual cracked/spalled brick masonry units surrounding openings.	10	Units	$_____	$_____
04 21 00	Repoint deteriorated mortar joints surrounding openings	75	Square Feet	$_____	$_____
06 10 00	Replace deteriorated wood blocking at window and entrance openings	300	Linear Feet	$_____	$_____
06 10 00	Replace damaged interior gypsum wallboard, prime and paint	250	Square Feet	$_____	$_____

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

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SUBMITTALS AND SHOP DRAWINGS

SECTION 01 33 00

PART 1 – GENERAL

1.1 SCOPE

The following submittals will be required of all construction materials and systems from the General Contractor:

A. List of materials stating manufacturer's name and address, as well as material trade name and manufacturer's designation

B. Shop Drawings

C. Samples

D. Catalog Data

E. Sheet Metal Mockups

F. Manufacturer's Instructions

G. Contractor's Schedule as it affects the contracted completion date and sequence of construction

H. Certificate of Dumping Facilities

I. Safety Data Sheets (SDS)

J. Health Product Declaration (HPD)

1.2 TIME OF SUBMITTALS

Note: A complete submittal package as specified herein shall be submitted according to the project schedule outlined in the Invitation to Bid. Any hazardous materials abatement submittals shall be sent under separate cover.

A. Bid Submission: Submit three (3) copies of the following information with your Bid Form to the Owner:

1. Refer to Instructions to Bidders regarding information to accompany Bid Forms.

B. Contract Submissions: After award of the Contract by the Owner, provide three (3) copies of the following submittals to the Owner within fourteen (14) days of the Notice to Proceed:

1. Proposed Construction Schedule for completion of the Work specified in this project manual.
2. List of Manufacturers for each product proposed. Include manufacturer's literature with system designations and a sample of the product guaranty.
3. Shop Drawings.
4. Complete Materials List.
5. Manufacturer's Technical Literature.
6. Manufacturer's Instructions.
7. Catalog Data ("SPEC-DATA Sheets).
8. Required construction material samples.
9. List of proposed storage facilities and their location(s).
10. Proposed location(s) of dumpsters.
11. Schedule of Values. Itemize units of work, as they will be shown on the Application for Payment (use AIA Form G703). A value of work shall be itemized for each technical section within the Specification. Schedule of Values to include all unit costs and allowances within the final construction amount.
12. Material Safety Data Sheets (SDS). SDS to be provided prior to work being performed.
13. Emergency Response Contacts.
14. Methods of removal of materials.
15. Asbestos abatement plan.
16. Hazardous material containment/protection/disposal methods.
17. Temporary protection procedures.
18. Staging/set-up procedures.

C. Weekly Submissions: At the end of each week during construction, submit an updated construction schedule showing the amount of completed new work installed and completed with respect to the schedule and anticipated completion date, and a two (2) week look ahead schedule. Update schedule changes.

D. Close-Out Submission: See Section 01 70 00 PROJECT CLOSEOUT for required submittals.

E. Resubmittals: All resubmittals required from the Contractor shall be submitted within five (5) working days of return of original submittals.

F. Permits: Prior to start of construction, the Contractor is to provide the Owner with copies of all building permits, licenses, and other documents required by the General Conditions.

1.3 SHOP DRAWINGS

A. Original Submittal: One (1) reproducible copy and three (3) prints of all shop drawings shall be submitted for approval within five (5) days of Award of Contract.

B. Shop drawings for all aspects of this project shall be submitted. The shop drawings shall include existing conditions, all applicable dimensions, new products to be installed, locations, etc.

C. Resubmittal: When a resubmittal is required, the original transparency so indicating will be returned to the Contractor. After revision of the original, one (1) new reproducible and one (1) print shall be submitted for review.

D. Review: The above procedure shall be repeated until approval is obtained. The original reproducible copy of the reviewed shop drawing will be returned to the Contractor, at which time the Contractor shall make prints in sufficient numbers for the Engineer (four copies), as well as sufficient copies for his use.

E. Shop drawings of an engineering nature shall be sent directly to the Engineer for review, with a copy of the transmittal and one (1) print sent to the Owner.

F. Transmittal: All reproducibles shall be transmitted rolled in mailing tubes and not folded.

1.4 RECORD DRAWINGS

The Contractor shall provide a copy of all Contract Drawings showing as-built conditions and any Contract changes to the Owner at the completion of the project.

1.5 SAMPLES

A. Original Submittal: Four (4) samples, unless otherwise specified, of each item for which samples are required shall be furnished for approval. Approval shall be obtained prior to delivery of the materials to the project site. Such samples shall be representative of the actual material proposed for use in the project and of sufficient size to demonstrate design, color, texture, and finish when these attributes will be exposed to view in the finished work.

B. Resubmittal: All rejected samples will be returned upon request, and any or all resubmittals shall consist of four (4) new samples.

C. Review: Upon approval by the Engineer, one sample so noted will be returned and the remainder will be retained by the Engineer until completion of the work. When requested, all approved samples will be returned for installation, provided their identity is maintained in an approved manner until final acceptance of the project.

D. Important specific samples are specified in Technical Sections of the Specifications. The Contractor is cautioned to quickly provide specified samples.

E. Each submittal item shall have the technical section and paragraph number clearly indicated. All submittal items without the proper designations will be returned and will not be reviewed.

CATALOG DATA

A. Submittals: Unless approved in electronic format, four (4) copies of catalog data are required for the original submittal and each subsequent resubmittal along with shop drawings. Following review, one (1) copy will be returned with its status noted. If approved, such additional copies may be requested by the Engineer and shall be furnished without additional cost.

B. Data: Each submittal shall have all pertinent data contained therein that is applicable to the item submitted for review, adequately and permanently designated.

1.6 MANUFACTURER'S INSTRUCTIONS

Where in these specifications an item is called for to be installed in accordance with the manufacturer's directions, specifications or recommendations, the Contractor shall furnish the Engineer with an electronic copy if approved, or two (2) printed copies of said directions, specifications or recommendations, before the item is installed.

1.7 CERTIFICATES AND GUARANTEES

A. Certificates of performance, treatment, and conformance to specified standards shall be submitted prior to initiating work on the project.

B. Copies of all guarantees required on the project shall be submitted for review and acceptance as to form.

1.8 IDENTIFICATION

A. Data: All submittals for review shall have the following identification data, as applicable, contained thereon, or permanently adhered thereto:

1. Project name and location.
2. Engineer's name.
3. Subcontractor's, Vendor's, and/or Manufacturer's name and address.
4. Product Identification. (It is important that the specific product intended for use is indicated on manufacturer's literature).
5. Shop drawing title, drawing number, revision number, and date of drawing and revision.
6. Applicable Contract Drawings and Specification Section numbers.

B. Catalog Data: Each separate catalog, brochure, or single page submitted shall have the identification required hereinbefore.

1. Catalogs or brochures submitted containing multiple items for approval need the identification on the exterior and on each specific item clearly circled, flagged, or otherwise identified.

2. In the event that one or more of the multiple items are not approved in any submittal, the additional copies required will not be requested until all items are approved.

C. Space: Vacant space approximately two and one-half inches wide by four inches high shall be provided adjacent to the identification data to receive the Engineer's status stamp.

1.9 CONTRACTOR'S RESPONSIBILITY

A. Representation: Submittal of any shop drawing or catalog data, the Contractor thereby represents that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, or will do so, and that he has checked and coordinated each item with other applicable approved shop drawings and the Contract requirements. Certification shall appear on each shop drawing stating that the Contractor has made this check. All drawings without this certification will be returned without examination.

B. Deviations: Changes on the submitted shop drawings that deviate from the Design Drawings must be brought to the Owners and Designers attention in writing prior to review. Changes must be clearly visible on the shop drawings in the form of written notation, ballooning or highlighting the intended change. A written description for the proposed change must also be included and submitted on company letterhead. Changes to drawings and details not submitted in accordance with these requirements will not be recognized as an approved deviation from the Design of Record. Construction repairs, renovations, or replacements required as a result of shop drawing and submittal deviations that are not documented in accordance with these requirements are subject to removal and/or replacement by the Contractor, at the sole cost of the Contractor.

C. Prohibitions: No portion of the work requiring a shop drawing, sample or catalog data shall be started, nor shall any materials be fabricated or installed, prior to the approval of such item.

D. Review: Project work, materials, fabrication, and installation shall conform with approved shop drawings, applicable samples and catalog data.

E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Designer’s receipt of submittal.

1. Initial Review: Allow **10** calendar days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Engineer will advise the Contractor when a submittal being processed must be delayed for coordination.

2. Concurrent Review: Where concurrent review of submittals by the Engineer's consultants, or other parties is required, allow **10** calendar days for initial review of each submittal.

3. Direct Transmittal to Consultant: Where the Contract Documents indicate that submittals may be transmitted directly to Engineer's consultants, provide duplicate copy of the transmittal to the Engineer. The submittal will be returned to Engineer before being returned to Contractor.

4. If intermediate submittal is necessary, process it in same manner as initial submittal.

5. Allow **10** calendar days for processing each re-submittal.

6. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

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TEMPORARY FACILITIES AND SITE MAINTENANCE

SECTION 01 50 00

PART 1 – GENERAL

1.1 DESCRIPTION

A. This Section contains instructions and requirements for the provision and utilization of temporary facilities to protect the Owner's property, the site, and construction materials; and daily maintenance and cleanup of the site during the project.

B. The term “Contractor” referenced in this section shall mean either the General Contractor or Subcontractor, as it specifically affects their work. Refer to the technical sections for additional information.

1.2 CONTRACTOR’S USE OF EXISTING FACILITIES

A. The building will be occupied and in use during construction. The Contractor shall provide all protection, guards and barriers necessary to segregate the work area and adjacent or below areas from pedestrian and vehicular traffic. Protect existing building, building finishes, landscaping and paved areas from damage.

B. Limit use of the premises to the work indicated, so as to allow for the Owner's uninterrupted occupancy and use. Confine operations to the areas indicated under the Contract. Conformance to the regulations set forth by the Owner, regarding use of existing facilities is mandatory.

C. Sanitary facilities shall be provided by the General Contractor. Use of the building's sanitary facilities is not permitted. Facilities shall be ballasted and secured to prevent overturning and unauthorized access. Units shall be placed in Owner approved locations.

D. Owner will assist in controlling occupancy. Contractor shall provide and place portable barricades, as coordinated with the Owner, under work areas inside the building.

E. Take precautions necessary and provide equipment, materials and labor to adequately protect previous construction, the building, its contents and occupants, and surrounding landscaped areas from damage due to construction as well as from inclement weather during construction.

F. Clean interior and exterior areas affected by the construction on a daily basis. Do not allow construction debris, waste materials, tools, excess packaging materials or other construction related materials to accumulate on the roof, in the facility, or at the exterior grounds and pavements.

G. See Section 01 63 00 WEATHER PROTECTION AND MATERIALS STORAGE for product storage facilities and requirements.

1.3 BARRIERS

A. The Contractor(s) shall install temporary fencing, warning lines, barriers, and the like, as required, to segregate the construction areas from existing facilities, occupants and the public. In the event that access cannot be interrupted in the construction area, the Contractor shall provide protection above doorways and walks in the construction area.

B. The Contractor(s) is required to conform to OSHA requirements and all local, state, and federal safety regulations.

C. The Contractor(s) shall provide guard lights on all barriers and all lighting necessary to prevent vandalism of work and storage areas. The Owner is not responsible for Contractor's losses due to damage or theft by vandals.

D. The Contractor(s) shall provide warning lines inside of doors and adjacent to roof areas being renovated.

1.4 ACCESS

A. Provide ladders, scaffolding, staging and hoists as required to access the project area(s) in accordance with OSHA and D.L.W.D. guidelines. Should damage to the building and/or grounds occur, restore damaged areas to the original condition and clean up debris.

B. Where scaffolding and staging is required for the proper installation of the work it shall be erected to provide a minimal impact on the site.

C. All barriers and warning lines shall be installed at the base of any scaffolding or staging and around ground areas below elevated staging.

D. Provide walk through overhead protection where work areas are above doors, walkways, or sidewalks.

E. All scaffolding and staging shall be erected in conformance with all applicable state, federal and local codes. The Contractor shall follow all applicable local, state, and federal requirements regarding the construction of scaffolding and staging and the protection of public safety. Specific reference shall be made to the OSHA Construction Safety Regulations and all requirements of the Massachusetts Department of Labor and Industries.

1.5 UTILITIES

A. Electrical service will be provided to the Contractor(s) free of charge by the Owner through exterior electrical outlets if operable. Use shall be limited to construction

hours. The Contractor, or Subcontractors, will be required to provide their own generators as required to operate dust collection devices and/or equipment which may require large amperage than that available on site. The Owner reserves the right to charge the Contractor(s) for excessive electrical service usage (i.e., wasteful usage). Should charges be considered, the Owner will notify the Contractor(s) in writing of his/her intent, 48 hours in advance. Should the Contractor(s) need to use generators to operate their screw guns and equipment, it will be the responsibility of the Contractor(s) to supply these units.

B. Water for construction purposes will be provided to the Contractor free of charge by the Owner through exterior water spigots if operable. The Owner reserves the right to charge the Contractor for excessive or wasteful use. Should charges be considered, the Owner will notify the Contractor in writing of his/her intent, 48 hours in advance. Drinking water shall be provided by the Contractor.

C. All other utilities (phone, fax, access to the site, sanitary facilities, etc.) required will be provided by the Contractor.

D. Plumbing, heating, and electrical work, including reinstallation of equipment and other work to be performed by the Contractor, shall be carried out without interference to the building's normal operation. Where work requires interruption of service, the Contractor shall make advance arrangements with the Owner for dealing with such interruption.

E. Ensure proper and safe operation and maintenance of utility systems within the construction limits, whether these are supplied by the Owner's distribution system or otherwise, until the work is accepted by the Owner. Maintain and operate appurtenances within the construction area which serve the distribution system, subject to periodic inspection by the Owner's operating personnel. Inspection by any representative or personnel of the Owner shall not relieve the Contractor of his responsibilities in connection with operation and maintenance of these facilities and equipment.

1.6 TEMPORARY PROTECTION

A. Provide suitable Owner approved temporary protection to prevent the entrance of debris and obstructions into the building. Provide warning signs to reroute personnel around areas of dangerous work. Schedule operations to allow for completion of work over a predetermined area within a day's work.

B. Protect materials scheduled to be reused from damage by placing them in labeled containers or wrappings stored in a weathertight trailer.

C. Provide temporary protection such as plywood and tarps for streets, drives, curbs, sidewalks, landscaping and existing exterior improvements during all phases of the project.

D. Provide temporary protection over windows/doors/vents/etc. as required to prevent dust migration into the building.

1.7 WALKWAY COVERING

A. Install walkway coverings above all entrances and at locations required to properly protect all construction and pedestrian personnel from falling debris. Roof coverings over entrances shall be constructed with layers of 3/4-inch thick plywood with a roof span rating of not less than 32-inches. Roof covering supports shall be placed at not more than 32-inches on center for the length of the coverings. The framework supporting the walkway covering shall be free-standing and well braced. The roof covering and support framing shall be designed to support a live load of at least 150 psf. The roof coverings shall be of width sufficient to cover the entrance doorway and extend 8-feet away from the building face. A minimum height clearance of 8-feet, 6-inches shall be maintained for temporary overhead protection. Protection shall be in accordance with all applicable OSHA standards.

B. Provide temporary 60 watt lighting under overhead staging locations where the general public may frequent. Temporary lighting shall be spaced 8' minimum on center.

C. Provide temporary signage as required to show access/egress areas, or temporary closures of entrance ways.

1.8 DEBRIS REMOVAL

A. The Contractor(s) shall supply adequate covered receptacles for waste, debris, and rubbish.

B. All receptacles must be immediately removed from the site when full.

C. The grounds in the area of the receptacle must be cleaned daily and prior to moving the receptacle to another location on the project. Disposal shall be off-site in a legal dump intended for that use.

D. The receptacles shall be located in areas designated by the Owner. Receptacles shall not remain adjacent to the building overnight.

E. Receptacles shall be removed from the site daily. Should, for any reason, receptacle removal is not possible on any given day, the Contractor shall move the receptacle a minimum of 50 feet from the building or as required by local fire officials.

1.9 EXISTING COMPONENT REMOVAL

Under no circumstances shall the Contractor remove the existing systems to the ground in an uncontrolled manner. Machinery or devices used shall be manufactured for this purpose. Adjacent building and property areas shall be protected from airborne debris.

1.10 VOLATILE MATERIALS

A. The Contractor is reminded that the adhesives, solvents, etc., are highly volatile and flammable materials. These materials, along with tools and applicators and rags, shall not be stored on or within the building. Do not transport materials through the building. Take precautions and closely follow the Specification requirements for fire protection on site during construction.

B. Locate and use flame-heated equipment so as not to endanger the structure, other materials on site, or adjacent property. Locate and use flame-heated equipment in specific areas approved by the Owner. Do not relocate flame-heated equipment without prior approval from the Owner.

1.11 FIRE SAFETY REGULATIONS

A. All construction procedures shall comply strictly with the Massachusetts State Building Code, 780 CMR.

B. Comply with local Fire Department and the Building Department requirements.

C. Use only fire-resistant tarpaulins for all weather protection work above basement level. Any salamanders used must exhibit an approval tag by the Massachusetts State Fire Marshal.

D. Weather protection and heating devices shall comply with safety regulations, including provisions for adequate ventilation and fire protection devices. Heating devices that may cause damage to finish surfaces shall not be used.

1.12 HOT WORK REQUIREMENTS

A. Hot work shall comply with NFPA 51B, *Fire Prevention During Welding, Cutting, And Other Hot Work, 527 CMR 1.00 Massachusetts Comprehensive Fire Safety Code*, Chapter 41.

B. The definition of Hot Work as listed in 527 CMR 1.00 and NFPA 51B 3.3.2 and 3.3.6 shall include 1) welding and allied processes, 2) heat treating, 3) grinding, 4) thawing pipes, 5) powder-driven fasteners, 6) hot riveting, 7) torch-applied roofing, and 8) similar applications producing or using sparks, flame, or heat.

C. All hot work including cutting, welding, brazing, etc. shall require a permit from the Carlisle Fire Department. The cost of any required fire watch required as condition of the permit shall be the responsibility of the Contractor. The cost of any local Fire Department paid details is the responsibility of the Contractor.

D. All welding and cutting shall be in accordance with all Carlisle Fire Department regulations.

E. The Contractor shall confirm that all persons engaged in hot work operations on the work site have completed a Hot Work Safety Certificate. Certificate shall be provided by the National Fire Protection Association or equivalent certificate, or course completion as determined and approved by the Head of the Carlisle Fire Department.

F. The Contractor will ensure that the requirements in the Contract Documents and any and all permits issued regarding Fire Protection and Prevention, including firewatch, are strictly adhered to during the entire Contract time, until Final Completion of the Work.

G. Torch cutting and/or welding operations by sub-contractors shall have the approval of the Contractor prior to start of such operations, and sub-contractors shall also submit Hot Work safety certificates.

H. Wherever electric or gas welding or cutting work is done in the vicinity of combustible material, or over areas where persons may be found, interposed shields of fireproof material shall be used to protect against fire damage or injury.

I. Personnel with suitable fire extinguishing equipment, training, and experience shall be stationed near welding and cutting operations to prevent the sparks from lodging in floor cracks or passing through floor or wall openings and from lodging in combustible materials.

J. Chemical extinguishers shall be available and ready for use in all locations where torch cutting and/or welding operations are in progress. At a minimum, chemical extinguishers shall be ten-pound (10-lb) ABC fire extinguishers, or as directed by the fire department.

1.13 PREPARATORY WORK BY THE OWNER

A. The Owner will request the following preparatory work to the building contents below the work areas:

1. Protect and cover fixed items, furniture, equipment, appliances, fixtures, bookcases, etc. within the building adjacent to the work areas.

2. Remove portable furniture, equipment, appliances, fixtures, materials, stock, etc. within the building adjacent to the work area to a remote area for protection.

3. Coordinate with the Contractor the removal, temporarily support, suspend and protect existing items requiring removal during the installation of the new work and properly replace these items to their original condition and to the Owner's satisfaction. These items include but are not limited to suspended ceilings, lighting fixtures, heating and air handing ductwork, electrical conduit, air conditioners, etc.

4. Remove books, desks, and any moveable items away from the work area as defined by the approved work plan. These items shall be restored to their original location upon acceptance of the area as complete.

B. The Contractor is reminded that the interior items are privately owned by the building occupants, and therefore, may have limited control with respect to what may, or may not be relocated.

1.14 PREPARATORY WORK BY THE CONTRACTOR

The Contractor will perform the following preparatory work to the building contents below the work areas:

A. Cover open shelving and office equipment including suspended ceilings, and furniture. No fixtures or appliances will be protected by the Owner.

B. Mask openings to closets, encased bookshelves, cabinets, and similar fixed storage areas.

C. The Contractor shall coordinate the shutdown of air intakes with the Owner's representative so as to prevent intake of dust and fumes.

D. Upon completion of the work, remove all masking and protection and clean and restore the area to the satisfaction of the Owner.

E. Soiled, stained, or damaged floor areas will be cleaned, repaired, or replaced by the Contractor to the satisfaction of and at no additional cost to the Owner.

F. Clean drop ceilings of roof related debris which may be a result of the roofing operations.

1.15 CLEAN-UP

A. Site clean-up shall be to the conditions prior to construction, and to the satisfaction of the General Contractor and Owner. Site clean-up shall be performed daily.

B. All roof, building (interior and exterior), landscape, and parking areas shall be cleaned of all trash, debris, and dirt caused by or associated with the work.

C. All landscape areas damaged or littered due to the work shall be raked clean and re-seeded if required.

D. All paved areas shall be swept clean of debris daily.

E. Any accumulated debris as a result of the roof renovations on the suspended ceiling tiles, or mechanical ductwork, shall be cleaned by the Contractor at no additional cost to the Owner.

F. All areas stained, dirtied, discolored, or otherwise damaged due to the work shall be cleaned, restored or replaced as required.

G. All trash and debris shall be completely removed from the site daily during the work and at the completion of the project. All debris shall be legally disposed of offsite.

1.16 SIGNS

If requested by the Owner, the Contractor shall conspicuously post a project sign at ground level. This sign shall designate the project entrance. Only one (1) entry may be used by the Contractor at each site. The entry location shall be as directed by the Owner.

1.17 ACCESS TO THE WORK

A. The Contractor must secure and coordinate with the Owner prior to entering building units or performing work at the building interior. All access to the roof shall be provided by the Contractor from the exterior of the facility. All roof access locations/methods shall be located at an Owner approved location for this purpose, and shall be made secure at the end of each work day to prevent un-authorized access onto the unit. As an alternative, an extension ladder erected and removed daily will be permitted.

B. The Owner will designate which portions of the site the Contractor may utilize and access for the performances of the work. The Contractor must submit a site plan indicating his locations of set up, material storage, and parking. Parking at other locations throughout the lot, without prior authorization, is subject to vehicle removal at no cost to the Owner.

C. All hoisting of equipment and materials must be done on the exterior of the building. No tools will be permitted inside the building unless they are specific to perform the required work.

D. The Contractors will be required to provide a clean change of clothes, and shall be responsible for any damages or stained interior components should access to the interior be required.

E. The Contractor will be required to provide access to the designer and manufacturer's representatives at no additional cost, to review the work operations, and to perform final observations.

1.18 NOTIFICATION

A. Notify the Owner's Representative at least 72 hours in advance of the desire to extend, connect, disconnect, turn on or off HVAC, steam, electric, water or other services from the Owner's supply system. The actual operation shall be witnessed by authorized representatives of the Owner. Plumbing, heating and electrical work, including installation of equipment and any other work to be performed by the Contractor, shall be carried out without interference with the Owner's normal

operation. Where work requires interruption of a service, make advance arrangements with the Owner for dealing with such interruption.

B. Notify the Owner's Representative at least 72 hours in advance of the desire to work on the interior of a building unit. All interior work must be coordinate with the Owner, and indicated on the two (2) week look ahead schedule to allow for adequate notification to be provided to building unit tenants.

1.19 PARKING

A. Acceptable areas for the location of the Contractor's vehicles shall be as designated by the Owner. No other areas may be utilized without the Owner's Permission. The Contractor is hereby notified that there is limited parking on site, and that carpooling or public transportation should be considered.

1.20 TRAFFIC CONTROL

The Contractor shall arrange and pay for all police details required to control traffic affected by any part of the work.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

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WEATHER PROTECTION AND MATERIALS STORAGE

SECTION 01 63 00

PART 1 - GENERAL

1.1 DESCRIPTION

This Section contains instructions and requirements for the provision and maintenance of adequate delivery, storage and handling on site of products and materials to be utilized in the Work.

1.2 WEATHER PROTECTION

Weather protection shall mean the temporary protection of that work adversely affected by moisture, wind, heat and cold by covering, patching, sealing, enclosing, ventilating, cooling and/or heating. This protection shall be provided for all work areas, the building and its contents, trafficked adjacent areas, and all construction materials and accessories. The cost of heat, fuel and power necessary for proper weather protection shall be the responsibility of the Contractor. Installation of weather protection shall comply with all safety regulations, including provisions for adequate ventilation and fire protection devices.

1.3 FIRE PROTECTION

The Contractor shall provide all necessary temporary fire protection for the building, building contents and materials during construction, in accordance with recommendations of the Newton Fire Department. At no time shall any combustibles by stored inside the building. All adhesives, caulks and cleaning solvents shall be stored well away from the building in a method approved by local fire officials. Should any cutting, burning or welding be necessary, the Contractor shall provide a fire watch. This watch will continue during the operations and for four hours minimum after completion. The Contractor shall also provide incombustible protective blankets where necessary to protect surfaces or building contents from damage. At no time shall open flames be present around adhesives, caulks or cleaning solvents as they will readily ignite. Rags soaked with cleaning solvents shall not be discarded in the dumpsters, but shall be stored in a metal receptacle and removed from the site daily. The Contractor shall be required to comply with all local fire codes and shall obtain all permits necessary from the Newton Fire Department and provide one copy to the Engineer. The Contractor shall also provide recently tested, fully charged fire extinguishers around the storage area, rubbish receptacle and two within 100' of the work area.

1.4 MATERIAL DELIVERY, STORAGE AND HANDLING

A. Deliver materials in sufficient quantity to allow continuity of work. Deliver materials to the site in original sealed containers bearing manufacturer's name and brand designation. Where materials are covered by a referenced specification, containers or packages shall bear specification number, type and class as applicable. Do not deliver materials that are not approved for use. Remove such materials from the site immediately.

B. Store materials in designated storage locations and/or trailers in locations approved by the Owner. Store woodwork on elevated piles to allow air circulation below in accordance with American Plywood Protection guide. Tilt wood piles for effective drainage. Completely wrap materials in waterproof tarps. Tie down tarps to protect against wind blow-off.

C. Handle materials with equipment selected and operated so as not to damage the materials. Seal containers when their contents are not being used to prevent premature curing or damage to materials. Damaged or improperly stored materials shall be marked and removed from the site immediately.

1.5 TOOLS AND EQUIPMENT

Contractor is responsible for delivery, storage, maintenance, and security of tools and equipment.

1.6 INSPECTION AND NOTIFICATION

A. Materials stored on site and subject to damage from wind, precipitation, hail, or other potential climactic conditions will be subject to inspection on a daily basis by the Owner or Owner's Representative.

B. Upon notification by the Owner or Owner's Representative of insufficient protection of or damage to materials on site, the Contractor shall, within 24 hours, properly restore protection and replace or repair damaged materials and systems. Should the Contractor not accomplish immediate repair or replacement when notified, the Owner shall have the proper protection installed at the Contractor's expense.

1.7 MANUFACTURER'S INFORMATION

A. Submit the materials manufacturer's written instructions concerning storage and handling of materials.

B. Provide and maintain on site manufacturer's information concerning storage and handling of flammable or volatile materials, such as Material Safety Data Sheets, for the duration of the project.

C. Comply with the manufacturer's recommendations and these Specifications for on site storage of materials.

PART 2 – MATERIALS

PART 3 – EXECUTION

NOT USED

END OF SECTION

PROJECT CLOSE-OUT

SECTION 01 70 00

PART 1 - GENERAL

1.1 DESCRIPTION

This Section contains requirements for items to be completed by the Contractor prior to Owner's final acceptance.

1.2 SUBSTANTIAL COMPLETION

Substantial completion for this project is defined as the date when the Owner and Owner's Representative mutually agree and certify that all project related work has been properly installed and completed in a manner conforming to the Contract Documents. Work specified within the Contract Documents which has not been performed or has been performed in a manner which does not conform with the Contract Documents shall be deemed as not achieving substantial completion.

1.3 CLOSE-OUT INSPECTION

Notify Owner or Owner’s Representative in writing that the Work of the project has been completed and is ready for inspection. After work is deemed substantially complete, and only minor repair items remain, the Owner's Representative shall tour the project site and compile a list of these items. Minor repair items are those items which have been properly installed and are functional, but which require cosmetic repair or cleaning which does not affect the systems' integrity. A copy of the list shall be sent to the Contractor who shall then correct each item. The Contractor shall certify completion of the itemized repair list to the Owner's Representative and request a re-inspection in writing. Should the Contractor delay correction of the list of items for more than 30 days, the Owner may have the deficiencies repaired by others at the Contractor's expense.

1.4 PUNCH LIST REINSPECTION

After providing written notification to the Owner and Engineer that the punch list work has been completed, the Owner and Engineer will perform one (1) re-inspection. Should additional re-inspections be required due to punch list items which are not completed or improperly completed, the costs of these re-inspections will be assessed to the Contractor as liquidated damages.

1.5 MATERIALS MANUFACTURER'S INSPECTION

After the re-inspection by the Owner's Representative, the Materials Manufacturer shall be required to tour the site. Announce the Materials Manufacturer's site inspection to both the Owner and Owner's Representative 72 hours prior to its occurrence. Provide the Materials Manufacturer's Representative written reports to the Owner indicating the determination of whether the materials have been installed as intended by the Manufacturer to the Owner.

Items determined not so installed shall be removed and reinstalled so as to comply with the Materials Manufacturer's intended use, within the parameters of this Specification at no additional cost to the Owner. Issuance of Warranty prior to Materials Manufacturer's inspection is prohibited.

1.6 PROJECT CLOSE-OUT SUBMITTALS

When both the Owner's Representative and the Materials Manufacturer's Representative agree that the Contractor has performed according to the Specifications and has installed the materials to the satisfaction of the Materials Manufacturer, submit the following:

A. Specified Contractor's and Materials Manufacturer's Warranties and Guaranties.
B. Executed Punch List Inspection Letter.
C. Consent of Surety to Final Payment (AIA Form G707).
D. Lien Releases from Contractor, subcontractor and suppliers (AIA Forms G706, G706A).
E. Contractor’s Affidavit of Payment of Debts and Claims.
F. Final Application and Certificate for Payment.
G. As-built Drawings.
H. MassHousing related documents.
I. Other documents which may be specifically required by the Owner or the Engineer.

1.7 RETAINAGE RELEASE

When guaranties, warranties, certificates of compliance, and lien releases have been received by the Owner, and the Work has been accepted by the Owner as complete, the Owner shall release retainage monies to the Contractor and other monies retained by the Owner to ensure project completion in accordance with the Conditions of the Contract.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

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CAST STONE REPLACEMENT

SECTION 03 45 00

PART 1 - GENERAL

1.1 IN GENERAL

A. Division 1, General Conditions, and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 01 - General Requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03 45 00 – Cast Stone Replacement
B. Section 03 70 00 – Concrete Repairs
C. Section 04 21 00 – Masonry
D. Section 06 10 00 – Rough Carpentry
E. Section 26 10 00 – Temporary Mechanical-Electrical Disconnects

1.3 SCOPE OF WORK

A. Work Included:

Provide all labor, materials, equipment, temporary protection, tools, and appliances necessary to complete the work of this section, as indicated on the Drawings and/or Specification herein. The work includes, but is not limited to the following:

1. Remove and replace the designated cast stone components at the sill, cornice, water table, etc. where indicated on the Contract Drawings. Replace additional units under the Unit Price scope of work.

2. Coordinate the installation of new flashings, coatings and masonry renovations with the other trades.

3. Clean and restore all areas affected by the work.

4. Upon completion of the project, all molds generated for the replacement cast stone components shall be issued to the owner, and stored in an owner approved location on site.

1.4 REFERENCES

A. Conform to the following minimum reference standards:

2005 Technical Manual by the Cast Stone Institute, or latest version
PCI Manual for Structural Design of Architectural Precast Concrete

PCI Manual 117-Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products
ANSI/AWS D1.1.
ANSI/ASTM C31
ANSI/ASTM C143
ANSI/ASTM C150
ANSI/ASTM C260
ASTM C33
ASTM C1364
ANSI/ACI 318
Architectural Precast Concrete (Design Manual) by Precast/Prestressed Concrete Institute, 2nd Ed., 1989, or latest addition
Cast Stone Institute Standard Specification

1.5 SUBMITTALS

A. Shop Drawings and Submittals shall be made in accordance with the General Conditions and Section 01 33 00 – Submittals and Shop Drawings.

B. The Contractor shall prepare and submit for approval complete properly marked setting drawings showing: details and sizes of stones: arrangement of joints, bonding, anchoring details, inserts, joint details, connections to adjoining walls or materials, and method of installation and anchoring.

C. Unless otherwise indicated, shop drawings shall provide the following:

1. Provide suitable wash surfaces on all exterior sill, copings, projecting courses, and pieces with exposed top surfaces.

2. The shop drawings shall show the setting mark of each stone and its location on the structure. The stone, when delivered, shall bear the same corresponding mark on an exposed surface.

D. The shop drawings shall show proof that the anchor system and all details have been reviewed and approved by a registered Professional Engineer, certified in the Commonwealth of Massachusetts for structural integrity.

E. The Contractor shall verify all dimensions and coordinate the drawings with field conditions. The Contractor shall submit the shop drawings to the Engineer for approval.

F. At the completion of the project, the contractor shall provide final documentation of the cast stone mix design and method of material placement, modifications (if any) to the shop drawings for the As Built Conditions, and all molds that were utilized to generate the replacement units.

1.6 JOB CONDITIONS

A. Coordinate the work in this Section with the work by other trades to ensure the orderly progress of the work.

B. Materials which are at a temperature other than the recommended application temperature of the manufacturer or applicable standard shall not be applied.

C. The Contractor shall utilize skilled and experienced specialty workers to install the work. Experienced trade workers shall be utilized for all aspects of the work.

D. Provide masking and protection when applying cleaners and primers to prevent staining or damage to surrounding building finishes.

1.7 QUALITY ASSURANCE

A. The Cast Stone shall, as a minimum requirement, meet all standards for Architectural Precast Concrete set by the Precast/Prestressed Concrete Institute (PCI MNL-117) except where more stringent requirements are described herein.

B. Where the requirements for Cast Stone described in this document differ from the minimum PCI Standards, the more stringent standards shall be followed.

1.8 SAMPLES / MOCK-UPS

A. The Contractor shall submit a 12" x 12" Sample for approval of Color and Texture. The sample shall include the approximate profile of a typical replacement unit for confirmation of site line profiles and configurations for discussion. The texture and color of the cured/cleaned sample shall be compared with a minimum of five existing cast stone components for comparison.

B. Approved sample shall be used as reference sample for acceptance of all pieces on project.

C. The Contractor will be required to provide a full size, 8” minimum wide mock-up of each new cast stone component to confirm that the configuration matches that of the existing stone.

1.9 UNIT PRICES

A. The Contract Drawings designate specific known quantities of cast stone units to be replaced. The Contractor shall carry the below listed additional units under their contract amount in the event that additional deteriorated cast stone is encountered. Any work in addition to those shown on the Contract Drawings shall be either added or deducted based on the unit costs. Refer to the UNIT PRICES Section 01 02 00.

1.10 DELIVERY/STORAGE

A. Should the cast stone components be manufactured off site, they shall be secured on shipping pallets and protected from damage and discoloration.

B. Protect corners from damage.

C. Number each piece individually to match the shop drawings for coordination when placing them within the building elevations.

D. Store cast stone components on pallets with non-staining, waterproofing covers.

E. Ventilate under covers to prevent condensation on the cast stone components.

F. Prevent contact with dirt.

PART 2 - MATERIALS

2.1 CAST STONE UNITS

A. It is the intent of this Specification Section to utilize products manufactured by the following:

a. Continental Cast Stone East Manufacturing Inc.
b. New England Cast in Stone Manufacturing
c. Northern Design Precast, Inc.

B. The Cast Stone used in this work shall match the control sample. The control sample will be determined during the pre-construction meeting, which will be defined as an existing cast stone component that will be the basis for all samples' color and texture composition.

C. Unless otherwise specified, exposed surfaces shall exhibit a "light etch to medium etch" finish similar to the texture of the control sample. No bug holes or blow holes will be permitted, and all material shall be mixed in a mechanical mixer.

D. The samples shall be approved by the Engineer before the manufacturer shall be required to proceed with the work.

E. The cast stone shall have a minimum 6000 psi compressive strength with an 0.45 water to cement ratio.

F. Cement shall be Portland Type I White, meeting ASTM C150, Gray Portland cement will be considered if it will provide an acceptable color match.

G. Fine aggregates shall be carefully graded and washed sand as required to achieve desired texture and color, meeting ASTM C33. The aggregate shall be predominantly marble with manufactured sand.

H. Course aggregates shall be carefully graded and washed crushed white marble as required to achieve desired texture and color, meeting ASTM C33.

I. Cast Stone elements shall be colored with approved pigmentation or dyes not to exceed 5% of the total weight of cementitious material, to achieve desired color.

J. Air entrainment shall be 5-6% using admixture.

K. Water shall be potable.

2.2 REINFORCEMENT

A. Cast Stone shall be reinforced with new billet steel reinforcing bars meeting ASTM A615, grade 40 or 60, when necessary for safe handling, setting and structural stress, and the size of the reinforcement shall be as outlined by the Contractor's cast stone structural engineer based on loading/placing. If the surfaces are to be exposed to the weather, the reinforcement shall be galvanized when covered with less than 2 inches of material for bars larger than 5/8", and 1 1/2" for bars 5/8" or smaller. The material covering shall be twice the diameter of the bars.

B. Dowels and anchors shall be stainless steel type 302 or 304 material.

2.3 MIX

A. All Cast Stone used in this work shall have a minimum compressive strength of 6000 PSI and absorption rate of not greater than 6% when tested in accordance with the requirements of this section. Contractor will be required to provide 28 day compression stress samples for testing (minimum of 2 cylinders per 100 cubic yards of material).

B. Mix shall have 5-6% air entrainment.

C. Water/Cement ratio at time of mix shall not exceed .45/1 by weight.

2.4 TOLERANCES

A. Stone Dimensions - The numerically greater of plus or minus 1/8" in five (5) feet, ¼" in twenty (20) feet or length/360.

B. Setting tolerances - Plus or minus 1/8" out of plane from adjacent unit.

PART 3 - EXECUTION

3.1 GENERAL

A. All cast stone replacement on this project shall be wet cast units; dry tamping replacement will not be permitted.

B. Utilize rotary mixers when fabricating all mortar. Be sure to maintain relative proportions of mortar materials to provide the texture and color to match the existing mortar. Mix all mortar for at least three (3) minutes and not more than five (5) minutes with the minimum amount of water to produce a workable consistency. The maximum amount of water to produce a workable consistency. The maximum allowable air content of cured mortar shall be 12% by volume. Retempering of mortars that have stiffened because of evaporation of water will be allowed in order to provide the proper consistency provided all mortar in a batch is utilized within two (2) hours of initial mixing.

C. Do not leave any partially completed sections exposed to the elements overnight. Provide all devices (including heaters and insulation) necessary to maintain areas at the correct temperature and humidity for proper curing of mortar.

D. Keep covers tight on all evaporative products to prevent premature curing.

E. Do not install the cast stone units until the supporting masonry or concrete has attained minimum allowable design compressive strength should the adjacent components been replaced.

3.2 SETTING

A. All cast stone shall be set by experienced masons, accurately and in accordance with the shop and setting drawings. Unless otherwise noted, every stone shall be set in a full bed of mortar, with all vertical joints flushed full. All anchors and dowels shall be firmly placed and all anchor holes and dowel holes and similar holes completely filled with mortar or non-shrink grout.

B. Coordinate the installation of replacement throughwall flashings at those areas designated on the contract drawings.

C. All anchors, dowels and other anchoring devices shall be furnished by the setting contractor as shown on the approved shop drawings using, whenever possible, standard building stone anchors commercially available in stainless steel Type 302 or 304.

D. When setting with mortar, all stones not thoroughly wet shall be drenched with clear water just prior to setting.

E. Do not use pry bars or other equipment that could damage cast stone components.

F. After each stone has been set, all joints shall be raked to a depth of 3/4" from the face for pointing. The face of each stone shall then be sponged off to remove any splashed mortar or mortar smears.

G. Only the ends of lugged sills and similar stones shall be embedded in mortar. The balance of joint to be left open until pointing of stone work. Then tuck points on face only to a depth of 3/4".

H. All cornices, copings, projecting belt courses, water tables, sills, and, in general, all stone areas either partially or totally horizontal shall be repointed.

I . All stones shall be protected from splashing mortar or damage by other trades. Any foreign matter splashed on the stone should be removed immediately, following manufacturer's recommended procedures.

3.3 PATCHING AND CLEANING

A. The repair of chipped or damaged cast stone shall be done only by mechanics skilled in this class of work, with material furnished by the Manufacturer and according to this direction. Refer to Section 03 70 00 – Concrete Repair for additional information.

B. Before pointing, the face of the cast stone shall be scrubbed with a fibre brush, using soap powder and water and shall then be thoroughly rinsed with clean running water. Any mortar on the face of the cast stone shall be removed. No acids or prepared cleaners shall be used without the approval of the Cast Stone Manufacturer.

END OF SECTION

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CONCRETE REPAIR

SECTION 03 70 00

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The General Conditions, and all parts of the Bid and Contract Documents, are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 01 - General Requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Section 03 45 00 – Cast Stone Replacement
B. Section 04 21 00 – Masonry
C. Section 06 10 00 – Rough Carpentry
D. Section 08 50 00 – Metal Windows
E. Section 26 10 00 – Temporary Mechanical-Electrical Disconnects

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, equipment, staging, temporary protection, tools and appliances necessary for the proper completion of the work in this section. All roof top concrete repairs shall be completed and accepted prior to initiating the roof replacement work.

A. Repair spalled and/or deteriorated concrete at locations and as indicated in the Contract Documents. Repair additional sections under the Unit Price scope of work.

B. Repair cracked concrete at locations and as indicated in the Contract Documents. Repair additional sections under the Unit Price scope of work.

C. Scrape, clean, and coat exposed steel components prior to patching concrete. Repair additional sections under the Unit Price scope of work.

D. Clean all areas affected by the Work.

1.4 JOB CONDITIONS

A. The Contractor shall supply, install and maintain all shoring, supports, barriers, protection, warning lines, lighting and personnel required to support the structure, fixtures and facilities affected by his work and segregate the work area(s) from

pedestrian or vehicular traffic, as well as to prevent damage to the building, occupants and the surrounding landscaped and paved areas.

B. Coordinate the work in this section with the work by other trades to ensure the orderly progress of the Work. All concrete repairs adjacent to windows will be performed prior to the window rehabilitation.

C. Materials which have a temperature other than the application temperatures of the manufacturer shall not be applied.

D. Under no circumstances shall the Contractor remove existing materials and systems to the ground in an uncontrolled manner. Machinery or devices used shall be manufactured for this purpose. Adjacent building and property areas shall be protected from airborne debris.

E. During removal operations, the Contractor is responsible for the containment of all dust, dirt, and debris resulting from the work. The Contractor shall collect and contain all materials and repair any resulting damage to adjacent surfaces, site fixtures or personal property. Specific attention is drawn to the use of chemicals and cleaners.

1.5 REFERENCES

A. "Standard Specifications for Structural Concrete" (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except where more stringent requirements are shown of Drawings or specified herein.

B. Comply with provisions of following codes, specifications, and standards except where more stringent requirements are shown on Drawings or specified herein:

1. "Building Code Requirements for Reinforced Concrete" (ACI 318). American Concrete Institute, herein referred to as ACI 318.

2. "Standard Specification for Bonding Hardened Concrete, Steel, Wood, Brick, and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive" (ACI 503.1), American Concrete Institute.

3. "Hot Weather Concreting," reported by ACI Committee 305 (ACI 305R-91).

4. "Cold Weather Concreting" reported by ACI Committee 306 (ACI 306R-88).

5. ICRI: International Concrete Repair Institute.

6. ASTM: American Society of Testing and Materials.

1.6 SUBMITTALS

A. Submit all bond agent and repair mortar data sheets to Designer for all approval of use. Indicate intended use on each data sheet.

B. Submit associated equipment and materials list.

C. Submit means and methods proposed for curing and protecting all repairs, and for masking surrounding surfaces and protecting public from overspray, etc.

1.7 WARRANTIES

A. Upon completion of the work and prior to final payment, the Contractor shall submit a guarantee of his work as free from defect in materials and workmanship. The guarantee shall be for a period of two (2) years. The guarantee shall be signed by an officer of the Contractor's firm and sealed if a corporation.

B. Sealant Manufacturer's Warranty

1. Written warranty, signed by sealant manufacturer, including:

a. Repair or replace sealant that does not comply with requirements; that do not remain watertight; that fails in adhesion; cohesion, or general duration; or that deteriorates in manner not clearly specified by submitted sealant manufacturer's data as inherent quality of material for application indicated.
b. Removal and replacement with new bond breaker materials.
c. Labor and materials to perform warranty work.
d. Warranty does not include sealant deterioration or failure due to following:
1) Excessive joint movement caused by structure settlement or errors attributable to design or construction, resulting in stresses in sealant exceeding sealant manufacturer's written specifications for sealant elongation or compression.
2) Deterioration or failure of sealant due to failure of substrate prepared according to requirements.
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.

2 Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SALVAGED MATERIALS AND ITEMS

All building materials, equipment and debris of whatever nature from the portions of the existing structure removed under this project and not designated to be reused or reinstalled shall become the property of the Contractor and legally disposed of off site.

2.2 SPALL REPAIR MORTAR

A. Patching mortar for shallow vertical concrete spalls shall be a polymer modified cementitious repair mortar, such as SIKAREPAIR 223 by Sika Corporation or approved equal.

B. Form and pour repairs, for spall depths greater than 2 inches, shall be a poly-modified cementitious mortar with high bond strength for use at vertical and overhead surfaces, such as Sika MonTop611 as manufactured by Sika Corporation, or approved equal.

2.3 PORE SEALING/RESURFACING MORTAR

A. Repair mortar for filling bug holes, honeycombing, shallow surface imperfections, air holes, holidays, minor repairs for gouges and shallow broken edges, etc., shall be:

1. SikaTop 121 Plus or SikaTop 122 Plus; Sika Corporation, Lyndhurst, NJ
2. SD2 Repair Mortar; BASF Construction Chemicals, Shakopee, MN
3. Emaco R300 C1; BASF Construction Chemicals, Shakopee, MN
4. Tnemec Series 216 Quick-Fill; Tnemec Co., Inc.

2.4 MORTAR BONDING AGENT/REINFORCING PROTECTION

A. Bonding agent for application onto prepared spall repair substrates as well as anti-corrosion coating for cleaned steel reinforcement shall be:

1. Sika Armatec 110 EpoCem; Sika Corporation, Lyndhurst, NJ
2. Rebar Primer and Bonding Agent; BASF Construction Chemicals, Shakopee, MN
3. Emaco P24; BASF Construction Chemicals, Shakopee, MN

2.5 ACCESSORY MATERIALS

A. Fasteners for concrete spalls that exceed 1-1/2" in depth shall be minimum 1-1/2" long by 1/4" diameter drive pins in stainless steel sheaths as manufactured by Star, Rawl, Hilti, or equal. Embedment into substrate shall be 1-1/4" minimum. It is recommended that stainless steel pins have through-holes at exposed ends to accept tie wire.

B. Type 304 stainless steel wire mesh to be wrapped around drive pins for concrete spalls that are in excess of 1½" deep shall be a 2" x 2" grid mesh, 14 gage wire (minimum).

C. Burlap for curing patches shall be heavyweight burlap cloth.

D. Polyethylene for curing patches shall be 6-mil polyethylene plastic sheet, or equal.

E. Duct tape for curing patches shall be completely strippable commercial duct tape.

2.6 ROUT AND SEAL

A. Sealant for crack repairs shall be a 2-component, non-sagging, solvent-free, moisture tolerant flexible epoxy sealer and adhesive such as Sikadur 51 ns as manufactured by Sika Corporation, or approved equal.

PART 3 - EXECUTION

3.1 GENERAL WORKMANSHIP

A. Do not deliver to site or install any material or system that has not been approved. Materials installed without approval may be required to be removed.

B. The prepared concrete surfaces must be dry, clean and smooth. Provide dryers, if necessary, to dry concrete surfaces prior to installing new work. Open flame devices shall not be used.

C. Comply with the manufacturer's written instructions and these Specifications for all renovations and associated work.

D. Partial or unmarked cans or rolls of materials cannot be used.

E. Verify that all surfaces have been demolished to the specified depth and surface profile, and thoroughly cleaned for the areas to receive repairs.

F. Do not leave any partially completed sections exposed to the elements overnight. Provide all devices and protection (including heaters, dehumidification, ventilation, etc.) necessary to maintain areas and surfaces at the proper temperature, humidity,

and surface moisture content for the curing of repair mortar, epoxy, and other materials.

G. No concrete repair work shall be executed when the temperature in the work areas has dropped below 50 degrees Fahrenheit, unless heated. Consult the manufacturers of the materials for proper application and storage procedures.

H. In all cases, the prepared surfaces ready to receive concrete repair and coating work, shall be maintained with adequate temporary protection to keep atmosphere and construction related contaminants (dust, debris, water, dirt, laitance, grease, oil, coating overspray, etc.) or any bond inhibiting contaminants from depositing on prepared surfaces.

I. The Contractor shall coordinate all project phasing to avoid delays in the work. Surface contamination or repeated surface preparation and cleaning will not be cause for additional contract costs or extension of contract time.

J. The Contractor shall submit a phasing diagram and work schedule with his bid submission. The phasing diagram and work schedule shall be updated and submitted to the Owner on a weekly basis during the progress of the work.

3.2 SURFACE CLEANING

A. All surfaces to receive spall repairs shall be free from all surface contaminants and thoroughly washed, using high-pressure water or equivalent quality washing methods as approved by the Designer. All building components and public shall be protected from these procedures at all times.

B. Mask and protect adjacent surfaces and components to remain with duct tape and polyethylene sheeting, or similar sheeting.

3.3 CONCRETE SPALL REPAIRS

A. Remove areas of spalled, cracked, loose or otherwise unsuitable concrete from the existing roof deck surfaces. Define all repair areas with 1/4” deep perimeter saw cut. Undercut or “key” in spall repair edges on at least two opposite sides to mechanically retain the repair. Cuts shall not overlap at corners.

1. Using hand and electric power tools (15 lb. Maximum chipping hammers) remove all areas of deteriorated, delaminating, debonded, spalled or otherwise damaged concrete from existing surfaces, as required to install the new work. Sound concrete areas adjacent to cracks to determine additional spall areas. Removal of deteriorated concrete and surface preparation shall be completed as recommended by the patching mortar manufacturer and as outlined within these specifications.

2. Undercut or “key” in spall repair edges on at least two opposite sides to mechanically retain the repair.

3. Prepare the surface of the existing concrete to receive the bonding agent and repair mortar. Provide a 1/2" minimum aggressive surface profile with fractured aggregate (ICRI-CSP 8 or CSP 9). Tool marks should be visible. Examine substrate for cracks and treat with specified crack repair procedure.

4. Thoroughly clean all reinforcing or embedded steel and provide supplemental steel in accordance with this Section.

5. Completely remove all dust, grease, and other impurities via high-pressure water wash or equal, combined with wire brushes, chipping, grinding, or other methods as required to achieve acceptable bonding surfaces. Dampen the existing surface area with clean potable water, to obtain saturated-surface-dry (SSD) conditions.

6. Apply coating/bonding agent to all substrate surfaces and reinforcing steel as recommended by the repair mortar manufacturer. Provide one coat on concrete substrates and two coats on all steel items. Slurry scrub repair mortar into prepared damp substrates.

7. Install repair mortar to properly prepared areas within a time period to achieve a "wet-on-wet" mortar application. Mix repair mortar in accordance with the material manufacturer's instructions. At vertical spall repairs with a depth greater than 1-1/2", provide pinning and mesh reinforcement. At vertical and overhead spall repairs with a depth of 1-1/2" or less, provide pinning without mesh at 3 inches on center each way. Utilize the manufacturer's recommended mix rates.

8. Vertical spall locations that exceed 1-1/2" depth shall have specified drive pins installed into the substrate. Drive pins shall be spaced 6" maximum on center with a minimum of 2 pins per spall, and have stainless steel wire mesh or hot-dip galvanized wire mesh wrapped throughout the repair to act as a reinforcement line upon installation of the patching materials.

9. The concrete substrates require wetting with water to obtain SSD conditions prior to installing the bonding agent. Consult with the manufacturer's instructions prior to initiating repairs.

10. Finish the repairs flush with the existing surfaces. Insure that the surface, texture, and profile is roughed and textured match surrounding concrete and to achieve proper mechanical bond with the later applied coating primer. Do not feather edge repairs, but install in 1/4" minimum applications, or as otherwise limited by each materials manufacturer's limitations.

11. Clean uncured materials off of undesired areas with a moist sponge or cloth immediately after application.

12. Provide for proper cure of patch as recommended by the repair material manufacturer. At a minimum, curing shall consist of wet burlap placed over the repair area, continuously wetted to provide a constantly moist burlap and enclosed with polyethylene, duct taped to the adjacent surfaces. Curing materials shall remain in place for the minimum manufacturer's specified time based upon surface and ambient temperatures and humidity.

13. After curing repair, remove all traces of adhesive and dirt left on surfaces from duct tape and masking. Use solvent wipes and touch grinding as required.

3.4 REINFORCING AND MISCELLANEOUS EMBEDDED STEEL AT SPALL REPAIR

Should embedded steel be encountered during the renovations of this project, they shall be treated as follows:

A. Perform surface preparation as described previously, and as recommended by the repair mortar manufacturer. Should reinforcing bars be encountered, perform the following work:

1. All reinforcing steel bars exposed which have rust (greater than mild surface rusting) that extends to the back of the bar, or where concrete has cracked due to expansive forces from corroding steel, shall have the concrete removed from the full circumference of the bars to provide a minimum clearance of 3/4" all around. If more than one half of any bar diameter is exposed during demolition, remove concrete from the full circumference of bar with minimum 3/4" clearance all around.

2. Reinforcing steel must be mechanically or sandblast cleaned and free of rust, scale, grease, oil, and other bond-inhibiting matter in accordance with SSPC – SP11, at a minimum, and as required by the rebar coating/boding agent manufacturer. This can be accomplished using power tools, sandblasting, or similar approved methods.

3. Miscellaneous embedded steel items requiring cleaning shall be sand-blasted or mechanically ground to shiny steel.

4. After cleaning of reinforcement and embedded steel to bare metal, thoroughly examine and determine section loss. Bars with 25% or greater section loss shall receive supplemental steel. New steel bars shall be placed and tied alongside of existing corroded bar at 1-1/2" depth from surface (where possible). Bar lap shall be developed 20 bar diameters, each end, beyond point of corroded bar. Remove additional concrete as required to fit bar and develop lap lengths. New bar diameter shall match existing nominal bar diameter prior to corrosion. In all cases, new reinforcement shall have a minimum concrete or mortar cover of 1-1/2 inches. Notify Designer in writing if 1-1/2" of concrete cover is not present, nor achievable.

5. At discontinuous ends of reinforcement, or where 20 bar diameter lap is not possible, supplemental reinforcement may be drilled and epoxied into the substrate adjacent to existing corroded bars. Drill hole 1/4" diameter larger than bar diameter at a depth 10 times the bar diameter. Maintain a minimum 2" cover and edge distance at all drilled hole locations. Clean hole and fill with a high modulus, high-strength, structural epoxy paste adhesive

conforming to ASTM C-881 and AASHTO M-235 specifications. Fully insert bar into center of epoxy filled hole.

6. Apply epoxy coating/bonding agent to all exposed steel and concrete bonding surfaces using brushes in strict accordance with the bonding agent manufacturer's written requirements. Use two coats on steel, and one coat on concrete substrates.

7. Apply repair mortar as specified and recommended by the manufacturer.

8. Clean areas adjacent to the repair area prior to curing with a moist sponge or cloth immediately after application.

9. Apply all curing materials and techniques as specified in this Section.

3.5 SURFACE IRREGULARITIES/PORE-SEALING REPAIRS

A. Remove all deteriorated concrete or cementitious fill, dirt, oil, grease, and all bond inhibiting materials from the surface.

B. Use a mechanical grind wheel as necessary to remove all traces of loose or protruding aggregate, excessive cement paste, laitance, scaling, fins, forming irregularities, and thin nosings surrounding bug holes.

C. Obtain an open pore, textured (ICRI-CSP-4 minimum) consistent surface by mechanical preparation.

D. Provide a saturated surface dry (SSD) substrate with potable water.

E. Apply the specified bonding agent as required by manufacturer to all SSD substrate, at honeycombed areas, and other surface irregularity areas. At bug holes, holidays, and single "pock-marked" surfaces, the bonding agent may be eliminated and a scrub coat of the specified pore sealing/resurfacing mortar will be used.

F. The specified repair mortar shall be applied to the scrub coat and bonding agent to achieve a wet-on-wet application.

G. At smaller surface imperfections, apply the resurfacing mortar by rubber float into the prepared surface followed by a sponge – finish to remove excess material.

H. Allow repair to fully cure prior to applying the coating system.

3.6 CLEAN-UP

A. Crack Preparation

1. Rout or “vee” crack by saw cutting to a minimum depth of 1/2".

2. Clean the routed crack and adjacent area of all loose material with high pressure air to blow the crack clean.

3. Clean all substrates to receive the sealant using the manufacturers recommended cleaners and surface preparation techniques. The removal and cleaning of sealants and adhesives shall be as specified herein and in accordance with the sealant manufacturer’s written recommendations.

4. Clean each previously prepared bonding surface with applications of the manufacturers recommended solvent and clean white rags. Apply solvent by brush and wipe surfaces clean. Repeat a minimum of 2 times, more often if necessary.

5. Primer shall be applied to all properly prepared, cleaned and dry substrates. Primer shall be recommended and approved by the sealant manufacturer for each substrate and shall be completely compatible with the existing materials and proposed sealants and accessories.

6. Primer shall be applied and allowed to dry prior to the application of the sealant.

B. Sealant

1. Precondition sealants to a temperature between 60 and 75 degrees or as required by the manufacturer. Apply sealant to clean dry surfaces only when the ambient temperature is between 60 and 85 degrees F.

2. All sealants shall be applied to clean, dry joints by knife, trowel, manual or air pressure caulking guns using proper nozzle sizes.

3. Sealant shall be forced into the joint to completely fill the void and achieve full “wet out” of the bonding surfaces. Force sealant into the joint and against the sides of the joint. Avoid pulling sealant from sides.

4. Tool sealant immediately to assure full adhesion. Sealant shall be dry tolled to be straight, uniform, smooth and neatly finished to the profiles detailed and to shed water. No soaps, wetting or slicking agents will be allowed.

3.7 CLEAN-UP

Prior to acceptance of the work covered in this section, the Contractor shall perform a thorough clean-up of the work site, building surfaces, etc. Any items damaged shall be repaired or replaced to its condition prior to the commencement of construction operations at no additional cost to the Owner.

END OF SECTION

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MASONRY

SECTION 04 21 00

PART 1 - GENERAL

1.1 IN GENERAL

A. The General Conditions, and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 01 - General Requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03 45 00 – Cast Stone Replacement
B. Section 03 70 00 – Concrete Repairs
C. Section 06 10 00 – Rough Carpentry
D. Section 08 50 00 – Metal Windows
E. Section 26 10 00 – Temporary Mechanical-Electrical Disconnects

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, equipment, staging, temporary protection, temporary heat if required, vacuums, generators, tools and appliances necessary for the proper completion of the work in this section.

A. Cut and point designated brick masonry mortar joints at locations and as shown on the Contract Drawings. Perform additional renovations as Unit Price Work.

B. Remove and replace damaged, cracked or spalled brick masonry units at locations and as indicated on the Contract Drawings. Perform additional renovations as Unit Price Work.

C. Remove and replace deteriorated steel lintels and install new throughwall flashing components at locations and as indicated in the Contract Drawings. Coordinate replacement of cast stone elements at designated locations with Section 03 45 00 – Cast Stone Replacement.

D. Provide temporary protection to the existing and new roofing, window, building and ground surfaces to prevent damage due to the work.

E. Provide all dumpsters for masonry waste material.

F. Provide all access to perform masonry renovations, including temporary protection.

G. Clean all surfaces at locations and adjacent to where masonry renovations are performed.

1.4 JOB CONDITIONS

A. The Contractor shall supply, install and maintain all shoring, supports, barriers, protection, temporary heat, warning lines, lighting and personnel required to support the structure, fixtures and facilities affected by his work and segregate the work area(s) from pedestrian or vehicular traffic, as well as to prevent damage to the building, occupants and the surrounding landscaped and paved areas.

B. The Contractor shall use dust collection vacuums (HEPA vacuums) to limit airborne dust associated with grinding the existing mortar joints. All costs associated with additional power generators shall be the Contractor's responsibility.

C. Coordinate the work in this section with the work by other trades to ensure the orderly progress of the work. All masonry repairs above the roof line and adjacent to windows will be performed prior to the roof and window rehabilitations.

D. Materials which have a temperature other than the application temperatures of the manufacturer shall not be applied.

E. Cold Weather Application - (Applies only to rebuilding, no repointing shall be completed when air temperature is less than 40^{o}F). The Contractor shall comply with the following cold weather masonry construction requirements at no change in contract price and provide all necessary heat:

1. The cold weather construction and protection requirements shall be closely followed.

2. Construction materials shall be received, stored, and protected in ways that prevent water from entering the materials.

3. If climatic conditions warrant, temperatures of construction materials should be measured. Frozen sand and wet masonry units must be thawed. Masonry units below 20 F must be heated above 20 F without overheating.

4. Sufficient mortar ingredients should be heated to produce mortar temperatures between 40 F and 120 F. Every effort should be made to produce consecutive batches of mortar with the same temperatures falling within this range. The mortar temperature after mixing and before use should be above 40 F, maintainable either by auxiliary heaters under the mortar board or by more frequent mixing of mortar batches. Heated mortar on mortar boards should not become excessively hot (greater than 120 F).

5. During below-normal temperatures, masonry should be placed only on sound unfrozen foundations. Masonry should never be placed on a snow or ice-covered surface, because of the danger of movement when the base thaws and the possibility of very little bond being developed between the mortar and the supporting surface.

6. At the end of the day, the top surface of all masonry should be protected to prevent moisture, as rain, snow or sleet, from entering the masonry. This protection must cover the top surface and should extend a minimum of 2 feet down all sides of the masonry.

WORK DAY TEMPERATURE	CONSTRUCTION REQUIREMENT	PROTECTION REQUIREMENT
Above 40 F	**Normal masonry procedures.**	*Cover walls with plastic or canvas at end of work day to prevent water entering masonry.*
40 F - 32 F	**Heat mixing water to produce mortar temperatures between 40 F - 120 F.**	*Cover walls and materials to prevent wetting and freezing. Covers should be plastic or canvas.*
32 F - 25 F	**Heat mixing water and sand to produce mortar temperatures between 40 F - 120 F.**	*With wind velocities over 15 mph provide windbreaks during day and cover walls and materials at the end of the work day to prevent wetting and freezing.*
25 F - 20 F	**Mortar on boards should be maintained above 40 F.**	*Maintain masonry above freezing for 16 hours using auxiliary heat or insulated blankets.*
20 F - 0 F and below	**Heat mixing water and sand to produce mortar temperatures between 40 F - 120 F.**	*Provide enclosures and supply sufficient heat to maintain masonry enclosure above 32 F for 24 hours.*

Note: Construction requirements, while work is in progress, are based on *ambient* temperatures. Protections requirements, after masonry is placed, are based on *mean* daily temperatures.

F. Hot Weather Application - The Contractor shall keep the areas being built sufficiently moist at all times during the operations. Mortar mixed and ready for application shall be used within one hour's time and continually remixed to prevent excessive evaporation of moisture from the mortar. Discard all mortar which has begun to set

or is not used within two hours time. Water for tempering shall be available at all times.

G. Under no circumstances shall the Contractor remove existing materials and systems to the ground in an uncontrolled manner. Machinery or devices used shall be manufactured for this purpose. Adjacent building and property areas shall be protected from airborne debris.

H. All areas of existing brick masonry removed shall be replaced or made secure and weathertight during the same day. No building interiors, whether new or existing shall be left exposed to the weather at the end of each workday.

I. During removal operations, the Contractor is responsible for the containment of all dust, dirt, debris, overspray and run-off resulting from the work. The Contractor shall collect and contain all materials and repair any resulting damage to adjacent surfaces, site fixtures or personal property. Specific attention is drawn to the use of chemicals and cleaners.

J. The Contractor shall put silt debris protection within the adjacent roofing drains to collect masonry dust from entering the leader lines.

K. Fully charged, inspected and approved fire extinguishers shall be on site at all times. No cutting, grinding or welding of any kind shall proceed without an approved fully charged fire extinguisher.

L. The general nature, quantity and surface area of the various work items are shown on the Contract Drawings.

M. Masonry repairs to be performed from the roof, including but not limited to repointing, sealant replacement, steel lintel replacement, throughwall flashing replacement and associated work shall be completed and accepted prior to initiating the roof replacement work. Under no circumstances shall this work be performed above newly installed roof systems.

N. The Contractor shall provide a dust proof site during the course of the work. Wet cutting methods, dust tight staging and enclosures as well as other methods shall be employed as necessary to meet this requirement.

1.5 DIMENSIONS AND QUANTITIES

All dimensions and quantities shall be determined or verified by the Contractor. The Contract Drawings have been compiled from various sources and may not reflect the actual condition at the moment of construction. The Contractor is cautioned to take all precautions and make all investigations necessary to install the proposed work. The Owner will not consider unfamiliarity with the job conditions as a basis for additional compensation.

1.6 SUBMITTALS

A. Submittals shall be made in accordance with the General Conditions and Section 01 33 00 – Submittals and Shop Drawings.

B. The Contractor shall submit the following items with their submittal package:

1. Methods of removal of materials
2. Temporary protection procedures
3. Staging/set-up procedures
4. Program for containment of cleaning chemicals

C. Submit a range of brick masonry units to match the existing color, size and texture.

D. Proposed method for providing shoring during installation of new throughwall flashing.

E. Proposed method of providing a dust proof site (dust removal) during masonry demolition work.

F. Proposed method of protection for adjacent landscaping, pavement, walkways, site plantings, and related sitework from damage.

1.7 TEST AREAS

A. Before full scale work is commenced, execute the following work for trial work areas to be reviewed by the Owner as to acceptability of color, texture and appearance match with the existing construction. Test areas will be at locations established by the Owner and Engineer:

1. 2 linear feet of throughwall flashing mock-up, including soldered connections, into the wall system
2. 2 linear feet of lintel flashing, including an end dam with soldered connections, into the wall system
3. 5 individual brick masonry units showing the range and blend of the colors
4. 2 square feet of brick masonry repointing
5. 5 square feet of brick masonry cleaning

B. A minimum of three (3) mortar samples will be required for the owner's review. However additional samples may be required due to the number of individual roof areas and wall elevations which are to be worked upon. In wall samples are preferred for large scale repointing, whereas sample cubes will be considered for isolated repair locations to match the existing mortar.

C. Prepare, install and cure all materials in accordance with these specifications and the manufacturer's instructions.

D. Trial areas shall be repeated until acceptable results are obtained. The accepted work shall be a standard for all subsequent work. Areas of masonry repointing shall be allowed to weather for seven days prior to Owner acceptance.

1.8 UNIT PRICES

A. The removal and replacement or repointing of masonry components shall be as described in this section, and Section 012200 – Unit Prices. The contract drawings shown known quantities of areas to be addressed. The quantities listed in Section 012200 – Unit Prices shall be carried under the Contractor's Base Bid amount in the event that additional deteriorated components are encountered.

B. All unit prices which exceed those shown on the Contract Drawings are to be presented to the Owner's representative prior to authorization and/or reimbursement to the Contractor. Should the Owner's representative not be present at the time the Unit Price items are encountered, the Contractor will be required to provide photographs of such areas at the next construction meeting for the Owner to consider approving the additional Unit Price work.

1.9 CLEAN-UP

A. Site clean-up shall be complete and performed daily to the satisfaction of the Owner.

B. All roof, building (interior and exterior), landscape and parking areas shall be cleaned of all trash, debris and dirt caused by, or associated with, the work.

C. All trash and debris shall be completely removed from the site daily during the work and at the completion of the work. All debris shall be legally disposed of off-site.

WARRANTIES

A. Upon completion of the work and prior to final payment, the Contractor shall submit a guarantee of his work as free from defect in materials and workmanship. The guarantee shall be for a period of two (2) years. The guarantee shall be signed by an officer of the Contractor's firm and sealed if a corporation.

PART 2 – MATERIALS

2.1 SALVAGED MATERIALS AND ITEMS

All building materials, equipment and debris of whatever nature from the portions of the existing structure removed under this project and not designated to be reused or reinstalled shall become the property of the Contractor and legally disposed of off site. The Contractor will be required to place all discarded materials in the appropriate rubbish receptacles for legal disposal by the Contractor.

2.2 BRICK MASONRY

A. Replacement brick masonry shall conform to ASTM C 216, Grade SW, Type FBS specifications. Brick shall match existing in size, configuration, color and texture. The majority of the brick masonry units appear to be 2-1/4" x 3-1/2" x 7-7/8" in dimension. However, these units vary and will require confirmation prior to ordering.

B. All brick shall be submitted to the Owner for acceptability as to color and appearance match with the existing brick. The Contractor may be required to submit additional brick samples for approval. No brick shall be purchased or installed until approval by the Owner is obtained.

1. Brick masonry units previously approved as part of masonry repair work on past projects on this facility include; Stiles and Hart: Range Waterstruck Brick.

2.3 MORTAR

A. Mortar for rebuilding and replacing brick masonry shall be Type N, conforming to ASTM C270 specifications and shall match the existing in color, texture and appearance. Mortar shall conform to Parts 8 and 11 E of the BIA Technical Notes

B. Mortar for tuck pointing shall be Type N, conforming to ASTM C270 specifications and shall match the existing in color, texture and appearance. Mortar shall be prehydrated and conform to Part 7 of the BIA Technical Notes.

C. Portland cement shall be Type II (Type III may be used only if previously approved) conforming to ASTM C150, specifications.

D. Hydrated lime shall conform to ASTM C207, Type S specifications.

E. Sand shall conform to ASTM C144, amended as follows:

Sieve Size	**% Passing (By Weight)**
#4	100
#8	95-100
#16	70-100
#30	40-75
#50	20-40
#100	10-25
#200	0-10

F. Tinting or coloring agent shall be added to the sand, lime cement to color the fully-cured, in-place mortar to match the physical and chemical characteristics and specified requirements of the Type N mortar.

G. Admixtures - No admixtures shall be allowed.

H. Water shall be clean, potable tap water.

2.4 MASONRY CLEANERS

A. Cleaner for newly-installed brick masonry and repointing areas shall be Sure-Kleen 101 lime solvent by Pro-So-Co, Inc., Hydroclean HT 455 by Hydrochemical Techniques, Inc. 200 Lime Solvent as manufactured by Diedrich Technologies, or approved equal. The cleaner shall be specifically recommended by the manufacturers for the removal of stains and efflorescence from brick masonry.

B. Cleaner for the removal of existing graffiti shall be Watchdog Wipe Out by Dumond, 505 Special Coatings Stripper by Diedrich Technologies, Inc., Defacer Eraser Graffiti Wipe by Prosoco, or approved equal. The cleaner shall be specifically recommended by the manufacturer for the removal of graffiti paint from brick masonry.

C. Masking materials shall be commercially available masking or duct tape of appropriate width. Self-adhesive materials shall be completely strippable, leaving no adhesive residue when removed.

D. Plastic sheet for masking tape areas shall be 4 mil. thick minimum polyethylene sheet of appropriate size to cover the required areas.

2.5 WEEPS

A. Baffles to be installed in full head joint weeps of brick masonry shall be 3/8” x 2-1/2” x 3-3/8” baffle comprised of a bonded cellular material such as Wire Bond - Cell Vent, No. 3601 as manufactured by Masonry Reinforcing Corporation of America, Quadro-Vent by Hohmann & Barnard, Inc., Cell Vent by Dur-O-Wall, Inc. or approved equal.

2.6 THROUGHWALL FLASHING AND ACCESSORIES

A. Plain red copper shall be cold rolled sheet copper conforming to ASTM B-370, 16 oz. Sheet length shall be eight foot (8’) maximum.

B. Copper fabric flashing shall consist of a full 5 oz. copper sheet permanently bonded between two layers of textured, woven high tensile strength glass fabric with asphalt compound or epoxy based coating. Primers and mastic adhesive required for the proper installation of the fabric flashing shall be as specifically recommended by the fabric flashing manufacturer. Fabric flashings shall be as manufactured by York Manufacturing, Inc., Advanced Building Products, Inc., Sandell Manufacturing Company, Inc. or approved equal.

C. All accessories, including but not limited to nails, screws and clip strips shall be copper, brass, stainless steel or galvanized steel and completely compatible with the surrounding metal to prevent galvanic reaction.

D. Concealed sealant for metal-to-metal connections, or for seating termination bars: ASTM C 1085, single component, butyl (polyisobutylene) rubber sealant, heavy bodied for joints with limited movement.

E. Termination bar shall be 1/8" x 1" copper or stainless steel bar stock with pre-punched holes spaced at 6" on center.

F. Fasteners for securing termination bar at top of throughwall flashing shall be 1" to 1-1/2" long drive pins with zinc alloy sheaths as manufactured by Star, Rawl, or approved equal.

G. Rivets shall be 3/16" diameter copper.

H. Solder for tin-zinc alloy coated copper shall be pure tin conforming to ASTM B32 or lead-free, high-tin.

I. Sheet metal flashings shall be shop fabricated. All breaks, bends and hems shall be uniform, clean, straight lines.

1. Flanges shall be 4" wide minimum.
2. Drip edges shall be hemmed 3/4" wide and break at a 30° angle.
3. Clips shall be 2" wide.
4. Where cleats and clips are fastened to substrate, edge of metal shall be folded back over the fastener head.
5. All copper joints shall be soldered.
6. Seams shall be formed of a single lock, crimped and soldered.
7. Expansion seams shall be formed of a single lock and sealed.
8. Blind nailers shall be 4" wide, folded to 2" wide final dimension.

J. Fabrication Schedule:

1. 16 oz. Plain Red Copper
   a. Throughwall Flashing

2.7 STEEL LINTELS AND ACCESSORIES

A. New steel lintels to replace existing shall be sufficient length to bear 8" minimum on solid masonry at each side of the opening or shall match the existing angle length if longer. Angles shall be a minimum of 4" x 4" x 1/2" or as required match the existing angles. Angles shall be fabricated of ASTM A 36 steel

B. Steel lintels shall receive a hot dip galvanized coating in accordance with ASTM A 123 Grade 100 specifications. Thickness of galvanized coating shall be 3.9 mils, with a weight of 2.30 oz./ft^2.

C. Coatings to be applied to properly prepared steel shall be a cold galvanizing compound with not less than 93% zinc content by weight in dry film such as Tnemec – Zinc 95, ZRC cold galvanizing compound, Sherwin Williams, Kurfee's Coatings, Inc. or approved equal. Cold zinc compound coatings shall be brush applied to achieve a minimum 4 mil DFT.

PART 3 – EXECUTION

3.1 GENERAL WORKMANSHIP

A. Follow all applicable local, state and federal requirements regarding construction of scaffolding and protection of the public safety. Specific reference should be made to OSHA Construction Safety Regulations.

B. Set up of scaffolding or similar access and location of on-site storage areas shall be subject to review and approval by the Owner.

C. Do not leave any partially completed sections exposed to the elements overnight. Provide all devices (including heaters and insulation) necessary to maintain areas at the correct temperature and humidity for proper curing of mortar.

D. During freezing weather the Contractor shall protect all masonry with tarpaulins or other approved material. Masonry materials shall be stacked on platforms and covered, or stored in a manner acceptable to the Owner, to protect them from contact with soil and weather exposure. Materials with stained faces will not be used in the walls.

E. No masonry work shall be executed when the temperature in the work area has dropped below 40 degrees F unless it is rising. The Contractor shall provide heat and maintain the temperature of masonry materials and protect the completed work from freezing. Protection shall consist of heating and maintaining the temperature of masonry materials to at least 40 degrees F, but not more than 100 degrees F, and maintain an air temperature above 40 degrees F on both sides of completed masonry for a period of at least 72 hours.

F. Keep covers tightly sealed on all evaporative products to prevent premature curing.

G. Masonry work including cleaning shall be performed prior to replacement of the roofing beneath. The entire roof adjacent to masonry work must be protected with 1/2" minimum rigid insulation with plywood atop.

H. All debris shall be transported to dumpsters, in locations approved by the Owner, at ground level by enclosed chute or crane and scaling bucket. Uncontrolled dropping of debris to ground level will not be permitted.

I. During the removal of any existing component, the Contractor shall report to the Owner any areas of damaged, deteriorated or otherwise unsuitable framing, wood blocking, or wall materials uncovered during the work. Do not cover unacceptable areas until reviewed by the Owner and Engineer. Provide temporary protection to the area in question.

J. Any wall areas opened for replacement shall receive the new system that day and shall be enclosed with masonry. Should rebuilding of masonry not be completed, temporary weather protection and shoring for the wall shall be provided by the Masonry Contractor at no additional charge to the Owner.

K. If needed, the Contractor shall lay-up replacement brick masonry units plumb, level, and true to the lines and dimensions at the existing walls. Chipped or broken units shall not be used. If any such units are placed in the finished wall, they shall be removed and replaced with new units at no additional cost to the Owner.

L. The removal and replacement of individual brick masonry units and locations of repointing are included in the Base Bid at the locations shown on the Contact Drawings, and as specified in the Unit Price Section. Only those additional brick masonry units designated by the Owner will be paid for at the Unit Price. The Contractor must confirm additional unit price items with the Owner prior to performing the work should compensation be desired. Adjacent bricks damaged or removed as a result of the work will be removed and replaced at no cost to the Owner.

M. Adjacent bricks damaged or removed as a result of the repointing work will be removed and replaced at no cost to the Owner.

N. All shoring of the brick masonry components will be the responsibility, of the masonry Contractor. Maximum spacing of temporary shoring shall be 12” on center. Any damage as a result of insufficient shoring shall be repaired or replaced at no additional cost to the Owner.

O. Refer to Brick Industry Association (BIA) technical notes for standard practice for masonry repointing, rebuilding and repair.

3.2 MASONRY STORAGE

Storage of all masonry shall be in the area designated by the Owner. All stored masonry units shall be covered.

3.3 REMOVAL OF BRICK MASONRY

A. Remove brick masonry units in the locations shown on the Contract Drawings. Use hand and power tools to remove masonry. Pneumatic demolition tools are not permitted.

B. Remove maximum four (4) linear foot sections of masonry walls at a time, or as required to prevent deflection or displacement of the existing masonry to remain. Shore the sections as required to prevent displacement.

C. Saw-cut surrounding mortar joints and remove the designated masonry units. Remove adjacent units as required. Provide temporary shoring and protection as necessary.

D. Remove masonry units in a manner so as not to damage sound materials designated to remain.

E. All throughwall flashings shall extend a minimum of 8” beyond the limits of the roof edges beyond, and shall be terminated with an end dam.

3.4 THROUGHWALL FLASHINGS

A. Fabricate new flashing and extend rear leg of flashing 2” minimum up the back of the wall or as shown on the Contract Drawings. Secure the rear leg of the flashing to the back-up masonry wall with the specified fasteners and termination bar. Provide a full bead of sealant behind the flashing.

B. Form the flashing to shed water. Provide 2" high end dams at limits of throughwall flashings. Provide completely watertight seams and overlaps. Rivet and solder end dam connections. End dams shall finish 2” high minimum.

C. Overlap adjacent sections of flashing to be soldered 3” minimum. Rivet overlaps and completely envelope rivets in solder.

D. Provide the finished profile for the exposed portion of the flashing as shown on the Contract Drawings.

E. Install copper fabric flashing in a full bed of sealant over the vertical surface of the existing concrete masonry unit wall and flashing. All seams shall be lapped 3" minimum and set in full bed of sealant. Secure copper fabric to concrete masonry unit wall with pre-punched termination bar at 6" on center. Extend fabric 1/2" minimum beyond the exterior face of the brick masonry wall face and 8’’ minimum up the back of the wall. Secure the copper fabric flashing to the backup wall with the specified fasteners and termination bar. Provide a bead of sealant at the top of the termination bar, tooled to shed water.

F. Note, the existing backup wall configurations vary; provide field confirmation of all dimensions prior to fabricating the flashings. Where irregularities in the surface occur, backer rod and filler material can be used to provide positive support for fabric coated copper flashings. Unsupported flashing will not be acceptable.

3.5 BRICK MASONRY REPLACEMENT

A. Coordinate the installation of new throughwall flashings with Section 07 54 00 – Thermoplastic Roofing. Install weeps at base of new throughwall flashing at 24" on center, maximum. Weeps are to be set directly on the throughwall flashings without a bed of mortar. Should the weeps be set in the mortar bed, they shall be spaced at 16" on center, max.

B. Reconstruct brickwork with new brick to follow the existing profile and configuration. All brick masonry shall be plumb, level and true to the lines and dimensions of existing wall. Chipped or broken units shall not be used. If any such units are placed in the finished wall they shall be removed and replaced with new units at no additional cost to the Owner.

C. Provide supplemental anchors into the back-up wall at 16" on center both horizontally and vertically. Where anchors penetrate throughwall flashings, seal fastener heads with mastic to provide a watertight assembly.

D. The Contractor shall supply all jacks, shoring and temporary supports necessary to support brickwork above and adjacent to any area to assure proper installation of the work.

E. Wet all new and existing masonry units in the work area. Masonry shall be kept damp but without standing water.

F. Utilize rotary mixers when fabricating all mortar. Be sure to maintain relative proportions of mortar materials to provide the texture and color to match the existing mortar. No anti-freeze compounds or other substances shall be added to the mortar. Mix all mortar for at least three (3) minutes and not more than five (5) minutes with the minimum amount of water to produce a workable consistency. The maximum allowable air content of cured mortar shall be 12% by volume. Retempering of mortars that have stiffened because of evaporation of water will be allowed in order to provide the proper consistency provided all mortar in a batch is utilized within two (2) hours of initial mixing.

G. Set each brick in a full bed of mortar and build upward. Tool all joints to a concave profile. Fully butter all heads.

H. Provide supplemental anchors into the back-up wall at 16" on center horizontally. Where anchors penetration throughwall flashings, seal fastener heads with mastic to provide a watertight assembly.

I. Exercise extreme caution to avoid damaging the existing flashing.

J. Work mortar into joints for complete width and depth. Consolidate and tool into joint using concave tooling equipment to completely fill the joint cavity to match the existing joint profile. Tool exposed joints slightly concave with a round or other suitable jointer when the mortar is thumbprint hard. For horizontal joints, jointers shall be at least 12 inches long for brickwork. Jointers shall be slightly larger than the width of the joint so that complete contact is made along the edges of the units, compressing and sealing the surface of the joint. Strike flush joints that will not be exposed. Tool vertical joints first. Brush joints to remove all loose and excess mortar. Horizontal joints shall be level, vertical joints shall be plumb and in alignment from top to bottom of wall.

K. Set new masonry unit in full beds of mortar, top, bottom and sides. Utilize slate wedges as required to maintain mortar joint width. Masonry above throughwall flashings shall be set in full beds of mortar. Should new masonry set in mortar require removal due to un-level/plumb conditions, that masonry unit shall be removed from the work area, cleaned and allowed to dry prior to reinstallation.

L. Provide full joint depth of new mortar. Strike off and tool joints to match existing joint configuration. Allow areas to fully cure prior to cleaning.

M. Where brick masonry replacement occurs in areas to be repointed, rake back joints and repoint together with the wall area.

N. Totally clean the areas of masonry rebuilding only after the rebuilding is completed and the mortar has been allowed to cure for 8 days minimum. Clean surfaces free of all dust, dirt and mortar stains as described in this section.

3.6 REPOINTING

A. Any masonry unit damaged during the repointing process shall be replaced by the Contractor at no additional cost to the Owner. Repoint the deteriorated brick masonry mortar joints as designated on the Contract Drawings.

B. Cut and point all brick masonry mortar joints designated to be repointed.

C. Refer to Technical Notes, Section 7 of the Brick Industry Association concerning methods and materials for tuck pointing repairs.

D. Remove existing mortar to a depth of at least ¾" in the areas to be repointed. Removal shall be accomplished using hand and power tools so as not to damage the existing brick. Remove both horizontal and vertical joints. Brush the joint clean of all loose mortar and dust and wet the exposed surface down with a light water spray. Keep exposed surface damp throughout procedure.

E. Utilize rotary mixers when fabricating mortar. Be sure to maintain relative proportions of mortar materials to provide the texture and color to match the existing mortar. No antifreeze compounds or other substances shall be added to the mortar. Mix dry ingredients before adding water. Mix all mortar for at least 3 minutes and not more than 5 minutes with the minimum amount of water to produce a workable consistency. The maximum allowable air content of cured mortar shall be 12% by volume. Retempering of mortars that have stiffened because of evaporation of water will be allowed in order to provide the proper consistency, provided all mortar in a batch is utilized within 2 hours of initial mixing.

F. Prehydrated mortar shall be used for tuck pointing of masonry. Add only a sufficient amount of water to produce a damp mass of such a consistency that it would retain its form when pressed into a ball with hands, but will not flow under a trowel. Allow mortar to stand for not less than 1 hour nor more than 2 hours. Be sure that the color and texture sample of the cured mortar has been viewed and approved by the Owner.

G. Work mortar into prepared joints for complete width and depth. Consolidate and tool into joint using concave tooling equipment to completely fill the joint cavity and to match the existing joint profile. Repoint rebuilt masonry areas along with the existing. Repointed masonry shall be raked or concave as required to match the existing wall mortar joints.

H. Protect areas of repointing from inclement weather during cure.

I. Allow repointing areas to fully cure prior to masonry cleaning as described in this section.

3.7 MASONRY CLEANING

A. Totally clean all repaired, or repointed masonry areas of all construction stains and excess mortar. Do not perform any cleaning until mortar joints and adjacent sealants are fully cured.

B. Test the specified cleaners on a small area of masonry wall to determine compatibility with the masonry, window units, sealants, etc. Evidence of discoloration, metallic salts or other detritus shall be grounds for requiring the use of a substitute cleaner.

C. The Contractor will be required to clean the masonry units with the minimum cleaning solution mix ratios as recommended by the cleaner manufacturer. Should the minimum dilution ratios not clean the masonry, the Contractor will be required to slightly decrease the dilution rates to clean the surfaces. It is recommended that the Contractor use care when performing the masonry repairs to prevent increasing the mixing solutions.

D. Apply the cleaner at the manufacturer's recommended dilution rate and dwell duration. Pre-wet the wall if the manufacturer so recommends.

E. Allow the cleaner to stand for the manufacturer's recommended dwell period while monitoring to ensure that the surface does not dry. Steel bristle wire brushes are not to be used.

F. Rinse all cleaner from the wall with water applied at the manufacturer's recommended flow and pressure. High pressure washing equipment may be required. Any acid neutralizing agent required by the manufacturer shall be applied as part of this rinse. Ensure that effluent does not accumulate at ground level, and fully rinse all effluent from sidewalks, streets and landscaping each day.

G. The Contractor must provide sufficient site protection to prevent the cleaning effluent from draining into the adjacent storm drains. The Contractor will provide a narrative as to how the site protection will be performed.

3.8 CLEAN-UP

Prior to acceptance of the masonry work covered in this section, the Contractor shall perform a thorough clean-up of the work site, building surfaces, landscaping, etc. Any plantings or other items damaged shall be repaired or replaced to the satisfaction of and at no additional cost to the Owner.

END OF SECTION

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ROUGH CARPENTRY

SECTION 06 10 00

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The General Conditions, and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 01 - General Requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03 45 00 – Cast Stone Replacement
B. Section 03 70 00 – Concrete Repairs
C. Section 04 21 00 – Masonry
D. Section 08 50 00 – Metal Windows
E. Section 26 10 00 – Temporary Mechanical-Electrical Disconnects

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, materials, equipment, temporary protection, tools and appliances necessary for the proper completion of the work in this Section, as required in the Specifications and in accordance with good construction practice. The work under this Section generally includes the following:

A. Coordinate this work with all trades to provide orderly progress of the tasks.

B. Remove and replace deteriorated or discontinuous wood blocking at rough openings if encountered under a Unit Price scope of work.

C. Remove and repair interior gypsum wall finishes as required for window and flashing installation as indicated in the Contract Drawings. Coordinate work with Section 08 50.00 – Metal Windows and Section 01 22 00 – Unit Prices.

D. Paint interior drywall finishes where damaged by the window installation as a result of the work to the limits of the adjacent wall.

E. Install new PVC stools and trim at locations and as indicated in the Contract Drawings. Shim walls as required to provide a flush surface to receive new stool and trim. Paint PVC components to match the surrounding color scheme.

F. Clean and restore all areas affected by the work.

1.4 JOB CONDITIONS

A. All surfaces to receive the new wood blocking shall be thoroughly dry. Should surface moisture such as dew exist, the General Contractor shall provide the necessary equipment to dry the surface prior to application. Do not dry with open flames.

B. Coordinate this work with the work described in other Sections of this Specification.

C. Do not leave any newly installed wood blocking exposed. Cover and protect all newly installed wood daily with the new flashing system.

D. Protect all existing and new wood stored on site to prevent moisture absorption. Use tarps over the wood pile (top, sides and bottom) elevated on pallets (one side lower to shed water).

E. Verify condition and securement of existing wood blocking.

F. If delays in the project exceeding one (1) week are anticipated due to inclement weather (or due to any other condition), all wood shall be stored in weatherproof box trailers or storage sheds in locations to be designated by the Owner.

1.5 SUBMITTALS

A. Submittals shall be made in accordance with the General Conditions and Section 01 33 00, Submittals and Shop Drawings.

B. Drawings showing special mill and PVC stool and trim items shall indicated details of construction, methods of fastening, erection and installation. Provide PVC samples showing patterns, color ranges and types for Owner selection.

C. Grading Certificates for all lumber and plywood shall be submitted.

1.6 UNIT PRICE WORK

A. The removal and replacement of deteriorated wood blocking shall be as described in this section, and Section 01 22 00 – Unit Prices. There currently are no quantities shown on the Contract Drawings. The quantities listed in Section 01 22 00 – Unit Prices shall be carried under the Contractor's base bid amount in the event that deteriorated components are encountered.

1.7 WARRANTIES

A. Upon completion of the work and prior to final payment, the Contractor shall submit a guarantee of his work as free from defect in materials and workmanship. The guarantee shall be for a period of two (2) years. The guarantee shall be signed by an officer of the Contractor's firm and sealed if a corporation.

PART 2 - MATERIALS

2.1 DIMENSIONAL LUMBER

A. All dimensional lumber for roofs and walls shall be construction grade Douglas Fir, Hem-Fir or Southern Yellow Pine, formed to the dimensions shown on the Detail Drawings and as required for proper installation of the new work. All new exterior perimeter woodwork, nailers and wood blocking used on the building shall be minimum 6" wide, except where otherwise detailed. Wood furring shall be permitted to be minimum 4" wide.

B. All roof woodwork shall have a maximum moisture content of 19% by weight on a dry weight basis. Kiln drying may be required to conform to maximum 19% moisture content. Pressure treated wood blocking will not be permitted.

2.2 PLYWOOD

A. Plywood shall be APA Grade CD, Exterior, minimum 1/2" thick for wall systems, unless designated otherwise on the detail drawings. Pressure treated plywood will not be permitted.

2.3 GYPSUM WALLBOARD AND ACCESSORIES

A. Gypsum wallboard materials, where existing is damaged as a result of the work, shall be manufactured by Gold Bond Building Products, U.S. Gypsum, Temple-Inland or approved equal.

B. Gypsum wallboard shall be 5/8" thick, paper face with a tapered edge, or as required to match adjacent existing gypsum wallboard finish. Gypsum board shall meet ASTM C1396 Standard Specification for Gypsum Wall Board.

C. Joint compound shall be premixed conforming to ASTM C475 Specifications. Compound shall be asbestos free.

D. Corner Beads shall be DUR-A-BEAD No. 103 1-1/4"x1-1/4" or as required to match the existing profile.

E. Metal trims shall be No. 200-A-J shaped channel 5/8" in size. Plastic tear away trim will be considered.

2.4 PAINT MATERIALS FOR GYPSUM

A. Primer for new and existing gypsum board substrates shall be latex undercoat such as manufactured by Benjamin Moore, California Products, Inc., Tnemec Company, Inc., Popcorn Interior Texture Paint as manufactured by Behr, or approved equal.

B. Paint for new and existing gypsum board at wall and ceiling locations shall be as manufactured by Benjamin Moore, California Products, Inc., Tnemec Company Inc., or approved equal. Color and finish shall be required to match existing, or as selected by the Owner.

2.5 FASTENERS AND ANCHORS

A. In general, all fasteners, anchors, nails, straps and other accessories shall be of stainless steel, galvanized steel or fluorocarbon coated steel. Galvanizing shall be hot dip in accordance with ASTM A153 Specifications. Electro-galvanized items shall not be used.

B. Fasteners for securing wood blocking to wood blocking shall be galvanized annular threaded ring shank nails. Fasteners shall be of sufficient length to penetrate the receiving member 1-1/4" minimum, except full depth into plywood.

C. Fasteners for securing plywood to masonry surfaces shall be 1/4" diameter hammer drive anchors with zinc-alloy sheaths and stainless steel inserts as manufactured by Star Fasteners, Rawl, or approved equal. Anchors shall be of sufficient length to penetrate the receiving substrate 1-1/4" minimum.

D. Fasteners for securing wood blocking to masonry substrates shall be one piece, fluorocarbon coated, 1/4” diameter flat head anchors such as Rawl Drives by the Rawl Plug Company or approved equal.

E. Fasteners for securing to pressure treated wood blocking shall be stainless steel.

F. Fasteners for securing PVC to wood connections shall be thin shank, blunt point, full round head stainless steel screws of sufficient length to provide minimum 1-1/2” embedment into wood blocking. Screws shall be as recommended by the cellular PVC manufacturer.

G. Adhesives for making PVC to PVC connections shall be a PVC cement specifically recommended by the cellular PVC manufacturer.

H. Sealant for application of countersunk screws shall be a polyurethane caulking recommended by the cellular PVC manufacturer.

2.6 ACCESSORIES

A. Paint thinner shall be as recommended by the paint manufacturer.

B. Mineral spirits shall meet ASTM D-12 specifications

C. Unspecified materials: All unspecified materials such as shellac, turpentine, or linseed oils shall be of the “best grade” or “first line” made by reputable, recognized manufacturers and shall bear the labels and be approved by the Engineer.

2.7 PVC STOOLS AND TRIM

A. Interior cellular PVC stool and trim shall have a small cell microstructure and density of .55 grams/cm^3 tested in accordance with ASTM D 792 and having a tensile strength of at least 2,256 psi.

B. PVC trim shall be routed and formed to the profile shown on the contract drawings or as required to fit the profile of the varying sill width. Wall trim will vary in size depending on location of interior furnishings. PVC paneling shall be sized to match the existing wood paneling.

C. Cellular PVC shall be white or as selected by the Owner. Trim is not to be finished

PART 3 - EXECUTION

3.1 GENERAL

A. Do not deliver to the site or install any material or system that has not been approved. Items installed without approval may be required to be removed.

B. Prepared surfaces must be clean and dry. Fill, chip or grind as required to provide a smooth, uniform surface.

C. All butt joints in woodwork shall be flush to provide a smooth, uniform line with no irregularities.

D. During removal and replacement of woodwork, the Contractor shall report to the Engineer any existing wood blocking designated to remain, or structural supports which are deteriorated or unsuitable. Do not cover unacceptable areas until reviewed by the Engineer, but provide temporary protection to the area in question.

3.2 REMOVAL OF WOOD BLOCKING

A. Remove and dispose of all deteriorated wood blocking and all blocking scheduled to be removed and replaced in accordance with the Contract Drawings and this Specification.

B. During removal and replacement of woodwork, the Contractor shall report to the Owner and Engineer any existing wood blocking designated to remain which is deteriorated or unsuitable. Do not cover unacceptable areas until reviewed by the Engineer, and provide temporary protection to the area in question. Existing blocking scheduled to remain shall be resecured with the appropriate fasteners spaced 24” on center.

3.3 FASTENING OF WOODWORK

A. All existing woodwork to be reused shall be resecured with the specified fasteners spaced 24" on center maximum.

B. Wood blocking to wood blocking connections shall be made using the specified nails spaced 12" on center maximum and staggered off the centerline of the woodwork being secured. Nails shall be of sufficient length to penetrate the receiving member 1-1/4" minimum.

C. Plywood shall be fastened to vertical masonry, concrete, and metal surfaces with the specified fasteners spaced 8" on center both vertically and horizontally.

D. Plywood shall be fastened to vertical wood stud framing with the specified fasteners spaced 6" on center maximum vertically.

3.4 REPAIR OF INTERIOR GYPSUM BOARD

A. Install new furring strips and/or blocking at the locations where new interior finishes are to be applied. Secure the furring at 8" on center, maximum, into the substrates, or if metal stud tracks are available, at the head and sill of the tracks. Furring strips or studs shall be spaced a maximum of 16" on center, from each other.

B. Secure new gypsum wall board to the furring strips at 8" on center, vertically. The new wall boards are to span from center line, to center line, of the furring strips or existing stud walls.

C. Secure new corner beads, and apply meshing tape and a minimum of two coats of joint compound to provide a smooth transition between the new and existing surfaces. Sand the joint compound, and prepare the wall for painting.

3.5 PAINTING - GENERAL

A. Surfaces to receive paint shall meet the requirements established by the manufacturer of the paint and these specifications.

B. Surfaces to receive paint shall be examined and work shall not be started until defects have been corrected.

C. Verify that all sealants, have cured for the specified time prior to applying new coatings.

D. Spaces in which painting is being done shall be properly identified with "Wet Paint" signs or closed to traffic until paint is dry.

E. Provide adequate ventilation.

3.6 PAINTING – WORKMANSHIP

A. Employ skilled mechanics to ensure the very best workmanship. Quality workmanship is required. Materials to be applied by craftsmen experienced in the use of the particular product involved.

B. All surfaces shall be properly smoothed. All surfaces shall be properly prepared, clean and dry when a coating is applied. Any bare or abraded spots in base coats shall be touched up before next coat is applied.

C. Protection against fire shall be taken and all oily rags or waste must be removed from the building each day.

3.7 APPLICATION OF PAINT

A. All materials shall be applied in accordance with manufacturers' recommendations.

B. Finishing materials shall be free from skins, lumps or any foreign matter when used, and shall be kept well stirred while being applied.

C. Spray painting will not be allowed unless approved in writing by the Designer. Apply paint/primer coating with the following appropriate brushes:

1. All latex based paints and coatings shall be applied with 100% polyester brushes

D. Finishing materials shall be free from skins, lumps or any foreign matter when used, and shall be kept well stirred while being applied.

E. Each coat of finish shall be evenly brushed out and allowed to dry before any subsequent coat is applied. Each coat shall be a different tint from that of the preceding coat and shall be reviewed and accepted by the Owner before the next coat is applied. Final coats shall be the exact shade and textures selected. The finished work shall be free from runs, sags, defective brushing and clogging of lines or angles. Drying time between coats of paint shall be in accordance with the manufacturer's labeled instructions.

F. All surfaces to be painted shall receive one prime coat, and two finish coats, or as required to provide a uniform appearance. Where specified paint coatings are self-priming, the first coating shall be considered a primer and the subsequent coatings shall be applied as specified. Self-priming paints shall not decrease the number or required coatings.

G. All wood materials to be painted, shall be “back-primed” (primer coat applied to all concealed surfaces) and all exposed surfaces to be painted shall receive one prime coat, and two finish coats, or as required to provide a uniform appearance and achieve the minimum required Dry Film Thickness (DFT):

1. For wood substrates to receive paint coatings: Total minimum DFT of 8.4 mils.
   a. Prime Coat 4 mils wet, 2.8 mils dry
   b. First Paint Coat 7 mils wet, 2.8 mils dry
   c. Second Paint Coat 7 mils wet, 2.8 mils dry

   DFT's are minimums, comply with paint manufactures recommendations.

H. Do not allow primers or intermediate coats to dry more than fourteen (14) days, or longer than recommended by manufacturer, before applying subsequent coats. Follow manufacturer's recommendations for surface preparation if primers or intermediate coats are allowed to dry longer than recommended by manufacturers of subsequent coatings. Each coat shall cover surface of preceding coat or surface completely and there shall be a visually perceptible difference in shades of successive coats.

I. Reduce paints to proper consistency by adding fresh paint, do not thin paint.

3.10 FASTENING OF PVC

A. PVC-to-wood connections shall be made using thin shank screws countersunk within the PVC and embedded within the wood substrates 1-1/2". Screws shall be spaced 12" on center maximum and staggered off the centerline of the member being fastened. Fill all counter sunk holes with polyurethane adhesive, color to match PVC.

3.11 STOOLS AND TRIM

A. Verify dimensions of stool and trim as well as dimensions of existing equipment and fixtures integral for proper fit and alignment.

B. Make provisions for adequate support and proper fastening. Install shims as required to provide level substrate. Use concealed fasteners where practical.

C. Form PVC to the profiles shown on the contract drawings. Width of PVC stool and wall trim may vary per window opening based on contours of existing construction and locations of interior furnishings. Contractor to field very all stool and trim dimensions in the field.

D. Abut top and edge surfaces in one true plane, with internal supports placed to prevent any deflection. Provide flush hairline joints in top units. Use adhesive to join all PVC pieces.

E. Install new trim pieces to conceal gaps where trim abuts adjacent construction.

F. Install backer rod and sealant as indicated on Contract Drawings.

END OF SECTION

ALUMINUM WINDOWS

SECTION 08 50 00

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The General Conditions and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 01 – General Requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03 45 00 – Cast Stone Replacement
B. Section 03 70 00 – Concrete Repairs
C. Section 04 21 00 – Masonry
D. Section 06 10 00 – Rough Carpentry
E. Section 26 10 00 – Temporary Mechanical-Electrical Disconnects

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, materials, equipment, temporary protection, tools and appliances necessary for the proper completion of the work in this section, as required in the specifications and in accordance with good construction practice. The work under this section generally includes the following:

A. Coordinate work within this Section with all other associated trades to perform work in an orderly fashion and to minimize temporary supports and weather protection.

B. Temporarily remove, tag and store all existing window blinds, shades, curtain rods, and curtains. Reinstall or replace after window and associated work has been completed.

C. Coordinate the installation of wood blocking, plywood and shims as required to prepare the openings for the new windows and entrances.

D. Install new metal panning, flashing and sealants at window openings locations and as indicated in the Contract Drawings.

E. Install metal anchors, angles, mullions and clips to properly support and anchor the new assemblies at locations and as indicated in the Contract Drawings.

F. Install new, aluminum metal windows in properly prepared openings.

G. Coordinate with Section 04 21 00 – Masonry and Section 03 70 00 – Concrete Repairs for repairs to masonry and concrete components adjacent to window openings and steel lintels above openings.

H. Coordinate with Section 061000 – Rough Carpentry for installation of interior PVC stools and trim at locations and as indicated in the Contract Drawings.

I. Coordinate with Section 061000 – Rough Carpentry and Section 012200 – Unit Prices for the removal and replacement of deteriorated wood blocking at window and entrance openings.

J. Coordinate with Section 26 10 00 – Temporary Mechanical/Electrical Disconnects for the temporary removal and reinstallation of electric door operators.

K. Install heavy duty insect screens at all operable units.

L. Clean and restore all areas affected by the work to the satisfaction of the Owner.

1.4 JOB CONDITIONS

A. It is the intent of this project to have the replacement windows comply as closely as possible with the Massachusetts State Building Code Stretch requirements. Limiting factor will be the existing window rough openings.

B. The Contractor shall supply, install and maintain all shoring, supports, barriers, protection, temporary heat, warning lines, lighting and personnel required to support the structure, fixtures and facilities affected by his work and segregate the work area from pedestrian or vehicular traffic, as well as to prevent damage to the building, occupants and the surrounding landscaped and paved areas.

C. Coordinate the work in this section with the work by other trades to ensure the orderly progress of the work.

D. The Contractor shall supply ladders and other equipment as required to access the work in this section.

E. All surfaces to receive new window assemblies shall be thoroughly dry. The substrate surfaces shall be swept and vacuumed clear of all debris. Should surface moisture such as dew exist, the Contractor shall provide the necessary equipment to dry the surfaces prior to the application of the materials. No open flames of any kind will be permitted on the subject project at any time.

F. The Contractor shall utilize skilled and experienced specialty workers to install the work. Experienced trade workers shall be utilized for all aspects of the work.

G. The Contractor shall be responsible for securing and protecting his equipment, materials and tools (as well as partially completed construction) from vandalism or abuse.

H. Install modified bitumen membrane flashing at locations and as indicated in the Contract Drawings. Coordinate with Section 061000 – Rough Carpentry.

I. Install new exterior window perimeter sealants and interior sealant at window openings at locations and as indicated in the Contract Drawings.

J. Materials that have a temperature other than the application temperatures of the manufacturer requirements shall not be applied.

K. The Contractor, his workmen, all his suppliers and agents shall make every effort to work in harmony with the building occupants.

L. Provide protection for the roof during installation of windows above roof. Photograph and document all defects to the roof membrane prior to installing roof top protection. Notify Owner and Engineer of any defects observed.

1.5 SUBMITTALS

A. Submittals shall be made in accordance with the General Conditions and Section 01 33 00 – Submittals and Shop Drawings.

B. The Contractor shall submit the following items with their submittal package:

1. Methods of removal of materials.
2. Temporary protection procedures.
3. Staging/set-up procedures.

C. Metal window parts catalog shall be submitted by the Contractor detailing replacement parts and current prices.

D. One sample window unit with operable sash of each type, including the specified glazing and hardware, shall be submitted with the submittal package, and sent to the project site for the owner's comment.

E. Samples of all sealants, gaskets and fasteners shall be submitted.

F. Submit shop drawings and color samples for metal window framing.

G. Submit Certified Test reports for all referenced requirements. Test reports shall not be more than four (4) years old.

H. The Contractor shall submit a full set of shop drawings for the installation of the new windows which include all dimensions, sizes, existing conditions, materials to be removed, etc. Shop drawings for head, jamb and sills for each different existing condition shall be submitted.

I. Submit calculations for the windows and their anchorage to the existing structure. Calculations shall be stamped by a structural engineer, registered in the Commonwealth of Massachusetts.

1.6 ROOF PROTECTION

A. The roof systems are required to be totally protected in the window replacement work areas by installing a layer of rigid board insulation followed by a layer of plywood. Plywood shall be adequately ballasted to prevent wind uplift of the plywood and roof system. The Contractor is responsible for any damages to the existing or new roof systems.

B. The Contractor is responsible for the prompt repair of any damage to the roof systems resulting from the work at the project at no additional cost to the Owner.

1.7 MOCK-UP

A. Before commencing full-scale work, install two (2) sample windows in finished openings for review by the Owner and Engineer. Installations shall conform to the Contract Documents and once accepted shall become a standard for all subsequent work on the project.

B. Sample areas shall be repeated until acceptable results are obtained and the accepted area shall be a standard for all subsequent work. Installation of test items shall be in conformance with all Contract Documents and shall use only submitted materials. After curing for seven days, the test areas shall be viewed, sampled and/or removed as directed by the Engineer to establish to his satisfaction the actual performance of the installed materials. Evidence of improper or unsatisfactory performance shall be grounds for rejection of any or all of the submitted materials.

1.8 WARRANTIES

Upon completion of the work and prior to final payment, all applicable manufacturer's guarantees for window frames and hardware including warranties shall be provided:

A. Window manufacturer's two (2) year warranty against defective materials or workmanship, including non-compliance with applicable specification requirements and industry standards, which results in premature failure of the windows, finish, factory glazed glass, or parts outside of normal wear. Defective components will be repaired or replaced by the Manufacturer at no cost to the Owner. The warranty shall include the following:

1. Window manufacturer's 10-year guarantee on insulated glazing units.

2. Window manufacturer's 10-year guarantee on painted finishes.

B. Starting date for all warranty periods to be the date of substantial completion of the project.

1.9 PROTECTION OF WORK AND MATERIALS STORAGE

A. Follow storage and handling requirements of the manufacturer.

B. Glazing materials shall be delivered in the manufacturer's original unopened containers, leaving manufacturer's label intact.

C. Any work damaged by the work under this Section shall be repaired by the Contractor at no expense to the Owner.

PART 2 - MATERIALS

2.1 METAL WINDOWS - GENERAL

A. Standards: Except as otherwise indicated, requirements for aluminum windows, curtain walls, and entrance terminology and standards of performance, and fabrication workmanship are those specified and recommended in AAMA WDMA/CSA 101/I.S. 2/A440-11, and applicable general recommendations published by AAMA and ANSI.

B. All vertical mullions, window frames, clips and securements shall be certified by the manufacturer to meet a 51 psf allowable stress design in accordance with the 9th Edition Massachusetts State Building Code, AAMA WDMA/CSA 101/I.S. 2/A440-11 and as required by the window manufacturer. Steel reinforcing of the aluminum frames may be required to meet the required design wind load. Certification of anchorage to all substrates shall also be provided. Certification shall be provided by a Registered Engineer.

C. Performance and Testing: Except as otherwise indicated, comply with air infiltration tests, water resistance tests, and applicable load tests specified in AAMA WDMA/CSA 101/I.S. 2/A440-11 for type and classification of window units required in each case.

D. All samples submitted for testing shall be full size per AAMA requirements. Reduced size test results will not be accepted.

E. Testing: Where manufacturer's standard window units comply with requirements and have been tested in accordance with specified tests, provide certification by manufacturer showing compliance with such tests.

1. Test reports shall be not more than four (4) years old.

2. Sample submitted for tests shall be of manufacturer's standard construction and shall have been tested in accordance with ASTM 283-83. The sequence of tests shall be optional between manufacturer and the testing laboratory except that in all cases, the air infiltration test shall be performed before the water resistance test.

3. All window systems shall meet or exceed the following performance requirements:

F. Specific Performance Requirements: Architectural window (AW) fixed and projected windows shall conform to specified ANSI/AAMA standards and the following, whichever are the more stringent:

1a. Air Infiltration Test (Fixed Units): The window shall be subjected to an air infiltration test in accordance with ASTM E 283. Air infiltration shall not exceed .10 cfm/ft^2 when tested at a pressure of 6.24 psf.

1b. Air Infiltration Test (operable units): With the vent in a closed and locked position, the window shall be subjected to an air infiltration test in accordance with ASTM E 283 and AAMA/WDMA/CSA101/I.S.2/A440 or NFRC 400. Air infiltration shall not exceed .30 cfm/ft when tested at a pressure of 6.24 psf.

2. Water Resistance Test: The glazed unit shall be mounted in its vertical position continuously supported around perimeter. The window unit shall be subjected to a water resistance test in accordance with ASTM E 331 and E547. When a static pressure of 12 pounds per square foot has been stabilized, five gallons of water per square foot of window area shall be applied to the exterior face of the unit for a period of 15 minutes. No water shall pass the interior face of the window frame and there shall be no leakage as defined in the test method.

3. Condensation Resistance Factor: The window shall be tested in accordance with AAMA 1503.1 standards and test of thermal performance, and shall have a condensation resistance factor of no less than 52.

4. "U" Value Tests (Co-efficient of Heat Transfer): Thermal Transmittance of Conduction with a 15 mph perpendicular dynamic wind: 0.45 BTU/hr/ft^2/F

2.2 METAL WINDOWS

A. Standard metal windows shall be factory wet glazed exterior and dry glazed interior with removal glass stops, extruded aluminum frame, fixed pane with operable units as detailed. All windows shall have self-contained structural thermal breaks, both in frame and in operable units.

B. Basis of Design: Kawneer TR-9100U series for single hung windows, Kawneer NX-3400 series for project-in windows, and Kawneer NX-3800 series for fixed windows. Subject to the requirements of this Section, comparable products by one of the following manufacturers may be submitted for review and approval by the Owner:
1. EFCO Corporation
2. Wausau Window and Wall Systems
3. Graham
4. Or Approved Equal

C. All sash, frame and sub-frame shall be extruded 6063-T5 alloy with a minimum wall thickness of .125" at the sill and a minimum frame depth of 4”.

1. Single hung units shall meet or exceed designation H-AW-50 and as designated by AAMA/NWWDA 101/I.S.2-97. Operable units shall be of the configurations shown on the Contract Drawings.

2. Fixed units shall meet or exceed designation F-AW-50 as designated by AAMA/NWWDA 101/I.S.2-97.

D. The windows shall be assembled in a secure and workmanlike manner to perform as herein specified. All frames shall be constructed with mortised and tendoned corners. Vertical frame members shall extend for the full window height without interruption. Vent frames shall have mitered corners with aluminum gusset blocks. Joints shall be hydraulically crimped and epoxy welded. All frame and vent joints shall be sealed with a non-hardening mastic to provide a watertight joint. Windows shall be equipped with baffled weeps as required to provide drainage for water.

E. Thermal Break: The inside and outside faces of all sections shall be completely separated by a cast-in-place, high-strength, high-density polyurethane thermal break with a minimum tensile strength of 4000 psi and maximum thermal conductivity as noted in item 2.01.

F. Limit Stops: There shall be an adjustable limit stop at all operable windows. Once window manufacturer has been approved, the General Contractor must present the limit stop operation to the Owner for review. The Owner shall approve a limit stop height prior to the Contractor ordering the windows.

2.3 ACCESSORIES

A. Two-piece attachment angles shall be continuous 6063-T5 extruded aluminum, .125" thick minimum. Pre-punched holes 12" on center shall be provided in the attachment angles to permit fastening to windows and substrates. Attachment angle cover plates shall be finished with a baked enamel paint to match the window frames.

B. Panning at head and jamb locations shall be custom aluminum extrusion to match existing as approved by the Engineer and Owner.

C. Panning at sill locations shall be Kawneer shape XX Panning Sill, Graham PPN04 Waverly, Peerless 4645 Attached Pan set or as approved by the Engineer and Owner.

D. Three-piece mullions shall be constructed of extruded 6063-T5 alloy, sized as recommended by the window manufacture for the specified wind loads and designated span dimensions. Mullions shall have self-contained thermal breaks as specified in paragraph E above. Mullions shall be finished to match the windows.

E. Insect screens for installation at all operable units shall be heavy duty security screen with powder coated .023 stainless steel mesh retained in aluminum frames. Screen frames shall be painted to match windows. Screens shall be secured to the windows with integral extrusions or mechanically attached clips so removal shall not be possible without hand tools. Install insect screens at all operable units.

F. Insulation to fill window frame cavities shall be mineral wool. Mineral wool insulation shall be a non-combustible, lightweight, and water repellent made from basalt rock

and slag. The insulation shall have low moisture sorption properties and a melting point of approximately 2150 degrees Fahrenheit.

2.4 FASTENERS

All screws, nuts, washers, bolts, rivets and other miscellaneous fastening devices incorporated in the project shall be of stainless steel except where noted below. Fasteners shall be as follows:

A. Aluminum to aluminum fasteners shall be self-drilling, self-tapping screws, No. 14 of sufficient length to penetrate the receiving substrate by 5/8".

B. Aluminum to wood fasteners shall be wood screws, No. 14, of sufficient length to penetrate the receiving substrate by 1-3/4".

C. Fasteners for securing aluminum and wood blocking to concrete, brick masonry, and concrete masonry shall be Hex head type, 1/4" diameter, self-tapping masonry screws. Shank shall be of sufficient length to penetrate substrate 2" minimum.

D. Fasteners for securing windows, and wood blocking to concrete or brick masonry shall be 1/2" diameter stainless steel epoxy anchor bolts. Anchors shall be of sufficient length to penetrate the substrate 4-1/2" minimum. Anchors shall be Chem Stud Bolts as manufactured by the Powers, HIT-HY 70 System by Hilti or approved equal. Revisions to anchor size and strength shall be as recommended by the window manufacturer.

E. Fasteners for securing typical wood blocking to wood blocking connections shall be galvanized annular threaded ring shank nails. Fasteners shall be of sufficient length to penetrate the receiving member a minimum of 1-1/2".

F. Fasteners for securing windows and wood blocking to steel shall be S-MD 1/4-20 HWH4 self-drilling steel screws manufactured by Hilti; or approved equal. Revisions to fastener size shall be as recommended by window manufacturer.

2.5 FINISH

Finish for all exposed metal parts of new aluminum windows and entrance (frames, sash, vents and trim) shall be a Resin-Based Coating- Hylar 5000, or Kynar 500. Paint dry film thickness shall be not less than 1.0 mils +/- 0.2 mils. Surface preparation and coating shall conform to AAMA 2605 Specifications.

Colors shall be selected from the manufacturer's standard color chart by the Owner:

2.6 WINDOW HARDWARE

A. All hardware component parts shall be heavy duty.

B. Single hung units shall have metal cast, cam-type sweep locks, 2 per window.

C. Balances shall conform to the following requirements:

1. Balances shall be of appropriate size and capacity to hold sash in position with no movement.

2. Balances shall be high performance sash balances that are tested in accordance with AAMA 902.92 Voluntary Specification for sash balances.

3. Balances shall meet all minimum Class 5 requirements with a minimum .30 Manually Applied Force ratio (MAF).

4. Compliance to 902.92, Class 5 and MAF ratio shall be verified by a test report from an AAMA accredited laboratory.

5. Class 5 balances shall not have strings and/or pulleys.

2.7 GLASS AND GLAZING

A. Exterior Glass shall be sized to meet a 51 psf allowable stress design in accordance with the 9th Edition Massachusetts State Building Code and AAMA WDMA/CSA 101/I.S. 2/A440-11. All window units shall be factory glazed. Tempered glass shall meet ASTM Specification C1048 (kind FT) and conform to ANSI Z97.1 Specifications. Exterior Insulated Glazing Units shall conform to the following: (Refer to Contract Drawings for specific glass type locations)

1. Exterior Lite – Shall be tinted grey, tempered, ¼" thick glass with softcoat (sputtered) Low E on the #2 surface.
2. Interior Lite – Shall be clear, tempered, ¼" thick glass.
3. Total interior air space shall be ½", argon filled, with warm edge spacer.
4. Overall unit thickness shall be one inch.

i. Glass performance shall be Light Transmittance <42%, shading coefficient <.46.
ii. Manufacturers: Glass shall be Pilkington/Libbey-Owens-Ford, or PPG, Oldcastle, or approved equal.
iii. Translucent glazing shall be ¼" thick, tempered, and provided at locations so designated on the Contract Drawings. Pattern to be selected by the Owner.

B. Insulated glass shall have interior applied muntins. Spacing and layout shall be as shown on the Contract Drawings.

2.8 FLASHING AND ACCESSORIES

A. Sheet metal for exposed flashings shall be .032" and .040" thick painted or mill finish aluminum. Aluminum shall be finished on both surfaces as specified in Paragraph 2.06 of this Section.

B. Sheet metal flashings shall be shop fabricated. All breaks, bends and hems shall be uniform, clean, straight lines.

1. Drips shall be hemmed 3/4" wide and break at a 30° angle.
2. Pan flashings shall turn up at the rear 1" minimum and at the sides 3" minimum to form end dams.

C. Fabrication Schedule:

1. Aluminum, painted finish (.040")
   a. Sill Pan Flashing

D. Self-adhered membrane for use at window sill rough openings.

1. Perm-A-Barrier Aluminum Flashing by GCP Applied Technologies
2. Protecto Seal 45 by Protecto Wrap
3. Approved equivalent

E. Vapor permeable air barrier or STPE liquid flashing for window jamb and head rough opening and termination onto cast stone, masonry, or concrete all around.

1. FastFlash by Prosoco
2. WrapFlashing SA and VaproLiqui-Flash by Vaproshield
3. Approved equivalent

2.10 SEALANT

A. Exterior sealant for use as primary weather seal, unless otherwise recommended by the system manufacturer, shall be a one-part, neutral-cure, non-staining, silicone sealant conforming to ASTM C 920, Type S, Grade NS, Class 50, Uses NT, M, G, A and O such as Spectrem 3 by Tremco, Dowsil 790 by Dowsil, Sikasil-WS90 by Sika Corporation, or approved equal.

B. Interior Sealant shall be one-part, odorless, neutral cure silicone compound as manufactured by Tremco, PRC, Pecora or approved equal.

1. Interior sealant to be compatible with modified bitumen membrane to prevent discoloration of the sealant.
2. Interior sealant shall be paintable.

C. Color(s) shall be selected by the Owner from the approved manufacturer's color chart. Colors shall be the manufacturer's available premium colors such as "Color Pak" by Tremco or approved equal. Coordinate with Section 01 30 00 Shop Drawings and Submittals for sealant colors approved as part of the Phase 1 work.

2.11 SEALANT ACCESSORIES

A. Cleaners and primer shall be non-staining type as manufactured or recommended by the sealant manufacturer for each substrate.

B. Substrate cleaner shall be non-corrosive and non-staining as recommended by the sealant manufacturer. Cleaner shall be totally compatible with the sealant for each substrate.

C. Bond breaker tape shall be pressure-sensitive tape as recommended by the sealant manufacturer.

D. Backer rod shall be continuous length, closed-cell polyethylene foam, as recommended by the sealant manufacturer. Backer rod shall be compressible, resilient, non-waxing, non-extruding and non-staining. Backer rod shall be of sufficient size to be compressed 30% of maximum joint width and shall be totally compatible with the sealant, primer and substrates. Backers shall conform to the requirements of ASTM C 962 - Type A, ASTM D 1622, ASTM D 1623 and ASTM D 5249 such as Dual Rod by Nomaco, Sonofoam by Sonneborn, ITP soft type backer rod or approved equal.

E. Masking material shall be commercially available masking tape of appropriate width or other material recommended by the sealant manufacturer. Self-adhesive masking materials shall be of low tack and completely strippable, leaving no adhesive residue behind when removed.

PART 3 - EXECUTION

3.1 IN GENERAL

A. Do not deliver to site or install any material or system, which has not been reviewed and accepted for use on the project.

B. Comply with the written instructions of the manufacturer and these specifications.

C. All work shall be made weathertight and the building secure at the end of each day.

D. Report any damaged or unsuitable areas to the Engineer or Owner's representative immediately.

E. Do not cut any material with a solvent or dilutant unless approved by the Engineer in writing.

F. Keep covers tightly sealed on all canned and evaporative products to prevent premature curing.

G. Clean the demolished surface of all loose debris. Contractor shall provide a smooth even surface for the installation of the new systems and panel.

H. The Contractor shall install all window systems plumb, level and true to the lines and dimensions of the existing wall.

3.2 FLASHING INSTALLATION

A. Verify that all structural reinforcements have been made to each opening and have been approved by the Owner and/or Engineer.

B. Install perimeter backer rod and sealant back seals at all cavity and masonry joint locations as shown on the Contract Drawings. Back seal shall be continuous and full width or height of the opening.

C. Prior to installing flashings, install wood blocking, plywood and shims necessary for the proper installation of the flashings and windows. Wood blocking, plywood and shims shall be beveled and/or chamfered as required to provide solid support and to match existing conditions. Install continuous wood members with the specified fasteners spaced 12” on center maximum.

D. Install flashings to all properly prepared window openings prior to installation of windows or insulated panels.

E. All flashings shall be shop fabricated. All bends, breaks and hems shall be clean straight lines. Form flashings to the shapes and configurations shown on the Contract Drawings.

F. Install self-adhering membrane as shown on the Contract Drawings.

G. All head and jamb flashings are to be continuous, and are intended to drain down, onto the new sill flashings. Set flashings in a full bed of sealant. Use the aluminum flashings to conceal the limits of existing window components that may not be fully removed (i.e. sealants, old fastener holes, etc.). All head flashings and cladding shall run continuous from jamb to jamb and shall overlap jamb flashings.

H. All sill flashings shall turn up 1"-minimum at the backs and 3”-minimum at end limits to form end dams. Sill flashings shall run continuously across existing sills neatly trimmed and turned up at jamb locations. All seams shall be sealed and overlapped 3" minimum. Set flashings in a full bed of sealant. Install full bead of sealant between window frame and rear leg of flashing and between flashing and attachment angle.

I. File any exposed, sharp edges of sheet metal and coat with finish paint to match the window frames.

3.3 WINDOW UNIT INSTALLATION

A. Installation: Compress insulation into the voids of the window frames and panning voids. Windows and panels shall be installed without forcing or distortion, so sills and heads are level, and jambs are plumb. Frame shall be securely anchored into the supporting construction and shimmed as required (approximately 1/8”) to allow for weeping between the sill pan flashing and metal window frame. Joints between metal windows and metal members, including mullions, shall be set in mastic of the type recommended by the window manufacturer to provide completely watertight joints. Excess mastic shall be removed before hardening. After installation each window shall be checked for proper operation and adjusted as necessary to provide proper

operation. Metal surfaces shall be cleaned and any staining or discoloring of the finish shall be restored or the unit replaced. Glass shall be clean at the time of installation.

B. Secure anchor system to the window frames and substrates with the specified fasteners spaced 12" on center. Attachment angles for securement of windows shall be continuous across heads, jambs and sills. Provide sealant at all fastener locations and attachment covers.

C. Where attachment angles are not used set windows with two-piece receptors at the head and jamb. Utilize attachment angles at the sill. Where both receptors and attachment clips are shown, clips are used for decorative purposes.

D. Provide full beads of sealant between rear leg of pan flashing and attachment angle and between attachment angle and window frame.

E. Install continuous aluminum cover strips to all attachment angles. Cut ends shall finish smooth and square with lightly filed corners to remove sharp edges.

F. Set limit stops for all operable units to provide a 45° angle of the operable unit, maximum, or otherwise designated by the Owner.

G. Where removed, install suspended spline ceiling tiles.

3.4 SEALANT INSTALLATION

A. Install sealant at all window, and entrance perimeters, interior and exterior, where shown on the Contract Drawings and as required for the proper completion of the work.

B. Clean and prime substrates in strict accordance with sealant manufacturer's requirements.

C. Precondition sealants to a temperature between 60 and 70 degrees F or as required by the manufacturer. Apply sealant to clean dry surfaces only when the ambient temperature is between 60 and 85 degrees F.

D. Ensure all work by others occurring at sealant joint locations has been completed prior to the start of sealant installation.

E. Clean all substrates to receive the joint sealant using the manufacturers recommended cleaners and surface preparation techniques.

F. Ensure all existing sealants and other materials have been removed down to clean sound original substrates. Saw-cut, wire brush, chip, or grind as required to achieve suitable substrates for sealant installation.

G. All bonding surfaces shall be cleaned with a minimum of two applications of solvent followed by wiping with clean white rags. Solvent shall be applied with brushes and

wiped from substrate with rags while it is still wet. Additional application shall be performed if dirt remains after two applications until all dirt is removed.

H. Joint primer shall be applied to all properly prepared, cleaned and dry substrates. Primer shall be approved by the sealant manufacturer for each substrate and shall be completely compatible with the existing materials and proposed sealants and accessories.

I. Primer shall be applied prior to application of joint backer, bond breaker or sealant.

J. Joint backer shall be installed in all joints as detailed. Joint backing shall be installed with approximately 30% compression at 70 degrees F. Do not stretch, twist, tear or puncture joint backing. Butt joint backings tightly at intersections.

K. Joint backing shall be installed at the required depth so as not to exceed the joint width/depth ratio recommended for the sealant.

L. Bond breaker tape shall be installed at locations where backer rod cannot be utilized to achieve the designated joint depth and where shown on the Contract Drawings. Sealant shall adhere only to the sides of the joint and not to the back so as to eliminate three- sided adhesion.

M. Sealant shall have a minimum application life of three (3) hours after mixing.

N. Unless otherwise required by the sealant manufacturer, the sealant shall be mixed for a period of 6 minutes minimum with a slow speed electrical drill and mixing paddle. The sides of the container shall be repeatedly scraped to ensure adequate mixing.

O. Sealant shall be applied to clean, dry, joints by knife, trowel, manual or air pressure caulking guns using proper nozzle sizes.

P. Sealant shall be forced into the joint to completely fill the void and achieve full “wet-out” of the bonding surfaces. Force sealant into the joint and against the sides of the joint. Avoid pulling sealant from sides. All joint sealant shall be immediately tooled to assure full adhesion. Sealant shall be dry tooled, straight, uniform, smooth and neatly finished to the profiles detailed. No soaps, wetting of slicking agents will be allowed.

Q. Provide weep holes at sill locations spaced 24” on center as shown on the Contract Drawings

3.5 EXAMINATION FOR MODIFIED BITUMEN MEMBRANE

A. Examine substrates, areas, and conditions under which modified bitumen membranes will be applied, with Installer present, for compliance with requirements.

B. Verify that surfaces and conditions are suitable prior to commencing work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected.

C. Ensure that the following conditions are met:

1. Surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants

2. Exterior sheathing panels: Ensure that the boards are sufficiently stabilized with corners and edges fastened with appropriate screws in accordance with exterior sheathing manufactures written instructions. Ensure that there are no gaps greater than 1/8" between panels or broken corners.

3. Verify substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263 and take suitable measures until substrate passes moisture test.

4. Notify Architect in writing of anticipated problems using modified bitumen

3.6 MODIFIED BITUMEN MEMBRANE INSTALLATION

A. Install membrane where indicated on the Contract Drawings to shed water at the exposed portions of the back-up walls. Install membrane continuously in accordance with manufacturer's recommendations and the following:

1. Install membrane to dry surfaces at air and surface temperatures of 25°F and above in accordance with manufacturer's recommendations, at locations indicated on Construction Documents.

2. Apply primer at rate recommended by manufacturer prior to membrane installation. Allow primer to dry completely before membrane application. Apply as many coats as necessary for proper adhesion.

3. When membrane is properly positioned, press into place and roll membrane with roller immediately after placement.

4. Apply membrane sheets to shed water naturally without interception by a sheet edge, unless that edge is sealed with permanently flexible termination mastic.

5. Position subsequent sheets of membrane applied above so that membrane overlaps the membrane sheet below by a minimum of 2 inches, unless greater overlap is recommended by manufacturer. Roll into place with roller.

6. Overlap horizontally adjacent pieces a minimum of 2 inches, unless greater overlap is recommended by manufacturer. Roll seams with roller.

7. Apply transition membrane with a minimum overlap of 3 in onto each surface at all steel angles and joints as indicated in detail drawings

8. Seal around all penetrations with termination mastic, extruded silicone sealant, membrane counterflashing or other procedure in accordance with manufacturer's recommendations.

9. At changes in substrate plane, provide transition material (bead of sealant, mastic, extruded silicone sealant, membrane counterflashing or other material recommended by manufacturer) under membrane to eliminate all sharp 90 degree inside corners and to make a smooth transition from one plane to another.

10. Provide mechanically fastened non-corrosive metal sheet to span gaps in substrate plane and to make a smooth transition from one plane to the other. Membrane shall be continuously supported by substrate.

11. At through-wall flashings, provide an additional 6 inch wide strip of manufacturer's recommended membrane counterflashing to seal top of through-wall flashing to membrane. Seal exposed top edge of strip with bead of mastic as recommended by manufacturer.

12. Apply a bead or trowel coat of mastic along membrane seams at reverse lapped seams, rough cuts, and as recommended by the manufacturer.

13. At end of each working day, seal top edge of membrane to substrate with termination mastic.

14. Do not allow materials to come in contact with chemically incompatible materials.

15. Inspect installation prior to enclosing assembly and repair punctures, damaged areas and inadequately lapped seams with a patch of membrane lapped as recommended by manufacturer.

B. Do not allow the rubberized asphalt surface of the modified bitumen membrane to come in contact with polysulfide sealants, creosote, uncured coal tar products or EPDM.

B. Do not expose modified bitumen membrane to sunlight for more than thirty days prior to enclosure.

3.7 SEALANT FIELD ADHESION TESTING

1. Contractor to coordinate & perform field adhesion testing following ASTM C1521. Perform testing in the presence of the installer, manufacturer's representative, and Engineer.
2. Perform a minimum of five (5) tests for the first 1000 ft and one test per 1000 ft thereafter, or a minimum of one test per floor per elevation.
3. Contractor to submit field adhesion testing log to The Architect.

3.8 REPLACEMENT PARTS

The Owner shall be provided with the requested quantity of the following:

4. Twenty four (24) additional sets of all window hardware.
5. Five (5) additional insect screens for each standard size of operable window units. Standard sizes shall be any window type with quantities greater than 10.

END OF SECTION

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TEMPORARY MECHANICAL/ELECTRICAL DISCONNECTS

SECTION 26 10 00

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Division 1, General Conditions, and all parts of the Bid and Contract Documents are made part of this Section as if fully repeated herein.

B. Refer to all Sections within Division 01 - General Requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03 45 00 – Cast Stone Replacement
B. Section 03 70 00 – Concrete Repairs
C. Section 04 21 00 – Masonry
D. Section 06 10 00 – Rough Carpentry

1.3 SCOPE OF WORK

In general, the Contractor shall supply all labor, materials, equipment, temporary protection, tools and appliances necessary for the proper completion of the work in this Section, as required in the Specifications and in accordance with good construction practice. The work under this Section generally includes the following:

A. Provide all temporary protection, lifts, manpower and equipment to protect the building and its components.

B. Temporarily disconnect, remove, and support existing conduit, lights, fans, vents and mechanical ventilation equipment as required to perform the window and masonry renovations. Equipment shall be re-installed and reconnected after installation of the finished components. Provide electrical extensions and mechanical ductwork extensions as required.

C. Coordinate the work in this section with the appropriate trades to insure the proper work sequence.

1.4 JOB CONDITIONS

A. Schedule and execute all work without exposing the building interiors to inclement weather. Protect all new and existing roof work, the building and its contents from staining and damages. Segregate all work areas from the building occupants.

B. Notify the Owner at least 48 hours in advance of doing any interior demolition work so that the Owner may remove any portable items, such as furniture, from the area. Fixed items will not be removed and are to be protected by the Contractor.

C. The Contractor shall be responsible for shutting down, removal, temporary support, proper reinstallation with ductwork and electrical extensions as required, and turning on of each mechanical unit by the end of the workday as it relates to the removal and reinstallation of the mechanical equipment. If the mechanical unit is found operational prior to the shut down procedures, and does not operate upon completion of the work and restarting the equipment, the Contractor will be responsible for repairing/replacing said unit at no additional cost to the Owner.

D. The Contractor is cautioned to take all necessary precautions and make all investigations necessary to install the work. The Owner will not consider unfamiliarity with the job conditions as a basis for additional compensation.

E. The Contractor shall provide a minimum of two (2) weeks notice prior to shutting down any mechanical services.

1.5 SUBMITTALS

A. The Contractor shall submit project literature and samples for the items listed in this section in accordance with Section 01 33 00 – Submittals and Shop Drawings.

B. Submit proposed lead times of materials and coordination efforts associated with replacement of units.

C. Submit proposed temporary shoring details and methods of re-attachment.

PART 2 - MATERIALS

2.1 FASTENERS AND ACCESSORIES

A. In general, fasteners shall be stainless steel. All accessories, including, but not limited to nails, screws, clips, fastening strips, etc. shall be completely compatible with the material being fastened to prevent galvanic reaction and premature deterioration.

B. Fasteners for securing fan and vent unit covers and termination bars to existing wood construction shall be stainless steel hex head self-drilling screws. At fan and vent unit cover resecurement use stainless steel capped EPDM washers of the next larger size than the existing fastener.

2.2 SHEET METAL, PREFORMED FLASHINGS AND ACCESSORIES

A. Aluminum shall be .032” thick, constructed per SMACNA standards for 2” w.c. static pressure. Aluminum shall have a mill finish. Aluminum shall be 3003 alloy, H-14 temper.

B. Stainless steel shall be 24 gauge AISI 18-8 type 304, 2D finish. Sheet length shall be 8’ maximum.

C. Galvanized steel shall be constructed per SMACNA standards for 2" w.c. static pressure.

D. All accessories, including but not limited to nails, screws and clips shall be copper, brass, stainless steel or galvanized steel and completely compatible with the surrounding metal to prevent galvanic reaction.

E. Rivets shall be 3/16" diameter stainless steel.

PART 3 - EXECUTION

3.1 GENERAL

A. All work in this Section shall be coordinated with roof replacement work.

B. All flashing-in of the mechanical work shall be the responsibility of and provided by the Roofing Contractor under Section 07 54 00 – Thermoplastic Roofing and Flashings.

C. The Contractor is cautioned to investigate all existing conditions and materials of construction.

D. Follow all applicable local, state and federal requirements regarding construction of scaffolding and protection of the public safety for the work items included in this section. Specific reference should be made to OSHA Construction Safety Regulations. Provide warning lines, barricades, and similar items as required to restrict pedestrian access to hazardous areas. Job site safety shall be the Contractor's responsibility.

3.2 REINSTALLATION OF EQUIPMENT

A. Coordinate the heights of the existing mechanical unit curbs and fan curbs with that of the tapered insulation height to confirm which of the units will require raising and new electrical and duct extensions as required. Refer to Section 07 54 00 – Thermoplastic Roofing and Flashings for coordination issues.

B. Extend electrical conduits and wiring, and mechanical systems and ductwork as required due to the increased roof insulation height.

C. Rooftop unit installation shall be coordinated to prevent exposing the interior to inclement weather. Utilize stainless steel capped EPDM washers at all fastener locations.

3.3 SHEET METAL FLASHINGS

A. Provide sheet metal extension ductwork, stainless steel, aluminum or galvanized as specified herein and as required, to match the existing sheet metal systems. Refer to the publication, "Copper and Common Sense" by Revere Copper and Brass and all recommendations of the Sheet Metal and Air Conditioning Contractors National Association concerning methods and materials to be used in the fabrication and construction of sheet metal flashings.

B. Ductwork shall be crimped and riveted to prevent displacement associated with unit vibration.

END OF SECTION

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Section 1
PROJECT DESCRIPTION

Name and Address of Project

1 . Project Name:	Warren House			
1a . Application Completed By:	David Levy			
1b . Original Application Date:	2/15/23	Application Revision Date:		7/6/23
2 . Project Address:	1600 Washington Street			
3 . Neighborhood	West Newton			
4 . City/ Town	Newton		MA *(state)*	02465 *(zip code)*
5 . County	MIDDLESEX			
6 .	☐ Scattered sites			
7 . Is this a qualified census tract?	Yes	**Select A QCT**	**0104.03**	
8 . Difficult to develop area	Not Applicable	**QCT information last updated on:**		9/19/2016

Development Plan

9 . Development Type (Please check all that apply.)

No	New construction
No	Acquisition, substantial rehab of existing housing
Yes	Acquisition, moderate rehab of existing housing
No	Acquisition, minimal or no rehab of existing housing
No	Adaptive re-use of non-residential structure

10 . Proposed Housing Type: Rental (except SRO or Assisted Living, see below)

11 . **Project Description:** Number of buildings: 1

Warren House is an existing 59-unit apartment building that formerly housed the Newton Public Junior High School. The building was converted to housing and a childcare center in 1992 utilizing equity generated from the sale of Low Income Housing Tax Credits. Of the building's current 59 apartments, 21 are affordable to households earning no more than 50 percent of the areawide median income. The property is encumbered by a 65·year ground lease from the City of Newton that requires the building's owner/operator, Newton

12 . **Development Schedule:**

	Original	*Revised*	*Optional user comments*
Application Date	2/15/23		Construction schedule is a rough estimate and will be finalized once construction documents are released to a general contractor.
Construction Loan Closing	12/20/23		
Initial Loan Closing (MHFA only)	12/20/23		
Construction Start	3/1/24		
50% Construction Completion	6/1/24		
Construction Completion	12/1/24		
First Certificate of Occupancy	N/A		
Final Certificate of Occupancy	N/A		
Sustained Occupancy	N/A		
Permanent Loan Closing	N/A		

13 . **Unit Mix:**

	50% AMI Low-Income Mobile Voucher	Low-Income below 50%	Low-Income below 60%	Low-Income 80%	Market Rate	Total Units
SRO						0
0 bedroom						0
1 bedroom	2	2		1	10	15
2 bedrooms	7	7		3	21	38
3 bedrooms	2	1			3	6
4 bedrooms						0
Total Units	11	10	0	4	34	59
Home Units*						0

*HOME units included in the above totals. Other Income=Below 80% of median income

14 . Unit Size in square feet:

	Low-Income Rental Assisted	Low-Income below 50%	Low-Income below 60%	Other Income 80%	Market Rate	Average All Incomes
SRO						N/A
0 bedroom						N/A
1 bedroom	600.0	600.0		600.0	600.0	600
2 bedrooms	800.0	800.0		800.0	800.0	800
3 bedrooms	1000.0	1000.0			1000.0	1,000
4 bedrooms						N/A

15 . Number of bathrooms in each unit:

	Low-Income Rental Assisted	Low-Income below 50%	Low-Income below 60%	Other Income 80%	Market Rate	Average All Incomes
SRO						N/A
0 bedroom						N/A
1 bedroom	1.0	1.0		1.0	1.0	1.0
2 bedrooms	2.0	2.0		2.0	2.0	2.0
3 bedrooms	2.0	2.0			2.0	2.0
4 bedrooms						N/A

16 . **Funding Applied For:**

Please check all the funding that is being applied for at this time, with this application:

DHCD Tax Credit Allocation	No
Category	
Category	
HOME Funding through DHCD	No
Massachusetts Housing Finance Agency (select all that apply):	
Official Action Status	No
Construction Financing/Bridge Financing	No
Permanent Financing	No
Massachusetts Housing Partnership (MHP) Fund:	
Permanent Rental Financing Program	No
Massachusetts Housing Investment Corporation (select all that apply):	
Debt Financing	No
Tax Credit Equity Investment	No
Boston Department of Neighborhood Development (DND):	No
Other	No
Other	N/A
Other	N/A
Other	N/A
Financing from MassDevelopment	No

17 . Number of buildings planned:

	Total	*New Construction*	*Rehabilitation*
a. Single-Family	0		
b. 2-4 Family	0		
c. Townhouse	0		
d. Low/Mid rise	1		1
e. High-rise	0		
f. Other	0		
TOTAL	1	0	1

18 . Number of units: 59 | | 59

19 . Gross Square Footage

a. Residential	60,000		60,000
b. Commercial	-	-	-

20 . Net Rentable Square Footage:

	Total		*Percent of Gross*
a. Residential	45,400	s.f.	76%
b. Commercial	-	s.f.	N/A

21 . Number of handicapped accessible units: 3 Percent of total: 5%

22 . Fire Code Type: Protected steel

23 . Will building(s) include elevators? Yes How many? 1

24 . Are the following provided with the housing units:

a. Range?	Yes
b. Refrigerator?	Yes
c. Microwave?	Yes
d. Dishwasher?	Yes
e. Disposal?	Yes
f. Washer/Dryer Hookup?	No
g. Washer & Dryer?	No
h. Wall-to-wall Carpet?	Yes
i. Window Air Conditioner?	No
j. Central Air Conditioning?	Yes

Gas or electric? electric

Optional user comments

25 . Are the following included in the rent:

a. Heat?	No
b. Domestic Electricity?	No
c. Cooking Fuel?	No
d. Hot Water?	Yes
e. Central A/C, if any?	No

26 . Type of heating fuel: Gas

27 . Total no. of parking spaces: 192 Outdoor: 192 Enclosed: 0

28 . Number of parking spaces exclusively for the use of tenants:

a. Residential	Total:	0	Outdoor:	0	Enclosed:	0
b. Commercial	Total:	0	Outdoor:	0	Enclosed:	0

29 . Will rehabilitation require the relocation of existing tenants? Not applicable

30 . Scope of rehabilitation: Please describe the following (or type N/A).

a. Major systems to be replaced:
Not applicable

b. Substandard conditions and structural deficiencies to be repaired:
Not applicable

c. Special features/adaptations for special needs clients to be housed:
Not applicable

31 . Are energy conservation materials in excess of the Building Code?

a. Insulation	No	
b. Windows	No	
c. Heating system	Yes	*R-Value or type?*

Information On Site And Existing Buildings

	Square Feet	*Acres*
32 . Size of Site:	0	
33 . Wetlands area:	0	
34 . Buildable area:	0	

Existing Conditions:

35 . What is the present use of the property?

36 . Number of existing structures: -

37 . Gross s.f. of existing structures:

38 . If rehabilitation:

	number of units	num. of bedrooms
a. Number of existing residential units/bedrooms:		
b. Number of units/bedrooms currently occupied:		

39 . If site includes commercial space:

a. Square footage of existing commercial space:		square feet
b. Square footage currently occupied:		square feet

40 . What are the surrounding land uses? urban, residential, commercial, institutional

Utilities:

41 . Are the following utilities available on the site:

a. Sanitary sewer?	Yes
b. Storm sewer?	Yes
c. Public water?	Yes
d. Electricity?	Yes
e. Gas?	Yes

If any of the above are not available, is plan attached explaining how such service will be extended to the site? N/A

Zoning:

Please include information on the property zoning in Exhibit 3. This should include a zoning map, highlighting any special use or dimensional restrictions on the property. If the present zoning does not allow for the proposed use, please explain current status and how approvals will be obtained.

42 . Does the present zoning allow the proposed development? Yes

43 . Have you applied for a zoning variance, change,special permit or subdivision? N/A

44 . Do you anticipate applying for a comprehensive permit under Chapter 774 N/A

Site Control:

45 . What form of site control do you have? Ownership

Include copies of the appropriate site control documents as part of Exhibit 4.

46 . Please provide details about your site control agreement.

a. Name of Seller:	
b. Principals of seller corporation:	
c. Type of Agreement:	
d. Agreement Date:	
e. Expiration Date:	
f. Purchase price if under agreement:	
g. Is there any identity of interest between buyer and seller?	

47 . In the past three years, have there been any defaults on any mortgage on the property or any other forms of financial distress? No

48 . Are there any outstanding liens on the property? No

Amenities and Services:

49 . Please indicate distance from site and locate on city/town map (Exhibit 1).

	Distance	
a. Shopping facilities	0.10	miles
b. Schools	0.10	miles
c. Hospitals	0.50	miles
d. Parks and recreational facilities	0.10	miles
e. Police station	0.50	miles
f. Fire station	0.50	miles
g. Public transportation	0.10	miles
h. Houses of worship	0.10	miles
i. City/Town Hall	1.00	miles

Environmental Information

50 . Is there any evidence of underground storage tanks or releases of oil or hazardous materials, including hazardous wastes, on the site or within close proximity to the site?	No
51 . Has a Chapter 21E assessment been performed?	Yes
52 . Does the project consist of either: (a) new construction of more than 100 units; or (b) substantial rehabilitation of more than 200 units, or where more than 10% new floor space is added?	No
53 . Does the building require lead paint abatement?	No
54 . Does the building require asbestos abatement?	No
55 . Do radon tests show radon levels exceeding four picocuries/liter?	No
56 . Is there any evidence that the premises are insulated with urea formaldehyde foam (UFFI)?	No
57 . Is the site located in an historic district, or contain buildings listed or eligible for listing in the State Register of Historic Places?	Yes
58 . Are there any above ground storage containers with flammable or explosive petroleum products or chemicals within 1/2 mile of the site?	No
59 . Is the site located in a floodplain or wetlands area?	No
60 . Does the site contain endangered animal or plant species?	No
61 . Is the site subject to noise impact from jet airports within five miles, major highways within 1,000 feet, or rail traffic within 3,000 feet?	Yes

An asbestos report and a plan for abatement are required and should be included in Exhibit 2

Section 2
DEVELOPMENT TEAM SUMMARY

62 . **Developer/Sponsor Type** — Limited dividend partnership

63 . **Developer/Sponsor:**

Form of Legal Entity	Non-profit corporation
Legal Name	Newton Community Development Foundation
Address	425 Watertown Street, Suite 205
	Newton, MA 02458
Contact Person	Jeanne Strickland, Executive Director
	617-244-4035 x224
E-mail	jstrickland@ncdfinc.org

64 . **Owner/Mortgagor:**

Legal Name	Warren House Associates Limited Partnership
Address	c/o Newton Community Development Foundation
	425 Watertown Street, Suite 205, Newton, MA 02458
Has this entity already been formed?	yes
Principals	
Principals	
Contact Person	Jeanne Strickland, Executive Director
Telephone No. / Fax. No.	617-244-4035 x224
E-mail	jstrickland@ncdfinc.org

65 . **General Partner:**

Legal Name	
Address	
Has this entity already been formed?	
Principal (if corporate)	
Contact Person	
% of Ownership	
Telephone No. / Fax. No.	
E-mail	

66 . **General Partner:**

Legal Name	
Address	
Has this entity already been formed?	No
Principal (if corporate)	
Contact Person	
% of Ownership	
Telephone No. / Fax. No.	
E-mail	

67 . **Development Consultant:**

Legal Name	Community Square Associates LLC
Address	PO Box 286
	Arlington, MA 02476
Contact Person	David Levy
Telephone No. / Fax. No.	(617) 877-6470
E-mail	dlevy@communitysq.com

68 . **Contractor:**

Name	TBD
Address	
Fed Tax ID #	
Contact Person	
Telephone No. / Fax. No.	
E-mail	

69 . **Architect:**

Name	Gale Associates, Inc.
Address	300 Ledgewood Place, Suite 300
	Rockland, MA 02370
Contact Person	Christopher Musorofiti, RRC
Telephone No. / Fax. No.	781 335 6465
E-mail	cm@gainc.com

70 . **Management Agent:**

Name	Newton Community Development Foundation
Address	425 Watertown Street, Suite 205
	Newton, MA 02458
Contact Person	Jeanne Strickland, Executive Director
Telephone No. / Fax. No.	617-244-4035 x224
E-mail	jstrickland@ncdfinc.org

71 . **Attorney (Real Estate):**

Name	
Address	
Contact Person	
Telephone No. / Fax. No.	
E-mail	

72 . **Attorney (Tax):**

Name	N/A
Address	
Contact Person	
Telephone No. / Fax. No.	
E-mail	

73 . **Syndicator:**

Name	N/A
Address	
Contact Person	
Telephone No. / Fax. No.	
E-mail	

74 . **Guarantor:**

Name	Newton Community Development Foundation
Address	425 Watertown Street, Suite 205
	Newton, MA 02458
Contact Person	Jeanne Strickland, Executive Director
Telephone No. / Fax. No.	617-244-4035 x224
E-mail	jstrickland@ncdfinc.org

75 . **Service Provider or Coordinator:**

Name	Newton Community Development Foundation
Address	425 Watertown Street, Suite 205
	Newton, MA 02458
Contact Person	Jeanne Strickland, Executive Director
Telephone No. / Fax. No.	617-244-4035 x224
E-mail	jstrickland@ncdfinc.org

76 . **Marketing Agent:**

Name	Newton Community Development Foundation
Address	425 Watertown Street, Suite 205
	Newton, MA 02458
Contact Person	Jeanne Strickland, Executive Director
Telephone No. / Fax. No.	617-244-4035 x224
E-mail	jstrickland@ncdfinc.org

77 . _____

Other role Name	
Address	
Contact Person	
Telephone No. / Fax. No.	
E-mail	

78 . _____

Other role Name	
Address	
Contact Person	
Telephone No. / Fax. No.	
E-mail	

79 . Is there any identity of interest between any members of the development team?

No

80 . Please describe the relationship of the development entity to sponsoring organizations. Is the entity newly-formed or to-be-formed? Is it a single-purpose corporation? How will the parent corporation provide support to this entity? Include an organizational chart showing other affiliates of the parent corporation, as appropriate, and principals of each.

NCDF is acting as the management agent for Warren House.

Section 3
SOURCES AND USES OF FUNDS

Sources of Funds

		Surplus(Gap)	$0.00	
	Private Equity:	*per unit*	*$0.00*	
81 .	Developer's Cash Equity		$545,556	
82 .	Tax Credit Equity (net amount) *(See line 360, Section 5, page 18.)*		$0	
83 .	Developer's Fee/Overhead, Contributed or Loaned		$0	
84 .	Sponsor Loan:		$0	
	Public Equity:			
85 .	HOME Funds, as Loan		$129,000	
86 .	Loan: Newton CPA		$2,100,000	
87 .	Loan: Newton AHT		$1,575,000	
88 .	**Total Public Equity**		$3,804,000	

Optional user calculations

		Pricing
Fed LIHTC	0	$0.000
MA LIHTC	0	$0.000
Fed Hist Credit	0	
MA Historic Credit	0	
TOTAL:	0	
DHCD Subsidy/unit:	0	

Annual Federal Credit: #DIV/0!
Annual State Credit: #DIV/0!

	Subordinate Debt (see definition):	*Amount*	*Rate*	*Amortiz.*	*Term*
89 .	HOME Funds, as Subordinate Debt		%	yrs.	yrs.
	Source:				
90 .	DHCD		%	yrs.	yrs.
	Source:				
91 .	DHCD			0	
	Source:				
92 .	DHCD			0	
	Source:				
93 .	DHCD			0	
	Source:				
94 .	Total Subordinate Debt	$0			

	Permanent Debt (Senior):		*Amount*	*Rate*	*Override*	*Amortiz.*	*Term*	*MIP*
95 .	**MHFA**	MHFA Program 1	$	%	%	yrs.	yrs.	%
96 .	**MHFA**	MHFA Program 2	$	%	%	yrs.	yrs.	%
97 .	**Permanent Loan**		$6,830,000	7.00%		40.00	40.00	0.250%
98 .	**Other Permanent Senior Mortgage**							
	Source:							
99 .	**Other Permanent Senior Mortgage**		$	%		yrs.	yrs.	%
	Source:							

100 .	**Total Permanent Senior Debt**	$6,830,000
101 .	**Total Permanent Sources**	$11,179,556

	Construction Period Financing:	*Amount*	*Rate*	*Term*
102 .	Construction Loan			
	Source:			
	Repaid at:	*(event)*		
103 .	Other Interim Loan			
	Source:			
	Repaid at:	*(event)*		
104 .	Sponsor Bridge Loan			
	Source:			
	Repaid at:	*(event)*		

Uses of Funds

The Contractor certifies that, to the best of their knowledge, the construction estimates, and trade-item breakdown on this page are complete and accurate.

Direct Construction:

105 . Who prepared the estimates? | *Name* | *Signature*

106 . Basis for estimates?

	DV	Trade Item	Amount	Description
107 .	3	Concrete		
108 .	4	Masonry		
109 .	5	Metals		
110 .	6	Rough Carpentry		
111 .	6	Finish Carpentry		
112 .	7	Fireproofing		
113 .	7	Insulation		
114 .	7	Roofing, Sheet Metal and Flashing		
115 .	7	Damp Proofing & Waterproofing		
116 .	7	Exterior Siding		
117 .	8	Doors		
118 .	8	Windows		
119 .	8	Glass		
120 .	9	Louvers		
121 .	9	Drywall		
122 .	9	Flooring		
123 .	9	Acoustical		
124 .	9	Wood Flooring		
125 .	9	Resilient Flooring		
126	9	Carpet		
127 .	9	Paint & Decorating		
128 .	10	Specialties		
129 .	11	Special Equipment		
130 .	11	Cabinets		
131 .	11	Appliances		
132 .	12	Blinds & Shades		
133 .	13	Modular/Manufactured		
134 .	13	Special Construction		
135 .	14	Elevators or Conveying Syst.		
136 .	15	Plumbing & Hot Water		
137 .	15	Heat & Ventilation		
138 .	15	Air Conditioning		
139	15	Fire Protection		
140 .	16	Electrical		
141 .		Winter Conditions		
142 .		Radon Mitigation System		
143 .		**Subtotal Structural**	$0	
144 .	2	Earth Work		
145 .	2	Site Utilities		
146 .	2	Roads & Walks		
147 .	2	Site Improvement		
148 .	2	Lawns & Planting		
149	2	Geotechnical Conditions		
150	2	Environmental Remediation		
151	2	Demolition		
152 .	2	Unusual Site Cond		
153 .		**Subtotal Site Work**	$0	
154 .		**Total Improvements**	$0	
155 .	1	General Conditions		
156 .		**Subtotal**	$0	
157 .	1	Exterior Improvements	$3,740,000	
158 .	1	Interior Improvements	$860,000	
159 .		**TOTAL**	$4,600,000	

160 Total Cost/square foot: $ 76.67 Residential Cost/s.f.: $76.67

% commercial SF: - % commercial const: -

Development Budget:

		Total	Residential	Off-Budget	Comments
161 . Acquisition: Land		$5,138,747	$5,138,747	$0	2nd mortgage plus interest repayment (MH) + ground lease
162 . Acquisition: Building		$0	$0	$0	
163 . **Acquisition Subtotal**		$5,138,747	$5,138,747	$0	
164 . Direct Construction Budget		$ 4,600,000	$4,600,000	-	(from line 159)
165 . Construction Contingency		$460,000	460,000.00	-	10.0% of construction
166 . **Subtotal: Construction**		$5,060,000	$5,060,000	$0	
General Development Costs:					
167 . Architecture & Engineering		$152,000	$152,000	$0	
168 . Survey and Permits		$63,700	$63,700	$0	
169 . Clerk of the Works		$77,675	$77,675	$0	
170 . Environmental Engineer		$5,000	$5,000	$0	
171 . Bond Premium		$0	$0	$0	
172 . Legal		$50,000	$50,000	$0	
173 . Title and Recording		$34,675	$34,675	$0	
174 . Accounting & Cost Cert.		$15,000	$15,000	$0	
175 . Marketing and Rent Up		$0	$0	$0	
176 . Real Estate Taxes		$0	$0	$0	
177 . Insurance		$0	$0	$0	
178 . Relocation		$0	$0	$0	
179 . Appraisal		$20,000	$20,000	$0	
180 . Utilities		$0	$0	$0	
181 . Construction Loan Interest		$0	$0	$0	
182 . Inspecting Engineer		$15,483	$15,483	$0	
183 . Fees to:	Lender Legal	$0	$0	$0	
184 . Fees to:	Loan Fees	$174,165	$174,165	$0	
185 . FF&E		$0	$0	$0	
186 . LIHTC Fee		$0	$0	$0	
187 . Letter of Credit Fees		$0	$0	$0	
188 . Other Financing Fees		$0	$0	$0	
189 . Development Consultant		$35,583	$35,583	$0	
190 . Other:	Loan Fees	$0	$0	$0	
191 . Other:	Misc.	$0	$0	$0	
192 . Soft Cost Contingency		$64,328	$64,328	$0	10.0% of soft costs
193 . **Subtotal: Gen. Dev.**		$707,609	$707,609	$0	
194 . **Subtotal: Acquis., Const., and Gen. Dev.**		$10,906,356	$10,906,356	$0	
195 . Capitalized Reserves		$273,200	$273,200	$0	
196 . Developer Overhead		$0	$0	$0.00	
197 . Developer Fee		$0	$0	$0.00	
198 . **Total Development Cost**		$11,179,556	$11,179,556	$0	**Residential TDC per unit** $189,484
					TDC per unit with land: $189,484.00
199 . **TDC, Net**		$10,906,356	$10,906,356	$0	**TDC, Net per unit** $184,853.49

Additional Detail on Development Pro-Forma:

200 .	Gross Syndication Investment	
	Off-Budget Costs:	
	Syndication Costs:	
201 .	Syndication Legal	
202 .	Syndication Fees	
203 .	Syndication Consultants	
204 .	Bridge Financing Costs	
205 .	Investor Servicing (capitalized)	
206 .	Other Syndication Expenses	
207 .	Total Syndication Expense	$0
208 .	Current Reserve Balance	
	Reserves (capitalized):	
209 .	Development Reserves	
210 .	Initial Rent-Up Reserves	
211 .	Operating Reserves	$273,200
212 .	Net Worth Account	
213 .	Other Capitalized Reserves	
214 .	Subtotal: Capitalized Reserves	$273,200
215 .	Letter of Credit Requirements	
216 .	Total of the Above	$273,200

Check: Line 214 is the same as line 195.

Please Answer The Following	Dev. Reserves	Initial Rent-Up	***Op. Reserves***	Net Worth	Other	Letter of Credit
Who requires the reserves?						
Who administers the reserves?						
When and how are they used?						
Under what circumstances can they be released?						

	Unit Sales (For Sale Projects Only):	
217 .	Gross Sales From Units	$0
218 .	Cost of Sales (Commissions, etc.)	$0
219 .	Net Receipt from Sales	$0
	Debt Service Requirements:	
220 .	Minimum Debt Service Coverage	1.15
221 .	Is this Project subject to HUD Subsidy Layering Review?	Yes

Optional user comments

Section 4
OPERATING PRO-FORMA

Operating Income

Rent Schedule:	Contract Rent	Utility Allowance	Total Gross Rent	No. of Units
222 . Low-Income (Rental Assisted):				
SRO			$0	0
0 bedroom			$0	0
1 bedroom	$ 2,042	$108	$2,150	2
2 bedrooms	$ 2,253	$147	$2,400	7
3 bedrooms	$ 2,829	$171	$3,000	2
4 bedrooms			$0	0
223 . Low-Income (below 50%):				
SRO			$0	0
0 bedroom			$0	0
1 bedroom	$1,141	$108	$1,249	2
2 bedrooms	$1,351	$147	$1,498	7
3 bedrooms	$1,561	$171	$1,732	1
4 bedrooms			$0	0
224 . Low-Income (below 60%):				
SRO			$0	0
0 bedroom			$0	0
1 bedroom			$0	0
2 bedrooms			$0	0
3 bedrooms			$0	0
4 bedrooms			$0	0
225 . Other Income 80%	Below 80% of the median income for the region			
SRO			$0	0
0 bedroom			$0	0
1 bedroom	$1,884	$108	$1,992	1
2 bedrooms	$2,244	$147	$2,391	3
3 bedrooms			$0	0
4 bedrooms			$0	0
226 . Market Rate (unrestricted occupancy):				
SRO				0
0 bedroom				0
1 bedroom	$2,225			10
2 bedrooms	$2,745			21
3 bedrooms	$3,020			3
4 bedrooms				0
			Total Units:	59

Commercial Income:

227 . Square Feet: 0 @ $0.00 (average) /square foot = $0

Parking Income:

228 . Spaces: 192 @ $0.00 (average) /month x 12 = $0

Other Operating Income Assumptions:

229 . Laundry Income (annual):		$ 13,500
230 . Other Income: a.	Interest	$ 600
b.		
c.		
d.		
e.		
f.		

Optional user calculations

Vacancy Allowance:

231 . Low-Income (Rental Assistance)	5.0%
232 . Low-Income (below 50%)	5.0%
233 . Low-Income (below 60%)	
234 . Other Income 80%	5.0%
235 . Market Rate	5.0%
236 . Commercial	

Trending Assumptions for Rents:

	Year 2	*Year 3*	*Years 4-5*	*Years 6-20*
237 . Low-Income (Rental Assistance)	2.0%	2.0%	2.0%	2.0%
238 . Low-Income (below 50%)	2.0%	2.0%	2.0%	2.0%
239 . Low-Income (below 60%)				
240 . Other Income 80%	2.0%	2.0%	2.0%	2.0%
241 . Market Rate	2.0%	2.0%	2.0%	2.0%
242 . Commercial Space Rental				
243 . Laundry Income	2.0%	2.0%	2.0%	2.0%
244 a Other Income (Interest)	0.0%	0.0%	0.0%	0.0%
b Other Income -	%	%	%	%
c Other Income -	%	%	%	%
d Other Income -	%	%	%	%
e Other Income -	%	%	%	%
f Other Income -	%	%	%	%

Operating Subsidy and Capitalized Operating Reserves:

245 . Subsidy Source I			
246 . Subsidy Source II			
247 . Capitalized Operating Reserve Amount:	$	Source:	

248 . Yearly Draws on Subsidies and Reserves:

	Subsidy Source I	*Subsidy Source II*	*Draw on Oper. Reserve*
Year 1	$	$	$
Year 2	$	$	$
Year 3	$	$	$
Year 4	$	$	$
Year 5	$	$	$
Year 6	$	$	$
Year 7	$	$	$
Year 8	$	$	$
Year 9	$	$	$
Year 10	$	$	$
Year 11	$	$	$
Year 12	$	$	$
Year 13	$	$	$
Year 14	$	$	$
Year 15	$	$	$
Year 16	$	$	$
Year 17	$	$	$
Year 18	$	$	$
Year 19	$	$	$
Year 20	$	$	$
Year 21	$	$	$

249 . **Annual Operating Income (year 1)** $1,568,878

Operating Expenses

	Annual Operating Exp.:	Total	Residential	Commercial	Comments
250 .	Management Fee	$62,755	$62,755.00	$0	
251 .	Payroll, Administrative	$100,586	$100,586	$0	
252 .	Payroll Taxes & Benefits, Admin.	$23,843	$23,843	$0	
253 .	Legal	$5,000	$5,000	$0	
254 .	Audit	$15,575	$15,575	$0	
255 .	Marketing	$15,000	$15,000	$0	
256 .	Telephone	$4,500	$4,500	$0	
257 .	Office Supplies	$2,500	$2,500	$0	
258 .	Accounting & Data Processing	$22,312	$22,312	$0	
259 .	Investor Servicing	$0	$0	$0	
260 .	DHCD Monitoring Fee	$0	$0	$0	
261 .	Other: Central Office Fee	$2,705	$2,705	$0	
262 .	Other: Training, Certifications	$15,000	$15,000	$0	
263 .	**Subtotal: Administrative**	$207,021	$207,021	$0	
264 .	Payroll, Maintenance	$64,947	$64,947	$0	
265 .	Payroll Taxes & Benefits, Admin.	$34,719	$34,719	$0	
266 .	Janitorial Materials	$6,000	$6,000	$0	
267 .	Landscaping	$30,325	$30,325	$0	
268 .	Decorating (inter. only)	$36,000	$36,000	$0	
269 .	Repairs (inter. & ext.)	$39,300	$39,300	$0	
270 .	Elevator Maintenance	$4,500	$4,500	$0	
271 .	Trash Removal	$20,000	$20,000	$0	
272 .	Snow Removal	$28,000	$28,000	$0	
273 .	Extermination	$2,500	$2,500	$0	
274 .	Recreation	$0	$0	$0	
275 .	Other: ADA Accommodations	$13,500	$13,500	$0	
276 .	**Subtotal: Maintenance**	$279,791	$279,791	$0	
277 .	**Resident Services**	$25,000	$25,000	$0	
278 .	**Security**	$1,500	$1,500	$0	
279 .	Electricity	$53,000	$53,000	$0	common
280 .	Natural Gas	$9,121	$9,121	$0	paid by tenants
281 .	Oil	$0	$0	$0	
282 .	Water & Sewer	$58,000	$58,000	$0	
283 .	**Subtotal: Utilities**	$120,121	$120,121	$0	
284 .	**Replacement Reserve**	$29,500	$29,500	$0	
285 .	**Operating Reserve**	$0	$0	$0	
286 .	Real Estate Taxes	$120,000	$120,000	$0	
287 .	Other Taxes	$0	$0	$0	
288 .	Insurance	$96,673	$96,673	$0	
289 .	MIP	$17,035	$17,035		
290 .	Other:	$0	$0	$0	
291 .	**Subtotal:Taxes, Insurance**	$233,708	$233,708	$0	
292 .	**TOTAL EXPENSES**	$959,396	$959,396	$0	Per Unit: $16,260.94

Other Operating Expense Assumptions

Trending Assumptions for Expenses	*Year 2*	*Year 3*	*Years 4-5*	*Years 6-20*
293 . Sewer & Water	3.0%	3.0%	3.0%	3.0%
294 . Real Estate Taxes	3.0%	3.0%	3.0%	3.0%
295 . All Other Operating Expenses	3.0%	3.0%	3.0%	3.0%

Reserve Requirements:

296 . Replacement Reserve Requirement	$636.00	per unit per year
297 . Operating Reserve Requirement	$0.00	per unit per year

Debt Service:

			Annual Payment	
298 . MHFA	MHFA Program 1		N/A	
299 . MHFA	MHFA Program 2		N/A	
300 . MHP Fund Permanent Loan			$509,325	
301 . Other Permanent Senior Mortgage			N/A	
Source:	N/A			
302 . Other Permanent Senior Mortgage			N/A	
Source:	N/A			
303 . **Total Debt Service (Annual)**			$509,325	
304 . **Net Operating Income**			$609,482	(in year one)
305 . **Debt Service Coverage**			1.20	(in year one)

Affordability: Income Limits and Maximum Allowable Rents

306 . County SUFFOLK MSA Boston-Cambridge-Quincy, MA-NH

This MSA does not match the county you have chosen

307 . **Maximum Allowed Rents, by Income, by Unit Size:** **Income Limits last updated on** 9/19/2016

	Maximum Income			*Maximum Rent (calculated from HUD income data)*		
	50%	*60%*	*80%*	*50%*	*60%*	*80%*
SRO	$34,500	$41,350	$55,150	$863	$1,034	$1,379
0 bedroom	$34,500	$41,350	$55,150	$863	$1,034	$1,379
1 bedroom	$36,950	$44,350	$59,100	$924	$1,109	$1,478
2 bedrooms	$44,350	$53,200	$70,900	$1,109	$1,330	$1,773
3 bedrooms	$51,200	$61,450	$81,950	$1,280	$1,536	$2,049
4 bedrooms	$57,150	$68,550	$91,400	$1,429	$1,714	$2,285
Area median income for a family of		$98,500				

308 . **H.U.D. "Fair Market Rents" (Maximum):**

0 bedroom	$1,071
1 bedroom	$1,196
2 bedrooms	$1,494
3 bedrooms	$1,861
4 bedrooms	$2,023
5 bedrooms	$2,326

FMR Information last updated on 9/19/2016

	Operations before this transaction:				**Operations after:**		
	Type	*Number*	*Current Rent*	*Annualized Income*	*Number*	*Future Rents*	*Market Rent GPR*
309 .	SRO	0	0	0	0	0	0
310 .	0 bedroom	0	0	0	0	0	0
311 .	1 bedroom	15	0	0	15	0	0
312 .	2 bedrooms	38	0	0	38	0	0
313 .	3 bedrooms	6	0	0	6	0	0
314 .	4 bedrooms	0	0	0	0	0	0
315 .	**Gross Potential Rental Income**			0			0
316 .	Vacancy		0%	0	Vacancy	5%	-81,830
317 .	Other Income			0	Other Income		14,100
318 .	Effective Gross Income			0	Effective Gross Income		-67,730

	Operating Expenses	Year	*Reason*	*% Change*	Year
319 .	Management fee	0			62,755
320 .	Administration	0			207,021
321 .	Maintance/Operations	0			279,791
322 .	Resident Services	0			25,000
323 .	Security	0			1,500
324 .	Utilities	0			120,121
325 .	Replacement Reserve	0			29,500
326 .	Operating Reserve	0			0
327 .	Real Esate Taxes	0			120,000
328 .	Insurance	0			113,708
329 .	**Total Expenses**	0			959,396
330 .	**Net Operating Income**	0	**Net Operating Income**		-1,027,126

331 . **Transaction Description:**

Optional user calculations

Project Summary Information

NOTE: Do not fill out this section. It is automatically filled in by program.

Project Name	Warren House
Developer	Newton Community Development Foundation
Community	Newton

Number of Units	59

SRO	0
0 bedroom	0
1 bedroom	15
2 bedrooms	38
3 bedrooms	6
4 bedrooms	0

Low-Income, Rental Assisted	11
Low-Income, Below 50%	10
Low-Income, Below 60%	0
Other Income 80%	4
Market Rate	34

This is an application for:

DHCD Tax Credit Allocation	No
HOME Funding through DHCD	No
MHFA Official Action Status	No
MHFA Construction Financing	No
MHFA Permanent Financing	No
MHP Fund Financing	No
MHIC Construction Loan	No
MHIC Tax Credit Equity	No
Boston: DND	No
Other	N/A
Other	N/A
Other	N/A
Financing from Massdevelopment	No

Sources of Funds:

Developer's Equity	$545,556
Tax Credit Equity	$0
Public Equity	$3,804,000
Subordinate Debt	$0
Permanent Debt	$6,830,000
Total All Sources	$11,179,556
Uses Exceed Sources by	$0

Uses of Funds:

Acquisition	$5,138,747
Construction	$5,060,000
General Development	$707,609
Developer Overhead	$0
Developer Fee	$0
Capitalized Reserves	$273,200
Total All Uses	$11,179,556

Rent Levels:

		BR (aver.)	*SF (aver.)*
Low-Income, Rental Assisted	$2,319	2.0	800
Low-Income, Below 50%	$1,330	1.9	780
Low-Income, Below 60%	N/A	N/A	N/A
Other Income 80%	$2,154	1.8	750
Market Rate	$2,616	1.8	759
Average, All Units	$2,312	1.8	769

Annual Operating Income (year 1):

Gross rental income (residential)		$1,636,608
Vacancy (resid.)	5.00%	$81,830
Other Income (net of vacancies)		$14,100
Subtotal		$1,568,878
Operating Subsidies		$0
Draw on Operating Reserves		$0
Total Annual Income		$1,568,878
Net Operating Income		$609,482
Debt Service		$509,325
Debt Service Coverage		1.20

Annual Operating Expense (year 1):

Management Fee	$62,755
Administrative	$207,021
Maintenance	$279,791
Res. Service, Security	$26,500
Utilities	$120,121
Repl. Reserve	$29,500
Oper. Reserve	$0
Taxes, Insurance	$233,708
Total	$959,396
Total per Unit	$16,261

Rent Profile Analysis

NOTE: Do not fill out this section. It is automatically filled in by program.

	Units	*Contract Rent*	*Size of Unit*	*No. of Bathrooms*	*Gross Rent/ Maximum*	*Rent per square foot*
Low-Income (Rental Assisted):						
SRO	0	N/A	N/A	N/A	N/A	N/A
0 bedroom	0	N/A	N/A	N/A	N/A	N/A
1 bedroom	2	$2,042	600	1	179.8%	$3.40
2 bedrooms	7	$2,253	800	2	160.6%	$2.82
3 bedrooms	2	$2,829	1,000	2	161.2%	$2.83
4 bedrooms	0	N/A	N/A	N/A	N/A	N/A
Low-Income (below 50%):						
SRO	0	N/A	N/A	N/A	N/A	N/A
0 bedroom	0	N/A	N/A	N/A	N/A	N/A
1 bedroom	2	$1,141	600	1	135.2%	$1.90
2 bedrooms	7	$1,351	800	2	135.1%	$1.69
3 bedrooms	1	$1,561	1,000	2	135.3%	$1.56
4 bedrooms	0	N/A	N/A	N/A	N/A	N/A
Low-Income (below 60%):						
SRO	0	N/A	N/A	N/A	N/A	N/A
0 bedroom	0	N/A	N/A	N/A	N/A	N/A
1 bedroom	0	N/A	N/A	N/A	N/A	N/A
2 bedrooms	0	N/A	N/A	N/A	N/A	N/A
3 bedrooms	0	N/A	N/A	N/A	N/A	N/A
4 bedrooms	0	N/A	N/A	N/A	N/A	N/A
Other Income 80%		Below 80% of the median income for the region				
SRO	0	N/A	N/A	N/A	N/A	N/A
0 bedroom	0	N/A	N/A	N/A	N/A	N/A
1 bedroom	1	$1,884	600	1	134.8%	$3.14
2 bedrooms	3	$2,244	800	2	134.9%	$2.81
3 bedrooms	0	N/A	N/A	N/A	N/A	N/A
4 bedrooms	0	N/A	N/A	N/A	N/A	N/A
Market Rate (unrestricted occupancy):						
SRO	0	N/A	N/A	N/A		N/A
0 bedroom	0	N/A	N/A	N/A		N/A
1 bedroom	10	$2,225	600	1		$3.71
2 bedrooms	21	$2,745	800	2		$3.43
3 bedrooms	3	$3,020	1,000	2		$3.02
4 bedrooms	0	N/A	N/A	N/A		N/A

21-Year Operating Proforma (Years 1-5)

NOTE: Do not fill out this section. It is automatically filled in by program.

		Year 1	*Year 2*	*Year 3*	*Year 4*	*Year 5*
	Calendar Year:	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
INCOME:						
Low-Income, Rental Assisted		$306,156	$312,279	$318,525	$324,895	$331,393
Low-Income, Below 50%		159,600	162,792	166,048	169,369	172,756
Low-Income, Below 60%		0	0	0	0	0
Other Income 80%		103,392	105,460	107,569	109,720	111,915
Market Rate		1,067,460	1,088,809	1,110,585	1,132,797	1,155,453
Gross Potential Income		1,636,608	1,669,340	1,702,727	1,736,782	1,771,517
Less vacancy		81,830	83,467	85,136	86,839	88,576
Effective Gross Residential Income		1,554,778	1,585,873	1,617,591	1,649,942	1,682,941
Commercial (includes parking)		0	0	0	0	0
Less vacancy		0	0	0	0	0
Net Commercial Income		0	0	0	0	0
Effective Rental Income		1,554,778	1,585,873	1,617,591	1,649,942	1,682,941
Other Income: Laundry		13,500	13,770	14,045	14,326	14,613
Other Income: Interest		600	600	600	600	600
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Total Gross Income		1,568,878	1,600,243	1,632,236	1,664,869	1,698,154
Operating Subsidies		0	0	0	0	0
Draw on Operating Reserves		0	0	0	0	0
Total Effective Income		$1,568,878	$1,600,243	$1,632,236	$1,664,869	$1,698,154
EXPENSES:						
Management Fee		62,755	64,010	65,289	66,595	67,926
Administrative		207,021	213,232	219,629	226,217	233,004
Maintenance		279,791	288,185	296,830	305,735	314,907
Resident Services		25,000	25,750	26,523	27,318	28,138
Security		1,500	1,545	1,591	1,639	1,688
Electrical		53,000	54,590	56,228	57,915	59,652
Natural Gas		9,121	9,395	9,676	9,967	10,266
Oil (heat)		0	0	0	0	0
Water & Sewer		58,000	59,740	61,532	63,378	65,280
Replacement Reserve		29,500	30,385	31,297	32,235	33,203
Operating Reserve		0	0	0	0	0
Real Estate Taxes		120,000	123,600	127,308	131,127	135,061
Other Taxes		0	0	0	0	0
Insurance		96,673	99,573	102,560	105,637	108,806
MIP		17,035	16,951	16,862	16,766	16,663
Other:		0	0	0	0	0
Total Operating Expenses		$959,396	$986,955	$1,015,325	$1,044,529	$1,074,593
NET OPERATING INCOME		$609,482	$613,288	$616,911	$620,339	$623,561
Debt Service		$509,325	$509,325	$509,325	$509,325	$509,325
Debt Service Coverage		1.20	1.20	1.21	1.22	1.22
Project Cash Flow		$100,157	$103,963	$107,586	$111,014	$114,236
		$3,338.56	$3,465.44	$3,586.20	$3,700.47	$3,807.87
Required Debt Coverage		$585,724	$585,724	$585,724	$585,724	$585,724
(Gap)/Surplus for Cov.		$23,758	$27,564	$31,187	$34,615	$37,837

21-Year Operating Proforma (Years 6-10)

NOTE: Do not fill out this section. It is automatically filled in by program.

	Year 6	*Year 7*	*Year 8*	*Year 9*	*Year 10*
Calendar Year:	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
INCOME:					
Low-Income, Rental Assisted	$338,021	$344,781	$351,677	$358,711	$365,885
Low-Income, Below 50%	176,211	179,736	183,330	186,997	190,737
Low-Income, Below 60%	0	0	0	0	0
Other Income 80%	114,153	116,436	118,765	121,140	123,563
Market Rate	1,178,562	1,202,133	1,226,176	1,250,700	1,275,714
Gross Potential Income	1,806,947	1,843,086	1,879,948	1,917,547	1,955,898
Less vacancy	90,347	92,154	93,997	95,877	97,795
Effective Gross Residential Income	1,716,600	1,750,932	1,785,951	1,821,670	1,858,103
Commercial Income	0	0	0	0	0
Less vacancy	0	0	0	0	0
Net Commercial Income	0	0	0	0	0
Effective Rental Income	1,716,600	1,750,932	1,785,951	1,821,670	1,858,103
Laundry Income	14,905	15,203	15,507	15,817	16,134
Other Income: Interest	600	600	600	600	600
Other Income: -	0	0	0	0	0
Other Income: -	0	0	0	0	0
Other Income: -	0	0	0	0	0
Other Income: -	0	0	0	0	0
Other Income: -	0	0	0	0	0
Total Gross Income	1,732,105	1,766,735	1,802,058	1,838,087	1,874,837
Operating Subsidies	0	0	0	0	0
Draw on Operating Reserves	0	0	0	0	0
Total Effective Income	$1,732,105	$1,766,735	$1,802,058	$1,838,087	$1,874,837
EXPENSES:					
Management Fee	69,284	70,669	72,082	73,523	74,993
Administrative	239,994	247,194	254,610	262,248	270,115
Maintenance	324,354	334,085	344,108	354,431	365,064
Resident Services	28,982	29,851	30,747	31,669	32,619
Security	1,739	1,791	1,845	1,900	1,957
Electrical	61,442	63,285	65,183	67,139	69,153
Natural Gas	10,574	10,891	11,218	11,554	11,901
Oil (heat)	0	0	0	0	0
Water & Sewer	67,238	69,255	71,333	73,473	75,677
Replacement Reserve	34,199	35,225	36,281	37,370	38,491
Operating Reserve	0	0	0	0	0
Real Estate Taxes	139,113	143,286	147,585	152,012	156,573
Other Taxes	0	0	0	0	0
Insurance	112,071	115,433	118,896	122,462	126,136
MIP	16,552	16,434	16,307	16,171	16,025
Other:	0	0	0	0	0
Total Operating Expenses	$1,105,541	$1,137,399	$1,170,193	$1,203,953	$1,238,704
NET OPERATING INCOME	$626,565	$629,337	$631,865	$634,135	$636,133
Debt Service	$509,325	$509,325	$509,325	$509,325	$509,325
Debt Service Coverage	1.23	1.24	1.24	1.25	1.25
Project Cash Flow	$117,239	$120,012	$122,540	$124,810	$126,808
	$3,907.98	$4,000.39	$4,084.65	$4,160.32	$4,226.92
Required Debt Coverage	$585,724	$585,724	$585,724	$585,724	$585,724
(Gap)/Surplus for Cov.	$40,841	$43,613	$46,141	$48,411	$50,409

21-Year Operating Proforma (Years 11-15)

NOTE: Do not fill out this section. It is automatically filled in by program.

		Year 11	*Year 12*	*Year 13*	*Year 14*	*Year 15*
Calendar Year:		*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
INCOME:						
Low-Income, Rental Assisted		$373,202	$380,667	$388,280	$396,045	$403,966
Low-Income, Below 50%		194,552	198,443	202,411	206,460	210,589
Low-Income, Below 60%		0	0	0	0	0
Other Income 80%		126,034	128,555	131,126	133,749	136,424
Market Rate		1,301,228	1,327,252	1,353,797	1,380,873	1,408,491
Gross Potential Income		1,995,016	2,034,916	2,075,615	2,117,127	2,159,469
Less vacancy		99,751	101,746	103,781	105,856	107,973
Effective Gross Residential Income		1,895,265	1,933,171	1,971,834	2,011,271	2,051,496
Commercial (includes parking)		0	0	0	0	0
Less vacancy		0	0	0	0	0
Net Commercial Income		0	0	0	0	0
Effective Rental Income		1,895,265	1,933,171	1,971,834	2,011,271	2,051,496
Other Income: Laundry		16,456	16,786	17,121	17,464	17,813
Other Income: Interest		600	600	600	600	600
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Other Income:	0	0	0	0	0	0
Total Gross Income		1,912,322	1,950,556	1,989,555	2,029,334	2,069,909
Operating Subsidies		0	0	0	0	0
Draw on Operating Reserves		0	0	0	0	0
Total Effective Income		$1,912,322	$1,950,556	$1,989,555	$2,029,334	$2,069,909
EXPENSES:						
Management Fee		76,493	78,022	79,582	81,173	82,796
Administrative		278,219	286,565	295,162	304,017	313,138
Maintenance		376,016	387,296	398,915	410,883	423,209
Resident Services		33,598	34,606	35,644	36,713	37,815
Security		2,016	2,076	2,139	2,203	2,269
Electrical		71,228	73,364	75,565	77,832	80,167
Natural Gas		12,258	12,626	13,004	13,394	13,796
Oil (heat)		0	0	0	0	0
Water & Sewer		77,947	80,286	82,694	85,175	87,730
Replacement Reserve		39,646	40,835	42,060	43,322	44,621
Operating Reserve		0	0	0	0	0
Real Estate Taxes		161,270	166,108	171,091	176,224	181,511
Other Taxes		0	0	0	0	0
Insurance		129,920	133,818	137,833	141,968	146,227
MIP		15,868	15,700	15,520	15,327	15,120
Other:		0	0	0	0	0
Total Operating Expenses		$1,274,478	$1,311,303	$1,349,210	$1,388,231	$1,428,399
NET OPERATING INCOME		$637,844	$639,253	$640,345	$641,103	$641,510
Debt Service		$509,325	$509,325	$509,325	$509,325	$509,325
Debt Service Coverage		1.25	1.26	1.26	1.26	1.26
Project Cash Flow		$128,519	$129,928	$131,020	$131,778	$132,185
		$4,283.96	$4,330.94	$4,367.33	$4,392.59	$4,406.15
Required Debt Coverage		$585,724	$585,724	$585,724	$585,724	$585,724
(Gap)/Surplus for Cov.		$52,120	$53,530	$54,621	$55,379	$55,786

21-Year Operating Proforma (Years 16-21)

NOTE: Do not fill out this section. It is automatically filled in by program.

	Year 16	*Year 17*	*Year 18*	*Year 19*	*Year 20*	*Year 21*
Calendar Year:	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
INCOME:						
Low-Income, Rent. Astd.	$412,046	$420,287	$428,692	$437,266	$446,011	$454,932
Low-Income, Below 50%	214,801	219,097	223,479	227,948	232,507	237,157
Low-Income, Below 60%	0	0	0	0	0	0
Other Income 80%	139,152	141,935	144,774	147,669	150,623	153,635
Market Rate	1,436,661	1,465,394	1,494,702	1,524,596	1,555,088	1,586,189
Gross Potential Income	2,202,659	2,246,712	2,291,646	2,337,479	2,384,229	2,431,913
Less vacancy	110,133	112,336	114,582	116,874	119,211	121,596
Eff. Gross Res. Income	2,092,526	2,134,376	2,177,064	2,220,605	2,265,017	2,310,318
Commercial Income	0	0	0	0	0	0
Less vacancy	0	0	0	0	0	0
Net Commercial Income	0	0	0	0	0	0
Effective Rental Income	2,092,526	2,134,376	2,177,064	2,220,605	2,265,017	2,310,318
Other Income: Laundry	18,169	18,533	18,903	19,281	19,667	20,060
Other Interest	600	600	600	600	600	600
Other 0	0	0	0	0	0	0
Other 0	0	0	0	0	0	0
Other 0	0	0	0	0	0	0
Other 0	0	0	0	0	0	0
Other 0	0	0	0	0	0	0
Total Gross Income	2,111,295	2,153,509	2,196,567	2,240,487	2,285,284	2,330,978
Operating Subsidies	0	0	0	0	0	0
Draw on Operating Res.	0	0	0	0	0	0
Total Effective Income	$2,111,295	$2,153,509	$2,196,567	$2,240,487	$2,285,284	$2,330,978
EXPENSES:						
Management Fee	84,452	86,140	87,863	89,619	91,411	93,239
Administrative	322,532	332,208	342,174	352,439	363,013	373,903
Maintenance	435,905	448,982	462,452	476,325	490,615	505,334
Resident Services	38,949	40,118	41,321	42,561	43,838	45,153
Security	2,337	2,407	2,479	2,554	2,630	2,709
Electrical	82,572	85,049	87,601	90,229	92,936	95,724
Natural Gas	14,210	14,637	15,076	15,528	15,994	16,474
Oil (heat)	0	0	0	0	0	0
Water & Sewer	90,362	93,073	95,865	98,741	101,703	104,754
Replacement Reserve	45,960	47,339	48,759	50,222	51,728	53,280
Operating Reserve	0	0	0	0	0	0
Real Estate Taxes	186,956	192,565	198,342	204,292	210,421	216,733
Other Taxes	0	0	0	0	0	0
Insurance	150,613	155,132	159,786	164,579	169,517	174,602
MIP	14,898	14,660	14,405	14,131	13,838	13,523
Other:	0	0	0	0	0	0
Total Operating Expenses	$1,469,747	$1,512,310	$1,556,122	$1,601,221	$1,647,644	$1,695,429
NET OPER. INC.	$641,548	$641,199	$640,445	$639,265	$637,641	$635,549
Debt Service	$509,325	$509,325	$509,325	$509,325	$509,325	$509,325
Debt Service Coverage	1.26	1.26	1.26	1.26	1.25	1.25
Project Cash Flow	$132,223	$131,874	$131,120	$129,940	$128,316	$126,224
	$4,407.42	$4,395.80	$4,370.66	$4,331.35	$4,277.18	
Required Debt Coverage	$585,724	$585,724	$585,724	$585,724	$585,724	$585,724
(Gap)/Surplus for Cov.	$55,824	$55,475	$54,721	$53,542	$51,917	$49,825

Operating Expense Analysis

NOTE: Do not fill out this section. It is automatically filled in by program.

	Residential Total	*Residential Per Unit*	*Residential Per S. F.*	*Commercial Total*	*Commercial Per S. F.*
Management Fee	$62,755	$1,063.64	$1.05	$0	N/A
Payroll, Administrative	$100,586	$1,704.85	$1.68	$0	N/A
Payroll Taxes & Benefits, Admin.	$23,843	$404.12	$0.40	$0	N/A
Legal	$5,000	$84.75	$0.08	$0	N/A
Audit	$15,575	$263.98	$0.26	$0	N/A
Marketing	$15,000	$254.24	$0.25	$0	N/A
Telephone	$4,500	$76.27	$0.08	$0	N/A
Office Supplies	$2,500	$42.37	$0.04	$0	N/A
Accounting & Data Processing	$22,312	$378.17	$0.37	$0	N/A
Investor Servicing	$0	$0.00	$0.00	$0	N/A
DHCD Monitoring Fee	$0	$0.00	$0.00	$0	N/A
Other:	$2,705	$45.85	$0.05	$0	N/A
Other:	$15,000	$254.24	$0.25	$0	N/A
Subtotal: Administrative	$207,021	$3,508.83	$3.45	$0	N/A
Payroll, Maintenance	$64,947	$1,100.80	$1.08	$0	N/A
Payroll Taxes & Benefits, Admin.	$34,719	$588.46	$0.58	$0	N/A
Janitorial Materials	$6,000	$101.69	$0.10	$0	N/A
Landscaping	$30,325	$513.98	$0.51	$0	N/A
Decorating (inter. only)	$36,000	$610.17	$0.60	$0	N/A
Repairs (inter. & ext.)	$39,300	$666.10	$0.66	$0	N/A
Elevator Maintenance	$4,500	$76.27	$0.08	$0	N/A
Trash Removal	$20,000	$338.98	$0.33	$0	N/A
Snow Removal	$28,000	$474.58	$0.47	$0	N/A
Extermination	$2,500	$42.37	$0.04	$0	N/A
Recreation	$0	$0.00	$0.00	$0	N/A
Other:	$13,500	$228.81	$0.23	$0	N/A
Subtotal: Maintenance	$279,791	$4,742.22	$4.66	$0	N/A
Resident Services	$25,000	$423.73	$0.42	$0	N/A
Security	$1,500	$25.42	$0.03	$0	N/A
Electricity	$53,000	$898.31	$0.88	$0	N/A
Natural Gas	$9,121	$154.59	$0.15	$0	N/A
Oil	$0	$0.00	$0.00	$0	N/A
Water & Sewer	$58,000	$983.05	$0.97	$0	N/A
Subtotal: Utilities	$120,121	$2,035.95	$2.00	$0	N/A
Replacement Reserve	$29,500	$500.00	$0.49	$0	N/A
Operating Reserve	$0	$0.00	$0.00	$0	N/A
Real Estate Taxes	$120,000	$2,033.90	$2.00	$0	N/A
Other Taxes	$0	$0.00	$0.00	$0	N/A
Insurance	$96,673	$1,638.53	$1.61	$0	N/A
MIP	$17,035	$288.72	$0.28	$0	N/A
Other:	$0	$0.00	$0.00	$0	N/A
Subtotal:Taxes, Insurance	$233,708	$3,961.15	$3.90	$0	N/A
TOTAL EXPENSES	$959,396	$16,260.94	$15.99	$0	N/A

Development Cost Analysis

NOTE: Do not fill out this section. It is automatically filled in by program.

	Residential Total	*Residential Per Unit*	*Residential Per S. F.*	*Commercial Total*	*Commercial Per S. F.*
Acquisition: Land	$5,138,747	$87,097	$85.65	$0	N/A
Acquisition: Building	$0	$0	$0.00	$0	N/A
Acquisition Subtotal	$5,138,747	$87,097	$85.65	$0	N/A
Direct Construction Budget	$4,600,000	$77,966	$76.67	$0	N/A
Construction Contingency	$460,000	$7,797	$7.67	$0	N/A
Subtotal: Construction	$5,060,000	$85,763	$84.33	$0	N/A
General Development Costs:					
Architecture & Engineering	$152,000	$2,576	$2.53	$0	N/A
Survey and Permits	$63,700	$1,080	$1.06	$0	N/A
Clerk of the Works	$77,675	$1,317	$1.29	$0	N/A
Environmental Engineer	$5,000	$85	$0.08	$0	N/A
Bond Premium	$0	$0	$0.00	$0	N/A
Legal	$50,000	$847	$0.83	$0	N/A
Title and Recording	$34,675	$588	$0.58	$0	N/A
Accounting & Cost Certificat.	$15,000	$254	$0.25	$0	N/A
Marketing and Rent Up	$0	$0	$0.00	$0	N/A
Real Estate Taxes	$0	$0	$0.00	$0	N/A
Insurance	$0	$0	$0.00	$0	N/A
Relocation	$0	$0	$0.00	$0	N/A
Appraisal	$20,000	$339	$0.33	$0	N/A
Security	$0	$0	$0.00	$0	N/A
Construction Loan Interest	$0	$0	$0.00	$0	N/A
Inspecting Engineer	$15,483	$262	$0.26	$0	N/A
Fees to: Lender Legal	$0	$0	$0.00	$0	N/A
Fees to: Loan Fees	$174,165	$2,952	$2.90	$0	N/A
FF&E	$0	$0	$0.00	$0	N/A
Credit Enhancement Fees	$0	$0	$0.00	$0	N/A
Letter of Credit Fees	$0	$0	$0.00	$0	N/A
Other Financing Fees	$0	$0	$0.00	$0	N/A
Development Consultant	$35,583	$603	$0.59	$0	N/A
Other:	$0	$0	$0.00	$0	N/A
Other:	$0	$0	$0.00	$0	N/A
Soft Cost Contingency	$64,328	$1,090	$1.07	$0	N/A
Subtotal: Gen. Dev.	$707,609	$11,993	$11.79	$0	N/A
Subtotal: Acquis., Const., and Gen. Dev.	$10,906,356	$184,853	$181.77	$0	N/A
Capitalized Reserves	$273,200	$4,631	$4.55	$0	N/A
Developer Overhead	$0	$0	$0.00	$0	N/A
Developer Fee	$0	$0	$0.00	$0	N/A
Total Development Cost	$11,179,556	$189,484	$186.33	$0	N/A
Total Net* Development Cost	$10,906,356	$184,853	$181.77	$0	N/A

*(*Does not include any capitalized reserves nor any developer's fees or overhead which are contributed or loaned to the project.)*