

ADDENDUM #2

Project: Lyman B. Goff Middle School Window Replacement

Architect: Wessling Architects, 350 Granite Street, Suite 1103, Braintree, MA 02184

Architect Project Number: 22081

Date of Addendum: January 6, 2023

The attention of Bidders submitting proposals for the Lyman B. Goff Middle School Window Replacement Bid Documents is called to the following changes to the Bidding Contract Documents dated December 12, 2022, as prepared by Wessling Architects. The items set forth therein below, whether of revision, omission, addition, substitution or clarification are all to be included as changes to Information to Bidders, the Conditions of the Contract, Specifications and Drawings of the Contract.

The number of this Addendum (Number 2) must be entered in the appropriate spaces provided on the Bid Form.

DRAWINGS:

2023	.01.06 -	22081	Goff Middle School – G-001 General Reference Sheet_Addendum #2
2023	.01.06 -	22081	Goff Middle School – A-101 First Floor Plan_Addendum #2
2023	.01.06 -	22081	Goff Middle School – A-102 Second Floor Plan_Addendum #2
2023	.01.06 -	22081	Goff Middle School – A-103 Third Floor Plan_Addendum #2
2023	.01.06 -	22081	Goff Middle School – A-501 New Single Hung Window Details_Addendum #2
2023	.01.06 -	22081	Goff Middle School - A-502 New Inswing Awning Window Details_Addendum #2

SPECIFICATIONS:

ADD 1-01 Document 00 10 00 – BID/SOLICITATION INFORMATION:

1.0 Bid/Solicitation Information:

MODIFIED: Dates have been updated.

Requests for Information during the Bidding Period will be accepted until 5:00 p.m. on **Wednesday, January 11th, 2023.**

RFP Submission Deadline has been extended to **Wednesday, January 18th, 2023**, at 3:00 P.M.

ADD 1-02 Document 00 10 00 – BID/SOLICITATION INFORMATION:

11.0 Bid Form:

ADD: Section 1.02 ALLOWANCES/UNIT PRICES

11. Allow cost to replace existing damaged laminate sills with new Corian sills. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. **Provide unit price per square foot.** This allowance is for work beyond that shown in the drawings.

\$____

Cost for 800 square feet	In words	Per
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ADD 1-03 Section 01 22 00 – UNIT PRICES: ADD: Unit Price No. 8: Repair damaged plaster walls and ceilings (beyond that required for window reinstallation as detailed). Remove damaged plaster back to sound framing. **Install new steel mesh and plaster to match existing.**

S.F.

- ADD 1-04 Section 01 22 00 UNIT PRICES: ADD: Unit Price No. 11: Replace existing damaged laminate sills with new Corian sills. Unit of Measurement: **Square Foot of sill**. Base Bid Allowance to include: **800 square feet.**
- ADD 1-05 Drawing Sheet G-001 GENERAL REFERENCE SHEET:
- MODIFIED: INTERIORS SUMMARY OF WORK ADD: FURNISH AND **INSTALL NEW STEEL MESH AND PLASTER** TO MATCH EXISTING AT ALL WINDOW OPENINGS AND AREAS OF DETRIORATED / WATER DAMAGED PLASTER. PAINT OT MATCH EXISTING.
- ADD 1-06 Drawing Sheet G-001 GENERAL REFERENCE SHEET: MODIFIED: Note modified in Summary of Work: **REFER TO THE ASBESTOS REMOVAL SPECIFICATION PROVIDED BY EMERY ENVIRONMENTAL ASSOCIATES FOR ABATEMENT SCOPE OF WORK.**
- ADD 1-07 Drawing Sheet G-001 GENERAL REFERENCE SHEET:
 MODIFIED: Unit Price 11.
 ADD: UNIT PRICE OF MEASUREMENT: SQUARE FOOT OF SILL.
 BASE BID ALLOWANCE TO INCLUDE: 800 SQUARE FEET.
- ADD 1-08 Drawing Sheet A-101 FIRST FLOOR PLAN MODIFIED: Phases modified to match new phases on G-002 Site Plan.
- ADD 1-09 Drawing Sheet A-102 SECOND FLOOR PLAN MODIFIED: <u>NOTE</u>: **TYPICAL PROFILE OF EXISTING LAMINATE / NEW CORIAN SILL. ASSUME 24'' +/- MAX. DEPTH. DEPTH WILL VARY WINDOW TO WINDOW.**

MODIFIED: Phases modified to match new phases on G-002 Site Plan.

ADD 1-10 Drawing Sheet A-103 THIRD FLOOR PLAN

MODIFIED: <u>NOTE</u>: **TYPICAL PROFILE OF EXISTING LAMINATE / NEW CORIAN SILL. ASSUME 24'' +/- MAX. DEPTH. DEPTH WILL VARY WINDOW TO WINDOW.**

MODIFIED: Phases modified to match new phases on G-002 Site Plan.

ADD 1-11 Drawing Sheet A-501 New Single Hung Window Details

MODIFIED: REPLACE EXISTING DAMAGED LAMINATE SILLS WITH NEW CORIAN SILLS. ASSUME 24" MAX. DEPTH. DEPTH WILL VARY WINDOW TO WINDOW.

ADD 1-12 Drawing Sheet A-502 New Inswing Awning Window Details

MODIFIED: **REPLACE EXISTING DAMAGED LAMINATE SILLS WITH NEW CORIAN SILLS. ASSUME 24" MAX. DEPTH. DEPTH WILL VARY WINDOW TO WINDOW**.

QUESTIONS AND COMMENTS:

1. **Question**: The plan notes to remove the plaster around the interior surround of the windows. The plaster is brown coat plaster on wire mesh with a corner bead that is integral to the return. If we remove this plaster it will need to be rebuilt with steel mesh and plaster.

Answer: Install new steel mesh and plaster to match existing at all window openings.

2. **Question**: The window sill issue needs to be addressed more concisely. The sills are different widths everywhere and need to be cut into the profiles of the windows. The locations where the previous mechanical contractor built lower walls is much wider than the original sills. How would we provide the unit pricing for this when all the details are different?

Answer: The unit pricing has been modified from linear foot to square foot. Please provide unit pricing for square foot of Corian sills. Assume 24" maximum depth typical. Depth will vary window to window. Refer to Sheets A-102, A-103, A-501 and A-502.

3. **Question**: Can you also clarify the degree of temporary enclosures required where the windows are removed? Is it to be plywood or plastic, etc.?

Answer: Plywood is to be used for temporary enclosures on the First Floor. Plastic or abatement scrim is to be used on the Second and Third Floors.

- 4. Refer to the Asbestos Abatement Plan from Emery Environmental Associates attached for scope of work noted within.
- 5. Refer to current Project Documents including Bid Set, Addendum #1, and Addendum #2.

Attachment A: Asbestos Removal Specification from Emery Environmental Associates

Attachment B: 2023.01.06 – 22081 Goff Middle School – Revised Written Specifications_Addendum #2

Attachment C: 2023.01.06 - 22081 Goff Middle School - Revised Drawings_Addendum #2

END OF ADDENDUM #2



Environmental Associates

PO Box – E * Pawtucket, RI 02861 * Office (401)-727-4941 * Email: emeryenvironmental@icloud.com

ASBESTOS REMOVAL SPECIFICATION

PROJECT:

2023 – 2024 WINDOW REPLACEMENT PROJECT

LOCATION:

PAWTUCKET SCHOOL DEPARTMENT LYMAN B. GOFF MIDDLE SCHOOL 974 NEWPORT AVENUE PAWTUCKET, RI 02861

CLIENT:

MR. CHRIS SPIEGEL COLLIERS PROJECT LEADERS 72 PINE STREET PROVIDENCE, RI 02903

REPORT PREPARED BY;

MR. PATRICK A. EMERY EMERY ENVIRONMENTAL ASSOCIATES P.O. BOX - E PAWTUCKET, RI 02861

DATE: 12.27.2022 PATRICK A. EMERY

RIDOH ASBESTOS PROJECT DESIGNER; APD0505

EEA PROJECT #: 221213-A

Environmental Consulting and Mitigation Contractors Lead Paint * Asbestos * Mold * Indoor Air Quality

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APPENDIX – A:

ASBESTOS ABATEMENT SPECIFICATION

Environmental Consulting and Mitigation Contractors Lead Paint * Asbestos * Mold * Indoor Air Quality

RHODE ISLAND DEPARTMENT OF HEALTH NOTARIZED CERTIFICATION OF ASBESTOS ABATEMENT PLAN

Facility: LYMAN	B. GOFF MIDDLE SCHOOL / EXTEI	RIOR WINDOW REPLACEMENT PROJECT
Address: 974 NEV	VPORT AVENUE	
City/Town: PAWTUCK	ET ZIP: 02861 Amendment/	Phase No.:
Abatement Plan Written By	r: <u>PATRICK A. EMERY</u> Certifica	ation No.: <i>APD00505</i>
Summary of specific waive	rs/variances being requested: <u>SEE ATT</u>	TACHMENTS #4, #6 (AWP) & #7 - ENCLOSED
Type of Asbestos Abateme	<u>nt</u> () Removal () Enclosure	() Encapsulation () Demolition
	() Glovebag () Asphalt Roo	fing / Exterior Abatement
	(X) Other (Specify) AWP	
Is this plan being submitted in	response to a Notice of Violation and/or a No	tice of Requirement to Submit an Asbestos Abatement Plan?
() YES (X) NO		
If Yes, Indicate Notice/Buildir	ng Evaluation	
No(s):		
Contractor: TO BE SEL	ECTED	License No:
Estimated Start Date: 8.	18.2023	
Pre-Abatement Sampling In	nformation:	
Bulk Samples Collected By:	PATRICK A. EMERY	Certification No.: AI00505
Bulk Samples Analyzed By:	EMSL ANALYTICAL, INC.	Certification No.: <i>PLM00139</i>
Air Samples Collected By:		Certification No.:
Air Samples Analyzed By:		Certification No.:
In-Process / Clearance Air	Sampling Information: (OSHA Parsonal	Air Info. To Be Provided By Asbestos Contractor)
		• • •
	Collected By: <u>PATRICK A. EMERY</u>	Certification No.: <u>A100505</u>
	Collected By: VINCENT P. EMERY	Certification No.: <u>A101105</u>
In Process Air Samples Analy	zed By: <u>EMERY ENVIRONMENTAL</u>	Certification No.: <u>PCM00146</u>
	CERTIFICAT	TION
Control Act and Parts A and C performed in conjunction with current revision of all application	abatement plan is prepared and submitted und of the Rhode Island Rules and Regulations for this plan must be incompliance with the spec	der the provision s of Section 23-24.5-6 of the RI Asbestos or Asbestos Control; all abatement/management activities ifications prescribed in this plan (when approved) and the most stos abatement/ management activities described in this plan
Certified by:	Title of Building Owner or Agent)	:
(Signature	of Building Owner or Agent)	
Certified by <u>:</u>	Date	e:

(Typed/Printed Name of Certified)

Subscribed and sworn before me this ______ day of ______, 20_____

My Commission Expires:

(Notary Public)

AFFIX NOTARY SEAL HERE

Department of Health

Division of Occupational & Radiological Health

APPLICATION FOR APPROVAL OF AN ASBESTOS ABATEMENT PLAN

1. Building Owner's Name:	 Building Owner's Mailing Address and Telephone Number: 		
PAWTUCKET SCHOOL DEPARTMENT	Street: 286 MAIN STREET		
2. Application Prepared By:	City/Town: PAWTUCKET		
MR. PATRICK A. EMERY	Zip: 02860		
R.I. Certification : <u>APD-00505</u>	Telephone No: <u>401-729-6300</u> (Area Code, No., Ext.)		
Telephone No.: (401)-727-4941	4. Person to be contacted regarding this application:		
(Area Code, No., Ext.)	Name: MR. PATRICK EMERY		
	Telephone No.: 401-727-4941		
	Telephone No.: 401-727-4941 (Area Code, No., Ext.)		
	formed: DDLE SCHOOL		
	ZIP <u>: 02861</u>		
 6. Is this application being submitted in response to a "Notice of Requirement to Submit an Asbestos Abatement Plan"? () YES (X) NO 			
If yes, what is the due date for submittal of Abate	ement Plan?		
Evaluation Number on the Notice:	(Mo.) (Day) (Yr.)		
7. Contractor who will be performing abatement	nt work (if selected):		
Name: TO BE SELECTED	R.I. License No.: LAC-		

8.	Estimated Starting Date of Abatement Work:	8 (Month)	18 (Day)	2023 (Year)		
9.	Estimated Completion Date of Abatement Work:	8 (Month)	<u>31</u> (Day)	2024 (Year)		
10.	Type of Asbestos Abatement: (Check all that apply	7)				
	() Removal () Enclosure					
	() Encapsulation () Demolition					
	() Operations and Maintenance Only					
	(X) Other: (Specify) AWP					
11.	Type of Building:(X) School() Privately Owned Building() Publicly Owned Building() Publicly Owned Building() Residence() Other: (Specify)					
12.	 Building Access: (X) Public Access (≥ 25% of Building Area) () Limited Public Access (< 25 % of Building Area) () No Public Access 					
13.	Bulk Sample Collection and Analysis:					
	A. Person collecting bulk samples:					
	Name: PATRICK A. EMERY R	I. Certification	No.: <u>AI00505</u>			
	B. Sampling Methodology:					
	(X) EPA AHERA Sampling Requirements (40 CF	R 763.86).				
	() EPA's Asbestos Containing Material in School Guidance for Controlling Asbestos Containing					
	() Other (Specify)					
	C. Laboratory performing the analysis of the bulk	samples:				
	Name: EMSL ANALYTICAL, INC.	R.I. Certificati	on No.: <u>PLM00</u>	0139		
	D. Analytical Methodology:					
	(X) EPA Interim Method for the Determination of	Asbestos in Bu	lk Insulation Sa	mples (PLM method only).		
	() Other (Specify)					

14. Pre-Abatement Air Sample Collection and Analysis: NOT APPLICABLE

A. Person collecting pre-abatement air samples: Name:	Affiliation:
B. Laboratory performing analysis of pre-abatement a	ir samples:
Name:	R.I. Certification No.: AAL-

C. Methodology used in the collection and analysis of pre-abatement samples:

- () NIOSH Method 7400 (Most Current Revision)
- () OSHA 29 CFR 1926.58 Appendix A & B
- () Other (Specify)
- 15. A. Indicate how the regulated asbestos containing material (RACM) will be removed from the abatement site. If a hauler or broker will be used to transport the RACM to a disposal site, they must also be identified.

TO BE PROVIDED BY CONTRACTOR

B. Provide the name and location of the authorized asbestos waste facility to which the removed material will be transferred for disposal (if known).

TO BE PROVIDED BY CONTRACTOR

16. Person designated as compliance monitor for abatement work. (NOT REQUIRED)

Name: Affiliation:

- EMERY ENVIRONMENTAL ASSOCIATES
- 17. In-Process & Clearance Air Sampling: (SEE ATTACHMENT #1)
 - A. Describe on an attachment the type, number and location of air samples that will be collected outside the work area during the abatement project.
 - B. Describe on an attachment the plan of action to be followed if the Indoor Non-Occupational Air Exposure Standard for Asbestos (0.01 fibers per cubic centimeter) is exceeded outside the work area during the abatement project.
 - C. Describe on an attachment the type, number and location of air samples that will be collected as part of the final clearance testing.
 - D. Describe on an attachment the plan of action to be followed if the Indoor Non-Occupational Air Exposure Standard for Asbestos (0.01 fibers per cubic centimeter) is exceeded during final clearance testing.

FORM ASB-16 (11/2003)

REPLACES FORM ASB-16B (3/92)

18. A separate and fully completed Form ASB-16A must be submitted for each area to be abated. List below the entry in Item 1 from each attached ASB-16A.

ASBESTOS CONTROL AREA #1 / EXTERIOR - NORTH, WEST, EAST AND SOUTH ELEVATIONS (PHASE – 1 / EXTERIOR WINDOW REPLACEMENT PROJECT). ASBESTOS CONTROL AREA #2 / EXTERIOR - NORTH, SOUTH & EAST ELEVATIONS (PHASE – 2 / EXTERIOR WINDOW REPLACEMENT PROJECT

NOTE: SEE PROJECT DRAWINGS – ATTACHED / APPENDIX - E

CONSULTANT CERTIFICATION

9. I certify that this plan was prepared by me and I am responsible for its content.						
Signature:	FILTO M. UN	Date:	12	27	2022	
e <u> </u>			(Month)	(Day)	(Year)	
Affiliation:	Emery Environmental Associates					
· · · · · · · · · · · · · · · · · · ·						

20. ASBESTOS ABATEMENT PLAN APPLICATION FEE:

() Operations & Maintenance Only	\$ 75
() Up to One (1) NESHAP Unit	\$ 75
() Between One (1) & Ten (10) NESHAP Units	\$ 300
() Between Ten (10) & Fifty (50) NESHAP Units	\$ 600
(X) Over Fifty (50) NESHAP Units	\$ 900
() AMENDMENT FEE	\$ 150

FORM ASB-16 (11/2003)

REPLACES FORM ASB-16B (3/92)

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Health

Division of Occupational & Radiological Health

APPLICATION FOR APPROVAL OF AN ASBESTOS ABATEMENT PLAN

SUPPLEMENTAL INFORMATION: AREA DESCRIPTION AND PROPOSED REMEDY

BUILDING LOCATION: LYMAN B. GOFF MIDDLE SCHOOL 974 NEWPORT AVENUE; PAWTUCKET, RI 02861

INSTRUCTIONS: All items on this form must be addressed. All references to attachments must be clearly identified. All attachments must be marked with the specific item numbers on this form to which they pertain.

(1) Area Location/Identification (Room Name / No., Evaluation Number, etc.):

ASBESTOS CONTROL AREA #1 / EXTERIOR - NORTH. SOUTH. EAST & WEST ELEVATIONS (PHASE – 1 / EXTERIOR WINDOW REPLACEMENT PROJECT). SEE ATTACHMENT #2 & ATTACHED WESSLING ARCHITECTS DRAWINGS: G-002, A-101, A-102, A-103, AD-202, AD-203, AD-204, A-202, A-203 A-204, AD-501, AD-502; FOR EXACT LOCATIONS/SCOPE OF WORK)

(2) Attach a description of each type (e.g. pipe, ceiling, etc.) of regulated asbestos containing material (RACM) in this area, including condition, location, quantity and asbestos content. Attach a copy of the laboratory report(s) for all samples. (NOTE: All laboratory reports must include the name of the building(s) and the location(s) of the sample(s)).

SEE ATTACHMENT #2

(3) Attach a current scale drawing of this area, showing direction of North and East, which has been clearly annotated to show the type, location and quantity of all RACM in this area. This drawing must include a legend, which acts as a guide to the scale, symbols and nomenclature used in the drawing. If a master plan or multiple drawings are provided, indicate the specific location(s) and drawing number(s) which depict this area. If the location of the decontamination chamber is known, it should be so indicated on the appropriate drawing(s).

ASBESTOS CONTROL AREA #1 / EXTERIOR - NORTH, SOUTH, EAST & WEST ELEVATIONS (PHASE – 1 / EXTERIOR WINDOW REPLACEMENT PROJECT). SEE ATTACHMENT #2 & ATTACHED WESSLING ARCHITECTS DRAWINGS: G-002, A-101, A-102, A-103, AD-202, AD-203, AD-204, A-202, A-203 A-204, AD-501, AD-502; FOR EXACT LOCATIONS / SCOPE OF WORK)

APPENDIX – E (ATTACHED)

(4) **PROPOSED REMEDIES:**

A) Attach a description of the interim Operations and Maintenance Plan that will be implemented in accordance with C.1.2(b).

SEE ATTACHMENT #3

(4) PROPOSED REMEDIES: (Cont.)

B) Will any portion of this area be abated by use of B.8 work procedures?() YES (X) NO

If Yes, indicate below which RACM in this area will be abated by use of the following B.8 work procedures:

B.8.2 & B.8.3	(REMOVAL):
B.8.2 & B.8.4	(ENCAPSULATION):
B.8.2 & B.8.5	(ENCLOSURE):
B.8.6	(DEMOLITION):
B.8.7	(GLOVEBAG):
B.8.8	(ASPHALT ROOFING):

C) Are you requesting any waivers to the above selected B.8 procedures for any of the abatement activities in this area?

(X) YES () NO

If Yes, attach a detailed description of the waivers requested you are proposing to utilize. <u>All items must be keyed</u> to the specific section(s) of the regulations for which waivers are requested.

ATTACHMENT #4

D) Are you proposing alternative procedures under B.11 for any of the abatement activities in this area?

(X) YES () NO

If Yes, attach a detailed description of the alternative procedures requested you are proposing to utilize. <u>Alternate</u> <u>procedures must include a justification for not following specific section(s) of the regulations and be as protective</u> <u>of public health.</u>

ATTACHMENT #6

E) Will any accessible RACM remain in this area after abatement?

(X) YES () NO

If Yes, attach a description of the RACM that will remain and the details of the on-going Operations and Maintenance Plan that will be implemented in accordance with C.1.2(b).

All remaining ACM within the exterior envelope of the structure at the completion of the project shall be maintained by the building owner's LEA in accordance with a site-specific O&M plan as developed by the building owner.

AGENCY USE ONLY

FORM ASB-16A (11/2003)

REPLACES FORM ASB-16 (3/92)

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Health

Division of Occupational & Radiological Health

APPLICATION FOR APPROVAL OF AN ASBESTOS ABATEMENT PLAN

SUPPLEMENTAL INFORMATION: AREA DESCRIPTION AND PROPOSED REMEDY

BUILDING LOCATION: <u>LYMAN B. GOFF MIDDLE SCHOOL</u> 974 NEWPORT AVENUE; PAWTUCKET, RI 02861

INSTRUCTIONS: All items on this form must be addressed. All references to attachments must be clearly identified. All attachments must be marked with the specific item numbers on this form to which they pertain.

(1) Area Location/Identification (Room Name / No., Evaluation Number, etc.):

ASBESTOS CONTROL AREA #2 / EXTERIOR - NORTH. SOUTH. EAST ELEVATIONS (PHASE – 2 / EXTERIOR WINDOW REPLACEMENT PROJECT). SEE ATTACHMENT #2 & ATTACHED WESSLING ARCHITECTS DRAWINGS: G-002, A-101, A-102, A-103, AD-201, AD-202, AD-203, AD-204, A-201, A-202, A-203 A-204, AD-501, AD-502; FOR EXACT LOCATIONS / SCOPE OF WORK)

(2) Attach a description of each type (e.g. pipe, ceiling, etc.) of regulated asbestos containing material (RACM) in this area, including condition, location, quantity and asbestos content. Attach a copy of the laboratory report(s) for all samples. (NOTE: All laboratory reports must include the name of the building(s) and the location(s) of the sample(s)).

SEE ATTACHMENT #2

(3) Attach a current scale drawing of this area, showing direction of North and East, which has been clearly annotated to show the type, location and quantity of all RACM in this area. This drawing must include a legend, which acts as a guide to the scale, symbols and nomenclature used in the drawing. If a master plan or multiple drawings are provided, indicate the specific location(s) and drawing number(s) which depict this area. If the location of the decontamination chamber is known, it should be so indicated on the appropriate drawing(s).

ASBESTOS CONTROL AREA #2 / EXTERIOR - NORTH, SOUTH, EAST ELEVATIONS (PHASE – 2 / EXTERIOR WINDOW REPLACEMENT PROJECT). SEE ATTACHMENT #2 & ATTACHED WESSLING ARCHITECTS DRAWINGS: G-002, A-101, A-102, A-103, AD-201, AD-202, AD-203, AD-204, A-201, A-202, A-203 A-204, AD-501, AD-502; FOR EXACT LOCATIONS/ SCOPE OF WORK)

APPENDIX – E (ATTACHED)

(4) **PROPOSED REMEDIES:**

A) Attach a description of the interim Operations and Maintenance Plan that will be implemented in accordance with C.1.2(b).

SEE ATTACHMENT #3

(4) PROPOSED REMEDIES: (Cont.)

B) Will any portion of this area be abated by use of B.8 work procedures?() YES (X) NO

If Yes, indicate below which RACM in this area will be abated by use of the following B.8 work procedures:

B.8.2 & B.8.3	(REMOVAL):
B.8.2 & B.8.4	(ENCAPSULATION):
B.8.2 & B.8.5	(ENCLOSURE):
B.8.6	(DEMOLITION):
B.8.7	(GLOVEBAG):
B.8.8	(ASPHALT ROOFING):

C) Are you requesting any waivers to the above selected B.8 procedures for any of the abatement activities in this area?

(X) YES () NO

If Yes, attach a detailed description of the waivers requested you are proposing to utilize. <u>All items must be keyed</u> to the specific section(s) of the regulations for which waivers are requested.

ATTACHMENT #4

D) Are you proposing alternative procedures under B.11 for any of the abatement activities in this area?

(X) YES () NO

If Yes, attach a detailed description of the alternative procedures requested you are proposing to utilize. <u>Alternate</u> procedures must include a justification for not following specific section(s) of the regulations and be as protective of public health.

ATTACHMENT #6 & ATTACHMENT #7

E) Will any accessible RACM remain in this area after abatement?

(X) YES () NO

If Yes, attach a description of the RACM that will remain and the details of the on-going Operations and Maintenance Plan that will be implemented in accordance with C.1.2(b).

All remaining ACM within the exterior envelope of the structure at the completion of the project shall be maintained by the building owner's LEA in accordance with a site-specific O&M plan as developed by the building owner.

AGENCY USE ONLY

FORM ASB-16A (11/2003)

REPLACES FORM ASB-16 (3/92)

Lyman B. Goff Midle School; Pawtucket, RI 2023-2024 Window Replacement Project / Asbestos Abatement Specification



ATTACHMENT #1

IN-PROCESS AIR MONITORING / EXTERIOR / ASBESTOS CONTROL AREAS – #1 & #2:

During the scheduled abatement operations, the building owner's asbestos consultant will collect air sample(s) outside the asbestos control area, <u>periodically</u> for the duration of the asbestos removal project. The compliance air samples shall be collected at random locations adjacent to the control areas (i.e., control area barriers or where the project representative determines, during the performance of the project.

If there is a deviation in proper procedures on the part of the asbestos abatement contractor during the setup, the removal of the final clean up, the selected project monitor shall be notified immediately. These deviations include inadequate on-site paperwork, deviations in outlined work procedures, or if compliance air sampling outside the work area indicate fiber concentrations in excess of 0.01 f/cc, the on-site project monitor shall determine the extent of the contamination, and the asbestos abatement contractor shall be responsible for extending containment / control area to include the containment and initiating the cleanup.

FINAL VISUAL INSPECTION REQUIREMENTS / EXTERIOR / ASBESTOS CONTROL AREAS – #1 & #2:

A final visual inspection of each SEPARATE asbestos abatement work area(s) / ELEVATION shall be performed by the owners asbestos consultant (EMERY ENVIRONMENTAL ASSOC.) prior to the removal of any work area demarcation (i.e. engineering controls) or critical barriers. These area(s) shall include all horizontal and vertical surfaces within the exterior asbestos abatement work area(s) – I.E.: EACH SEPARATE WINDOW AND/OR DOOR ROUGH OPENING(S). In addition, the building owner's asbestos consultant shall review all personal air sample results collected during the performance of the project. Upon a review of the air sample results and visual inspection(s) - the building owner's asbestos consultant shall determine the following:

If the personal air sample results are below 0.1 f/cc (TWA) as determined by an eight-hour time weighted average, and the ambient air samples collected at the limits of the asbestos control area are below 0.01f/cc (as applicable) and the area has been cleaned of all ACM / PACM asbestos containing building materials and visually inspected and approved by the building owner's asbestos consultant (EMERY ENVIRONMENTAL ASSOC.), the area will be considered a non-hazard and the control area barriers may be torn down and occupied by personnel without protective equipment as required by 29 CFR 1926.1101.

However, If the personal air samples are determined to be in excess of 0.1 f/cc OSHA asbestos PEL, or the area is determined to contain asbestos debris by a RIDOH licensed asbestos inspector, the contractor shall be required to continue restricted access to the area, re-clean the area via. wet methods and HEPA vacuuming. This process shall be repeated until the air is visually clean of all ACM debris.

NOTE #1: The asbestos contractor must submit personal air samples as collected during the performance of the project (Samples must be collected in compliance with OSHA 29CFR1926.1101 and analyzed by a RIDOH certified laboratory). Final results must be forwarded to Emery Environmental Assoc. and the building owner prior to the request for final visual.

Lyman B. Goff Midle School; Pawtucket, RI 2023-2024 Window Replacement Project / Asbestos Abatement Specification



NOTE #2: As part of the final contract fee, the selected asbestos contractor and/or GC shall be required to provide an ariel manlift for the owner, for the purpose of site inspection(s) and to determine the completion of work, if staging is not constructed and/or installed in areas of the Phase – 1 or Phase – 2 (as defined by Wessling Architects drawing G-002) work is in progress, and / or at the location where the work is completed.

In addition - The asbestos contractor shall be required to provide a qualified (certified) operator to operate the ariel manlift and shall assist the building owner with the final inspection process. The lift (rental) and the personnel to operate the ariel manlift shall be provided as part of the contract value and shall not be grounds for a change order and an individual chargeable fee to the project.

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ATTACHMENT #2 CHART OF ACM:

CONTROL AREA # 1 / PHASE 1 WINDOW REPLACEMENT PROJECT

LOCATION	ACM QUANTITY	TYPE / DESCRIPTION	ASBESTOS CONTENT
Locanton		OF ACM MATERIAL	
		TO BE REMOVED.	
PHASE – 1 PROJECT:	*5,881 Square Feet /	Scope of Removal Work shall	PACM +
Exterior – First Floor, Second Floor	123 Window Rough Openings	be defined as removal of	3% Chrysotile
& Third Floor Areas @ North,		any/all building materials	-
South & West Elevations –		including but not limited to:	
Window(s) #:, #079, #080, #081,		Caulk(s), Backer Rods, Steel /	
#082, #083, #084, #085, #086, #087,		Metal - Window Sash(s) and all	
#088, #089, #090, #091, #092, #093,		associated glazing(s), window	
#094, #095, #096, #097, #098, #099,			
<i>#100, #101, #102, #103, #104, #105, #106, #107, #108, #109, #110, #111,</i>		bedding(s) and caulks, Wood	
#100, #107, #100, #109, #110, #111, #112, #113, #114, #115, #116, #117,		Blocking / framing and Assoc.	
#112, #113, #114, #113, #110, #117, #118, #119, #120, #121, #122, #123,		Caulks, Glass Block, Metal	
#110, #112, #120, #121, #122, #123, #124, #125, #126, #127, #128, #129,		Flashing and Any/All mastics	
#130, #131, #132, #133, #134, #135,		as applied to steel lintels above	
#136, #137, #138, #139, #140, #141,		window opening(s), Any/all	
#155, #156, #157, #171, #181, #182,		Masonry used to fill window	
#183, #184, #185, #186, #187, #188,		rough openings and any	
#189, #190, #191, #192, #193, #194,		associated caulks and glues –	
#195, #196, #197, #198, #199, #200,		as required to facilitate the	
#201, #202, #203, #204, #205, #206,		installation of new window	
#207, #221, #222, #223, #237, #238,		system(s).	
#239, #251, #252, #256, #257, #258,		5,50000(5)0	
#259, #260, #261, #262, #263, #264,		Removal shall be conducted in	
#265, #266, #267, #268, #269, #270,		accordance with any/all work	
#271, #272, #273, #274, #275.			
		requirements as defined in the	
Window location(s) /		attached ASB-16A form for	
identification(s) are defined on the		this work area and all	
attached Wessling Architects project		additional work requirements	
Drawings G-002, A-101, A-102, A-		as defined by Attachments #1 -	
103, AD-202, AD-203, AD-204, A- 202, A-203 A-204, AD-501, AD-502.		#6 of this specification.	
202, A-203 A-204, AD-301, AD-302.			
		All work operations must be	
		completed as an asbestos	
		response action by the building	
		owners selected asbestos	
		contractor.	
		contractor.	

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ATTACHMENT #2 CHART OF ACM:

CONTROL AREA # 2 / PHASE 2 WINDOW REPLACEMENT PROJECT

LOCATION	ACM QUANTITY	TYPE / DESCRIPTION	ASBESTOS CONTENT
	_	OF ACM MATERIAL	
		TO BE REMOVED.	
PHASE – 2 PROJECT:	*7,067 Square Feet /	Scope of Removal Work shall	PACM +
Exterior – First Floor, Second Floor	152 Window Rough Openings	be defined as removal of	3% Chrysotile
& Third Floor Areas @ North,		any/all building materials	eve emploane
South, East & West Elevations –	*6 Doors /	including but not limited to:	
Window's #001, #002, #003, #004,	0 - 000 - 0	Caulk(s), Backer Rods, Steel /	
#005, #006, #007, #008, #009, #010,	3 Door Rough Openings		
#011, #012, #013, #014, #015, #016,		Metal - Window Sash(s) and all	
#017, #018, #019, #020, #021, #022,		associated glazing(s), window	
#023, #024, #025, #026, #027, #028,		bedding(s) and caulks, Wood	
#029, #030, #031, #032, #033, #034,		Blocking / framing and Assoc.	
#035, #036, #037, #038, #039, #040,		Caulks, Glass Block, Metal	
#041, #042, #043, #044, #045, #046,		Flashing and Any/All mastics	
#047, #048, #049, #050, #051, #052,		as applied to steel lintels above	
#053, #054, #055, #056, #057, #058,		window opening(s), Any/all	
#059, #060, #061, #062, #063, #064,		Masonry used to fill window	
#065, #066, #067, #068, #069, #070,		rough openings and any	
#071, #072, #073, #074, #075, #076,		associated caulks and glues –	
<i>#077, #078, #142, #143, #144, #145, #146, #147, #148, #149, #150, #151,</i>			
#140, #147, #148, #149, #150, #151, #152, #153, #154, #158, #159, #160,		as required to facilitate the	
#152, #153, #154, #156, #159, #166, #161, #162, #163, #164, #165, #166,		installation of new window	
#107, #162, #169, #170, #172, #173,		system(s).	
#107, #108, #109, #170, #172, #173, #174, #175, #176, #177, #178, #179,			
#180, #208, #209, #210, #211, #212,		Removal shall be conducted in	
#213, #214, #215, #216, #217, #218,		accordance with any/all work	
#219, #220, #240, #241, #242, #243,		requirements as defined in the	
#244, #245, #246, #247, #248, #253,		attached ASB-16A form for	
#254, #224, #225, #226, #227, #228,		this work area and all	
#229, #230, #231, #232, #233, #234,		additional work requirements	
#235, #236, #240, #241, #242, #243,		as defined by Attachments #1 -	
#244, #245, #246, #247, #248, #249,		#7 of this specification.	
#250.		π of this specification.	
Doors #101, #102 & #103.			
(Window & Door location(s) /		All work operations must be	
identification(s) are defined on the		completed as an asbestos	
attached Wessling Architects project		response action by the building	
Drawings G-002, A-101, A-102, A-		owners selected asbestos	
103, AD-201, AD-202, AD-203, AD-		contractor.	
204, A-201, A-202, A-203 A-204,			
AD-501, AD-502)			

*NOTE: THE SELECTED ASBESTOS CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIELD VERIFICATION OF ALL ASBESTOS QUANTITIES, AS REPORTED FOR EACH ASBESTOS CONTROL AREA AS DEFINED BY THIS SPECIFICATION - PRIOR TO SIGNING THE PROJECT CONTRACT AND START OF THE PROJECT. <u>NO</u> <u>CHANGE ORDERS WILL BE APPROVED FOR DISCREPANICES ASSOCIATED WITH THE REPORTED</u> <u>QUANTITIES.</u>



ATTACHMENT #3

INTERIM AND ON-GOING OPERATIONS AND MAINTENANCE PROGRAM:

The building owner representatives, maintenance personnel, building staff, outside contracting personnel, and other building occupants have been or will be made aware of the presence, amount, location, and condition, of the asbestos-containing building materials within this area of the building. These people have been or will be educated and advised not to disturb the asbestos-containing materials due to the potential health effects if asbestos fibers become airborne.

EMPLOYEE NOTIFICATIONS:

The building owner as well as outside contractors have been or will be notified as to the presence of asbestos containing building materials within the exterior areas of the Lyman B. Goff Middle School (974 Newport Avenue; Pawtucket, RI). All outside contractor(s) will sign a document stating that he has been made aware of the presence and location of the asbestos-containing materials within this areas. Also, the building owner representative(s) are responsible for presenting information to the building occupants of any asbestos abatement activities being conducted. This will be accomplished by posting memo's and/or posting of caution / warning signs at all the entrances to the building during such activities.

ACCIDENTAL DISTURBANCE OF ASBESTOS-CONTAINING MATERIALS:

The building owner was, [at the time of the inspection] made aware of the presence of asbestos materials within the interior and exterior areas of the Lyman B. Goff Middle School (974 Newport Avenue; Pawtucket, RI). Due to the presence of the asbestos-containing materials. The building owner will institute the following procedures in an event of an accidental asbestos fiber release within the building prior to the start of the asbestos abatement project.

If an asbestos-containing material becomes disturbed within the criteria of a minor fiber release (less than 10 linear feet or 25 square feet of ACBM), a trained "R.I. Competent Person" may perform the clean-up, removal, encapsulation, or enclosure abatement activities utilizing spot removal/repair techniques. During these spot abatement techniques, access to the area shall be restricted to only those trained individuals, signs shall be posted, and HVAC (if applicable) shall be shut down and locked out. If a major fiber release occurs (greater than 10 linear feet or 25 square feet of ACM), the clean-up, removal, encapsulation, or enclosure abatement activities must be completed by a RI Department of Health (RIDOH) certified asbestos abatement contractor. Regardless of the amount of asbestos to be abated, the affected area must be isolated and entry to the area restricted to only those trained/ certified personnel.

EMPLOYEE TRAINING:

Any employee of the company, firm, agency, or other organization as well as any outside contractor employed by the building owner who, as a consequence of their work activities, disturbs asbestos-containing building materials must be properly trained and certified by the R.I. Department of Health as a "R.I. Competent Person" in accordance with the R.I. Rules and Regulations for Asbestos Control.

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ATTACHMENT #4

REQUESTED WAIVER

CLEARANCE AIR TESTING / EXTERIOR - ASBESTOS CONTROL AREAS – #1 & #2

Based on the scheduled removal of non-friable ACM building materials from the exterior elevations of the structure the (as defined by Attachment #2 of this specification) - in association with the scheduled open removal operations. The building owner requests a waiver of clearance air testing as required by section 1.14.2 P. of the current RIDOH asbestos control regulation [216-RICR-50-15-1]. In lieu of clearance air testing, results of OSHA personnel air sampling as collected by the asbestos contractor during the asbestos mitigation work operations will be used in lieu of clearance area air sampling. Please refer to Attachment #1, of this project specification for specific sampling criteria's and standards to be used for project completion.

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ATTACHMENT #5

ASBESTOS CONTROL AREAS – #1 & #2

GENERAL REQUIREMENTS:

During the asbestos mitigation operations the selected asbestos contractor shall be responsible for the work to be conducted in accordance with <u>all</u> applicable asbestos control regulations: USEPA – AHERA 40 CFR 763, USEPA – NESHAP 40 CFR Part 61, US OSHA 29 CFR 1926.1101 & US OSHA 29 CFR 1910.1001 and the RIDOH Asbestos Control Regulation [216-RICR-50-15-1].

All building materials as defined for removal by Attachment #2 of this specification, have been determined and/or assumed to contain asbestos.

PROJECT SUBMITTALS: Prior to the start of any asbestos work operations, the selected asbestos contractor shall be required to submit copies of the following items for review and approval. *NOTE: Additional submittals not requested at this time may be required for submittal and approval in the future.* No asbestos work operations may begin on site until the following items are submitted and approved in writing by the owner (City of Pawtucket – School Department), project architect (Wessling Architects), the building owners' representative (Colliers) and/or Emery Environmental Associates.

- 1. Copy of RIDOH 10-day written start work notification for this project,
- 2. Copies of the written notification(s) to the City of Pawtucket, RI police and fire departments,
- 3. Copy of contractor's current insurance certificate,
- 4. Copy of contractor's current written health and safety program,
- 5. Copy of contractor's current written asbestos respirator program,
- 6. Copies of MSDS sheet for the polyethylene sheeting, proposed for use,
- 7. Copies of MSDS sheet for the duct tape, proposed for use,
- 8. Copies of MSDS sheet for the final spray encapsulant, proposed for use,
- 9. Copies of MSDS sheet for protective suits, proposed for use,
- 10. Copy of manufactures efficiency report for each "HEPA vacuum system" proposed for use
- 11. Copies of licensure for the waste landfill, proposed for use,
- 12. Copies of OSHA 10, RIDOH Asbestos licensure, asbestos training certification, medical

information, fit test record, First Aid &/ CPR card(s), for each worker proposed for use on the project site,

13. Copies of RIDOH certification for laboratory used to analyze the contractors daily OSHA personal air samples.

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WORK REQUIREMENTS FOR EXISTING MATERIAL(S) REMOVAL AT EACH SEPARATE

WINDOW and DOOR ROUGH OPENING: The selected asbestos contractor shall be responsible for the complete removal of any/all building materials within each window rough opening as scheduled to be removed per the requirements / direction of the current Wessling Architects project drawings AD-201, AD-202, AD-203 & AD-204. As defined by Attachment #2 of this specification, at the completion of work ALL building materials must be removed from each window and door rough openings, with masonry rough openings to remain. <u>Removal must include any/all caulk residue as may be adhered to the masonry rough openings upon completion of gross caulk removal. This work may require contractor to use a liquid / paste, caulk / adhesive removal product. Caulk residue remaining at the rough opening at the completion of work will not be acceptable site condition for final visual inspection. Final inspection shall be conducted only by the building owners asbestos consultant (Emery Environmental Assoc.). All waste materials must be containerized in two (2) layers of six-mil polyethylene sheeting, properly labeled and sealed to an airtight condition and disposed of as a ACBM and in compliance with all current USDOT, OSHA, NESHAP and EPA asbestos disposal regulations. See Attachment #6 (AWP) and Attachment #7 of this specification for additional work requirements.</u> Lyman B. Goff Midle School; Pawtucket, RI 2023-2024 Window Replacement Project / Asbestos Abatement Specification



ATTACHMENT #6

ALTERNATE WORK PROCEDURE

REMOVAL OF ALL BUILDING MATERIAL(S) AT WINDOW AND DOOR ROUGH OPENINGS: ASBESTOS CONTROL AREA #1 / PHASE – 1 WORK (defined by Wessling Architects) ASBESTOS CONTROL AREA #2 / PHASE – 2 WORK (defined by Wessling Architects)

GENERAL REQUIREMENTS:

SCOPE OF WORK:

SCOPE OF WORK SHALL BE DEFINED AS REMOVAL OF ANY/ALL BUILDING MATERIALS WITHIN EACH MASONRY ROUGH OPENING - AS DEFINED BY ATTACHMENT #2 OF THIS SPECIFICATION.

REMOVAL SHALL BE CONDUCTED IN ACCORDANCE WITH ANY/ALL WORK REQUIREMENTS AS DEFINED IN THE ATTACHED ASB-16A FORM FOR THIS WORK AREA AND ALL ADDITIONAL WORK REQUIREMENTS AS DEFINED BY ATTACHMENTS #1 - #7 OF THIS SPECIFICATION.

ALL WORK OPERATIONS MUST BE COMPLETED AS AN ASBESTOS RESPONSE ACTION BY THE BUILDING OWNERS SELECTED ASBESTOS CONTRACTOR.

During the asbestos mitigation operations the selected asbestos contractor shall be responsible for all work to be conducted in accordance with <u>all</u> applicable asbestos control regulations: USEPA – AHERA 40 CFR 763, USEPA – NESHAP 40 CFR Part 61, US OSHA 29 CFR 1926.1101 & US OSHA 29 CFR 1910.1001 and the RIDOH Asbestos Control Regulation [216-RICR-50-15-1].

All materials as defined for removal by Attachment #2 of this specification and Wessling Architects project Drawings G-002, A-101, A-102, A-103, AD-201, AD-202, AD-203, AD-204, A-201, A-202, A-203 A-204, AD-501, AD-502 (attached in Appendix – E) shall be removed as a ACBM.

S.O.P. EXTERIOR - WORK OPERATION(S): During the exterior work operations - All work shall be conducted in accordance with standard engineering control requirements of section 1.14.8 of the current RIDOH Asbestos Control Regulation [216-RICR-50-15-1] and all requested waivers and alternate work procedures as defined by Attachments #4, #6 & #7 of this specification.

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CONTAINMENT BARRIERS: The asbestos contractor shall be responsible for isolation of the asbestos control / work area and prevent the movement of any/all dust or debris beyond the limits of the asbestos control / work area(s), as defined by Attachment #2 of this specification and the attached Wessling Architects project Drawings G-002, A-101, A-102, A-103, AD-201, AD-202, AD-203, AD-204, A-201, A-202, A-203 A-204, AD-501, AD-502 (attached in Appendix – E). Containment barriers shall be installed in compliance with this specification and sections: 1.14.8 - A, B, C, D, E, F, G, H, J & K of the RIDOH asbestos control regulation [216-RICR-50-15-1], with the additional requirement to install two (2) layers of 6 mil fire retardant heavy duty polyethylene sheeting with scrim reinforcement on the interior rough opening side of any / all material scheduled to be removed. The scrim reinforced sheeting shall be installed in a manner that continues the critical barrier seal when the window / door system is removed. These critical barriers shall be secure and must maintain an airtight enclosure for the work area until the work is complete (i.e.: final visual inspection and review of OSHA personal air testing by Emery Environmental Assoc.). [Note: product information for a suggested product "Americover - Tuff-Scrim™ Poly TS6FR" can be found at www.americover.com]. Note: This work requirement may be amended to the use of two (2) independent layers of fire rated six (6) mil polvethylene sheeting if approved by the building owner in writing prior to the finalization of the project contract.

<u>NOTE – 1:</u> Removal of any/all ACM/PACM materials as defined by Attachment #2 of this specification - must be conducted in a manner to insure all ACM/PACM materials have been properly abated **at door and window frames and brick rough openings.**

<u>NOTE - 2</u>: During the work operations, the asbestos contractor shall establish a watering system that can be directed at the area(s) of removal and must insure compliance with all requirements of the current USEPA / NESHAP regulation 49 CFR Part 61, regarding visible emissions. In addition, the selected asbestos contractor shall be responsible for compliance with RIDEM regulation #5 (fugitive dust) and RIDEM regulation #24 (Lead Paint). The building owner will provide a water source (operating hose connection) for the asbestos contractor to use. It is the responsibility of the asbestos contractor to connect from the provided water source to the area(s) where an asbestos response action is being conducted. The contractor must have at least one (1) operating water hose at <u>each</u> window rough opening removal location. This requirement will be enforced during the asbestos response action work and work will be stopped if dry removal is being observed at any time.

NOTE - 3: The selected asbestos contractor shall be responsible for the work to be conducted in accordance with <u>all</u> applicable asbestos control regulations: USEPA – NESHAP 40 CFR Part 61, US OSHA 29 CFR 1926.1101, US OSHA 29 CFR 1910.1001 and the RIDOH Asbestos Control Regulation [216-RICR-50-15-1]. The building owner and/or the selected asbestos consultant (Emery Environmental Associates) will stop the work at any time violations of any asbestos control regulations are observed.

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2023-2024 Window Replacement Project / Asbestos Abatement Specification NOTE – 4: ACM WASTE CONTAINERIZATION: The selected asbestos contractor shall be responsible for the <u>wetting</u> and containerization of all ACM/PACM waste at the point of waste generation (i.e. point of removal). At no time shall the asbestos contractor be allowed to open remove and drop ACM waste from a height of 6 feet or greater before the waste is containerized (i.e. double bagged, barreled or wrapped in two layers of polyethylene sheeting and wrapped to an air tight condition or directly placed in a lined dumpster). At no time shall any ACM/PACM waste be dropped through a dust tight shute that has

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NOT been bagged or barreled first. And at no time shall waste be allowed to be placed in an open dumpster without the waste being containerized first (i.e. double bagged, barreled or wrapped in two layers of polyethylene sheeting and wrapped to an air tight condition). No open or un-containerized ACM waste will be allowed to be transported through the interior of the school at any time.

NOTE - 5: FALL PROTECTION / OSHA COMPLIANCE: It shall be the sole responsibility of the asbestos contractor to comply with all applicable requirements for OSHA as it pertains to fall protection, use of ladders / scaffolding and lifts, as required to complete any/all asbestos response actions (as defined by Attachment #2 of this specification). It shall NOT be the responsibility of the building owner, Colliers Project Leaders and/or the asbestos consultant, to comply with any/all applicable OSHA safety requirements as it pertains to the performance of any asbestos response actions as defined by Attachment #2 of this specification.

During the asbestos mitigation operations the selected asbestos contractor shall be responsible for work to be conducted in accordance with <u>all</u> applicable asbestos control regulations: USEPA – AHERA 40 CFR 763, USEPA – NESHAP 40 CFR Part 61, US OSHA 29 CFR 1926.1101 & US OSHA 29 CFR 1910.1001 and the RIDOH Asbestos Control Regulation [216-RICR-50-15-1]. The asbestos contractor shall be required to remove all exterior ACM / PACM containing building material(s), defined by Attachment #2 of this project specification using work operations as defined by section 1.14.8 of the current RIDOH Asbestos Control Regulations [216-RICR-50-15-1], in addition to all additional work requirements / waivers as defined by Attachments #4 , #6 & #7 of this specification.

The building owner (City of Pawtucket School Dept.), project architect, building owners representative (Colliers Project Leaders) and/or the selected asbestos consultant (Emery Environmental Associates) will stop work at any time violations of any asbestos control regulations are observed. In addition to the above referenced asbestos control regulations, the selected asbestos contractor shall be required to comply with the following additional work requirements.

NOTE #6: The asbestos contractor shall only move personnel, waste and equipment from the area of removal to grade using equipment in accordance with its approved design / capabilities and in accordance with current OSHA regulations. [Example: use of a LULL for lifting personnel / workers as not intended by the design of the LULL is strictly prohibited, moving of waste, wrapped window panels, etc. in a manlift only intended for use by workers / personnel is prohibited.]

STANDARD WORK OPERATION(S) FOR ASBESTOS CONTROL AREA(S) #1 & #2:

During the removal work operations, the asbestos contractor shall be responsible for the following ADDITIONAL removal work operations in addition to any/all standard work requirements as defined by section 1.14.8 of the current RIDOH Asbestos Control Regulations [216-RICR-50-15-1]:

1). The selected asbestos contractor shall establish a regulated area defined by barrier tape and marked with appropriate posting as defined by OSHA 29CFR1926.1101(e)(1)-(5) and OSHA 29CR1926.1101(k)(7).

2) The selected asbestos contractor shall cover the exterior ground area with at least two (2) layers of six(6) mil polyethylene sheeting in a manner that collects any all waste material as generated during the asbestos response action work,

3). The selected asbestos contractor shall establish the work area inclusive of all requirements of engineering controls as defined by sections 1.14.8 A., B.2., C., D., E., F., G., H., I., & J of the current RIDOH Asbestos Control Regulations [216-RICR-50-15-1], including any additional containment requirements per this specification,

4). The asbestos contractor shall be required to remove of any/all materials as defined by Attachment #2 of this specification. The selected asbestos contractor shall be responsible for the <u>wetting</u> and containerization of all ACM/PACM waste at the point of waste generation (i.e. point of removal). At no time shall the asbestos contractor be allowed to open remove and drop ACM waste from a height of six (6) feet or greater before the waste is containerized (i.e. double bagged, barreled or wrapped in two (2) layers of polyethylene sheeting and wrapped to an air tight condition or directly placed in a lined dumpster). At no time shall any ACM/PACM waste be dropped through a dust tight shute that has NOT been bagged or barreled first. And at no time shall waste be allowed to be placed in an open dumpster without the waste being containerized first (i.e. double bagged, barreled or wrapped in two layers of polyethylene sheeting and wrapped to an air tight condition). No open or un-containerized ACM waste will be allowed to be transported through the interior of the school at any time.

5). Removal at window rough opening(s) shall include these additional building materials / items as defined for removal by the "Symbol Legend" on the attached Wessling Architects drawings A-101, A-102 & A-103.

	SYMBOL LEGEND					
٩	APPROXIMATE LOCATION OF EXISTING WATER DAMAGE AT INTERIOR FINISHES. INCLUDE REPAIR OF 4 S.F. OF PLASTER/GYPSUM BOARD AT EACH LOCATION.					
VU	VENTILATION UNIT WITH LOUVER THROUGH WINDOW. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.					
	DRYER UNIT WITH VENT THROUGH WINDOW. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.					
К	NEW KILN UNIT WITH VENT THROUGH WINDOW. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.					
ST	KITCHEN EQUIPMENT UNIT WITH VENT THROUGH WINDOW. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.					
(WH)	HOT WATER TANK WITH VENT THROUGH WINDOW. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.					

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6). During the work operation the asbestos contractors employees and anyone engaging in the act of asbestos removal / asbestos response action work shall don PPE for potential atmospheres at or above the current OSHA PEL / STEL as defined by 29CFR1926.1101.

7). Completion of asbestos removal work operations shall be approved by the building owners project representatives Emery Environmental Assoc., Colliers Project Leaders and/or the project architect. The work must be conducted using wet methods and without a visible emission. Waste material must be containerized at the roof area in accordance with work requirements as defined by 1.14.2; sections - J, K, L, M, N & O.

8). The asbestos contractor shall be required to remove of any/all materials containing or presumed to contain asbestos, including **<u>but not limited to:</u>** ALL work as defined as defined by Attachment #2 of this specification. Work shall be completed to render a site condition that will require no impact to ACM / PACM material by trades other than the RIDOH asbestos contractor contracted for this project.

LEAD PAINT / RIDEM: The selected asbestos contractor shall be required to comply with all notification and work requirements of the current RIDEM lead control regulations #24 & #5.

LEAD PAINT /OSHA: All workers coming into contact with interior and exterior painted surfaces shall be required to comply with all worker protection requirements of the current OSHA lead regulation 29 CFR 1926.62.

ELECTRICTY SUPPLY / SERVICE FOR SITE / WORK OPERATIONS: During the performance of the asbestos abatement operations, the asbestos contractor shall be responsible for providing any/all electricity as required for the performance of the contracted asbestos abatement operations.

ASBESTOS CONTRACTORS RESPONSIBILTY REGARDING SUPPLY OF ELECTRICAL POWER TO THE REGULATED WORK AREA(S). The selected asbestos contractor shall be responsible for the supply of electricity / electric power as required to complete any/all asbestos mitigation operations the defined asbestos control areas. The owner shall provide the asbestos contractor with a power supply source and the selected asbestos contractor shall be responsible for routing power from the supplied source to the asbestos work area using the contractor's own electric cords. In addition, the asbestos contractor shall be responsible for the configuration and supply of at least two (2) electric cords to each asbestos control area for the purpose of project oversight (in-process air testing, lighting, etc.) during and at the completion of any/all asbestos mitigation work operations. These cords shall be installed to locations as directed by the on-site asbestos project monitor. All cords routed to each asbestos control area and used for the work associated with the asbestos abatement or project air testing must be directly connected to a GFCI and shall be always maintained to be in dry, clean and dust free condition. Pawtucket School Annex; Pawtucket, RI Door Replacement Project / Asbestos Abatement Specification



ATTACHMENT #7

ALTERNATE WORK PROCEDURE

ASBESTOS CONTROL AREA #2 / INTACT DOOR REMOVAL

Removal of Door(s) #101, #102 & #103, shall be removed in accordance with the RIDOH intact removal standard "Regulatory Interpretation Regarding Intact Removal of Non-Friable Containing Materials – Dated March 2, 2005. Door frames shall be removed using AWP as defined by Attachment #6 of this specification.

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Lyman B. Goff Midle School; Pawtucket, RI 2023-2024 Window Replacement Project / Asbestos Abatement Specification



Page 2

- Removal of window sashes with window glazing (interior and exterior) by removing the . window stops and removing the entire window sash units intact;
- Picking up loose floor tiles that have become completely disassociated with the floor and are either whole or are slightly broken, but are still not considered to be Regulated Asbestos-. Containing Material (RACM) (See item #1 and note #1 above);
- Removal of fire doors containing insulation from their hinges, intact for complete component . disposal;
- Removal of electrical fixtures and components that contain wire jacketing or transite
- Removal of electrical incures and components that contain wire factoring of transfer sheeting, intact for complete component disposal; Picking up loose miscellaneous non-friable items such as rolls of linoleum, loose gaskets, loose roofing and siding shingles, etc.;

All asbestos containing waste generated as the result of these activities must be disposed of as asbestos waste at an authorized waste disposal facility.

This interpretation relates only to asbestos abatement as defined in Rhode Island Rules and Regulations for Asbestos Control [R23-24.5-ASB]. All other applicable federal, state or local regulations apply.

For public and private non-profit schools that are subject 40CFR763, Asbestos Hazard Emergency Response Act (AHERA), you must maintain documentation with respect to any of the above activities conducted in order to demonstrate that asbestos containing materials were removed appropriately.

Questions regarding this interpretation should be directed to the RI Department of Health's Asbestos Control Program at (401) 222-3601.

END OF SPECIFICATION



APPENDIX – B:

ANALYTICAL SAMPLE RESULTS

Environmental Consulting and Mitigation Contractors Lead Paint * Asbestos * Mold * Indoor Air Quality

EMSL	EMSL Analytical, Inc. 5 Constitution Way, Unit A Woburn, MA 01801 Tel/Fax: (781) 933-8411 / (781) 933-8412 http://www.EMSL.com / bostonlab@emsl.com	EMSL Order: Customer ID: Customer PO: Project ID:	
Attention:	Patrick Emery	Phone:	(401) 727-4941
	Emery Environmental Associates	Fax:	(401) 724-0926
	PO BOX E	Received Date:	12/14/2022 11:40 AM
	Pawtucket, RI 02861	Analysis Date:	12/19/2022
		Collected Date:	12/12/2022
Proiect:	221213-A / Pawtucket School: Goff MS: 974 Newport Avenue: Paw	vtucket. RI	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Light Milerosee		
				<u>sbestos</u>	Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Туре
221213-1.1 132208324-0001	Exterior / 1st Level at Toilet - Caulk at Window Frame/Masonry Rough Opening - Tan/Gray Pliable	Gray Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
221213-1.2	(Soft) Exterior / 1st Level at				Positive Stop (Not Analyzed)
132208324-0002	Lib Caulk at Window Frame/Masonry Rough Opening - Tan/Gray Pliable (Soft)				
221213-1.3	Exterior / 2nd Level at #201 - Caulk at				Positive Stop (Not Analyzed)
132208324-0003	Window Frame/Masonry Rough Opening - Tan/Gray Pliable (Soft)				
221213-1.4	Exterior / 2nd Level at #208 - Caulk at				Positive Stop (Not Analyzed)
132208324-0004	Window Frame/Masonry Rough Opening - Tan/Gray Pliable (Soft)				
221213-1.5	Exterior / 2nd Level at Café - Caulk at				Positive Stop (Not Analyzed)
132208324-0005	Window Frame/Masonry Rough Opening - Tan/Gray Pliable (Soft)				
221213-1.6	Exterior / 3rd Level at #318 - Caulk at				Positive Stop (Not Analyzed)
132208324-0006	Window Frame/Masonry Rough Opening - Tan/Gray Pliable (Soft)				
221213-1.7	Exterior / 3rd Level at #305 - Caulk at				Positive Stop (Not Analyzed)
132208324-0007	Window Frame/Masonry Rough Opening - Tan/Gray Pliable (Soft)				



Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			<u>Non-A</u>	sbestos	Asbestos
Sample	Description	Appearance	% Fibrous	% Non-Fibrous	% Туре
221213-2.1 132208324-0008	Exterior / 2nd Level at #201 - Window Glazing (Gray/White) at Alum. Push-out Sash	Gray Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
221213-2.2 132208324-0009	Exterior / 2nd Level at #208 - Window Glazing (Gray/White) at Alum. Push-out Sash				Positive Stop (Not Analyzed)
221213-2.3 132208324-0010	Exterior / 2nd Level at Teacher Room - Window Glazing (Gray/White) at Alum. Push-out Sash				Positive Stop (Not Analyzed)
221213-2.4 132208324-0011	Exterior / 3rd Level at #318 - Window Glazing (Gray/White) at Alum. Push-out Sash				Positive Stop (Not Analyzed)
221213-2.5 132208324-0012	Exterior / 3rd Level at #305 - Window Glazing (Gray/White) at Alum. Push-out Sash				Positive Stop (Not Analyzed)
221213-3.1 132208324-0013	Exterior / 1st Level at Toilet - White Caulk at Window Frame (Firm Texture)	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

John McCarthy (3)

P

Steve Grise, Laboratory Manager or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-139, VT AL998919, ME LB-0039

Initial report from: 12/19/2022 15:22:46

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EMSL Analytical, inc.'s Lai			Chain of Custody by reference in their entirety dgment of all terms and conditions by Custom						



APPENDIX – C:

ASBESTOS PROJECT CONSULTANT LICENSURE

Environmental Consulting and Mitigation Contractors Lead Paint * Asbestos * Mold * Indoor Air Quality



ASBESTOS CONSULTANT CERTIFICATION

is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in Regulation 216-RICR-50-15-1 - Asbestos Control, this license is hereby issued as designated below. This license Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the Rhode Island General Laws, and effect and to any conditions delineated below.

EMERY ENVIRONMENTAL ASSOCIATES PAWTUCKET RI 02861 Certificate Holder: PATRICK A EMERY PO BOX E Address:

Certification Number: APD00505 Type of Certification: Asbestos Project Designer Expiration Date: 04/30/2023

statements, procedures and representations contained in their application, including any attachments. Regulation 216-RICR-50-15-1 - Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and Except as specifically provided otherwise in this Certificate, Certificate holders shall conduct their program in accordance with documentation are more restrictive than the regulations.

H. My HO M. M.

James V. McDonald, MD, MPH Interim Director of Health



ASBESTOS CONSULTANT CERTIFICATION

is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in Regulation 216-RICR-50-15-1 - Asbestos Control, this license is hereby issued as designated below. This license Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the Rhode Island General Laws, and effect and to any conditions delineated below.

EMERY ENVIRONMENTAL ASSOCIATES PAWTUCKET RI 02861 Certificate Holder: PATRICK A EMERY PO BOX E Address:

Certification Number: A100505 Type of Certification: Asbestos Inspector Expiration Date: 04/30/2023

statements, procedures and representations contained in their application, including any attachments. Regulation 216-RICR-50-15-1 - Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and Except as specifically provided otherwise in this Certificate, Certificate holders shall conduct their program in accordance with documentation are more restrictive than the regulations.

J. My JOLD

James V. McDonald, MD, MPH Interim Director of Health



ASBESTOS CONSULTANT CERTIFICATION

Regulation 216-RICR-50-15-1 – Asbestos Control, this license is hereby issued as designated below. This license is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the Rhode Island General Laws, and effect and to any conditions delineated below.

EMERY ENVIRONMENTAL ASSOCIATES PAWTUCKET RI 02861 Certificate Holder: PATRICK A EMERY PO BOX E Address:

Certification Number: AMP00505 Type of Certification: Asbestos Management Planner Expiration Date: 04/30/2023

statements, procedures and representations contained in their application, including any attachments. Regulation 216-RICR-50-15-1 - Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and Except as specifically provided otherwise in this Certificate, Certificate holders shall conduct their program in accordance with documentation are more restrictive than the regulations.

The My DOWN

James V. McDonald, MD, MPH Interim Director of Health



ASBESTOS CONSULTANT CERTIFICATION

is subject to all applicable rules, regulations, orders and notices of the Department of Health now or hereafter in Regulation 216-RICR-50-15-1 – Asbestos Control, this license is hereby issued as designated below. This license Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the Rhode Island General Laws, and effect and to any conditions delineated below.

EMORY ENVIRONMENTAL ASSOCIATES PAWTUCKET RI 02861 VINCENT EMERY PO BOX E AI01105 Certificate Holder: Address: **Certification Number:**

Asbestos Inspector

07/31/2023

Expiration Date:

Type of Certification:

statements, procedures and representations contained in their application, including any attachments. Regulation 216-RICR-50-15-1 - Asbestos Control shall govern unless the statements, representations and procedures in the Certificate Holder's application and Except as specifically provided otherwise in this Certificate, Certificate holders shall conduct their program in accordance with documentation are more restrictive than the regulations.

J. W. DOM MIH

James V. McDonald, MD, MPH Interim Director of Health



APPENDIX – D:

ASBESTOS TESTING LABORATORY LICENSURE(S)

Environmental Consulting and Mitigation Contractors Lead Paint * Asbestos * Mold * Indoor Air Quality



ASBESTOS ANALYTICAL SERVICES CERTIFICATION

this license is hereby issued as designated below. This license is subject to all applicable rules, regulations, orders and notices of the Department of Health now Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the Rhode Island General Laws, and Regulation 216-RICR-50-15-1 - Asbestos Control, or hereafter in effect and to any conditions delineated below.

Certificate Holder: EMERY ENVIRONMENTAL ASSOCIATES Address: 241 GROTTO AVE UNIT D6 PAWTUCKET RI 02860

Certification Number: PCM00146 Expiration Date: 10/31/2023 Type of Certification: Analytical Service - PCM Except as specifically provided otherwise in this Certificate, Certificate Holders shall conduct their program in accordance with statements, procedures and representations contained in their application, including any attachments. Regulation 216-RICR-50-15-1 - Asbestos Control shall govern unless the statements representations and procedures in the Certificate Holder's application and documentation are more restrictive than the Regulation.



ASBESTOS ANALYTICAL SERVICES CERTIFICATION

this license is hereby issued as designated below. This license is subject to all applicable rules, regulations, orders and notices of the Department of Health now Pursuant to the Asbestos Abatement Act, Chapter 24.5 of Title 23 of the Rhode Island General Laws, and Regulation 216-RICR-50-15-1 - Asbestos Control, or hereafter in effect and to any conditions delineated below.

Certificate Holder: EMSL ANALYTICAL INC Address: 5 CONSTITUTION WAY UNIT A WOBURN MA 01801

Certification Number: PLM00139 Expiration Date: 04/30/2023 Type of Certification: Analytical Service - PLM Except as specifically provided otherwise in this Certificate, Certificate Holders shall conduct their program in accordance with statements, procedures and representations contained in their application, including any attachments. Regulation 216-RICR-50-15-1 - Asbestos Control shall govern unless the statements representations and procedures in the Certificate Holder's application and documentation are more restrictive than the Regulation.

James V. McDonald, MD, MPH Interim Director of Health



APPENDIX – E:

ASBESTOS PROJECT DRAWING(S)

Environmental Consulting and Mitigation Contractors Lead Paint * Asbestos * Mold * Indoor Air Quality

PROJECT:



LYMAN B. GOFF MIDDLE SCHOOL WINDOW REPLACEMENT

974 NEWPORT AVE. PAWTUCKET, RI 02861

CLIENT:

ARCHITECT:

CONSULTANTS:

STRUCTURAL ENGINEER:



111 Devonshire St, Suite 720 Boston, MA 02109 617 695 6700

PAWTUCKET SCHOOL DEPARTMENT

286 MAIN ST. PAWTUCKET, RI 02860



350 GRANITE STREET, SUITE 1103, BRAINTREE, MA 02184 TEL. 617-773-8150 FAX 617-773-4902 www.wesslingarchitects.com

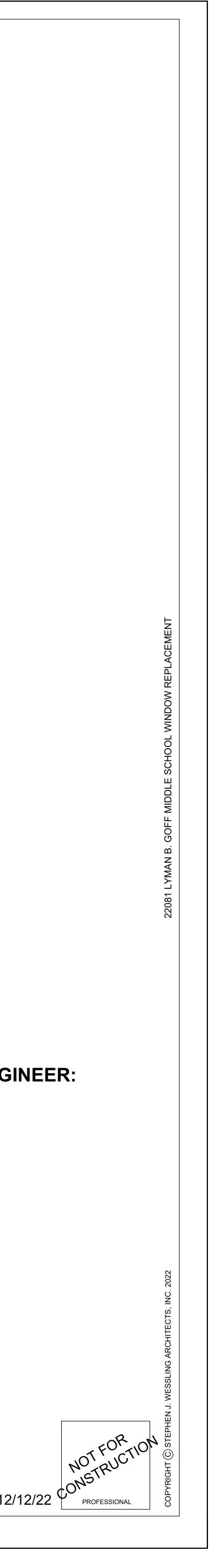
MECHANICAL AND ELECTRICAL ENGINEER:



1076 Washington Street 161 Exchange Street Hanover, MA 02339 Tel: (781) 826-4144 Fax: (781) 924-5792 www.wbaengineers.com

3rd Floor Pawtucket, RI 02860

BID SET - 12/12/22 4



ABBREVIATIONS	SYN	MBOLS
& AND L ANGLE		REFERENCE KEYNO
@ AT ♀ CENTERLINE ° DEGREES Ø DIAMETER OR ROUND	ROOM NAME	
# POUND OR NUMBER (E) EXISTING ± APPROXIMATELY ACT ACOUSTICAL CEILING TILE	XXX XXX	ROOM TAG
AFF ABOVE FINISHED FLOOR ALUM ALUMINUM APPROX APPROXIMATE	(XXX)	DOOR TAG
BODBOTTOM OF ROOF DECKBOTBOTTOMCGCORNER GUARDCJCONTROL JOINT		PARTITION TYPE
CLG CEILING CLOS CLOSET CMU CONCRETE MASONRY UNITS COL COLUMN		
CONC CONCRETE CONT CONTINUOUS CORR CORRIDOR CPT CARPET		DETAIL CALL OUT
CT CERAMIC TILE DBL DOUBLE DEPT DEPARTMENT		
DF DRINKING FOUNTAIN DTL DETAIL DIA DIAMETER DIM DIMENSION		DETAIL CALLOUT
DISP DISPENSER DN DOWN DWG DRAWING DS DOWN SPOUT		
EA EACH DJ EXPANSION JOINT ELEC ELECTRICAL ELEV ELEVATION		
EMER EMERGENCY EQ EQUAL EQPT EQUIPMENT	A-XXX	SECTION CALLOUT
EXISTEXISTINGEXPEXPANSIONEXTEXTERIORFDFLOOR DRAIN		
FEFIRE EXTINGUISHERFECFIRE EXTINGUISHER CABINETFHCFIRE HOSE CABINETFFFINISH FLOOR	A-XXX	ELEVATION CALLOUT
FIN FINISH FL FLOOR FL/FL FLOOR TO FLOOR FT FIRE TREATED	XXX-VX	ELEVATION CALLOUT
GA GAUGE GALV GALVANIZED GC GENERAL CONTRACTOR	XA	
GFIGROUND FAULT INTERRUPTGNDGROUNDGWBGYPSUM WALL BOARDHPHANDICAPPED	A-XXX	
HB HOSE BIB HC HOLLOW CORE HM HOLLOW METAL HR HOUR		REVISION TAG
HGT HEIGHT HWH HOT WATER HEATER INSUL INSULATION		REVISION TAG
INT INTERIOR JAN JANITOR JT JOINT KIT KITCHEN		
LAB LABORATORY LAV LAVATORY LCC LEAD COATED COPPER MAX MAXIMUM		
MECH MECHANICAL MTL METAL MFR MANUFACTURER MIN MINIMUM		
MISC MISCELLANEOUS MO MASONRY OPENING MR MOISTURE RESISTANT		
NICNOT IN CONTRACTNTSNOT TO SCALEOCON CENTERODOUTSIDE DIAMETER		
NTSNOT TO SCALEOCON CENTERODOUTSIDE DIAMETEROHOVERHEADOPP HNDOPPOSITE HANDPLPLATE		
NTSNOT TO SCALEOCON CENTERODOUTSIDE DIAMETEROHOVERHEADOPP HNDOPPOSITE HANDPLPLATEP LAMPLASTIC LAMINATEPLYPLYWOODPRPAIRPTDPAINTED		
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Drawing name: Ji_SJW2022/2081 goff middle school window replacement\50-construction documents\architecturalAutoCAD\goff middle school\Sheets\22081 G-001 General Reference Sheet.dw Def 12, 2022 - 10:08am Xref:ji_SJW2022/22081 Goff Middle School Window Replacement\50-Construction Documents\ArchitecturalAutoCAD\Template Project_30x42\Elements\22081_30x42 TitleBlock 2022.dwg Xref:ji_Sjw2022/22081 goff middle school Window Replacement\50-Construction Documents\ArchitecturalAutoCAD\Template Project_30x42\Elements\22081_30x42 TitleBlock 2022.dwg

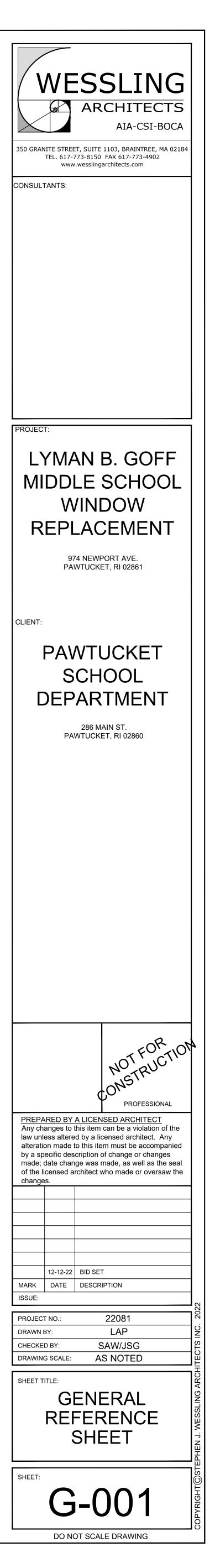
	SUMMARY OF WORK
DTE	THE SCOPE OF WORK ON THIS PROJECT AS DEFINED BY THE CONTRACT DOCUMENTS INCLUDES THE FOLLOWING: DEMOLITION WORK WINDOWS • REMOVE AND DISPOSE OF EXISTING ALUMINUM WINDOWS AND GLASS BLOCK UNITS BACK TO ORIGINAL ROUGH MASONRY OPENINGS.
	 REMOVE AND DISPOSE OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF
	INTERIORS REMOVE AND DISPOSE OF EXISTING INTERIOR SILL MATERIALS (BACK TO ORIGINAL PLASTER SILL), SHELVING, AND ROLLER SHADES AT EXISTING WINDOW OP SAWCUT AND REMOVE PLASTER AROUND PERIMETER AT EACH WINDOW OPENING AS CALLED FOR IN THESE DRAWINGS. <u>NEW WORK</u>
	 WINDOWS PREP AND REPAIR EXISTING ROUGH MASONRY OPENINGS AS CALLED FOR IN THESE DRAWINGS. FURNISH AND INSTALL NEW ADA COMPLIANT ALUMINUM WINDOWS AND HARDWARE IN EXISTING MASONRY OPENINGS. DOORS
	 PREP AND REPAIR EXISTING OPENINGS AS CALLED FOR IN THESE DRAWINGS. FURNISH AND INSTALL NEW ALUMINUM DOORS, FRAMES, AND HARDWARE IN EXISTING MASONRY OPENINGS. <u>MASONRY</u>
	 PERFORM CONCRETE AND STONE REPAIR AT SILLS AS CALLED FOR IN THESE DRAWINGS. PREP AND PAINT EXISTING STEEL LINTELS WITH RUST PROHIBITIVE COATING. WOOD TRIM
	REPAIR AREAS OF DETERIORATED WOOD TRIM ADJACENT TO WINDOW OPENINGS. REPLACE IN KIND WHERE ROTTED. INTERIORS
JT	 FURNISH AND INSTALL NEW INTERIOR PLASTER BASE AND SKIM COAT PLASTER AT WINDOW OPENINGS AND AREAS OF DETERIORATED / WATER DAMAGED PLA PAINT TO MATCH EXISTING. COORDINATION AND MODIFICATION OF EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT IN ROOMS. ALL SHUTDOWNS, REMOVALS, AND RECONNECTIONS WORK TO BE PERFORMED AS NEEDED TO COMPLETE WORK.
	NOTE: PROVIDE ALLOWANCES AND UNIT PRICES PER SPECIFICATION SECTION 00 10 00 BID/SOLICITATION INFORMATION.
JT	
ON CALLOUT	
IS	BUILDING CODE REVIEW
	 BUILDING CODE: BUILDING CODE: RISBC-1 RHODE ISLAND BUILDING CODE (510-RICR-00-00-1) INCORPORATES THE INTERNATIONAL BUILDING CODE, 2018 EDITION, BY REFERENCE ACCESSIBILITY CODE: RISBC-17 PUBLIC MEETINGS ACCESSIBILITY STANDARD, INCORPORATES THE UNIFORM FEDERAL ACCESSIBILITY STANDARDS, AS PUBLISHED IN THE FEDERAL REGISTER, BY REFERENCE
NIT	
	GENERAL NOTES
IRY UNIT	 DIMENSIONS, QUANTITIES, AND CONDITIONS SHOWN ON THESE DRAWINGS ARE ASSUMED BY THE ARCHITECT BASED UPON AVAILABLE INFORMATION. THE CONTRUCTION AND ADDRESS AND THE START OF CONSTRUCTION, VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND QUANTITIES. PROVIDE A COMPLETE FIELD LAYOUT OF THE PROJECT ARCHITECT OF ANY DEVIATIONS OR CONFLICTS WITH THESE DRAWINGS.
	2. THE DRAWINGS ARE NOT TO BE SCALED. THE GENERAL CONTRACTOR IS TO REFER TO THE DIMENSIONS INDICATED OR THE ACTUAL SIZES OF CONSTRUCTIO
	DIMENSION OR METHOD OF DETERMINING A LOCATION IS GIVEN, VERIFY CORRECT LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION. 3. THE DRAWINGS AND REFERENCED DETAILS HAVE BEEN DIMENSIONED IN ORDER TO ESTABLISH THE CONTROL AND GUIDELINES FOR FIELD LAYOUT. WHERE A
L	 THE DRAWINGS AND REFERENCED DETAILS HAVE BEEN DIMENSIONED IN ORDER TO ESTABLISH THE CONTROL AND GUIDELINES FOR FIELD LAYOUT. WHERE A BETWEEN THE DRAWING AND THE DETAIL, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT FOR CLARIFICATION PRIOR TO INSTALLATION. ALL INFORMATION GENERAL CONTRACTOR INTO THE PROJECT AS-BUILTS DRAWINGS AND SUBMITTALS. THE BUILDING SHALL BE MADE WATERTIGHT AT THE END OF EACH WORK PERIOD OR IF INCLEMENT WEATHER THREATENS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL FEDERAL, STATE AND LOCAL BUILDING AND ZONING CODES. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THE SUBCONTRACTORS TO REVIEW ALL DRAWINGS, PROJECT MANUAL, ADDENDA, ETC. IN OR COORDINATION OF ALL WORK AFFECTING EACH TRADE. FAILURE TO REVIEW AND COORDINATE ALL CONTRACT DOCUMENTATION BY THE GENERAL CONTRACT
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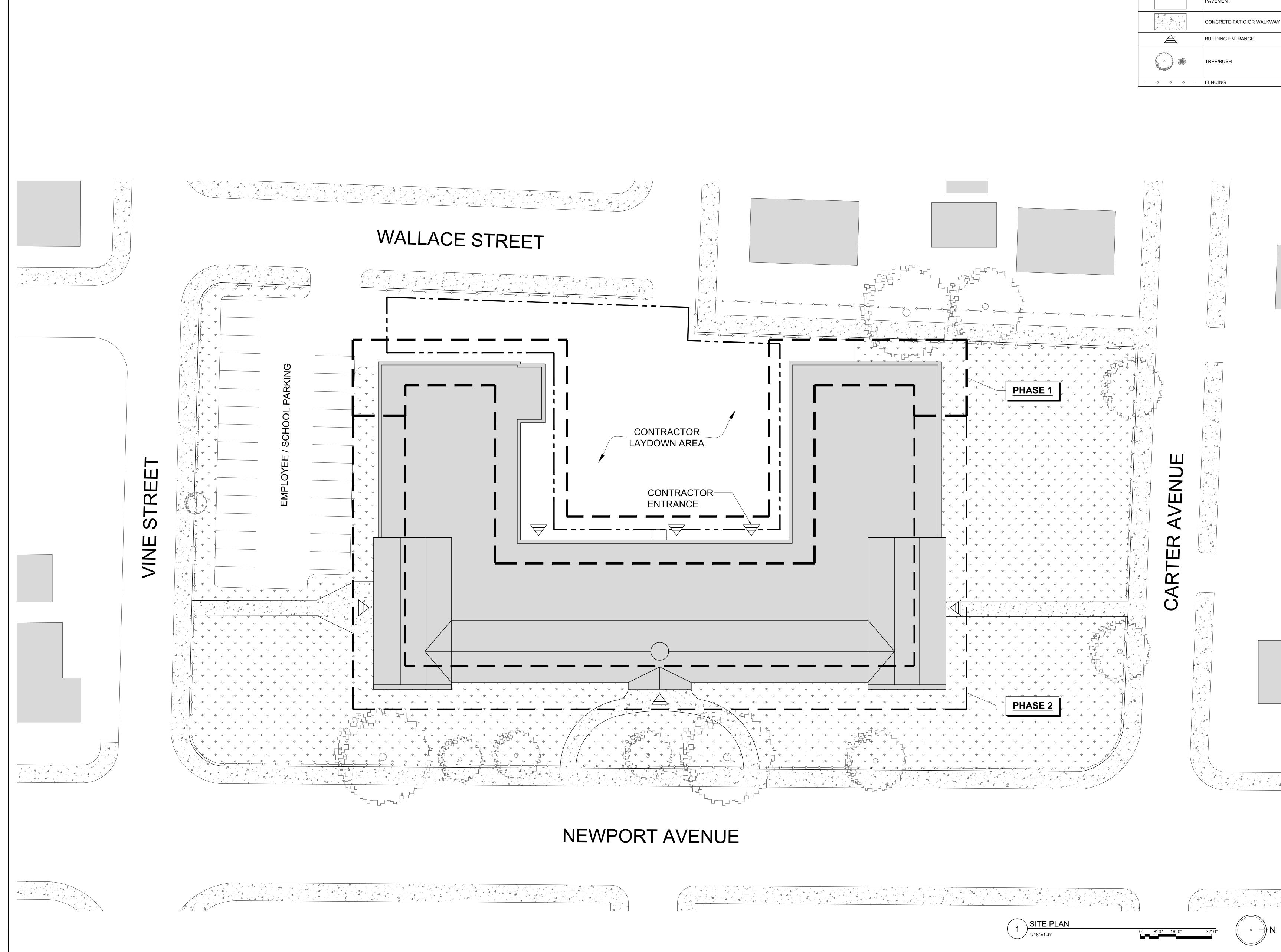
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	M-2.00	MECHANICAL DETAILS & PICTURES
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NEWPORT AVENUE

NEWPORTAVENU

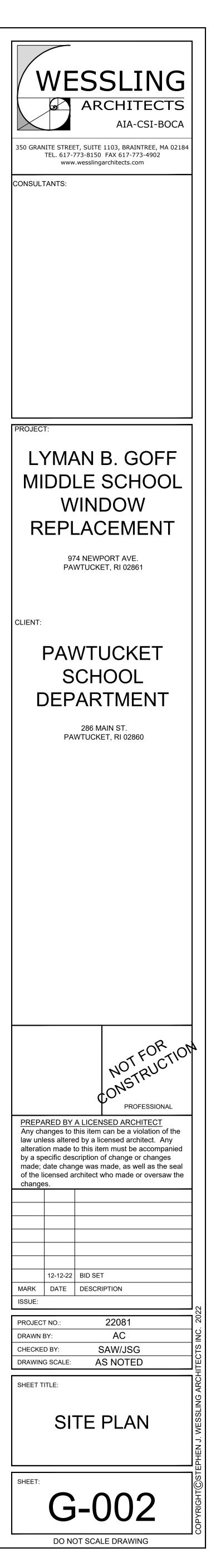
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Drawing name: . Dec 12, 2022 -Xref:J:_SJW20; Xref:!`\ siw2022

SITE PLAN LEGEND					
GRASS AREA					
	PAVEMENT				
	CONCRETE PATIO OR WALKWAY				
A	BUILDING ENTRANCE				
	TREE/BUSH				
oo	FENCING				



NOTES: 1. SILMAN HAS NOT REVIEWED THE EXISTING BASE BUILDING STRUCTURE, ROOFING, PARAPETS, ROOFTOP EQUIPMENT, ANCHORAGES, OR ANY OTHER EXISTING FEATURE FOR ABILITY TO WITHSTAND WIND LOADS SHOWN HERE. SILMAN HAS NOT REVIEWED ANY PROPOSED NEW EQUIPMENT, ROOFING, BUILDING MODIFICATIONS, ANCHORAGES, ETC. FOR ABILITY TO WITHSTAND WIND LOADS SHOWN HERE.

2. BUILDING HEIGHTS AND DIMENSIONS PROVIDED BY WESSLING ARCHITECTS.

3, BACKGROUND SHOWN FOR INFORMATION ONLY. 4. NO FM GLOBAL REQUIREMENTS OR MODIFICATIONS TO CODE-MANDATED WIND LOADS HAVE

BEEN REVIEWED OR INCLUDED. 5. NEGATIVE PRESSURES ARE SUCTION PRESSURES ON A GIVEN SURFACE (ACTING AWAY

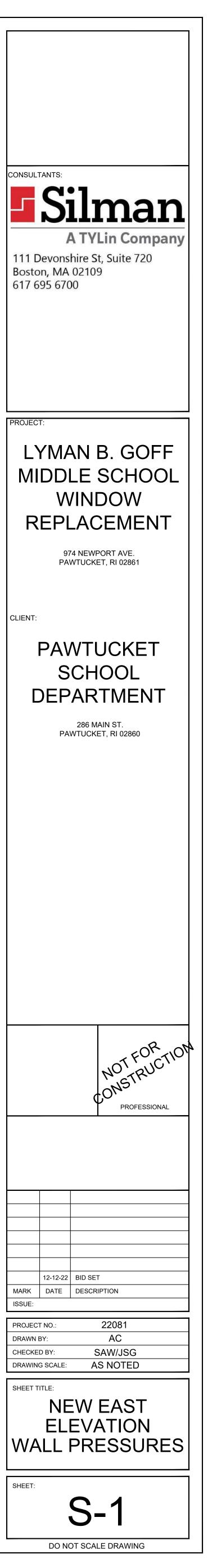
FROM SURFACE), POSITIVE VALUES INDICATE PRESSURES ACTING TOWARD SURFACE. 6. ALL PRESSURES BASED ON ULTIMATE WIND SPEEDS AND A MEAN ROOF ELEVATION OF 46'-0".

	Zone	Component area	+GCp	-GCp	+ Pressure	- Pressure
			r.	· ·	(psf)	(psf)
		<=10 sf	0.9	-0.99	32.8	-35.5
	А	50 sf	0.79	-0.88	29.4	-32.1
	A	200 sf	0.69	-0.78	26.5	-29.2
		>500 sf	0.63	-0.72	24.6	-27.3
		<=10 sf	<mark>0.9</mark>	-1.26	32.8	-43.7
		50 sf	0.79	-1.04	29.4	-37
	В	200 sf	0.69	-0.85	26.5	-31.1
		>500 sf	0.63	-0.72	24.6	-27.3





1 NEW EAST ELEVATION 1/8"=1'-0"



NOTES: 1. SILMAN HAS NOT REVIEWED THE EXISTING BASE BUILDING STRUCTURE, ROOFING, PARAPETS, ROOFTOP EQUIPMENT, ANCHORAGES, OR ANY OTHER EXISTING FEATURE FOR ABILITY TO WITHSTAND WIND LOADS SHOWN HERE. SILMAN HAS NOT REVIEWED ANY PROPOSED NEW EQUIPMENT, ROOFING, BUILDING MODIFICATIONS, ANCHORAGES, ETC. FOR

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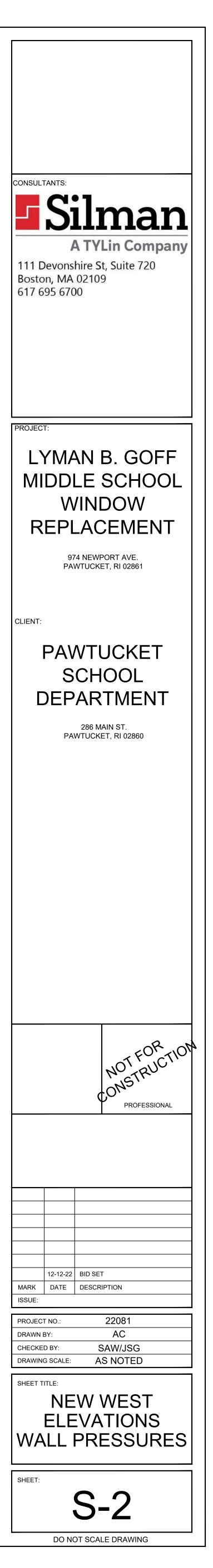
FROM SURFACE), POSITIVE VALUES INDICATE PRESSURES ACTING TOWARD SURFACE. 6. ALL PRESSURES BASED ON ULTIMATE WIND SPEEDS AND A MEAN ROOF ELEVATION OF 46'-0".

	Zone	Zone Component area +GCp	-GCp	+ Pressure	- Pressure	
			r r	r.	(psf)	(psf)
		<=10 sf	0.9	-0.99	32.8	-35.5
		50 sf	0.79	-0.88	29.4	-32.1
	А	200 sf	0.69	-0.78	26.5	-29.2
		>500 sf	0.63	-0.72	24.6	-27.3
		<=10 sf	0.9	-1.26	32.8	-43.7
		50 sf	0.79	-1.04	29.4	-37
	В	200 sf	0.69	-0.85	26.5	-31.1
		>500 sf	0.63	-0.72	24.6	-27.3





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NOTES: 1. SILMAN HAS NOT REVIEWED THE EXISTING BASE BUILDING STRUCTURE, ROOFING, PARAPETS, ROOFTOP EQUIPMENT, ANCHORAGES, OR ANY OTHER EXISTING FEATURE FOR ABILITY TO WITHSTAND WIND LOADS SHOWN HERE. SILMAN HAS NOT REVIEWED ANY PROPOSED NEW EQUIPMENT, ROOFING, BUILDING MODIFICATIONS, ANCHORAGES, ETC. FOR ABILITY TO WITHSTAND WIND LOADS SHOWN HERE.

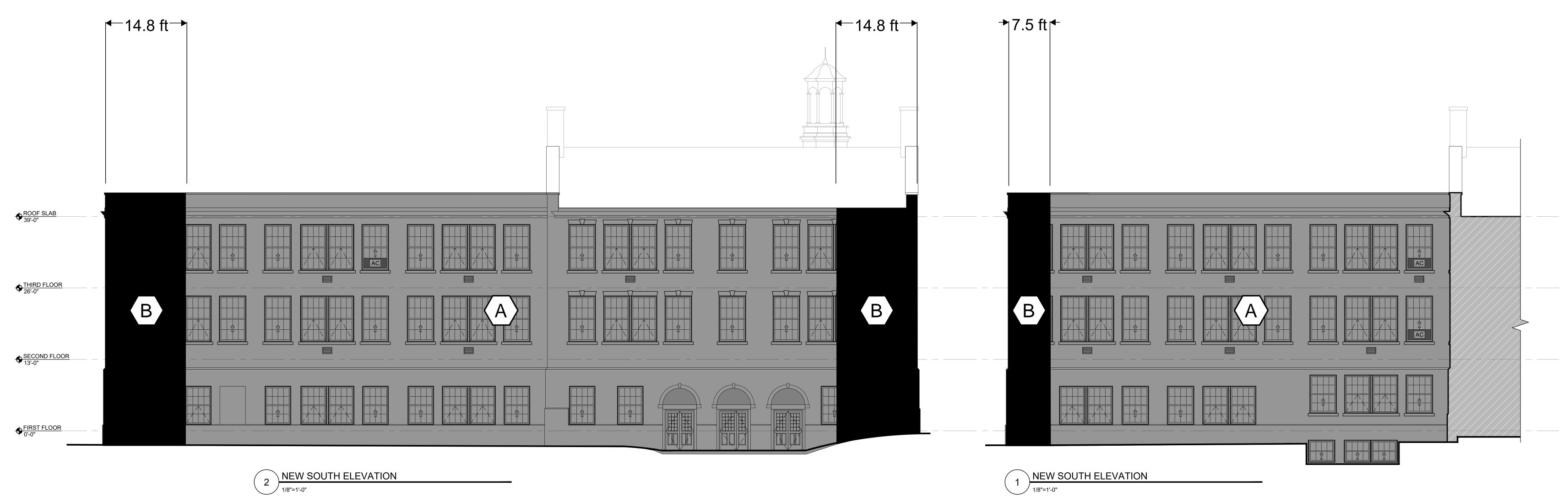
2. BUILDING HEIGHTS AND DIMENSIONS PROVIDED BY WESSLING ARCHITECTS.

3, BACKGROUND SHOWN FOR INFORMATION ONLY. 4. NO FM GLOBAL REQUIREMENTS OR MODIFICATIONS TO CODE-MANDATED WIND LOADS HAVE

BEEN REVIEWED OR INCLUDED. 5. NEGATIVE PRESSURES ARE SUCTION PRESSURES ON A GIVEN SURFACE (ACTING AWAY FROM SURFACE), POSITIVE VALUES INDICATE PRESSURES ACTING TOWARD SURFACE.

6. ALL PRESSURES BASED ON ULTIMATE WIND SPEEDS AND A MEAN ROOF ELEVATION OF 46'-0".

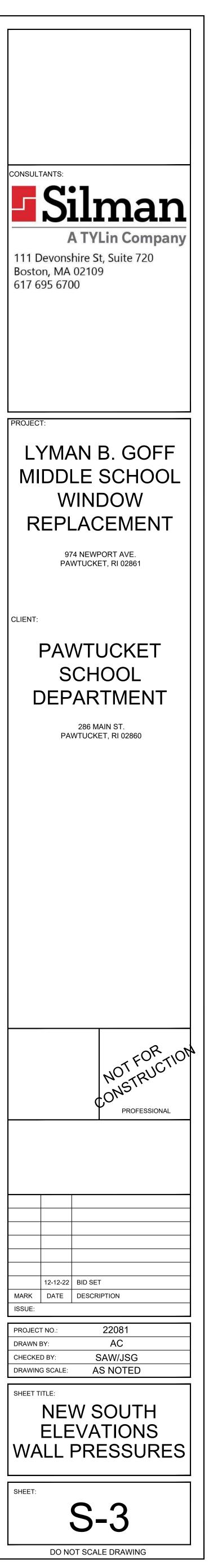
	Zone	Component area	+GCp	-GCp	+ Pressure	- Pressure
			r -	r.	(psf)	(psf)
		<=10 sf	0.9	-0.99	32.8	-35.5
	٨	50 sf	0.79	-0.88	29.4	-32.1
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		50 sf	0.79	-1.04	29.4	-37
	В	200 sf	0.69	-0.85	26.5	-31.1
		>500 sf	0.63	-0.72	24.6	-27.3



I 1/8"=1'-0"

Drawing name: Nov 30, 2022 . Xref.J:_SJW20 Xrefj:_sjw2022

..dwg Consu⊧ dwg



NOTES: 1. SILMAN HAS NOT REVIEWED THE EXISTING BASE BUILDING STRUCTURE, ROOFING, PARAPETS, ROOFTOP EQUIPMENT, ANCHORAGES, OR ANY OTHER EXISTING FEATURE FOR ABILITY TO WITHSTAND WIND LOADS SHOWN HERE. SILMAN HAS NOT REVIEWED ANY PROPOSED NEW EQUIPMENT, ROOFING, BUILDING MODIFICATIONS, ANCHORAGES, ETC. FOR

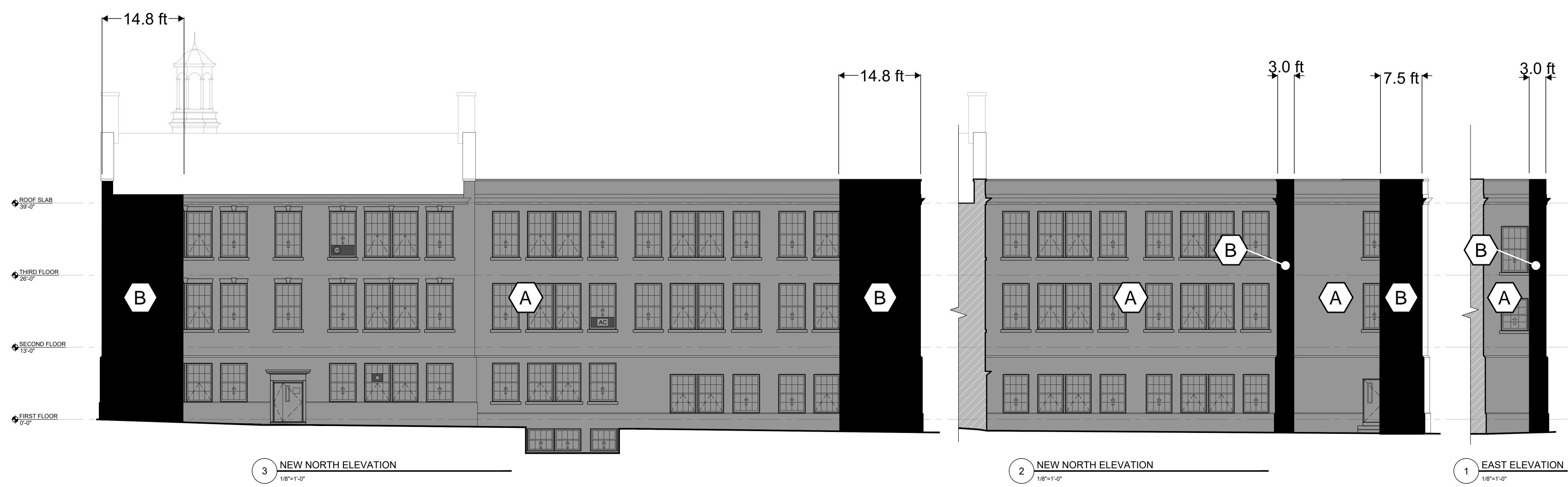
ABILITY TO WITHSTAND WIND LOADS SHOWN HERE. 2. BUILDING HEIGHTS AND DIMENSIONS PROVIDED BY WESSLING ARCHITECTS.

3, BACKGROUND SHOWN FOR INFORMATION ONLY. 4. NO FM GLOBAL REQUIREMENTS OR MODIFICATIONS TO CODE-MANDATED WIND LOADS HAVE

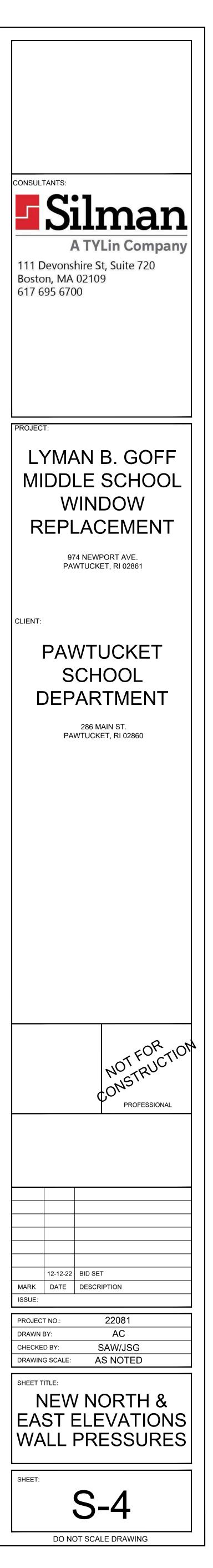
BEEN REVIEWED OR INCLUDED. 5. NEGATIVE PRESSURES ARE SUCTION PRESSURES ON A GIVEN SURFACE (ACTING AWAY FROM SURFACE), POSITIVE VALUES INDICATE PRESSURES ACTING TOWARD SURFACE.

6. ALL PRESSURES BASED ON ULTIMATE WIND SPEEDS AND A MEAN ROOF ELEVATION OF 46'-0".

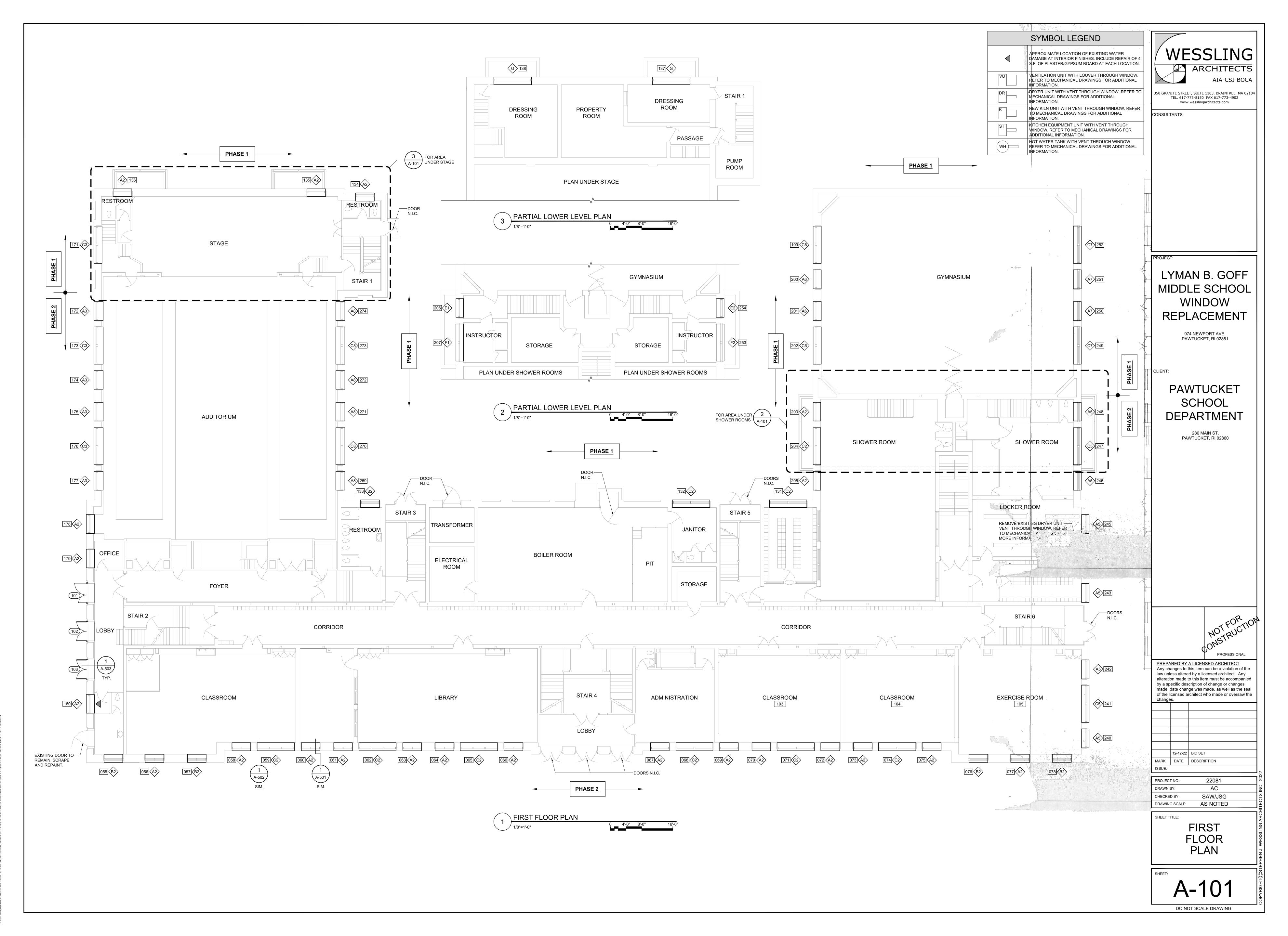
	Zone	Component area	+GCp	-GCp	+ Pressure	- Pressure
			r.	r -	(psf)	(psf)
		<=10 sf	0.9	-0.99	32.8	-35.5
	А	50 sf	<mark>0.7</mark> 9	- <mark>0.88</mark>	29.4	-32.1
	A .	200 sf	<mark>0.6</mark> 9	-0.78	26.5	-29.2
		>500 sf	<mark>0.63</mark>	-0.72	24.6	-27.3
		<=10 sf	0.9	-1.26	32.8	-43.7
		50 sf	0.79	-1.04	29.4	-37
	В	200 sf	<mark>0.69</mark>	-0.85	26.5	-31.1
		>500 sf	0.63	-0.72	24.6	-27.3



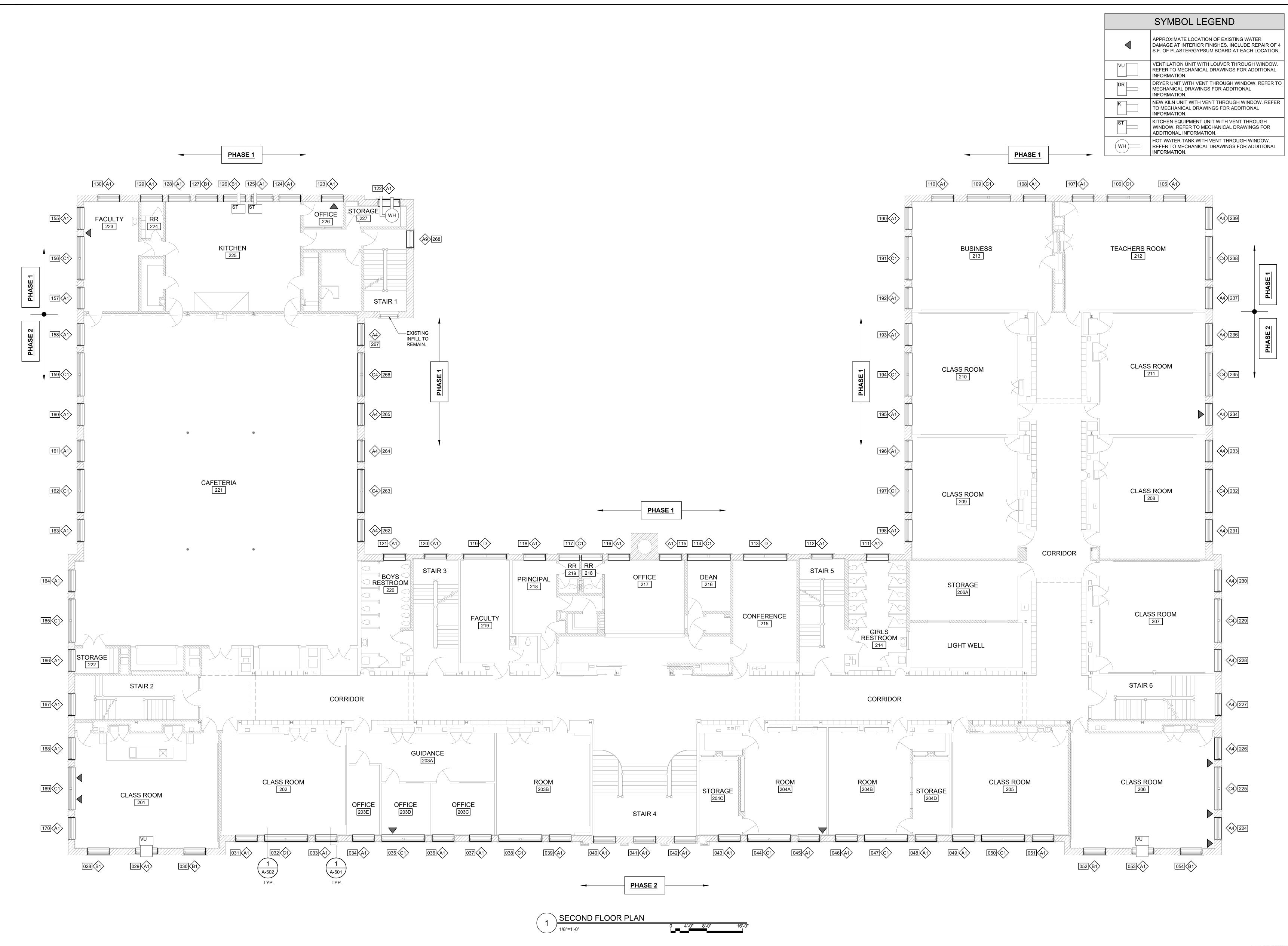




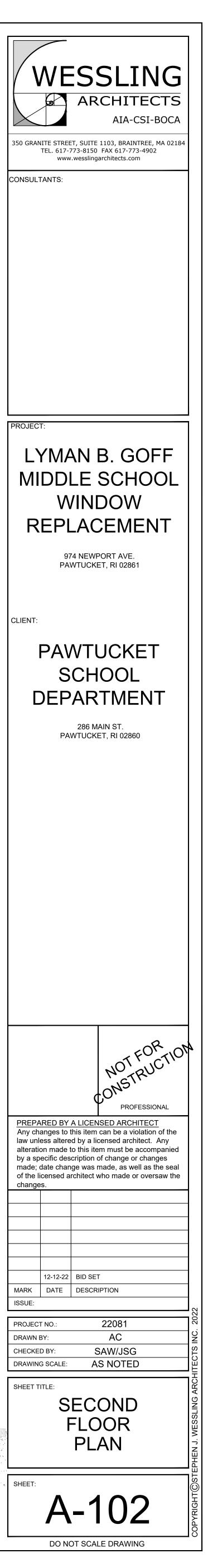
1 1/8"=1'-0"

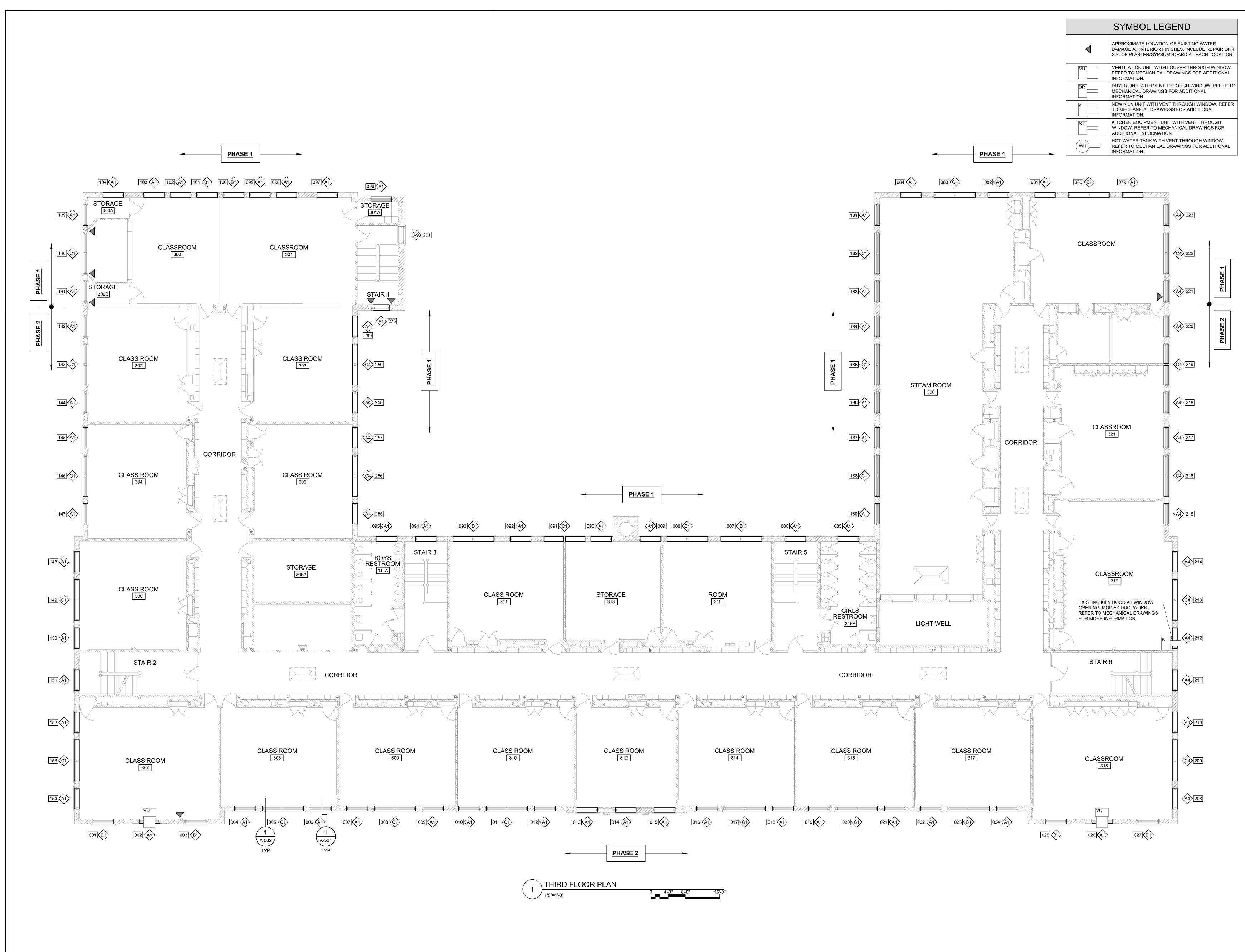


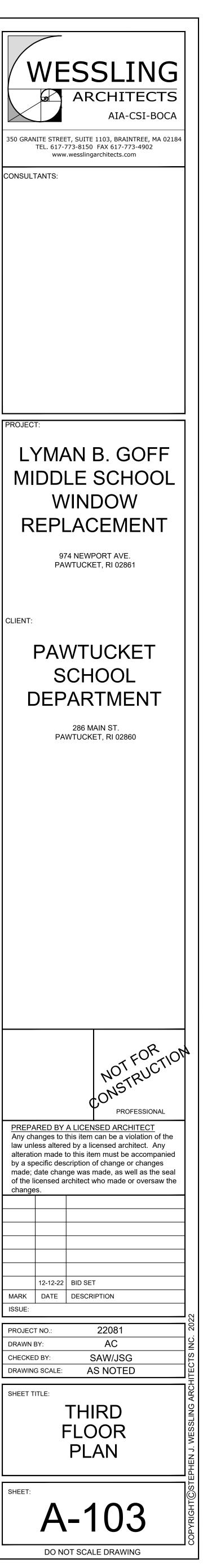
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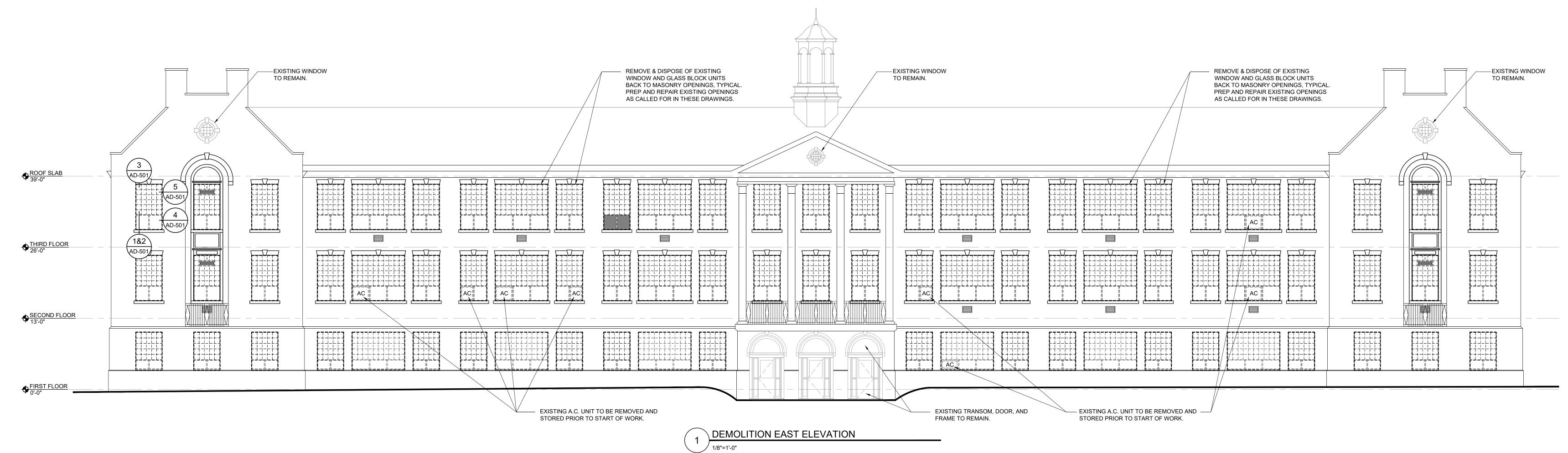
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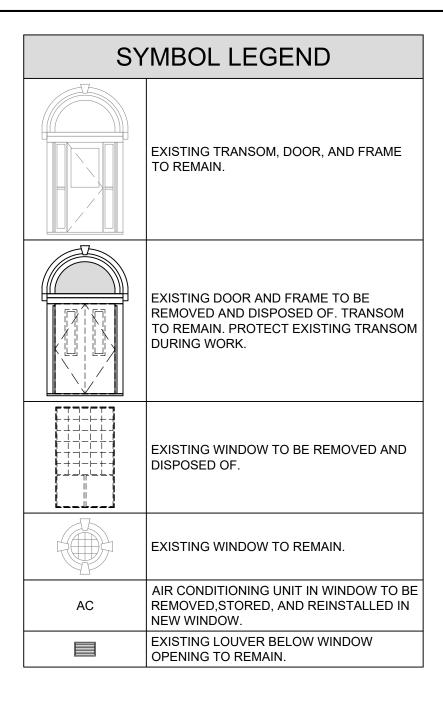


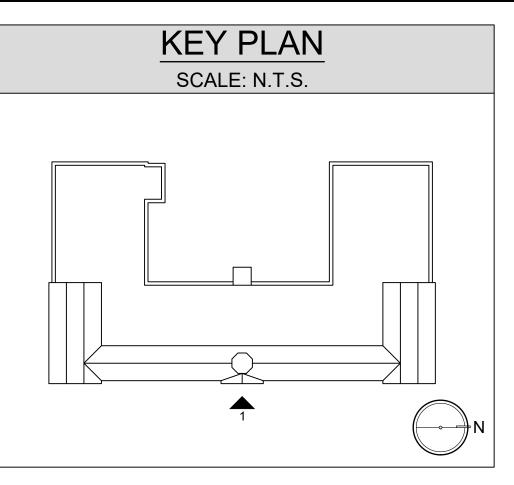


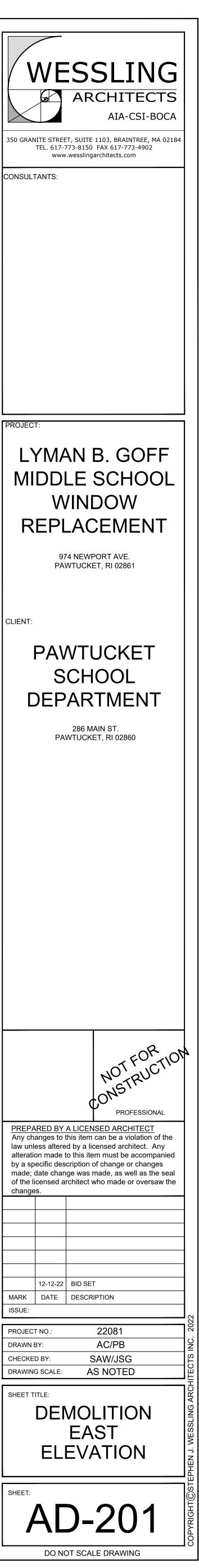


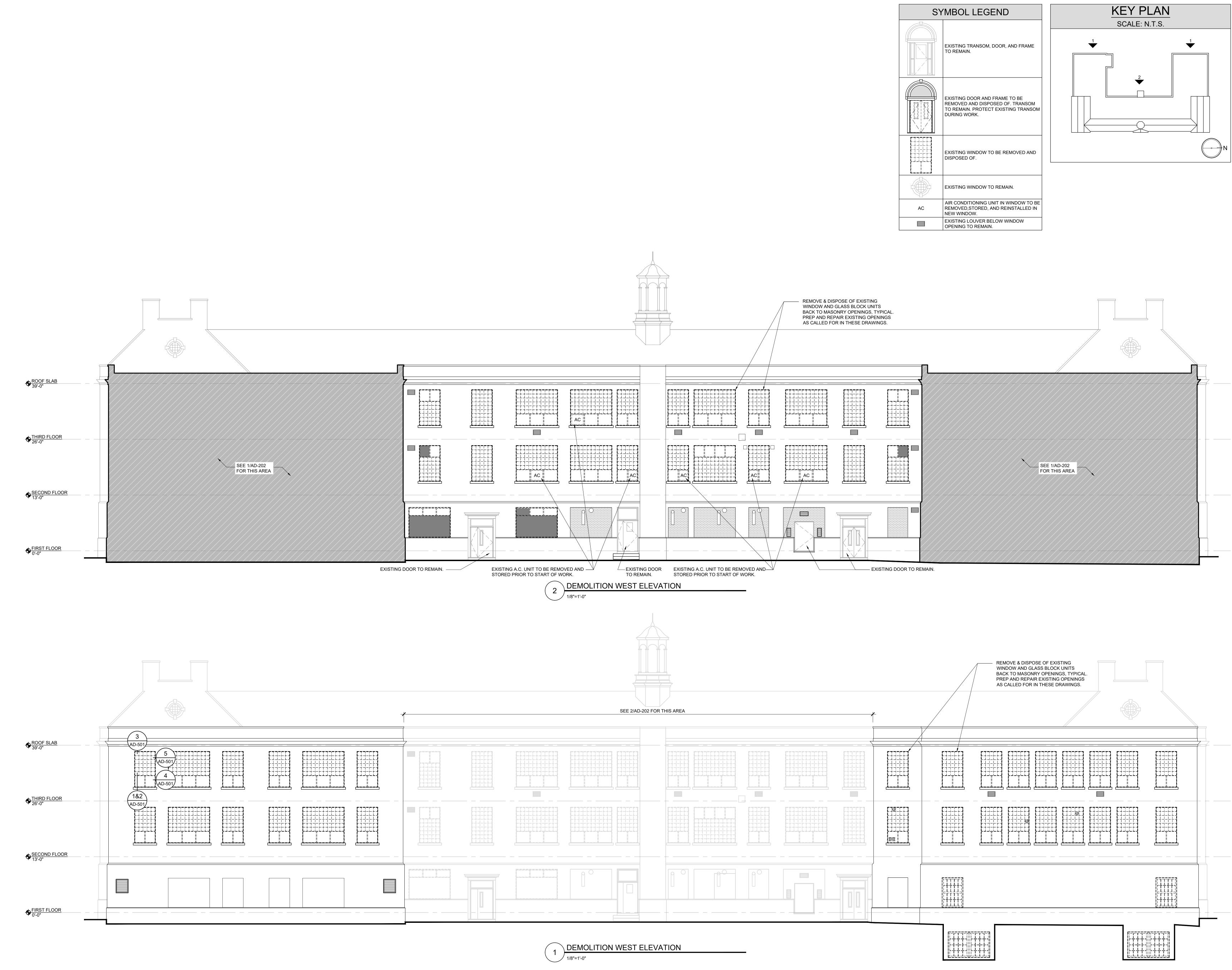
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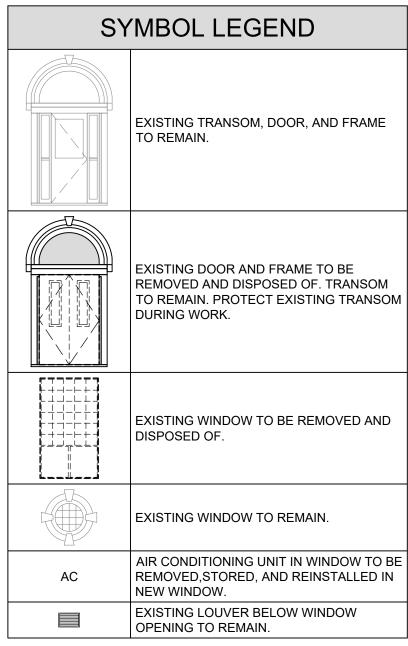


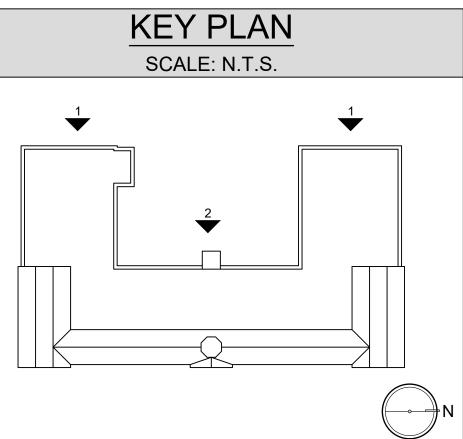


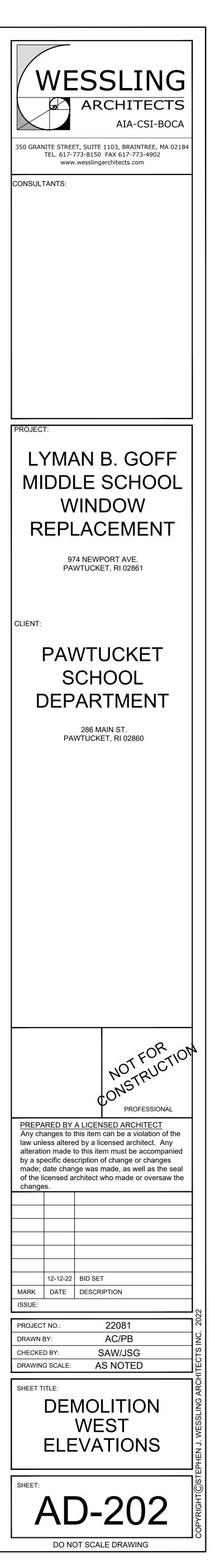




2081_30x42 Title | Key Plan.dwg | Demo Elevation

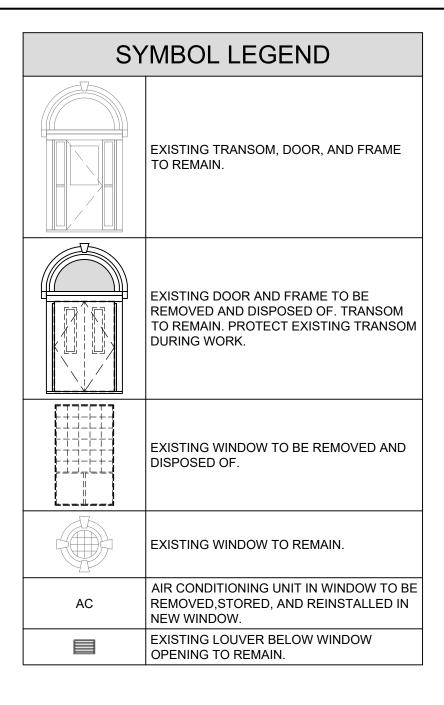


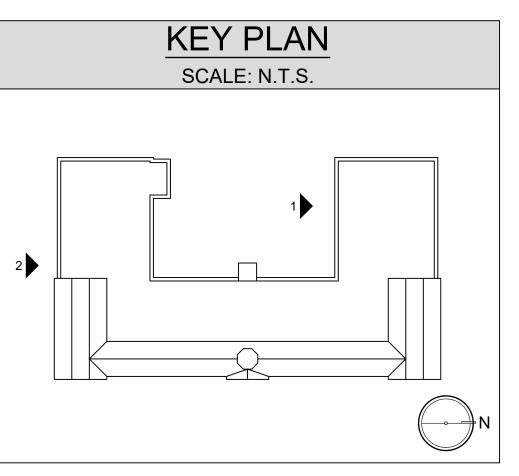


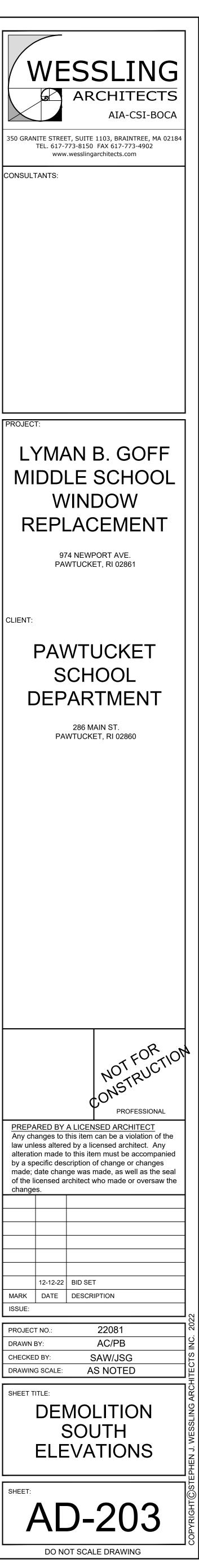


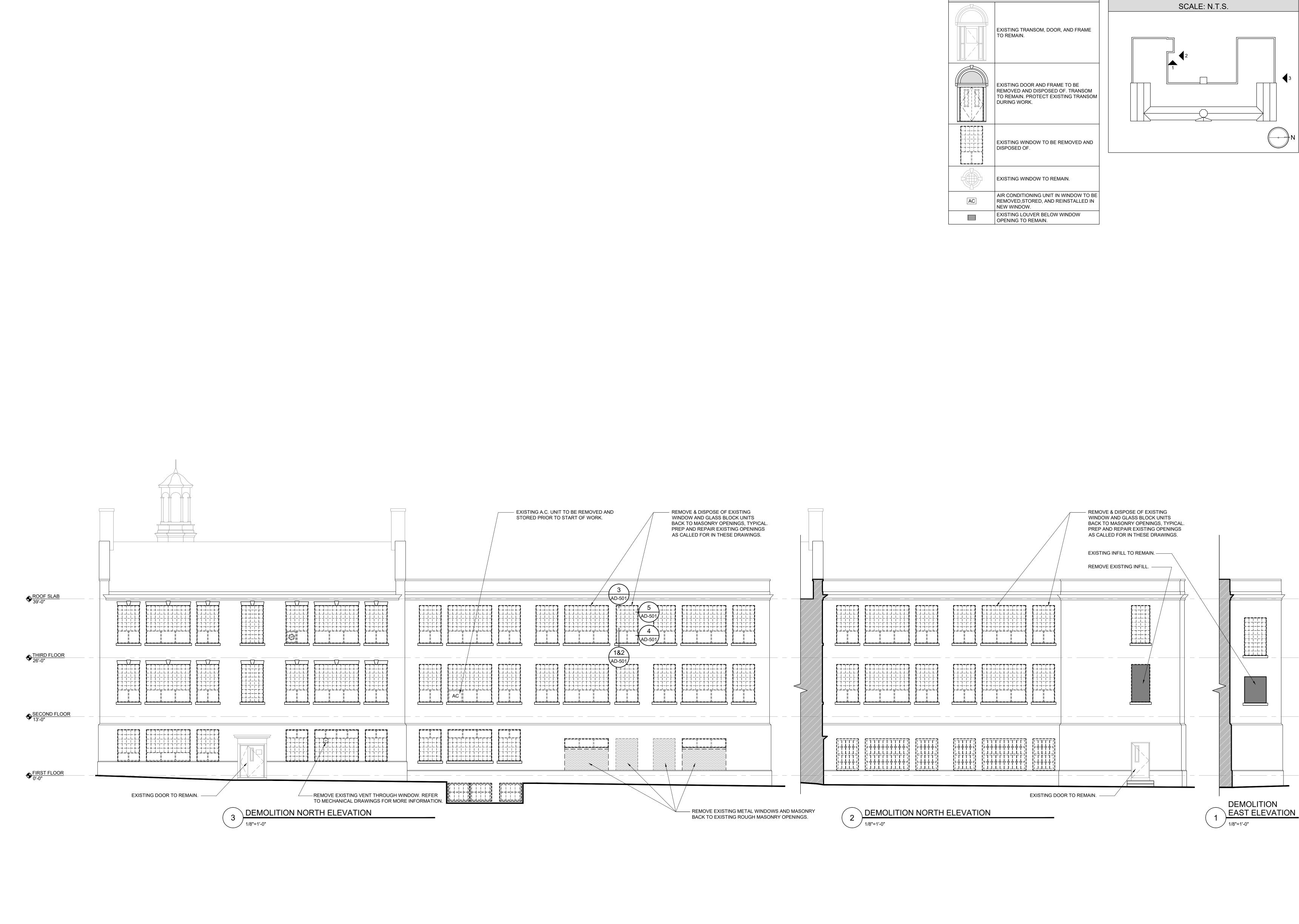
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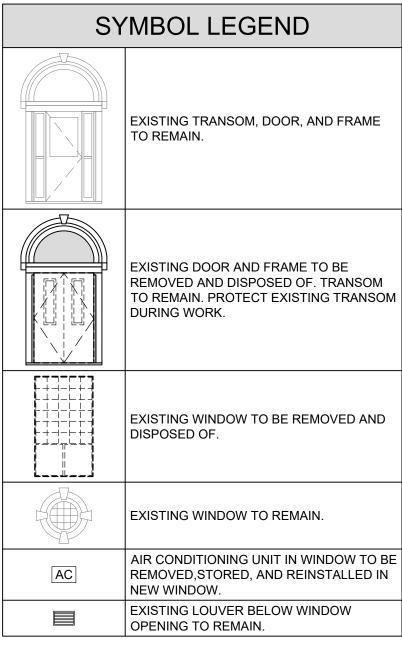


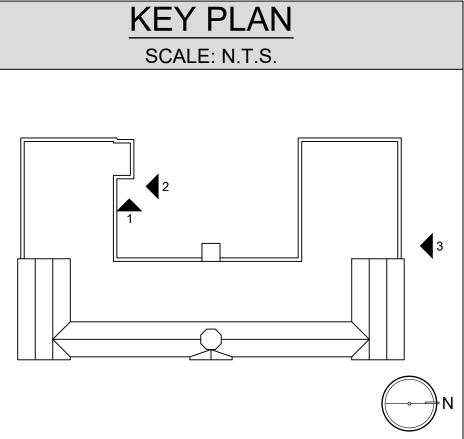


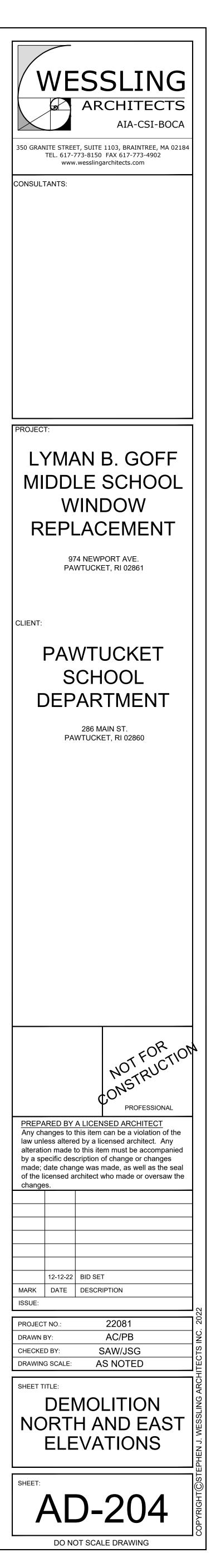


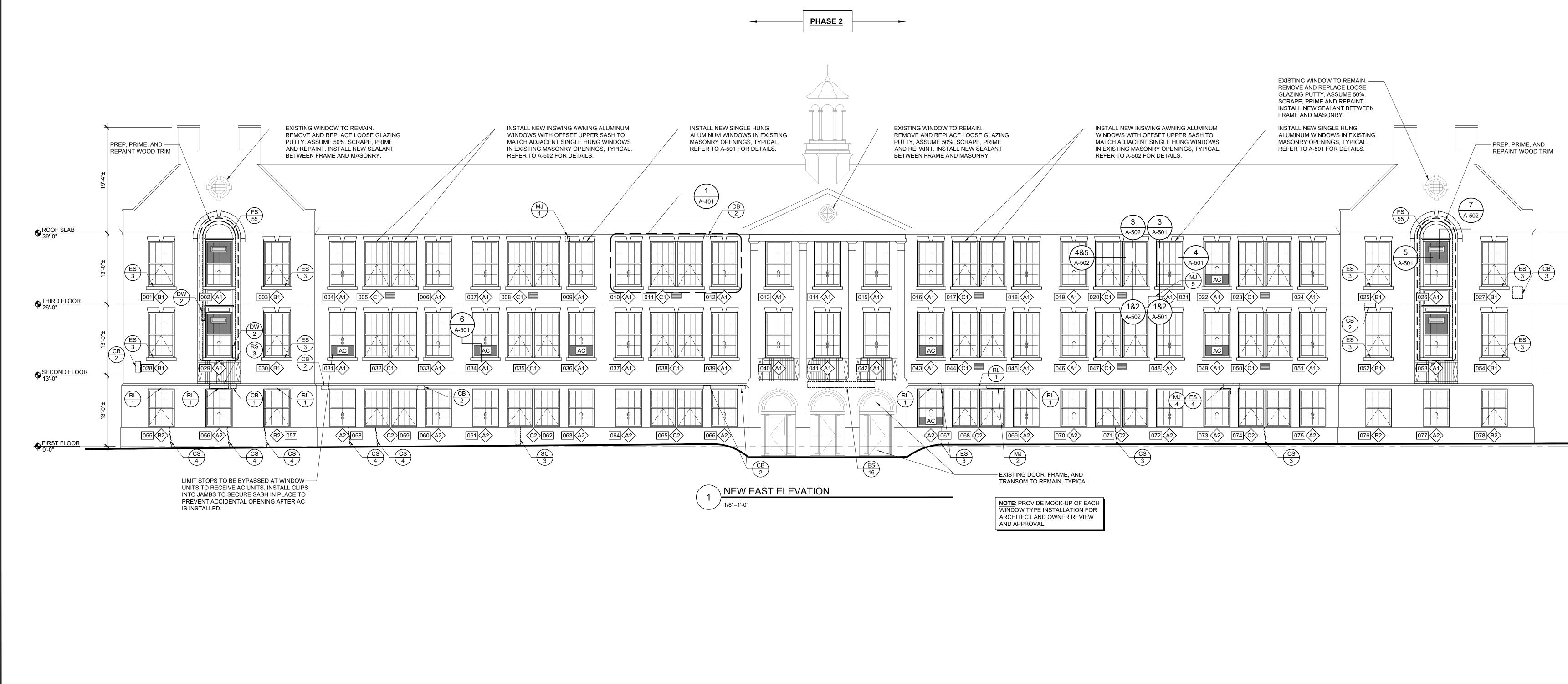


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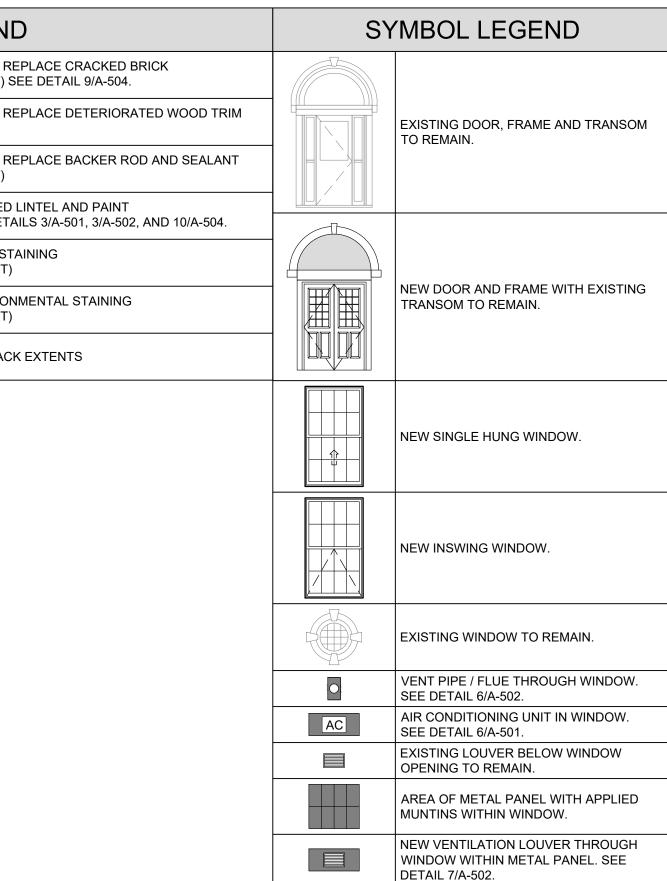


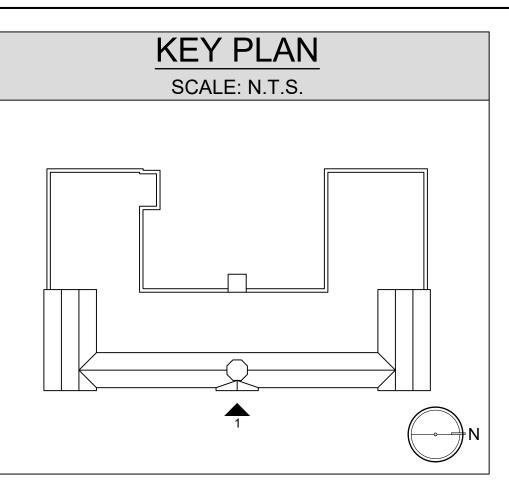


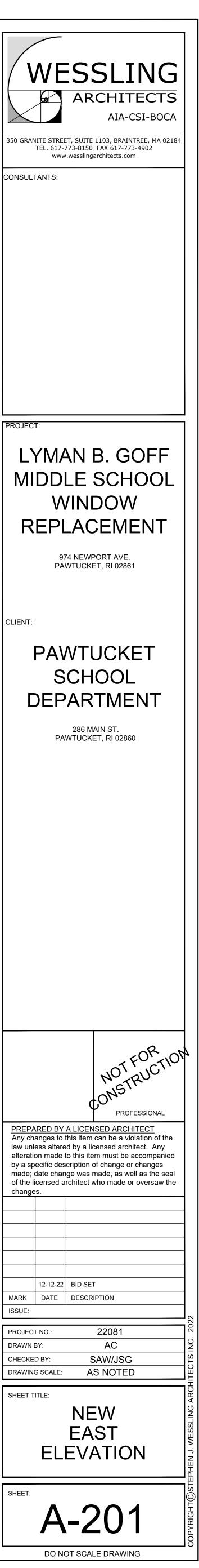
phate Project 30x42/Elements/22081_30x42 TitleBlock 2 school/Views/Achitecture/22081 Key Plan.dwg school/Views/Achitecture/22081 New Elevations.dwg school/Views/Achitecture/22081 Elevation Window Tags

Drawing name: Ji, SJW2022/22081 goff middle school window replacement\50-construction documents\architectural\Au Dec 12, 2022 - 10:09am Xref:Ji, SJW2022/22081 Goff Middle School Window Replacement\50-Construction Documents\Architectural\AutoCAD\ Xref;j:\sjw2022/22081 goff middle school window replacement\50-construction documents\architectural\autocad\goff mi Xref;j:\sjw2022/22081 goff middle school window replacement\50-construction documents\architectural\autocad\goff mi Xref;j:\sjw2022/22081 goff middle school window replacement\50-construction documents\architectural\autocad\goff mi

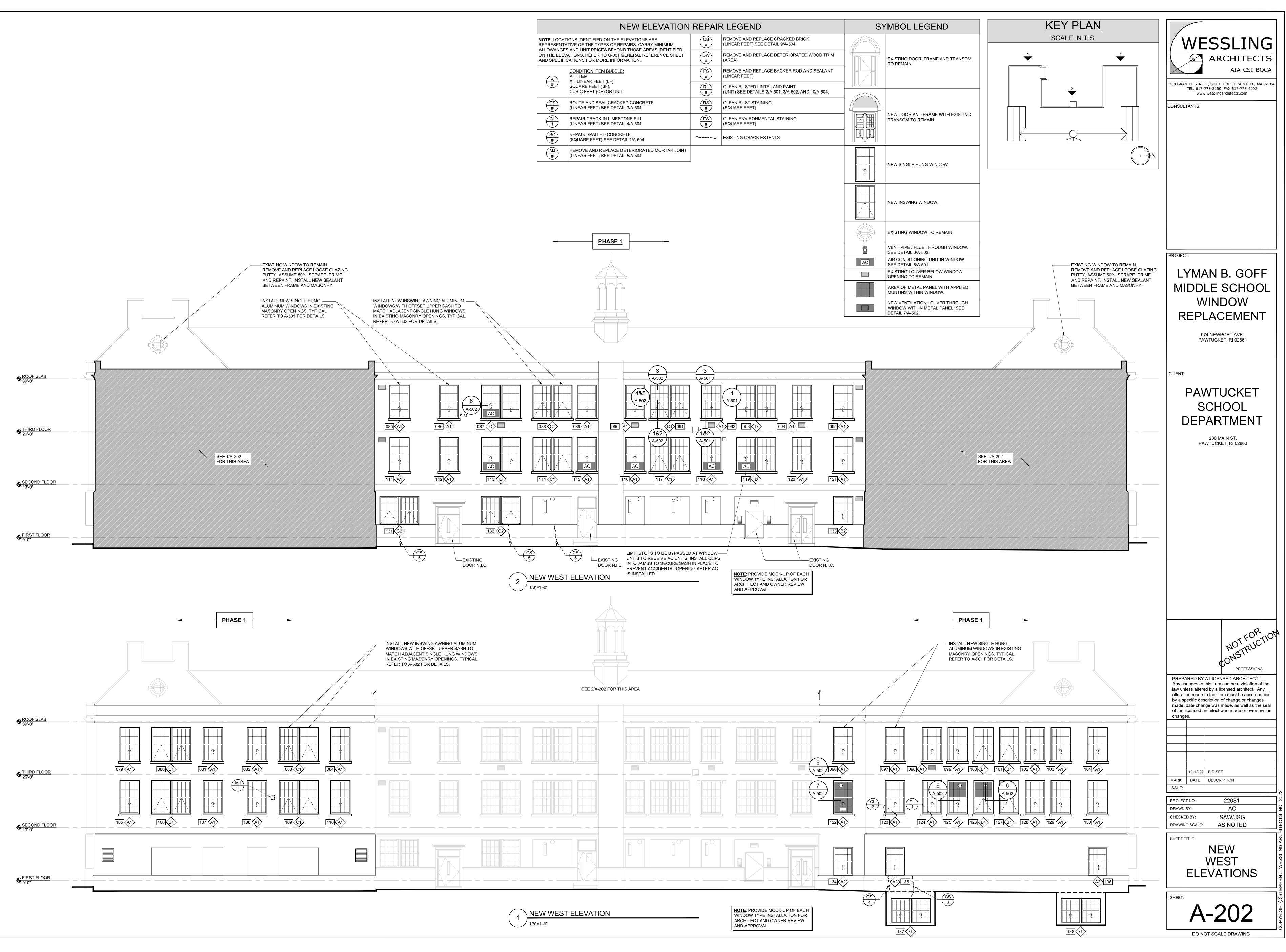
	NEW ELEVATION REPAIR LEGENE					
REPRESENTA	NOTE : LOCATIONS IDENTIFIED ON THE ELEVATIONS ARE REPRESENTATIVE OF THE TYPES OF REPAIRS. CARRY MINIMUM		EPRESENTATIVE OF THE TYPES OF REPAIRS. CARRY MINIMUM		REMOVE AND RE (LINEAR FEET) SI	
ON THE ELEV	S AND UNIT PRICES BEYOND THOSE AREAS IDENTIFIED ATIONS. REFER TO G-001 GENERAL REFERENCE SHEET CATIONS FOR MORE INFORMATION.	DW #	REMOVE AND RE (AREA)			
A	CONDITION ITEM BUBBLE; A = ITEM # = LINEAR FEET (LF), SQUARE FEET (SF), CUBIC FEET (CF) OR UNIT	FS #	REMOVE AND RE (LINEAR FEET)			
#		RL #	CLEAN RUSTED I (UNIT) SEE DETA			
CS #	ROUTE AND SEAL CRACKED CONCRETE (LINEAR FEET) SEE DETAIL 3/A-504.	RS #	CLEAN RUST STA (SQUARE FEET)			
CL 1	REPAIR CRACK IN LIMESTONE SILL (LINEAR FEET) SEE DETAIL 4/A-504.	ES #	CLEAN ENVIRON (SQUARE FEET)			
SC #	REPAIR SPALLED CONCRETE (SQUARE FEET) SEE DETAIL 1/A-504.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	EXISTING CRACK			
MJ #	REMOVE AND REPLACE DETERIORATED MORTAR JOINT (LINEAR FEET) SEE DETAIL 5/A-504.					







Themplate Project_30x42/Elements/22081 A-202 New West Elevations. Template Project_30x42/Elements/22081_30x42 TitleBlock 2022.dwg didle school/Views/Achitecture/22081 New Flevations.dwg didle school/Views/Achitecture/22081 Elevation Window Tags.dwg Drawing name: J1. SJW2022/22081 goff middle school window replacement/50-construction documents/architectural/ Dec 12, 2022 - 10:09am Xref1. SJW2022/22081 goff Middle School Window Replacement/50-Construction Documents/Architectural/AutoCA Xref1. SJW2022/22081 goff middle school window replacement/50-construction documents/architectural/autocad/goff Xref1. SJW2022/22081 goff middle school window replacement/50-construction documents/architectural/autocad/goff Xref1. SJW2022/22081 goff middle school window replacement/50-construction documents/architectural/autocad/goff Xref1. SJW2022/22081 goff middle school window replacement/50-construction documents/architectural/autocad/goff

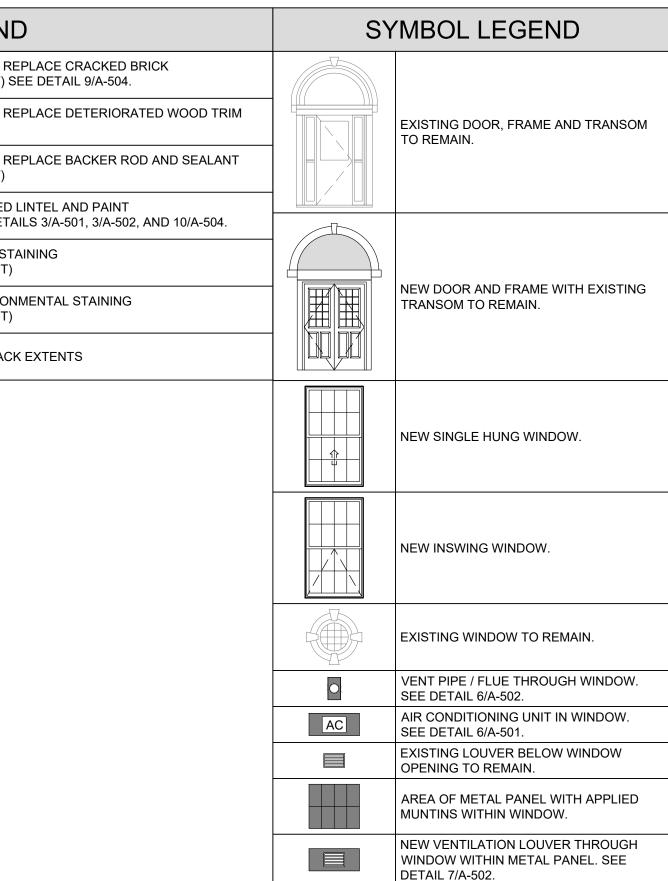


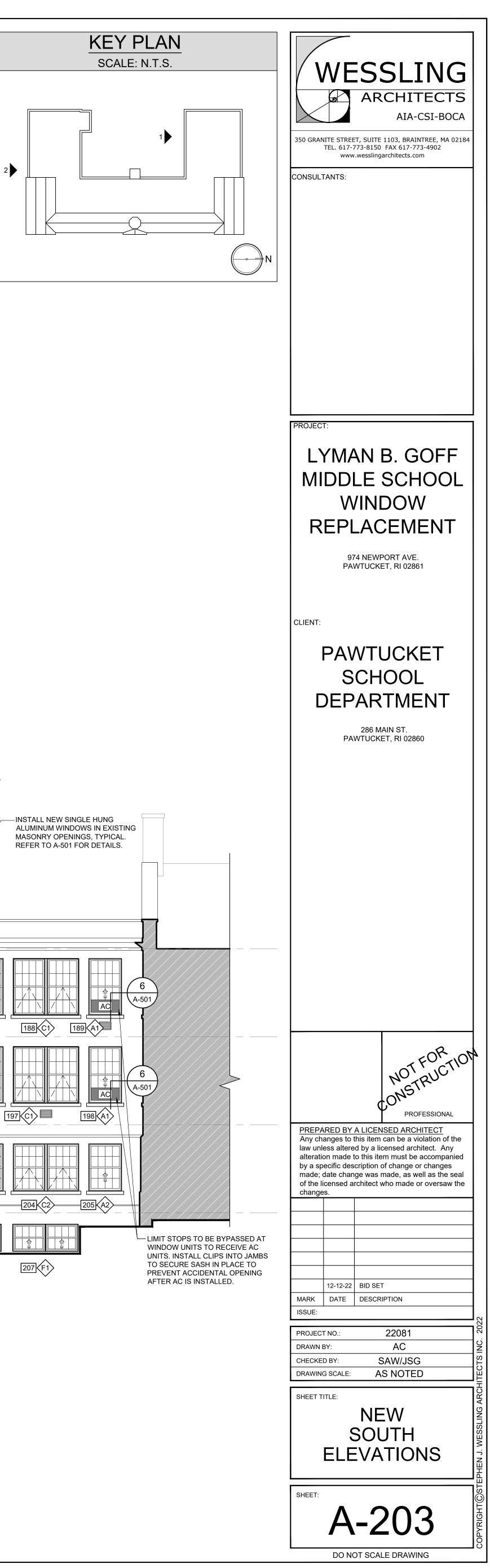
	NEW ELEVATION	REPAIF	RLEGEND		
REPRESENTA	NOTE : LOCATIONS IDENTIFIED ON THE ELEVATIONS ARE REPRESENTATIVE OF THE TYPES OF REPAIRS. CARRY MINIMUM ALLOWANCES AND UNIT PRICES BEYOND THOSE AREAS IDENTIFIED ON THE ELEVATIONS. REFER TO G-001 GENERAL REFERENCE SHEET AND SPECIFICATIONS FOR MORE INFORMATION.		REPRESENTATIVE OF THE TYPES OF REPAIRS. CARRY MINIMUM		REMOVE AND RE (LINEAR FEET) SE
ON THE ELEV			REMOVE AND RE (AREA)		
A	CONDITION ITEM BUBBLE; A = ITEM # = LINEAR FEET (LF), SQUARE FEET (SF), CUBIC FEET (CF) OR UNIT	FS #	REMOVE AND RE (LINEAR FEET)		
#		RL #	CLEAN RUSTED L (UNIT) SEE DETAI		
CS #	ROUTE AND SEAL CRACKED CONCRETE (LINEAR FEET) SEE DETAIL 3/A-504.	RS #	CLEAN RUST STA (SQUARE FEET)		
CL 1	REPAIR CRACK IN LIMESTONE SILL (LINEAR FEET) SEE DETAIL 4/A-504.	ES #	CLEAN ENVIRON (SQUARE FEET)		
SC #	REPAIR SPALLED CONCRETE (SQUARE FEET) SEE DETAIL 1/A-504.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	EXISTING CRACK		
MJ #	REMOVE AND REPLACE DETERIORATED MORTAR JOINT (LINEAR FEET) SEE DETAIL 5/A-504.				



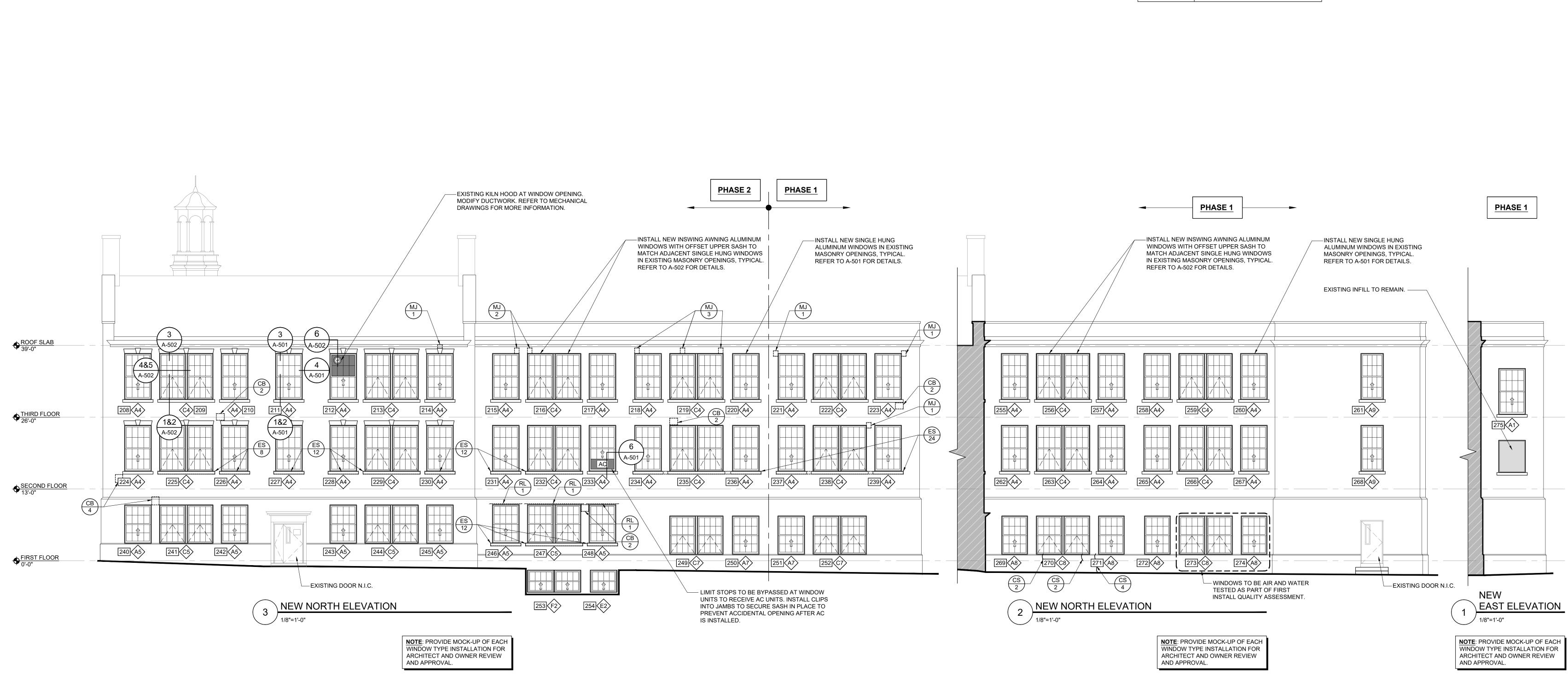


	NEW ELEVATION REPAIR LEGENE					
NOTE : LOCATIONS IDENTIFIED ON THE ELEVATIONS ARE REPRESENTATIVE OF THE TYPES OF REPAIRS. CARRY MINIMUM		CB #	REMOVE AND RE (LINEAR FEET) S			
ON THE ELEV	S AND UNIT PRICES BEYOND THOSE AREAS IDENTIFIED ATIONS. REFER TO G-001 GENERAL REFERENCE SHEET CATIONS FOR MORE INFORMATION.	DW #	REMOVE AND RE (AREA)			
A	CONDITION ITEM BUBBLE; A = ITEM # = LINEAR FEET (LF), SQUARE FEET (SF), CUBIC FEET (CF) OR UNIT	FS #	REMOVE AND RE (LINEAR FEET)			
#		RL #	CLEAN RUSTED (UNIT) SEE DETA			
CS #	ROUTE AND SEAL CRACKED CONCRETE (LINEAR FEET) SEE DETAIL 3/A-504.	RS #	CLEAN RUST STA (SQUARE FEET)			
CL 1	REPAIR CRACK IN LIMESTONE SILL (LINEAR FEET) SEE DETAIL 4/A-504.	ES #	CLEAN ENVIRON (SQUARE FEET)			
SC #	REPAIR SPALLED CONCRETE (SQUARE FEET) SEE DETAIL 1/A-504.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	EXISTING CRACK			
MJ #	REMOVE AND REPLACE DETERIORATED MORTAR JOINT (LINEAR FEET) SEE DETAIL 5/A-504.					

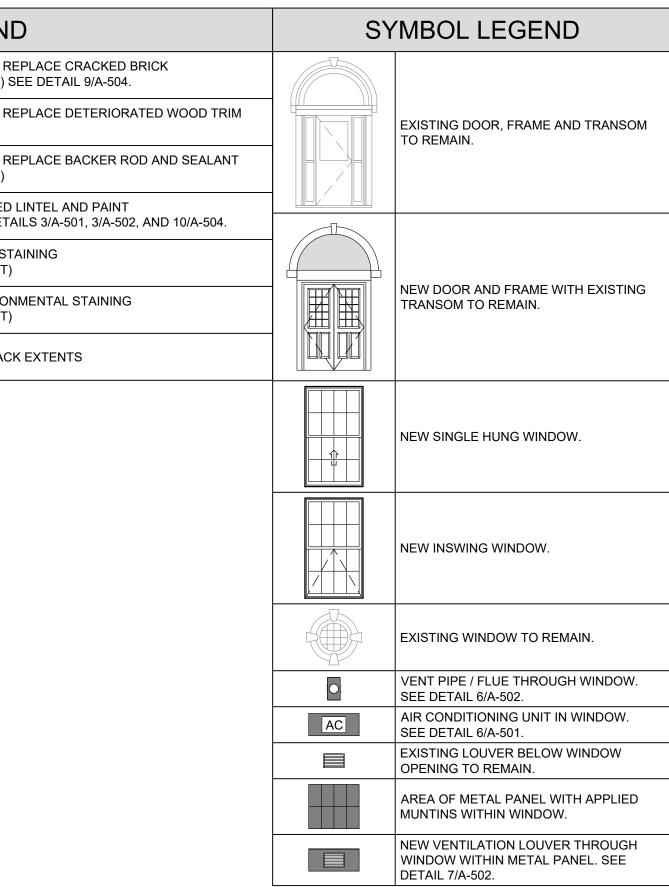




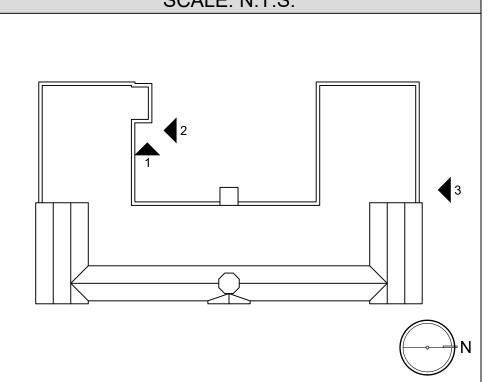


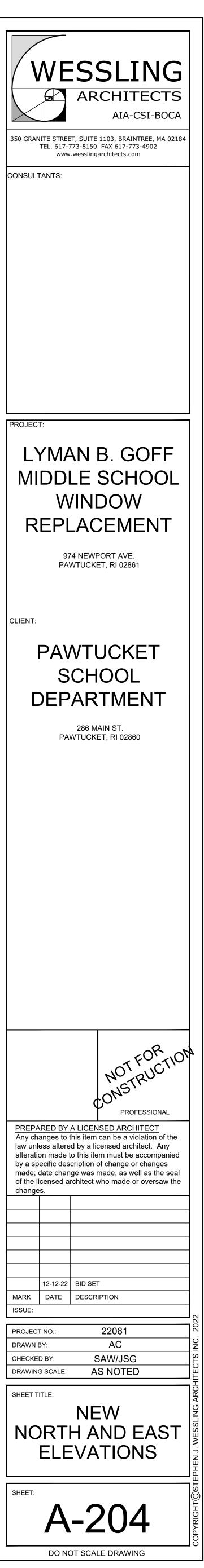


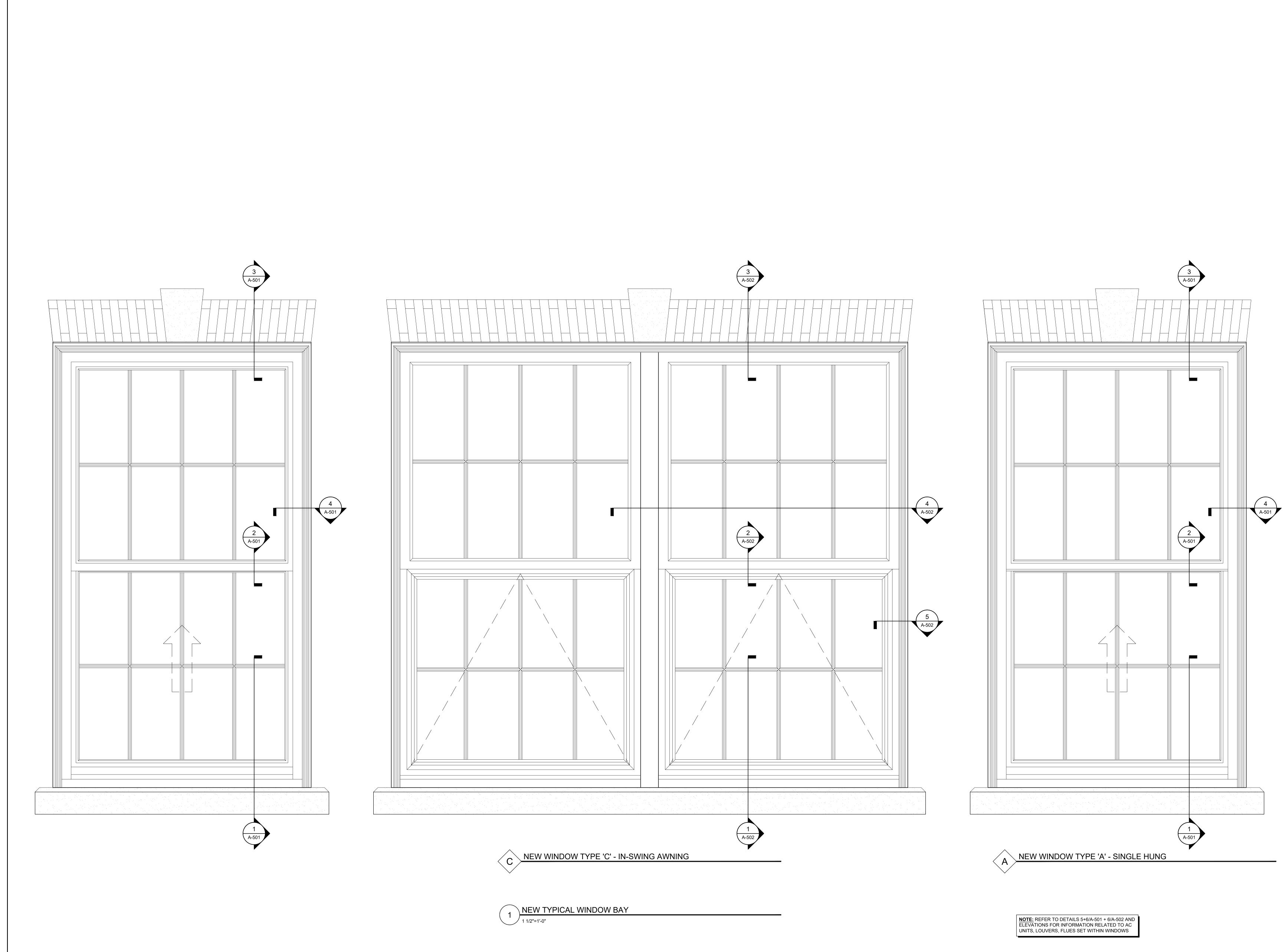
	NEW ELEVATION	REPAIR	RLEGEND
NOTE : LOCATIONS IDENTIFIED ON THE ELEVATIONS ARE REPRESENTATIVE OF THE TYPES OF REPAIRS. CARRY MINIMUM		CB #	REMOVE AND RE (LINEAR FEET) SE
ON THE ELEV	S AND UNIT PRICES BEYOND THOSE AREAS IDENTIFIED ATIONS. REFER TO G-001 GENERAL REFERENCE SHEET CATIONS FOR MORE INFORMATION.	DW #	REMOVE AND RE (AREA)
A	CONDITION ITEM BUBBLE; A = ITEM # = LINEAR FEET (LF), SQUARE FEET (SF), CUBIC FEET (CF) OR UNIT	FS #	REMOVE AND RE (LINEAR FEET)
#		RL #	CLEAN RUSTED L (UNIT) SEE DETA
CS #	ROUTE AND SEAL CRACKED CONCRETE (LINEAR FEET) SEE DETAIL 3/A-504.	RS #	CLEAN RUST STA (SQUARE FEET)
CL 1	REPAIR CRACK IN LIMESTONE SILL (LINEAR FEET) SEE DETAIL 4/A-504.	ES #	CLEAN ENVIRONI (SQUARE FEET)
SC #	REPAIR SPALLED CONCRETE (SQUARE FEET) SEE DETAIL 1/A-504.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	EXISTING CRACK
MJ #	REMOVE AND REPLACE DETERIORATED MORTAR JOINT (LINEAR FEET) SEE DETAIL 5/A-504.		



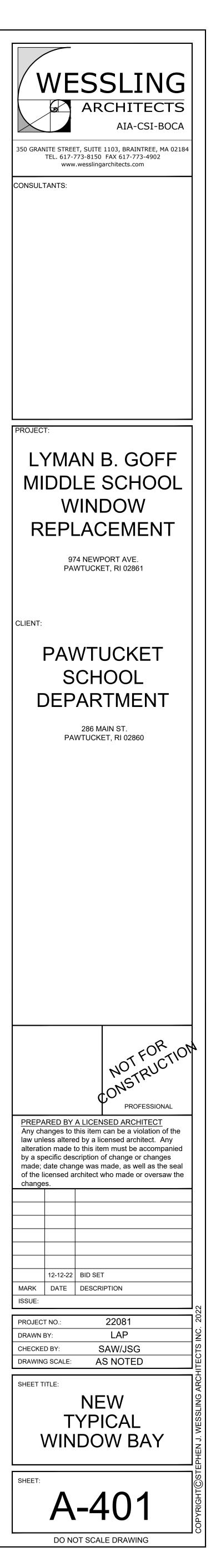
KEY PLAN SCALE: N.T.S.

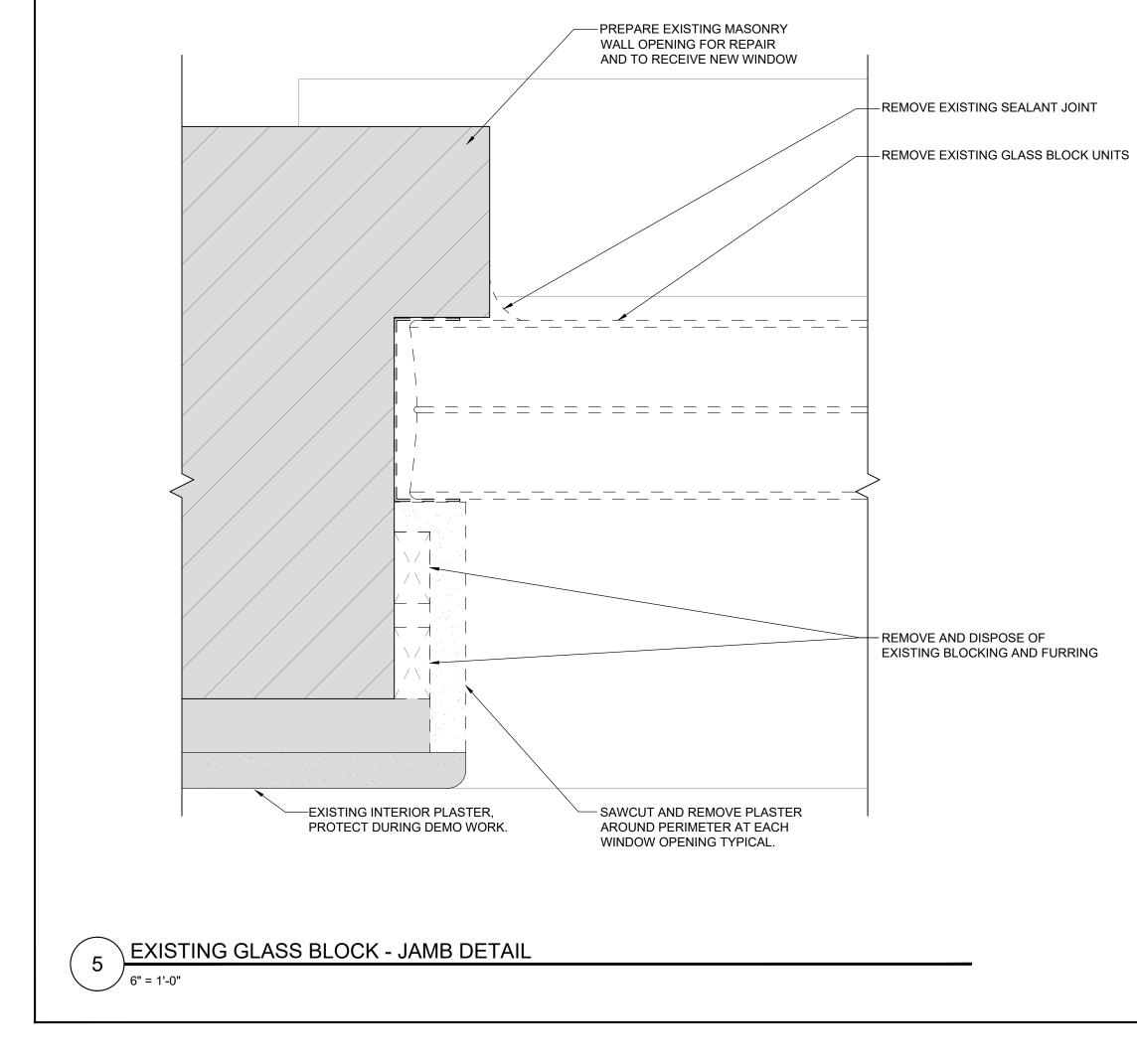


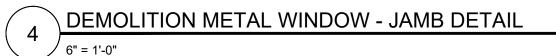


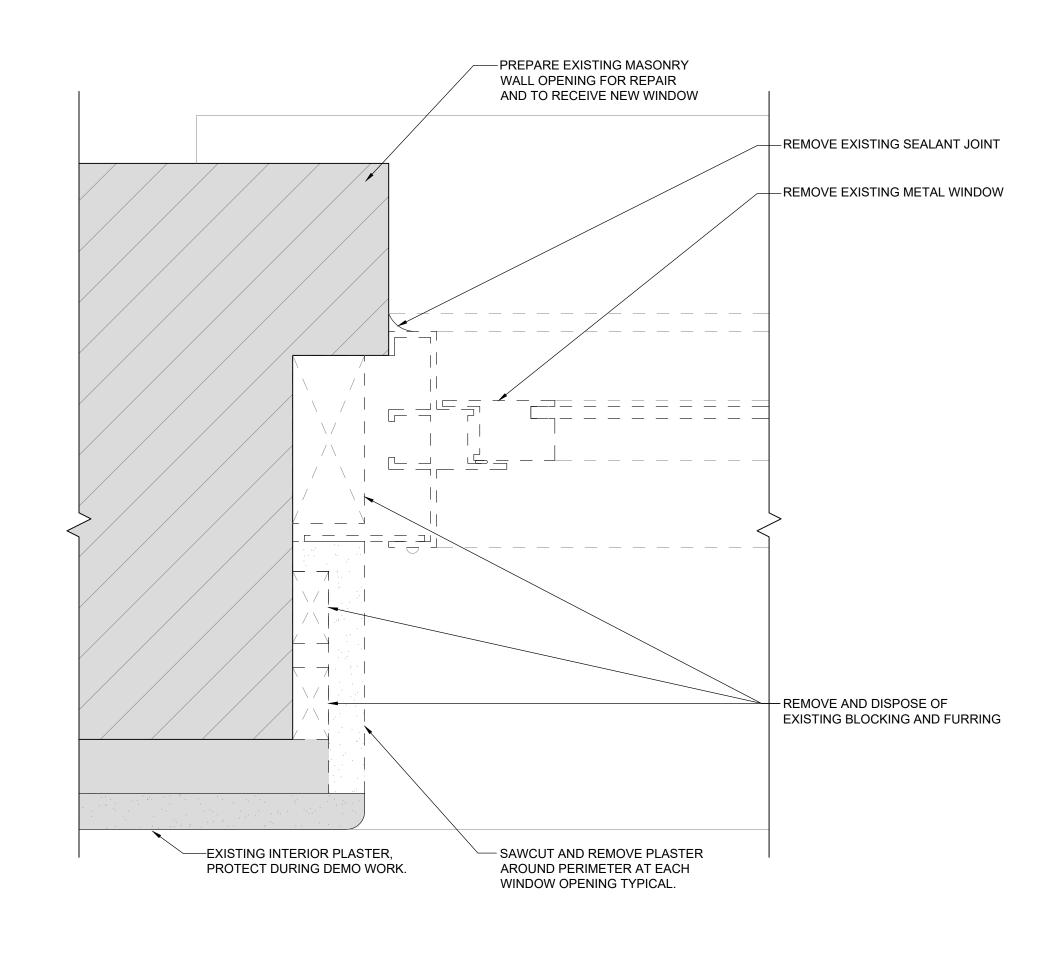


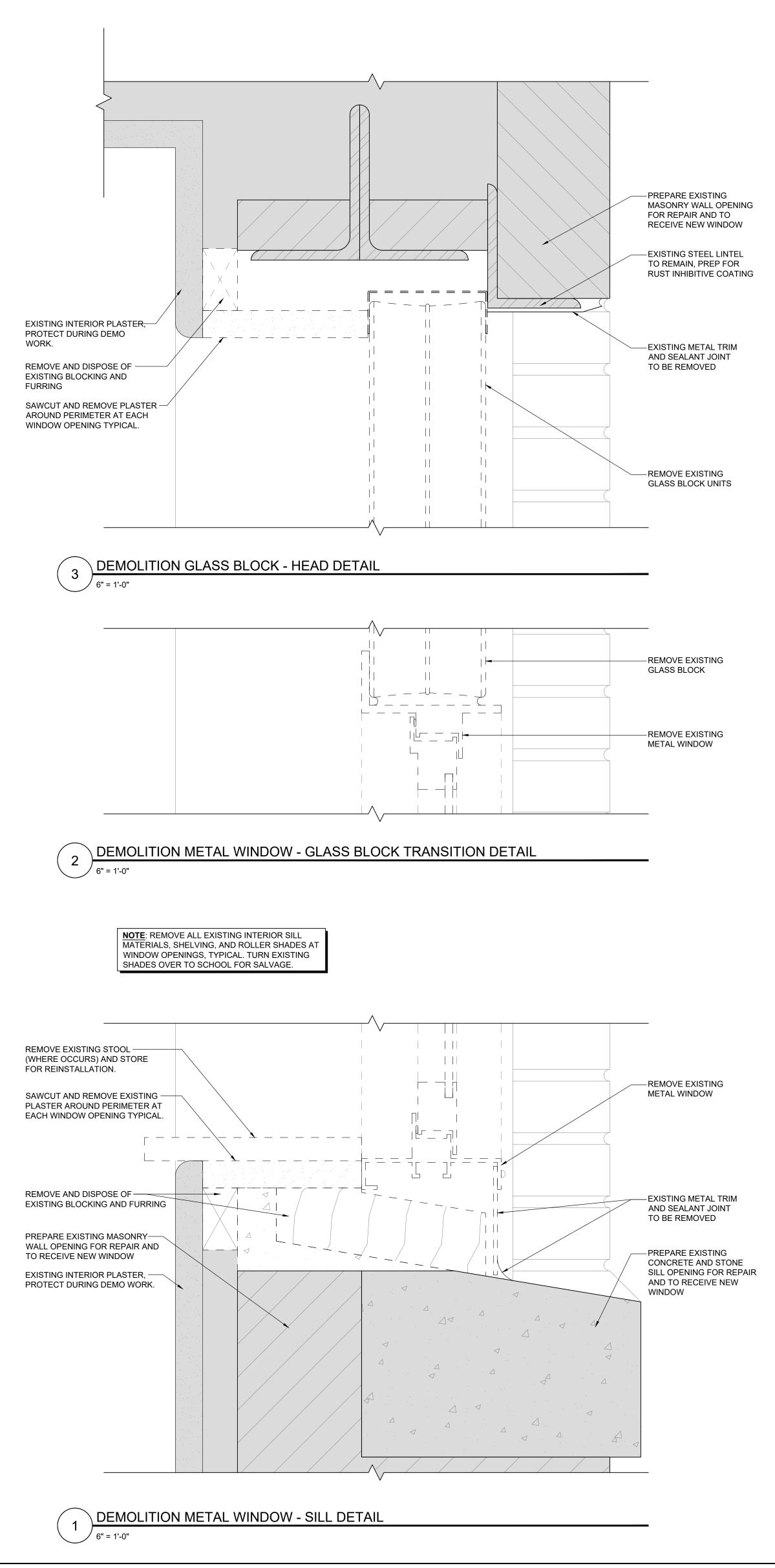
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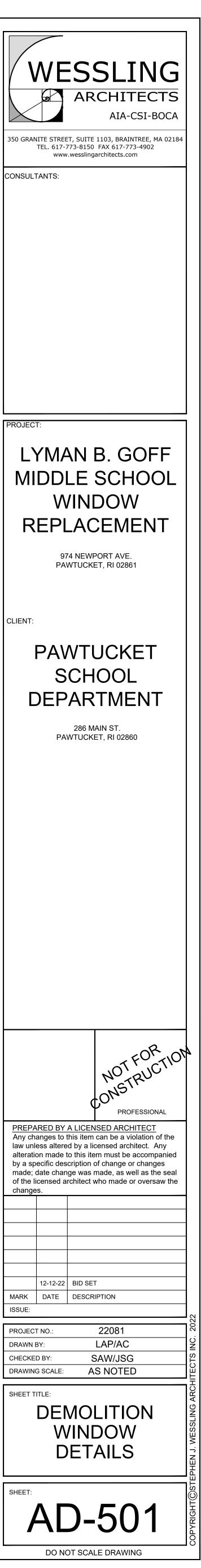


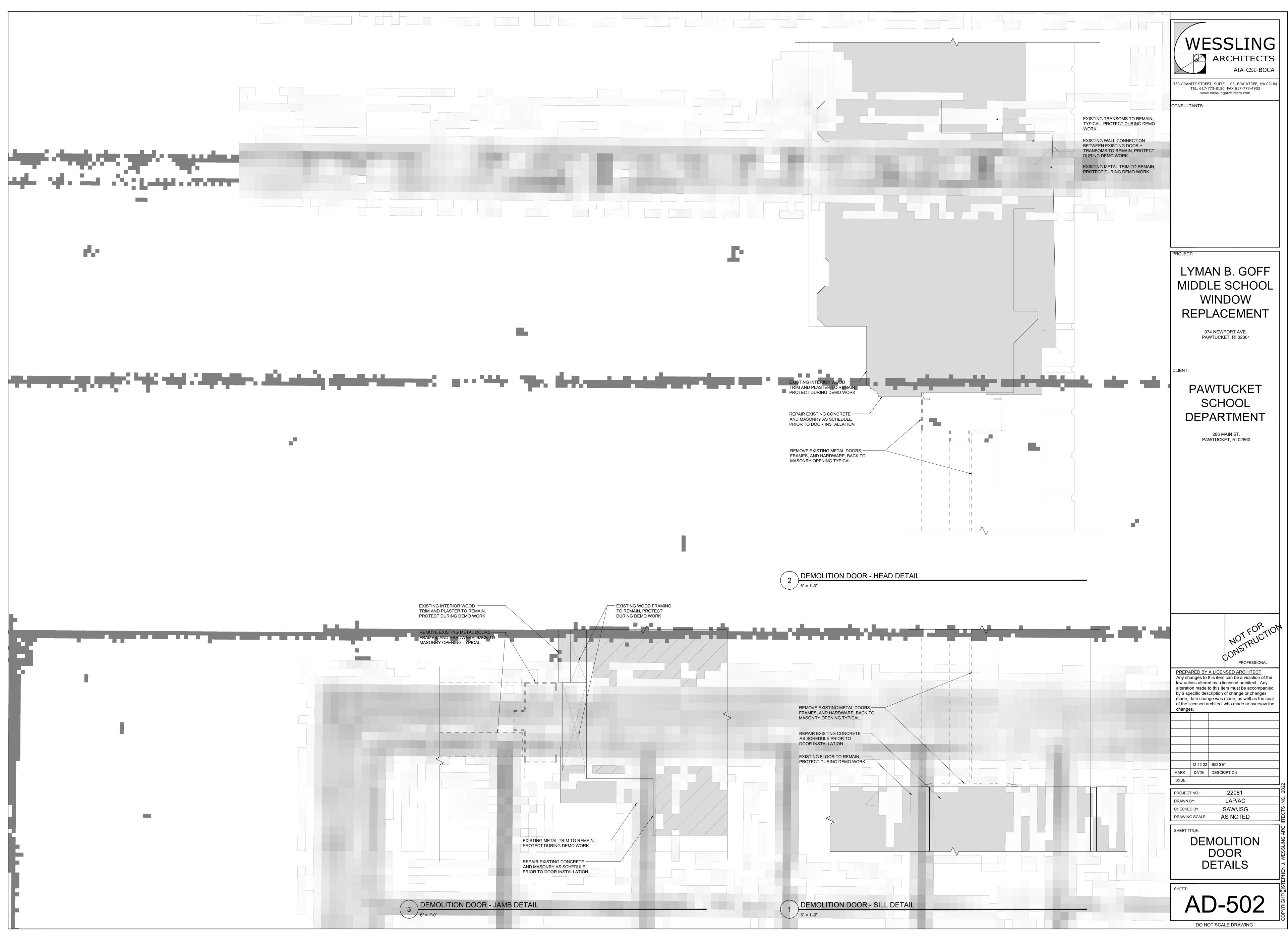




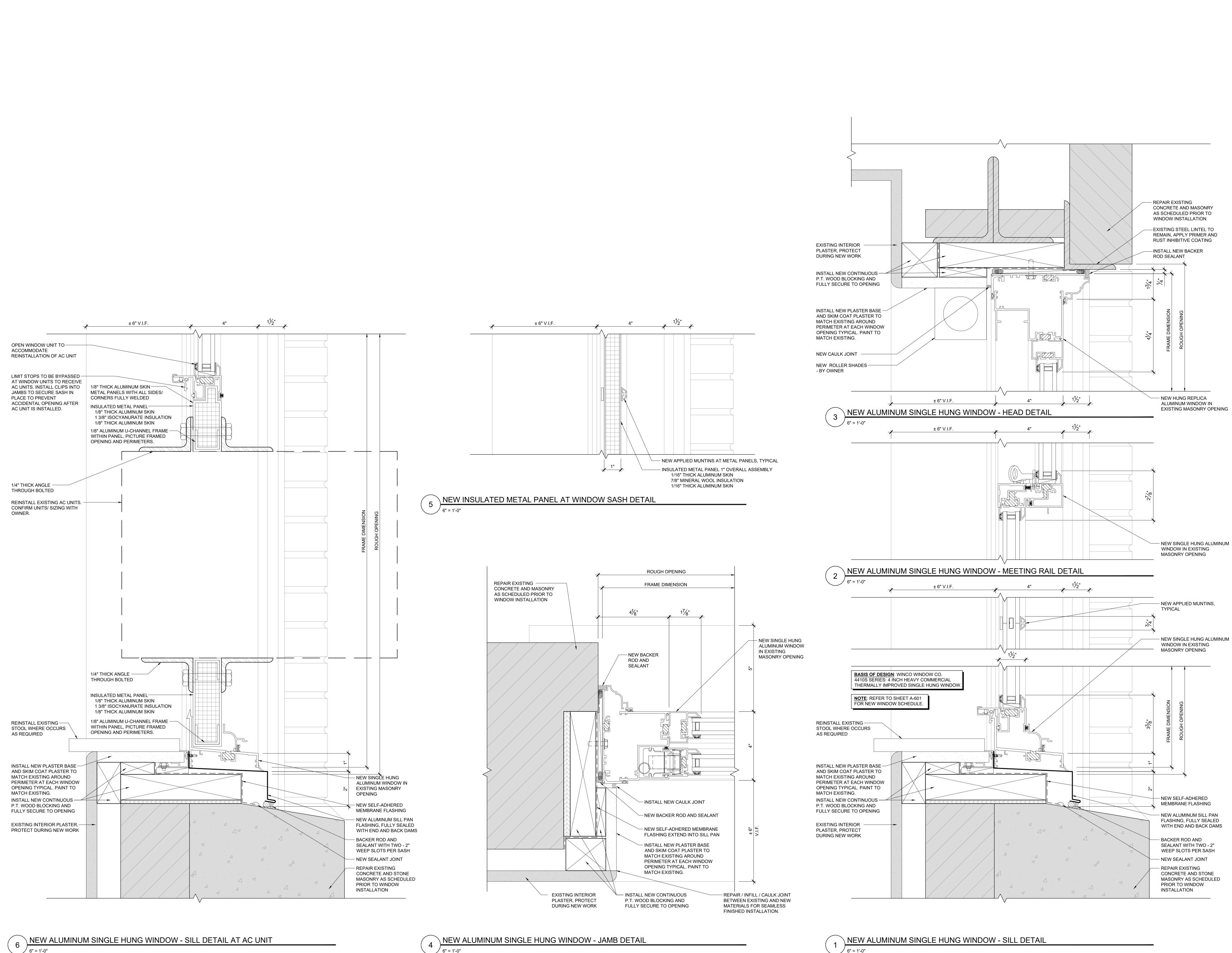






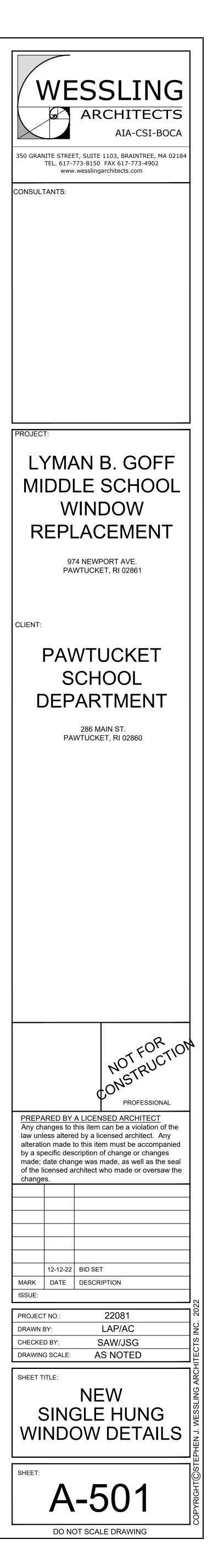


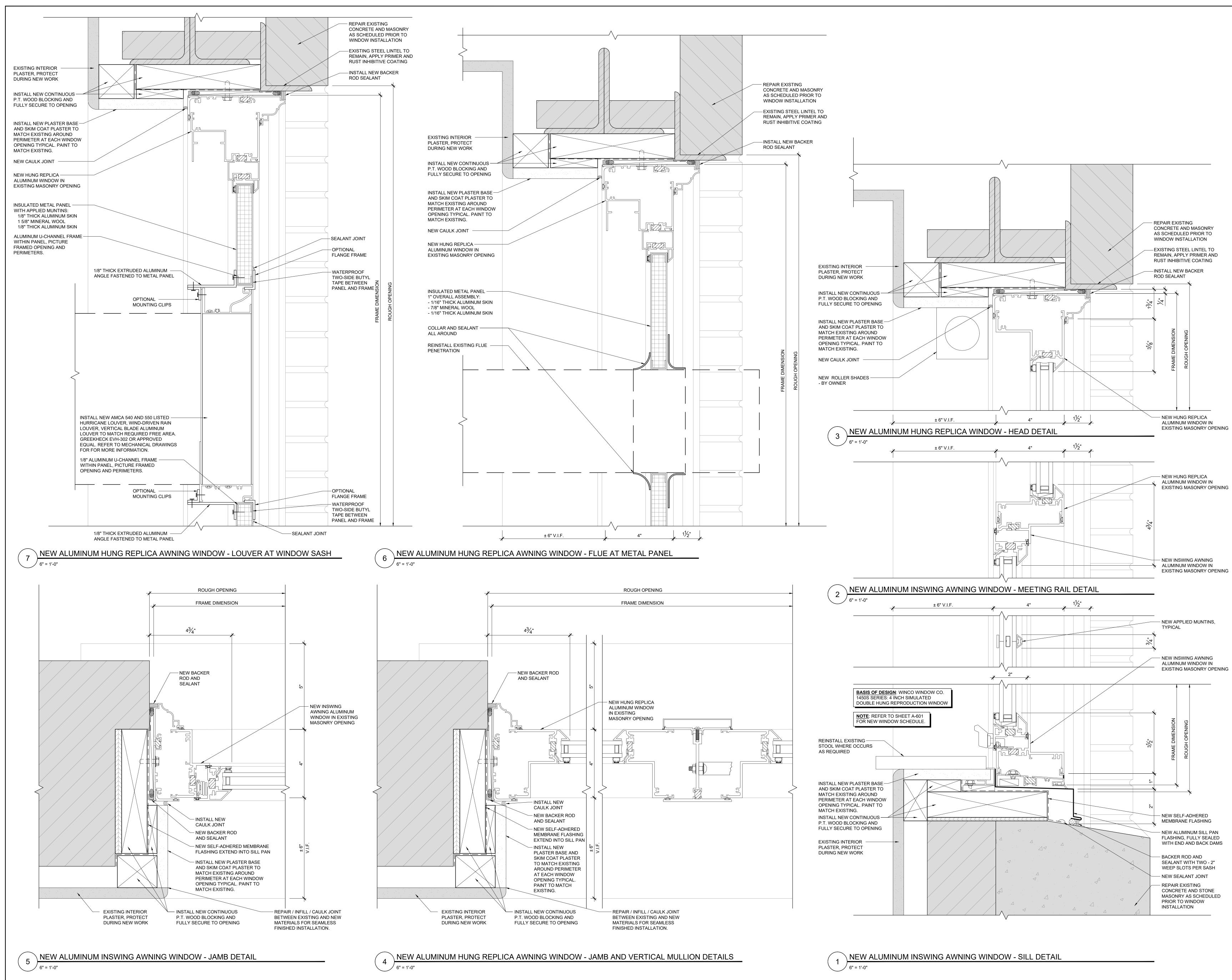
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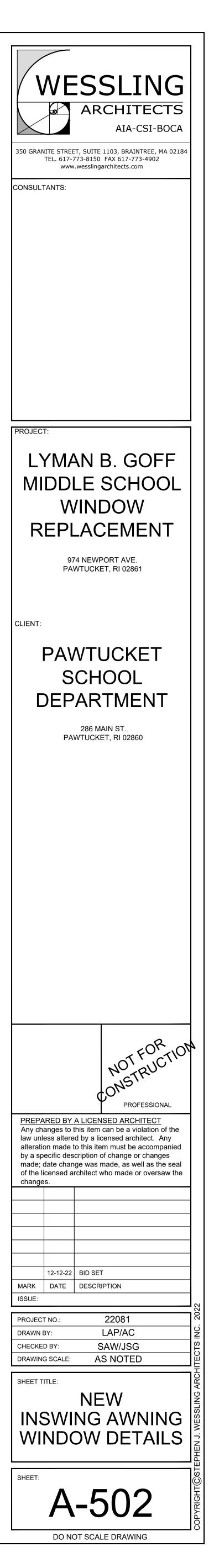
6" = 1'-0"

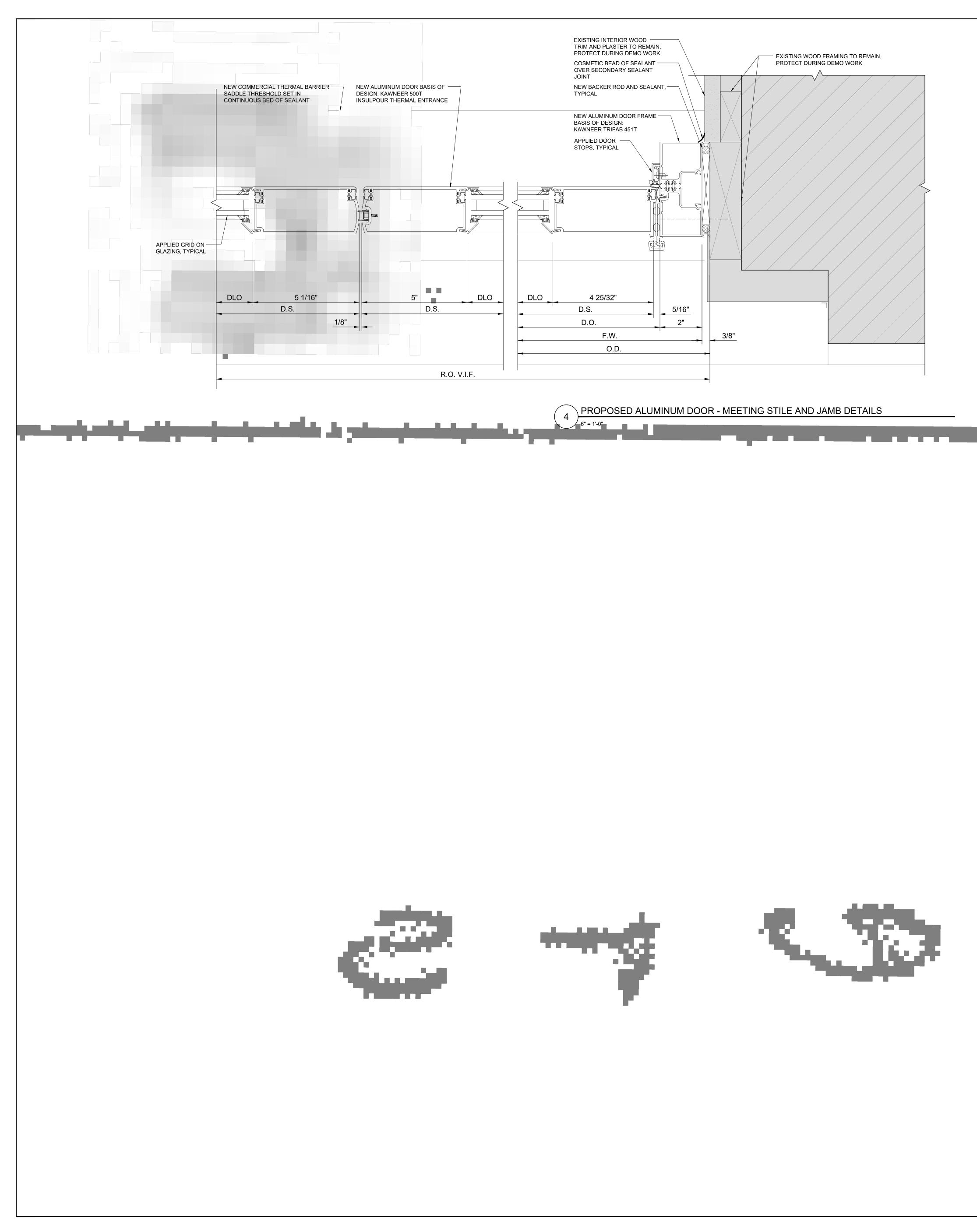
/ 6" = 1'-0"



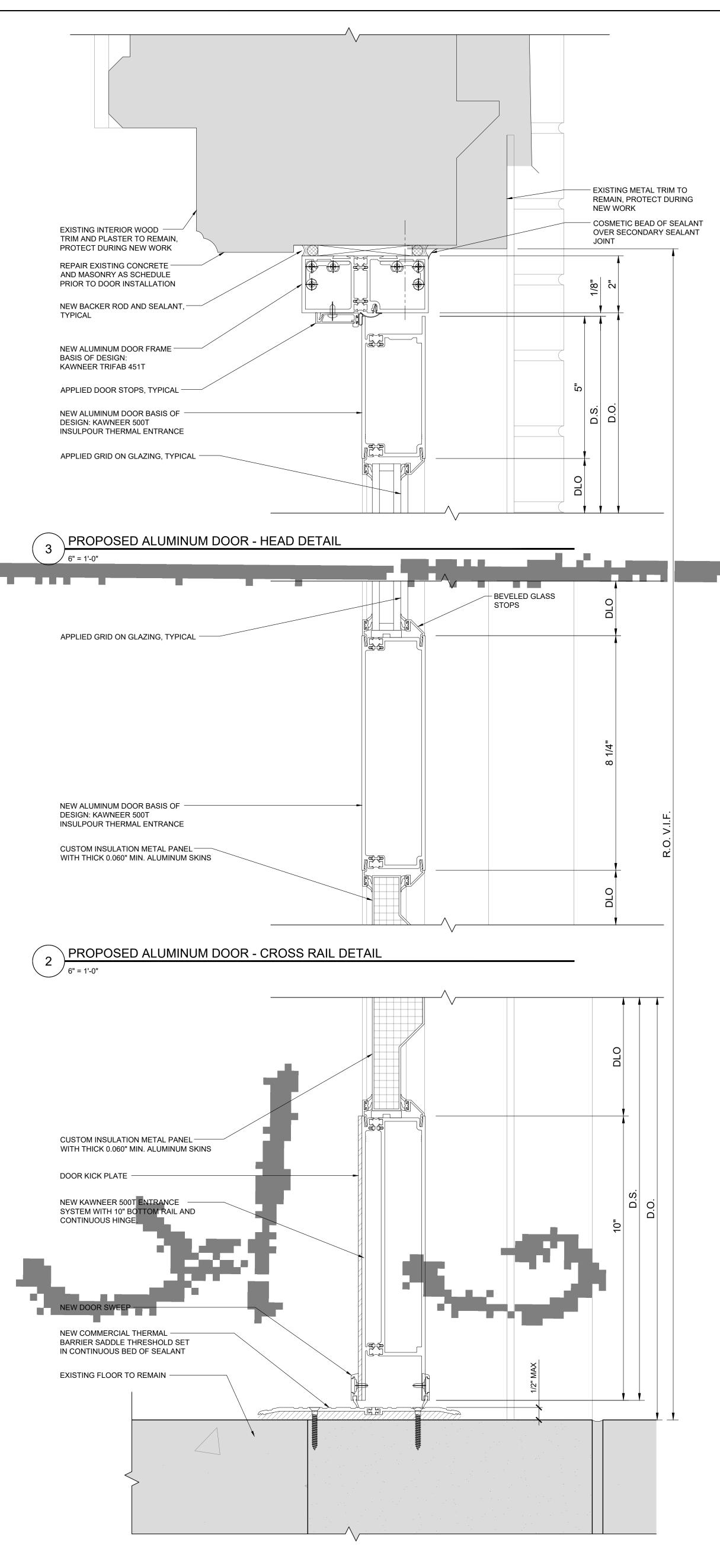


Draw Dec Xref:, Xref:i

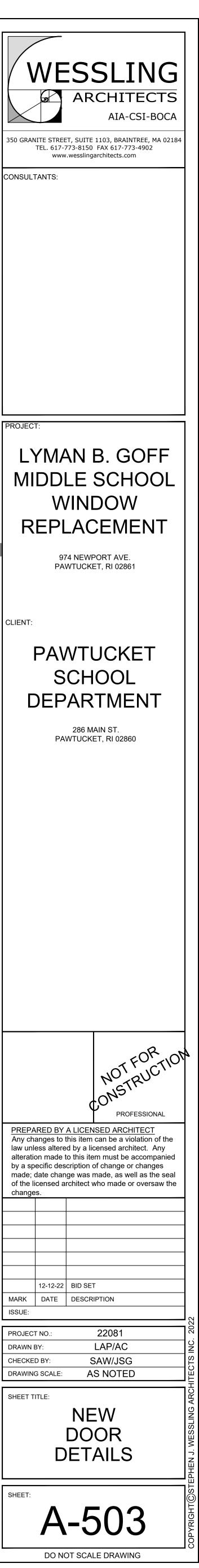




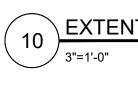
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PROPOSED ALUMINUM DOOR - SILL DETAIL



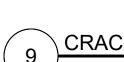
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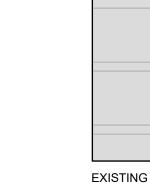


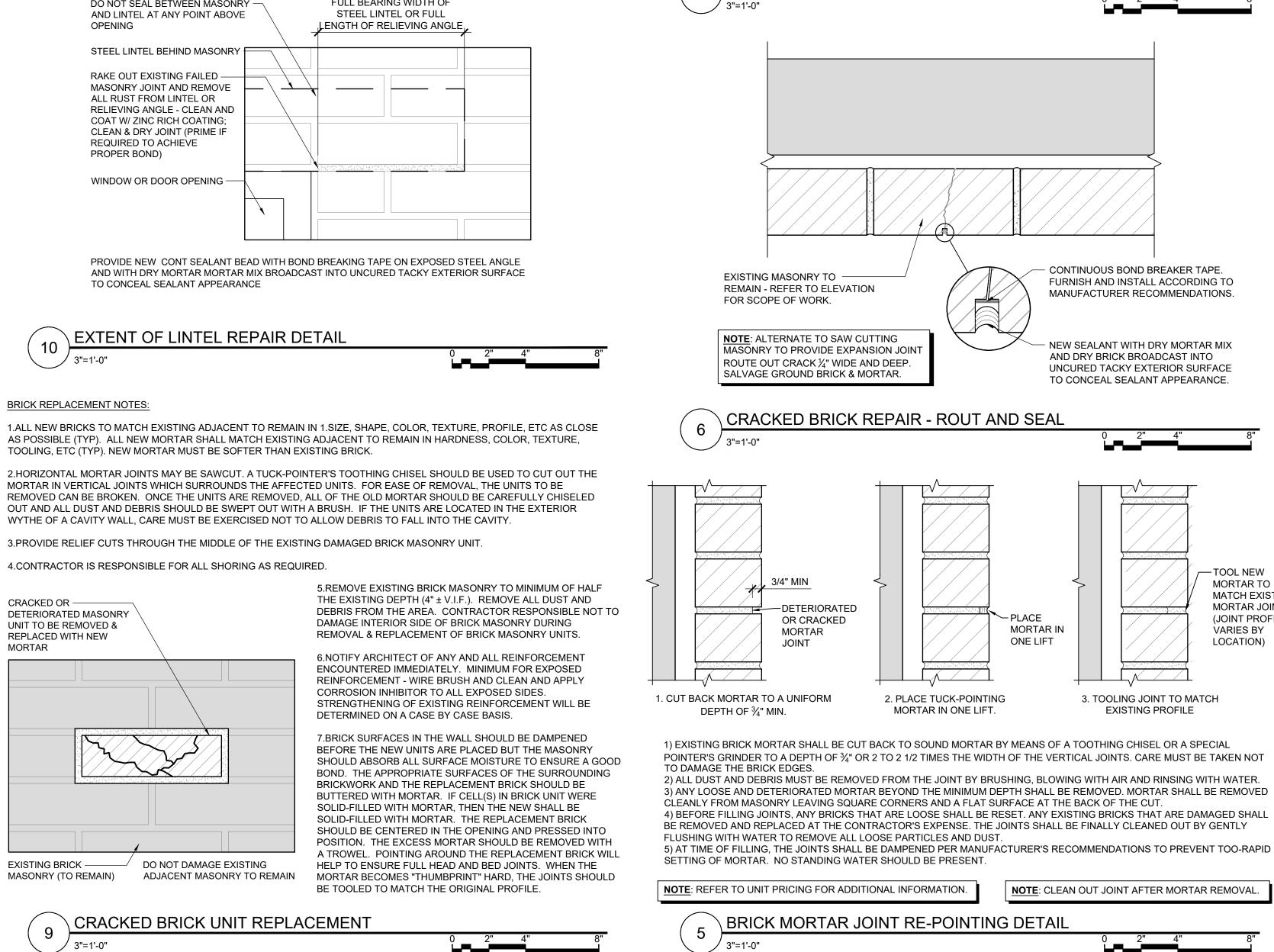
BRICK REPLACEMENT NOTES: TOOLING, ETC (TYP). NEW MORTAR MUST BE SOFTER THAN EXISTING BRICK.

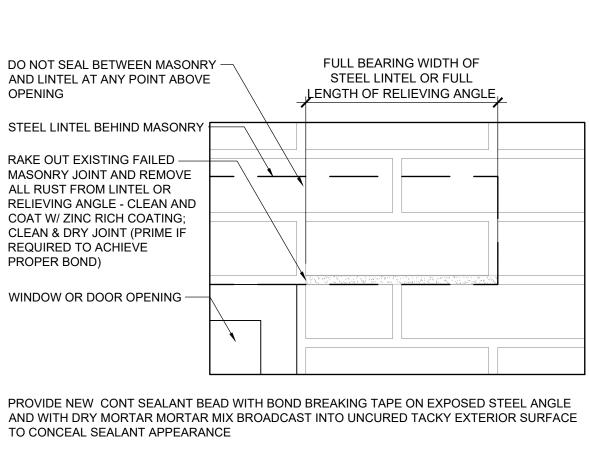
CRACKED OR ------DETERIORATED MASONRY UNIT TO BE REMOVED & REPLACED WITH NEW MORTAR

EXISTING BRICK -









- EXISTING BRICK MASONRY TO REMAIN.

BRICK UNIT REPLACEMENT DETAIL 3"=1'-0

BRICK TOOTH-IN DETAIL

NEW MORTAR TO MATCH EXISTING ADJACENT-MORTAR IN TYPE/COLOR, TEXTURE, SIZE, SHAPE AND PATTERN, TYPICAL. REMOVE AND INSTALL NEW BRICK - TOOTH-IN-TO EXISTING WALL. NEW BRICK TO MATCH EXISTING ADJACENT BRICK IN COLOR, SIZE, TEXTURE, SHAPE AND PATTERN, TYPICAL. EXISTING BACKUP WALL TO REMAIN.

REINFORCEMENT WILL BE DETERMINED ON A CASE BY CASE BASIS. 7.BRICK SURFACES IN THE WALL SHOULD BE DAMPENED BEFORE THE NEW UNITS ARE PLACED BUT THE MASONRY SHOULD ABSORB ALL SURFACE MOISTURE TO ENSURE A GOOD BOND. THE APPROPRIATE SURFACES OF THE SURROUNDING BRICKWORK AND THE REPLACEMENT BRICK SHOULD BE BUTTERED WITH MORTAR. IF CELL(S) IN BRICK UNIT WERE SOLID-FILLED WITH MORTAR, THEN THE NEW SHALL BE SOLID-FILLED WITH MORTAR. THE REPLACEMENT BRICK SHOULD BE CENTERED IN THE OPENING AND PRESSED INTO POSITION. THE EXCESS MORTAR SHOULD BE REMOVED WITH A TROWEL. POINTING AROUND THE REPLACEMENT BRICK WILL HELP TO ENSURE FULL HEAD AND BED JOINTS. WHEN THE MORTAR BECOMES "THUMBPRINT" HARD, THE JOINTS SHOULD BE TOOLED TO MATCH THE ORIGINAL PROFILE.

6.NOTIFY ARCHITECT OF ANY AND ALL REINFORCEMENT ENCOUNTERED IMMEDIATELY. MINIMUM FOR EXPOSED REINFORCEMENT - WIRE BRUSH AND CLEAN AND APPLY CORROSION INHIBITOR TO ALL EXPOSED SIDES. STRENGTHENING OF EXISTING

5.REMOVE EXISTING BRICK MASONRY TO MINIMUM OF HALF THE EXISTING DEPTH (4" ± V.I.F.). REMOVE ALL DUST AND DEBRIS FROM THE AREA. CONTRACTOR RESPONSIBLE NOT TO DAMAGE INTERIOR SIDE OF BRICK MASONRY DURING REMOVAL & REPLACEMENT OF BRICK MASONRY UNITS.

DUST AND DEBRIS SHOULD BE SWEPT OUT WITH A BRUSH. IF THE UNITS ARE LOCATED IN THE EXTERIOR WYTHE OF A CAVITY WALL, CARE MUST BE EXERCISED NOT TO ALLOW DEBRIS TO FALL INTO THE CAVITY. 3.PROVIDE RELIEF CUTS THROUGH THE MIDDLE OF THE EXISTING DAMAGED BRICK MASONRY UNIT. 4.CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AS REQUIRED.

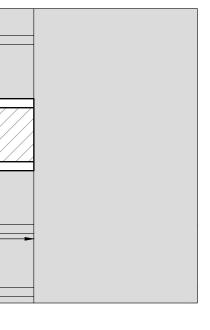
2.HORIZONTAL MORTAR JOINTS MAY BE SAWCUT. A TUCK-POINTER'S TOOTHING CHISEL SHOULD BE USED TO CUT OUT THE MORTAR IN VERTICAL JOINTS WHICH SURROUNDS THE AFFECTED UNITS. FOR EASE OF REMOVAL, THE UNITS TO BE REMOVED CAN BE BROKEN. ONCE THE UNITS ARE REMOVED, ALL OF THE OLD MORTAR SHOULD BE CAREFULLY CHISELED OUT AND ALL

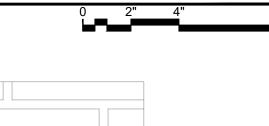
1.ALL NEW BRICKS TO MATCH EXISTING ADJACENT TO REMAIN IN 1.SIZE, SHAPE, COLOR, TEXTURE, PROFILE, ETC AS CLOSE AS POSSIBLE (TYP). ALL NEW MORTAR SHALL MATCH EXISTING ADJACENT TO REMAIN IN HARDNESS, COLOR, TEXTURE, TOOLING, ETC (TYP). NEW MORTAR MUST BE SOFTER THAN EXISTING BRICK.

BRICK REPLACEMENT NOTES:

_____ DO NOT DAMAGE EXISTING MASONRY (TO REMAIN) ADJACENT MASONRY TO REMAIN

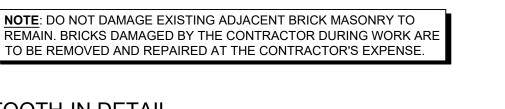
CRACKED BRICK UNIT REPLACEMENT

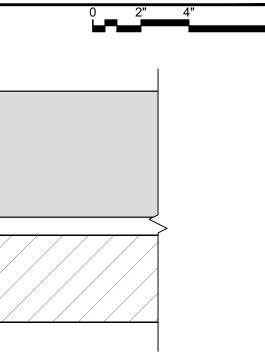






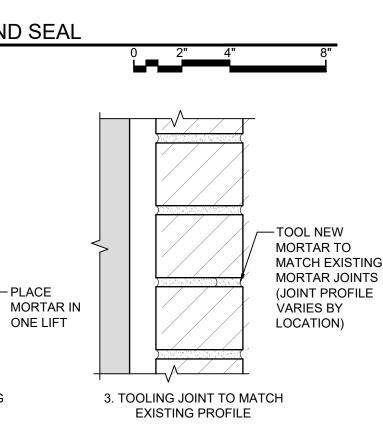
- REMOVE AND INSTALL NEW BRICK -TOOTH-IN TO EXISTING WALL. NEW BRICK TO MATCH EXISTING ADJACENT BRICK IN COLOR, SIZE, TEXTURE, SHAPE AND PATTERN, TYPICAL.



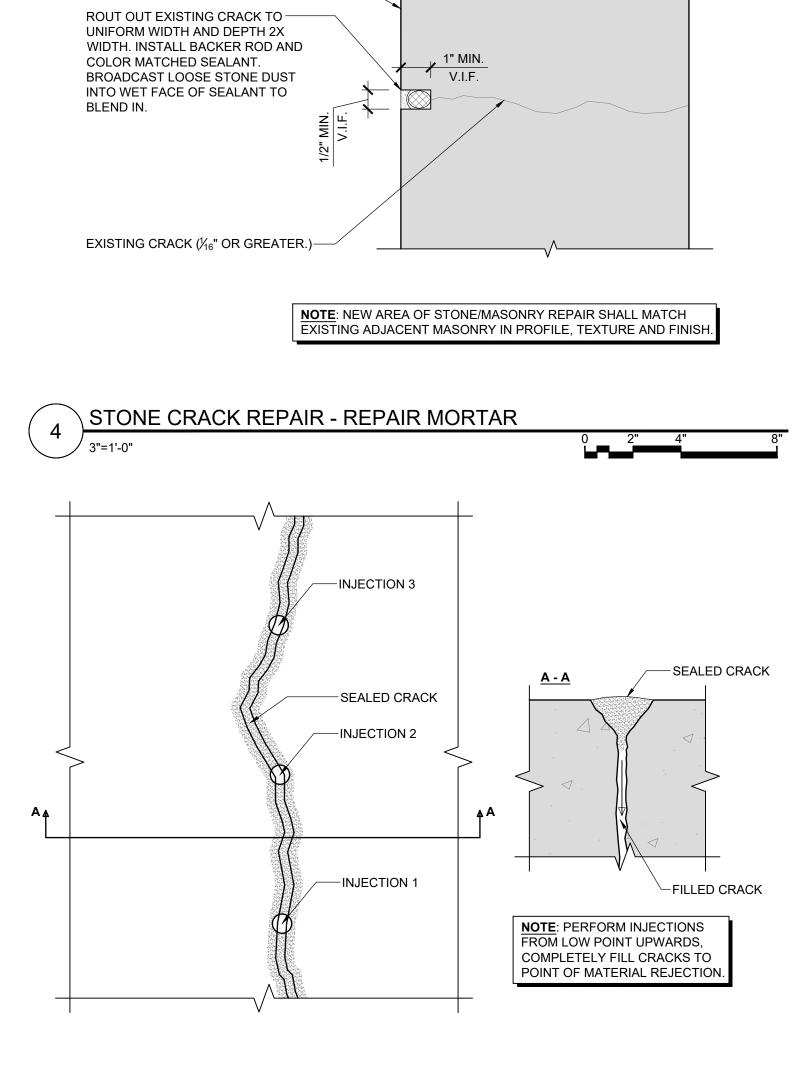


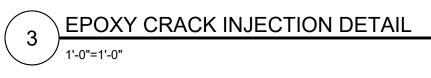
 CONTINUOUS BOND BREAKER TAPE. FURNISH AND INSTALL ACCORDING TO MANUFACTURER RECOMMENDATIONS.

NEW SEALANT WITH DRY MORTAR MIX AND DRY BRICK BROADCAST INTO UNCURED TACKY EXTERIOR SURFACE TO CONCEAL SEALANT APPEARANCE.



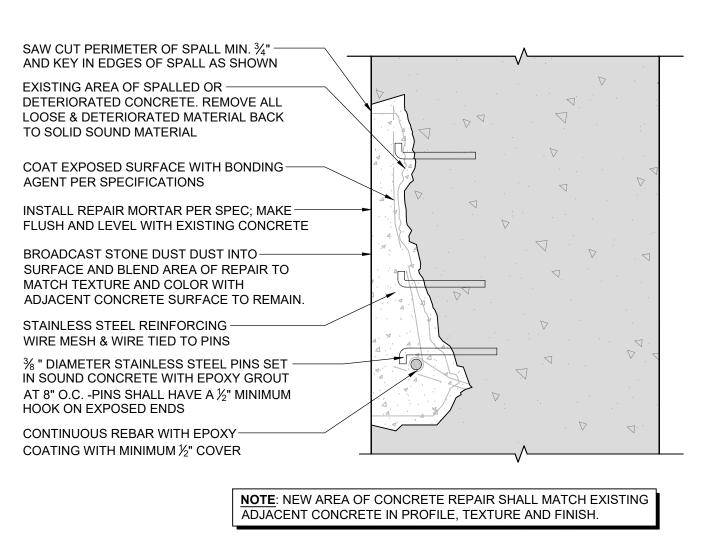
NOTE: CLEAN OUT JOINT AFTER MORTAR REMOVAL.



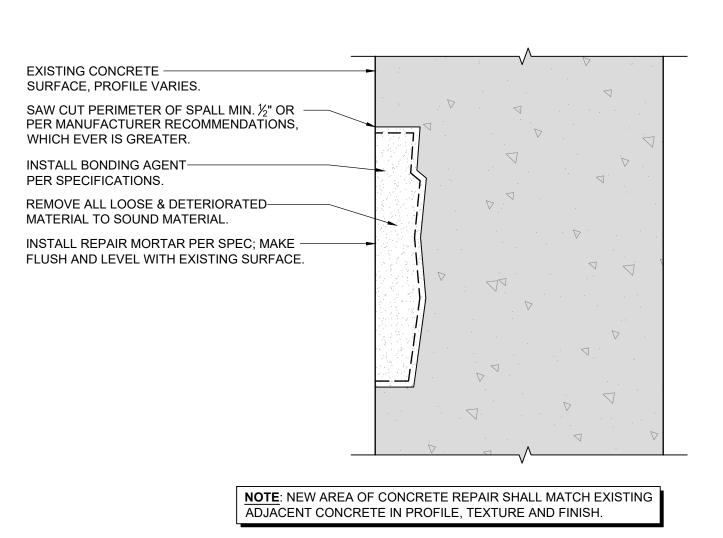


EXISTING STONE SURFACE.

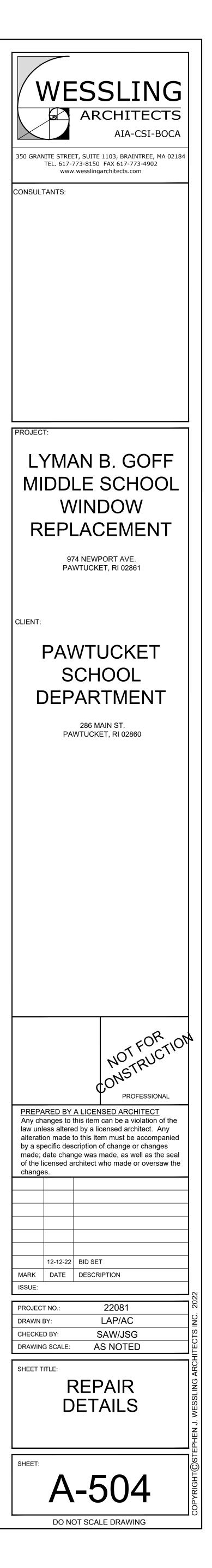
PROFILE VARIES

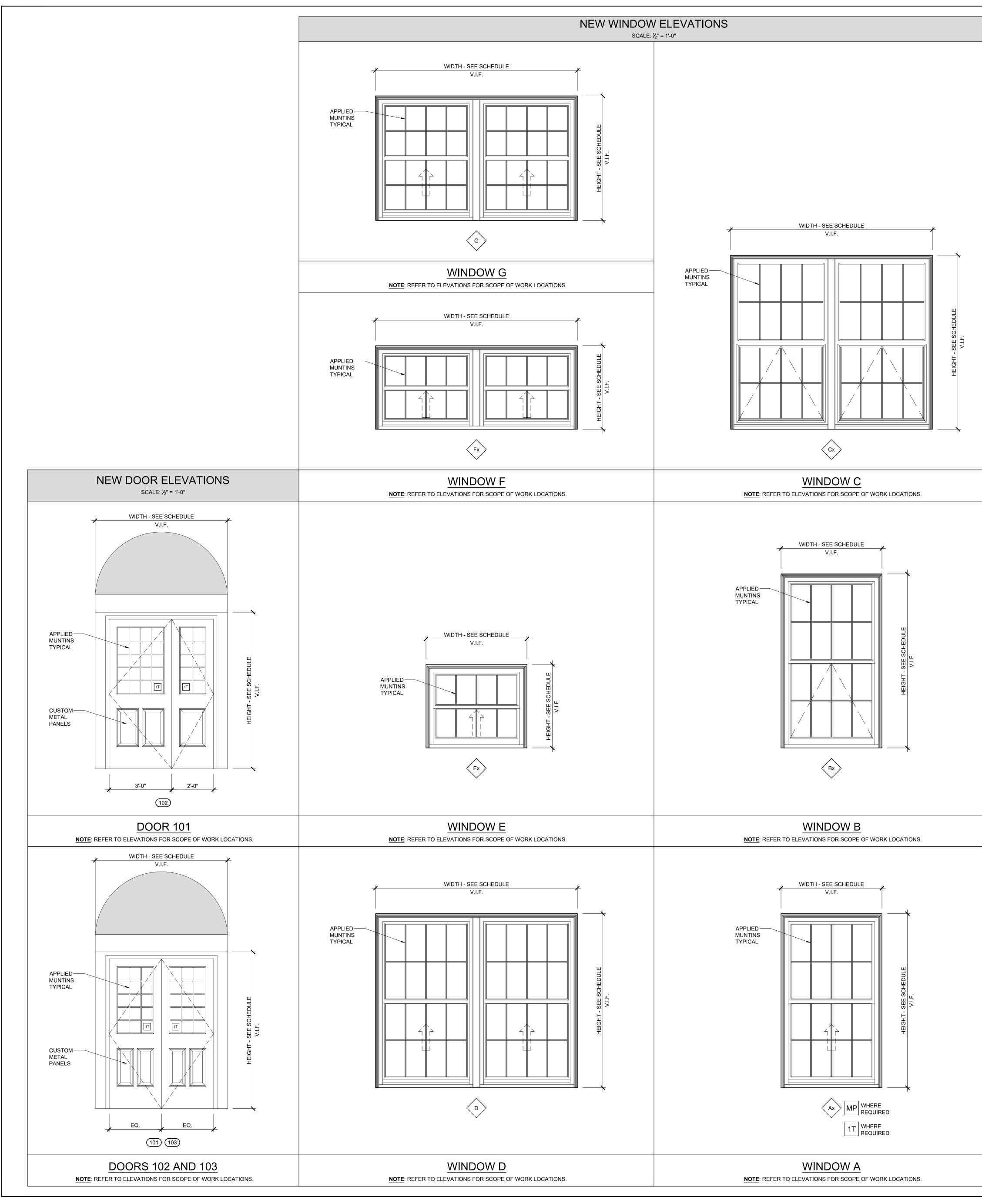


CONCRETE SPALL REPAIR - SEVERE 3"=1'-0"



CONCRETE SPALL REPAIR - MODERATE 3"=1'-0"





Drawing name: J.', SJW Dec 12, 2022 - 10:10ai Xref:J.', SJW2022/2081 (Xref:J:_,SJW2022/22081 (Xref:J:_,SJW2022/22081 (

IDOW D		
IS FOR SCOPE	OF WORK LOCATIONS.	

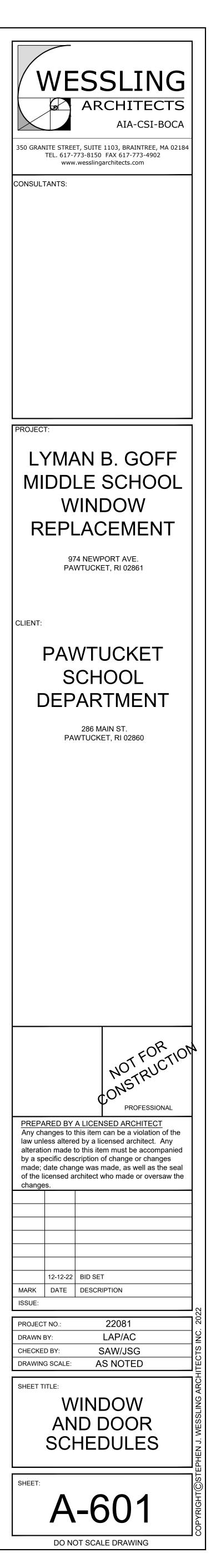
NEW WINDOW TYPE SCHEDULE											
ROUGH OPENING OTX OPER OLZ DETAIL											
MARK	WIDTH (± V.I.F.)	HEIGHT (± V.I.F.)	QTY (V.I.F.)	OPER ATION	GLZ TYPE	LITES	HEAD	JAMB	SILL	MTG RAIL	NOTES
A1	58"	100"	105	DH	1	8 OVER 8	3/A-501	4/A-501	1/A-501	2/A-501	APPLIED MUNTINS
A2	58"	84"	22	DH	1	8 OVER 8	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS
A3	58"	84"	4	DH	3	8 OVER 8	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS AUDITORIUM
A4	58"	100"	30	DH	1N	8 OVER 8	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS NORTH ELEVATION
A5	58"	84"	6	DH	1	8 OVER 8	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS
A6	58"	84"	2	FIXED	2	8 OVER 8	3/A-501 SIM.	4/A-501 SIM.	1/A-501 SIM.	2/A-501 SIM.	APPLIED MUNTINS GYMNASIUM
A7	58"	84"	2	FIXED	1N, 2	8 OVER 8	3/A-501 SIM.	4/A-501 SIM.	1/A-501 SIM.	2/A-501 SIM.	APPLIED MULLIONS GYMNASIUM, NORTH ELEVATION
A8	58"	84"	4	рн	1N, 3	8 OVER 8	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MULLIONS AUDITORIUM, NORTH ELEVATION
A9	48"	100"	2	рн	1N	8 OVER 8	3/A-501	4/A-501	1/A-501	2/A-501	APPLIED MULLIONS NORTH ELEVATION
В1	58"	100"	12	AWN	1	8 OVER 8	3/A-502	5/A-502	1/A-502	2/A-502	APPLIED MUNTINS
B2	58"	84"	5	AWN	1	8 OVER 8	3/A-502	5/A-502	1/A-502 SIM.	2/A-502	APPLIED MUNTINS
C1	116"	100"	36	AWN	1	16 OVER 16 / (2) 8 OVER 8	3/A-502	4&5/A-502	1/A-502	2/A-502	APPLIED MUNTINS
C2	116"	84"	9	AWN	1	16 OVER 16 / (2) 8 OVER 8	3/A-502	4&5/A-502	1/A-502 SIM.	2/A-502	APPLIED MUNTINS
C3	116"	84"	3	AWN	3	16 OVER 16 / (2) 8 OVER 8	3/A-502	4&5/A-502	1/A-502	2/A-502	APPLIED MUNTINS AUDITORIUM
C4	116"	100"	14	AWN	1N	16 OVER 16 / (2) 8 OVER 8	3/A-502	4&5/A-502	1/A-502	2/A-502	APPLIED MUNTINS NORTH ELEVATION
C5	116"	84"	3	AWN	1N	16 OVER 16 / (2) 8 OVER 8	3/A-502	4&5/A-502	1/A-502 SIM.	2/A-502	APPLIED MUNTINS NORTH ELEVATION
C6	116"	84"	2	FIXED	2	16 OVER 16 / (2) 8 OVER 8	3/A-502 SIM.	4&5/A-502 SIM.	1/A-502 SIM.	2/A-502 SIM.	APPLIED MUNTINS GYMNASIUM
C7	116"	84"	2	FIXED	1N, 2	16 OVER 16 / (2) 8 OVER 8	3/A-502 SIM.	4&5/A-502 SIM.	1/A-502 SIM.	2/A-502 SIM.	APPLIED MUNTINS GYMNASIUM, NORTH ELEVATION
C8	116"	84"	2	AWN	1N, 3	16 OVER 16 / (2) 8 OVER 8	3/A-502	4&5/A-502	1/A-502 SIM.	2/A-502	APPLIED MUNTINS AUDITORIUM, NORTH ELEVATION
	116"	100"	4	DH	1	16 OVER 16 / (2) 8 OVER 8	3/A-501	4&5/A-501	1/A-501	2/A-501	APPLIED MUNTINS
E1	58"	48"	1	DH	1	4 OVER 4	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS IN AREAWAY
E2	58"	48"	1	DH	1N	4 OVER 4	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS IN AREAWAY, NORTH ELEVATION
F1	116"	48"	1	DH	1	8 OVER 8 / (2) 4 OVER 4	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS IN AREAWAY
F2	116"	48"	1	DH	1N	8 OVER 8 / (2) 4 OVER 4	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS IN AREAWAY, NORTH ELEVATION
G	116"	72"	2	DH	1	16 OVER 16 / (2) 8 OVER 8	3/A-501	4/A-501	1/A-501 SIM.	2/A-501	APPLIED MUNTINS IN AREAWAY

PERFORMANCE REQUIREMENTS							
AIR		0.20 CFM/FT ²					
WATER		6.0 LB/FT ² MINIMUM					
MINIMUM STRUCTU	RAL PRESSURE	60 LB/FT ²					
DEFLECTION DESIG	N PRESSURE	L / 175					
U-VALUE		0.45					
SHG COEFFICIENT	SEW	0.51					
SHG COEFFICIENT	Ν	0.38					
DESIGN PRESSURE		40 PSF (ZONE 4 - FIELD WALL PRESSURE) 47 PSF (ZONE 5 - CORNER PRESSURE)					
PRODUCT DESIGNA	TION	H-HC40 (MINIMUM)					

WINDO	W AND F	RAME DESCRIPTION					
OPERATION	SINGLE HUNG W	INDOW - VERTICAL SLIDING					
GRIDS	APPLIED DIVIDED	DLITES					
FRAME	ALUMINUM						
	GLAZING TYPES						
MAR	K	NOTES					
1		1" VISION I.G.U SHGC 0.51 (SEW)					
1T		1" VISION I.G.U TEMPERED					
1N		1" VISION I.G.U SHGC 0.38 (N)					
2		CATEGORY II LAMINATED					
3		OBSCURED					
MF	,	INSULATED METAL PANEL 1" OVERALL ASSEMBLY γ_{6} " THICK ALUMINUM SKIN γ_{8} " ISOCYANURATE INSULATION OR MINERAL WOOL γ_{16} " THICK ALUMINUM SKIN					

NEW DOOR SCHEDULE

	ROUGH OPENING		QTY	GLZ	17	DETAIL				HARDWARE	
MARK	WIDTH (± V.I.F.)	HEIGHT (± V.I.F.)	(V.I.F.)	TYPE		HEAD	JAMB	SILL	CROSS RAIL	SET	NOTES
(101)	76"	90"	1	1T / MP	30	3/A-503	4/A-503	1/A-503	2/A-503	1	LEVER HANDLE AT EXTERIOR PANIC HARDWARE AT INTERIOR MAG SAFE LOCK AND READER AT DOOR FRAME
(102)	76"	90"	1	1T / MP	30	3/A-503	4/A-503	1/A-503	2/A-503	2	-
(103)	76"	90"	1	1T / MP	30	3/A-503	4/A-503	1/A-503	2/A-503	2	-



/IARK	TYPE	NOTES
208	A4	-
209	C4	-
210	A4	-
211	A4	TEMPERED GLASS
212	A4	KILN HOOD AT WINDOW OPENING; MODIFY DUCTWORK - REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION. FIX WINDOW CLOSED.
213	C4	-
214	A4	-
215	A4	-
216	C4	-
217	A4	-
218	A4	-
219	C4	-
220	A4	TEMPERED GLASS
221	A4	TEMPERED GLASS
222	C4	-
223	A4	-
224	A4	-
225	C4	-
226	A4	
227 228	A4 A4	TEMPERED GLASS
220	C4	-
229	A4	-
231	A4	- -
232	C4	-
233	A4	AC UNIT - REFER TO DETAIL 6/A-501
234	A4	-
235	C4	-
236	A4	-
237	A4	-
238	C4	-
239	A4	-
240	A5	TEMPERED AND OBSCURED GLASS (EXERCISE ROOM)
241	C5	TEMPERED AND OBSCURED GLASS (EXERCISE ROOM)
242	A5	TEMPERED AND OBSCURED GLASS (EXERCISE ROOM)
243	A5	OBSCURED GLASS
244	C5	OBSCURED GLASS
245	A5	OBSCURED GLASS
246 247	A5 C5	OBSCURED GLASS OBSCURED GLASS
247 248	A5	OBSCURED GLASS
240	C7	CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM)
250	A7	CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM)
251	A7	CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM)
252	C7	CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM)
253	F2	-
254	E2	-
255	A4	-
256	C4	-
257	A4	-
258	A4	-
259	C4	-
260	A4	
261	A9	TEMPERED GLASS
262	A4	-
263	C4	-
264	A4	-
265 266	A4 C4	- _
266	C4 A4	-
267	A4 A9	- TEMPERED GLASS
269	A9 A8	OBSCURED GLASS (AUDITORIUM)
203	C8	OBSCURED GLASS (AUDITORIUM)
271	A8	OBSCURED GLASS (AUDITORIUM)
272	A8	OBSCURED GLASS (AUDITORIUM)

NEV	V WIN	DC
MARK	TYPE	
139	A1	-
140	C1	-
141	A1	-
142	A1	-
143	C1	-
144	A1	AC
145 146	A1 C1	-
147	A1	-
148	A1	-
149	C1	-
150	A1	-
151	A1	TEN
152	A1	-
153 154	C1 A1	-
155	A1	-
156	C1	-
157	A1	TEN
158	A1	TEN
159	C1	-
160	A1	-
161	A1	-
162 163	C1 A1	-
164	A1	-
165	C1	-
166	A1	-
167	A1	TEN
168	A1	-
169	C1	-
170 171	A1 C3	- OBS
172	A3	OBS
173	C3	OBS
174	A3	OBS
175	A3	OBS
176	C3	OBS
177 178	A3 A2	OBS
179	A2	TEN
180	A2	TEN
181	A1	-
182	C1	-
183	A1	-
184	A1	-
185 186	C1 A1	-
180	A1	-
188	C1	-
189	A1	AC
190	A1	-
191	C1	-
192	A1	-
193 194	A1 C1	-
134	A1	-
195		-
195 196	A1	
	A1 C1	-
196		- AC
196 197	C1	CAT
196 197 198 199 200	C1 A1 C6 A6	CAT CAT
196 197 198 199 200 201	C1 A1 C6 A6 A6	CAT CAT CAT
196 197 198 199 200 201 202	C1 A1 C6 A6 A6 C6	CAT CAT CAT CAT
196 197 198 199 200 201 202 203	C1 A1 C6 A6 A6 C6 A2	CAT CAT CAT CAT OBS
196 197 198 199 200 201 202	C1 A1 C6 A6 A6 C6	CAT CAT CAT CAT
196 197 198 199 200 201 202 203 204	C1 A1 C6 A6 A6 C6 A2 C2	CAT CAT CAT CAT OBS OBS

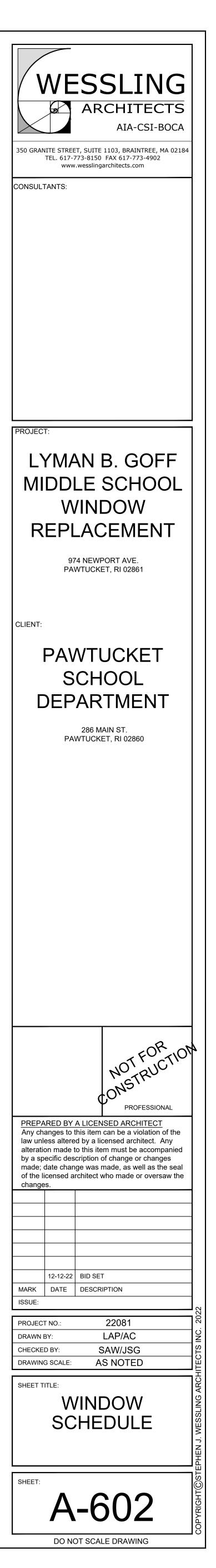
NE		NDOW SCHEDULE - EAST ELEVATION 1/A-204
MARK	TYPE	NOTES
275	A1	TEMPERED GLASS

١	DOW SCHEDULE - SOUTH ELEVATIONS A-203
	NOTES
	-
	-
	-
	-
	AC UNIT - REFER TO DETAIL 6/A-501 -
	-
	-
	- -
	- TEMPERED GLASS
	-
	-
	-
	-
	TEMPERED GLASS TEMPERED GLASS
	- -
	-
	-
	- TEMPERED GLASS
	-
	-
	OBSCURED GLASS (AUDITORIUM) OBSCURED GLASS (AUDITORIUM)
	OBSCURED GLASS (AUDITORIUM)
	OBSCURED GLASS (AUDITORIUM)
	OBSCURED GLASS (AUDITORIUM)
	OBSCURED GLASS (AUDITORIUM)
	- TEMPERED GLASS
	TEMPERED GLASS
	-
	-
	-
	- -
	- -
	AC UNIT - REFER TO DETAIL 6/A-501
	- -
	-
	-
	-
	-
	AC UNIT - REFER TO DETAIL 6/A-501
	CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM)
	CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM) CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM)
	CATEGORY II LAMINATED GLASS; FIX WINDOW CLOSED (GYMNASIUM)
	OBSCURED GLASS
_	OBSCURED GLASS
	OBSCURED GLASS
	-

NE	W WIN	NDOW SCHEDULE - WEST ELEVATIONS A-202
MARK	TYPE	NOTES
079	A1	-
080	C1	-
081	A1	-
082	A1	-
083	C1	-
084	A1	-
085	A1	OBSCURED GLASS
086	A1	TEMPERED GLASS
087	D	AC UNIT - REFER TO DETAIL 6/A-501
088	C1	-
089	A1	-
090	A1	-
091	C1	-
092	A1	-
093	D	-
094	A1	TEMPERED GLASS
095	A1	OBSCURED GLASS
096	A1	TEMPERED GLASS
097	A1	-
098	A1	-
099	A1	-
100	B1	-
101	B1	-
102	A1	-
103	A1	-
104	A1	-
105	A1	-
106	C1	-
107	A1	-
108 109	A1 C1	-
109	A1	-
111	A1	- OBSCURED GLASS
112	A1	TEMPERED GLASS
112	D	AC UNIT - REFER TO DETAIL 6/A-501
114	C1	
115	A1	AC UNIT - REFER TO DETAIL 6/A-501
116	A1	AC UNIT - REFER TO DETAIL 6/A-501
117	C1	OBSCURED GLASS
118	A1	AC UNIT - REFER TO DETAIL 6/A-501
119	D	AC UNIT - REFER TO DETAIL 6/A-501
120	A1	TEMPERED GLASS
121	A1	OBSCURED GLASS
122	A1	HOT WATER TANK WITH VENT AND INTAKE THROUGH WINDOW - REFER TO DETAIL 6&7/A-502; FIX WINDOW CLOSED.
123	A1	-
124	A1	-
125	A1	KITCHEN EQUIPMENT UNIT WITH VENT THROUGH WINDOW - REFER TO DETAIL 6/A-502; FIX WINDOW CLOSED.
126	B1	KITCHEN EQUIPMENT UNIT WITH VENT THROUGH WINDOW - REFER TO DETAIL 6/A-502; FIX WINDOW CLOSED.
127	B1	-
128	A1	-
129	A1	OBSCURED GLASS
130	A1	-
131	C2	OBSCURED GLASS
132	C2	TEMPERED AND OBSCURED GLASS
133	B2	OBSCURED GLASS
134	A2	OBSCURED GLASS
135	A2	OBSCURED GLASS
136	A2	OBSCURED GLASS
137	G	OBSCURED GLASS
138	G	OBSCURED GLASS

NEW WINDOW SCHEDULE - EAST ELEVATION A-201

NI	EW W	INDOW SCHEDULE - EAST ELEVATION A-201
MARK	TYPE	NOTES
001	B1	-
002	A1	VENTILATION UNIT WITH LOUVER THROUGH WINDOW - REFER TO DETAIL 7/A-502
003	B1	-
004	A1 C1	- -
005	A1	-
007	A1	
008	C1	
009	A1	-
010	A1	-
011	C1	-
012	A1	-
013	A1	-
014	A1	-
015	A1	-
016	A1	-
017	C1	-
018	A1	-
019	A1	-
020	C1	-
021 022	A1 A1	- AC UNIT - REFER TO DETAIL 6/A-501
022	C1	-
023	A1	-
025	B1	-
026	A1	VENTILATION UNIT WITH LOUVER THROUGH WINDOW - REFER TO DETAIL 7/A-502
027	B1	-
028	B1	-
029	A1	VENTILATION UNIT WITH LOUVER THROUGH WINDOW - REFER TO DETAIL 7/A-502
030	B1	-
031	A1	AC UNIT - REFER TO DETAIL 6/A-501
032	C1	-
033	A1	-
034	A1	AC UNIT - REFER TO DETAIL 6/A-501
035	C1	
036	A1 A1	AC UNIT - REFER TO DETAIL 6/A-501
037	C1	-
039	A1	
040	A1	TEMPERED GLASS
041	A1	TEMPERED GLASS
042	A1	TEMPERED GLASS
043	A1	AC UNIT - REFER TO DETAIL 6/A-501
044	C1	-
045	A1	-
046	A1	-
047	C1	-
048	A1	-
049	A1	AC UNIT - REFER TO DETAIL 6/A-501
050	C1	-
051	A1	-
052 053	B1	
053	A1 B1	VENTILATION UNIT WITH LOUVER THROUGH WINDOW - REFER TO DETAIL 7/A-502
054	B2	- -
055	A2	-
057	B2	-
058	A2	-
059	C2	-
060	A2	-
061	A2	-
062	C2	-
063	A2	-
064	A2	-
065	C2	-
066	A2	-
067	A2	AC UNIT - REFER TO DETAIL 6/A-501
068	C2	-
069	A2	-
070	A2	-
071	C2	-
072	A2	-
073 074	A2 C2	- -
074	C2 A2	- -
075	B2	- TEMPERED AND OBSCURED GLASS (EXERCISE ROOM)
076	A2	TEMPERED AND OBSCURED GLASS (EXERCISE ROOM)
077	B2	TEMPERED AND OBSCURED GLASS (EXERCISE ROOM)
-		



HVAC	GENERAL NOTES:	
	THE FOLLOWING NOTES ARE GENERAL IN NATURE. IF A CONFLICT OCCURS BETWEEN THESE NOTES AND T L APPLY.	THE SPECI
	EXAMINE ALL DRAWINGS AND THE SPECIFICATION FOR THE WORK REQUIREMENTS OF THIS SECTION. REFER	R TO THE
CON	HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS SHALL BE DETERMI DITIONS. EQUIPMENT OR DUCTS INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIP RMOSTAT LOCATIONS SHALL BE APPROVED BY THE ARCHITECT BEFORE THE INSTALLATION.	
JURI	ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTY MUNIC SDICTION OVER CONSTRUCTION WORK OF THE PROJECT. ALL REQUIRED PERMITS SHALL BE OBTAINED, PAIL PLETION OF THE WORK.	
	INSTALLATION PROCEDURES, METHODS, AND CONDITIONS SHALL COMPLY WITH THE LATEST REQUIREMENTS TH ACT (OSHA).	OF THE F
WOR	THE HVAC CONTRACTOR SHALL GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCE KMANSHIP AND INSTALLATION. THE HVAC CONTRACTOR SHALL CORRECT DEFECTIVE WORK AT NO ADDITIONA PMENT WARRANTIES TO THE OWNER IN FULL FORCE.	
BE N SPAC	PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIALS, THE PRODUCT DATA SHALL BE SUBMITTED FOR R IEW AND WITHOUT BLEMISH OR DEFECT. SUBSTITUTED EQUIPMENT OR OPTIONAL EQUIPMENT WHERE PERM CE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER AP IRACTOR'S EXPENSE.	MITTED AN
ANY	THE HEATING, VENTILATING AND AIR CONDITIONING TRADE IS REQUIRED TO SUPPLY ALL NECESSARY SUPE OTHER TRADES WHO ARE TO SUPPLY WORK TO ACCOMMODATE THE HEATING, VENTILATING AND AIR COND ORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW TIMEL IECT.	ITIONING I
PERF THE	CUTTING, CORING, DRILLING AND PATCHING OF HOLES AND OPENINGS IN ALL THE STRUCTURAL WALLS FO ORMED BY THE PARTICULAR SUBCONTRACTOR WHEN THE LARGEST DIMENSION OF THE OPENING IS 4 INCI OPENING EXCEEDS 4 INCHES, THE GENERAL CONTRACTOR SHALL PERFORM THE CUTTING AND PATCHING 1 WORK SHALL BE COORDINATED WITH THE G.C.	HES OR L
MINO	ALL WORK SHALL BE INSTALLED SO THAT PARTS REQUIRING PERIODIC INSPECTION, OPERATION, MAINTENAI R DEVIATION FROM THE DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES OF SUBSTANTIAL N TEN APPROVAL FROM THE ENGINEER/ARCHITECT.	
REQL	THE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL REVIEW EQUIPMENT INSTALLATION MANUAL TO JIRED BEFORE WORK IS COMMENCED. THIS CONTRACTOR SHALL COORDINATE LOCATION OF ACCESS PANELS PANELS SHALL BE FURNISHED BY HVAC CONTRACTOR AND INSTALLED BY GC.	
	THIS TRADE SHALL COORDINATE DUCT AND EQUIPMENT INSTALLATION WITH EXISTING EQUIPMENT, DUCTS, A CONFLICTS WITH OTHER TRADES IN THE FIELD PRIOR TO INSTALLATION AT NO EXTRA COST TO THE OWNE	
13.	G.C. SHALL HIRE A LICENSED PLUMBER TO PERFORM THE PLUMBING PART OF MECHANICAL WORK RELATE	ED TO WA
	G.C. SHALL REACTIVE THE UNIT VENTILATOR'S, AC'S, HOT WATER HEATER, KITCHEN OVENS AND HOOD AFTI PERLY.	ER RECON
	G.C. RESPONSIBILITY IS TO REMOVE AND REINSTALL UNIT VENTILATOR, HOT WATER HEATER, KITCHEN OVEN ALLATION METHOD.	NS AND H

CIFICATIONS, THE MORE STRINGENT IE SCOPE OF WORK SUMMARY IN THE FIELD AND BY ACTUAL BUILDING NO ADDITIONAL COST TO THE OWNER. ID OTHER AUTHORITIES EXERCISING AND MADE AVAILABLE AT THE E FEDERAL OCCUPATIONAL SAFETY AND AGAINST DEFECTS IN MATERIALS, TO THE OWNER AND PROVIDE

ALL EQUIPMENT AND MATERIALS SHALL AND APPROVED, MUST CONFORM TO O OR NOT, SHALL BE REPLACED AT THE

AND COORDINATION INFORMATION TO INSTALLATIONS. WORK SHALL BE EFFICIENT COMPLETION OF THE

WORK OF SUB-TRADES SHALL BE & LESS. IF THE LARGEST DIMENSION OF E WORK OF THE SUBCONTRACTOR. ALL

) REPAIR ARE READILY ACCESSIBLE. DE SHALL NOT BE MADE PRIOR TO

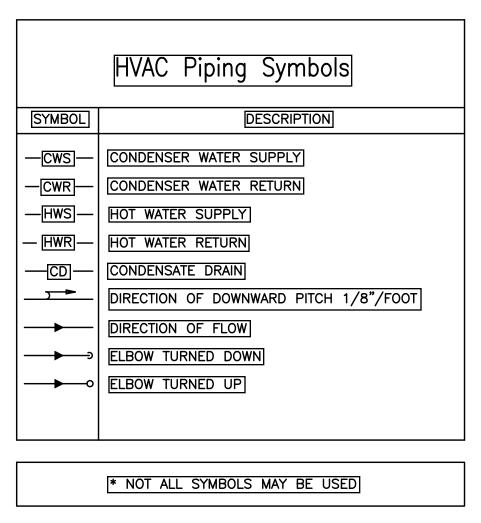
STAND THE EQUIPMENT SERVICE SPACE ILINGS, WALLS, FLOORS ETC WITH GC.

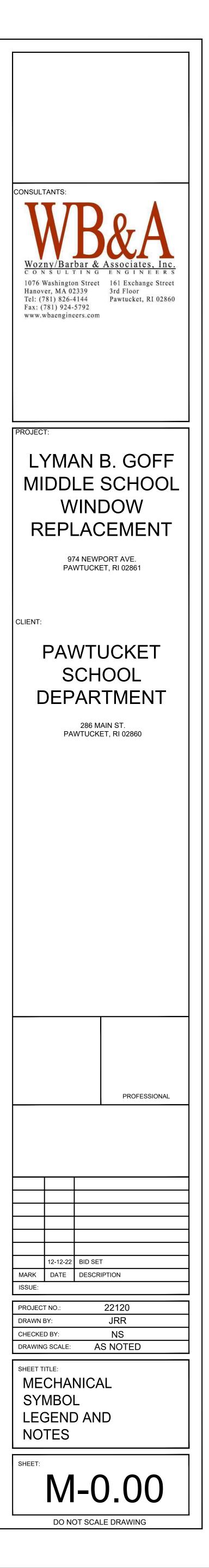
ING. THIS TRADE SHALL COORDINATE VATER HEATER & KITCHEN OVEN. ONNECTING AND ENSURE ITS OPERATING

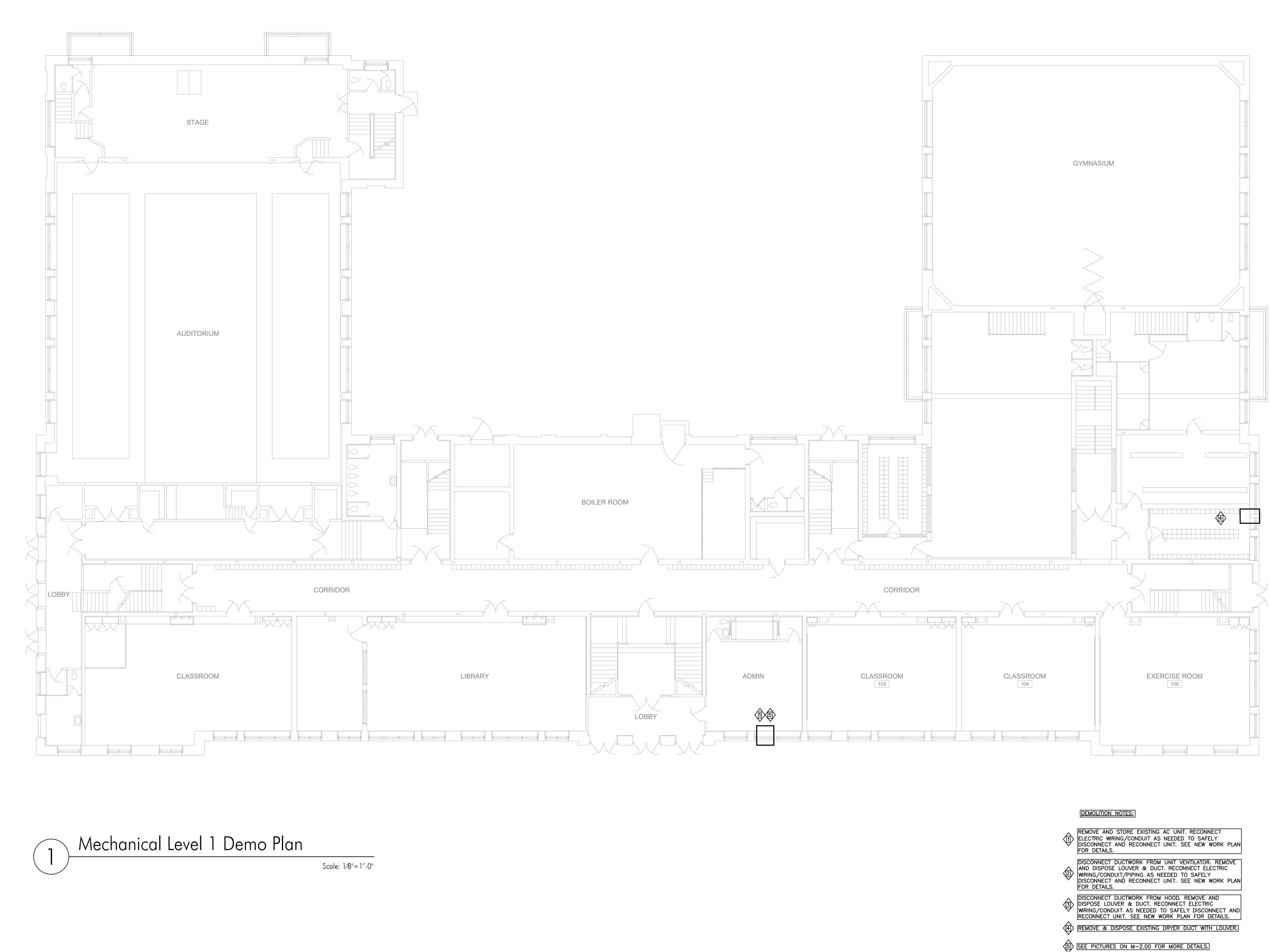
HOOD TO ACCOMMODATE WINDOW

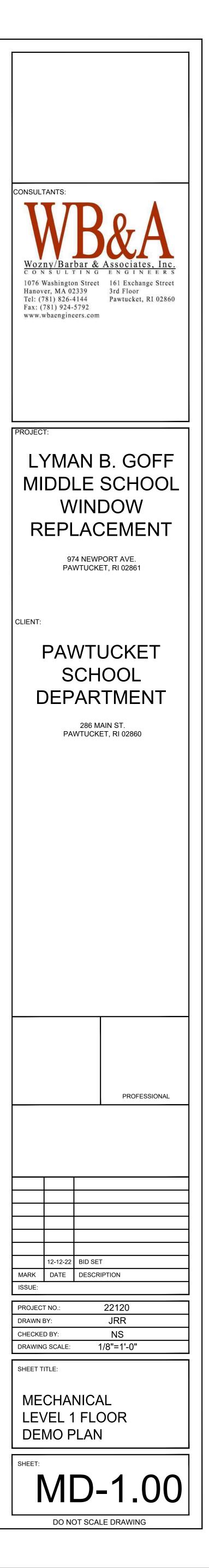
HVAC Ductwork Symbols		
& Abbreviations		
SYMBOL	DESCRIPTION	
EWT	ENTERING WATER TEMPERATURE	
EXH	EXHAUST	
FLA	FULL LOAD AMPS	
FLR	FLOOR	
FPM	FEET PER MINUTE	
GC	GENERAL CONTRACTOR	
GPM	GALLONS PER MINUTE	
HEX	HEAT EXCHANGER	
HP	HEAT PUMP/HORSE POWER	
HWR	HOT WATER RETURN	
HWS	HOT WATER SUPPLY	
ID	INSIDE DIAMETER	
LAT	LEAVING AIR TEMPERATURE	
LD	LINEAR DIFFUSER	
LVG	LEAVING	
LWT	LEAVING WATER TEMPERATURE	
MBH	THOUSAND BTU PER HOUR	
MAU	MAKE-UP AIR UNIT	
NO	NORMALLY OPEN (FAIL POSITION)	
NTS	NOT TO SCALE	
OA	OUTSIDE AIR	
OBD	OPPOSED BLADE DAMPER	
OD	OUTSIDE DIAMETER	
P	PUMP	
PC	PLUMBING CONTRACTOR	
PD	PRESSURE DROP	
PSI	POUNDS PER SQUARE INCH	
RG		
RPM	REVOLUTIONS PER MINUTE	
SP	STATIC PRESSURE (INCHES OF WATER)	
SR		
RTU		
	TRANSFER GRILLE	
TYP WB	WET-BULB TEMPERATURE 'F	
WMS	WIRE MESH SCREEN	
RD	RADIATION DAMPER	
TYP.	TYPICAL	
SS	STAINLESS STEEL	

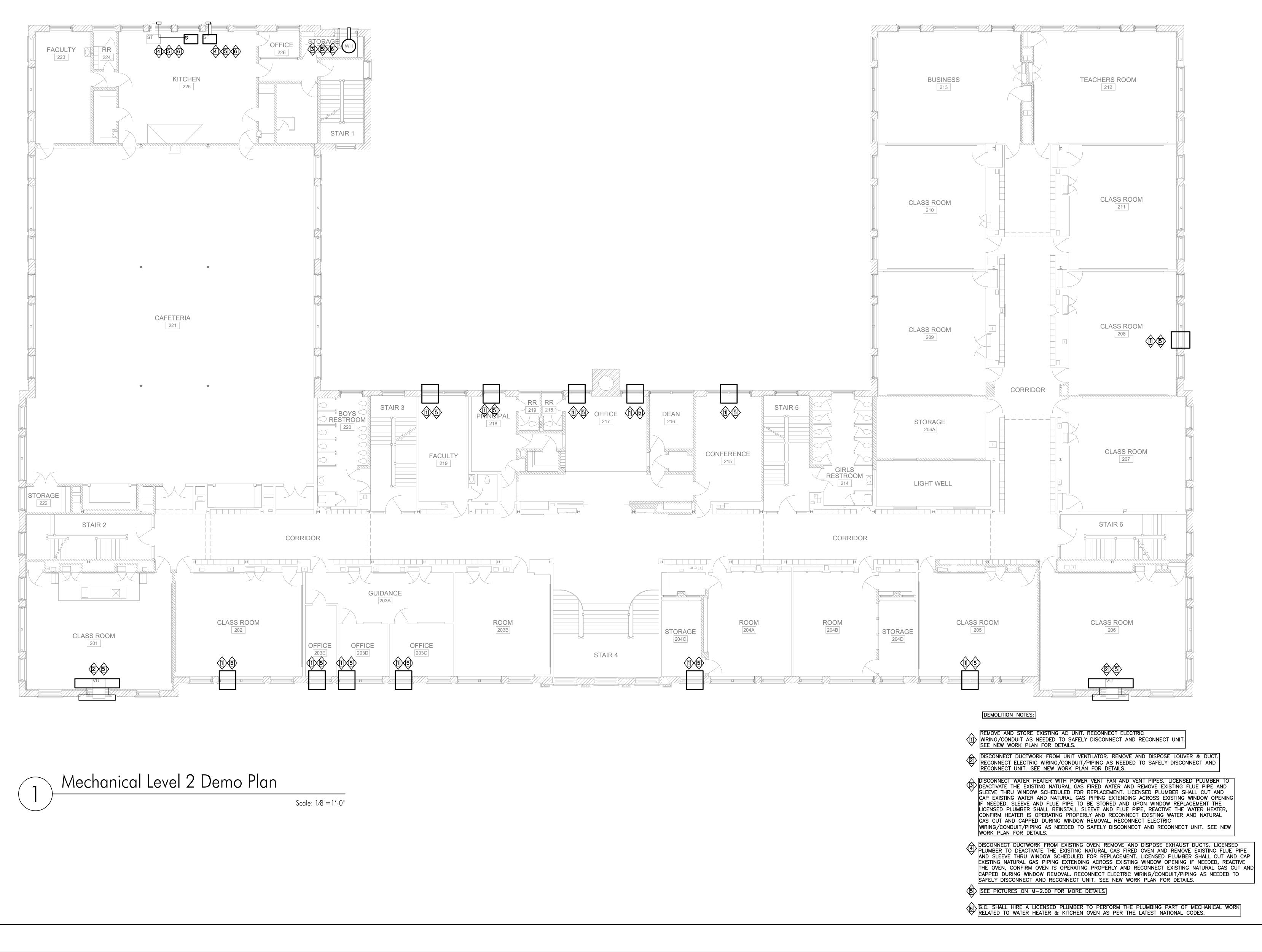
HVAC Ductwork Symbols		
& Abbreviations SYMBOL [DESCRIPTION]		
	NEW PIPING, DUCTWORK, EQUIPMENT, ETC.	
	LINED DUCTWORK	
	EXISTING PIPING, DUCTWORK, EQUIPMENT, ETC.	
/////	EXISTING PIPING, DUCTWORK, EQUIPMENT, ETC.	
	CONNECT NEW TO EXISTING	
	SUPPLY/OUTSIDE AIR DUCT UP	
	RETURN/EXHAUST DUCT UP	
	SUPPLY/OUTSIDE AIR DUCT DOWN	
	RETURN/EXHAUST DUCT DOWN	
	EXHAUST DUCT UP	
FD		
FSD		
	MANUAL VOLUME DAMPER	
B		
(S) (S)	SWITCH SERVING FAN OCCUPANCY SENSOR	
$\overline{\mathbb{O}}$	[THERMOSTAT]	
	REMOTE AVERAGING THERMOSTAT	
Ē	REVERSE ACTING THERMOSTAT	
(j)	REMOTE TEMPERATURE SENSOR W/ UNIT	
-U -	UNDER CUT DOOR	
		
	THERMOSTAT/CONTROLLER ABOVE FINISHED FLOOR	
AS	AIR SEPARATOR	
В	BOILER	
BHP	BRAKE HORSEPOWER	
BTU	BRITISH THERMAL UNIT	
BTUH	BRITISH THERMAL UNIT PER HOUR	
CD CFM	CEILING DIFFUSER/CONDENSATE	
	[CLEANOUT]	
	COOLING TOWER	
CUH	CABINET UNIT HEATER	
C/W	COMPLETE WITH	
CWR	CHILLED WATER RETURN	
	CHILLED WATER SUPPLY DRY BULB TEMPERATURE *F	
DB DN		
EA	EXHAUST AIR	
EF	EXHAUST FAN EXHAUST GRILLE	
EG ER	EXHAUST REGISTER]	
ET	EXPANSION TANK	
ETR	EXISTING TO REMAIN	

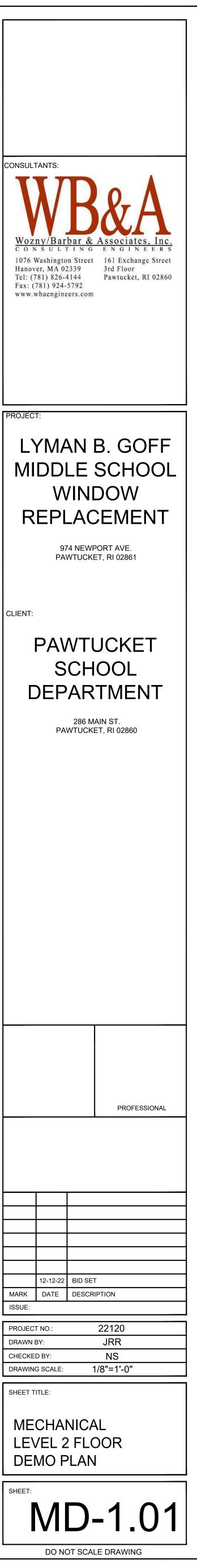




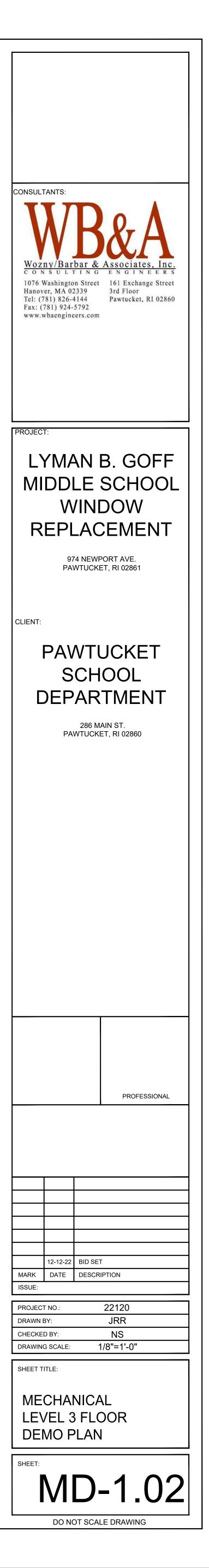


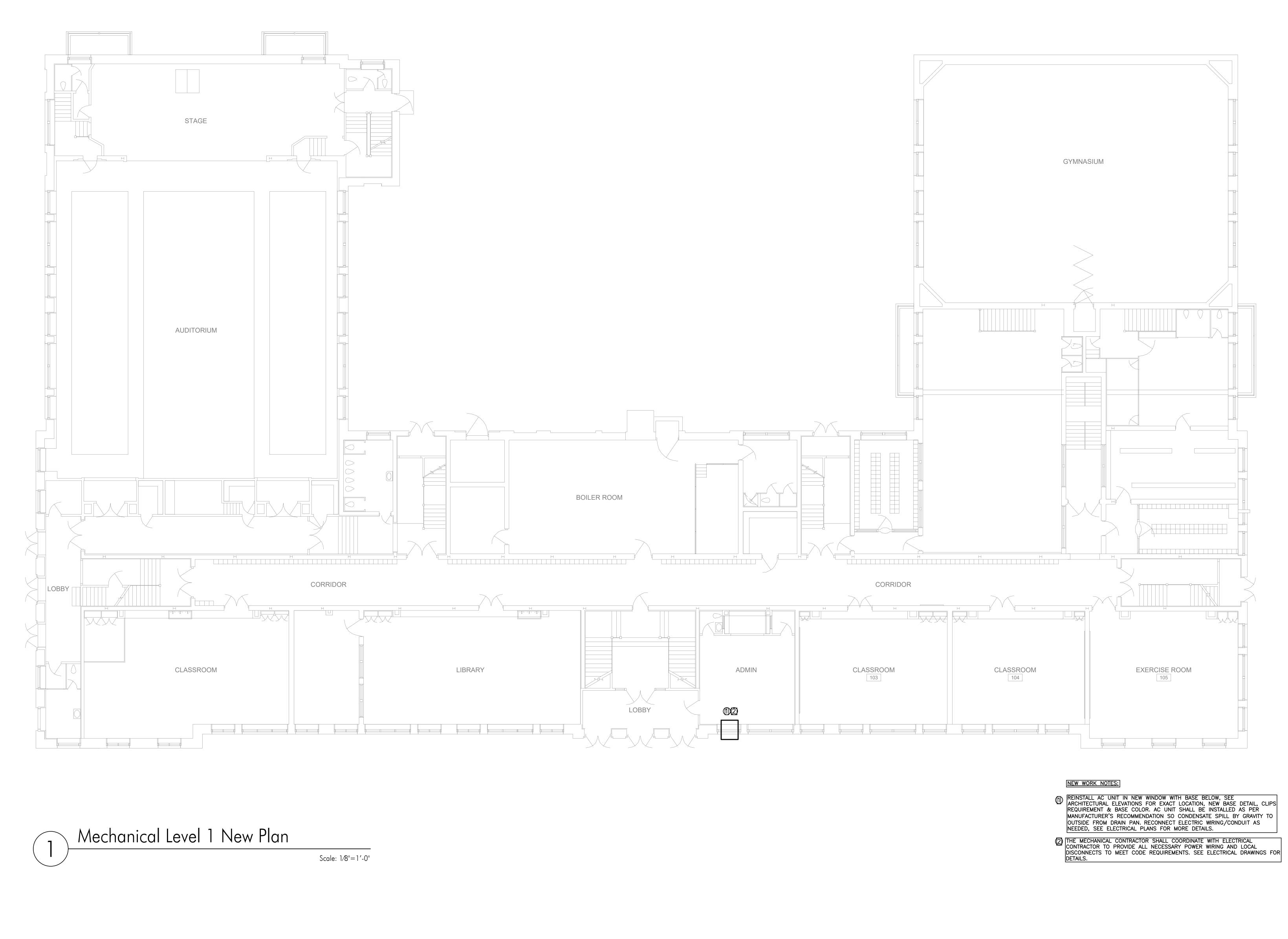


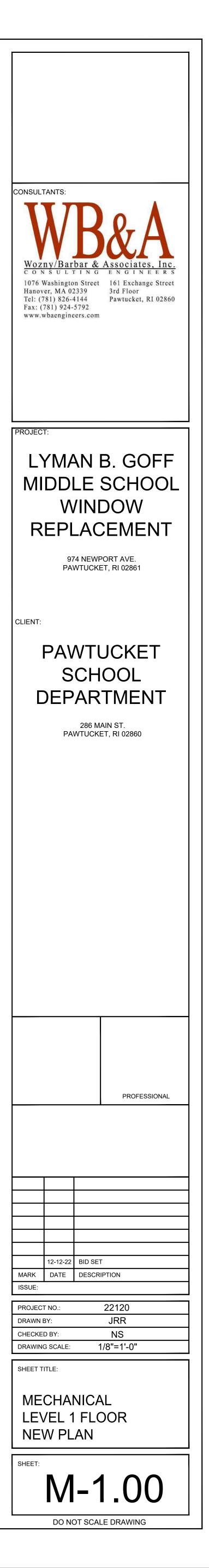


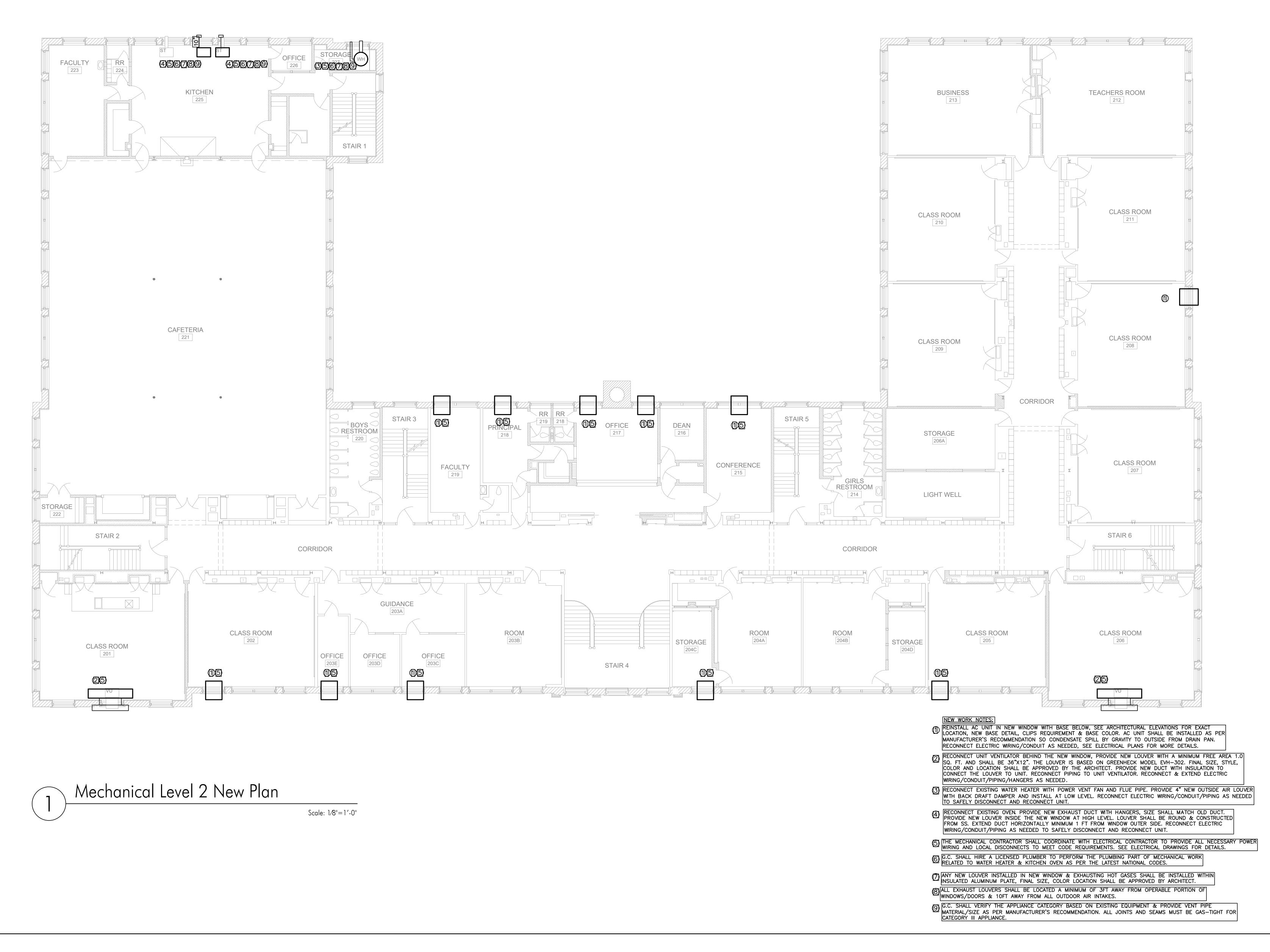


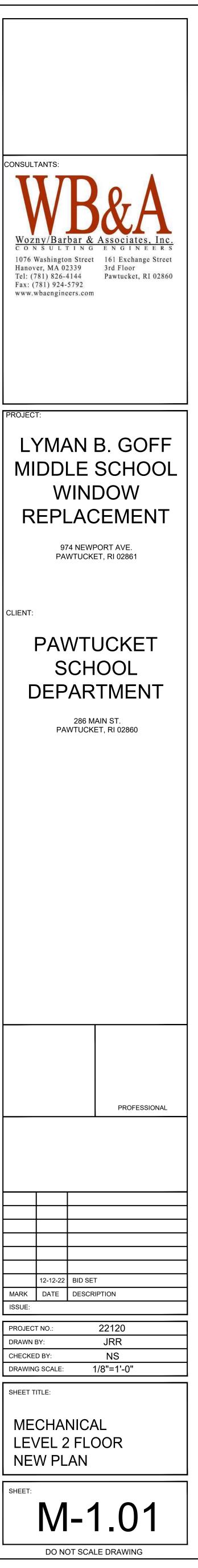




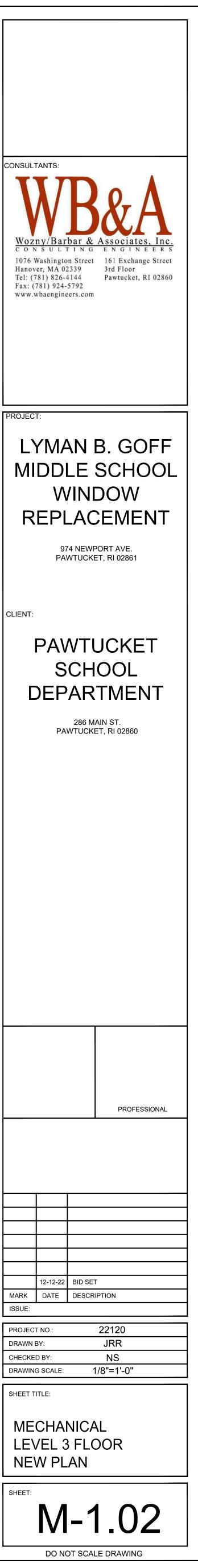




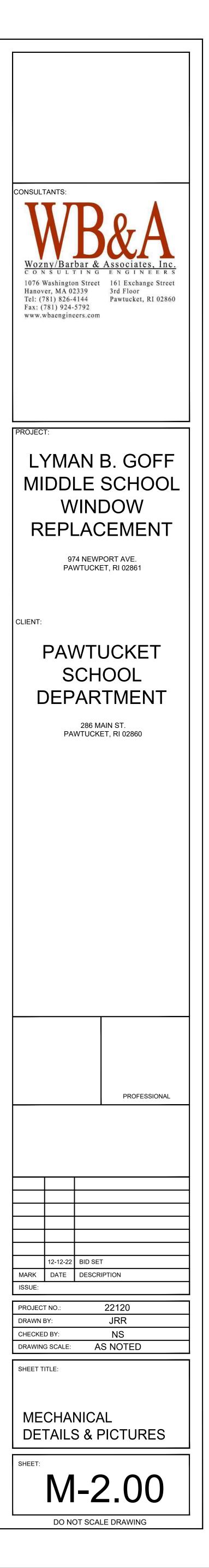












PART 1 - GENERAL

1.1 GENERAL CONDITIONS A. ALL SECTIONS OF DIVISION I GENERAL CONDITION REQUIREMENTS SHALL HEREBY BE MADE PART OF THIS SECTION OF THE SPECIFICATION.

B. EXAMINE ALL DRAWINGS AND ALL OTHER SECTIONS OF THE SPECIFICATION FOR THE REQUIREMENTS FOR THE WORK OF THIS SECTION.

C. ALL WORK SHOWN IN THE DRAWINGS AND SPECIFICATIONS SHALL BE INCLUDED UNDER THE BASE BID, EXCEPT WHERE THERE IS SPECIFIC REFERENCE TO EXCLUSION AND INCORPORATION IN OTHER QUOTAT D. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS SHALL BE DETERMINED IN THE FIELD AND BY ACTUAL BUILDING CONDITIONS. EQUIPMENT OR DUCTS INTERF INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

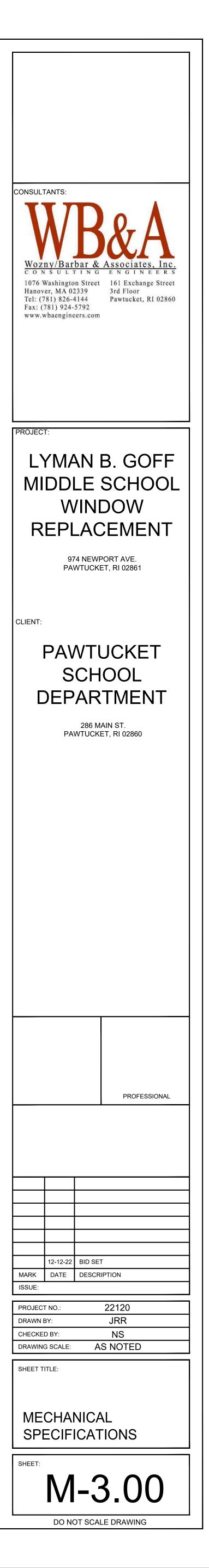
1.2 DESCRIPTION OF WORK

- A. THE HVAC SCOPE FOR THIS PROJECT INCLUDES GENERALLY, BUT IS NOT LIMITED TO THE FOLLOWING:
- LOW PRESSURE DUCTWORK DISTRIBUTION SYSTEMS DUCTWORK INSULATION SYSTEMS
- TESTING AND BALANCING AIR AND WATER SYSTEMS LOUVERS
- 1.3 CODES, PERMITS, AND INSPECTIONS
- A. ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTRY MUNICIPAL AND OTHER AUTHORITIES EXERCISING JURISDICTION OVER CONSTRUCTION WORK OF THE PRO B. ALL REQUIRED INSPECTION CERTIFICATES SHALL BE OBTAINED, PAID FOR, AND MADE AVAILABLE AT THE COMPLETION OF THE WORK. MUNICIPAL PERMIT AND INSPECTION FEES ARE WAIVED ALTHOUGH ALL A
- AND INSPECTIONS ARE REQUIRED. C. ANY PORTION OF THE WORK, WHICH IS NOT SUBJECT TO THE APPROVAL OF AN AUTHORITY HAVING JURISDICTION, SHALL BE GOVERNED BY THE APPLICABLE SECTIONS OF THE OVERALL NATIONA
- ASSOCIATION. D. INSTALLATION PROCEDURES, METHODS, AND CONDITIONS SHALL COMPLY WITH THE LATEST REQUIREMENTS OF THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- 1.4 GUARANTEES AND CERTIFICATIONS
- A. THE HVAC CONTRACTOR SHALL GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE AGAINST DEFECTS IN MATERIALS, WORKMANSHIP AND INSTALLATION. THE HVAC CONTRACT DEFECTIVE WORK AT NO ADDITIONAL COST TO THE OWNER AND PROVIDE EQUIPMENT WARRANTIES TO THE OWNER IN FULL FORCE. PROVIDE FIVE-YEAR WARRANTY FOR COMPRESSORS. SEE PROD PARAGRAPHS FOR MORE INFORMATION ON WARRANTIES.
- B. CERTIFICATION SHALL BE SUBMITTED ATTESTING TO THE FACT THAT SPECIFIED PERFORMANCE CRITERIA ARE MET BY ALL ITEMS OF HEATING AND AIR CONDITIONING EQUIPMENT.
- 1.5 SHOP DRAWINGS AND OTHER INFORMATION REQUIRED
- A. PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIALS, SIX (6) COPIES OF COMPLETE SUBMITTALS SHALL BE SUBMITTED FOR REVIEW, INCLUDING THE FOLLOWING MINIMUM INFORMATION:
- 1. DRAWINGS, DIMENSIONS, AND WEIGHTS. 2. MINIMUM CLEARANCES FOR PROPER OPERATION AND SERVICE.
- 3. MINIMUM PERFORMANCE DATA AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS. SUBMITTED INFORMATION SHALL INCLUDE SYMBOLS SHOWN ON DRAWING EF-1, ACCU-1, ETC. THE PURPOS SYMBOLS IS IDENTIFICATION WHICH SPECIFIED PRODUCT IS SUBMITTED FOR REVIEW. WITHOUT PROPER SYMBOLS INDICATED, THE SUBMITTALS WILL NOT BE REVIEWED.
- B. PRIOR TO ASSEMBLING OR INSTALLING THE WORK, THE FOLLOWING SHALL BE SUBMITTED FOR REVIEW: 1. SCALE DRAWINGS SHOWING ALL PIPING AND DUCT RUNS WITH SIZES AND ELEVATIONS SHOWN ON COMPOSITE DRAWINGS WITH INDICATION OF COORDINATION WITH OTHER TRADES. THIS SUBMISSION PAPER PRINTS. IF REQUESTED BY GENERAL CONTRACTOR, AUTOCAD FILES OF MEP/FP DRAWINGS WILL BE MADE AVAILABLE FOR A COST OF \$50.00 PER DRAWING. FILES WILL BE MADE AVAILABLE CONTRACTOR SIGNS A WB&A DISCLAIMER PROVIDED BY WB&A.
- 2. CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS AND FIELD INSTALLATION DRAWINGS AS REQUIRED FOR A COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS OF EQUIPMENT. NOTE: THE HVAC CONTRACTOR SHALL PROVIDE A DUPLICATE COPY OF THE OPERATING MANUALS FOR ALL CONTROLS, A DUPLICATE COPY OF THE MAINTENANCE MANUALS FOR ALL EQUIPMENT AND CONT SCALE DRAWINGS SHOWING THE HVAC DISTRIBUTION SYSTEM.
- 1.6 SEPARATION OF WORK BETWEEN TRADES
- A. THE FOLLOWING ITEMS SHALL BE FURNISHED AND INSTALLED BY THE HVAC CONTRACTOR:
- MOTORS FOR MECHANICAL EQUIPMENT . CONTROLS FOR MECHANICAL EQUIPMENT . HOISTING AND RIGGING
- 4. FASTENINGS AND SUPPORTS . ROOF OPENING FLASHING
- FIELD TOUCH UP PAINTING OF DAMAGED SHOP COATS 7. RUBBISH REMOVAL
- B. THE FOLLOWING ITEMS SHALL BE FURNISHED AND INSTALLED BY OTHER TRADES:
- I. CUTTING OF OPENINGS IN FLOOR, WALLS AND ROOF LOUVERS IN OUTSIDE WALLS AND ROOF VENTS 3. ENCLOSURE/SHAFTS OF DUCTS
- 4. PIPING ENCLOSURES 5. CONCRETE PADS FOR EQUIPMEN . POWER FOR HVAC EQUIPMENT
- C. THE HEATING, VENTILATING AND AIR CONDITIONING TRADE IS REQUIRED TO SUPPLY ALL NECESSARY SUPERVISION AND COORDINATION INFORMATION TO ANY OTHER TRADES WHO ARE TO SUPPLY WORK TO HEATING, VENTILATING AND AIR CONDITIONING INSTALLATIONS. 1.7 EQUIPMENT AND MATERIALS
- A. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT.
- B. IT IS THE INTENT OF THESE SPECIFICATIONS THAT WHEREVER A MANUFACTURER OF A PRODUCT IS SPECIFIED, AND THE TERMS "OTHER APPROVED" OR "OR APPROVED EQUAL" OR "EQUAL" ARE USED, TH MUST CONFORM IN ALL RESPECTS TO THE SPECIFIED ITEM.
- C SUBSTITUTED EQUIPMENT OR OPTIONAL EQUIPMENT WHERE PERMITTED AND APPROVED MUST CONFORM TO SPACE REQUIREMENTS ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUI APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY MODIFICATIONS OF RELATED SYSTEMS AS A RESULT OF SUBSTITUTIONS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE. 1.8 INTERPRETATION OF THE DRAWINGS AND SPECIFICATIONS
- A. AS USED IN THE DRAWINGS AND SPECIFICATIONS FOR THIS WORK, CERTAIN NON-TECHNICAL WORDS SHALL BE UNDERSTOOD TO HAVE SPECIFIC MEANINGS AS FOLLOWS REGARDLESS OF INDICATIONS TO T GENERAL CONDITIONS OR OTHER DOCUMENTS GOVERNING THE WORK. "FURNISH" PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT, ALL AS PART OF THIS WORK. PURCHASING SHALL INCLUDE PAYMENT OF A OTHER SURCHARGES AS MAY BE REQUIRED TO ASSURE THAT PURCHASED ITEMS ARE FREE OF ALL LIENS, CLAIMS OR ENCUMBRANCES. "INSTALL" UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PR OF THIS WORK.
- "PROVIDE" "FURNISH" AND "INSTALL".
- "NEW" MANUFACTURED WITHIN THE PAST TWO YEARS AND HAS NEVER BEEN USED.
- B. EXCEPT WHERE MODIFIED BY A SPECIFIC NOTATION TO THE CONTRARY, IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ITEM IN THE DRAWINGS OR SPECIFICATIONS FOR THIS IT THE INSTRUCTION TO FURNISH, INSTALL AND CONNECT THE ITEMS AS PART OF THE WORK, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED.
- C. TO THE EXTENT THAT THEY GOVERN THE BASIC WORK, THE SPECIFICATIONS ALSO GOVERN CHANGE ORDER WORK.
- D. NO EXCLUSION FROM, OR LIMITATION IN, THE SYMBOLISM USED ON THE DRAWINGS FOR THIS WORK OR THE LANGUAGE USED IN THE SPECIFICATIONS FOR THIS WORK SHALL BE INTERPRETED AS A REASO APPURTENANCES OR ACCESSORIES NECESSARY TO COMPLETE ANY REQUIRED SYSTEM OR ITEM OF EQUIPMENT.
- E. THE DRAWINGS FOR THIS WORK UTILIZE SYMBOLS AND SCHEMATIC DIAGRAMS WHICH HAVE NO DIMENSIONAL SIGNIFICANCE. THE WORK SHALL, THEREFORE, BE INSTALLED TO FULFILL THE DIAGRAMMATIC INT THE DRAWINGS. BUT IN CONFORMITY WITH THE DIMENSIONS INDICATED ON THE FINAL WORKING DRAWINGS: FIELD LAYOUTS AND SHOP DRAWINGS OF ALL TRADES. F. CERTAIN DETAILS APPEAR ON THE DRAWINGS FOR THIS WORK WHICH ARE SPECIFIC WITH REGARD TO THE DIMENSIONS AND POSITIONING OF THE WORK. THESE ARE INTENDED ONLY FOR GENERAL INFOR
- THEY DO NOT OBVIATE FIELD COORDINATION FOR INDIVIDUAL ITEMS OF THE INDICATED WORK.
- G. INFORMATION AS TO GENERAL CONSTRUCTION AND ARCHITECTURAL FEATURES AND FINISHES SHALL BE DERIVED FROM STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS ONLY. H. THE USE OF WORDS IN THE SINGULAR SHALL NOT BE CONSIDERED AS LIMITING WHERE OTHER INDICATIONS DENOTE THAT MORE THAN ONE ITEM IS REFERRED TO.
- 1.9 COORDINATION

A. WORK SHALL BE PERFORMED IN COOPERATION WITH OTHER TRADES ON THE PROJECT AND SO SCHEDULED AS TO ALLOW SPEEDY AND EFFICIENT COMPLETION OF THE PROJECT.

- B. THIS CONTRACTOR SHALL FURNISH TO OTHER TRADES ADVANCE INFORMATION ON LOCATIONS AND SIZES OF ALL FRAMES, BOXES, SLEEVES, AND OPENINGS NEEDED FOR HIS OWN WORK, AND ALSO FURNIS SHOP DRAWINGS NECESSARY TO PERMIT TRADES AFFECTED BY THIS CONTRACTOR'S WORK TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.
- C. WHERE THERE IS EVIDENCE THAT WORK OF THIS CONTRACTOR WILL INTERFERE WITH THE WORK OF OTHER TRADES, THIS CONTRACTOR SHALL ASSIST IN WORKING OUT SPACE CONDITIONS TO M ADJUSTMENTS.
- D. THIS CONTRACTOR SHALL, WITH THE APPROVAL OF THE ENGINEER AND WITHOUT EXTRA COST TO THE OWNER, MAKE MODIFICATIONS IN HIS WORK AS REQUIRED BY STRUCTURAL INTERFERENCE. THIS CON ALL EXPENSES TO THE GENERAL CONTRACTOR FOR ADDITIONAL OPENINGS, OR RELOCATING OR ENLARGING EXISTING OPENINGS THROUGH CONCRETE FLOORS, WALLS, BEAMS AND ROOF REQUIRED FOR TH NOT PROPERLY COORDINATED.
- E. IF THIS CONTRACTOR INSTALLS HIS WORK BEFORE COORDINATING WITH OTHER TRADES SO AS TO CAUSE INTERFERENCE WITH THE WORK SUCH TRADES, HE SHALL MAKE ALL NECESSARY CHANGES IN HIS THE CONDITIONS WITHOUT EXTRA COST TO THE OWNER.
- F. THIS CONTRACTOR SHALL VISIT THE SITE TO ASCERTAIN AND APPRISE HIMSELF OF THE ACTUAL FIELD CONDITIONS UNDER WHICH THE WORK HAS TO BE PERFORMED. ALL WORK SHOWN ON THE DRAWINGS NATURE AND THEIR ACTUAL LOCATION AND ELEVATION SHALL BE VERIFIED IN THE FIELD. ANY DEVIATIONS NECESSARY AS A RESULT OF FIELD INTERFERENCES SHALL BE BROUGHT TO THE ATTENTION OF RESOLVED EXPEDITIOUSLY, AT NO ADDITIONAL COST TO THE OWNER.
- G. THE CONTRACTOR SHALL PROTECT ALL MATERIALS AND WORK OF OTHER TRADES FORM DAMAGE THAT MAY BE CAUSED BY HIS WORK AND SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGES WITHOUT
- H. SLEEVES, INSERTS, ANCHOR BOLTS AND SIMILAR ITEMS SET INTO THE MASONRY STRUCTURE OR THE WORK OF OTHER TRADES SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. THIS CON
- RESPONSIBLE FOR ALL SUCH ITEMS NECESSARY TO HANGED OR SUPPORT HIS EQUIPMENT.
- I. WHEN, IN ORDER TO ACCOMMODATE THIS CONTRACTOR'S WORK, FINISHED MATERIALS AND WORK OF OTHER TRADES MUST BE CUT OR FITTED IN THE SHOP THIS CONTRACTOR SHALL FURNISH THE NECESS TRANSMITTAL TO THE TRADES WHOSE MATERIALS MUST BE CUT OR FITTED. CUTTING, CORING, DRILLING AND PATCHING OF HOLES AND OPENINGS FOR THE WORK OF SUB-TRADES SHALL BE PERFORMED BY THE PARTICULAR SUBCONTRACTOR WHEN THE LARGEST DIMENSION OF 1
- THAN 4 INCHES. IF THE LARGEST DIMENSION OF THE OPENING IS 4 INCHES OR MORE, THE GENERAL CONTRACTOR SHALL PERFORM THE CUTTING AND PATCHING FOR THE WORK OF THE SUBCONTRACTOR PATCHING SEE SECTION 01045.
- K. EXACT LOCATION OF DIFFUSERS, GRILLES AND THERMOSTATS SHALL BE APPROVED BY THE ARCHITECT BEFORE THEIR INSTALLATION. SEE ARCHITECT'S DRAWINGS FOR MORE INFORMATION. L. ALL PIPING AND DUCTWORK SHALL BE INSULATED AS PER CODE. WEATHER PROOF MATERIAL OVER THE INSULATION SHALL BE PROVIDED ON COMPONENTS EXPOSED TO OUTSIDE
- M. ALL WORK SHALL BE INSTALLED SO THAT PARTS REQUIRING PERIODIC INSPECTION, OPERATION, MAINTENANCE AND REPAIR ARE READILY ACCESSIBLE. MINOR DEVIATION FROM THE DRAWINGS MAY BE M THIS, BUT CHANGES OF SUBSTANTIAL MAGNITUDE SHALL NOT BE MADE PRIOR TO WRITTEN APPROVAL FROM THE ENGINEER. THE CONTRACTOR SHALL DETERMINE LOCATIONS OF ALL ACCESS PANELS PROJECT. LOCATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND APPROVED BY THE ARCHITECT. ACCESS PANELS SHALL BE FURNISHED BY HVAC TRADE AND INSTALLED BY GENERAL CO
- PART 2 PRODUCTS
- 2.1 PREINSULATED PIPING
- A. PROVIDE PREINSULATED PIPING BY PITTSBURGH CORNING (PITTCON), RICWIL OR PERMA-PIPE FOR UNDERGROUND (HOT) (CHILLED) WATER (STEAM) (CONDENSATE) SERVICE WHERE SHOWN ON DRAWINGS, V FIBROUS-GLASS-REINFORCED PLASTIC (FRP) OUTER CASING, GLASS FOAM INSULATION AS SPECIFIED IN PIPING INSULATION PARAGRAPH, AND STEEL CARRIER PIPE AS SPECIFIED FOR APPLICABLE SERVICE IN PIPE SHALL BE 40-FT. STRAIGHT SECTIONS WITHOUT FITTINGS.
- B. PROVIDE STRUCTURAL INSULATING CEMENT SUPPORT GUIDES ON 10-FT. CENTERS. GUIDES SHALL BE 1" WIDE AND SAME DIAMETER AS PIPE. INSTALL AS RECOMMENDED BY MANUFACTURER.
- C. PROVIDE OVAL, PREFABRICATED EXPANSION ELLS WITH OVAL SUPPORT GUIDES INCORPORATED IN ELLS. D. PROVIDE STEEL PLATE ANCHORS WELDED TO CARRIER PIPE AND BONDED TO FRP CASING. PLATE SHALL BE 3/8" FOR PIPE SIZES THROUGH 6", 1/2" FOR 8 THROUGH 16" PIPE AND 3/4" FOR 18 THROUGH 30" PIPE
- ANCHORS BETWEEN CARRIER AND CASING, FOR DRAIN AND VENT. POUR CONCRETE THRUST BLOCKS AT ANCHORS AS RECOMMENDED BY MANUFACTURER.
- E. PROVIDE COMPRESSIBLE SILICON RUBBER, ADJUSTABLE GLAND SEALS BETWEEN CARRIER AND CASING, SUITABLE FOR 450 DEGREES F.
- F. PROVIDE ½" NPS VENT AND DRAIN CONNECTIONS ON VERTICAL CENTER LINES OF CASING WHERE PIPE TERMINATES INSIDE BUILDING OR MANHOLE WALL, AT LEAST 3" INSIDE WALL.
- G. PROVIDE FRP LEAK PLATE FUSION WELDED TO CASING, PROTRUDING 3" BEYOND OUTSIDE CASING DIAMETER, WHERE PIPE PENETRATES BUILDING WALL, AS CLOSE AS POSSIBLE TO CENTER OF WALL. H. PROVIDE POLYESTER RESIN END SEALS WELDED TO OUTSIDE CASING AND BONDED TO CARRIER TO SEAL INSULATION TERMINATIONS.
- I. PROVIDE STEEL HEAD PLATES WELDED TO CARRIER PIPE AND TO STEEL SLEEVE OF SAME SIZE AS CASING, AT ANCHORS WITHIN 5 FT. OF PIPING TERMINAL ENDS. CASING SHALL BE WOUND ON AND BONDE WELD DRAIN AND VENT CONNECTIONS TO SLEEVE.
- 2.2 PIPE INSULATION
- A. INSULATION SHALL BE 5 LB/CF NOMINAL FIBROUS GLASS INSULATION WITH FACTORY-APPLIED FIRE RETARDANT VAPOR BARRIER JACKET WITH K FACTOR OF 0.21 AT 75 DEGREES F. MEAN TEMPERATURE CERTAIN-TEED, MANVILLE OR KNAUF, INSTALLED AS REQUIRED BY MANUFACTURER. ASTM E-84 FIRE HAZARD RATINGS SHALL BE 25 FLAME SPREAD, 50 SMOKE DEVELOPED AND 50 FUEL CONTRIBUTED. B APPLY INSULATION AFTER SYSTEMS HAVE BEEN TESTED PROVED TIGHT AND APPROVED BY ARCHITECT. REMOVE DIRT, SCALE, OIL, RUST AND FOREIGN MATTER PRIOR TO INSTALLATION OF INSULATION
- C. NO LEAKS IN VAPOR BARRIER OR VOIDS IN INSULATION WILL BE ACCEPTED.
- INSULATION AND VAPOR BARRIER ON PIPING WHICH PASSES THROUGH WALLS OR PARTITIONS SHALL PASS CONTINUOUSLY THROUGH SLEEVE, EXCEPT THAT PIPING BETWEEN FLOORS AND THROUGH FI PARTITIONS SHALL HAVE SPACE ALLOWED FOR APPLICATION OF APPROVED PACKING BETWEEN SLEEVES AND PIPING, TO PROVIDE FIRE STOP AS REQUIRED BY NFPA. SEAL ENDS TO PROVIDE CONTINUE WHERE INSULATION IS INTERRUPTED.
- E. INSULATE FLEXIBLE CONNECTIONS TO SAME THICKNESS AND WITH SAME MATERIAL AS ADJOINING PIPE INSULATION.
- F. PROVIDE FIBROUS DUAL TEMPERATURE INSULATION WITH FACTORY APPLIED VAPOR BARRIER JACKET ON STEAM, OUTDOOR CONDENSER WATER, OUTDOOR COOLING TOWER DRAIN AND MAKEUP, CONDENSA DRAIN, HOT AND COLD WATER PIPING, EXCEPT AS SPECIFIED OTHERWISE.
- G. DRAIN PIPING OTHER THAN PVC PIPING AND OUTDOOR COOLING TOWER DRAIN PIPING SHALL HAVE 1/2" THICK INSULATION. INSULATION THICKNESS FOR INDOOR STEAM, STEAM CONDENSATE, CHILLED \ WATER, HOT WATER AND COLD WATER PIPING SHALL BE AS FOLLOWS:
- I. REFRIGERANT PIPING DIAMETERS OF 4.0" AND LESS SHALL INSULATION WITH A THICKNESS OF 1.0" AND A CONDUCTIVITY OF 0.27 AT 75 °F. 2. ALL HOT WATER PIPING SHALL BE PROVIDED WITH INSULATION 1.5" THICK.
- H. INSULATION ON BELOW-GROUND (NOT BURIED) STEAM AND CONDENSATE PIPING OF PRESSURES GREATER THAN 10 PSIG SHALL BE 11 LB./CU. FT. DENSITY, MOLDED HYDROUS CALCIUM SILICATE FASTER ANNEALED WIRE ON 18" CENTERS. EXPOSED COVERING SHALL BE FINISHED WITH 8 OZ. CANVAS JACKET.
- I. INSULATION FOR PREFABRICATED PIPING SPECIFIED IN PREINSULATED PIPING PARAGRAPH SHALL BE CELLULAR GLASS OF 1-1/2" THICKNESS FOR 6" CHILLED WATER AND 2-1/2" HOT WATER, AND 1" THICKNESS WATER, FOAMGLAS BY PITTSBURGH CORNING OR APPROVED EQUAL, WITH MAXIMUM K-FACTOR OF 0.35. INSULATION SHALL MEET APPLICABLE REQUIREMENTS OF THIS PARAGRAPH.
- J. PROVIDE LONGITUDINAL LAP AND 6" WIDE VAPOR BARRIER JOINT SEAL STRIPS SECURED WITH APPROVED ADHESIVE.
- K. SEAL ENDS OF PIPE INSULATION AND SEAL INSULATION TO PIPE WITH APPROVED FIRE RETARDANT VAPOR BARRIER, AT FLANGES, VALVES AND FITTINGS AND AT INTERVALS OF NO MORE THAN 21 FEET ON CO
- L. SECURE COVERS ON CONCEALED PIPE WITH METAL BANDS AT LEAST 3/4" WIDE AND NO MORE THAN 18" APART, SPACED TO HOLD ENDS AND CENTERS OF EACH SECTION.

	M. INSULATION ON OUTDOOR CONDENSER WATER PIPING, COOLING TOWER DRAIN, AND MAKEUP PIPING SHALL BE 2" FIBERGLASS. INSULATION ON OTHER OUTDOOR PIPING SHALL BE TWICE THE THICKNESS LISTED IN TABLE A ABOVE, BUT NOT MORE THAN 4". WATERPROOF WITH 0.016" THICK ALUMINUM JACKET WITH 2" TRANSVERSE AND LONGITUDINAL LAPPED SEAMS ORIENTED TO SHED WATER. FILL SEAMS WITH WEATHERPROOF ADHESIVE. SECURE JACKET WITH 1" WIDE ALUMINUM DRAW-BANDS ON 12" CENTERS.	 d. LETTERING SIZE: MINIMUM 1-1/2 INCHES HIGH e. DIRECTION-OF-FLOW ARROWS: SEPARATE UNIT FOR EACH DUCT LABEL TO INDICATE FLOW DIRECTION. f. ARROW MARKER SIZE: 2-1/4 INCH BY 6-1/2 INCHES.
	N. INSULATION ON FITTINGS, VALVES, AND FLANGES 1. FITTINGS, VALVES AND FLANGES SHALL BE INSULATED WITH PRE-CUT, FACTORY-SUPPLIED FIBROUS GLASS, BY CERTAIN-TEED, KNAUF, OWENS CORNING OR MANVILLE.	H. CEILING TACKS
TIONS. RFERING WITH OTHER	2. FITTINGS, VALVES AND FLANGES SHALL BE INSULATED WITH SAME MATERIAL AND TO SAME THICKNESS AS ADJOINING PIPE INSULATION.	 PROVIDE STEEL CEILING TACKS WITH A COLOR-CODED HEAD 3/4 INCH DIAMETER AND A 1.5 INCH SERRATED SHANK. PROVIDE CEILING TACKS IN ACOUSTICAL TILE CEILINGS TO LOCATE EQUIPMENT, VALVES OR DAMPERS THAT REQUIRE REGULAR MAINTENANCE OR ARE PART OF A LIFE SAFETY SYSTEM.
	 PIPE FITTINGS SHALL BE PRE-TESTED, CLEAN AND DRY BEFORE INSULATION. INSTALLATION OF INSULATION ON FITTINGS SHALL BE AS FOLLOWS, IN ORDER: 	 b. TACKS SHALL BE COLOR CODED AS FOLLOWS (COORDINATE WITH OWNER.
	 a. WRAP INSULATION AROUND FITTING AND TUCK ENDS INTO FITTING THROAT. b. EDGES OF ADJACENT INSULATION SHALL BE TUFTED AND TUCKED IN, TO FULLY INSULATE FITTING TO THICKNESS OF ADJACENT PIPE INSULATION. USE TWO OR MORE THICKNESS IS NECESSARY. c. IF TWO LAYERS OF INSULATION ARE USED ON FITTINGS, WRAP AND SECURE FIRST LAYER WITH TWINE BEFORE APPLYING SECOND LAYER. 	 YELLOW - HVAC EQUIPMENT RED- LIFE SAFETY (FIRE DAMPERS, SPRINKLER VALVES, ETC. GREEN - PLUMBING VALVES
	 d. TOP LAYER OF INSULATION SHALL BE COVERED WITH ONE PIECE, PVC, MOLDED JACKET COVER. SECURE COVER WITH STAINLESS STEEL TACK FASTENERS INSERTED INTO JACKET THROAT OVERLAP SEAM. e. TAPE JOINTS WITH PRESSURE-SENSITIVE VAPOR BARRIER TAPE; TAPE SHALL EXTEND 2" ON EITHER SIDE OF JOINT. 	 4) BLUE - HEATING/COOLING VALVES.
ROJECT.	 PRIOR TO TAPING OF JOINTS ON CHILLED WATER AND CONDENSER WATER LINES, APPLY VAPOR BARRIER MASTIC (BRUSHED ON) TO FITTING COVER, THROAT OVERLAP AND EDGES. ALSO APPLY VAPOR BARRIER MASTIC TO PIPE INSULATION JACKET ENDS. INSULATION FOR FITTINGS, VALVES AND FLANGES SHALL BE MITERED PIPE INSULATION OR MOLDED FITTINGS AS FOLLOWS: 	
APPLICABLE PERMITS	1. CONCEALED PIPING: MOLDED FITTINGS MADE SMOOTH WITH INSULATING CEMENT. 8 OZ. CANVAS JACKET SATURATED WITH APPROVED LAGGING ADHESIVE.	
IAL FIRE PROTECTION	 EXPOSED PIPING: 1/4" COAT OF INSULATING CEMENT OVER INSULATION, TROWELLED SMOOTH. 8 OZ. CANVAS JACKET SATURATED WITH APPROVED LAGGING ADHESIVE. UNDERGROUND/OUTDOORS: WEATHERPROOF, WITH TWO 1/8" WET COATS OF BREATHER TYPE MASTIC, REINFORCED WITH GLASS FABRIC EXTENDING 2" ONTO EITHER SIDE OF ADJACENT INSULATION. 	
	 P. REFRIGERATION LINE INSULATION 1. SUCTION LINES AND OUTDOOR LIQUID LINES SHALL BE INSULATED WITH 3/4" THICK RIGID CLOSED CELL FOAM INSULATION, ARMSTRONG RIGID ARMAFLEX, MANVILLE, OWENS CORNING OR HALSTEAD/NOMACO (INSULTUBE), 	
CTOR SHALL CORRECT	 INSTALLATION SHALL MEET MANUFACTURER'S RECOMMENDATIONS. SEAL BUTT JOINTS WITH INSULATION MANUFACTURERS APPROVED ADHESIVE. 	
	3. OUTSIDE ABOVE GROUND INSULATION SHALL BE PROTECTED WITH TWO COATS OF APPROVED VINYL LACQUER COATING OVER WOVEN GLASS MESH ADHERED TO INSULATION WITH INSULCOLOR OR APPROVED EQUAL LAGGING ADHESIVE, AS RECOMMENDED BY MANUFACTURER.	
	4. REFRIGERANT PIPING IN HUNG CEILING AND UNDERFLOOR SUPPLY AND RETURN PLENA SHALL BE INSULATED WITH 1" THICK FIBROUS GLASS INSULATION THAT MEETS APPLICABLE REQUIREMENTS OF THIS PARAGRAPH.	
	A. PROVIDE PIPE STANDS, SUPPORTS, HANGERS AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS.	
DSE OF SHOWING THE	 B. SECURE VERTICAL PIPING TO BUILDING CONSTRUCTION TO PREVENT SAGGING OR SWINGING. C. SPACE HANGERS FOR HORIZONTAL PIPING AS FOLLOWS: 	
	 UP TO 1-1/4": PROVIDE 3/8" DIAMETER ROD, SPACED AT 8'-0" ON CENTER (MAXIMUM SPACING). HORIZONTAL COPPER TUBING SHALL HAVE MAXIMUM HANGER SPACING OF 6' FOR TUBING 1-1/4" DIA. AND SMALLER AND 10' FOR TUBING 1-1/2" AND LARGER. MAXIMUM SPACING FOR PVC PIPE HANGERS SHALL BE 4'. 	
N SHALL CONSIST OF 3 ABLE AFTER GENERAL	 E. REDUCE SPACING TO A MAXIMUM OF 10' - 0" APART, REGARDLESS OF PIPE SIZE, AS NECESSARY FOR FITTINGS, VALVES AND OTHER CONCENTRATED LOADS. F. SUPPORT PIPING 3" DIA. AND LARGER FROM STRUCTURE WITH PIPE ROLL HANGERS WITH ADJUSTABLE STEEL ROD HANGERS. SIZED TO ACCOMMODATE INSULATION. 	
TROLS, AND REDUCED	 G. SUPPORT PIPING 3 DIA: AND LANGERT ROM STRUCTURE WITH CARPENTER AND PATTERSON FIG. 100 CLEVIS HANGERS OR APPROVED EQUAL, WITH ONE ½" ADJUSTABLE STEEL ROD; OR, FROM SIDE WALL BY EXPANSION SHIELDS, ANGLE IRON BRACKETS AND RODS. 	
	H. HANGERS SHALL BE BY CARPENTER & PATTERSON, F & S, OR GRINNELL CO. FIGURE NUMBERS OF CARPENTER AND PATTERSON ARE SPECIFIED TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.	
	 I. PROVIDE SPRING HANGERS WITH TRAVEL STOPS AS SPECIFIED IN VIBRATION ISOLATION PARAGRAPH WHERE NECESSARY AND WHERE SHOWN ON DRAWINGS. J. PIPE SUPPORTS FOR INSULATED HIGH-TEMPERATURE PIPING SHALL HAVE WELDED INSERTS OF EQUAL THICKNESS TO INSULATION TO PREVENT COMPRESSION OF INSULATION. OTHER INSULATED PIPE SHALL HAVE 10" SHIELDS AT HANGERS, COMPOSED OF 180 DEGREE COVERAGE OF GALVANIZED SHEET METAL AND HIGH DENSITY, PRE-FORMED, RIGID INSULATION. WHERE ROLLERS ARE REQUIRED, SHIELD SHALL BE STEEL PIPE. 	
	K. HANGERS FOR HORIZONTAL LINES SHALL BE VERTICALLY ADJUSTABLE TO OBTAIN PITCH REQUIREMENTS OF PIPING PARAGRAPH.	
	2.4 SLEEVES AND PENETRATIONS A. PIPE SLEEVES	
	 SLEEVES THROUGH FLOORS AND THROUGH EXTERIOR, STRUCTURAL AND FIRE-RATED CONSTRUCTION SHALL BE HOT-DIPPED GALVANIZED SCHEDULE 40 STEEL PIPE. SLEEVES THROUGH PARTITIONS AND NON-FIRE-RATED CONSTRUCTION SHALL BE 26 GAUGE GALVANIZED STEEL WITH LOCK LONGITUDINAL SEAMS, OR APPROVED PLASTIC PIPE. 	
	3. PROVIDE WATERPROOFING MEMBRANE LOCKING DEVICES AT FLOORS. PROVIDE 150 LB. SLIP-ON WELDING FLANGES AT EXTERIOR WALL PENETRATIONS.	
O ACCOMMODATE THE	 B. DUCT SLEEVES AND OPENINGS 1. SLEEVES THROUGH FLOORS, THROUGH EXTERIOR STRUCTURE, THROUGH FIRE-RATED CONSTRUCTION AND THROUGH SMOKE PARTITIONS THAT REQUIRE SMOKE DAMPERS SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE FOR ROUND DUCT AND SHALL MEET SMACNA FIRE DAMPER AND HEAT STOP GUIDE FOR RECTANGULAR AND FLAT OVAL DUCTS. FIREPROOF PACKING SHALL BE APPLIED TO SEAL ANY OPENINGS BETWEEN SLEEVE AND WALL. 	
O ACCOMMODATE THE	MATERIALS SHALL MAINTAIN THE FIRE RATING OF THE WALL, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE SMACNA FIRE DAMPER AND HEAT STOP GUIDE. 2. OPENINGS IN WALLS, PARTITIONS AND OTHER FIRE-RATED CONSTRUCTION THAT DO NOT REQUIRE SMOKE DAMPERS SHALL MEET NFPA 90A, SECTION 3-3.8.	
	3. MATERIALS FOR PREPARED OPENINGS IN PARTITIONS SHALL MATCH CONSTRUCTION PENETRATED.	
HE SUBSTITUTED ITEM	 C. PIPE SLEEVE PACKING 1. PACKING BETWEEN THE PIPE AND THE SLEEVE (OR WALL OR SLAB OPENING) IN FIRE RATED WALLS OR SLABS SHALL BE A COMBINATION OF FIREPROOF INSULATION AND FIREPROOF CAULK. THE COMBINATION OF MATERIALS SHALL HAVE THE SAME FIRE RATING, IN HOURS, AS THE WALL OR SLAB, AS TESTED IN ACCORDANCE WITH THE LATEST EDITION OF ASTME-119. THE COMBINATION OF MATERIALS SHALL BE CLASSIFIED BY UL, (FILL, VOID OR 	
	CAVITY MATERIALS) FOR THE FIRE RATING REQUIRED AND SHALL BE LISTED AS A NUMBERED SYSTEM IN THE UL BUILDING MATERIALS DIRECTORY. FIBERGLASS SHALL NOT BE USED AS THE INSULATION MATERIAL.	
THE CONTRARY IN THE	ACCEPTABLE FIREPROOF CAULKS SHALL BE SILICONE (FIRESTOP BY DOW CORNING); CERAMIC FIBER (FYREPUTTY BY STANDARD OIL) OR INTUMESCENT SYNTHETIC ELASTOMER (FIRE BARRIER CAULK BY 3M) 3. PACKING FOR SLEEVES THAT DO NOT REQUIRE MAINTENANCE OF FIRE RATING SHALL BE OAKUM, SILICATE FOAM, CERAMIC FIBER OR MINERAL FIBER WITH APPROVED SEALANT. PACK OR FOAM TO WITHIN 1" OF BOTH WALL SURFACES. SEAL PENETRATION PACKING WITH APPROVED CAULKING AND PAINTABLE WATERPROOF MASTIC SURFACE FINISH OR SILICONE CAULKING.	
ALL SALES TAXES AND	4. ALL MATERIALS MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; ALL GAPS MUST BE SEALED. FINISH CAULK FLUSH WITH WALL OR SLAB SURFACE IF PIPING RUNS EXPOSED.	
PROJECT, ALL AS PART	 D. OTHER WATERPROOF PIPE PENETRATIONS 1. MODULAR MECHANICAL PENETRATION SEALS SHALL BE INTERLOCKING SYNTHETIC RUBBER LINKS SHAPED TO FILL ANNULAR SPACE CONTINUOUSLY, WITH GALVANIZED CARBON STEEL BOLTS, NUTS AND PRESSURE PLATES TO EXDAND RUBBER SEAL RETWICEN DIPE AND SUFFYER SEAL SUBJECT AND RESOURCE PLATES 	
	TO EXPAND RUBBER SEAL BETWEEN PIPE AND SLEEVE. SLEEVE SEAL SHALL BE WATERTIGHT. 2. PREFABRICATED MODULAR SLEEVES SHALL BE MASON INDUSTRIES (SWS) OR APPROVED EQUAL STIFFENED GALVANIZED STEEL SLEEVES WITH PREFORMED CLOSED-CELL ELASTOMERIC SEAL (NON-FIRE-RATED) OR PREFORMED MINERAL FIBER OR SILICONE FOAM SEAL (FIRE-RATED).	
S WORK CARRIES WITH	3. PROVIDE WATERPROOF 1" SINGLE RING SET IN SILICONE AND BOLTED TO FLOOR OR WALL AT CHIPPED AND DRILLED PENETRATIONS OF EXISTING SLABS ON GRADE AND EXISTING WALLS BELOW GRADE.	
ON FOR OMITTING THE	 2.5 PIPING IDENTIFICATION A. SCHEDULE 40 PVC AND OTHER NON-METALLIC PIPING USED FOR VENTILATION AIR, MAKE-UP AIR, OR COMBUSTION AIR INTAKE SHALL BE LABELED AS FOLLOWS: 1. THROUGHOUT THE ENTIRE DEVELOPED LENGTH: 	
NTENT EXPRESSED ON	 a. LABELS MUST BE PLACED EVERY TEN FEET FOR EXPOSED/VISIBLE PIPING. b. LABELS MUST BE PLACED EVERY THREE FEET FOR CONCEALED PIPING. c. LABELS MUST BE PLACED AT ALL CHANGES OF DIRECTION. 	
DRMATION PURPOSES.	 THE PIPING SHALL BE IDENTIFIED WITH SEMI-RIGID PLASTIC IDENTIFICATION MARKERS EQUAL TO SETMARK PIPE MARKERS, AS MANUFACTURED BY SETON WITH ARROWS THAT SHOW DIRECTION OF FLOW. METALLIC PIPING, EXCEPT PIPING WITHIN INACCESSIBLE CHASES SHALL BE IDENTIFIED WITH SEMI-RIGID PLASTIC IDENTIFICATION MARKERS EQUAL TO SETMARK PIPE MARKERS, AS MANUFACTURED BY SETON WITH ARROWS THAT SHOW DIRECTION OF FLOW. 	
	C. MARKER BACKGROUNDS SHALL BE COLOR CODED WITH A CLEARLY PRINTED LEGEND TO IDENTIFY CONTENTS OF PIPE AS REQUIRED BY SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS (ANSI A13.1-1975). D. SETMARK TYPE SNA MARKERS SHALL BE USED ON OVERALL DIAMETERS THROUGH 5 INCHES.	
	 E. SETMARK TYPE STR MARKERS SHALL BE USED ON OVERALL DIAMETERS GREATER THAN 5 INCHES. F. MARKERS SHALL BE LOCATED NEXT TO EACH VALVE. AT EACH BRANCH. AT EACH PIPE PASSAGE THROUGH WALLS (BOTH SIDES), AND ON ALL HORIZONTAL PIPING AT 20-FOOT INTERVALS MAXIMUM. 	
ISH INFORMATION AND	2.6 HVAC SYSTEMS IDENTIFICATION TAGS	
MAKE SATISFACTORY	A. GENERAL: PROVIDE MANUFACTURER'S STANDARD PRODUCTS OF CATEGORIES AND TYPES REQUIRED FOR EACH APPLICATION SPECIFIED. FOR EACH IDENTIFICATION TYPE, PROVIDE ALL PRODUCTS FROM SAME MANUFACTURER WITH SAME TEXT, STYLE, COLOR, SHAPE, AND OTHER IDENTIFICATION FEATURES.	
NTRACTOR SHALL PAY HIS WORK WHICH WAS	 ALL LABELS IDENTIFICATION TAGS SHALL COMPLY WITH ASME STANDARDS: A13.1 FOR COLOR SCHEME, LETTERING SIZE, LENGTH OF COLOR FIELD, AND VIEWING ANGLES OF IDENTIFICATION DEVICES. PROVIDE NAMEPLATES WITH THE UNIT NUMBER ON ALL MECHANICAL EQUIPMENT. PROVIDE PIPE IDENTIFICATION LABELS INCLUDING DIRECTION-OF-FLOW ARROWS AND WITH SERVICE INDICATED. ALL LABELS SHALL HAVE BACKGROUND COLORS MATCHED WITH SPECIFIC SERVICE DESIGNATION. 	
S WORK TO CORRECT	 PROVIDE VALVE TAG NUMBERS ON HVAC PIPING VALVES. PROVIDE DUCT IDENTIFICATION LABELS INCLUDING DIRECTION-OF-FLOW ARROWS AND WITH SERVICE INDICATED. ALL LABELS SHALL HAVE BACKGROUND COLORS MATCHED WITH SPECIFIC SERVICE DESIGNATION. 	
S IS DIAGRAMMATIC IN OF THE ENGINEER AND	B. EQUIPMENT LABELS	
T EXTRA COST TO THE	 PLASTIC LABELS FOR EQUIPMENT (INDOOR APPLICATION): a. MATERIAL AND THICKNESS: MULTILAYER, MULTICOLOR, PLASTIC LABELS FOR MECHANICAL ENGRAVING, 1/16 INCH THICK. b. LETTER COLOR: BLACK 	
ONTRACTOR SHALL BE	 BACKGROUND COLOR: WHITE MINIMUM LABEL SIZE: LENGTH AND WIDTH VARY FOR REQUIRED LABEL CONTENT, BUT NOT LESS THAN 1 BY 3 INCHES. MINIMUM LETTER SIZE: 4/4 INCH 	
SARY DRAWINGS FOR	e. MINIMUM LETTER SIZE: 1/4 INCH. f. ADHESIVE: CONTACT-TYPE PERMANENT ADHESIVE, COMPATIBLE WITH LABEL AND WITH SUBSTRATE.	
The opening is less Dr. For cutting and	 PLASTIC LABELS FOR EQUIPMENT (OUTDOOR APPLICATION): a. MATERIAL: MS-215 MAX-TEK WITH PRINTED GRAPHICS PROTECTED BY A CHEMICAL AND UV RESISTANT MS-3000 TOP LAMINATE. b. LETTER COLOR: BLACK 	
	 BACKGROUND COLOR: WHITE MINIMUM LABEL SIZE: LENGTH AND WIDTH VARY FOR REQUIRED LABEL CONTENT, BUT NOT LESS THAN 1 BY 3 INCHES. 	
MADE TO ACCOMPLISH S REQUIRED FOR THE CONTRACTOR.	e. MINIMUM LETTER SIZE: 1/4 INCH. f. ADHESIVE: CONTACT-TYPE PERMANENT ADHESIVE, COMPATIBLE WITH LABEL AND WITH SUBSTRATE.	
	 C. PIPE LABELS (INDOOR PIPING) 1. PROVIDE LABELS FOR ABOVE GROUND PIPING LOCATED INDOORS, AND NOT EXPOSED TO SUNLIGHT OR A HARSH ENVIRONMENT. 	
WITH THERMOSETTING N PIPING PARAGRAPH.	 PRE-PRINTED, COLOR-CODED, WITH LETTERING INDICATING SERVICE, AND SHOWING FLOW DIRECTION. LETTERING SHALL BE SUB-SURFACE PRINTED AND PROTECTED FROM DIRECT CONTACT BY A LAYER OF PLASTIC. MARKERS WITH SURFACE PRINTED LETTERING WILL NOT BE ACCEPTED. PIPE LABELS FOR PIPE O.D. LESS THAN 8 INCHES: MS-970 COILED, SEMI RIGID PLASTIC FORMED TO COVER FULL CIRCUMFERENCE OF PIPE AND TO ATTACH TO PIPE WITHOUT FASTENERS OR ADHESIVE IN CONTACT WITH THE 	
N FIFING FARAGRAFH.	 PIPE LABELS FOR PIPE 0.D. 8 INCHES AND OVER: MS-970 STRAP-ON, SEMI RIGID PLASTIC TO COVER PARTIAL CIRCUMFERENCE OF PIPE AND TO ATTACH TO PIPE WITH NYLON TIES 	
'E. PROVIDE HOLES IN	E. VALVE TAGS	
	 a. TAG MATERIAL: BRASS, 0.032 INCH MINIMUM THICKNESS, AND HAVING PREDRILLED OR STAMPED HOLES FOR ATTACHMENT HARDWARE. b. BACKGROUND COLOR: NATURAL BRASS. 	
	c. LETTER COLOR: BLACK. d. TAG SIZE: 1-1/2 INCHES, ROUND. e. FASTENERS: BRASS S-HOOKS AND JACK CHAIN.	
ED TO STEEL SLEEVE.	 VALVE TAGS: FOR OUTDOOR LABELING OF PROCESS VALVES. MATERIAL: MS-215 MAX-TEK WITH PRINTED GRAPHICS PROTECTED BY A CHEMICAL AND UV RESISTANT MS-3000 TOP LAMINATE. AND HAVING STAINLESS STEEL GROMMET PROTECTED PREDRILLED HOLES WITH FOR 	
BY OWENS CORNING,	ATTACHMENT HARDWARE. b. BACKGROUND COLOR: TO MATCH PIPE LABEL COLOR BY SYSTEM.	
	 c. LETTER COLOR: EITHER WHITE OR BLACK FOR BEST CONTRAST TO BACKGROUND COLOR. d. TAG SIZE: MINIMUM 1-1/2 INCHES. e. FASTENERS: STAINLESS STEEL S-HOOKS AND STAINLESS STEEL JACK CHAIN. 	
IRE WALLS OR SMOKE	F. DUCT LABELS (NON-PLENUM SPACE)	
JOUS VAPOR BARRIER	 PRE-PRINTED, COLOR-CODED, WITH LETTERING INDICATING ASSOCIATED EQUIPMENT, SERVICE, AND SHOWING FLOW DIRECTION. a. CONTENTS: INCLUDE IDENTIFICATION OF DUCT SERVICE USING SAME SYSTEM DESIGNATION AS USED ON DRAWINGS AND AN ARROW INDICATING FLOW DIRECTION. ON EACH LABEL, PREFIX THE SYSTEM DESIGNATION WITH THE ASSOCIATED EQUIPMENT NUMBER (EXAMPLE: AHU-1 SUPPLY AIR). 	
SATE, CHILLED WATER,	 b. MATERIAL: MS900 VINYL WITH PRESSURE SENSITIVE ACRYLIC ADHESIVE BACKING. c. MARKER SIZE: 2-1/4 INCH HIGH, WITH LENGTH TO SUIT REQUIRED LABEL CONTENT. 	
WATER, CONDENSER	 d. LETTERING SIZE: MINIMUM 1-1/2 INCHES HIGH e. DIRECTION-OF-FLOW ARROWS: SEPARATE UNIT FOR EACH DUCT LABEL TO INDICATE FLOW DIRECTION. f. ARROW MARKER SIZE: 2-1/4 INCH BY 6-1/2 INCHES. 	
	2. DUCT LABEL COLOR SCHEDULE:	
ENED WITH 16 GAUGE		
SS FOR 2-1/2" CHILLED	G. DUCT LABELS (PLENUM SPACE)	
CONTINUOUS RUNS OF	 PRE-PRINTED, COLOR-CODED, WITH LETTERING INDICATING ASSOCIATED EQUIPMENT, SERVICE, AND SHOWING FLOW DIRECTION. a. CONTENTS: INCLUDE IDENTIFICATION OF DUCT SERVICE USING SAME SYSTEM DESIGNATION AS USED ON DRAWINGS AND AN ARROW INDICATING FLOW DIRECTION. ON EACH LABEL, PREFIX THE SYSTEM DESIGNATION WITH THE ASSOCIATED EQUIPMENT NUMBER (EXAMPLE: AHU-1 SUPPLY AIR). b. MATERIAL: MS-4000 1.6 MIL ALUMINUM WITH PRESSURE SENSITIVE ADHESIVE BACKING. MEETS NFPA 101 LIFE SAFETY CODE FOR CLASS A MATERIALS. 	
	 MATERIAL: MS-4000 1.6 MIL ALUMINUM WITH PRESSURE SENSITIVE ADHESIVE BACKING. MEETS NEPA 101 LIFE SAFETY CODE FOR CLASS A MATERIALS. MARKER SIZE: 2-1/4 INCH HIGH, WITH LENGTH TO SUIT REQUIRED LABEL CONTENT. 	



2.8 SHEET METAL DUCTWORK

A. REFERENCE STANDARDS

- 1. MATERIAL, CONSTRUCTION AND INSTALLATION SHALL MEET REQUIREMENTS OF MOST RECENT EDITIONS OF THE FOLLOWING STANDARDS AND REFERENCES, EXCEPT FOR MORE STRINGENT REQUIREMENTS SHOWN ON DRAWINGS. 2. SMACNA HVAC DUCT CONSTRUCTION STANDARDS (METAL AND FLEXIBLE) SHALL BE APPLICABLE TO SHEET METAL DUCTWORK, DUCT LINERS, ADHESIVES, FASTENERS, AND FLEXIBLE DUCTWORK
- 3. SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL SHALL BE APPLICABLE TO DUCT LEAKAGE TESTING.
- 4. NFPA 90 SHALL BE APPLICABLE TO FIRE DAMPERS AND FIRE RESISTANCE STANDARDS FOR DUCTS AND LINERS.
- 5. SMACNA GUIDELINES FOR WELDING SHEET METAL SHALL BE APPLICABLE TO WELDED GALVANIZED DUCT, BLACK IRON DUCT, AND STAINLESS STEEL DUCT.

B. GENERAL

- 1. PROVIDE SUPPORTING AND HANGING DEVICES NECESSARY TO ATTACH ENTIRE HVAC SYSTEM INCLUDING DUCTWORK AND EQUIPMENT, AND TO PREVENT VIBRATION.
- 2. PROVIDE VERTICAL AND HORIZONTAL SUPPORTS AS REQUIRED BY CODES TO MEET MINIMUM APPLICABLE EARTHQUAKE RESISTANCE STANDARDS.
- 3. DUCTWORK SHALL BE FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATION.
- 4. DIMENSIONS SHOWN ON DRAWINGS FOR LINED DUCTWORK ARE NET INSIDE DIMENSIONS. INCREASE DUCTWORK TO ACCOMMODATE LINING REQUIREMENTS.
- 5. PIPE OR CONDUIT CROSSING DUCT
- a. NO PIPE, CONDUIT, HANGER, ARCHITECTURAL ELEMENT NOR STRUCTURAL MEMBER SHALL PASS THROUGH DUCT WITHOUT ARCHITECT'S WRITTEN APPROVAL. b. WHERE IT IS IMPOSSIBLE TO RE_ROUTE PIPE OR CONDUIT AND WHEN WRITTEN APPROVAL HAS BEEN OBTAINED, INCREASE DUCT SIZE TO MAINTAIN CONSTANT CROSS-SECTIONAL AREA AT POINT (PROVIDE STREAMLINED ENCLOSURE FOR PIPE OR CONDUIT, AS ILLUSTRATED IN SMACNA.
- 6. WHEN MAKING OFFSETS AND TRANSFORMATIONS NECESSARY TO ACCOMMODATE STRUCTURAL CONDITIONS, PRESERVE FULL CROSS_SECTIONAL AREA OF DUCTWORK SHOWN ON DRAWINGS. 7. DUCTWORK CONSTRUCTION
- a. ALL DUCTWORK SYSTEMS SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH SMACNA STANDARDS FOR THE SPECIFIED PRESSURE-VELOCITY CLASSIFICATIONS.

DUCT SYSTEM	MATERIAL	SMACNA PRESSURE CLASS	PRESS	SMACNA SEAL CLASS	VELOCITY (FPM)	METHOD OF CONSTRUCTIO N
SUPPLY DUCTWORK FOR LOW PRESSURE SYSTEMS AND DOWNSTREAM OF VAV TERMINAL	GALVANIZE D STEEL	2"	POS	8	<2500	;
RETURN AIR DUCTWORK FOR LOW PRESSURE SYSTEMS	GALVANIZE D STEEL	2"	ŃĖĠ	8	<2500	
GENERAL LOW PRESSURE EXHAUST DUCTWORK	GALVANIZE DISTEEL	2"		8	<2500	
TOILET EXHAUST DUCTWORK	GALVANIZE DISTEEL	2"		3	<2500	
DRYËR ËXHAUST DUCTWORK	ALUMINUM	2"		3	<2500	
COMMERCIAL KITCHEN EXHAUST	BLACK IRON	6"	NEG	A	>2000	WELDED

*FOR NEGATIVE PRESSURES OVER 3" W.G., REFER TO SMACNA ROUND AND RECTANGULAR INDUSTRIAL DUCT CONSTRUCTION STANDARDS FOR JOINT AND INTERMEDIATE REINFORCEMENT REQUIREMENTS. 8. DUCTS REQUIRED TO BE CONTINUOUSLY WELDED AND WITH ALL PENETRATIONS SEALED (DAMPER RODS, ACCESS DOORS, ETC.) SHALL BE LIQUID-TIGHT AND SHALL BE AIRTIGHT. THE LEAKAGE TEST SHALL RATE. ALL WELDING SHALL USE INERT GAS SHIELDING WITH FILLER ROD EQUAL TO OR EXCEEDING THE BASE METAL PROPERTIES.

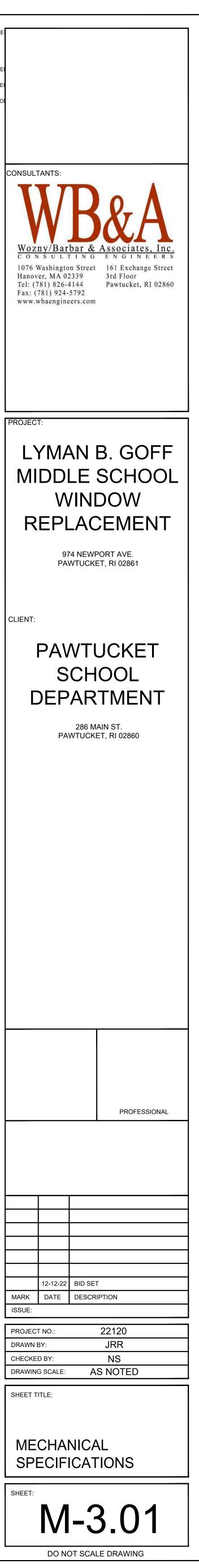
9. SUPPORT

a. SPACE HANGERS AS REQUIRED BY SMACNA (8 FT MAX) FOR HORIZONTAL DUCT ON 8 FT. CENTERS, UNLESS CONCENTRATED LOADINGS REQUIRE CLOSER SPACING. b. SUPPORT VERTICAL DUCT ON EACH FLOOR OR SLAB IT PENETRATES.

- c. SUPPORTS FOR DUCTWORK AND EQUIPMENT SHALL BE GALVANIZED UNLESS SPECIFIED OTHERWISE.
- 10. CONNECTIONS a. CONNECT INLETS AND OUTLETS OF HEAT RECOVERY UNITS AND FANS TO DUCTWORK WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE UNIT WITH FLEXIBLE CONNECTIONS UNLESS FAN HAS VIBRATION ISOLATOR MOUNTS INSIDE WOUNTS INSIDE WO b. INDOORS, FLEXIBLE CONNECTIONS SHALL BE NEOPRENE_COATED FIBROUS GLASS FIRE RETARDANT FABRIC, BY VENTFABRICS, OR DURODYNE. OUTDOORS, FLEXIBLE CONNECTIONS SHALL BE DUPONT FIBROUS GLASS FIRE , WEATHER , AND UV RESISTANT BY VENTFABRICS OR DURODYNE. c. SECURE FLEXIBLE CONNECTIONS TIGHTLY TO AIR HANDLERS WITH METAL BANDS. BANDS SHALL BE SAME MATERIAL AS DUCT CONSTRUCTION.
- d. CONNECTIONS FROM TRUNK TO BRANCH DUCTS SHALL BE AS DETAILED ON DRAWINGS. 11. CONSTRUCTION
- a. NO SHARP METAL EDGES SHALL EXTEND INTO AIR STREAMS. b. INSTALL DRIVE SLIPS ON AIR_LEAVING SIDE OF DUCT WITH SHEET METAL SCREWS ON 6" CENTERS.
- c. SPIN IN COLLARS SHALL NOT BE USED. 12. JOINTS
- a. LONGITUDINAL LOCK SEAMS SHALL BE DOUBLE LOCKED AND FLATTENED TO MAKE TIGHT JOINTS. b. MAKE TRANSVERSE JOINTS, FIELD CONNECTIONS, COLLAR ATTACHMENTS AND FLEXIBLE CONNECTIONS TO DUCTS AND EQUIPMENT WITH SHEET METAL SCREWS OR BOLTS AND NUTS. DO NOT USE RIV 13. PREFABRICATED TRANSVERSE DUCT JOINTS
- a. TRANSVERSE JOINTS IN GALVANIZED SHEET METAL DUCTWORK MAY BE MADE WITH GALVANIZED GASKETED FRAME AND ANGLE DUCT JOINT SYSTEM BY DUCTMATE, TDF, TDC, OR APPROVED EQUAL. LEAST 20 GAUGE. PREFABRICATED TRANSVERSE DUCT JOINTS SHALL NOT BE USED FOR DUCT 16 GA. AND HEAVIER, NOR FOR DUCT 23 GA. OR LIGHTER. b. SECURE ANGLES TO DUCT WITH SCREWS (USING CLUTCHED ARBOR) OR SPOT_WELDS SPACED AS RECOMMENDED BY MANUFACTURER FOR DUCT PRESSURE CLASS.
- 14. ELBOWS AND BENDS a. ELBOWS AND BENDS FOR RECTANGULAR DUCTS SHALL HAVE CENTERLINE RADIUS OF 1.5 TIMES DUCT WIDTH WHEREVER POSSIBLE. ELBOWS FOR GREASE EXHAUST SHALL BE FULL RADIUS. MITERED ELBOWS ARE NOT ALLOWED IN GREASE DUCTS.
- b. WHERE CENTERLINE RADIUS IS LESS THAN 1.5 TIMES DUCT WIDTH (ON SUPPLY, RETURN AND EXHAUST DUCTWORK), ELBOWS SHALL BE RADIUS THROAT WITH RADIUS HEEL AND FULL LENGTH SPLI REQUIRED. WHEN CENTERLINE RADIUS (R) DIVIDED BY THE DUCT WIDTH (W) IS LESS THAN 1.5, PROVIDE THE FOLLOWING NUMBER OF SPLITTER VANES: R/W BETWEEN 1.49 AND 0.7 = 1; R/W BETWEEN 0
- BETWEEN 0.59 AND 0.55 = 3. MINIMUM INSIDE RADIUS (NOT CENTERLINE) SHALL BE 2". INSTALL VANES IN ACCORDANCE WITH SMACNA. c. FOR ROUND DUCTWORK PROVIDE STAMPED ELBOWS, WITH CENTERLINE RADII EQUAL TO 1-1/2 TIMES DUCT DIAMETER. PROVIDE GORED ELBOWS AS FOLLOWS:
- 1) 0 36 ELBOW ANGLE, 2 GORES. 2) 37 - 72 ELBOW ANGLE, 3 GORES. 3) 73 - 90 ELBOW ANGLE, 5 GORES.
- 15. ACCESS PANELS/DOORS
- a. PROVIDE PROPER PRESSURE AND LEAKAGE RATED, GASKETED, DUCT MOUNTED ACCESS PANELS/DOORS. IN INSULATED DUCTS, ACCESS DOORS SHALL BE INSULATED DOUBLE WALL. GAUGES OF DO OF HINGES, NO. AND TYPE OF DOOR LOCKS SHALL BE AS REQUIRED BY THE SMACNA DUCT CONSTRUCTION STANDARDS. UNHINGED DOORS SHALL BE CHAINED TO FRAME WITH A MINIMUM LENGTH LOSS OF DOOR. DOOR METAL SHALL BE THE SAME AS THE ATTACHED DUCT MATERIAL. THE MINIMUM SIZES ARE:
- 1) FIRE DAMPERS 12" X 12" OR LARGER 2) AUTOMATIC CONTROL DAMPERS _ 6" X 6" MINIMUM.
- MANUAL VOLUME DAMPERS 2 SF AND LARGER 6" X 6" MINIMUM. 4) AT ADDITIONAL LOCATIONS INDICATED ON DRAWINGS, OR SPECIFIED ELSEWHERE _ 12" X 12" MINIMUM.
- 5) FLOW MEASURING STATIONS 12" X 12" OR LARGER. 6) PROVIDE, AS AN ALTERNATE, ACCESS DOOR FOR ALL SUPPLY AIR DUCTWORK UPSTREAM AND DOWNSTREAM OF EACH ELBOW AND TEE AND AT INTERVALS OF APPROXIMATELY 40 FT. TO ALLOW M 20 FT. IN STRAIGHT HORIZONTAL RUNS FOR CLEANING - 24" X 24" UNLESS DUCT SIZE IS SMALLER IN WHICH CASE LARGEST SIZE POSSIBLE SHALL BE USED (MIN. 6" X 6"). b. ACCESS DOORS ARE NOT SHOWN ON THE DRAWINGS, BUT SHALL BE PROVIDED IN ACCORDANCE WITH THE ABOVE.
- 16. EXTRACTORS SHALL HAVE ADJUSTING ROD AND LOCKNUT ON OUTSIDE OF DUCT.
- 17. CONNECTIONS TO ROOF FANS:
- a. SHALL BE AT LEAST 22 GA. GALVANIZED STEEL SOLDERED WATERTIGHT. b. SOLDER SIDE SEAMS AT LEAST 12" UP FROM BOTTOM.
- c. PROVIDE SUITABLE DIELECTRIC GASKETS TO JOIN DISSIMILAR MATERIALS. 18. PLENUMS AND CONNECTIONS TO LOUVERS:
- a. SHALL BE 18 GA. MINIMUM CROSS_BROKEN AND PROPERLY REINFORCED WITH GALVANIZED ANGLE IRONS TO SMACNA REQUIREMENTS.
- b. SHALL HAVE BOTTOM AND CORNER SEAMS SOLDERED WATERTIGHT AT LEAST 12" UP FROM BOTTOM. c. SHALL HAVE NEOPRENE GASKETS OR OTHER NON_CORROSIBLE MATERIAL TO MAKE CONNECTIONS TO LOUVERS WATERTIGHT. d. SHALL PITCH CONNECTION BACK TOWARDS THE LOUVER. PROVIDE HALF_COUPLING DRAIN CONNECTION AT BOTTOM OF PLENUM UNLESS NOTED OTHERWISE. PIPE DRAIN TO NEAREST FLOOR DRAIN.
- 19. FLEXIBLE DUCTWORK
- e. SHALL HAVE UNUSED PORTIONS OF LOUVERS BLOCKED-OFF WITH SHEET METAL; SEALED AIR_AND WATER_TIGHT; INSULATED WITH 2" THICK 6_LB. DENSITY RIGID OR BOARD INSULATION.
- a. FLEXIBLE DUCTWORK, CONNECTING TO UNINSULATED OR UNLINED DUCT, SHALL BE VINYL COATED FIBERGLASS CLOTH 0.0057" MINIMUM THICKNESS, 25 STRANDS PER INCH MINIMUM THI CORROSION_RESISTANT HELICAL WIRE REINFORCEMENT. FLEX DUCT SHALL BE U.L. RATED FOR 12" W.C. POSITIVE PRESSURE, 2" W.C. NEGATIVE PRESSURE WITH A MAXIMUM VELOCITY OF 4000 FPM.
- LISTED AS A CLASS 1 CONNECTOR ACCORDING TO UL 181 AND SHALL MEET THE REQUIREMENTS OF NFPA 90A _ MAXIMUM ASTM E_84 FIRE HAZARD RATING SHALL BE 25 FLAME SPREAD, 50 FUEL C SMOKE DEVELOPED. UNINSULATED FLEXIBLE DUCT SHALL BE EQUIVALENT TO FLEXMASTER TYPE 4. b. FLEXIBLE DUCT CONNECTED TO INSULATED OR LINED DUCT SHALL BE INSULATED WITH 1 1/2". 1/2 LB. DENSITY FIBERGLASS INSULATION AND FLAME RETARDANT (UL LISTED) VAPOR BARRIER. MEETING A
- c. SUBMITTALS SHALL INCLUDE DATA ON CORE. IN ADDITION TO OTHER DATA LISTED ABOVE REQUIRED TO ENSURE THAT SUBMITTED PRODUCT MEETS THE REQUIREMENTS OF THESE SPECIFICATIONS. d. IF FLEXDUCT OTHER THAN THE MODELS LISTED ABOVE IS SUBMITTED, A SAMPLE OF THE FLEX SHALL BE SUBMITTED TO THE ARCHITECT. THE ARCHITECT SHALL HAVE SOLE DISCRETION IN DETERMIN
- SUBMITTED FLEX IS EQUIVALENT TO THAT OF THE NAMED ABOVE. e. FLEXIBLE DUCT SHALL BE AIRTIGHT, TRIPLE LOCK MECHANICALLY SPIRAL FORMED WITH SPIRAL CORRUGATION. MATERIAL SHALL BE 3003 ZERO TEMPER ALUMINUM, .0065" MINIMUM THICKNESS. f. PROVIDE SEALING COMPOUND AND METAL DRAW BANDS FOR INSTALLATION. SEE FURTHER PARAGRAPHS IN THIS SPECIFICATION, AND DETAILS FOR OTHER INSTALLATION REQUIREMENTS.
- C. FLEXIBLE DUCT
- 1. PROVIDE SUPPORTS AT MANUFACTURER'S RECOMMENDED INTERVALS. SAG SHALL NOT EXCEED ½" PER FOOT OF SPACING BETWEEN SUPPORTS. DUCTS SHALL NOT EXCEED 4 FEET LONG AND SHALL BE US
- RUN ONLY, NO OFFSETS OR TURNS.
- 2. HANGER AND SADDLE IN CONTACT WITH FLEXIBLE DUCT SHALL BE WIDE ENOUGH TO PREVENT RESTRICTION OF INTERNAL DUCT DIAMETER WHEN WEIGHT OF SUPPORTED SECTION RESTS ON HANGER OR S 3. FACTORY INSTALLED SUSPENSION SYSTEMS INTEGRAL TO FLEXIBLE DUCT ARE ACCEPTABLE AS ALTERNATIVE HANGING METHOD WHEN MANUFACTURER'S RECOMMENDED PROCEDURES ARE FOLLOWED.
- 4. COLLARS TO WHICH FLEXIBLE DUCTS ARE ATTACHED SHALL BE AT LEAST 2" LONG. SLEEVES FOR JOINING SECTIONS OF FLEXIBLE DUCT SHALL BE AT LEAST 4" LONG.
- 5. APPLY SEALING COMPOUND TO METALLIC SURFACE AT CONNECTION OF FLEXIBLE DUCT WITH SHEET METAL DUCTS, COLLARS AND MIXING BOXES. SLIP FLEXIBLE DUCTWORK OVER SEALING COMPOUND
- WITH 1/2" WIDE, COMMERCIALLY MADE METAL DRAW BANDS.
- D. COMBINATION FIRE/SMOKE DAMPERS 1. COMBINATION FIRE/SMOKE DAMPERS SHALL BE PROVIDED AND INSTALLED WHERE INDICATED ON DRAWINGS AND WHERE REQUIRED BY CODE AND LOCAL AUTHORITIES. REFER TO ARCHITECTS CONSTRU TO IDENTIFY FIRE RATED WALLS AND SMOKE BARRIERS.
- 2. THE COMBINATION FIRE/SMOKE DAMPER (FSD) SHALL BE EQUAL TO OR BETTER THAN A RUSKIN MODEL FSD60 WITH ELECTRONICALLY CONTROLLED CLOSURE AND A TS150 FIRESTAT.
- 3. SEQUENCE OF OPERATION a. SMOKE CONDITION OPERATION - WHEN SMOKE IS DETECTED (VIA A SMOKE DETECTOR), DURING TESTING OR IF POWER FAILURE OCCURS, THE DAMPER WILL CLOSE AND REMAIN CLOSED. WHEN CEASES (SMOKE DETECTOR RESET), THE TEST IS COMPLETED OR POWER IS RESTORED, THE DAMPER WILL AUTOMATICALLY RESET TO THE OPEN POSITION. THE DAMPER AUTOMATICALLY RESETS I
- OCCUR AND THE SYSTEM IS RESET. b. FIRE CONDITION OPERATION - WHEN TEMPERATURES IN EXCESS OF 165°F / 74°C ARE DETECTED, THE DAMPER WILL CLOSE AND LOCK. AT NO TIME SHALL THE DAMPER BE DISENGAGED FROM TH CESSATION OF THE FIRE CONDITIONS, THE DAMPER CAN BE REOPENED BY PRESSING THE RESET BUTTON LOCATED ON THE DAMPER ASSEMBLY.
- E. FIRE DAMPERS
- 1. FIRE DAMPERS SHALL BE INSTALLED IN THE DUCTWORK WHERE INDICATED ON THE DRAWINGS AND REQUIRED BY THE CODE AND LOCAL AUTHORITIES. SEE ARCHITECT'S CONSTRUCTION DOCUMENTS TO II
- WALLS AND FLOORS. 2. FIRE DAMPERS SHALL BE CONSTRUCTED AND INSTALLED WITH VISIBLE FUSIBLE LINKS IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS AND THE UNDERWRITER
- 3. INSPECTION AUTHORITIES HAVING JURISDICTION IN THE LOCALITY. FIRE DAMPERS SHALL BE BUCKLEY MODEL 150A OR 150B (VERTICAL OR HORIZONTAL) AS MANUFACTURED BY BUCKLEY ASSOCIATES (
- METAL WORKERS LOCAL 17 OR APPROVED EQUAL. 4. DAMPERS SHALL MEET NATIONAL FIRE PROTECTION ASSOCIATION REQUIREMENTS AS OUTLINED IN THE CURRENT N.F.P.A. BULLETIN 90-A. DAMPERS SHALL BEAR THE UNDERWRITERS' LABEL. DAMPERS
- WITH METAL SLEEVES AND FRAMING ANGLES. ALL DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MEANS BY WHICH THEY WERE U.L. TESTED.
- 5. FREE AREA MUST EQUAL OR EXCEED THAT OF THE SPECIFIED PRODUCT.
- 6. IF ADDITIONAL WALL OR/AND CEILING/FLOOR FRAMING FOR DAMPER INSTALLATION IS REQUIRED COORDINATE FRAMING INSTALLATION WITH GC. 7. HVAC CONTRACTOR SHALL COORDINATE FIRE DAMPER ACCESS PANEL LOCATIONS WITH GENERAL CONTRACTOR.
- F. VOLUME DAMPERS
- 1. NOTE: VOLUME DAMPERS ARE NOT SHOWN ON DRAWINGS, BUT DAMPERS SHALL BE PROVIDED AS NECESSARY FOR SYSTEM BALANCING AND AS REQUIRED BY THIS SPECIFICATION.
- 2. PROVIDE MANUAL ADJUSTABLE VOLUME DAMPERS, WITH EXTENDED MOUNT INDICATING AND LOCKING QUADRANTS:
- a. ON EACH SUPPLY, RETURN AND EXHAUST DUCT TAKE OFF. b. AT EACH TAKE-OFF TO REGISTER, GRILLE OR DIFFUSER (THESE ARE NOT SHOWN ON THE DRAWINGS). VOLUME DAMPER SHALL BE AS FAR AWAY FROM DIFFUSER OR GRILLE AS POSSIBLE FOR SYSTEM B.
- 3. DAMPERS SHALL BE 1/2" SMALLER IN BOTH DIMENSIONS OR 1" SMALLER DIAMETER THAN SIZE OF DUCT IN WHICH THEY ARE INSTALLED; E.G., USE 23_1/2" DAMPER FOR 24" SQUARE DUCT.
- 4. DAMPERS LARGER THAN 12" IN HEIGHT SHALL BE OPPOSED MULTI_BLADE.
- 5. DAMPER BLADES SHALL BE TWO GAUGES HEAVIER THAN ADJOINING DUCTWORK, AND SHALL BE RIVETED TO SUPPORTING RODS. HEM OVER EDGES PARALLEL TO RODS. 6. BRACKETS SHALL BE GALVANIZED METAL, SECURED TO DUCTWORK WITH SHEET METAL SCREW WITH LOCKING QUADRANT ARMS (SEE SEAL CLASS SECTION FOR ADDITIONAL REQUIREMENTS). PROVIDE 2" I
- FOR ALL DAMPERS ON EXTERNALLY INSULATED DUCTWORK. G. GRAVITY BACKDRAFT DAMPERS
- 1. BACKDRAFT DAMPERS SHALL HAVE 12 GA. GALVANIZED STEEL CHANNEL FRAME WITH 14 GA. GALVANIZED PRESS FORMED STEEL SUB FRAME AND 16 GA. REINFORCED GALVANIZED STEEL BLADES WITH EDG SHALL BE DESIGNED FOR VELOCITIES UP TO 3,500 FPM.
- 2. COUNTER-BALANCE ARMS SHALL BE 2 X ½ X 12" LG. HOT ROLLED STEEL BAR EXTERNAL TO DAMPER. COUNTER-WEIGHTS SHALL BE 2" DIA. HOT ROLLED STEEL BAR ATTACHED TO COUNTER-BALANCE ARMS.

	TO 48" WIDE. DAMPER SHALL HAVE ALL WELDED CONSTRUCTION.
MENTS SPECIFIED OR	3. DAMPERS SHALL BE AS MANUFACTURED BY VENT PRODUCTS (MODEL 3200) OR EQUIVALENT BY AMERICAN WARMING AND VENTILATING, AIR BALANCE OR RUSKIN.
	 H. MOTORIZED DAMPERS 1. CONTROL DAMPERS MEETING THE FOLLOWING SPECIFICATIONS SHALL BE FURNISHED AND INSTALLED WHERE SHOWN ON PLANS AND/OR AS DESCRIBED.
	2. DAMPERS SHALL CONSIST OF: A 16-GAUGE GALVANIZED STEEL CHANNEL FRAME WITH 5 IN. DEPTH; AIRFOIL SHAPED, GALVANIZED STEEL DOUBLE SKIN CONSTRUCTION BLADES (14-GAUGE EQUIVALENT THICKNESS) SHALL BE COMPLETELY SYMMETRICAL RELATIVE TO THEIR AXLE PIVOT POINT, PRESENTING IDENTICAL RESISTANCE TO AIRFLOW IN EITHER DIRECTION OR PRESSURE ON EITHER SIDE OF THE DAMPER; 1/2 IN. DIAMETE
	STEEL AXLES TURNING IN SYNTHETIC (ACETAL) SLEEVE BEARINGS; SILICONE BLADE SEALS; FLEXIBLE STAINLESS STEEL JAMB SEALS; AND EXTERNAL (OUT OF THE AIRSTREAM) BLADE-TO-BLADE LINKAGE. 3. DAMPER MANUFACTURER'S PRINTED APPLICATION AND PERFORMANCE DATA INCLUDING PRESSURE, VELOCITY AND TEMPERATURE LIMITATIONS SHALL BE SUBMITTED FOR APPROVAL SHOWING DAMPER SUITA PRESSURES TO 8 IN. WATER GAGE, VELOCITIES TO 4000 FPM AND TEMPERATURES TO 250°F. TESTING AND RATINGS TO BE IN ACCORDANCE WITH AMCA STANDARD 500-D. BASIS OF DESIGN IS GREENHECK MODEL VCD-
	4. DAMPER AIR LEAKAGE SHALL NOT BE GREATER THAN 3 CFM/SQ. FT. @ 1 IN. WATER GAGE.
	 5. TESTING AND RATINGS SHALL BE PER AMCA STANDARD 500-D. I. DIFFUSERS, REGISTERS, AND GRILLES
	1. PROVIDE STEEL DIFFUSERS, REGISTERS AND GRILLES FOR SUPPLY, RETURN AND EXHAUST OUTLETS, OF SIZE, TYPE AND DESIGN SHOWN ON DRAWINGS. ACCEPTABLE MANUFACTURERS SHALL BE TITUS, METALAIRE OR APPROVED EQUAL.
	2. EQUIPMENT SHALL BE TESTED AND RATED PER ASHRAE 91-70.
T OF INTERFERENCE.	 3. EQUIPMENT SHALL HANDLE AIR QUANTITIES AT OPERATING VELOCITIES: a. WITH MAXIMUM DIFFUSION WITHIN SPACE SUPPLIED OR EXHAUSTED.
	 b. WITHOUT OBJECTIONABLE AIR MOVEMENT AS DETERMINED BY ARCHITECT. c. WITH SOUND PRESSURE LEVEL NOT TO EXCEED NC 30 OR AS SPECIFIED ON DRAWINGS.
	 SUPPLY, RETURN AND EXHAUST OUTLETS SHALL HAVE OPPOSED BLADE VOLUME DAMPERS OPERABLE FROM FRONT. SUPPLY REGISTERS SHALL HAVE TWO SETS OF DIRECTIONAL CONTROL BLADES.
	6. DIFFUSERS WITHIN SAME ROOM OR AREA SHALL BE OF SAME TYPE AND STYLE TO PROVIDE ARCHITECTURAL UNIFORMITY.
	 SURFACE MOUNT DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED WITH GASKETS AND INSTALLED WITH FACES SET LEVEL AND PLUMB, TIGHTLY AGAINST MOUNTING SURFACE. FINISH SHALL BE AS DIRECTED BY ARCHITECT.
	9. COORDINATE DIFFUSERS, REGISTERS AND GRILLES WITH CEILING AND WALL CONSTRUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LENGTHS AND FOR FRAMING AND MITERING ARRANGEMENTS T DIFFER FROM THOSE SHOWN ON HVAC DRAWINGS.
	 THE PRODUCTS SHALL BE CLASSIFIED BY UNDERWRITERS' LABORATORIES FOR USE IN FIRE-RATED FLOOR/CEILING AND OR ROOF/CEILING ASSEMBLIES WITH UP TO A 3 HOUR RATING. THE DISCHARGE PATTERN SHALL BE 4-WAY HORIZONTAL AND SHALL BE ADJUSTED BY DROPPING THE PERFORATED FACE AND ROTATING THE PATTERN DEFLECTORS. REMOVABLE FACE SHALL HAVE SPRING CLIPS FACESS TO THE DAMPER.
	 THE PERFORATED FACE SHALL HAVE 3/16" (5) DIAMETER HOLES ON 1/4" (6) STAGGERED CENTERS.
	 THE FINISH SHALL BE AW APPLIANCE WHITE. EACH DIFFUSER SHALL BE PROVIDED WITH A VOLUME DAMPER ACCESSIBLE FOR DIFFUSER FACE FOR AIR VOLUME ADJUSTMENT.
L YIELD A ZERO LEAK	K. AIRFLOW AND TEMPERATURE MEASUREMENT DEVICES
	1. REFERENCES a. UL 873 - TEMPERATURE AND AIRFLOW INDICATING EQUIPMENT
	2. SUBMITTALS
	a. SUBMIT PRODUCT DATA SHEETS FOR AIRFLOW MEASURING DEVICES INDICATING MINIMUM PLACEMENT REQUIREMENTS, SENSOR DENSITY, SENSOR DISTRIBUTION, AND INSTALLED ACCURACY TO THE HOST SYSTEM.
ECTIONS. IT HYPALON COATED	 DEVICES WHOSE ACCURACY IS THE COMBINED ACCURACY OF THE TRANSMITTER AND SENSOR PROBES MUST DEMONSTRATE THAT THE TOTAL ACCURACY MEETS THE PERFORMANCE REQUIREMENTS SPECIFICATION THROUGHOUT THE MEASUREMENT RANGE.
	 b. SUBMIT A SCHEDULE OF AIRFLOW MEASURING DEVICES INDICATING COMPLIANCE WITH SPECIFIED ACCURACY AT MINIMUM AND MAXIMUM AIRFLOW RATES. c. SUBMIT INSTALLATION, OPERATION AND MAINTENANCE DOCUMENTATION.
	3. QUALIFICATIONS
	 a. MANUFACTURER: THE COMPANY MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION SHALL HAVE A MINIMUM OF TEN YEARS EXPERIENCE PRODUCING PRODUCTS OF THIS TYPE. 4. SYSTEM RESPONSIBILITY
	a. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL COSTS ASSOCIATED WITH ANY AND ALL CHANGES RESULTING FROM THE USE OF A SUPPLIER OTHER THAN THE LISTED ACCEPTABLE MANUFACTURER
/ETS AND STAPLES.	5. WARRANTY a. PROVIDE A MANUFACTURER'S PARTS WARRANTY FOR 36 MONTHS FROM THE DATE OF UNIT SHIPMENT.
ANGLES SHALL BE AT	 6. DELIVERY, STORAGE, AND HANDLING a. ALL HANDLING AND STORAGE PROCEDURES SHALL BE PER MANUFACTURER'S RECOMMENDATIONS b. AIRFLOW MEASURING DEVICES SHALL BE KEPT CLEAN AND DRY, PROTECTED FROM WEATHER AND CONSTRUCTION TRAFFIC.
	 ARFLOW MEASURING DEVICES SHALL BE REFT CLEAN AND DRT, FROTECTED FROM WEATHER AND CONSTRUCTION TRAFFIC. PRODUCTS INCLUDED IN THIS SECTION
TURNING VANES AND	a. DUCT AND PLENUM MOUNTED AIRFLOW MEASUREMENT DEVICES.b. FAN INLET MOUNTED AIRFLOW MEASUREMENT DEVICES.
LITTER VANES WHEN	8. ACCEPTABLE MANUFACTURERS a. EBTRON, INC. MODEL GTX116-P AND GTX116-F (BASIS OF DESIGN).
0.69 AND 0.6 = 2; R/W	 ALTERNATIVES REQUESTING ACCEPTANCE AS "EQUALS" LESS THAN 60 DAYS PRIOR TO BID DATE OR PRODUCTS SUBMITTED IN NON-CONFORMANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION WIL CONSIDERED.
	 FOR ANY PRODUCT TO BE CONSIDERED FOR SUBSTITUTION A WRITTEN SECTION-BY-SECTION DETAILED EXCEPTIONS/COMPLIANCE DOCUMENT SHALL BE SUBMITTED TO THE ENGINEER BEFORE ANY APPRO BE CONSIDERED.
	 b. PROVIDE AIRFLOW/TEMPERATURE MEASUREMENT DEVICES (ATMD) WHERE INDICATED ON THE PLANS. FAN INLET MEASUREMENT DEVICES SHALL NOT BE SUBSTITUTED FOR DUCT OR PLENUM MEASUREMENT INDICATED ON THE PLANS. c. EACH ATMD SHALL CONSIST OF ONE OR MORE SENSOR PROBES AND A SINGLE, REMOTELY MOUNTED, MICROPROCESSOR-BASED TRANSMITTER CAPABLE OF INDEPENDENTLY PROCESSING UP TO 16 INDEPENDENTLY PROCESSING
OOR MATERIALS, NO. H OF 6" TO PREVENT	WIRED SENSOR ASSEMBLIES. EACH SENSOR ASSEMBLY SHALL CONTAIN TWO INDIVIDUALLY WIRED, HERMETICALLY SEALED BEAD-IN-GLASS THERMISTORS. THERMISTORS SHALL BE MOUNTED IN THE SENSOR A USING A MARINE-GRADE, WATERPROOF EPOXY. THERMISTOR LEADS SHALL BE PROTECTED AND NOT EXPOSED TO THE ENVIRONMENT. THE AIRFLOW RATE OF EACH SENSOR ASSEMBLY SHALL BE EQUALLY W AND AVERAGED BY THE TRANSMITTER PRIOR TO OUTPUT. THE TEMPERATURE OF EACH SENSOR ASSEMBLY SHALL BE VELOCITY WEIGHTED AND AVERAGED BY THE TRANSMITTER PRIOR TO OUTPUT. EACH TRANS OUTPUT AND AVERAGED BY THE TRANSMITTER PRIOR TO OUTPUT. THE TEMPERATURE OF EACH SENSOR ASSEMBLY SHALL BE VELOCITY WEIGHTED AND AVERAGED BY THE TRANSMITTER PRIOR TO OUTPUT. EACH TRANSMIT
	SHALL HAVE A 16-CHARACTER ALPHA-NUMERIC DISPLAY CAPABLE OF DISPLAYING AIRFLOW, TEMPERATURE, SYSTEM STATUS, CONFIGURATION SETTINGS AND DIAGNOSTICS. DEVICES USING CHIP-IN-G DIODE-CASE CHIP THERMISTORS ARE NOT ACCEPTABLE. DEVICES USING LESS THAN TWO THERMISTORS IN EACH SENSOR ASSEMBLY ARE NOT ACCEPTABLE. DEVICES USING PLATINUM WIRE RTDS ARE NOT ACCEPTABLE. DEVICES HAVING ELECTRONIC CIRCUITRY MOUNTED IN OR AT THE SENSOR PROBE ARE NOT ACCEPTABLE. PITOT TUBES
	AND ARRAYS ARE NOT ACCEPTABLE. VORTEX SHEDDING DEVICES ARE NOT ACCEPTABLE. d. ALL SENSOR PROBES 1) EACH SENSOR ASSEMBLY SHALL INDEPENDENTLY DETERMINE THE AIRFLOW RATE AND
MAXIMUM REACH OF	TEMPERATURE AT EACH MEASUREMENT POINT. 2) EACH SENSOR ASSEMBLY SHALL BE CALIBRATED AT A MINIMUM OF 16 AIRFLOW RATES AND 3 TEMPERATURES TO STANDARDS THAT ARE TRACEABLE TO THE NATIONAL INSTITUTE OF
	STANDARDS AND TECHNOLOGY (NIST). 3) AIRFLOW ACCURACY SHALL BE +/-2% OF READING OVER THE ENTIRE OPERATING AIRFLOW RANGE. a) DEVICES WHOSE ACCURACY IS THE COMBINED ACCURACY OF THE TRANSMITTER AND SENSOR PROBES MUST DEMONSTRATE THAT THE TOTAL ACCURACY MEETS THE PERFORMANCE REQUIREMENTS
	SPECIFICATION THROUGHOUT THE MEASUREMENT RANGE. 4) TEMPERATURE ACCURACY SHALL BE +/-0.15° F OVER THE ENTIRE OPERATING TEMPERATURE RANGE OF -20° F TO 160° F. 5) THE OPERATING HUMIDITY RANGE FOR EACH SENSOR PROBE SHALL BE 0-99% RH (NON-CONDENSING).
	 6) EACH SENSOR PROBE SHALL HAVE AN INTEGRAL, U.L. LISTED, PLENUM RATED CABLE AND TERMINAL PLUG FOR CONNECTION TO THE REMOTELY MOUNTED TRANSMITTER. ALL TERMINAL PLUG INTERCONNEC' SHALL BE GOLD PLATED. 7) EACH SENSOR ASSEMBLY SHALL NOT REQUIRE MATCHING TO THE TRANSMITTER IN THE FIELD.
	 8) A SINGLE MANUFACTURER SHALL PROVIDE BOTH THE AIRFLOW/TEMPERATURE MEASURING PROBE(S) AND TRANSMITTER FOR EACH MEASUREMENT LOCATION. e. DUCT AND PLENUM PROBES 1) PROBES SHALL BE CONSTRUCTED OF EXTRUDED, GOLD ANODIZED, 6063 ALUMINUM TUBE. ALL WIRES WITHIN THE ALUMINUM TUBE SHALL BE KYNAR COATED.
	 2) PROBE ASSEMBLY MOUNTING BRACKETS SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL. PROBE ASSEMBLIES SHALL BE MOUNTED USING ONE OF THE FOLLOWING OPTIONS: a) INSERTION MOUNTED THROUGH THE SIDE OR TOP OF THE DUCT b) INTERNALLY MOUNTED INSIDE THE DUCT OR PLENUM
	c) STANDOFF MOUNTED INSIDE THE PLENUM 3) THE NUMBER OF SENSOR HOUSINGS PROVIDED FOR EACH LOCATION SHALL BE AS FOLLOWS: AREA (SQ. FT.) SENSORS
	<2 4 2 TO <4 6
HREAD COUNT WITH FLEXDUCT MUST BE CONTRIBUTED AND 50	4 TO <8 8 8 TO <16 12 >=16 16
ASTM E-84 RATING.	 4) THE OPERATING AIRFLOW RANGE SHALL BE 0 TO 5,000 FPM UNLESS OTHERWISE INDICATED ON THE PLANS. f. FAN INLET PROBES 1) SENSOR ASSEMBLIES SHALL BE MOUNTED ON 304 STAINLESS STEEL HOUSINGS.
	 2) MOUNTING RODS SHALL BE FIELD ADJUSTABLE TO FIT THE FAN INLET AND CONSTRUCTED OF NICKEL PLATED STEEL. 3) MOUNTING FEET SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL. 4) THE OPERATING AIRFLOW RANGE SHALL BE 0 TO 10,000 FPM UNLESS OTHERWISE INDICATED ON THE PLANS.
	 g. TRANSMITTERS f) THE TRANSMITTER SHALL HAVE AN INTEGRAL LCD DISPLAY CAPABLE OF SIMULTANEOUSLY DISPLAYING AIRFLOW AND TEMPERATURE. THE LCD DISPLAY SHALL BE CAPABLE OF DISPLAYING INDIVIDUAL AIRF TEMPERATURE READINGS OF EACH INDEPENDENT SENSOR ASSEMBLY.
USED FOR STRAIGHT	 THE TRANSMITTER SHALL BE CAPABLE OF FIELD CONFIGURATION AND DIAGNOSTICS USING AN ON-BOARD PUSHBUTTON INTERFACE AND LCD DISPLAY. THE TRANSMITTER SHALL HAVE A POWER SWITCH AND OPERATE ON 24 VAC (ISOLATION NOT REQUIRED). THE TRANSMITTER SHALL USE A SWITCHING POWER SUPPLY FUSED AND PROTECTED FROM TRANSIE POWER SURGES. THE TRANSMITTER SHALL USE "WATCH-DOG" CIRCUITRY TO ASSURE RESET AFTER POWER DISRUPTION, TRANSIENTS AND BROWN-OUTS.
SADDLE MATERIAL.	 ALL INTERCONNECTING PINS, HEADERS AND CONNECTIONS ON THE MAIN CIRCUIT BOARD, OPTION CABLE RECEPTACLES SHALL BE GOLD PLATED. THE OPERATING TEMPERATURE RANGE FOR THE TRANSMITTER SHALL BE -20° F TO 120° F. THE TRANSMITTER SHALL BE INSTALLED AT A LOCATION THAT IS PROTECTED FROM WEATHER AND WATER. THE TRANSMITTER SHALL BE CAPABLE OF COMMUNICATING WITH OTHER DEVICES USING ONE OF THE FOLLOWING INTERFACE OPTIONS:
	 a) LINEAR ANALOG OUTPUT SIGNALS FOR AIRFLOW AND TEMPERATURE: FIELD SELECTABLE, FUSE PROTECTED AND ISOLATED, 0-10VDC/4-20MA (4-WIRE). b) RS-485: FIELD SELECTABLE BACNET-ARCNET, BACNET-MS/TP, MODBUS-RTU OR JOHNSON CONTROLS N2-BUS. (1) BACNET DEVICES SHALL PROVIDE ANALOG VARIABLES FOR AIRFLOW AND TEMPERATURE CONTAINING INDIVIDUAL SENSOR AIRFLOW RATE AND TEMPERATURE DATA.
ND. COMPLETE SEAL	 c) 10 BASE-T ETHERNET: FIELD SELECTABLE BACNET ETHERNET, BACNET-IP, MODBUS-TCP AND TCP/IP. (1) PROVIDE DYNAMIC LINK LIBRARIES AND VBA FUNCTIONS TO INTERFACE ETHERNET DEVICES TO MICROSOFT EXCEL FOR REMOTE MONITORING OF AIRFLOW AND TEMPERATURE USING A WINDOWS 200 WINDOWS XP BASED PC.
UCTION DOCUMENTS	 d) LONWORKS FREE TOPOLOGY 7) THE TRANSMITTER SHALL BE CAPABLE OF ACCEPTING AN INFRA-RED INTERFACE CARD FOR DOWNLOADING AIRFLOW AND TEMPERATURE DATA OR UPLOADING TRANSMITTER CONFIGURATION DATA HANDHELD PDA (PALM OR MICROSOFT WINDOWS MOBILE OPERATING SYSTEMS).
	a) PROVIDE PDA UPLOAD/DOWNLOAD SOFTWARE. DOWNLOAD SOFTWARE SHALL BE CAPABLE OF DISPLAYING AND SAVING INDIVIDUAL SENSOR AIRFLOW RATES, THE AVERAGE AIRFLOW RATE, INDIVIDUAL SENSOR AIRFLOW RATES, THE AVERAGE AIRFLOW RATE, INDIVIDUAL SENSOR AIRFLOW RATES, THE AVERAGE TEMPERATURE RECEIVED FROM THE TRANSMITTER. UPLOAD SOFTWARE SHALL BE CAPABLE OF DISPLAYING AND SAVING ALL SETUP PARAMETERS THAT CAN BE CON USING THE ON-BOARD PUSHBUTTON INTERFACE AND LCD DISPLAY.
I THE SMOKE SIGNAL	 b) PROVIDE A MICROSOFT EXCEL FILE CAPABLE OF CREATING BALANCE REPORTS FROM PDA DATA FILES TRANSFERRED TO A WINDOWS 98 OR HIGHER BASED PC. c) PROVIDE A MICROSOFT EXCEL FILE TO CREATE CONFIGURATION DATA FILES THAT CAN BE TRANSFERRED FROM A WINDOWS 98 OR HIGHER BASED PC TO A PDA FOR UPLOAD TO ONE OR MORE TRANSMITT h. THE MEASURING DEVICE SHALL BE UL LISTED AS AN ENTIRE ASSEMBLY.
IF NUISANCE ALARMS HE ACTUATOR. UPON	 i. THE MEASURING DEVICE SHALL CARRY THE CE MARK FOR EUROPEAN UNION SHIPMENTS. j. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL REVIEW AND APPROVE PLACEMENT AND OPERATING AIRFLOW RATES FOR EACH MEASUREMENT LOCATION INDICATED ON THE PLANS. A WRITTEN SHALL BE SUBMITTED TO THE CONSULTING MECHANICAL ENGINEER IF ANY MEASUREMENT LOCATIONS DO NOT MEET THE MANUFACTURER'S PLACEMENT REQUIREMENTS.
	9. INSTALLATION a. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AT THE LOCATIONS INDICATED ON THE PLANS. A WRITTEN REPORT SHALL BE SUBMITTED TO THE CONSULTING MECHANICAL ENGINEE
IDENTIFY FIRE-RATED	 INCIDE IN ACCORDANCE WITH MARCHAETER INCIDENCIAL AND AND AND AND AND AND AND AND AND AND
ERS'.	a. DUCT AND PLENUM DEVICES SHALL NOT BE ADJUSTED APPROVAL FROM THE CONSULTING MECHANICAL ENGINEER.
(781-878-5000) SHEET SHALL BE INSTALLED	2.9 FLEXIBLE CONNECTIONS A. ALL FAN AND AIR SUPPLY UNIT CONNECTIONS, BOTH AT INLET AND DISCHARGE SHALL BE MADE WITH FLEXIBLE MATERIAL SO AS TO PROHIBIT THE TRANSFER OF VIBRATION FROM FANS TO DUCTWORK CONNECTING TWITHOUT AIR LEAKAGE. THE MATERIAL BETWEEN THE CLAMPS SHALL HAVE SUFFICIENT SLACK SO AS TO PREVENT TEARING DUE TO FAN MOVEMENT.
SHALL DE INSTALLED	 B. THE FLEXIBLE CONNECTIONS SHALL BE A MAXIMUM OF 12" LONG AND HELD IN PLACE WITH HEAVY METAL BANDS, SECURELY ATTACHED, TO PREVENT ANY LEAKAGE AT THE CONNECTION POINTS. C. FLEXIBLE CONNECTIONS SHALL BE FABRICATED FROM APPROVED FLAME PROVED FABRIC CONFORMING TO 90A OF THE NFPA ASBESTOS CLOTH IS NOT PERMITTED.
	2.10 ESCUTCHEONS AND DUCT COLLARS A. PROVIDE ADJUSTABLE ESCUTCHEONS ON EXPOSED PIPING THAT PASSES THROUGH FINISHED FLOORS, WALLS AND CEILINGS, ESCUTCHEONS SHALL BE CHROMIUM-PLATED CAST BRASS, SIZED TO COVER SLEEVE OPE
	TO ACCOMMODATE PIPE AND INSULATION. B. PROVIDE 4" WIDE 20 GAUGE GALVANIZED SHEET METAL COLLARS AT SLEEVES AND PREPARED OPENINGS, SIZED TO COVER ENTIRE DUCT PENETRATION INCLUDING SLEEVE AND SEAL, AND TO ACCOMMODATE D INSULATION AS NECESSARY. EDGES SHALL HAVE MILLED LIPS GROUND SMOOTH. PAINT TO MATCH FINISH OF DUCT OR AS DIRECTED BY ARCHITECT.
	2.11 INSULATION FOR SHEET METAL
	 A. NOTE THAT DUCTWORK AND CASINGS, WHICH ARE ACOUSTICALLY LINED, AS DESCRIBED ELSEWHERE, NEED NOT BE INSULATED ON THE EXTERIOR, PROVIDED THE LINER HAS A MINIMUM THERMAL RESISTANCE OF R-6. DL WITH LINER WHICH DOES NOT HAVE A THERMAL RESISTANCE OF R-6 OR BETTER SHALL BE INSULATED ON THE OUTSIDE OF THE DUCTWORK IN ACCORDANCE WITH CURRENT STATE AND LOCAL CODES. B. THE EXCEPTION TO THE ABOVE IS THAT ACOUSTICALLY LINED DUCTWORK ABOVE ROOF SHALL BE INSULATED ON THE EXTERIOR.
BALANCING.	 C. INSULATE SHEET METAL AS FOLLOWS: 1. ALL LOW PRESSURE SUPPLY DUCTWORK TO DIFFUSERS, GRILLES, AND REGISTERS TYPE D-1.
	 EXHAUST AIR DUCTS WITHIN ATTICS SHALL BE INSULATED WITH INSULATION TYPE D-1. SHEET METAL PLENUMS BEHIND LOUVERS CONTAINING ALL OR A PERCENTAGE OF OUTSIDE AIR ON INLET SIDE OF AIR HANDLING UNITS AND VENTILATION FANS - TWO INCH TYPE D-2.
" HANDLE EXTENSION	 OUTDOOR DUCTS WHETHER ACOUSTICALLY LINED OR NOT SHALL BE INSULATED WITH TYPE D-2 AND THEN WEATHER PROOFED. EXHAUST AIR DUCT FROM AUTOMATIC DAMPERS TO DISCHARGE LOUVERS (INCLUDING SHEET METAL PLENUMS BEHIND LOUVERS) TYPE D-2.
	 EXAMOST AIR DUCT FROM AUTOMATIC DAMPERS TO DISCHARGE LOUVERS (INCLUDING SHEET METAL PLENDING BEHIND LOUVERS) THE D-2. TYPE D-1 FLEXIBLE DUCT INSULATION WITH VAPOR BARRIER FLEXIBLE DUCT INSULATION SHALL BE R-6 GLASS FIBER WITH A MAXIMUM K FACTOR OF 0.27 AT 75 DEGREES F MEAN TEMPERATURE, WITH REINFORCED FOIL-FACED, FLAME RESISTANT KRAFT VAPOR BARRIER.
GE SEALS. DAMPERS	2. INSULATION SHALL BE SECURED WITH DUCT ADHESIVE. ALL JOINTS SHALL BE SEALED BY ADHERING A 2" SEALING LAP AT ALL JOINTS WITH VAPOR BARRIER ADHESIVE OR 3" STRIPS OF VAPOR BARRIER JACKET APPL VAPOR BARRIER ADHESIVE. INSULATION SHALL THEN BE FASTENED WITH 16 GAUGE COPPER-CLAD WIRE OR FIBERGLASS CORD ON 12" CENTERS. ON DUCTS OVER 24" WIDE, WELDED PINS AND CLIPS SHALL BE USE
AXLES SHALL BE ½"	UNDERSIDE.

DIA. CADMIUM PLATED STEEL CONTINUOUS RODS WITH 1/2" DIA. BALL BEARINGS. DAMPERS SHALL HAVE PLATED STEEL CENTER BRACKETS; BRASS PIVOTS; 5/16" PLATED STEEL LINKAGE ROD. PROVIDE LINKAGE ON PANELS 31" TO 48" WIDE. DAMPER SHALL HAVE ALL WELDED CONSTRUCTION. DAMPERS SHALL BE AS MANUFACTURED BY VENT PRODUCTS (MODEL 3200) OR EQUIVALENT BY AMERICAN WARMING AND VENTILATING, AIR BALANCE OR RUSKIN.	 3. EXPOSED ROUND SHALL HAVE A WHITE VINYL REINFORCED FOIL VAPOR BARRIER. APPLICATION SAME EXCEPT WIRES SHALL BE OMITTED AND BLANKET SHALL BE SECURED BY STAPLING 2" LONGITUDINAL LAP. STAPLE SHALL BE COATED WITH VAPOR BARRIER COATING. E. TYPE D-2 RIGID DUCT INSULATION WITH VAPOR BARRIER A. DICID DUCT INSULATION GUARD REPORT OF A CLASS STAPLING OF
OTORIZED DAMPERS	 RIGID DUCT INSULATION SHALL BE R-12 GLASS FIBER WITH MAXIMUM K FACTOR OF .16 AT 75 DEGREES F MEAN TEMPERATURE WITH VAPOR BARRIER FACING. INSULATION SHALL BE IMPALED OVER WELDED PINS APPLIED TO DUCT SURFACE ON 12" TO 18" CENTERS. USE A MINIMUM OF TWO ROWS OF FASTENERS ON EACH SIDE OF DUCT. SECURE INSULATION WITH SUITABLE SPEE WASHERS OR CLIPS FIRMLY EMBEDDED INTO INSULATION.
DAMPERS SHALL CONSIST OF: A 16-GAUGE GALVANIZED STEEL CHANNEL FRAME WITH 5 IN. DEPTH; AIRFOIL SHAPED, GALVANIZED STEEL DOUBLE SKIN CONSTRUCTION BLADES (14-GAUGE EQUIVALENT THICKNESS); BLADES SHALL BE COMPLETELY SYMMETRICAL RELATIVE TO THEIR AXLE PIVOT POINT, PRESENTING IDENTICAL RESISTANCE TO AIRFLOW IN EITHER DIRECTION OR PRESSURE ON EITHER SIDE OF THE DAMPER; 1/2 IN. DIAMETER PLATED STEEL AXLES TURNING IN SYNTHETIC (ACETAL) SLEEVE BEARINGS; SILICONE BLADE SEALS; FLEXIBLE STAINLESS STEEL JAMB SEALS; AND EXTERNAL (OUT OF THE AIRSTREAM) BLADE-TO-BLADE LINKAGE.	 ALL JOINTS AND VOIDS IN THE INSULATION SHALL BE FILLED WITH MINERAL WOOL CEMENT. ALL JOINTS, SPEED WASHERS AND BREAKS IN THE VAPOR BARRIER SHALL BE SEALED WITH 3" WIDE STRIPS OF THE VAPOR BARRIEL FACING ADHERED WITH VAPOR BARRIER ADHESIVE. EXPOSED DUCTWORK SHALL HAVE A WHITE REINFORCED FOIL VAPOR BARRIER FACING. CARE SHALL BE TAKEN IN SEALING JOINTS, SPEED WASHERS, ETC. WITH MATCHING STRIPS OF VAPOR BARRIER TO INSURE GOOL APPEARANCE.
DAMPER MANUFACTURER'S PRINTED APPLICATION AND PERFORMANCE DATA INCLUDING PRESSURE, VELOCITY AND TEMPERATURE LIMITATIONS SHALL BE SUBMITTED FOR APPROVAL SHOWING DAMPER SUITABLE FOR PRESSURES TO 8 IN. WATER GAGE, VELOCITIES TO 4000 FPM AND TEMPERATURES TO 250°F. TESTING AND RATINGS TO BE IN ACCORDANCE WITH AMCA STANDARD 500-D. BASIS OF DESIGN IS GREENHECK MODEL VCD-33.	
DAMPER AIR LEAKAGE SHALL NOT BE GREATER THAN 3 CFM/SQ. FT. @ 1 IN. WATER GAGE. TESTING AND RATINGS SHALL BE PER AMCA STANDARD 500-D.	
FFUSERS, REGISTERS, AND GRILLES PROVIDE STEEL DIFFUSERS, REGISTERS AND GRILLES FOR SUPPLY, RETURN AND EXHAUST OUTLETS, OF SIZE, TYPE AND DESIGN SHOWN ON DRAWINGS. ACCEPTABLE MANUFACTURERS SHALL BE TITUS, METALAIRE, NAILOR,	
OR APPROVED EQUAL. EQUIPMENT SHALL BE TESTED AND RATED PER ASHRAE 91-70.	
EQUIPMENT SHALL HANDLE AIR QUANTITIES AT OPERATING VELOCITIES: a. WITH MAXIMUM DIFFUSION WITHIN SPACE SUPPLIED OR EXHAUSTED. b. WITHOUT OBJECTIONABLE AIR MOVEMENT AS DETERMINED BY ARCHITECT. c. WITH SOUND PRESSURE LEVEL NOT TO EXCEED NC 30 OR AS SPECIFIED ON DRAWINGS.	
SUPPLY, RETURN AND EXHAUST OUTLETS SHALL HAVE OPPOSED BLADE VOLUME DAMPERS OPERABLE FROM FRONT. SUPPLY REGISTERS SHALL HAVE TWO SETS OF DIRECTIONAL CONTROL BLADES.	
DIFFUSERS WITHIN SAME ROOM OR AREA SHALL BE OF SAME TYPE AND STYLE TO PROVIDE ARCHITECTURAL UNIFORMITY.	
FINISH SHALL BE AS DIRECTED BY ARCHITECT.	
DIFFER FROM THOSE SHOWN ON HVAC DRAWINGS.	
THE PRODUCTS SHALL BE CLASSIFIED BY UNDERWRITERS' LABORATORIES FOR USE IN FIRE-RATED FLOOR/CEILING AND OR ROOF/CEILING ASSEMBLIES WITH UP TO A 3 HOUR RATING. THE DISCHARGE PATTERN SHALL BE 4-WAY HORIZONTAL AND SHALL BE ADJUSTED BY DROPPING THE PERFORATED FACE AND ROTATING THE PATTERN DEFLECTORS. REMOVABLE FACE SHALL HAVE SPRING CLIPS FOR EASY ACCESS TO THE DAMPER.	
THE PERFORATED FACE SHALL HAVE 3/16" (5) DIAMETER HOLES ON 1/4" (6) STAGGERED CENTERS.	
THE FINISH SHALL BE AW APPLIANCE WHITE. EACH DIFFUSER SHALL BE PROVIDED WITH A VOLUME DAMPER ACCESSIBLE FOR DIFFUSER FACE FOR AIR VOLUME ADJUSTMENT.	
REFERENCES	
a. UL 873 - TEMPERATURE AND AIRFLOW INDICATING EQUIPMENT SUBMITTALS	
a. SUBMIT PRODUCT DATA SHEETS FOR AIRFLOW MEASURING DEVICES INDICATING MINIMUM PLACEMENT REQUIREMENTS, SENSOR DENSITY, SENSOR DISTRIBUTION, AND INSTALLED ACCURACY TO THE HOST CONTROL SYSTEM.	
1) DEVICES WHOSE ACCURACY IS THE COMBINED ACCURACY OF THE TRANSMITTER AND SENSOR PROBES MUST DEMONSTRATE THAT THE TOTAL ACCURACY MEETS THE PERFORMANCE REQUIREMENTS OF THIS SPECIFICATION THROUGHOUT THE MEASUREMENT RANGE.	
 b. SUBMIT A SCHEDULE OF AIRFLOW MEASURING DEVICES INDICATING COMPLIANCE WITH SPECIFIED ACCURACY AT MINIMUM AND MAXIMUM AIRFLOW RATES. c. SUBMIT INSTALLATION, OPERATION AND MAINTENANCE DOCUMENTATION. 	
QUALIFICATIONS a. MANUFACTURER: THE COMPANY MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION SHALL HAVE A MINIMUM OF TEN YEARS EXPERIENCE PRODUCING PRODUCTS OF THIS TYPE.	
SYSTEM RESPONSIBILITY a. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL COSTS ASSOCIATED WITH ANY AND ALL CHANGES RESULTING FROM THE USE OF A SUPPLIER OTHER THAN THE LISTED ACCEPTABLE MANUFACTURER.	
WARRANTY a. PROVIDE A MANUFACTURER'S PARTS WARRANTY FOR 36 MONTHS FROM THE DATE OF UNIT SHIPMENT.	
DELIVERY, STORAGE, AND HANDLING a. ALL HANDLING AND STORAGE PROCEDURES SHALL BE PER MANUFACTURER'S RECOMMENDATIONS	
b. AIRFLOW MEASURING DEVICES SHALL BE KEPT CLEAN AND DRY, PROTECTED FROM WEATHER AND CONSTRUCTION TRAFFIC. PRODUCTS INCLUDED IN THIS SECTION	
a. DUCT AND PLENUM MOUNTED AIRFLOW MEASUREMENT DEVICES. b. FAN INLET MOUNTED AIRFLOW MEASUREMENT DEVICES. ACCEPTABLE MANUFACTURERS	
a. EBTRON, INC. MODEL GTX116-P AND GTX116-F (BASIS OF DESIGN).	
 ALTERNATIVES REQUESTING ACCEPTANCE AS "EQUALS" LESS THAN 60 DAYS PRIOR TO BID DATE OR PRODUCTS SUBMITTED IN NON-CONFORMANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION WILL NOT BE CONSIDERED. FOR ANY PRODUCT TO BE CONSIDERED FOR SUBSTITUTION A WRITTEN SECTION-BY-SECTION DETAILED EXCEPTIONS/COMPLIANCE DOCUMENT SHALL BE SUBMITTED TO THE ENGINEER BEFORE ANY APPROVAL WILL BE CONSIDERED. 	
 b. PROVIDE AIRFLOW/TEMPERATURE MEASUREMENT DEVICES (ATMD) WHERE INDICATED ON THE PLANS. FAN INLET MEASUREMENT DEVICES SHALL NOT BE SUBSTITUTED FOR DUCT OR PLENUM MEASUREMENT DEVICES INDICATED ON THE PLANS. c. EACH ATMD SHALL CONSIST OF ONE OR MORE SENSOR PROBES AND A SINGLE, REMOTELY MOUNTED, MICROPROCESSOR-BASED TRANSMITTER CAPABLE OF INDEPENDENTLY PROCESSING UP TO 16 INDEPENDENTLY WIRED SENSOR ASSEMBLIES. EACH SENSOR ASSEMBLY SHALL CONTAIN TWO INDIVIDUALLY WIRED, HERMETICALLY SEALED BEAD-IN-GLASS THERMISTORS. THERMISTORS SHALL BE MOUNTED IN THE SENSOR ASSEMBLY USING A MARINE-GRADE, WATERPROOF EPOXY. THERMISTOR LEADS SHALL BE PROTECTED AND NOT EXPOSED TO THE ENVIRONMENT. THE AIRFLOW RATE OF EACH SENSOR ASSEMBLY SHALL BE EQUALLY WEIGHTED AND AVERAGED BY THE TRANSMITTER PRIOR TO OUTPUT. THE TEMPERATURE OF EACH SENSOR ASSEMBLY SHALL BE VELOCITY WEIGHTED AND AVERAGED BY THE TRANSMITTER PRIOR TO OUTPUT. THE TEMPERATURE OF EACH SENSOR ASSEMBLY SHALL BE VELOCITY WEIGHTED AND AVERAGED BY THE TRANSMITTER PRIOR TO OUTPUT. EACH TRANSMITTER SHALL HAVE A 16-CHARACTER ALPHA-NUMERIC DISPLAY CAPABLE OF DISPLAYING AIRFLOW, TEMPERATURE, SYSTEM STATUS, CONFIGURATION SETTINGS AND DIAGNOSTICS. DEVICES USING CHIP-IN-GLASS OR DIODE-CASE CHIP THERMISTORS ARE NOT ACCEPTABLE. DEVICES USING LESS THAN TWO THERMISTORS IN EACH SENSOR ASSEMBLY ARE NOT ACCEPTABLE. 	
CIRCUITRY MOUNTED IN OR AT THE SENSOR PROBE ARE NOT ACCEPTABLE. PITOT TUBES AND ARRAYS ARE NOT ACCEPTABLE. VORTEX SHEDDING DEVICES ARE NOT ACCEPTABLE. d. ALL SENSOR PROBES 1) EACH SENSOR ASSEMBLY SHALL INDEPENDENTLY DETERMINE THE AIRFLOW RATE AND TEMPERATURE AT EACH MEASUREMENT POINT. 2) EACH SENSOR ASSEMBLY SHALL BE CALIBRATED AT A MINIMUM OF 16 AIRFLOW RATES AND 3 TEMPERATURES TO STANDARDS THAT ARE TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST).	
 AIRFLOW ACCURACY SHALL BE +/-2% OF READING OVER THE ENTIRE OPERATING AIRFLOW RANGE. DEVICES WHOSE ACCURACY IS THE COMBINED ACCURACY OF THE TRANSMITTER AND SENSOR PROBES MUST DEMONSTRATE THAT THE TOTAL ACCURACY MEETS THE PERFORMANCE REQUIREMENTS OF THIS SPECIFICATION THROUGHOUT THE MEASUREMENT RANGE. TEMPERATURE ACCURACY SHALL BE +/-0.15° F OVER THE ENTIRE OPERATING TEMPERATURE RANGE OF -20° F TO 160° F. THE OPERATING HUMIDITY RANGE FOR EACH SENSOR PROBE SHALL BE 0-99% RH (NON-CONDENSING). EACH SENSOR PROBE SHALL HAVE AN INTEGRAL, U.L. LISTED, PLENUM RATED CABLE AND TERMINAL PLUG FOR CONNECTION TO THE REMOTELY MOUNTED TRANSMITTER. ALL TERMINAL PLUG INTERCONNECTING PINS SHALL BE GOLD PLATED. EACH SENSOR ASSEMBLY SHALL NOT REQUIRE MATCHING TO THE TRANSMITTER IN THE FIELD. 	
 a Single Manufacturer shall provide both the Airflow/temperature measuring probe(s) and transmitter for each measurement location. buct and plenum probes probes shall be constructed of extruded, gold anodized, 6063 aluminum tube. All wires within the aluminum tube shall be kynar coated. probe assembly mounting brackets shall be constructed of 304 stainless steel. Probe assemblies shall be mounted using one of the following options: a) INSERTION MOUNTED THROUGH THE SIDE OR TOP OF THE DUCT b) INTERNALLY MOUNTED INSIDE THE DUCT OR PLENUM c) STANDOFF MOUNTED INSIDE THE PLENUM 3) THE NUMBER OF SENSOR HOUSINGS PROVIDED FOR EACH LOCATION SHALL BE AS FOLLOWS: 	
AREA (SQ. FT.) SENSORS <2 4 2 TO <4 6 4 TO <8 8	
4) THE OPERATING AIRFLOW RANGE SHALL BE 0 TO 5,000 FPM UNLESS OTHERWISE INDICATED ON THE PLANS.	
 f. FAN INLET PROBES 1) SENSOR ASSEMBLIES SHALL BE MOUNTED ON 304 STAINLESS STEEL HOUSINGS. 2) MOUNTING RODS SHALL BE FIELD ADJUSTABLE TO FIT THE FAN INLET AND CONSTRUCTED OF NICKEL PLATED STEEL. 3) MOUNTING FEET SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL. 4) THE OPERATING AIRFLOW RANGE SHALL BE 0 TO 10,000 FPM UNLESS OTHERWISE INDICATED ON THE PLANS. 	
 g. TRANSMITTERS 1) THE TRANSMITTER SHALL HAVE AN INTEGRAL LCD DISPLAY CAPABLE OF SIMULTANEOUSLY DISPLAYING AIRFLOW AND TEMPERATURE. THE LCD DISPLAY SHALL BE CAPABLE OF DISPLAYING INDIVIDUAL AIRFLOW AND TEMPERATURE READINGS OF EACH INDEPENDENT SENSOR ASSEMBLY. 2) THE TRANSMITTER SHALL BE CAPABLE OF FIELD CONFIGURATION AND DIAGNOSTICS USING AN ON-BOARD PUSHBUTTON INTERFACE AND LCD DISPLAY. 	
 THE TRANSMITTER SHALL HAVE A POWER SWITCH AND OPERATE ON 24 VAC (ISOLATION NOT REQUIRED). THE TRANSMITTER SHALL USE A SWITCHING POWER SUPPLY FUSED AND PROTECTED FROM TRANSIENTS AND POWER SURGES. THE TRANSMITTER SHALL USE "WATCH-DOG" CIRCUITRY TO ASSURE RESET AFTER POWER DISRUPTION, TRANSIENTS AND BROWN-OUTS. ALL INTERCONNECTING PINS, HEADERS AND CONNECTIONS ON THE MAIN CIRCUIT BOARD, OPTION CARDS AND CABLE RECEPTACLES SHALL BE GOLD PLATED. THE OPERATING TEMPERATURE RANGE FOR THE TRANSMITTER SHALL BE -20° F TO 120° F. THE TRANSMITTER SHALL BE INSTALLED AT A LOCATION THAT IS PROTECTED FROM WEATHER AND WATER. THE TRANSMITTER SHALL BE CAPABLE OF COMMUNICATING WITH OTHER DEVICES USING ONE OF THE FOLLOWING INTERFACE OPTIONS: LINEAR ANALOG OUTPUT SIGNALS FOR AIRFLOW AND TEMPERATURE: FIELD SELECTABLE, FUSE PROTECTED AND ISOLATED, 0-10VDC/4-20MA (4-WIRE). RS-485: FIELD SELECTABLE BACNET-ARCNET, BACNET-MS/TU OR JOHNSON CONTROLS N2-BUS. BACNET DEVICES SHALL PROVIDE ANALOG VARIABLES FOR AIRFLOW AND TEMPERATURE CONTAINING INDIVIDUAL SENSOR AIRFLOW RATE AND TEMPERATURE DATA. DASE-T ETHERNET: FIELD SELECTABLE BACNET ETHERNET, BACNET-IP, MODBUS-TCP AND TCP/IP. 	
 (1) PROVIDE DYNAMIC LINK LIBRARIES AND VBA FUNCTIONS TO INTERFACE ETHERNET DEVICES TO MICROSOFT EXCEL FOR REMOTE MONITORING OF AIRFLOW AND TEMPERATURE USING A WINDOWS 2000 OR WINDOWS XP BASED PC. d) LONWORKS FREE TOPOLOGY 	
 7) THE TRANSMITTER SHALL BE CAPABLE OF ACCEPTING AN INFRA-RED INTERFACE CARD FOR DOWNLOADING AIRFLOW AND TEMPERATURE DATA OR UPLOADING TRANSMITTER CONFIGURATION DATA USING A HANDHELD PDA (PALM OR MICROSOFT WINDOWS MOBILE OPERATING SYSTEMS). a) PROVIDE PDA UPLOAD/DOWNLOAD SOFTWARE. DOWNLOAD SOFTWARE SHALL BE CAPABLE OF DISPLAYING AND SAVING INDIVIDUAL SENSOR AIRFLOW RATES, THE AVERAGE AIRFLOW RATE, INDIVIDUAL SENSOR TEMPERATURES AND THE AVERAGE TEMPERATURE RECEIVED FROM THE TRANSMITTER. UPLOAD SOFTWARE SHALL BE CAPABLE OF DISPLAYING AND SAVING INDIVIDUAL SENSOR AIRFLOW RATES, THE AVERAGE AIRFLOW RATE, INDIVIDUAL SENSOR USING THE ON-BOARD PUSHBUTTON INTERFACE AND LCD DISPLAY. b) PROVIDE A MICROSOFT EXCEL FILE CAPABLE OF CREATING BALANCE REPORTS FROM PDA DATA FILES TRANSFERRED TO A WINDOWS 98 OR HIGHER BASED PC. c) PROVIDE A MICROSOFT EXCEL FILE TO CREATE CONFIGURATION DATA FILES THAT CAN BE TRANSFERRED FROM A WINDOWS 98 OR HIGHER BASED PC. h. THE MEASURING DEVICE SHALL BE UL LISTED AS AN ENTIRE ASSEMBLY. 	
 THE MEASURING DEVICE SHALL CARRY THE CE MARK FOR EUROPEAN UNION SHIPMENTS. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL REVIEW AND APPROVE PLACEMENT AND OPERATING AIRFLOW RATES FOR EACH MEASUREMENT LOCATION INDICATED ON THE PLANS. A WRITTEN REPORT SHALL BE SUBMITTED TO THE CONSULTING MECHANICAL ENGINEER IF ANY MEASUREMENT LOCATIONS DO NOT MEET THE MANUFACTURER'S PLACEMENT REQUIREMENTS. INSTALLATION 	
 a. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AT THE LOCATIONS INDICATED ON THE PLANS. A WRITTEN REPORT SHALL BE SUBMITTED TO THE CONSULTING MECHANICAL ENGINEER IF ANY DISCREPANCIES ARE FOUND. ADJUSTING 	
a. DUCT AND PLENUM DEVICES SHALL NOT BE ADJUSTED APPROVAL FROM THE CONSULTING MECHANICAL ENGINEER.	
L FAN AND AIR SUPPLY UNIT CONNECTIONS, BOTH AT INLET AND DISCHARGE SHALL BE MADE WITH FLEXIBLE MATERIAL SO AS TO PROHIBIT THE TRANSFER OF VIBRATION FROM FANS TO DUCTWORK CONNECTING THERETO, THOUT AIR LEAKAGE. THE MATERIAL BETWEEN THE CLAMPS SHALL HAVE SUFFICIENT SLACK SO AS TO PREVENT TEARING DUE TO FAN MOVEMENT. THE FLEXIBLE CONNECTIONS SHALL BE A MAXIMUM OF 12" LONG AND HELD IN PLACE WITH HEAVY METAL BANDS, SECURELY ATTACHED, TO PREVENT ANY LEAKAGE AT THE CONNECTION POINTS. EXIBLE CONNECTIONS SHALL BE FABRICATED FROM APPROVED FLAME PROVED FABRIC CONFORMING TO 90A OF THE NFPA ASBESTOS CLOTH IS NOT PERMITTED.	
CHEONS AND DUCT COLLARS COVIDE ADJUSTABLE ESCUTCHEONS ON EXPOSED PIPING THAT PASSES THROUGH FINISHED FLOORS, WALLS AND CEILINGS. ESCUTCHEONS SHALL BE CHROMIUM-PLATED CAST BRASS, SIZED TO COVER SLEEVE OPENING AND ACCOMMODATE PIPE AND INSULATION. COVIDE 4" WIDE 20 GAUGE GALVANIZED SHEET METAL COLLARS AT SLEEVES AND PREPARED OPENINGS, SIZED TO COVER ENTIRE DUCT PENETRATION INCLUDING SLEEVE AND SEAL, AND TO ACCOMMODATE DUCT AND	
SULATION AS NECESSARY. EDGES SHALL HAVE MILLED LIPS GROUND SMOOTH. PAINT TO MATCH FINISH OF DUCT OR AS DIRECTED BY ARCHITECT. ITION FOR SHEET METAL DITE THAT DUCTWORK AND CASINGS, WHICH ARE ACOUSTICALLY LINED, AS DESCRIBED ELSEWHERE, NEED NOT BE INSULATED ON THE EXTERIOR, PROVIDED THE LINER HAS A MINIMUM THERMAL RESISTANCE OF R-6. DUCTWORK	
TH LINER WHICH DOES NOT HAVE A THERMAL RESISTANCE OF R-6 OR BETTER SHALL BE INSULATED ON THE OUTSIDE OF THE DUCTWORK IN ACCORDANCE WITH CURRENT STATE AND LOCAL CODES. IE EXCEPTION TO THE ABOVE IS THAT ACOUSTICALLY LINED DUCTWORK ABOVE ROOF SHALL BE INSULATED ON THE EXTERIOR. SULATE SHEET METAL AS FOLLOWS:	
ALL LOW PRESSURE SUPPLY DUCTWORK TO DIFFUSERS, GRILLES, AND REGISTERS TYPE D-1. EXHAUST AIR DUCTS WITHIN ATTICS SHALL BE INSULATED WITH INSULATION TYPE D-1. SHEET METAL PLENUMS BEHIND LOUVERS CONTAINING ALL OR A PERCENTAGE OF OUTSIDE AIR ON INLET SIDE OF AIR HANDLING UNITS AND VENTILATION FANS - TWO INCH TYPE D-2.	
SHEET METAL PLENUMS BEHIND LOUVERS CONTAINING ALL OR A PERCENTAGE OF OUTSIDE AIR ON INLET SIDE OF AIR HANDLING UNITS AND VENTILATION FANS - TWO INCH TYPE D-2. OUTDOOR DUCTS WHETHER ACOUSTICALLY LINED OR NOT SHALL BE INSULATED WITH TYPE D-2 AND THEN WEATHER PROOFED. EXHAUST AIR DUCT FROM AUTOMATIC DAMPERS TO DISCHARGE LOUVERS (INCLUDING SHEET METAL PLENUMS BEHIND LOUVERS) TYPE D-2.	
PE D-1 FLEXIBLE DUCT INSULATION WITH VAPOR BARRIER FLEXIBLE DUCT INSULATION SHALL BE R-6 GLASS FIBER WITH A MAXIMUM K FACTOR OF 0.27 AT 75 DEGREES F MEAN TEMPERATURE, WITH REINFORCED FOIL-FACED, FLAME RESISTANT KRAFT VAPOR BARRIER.	
INSULATION SHALL BE SECURED WITH DUCT ADHESIVE. ALL JOINTS SHALL BE SEALED BY ADHERING A 2" SEALING LAP AT ALL JOINTS WITH VAPOR BARRIER ADHESIVE OR 3" STRIPS OF VAPOR BARRIER JACKET APPLIED WITH VAPOR BARRIER ADHESIVE. INSULATION SHALL THEN BE FASTENED WITH 16 GAUGE COPPER-CLAD WIRE OR FIBERGLASS CORD ON 12" CENTERS. ON DUCTS OVER 24" WIDE, WELDED PINS AND CLIPS SHALL BE USED ON THE UNDERSIDE.	



3.1 DEMOLITION

A. GENERAL

- 1. THE CONTRACTOR SHALL COMPLETELY FAMILIARIZE HIMSELF WITH ALL EXISTING BUILDING AND SITE CONDITIONS AND LIMITATIONS WHICH MAY HAVE A BEARING ON THE OPERATIONS HEREIN SPECIFIED, AND WORK REQUIRED TO COMPLETE THE PROJECT AS SHOWN ON THE DRAWINGS AND BE REQUIRED BY THE SPECIFICATIONS. NO EXTRA COMPENSATION WILL BE ALLOWED FOR UNFORESEEN CONDITIONS THAT FROM A CAREFUL EXAMINATION OF THE SITE, BUILDING, DRAWINGS AND SPECIFICATIONS.
- 2. ITEMS OF VALUE WHICH ARE NOT INDICATED TO BE RETURNED TO THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR. STORAGE OR SALE OF THE ITEMS ON THE PROJECT SITE IS PROHIBITED.
- 3. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND E COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
- 4. UTILITIES: MAINTAIN ALL UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING USED AREAS WITH PERMISSION FROM THE UTILITY COMPANY AND THE OWNER. PROVIDE TEMPORARY SERVICES AS REQUIRED
- B. REGULATORS REQUIREMENTS
- STRICTLY COMPLY WITH APPLICABLE CODES, REGULATIONS AND REQUIREMENTS OF AUTHORITY HAVING JURISDICTION.
- C. HANDLING OF MATERIALS
- REMOVE SALVAGE AND DEBRIS FROM THE SITE AS IT ACCUMULATES. DO NOT STORE, SELL, BURN, OR OTHERWISE DISPOSE OF DEBRIS ON SITE. REMOVE ALL MATERIALS IN SUCH MANNER AS TO PREVENT PAVEMENTS AND AREAS ADJACENT TO AND LEADING FROM THE SITE, CLEAN AND FREE OF MUD, DIRT, AND DEBRIS AT ALL TIMES. D. INSPECTIONS
- PRIOR TO COMMENCEMENT OF SELECTIVE DEMOLITION WORK, INSPECT AREAS IN WHICH WORK WILL BE PERFORMED. PHOTOGRAPH EXISTING CONDITIONS TO STRUCTURE SURFACES, EQUIPMENT OR TO SURROL WHICH COULD BE MISCONSTRUCTED AS DAMAGE RESULTING FROM SELECTIVE DEMOLITION WORK; FILE WITH OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
- E. TRANSFER OF RESPONSIBILITY AND DISPOSITION OF MATERIALS UPON RECEIPT OF NOTICE TO PROCEED WITH THE WORK, THE TILE TO ALL MATERIALS FOR DEMOLITION SHALL BE VESTED IN THE CONTRACTOR WHEREUPON THE OWNER WILL NOT BE RESPONSIBLE FOR THE O
- DAMAGE TO SAID PROPERTY.
- F. DISPOSAL OF DEMOLISHED MATERIALS
- REMOVE UNUSED FIXTURE AND ALL PIPING SERVICING FIXTURE INCLUDING ABANDONED PIPING NOT ASSOCIATED WITH SAID FIXTURE. REMOVE PIPING BACK TO THE NEXT LIVE BRANCH WILL NOT OBSTRUCT THE NEW AND LEGALLY DISPOSE OF MATERIALS OFF SITE. G. CLEAN-UP AND REPAIR
- 1. UPON COMPLETION OF DEMOLITION WORK, REMOVE TOOLS, EQUIPMENT AND DEMOLISHED MATERIALS FROM SITE. REMOVE PROTECTIONS AND LEAVE INTERIOR AREAS BROOM CLEAN. 2. REPAIR DEMOLITION PERFORMED IN EXCESS OF THAT REQUIRED. RETURN STRUCTURES AND SURFACES TO REMAIN IN CONDITION EXISTING PRIOR TO COMMENCEMENT OF SELECTIVE DEMOLITION WORK

3.2 INSTALLATION OF PIPING INSULATION

- CONSTRUCTION OR SURFACES SOILED OR DAMAGED BY SELECTIVE DEMOLITION WORK.
- A. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT INSULATION SERVICE ITS INTEND
- B. INSTALL INSULATION ON PIPE SYSTEMS SUBSEQUENT TO INSTALLATION OF HEAT TRACING, PAINTING, TESTING, AND ACCEPTANCE OF TESTS. C. INSTALL INSULATION MATERIALS WITH SMOOTH AND EVEN SURFACES. INSULATE EACH CONTINUOUS RUN OF PIPING WITH FULL-LENGTH UNITS OF INSULATION, WITH SINGLE CUT PIECE TO COMPLETE RUN. DO NOT
- SCRAPS ABUTTING EACH OTHER
- D. CLEAN AND DRY PIPE SURFACES PRIOR TO INSULATING. BUTT INSULATION JOINTS FIRMLY TOGETHER TO ENSURE COMPLETE AND TIGHT FIT OVER SURFACES TO BE COVERED.
- E. MAINTAIN INTEGRITY OF VAPOR-BARRIER JACKETS ON PIPE INSULATION, AND PROTECT TO PREVENT PUNCTURE OR OTHER DAMAGE.
- F. COVER VALVES, FITTINGS AND SIMILAR ITEMS IN EACH PIPING SYSTEM WITH EQUIVALENT THICKNESS AND COMPOSITION OF INSULATION AS APPLIED TO ADJOINING PIPE RUN. INSTALL FACTORY MOLDED, PRECUT UNITS (AT INSTALLER'S OPTION) EXCEPT WHERE SPECIFIC FORM OR TYPE IS INDICATED.

- G. EXTEND PIPING INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PIPING PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED. H. BUTT PIPE INSULATION AGAINST PIPE HANGER INSULATION INSERTS. FOR HOT PIPES, APPLY 3 INCH WIDE VAPOR BARRIER TAPE OR BAND OVER THE BUTT JOINTS. FOR COLD PIPING APPLY WET COAT OF VAPOR BAR BUTT JOINTS AND SEAL JOINTS WITH 3 INCH WIDE VAPOR BARRIER TAPE OR BAND.

3.3 INSTALLATION OF DUCTWORK INSULATION

- A. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT INSULATION SERVES ITS INTENDI
- B. INSTALL INSULATION MATERIALS WITH SMOOTH AND EVEN SURFACES.
- C. CLEAN AND DRY DUCTWORK PRIOR TO INSULATING. BUTT INSULATION JOINTS FIRMLY TOGETHER TO ENSURE COMPLETE AND TIGHT FIT OVER SURFACES TO BE COVERED.
- D. MAINTAIN INTEGRITY OF VAPOR-BARRIER ON DUCTWORK INSULATION, AND PROTECT IT TO PREVENT PUNCTURE AND OTHER DAMAGE.
- F. LINED DUCTWORK
- E. EXTEND DUCTWORK INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR DUCTWORK PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED
- 1. EXCEPT AS OTHERWISE INDICATED, OMIT INSULATION ON DUCTWORK WHERE INTERNAL INSULATION OR SOUND ABSORBING LININGS HAVE BEEN INSTALLED.
- G. DUCTWORK EXPOSED TO WEATHER

1. PROTECT OUTDOOR INSULATION FROM WEATHER BY INSTALLING OUTDOOR PROTECTIVE FINISH OR JACKETING AS RECOMMENDED BY MANUFACTURER.

H. CORNER ANGLES

- 1. EXCEPT FOR OVEN AND HOOD EXHAUST DUCT INSULATION, INSTALL CORNER ANGLES ON EXTERNAL CORNERS OF INSULATION ON DUCTWORK TO EXPOSED FINISHED SPACES BEFORE COVERING WITH JACKETING

3.5 SYSTEM TESTING, ADJUSTING, AND BALANCING

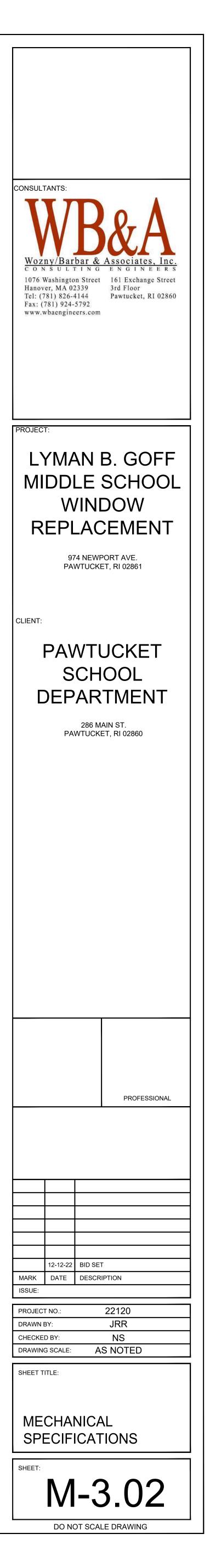
- A. SUMMARY
- 1. TESTING, ADJUSTING AND BALANCING (TAB) OF THE AIR CONDITIONING SYSTEMS AND RELATED ANCILLARY EQUIPMENT WILL BE PERFORMED BY AN IMPARTIAL TECHNICALLY QUALIFIED TAB FIRM.
- 2. THE FIRM SHALL BE CAPABLE OF PERFORMING THE SERVICES SPECIFIED AT THE LOCATION OF THE FACILITY DESCRIBED WITHIN THE TIME SPECIFIED, OF PREPARING AND SUBMITTING THE DETAILED REPORT (WORK PERFORMED, AND FOLLOWING UP THE BASIC WORK AS MAY BE REQUIRED.
- B. QUALIFICATIONS

NUMBER AND TAXPAYER'S I.D. NUMBER FOR PROPER VERIFICATION OF THE FIRM'S STATUS.

- 1. THE FIRM SHALL BE ONE WHICH IS ORGANIZED TO PROVIDE PROFESSIONAL SERVICES OF THIS SPECIFIED TYPE IN THE STATE OF MASSACHUSETTS.
- 2. THE FIRM SHALL HAVE OPERATED A MINIMUM OF FIVE (5) YEARS UNDER ITS CURRENT FIRM NAME, AND SHALL BE IN GOOD STANDING WITH THE STATE OF MA. THE FIRM SHALL SUBMIT THEIR FULL INCORPORA
- 3. THE FIRM SHALL BE CAPABLE OF PROVIDING A PERFORMANCE BOND, BY A BONDING COMPANY LICENSED TO DO BUSINESS IN THE STATE OF MA, IF DETERMINED BY THE OWNER THAT SUCH A BOND IS REQUIF
- THE BOND WHICH MAY BE REQUIRED SHALL BE EQUAL TO THE COST OF THE PROPOSAL SUBMITTED, OR IN THE CASE OF MORE THAN ONE PROPOSAL, THE SUM OF ALL SUCH PROPOSALS AND ANY AWARDED WOR
- 4. ALL PERSONNEL USED ON THE JOB SITE SHALL BE EITHER PROFESSIONAL ENGINEERS OR ENGINEERING TECHNICIANS, WHO SHALL HAVE BEEN PERMANENT, FULL TIME EMPLOYEES OF THE FIRM FOR A MINIMUL PRIOR TO THE START OF WORK FOR THIS SPECIFIC PROJECT.
- 5. THE TAB FIRM SHALL SUBMIT BIOGRAPHICAL DATA ON THE INDIVIDUAL PROPOSED TO DIRECTLY SUPERVISE THE TAB WORK, AS WELL AS OTHER PERSONNEL SCHEDULED TO PERFORM THE TECHNICAL WORK UN THE SUPERVISORY PERSONNEL FOR THE TAB FIRM SHALL BE REGISTERED ENGINEERS IN THE MECHANICAL FIELD AND ALL OF THE EMPLOYEES USED IN THE TAB FIRM SHALL BE PERMANENT, FULL-TIME EMPLOYE
- C. REFERENCES
- 1. AABC NATIONAL STANDARDS FOR TESTING AND BALANCING HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS, SIXTH EDITION 2002.
- 2. ASHRAE 2011 HVAC APPLICATIONS CHAPTER 38: TESTING, ADJUSTING AND BALANCING.
- 3. ANSI/ASHRAE STANDARD 111 2008 PRACTICES FOR MEASUREMENT, TESTING, ADJUSTING AND BALANCING OF BUILDINGS, HEATING, VENTILATION, AIR CONDITIONING AND REFRIGERATION SYSTEMS.
- D. DOCUMENTS 1. THE TAB FIRM SHALL, AS A REQUIREMENT OF THE TAB CONTRACT, ARRANGE WITH THE ARCHITECT / OWNER / ENGINEER TO COMPILE ONE SET OF MECHANICAL, SPECIFICATIONS, ALL PERTINENT CHANGE
- FOLLOWING: a. ONE COMPLETE SET OF DRAWINGS LESS THE STRUCTURAL SHEETS.
- b. ONE SET OF MECHANICAL FLOOR PLANS OF THE CONDITIONED SPACES. THESE DRAWINGS SHALL BE OZALID TYPE (BLUE OR BLACK ON LIGHT BACKGROUND) REPRODUCTIONS TO FACILITATE MARKING.
- 2. APPROVED SUBMITTAL DATA ON EQUIPMENT INSTALLED, AND RELATED CHANGES AS REQUIRED TO ACCOMPLISH THE TEST PROCEDURES OUTLINED IN PARAGRAPHS 1.06 THROUGH 1.10 OF THIS SPECIFICATIO THROUGH THE CONSTRUCTION SUPERVISOR.
- E. RESPONSIBILITIES OF THE TAB FIRM
- 1. THE TAB PERSONNEL SHALL CHECK, ADJUST, AND BALANCE THE COMPONENTS OF THE AIR CONDITIONING SYSTEM WHICH WILL RESULT IN OPTIMAL NOISE, TEMPERATURE, AND AIRFLOW CONDITIONS IN THE CON THE BUILDING WHILE THE EQUIPMENT OF THE SYSTEM IS OPERATING ECONOMICALLY. THIS IS INTENDED TO BE ACCOMPLISHED AFTER THE SYSTEM COMPONENTS ARE INSTALLED AND OPERATING AS CONTRACT DOCUMENTS. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PLACE THE EQUIPMENT INTO SERVICE. VARIABLE AIR VOLUME SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH A FIFTH EDITION.
- 2. LIAISON AND EARLY INSPECTION
- a. THE TAB FIRM PERSONNEL ON THE JOB SHALL ACT AS LIAISON BETWEEN THE OWNER, ARCHITECT AND CONTRACTOR. THE FOLLOWING REVIEWS (OBSERVATIONS) AND TESTS SHALL BE PERFORMED BY THE T
- 1) DURING THE DESIGN STAGE, BEFORE THE DOCUMENTS ARE FINALIZED, REVIEW THE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR BALANCEABILITY AND PROVIDE COMMENTARY. 2) DURING CONSTRUCTION, REVIEW ALL HVAC SUBMITTALS SUCH AS CONTROL DIAGRAMS, AIR HANDLING DEVICES, ETC., THAT PERTAIN TO COMMISSIONING WORK AND BALANCEABILITY. 3) ALLOW FOR A FIXED NUMBER OF TRIPS TO THE PROJECT SITE, OVER AND ABOVE THOSE REQUIRED FOR TESTING AND BALANCING FOR INSPECTION OF INSTALLATION OF THE MECHANICAL PIPING SYS
- WORK, TEMPERATURE CONTROLS AND OTHER COMPONENT PARTS OF THE HEATING, AIR CONDITIONING AND VENTILATING SYSTEMS DURING THE CONSTRUCTION STAGE. THESE INSPECTIONS SHALL AND/OR AT THE ABOVE CEILING INSPECTION. COMMENTARY WILL BE PROVIDED FOR EACH OBSERVATION.
- 4) TEST ONE (1) OF EACH SPECIFIED TYPE OF TERMINAL BOX FOR PERFORMANCE CAPABILITY AND LEAKAGE. THE SHIPMENT OF THE BOX TO THE TAB AGENCY'S LAB WILL BE AT THE MANUFACTURER'S PERIOD WILL BE FOR THREE (3) WEEKS FROM RECEIPT OF THE BOX. SUBMITTAL DATA WILL NOT BE APPROVED UNTIL BOX TESTING PASSES. IF THE SAMPLE BOX IS REJECTED FOR ANY REASON THE SEC THE CONTRACTOR'S COST AND THE TIME ALLOWED WILL RESTART WHEN THE BOX IS RECEIVED AT THE TAB AGENCY.
- 5) TEST 10% OF EACH SPECIFIED TERMINAL BOXES TYPE FOR CASING AND DAMPER LEAKAGE WHEN THE SHIPMENT ARRIVES AT THE PROJECT SITE. ALL TESTING (EXCEPT FOR THE INITIAL BOXES) SHALI SITE. BOXES REQUIRING RE-TESTING WILL BE CHARGED TO THE CONTRACTOR AT THE UNIT PRICE PROVIDED TO THE OWNER. 6) TEST ONE (1) LAB CONFIGURATION INCLUDING FUME HOOD WITH AIR VALVE, GENERAL EXHAUST AIR WITH AIR VALVE AND SUPPLY AIR WITH AIR VALVE FOR PERFORMANCE CAPABILITY THROUGH A I
- PRESSURES. THE TRACKING CAPABILITY OF THE EXHAUST AIR VERSUS THE SUPPLY AIR WILL BE WITH THE SUBMITTED HOOD SASH FULLY OPEN AND AS THE SASH IS CLOSED IN 2" INCREMENTS UNTIL FU THE THREE (3) VALVE'S RESPONSE TIME IN RELATION TO SASH MOVEMENT AND THE LAB DIFFERENTIAL.
- b. DURING THE BALANCING PROCESS, AS ABNORMALITIES AND MALFUNCTIONS OF EQUIPMENT OR COMPONENTS ARE DISCOVERED BY THE TAB PERSONNEL, THE CONSTRUCTION SUPERVISOR SHALL BE AD THAT THE CONDITION CAN BE CORRECTED BY THE MECHANICAL CONTRACTOR. THE WRITTEN DOCUMENT NEED NOT BE FORMAL, BUT MUST BE UNDERSTANDABLE AND LEGIBLE. DATA FROM MALFUNCTIONI NOT BE RECORDED IN THE FINAL TAB REPORT. THE TAB FIRM SHALL NOT INSTRUCT OR DIRECT THE CONTRACTOR IN ANY OF THE WORK, BUT WILL MAKE SUCH REPORTS AS ARE NECESSARY TO THE OWNER.
- F. FINAL AIR BALANCE
- 1. GENERAL: WHEN SYSTEMS ARE COMPLETE AND READY FOR OPERATION. THE TAB CONSULTANT WILL PERFORM A FINAL AIR BALANCE FOR ALL AIR SYSTEMS AND RECORD THE RESULTS. THE OUTSIDE S RETURN AIR VOLUME FOR EACH AIR HANDLING UNIT, SUPPLY FAN AND EXHAUST FAN AND THE SUPPLY, EXHAUST OR RETURN AIR VOLUME FOR EACH DISTRIBUTION DEVICE SHALL BE ADJUSTED TO WITHIN +5% ON THE DRAWINGS. AIR HANDLING UNIT AND FAN VOLUMES SHALL BE ADJUSTED BY CHANGING FAN SPEED AND ADJUSTING VOLUME DAMPERS ASSOCIATED WITH THE UNIT. AIR DISTRIBUTION DEVICE VOLUMI USING THE SPIN-IN TAP DAMPER FOR FLEXIBLE DUCT CONNECTED DEVICES AND THE DEVICE OBD FOR DUCT CONNECTED DEVICES. AIR DISTRIBUTION DEVICES SHALL BE BALANCED WITH AIR PATTERNS AS SPEC DAMPERS SHALL BE ADJUSTED TO PROVIDE AIR VOLUME TO BRANCH DUCTS WHERE SUCH DAMPERS ARE SHOWN. THE GENERAL SCOPE OF BALANCING BY THE TAB CONSULTANT WILL INCLUDE, BUT IS I
- FOLLOWING: a. FILTERS: CHECK AIR FILTERS AND FILTER MEDIA AND BALANCE ONLY SYSTEM WITH ESSENTIALLY CLEAN FILTERS AND FILTER MEDIA. THE CONTRACTOR SHALL INSTALL NEW FILTERS AND FILTER MEDIA PR
- BALANCE. b. BLOWER SPEED: MEASURE RPM AT EACH FAN OR BLOWER TO DESIGN REQUIREMENTS. WHERE A SPEED ADJUSTMENT IS REQUIRED, THE CONTRACTOR SHALL MAKE ANY REQUIRED CHANGES.
- c. AMPERE READINGS: MEASURE AND RECORD FULL LOAD AMPERES FOR MOTORS. d. STATIC PRESSURE: STATIC PRESSURE GAINS OR LOSSES SHALL BE MEASURED ACROSS EACH SUPPLY FAN. COOLING COIL. HEATING COIL. RETURN AIR FAN. AIR HANDLING UNIT FILTER AND EXHAUST FA SHALL BE MEASURED AND RECORDED FOR THIS REPORT AT THE FURTHEST AIR DEVICE OR TERMINAL UNIT FROM THE AIR HANDLER SUPPLYING THAT DEVICE. STATIC PRESSURE READINGS SHALL ALSO
- SYSTEMS WHICH DO NOT PERFORM AS DESIGNED. e. EQUIPMENT AIR FLOW: ADJUST AND RECORD EXHAUST, RETURN, OUTSIDE AND SUPPLY AIR CFM (S) AND TEMPERATURES, AS APPLICABLE, AT EACH FAN, BLOWER AND COIL.
- f. COIL TEMPERATURES: SET CONTROLS FOR FULL COOLING AND FOR FULL HEATING LOADS. READ AND RECORD ENTERING AND LEAVING DRY BULB AND WET BULB TEMPERATURES (COOLING ONLY) AT I HEATING COIL AND HVAC TERMINAL UNIT. AT THE TIME OF READING RECORD WATER FLOW AND ENTERING AND LEAVING WATER TEMPERATURES (IN VARIABLE FLOW SYSTEMS ADJUST THE WATER FLOW TO ABOVE READINGS).
- g. ZONE AIR FLOW: ADJUST EACH ZONE OF MULTI-ZONE UNITS, EACH HVAC TERMINAL UNIT AND AIR HANDLING UNIT FOR DESIGN CFM. h. OUTLET AIR FLOW: ADJUST EACH EXHAUST INLET AND SUPPLY DIFFUSER, REGISTER AND GRILLE TO WITHIN +5% OF DESIGN AIR CFM. INCLUDE ALL TERMINAL POINTS OF AIR SUPPLY AND ALL POINTS OF E
- LABS AND ROOMS THAT ARE NEGATIVE EXHAUST AIR FLOW SHALL BE SET TO DESIGN +10% AND SUPPLY TO DESIGN -5%. POSITIVE AREAS WILL HAVE OPPOSITE TOLERANCES. i. PITOT TUBE TRAVERSES: FOR USE IN FUTURE TROUBLESHOOTING BY MAINTENANCE PERSONNEL, ALL EXHAUST DUCTS, MAIN SUPPLY DUCTS AND RETURN DUCTS SHALL HAVE AIR VELOCITY AND VOLU RECORDED BY THE TRAVERSE METHOD. LOCATIONS OF THESE TRAVERSE TEST STATIONS SHALL BE DESCRIBED ON THE SHEET CONTAINING THE DATA.
- j. MAXIMUM AND MINIMUM AIR FLOW ON TERMINAL BOXES. G. SOUND VIBRATION AND ALIGNMENT
- 1. SOUND: READ AND RECORD SOUND LEVELS AT UP TO 15 LOCATIONS IN THE BUILDING DESIGNATED BY THE ENGINEER. ALL MEASUREMENTS SHALL BE MADE USING AN OCTAVE BAND ANALYZER. ALL TESTS SHALL BE CONDUCTED WHEN THE BUILDING IS QUIET IN THE PRESENCE OF THE ENGINEER, IF HE SO DESIRES.

	 VIBRATION: READ AND RECORD VIBRATION FOR ALL WATER CIRCULATING PUMPS, AIR HANDLING UNITS, AND FANS WHICH HAVE MOTORS LARGER THAN 10 HP. INCLUDE EQUIPMENT VIBRATION, BEARING HOUSING FOUNDATION VIBRATION, BUILDING STRUCTURE VIBRATION, AND OTHER TESTS AS DIRECTED BY THE ENGINEER. READINGS WILL BE MADE USING PORTABLE IRD (OR APPROVED EQUAL) EQUIPMENT CAPABLE OF FIL VARIOUS UNWANTED FREQUENCIES AND STANDARD REPORTING FORMS. MAXIMUM VIBRATION AT ANY POINT LISTED ABOVE, OR SPECIFIED, SHALL NOT EXCEED 1 MIL ON FANS AND 1 MIL ON PUMPS UNLESS OTHERWIS EQUIPMENT MANUFACTURERS SHALL RECTIFY ALL SYSTEMS EXCEEDING VIBRATION TOLERANCES. H. TESTING OF TEMPERATURE CONTROL SYSTEMS
ND SHALL INCLUDE ALL T CAN BE DETERMINED	 IN THE PROCESS OF PERFORMING THE TAB WORK, THE TAB AGENCY SHALL: a. WORK WITH THE TEMPERATURE CONTROL CONTRACTOR TO ENSURE THE MOST EFFECTIVE TOTAL SYSTEM OPERATION WITHIN THE DESIGN LIMITATIONS, AND TO OBTAIN MUTUAL UNDERSTANDING OF INTENDER DEPEROPMANCE
BRACING TO PREVENT HOUT FIRST OBTAINING	 PERFORMANCE. b. VERIFY THAT ALL CONTROL DEVICES ARE PROPERLY CONNECTED. c. VERIFY THAT ALL DAMPERS, VALVES AND OTHER CONTROLLED DEVICES ARE OPERATED BY THE INTENDED CONTROLLER. d. VERIFY THAT ALL DAMPERS AND VALVES ARE IN THE POSITION INDICATED BY THE CONTROLLER (OPEN, CLOSED OR MODULATING). e. VERIFY THE INTEGRITY OF VALVES AND DAMPERS IN TERMS OF TIGHTNESS OF CLOSE-OFF AND FULL-OPEN POSITIONS. THIS INCLUDES DAMPERS IN MULTI-ZONE UNITS, TERMINAL BOXES AND FIRE/SMOKE DAMPERS. f. OBSERVE THAT ALL VALVES ARE PROPERLY INSTALLED IN THE PIPING SYSTEM IN RELATION TO DIRECTION OF FLOW AND LOCATION. g. OBSERVE THE CALIBRATION OF ALL CONTROLLERS. h. VERIFY THE PROPER APPLICATION OF ALL NORMALLY OPENED AND NORMALLY CLOSED VALVES.
r spillage. Keep all	 i. VENIT THE FROMEWAP FIGATION OF ALL NOTABLE NOTABLE TO AND NAMELET OF POTENTIAL ERRATIC OPERATION FROM OUTSIDE INFLUENCES SUCH AS SUNLIGHT, DRAFTS OR COLD WALLS. i. OBSERVE THE LOCATIONS OF ALL SENSORS TO DETERMINE WHETHER THEIR POSITION WILL ALLOW THEM TO SENSE ONLY THE INTENDED TEMPERATURES OR PRESSURES OF THE MEDIA. CONTROL CONTRACTOR WIL AS DEEMED NECESSARY BY THE TAB AGENCY. k. VERIFY THAT THE SEQUENCE OF OPERATION FOR ANY CONTROL MODE IS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS AND SPECIFICATIONS. VERIFY THAT NO SIMULTANEOUS HEATING AND COOLING OCCURS i. VERIFY THAT ALL CONTROLLER SETPOINTS MEET THE DESIGN INTENT. m. CHECK ALL DAMPERS FOR FREE TRAVEL. n. VERIFY THE OPERATION OF ALL INTERLOCK SYSTEMS. o. PERFORM VARIABLE VOLUME SYSTEM VERIFICATION TO ASSURE THE SYSTEM AND ITS COMPONENTS TRACK WITH CHANGES FROM FULL FLOW TO MINIMUM FLOW. 2. A SYSTEMATIC LISTING OF THE ABOVE TESTING AND VERIFICATION SHALL BE INCLUDED IN THE FINAL TAB REPORT.
OUNDING PROPERTIES	 3.6 CLEANING AND PROTECTING 1. IT SHALL BE THIS TRADE'S RESPONSIBILITY TO STORE HIS MATERIALS IN A MANNER THAT WILL MAINTAIN AN ORDERLY CLEAN APPEARANCE. IF OR WHICH TRAINING IS REQUIRED. THE AGENDA DESCRIBES THE TRAINING SCOPE AND METHODS, ALONG WITH THE NAME AND QUALIFICATIONS.
CONDITION, LOSS, OR	
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SYMBOL	DESCRIPTION	NG FIXTURES	OTES	SYMBOL		NOTE CES – RECEPTA
	WALL OR CEILING MOUNTED LIGHTING FIXTURE	UPPER CASE LETTERS		$\mathbb{P}^{\mathbb{I}}$	WALL DUPLEX] CONVENIENCE OUTLET MTD 18" AFF]	20A/125V, 2P, 3W, GNDG SHADING OF SYMBOL THUS SUBSCRIPT LOWER CASE I SWITCH CONTROL ASSOCIA
FP 1 1 1 1				Ф	CEILING MOUNTED DUPLEX CONVENIENCE OUTLET	SHADING OF SYMBOL THUS
FP 10 FP					ISOLATED GROUND DUPLEX CONVENIENCE OUTLET	INDICATES RECEPTACLE MI TO CENTER LINE OR 48" OTHERWISE. CONFIRM DEV WITH ARCHITECTURAL ELEV CMR 521 9.5.6 AND 39.3
		OR EMERGENCY BATTE APPLICABLE, CONTRAC OF REMOTE EMERGEN	NIGHT/EMERGENCY CIRCUIT RY BACK UP BALLAST WHERE TOR SHALL CONFIRM LOCATION CY BALLAST WITH ARCHITECT	₽	WALL DOUBLE DUPLEX CONVENIENCE OUTLET	'WP' – INDICATES WEATHE 'GFI' DENOTES SELF REGU
- <u>+</u> 1a FP 1a		B30ST OR B30 WITH	AND INSTALLATION.] SHALL BE SIMILAR TO BODINE] INTEGRAL INDICATOR LIGHT TEST] AMP APPLICATION WHERE]	Φ	WALL MTD SINGLE CONVENIENCE OUTLET	ALL POWER OUTLET FACEF BE LABELED WITH CIRCUIT PANEL DESIGNATION FEED
•	EXTERIOR POLE MOUNTED FIXTURE	CONTRACTOR SHALL F EMERGENCY TRANSFER EMERGENCY FIXTURES	URNISH AND INSTALL RELAY ON ALL SWITHCED	Ŧ	HOSPITAL_GRADE DUPLEX_CONVENIENCE OUTLET	PASS & SEYMOUR 2095
		HARDWARE APPLICABLE TYPE INTO WHICH FIX	OORDINATE MOUNTING HEIGHT		DUPLEX RECEPTACLE WITH (2) USB PORTS	HUBBELL: USB20X2 OR CONFIRM DEVICE AND F. WITH ARCHITECT
		CONTRACTOR SHALL C	INTERIOR/EXTERIOR ELEVATIONS OORDINATE AND CONFIRM IO ACHIVE COLOR AS CT AND OWNER/TENANT	P	PLUG LOAD (WIRELESS) CONTROLLABLE RF DUPLEX RECEPTACLE DUAL CONTROL	LEGRAND: RF26352CDW CONFIRM DEVICE AND F/ WITH ARCHITECT
		STEP DOWN TRANSFOR	URNISH AND INSTALL 0–10V	Φ	PLUG LOAD (WIRELESS) CONTROLLABLE RF DUPLEX RECEPTACLE HALF CONTROL	LEGRAND: RF26352CHW CONFIRM DEVICE AND F. WITH ARCHITECT FURNISH AND INSTALL F POWER PACK AND WIRE
	,	MERGENCY LIG				CONTROL TRANSMITTERS
	EMERGENCY LIGHTING WITH BATTERY UNIT	ALL EMERGENCY BAT	TERY PACKS SHALL HAVE BILITY UNLESS NOTED	+ ● +9	WALL_MOUNTED] SPECIAL_PURPOSE] POWER_RECEPTACLE]	RECEPTACLE TYPE AS LIS SCHEDULE OF NON-STAT CONFIRM NEMA PLUG CO WITH OWNER AND TENAN
\$	EMERGENCY LIGHTING HEAD		LL BE FURNISHED WITH		FIRE RATED FURNITURE	FEED POKE THRIUGH I
8	CEILING MOUNTED EXIT SIGN	INTERNAL, 90 MINUTI OTHERWISE	E BATTERY UNLESS NOTED	⊦₽∽	4" SQUARE OUTLET BO IN FURNITURE PARTITIO	<u>X TO OUTLETS LOCATED</u> NS (SEE FLOOR PLANS)
⊦⊗	WALL_MOUNTED EXIT_SIGN	ARROWS THUS:	_		WIRING DEVICE	ES — MISCELLAN
		CHEVERONS AS REQU		99	POWER POLE WITH ELEC DEVICES AND PLATES	
SWP	SWITCHING/LI	GHTING/DEVIC 20A 120-277V AC "WP" - INDICATES	E CONTROL SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH CONTROL		2 PIECE SURFACE MTD RACEWAY WITH 20A DUPLEX RECEPTACLES CONFIRM SPACING WITH ARCHITECT	LEGRAND OR EQUAL UNLESS NOTED OTHERW SHALL BE METAL
SP	SINGLE POLE SWITCH	WEATHER PROOF	SWITCH CONTROL ASSOCIATIONS SUBSCRIPT UPPER CASE LETTERS DENOTE SWITCH TYPE AS	₽₩	2 PIECE MULTI-CHANNEL RACEWAY WITH 20A DUPLEX RECEPTACLES AND DATA OUTLETS CONFIRM SPACING	LEGRAND OR EQUAL UNLESS NOTED OTHERW SHALL BE METAL
<u>52</u>	DOUBLE POLE SWITCH		LISTED IN NON-] STANDARD SWITCHES] [UNLESS_NOTED]		WITH ARCHITECT	POKE THRU APPLICATIO
S3 54	FOUR-WAY SWITCH		OTHERWISE SWITCHES SHALL BE MOUNTED 48" TO CENTER LINE AFF		RECEPTACLES	2 HOUR RATED. LEGE OR FQUAL. COORDINA AND TEL/DATA TERMA FLOOR TRENCH APPLIC
ST	SPRING WOUND INTERVAL TIME SWITCH WITHOUT HOLD	TORK OR EQUAL 30 MIN MAX				DEEP RECTANGULAR (LEGRAND EVOLUTION S PROVIDE 1"C FROM TEL
KS	KEY SWITCH LINE VOLTAGE	LEVITON OR EQUAL	PROVIDE 0-10V DIMMER WHERE REQUIRED FOR LED LIGHTING FIXTURES			CTION BOXES
D	0-10V SLIDE DIMMER	LEVITON_ILLUMATECH		Ð	CEILING MOUNTED JUNCTION BOX	
	CEILING MOUNTED CORRIDOR OCCUPANCY	WATT_STOPPER:	CONTRACTOR_SHALL	ΗŪ	WALL_MOUNTED JUNCTION_BOX	
	SENSOR (80' oc)	WATT_STOPPER:	ALL APPROPRIATE POWER PACKS, RELAYS, CABLES, CONTROL MODULES, AND CONTACTORS TO COMPLETE	IJ	SURFACE_MOUNTED JUNCTION_BOX	-
<u>م</u>	SENSOR (1,600 sf) CEILING MOUNTED OCCUPANCY SENSOR	WATT_STOPPER:	SYSTEM INSTALLATION SUBSCRIPT LOWER CASE LETTERS INDICATE SWITCH LEG CONTROL	D	FLUSH FLOOR MOUNTED	P – DENOTES POWER
	WHEATHERPROOF	HB-L2W WATT_STOPPER:	CONTRACTOR SHALL COORDINATE AND CONFIRM ALL SENSOR	D ~•	JUNCTION BOX WITH FLEXIBLE CONNECTION TO EQUIPMENT	C - DENOTES COMMUN
	DUAL TECHNOLOGY OCCUPANCY SENSOR WALL MOUNTED	DSW-301 WATT_STOPPER:	SETTING AND TIME DELAYS WITH OWNER OR TENANTS REPRESENTATIVE	\bigcirc	MOTORS	AND CONTROLS
Lap 1	DUAL TECHNOLOGY DUAL RELAY SENSOR	DSW-302			MAGNETIC_MOTOR	REFERENCE TO SCHEDUI EQUIPMENT
	CEILING MOUNTED WIRELESS RECEPTACLE TRANSMITTER	WATT STOPPER: WRC-TX SERIES			THERMAL OVERLOAD PROTECTION	INDICATES NEMA FOR SIZE APPL INDEX INDEX INDEX
B	WALL MOUNTED DIMMABLE OCCUPANCY SENSOR	WATT_STOPPER: (0-10V) PW-311 (120/277) PW-100D	FURNISH AND INSTALL BALLAST COMPATIBLE] WITH DIMMABLE SENSOR		STARTER (THERMAL OVERLOAD SWITCH) VARIABLE FREQUECY	REFER TO HVAC
	CEILING MOUNTED ON/OFF DAYLIGHT HARVEST SENSOR	WATT STOPPER: LS-102			DRIVE	SCHEDULE FOR MOTOR LOAD HORSEPOWER SIZE
TR	SELF POWERED TRANSFER RELAY	ILC TR SERIES OR EQUAL	CONTRACTOR SHALL FURNISH AND INSTALL ALL RELAYS AND MODULES TO COMPLETE SYSTEM INSTALLATION			TION EQUIPMENT
স	7 DAY ASTRONOMICAL PROGRAMMABLE TIME CLOCK	TORK OR EQUAL	CONTRACTOR SHALL COORDINATE AND CONFIRM PROGRAMMING SCHEDULE WITH OWNER		SURFACE MOUNTED PANEL	
LV	LOW VOLTAGE 1. 3, AND 4 WAY MOMENTARY SWITCH	WATT_STOPPER: DCC2_SERIES OR_EQUAL	CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY POWER PACKS, RELAYS, CABLES, CONTROL MODULES, WIRING,		FLUSH MOUNTED PANEL	
LCRP	LIGHTING CONTROL RELAY PANEL	WATT STOPPER: LP8 SERIES OR EQUAL	AND CONTACTORS TO COMPLETE SYSTEM INSTALLATION	TVSS	SURGE SUPPRESSION	PROVIDE PER SPECIFICA
MS	GUEST ROOM CARD KEY SWITCH	WATT_STOPPER: HS_SERIES OR_EQUAL				SEE ELECTRICAL PLANS
MHNC	MODULAR HOME NETWORK CENTER PROVIDE (1)	47606-AHT, 476TL-T	YSTEMS ORKING CENTER SHALL BE LEVITON 12, 476TM-EX5, 47690-462, AND 5-30W ENCLOSURE OR EQUAL WITH		METER SOCKET AND METER	METER SOCKET PROVIDED BY LOCAL U
	DEDICATED 120V CIRCUIT AND DUPLEX RECEPTACLE	47605-4CS IN 4960 120V CIRCUIT. 4"x4" SQUARE OUTLI	5-30W ENCLOSURE OR EQUAL WITH ET BOX WITH 1"C, PULL STRING SHING TO ABOVE ACCESSIBLE			E-MON/D-MON CLASS
• •		P - DENOTES PU			OVERCURRENT AND/OR SWITCHING DEVICE	COMPLETE INFORMATION INDICATED BY APPLICATI SYMBOLS
	WALL MOUNTED	W – DENOTES PO			WEATHER PROOF	$\begin{array}{ccc} 30 \\ 30 \\ \hline 30 \\ \hline 30 \\ \hline 50 \\ \hline 10 \\ \hline 10$
	FIRE RATED FURNITUR	E FEED POKE THROU				
	4" SQUARE OUTLET B	OX WITH 1 1/2" GR	омметтер			
	ELECTRIFIED FURNITUR	4"x4" SQUARE O	TED 8" AFF JTLET BOX WITH 1" CONDUIT		WALL MOUNTED	SAFETY TECHNOLOGY INT
	CABLE TV OUTLET	STUBBED 6" ABO	VE ACCESSIBLE CEILING FOR MOUNTING HEIGHT	⊢₽	EMERGENCY POWER OFF BUTTON WITH SHIELD	OR EQUAL

		SYMBOL			NOTES	SYMBOL			NOTES	
	NEMA 5-20R	•	LIGHTING AND	ARROW HEAD INDIC	ATES HOME RUN	F	MANUAL_FIRE_ALARM		STSTEM	
	TTERS INDICATE			(UNLESS NOTED O NUMBER OF ARROY NUMBER OF BRANC	THERWISE)		VISUAL ONLY FIRE			
	6" ABOVE COUNTER		APPLIANCE BRANCH CIRCUITRY CONCEALED	CROSS MARKS IND WIRES IN 3/4" CO ABSENCE OF CROS	NDUIT PLUS GROUND.		AND VISUAL FIRE	1		
	FF UNLESS NOTED E MOUNTING HEIGHT TION PLANS AND/OR	×	APPLIANCE BRANCH		NDICATED THUS:		CEILING MOUNTED			
					NEL DESIGNATION.		WALL MOUNTED FIRE			
	ACLE			CONTAINING 20A.	IP. CB'S IN PANELBOARD		ALARM SPEAKER AND			
	HGTR OR EQUAL			BREAKER GREATER SIZE GREATER THA SIZE GREATER THA	THAN 20A-1P WIRE N NO. 12 AND CONDUIT			Ī		
			TURNING UP&DOWN		<u>1, 3, 5</u>	N N N	WALL_MOUNTED_FIRE] ALARM_MINI-HORN/STROBE			
	CEPLATE COLOR			<u>4 #4</u> 1-1/	<u>, 1 #8 GROUND</u> 4" CONDUIT		520HZ IN ALL ROOMS			
	DR EQUAL CEPLATE COLOR			RAL CIRCUITR	<u>Y</u>	Ê	FIRE ALARM			
						K	KNOX BOX			
	UG LOAD SS RECEPTACLE		PLUG, BREAKERS AS			⊦®	ROTATING FIRE ALARM BEACON LIGHT			
$ \begin{array}{c} 1 \\ 1 \\ 1 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\$						₽ ₽	PROVIDE (1) DEDICATED			
	ARD RECEPTACLES									
			INDIVIDUAL RUN OTHER THAN BRANCH CIRCUITRY OR		NDARY_ELECTRIC HONE] ISION] _ TELEVISION]	BS	GENERATOR AND BED SHAKER IN EACH HEARING IMPARED UNIT SIMILAR TO LIFETONE HL PLUG IN	-		
	-01121					Ø	CARBON MONOXIDE	1		
		1 🔼			CATES HOME RUN TO			ļ .		
	SE, ALL RACEWAY				OWN ON POWER	FACP	CONTROL PANEL		<u>Carbon Monoxide Visual Alarm</u> For Hearing Impaired.	
						[FAA]	ANNUNCIATOR PANEL		VISUAL ALARM FOR HEARING	
Image: Second	E, ALL RACEWAY		T			RTS	STATION		[IMPAIRED.]	
	;]		UNDEX SYMBOL	UPPER CASE LETT TO A SCHEDULE O	ERS INDICATE REFERÈNCE F SPECIAL EQUIPMENT	⊢®			<u>VISUAL ALARM FOR HEARING</u>	
	ND RC SERIES			CASE LETTERS AND REFERENCE TO SC	D NUMERICALS INDICATE	6			LOCAL 120V DETECTOR	
	ION: ST IRON BOX			HEXAGONAL SYMBO	INDICATE REFERENCE				TRANSMITTER UNIT	
	DATA TO 6" ABOVE		GANGING CROSSI	WORK REQUIREMEN		ΗÐ	SMOKE DETECTOR	B SA RA	BEAM TYPE PHOTOELECTRIC SUPPLY AIR DUCT DETECTOR RETURN AIR DUCT DETECTOR	
				DEVICE DENOTES 1 BE GANGED IN A DEVICE SIMILARLY	HAT THE DEVICE IS TO BOX WITH ANOTHER NOTED AT THE SAME	HÔ			COMBINATION_SMOKE/CARBON MONOXIDE_DETECTOR	
EXISTING CLECTRICAL COUPAGENT E2 PERSON CREATION PERSON CREATION CREAT				DIMENSION NOTED	IN PARENTHESIS		MONITOR		DNITORING MODULE	
Image: Section 1000000000000000000000000000000000000			FXISTING F	CENTERLINE ABOVE	FINISHED FLOOR		PS DRY ALARM PS DRY ALARM PRESSURE SWITCH			
IC <td></td> <td>ETR</td> <td></td> <td>ALL EXISTING TO</td> <td> D_REMAIN_LIGHTING</td> <td>DH</td> <td></td> <td></td> <td></td> <td></td>		ETR		ALL EXISTING TO	 D_REMAIN_LIGHTING	DH				
			EXISTING EQUIPMENT	ARE OPERATION	MAIN ELECTRICAL DEVICES	SK	SMOKE EXHAUST FAN KEY SWITCH			
Image: Subject To the control of the contro			TO BE REMOVED		VITH A NEW DEVICE OF				CONTROL MODULE	
SHOULDED IN CONTROLOGIESS IN CONTR			NEW LOCATION OF RELOCATED_EXISTING	CONNECT EXIST	NG WIRING TO NEW		SECURITY/INTERC			
	ING SYMBOLS		REMOVE EXISTING DEVICI	WIRING BACK TC IF EXISTING WIR RELOCATED EQU	<u>SOURCE IF NECESSARY</u> ING DOES NOT REACH IPMENT. CONTRACTOR	DBPB	ILLUMINATED DOOR BELL PUSH BUTTON	EDWARD	S C200 SERIES KIT OR EQUAL	
Image and s is an example is and state is an example is an exam	TE INFORMATION		DOTTED_DENOTES		PLACE IF NECESSARY.]	DBC	DOOR BELL CHIME/BELL	CONTRA AT CHIM	CTOR SHALL PROVIDE 120V IE/BELL LOCATION	
Image: State	ED BY THE ATION OF NG SYMBOL					\ \ \ \ \ \ \ \ \ \ \ \	HEARING IMPAIRED PHONE STROBE	WHEELO	CK PS11AWPW OR EQUAL	
Image: Second State Second State Image: Second State Ima	ENCE APPLIED		NURSE CALL	RGENCY CALL	_ SYSIEMS	Ø	HEARING IMPAIRED INTERCOM STROBE	WHEELO	CK RSSG24110NW OR EQUAL	이이이 이이이
Image: Construct Status Image: Constatus Image: Construct Image: C			NURSE CALL	-		Ø	HEARING IMPAIRED DOORBELL STROBE	WHEELO	CK RSSG24110NW OR EQUAL	
Image: Constrained and the constrai	D BY OTHERS. L CONTRACTOR			-			PROXIMITY CARD READER			
INCODE			DUTY STAFF STATION	-			KEY PAD	AT DEVI	CE LOCATION AND 1" CONDUIT	
Image: Construction Image: Construct			INURSE CALLI ANNUNCIATOR PANEL				DOOR CONTACT	1		
OR KVA RATING EXAMPLEMENT CALL EMERGENCY CALL WALLENDE STATION D BY CONTRACTOR EMERGENCY CALL EMERGENCY CALL WALLENDE STATION D BY CONTRACTOR EMERGENCY CALL EMERGENCY CALL WALLENDE STATION D BY CONTRACTOR EMERGENCY CALL EMERGENCY CALL Wallende Station D BY CONTRACTOR EMERGENCY CALL EMERGENCY CALL Wallende Station ILTY CO. EMERGENCY CALL EMERGENCY CALL EMERGENCY CALL ILTY CO. ILTY CO. EMERGENCY CALL EMERGENCY CALL EMERGENCY CALL INTEGRA CONTROL TANDI EMERGENCY CALL EMERGENCY CALL EMERGENCY CALL EMERGENCY CALL INTEGRA CONTROL TANDI EMERGENCY CALL EMERGENCY CALL EMERGENCY CALL EMERGENCY CALL EMERGENCY CALL INTERCENT IMERGENCY CONTROL TANDI EMERGENCY CONTROL TANDI EMERGENCY CONTROL TANDI EMERGENCY CALL EMERGENCY CALL INTERCENT <td></td> <td></td> <td>EMERGENCY CALL PULL CORD</td> <td></td> <td></td> <td></td> <td>ELECTRIC DOOR STRIKE</td> <td></td> <td></td> <td></td>			EMERGENCY CALL PULL CORD				ELECTRIC DOOR STRIKE			
OR KVA RATING EXAMPRODUCT CALL D. BY CONTRACTOR EMERGENCY CALL D. BY CONTRACTOR EMERGENCY CALL LITY CO.J EMERGENCY CONTRACTOR SHALL LITY CO.J EMERGENCY CONTRACTOR SHALL LITY CONTRACTOR RESCUE EMERGENCY CONTRACTOR SHALL LINFUSED SWITCH	ONS]			LOCAL DOOR ALARM			
Image: Constractor of Ligrer Constractor of Recency Call Image: Constractor of Recency Call	OR KVA RATING			1			MOTION DETECTOR			
		i	EMERGENCY CALL COMMUNICATION PANEL	-				-		ㅋ
Image: state in the state i	2000 OR EQUAL.		AUTOMATIC EXTERNAL		120V POWER CONNECTION.	P	ADDRESS SPEAKER			
N OF TAG Image: state stat			POWER CONNECTION	ARCHITECT AND TEN			CLOSED CIRCUIT TELEVISION CAMERA			
Image: Supersed switch ame size: Image: Control panel Image: Control panel <td><u>r or devices is</u> N of tag</td> <td></td> <td>VANDAL_RESISTANT</td> <td></td> <td>CONTRACTOR SHALL</td> <td>HC</td> <td>HANDICAP_ACCESS PUSH_BUTTON</td> <td></td> <td></td> <td></td>	<u>r or devices is</u> N of tag		VANDAL_RESISTANT		CONTRACTOR SHALL	HC	HANDICAP_ACCESS PUSH_BUTTON			
Important Loss Loss (Line Loss) Important Loss (Line Loss)	AME SIZE		MAIN CONTROL PANEL	OR EQUAL	ALL NECESSARY POWER PACKS AND EXPANSION SWITCHES TO COMPLETE	SCP				
Image: Second Second Stream Image: Second Stream	AME SIZE SE SIZE		BATTERY BACKUP		PROVIDE 120V POWER			1		
Image: Construction of the co	<u>ENCLOSED</u> BREAKER		AREA OF RESCUE	AZOTB/V SERIES	QUANTITY WITH RB			REFER	TO SPECIFICATIONS	
Image: Second					ON FLOOR PLANS		VIDEO_INTERCOM_STATION TALK/ACCESS			
	RNATIONAL	1			B-5248A WITH BATTERY OR P-512243A WITH LIFE SAFETY CIRCUIT		INTERCOM SPEAKER	-		

GENERAL NOTES

 ALL CONDUITS AND EQUIPMENT SHALL BE INSTALLED AND GROUND IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF THE APPLICABLE LOCAL AND NATIONAL CODES.
 CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARRALEL TO BEAMS AND WALLS. EMPTY CONDUITS SHALL HAVE NYLON PULL LINE.
 CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.

 NO CONDUIT SMALLER THAN 3/4", NOR WIRE SIZE SMALLER THAN #12 A.W.G. FOR POWER SHALL BE USED UNLESS OTHERWISE NOTED.
 THE WIRING DIAGRAMS, QUANTITY AND SIZE OF THE WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE CONSTRUCTION MANAGER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS

AND/OR SPECIFICATIONS.
6. SWITCHES SHALL BE MOUNTED 4'-O" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. RECEPTACLES SHALL BE MOUNTED 18" AFF.
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INSIDE OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.

DAMP, SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE TOP CIRCUIT BREAKER OPERATING HANDLE TO THE FLOOR SHALL NOT EXCEED 6'-6".
LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.

0. FOR LOCATION OF HVAC, PLUMBING, FIRE PROTECTION, AND MISCELLANEOUS EQUIPMENT SEE RESPECTIVE TRADE DRAWINGS.
1. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS AS REQUIRED. FOR EXACT LOCATIONS OF EXPANSION JOINTS SEE STRUCTURAL DRAWINGS.

12. ALL MOTOR STARTER CONTROL TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR, IN ADDITION TO THE STARTER COIL. IT SHALL INCLUDE RELAYS, TIMERS, MOTOR HEATERS, INDICATING LIGHTS, ETC.

 CONDUIT AND WIRE (NOT SHOWN) FOR FIXTURES, SWITCHES AND/OR RECEPTACLES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE:
 3/4" (MIN.) CONDUIT RUN
 EXPOSED IN UNFINISHED AREAS.
 CONCEALED ABOVE HUNG CEILINGS AND IN WALLS IN FINISHED AREAS.

CONCEALED ABOVE HUNG CEILINGS AND IN WALLS IN FINISHED AREAS.
 NO.12 (MIN.) Cu WIRE (MIN.) TYPE "THWN/THNN" # OF WIRES AS REQUIRED.
 14. FOR EQUIPMENT PAD CONSTRUCTION DETAILS SEE STRUCTURAL DRAWINGS.
 15. ALL 120V BRANCH CIRCUITS GREATER THAN 100 LINEAR FEET SHALL BE #10AWG MIN.

 16. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LAYOUTS FOR ALL ELECTRICAL ROOMS BASED ON ACTUAL EQUIPMENT OF MANUFACTURER SELECTED, SUBMIT FOR REVIEW PRIOR TO INSTALLATION.
 17. PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES

 PROVIDE ELECTRICAL OUTLET PLATE GASKET SEALS AT RECEPTACLES, SWITCHES AND OTHER ELECTRICAL BOXES ON EXTERIOR WALLS AND ON INTERIOR WALLS BETWEEN CONDITIONED AND NON-CONDITIONED SPACES.
 THE ELECTRICAL CONTRACTOR SHALL SUBMIT A PLAN FOR APPROVAL SHOWING 18. ALL ELECTRICAL TELEPHONE, SECURITY, FIRE ALARM, COMMUNICATION AND OTHER SYSTEMS CONDUITS IN SLAB AND ABOVE CEILING ETC... COORDINATE WITH OTHER TRADES AND BUILDING'S STRUCTURE TO AVOID ANY CONFLICT.

 ALL TERMINATION LUGS SHALL BE SIZED ACCORDINGLY TO ACCOMMODATE INDICATED CONDUCTORS.
 THE ELECTRICAL CONTRACTOR SHALL SUBMIT PLANS FOR APPROVAL SHOWING ALL COMMUNICATIONS EQUIPMENT AND DEVICES THROUGHOUT THE BUILDING. THE ELECTRICAL CONTRACTOR SHALL ALSO LABEL AND IDENTIFY ALL CONDUITS THAT SERVE DIFFERENT SYSTEMS.

 21. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL LIGHT FIXTURES.
 22. COORDINATE LOCATIONS OF ALL LIGHT FIXTURES IN MECHANICAL AND ELECTRICAL ROOMS WITH LAYOUT OF EQUIPMENT, PIPING AND DUCTWORK.
 23. ALL EXIT SIGNS SHALL BE UNSWITCHED.

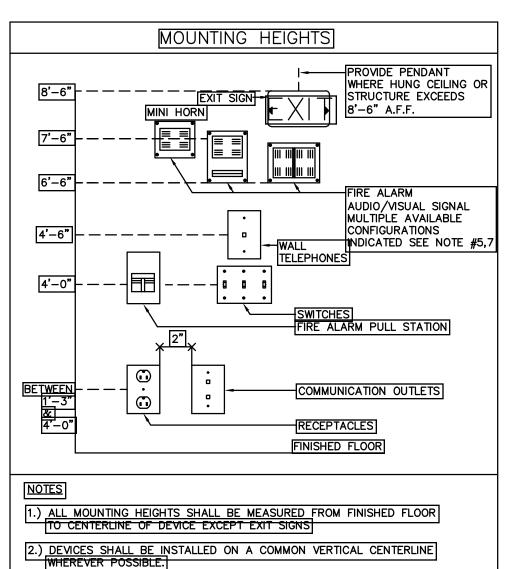
24. ALL SWITCHED LIGHT FIXTURES CIRCUITED TO A NORMAL/EMERGENCY CIRCUIT ARE TO BE WIRED WITH AN EMERGENCY BY-PASS RELAY.
25. ALL 20 AMPERE, SINGLE POLE CIRCUITS SHALL BE PROVIDED WITH A SEPARATE FULL SIZE NEUTRAL CONDUCTOR.

26. CONFIRM EXACT POWER REQUIREMENTS AND CONNECTION LOCATIONS FOR ALL EQUIPMENT WITH THE PLUMBING, FIRE PROTECTION, HVAC AND GENERAL CONTRACTOR.
27. PROVIDE AN SOU KIT FOR ALL MECH EQUIPMENT RATED LESS THAN 1/2HP (TYP).
28. CERTAIN SYMBOLS IN THE SYMBOL LIST DO NOT APPEAR ELSEWHERE IN THE DRAWINGS. SUCH SYMBOLS ARE INCLUDED TO PERMIT INTERPRETATIONS TO BE MADE IN THE EVENT OF DESIGN CHANGES.

MADE IN THE EVENT OF DESIGN CHANGES. 29. ELECTRICAL CONTRACTOR SHALL MAINTAIN RATING OF ANY CEILING, WALL, FLOOR OR ANY BUILDING STRUCTURE THAT ANY ELECTRICAL SYSTEM PENETRATES. SEE ARCHITECTURAL PLAN FOR RATINGS.

30. ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL SUBMITTED LED DRIVERS ARE FCC COMPLIANT AND THAT ALL SUBMITTED LIGHTING FIXTURES ARE UL LISTED.

ABBREVIATIONS					
ABBREVIATIONS AMPERE ALTERNATING CURRENT AIR CONDITIONING ABOVE FINISHED FLOOR ABOVE FINISHED GRADE		LENGTH] LIGHTNING ARRESTOR LIGHTING PANEL] LIGHTING] LOW VOLTAGE]			
ARCHITECTURAL AUTOMATIC TEMPERATURE CONTROL AUTOMATIC TRANSFER SWITCH AUTOMATIC		METER MILLIMETER MAIN_CIRCUIT_BREAKER MASS_ELECTRIC_COMPANY MECHANICAL MANUFACTURER MAIN_LUG_ONLY			
BATTERY] BYPASS ISOLATOR SWITCH] [CONDUIT]	MISC MTD	MISCELLANEOUS MOUNTED			
CABLE TELEVISION CABINET] CIRCUIT BREAKER] CLOSED CIRCUIT TELEVISION CIRCUIT] CENTERLINE	N N/C NEC NEMA	NEUTRAL NORMALLY CLOSED NATIONAL ELECTRIC CODE NATIONAL ELECTRICAL MANUFACTURERS			
CENTIMETER CEILING COMPANY COLUMN CURRENT TRANSFORMER COOL WHITE		ASSOCIATION NOT IN CONTRACT NIGHT LIGHTING CKT NORMALLY OPEN NUMBER			
DETAIL DIAMETER DISCONNECT	O/C O/C	ON CENTER OVERCURRENT OVERLOAD			
DOWN DISTRIBUTION PANEL DOUBLE POLE DOUBLE THROW DOUBLE POLE SINGLE THROW	89 174 174 174 174	PULL_BOX] PHASE] PANEL PUMP] PRIMARY] POTENTIAL_TRANSFORMER]			
DUST TIGHT DRAWING	PVC PWR	POLYVINYL CHLORIDE POWER			
EACH ELECTRICAL CONTRACTOR ELEVATION ELECTRIC ELEVATOR ENERGY SAVING	RECEPT REC RPA	RECEPTACLE RECESSED RELAY PANEL			
EXISTING FEEDER FLOOR FLUORESCENT GENERATOR	SEC SP SPECS SPKLR SW	SECONDARY SPARE SPECIFICATIONS SPRINKLER SWITCH			
<u>GROUND FAULT INTERRUPTER</u>	TB TEL TV TVSS	TERMINAL BOARD TELEPHONE TELEVISION TRANSIENT VOLTAGE			
GROUND HUNG CEILING HEIGHT HIGH INTENSITY DISCHARGE LAMP HIGH OUTPUT HORSE POWER HIGH PRESSURE SODIUM HEATING, VENTILATION AND AIR CONDITIONING HERTZ HIGH VOLTAGE INCHES INCANDESCENT JUNCTION BOX KILOVOLT KILOVOLT		TRANSIENT VOLTAGE SURGE SUPPRESSION TYPICAL UNLESS NOTED OTHERWISE VOLTS VOLT AMPERAGE VACUUM VENTILATING VARIABLE FREQUENCY DRIVE VAPOR TIGHT WATT ON WIRE WITH WEATHERPROOF			
KILOWATT					



WHEREVER POSSIBLE.

3.) ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.

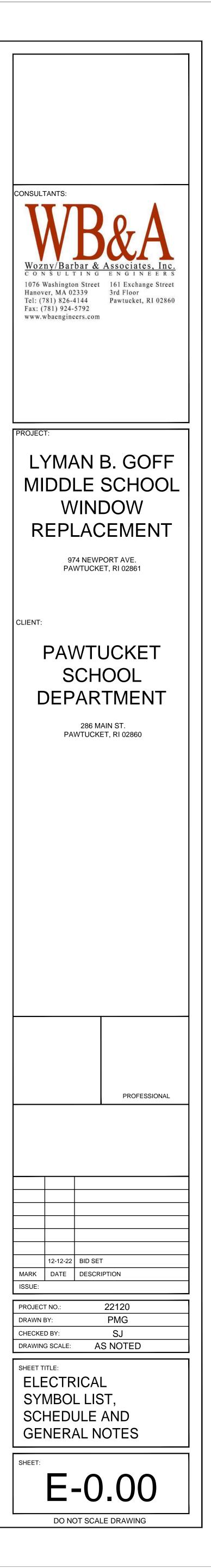
 A.) REFER TO THE ARCHITECTS ELEVATION DETAILS FOR EXACT HEIGHT AND LENGTH OF SURFACE RACEWAYS.
 S.) WALL MOUNTED VISUAL APPLIANCE THE ENTIRE LENS OF A/V SIGNAL OR VISUAL_ONLY SIGNAL IS NOT LESS THAN 80" AND NOT

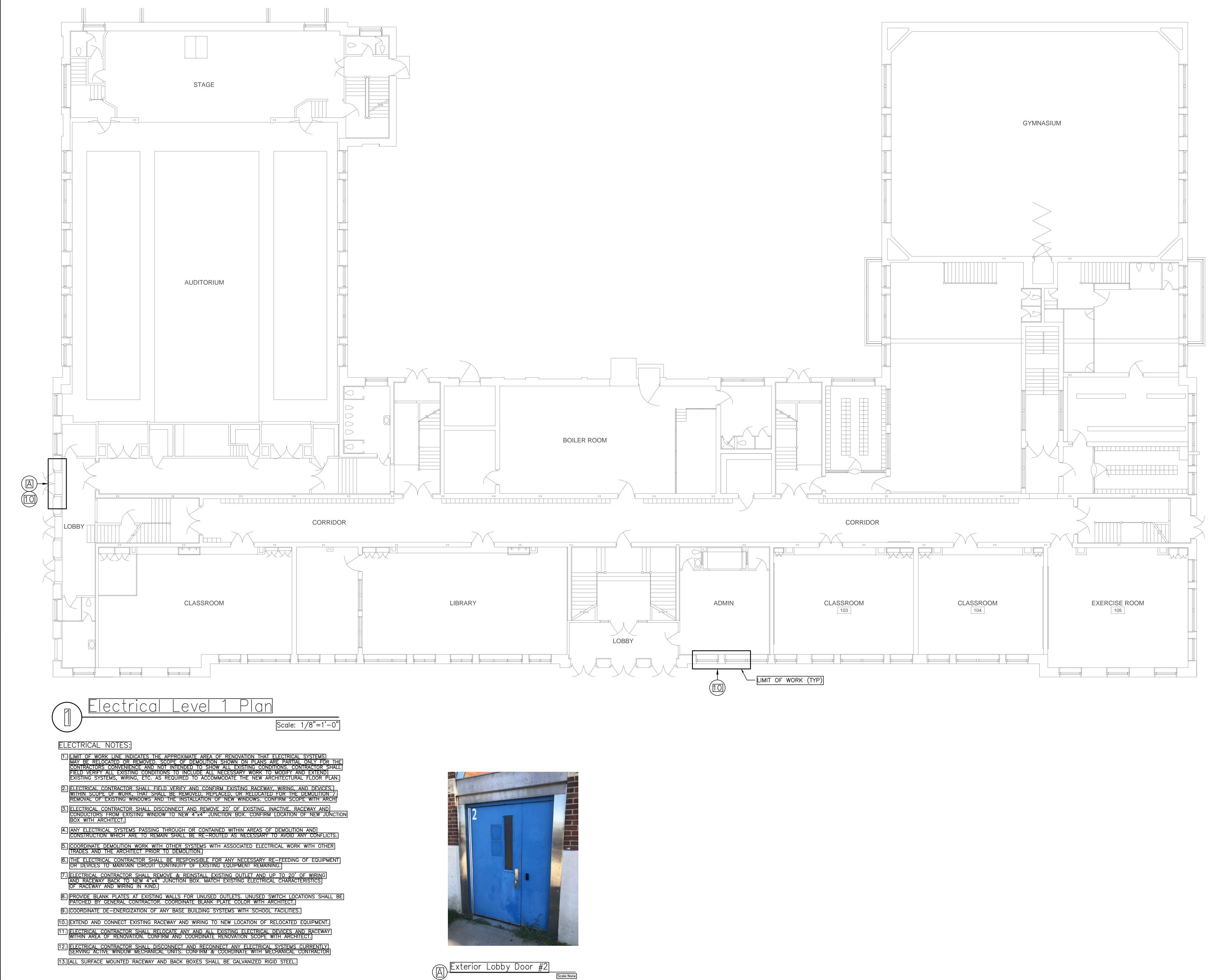
GREATER THAN 96" A.F.F. CONTRACTOR SHALL CONTACT ENGINEER IF PERFORMANCE BASED ALTERNATIVE (NFPA 72 7.5.4.5) IS REQUIRED DUE TO CEILING HEIGHTS.

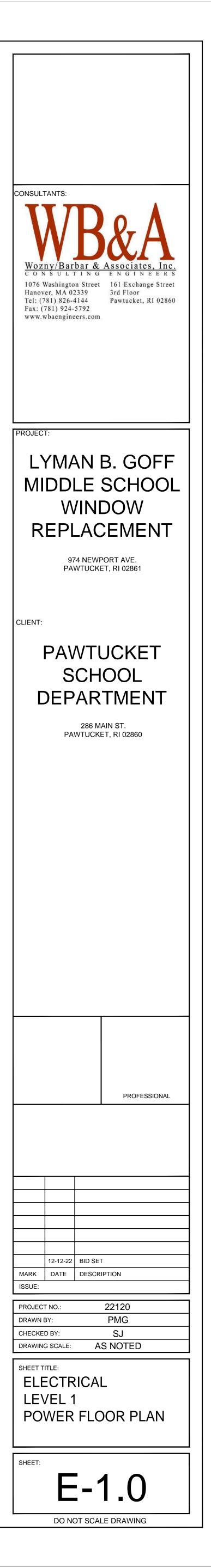
6.) ALL LOAD CENTERS LOCATED WITHIN GROUP I & GROUP II UNITS SHALL BE MOUNTED WITH BREAKER A MAXIMUM OF 54" A.F.F. AND 18" FROM INTERIOR CORNER.

7.) ALL WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCES SHALL HAVE THEIR TOPS ABOVE THE FINISHED FLOORS AT HEIGHTS OF NOT LESS THAN 90" (7'6") AND BELOW THE FINISHED CEILINGS AT DISTANCES NOT LESS THAN 6".

BRANCH CIRCUITS SCHEDULE			
[120 OR 277 VOLT 1ø, 2W. CIRCUITS]			
CIRCUIT BREAKER	CONDUCTOR 2#12+1#12 GND - 3/4"C		
30A-1P	$\frac{2\#12+1\#12}{2\#10+1\#10} \text{ GND } = 3/4^{\circ}\text{C}$		
40A-1P	2#8+1#10 GND 3/4"C		
[50A-1P]	2#6+1#10 GND 3/4"C		
[004-11] [60A-12]	2#6+1#10 GND 3/4"C		
20A-2P	2#12+1#12 GND 3/4"C		
30A-2P	2#12+1#12 GND. $-3/4$ °C		
40A-2P	2#8+1#10 GND 3/4"C		
50A-2P	2#6+1#10 GND 3/4"C		
[60A-2P]	2#6+1#10 GND 3/4"C		
[20A-2P]	3#12+1#12 GND. – 3/4"C		
 [30A-2P]	3#10+1#10 GND 3/4"C		
40A-2P	3#8+1#10 GND 3/4"C		
50A-2P	3#6+1#10 GND 3/4"C		
60A-2P	3#6+1#10 GND 3/4"C		
208 OR 480 VO	LTS, 3Ø, 3W CIRCUITS		
CIRCUIT BREAKER	CONDUCTOR		
20A-3P	3#12+1#12 GND 3/4"C		
30A-3P	3#10+1#10 GND 3/4"C		
40A-3P	3#8+1#10 GND 3/4"C		
50A-3P	3#6+1#10 GND 3/4"C		
60A-3P	3#6+1#10 GND 3/4"C		
208Y/120 & 480Y/277	VOLT, 30,4W CIRCUITS		
CIRCUIT BREAKER	CONDUCTOR		
20A-3P	4#12+1#12 GND 3/4"C		
30A-3P	4#10+1#10 GND 3/4"C		
40A-3P	4#8+1#10 GND 3/4"C		
50A-3P	4#6+1#10 GND 1"C		
60A-3P	4#6+1#10 GND 1"C		





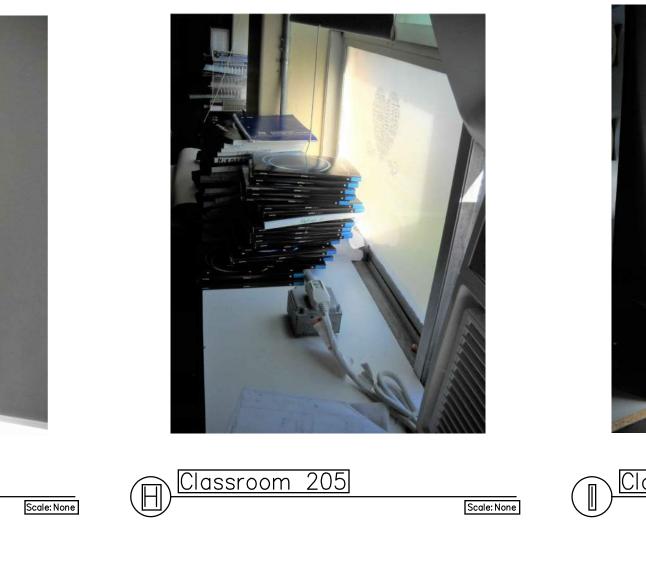




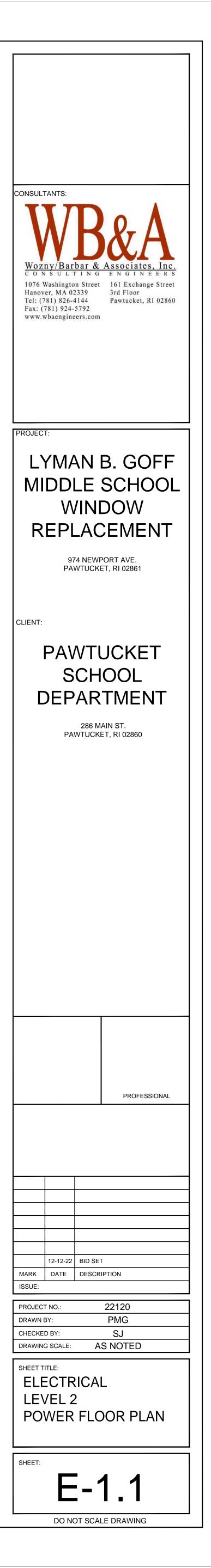






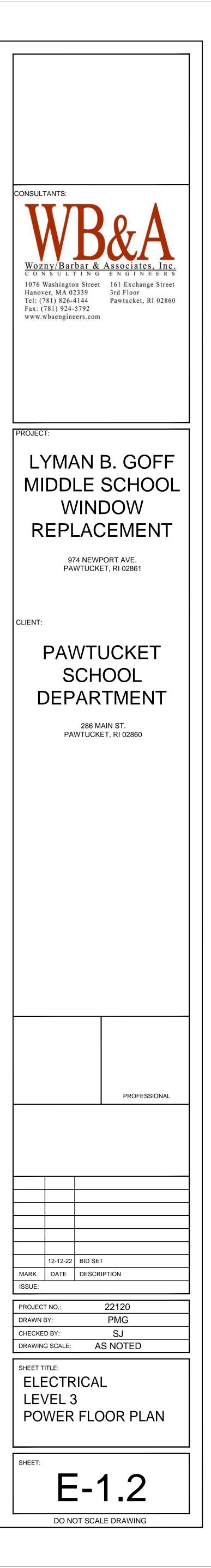


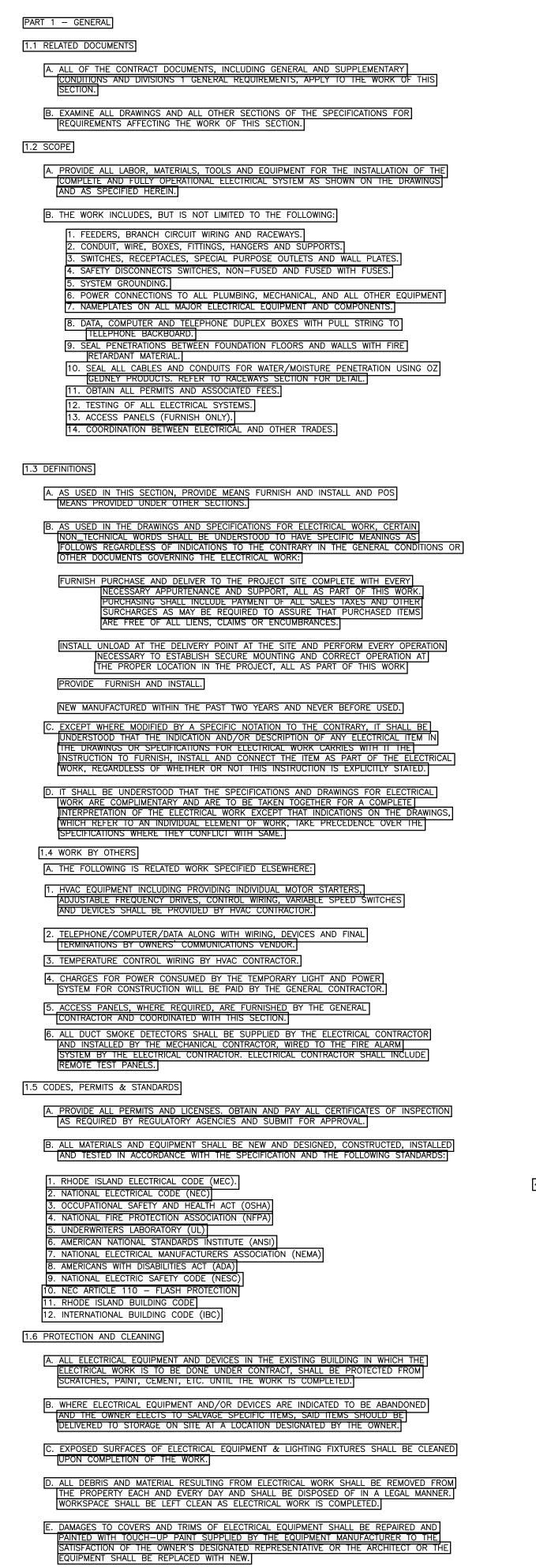












A. ALL WORK SHOWN ON THE PLANS IS INTENDED TO BE APPROXIMATELY CORRECT TO SCALE BUT FIGURED DIMENSIONS AND DETAILED DRAWINGS ARE TO BE FOLLOWED IN EVERY CASE. THE DRAWINGS SHALL BE TAKEN AS DIAGRAMMATIC. RACEWAYS, WIRING AND GENERAL METHODS OF ROUTING ARE SHOWN BUT IS NOT INTENDED TO SHOW EVERY OFFSET AND FITTING NOR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED. TO

CARRY OUT THE TRUE INTENT AND PURPOSES OF THE PLANS, SUPPLY AND INSTALL ALL COMPONENTS NECESSARY TO PROVIDE COMPLETE WORKING SYSTEMS, READY FOR USE WITH NO ADDITIONAL COST TO THE OWNER.

1 SHOP DRAWINGS ARE INFORMATION PREPARED BY THE CONTRACTOR TO

ILLUSTRATE PORTIONS OF THE WORK IN MORE DETAIL THAN SHOWN IN THE

2. COORDINATION DRAWINGS ARE DETAILED, LARGE-SCALE LAYOUT SHOP DRAWINGS SHOWING HVAC, ELECTRICAL, PLUMBING AND FIRE PROTECTION WORK SUPERIMPOSED IN ORDER TO IDENTIFY CONFLICTS AND ENSURE INTER-COORDINATION OF MECHANICAL, ELECTRICAL, ARCHITECTURAL, STRUCTURAL AND OTHER WORK

1. SHOP DRAWINGS SHALL BE SUBMITTED ACCORDING TO SPECIFICATION SECTION

WITH A SEPARATE COVER SHEET COMPLETED FOR EACH PRODUCT, RATHER THAN ONE COVER SHEET FOR MULTIPLE PRODUCTS, WHETHER OR NOT SUPPLIED BY ON MANUFACTURER OR VENDOR.

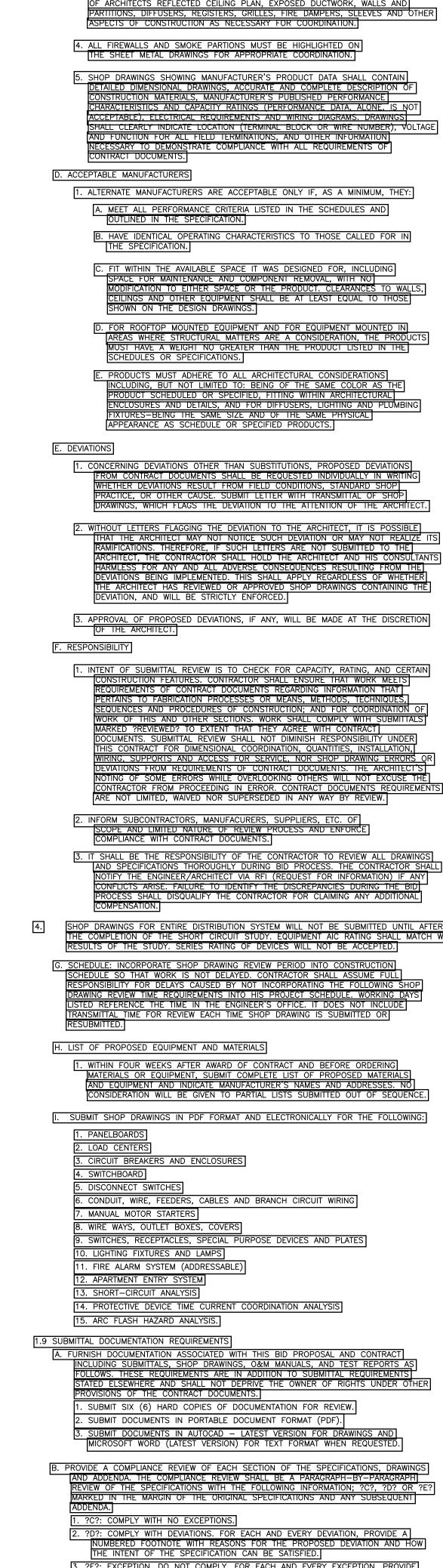
1.7 INTERPRETATION OF PLANS

1.8 SHOP DRAWINGS

A. DEFINITIONS

ONTRACT DOCUMENTS.

B. SUBMITTAL COVER SHEET



. REVIEW SUBMITTAL PACKAGES FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND THEN SUBMIT TO ARCHITECT FOR REVIEW.

C. SUBMITTAL PROCEDURES AND FORMAT

2. PROVIDE ADDITIONAL COPIES OF REVIEWED SHOP DRAWINGS AS REQUIRED FOR

3. SHOP DRAWINGS SHOWING LAYOUTS OF SYSTEMS SHALL CONTAIN SUFFICIENT PLANS, ELEVATIONS, SECTIONS, DETAILS AND SCHEMATICS TO DESCRIBE WORK CLEARLY. THEY SHALL BE 1/4? = 1° -0? SCALE UNLESS SPECIFIED OTHERWISE. SHEET METAL SHOP DRAWINGS SHALL BE 3/8? = 1° -0 AND SHALL INDICATE WORK THER SECTIONS WHERE INTERFERENCES ARE POSSIBLE. PROVIDE LARGER E DETAILS AS NECESSARY. SHEET METAL DRAWINGS SHALL SHOW ELEMENTS OF ARCHITECTS REFLECTED CEILING PLAN, EXPOSED DUCTWORK, WALLS AND PARTITIONS, DIFFUSERS, REGISTERS, GRILLES, FIRE DAMPERS, SLEEVES AND OTHER ASPECTS OF CONSTRUCTION AS NECESSARY FOR COORDINATION.

SHOP DRAWINGS SHOWING MANUFACTURER'S PRODUCT DATA SHALL CONTAIN DETAILED DIMENSIONAL DRAWINGS, ACCURATE AND COMPLETE DESCRIPTION OF CONSTRUCTION MATERIALS, MANUFACTURER'S PUBLISHED PERFORMANCE CHARACTERISTICS AND CAPACITY RATINGS (PERFORMANCE DATA, ALONE, IS NOT ACCEPTABLE), ELECTRICAL REQUIREMENTS AND WIRING DIAGRAMS. DRAWING SHALL CLEARLY INDICATE LOCATION (TERMINAL BLOCK OR WIRE NUMBER), VOLTAGE AND FUNCTION FOR ALL FIELD TERMINATIONS, AND OTHER INFORMATION

. ALTERNATE MANUFACTURERS ARE ACCEPTABLE ONLY IF, AS A MINIMUM, THEY:

C. FIT WITHIN THE AVAILABLE SPACE IT WAS DESIGNED FOR, INCLUDING SPACE FOR MAINTENANCE AND COMPONENT REMOVAL, WITH NO MODIFICATION TO EITHER SPACE OR THE PRODUCT. CLEARANCES TO WALLS, CEILINGS AND OTHER EQUIPMENT SHALL BE AT LEAST EQUAL TO THOSE SHOWN ON THE DESIGN DRAWINGS.

D. FOR ROOFTOP MOUNTED EQUIPMENT AND FOR EQUIPMENT MOUNTED IN AREAS WHERE STRUCTURAL MATTERS ARE A CONSIDERATION, THE PRODUCTS MUST HAVE A WEIGHT NO GREATER THAN THE PRODUCT LISTED IN THE SCHEDULES OR SPECIFICATIONS I

E. PRODUCTS MUST ADHERE TO ALL ARCHITECTURAL CONSIDERATIONS INCLUDING, BUT NOT LIMITED TO: BEING OF THE SAME COLOR AS THE PRODUCT SCHEDULED OR SPECIFIED, FITTING WITHIN ARCHITECTURAL ENCLOSURES AND DETAILS, AND FOR DIFFUSERS, LIGHTING AND PLUMBING FIXTURES—BEING THE SAME SIZE AND OF THE SAME PHYSICAL APPEARANCE AS SCHEDULE OR SPECIFIED PRODUCTS.

1. CONCERNING DEVIATIONS OTHER THAN SUBSTITUTIONS, PROPOSED DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE REQUESTED INDIVIDUALLY IN WRITING WHETHER DEVIATIONS RESULT FROM FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE. SUBMIT LETTER WITH TRANSMITTAL OF SHOP DRAWINGS, WHICH FLAGS THE DEVIATION TO THE ATTENTION OF THE ARCHITECT.

RAMIFICATIONS. THEREFORE, IF SUCH LETTERS ARE NOT SUBMITTED TO THE ARCHITECT, THE CONTRACTOR SHALL HOLD THE ARCHITECT AND HIS CONSULTANTS HARMLESS FOR ANY AND ALL ADVERSE CONSEQUENCES RESULTING FROM THE DEVIATIONS BEING IMPLEMENTED. THIS SHALL APPLY REGARDLESS OF WHETHER THE ARCHITECT HAS REVIEWED OR APPROVED SHOP DRAWINGS CONTAINING THE DEVIATION, AND WILL BE STRICTLY ENFORCED. 3. APPROVAL OF PROPOSED DEVIATIONS, IF ANY, WILL BE MADE AT THE DISCRETION

. INTENT OF SUBMITTAL REVIEW IS TO CHECK FOR CAPACITY, RATING, AND CERTAIN CONSTRUCTION FEATURES. CONTRACTOR SHALL ENSURE THAT WORK MEETS REQUIREMENTS OF CONTRACT DOCUMENTS REGARDING INFORMATION THAT PERTAINS TO FABRICATION PROCESSES OR MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION; AND FOR COORDINATION OF WORK OF THIS AND OTHER SECTIONS. WORK SHALL COMPLY WITH SUBMITTALS CUMENTS. SUBMITTAL REVIEW SHALL NOT DIMINISH RESPONSIBILITY UNDI

OTIFY THE ENGINEER/ARCHITECT VIA RFI (REQUEST FOR INFORMATION) IF AN ONFLICTS ARISE. FAILURE TO IDENTIFY THE DISCREPANCIES DURING THE BID DCESS SHALL DISQUALIFY THE CONTRACTOR FOR CLAIMING ANY ADDITIONA

SHOP DRAWINGS FOR ENTIRE DISTRIBUTION SYSTEM WILL NOT BE SUBMITTED UNTIL AFTER THE COMPLETION OF THE SHORT CIRCUIT STUDY. EQUIPMENT AIC RATING SHALL MATCH WITH THE RESULTS OF THE STUDY. SERIES RATING OF DEVICES WILL NOT BE ACCEPTED.

1. WITHIN FOUR WEEKS AFTER AWARD OF CONTRACT AND BEFORE ORDERING MATERIALS OR EQUIPMENT, SUBMIT COMPLETE LIST OF PROPOSED MATERIALS AND EQUIPMENT AND INDICATE MANUFACTURER'S NAMES AND ADDRESSES. NO CONSIDERATION WILL BE GIVEN TO PARTIAL LISTS SUBMITTED OUT OF SEQUENCE.

NUMBERED FOOTNOTE WITH REASONS FOR THE PROPOSED DEVIATION AND HOW THE INTENT OF THE SPECIFICATION CAN BE SATISFIED. A NUMBERED FOOTNOTE WITH REASONS AND POSSIBLE ALTERNATIVES.

C. UNLESS A DEVIATION OR EXCEPTION IS SPECIFICALLY NOTED IN THE COMPLIANCE REVIEW, IT IS ASSUMED THAT THE BIDDER IS IN COMPLETE COMPLIANCE WITH PLANS AND SPECIFICATIONS. DEVIATIONS OR EXCEPTIONS TAKEN IN COVER LETTER SUBSIDIARY DOCUMENTS, BY OMISSION OR BY CONTRADICTION DO NOT RELEASE BIDDER FROM BEING IN COMPLETE COMPLIANCE, UNLESS THE EXCEPTION OR DEVIATION HAS BEEN SPECIFICALLY NOTED IN THE COMPLIANCE REVIEW. BIDDERS MAY SUBMIT THE LATEST STATE-OF-THE-ART COMPONENTS AND THEIR STANDARD CONTROL COMPONENTS IN LIEU OF THE SPECIFIED ITEMS. THE A/E AND OWNER WI REVIEW DEVIATIONS FROM THE SPECIFICATIONS.

1.10 CONTINUITY OF SERVICES

A. WORK UNDER THIS SECTION INCLUDES NEW WORK AND WORK ON EXISTING SYSTEMS WITHIN EXISTING BUILDING. PERFORM SUCH WORK SO AS NOT TO INTERFERE WITH THE OWNERS OPERATION. WHERE WORK NECESSITATES INTERRUPTION OF SERVICE(S), SCHEDULE OUTAGES WITH THE OWNER AND ENGINEER AND PERFORM THE WORK AT SUCH TIME(S) AS THEY SHALL DIRECT. 1.11 RECORD DRAWINGS

A. FOR THE DURATION OF THE CONTRACT THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF CONTRACT DRAWINGS. ALL COMPLETED WORK AND ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS SHALL BE RECORDED CLEARLY AND ACCURATELY. RECORD DRAWINGS SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE B. ELECTRONIC FILES ARE AVAILABLE TO FACILITATE THE PREPARATION OF RECORD DRAWINGS.

THESE FILES ARE SOLELY FOR USE OF THE ELECTRICAL CONTRACTOR AND MAY NOT BE A FULL REPRESENTATION OF THE SCOPE OF WORK. THESE FILES ARE AVAILABLE FROM WOZNY/BARBAR & ASSOCIATES, INC. AT A COST OF \$50.00 PER DRAWING FILE. 1.12 COORDINATION

A. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE WITH ALL OTHER TRADES AND PARTIES TO AVOID CONFLICTS. NO ADDITIONAL CHARGES WILL BE APPROVED DUE TO LACK OF COORDINATION OR FIELD VERIFICATION OF THE ISTING CONDITIONS.

1.13 TEMPORARY FACILITIES

A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE, AT HIS OWN EXPENSE, HIS OWN FIELD OFFICE. FURNISH ALL TOOLS, EQUIPMENT, SCAFFOLDING AND TEMPORARY CONSTRUCTION REQUIRED FOR THE EXECUTION OF THE ELECTRICAL WORK. D. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR, THE UTILITY COMPANY AND INCLUDE ALL COSTS ASSOCIATED WITH THE INSTALLATION OF TELEPHONES FOR THE CONSTRUCTION PERIOD. INCLUDE TELEPHONE SERVICE FOR ALL CONSTRUCTION TRAILERS.

1.14 COORDINATION DRAWINGS

A. BEFORE MATERIALS ARE PURCHASED OR WORK BEGUN, THE ELECTRICAL CONTRACTOR ISHALL PREPARE COORDINATION DRAWINGS SHOWING THE SIZE AND LOCATION OF ELECTRICAL EQUIPMENT AND CONDUIT RUNS AND OTHER EQUIPMENT RELATED TO THE

B. COORDINATION DRAWINGS ARE FOR THE GENERAL CONTRACTOR'S AND THE ENGINEER'S USE DURING CONSTRUCTION AND SHALL NOT BE CONSTRUED AS REPLACING ANY SHOP, AS BUILT OR RECORD DRAWINGS REQUIRED ELSEWHERE IN THIS CONTRACT DOCUMENT.

A. INSTRUCT TO THE OWNER'S SATISFACTION SUCH PERSONS AS THE OWNER DESIGNATES, IN THE PROPER OPERATION AND MAINTENANCE OF THE SYSTEMS AND THEIR PARTS.

B. FURNISH OPERATING AND MAINTENANCE MANUALS AND FORWARD SAME TO THE ENGINEER FOR TRANSMITTAL TO THE OWNER.

COPERATING INSTRUCTIONS SHALL BE SPECIFIC FOR EACH SYSTEM AND SHALL INCLUDE COPIES OF POSTED SPECIFIC INSTRUCTIONS.

D. FOR MAINTENANCE PURPOSES. PROVIDE SHOP DRAWINGS. PARTS LISTS. SPECIFICATIONS AND MANUFACTURER'S MAINTENANCE BULLETINS FOR EACH PIECE OF EQUIPMENT. PROVIDE NAME, ADDRESS AND TELEPHONE NUMBER OF THE MANUFACTURER'S REPRESENTATIVE AND SERVICE COMPANY FOR EACH PIECE OF EQUIPMENT SO THAT

RVICE OR SPARE PARTS CAN BE READILY OBTAINED.

1.15 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS

1.16 WORKMANSHIP

A. THE ENTIRE WORK INSTALLED IN THIS SPECIFICATION AND AS SHOWN ON THE DRAWINGS SHALL BE CONSTRUCTED AND FINIS SPECIFICATION AND AS SHOWN ON THE DRAWIN SHALL BE CONSTRUCTED AND FINISHED IN EVERY RESPECT IN A WORKMANLIKE AND COMPLETE MANNER. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO INSTALL COMPLETE SYSTEMS. ALL SUCH PARTS AS REQUIRED COMPLETING THE SYSTI IN ACCORDANCE WITH THE BEST TRADE PRACTICE AND THE SATISFACTION OF THE OWNER'S ENGINEER SHALL BE INSTALLED.

B. OBTAIN DETAILED INFORMATION FROM THE MANUFACTURERS OF APPARATUS AS TO THE PROPER METHOD OF INSTALLING AND CONNECTING EQUIPMENT. OBTAIN ALL VFORMATION FROM THE GENERAL CONTRACTOR AND OTHER SUBCONTRACTORS, WHICH

C. REMOVE DAILY, ALL RUBBISH AND DEBRIS AND ALL REFUSE FROM WORKMEN'S LUNCHES AND AT COMPLETION REMOVE ALL HIS SURPLUS MATERIALS, AND LEAVE IN CLEAN CONDITION ACCEPTABLE TO THE OWNER'S ENGINEER. 1.17 PROTECTION

A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK AND EQUIPMENT UNTIL FINALLY INSPECTED, TESTED AND ACCEPTED. CAREFULLY STORE MATERIALS AND EQUIPMENT, WHICH ARE NOT IMMEDIATELY INSTALLED AFTER DELIVERY TO SITE.

1.18 EXAMINATION OF SITE AND CONTRACT DOCUMENTS A. BEFORE SUBMITTING PRICES OR BEGINNING WORK, THOROUGHLY MAKE AN XAMINATION OF THE SITE.

B. NO CLAIM FOR EXTRA COMPENSATION WILL BE RECOGNIZED IF DIFFICULTIES ARE WHICH AN EXAMINATION OF SITE CONDITIONS PRIOR TO EXEC NTRACT WOULD HAVE REVEALED. C. THESE SPECIFICATIONS ALONG WITH CONTRACT DOCUMENTS DESCRIBE THE ELECTRICAL SYSTEMS. THE ELECTRICAL CONTRACTOR IS REQUIRED TO PROVIDE COMPLETE AND OPERATING SYSTEMS FOR ALL EQUIPMENT MENTIONED.

D. ELECTRICAL EQUIPMENT REQUIRED FOR THE SUCCESSFUL OPERATION OF ANY OF THE PARTICULAR TYPES OF OWNER'S EQUIPMENT MENTIONED SHALL BE FURNISHED AND

E. BE RESPONSIBLE FOR ALL MATERIALS DELIVERED TO THE SITE IN CONNECTION WITH THE WORK AND PAY ALL CHARGES FOR CARTAGE, SCAFFOLDS, PLANKING, RIGGING AND ERECTING. TAKE EVERY PRECAUTION NECESSARY TO PROTECT EQUIPMENT AND INSTALLATION IN ADDITION TO PLUGGING AND PROTECTING OPEN ENDS OF ALL PIPES, OUTLET BOXES, PANEL BOXES, AND JUNCTION BOXES. ALL EQUIPMENT SHALL BE STORED IN A CLEAN DRY PLACE TO PRESERVE THE QUALITY OF MATERIAL BEING USED.] EQUIPMENT AND/OR MATERIALS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER. ANY SCAFFOLDING OVER 8-0" IN HEIGHT WILL AT NO ADDITIONAL COST TO THE OWNER. ANY SCAFFOLDING OVER 8'-0" IN HEIGHT WILL

F. ALL MATERIALS AND EQUIPMENT REQUIRED BY THIS SPECIFICATION SHALL BE NEW, CLEAN AND FREE FROM DEFECTS AT THE TIME OF INSTALLATION. THE MANUFACTURER AND UNDERWRITER'S LABEL SHALL APPEAR ON ALL MATERIAL AND EQUIPMENT UNLESS THERWISE APPROVED, IN WRITING, BY OWNER.

1.19 SUBSTITUTION OF MATERIALS OR EQUIPMENT

E SUPPLIED BY THE GENERAL CONTRACTOR.

A. IF THE ELECTRICAL CONTRACTOR WISHES TO USE MATERIALS OR EQUIPMENT OTHER THAN THOSE SPECIFICALLY DESIGNATED HEREIN, AS BEING EQUAL TO THOSE SO SPECIFICALLY DESIGNATED: BEFORE PURCHASING AND/OR FABRICATION, HE SHALL SUBMIT THE PROPOSED SUBSTITUTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL CONDITIONS, AND THE DECISION OF WHETHER OR NOT IT IS EQUAL TO THAT SPECIFIED SHALL BE DETERMINED BY THE OWNER.

B. UNLESS REQUESTS FOR SUBSTITUTION ARE MADE IN ACCORDANCE WITH THE ABOVE INSTRUCTIONS AND THE INSTRUCTIONS OF THE GENERAL CONDITIONS, SUPPORTED BY SUFFICIENT PROOF OF EQUALITY, THE SUCCESSFUL CONTRACTOR WILL BE REQUIRED FURNISH SPECIFICALLY NAMED TIEMS DESIGNATED UNDER THE BASE BID. C. IF THE APPARATUS OR MATERIALS SUBSTITUTED FOR THOSE SPECIFIED NECESSITATE

CHANGES OR ADDITIONAL CONNECTIONS, PIPING SUPPORTS OR CONSTRUCTION: SAME SHALL BE PROVIDED AND THE ELECTRICAL CONTRACTOR SHALL ASSUME THE COST AND THE ENTIRE RESPONSIBILITY THERETO.

1.20 FIELD MEASUREMENTS BEEN ACCEPTED. 1.21 PERMITS, LAWS, ORDINANCES & CODES 1.22 VISIT TO PREMISES 1.23 CLEANING UP 1.24 DAMAGE TO OTHER WORK 1.25 GUARANTEE ABOVE REQUIREMENTS 1.26 INSTALLATION REQUIREMENTS A. THE ARRANGEMENT OF ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS IS UIRE THE LEAST AMOUNT OF CUTTING AND PATCHING. MATERIAL AND EQUIPMENT. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR HIS DETERMINATION PRIOR TO PROCEEDING WITH THE 1.27 TYPICAL DETAILS THE ARCHITECT I 1.28 SLEEVES, INSERTS 1.29 CORING, DRILLING 1.30 ACCESSIBILITY CEILINGS AT REQUIRED LOCATIONS. 1.31 TOOLS AND EQUIPMENT 1.32 PORTABLE AND DETACHABLE PARTS

D. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE HVAC, PLUMBING AND FIRE PROTECTION CONTRACTORS WITH REGARD TO FEEDER, RACEWAY, AND CIRCUIT BREAKER NOTECTION CONTINUETORS WITT REGARD TO TELEDER, NACEWAT, AND CIRCOTT BREAKER ND DISCONNECT SWITCH SIZES. IF A SUBSTITUTION OF HVAC, PLUMBING AND FIRE ROTECTION EQUIPMENT IS PROPOSED BY A SUBCONTRACTOR, IT SHALL BECOME THE ESPONSIBILITY OF THAT SUBCONTRACTOR TO COORDINATE WITH THE ELECTRICAL ONTRACTOR ANY AND ALL CHANGES WITH REGARD TO FEEDER, RACEWAY, AND CIRCUIT REAKER AND DISCONNECT SWITCH SIZES. THE SHOP DRAWINGS SHALL CLEARLY INDICATE WHAT CHANGES ARE REQUIRED AND ANY ADDITIONAL COSTS ASSOCIATED WITH THIS CHANGE. IF COORDINATION DOES NOT OCCUR, THE SUBCONTRACTOR PROPOSING THE CHANGE SHALL BE RESPONSIBLE FOR ALL COSTS THAT OCCUR DUE TO THE SUBSTITUTI E. WHENEVER THE CONTRACTOR SECURES APPROVAL FOR CHANGING ANY ITEMS AND SUCH CHANGE INVOLVES A CORRESPONDING CHANGE OR ADJUSTMENT IN ANY ADJACENT OR RELATED ITEM, THE RESPONSIBILITY FOR MAKING THE REQUIRED CHANGE, OR SEEING THAT IT IS MADE, RESTS WITH THE CONTRACTOR. THE COST OF THESE CHANGES AND, JUSTMENTS SHALL BE PAID FOR BY THE CONTRACTOR UNLESS IT IS OTHERWISE AGREED, IN WRITING, AT THE TIME THE CHANGE IS APPROVED. THE ACCEPTANCE OF ANY CHANGE WILL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS. A. THE ELECTRICAL CONTRACTOR (EC) SHALL VERIFY, IN THE FIELD, ALL MEASUREMENTS, SITE CONDITIONS NECESSARY FOR HIS WORK AND SHALL ASSUME RESPONSIBILITY FOR THEIR ACCURACY. NO ADDITIONAL COMPENSATION WILL BE ALLOWED AFTER THE BIDS HAVE

A. THE ELECTRICAL CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL TAXES, FEES AND OTHER COSTS IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS, PREPARE ALL NECESSARY DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF STATE AUTHORITIES, ALL LOCAL, TOWN, CITY OR COUNTY DEPARTMENTS HAVING JURISDICTION; OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK. B. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS IN ADDITION TO THE DRAWINGS PREPARED BY THE PROJECT ENGINEER AND DOCUMENTS, IN ORDER TO <u>COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WHETHER</u> OR NOT SHOWN ON THE DRAWINGS AND/OR SPECIFIED.

A. THIS CONTRACTOR SHALL VISIT THE PREMISES BEFORE SUBMITTING HIS PROPOSAL ANI MAKE HIS OWN APPRAISAL OF THE DIFFICULTIES AND CONDITIONS THAT WILL BE ENCOUNTERED DURING THE WORK. NO ADDITIONAL CHARGES WILL BE ALLOWED FOR WORK REQUIRED DUE TO EXISTING CONDITIONS TO MAKE THE INSTALLATION CONFORM TO THE SPECIFICATIONS.

A. THE ELECTRICAL CONTRACTOR SHALL, AT THE COMPLETION OF THE WORK, CLEAN, POLISH AND/OR WASH ALL EXPOSED TIEMS OF MATERIAL, EQUIPMENT AND FIXTURES IN HIS CONTRACT SO AS TO LEAVE SUCH TIEMS BRIGHT AND CLEAN. SPECIAL ATTENTION BEING IVEN TO INTERIORS AND EXTERIORS OF ALL PANELS, ELECTRICAL EQUIPMENT, AND B. ALL PAINTED METAL SURFACES WHICH HAVE BEEN SCRATCHED, DENTED OR MARRED SHALL BE REPAINTED BY THE ELECTRICAL CONTRACTOR.

EACH CONTRACTOR SHALL BE HELD RESPONSIBLE FOR AND SHALL PAY FOR ALL DAMAGE TO OTHER WORK CAUSED BY HIS WORK OR WORKMEN. B. REPAIRING OF SUCH DAMAGE SHALL BE DONE BY THE GENERAL CONTRACTOR OR CONTRACTORS WHO INSTALLED THE WORK AND SO DIRECTED BY THE OWNER'S ENGINEER

. ATTENTION IS DIRECTED TO PROVISIONS OF THE GENERAL CONDITIONS AND SPECIAL CONDITIONS REGARDING GUARANTEES AND WARRANTIES FOR WORK UNDER THIS

B. E<u>LECTRICAL_CON</u>TRACTOR'S GUARANTEES SHALL BE THE SAME AS THE GENERAL

C. ALL MATERIAL, ITEMS OF EQUIPMENT AND WORKMANSHIP FURNISHED UNDER THIS SECTION SHALL CARRY FOR THIS STANDARD WARRANTY AGAINST ALL DEFECTS IN MATERIAL AND WORKMANSHIP. ANY FAULT DUE TO DEFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR DESIGN WHICH MAY DEVELOP SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR, INCLUDING ALL OTHER DAMAGE DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM

D. ELECTRICAL CONTRACTOR SHALL GUARANTEE THAT ALL ELEMENTS OF THE SYSTEMS ARE OF SUFFICIENT CAPACITY TO MEET THE SPECIFIED PERFORMANCE REQUIREMENTS AS SET FORTH HEREIN OR AS INDICATED.

E. UPON RECEIPT OF NOTICE FROM THE OWNER OF FAILURE OF ANY PART OF THE SYSTEMS OR EQUIPMENT DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS SHAL REPLACED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNE F. FURNISH, BEFORE THE FINAL PAYMENT IS MADE, A WRITTEN GUARANTEE COVERING THE

DIAGRAMMATIC ONLY AND INDICATES THE MINIMUM REQUIREMENTS OF THE WORK. CONDITIONS AT THE BUILDING INCLUDING ACTUAL MEASUREMENTS SHALL DETERMINI IE DETAILS OF THE INSTALLATION. ALL WORK SHALL BE LAID OUT AND INSTALLED SO AS TO B. CHECK THE ARCHITECTURAL PLANS AND SPECIFICATIONS BEFORE ORDERING ANY

TYPICAL DETAILS WHERE SHOWN ON THE DRAWINGS SHALL APPLY TO EACH AND EVERY ITEM OF THE PROJECT WHERE SUCH ITEMS ARE APPLICABLE. THEY ARE NOT REPEATE FULL ON THE DRAWINGS, WHICH IN MANY CASES ARE DIAGRAMMATIC ONLY, BUT WITH THE INTENTION THAT SUCH DETAILS SHALL BE INCORPORATED IN FULL. ANY ALTERNATE ETHOD PROPOSED FOR USE BY THE CONTRACTOR SHALL HAVE THE PRIOR APPROVAL

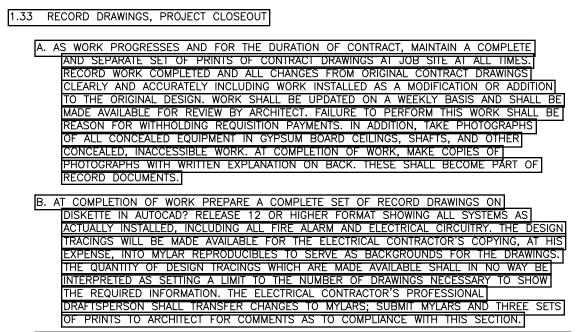
A. FURNISH AND INSTALL ALL SLEEVES, INSERTS, ANCHOR BOLTS AND SIMILAR ITEMS TO BE SET INTO MASONRY OR CONCRETE, AS REQUIRED FOR MECHANICAL AND ELECTRICAL WORK. INTERNAL DIAMETER OF SLEEVE SHALL BE 2" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE OR INSULATION COVERED LINE PASSING THROUGH IT.

A. CORE, CUT AND/OR DRILL ALL SMALL HOLES 4.5" DIAMETER OR LESS IN WALLS AND FLOORS REQUIRED FOR THE INSTALLATION OF SLEEVES AND SUPPORTS FOR THE ELECTRICAL WORK.

A. INSTALL ALL WORK SUCH THAT PARTS REQUIRING PERIODIC INSPECTION, OPERATION, MAINTENANCE AND REPAIR ARE READILY ACCESSIBLE. B. FURNISH ALL ACCESS PANELS APPROPRIATE TO PARTICULAR CONDITIONS, TO BE INSTALLED BY TRADES HAVING RESPONSIBILITY FOR THE CONSTRUCTION OF ACTUAL WALLS, FLOORS OF

A. PROVIDE ALL TOOLS AND EQUIPMENT REQUIRED FOR THE FABRICATION AND INSTALLATION OF THE MECHANICAL AND ELECTRICAL EQUIPMENT AT THE SITE.

A. CONTRACTORS SHALL RETAIN IN THEIR POSSESSION ALL PORTABLE AND/OR DETACHABLE PARTS AND PORTIONS OF MATERIALS, DEVICES, EQUIPMENT ETC. NECESSARY FOR THE PROPER OPERATION AND MAINTENANCE OF THE MECHANICAL AND ELECTRICAL SYSTEMS UNTIL FINAL COMPLETION OF THE WORK, AT WHICH TIME THEY SHALL BE HANDED OVER TO THE OWNERS.

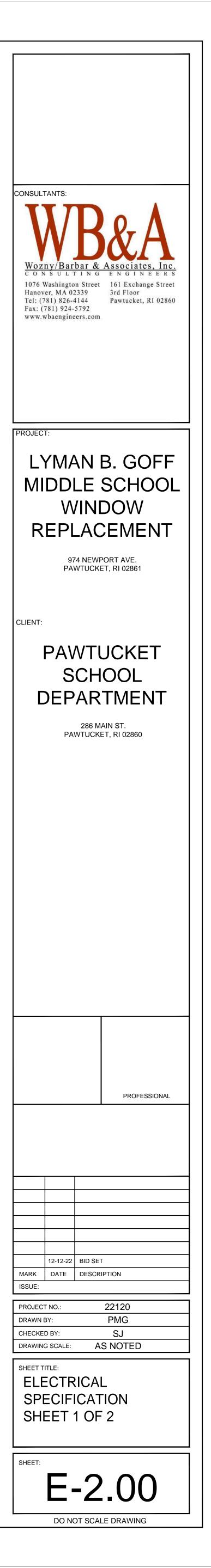


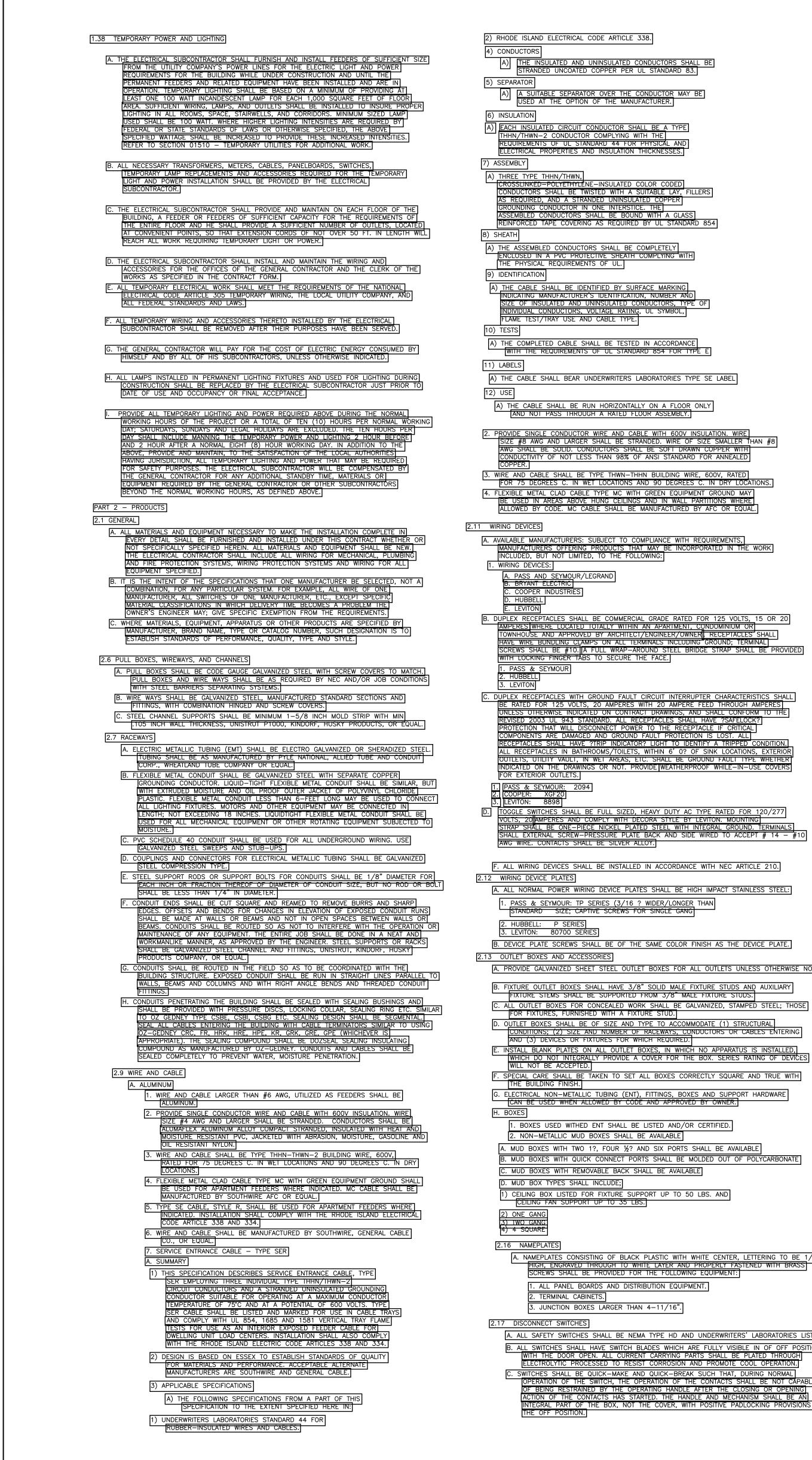
C. THE ARCHITECT WILL NOT CERTIFY THE ACCURACY OF THE RECORD DRAWINGS. THIS IS SOLE SOLE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR . THIS TRADE SHALL SUBMIT THE RECORD SET FOR APPROVAL BY THE FIRE AND BUILDING DEPARTMENTS IN A FORM ACCEPTABLE TO THE DEPARTMENTS, WHEN REQUIRED BY

- E JURISDICTION E. DRAWINGS SHALL SHOW RECORD CONDITION OF DETAILS, SECTIONS, RISER DIAGRAMS, MANUFACTURER AND MAKE AND MODEL NUMBERS OF FINAL EQUIPMENT INSTALLATION.
- F. REFER TO SECTION 01770 CLOSEOUT PROCEDURES AND 01782 RECORD DOCUMENTS AND OWNER TRAINING.

[1.34 OPERATING, INSTRUCTIONS AND MAINTENANCE MANUALS]

- A. REFER TO SECTION 01770 _ CONTRACT CLOSEOUT FOR SUBMITTAL PROCEDURES PERTAINING TO OPERATING AND MAINTENANCE MANUALS.
- B. EACH COPY OF THE APPROVED OPERATING AND MAINTENANCE MANUAL SHALL CONTAIN COPIES OF APPROVED SHOP DRAWINGS, EQUIPMENT LITERATURE, CUTS, BULLETINS, DETAILS, EQUIPMENT AND ENGINEERING DATA SHEETS AND TYPEWRITTEN INSTRUCTIONS RELATIVE TO THE CARE AND MAINTENANCE FOR THE OPERATION OF THE EQUIPMENT PROPERLY INDEXED. EACH MANUAL SHALL HAVE THE FOLLOWING MINIMUM CONTENTS
- 1. TABLE OF CONTENTS 2. INTRODUCTION
- A. EXPLANATION OF MANUAL AND ITS PURPOSE AND USE. B. DESCRIPTION OF THE ELECTRICAL SYSTEMS.
- C. SAFETY PRECAUTIONS NECESSARY FOR EQUIPMENT. D. ILLUSTRATIONS, SCHEMATICS AND DIAGRAMS.
- E. INSTALLATION DRAWING. 3. MAINTENANCE
- . MAINTENANCE AND LUBRICATING INSTRUCTIONS. PLACEMENT CHARTS. TROUBLE SHOOTING CHARTS FOR EQUIPMENT COMPONENTS.
 - TESTING INSTRUCTIONS FOR EACH TYPICAL COMPONENT. E. TWO TYPED SETS OF INSTRUCTIONS FOR ORDERING SPARE PARTS. EACH SET SHALL INCLUDE NAME, PRICE, TELEPHONE NUMBER AND ADDRESS OF WHERE THEY MAY BE OBTAINED.
- 4. MANUFACTURER'S LITERATURE A. THE EQUIPMENT FOR WHICH SHOP DRAWINGS HAVE BEEN SUBMITTED AND APPROVED.
- 1.35 SERVICE CHARACTERISTICS
- A. SECONDARY BUILDING VOLTAGE LOW LEVEL: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HZ B. ALL EQUIPMENT AND WIRING SHALL BE SUITABLE FOR THE APPLIED VOLTAGE.
- 1.36 QUALITY ASSURANCE
- A. THE REQUIREMENTS OF THE STATE BUILDING CODE AND LOCAL REGULATIONS ESTABLISH THE MINIMUM ACCEPTABLE QUALITY OF WORKMANSHIP AND MATERIALS, AND ALL WORK SHALL CONFORM THERETO UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED OR SPECIFIED HEREIN.
- B. ALL WORK SHALL COMPLY WITH THE LATEST EDITIONS OF THE CODES AS REFERENCED
- C. FOLLOW MANUFACTURER'S DIRECTIONS FOR ARTICLES FURNISHED, IN ADDITION TO CTIONS SHOWN ON DRAWINGS OR SPECIFIED HEREIN.
- D. PROTECT ALL WORK, MATERIALS, AND EQUIPMENT FROM DAMAGE DURING PROCESS OF WORK. REPLACE ALL DAMAGED OR DEFECTIVE WORK, MATERIALS AND EQUIPMENT HOUT ADDITIONAL COST TO OWNER.
- E. ALL EQUIPMENT AND MATERIALS FOR PERMANENT INSTALLATION SHALL BE THE PRODUCTS OF RECOGNIZED MANUFACTURERS AND SHALL BE NEW. F. EQUIPMENT AND MATERIALS SHALL:
- I. WHERE NORMALLY SUBJECT TO UNDERWRITERS LABORATORY INC. LISTING OR LABELING SERVICES, BE SO LISTED OR LABELED 2. BE WITHOUT BLEMISH OR DEFEC 3. NOT BE USED FOR TEMPORARY LIGHT AND POWER PURPOSES
- 4. BE IN ACCORDANCE WITH THE LATEST APPLICABLE NEMA STANDARDS. 5. BE PRODUCTS WHICH WILL MEET WITH THE ACCEPTANCE OF ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK. WHERE SUCH ACCEPTANCE IS CONTINGENT UPON HAVING THE PRODUCTS EXAMINED, TESTED AND CERTIFIED BY UNDERWRITERS OR OTHER RECOGNIZED TESTING LABORATORY, THE PRODUCT SHALL BE SO EXAMINED, TESTED AND CERTIFIED.
- G. EXCEPT FOR CONDUIT, CONDUIT FITTINGS, OUTLET BOXES, WIRE AND CABLE, ALL ITEMS OF EQUIPMENT OR MATERIAL OF ONE GENERIC TYPE SHALL BE THE PRODUCT OF ONE MANUFACTURER THROUGHOUT. . ITEMS WHICH ARE TO BE INSTALLED BUT NOT PURCHASED AS PART OF THE ELECTRIC WORK SHALL BE CAREFULLY EXAMINED UPON DELIVERY TO THE PROJECT. CLAIMS THAT ANY OF THESE ITEMS HAVE BEEN RECEIVED IN SUCH CONDITION THAT THEIR INSTALLATION WILL REQUIRE PROCEDURES BEYOND THE REASONABLE SCOPE OF THE ELECTRIC WORK WILL BE CONSIDERED ONLY IF PRESENTED IN WRITING WITHIN ONE WEEK OF THE DATE OF DELIVERY TO THE PROJECT OF THE ITEMS IN QUESTION. THE ELECTRIC WORK INCLUDES ALL PROCEDURES, REGARDLESS OF HOW EXTENSIVE, NECESSARY TO PUT INTO SATISFACTORY OPERATION, ALL ITEMS FOR WHICH NO CLAIMS HAVE BEEN SUBMITTED AS OUTLINED ABOVE.
- 1.37 DELIVERY, STORAGE AND HANDLING
- A. ALL MATERIALS FOR THE WORK OF THIS SECTION SHALL BE DELIVERED, STORED AND HANDLED SO AS TO PRECLUDE DAMAGE OF ANY NATURE. MANUFACTURED MATERIALS SHALL BE DELIVERED AND STORED IN THEIR ORIGINAL CONTAINERS. PLAINLY MARKED WITH THE PRODUCTS' AND MANUFACTURER'S NAME. MATERIALS IN BROKEN CONTAINERS OR IN PACKAGES SHOWING WATERMARKS OR OTHER EVIDENCE OF DAMAGE, SHALL NOT E JSED AND SHALL BE REMOVED FROM THE SITE.





B. DUPLEX RECEPTACLES SHALL BE COMMERCIAL GRADE RATED FOR 125 VOLTS, 15 OR 20 AMPERES WHERE LOCATED TOTALLY WITHIN AN APARTMENT, CONDOMINIUM OR TOWNHOUSE AND APPROVED BY ARCHITECT/ENGINEER/OWNER RECEPTACLES SHALL HAVE WIRE BUNDLING CLAMPS ON ALL TERMINALS INCLUDING GROUND; TERMINAL

C. DUPLEX RECEPTACLES WITH GROUND FAULT CIRCUIT INTERRUPTER CHARACTERISTICS SHALL BUPLEX RECEPTACLES WITH GROUND FAULT CIRCUIT INTERROPTER CHARACTERISTICS SHALL BE RATED FOR 125 VOLTS, 20 AMPERES WITH 20 AMPERE FEED THROUGH AMPERES UNLESS OTHERWISE INDICATED ON CONTRACT DRAWINGS, AND SHALL CONFORM TO THE REVISED 2003 UL 943 STANDARD. ALL RECEPTACLES SHALL HAVE ?SAFELOCK? PROTECTION THAT WILL DISCONNECT POWER TO THE RECEPTACLE IF CRITICAL L RECEPTACLES IN BATHROOMS/TOILETS, WITHIN 6' 0? OF SINK LOCATIONS, EXTER

F. ALL WIRING DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH NEC ARTICLE 210. A. ALL NORMAL POWER WIRING DEVICE PLATES SHALL BE HIGH IMPACT STAINLESS STEEL:

B. DEVICE PLATE SCREWS SHALL BE OF THE SAME COLOR FINISH AS THE DEVICE PLATE.

A. PROVIDE GALVANIZED SHEET STEEL OUTLET BOXES FOR ALL OUTLETS UNLESS OTHERWISE NOTED

INSTALL BLANK PLATES ON ALL OUTLET BOXES, IN WHICH NO APPARATUS IS INSTALLED, WHICH DO NOT INTEGRALLY PROVIDE A COVER FOR THE BOX. SERIES RATING OF DEVICES SPECIAL CARE SHALL BE TAKEN TO SET ALL BOXES CORRECTLY SQUARE AND TRUE WITH

LECTRICAL NON-METALLIC TUBING (ENT), FITTINGS, BOXES AND SUPPORT HARDWARE

B. MUD BOXES WITH QUICK CONNECT PORTS SHALL BE MOLDED OUT OF POLYCARBONATE

A. NAMEPLATES CONSISTING OF BLACK PLASTIC WITH WHITE CENTER, LETTERING TO BE 1/4"HIGH, ENGRAVED THROUGH TO WHITE LAYER AND PROPERLY FASTENED WITH BRASS SCREWS SHALL BE PROVIDED FOR THE FOLLOWING EQUIPMENT:

A. ALL SAFETY SWITCHES SHALL BE NEMA TYPE HD AND UNDERWRITERS' LABORATORIES LISTED B. ALL SWITCHES SHALL HAVE SWITCH BLADES WHICH ARE FULLY VISIBLE IN OF OFF POSITION WITH THE DOOR OPEN. ALL CURRENT CARRYING PARTS SHALL BE PLATED THROUGH ELECTROLYTIC PROCESSED TO RESIST CORROSION AND PROMOTE COOL OPERATION. SWITCHES SHALL BE QUICK-MAKE AND QUICK-BREAK SUCH THAT, DURING NORMAL OPERATION OF THE SWITCH, THE OPERATION OF THE CONTACTS SHALL BE NOT CAPABLE OF BEING RESTRAINED BY THE OPERATING HANDLE AFTER THE CLOSING OR OPENING ACTION OF THE CONTACTS HAS STARTED. THE HANDLE AND MECHANISM SHALL BE AN

TEGRAL PART OF THE BOX, NOT THE COVER, WITH POSITIVE PADLOCKING PROVISIONS

2.18 FUSES A. FUSES SHALL BE NON-RENEWABLE TYPE, UL CLASS J UP TO 600 AMP, AND CLASS L OVER 600 AMP. FUSES SHALL BE CURRENT LIMITING TYPE WITH A MINIMUM INTERRUPTING RATING OF 200,000 RMS AMP. B. FUSES SHALL NOT BE USED IN ANY SWITCHBOARDS OR PANEL BOARDS UNLESS ADEQUATE A.C. RATED CIRCUIT BREAKERS ARE NOT AVAILABLE. C. FUSES SHALL BE MANUFACTURED BY BUSSMAN, GOULD SHAWMUT, LITTLE FUSE OR EQUAL 2.21 GROUNDING REQUIREMENTS A. GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH BEST INDUSTRY PRACTICE, THE REQUIREMENTS OF NFPA 70. B. THE GROUND BUS OF THE MAIN SWITCHBOARD SHALL BE CONNECTED TO THE MAIN GROUNDING ELECTRODE SPECIFIED BELOW BY MEANS OF INSULATED CONDUCTORS RUN THE MAIN GROUNDING ELECTRODE SHALL BE AN ACCESSIBLE POINT ON THE NEAREST METALLIC MAIN WATER SERVICE PIPE. CONNECTION SHALL BE MADE ON THE STREET SIDE OF THE MAIN VALVE UTILIZING A GROUND CLAMP OF A TYPE SPECIFICALLY MANUFACTURED FOR THE PURPOSE. BONDING JUMPERS SHALL BE PROVIDED AROUND THE WATER METERS AND AROUND INSULATING JOINTS AND/OR SECTIONS. ESTABLISH A GROUND BONDING CONNECTION FROM THE EFFECTIVELY GROUNDED STRUCTURAL BUILDING STEEL TO EACH COLD WATER MAINS ENTERING THE BUILDING. EACH BONDING CONNECTION SHALL CONSIST OF INSULATED CONDUCTORS RUN IN CONDUIT E. THE WATER PIPE GROUND SHALL BE SUPPLEMENTED BY AN ADDITIONAL ELECTRODE CONSISTING OF (3) BURIED 3/4" DIAMETER BY 10'_0" LONG COPPERWELD GROUND RODS SPACED 10'_0" APART, AND PROVIDED IN SUFFICIENT QUANTITY SO AS TO HAVE MEASURED RESISTANCE TO GROUND OF NOT MORE THAN 10 OHMS. PROVIDE] FROM THE ELECTRODE CONSISTING OF GREEN INSULATED CONDUCTORS RUN IN CONDUIT AND SIZED AS INDICATED HEREINAFTER FOR MAIN AND SUPPLY SIDE OF SERVICE BONDING JUMPERS. F. PROVIDE GROUNDING BONDS BETWEEN ALL METALLIC CONDUITS OF THE LIGHT AND POWER SYSTEM WHICH ENTER AND LEAVE CABLE CHAMBERS OR OTHER NON_METALLIC CABLE PULLING AND SPLICING BOXES. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH BUSHINGS OF THE GROUNDING TYPE INDIVIDUALLY CROSS CONNECTED.] G. BOND METALLIC CONDUITS CONTAINING GROUNDING ELECTRODE CONDUCTORS AND MAIN BONDING CONDUCTORS TO THE GROUND BUS SERVICE ENCLOSURE AND/OR GROUNDING ELECTRODE AT BOTH ENDS OF EACH RUN UTILIZING GROUNDING BUSHINGS AND JUMPERS H. ALL QUALIFY CONCRETE-ENCASED GROUNDING ELECTRODES SHALL BE CONNECTED TO THI GROUNDING SYSTEM OF THE BUILDING IN ACCORDANCE WITH THE REQUIREMENTS OF NEC PROVIDE GROUNDING BONDS FOR ALL METALLIC CONDUITS OF THE LIGHT AND POWEF SYSTEM WHICH TERMINATE IN PITS BELOW EQUIPMENT FOR WHICH A GROUND BUS SPECIFIED. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH BUSHINGS OF THE DUNDING TYPE CONNECTED INDIVIDUALLY TO THE GROUND BUS I. PROVIDE SUPPLEMENTARY GROUND BONDING WHERE METALLIC CONDUITS TERMINATE AT METAL CLAD EQUIPMENT (OR AT THE METAL PULL BOX OF EQUIPMENT) FOR WHICH A GROUND BUS IS SPECIFIED. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH BUSHINGS OF THE GROUNDING TYPE CONNECTED INDIVIDUALLY BY MEANS OF JUMPERS TO THE GROUND BUS. EXCLUDE THE JUMPERS WHERE DIRECTED. THIS EXCLUSION WILL BE REQUIRED WHERE AN ISOLATED GROUND FOR ELECTRONIC EQUIPMENT IS TO BE MAINTAINED K. EACH GROUNDING TYPE BUSHING SHALL HAVE THE MAXIMUM GROUND WIRE ACCOMMODATION AVAILABLE IN STANDARD MANUFACTURE FOR THE PARTICULA CONDUIT SIZE. CONNECTION TO BUSHING SHALL BE WITH WIRE OF THIS MAXIMUM SIZE. BONDING CONDUCTORS ON THE LOAD SIDE OF THE SERVICE DEVICE AND EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED IN RELATION TO THE FUSES OR TRIP SIZE OF THE OVERCURRENT DEVICE SUPPLYING THE CIRCUIT. M. THE CENTRAL EQUIPMENT FOR THE FIRE PROTECTIVE ALARM SYSTEM AND TELEPHONE SYSTEM SHALL HAVE ITS GROUNDING TERMINAL CONNECTED TO THE GROUNDING

. SWITCHES SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURES UNLES: NEMA 3R (RAINTIGHT) OR NEMA 4 AS REQUIRED BY ENVIRONMENT. ENCLOSURES SHALL BE OF CODE GAUGE (UL 98) SHEET STEEL (NEMA 1) OR CODE GAUGE

F. SAFETY SWITCHES SHALL BE SQUARE D CLASS 3130 OR APPROVED EQUAL AS MANUFACTURED BY GENERAL ELECTRIC OR CUTLER HAMMER.

SWITCHES SHALL BE HORSEPOWER RATED FOR 600 VOLTS AC AND ALL SWITCHES SHALL BE FUSED TYPE WITH DUAL ELEMENT FUSES.

PHOSPHATE TREATMENT AND GRAY BAKED ENAMEL FINISH.

LECTRODE BY MEANS OF A NO. 6 GREEN CODED INSULATED CONDUCTOR, RUN IN 3/4" CONDUIT. UTILIZE A GROUND CLAMP OF A TYPE SPECIFICALLY MANUFACTURED FOR THE PURPOSE N. PROVIDE GROUNDING BONDS FOR ALL METAL PARTS, INCLUDING ALL METAL PARTS OF THE ELECTRICAL EQUIPMENT ASSOCIATED WITH THE WATER-CIRCULATING SYSTEM OF THE POOL, ALL METAL PARTS OF THE POOL STRUCTURE, AND ALL FIXED METAL PARTS, WHICH WITHIN 5 FEET OF THE INSIDE WALLS OF THE POOL AND NOT SEPARATED BY A PERMANENT BARRIER. ALL POOL GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 680 OF THE NEC, STATE CODE OR LOCAL CODE, WHICHEVER IS THE MORE STRINGENT. 2.22 PHASING AND COLOR CODING

A. THE INSULATION OR COVERING OF EACH WIRE OR CABLE SHALL BE COLOR CODED SO AS TO PROVIDE FOR CIRCUIT IDENTIFICATION AS SPECIFIED BELOW: 120/208 V CIRCUITS PHASE CIRCUITS BLACK A GREEN EQUIPMENT GROUND B. COLOR CODING SHALL BE ACHIEVED BY ONE OF THE FOLLOWING METHODS:

. THE INSULATION OR COVERING SHALL BE CODED DURING MANUFACTURE BY US OF ONE OF THE FOLLOWING METHODS: A. COLORED COMPOUNDS B. COLORED COATINGS. 2. IN SIZES AND INSULATION TYPES WHERE FACTORY APPLIED COLORS ARE NOT AVAILABLE, WIRES AND CABLES SHALL BE COLOR CODED BY THE APPLICATION OF COLORED PLASTIC TAPES IN OVERLAPPING TURNS AT ALL TERMINAL POINTS, AND IN ALL BOXES IN WHICH SPLICES ARE MADE.

THE SAME COLORED CABLE SHALL BE CONNECTED TO THE SAME PHASE THROUGHOUT D. IN GENERAL, BUILDING LOAD CENTERS AND PANELBOARDS SHALL BE PHASED "A", "B", "C", LEFT TO RIGHT. THE NEUTRAL, ALTHOUGH TI MAY BE IN DIFFERENT LOCATIONS FOR DIFFERENT EQUIPMENT, SHALL BE IDENTIFIED. MOLDED CASE CIRCUIT BREAKERS

A. MOLDED CASE TYPE CIRCUIT BREAKERS SHALL CONSIST OF MANUALLY OPERATED MULTANEOUS OPERATION OF ALL POLES, WITH CONTACTS, ARC INTERRUPTERS AND TRIP EMENTS FOR EACH POLE, ALL ENCLOSED IN MOLDED PHENOLIC PLASTIC CASES. . THEIR TRIPPING UNITS SHALL BE OF THE "THERMAL MAGNETIC" TYPE HAVIN BIMETALLIC ELEMENTS FOR TIME DELAY OVERLOAD PROTECTION AND MAGNE ELEMENTS FOR SHORT CIRCUIT PROTECTION.

2. THEY SHALL BE MANUALLY OPERABLE BY MEANS OF TOGGLE TYPE OPERATING HANDLES HAVING "TRIPPED" POSITION MIDWAY BETWEEN THE "ON_OFF? 3. THEY SHALL EACH BE CONTAINED IN AN INDIVIDUAL CASE ENCLOSING ONLY THE NUMBER OF POLES REQUIRED FOR THE PARTICULAR BREAKER.

ALL PANELS AND INDIVIDUALLY MOUNTED CIRCUIT BREAKERS SHALL HAVE SHORT CIRCUIT RATINGS EXCEEDING THE AVAILABLE SHORT CIRCUIT OR THE VALUES INDICATED IN THE POWER SYSTEM STUDIES IN THIS SECTION BY A FACTOR OF ... WITH A MINIMUM AS FOLLOWS: 240V CLASS PANELS/BREAKERS 10 KAIC WHERE SHOWN FED BY A 150 KVA OR LESS TRANSFORMER

22 KAIC WHERE SHOWN FED BY A 300 KVA OR LESS TRANSFORMER THEY SHALL BE OF THE "BOLTED_IN" TYPE. 6. WHERE NECESSARY, TO ACCOMMODATE OTHER REQUIREMENTS, THEIR FRAME SIZES SHALL BE INCREASED TO CONFORM TO SUCH REQUIREMENTS, FRAME SIZES BEING INDICATED ONLY AS A REFERENCE TO THE MINIMUM ACCEPTABLE INTERRUPTING RATINGS NOTED ABOVE. 7. WHERE SINGLE POLE IN TRIP SIZES 20 AMPS OR LESS, THEY SHALL BE RATED FOR

SWITCHING DITTY 8. THEY SHALL BE EQUIPPED WITH 5 MILLIAMP SENSITIVITY GROUND FAULT INTERRUPTING FEATURES WHERE SO INDICATED.

B. THEY SHALL BE MANUFACTURED BY SQUARE D, CUTLER HAMMER, OR GENERAL ELECTRIC C. DISCONNECT SWITCHES DISCONNECT (SAFETY) SWITCHES SHALL CONFORM TO INDUSTRIAL STANDARDS OF

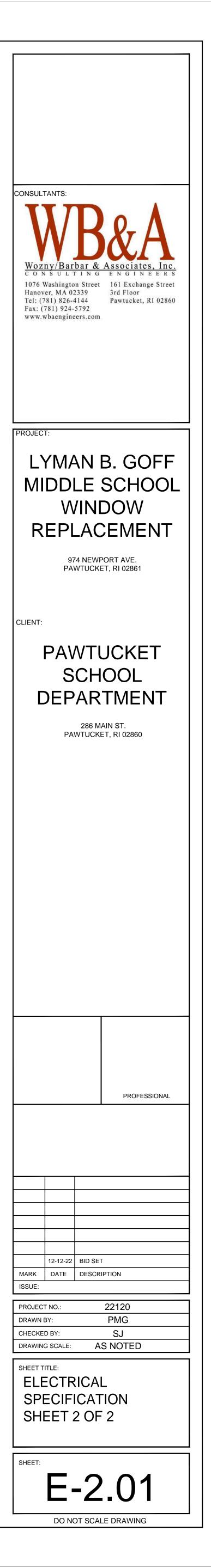
NEMA, BE UL LISTED AND SHALL BE HEAVY DUTY TYPE, QUICK-MAKE, QUICK-BREAK TYPE WITH INTERLOCKING COVER MECHANISM AND PROVISIONS FOR PADLOCKING SWITCH HANDLE IN "OFF" POSITION. THREE POLE TOGGLE SWITCHES ARE NOT ACCEPTABLE AS SUBSTITUTE FOR DISCONNECT SWITCHES. DISCONNECT SWITCHES SHALL BE OF FUSED OR UNFUSED TYPE AS INDICATE WITH NUMBER OF DISCONNECTING POLES INDICATED. THE GROUNDED CONDUCTOR SHALL NOT BE SWITCHED. SWITCHES SHALL BE FOR USE WITH CURRENT LIMITING FUSES WITH REJECTION TYPE FUSE CLIPS AND THOSE SHALL BE RSEPOWER RATED.

ENCLOSURES SHALL BE OF PROPER NEMA TYPE FOR THE INTENDED LOCATION AND SHALL BE PHOSPHATE COATED OR EQUIVALENT CODE GAUGE GALVANIZE SHEET STEEL WITH GRAY BAKED ENAMEL FINISH. ACCEPTABLE MANUFACTURERS:

A. GENERAL ELECTRIC B. CUTLER HAMMER C. SQUARE D

ACCESS PANELS SHALL BE PROVIDE FOR ALL ELECTRICAL EQUIPMENT WHICH REQUIRES ACCESS BY; RHODE ISLAND ELECTRIC CODE ABOVE HUNG CEILINGS OR BEHIND WALLS WHICH ARE CONSTRUCTED OF MATERIALS OF THE TYPE WHICH ARE NOT READILY REMOVABLE. B. ACCESS PANELS SHALL BE FURNISHED BY THE GENERAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. PART 3 - EXECUTION 3.1 SPECIAL COORDINATION INSTRUCTIONS A. COORDINATION WITH THE WORK OF OTHER TRADES IS REFERRED TO WITHIN VARIOUS ARTS OF THIS SECTION OF THE SPECIFICATIONS. THE FOLLOWING SPECIAL INSTRUCTIONS L ALSO BE CAREFULLT INVITED.] OCATIONS AND MOUNTING HEIGHT OF ALL WALL OUTLETS AND LIGHTING FIXTURES] SHALL BE AS SPECIFIED ON THE ELECTRICAL AND ARCHITECTURAL DRAWINGS.] LL FEEDER, BRANCH CIRCUIT OR AUXILIARY SYSTEM WIRING PASSING THROUGH PULL BOXES AND/OR BEING MADE UP IN PANEL BOARDS SHALL BE PROPERLY GROUPED, BOUND AND TIED TOGETHER IN A NEAT AND ORDERLY MANNER IN EEPING WITH THE HIGHEST STANDARDS OF THE TRADE, WITH PLASTIC CABLE TIES. 3. ALL DUPLEX CONVENIENCE AND POWER RECEPTACLES SHALL BE MOUNTED VERTICALLY WITH THE GROUNDING POST TO THE BOTTOM AS THE OUTLET IS IEWED FROM THE FRONT. 4. ALL MISCELLANEOUS HARDWARE AND SUPPORT ACCESSORIES, INCLUDING SUPPORT RODS, HANGERS, NUTS, BOLTS, SCREWS AND OTHER SUCH ITEMS SHALL BE OF A GALVANIZED OR CADMIUM PLATED FINISH, OR OF OTHER APPROVED RUST-INHIBITING COATINGS. IN HAZARDOUS LOCATIONS NEAR THE OCEAN ALL MARINE AREA HARDWARE SHALL BE PVC COATED STAINLESS STEEL TO PREVENT CORROSION. CARE SHOULD BE TAKEN THAT FIXTURES SHALL NOT BE INSTALLED O TH SIDES OF EXISTING OR NEW BUILDING EXPANSION JOINTS. . THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP TO PROVIDE FOR ADEQUATE PROTECTION OF ALL ELECTRICAL EQUIPMENT DURING THE COURSE OF CONSTRUCTION OF THE PROJECT. 5. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL APPROVED DETAILS FOR ALL INSULATION AT TERMINAL CONNECTION POINTS FOR ALL ELECTRICAL CONDUCTING MATERIALS, SUCH AS TRANSFORMER TERMINALS, TERMINAL STUDS, AND AT ANY OTHER SPECIAL LOCATIONS AS DIRECTED BY THE ENGINEER AND CONFIRMED BY THE OWNER. 7. THE ELECTRICAL CONTRACTOR SHALL PROVIDE GFI RATED AND WEATHERPROOF RATED EQUIPMENT IN DAMP OR WET LOCATIONS. COORDINATION WITH LOCAL UTILITY COMPANIES WITH THE LOCAL UTILITY COMPANIES AND THE LOCAL FIRE DEPARTMENT IS REQUIRED. ELECTRICAL CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND FILE ALL REQUIRED PPLICATIONS AND MEET ALL UTILITY COMPANY REQUIREMENTS 3.2 COOPERATION AND WORK PROGRESS A. THE ELECTRICAL WORK SHALL BE CARRIED ON UNDER THE USUAL CONSTRUCTION CONDITIONS, IN CONJUNCTION WITH ALL OTHER WORK AT THE SITE. THE ELECTRICA CONTRACTOR SHALL COOPERATE WITH THE ENGINEER AND ALL CONTRACTORS AND EQUIPMENT SUPPLIERS WORKING ON THE SITE COORDINATE THE WORK AND PROCEED IN A MANNER SO AS NOT TO DELAY THE PROGRESS OF THE PROJECT. B. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE EXACT MOUNTING ARRANGEMENT AND LOCATION OF EQUIPMENT INDICATED ON THE RAWINGS TO ALLOW FOR PROPER SPACE REQUIREMENTS FOR EQUIPMENT ACCESS, PERATION AND MAINTENANCE C. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE DELIVERY OF ELECTRICAL EQUIPMENT TO THE PROJECT PRIOR TO THE TIME OF NSTALLATION OR EQUIPMENT 3.3 INSTALLATION OF WIRING & CONDUIT A. IN GENERAL ALL CONDUITS SHALL BE RUN CONCEALED UNLESS OTHERWISE INDICATED TO BE RUN EXPOSED. B EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO THE WALLS OF THE BUILDING AND ALL BENDS SHALL BE MADE WITH STANDARD CONDUIT ELLS OR CONDUITS BENT TO, NOT LESS THAN, THE SAME RADIUS. HORIZONTAL RUNS OF EXPOSED CONDUITS SHALL BE CLOSE TO CEILING BEAMS, PASSING OVER WATER OR OTHER PIPING WHERE POSSIBLE AND SHALL BE SUPPORTED BY PIPE STRAPS OR BY OTHER APPROVED MEANS, NOT MORE THAN 5' APART. INSTALLATION OF EXPOSED CONDUITS IN FINISHED AREAS OF THE BUILDING SHALL BE CHECKED WITH THE ENGINEERS FOR LAYOUT BEFORE INSTALLATION TO CONFORM TO THE PATTERN OF THE STRUCTURAL MEMBERS, AND WHEN COMPLETED, IS TO PRESENT THE MOST OBTRUSIVE APPEARANCE POSSIBLE. NO OSED CONDUITS WILL BE PERMITTED ON WALLS OR PARTITIONS IN PUBLIC AREAS. . IN NO PLACE SHALL A CONDUIT BE RUN WITHIN 3" OF HOT WATER PIPES OR APPLIANCES EXCEPT WHERE CROSSING IS UNAVOIDABLE AND IN THAT CASE, THE CONDUIT SHALL BE KEPT AT LEAST 1" FROM COVERING OR PIPE CROSSED. . CONDUITS SHALL BE SUPPORTED ON APPROVED GALVANIZED WALL BRACKETS, CEILING TRAPEZE, STRAP HANGERS OR PIPE STRAPS, SECURED BY MEANS OF TOGGLE BOLTS ON HOLLOW MASONRY UNITS OR EXPANSION BOLTS IN CONCRETE OR BRICK. E. IN GENERAL, NO SPLICES OR JOINTS WILL BE PERMITTED IN EITHER FEEDER OR BRANCHES OR ACCESSIBLE JUNCTION BOXES. NO SPLICES SHALL BE MADE IN SECURITY OR FIRE ALARM SYSTEMS. ALL SPLICES IN WIRE #8 AWG AND SMALLER SHALL BE STANDARD PIGTAIL, MADE MECHANICALLY TIGHT AND INSULATED WITH PROPER THICKNESS OF INSULATING TAPE. WIRE SPLICING NUTS AS MANUFACTURED BY: MINNESOTA MINING COMPANY (SCOTCH) LOCK) OR IDEAL WIRE NUTS SHALL BE USED, SUBJECT TO THE LOCAL WIRE INSPECTOR. WIRE #6 AND LARGER SHALL BE CONNECTED TO PANELS AND APPARATUS BY MEANS OF APPROVED LUGS OR CONNECTORS. CONNECTORS SHALL BE SOLDER LESS TYPE, SUFFICIENTLY LARGE TO ENCLOSE ALL STRANDS OF THE CONDUCTOR AND SECURELY FASTENED. H. PROVIDE (3) 1—INCH CONDUITS FROM EACH ELECTRICAL PANEL UP TO THE NEAREST 3.6 SPLICES AND TERMINATIONS A. MAKE SPLICES AND TERMINATIONS EQUIVALENT ELECTRICALLY AND MECHANICALLY TO CONDUCTOR INSULATION B. MAKE SPLICES IN BRANCH CIRCUIT WIRING WITH SOLDER LESS, SCREW-ON CONNECTORS; IDEAL, SCOTCHLOCK, T&B OR EQUAL, RATED 600V OF SIZE AND TYPE REQUIRED BY MANUFACTURER'S RECOMMENDATION, WITH TEMPERATURE RATINGS EQUAL TO THOSE OF CABLE INSULATION. INSULATE SPLICES WITH INTEGRAL COVERS OR WITH PLASTIC, BBER OR FRICTION TAPE, PERMACAL OR EQUAL TO MAINTAIN INTEGRITY OF CAI C. MAKE SPLICES AND TERMINATIONS TO CONDUCTORS #8 AND LARGER WITH CORROSION-RESISTANT, HIGH CONDUCTIVITY, PRESSURE INDENT. HEX SCREW OR BOL CORROSION-RESISTANT, HIGH CONDUCTIVITY, PRESSURE INDENT, HEX SCREW OR BOLT CLAMP CONNECTIONS, WITH OR WITHOUT TONGUES, DESIGNATED SPECIFICALLY FOR INTENDED SERVICE. CONNECTORS FOR CABLES 250 KCMIL AND LARGER SHALL HAVE TWO CLAMPING ELEMENTS OR COMPRESSION INDENTS. TERMINALS FOR BUS CONNECTIONS SHALL HAVE TWO BOLTHOLES. SPLIT BOLT CONNECTORS, BURNDY OR EQUAL SHALL BE ACCEPTABLE FOR ALL SPLICES OF CONDUCTORS #8 AND LARGER. D. MAKE SPLICES AT MOTOR JUNCTION BOXES WITH PRESSURE INDENT CONNECTORS OR SPLIT-BOLT CONNECTORS AS SPECIFIED HEREIN. E. PROVIDE STANDARD BOLT-ON LUGS WITH ALLEN OF CAP SCREWS TO ATTACH COPPER WIRE AND CABLE TO DISCONNECT SWITCHES AND OTHER ELECTRICAL EQUIPMENT ALL TERMINATIONS SHALL BE PROPERLY TORQUED AS PER MANUFACTURER'S REQUIREMENTS. TOOLS MUST BE CALIBRATED AND BE CERTIFIED. GROUNDING A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL FITTINGS, CLAMPS, CONDUITS AND CONDUIT AND THE WATER PIPING AS REQUIRED BY THE LATEST EDITION OF THE RHODE ISLAND ELECTRICAL CODE. GROUND WIRES SHALL BE RUN IN RIGID CONDUIT OF SIZE REQUIRED BY THE NATIONAL ELECTRICAL CODE.

. THE EQUIPMENT AND MATERIALS REQUIRED UNDER THIS SECTION ARE INCLUDED UNDER . GROUND ALL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH THE BEST INDUSTRY PRACTICE. SIZE ALL CONDUCTORS PER THE LATEST ADDITION OF THE NEC. PANEL BOARD SHALL BE CONNECTED TO THE MAIN GROUNDING ELECTRODE SPECIFIED BELOW BY MEANS OF INSULATED CONDUCTORS RUN IN THREADED STEEL CONDUIT. E. THE MAIN GROUNDING ELECTRODE SHALL BE AN ACCESSIBLE POINT ON THE NEAREST METALLIC MAIN WATER SERVICE PIPE. CONNECTION SHALL BE MADE ON THE STREET SIDE OF THE MAIN VALVE UTILIZING EXOTHERMIC WELDING. BONDING JUMPERS SHALL BE PROVIDED AROUND THE WATER METERS (IF PROVIDED) AND AROUND INSULATING JOINTS AND/OR SECTIONS. F. THE WATER PIPE GROUND SHALL BE SUPPLEMENTED BY AN ADDITIONAL "MADE" ELECTRODE CONSISTING OF BURIED 1" DIAMETER BY 10'-0" LONG COPPER WELD GROUND RODS SPACE 6'-0" MINIMUM APART, AND PROVIDED IN SUFFICIENT QUANTITY SO AS TO HAVE A MEASURED RESISTANCE TO GROUND OF NOT MORE THAN 25 OHMS. ESTABLISH A BONDING CONNECTION FROM THE "MADE" ELECTRODE CONSISTING OF GREEN INSULATED CONDUCTORS RUN IN THREADED STEEL CONDUIT TO THE COLD WATER G. ESTABLISH TWO GROUND-BONDING CONNECTIONS FROM STRUCTURAL BUILDING STEEL FROM TWO DIFFERENT LOCATIONS TO THE COLD WATER MAINS ENTERING THE BUILDING. I. PROVIDE SUPPLEMENTARY GROUND BONDING WHERE METALLIC CONDUITS TERMINATE AT METAL CLAD EQUIPMENT (OR AT THE METAL PULL BOX OF EQUIPMENT) FOR WHICH A GROUND BUS IS SPECIFIED. ACCOMPLISH THIS BY EQUIPPING THE CONDUITS WITH BUSHINGS OF THE GROUNDING TYPE CONNECTED INDIVIDUALLY BY MEANS OF JUMPERS TO THE GROUND BUS. EXCLUDED THE JUMPERS WHERE DIRECTED. THIS EXCLUSION WILL BE REQUIRED WHERE AN ISOLATED GROUND FOR ELECTRONIC EQUIPMENT IS TO BE THE CENTRAL EQUIPMENT FOR THE FIRE PROTECTION ALARM SYSTEM SHALL HAVE ITS GROUNDING TERMINAL CONNECTED TO THE NEAREST METALLIC COLD WATER MAIN BY MEANS OF A #6 GREEN CODED INSULATED CONDUCTOR, RUN IN 3/4" THREADED METALLIC CONDUIT. UTILIZE A GROUND CLAMP OF A TYPE SPECIFICALLY MANUFACTURED FOR THE PURPOSE. J. FOR EACH FEEDER OR RUN OF LIGHTING AND APPLIANCE BRANCH CIRCUITRY INCLUDE EQUIPMENT AND RACEWAY GROUNDING CONDUCTORS RUN WITHIN THE RACEWAYS. THE INDICATED QUANTITIES OF CONDUCTORS DO NOT INCLUDE THE GROUND WIRES. PE OF INSULATION, COMPARABLE TO THE PHASE CONDUCTORS, COLOR CODED GREEN.



PAWTUCKET SCHOOL DEPARTMENT

REQUEST FOR PROPOSALS



C2022-019

December 12, 2022 **January 06, 2023 – Addendum #2 - Reissued**

Lyman Goff MS – Window Replacement

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and Conditions of PurchaseAppendix CAgreement between Owner and Contractor AIA A101-2017Appendix DGeneral Conditions of the Contract for Construction A201-2017
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1.0 - Bid/Solicitation Information

<u>Schedule</u>

Pre-Bid/Proposal Conference:

There will be a non-mandatory pre-bid conference on Thursday, December 15, 2022 at 2:00 PM, at Lyman Goff Middle School, 974 Newport Ave, Pawtucket, RI 02861 (Meet at Door 1). Attendance is highly encouraged as this will be bidders' opportunity to visit and familiarize themselves with the related facility where they will be providing services, so that they may respond accurately to this RFP.

Requests for Further Information:

Requests for Information during the Bidding Period will be accepted until 5:00 p.m. on Wednesday, January 11th, 2023.

Requests for information or clarification must be made <u>electronically</u> to the attention of: **Christopher.spiegel@collierseng.com.**

Please reference the RFP number, **C2022-019** on all correspondence. Answers to RFI's received, will be forwarded electronically to all pre-qualified bidders.

RFP Submission Deadline:

January 18, 2023, at 3:00 PM ** *Late submittals will not be considered***

Proposals will be publicly opened and read aloud on **January 18, 2023** at 3:10 PM at in the Pawtucket School Administration Building.

Proposals must be mailed or hand-delivered in a sealed envelope marked as follows:

Marked as:	Pawtucket School Department Bid Package # C2022-019 Lyman Goff Middle School Window Replacement Project
To:	Pawtucket School Department ATTN: Melissa Devine, CFO Reception, Door 1 286 Main Street Pawtucket, RI 02860

Bonds/Surety Required

Surety Bond = **Yes**

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Bidder is required to provide a bid surety in the form of a bid bond or certified check payable to the City of Pawtucket in an amount not less than ten percent (10%) of the bid price.

Payment & Performance Bonds = **Yes**

The successful bidder will be required to furnish payment & performance bonds and all insurance documentation as outlined in the attached Purchasing Rules & Regulations and General Terms & Conditions of Purchase.

<u>Miscellaneous</u>

The bid process and resulting contract are subject to the Rules and Regulations and General Terms and Conditions of Purchase. Submission of a bid in response to this solicitation is acknowledgement and acceptance of these Rules and Regulations and General Terms and Conditions of Purchase.

The Pawtucket School Department reserves the right to award on the basis of cost alone, accept or reject any or all bids, and to act in its best interest. Proposals found to be technically or substantially non-responsive at any point in the evaluation process will be rejected and not considered further. Pawtucket School Department may, at its sole option, elect to require presentations(s) by bidders clearly in consideration for award.

2.0 - Instructions and Notifications to Bidders

- It is the bidder's responsibility to examine all specifications and conditions thoroughly, as well as to comply fully with specifications and all attached terms and conditions. Bidders must comply with all Federal, State, and City laws, ordinances and regulations, and meet any and all registration requirements where required for contractors as set forth by the State of Rhode Island. Failure to make a complete submission as described herein may result in a rejection of the proposal.
- All costs associated with developing or submitting a proposal in response to this Request, or to provide oral or written clarification of its content shall be borne by the bidder. The Pawtucket School Department assumes no responsibility for these costs.
- A submittal may be withdrawn by written request to the Pawtucket School Department by the proposer prior to the stated RFP deadline. Contact:

Melissa Devine Chief Financial Officer devinem@psdri.net

• Prior to the proposal deadline established for this RFP, changes may be made to a proposal already received by the Pawtucket School Department if that bidder makes a request to the Chief Financial Officer, in writing, to do so. No changes to a proposal shall be made after the RFP deadline.

- Proposals are considered to be irrevocable for a period of not less than thirty (30) days following the opening date, and may not be withdrawn, except with the express written permission of the Chief Financial Officer. Should any bidder object to this condition, the bidder must provide objection through a question and/or complaint to the Chief Financial Officer prior to the proposal deadline.
- All pricing submitted will be considered to be firm and fixed unless otherwise indicated herein.
- The bidder has full responsibility to ensure that the proposal arrives at the stated bid location prior to the deadline set out herein. The Pawtucket School Department assumes no responsibility for delays caused by the U.S. Postal Service or any other delivery service. Postmarking by the due date will not substitute for actual receipt of response by the due date. Proposals arriving after the deadline may be returned, unopened, to the bidder, or may simply be declared non-responsive and not subject to evaluation, at the sole discretion of the Pawtucket School Department. For the purposes of this requirement, the official time and date shall be that of the clock in the Pawtucket School Department's reception area.
- It is intended that an award pursuant to this Request will be made to a prime contractor, who will assume responsibility for all aspects of the work. Joint venture and cooperative proposals will not be considered, but subcontracts are permitted, provided that their use is clearly indicated in the bidder's proposal, and the subcontractor(s) proposed to be used are identified in the proposal.
- Bidders are advised that all materials submitted to the Pawtucket School Department for consideration in response to this Request for Proposals shall be considered to be public records as defined in Title 38 Chapter 2 of the Rhode Island General Laws, without exception, and may be released for inspection immediately upon request once an award has been made.
- Bidders are responsible for errors and omissions in their proposals. No such error or omission shall diminish the bidder's obligations to the Pawtucket School Department.
- The Pawtucket School Department reserves the right to reject any or all proposals, or portions thereof, at any time, without penalty. The Pawtucket School Department also has the right to waive immaterial defects, minor irregularities and formalities in any submitted proposal at its sole discretion. All material submitted in response to this RFP shall become the property of the Pawtucket School Department upon delivery to the stated bid submission location.
- There will be a public bid opening immediately following the submission deadline.

3.0 - Overview

The Owner (Pawtucket School Department) through its Owner's Project Representative (Colliers Project Leaders) and its Architect (Wessling Architects) are soliciting bids for **the Goff Middle School Window Replacement Project.**

The Bid Documents, consisting of this RFP/Project Manual along with the Plans and Specifications prepared by Wessling Architects comprises the bidding and construction documentation for this project. This Invitation to Bid provides an overview of the bidding process and logistics for this project.

4.0 - Scope of Work

The full scope of the renovations is illustrated on the plans and within the specifications. These documents are available digitally by requesting them from Chris Spiegel at Colliers Project Leaders <u>christopher.spiegel@collierseng.com</u> on December 12, 2022.

PROJECT:	Pawtucket School Department Goff MS Window Replacement
OWNER:	Pawtucket School Department 286 Main Street Pawtucket, RI 02860
OWNER'S REPRESENTATIVE:	Colliers Project Leaders 72 Pine Street Providence, RI 02903
ARCHITECT:	Wessling Architects 350 Granite St Braintree, MA 02184

Project Description:

a. This project calls for the phased replacement of exterior windows at the Lyman B Goff Middle School.

The schedule for the work calls for Award of the contract by **January 30 2023**, early submittal review and approval/materials acquisition to begin at this time. The schedule of construction, including abatement and demolition, will be determined after joint consultation with the Owner.

Phase:	Substantial Completion:	Final Completion:
Ι	August 18, 2023	August 31, 2023
II	August 16, 2024	August 30, 2024

All work shall be completed in conformance with the NE CHPS and Rhode Island Department of Education regulations as outlined in the bid documents.

All parking, storage and logistic items for construction will be confined to the construction areas as shown on the Bid Documents or as otherwise agreed to between the successful bidder and School Department. Smoking on School grounds is prohibited and failure to conform to this requirement will result in removal from the Project.

Bid Document Availability:

Project Documents will be made available by requesting them from Chris Spiegel at Colliers Project Leaders Christopher.spiegel@collierseng.com.

Prevailing Wage:

Local wage rates apply to this project. It is the responsibility of the Contractor before bid openings to request if necessary, any additional information on local Wage Rates for those trades-people who are not covered by the applicable local Wage Decision, but who may be employed for the proposed work under this Contract. The Contractor shall obtain the latest wage rates as issued by the Department of Labor and Training.

Contractors Subject to Provisions – Weekly Payment of Employees:

All contractors who have been awarded contracts for the Pawtucket School Department, by an awarding agency or authority of the state or of any city, town, committee or by any person or persons therein, in which state or municipal funds are used and of which the contract price shall be in excess of one thousand dollars (\$1,000) and their subcontractors on such public works shall pay their employees at weekly intervals and shall comply with the provisions set forth in 37-13-4 to 37-13-14, inclusive of the Rhode Island General Laws of 1956 as amended.

Ascertainment of Prevailing Rate of Wages:

Before entering into any contract with the Pawtucket School District, the bidders (General Contractor and Subcontractors) shall ascertain from the director of labor the general prevailing rate of the regular, holiday and overtime wages paid and the general prevailing payments on behalf of employees only, to lawful welfare, pension, vacation, apprentice training and educational funds (payments to said funds must constitute an ordinary business expense deduction for federal income tax purposes by contractors) in the city, town, village or other appropriate political subdivision of the state in which the work is to be performed, for each craft, mechanic, teamster, laborer or type of workman needed to execute the contract and in the contract itself the general prevailing rate of the regular, holiday, and overtime wages paid and the payments on behalf of employees only to such welfare, pension, vacation, apprentice training and education funds existing in the locality for each craft, mechanic, teamster, laborer or type of workman needed to execute training and education funds existing in the locality for each craft, mechanic, teamster, laborer or type of workman needed to execute training and education funds existing in the locality for each craft, mechanic, teamster, laborer or type of workman needed to execute the contract or type of workman needed to execute the contract training and education funds existing in the locality for each craft, mechanic, teamster, laborer or type of workman needed to execute the contract or work.

Applicability and Determination of Prevailing Rate of Wages:

Every call for bids for (a) every contract in excess of one thousand dollars (\$1,000), to which the state of Rhode Island or any political subdivision thereof is party, for construction, alteration, and/or repair, including painting and decoration, of public buildings of the State of Rhode Island or any political subdivision thereof, and which requires or involves the employment of employees

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shall contain a provision stating the minimum wages to be paid various types of employees which shall be based upon the wages that will be determined by the director of labor to be prevailing for the corresponding type of employees employed on projects of a character similar to the contract work in the city, town, village or other appropriate political subdivision of the State of Rhode Island in which the work is to be performed; and every contract shall contain a stipulation that the contractor or his subcontractor shall pay all said employees employed directly upon the site of the work, unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment computed at wage rates not less than those stated in the call for bids, regardless of any contractual relationships which may be alleged to exist between the contractor or subcontractor and such employees and that the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work; and the further stipulation that there may be withheld from the contractors so much of accrued payments as may be considered necessary to pay to such employees employed by the contractor or any subcontractor on the work the difference between the rates of wages required by the contract to be paid said employees on the work and the rates of wages received by such employees and not refunded to the contractor, subcontractors, or their agents; (b) the (terms) "wages," "scale of wages," "wage rates," "minimum wages," and "prevailing wages" shall include:

- 1. The basic hourly rate of pay; and
- 2. The amount of

a. the rate of contribution made by a contractor or subcontractor to a trustee or to a third person pursuant to a fund, plan, or program; and

b. the rate of costs to the contractor or subcontractor which may be reasonably anticipated in providing benefits to employees pursuant to an enforceable commitment to carry out a financially responsible plan or program which was communicated in writing to the employees affected, for medical or hospital care, pensions on retirement or death, compensation for injuries or illness resulting from occupational activity, or insurance to provide any of the foregoing, for defraying costs of apprenticeship of other similar programs, or for other bona fide fringe benefits, but only where the contractor or subcontractor is not required by other federal, state, or local law to provide any of such benefits: Provided, that the obligation of a contractor or subcontractor to make payment in accordance with the prevailing wage determinations of director of labor insofar as this chapter of this title and other acts incorporating this chapter of this title by reference are concerned may be discharged by the making of payments in cash, by the making of contributions of a type referred to in paragraph (2) (A), or by the assumption of an enforceable commitment to bear the costs of a plan or program of a type referred to in paragraph (2) (B), or any combination thereof, where the aggregate of any such payments, contributions, and costs is not less than the rate of pay described in paragraph (1) plus the amount referred to in paragraph (2).

Prevailing Rate of Wages for Rhode Island:

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The latest revisions of the wages rates may be examined during business hours at the office of the Director of Labor or visit http://www.access.gpo.gov/davisbacon/index.html.

Minority Business Enterprise (MBE)

"In accordance with RI Gen. Law § 37-14.1-1, it is the policy of the State of Rhode Island to support the fullest possible participation of firms owned and controlled by minorities (MBEs) and women (WBEs). Pursuant to §§ 37-14.1-2 and 37-14.1-6, MBEs and WBEs shall be included in all state purchasing, including, but not limited to, the procurement of goods, services, construction projects, or contracts funded in whole or in part with state funds, or funds which, in accordance with a federal grant or otherwise, the state expends or administers. MBEs and WBEs shall be awarded a minimum of ten percent (10%) of the dollar value of the entire procurement or project. MBE participation credit shall only be granted for firms duly certified as MBEs or WBEs by the State of Rhode Island, Department of Administration, Office of Diversity, Equity and Opportunity, MBE Compliance Office (MBECO). The current directory of firms certified as MBEs or WBEs may be accessed at http://odeo.ri.gov/offices/mbeco/mbe-wbe.php or by contacting Dorinda Keene at the MBECO at (401) 574-8670 or via email at Dorinda.Keene@doa.ri.gov "

Compliance with 10% MBE participation is part of the selection criteria.

State Public Works Contract Apprenticeship Requirements.

Notwithstanding any laws to the contrary, all general contractors and subcontractors who perform work on any public works contract awarded by the state after passage of this act and valued at one million dollars (\$1,000,000) or more shall employ apprentices required for the performance of the awarded contract. The number of apprentices shall comply with the apprentice-to-journeyman ratio for each trade approved by the apprenticeship council of the department of labor and training. To the extent that any of the provisions contained in this section conflict with the requirements for federal aid contracts, federal law and regulations shall control.

If the general contractor employs apprentices, then the apprentices must be subject to an apprenticeship agreement as defined by R. I. Gen. Laws § 28-45-10 in order for the general contractor to qualify for payment of the applicable apprentice wage rate set forth on the wage schedule pursuant to Rule 5 herein.

Prior to bidding on a state public works contract valued at One Million Dollars (\$1,000,000) or more, the general contractor shall certify compliance with apprenticeship requirements by fully executing a General Contractor Apprenticeship Certification Form. The general contractor shall meet one of the qualifications identified on said form. The general contractor shall attach said form to his/her application to bid and submit to the awarding authority.

No contract award for a state public works contract valued at One Million Dollars (\$1,000,000) or more shall be made to any general contractor who fails to submit a fully executed and truthful General Contractor Apprenticeship Certification Form.

Collaborative for High Performance Schools:

The Collaborative for High Performance Schools (CHPS) criteria will be implemented on the project. CHPS is a leading national movement with the goal of making schools better places to learn. CHPS' mission is to facilitate the design, construction and operation of high performance schools: environments that are not only energy and resource efficient, but also healthy, comfortable, well lit, and containing the amenities needed for a quality education. The selected contractor shall provide all material and perform all work so as to adhere to the guidelines of the CHPs program and provide the necessary submittals and other documentation required for the project to achieve CHPs certification.

Form of Contract*:

A lump sum contract (AIA: A101 and A201 modified) will be executed with the successful bidder for the construction of the entire project. The AIA: A101 and A201 as modified and included in the bid documents will be utilized.

*No exception to the scope of work or contract will be considered unless such notification is given before the Bid Due date and within the Bid Submission.

Bonds:

A Bid Bond in the amount of 10% of the bid must accompany each bid in accordance with the Instructions to Bidders. Checks for Bid Security will not be accepted in lieu of a Bid Bond.

Federal Requirements

Please Note: This project is funded using Federal funding mechanisms (ESSER III). It is the contractor's responsibility to familiarize themselves with, and enforce compliance of, any and all regulations governing construction projects funded with Federal monies.

SECTION 00 50 04 - WORK PRACTICES

Part 1 - General

- 1.0 The construction barricades/temporary protection, where indicated on the contract documents, shall be inspected daily. Any corrections that are necessary to maintain security and keep the screening material in good shape shall be done following the daily inspection.
- 2.0 Contractor parking and storage will be located within the area designated by the Owner.
- 3.0 All construction debris and rubbish caused by the work is to be kept off of the premises and the surrounding area. The jobsite is to be cleaned daily and all construction materials, tools, equipment, machinery and surplus materials shall be kept neat and orderly. The Owner reserves the right to request that the jobsite be cleaned when necessary.
- 4.0 Dust control will be provided when necessary or when requested by the Owner.
- 5.0 The contractor shall make every effort to limit the amount of noise caused by construction operations. All equipment shall be equipped with silencers or mufflers designed to operate with the least possible noise in compliance with City, State and Federal regulations. No fossil fuel powered equipment shall be operated within the building.

- 6.0 Construction utilities costs such as special connections, delivery and generation costs outside of the building's regular power system shall be included in the bid price and paid by the contractor, not the Owner.
- 7.0 No signs or advertisements of any kind, other than a Project Sign will be allowed on the premises unless prior written consent has been obtained from the Pawtucket School Department.
- 8.0 The employer and supervisor are responsible at all times for the actions and behavior of their employees. It is expected that all contractors/vendors and their employees/workers will act appropriately while on the Pawtucket School Department property. Obscenity, inappropriate behavior and loud and vulgar language will not be tolerated. Any contractor/vendor or employee/worker overheard employing such language or observed behaving in an inappropriate manner will be removed from the site immediately.
- 9.0 All personnel shall have appropriately attire, shirts and shoes, are required at all times. All necessary safety equipment shall be worn where and when required.
- 10.0 OSHA 10 CERTIFICATION for all workers and employees to be employed at the worksite is required. Each individual shall have successfully completed required course in construction safety and health approved by the United States Occupational Safety and Health Administration.
- 11.0 Firearms, the use or possession of alcohol or illegal drugs or tobacco on the Pawtucket School Department property is strictly prohibited. Any individual who is in possession of a firearm (whether or not properly registered) or is under the influence of illegal drugs or alcohol, or in possession of such shall be removed immediately from the property.
- 12.0 The Pawtucket School Department may at any time require criminal record check of any and all personnel onsite. Any personnel not passing or providing proper information to complete the check shall be removed immediately from the property.

5.0 - Insurance

The vendor shall maintain and keep in force such comprehensive general liability insurance as shall protect them from claims which may arise from operations under any contract entered into with the Pawtucket School Department, whether such operations be by themselves or by anyone directly or indirectly employed by them.

The amounts of insurance shall be not less than \$1,000,000.00 combined single limit for any one occurrence covering both bodily injury and property damage, including accidental death.

The Pawtucket School Department, City of Pawtucket, Architect and OPM shall be named as additional insured on the vendor's General Liability Policy.

The vendor shall maintain and keep in force such Workers' compensation insurance limits as required by the statutes of the State of Rhode Island, and Employer's Liability with limits no less than \$500,000.

6.0 - Acknowledgement of Risk & Hold Harmless Agreement

In addition to the indemnity provisions specified in the Contract Documents and to the fullest extent permitted by law, the selected bidder, its officers, agents, servants, employees, parents, subsidiaries, partners, officers, directors, attorneys, insurers, and/or affiliates (Releasers) agree to release, waive, discharge and covenant not to sue the Pawtucket School Department, City of Pawtucket, its officers, agents, servants or employees (Releasees) from any and all liability, claims, cross-claims, rights in law or in equity, agreements, promises demands, actions and causes of action whatsoever arising out of or related to any loss, damage, expenses (including without limitation, all legal fees, expenses, interest and penalties) or injury (including death), of any type, kind or nature whatsoever, whether based in contract, tort, warranty, or other legal, statutory, or equitable theory of recovery, which relate to or arise out of the Releasers use of or presence in and/or on Pawtucket School Department and/or City of Pawtucket property. The Releasers agree to defend, indemnify and hold harmless the Releasees from (a) any and all claims, loss, liability, damages or costs by any person, firm, corporation or other entity claiming by, through or under Releasers in any capacity whatsoever, including all subrogation claims and/or claims for reimbursement, including any court costs and attorney's fees, that may incur due to Releasers use of or presence in and on Pawtucket School Department and/or City of Pawtucket property; and (b) any and all legal actions, including third-party actions, cross-actions, and/or claims for contribution and/or indemnity with respect to any claims by any other persons, entities, parties, which relate to or arise out of Releasers use of or presence in and on Pawtucket School Department and/or City of Pawtucket property.

The Releasers acknowledge the risks that may be involved, and hazards connected with use of or presence in and on Pawtucket School Department and/or City of Pawtucket property but elect to provide services under any contract with the Pawtucket School Department and/or City of Pawtucket with full knowledge of such risks. Releasers also acknowledge that any loss, damage, and/or injury sustained by Releasers are not covered by Releasees insurance. Releasers agree to become fully aware of any safety risks involved with the performance of services under any contract with the Pawtucket School Department and/or City of Pawtucket and any safety precautions that need to be followed and agree to take all such precautions.

The duty to indemnify and/or hold harmless the Pawtucket School Department and/or City of Pawtucket shall not be limited by the insurance required by the Contract Documents.

7.0 - Additional Insurance Requirements

In addition to the insurance provisions in the Contract Documents, the liability insurance coverage, except Professional Liability, Errors and Omissions or Workers' Compensation insurance required for performance of a contract with the Pawtucket School Department and/or City of Pawtucket shall include the Pawtucket School Department, City of Pawtucket, its divisions, officers and employees, the Architect and OPM as Additional Insureds but only with respect to the selected bidder's activities under the contract. The insurance required through a policy or endorsement shall include:

A. a Waiver of Subrogation waiving any right to recovery the insurance company may have against the Pawtucket School Department and/or City of Pawtucket; and

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PAWTUCKET SCHOOL DEPARTMENT C2022-019 Goff MS Window Replacement B. a provision that the selected vendor's insurance coverage shall be primary with respect to any insurance, self-insurance or self-retention maintained by the Pawtucket School Department and/or City of Pawtucket and that any insurance, self-insurance or self-retention maintained by the Pawtucket School Department and/or City of Pawtucket School Department and/or City of Pawtucket shall be in excess of the selected vendor's insurance and shall not contribute.

There shall be no cancellation, material change, potential exhaustion of aggregate limits or nonrenewal without thirty (30) days written notice from the selected vendor or its insurer(s) to the Pawtucket School Department's Chief Financial Officer. Any failure to comply with the reporting provision of this clause shall be grounds for immediate termination of the contract with the Pawtucket School Department and/or City of Pawtucket.

Insurance coverage required under the contract shall be obtained from insurance companies acceptable to the Pawtucket School Department. The selected vendor shall pay for all deductibles, self-insured retentions and/or self-insurance included hereunder.

The Pawtucket School Department's Chief Financial Officer reserves the right to consider and accept alternative forms and plans of insurance or to require additional or more extensive coverage for any individual requirement.

8.0 - Proposal Content and Organization

Pricing must include all costs as specified in this solicitation. Pricing for this proposal must be indicated on the Bid Forms in Sections 11.0, 12.0 and 13.0 and must be submitted in a separate, sealed envelope labeled as previously stated above.

All Bid Forms must be signed.

If any subcontractors are to be used in the performance of any work contracted for under this RFP, please list their name(s), contractor license #, address and phone number, and specific description of the subcontract work to be performed.

Four (4) copies of your proposal, one (1) original and three (3) copies, must be submitted at the time of submission. As well as one (1) electronic copy on a flash drive.

Please state any and all additions, deletions, and exceptions, if any, that you are taking to any portion of this proposal. If not addressed specifically, the Pawtucket School Department assumes that the bidder will adhere to all terms and conditions listed in this RFP.

9.0 - Evaluation Criteria

The evaluation of proposals will be conducted in an expeditious time frame convenient to the Pawtucket School Department.

The Pawtucket School Department reserves the right to award on the basis of cost alone, accept or reject any or all proposals, and to otherwise act in its best interest. Further, the Pawtucket School Department reserves the right to waive irregularities it may deem minor in its consideration of proposals.

Proposals will be evaluated in three (3) phases:

- 1. The first phase is an initial review to determine if the proposal, as submitted, is complete. To be complete, a proposal must meet all the requirements of this RFP.
- 2. The second phase is an in-depth analysis and review based on criteria below and their associated weights.

Evaluation Criteria	Importance
Experience/Qualifications, compliance MBE participation and inclusion of Pawtucket Businesses for both the General Contractor and Sub-Contractors	35%
References	35%
Cost	30%

3. The third is a comparison of each proposal's weighted evaluation relative to the costs proposed.

In the event that the Pawtucket School Department requires further information and/or a demonstration of any equipment or process offered in any proposal, all vendors asked for same will do so at no cost to the Pawtucket School Department.

10.0 - Miscellaneous

Bidders shall at all times comply with all federal, state, and local laws, ordinances and regulations and shall defend, indemnify and save harmless the Pawtucket School Department and/or City of Pawtucket against any claims arising from the violation of any such laws, ordinances and regulations, including but not limited to challenges as to the legality of any and all vendor installations.

The Pawtucket School Department is exempt from the payment of the Rhode Island State Sales Tax under the 1956 General Laws of the State of Rhode Island, 44-18-30, Paragraph 1, as amended. Further, the Pawtucket School Department is also exempt from the payment of any excise or federal transportation taxes. The proposal prices submitted must be exclusive of same, and will be so construed.

The Pawtucket School Department reserves the right to cancel an agreement with the bidder with thirty (30) days written notice and to award the contract to the next highest evaluated bidder.

Political Contributions: The General Contractor shall provide a list of all political contributions, made directly or indirectly to any candidate for municipal office in the City of Pawtucket, by the Owner, its key staff, its subcontractors and their key staff for the last five (5) years.

11.0 – Bid Form

C2022-019 Lyman Goff Middle School Window Replacement

Date:

Submitted By:

(Include Name, Address and Telephone No.)

Name and remittance address that will appear on invoices:

Physical address of business:

General Information

Is your firm a sole proprietorship doing business under a different name? _	Yes	_No
If yes, please indicate sole proprietorship, a name, and the name you are do	oing business	under.

PAWTUCKET SCHOOL DEPARTMENT	00100	15
If so, please explain below:		
Will any of the work spelled out in this bid be	outsourced?Yes	No
Is your firm incorporated?YesNo		

SECTION 001000 - BID/SOLICITATION INFORMATION

Have you or your firm been subject to suspension, debarment or criminal conviction by the Pawtucket School Department and/or City of Pawtucket, the State of Rhode Island, or any other jurisdiction?

Yes: _____ No: _____

Have the Pawtucket School Department and/or City of Pawtucket and/or the State of Rhode Island ever terminated contracts with your firm for cause?

Yes: _____ No: _____

Has your firm ever withdrawn from a contract with the Pawtucket School Department and/or City of Pawtucket and/or the State of Rhode Island during its performance? Yes: _____ No: _____

Have you or your firm been involved in litigation against the Pawtucket School Department and/or City of Pawtucket and/or the State of Rhode Island.

Yes: _____ No: _____

If you answered yes to any of the foregoing, please explain the circumstances below. If you or your firm has been involved in litigation against the Pawtucket School Department and/or City of Pawtucket and/or the State of Rhode Island, please include the case caption, case number and status. (If more space is needed, please attach separate sheet and submit with the bid.)

Is your company bonded? Yes ____ No ____

Please describe the nature and extent of all insurance coverage:

MBE Participation

MBE%	
Project Total Value	\$
Amount going to MBE	\$
Pawtucket Businesses Participation	
Company Name:	
Pawtucket Businesses Participation	<u> % </u>
Project Total Value	\$
Amount going to Pawtucket Businesses	\$

<u>Addenda</u>

The following Addenda have been received. The noted modifications to the Bidding Documents have been considered and all costs are included in the Bid Sum.

Addendum #1, Dated:_____

Addendum #2, Dated:_____

Addendum #3, Dated:_____

Addendum #4, Dated:_____

Pricing Proposal

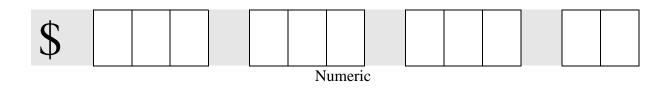
C2022-019: Lyman Goff Middle School Window Replacement

Having examined the bid documents, we propose to enter into a contract to perform services per the bid specifications for the costs listed below:

A.

BASE BID:

Having carefully examined Contract Documents listed in The Project Manual, and consisting of Instructions to Bidders, all drawings, the entire project manual inclusive of but not limited to, 000402 Tax Exemption, 005001 AIA A101 Agreement between Owner & Contractor (modified), 005002 AIA A201 General Conditions of the Contract for Construction (modified), 005004 Work Practices, 015733 Temporary Indoor Air Quality Control, 017419 Construction Waste Management and Disposal, 018113 Sustainable Design Requirements, all Addenda as specifically listed below, and having examined the site and being familiar with conditions affecting work, Undersigned proposes to furnish materials and labor and perform Construction work as indicated with a hundred 100% payment and performance bond to complete the Pawtucket School Department C2022-015 Project work as called for by Bidding Documents for the Stipulated Sum of:



Written

Undersigned agrees above stipulated sum is firm price including applicable taxes and is not subject to extras or escalator clauses.

B. ALTERNATES:

- A. Definition: An alternate is an amount proposed by Bidders and stated on the Bid Form that will be added or deleted to the Base Bid amount if the Owner decides to accept a corresponding change in either scope of work or in products, materials, equipment, systems or installation methods described in contract documents.
 - 1. Owner acceptance of the change shall constitute the "exercise" of the alternate.
 - 2. The Owner shall have sole discretion as to whether to exercise the alternate or not and shall bear no liability to the bidder for the exercise or non-exercise of the alternate.
- B. Performance Period: Should the Owner exercise any or all of the alternates, the work included in each alternate shall be performed concurrently with the base contract work. There shall be no extension in contract performance time with the exercise of any or all alternates.
- C. Coordination:
 - 1. Coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each accepted alternate is complete and fully integrated into the project.
 - 2. Each alternate description may include certain work which must be included in the Base Bid to make the work complete IF the particular alternates are NOT exercised. The work shown on the drawings and described below as part of the alternate shall be priced separately and listed in the appropriate place on the Bid Form, and should NOT be included in the Base Bid. The option price is the difference between the work described in the alternate and the work included in the Base Bid.
 - 3. All bidders shall provide a price for each alternate in the place provided on the Bid Form.
- D. Notification: Immediately following award of contract, prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, or rejected.
- E. Schedule: A "Schedule of Alternates" is included at the end of this section. Specification sections referenced in the schedule contain requirements for materials and methods necessary to achieve the work described under each alternate.
 - 1. Include as part of each alternate, miscellaneous devices, appurtenances and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

- 2. Include as part of the price of each alternate all costs attributable to project General Conditions, Supplementary Conditions, Division 1 Requirements, overhead and profit. No additional payments will be made by the Owner for the work of any alternate which is exercised beyond the Alternate Price listed, except in accordance with contract provisions related to Changes in the Work.
- 3. Include as part of the base Bid all work identified in each description as Base Bid work. The items so designated constitute the work required to make the total project complete IF the alternate is Not exercised by the Owner.
- F. Please see below Alternates : NOT USED.

1.02 ALLOWANCES/UNIT PRICES

The following amounts will be included in the Bid:

- A. Definition: An allowance where stipulated on the Drawings or the Bid Form is a sum of money which is to be used on the project at the discretion of the Owner's Representative for purposes that are undefined due to unknown conditions at the time of the Contract date. At the completion of the project, the unused portion of the Allowance is to be deducted from the contract sum.
- B. Definition: A Unit Price where stipulated on the Bid Form is the cost of a particular material to be provided and installed on site and includes all costs of labor and material to be either added to or deducted from the Contract Sum. A summary of the material changes, their locations in sketch form will be submitted to the Architect for approval. Change Orders resulting from unit pricing will not be approved without the Owner's prior approval in written form.

1. Allow cost to repair 100 square feet of damaged concrete. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price for concrete repair. This allowance is for work beyond that shown in the drawings.

\$

Cost for 100 square feet

In words

Per S.F.

2. Allow cost to repair 60 linear feet of cracked concrete. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price for concrete crack repair. This allowance is for work beyond that shown in the drawings.

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Cost for 60 linear feet

In words

Per L.F.

3. Allow cost to repair 120 linear feet of cracked stone. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price for stone crack repair. This allowance is for work beyond that shown in the drawings.

5. Allow cost to remove and replace 20 units of cracked brick masonry and mortar to match existing. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price for brick masonry unit and mortar. This allowance is for work beyond that shown in the drawings.

\$ _____ Cost for 20 units

In words

Per unit

6. Allow cost to remove and replace 5 board units of wood trim. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price for board unit of wood trim at 1" thick by 6" wide by 10' long. This allowance is for work beyond that shown in the drawings.

\$_

Cost for 5 boards

In words

Per board unit

7. Allow cost to remove and replace 120 linear feet of backer rod and sealant. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price for linear foot of joint. This allowance is for work beyond that shown in the drawings.

\$_____

Cost for 120 linear feet

In words

Per L.F.

8. Allow cost to repair 80 square feet of plaster walls and ceilings beyond that required for window reinstallation as detailed. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price for plaster base and skim coat. This allowance is for work beyond that shown in the drawings.

\$ ____

Cost for 80 square feet In words Per S.F.

9. Allow cost to surface prep and re-paint 80 square feet of plaster walls and ceilings beyond that required for window reinstallation as detailed. The unused allowance shall be

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PAWTUCKET SCHOOL DEPARTMENT C2022-019 Goff MS Window Replacement

reimbursed to the owner or added to the contract at the unit price listed. Allow unit price for surface prep and re-painting. This allowance is for work beyond that shown in the drawings.

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Cost for 80 square feet

In words

Per S.F.

10. Allow cost to remove and reinstall existing outlet and up to 20' of wiring and conduit back to a new junction box. The unused allowance shall be reimbursed to the owner or added to the contract at the unit price listed. Provide unit price per outlet. This allowance is for work beyond that shown in the drawings.

\$

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Cost for 10 outlets

In words

Per outlet

11. Allow cost to replace existing damaged laminate sills with new Corian sills. The unused لىسىسى allowance shall be reimbursed to the owner or added to the contract at the unit price listed. **Provide** unit price per square foot. This allowance is for work beyond that shown in the drawings. 3

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Cost for 800 square feet	In words	Per S.F.	3
	·····		unn

E. ADDENDA:

Undersigned certifies that the Base Bid includes Addenda listed below and they are hereby acknowledged as having been received and carefully reviewed by the Bid Due Date:

Addendum No.	Dated:
Addendum No.	Dated:
Addendum No.	Dated:
Addendum No.	Dated:

F. PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND:

Cost for providing Performance and Labor and Materials Payment Bond for the sum of the General Contractor's change orders:

Add	_% of Total Construction Value from \$	_ to maximum of \$
Add	_% of next Total Construction Value from \$	to maximum of \$

Add____% of next Total Construction Value from \$_____ to maximum of \$_____.

G. LABOR AND MATERIAL RATES:

Labor: Unit rates shall be listed for major trades such as, but not limited to, abatement, carpenters, laborers, masons, heavy equipment operators, operators, electricians, HVAC technicians, Foreman/Supervisor for each trade, site superintendent and any other major trade employed in the completion of the Work. Labor rates shall include all overhead, profit, insurance and supervision costs, and shall not be subject to any further markups when utilized in the computation of a Change Order amount. The Owner reserves the right to request additional labor rates. Use additional pages if space provided below is not sufficient.

Trade: Laborer Foreman Rate:	\$ per hour
Trade: Laborer Rate:	per hour
Trade: Carpenter Foreman Rate:	per hour
Trade: Carpenter Rate:	per hour
Trade: Gypsum (Tape/ sand) Foreman Rate:	per hour
Trade: Gypsum (Tape/ sand) Rate:	per hour
Trade: Electrical Foreman Rate:	per hour
Trade: Electrical Journeyman Rate:	\$ per hour
Trade: Electrical Apprentice Rate:	\$ per hour
Trade: Fire Alarm Foreman Rate:	\$ per hour
Trade: Fire Alarm Rate:	per hour
Trade: HVAC Foreman Rate:	\$ per hour
Trade: HVAC Rate:	per hour
Trade: Plumbing Foreman Rate:	\$ per hour
Trade: Plumber Rate:	\$ per hour
Trade: ATC Foreman Rate:	per hour
Trade: ATC Design Engineer Rate:	\$ per hour
Trade: ATC Programmer Rate:	\$ per hour
Trade: ATC Technician Rate:	per hour
Trade: Pipe Fitter Rate:	\$ per hour
Trade: Sheet Metal Foreman Rate:	\$ per hour
Trade: Sheet Metal Worker Rate:	\$ per hour
Trade: Insulator Foreman Rate:	\$ per hour
Trade: Insulator Rate:	\$ per hour
Trade: Flooring Foreman Rate:	per hour
Trade: Flooring Installer Rate:	per hour

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Trade: Painting Foreman Rate:	\$	per hour
Trade: Painter Rate:	\$	per hour
Trade: Abatement Foreman Rate:	\$	per hour
Trade: Abatement Laborer Rate:	\$	per hour
Trade: Roofing Foreman Rate:	\$	per hour
Trade: Roofer Rate:	\$	per hour
Include additional trade labor rates below:		
Trade:	Rate: \$	per hour
Trade:	Rate: \$	per hour
Trade:	Rate: \$	per hour
Trade:	Rate: \$	per hour
Trade:	Rate: \$	per hour
Trade:	Rate: \$	per hour
Trade:	Rate: \$	per hour
Trade:	Rate: \$	per hour

Material and Equipment: Material and equipment charges used to compute Contract Change Orders will be based on original supplier invoices and a standard markup of ten Percent (10%).

These standard markups shall include all administrative and delivery and handling charges and shall not be subject to any further mark-up.

H. FEE FOR CHANGES IN THE WORK:

The total mark-up for each change shall not exceed 15% (10% for overhead + 5% for profit). For changes where the work is performed totally by the Undersigned Bidder's direct forces, the 15% mark-up shall be assigned to the Undersigned Bidder as the prime contractor. For work performed by a subcontractor(s), a maximum of 10% mark-up will be assigned to all subcontractors and/or sub-subcontractors performing work and 5% will be assigned to the Undersigned Bidder and prime contractor. Unit labor costs are all-inclusive of all OH&P and shall not be subject to further mark-up. The change order mark-ups include all overhead, coordination, bond, insurance, profit and supervision costs, and these items shall not be subject to any further markups when utilized in the computation of a Change Order amount.

For changes which add additional time to the contract completion date, the General Conditions cost impact shall be as listed on the schedule of unit rates above. The unit rate for the general conditions associated with the time extension shall be inclusive of all direct and indirect costs and fees, including but not limited to all overhead, coordination, bond, insurance, cleaning, site support, management, profit and supervision costs, and shall not be subject to any further markups when utilized in the computation of a Change Order. Unit rate shall be for one (1) additional work day.

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I. OTHER CERTIFICATIONS:

Undersigned agrees to execute Contract for above work for the above stipulated sum provided that he be notified of acceptance of bid within ninety (30) days after time set for the receipt of bids. Undersigned agrees to execute contract and deliver it to the Owner.

Undersigned agrees by submission of this bid that the bidder is the only interested party submitting this bid, that the Contract Documents are incorporated herein, that there is no collusion, and the contract will not be assigned with written consent of the Owner.

Undersigned certifies that included within their bid are only employees and subcontractor employees that will be employed at the worksite that have successfully completed and obtained certification in a course in construction safety and health approved by the United States Occupational Safety and Health Administration as required by the laws of the state.

Undersigned certifies that it has provided the Bid Security Bond properly executed following items with this bid form.

Undersigned certifies, under penalty of perjury, that to the best of his knowledge and belief that:

The prices in this Bid have been arrived at independently without collusion, consultation, communication or agreement with any other Bidder or competition on any matter whatsoever for the purpose of restricting competition;

Except as may be required by law, prices quoted in this Bid have not been knowingly disclosed prior to the opening of Bids; and

No attempt has been made nor will be made by the Bidder to induce any other person, partnership, or corporation to submit or to refrain from submitting a Bid for this Project.

Undersigned represents to Owner that it has the labor, machinery, equipment, supplies, and credit to meet the schedule completion requirements more specifically enumerated in the Section 10000 – General Requirements.

Firm:		
Authorized Representative:		
Title:		
Signature:		
Date:		
	(Corp. Seal)	(Notary Seal)

Appendix A

ANTI-KICKBACK ACKNOWLEDGMENT

ALL BIDDERS/OFFERORS MUST ATTEST TO THE FOLLOWING:

The vendor acknowledges, under the pains and penalties of perjury, that he/she has not been offered, paid, or solicited for any contribution or compensation, nor has he/she been granted a gift, gratuity, or other consideration, either directly or indirectly by any officer, employee or member of the governing body of the Pawtucket School Department and/or City of Pawtucket who exercises any functions or responsibilities in connection with either the award or execution of the project to which this contract pertains.

Further, the vendor acknowledges, under the pains and penalties of perjury, that he/she has not offered, paid, or solicited by way of any contribution or compensation, nor has he/she granted a gift, gratuity or other consideration either directly or indirectly to any officer, employee, or member of the governing body of the Pawtucket School Department and/or City of Pawtucket who exercises any functions or responsibilities in connection with either the award or execution of the project to which this project or contract pertains.

SIGNATURE OF OFFEROR

DATE

TITLE

COMPANY

Title of RFP:

ORIGINAL: AUGUST/2001

PAWTUCKET SCHOOL DEPARTMENT C2022-019 Goff MS Window Replacement REVISED: APRIL/2006

Appendix B

CITY OF PAWTUCKET GENERAL TERMS AND CONDITIONS OF PURCHASE

Preamble

The City of Pawtucket's Purchasing Office may, from time to time, make amendments to the General Terms and Conditions when the City of Pawtucket's Purchasing Agent determines that such amendments are in the best interest of the City of Pawtucket. Amendments shall be made available for public inspection at the Purchasing Office located in Pawtucket City Hall but shall not require formal public notice and hearing. Copies of the Terms and Conditions shall be provided to any individual or firm requesting them.

CITY OF PAWTUCKET'S PURCHASING OFFICE GENERAL CONDITIONS OF PURCHASE

All City of Pawtucket purchase orders, contracts, solicitations, delivery orders and service requests shall incorporate and be subject to the provisions of Rhode Island General Laws 8-15-4 and the City of Pawtucket purchasing rules and regulations adopted pursuant thereto, all other applicable provisions of the Rhode Island General Laws, the Pawtucket City Charter, specific requirements described in the Request or Contract, and the following General Conditions of Purchase:

1. GENERAL

All purchase orders, contracts, solicitations, delivery orders, and service requests are for specified goods and services, in accordance with express terms and conditions of purchase, as defined herein. For the purposes of this document, the terms "bidder" and "contractor" refer to any individual, firm, corporation, or other entity presenting a proposal indicating a desire to enter into contracts with the City of Pawtucket, or with whom a contract is executed by the City of Pawtucket's Purchasing Agent, and the term "contractor" shall have the same meaning as "vendor".

2. ENTIRE AGREEMENT

The City of Pawtucket's Purchase Order, or other City of Pawtucket contract endorsed by the City of Pawtucket Purchasing Office, shall constitute the entire and exclusive agreement between the City of Pawtucket and any contractor receiving an award. In the event any conflict between the bidder's standard terms of sale, these conditions or more specific provisions contained in the solicitation shall govern.

All communication between the City of Pawtucket and any contractor pertaining to any award or contract shall be accomplished in writing.

- a. Each proposal will be received with the understanding that the acceptance, in writing, by contract or Purchase Order by the City of Pawtucket Purchasing Agent of the offer to do work or to furnish any or all the materials, equipment, supplies or services described therein shall constitute a contract between the bidder and the City of Pawtucket. This shall bind the bidder on his part to furnish and deliver at the prices and in accordance with the conditions of said accepted proposal and detailed specifications and the City of Pawtucket on its part to order from such contractor (except in case of emergency) and to pay for at the agreed prices, all materials, equipment, supplies or services specified and delivered. A contract shall be deemed executory only to the extent of funds available for payment of the amounts shown on Purchase Orders issued by the City of Pawtucket to the contractors.
- No alterations or variations of the terms of the contract shall be valid or binding upon the City of Pawtucket unless submitted in writing and accepted by the City of Pawtucket Purchasing Agent. All orders and changes thereof must emanate from the City of Pawtucket Purchasing Office: no oral agreement or arrangement made by a contractor with a department or employee will be considered to be binding on the City of Pawtucket Purchasing Agent, and may be disregarded.
- c. Contracts will remain in force for the contract period specified or until all articles or services ordered before date of termination shall have been satisfactorily delivered or rendered and accepted and thereafter until all terms and conditions have been met, unless:
 - 1. terminated prior to expiration date by satisfactory delivery against orders of entire quantities, or

PAWTUCKET SCHOOL DEPARTMENT C2022-019 Goff MS Window Replacement

- 2. extended upon written authorization of the City of Pawtucket Purchasing Agent and accepted by the contractor, to permit ordering of the unordered balances or additional quantities at the contract price and in accordance with the contract terms, or
- 3. canceled by the City of Pawtucket in accordance with other provisions stated herein.
 - d. It is mutually understood and agreed that the contractor shall not assign, transfer, convey, sublet or otherwise dispose of this contract or his right, title or interest therein, or his power to execute such contract, to any other person, company or corporation, without the previous consent, in writing, of the City of Pawtucket Purchasing Agent.
 - e. If, subsequent to the submission of an offer or issuance of a purchase order or execution of a contract, the bidder or contractor shall merge with or be acquired by another entity, the contract may be terminated, except as a corporate resolution prepared by the contractor and the new entity ratifying acceptance of the original bid or contract terms, condition, and pricing is submitted to the City of Pawtucket Purchasing Office, and expressly accepted.
 - f. The contractor or bidder further warrants by submission of an offer or acceptance of a purchase order or other contract that he has no knowledge at the time of such action of any outstanding and delinquent or otherwise unsettled debt owed by him to the City of Pawtucket, and agrees that later discovery by the City of Pawtucket Purchasing Agent that this warranty was given in spite of such knowledge, except where the matter is pending in hearing or from any appeal therefrom, shall form reasonable grounds for termination of the contract.

3. SUBCONTRACTS

No subcontracts or collateral agreements shall be permitted, except with the City of Pawtucket's express written consent. Upon request, contractors must submit to the City of Pawtucket Purchasing Office a list of all subcontractors to be employed in the performance of any Purchase Order or other contract arising from this Request.

4. RELATIONSHIP OF PARTIES

The contractor or bidder warrants, by submission of an offer or acceptance of a purchase order or other contract, that he is not an employee, agent, or servant of the City of Pawtucket, and that he is fully qualified and capable in all material regards to provide the specified goods and services. Nothing herein shall be construed as creating any contractual relationship or obligation between the City of Pawtucket and any subbidder, subcontractor, supplier, or employee of the contractor or offeror.

5. COSTS OF PREPARATION

All costs associated with the preparation, development, or submission of bids or other offers will be borne by the offeror. The City of Pawtucket will not reimburse any offeror for such costs.

6. SPECIFIED QUANTITY REQUIREMENT

Except where expressly specified to the contrary, all solicitations and contracts are predicated on a specified quantity of goods or services, or for a specified level of funding.

- a. The City of Pawtucket reserves the right to modify the quantity, scope of service, date of delivery or completion, or funding of any contract, with no penalty or charge, by written notice to the contractor, except where alternate terms have been expressly made a part of the contract.
- b. The City of Pawtucket shall not accept quantities in excess of the specified quantity except where the item is normally sold by weight (where sold by weight, the City of Pawtucket will not accept quantities greater than ten per cent [10%] of the specified quantity), or where the Request or Contract provides for awards for other than exact quantities.
- c. Purchase Orders or other contracts may be increased in quantity or extended in term without subsequent solicit with the mutual consent of the contractor and the City of Pawtucket, where determined by the City of Pawtucket Purchasing Agent to be in the City of Pawtucket's best interest.

7. TERM AND RENEWAL

Where offers have been requested or contracts awarded for terms exceeding periods of twelve (12) months, it is mutually understood and agreed that the City of Pawtucket's commitment is limited to a base term not to exceed twelve (12) months, subject to renewal annually at the City of Pawtucket's sole option for successive terms as otherwise described, except where expressly specified to the contrary. Purchase orders appearing to commit to obligations of funding or terms of performance may be executed for administrative convenience, but are otherwise subject to this provision, and in such cases the City of Pawtucket's renewal shall be deemed to be automatic, conditional on the continued availability of appropriated funds for the purpose, except as written notice of the City of Pawtucket's intent not to renew is served.

8. DELIVERY/COMPLETION

Delivery must be made as ordered and/or projects completed in accordance with the proposal. If delivery qualifications do not appear on the bidder's proposal, it will be interpreted to mean that goods are in stock and that shipment will be made within seven (7) calendar days. If the project completion date is not specified in the proposal, the date shall be determined by the City of Pawtucket Purchasing Agent. The decision of the City of Pawtucket Purchasing Agent, as to reasonable compliance with the delivery terms, and date of completion shall be final. Burden of proof of delay in receipt of order shall rest with the contractor. No delivery charges shall be added to invoices except when authorized on the Purchase Order.

9. FOREIGN CORPORATIONS

In accordance with Title 7 Chapter 1.1 ("Business Corporations") of the General Laws of Rhode Island, no foreign corporation shall have the right to transact business in this state until it shall have procured a certificate of authority so to do from the Secretary of State.

10. PRICING

All pricing offered or extended to the City of Pawtucket is considered to be firm and fixed unless expressly provided for to the contrary. All prices shall be quoted F.O.B. Destination with freight costs included in the unit cost to be paid by the City of Pawtucket, except, where the Request or Contract permits, offers reflecting F.O.B. Shipping Point will be considered, and freight costs may then be prepaid and added to the invoice.

11. COLLUSION

Bidder or contractor warrants that he has not, directly or indirectly, entered into any agree participated in any collusion or otherwise taken any action in restraint of full competitive bidding. In special circumstances, an executed affidavit will be required as a part of the bid.

12. PROHIBITION AGAINST CONTINGENT FEES AND GRATUITIES

Bidder or contractor warrants that he has not paid, and agrees not to pay, any bonus, commission, fee, or gratuity to any employee or official of the City of Pawtucket for the purpose of obtaining any contract or award issued by the City of Pawtucket. Bidder or contractor further warrants that no commission or other payment has been or will be received from or paid to any third party contingent on the award of any contract by the City of Pawtucket, except as shall have been expressly communicated to the City of Pawtucket Purchasing Agent in writing prior to acceptance of the contract or award in question. Subsequent discovery by the City of Pawtucket of non-compliance with these provisions shall constitute sufficient cause for immediate termination of all outstanding contracts and suspension or debarment of the bidder(s) or contractor(s) involved.

13. AWARDS

Awards will be made with reasonable promptness and by written notice to the successful bidder (only); bids are considered to be irrevocable for a period of ninety (90) days following the bid opening unless expressly provided for to the contrary in the Request, and may not be withdrawn during this period without the express permission of the City of Pawtucket Purchasing Agent.

a. Awards shall be made to the bidder(s) whose offer(s) constitutes the lowest responsive price offer (or lowest responsive price offer on an evaluated basis) for the item(s) in question or for the Request as a whole, at the option of the City of Pawtucket. The City of Pawtucket reserves the right to

determine those offers which are responsive to the Request, or which otherwise serve its best interests.

- b. The City of Pawtucket reserves the right, before making award, to initiate investigations as to whether or not the materials, equipment, supplies, qualifications or facilities offered by the bidder meet the requirements set forth in the proposal and specification, and are ample and sufficient to insure the proper performance of the contract in the event of award. If upon such examination it is found that the conditions of the proposal are not complied with or that articles or equipment proposed to be furnished do not meet the requirements called for, or that the qualifications or facilities are not satisfactory, the City of Pawtucket may reject such a bid. It is distinctly understood, however, that nothing in the foregoing shall mean or imply that it is obligatory upon the City of Pawtucket to make any examinations before awarding a contract; and it is further understood that if such examination is made, it in no way relieves the contractor from fulfilling all requirements and conditions of the contract.
- c. Qualified or conditional offers which impose limitations of the bidder's liability or modify the requirements of the bid, offers for alternate specifications, or which are made subject to different terms and conditions than those specified by the City of Pawtucket may, at the option of the City of Pawtucket, be
 - 1. rejected as being non-responsive, or
 - 2. set aside in favor of the City of Pawtucket's terms and conditions (with the consent of the bidder), or
 - 3. accepted, where the City of Pawtucket Purchasing Agent determines that such acceptance best serves the interests of the City of Pawtucket.

Acceptance or rejection of alternate or counter-offers by the City of Pawtucket shall not constitute a precedent which shall be considered to be binding on successive solicitations or procurements.

- d. Bids submitted in pencil, or which do not bear an original signature, in ink, by an owner or authorized agent thereof, will not be accepted.
- e. Bids must be extended in the unit of measure specified in the Request. In the event of any discrepancy between unit prices and their extensions, the unit price will govern.
- f. The City of Pawtucket Purchasing Agent reserves the right to determine the responsibility of any bidder for a particular procurement.
- g. The City of Pawtucket Purchasing Agent reserves the right to reject any and all bids in whole or in part, to waive technical defects, irregularities, and omissions, and to give consideration to past performance of the offerors where, in his judgment the best interests of the City of Pawtucket will be served by so doing.
- h. The City of Pawtucket Purchasing Agent reserves the right to make awards by items, group of items or on the total low bid for all the items specified as indicated in the detailed specification, unless the bidder specifically indicates otherwise in his bid.
- i. Preference may be given to bids on products raised or manufactured in the City of Pawtucket or State of Rhode Island, other things being equal.
- j. The impact of discounted payment terms shall not be considered in evaluating responses to any Request.
- k. The City of Pawtucket Purchasing Agent reserves the right to act in the City of Pawtucket's best interests regarding awards caused by clerical errors by the City of Pawtucket Purchasing Office.

14. SUSPENSION AND DEBARMENT

The City of Pawtucket Purchasing Agent may suspend or debar any vendor or potential bidder, for good cause shown:

a. A debarment or suspension against a part of a corporate entity constitutes debarment or suspension of all of its divisions and all other organizational elements, except where the action has been specifically limited in scope and application, and may include all known corporate affiliates of a contractor, when such offense or act occurred in connection with the affiliate's performance of duties for or on behalf of the contractor, or with the knowledge, approval, or acquiescence of the contractor or one or more of its principals or directors (or where the contractor otherwise participated in, knew of, or had reason to know of the acts).

- b. The fraudulent, criminal or other serious improper conduct of any officer, director, shareholder, partner, employee, or any other individual associated with a contractor may be imputed to the contractor when the conduct occurred in connection with the individual's performance of duties for or on behalf of the contractor, or with the contractor's knowledge, approval or acquiescence. The contractor's acceptance of benefits derived from the conduct shall be evidence of such knowledge, approval, or acquiescence.
- c. A vendor or contractor who knowingly engages as a subcontractor for a contract awarded by the City of Pawtucket to a vendor or contractor then under a ruling of suspension or debarment by the City of Pawtucket shall be subject to disallowance of cost, annulment or termination of award, issuance of a stop work order, or debarment or suspension, as may be judged to be appropriate by the City of Pawtucket's Purchasing Agent.

15. PUBLIC RECORDS

Contractors and bidders are advised that certain documents, correspondence, and other submissions to the City of Pawtucket's Purchasing Office may be voluntarily made public by the City of Pawtucket absent specific notice that portions of such submittals may contain confidential or proprietary information, such that public access to those items should be withheld.

16. PRODUCT EVALUATION

In all specifications, the words "or equal" are understood after each article when manufacturer's name or catalog are referenced. If bidding on items other than those specified, the bidder must, in every instance, give the trade designation of the article, manufacturer's name and detailed specifications of the item the bidder proposes to furnish; otherwise, the bid will be construed as submitted on the identical commodity described in the detailed specifications. The City of Pawtucket's Purchasing Agent reserves the right to determine whether or not the item submitted is the approved equal the detailed specifications.

- a. Any objections to specifications must be filed by a bidder, in writing, with the City of Pawtucket's Purchasing Agent at least 96 hours before the time of bid opening to enable the City of Pawtucket's Purchasing Office to properly investigate the objections.
- b. All standards are minimum standards except as otherwise provided for in the Request or Contract.
- c. Samples must be submitted to the City of Pawtucket's Purchasing Office in accordance with the terms of the proposals and detailed specifications. Samples must be furnished free of charge and must be accompanied by descriptive memorandum invoices indicating whether or not the bidder desires their return and specifying the address to which they are to be returned (at the bidder's risk and expense), provided they have not been used or made useless by tests; and absent instructions, the samples shall be considered to be abandoned. Award samples may be held for comparison with deliveries.
- d. All samples submitted are subject to test by any laboratory the City of Pawtucket's Purchasing Agent may designate.

17. PRODUCT ACCEPTANCE

All merchandise offered or otherwise provided shall be new, of prime manufacture, and of first quality unless otherwise specified by the City of Pawtucket. The City of Pawtucket reserves the right to reject all nonconforming goods, and to cause their return for credit or replacement, at the City of Pawtucket's option. Contract deliverables specified for procurements of services shall be construed to be work products, and subject to the provisions of this section.

- a. Failure by the City of Pawtucket to discover latent defect(s) or concealed damage or nonconformance shall not foreclose the City of Pawtucket's right to subsequently reject the goods in question.
- b. Formal or informal acceptance by the City of Pawtucket of non-conforming goods shall not constitute a precedent for successive receipts or procurements.
- c. Where the contractor fails to promptly cure the defect or replace the goods, the City of Pawtucket reserves the right to cancel the Purchase Order, contract with a different contractor, and to invoice the original contractor for any differential in price over the original contract price.
- d. When materials, equipment or supplies are rejected, the same must be removed by the contractor from the premises of the City of Pawtucket within forty-eight (48) hours of notification. Rejected

items left longer than two days will be regarded as abandoned and the City of Pawtucket shall have the right to dispose of them as its own property.

18. PRODUCT WARRANTIES

All product or service warranties normally offered by the contractor or bidder shall accrue to the City of Pawtucket's benefit, in addition to any special requirements which may be imposed by the City of Pawtucket. Every unit delivered must be guaranteed against faulty material and workmanship for a period of one year unless otherwise specified, and the City of Pawtucket may, in the event of failure, order its replacement, repair, or return for full credit, at its sole option.

19. PAYMENT

Unless otherwise provided for by the Request or Contract, payment shall not be made until delivery has been made, or services performed, in full, and accepted. Payment shall not be due prior to thirty (30) working days following the latest of completion, acceptance, or the rendering of a properly submitted invoice.

- a. Payment terms other than the foregoing may be rejected as being nonresponsive.
- b. No partial shipments, or partial completion will be accepted, unless provided for by the Request or Contract.
- c. Where a question of quality is involved, or failure to complete a project by the specified due date, payment in whole or part against which to charge back any adjustment required, shall be withheld at the direction of the City of Pawtucket Purchasing Agent. In the event a cash discount is stipulated, the withholding of payments, as herein described, will not deprive the City of Pawtucket from taking such discount.
- d. Payments for used portion of inferior delivery or late delivery will be made by the City of Pawtucket on an adjusted price basis.
- e. Payments on contracts under architectural or engineering supervision must be accompanied by a Certificate of Payment and Statement of Account signed by the architect or engineer and submitted to the City of Pawtucket Purchasing Office for approval.

20. THIRD PARTY PAYMENTS

The City of Pawtucket recognizes no assigned or collateral rights to any purchase agreement except as may be expressly provided for in the bid or contract documents, and will not accede to any request for third party or joint payment(s), except as provided for in specific orders by a court of competent jurisdiction, or by express written permission of the City of Pawtucket's Purchasing Agent. Where an offer is contingent upon such payment(s), the offeror is obligated to serve affirmative notice in his bid submission.

21. SET-OFF AGAINST PAYMENTS

Payments due the contractor may be subject to reduction equal to the amount of unpaid and delinquent state taxes (or other just debt owed to the State), except where notice of delinquency has not been served or while the matter is pending in hearing or from any appeal therefrom.

22. CLAIMS

Any claim against a contractor may be deducted by the City of Pawtucket from any money due him in the same or other transactions. If no deduction is made in such fashion, the contractor shall pay the City of Pawtucket the amount of such claim on demand. Submission of a voucher and payment, thereof, by the City of Pawtucket shall not preclude the City of Pawtucket's Purchasing Agent from demanding a price adjustment in any case when the commodity delivered is later found to deviate from the specifications and proposal.

a. The City of Pawtucket's Purchasing Agent may assess dollar damages against a vendor or contractor determined to be non-performing or otherwise in default of their contractual obligations equal to the cost of remedy incurred by the City of Pawtucket, and make payment of such damages a condition for consideration for any subsequent award. Failure by the vendor or contractor to pay such damages shall constitute just cause for disqualification and rejection, suspension, or debarment.

23. CERTIFICATION OF FUNDING

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The Director of Finance shall provide certification as to the availability of funds to support the procurement for the current fiscal year ending June 30th only. Where delivery or service requirements extend beyond the end of the current fiscal year, such extensions are subject to both the availability of appropriated funds and a determination of continued need.

24. UNUSED BALANCES

Unless otherwise specified, all unused Blanket Order quantities and/or unexpended funds shall be automatically canceled on the expiration of the specified term. Similarly, for orders encompassing more than one fiscal year, unexpended balances of funding allotted for an individual fiscal year may be liquidated at the close of that fiscal year, at the City of Pawtucket's sole option.

25. MINORITY BUSINESS ENTERPRISES

Pursuant to the provisions of Title 37 Chapter 14.1of the General Laws, the City of Pawtucket reserves the right to apply additional consideration to offers, and to direct awards to bidders other than the responsive bid representing the lowest price where:

- a. the offer is fully responsive to the terms and conditions of the Request, and
- b. the price offer is determined to be within a competitive range (not to exceed 5% higher than the lowest responsive price offer) for the product or service, and
- c. the firm making the offer has been certified by the R.I. Department of Economic Development to be a small business concern meeting the criteria established to be considered a Minority Business Enterprise.

26. PREVAILING WAGE REQUIREMENT

In accordance with Title 37 Chapter 13 of the General Laws of Rhode Island, payment of the general prevailing rate of per diem wages and the general prevailing rate for regular, overtime and other working conditions existing in the locality for each craft, mechanic, teamster, or type of workman needed to execute this work is a requirement for both contractors and subcontractors for all public works.

27. EQUAL OPPORTUNITY COMPLIANCE, HANDICAPPED ACCESS AND AFFIRMATIVE ACTION

Contractors of the City of Pawtucket are required to demonstrate the same commitment to equal opportunity as prevails under federal contracts controlled by Federal Executive Orders 11246, 11625, 11375 and 11830, and Title 28 Chapter 5.1 of the General Laws of Rhode Island.

Affirmative action plans shall be submitted by the contractor for review by the State Equal Opportunity Office. A contractor's failure to abide by the rules, regulations, contract terms and compliance reporting provisions as established shall be grounds for forfeiture and penalties as shall be established, including but not limited to suspension.

28. DRUG-FREE WORKPLACE REQUIREMENT

Contractors who do business with the City of Pawtucket and their employees shall abide by the State's drugfree workplace policy and the contractor shall so attest by signing a certificate of compliance.

29. TAXES

The City of Pawtucket is exempt from payment of excise, transportation and sales tax imposed by the Federal or State Government. These taxes should not be included in the proposal price. Exemption Certificates will be furnished upon request.

30. INSURANCE

All construction contractors, independent tradesmen, or firms providing any type of maintenance, repair, or other type of service to be performed on City of Pawtucket premises, buildings, or grounds are required to purchase and maintain coverage with a company or companies licensed to do business in the state as follows: a. Comprehensive General Liability Insurance

- 1) Bodily Injury \$500,000 each occurrence/ \$1,000,000 annual aggregate
- Property Damage \$500,000 each occurrence /\$500,000 annual aggregate Independent Contractors

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Contractual - including construction hold harmless and other types of contracts or agreements in effect for insured operations Completed Operations

Personal Injury (with employee exclusion deleted)

Automobile Liability Insurance

Combined Single Limit not less than \$150,000 each occurrence Bodily Injury

Property Damage, and in addition non-owned and/or hired vehicles and equipment

c. Workers' Compensation Insurance

As required by the General Laws of Rhode Island.

The City of Pawtucket's Purchasing Agent reserves the right to consider and accept alternate forms and plans of insurance or to require additional or more extensive coverage for any individual requirement. Successful bidders shall provide certificates of coverage, reflecting the City of Pawtucket as an additional insured, to the City of Pawtucket Purchasing Office, forty-eight (48) hours prior to the commencement of work, as a condition of award. Failure to comply with this provision shall result in rejection of the offeror's bid.

31. BID SURETY

b.

When requested, a bidder must furnish a Bid Bond or Certified Check for 5% of his bid, or for the stated amount shown in the solicitation. Bid Bonds must be executed by a reliable Surety Company authorized to do business in the State of Rhode Island. Failure to provide Bid Surety with bid may be cause for rejection of bid. The Bid Surety of any three bidders in contention will be held until an award has been made according to the specifications of each proposal. All others will be returned by mail within 48 hours following the bid opening. Upon award of a contract, the remaining sureties will be returned by mail unless instructed to do otherwise.

32. PERFORMANCE AND LABOR AND PAYMENT BONDS

A performance bond and labor and payment bond of up to 100% of an award may be required by the City of Pawtucket's Purchasing Agent. Bonds must meet the following requirements:

- a. Corporation: The Bond must be signed by an official of the corporation above his/her official title and the corporate seal must be affixed over his/her signature.
- b. Firm or Partnership: The Bond must be signed by all of the partners and must indicate that they are " Doing Business As (name of firm)."
- c. Individual: The Bond must be signed by the individual owning the business and indicate "Owner."
- d. The Surety Company executing the Bond must be licensed to do business in the State of Rhode Island or Bond must be countersigned by a company so licensed.
- e. The Bond must be signed by an official of the Surety Company and the corporate seal must be affixed over his signature.
- f. Signatures of two witnesses for both the principal and the Surety must appear on the Bond.
- g. A Power of Attorney for the official signing of the Bond for the Surety Company must be submitted with the Bond.

33. SUSPENSION, DEFAULT AND TERMINATION

a. Suspension of a Contract by the City of Pawtucket

The City of Pawtucket reserves the right at any time and for any reason to suspend all or part of this contract, for a reasonable period, not to exceed sixty days, unless the parties agree to a longer period. The City of Pawtucket shall provide the contractor with written notice of the suspension order signed by the Purchasing Agent or his or her designee, which shall set forth the date upon which the suspension shall take effect, the date of its expiration, and all applicable instructions. Upon receipt of said order, the contractor shall immediately comply with the order and suspend all work under this contract as specified in the order. The contractor shall take all reasonable steps to mitigate costs and adverse impact to the work specified in the contract during the suspension period. Before the order expires, the City of Pawtucket shall either:

- 1. cancel the suspension order;
- 2. extend the suspension order for a specified time period not to exceed thirty (30) days; or

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3. terminate the contract as provided herein.

The contractor shall resume performance once a suspension order issued under this section is canceled or expires. If as a result of the suspension of performance, there is a financial or schedule impact upon the contract, an appropriate adjustment may be made by, or with the approval of, the City of Pawtucket's Purchasing Agent. Any adjustment shall be set forth in writing. After a suspension order has been canceled or expires, the contractor shall provide any request for adjustment to the City of Pawtucket's Purchasing Agent within thirty (30) days after resuming work performance.

- b. Termination of a Contract by the City of Pawtucket
 - 1. Termination for Default or Nonperformance

If, for any reason, the contractor breaches the contract by failing to satisfactorily fulfill or perform any obligations, promises, terms, or conditions, and having been given reasonable notice of and opportunity to cure such default, fails to take satisfactory corrective action within the time specified by the City of Pawtucket, the City of Pawtucket may terminate the contract, in whole or in part, the termination of all outstanding contracts or sub-contracts held by the contractor, and the suspension or debarment of the contractor from future procurements by giving written notice to the contractor specifying the date for termination. The City of Pawtucket shall endeavor to provide such notice at least seven (7) calendar days before the effective date of the termination.

A contractor who fails to commence within the time specified or complete an award made for repairs, alterations, construction, or any other service will be considered in default of contract. If contractor consistently fails to deliver quantities or otherwise perform as specified, the City of Pawtucket's Purchasing Agent reserves the right to terminate the contract and contract for completion of the work with another contractor and seek recourse from the defaulting contractor or his surety. In the event of a termination for default or nonperformance, in whole or in part, the City of Pawtucket may procure similar goods or services in a manner and upon terms it deems appropriate, and the contractor shall be liable for the excess costs incurred by the City of Pawtucket as a result of the contractor's default. The contractor, or its surety, agrees to promptly reimburse the City of Pawtucket for the excess costs, but shall have no claim to the difference should the replacement cost be less.

2. Termination Without Cause

The City of Pawtucket may terminate the contract in whole or in part without cause at any time by giving written notice to the contractor of such termination at least thirty (30) days before the effective date of such termination. The notice shall specify the part(s) of the contract being terminated and the effective termination date.

Within thirty (30) days of the effective date of the termination of the contract the contractor shall compile and submit to the City of Pawtucket an accounting of the work performed up to the date of termination. The City of Pawtucket may consider the following claims in determining reasonable compensation owed to the contractor for work performed up to the date of termination:

- a. contract prices for goods or services accepted under the contract;
- b. costs incurred in preparing to perform and performing the terminated portion of the contract; or
- c. any other reasonable costs incurred by the contractor as a result of the termination.

The total sum to be paid to the contractor shall not exceed the total contract price, less any payments previously made to the contractor, the proceeds from any sales of goods or manufacturing materials, and the contract price for work not terminated.

3. Contractor's Obligations in the Event of Termination

If the contract is terminated for any reason, or expires pursuant to its terms, the contractor shall transfer and deliver to the City of Pawtucket in the manner and to the extent directed by the City of Pawtucket:

- a. all finished or unfinished material prepared by the contractor; and
- b. all material, if any, provided to the contractor by the City of Pawtucket.

For the purposes of the contract, "material" shall include, but is not limited to, goods, supplies, parts, tools, machinery, equipment, furniture, fixtures, information, data, reports, summaries, tables, maps, charts, photographs, studies, recommendations, files, audiotapes, videotapes, records, keys, security badges, and documents.

If the contract is terminated for cause, the contractor shall not be relieved of liability to the City of Pawtucket for damages sustained because of any breach by the contractor. In such event, the City of Pawtucket may retain any amounts which may be due and owing to the contractor until such time as the exact amount of damages due the City of Pawtucket from the contractor has been determined by the City of Pawtucket Purchasing Agent. The City of Pawtucket may also set off any damages so determined against the amounts retained.

Upon termination of the contract, the contractor shall stop performance on the date specified, terminate any outstanding orders and subcontracts applicable to the terminated portion of the contract, and shall incur no further commitments or obligations in connection with the terminated performance. The contractor shall settle all liabilities and claims arising out of the termination of subcontracts and order generating from the terminated performance. The City of Pawtucket may direct the contractor to assign the contractor's right, title and interest under terminated orders or subcontracts to the City of Pawtucket or a third party.

Terminations of Purchase Order Contracts or Master Pricing Agreements shall require the signature of the City of Pawtucket Purchasing Agent or his designee. Notice of termination by either party shall be submitted in writing to the other party in accordance with the termination clause of the contract, or where no specific termination clause is included, written notice shall be provided no later than thirty (30) days before the expiration of the contract.

34. INDEMNITY

The contractor guarantees:

a. To save the City of Pawtucket, its agents and employees, harmless from any liability imposed upon the City of Pawtucket arising from the negligence, either active or passive, of the contractor, as well as for the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance furnished or used in the performance of the contract of which the contractor is not the patentee, assignee or licensee.

b. To pay for all permits, licenses and fees and give all notices and comply with all laws, ordinances, rules and regulations of the City of Pawtucket and of the State of Rhode Island.

c. That the equipment offered is standard new equipment, latest model of regular stock product with all parts regularly used with the type of equipment offered; also, that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice.

35. CONTRACTOR'S OBLIGATIONS

In addition to the specific requirements of the contract, construction and building repair contractors bear the following standard responsibilities:

- a. To furnish adequate protection from damage for all work and to repair damages of any kind, for which he or his workmen are responsible, to the building or equipment, to his own work, or to the work of other contractors;
- b. The contractor, its subcontractor(s) and their employees and/or agents, shall protect and preserve property in the contractor or subcontractor's possessions in which the City of Pawtucket has an interest, and any and all materials provided to the contractor or subcontractor by the City of Pawtucket;

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- c. To clear and remove all debris and rubbish resulting from his work from time to time, as directed or required, a completion of the work leave the premises in a neat unobstructed condition, broom clean, and in satisfactory order and repair;
- d. To store equipment, supplies, and material at the site only upon approval by the City of Pawtucket, and at his own risk;
- e. To perform all work so as to cause the least inconvenience to the City of Pawtucket, and with proper consideration for the rights of other contractors and workmen;
- f. To acquaint them with conditions to be found at the site, and to assume responsibility for the appropriate dispatching of equipment and supervision of his employees during the conduct of the work;
- g. To ensure that his employees are instructed with respect to special regulations, policies, and procedures in effect for any City of Pawtucket facility or site, and that they comply with such rules, including but not limited to security policies or practices and/or criminal background checks for any employees and/or subcontractors;
- h. The contractor shall ensure that its employees or agents are experienced and fully qualified to engage in the activities and services required under the contract;
- i. The contractor shall ensure that at all times while services are being performed under this contract at least one of its employees or agents on the premises has a good command of the English language and can effectively communicate with the City of Pawtucket and its staff;
- j. The contractor and contractor's employees or agents shall comply with all applicable licensing and operating requirements required by federal or state law and shall meet accreditation and other generally accepted standards of quality in the applicable field of activity;
- k. The contractor shall secure and retain all employee-related insurance coverage for its employees and agents as required by law; and
- 1. The contractor, subcontractor, and his or her employees and agents shall not disclose any confidential information of the City of Pawtucket to a third party. Confidential information means:
 - (1) any information of a sensitive or proprietary nature, whether or not specially identified as confidential or proprietary; or
 - (2) any information about the City of Pawtucket gained during the performance of a contract that

is not already lawfully in the public domain.

36. FORCE MAJEURE

All orders shall be filled by the contractor with reasonable promptness, but the contractor shall not be held responsible for any losses resulting if the fulfillment of the terms of the contract shall be delayed or prevented by wars, acts of public enemies, strikes, fires, floods, acts of God, or for any other acts not within the control of the contractor and which by the exercise of reasonable diligence, the contractor is unable to prevent.

SECTION 01 22 00 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
 - 1. Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

Wessling Architects 350 Granite Street Braintree, MA

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- Unit Price No. 1 Concrete Repair. A.
 - Perform concrete repair per details 1&2/A-504. 1.
 - 2. Unit of Measurement: Square foot of repair area
 - 3. Base Bid Allowance to include: 100 square feet.
- B. Unit Price No. 2: Concrete Crack Repair.
 - Perform concrete crack repair per detail 3/A-504. 1.
 - Unit of measurement: Linear foot of repair area. 2.
 - 3. Base Bid Allowance to include: 60 linear feet.
- C. Unit Price No. 3: Stone Crack Repair.
 - Perform stone crack repair per detail 4/A-504. 1.
 - Unit of Measurement: Linear foot of repair area. 2.
 - Base Bid Allowance to Include: 120 linear feet. 3.
- D. Unit Price No. 4: Rake out deteriorated existing brick masonry mortar joints and replace with new mortar to match the adjacent existing to remain mortar color and profile.
 - Unit of Measurement: Square foot of brick masonry. 1.
 - 2. Base Bid Allowance to include: 100 square feet.
- E. Unit Price No. 5: Remove damaged existing brick masonry unit and install new brick unit and mortar to match existing.
 - Unit of Measurement: Brick masonry unit. 1.
 - 2. Base Bid Allowance to include: 20 units.
- F. Unit Price No. 6: Remove and replace wood trim.
 - Replace areas of rotted wood trim. Paint to match existing. 1.
 - 2. Unit of Measurement: Board unit of wood trim at 1" thick by 6" wide by 10' long.
 - 3. Base Bid Allowance to include: 5 boards.
- G. Unit Price No. 7: Replace Existing Backer Rod and Sealant
 - Replace existing backer rod and sealant to match existing. 1.
 - 2. Unit of Measurement: Linear foot of joint.
 - Base Bid Allowance to include: 120 linear feet. 3.

 \dots Unit Price No. 8: Repair damaged plaster walls and ceilings (beyond that required for window H. reinstallation as detailed).

- Remove damaged plaster back to sound framing. Install new steel mesh and plaster to 1. match existing. Feather repair into adjacent areas to remain.
- 2. Unit of Measurement: Per square foot of surface repaired.

.....

3. Base Bid Allowance to include: 80 square feet.

- I. Unit Price No. 9: Surface Prep and Re-painting (beyond that required for window reinstallation as detailed).
 - 1. Prep and re-paint areas of repaired plaster walls and ceilings.
 - 2. Unit of Measurement: Per square foot of surface repaired.
 - 3. Base Bid Allowance to include: **80 square feet.**
- J. Unit Price No. 10: Remove and reinstall existing outlet and up to 20' of wiring and conduit back to a new junction box.
 - 1. Unit of Measurement: Per Outlet.
 - 2. Base Bid Allowance to include: **10**

K. Unit Price No. 11: Replace existing damaged laminate sills with new Corian sills.

- 1. Unit of Measurement: Square Foot of sill.
- Base Bid Allowance to include: 800 square feet.

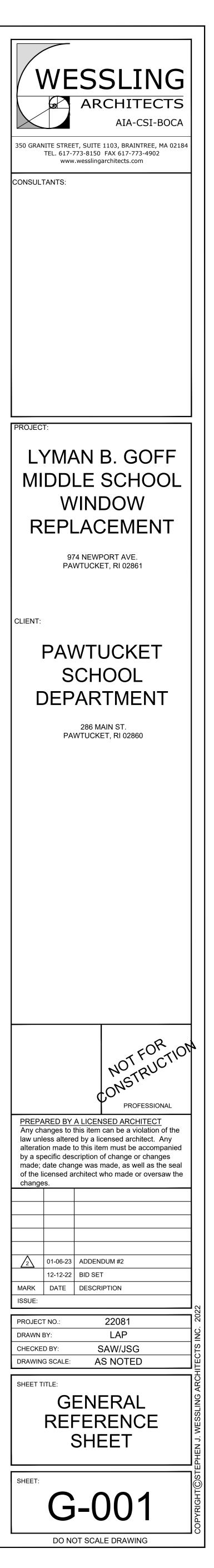
END OF SECTION 01 22 00

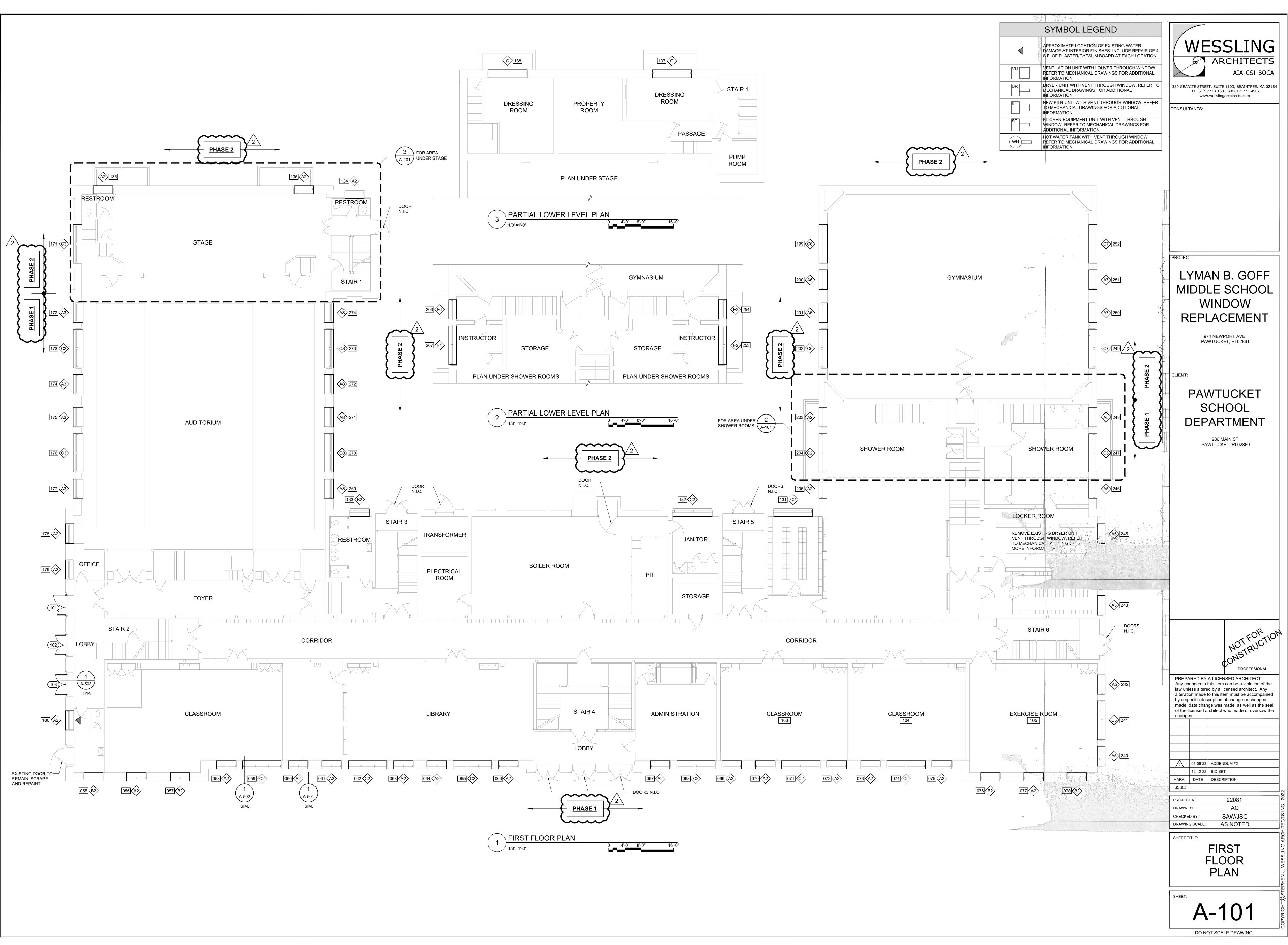
ABBREVIATIONS	SYN	MBOLS
& AND L ANGLE		REFERENCE KEYNOT
@ AT Q CENTERLINE ° DEGREES Ø DIAMETER OR ROUND		
 # POUND OR NUMBER (E) EXISTING ± APPROXIMATELY 	ROOM NAME	ROOM TAG
ACTACOUSTICAL CEILING TILEAFFABOVE FINISHED FLOORALUMALUMINUMAPPROXAPPROXIMATE	(XXX)	DOOR TAG
BODBOTTOM OF ROOF DECKBOTBOTTOMCGCORNER GUARDCJCONTROL JOINT		PARTITION TYPE
CLG CEILING CLOS CLOSET CMU CONCRETE MASONRY UNITS COL COLUMN		
CONC CONCRETE CONT CONTINUOUS CORR CORRIDOR CPT CARPET		DETAIL CALL OUT
CT CERAMIC TILE DBL DOUBLE DEPT DEPARTMENT		
DF DRINKING FOUNTAIN DTL DETAIL DIA DIAMETER DIM DIMENSION		DETAIL CALLOUT
DISP DISPENSER DN DOWN DWG DRAWING DS DOWN SPOUT		
EA EACH DJ EXPANSION JOINT ELEC ELECTRICAL ELEV ELEVATION		
EMER EMERGENCY EQ EQUAL EQPT EQUIPMENT EXIST EXISTING	X A-XXX	SECTION CALLOUT
EXP EXPANSION EXT EXTERIOR FD FLOOR DRAIN FE FIRE EXTINGUISHER	X	ELEVATION CALLOUT
FECFIRE EXTINGUISHER CABINETFHCFIRE HOSE CABINETFFFINISH FLOOR	A-XXX	
FIN FINISH FL FLOOR FL/FL FLOOR TO FLOOR FT FIRE TREATED	X/A-XXX	ELEVATION CALLOUT
GA GAUGE GALV GALVANIZED GC GENERAL CONTRACTOR GFI GROUND FAULT INTERRUPT		
GNDGROUNDGWBGYPSUM WALL BOARDHPHANDICAPPEDHBHOSE BIB	X X A-XXX	INTERIOR ELEVATION
HC HOLLOW CORE HM HOLLOW METAL HR HOUR HGT HEIGHT		REVISION TAG
HWH HOT WATER HEATER INSUL INSULATION INT INTERIOR JAN JANITOR		
JT JOINT KIT KITCHEN LAB LABORATORY LAV LAVATORY		
LCC LEAD COATED COPPER MAX MAXIMUM MECH MECHANICAL		
MTL METAL MFR MANUFACTURER MIN MINIMUM MISC MISCELLANEOUS		
MOMASONRY OPENINGMRMOISTURE RESISTANTNICNOT IN CONTRACTNTSNOT TO SCALE		
OC ON CENTER OD OUTSIDE DIAMETER OH OVERHEAD OPP HND OPPOSITE HAND		
PL PLATE PLAM PLASTIC LAMINATE PLY PLYWOOD PR PAIR		
PTD PAINTED QT QUARRY TILE RCP REFLECTED CEILING PLAN RD ROOF DRAIN		
REF REFERENCE REIN REINFORCED REQD REQUIRED RESIL RESILIENT		
REV REVISION RM ROOM RO ROUGH OPENING		
ROWRIGHT OF WAYRTUROOF TOP UNITSCSOLID CORESCHEDSCHEDULE		
SFSQUARE FEETSIMSIMILARSPECSPECIFICATIONSQSQUARE		
SS STAINLESS STEEL STC SOUND TRANSMISSION COEFFICIENT STD STANDARD STL STEEL	MATERIAL	INDICATION
STOR STORAGE STRUCT STRUCTURAL SUSP SUSPENDED TEL TELEPHONE		
T>ONGUE AND GROOVETOTOP OFTOSTOP OF SLABTVTELEVISION		BATT INSULATION
TYPTYPICALULUNDERWRITER LABVCTVINYL COMPOSITION TILE		BRICK MASONRY UNI
VEST VESTIBULE VIF VERIFY IN FIELD VWC VINYL WALL COVERING W/ WITH		BRICK MASONRY UN
WBWOOD BASEWCWATER CLOSETWDWOODW/OWITHOUT		CONCRETE
WWF WELDED WIRE FABRIC		CONCRETE MASONR
		EARTH
		GRAVEL
		METAL PANEL INFILL
		PLYWOOD
		RIGID INSULATION
		STEEL
		WOOD

Drawing name: J1_SJW2022/22081 goff middle school window replacement\\$0-construction documents\architectural\AutoCAD\goff middle school\\$heets\22081 G-001 General Reference Sheet.dw Janob. 2023 - 11:39am Xref.J1_SJW2022\22081 Goff Middle School Window Replacement\\$0-Construction Documents\Architectural\AutoCAD\Template Project_30x42/Elements\22081_30x42 TitleBlock 2022.dwg Xref.j1_sjw2022\22081 goff middle school Window replacement\\$0-construction Documents\architectural\autoCAD\Template Project_30x42/Elements\22081_30x42 TitleBlock 2022.dwg

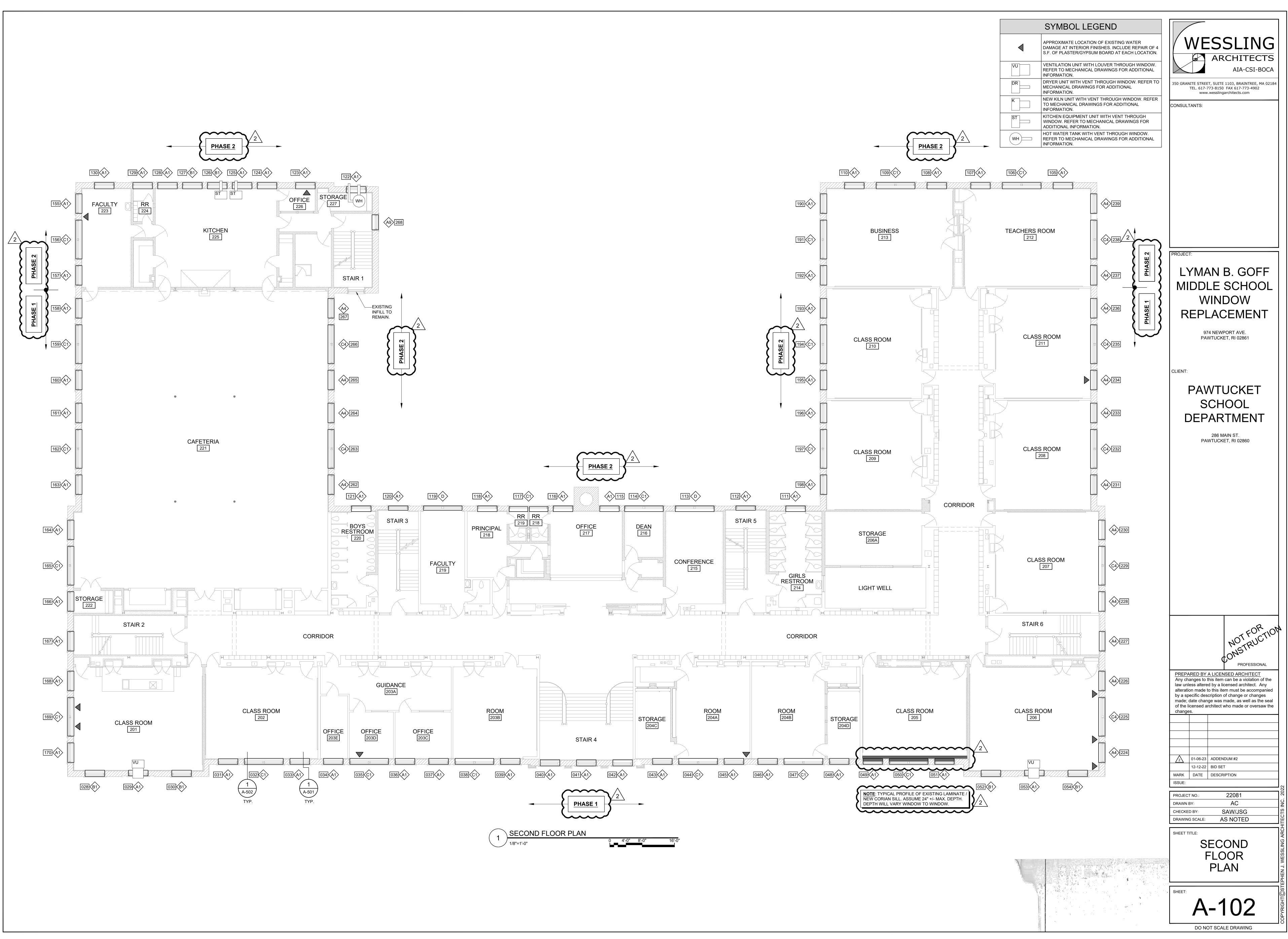
	SUMMARY OF WORK
IOTE	THE SCOPE OF WORK ON THIS PROJECT AS DEFINED BY THE CONTRACT DOCUMENTS INCLUDES THE FOLLOWING: DEMOLITION WORK
	WINDOWS REMOVE AND DISPOSE OF EXISTING ALUMINUM WINDOWS AND GLASS BLOCK UNITS BACK TO ORIGINAL ROUGH MASONRY OPENINGS.
	DOORS • REMOVE AND DISPOSE OF (3) SETS OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXISTING METAL DOORS, FRAMES, AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXIST AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXIST AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH MASONRY OF EXIST AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL ROUGH AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL PARTING HE AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL PARTING HE AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL PARTING HE AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL PARTING HE AND HARDWARE AT THE SOUTH ELEVATION HE AND HARDWARE AT THE SOUTH ELEVATION BACK TO ORIGINAL PARTING HE AND HARDWARE AT THE AND HARDWARE AT THE SOUTH
	 INTERIORS REMOVE AND DISPOSE OF EXISTING INTERIOR SILL MATERIALS (BACK TO ORIGINAL PLASTER SILL), SHELVING, AND ROLLER SHADES AT EXISTING WINDOW OF SAWCUT AND REMOVE PLASTER AROUND PERIMETER AT EACH WINDOW OPENING AS CALLED FOR IN THESE DRAWINGS.
	NEW WORK
	 WINDOWS PREP AND REPAIR EXISTING ROUGH MASONRY OPENINGS AS CALLED FOR IN THESE DRAWINGS. FURNISH AND INSTALL NEW ADA COMPLIANT ALUMINUM WINDOWS AND HARDWARE IN EXISTING MASONRY OPENINGS.
	DOORS PREP AND REPAIR EXISTING OPENINGS AS CALLED FOR IN THESE DRAWINGS.
	FURNISH AND INSTALL NEW ALUMINUM DOORS, FRAMES, AND HARDWARE IN EXISTING MASONRY OPENINGS. <u>MASONRY</u>
	 PERFORM CONCRETE AND STONE REPAIR AT SILLS AS CALLED FOR IN THESE DRAWINGS. PREP AND PAINT EXISTING STEEL LINTELS WITH RUST PROHIBITIVE COATING. WOOD TRIM
т	REPAIR AREAS OF DETERIORATED WOOD TRIM ADJACENT TO WINDOW OPENINGS. REPLACE IN KIND WHERE ROTTED. INTERIORS
	 FURNISH AND INSTALL NEW INTERIOR PLASTER BASE AND SKIM COAT PLASTER AT WINDOW OPENINGS AND AREAS OF DETERIORATED / WATER DAMAGED PL PAINT TO MATCH EXISTING. COORDINA HON AND MODIFICATION OF EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT IN KOOMS: ALL SHOTDOWNS, REMOVALS, AND RECONNECTIONS
DUT	WORK TO BE PERFORMED AS NEEDED TO COMPLETE WORK.
	A. UNIT PRICE NO. 1 - CONCRETE REPAIR. 1. PERFORM CONCRETE REPAIR PER DETAILS 1&2/A-504. 2. UNIT OF MEASUREMENT: SQUARE FOOT OF REPAIR AREA
DUT	 3. BASE BID ALLOWANCE TO INCLUDE: 100 SQUARE FEET. B. UNIT PRICE NO. 2: CONCRETE CRACK REPAIR. 1. PERFORM CONCRETE CRACK REPAIR PER DETAIL 3/A-504.
ION CALLOUT	 2. UNIT OF MEASUREMENT: LINEAR FOOT OF REPAIR AREA. 3. BASE BID ALLOWANCE TO INCLUDE: 60 LINEAR FEET. C. UNIT PRICE NO. 3: STONE CRACK REPAIR.
	 PERFORM STONE CRACK REPAIR PER DETAIL 4/A-504. UNIT OF MEASUREMENT: LINEAR FOOT OF REPAIR AREA. BASE BID ALLOWANCE TO INCLUDE: 120 LINEAR FEET.
	 D. UNIT PRICE NO. 4: RAKE OUT DETERIORATED EXISTING BRICK MASONRY MORTAR JOINTS AND REPLACE WITH NEW MORTAR TO MATCH THE ADJACENT REMAIN MORTAR COLOR AND PROFILE. 1. UNIT OF MEASUREMENT: SQUARE FOOT OF BRICK MASONRY.
	 BASE BID ALLOWANCE TO INCLUDE: 100 SQUARE FEET. UNIT PRICE NO. 5: REMOVE DAMAGED EXISTING BRICK MASONRY UNIT AND INSTALL NEW BRICK UNIT AND MORTAR TO MATCH EXISTING. UNIT OF MEASUREMENT: BRICK MASONRY UNIT.
	 BASE BID ALLOWANCE TO INCLUDE: 20 UNITS. F. UNIT PRICE NO. 6: REMOVE AND REPLACE WOOD TRIM. 1. REPLACE AREAS OF ROTTED WOOD TRIM. PAINT TO MATCH EXISTING.
	 UNIT OF MEASUREMENT: BOARD UNIT OF WOOD TRIM AT 1" THICK BY 6" WIDE BY 10' LONG. BASE BID ALLOWANCE TO INCLUDE: 5 BOARDS. UNIT PRICE NO. 7: REPLACE EXISTING BACKER ROD AND SEALANT.
	 REPLACE EXISTING BACKER ROD AND SEALANT TO MATCH EXISTING. UNIT OF MEASUREMENT: LINEAR FOOT OF JOINT. BASE BID ALLOWANCE TO INCLUDE: 120 LINEAR FEET.
	 H. UNIT PRICE NO. 8: REPAIR DAMAGED PLASTER WALLS AND CEILINGS (BEYOND THAT REQUIRED FOR WINDOW REINSTALLATION AS DETAILED). 1. REMOVE DAMAGED PLASTER BACK TO SOUND FRAMING. INSTALL GYPSUM PLASTER BASE AND SKIM COAT PLASTER. FEATHER REPAIR INTO ADJACEN REMAIN. 2. UNIT OF MEASUREMENT: REP SOURCE FOOT OF SURFACE REPAIRED.
	 UNIT OF MEASUREMENT: PER SQUARE FOOT OF SURFACE REPAIRED. BASE BID ALLOWANCE TO INCLUDE: 80 SQUARE FEET. UNIT PRICE NO. 9: SURFACE PREP AND RE-PAINTING (BEYOND THAT REQUIRED FOR WINDOW REINSTALLATION AS DETAILED). DEED AND RE DAINT AREAS OF REPAIRED DI ASTER WALLS AND CEILINGS.
	 PREP AND RE-PAINT AREAS OF REPAIRED PLASTER WALLS AND CEILINGS. UNIT OF MEASUREMENT: PER SQUARE FOOT OF SURFACE REPAIRED. BASE BID ALLOWANCE TO INCLUDE: 80 SQUARE FEET.
	 J. UNIT PRICE NO. 10: REMOVE AND REINSTALL EXISTING OUTLET AND UP TO 20' OF WIRING AND CONDUIT BACK TO A NEW JUNCTION BOX. 1. UNIT OF MEASUREMENT: PER OUTLET. 2. BASE BID ALLOWANCE TO INCLUDE: 10 K. UNIT PRICE NO. 11: REPLACE EXISTING DAMAGED LAMINATE SILLS WITH NEW CORIAN SILLS.
	 UNIT OF MEASUREMENT: SQUARE FOOT OF SILL. BASE BID ALLOWANCE TO INCLUDE: 800 SQUARE FEET.
	NOTE: THE WINDOW AND DOOR CAULKING HAS BEEN TESTED AND FOUND TO CONTAIN 3% ASBESTOS. A LICENSED AND CERTIFIED ASBESTOS CONTRACTOR IS TO AND DISPOSE OF ALL ASBESTOS CONTAINING MATERIALS IN FULL ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL LAWS, AS WELL AS OSHA REQUINNER REFER TO THE ASBESTOS REMOVAL SPECIFICATION PROVIDED BY EMERY ENVIRONMENTAL ASSOCIATES FOR ABATEMENT SCOPE OF WORK. 2
NS	BUILDING CODE REVIEW
	APPLICABLE BUILDING CODES:
	BUILDING CODE: RISBC-1 RHODE ISLAND BUILDING CODE (510-RICR-00-00-1) INCORPORATES THE INTERNATIONAL BUILDING CODE, 2018 EDITION, BY REFERENCE ACCESSIBILITY CODE: RISBC-17 PUBLIC MEETINGS ACCESSIBILITY STANDARD, INCORPORATES THE UNIFORM FEDERAL ACCESSIBILITY STANDARDD, INCORPORATES THE UNIFORM FEDERAL ACCESSIBILITY (CTANDARDD),
UNIT	INCORPORATES THE UNIFORM FEDERAL ACCESSIBILITY STANDARDS, AS PUBLISHED IN THE FEDERAL REGISTER, BY REFERENCE GENERAL NOTES
UNIT	GENERAL NUTES
	 DIMENSIONS, QUANTITIES, AND CONDITIONS SHOWN ON THESE DRAWINGS ARE ASSUMED BY THE ARCHITECT BASED UPON AVAILABLE INFORMATION. THE OT TO THE START OF CONSTRUCTION, VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND QUANTITIES. PROVIDE A COMPLETE FIELD LAYOUT OF THE PROJEC ARCHITECT OF ANY DEVIATIONS OR CONFLICTS WITH THESE DRAWINGS.
NRY UNIT	2. THE DRAWINGS ARE NOT TO BE SCALED. THE GENERAL CONTRACTOR IS TO REFER TO THE DIMENSIONS INDICATED OR THE ACTUAL SIZES OF CONSTRUCTION DIMENSION OR METHOD OF DETERMINING A LOCATION IS GIVEN, VERIFY CORRECT LOCATION WITH THE ARCHITECT PRIOR TO INSTALLATION.
	 THE DRAWINGS AND REFERENCED DETAILS HAVE BEEN DIMENSIONED IN ORDER TO ESTABLISH THE CONTROL AND GUIDELINES FOR FIELD LAYOUT. WHERE BETWEEN THE DRAWING AND THE DETAIL, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT FOR CLARIFICATION PRIOR TO INSTALLATION. ALL INFORMATION GENERAL CONTRACTOR INTO THE PROJECT AS-BUILTS DRAWINGS AND SUBMITTALS.
	 THE BUILDING SHALL BE MADE WATERTIGHT AT THE END OF EACH WORK PERIOD OR IF INCLEMENT WEATHER THREATENS. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL FEDERAL, STATE AND LOCAL BUILDING AND ZONING CODES.
ILL	6. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THE SUBCONTRACTORS TO REVIEW ALL DRAWINGS, PROJECT MANUAL, ADDENDA, ETC. IN OF COORDINATION OF ALL WORK AFFECTING EACH TRADE. FAILURE TO REVIEW AND COORDINATE ALL CONTRACT DOCUMENTATION BY THE GENERAL CONTRA SUBCONTRACTORS FOR APPLICABLE ITEMS OF THE WORK SHALL NOT RELIEVE THE RESPONSIBLE PARTY FROM PERFORMING ALL WORK SO REQUIRED AS P
	7. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THE SUBCONTRACTORS TO INFORM THE ARCHITECT OF ANY DISCREPANCIES IN THE DOCUM CLARIFICATION ON ALL ITEMS AFFECTING CONSTRUCTION COST FOLLOWING THE REVIEW OF THE DRAWINGS, PROJECT MANUAL, ADDENDA, ETC. PRIOR TO BID.
I	8. THE GENERAL CONTRACTOR IS TO VISIT THE SITE WITH ALL SUBCONTRACTORS PRIOR TO BIDDING IN ORDER TO FAMILIARIZE THEMSELVES WITH THE EXISTI IMPACT OF THE PROPOSED NEW WORK INDICATED IN THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS REGARDING THE COORDINATION OF NEW WOR WILL BE SUBMITTED TO THE ARCHITECT IN WRITING PRIOR TO THE BID SUBMISSION. THE ARCHITECT WILL RESPOND TO ALL QUESTIONS WITH WRITTEN CLA ALL BIDDERS.
	 THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL SCOPE OF THE WORK AFFECTING BOTH EXISTING CONDITIONS TO REMAIN AND NEW WORK. NO 'CHA CONSIDERED FOR ANY WORK WHICH THE GENERAL CONTRACTOR DID NOT BECOME FAMILIAR WITH DURING THE SITE VISIT, FIELD REVIEW OR SURVEY. REFER TO THE PROJECT MANUAL FOR SPECIFICATIONS OF ITEMS. REQUIREMENTS OF THE SPECIFICATIONS APPLY TO ALL ASPECTS OF THE WORK AND ARE
	INFORMATION FOR EACH ITEM SPECIFIED. IF DISCREPANCIES EXIST BETWEEN THE SPECIFICATION AND DRAWINGS, THE MORE STRINGENT REQUIREMENT S GENERAL CONTRACTOR IS TO NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IN ORDER TO OBTAIN CLARIFICATION.
	 THE CONTRACTOR IS TO PERFORM NEW WORK IN ACCORDANCE WITH ESTABLISHED INDUSTRY PRACTICES PER NRCA AND SMACNA STANDARDS. ALL ITEMS NOTED AS EXISTING ARE TO REMAIN UNLESS OTHERWISE NOTED. ALL ITEMS SUALL BE CONTINUOUS UNLESS OTHERWISE NOTED.
	13. ALL ITEMS SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED.

	DRAWING LIST			
DPENINGS. PENINGS.	SHEET NUMBER	DRAWING TITLE	BID SET - 12/12/22 ADDENDUM #1 - 12/29/22 ADDENDUM #2 - 01/06/23	DRAWING & SKETCHES ISSUED DURING CONSTRUCTION
	GENERAL		2	
	G-000 G-001	COVER SHEET GENERAL REFERENCE SHEET		
	G-002	SITE PLAN		
	STRUCTUR			
	S-1 S-2	NEW EAST ELEVATION WALL PRESSURES NEW WEST ELEVATIONS WALL PRESSURES		
	S-3 S-4	NEW SOUTH ELEVATIONS WALL PRESSURES NEW NORTH AND EAST ELEVATIONS WALL PRESSURES		
	ARCHITECT			
\sim	A-101	FIRST FLOOR PLAN		
ASTER	A-102 A-103	SECOND FLOOR PLAN THIRD FLOOR PLAN		
SOP M/E/P	AD-201	DEMOLITION EAST ELEVATION		
	AD-202 AD-203	DEMOLITION WEST ELEVATIONS DEMOLITION SOUTH ELEVATIONS		
	AD-204	DEMOLITION NORTH AND EAST ELEVATIONS		
	A-201 A-202	NEW EAST ELEVATION NEW WEST ELEVATIONS		
	A-203 A-204	NEW SOUTH ELEVATIONS NEW NORTH AND EAST ELEVATIONS		
	A-401	NEW TYPICAL WINDOW BAY		
	AD-501 AD-502	DEMOLITION WINDOW DETAILS DEMOLITION DOOR DETAILS		
	A-501	NEW SINGLE HUNG WINDOW DETAILS		
EXISTING TO	A-502 A-503	NEW INSWING AWNING WINDOW DETAILS NEW DOOR DETAILS		
	A-504			
	A-601 A-602	WINDOW AND DOOR SCHEDULES WINDOW SCHEDULE		
	MECHANICA	AL		
	M-0.00	MECHANICAL SYMBOL LEGEND AND NOTES		
	MD-1.00 MD-1.01	MECHANICAL LEVEL 1 FLOOR DEMO PLAN MECHANICAL LEVEL 2 FLOOR DEMO PLAN		
	MD-1.02			
	M-1.00 M-1.01	MECHANICAL LEVEL 1 FLOOR NEW PLAN MECHANICAL LEVEL 2 FLOOR NEW PLAN		
IT AREAS TO	M-1.02 M-2.00	MECHANICAL LEVEL 3 FLOOR NEW PLAN MECHANICAL DETAILS & PICTURES		
	M-2.00 M-3.00	MECHANICAL DETAILS & PICTORES MECHANICAL SPECIFICATIONS		
	M-3.01 M-3.02	MECHANICAL SPECIFICATIONS MECHANICAL SPECIFICATIONS		
	ELECTRICA			
	E-0.00 E-1.0	ELECTRICAL SYMBOL LIST, SCHEDULE AND GENERAL NOT ELECTRICAL LEVEL 1 POWER FLOOR PLAN	ES	
	E-1.1	ELECTRICAL LEVEL 2 POWER FLOOR PLAN		
	E-1.2 E-2.00	ELECTRICAL LEVEL 3 POWER FLOOR PLAN ELECTRICAL SPECIFICATION SHEET 1 OF 2		
O REMOVE REMENTS.	E-2.01	ELECTRICAL SPECIFICATION SHEET 2 OF 2		
	LOCUS PLAN SCALE: N.T.S.			
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CE.			L'o' -	
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	PROJ	ECT LOCATION		
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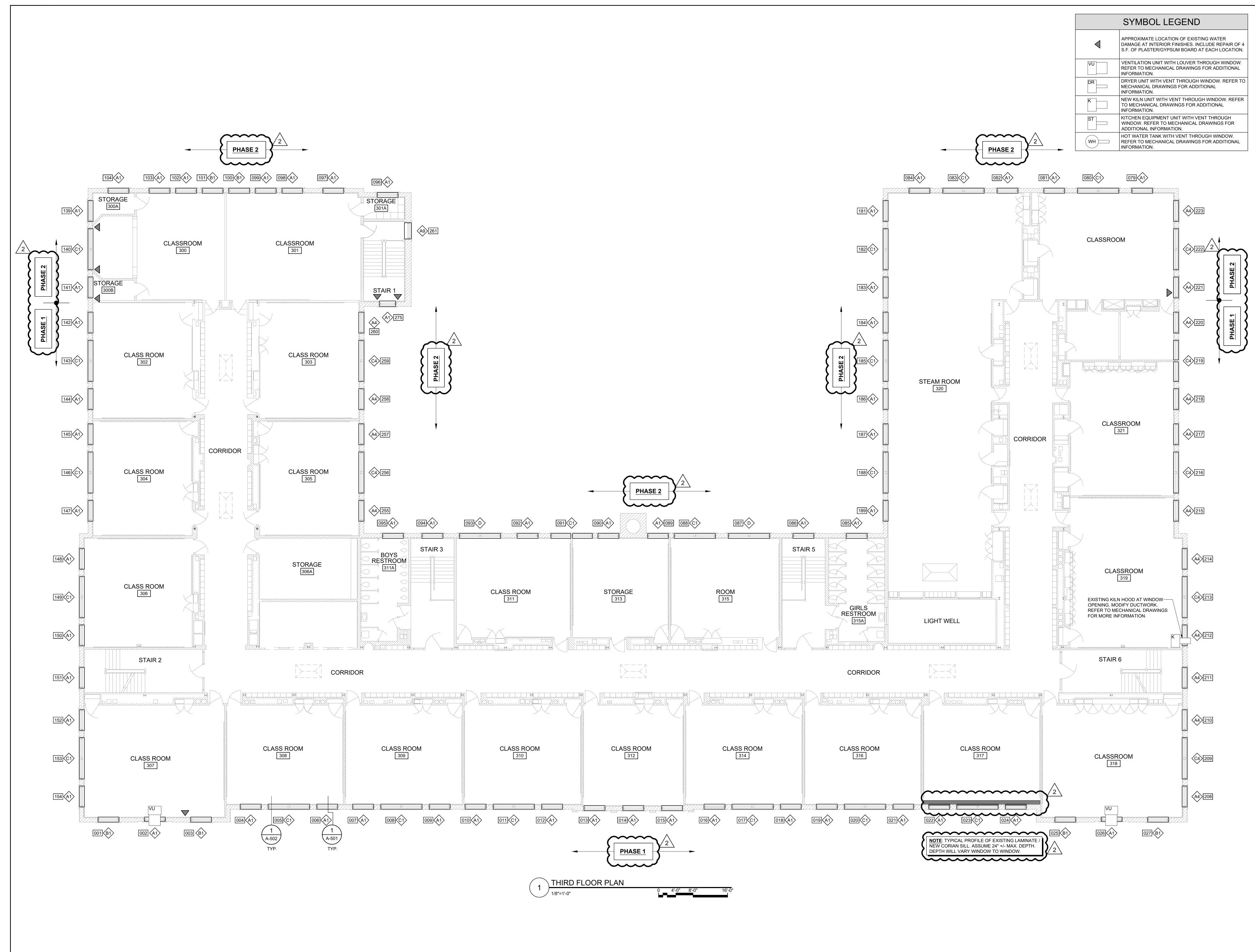


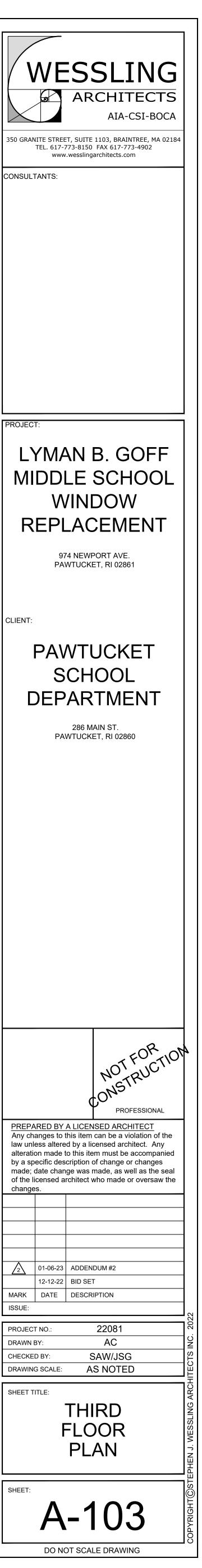
Drawing name: J., SJW2022/22081 goff middle school window replacement/50-construction documents/architectural/autoCAD/goff middle school/Sheets/22081 A-101 First Floor Plan Jwg Jan 06, 2023 - 11.:99am Xref:J._SJW2022/22081 Goff Middle School Window Replacement/50-Construction Documents/Architectural/autoCAD/Template Project_30x42/Elements/22081_30x42 TiteBlock 2022.dwg Xref:J._SJW2022/22081 goff middle school Window replacement/50-construction documents/architectural/autocad/goff middle school/News/Achitecture/22081 Floor Plans.dwg

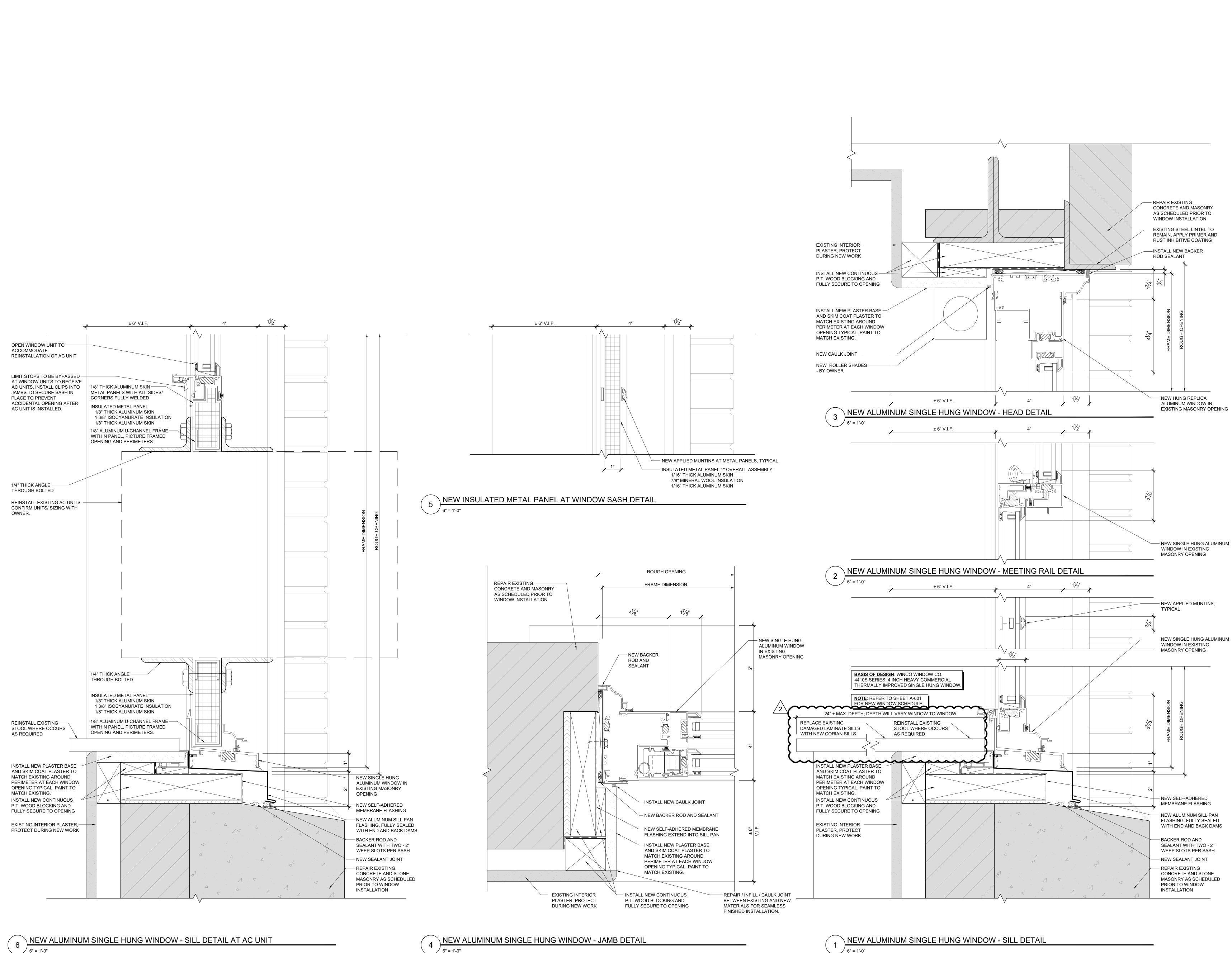


Drawing name: . Jan 06, 2023 -Xref:J:∖_SJW203 Xref:j:_sjw2022



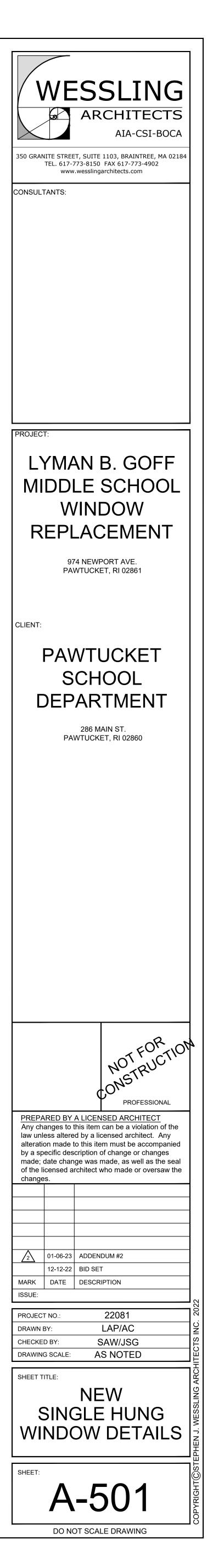


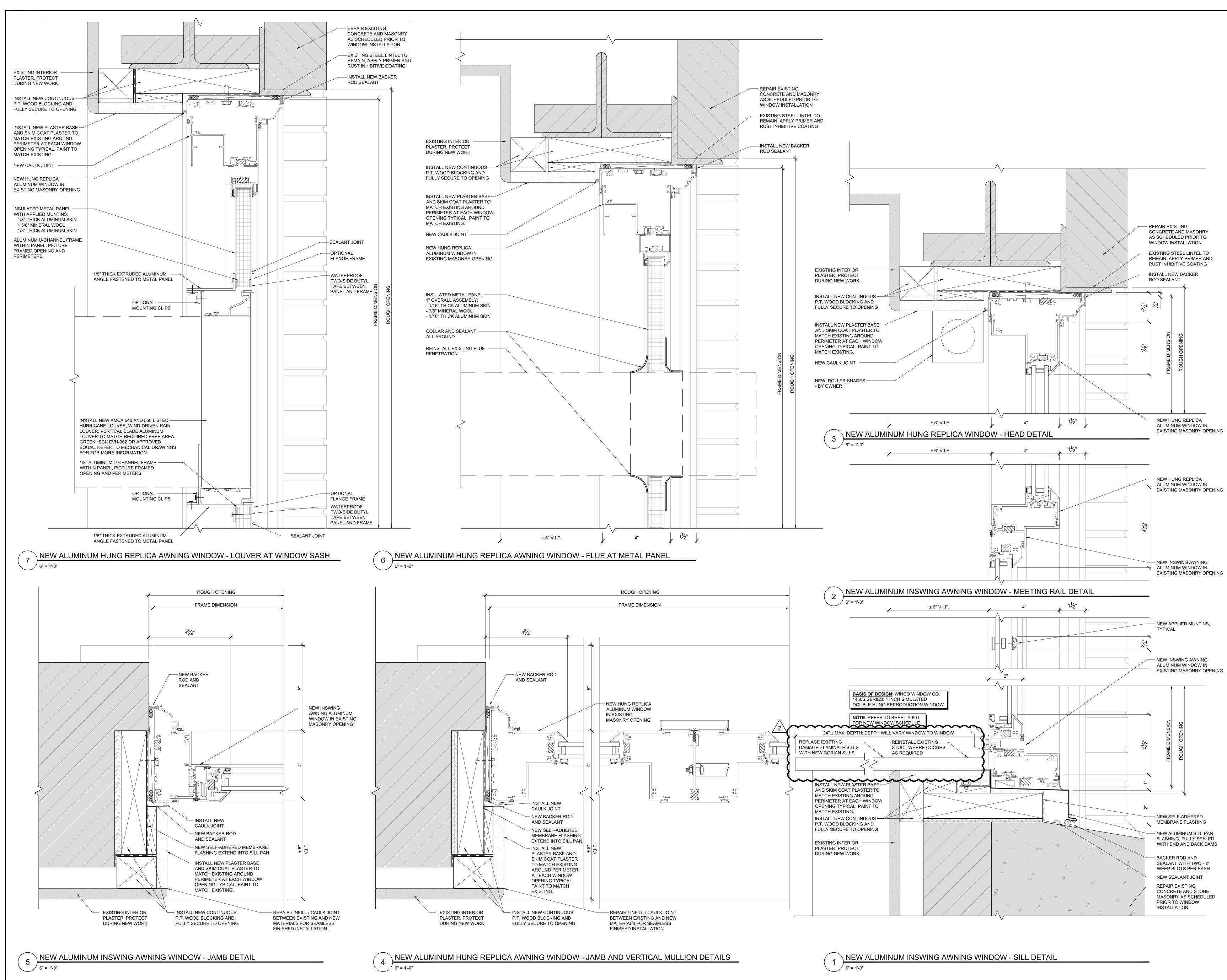




6" = 1'-0"

/ 6" = 1'-0"





Drawing Jan 06, Xref:J:_ Xref:i:\ :

