

Drawing List

Architectural

T-001.00	Title Page	N/A
A-001.00	Roof Demolition Plan	3/32" = 1'-0"
A-002.00	Roof Construction Plan	3/32" = 1'-0"
A-003.00	Upper Main Reflected Ceiling Plan	3/32" = 1'-0"
A-004.00	Details	As noted
A-005.00	Specifications	N/A

Mechanical

M-001.00	Mechanical Symbols, Abbreviations, and Notes	N/A
M-101.00	Mechanical Demolition Plan	3/32" = 1'-0"
M-201.00	Mechanical New Work Plan	3/32" = 1'-0"
M-701.00	Plumbing Details	As noted

Plumbing

P-001.00	Plumbing Symbols, Abbreviations, Notes and Schedules	N/A
P-101.00	Plumbing Demolition Plan	3/32" = 1'-0"
P-201.00	Plumbing New Work Plan	3/32" = 1'-0"
P-701.00	Plumbing Details	As noted

Date/Revision
12.10.2021 Bid Issue



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The Hudson River Museum

511 Warburton Avenue
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Project

**Hudson River Museum
Roof Project**

Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title

Title Pagex

Drawing Number

T-001.00



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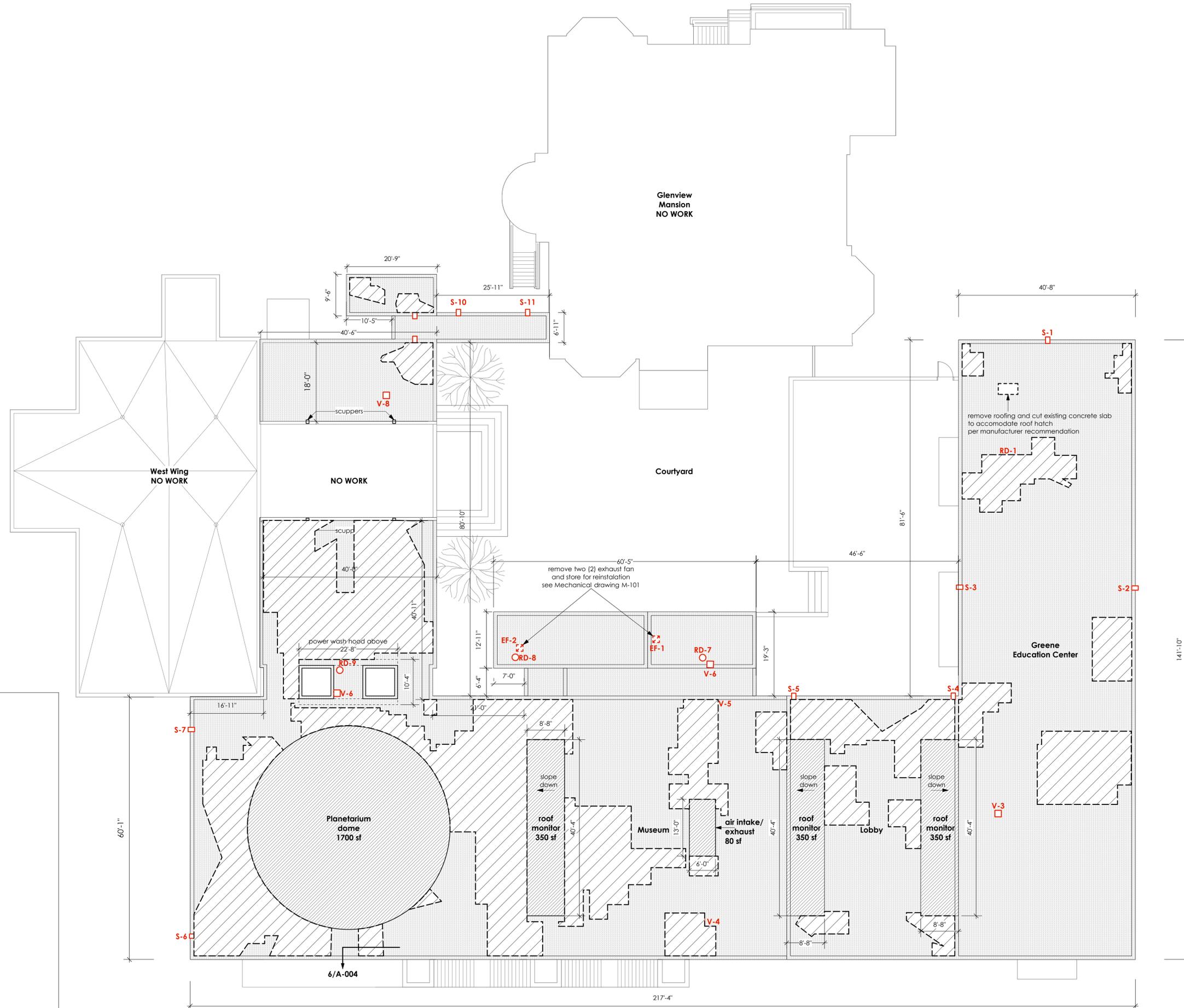
Drawing Title

**Roof Plan
Demolition**

3/32"=1'-0"

Drawing Number

A-001.00



LEGEND

- S Existing Scupper
- RD Existing Roof Drain
- V Existing Plumbing Vent
- EF Existing Exhaust Fan

remove existing roofing with wet insulation
5,500 sf

power brush
13,000 sf

power wash
2850 sf

existing roof parapet with new metal cap
860 linear feet

Note:
- maintain existing scuppers, repair as required.
- see MEP Drawings for full scope of work.

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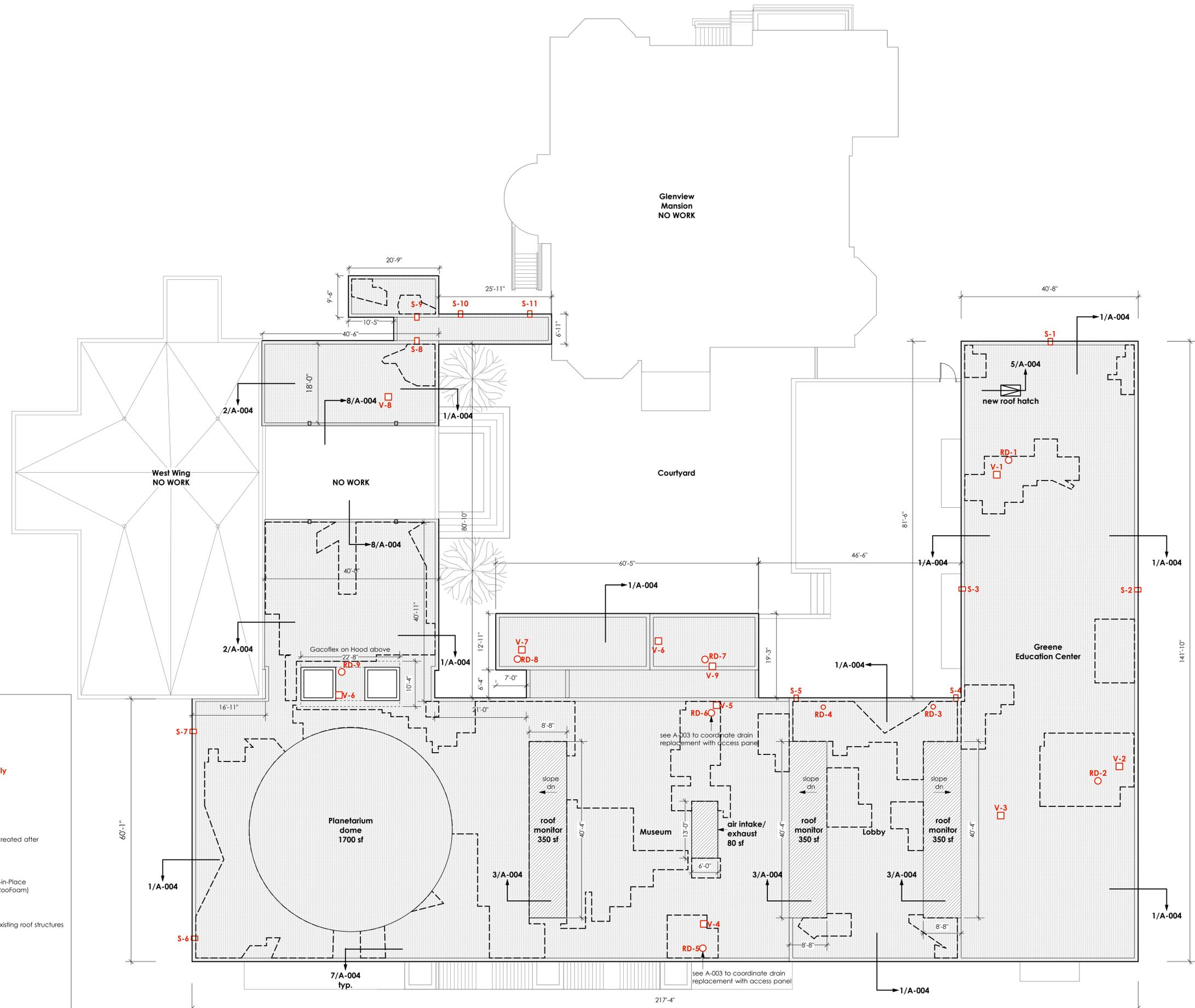
Drawing Title

**Roof Plan
Construction**

3/32"=1'-0"

Drawing Number

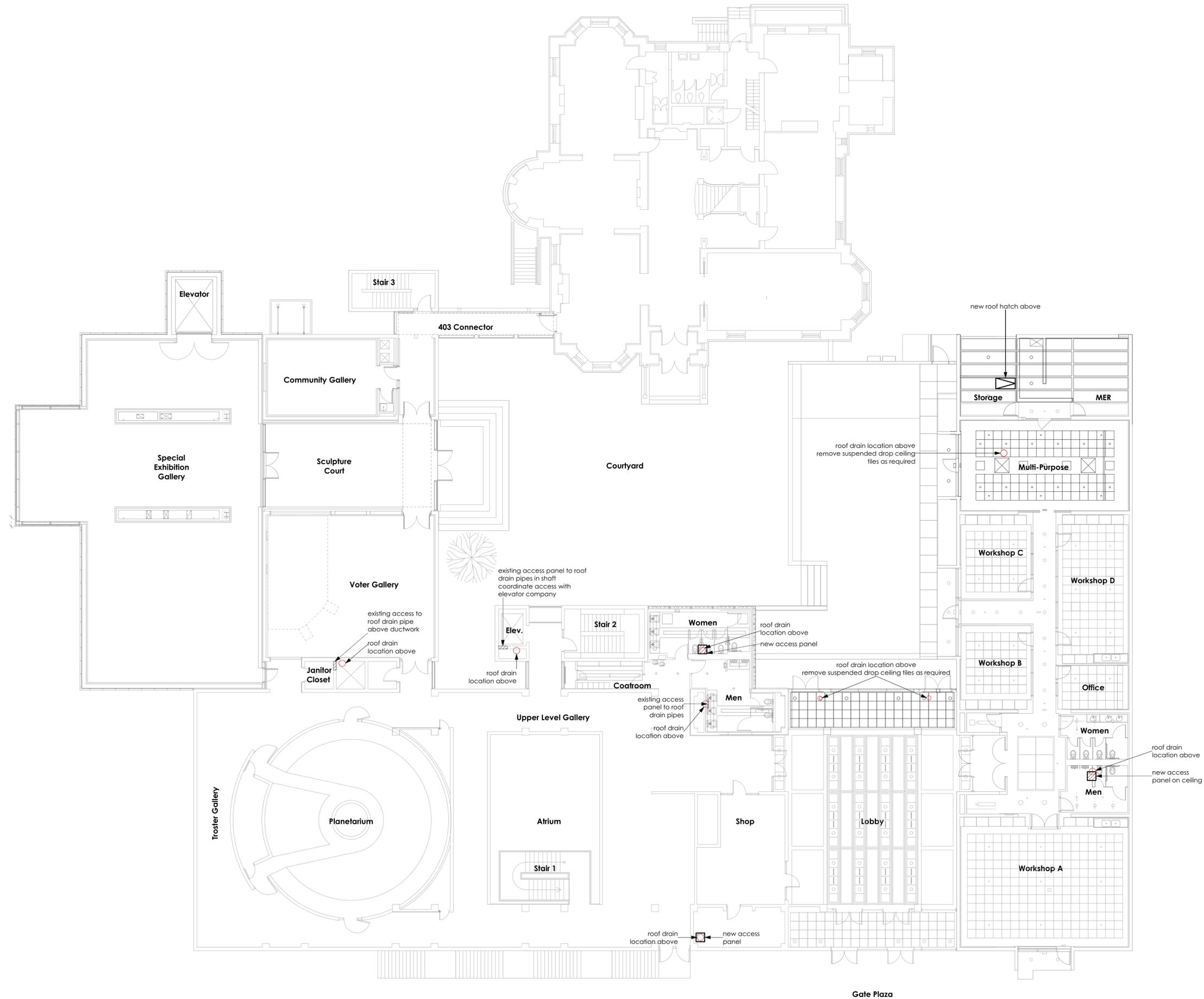
A-002.00



LEGEND

- S Existing Scupper
- RD New Roof Drain Assembly at Existing Location
- V Existing Plumbing Vent
- ☒ EF Existing Exhaust Fan
- GacoRoofFoam in cavities created after removal of wet substrate
GacoFlex S4200 system
5,500 sf
- GacoFlex S42 over Sprayed-in-Place Polyurethane Foam (GacoRoofFoam)
See A-005 for Specifications
19,300 sf
- GacoFlex S4200 system on existing roof structures
See A-005 for Specifications
1,150 sf
- existing roof parapet with new metal cap
860 linear feet

Note:
- maintain existing scuppers, repair as required.
- see MEP Drawings for full scope of work.



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**Upper Main
Reflected Ceiling Plan**

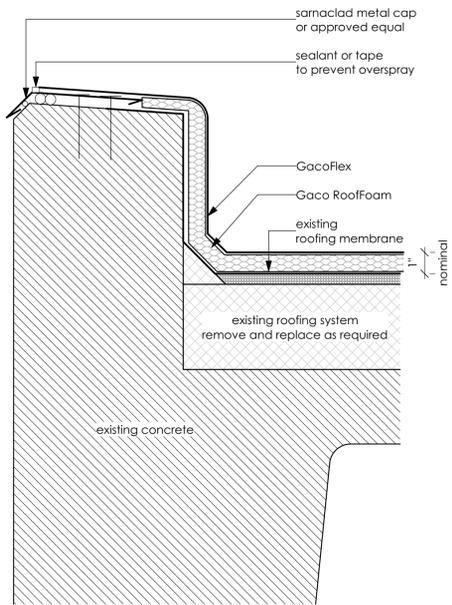
3/32"=1'-0"

Drawing Number

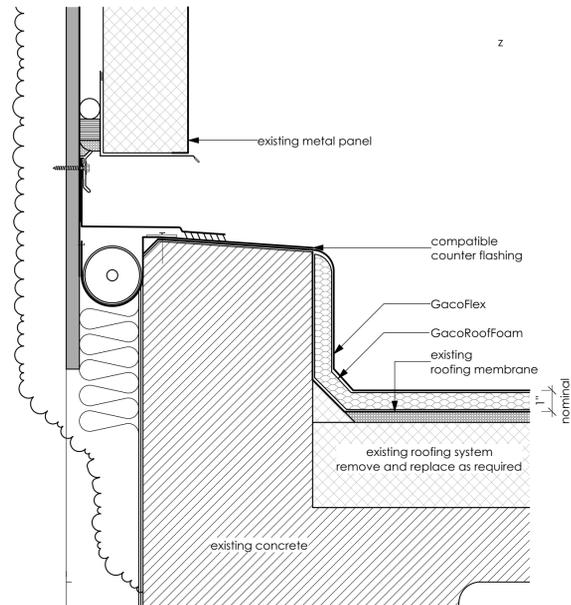
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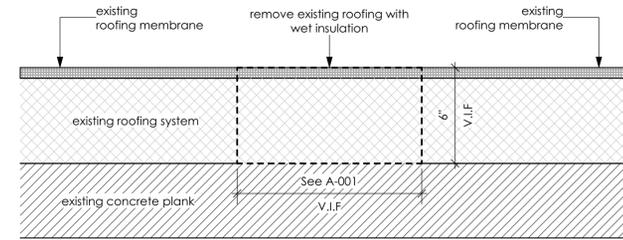
Gate Plaza



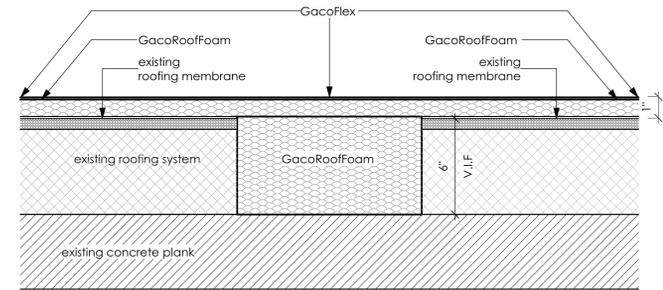
1. Typical Detail Section of Parapet on Existing Building
3"=1'-0"



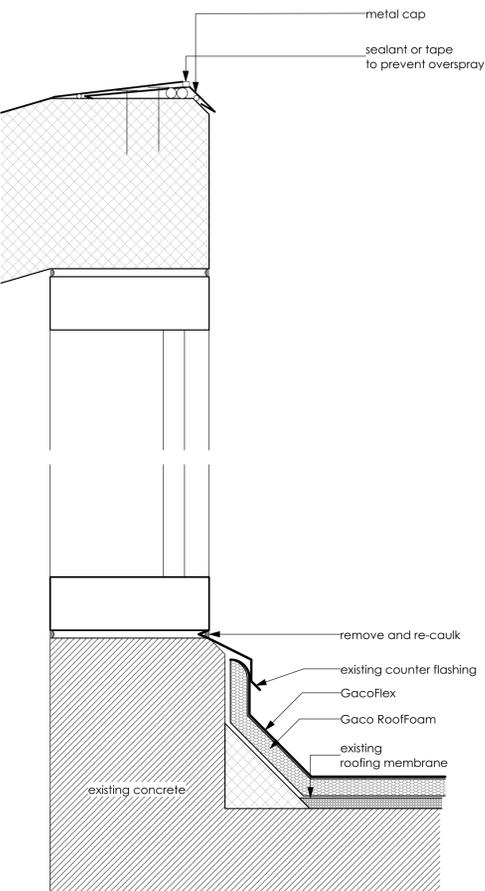
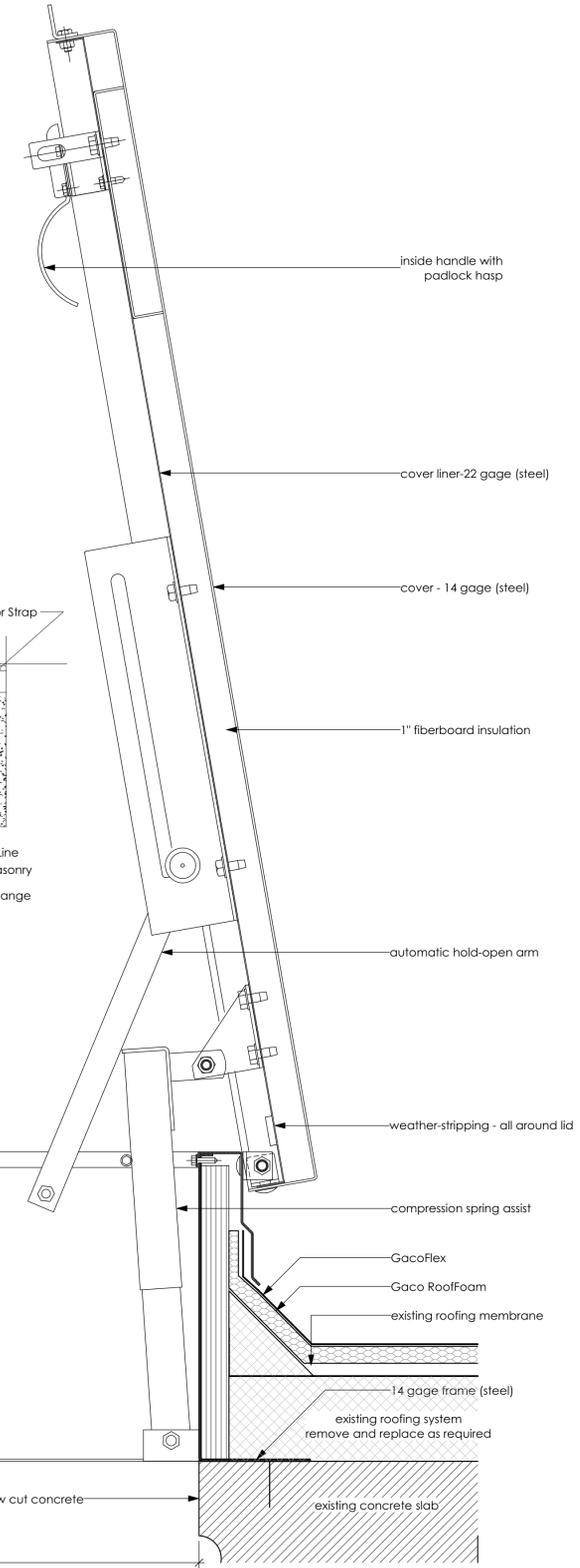
2. Detail Section at Community Gallery and Voter Gallery Roof
3"=1'-0"



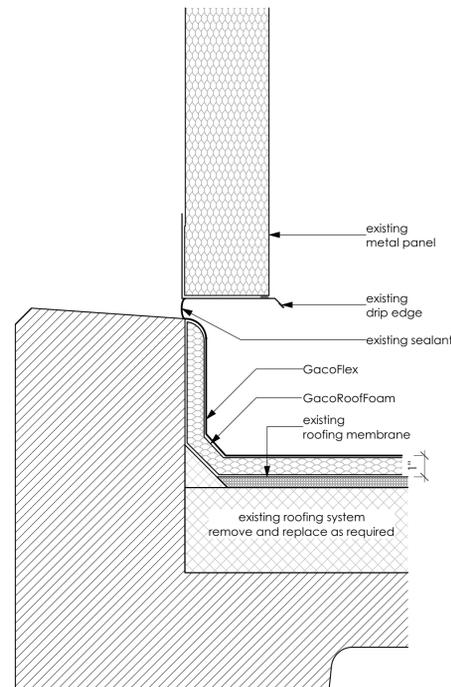
6. Detail Section at Typical Roof Removal
3"=1'-0"



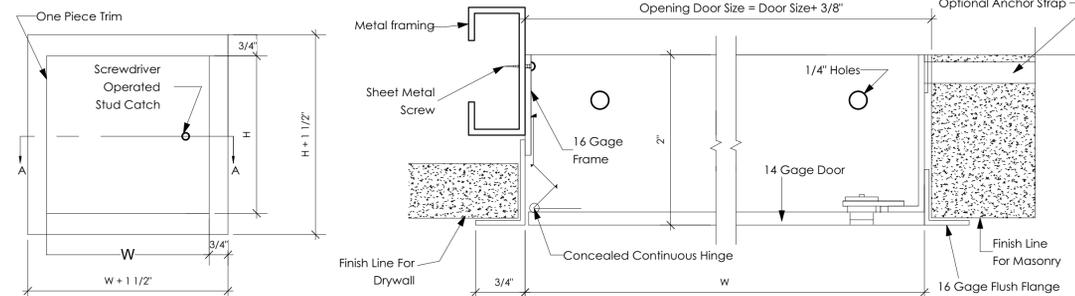
7. Detail Section at Typical Roof Repair
3"=1'-0"



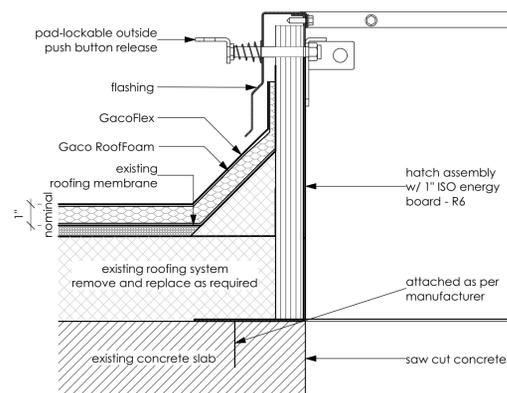
3. Typical Detail Section at Roof Monitor
3" = 1'-0"



8. Detail Section at Special Exhibitions Gallery
3"=1'-0"



4. Typical Flush Access Door
by Karp and Associates, Model KRP-150FR, 24" x 24"



5. Roof hatch Section
3"=1'-0"
By KARP and Associates, 2'-6" x 4'-6"

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Drawing Title

Details
Scale as Noted

Drawing Number

A-004.00



Application Specification:

SPF-S42-34-20
Revised: 08/2020

DIVISION: 07 57 00 GACOFLEX™ S42 SERIES SOLVENT-FREE SILICONE ELASTOMERIC COATING SYSTEM OVER SEAMLESS SPRAYED-IN-PLACE POLYURETHANE FOAM ROOFING

1.1 SUMMARY

- A. This specification provides for a fire resistant roofing covering system which meets Class A, non-combustible deck requirements under ASTM E108 Class "A". Suitable substrates include concrete, gypsum board, metal and certain heavy wood decks. For re-roofing BUR or other roof coverings, including single ply membranes and modified bitumen systems, application according to this specification will not alter the existing fire resistance rating. Surfaces to receive the roof covering system must comply with applicable building codes.
- Sprayed-in-place polyurethane foam is applied at a desired thickness (1" (2.54 cm) minimum) to fulfill thermal insulation requirements and to provide seamless monolithic surface over a variety of roof designs, shapes and draining slopes.
- When properly applied, the GacoFlex S42 Series Silicone Coating provides a weatherproof seal that protects the polyurethane foam from degradation caused by ultra violet light, water and other normal weathering hazards. This application incorporates the optional application of granules. The thickness of the foam can be varied to provide a desired thickness to the drain. The appearance of the system depends on the finished surface of the polyurethane foam which normally has slight undulations in thickness. Sprayed-in-place polyurethane foam mirrors the contour of the substrate and will reflect projections and depressions.
- B. The GacoFlex S42 Series Silicone Coating System discussed in this specification has a moderate rate of water vapor transmission. The GacoFlex S42 Series Coating System is not recommended for use on cold storage or cryogenic structures that may have constant high water vapor drive causing long-term accumulation of moisture in the roofing system that serves as a substrate for the S42 Series Coating. Contact Technical Services for recommendations.
- C. This specification is intended only as a guide for the development of a project specification. The suitability of this specification for a particular project must be determined by a qualified representative of the owner.
- Conditions to check and corrections to consider are:
- The sprayed-in-place polyurethane foam roofing substrate must be well adhered and intact.
 - The structural decking must be sound.
- Elements of this specification may require modification in order to clearly delineate project requirements. Sections that are not pertinent may be deleted.

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1.2 RELATED SECTIONS

A. Cast-In-Place Concrete:	Division 03 30 00	F. Vapor /Air Barriers:	Division 07 25 00
B. Flashing/Sheet Metal:	Division 07 60 00	G. Board Insulation:	Division 07 22 00
C. Roof Accessories:	Division 07 72 00	H. Splaylights:	Division 08 60 00
D. Rough Carpentry/Wood Blocking:	Division 06 10 00	I. Metal Decking:	Division 05 30 00
E. Drains, Vents and Penetrations:	Division 07 72 00		

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's standard submittal package including specification, installation instructions and general information for each waterproofing material.
- B. Applicator Qualifications: Submit current Letter of Good Standing from the specified waterproofing manufacturer.
- C. Warranty must be supplied by product manufacturer.
- D. Sample: Two physical samples reflecting the completed installation, i.e. finish, color, must be submitted to the owner/owners representative. Size of these samples shall be 12" x 12" (30.48 cm x 30.48 cm) minimum.
- E. Substrate Conditions:
1. Applicator to present to owner a completed inspection form verifying substrate condition and any noted defects not specifically addressed in regard to the installation of the coating.
 2. Surface shall be free from loose dirt, stone, debris, moisture, and shall be in stable condition. Any work on the area to receive this application shall be completed prior to the installation of the coating.
 3. Applicator shall complete a substrate inspection prior to the start of the installation of the coating. The architect/owner and applicator shall accept the substrate. Start of the work constitutes acceptance.

1.4 QUALIFICATIONS

- A. Primary waterproofing materials shall be the products of a single manufacturer. Secondary materials shall be recommended by the primary manufacturer. The manufacturer shall have a minimum of 10 years' experience in the manufacture of materials of this type.
- B. Applicators shall have a **minimum of five (5) years' experience** in the application of waterproofing materials of the type specified. The Applicator shall possess a current Letter of Good Standing from the specified waterproofing manufacturer.
- Bid Conference: Ten (10) working days** prior to the bid opening there is to be a mandatory Pre-Bid Conference. Those not attending the Pre-Bid Conference will not be allowed to bid the project. All products considered an equal to the specified product or any changes in the scope of work, installation, or specifications must be presented at the Pre-Bid Conference. If a change in the specifications is accepted, it will be considered as an alternate and will be presented as a **bid addendum issued five (5) working days prior to the bid opening**. No other changes to the specification or bid documents will be accepted.
- D. Materials other than those specified shall be submitted to the architect/owner for approval **no later than ten (10) days prior to the bid date**. In requesting prior approval, it shall be necessary to submit:
1. A letter of certification, signed by an officer of the manufacturer, stating that the alternate material is equal to or better than the specified product.
 2. Independent laboratory test data giving physical property values in comparison to the specified material.
- E. Pre-Installation Conference: Just prior to the commencement of the installation, meet at the job-site with a representative of the coating manufacturer, Applicator, general contractor, architect, and other parties affected by this section. Review the methods and procedures, substrate conditions, scheduling, and safety.

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Application Specification:

DIVISION 07 01 57.01 GACOFLEX™ S4200 WHITE ELASTOMERIC SILICONE ROOF COATING FOR RESTORING MODIFIED BITUMEN AND SMOOTH BUILT-UP ROOFING MEMBRANE ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This specification provides a remedial roof coating for application over existing smooth and granule-surfaced modified bitumen and smooth built-up roofing membranes (BUR), including mineral surfaced cap sheets (but excluding granule-surfaced built-up roofs). Application is restricted to circumstances in which the membrane substrate is in sound condition but requires a renewal of the surface due to the normal effects of aging and use.
- NOTE:** This specification only includes GacoFlex S4200 White Elastomeric Silicone Roof Coating. Non-white (i.e., colored) silicones are not approved for use on asphalt substrates.
- When properly applied, the GacoFlex S4200 Elastomeric Silicone Roof Coating provides a weathertight membrane that protects the substrate from degradation caused by ultra violet light (UV), water, and other normal weathering hazards. The substrate should have at least a 1/4" (6.35 mm) slope per foot to promote positive drainage.
- B. The GacoFlex S4200 Elastomeric Silicone Roof Coating discussed in this specification has a moderate rate of water vapor transmission and is not recommended for use on cold storage or cryogenic structures that may have constant high water vapor drive causing long-term accumulation of moisture in the roofing system that serves as a substrate for the GacoFlex S4200 Elastomeric Silicone Roof Coating.
- C. This specification is intended only as a guide for the development of a project specification. The suitability of this specification for a particular project must be determined by a qualified representative of the owner.
- Conditions to check and corrections to consider are:
- The type of pre-existing system must be identified.
 - All pre-existing membranes must be fully adhered or mechanically attached and intact.
 - The structural decking must be sound.
- Elements of this specification may require modification in order to clearly delineate project requirements. Sections that are not pertinent may be deleted.
- D. Adhesion tests are strongly recommended prior to bidding. A Coating Applicator that is licensed by the product manufacturer should perform wet and dry adhesion tests as instructed in GacoFlex General Instructions GW-13 Adhesion Testing Procedures using the products listed in Section 2.2.

1.2 RELATED SECTIONS

A. Cast-In-Place Concrete:	Division 03 30 00	F. Vapor /Air Barriers:	Division 07 25 00
B. Flashing/Sheet Metal:	Division 07 60 00	G. Board Insulation:	Division 07 22 00
C. Roof Accessories:	Division 07 72 00	H. Splaylights:	Division 08 60 00
D. Rough Carpentry/Wood Blocking:	Division 06 10 00	I. Metal Decking:	Division 05 30 00
E. Drains, Vents and Penetrations:	Division 07 72 00		

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's standard submittal package including specification, installation instructions and general information for each waterproofing material.
- B. Applicator Qualifications: Submit current Letter of Good Standing from the specified waterproofing manufacturer.
- C. Warranty must be supplied by product manufacturer.

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- D. Substrate Conditions:
1. Applicator to present to owner a completed inspection report verifying substrate condition and any noted
 2. Surface shall be free from loose dirt, stone, debris, moisture, and shall be in stable condition. Any work on the area to receive this application shall be completed prior to the installation of the coating.
 3. Applicator shall complete a substrate inspection prior to the start of the installation of the coating. The architect/owner and applicator shall accept the substrate. Start of the work constitutes acceptance.

1.4 QUALIFICATIONS

- A. Primary waterproofing materials shall be the products of a single manufacturer. Secondary materials shall be recommended by the primary manufacturer. The manufacturer shall have a minimum of 10 years' experience in the manufacture of materials of this type.
- B. Applicator shall have a minimum of 5 years' experience in the application of waterproofing materials of the type specified. Applicator shall possess a current Letter of Good Standing from the specified waterproofing manufacturer.
- C. Pre-Bid Conference: Ten (10) working days prior to the bid opening there is to be a mandatory Pre-Bid Conference. Those not attending the Pre-Bid Conference will not be allowed to bid the project. All products considered an equal to the specified product or any changes in the scope of work, installation, or specifications must be presented at the Pre-Bid Conference. If a change in the specifications is accepted, it will be considered as an alternate and will be presented as a bid addendum issued five (5) working days prior to the bid opening. No other changes to the specification or bid documents will be accepted.
- D. Materials other than those specified shall be submitted to the architect/owner for approval no later than ten (10) days prior to the bid date. In requesting prior approval, it shall be necessary to submit:
1. A letter of certification, signed by an officer of the manufacturer, stating that the alternate material is equal to or better than the specified product.
 2. Independent laboratory test data giving physical property values in comparison to the specified material.
- E. Pre-Installation Conference: Just prior to the commencement of the installation, meet at the job-site with a representative of the coating manufacturer, Applicator, general contractor, architect, and other parties affected by this section. Review the methods and procedures, substrate conditions, scheduling, and safety.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Owner/owner's representative shall reject damaged or non-conforming materials. Rejected materials must be removed immediately from the job site.
- B. Store the coating materials as recommended by the manufacturer and conforming to applicable safety regulatory agencies: town or city, state, and federal. Refer to all applicable data including, but not limited to: Safety Data Sheets, Product Data Sheets, product labels, and specific instructions for personal protection.
- C. Provide adequate ventilation, protection from hazardous fumes, and overspray potential to workers and associated trades in close proximity of the site application.

1.6 WARRANTY

- A. Manufacturer warrants that the material supplied will meet or exceed physical properties as published. The Applicator guarantees that workmanship will be free of defects in coating application. Since performance of previously applied coatings is beyond the control of Manufacturer and Applicator, requests for additional warranty coverage shall be subject to prior approval by Manufacturer.
- B. A Twenty (20) Year Material and Labor Warranty must be supplied by product manufacturer.
- C. Protection of existing and occupants:
1. All surfaces not to receive the coating specified shall be protected from overspray hazard, e.g., windows, doors, exterior surfaces and facades, parking lots, and vehicles. Protective coverings shall be secured against wind and shall be vented if used in conjunction with applications preventing collection and moisture.
 2. Applicator to post signs noting potential overspray hazard within 400' (121.9 m) of applications.
 3. All air intake ventilation equipment shall be turned off to prevent fumes from entering building.
 4. Surfaces damaged during application shall be restored at no expense to the owner.
 5. No smoking signs to be posted as mandated by local fire officials.
- D. Substrate: Proceed with work as specified **only** after substrate construction, preparation, and detail work has been completed.

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- E. Equipment: All equipment used during operations shall be located so as not to adversely affect the daily operations of end-user occupants, structure, or materials on-site. All spray equipment must be grounded during operations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Acceptable Manufacturers:
Gaco, www.gaco.com

2.2 MATERIALS

- A. **Bleed Blocker:** GacoFlex A421 BleedTrap™ Base Coat (as needed)
- B. **Primer:** GacoFlex E5320 2-Part Epoxy Primer/Filler (as needed)
- C. **Flashing:** GacoFlex 665 Reinforcing Polyester Mesh
or
GacoFlex SF4200 SeamSeal
or
GacoPatch™ Silicone Roof Sealant
- D. **Coating:** GacoFlex S4200 Silicone Roof Coating has the following physical properties:

PROPERTY	VALUE	TEST METHOD
Tensile Strength	275 psi	ASTM D2370
Elongation	D83%	ASTM D1644
Solids	96% by weight 96% by volume	ASTM D1644 ASTM D2097
VOC	< 50 Grams/liter	EPA Method 24
Reflectance	0.87 initial 0.81 after soiling	ASTM C1549 S4200 White
Water Vapor Permeability	6.4 perms	ASTM E918-B

PART 3 - EXECUTION

3.1 EXAMINATION

- A. A nuclear or infrared scan must be performed and any wet roofing materials must be removed and replaced.
- B. Repairs to the structural components, gutters, metal cap flashing or other penetrations have been replaced or modified as needed.

3.2 PREPARATION

- It is extremely important for the roof to be clean and dry.**
- A. Asphalt substrates shall be prepared by mechanically brushing away loose dirt, debris and granules, and removing via a power broom and/or industrial vacuum. The roof surface must be clean and completely dry, especially in areas of ponding water.
NOTE: For previously coated asphalt substrates, please contact Technical Services.
- B. **Biological Control:** Areas of algae, mildew or fungus on the roofing membrane should be treated with a solution of 1-part household bleach to 3 parts water, mixed using clean plastic equipment. After cleaning, examine the coating application area to determine that no ponding or standing water remains before applying the coating.
NOTE: Except for cleaning to remove biological residue, do not wash the sealed roofing substrate. Do include pressure washing and the use of cleaners except at the direction of Technical Services.

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- G. **Sleepers:** Any units that are sitting on sleepers must be lifted so that the membrane underneath the units can be cleaned, primed and coated. An approved slip sheet must be placed under the sleepers to protect the coating. If the units are not lifted off the deck so as to be able to accomplish this procedure, the untreated area will be excluded from the manufacturer's warranty.

H. Coating

1. **FOR SMOOTH MODIFIED BITUMEN AND SMOOTH BUR:**
Apply one (1) coat of GacoFlex S4200 White Elastomeric Silicone Roof Coating at the average rate of 2.25 gal/100 ft² (8.5 L/26.2 m²) to obtain 36 mil WFT (for 34 mil DFT). Coat all surfaces including expansion joint covers and flashings. At all edges and penetrations, an extra pass must be applied.
- or...
2. **FOR GRANULAR AND OTHER ROUGH SURFACES:**
Apply one (1) coat of GacoFlex S4200 White Elastomeric Silicone Roof Coating at a rate 2.75 gal/100 ft² (10.4 L/26.2 m²) to obtain 36 mil WFT (for 34 mil DFT). Ensure that the coating has fully encapsulated all granules. Coating mils will be lost due to encapsulation.

OPTIONAL GRANULAR COAT:
An additional granular coat may be added. Apply one coat of GacoFlex S4200 White Elastomeric Silicone Roof Coating at a minimum of 0.5 gal/100 ft² (1.9 L/26.2 m²) for 8 mils DFT. Immediately broadcast white roofing granules into fresh coat at the rate of 30 lb/100 ft² (13.6 kg/9.29 m²).

OPTIONAL WALKPAD:
THESE INSTRUCTIONS APPLY TO APP AND BUR(S) MEMBRANES ONLY.
Apply the coat of GacoFlex SF4236 WalkPad at a rate of 1 gal/100 ft² (3.8 L/26.2 m²) to obtain 64 mil WFT. Immediately broadcast GacoWalkPad safety yellow granules into wet coating at a rate of 0.5 lb/100 ft² (0.23 kg/26.2 m²) improve traction.

- NOTE:** Tape off areas to receive the GacoWalkPad area using duct tape. After application remove duct tape while coating is still wet.
- NOTE:** GacoFlex WalkPad SF4236 is the only walk pad system approved for use with GacoFlex S4200 White Elastomeric Silicone Roof Coating. However, WalkPad may (not) be used on coated SBS roofing membranes.
- CAUTION:** While the use of granules will improve traction, caution should still be exercised when walking on the coated roofing system, especially in wet conditions.
- NOTE:** Unlike single ply membranes, modified bitumen and built up roofs have varying degrees of cracks in the surface of the asphalt and bleed out at the seams. With this application it is highly recommended that a test patch be installed to determine how much coating will be needed because asphalt roof surfaces profiles vary due to weathering and other factors.

3.4 FIELD QUALITY CONTROL

- A. Any variations from the specified limits found by the Applicator or owner's representative shall be corrected by the Applicator.
- B. Dry Film Thickness: It is the Applicator's responsibility to calculate the amount of coating needed to obtain the required minimum dry mils. Gaco suggests using a 10% variance factor to obtain the minimum dry mils required.
- C. No traffic shall be permitted on the coated surface for a minimum of three (3) days. Damage to the surface by other trades shall not be the responsibility of the Applicator.

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- E. Equipment: All equipment used during operations shall be located so as not to adversely affect the daily operations of end-user occupants, structure, or materials on-site. All spray equipment must be grounded during operations.

PART 2 - PRODUCTS

2.1 MANUFACTURER

Acceptable Manufacturers:
Gaco, www.gaco.com

2.2 MATERIALS

- A. Cleaner: GacoFlex GacoWash Concentrated Cleaner
- B. Primer: GacoFlex E5320 Epoxy Primer (as needed)
- C. Polyurethane foam shall be designed for a spray application resulting in high quality, rigid polyurethane under the prevailing application conditions. Polyurethane foam shall be of the proper formulation to meet climatic conditions at the time of the application.
1. Polyurethane foam shall be GacoFlex F2733 GacoRoofFoam manufactured by Gaco meeting the following minimum physical and performance properties:

PROPERTY	VALUE	TEST METHOD
Nominal Density	2.5/3.0 Lbs/ft ³	ASTM D1622-93
Closed Cells	94.3%	ASTM D2856 C94
Compressive	50.1 psi	ASTM D1621
R-Value	6.5/in.	ASTM C518

NOTE: It is Gaco's position that the use of foamed plastic insulation for interior application on walls or ceilings may represent an unreasonable fire hazard unless the foamed plastic insulation is covered with a thermal barrier and the resulting composite construction has a minimum 15 minute rating as listed by Factory Mutual Research Corporation or other equally accepted listing agency.

- Fire rated coating systems for plastic foam insulation tested under ASTM E108 Class "A" Roof Composite Construction do not qualify for thermal barrier use on interior walls and ceilings.
- D. Expansion Joint Covers: Where called for on the drawings, expansion joint covers will be GacoFlex NF621 Neoprene Sheet, 1/16" (1.6 mm) thick, using GacoFlex N1207 VOC Compliant General Purpose Adhesive, in a width of _____ (to be stated in the published specification. If there is none stated, the bids will be based on 12" (30.48 cm) GWPV in accordance with Gaco's General Instructions GW-5-D3 Details).

E. Elastomeric Coating: GacoFlex S42 Series Silicone Coating with the following physical properties:

PROPERTY	VALUE	TEST METHOD
Tensile Strength	275 psi	ASTM D2370
Elongation	196%	ASTM D2370
Solids	96% by weight 96% by volume	ASTM D1644 ASTM D2097
VOC	< 50 Grams/liter	EPA Method 24

Coating: GacoFlex S4200 Silicone Coating (Cont.)

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PROPERTY	VALUE	TEST METHOD
Reflectance	0.87 initial 0.81 after soiling	ASTM C1549 S4200 White
SRI	110 initial 101 after soiling	ASTM E1890 S4200 White
Water Vapor Permeability	6.4 perms	ASTM E918 (20 mils DFT) (each nozzle)

- F. Flashing: GacoFlex Foam can be self-flashing at curbs, parapets, walls and penetrations. Contact a Gaco Western Representative for assistance.

Flashing at dynamically moving joints require GacoFlex NF621 Neoprene Sheet Flashing 1/16" (1.6 mm) and VOC Compliant General Purpose Adhesive.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that the substrate is ready to receive the work; surface is clean, dry and free of substances which could affect the bond.
- B. Cleaning of the roof should be accomplished by using power vacuum equipment, power sweepers, air blowers, power washers or other suitable means. Use GacoWash diluted 1 part of GacoWash with 9 parts of water when power washing.
- C. All associated construction (e.g. drain installation, edge flashing, penetrations and mechanical apparatus) shall be completed prior to the commencement of the specified roof foam and coating system.
- D. Verify that all other work involved with this area, done under other sections, has been completed and accepted by the architect and general contractor prior to starting the waterproofing application.

3.2 PREPARATION

- A. Clean substrate to remove all oils and surface contaminants. Refer to Gaco's General Instructions GW-1.1, Surface Preparation.
- B. Mask off all adjoining areas that will not receive the roofing system.

3.3 INSTALLATION

- A. **Technical Advice:** The installation of this system shall be accomplished with the advice of, the manufacturer's technical representative. Contact Technical Services for assistance.
NOTE: Surface should be clean and dry, remove all oils and other surface contaminants.
- B. **Primer:** No primer system is required unless rust is present. Area that contain Rust: Apply GacoFlex E5320 Primer at 1.0 gal per 300 ft² (3.78 L / 27.9 m²) to steel, aluminum, copper, and ferrous metal. The primer must be completely dry before starting the polyurethane foam application.
- C. **Foam:** Install GacoFlex F2733 GacoRoofFoam at a thickness of 2.0 in ± 0.25 in (54 cm). Neatly terminate the sprayed-in-place polyurethane foam on all vertical surfaces, (e.g., pipe penetrations, vents, mechanical equipment, parapet walls, etc.) a minimum of 3" (7.62 cm) or 2" times as specified minimum foam thickness.
- Example: If 1" (2.54 cm) minimum is specified, all vertical terminations shall have a minimum of 2 1/2" (6.35 cm) sprayed up onto the vertical surface and carried to the horizontal surface.
1. The polyurethane foam spray application shall be limited to an area which can be completed to full foam thickness in one day.

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The Hudson River Museum

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Project

Hudson River Museum
Roof Project

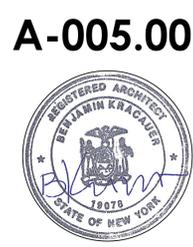
Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title

Specifications

Drawing Number

A-005.00



SYMBOLS AND ABBREVIATIONS		
SYMBOL	ABBREVIATION	DESCRIPTION
-	AC-	AIR CONDITIONING UNIT
-	AD	ACCESS DOOR
-	AFF	ABOVE FINISHED FLOOR
-	AHC	ABOVE HUNG CEILING
-	AP	ACCESS PANEL
-	BHP	BRAKE HORSEPOWER
-	BTU	BRITISH THERMAL UNIT
-	CFM	CUBIC FEET PER MINUTE
-	COD	CABLE OPERATED DAMPER
-	DB	DRY BULB TEMPERATURE
-	DIA. OR Ø	DIAMETER
-	DX	DIRECT EXPANSION
-	EA	EXHAUST AIR
-	EAT	ENTERING AIR TEMPERATURE
-	ER	EXHAUST REGISTER
-	ESP	EXTERNAL STATIC PRESSURE
-	EWT	ENTERING WATER TEMPERATURE
-	FCU	FAN COIL UNIT
-	FPM	FEET PER MINUTE
-	FPS	FEET PER SECOND
-	GPM	GALLONS PER MINUTE
-	HP	HORSE POWER
-	LAT	LEAVING AIR TEMPERATURE
-	LF	LINEAR FEET
-	LWT	LEAVING WATER TEMPERATURE
-	MBH	1000 BRITISH THERMAL UNITS PER HOUR
-	MER	MECHANICAL EQUIPMENT ROOM
-	NIC	NOT IN CONTRACT
-	OAI	OUTSIDE AIR INTAKE
-	PSI	POUNDS PER SQUARE INCH
-	RA	RETURN AIR
-	RF-	RETURN FAN
-	RPM	REVOLUTIONS PER MINUTE
-	SA	SUPPLY AIR
-	SP	STATIC PRESSURE
-	TD	TRANSFER DUCT
-	TF-	TRANSFER FAN
-	TSP	TOTAL STATIC PRESSURE
-	TYP.	TYPICAL
-	U.O.N.	UNLESS OTHERWISE NOTED
-	WB	WET BULB TEMPERATURE
-	WG	INCHES OF WATER GAUGE
-	EX.	EXISTING TO REMAIN
- - - - -	REL.	REMOVE AND RELOCATE
—————	NEW	NEW WORK
- - - - -	DEM.	EXISTING TO BE REMOVED
Ⓢ	-	THERMOSTAT
↗	-	AIR INTO REGISTER
⊗	-	POINT OF CONNECTION DISCONNECTION
↑	SR	SUPPLY REGISTER
⊠	CD	1-WAY
⊠ ^{CD}		2-WAY
⊠ ^{CD}		2-WAY
⊠ ^{CD}		3-WAY
⊠ ^{CD}		4-WAY
⊠ ^{RR/RC/ER}		RETURN REGISTER/GRILLE/EXHAUST REGISTER
⊠	-	SUPPLY DUCT UP
⊠	-	SUPPLY DUCT DOWN

SYMBOLS AND ABBREVIATIONS		
SYMBOL	ABBREVIATION	DESCRIPTION
	-	RETURN DUCT UP
	-	RETURN DUCT DOWN
	-	TRANSITION FROM SQUARE TO ROUND DUCT
	-	TRANSITION
	-	DUCT DROP
	-	DUCT RISE
	-	SQUARE VANED ELBOW
	-	DUCT RISE
	-	DUCT DROP
	-	DUCT TRANSITION
	-	ALUMINUM DUCT
	AL	ACOUSTIC LINING
	FD/AD	FIRE DAMPER W/ ACCESS DOOR
	SD/AD	SMOKE DAMPER W/ ACCESS DOOR
	CFS/AD	COMBINATION FIRE/SMOKE DAMPER W/ ACCESS DOOR
	VD	VOLUME DAMPER
	AL	ACOUSTIC LINING
	-	DUCT SIZE - 1ST FIGURE IS SIDE SHOWN
	FC	FLEXIBLE CONNECTION
	-	ALUMINUM DUCT
	-	EXHAUST REGISTER
	-	NEW CEILING DIFFUSER

GENERAL NOTES	
1.	DUCT DIMENSIONS SHOWN ON MECHANICAL DRAWINGS REFER TO INSIDE CLEAR DUCT DIMENSIONS. WHERE DUCTWORK IS LINED THE CONTRACTOR SHALL INCREASE THE SIZE OF DUCT TO COMPENSATE FOR LINING.
2.	CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO THE BEGINNING OF WORK AND COORDINATE NEW WORK.
3.	THE CONTRACTOR SHALL INSTALL FIRE DAMPERS WITH ACCESS DOORS IN ALL DUCTS PENETRATING FIRE RATED WALLS WHETHER SPECIFICALLY SHOWN ON THE DRAWING OR NOT.
4.	PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES. FOR PIPES PENETRATING FIRE RATED PARTITIONS, THE SPACE BETWEEN THE PIPE AND THE SLEEVE SHALL BE SEALED WITH FIRE STOPPING MATERIAL.
5.	THIS CONTRACTOR SHALL SUBMIT FOR REVIEW A COMPOSITE SHOP DRAWING, FULLY COORDINATED WITH ALL OTHER TRADES, INDICATING DUCTWORK, PLUMBING PIPING, SMOKE DETECTORS, LIGHTS, CONDUITS, DIFFUSERS, GRILLES, ETC.
6.	CONTRACT DRAWINGS AS FAR AS THEY RELATE TO THE GENERAL ARRANGEMENT AND LOCATION OF EQUIPMENT, PIPING AND SHEETMETAL, SHALL BE UNDERSTOOD AS DIAGRAMMATIC. ANY CHANGES TO SHEETMETAL AND EQUIPMENT LOCATIONS NECESSARY TO AVOID INTERFERENCE WITH OTHER TRADES SHALL BE MADE AT NO EXTRA COST.
7.	SEE ARCHITECTURAL DRAWINGS FOR EXACT PHASING AND TIME SCHEDULE FOR CONSTRUCTION.

SPECIFICATIONS		
M-1 SCOPE OF WORK		
A.) THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPERVISION AND OVERHEAD FOR THE FURNISHING AND INSTALLING OF ALL THE HEATING, VENTILATING AND AIR CONDITIONING AND RELATED WORK COMPLETE, IN ACCORDANCE WITH THE DRAWINGS, SCHEDULES AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:		
1. MODIFICATIONS TO EXISTING ROOFTOP FANS AND BUILDING SYSTEM DUCTWORK		
2. INSTALLATION AND/OR RELOCATION OF ROOFTOP FANS.		
3. TESTING AND BALANCING.		
M-2 WORK EXCLUDED		
A.) THE FOLLOWING ITEMS ARE EXCLUDED FROM THIS SECTION OF WORK:		
1.) MOUNTING AND POWER WIRING FOR ALL MOTOR STARTERS.		
2.) ALL ELECTRIC POWER WIRING EXCEPT WHERE FURNISHED AS AN INTEGRAL PART OF FACTORY ASSEMBLED EQUIPMENT OR AS OTHERWISE REQUIRED FOR AUTOMATIC TEMPERATURE CONTROLS, VARIOUS SAFETY CONTROLS AND MOTOR INTERLOCKS.		
M-3 GENERAL REQUIREMENTS		
A.) CONSTRUCT ALL APPARATUS OF MATERIALS AND PRESSURE RATINGS SUITABLE FOR THE CONDITIONS ENCOUNTERED DURING CONTINUOUS OPERATION.		
B.) WHERE CORROSION CAN OCCUR, APPROPRIATE CORROSION-RESISTANT MATERIALS AND ASSEMBLY METHODS SHALL BE USED, INCLUDING ISOLATION OF DISSIMILAR METALS AGAINST GALVANIC INTERACTION. RESISTANCE TO CORROSION SHALL BE ACHIEVED BY THE USE OF THE APPROPRIATE BASE MATERIALS COATINGS SHALL BE RESORTED TO ONLY WHEN SPECIFICALLY PERMITTED BY THE SPECIFICATIONS.		
C.) CONSTRUCT ALL EQUIPMENT IN ACCORDANCE WITH REQUIREMENTS OF ALL APPLICABLE CODES. ALL PRESSURE VESSELS AND SAFETY DEVICES THAT FALL WITHIN THE SCOPE OF THE ASME CODE SHALL CONFORM TO THE CODE AND BEAR THE ASME LABEL OR STAMP.		
D.) MATCH AND BALANCE ALL SYSTEM COMPONENTS TO ACHIEVE COMPATIBILITY OF EQUIPMENT FOR SATISFACTORY OPERATION AND PERFORMANCE THROUGHOUT THE ENTIRE OPERATING TEMPERATURE AND CONTROL RANGES. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.		
E.) UPON COMPLETION OF WORK, THE ENTIRE MECHANICAL SYSTEM SHALL BE OPERATED IN THE PRESENCE OF THE OWNER TO DEMONSTRATE THAT ALL COMPONENTS ARE INSTALLED AND OPERATING PROPERLY.		
F.) PROVIDE ALL CONTROLS, WIRING (EXCEPT POWER WIRING FOR MOTORS), PIPING, VALVES, ACCESSORIES AND OTHER COMPONENTS NECESSARY TO MAKE ALL SYSTEMS COMPLETE AND OPERABLE.		
M-4 REMOVALS		
A.) REMOVE AND DISPOSE OF ALL EQUIPMENT, DUCTWORK, PIPING, DIFFUSERS AND ACCESSORIES WITHIN THE PROJECT AREA AS SHOWN ON THE DRAWINGS OR AS REQUIRED FOR THE INSTALLATION OF THE WORK OF THIS PROJECT.		
B.) THIS WORK SHALL BE EXECUTED IN AN ORDERLY AND CAREFUL MANNER, WITH DUE CONSIDERATION FOR THE PROTECTION OF ADJACENT ACTIVITIES. DUST PRODUCING DEMOLITION SHALL BE ISOLATED WITH PROPER PRECAUTIONS.		
C.) THE CONTRACTOR SHALL ASK THE OWNER FOR INSTRUCTIONS IF HE/SHE ENCOUNTERS DEMOLITION WORK WHICH MIGHT RESULT IN A HAZARDOUS CONDITION.		
D.) MECHANICAL DEMOLITION INDICATED ON THE DRAWING IS ACCORDING TO THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL VERIFY ALL DEMOLITION WORK WITHIN THE AREA AND SHALL CONDUCT REMOVALS, AS REQUIRED, OR AS INSTRUCTED BY THE OWNER.		
M-5 DUST PROTECTION		
A.) IT IS IMPERATIVE THAT DURING DEMOLITION, AND ALSO DURING NORMAL CONSTRUCTION, WHERE THERE IS ANY POSSIBILITY OF DUST DUE TO CONSTRUCTION WORK CONTAMINATING THE OWNER'S EQUIPMENT OR CAUSING A NUISANCE TO PERSONNEL, THIS CONTRACTOR SHALL FURNISH AND INSTALL SUITABLE PROTECTION AS REQUIRED.		
B.) WHEREVER POLYETHYLENE IS USED AS PROTECTIVE TARPAPLINS OR DROPCLOTH, IT SHALL BE FIRE-RETARDANT POLYETHYLENE SHEETING, .004" THICK.		
M-6 TIME AND MANNER		
A.) ALL WORK SHALL BE PERFORMED DURING NORMAL WORKING HOURS UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE.		
B.) PRIOR TO THE BEGINNING OF WORK THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF WORK TO THE OWNER. ANY SHUTDOWNS OF EXISTING EQUIPMENT AND/OR SYSTEMS SHALL BE VERIFIED IN WRITING WITH THE OWNER'S REPRESENTATIVE.		
C.) ANY SHUT-DOWN OF EXISTING SYSTEMS WHERE SUCH SHUT-DOWN IS REQUIRED FOR THE PERFORMANCE OF THE WORK UNDER THE CONTRACT SHALL BE AT SUCH TIMES AS DESIGNATED BY OWNER'S REPRESENTATIVE. RESTORE SYSTEMS TO ORIGINAL CONDITION AFTER PERFORMANCE WORK. THE INTENT IS TO INSURE MINIMUM INTERFERENCE WITH OPERATION OF EXISTING FACILITIES. REPAIR ANY DAMAGE DONE TO BUILDING RESULTING FROM INSTALLATION OF NEW WORK.		
M-7 SITE INSPECTION		
A.) VISIT SITE BEFORE SUBMITTING BID. INSPECT AND VERIFY ALL CONDITIONS WHICH MAY AFFECT COST OF INSTALLATION. VERIFY EXACT LOCATION OF ALL EXISTING PIPES, DUCTS, BEAMS, ETC., WHETHER SHOWN ON THE DRAWINGS OR NOT, SO FAR AS THESE LOCATIONS RELATE TO THE NEW WORK. PROVIDE ANY OFFSETS IN NEW PIPING OR DUCTS AS MAY BE REQUIRED FOR PROPER CLEARANCES TO AVOID EXISTING DUCTS, CABLES OR OTHER OBSTRUCTION.		
M-8 RUBBISH REMOVAL		
A.) EQUIPMENT, DUCTWORK, ETC., SPECIFIED TO BE REMOVED AND RUBBISH CAUSED BY CONSTRUCTION SHALL BE REMOVED FROM THE CONSTRUCTION SITE.		
M-9 CUTTING AND PATCHING		
A.) THE CONTRACTOR SHALL PROVIDE ALL CUTTING REQUIRED FOR DUCTS, PIPING AND CONTROL CONDUITS PASSING THROUGH WALLS, FLOORS, ETC.		
B.) PENETRATIONS FOR PIPING SHALL BE MADE BY CORE DRILLING WHENEVER POSSIBLE.		
C.) PATCHING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR EXCEPT WHERE DAMAGE AND/OR REPAIRS ARE NECESSITATED DUE TO ERROR OR NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS SUB-CONTRACTORS.		
M-10 SHOP DRAWINGS AND SUBMITTALS REQUIRED		

A.) MANUFACTURER'S DATA OR SHOP DRAWINGS OF THE FOLLOWING APPARATUS GIVING FULL INFORMATION AS TO CATALOG NUMBERS, DIMENSIONS, MATERIALS AND ALL INFORMATION PERTINENT TO THE ADEQUACY OF THE SUBMITTED EQUIPMENT SHALL BE SUBMITTED FOR REVIEW:		
1.) SHEET METAL CONSTRUCTION DETAILS.		
2.) BALANCING REPORTS.		
3.) HANGERS AND INSERTS.		
M-11 TESTING AND BALANCING		
A.) THE CONTRACTOR SHALL ENGAGE THE SERVICES OF AN INDEPENDENT AIR BALANCING FIRM THAT SHALL BE SUBJECT TO THE REVIEW OF THE ENGINEER. THE BALANCING FIRM SHALL HAVE AT LEAST ONE MEMBER OF ITS FULL TIME STAFF WHO IS A LICENSED PROFESSIONAL ENGINEER WHO SHALL SUPERVISE THE BALANCING WORK.		
B.) THE TESTING AGENCY SHALL BE FULLY CERTIFIED BY THE ASSOCIATED BALANCE COUNCIL OR AN EQUIVALENT ORGANIZATION AND SHALL HAVE AT LEAST ONE MEMBER OF THE AGENCY QUALIFIED AS A CERTIFIED TEST AND BALANCE ENGINEER THAT HAS BEEN ISSUED THIS CERTIFICATION. ALL FINAL REPORTS SHALL BE SIGNED BY THIS CERTIFIED TEST AND BALANCE ENGINEER AND SHALL INCLUDE HIS OFFICIAL STAMP. SUBMIT FOUR (4) COPIES OF REPORT FOR REVIEW. BOTH A PRELIMINARY AND FINAL BALANCING REPORT SHALL BE SUBMITTED.		
C.) SUPPLY ALL LABOR, MATERIALS, INSTRUMENTS, ETC., REQUIRED FOR TESTING. REPAIR ALL DAMAGE TO PIPING OR EQUIPMENT WHICH OCCURS AS A RESULT OF TESTING. PLUG ALL HOLES IN DUCTS MADE FOR RAVERSE PURPOSES WITH APPROPRIATE SNAP-IN PLUGS. DUCT TAPE IS NOT ACCEPTABLE.		
D.) AIR BALANCE:		
1.) ALL FANS AND DUCT SYSTEMS SERVING THE BUILDING SHALL BE COMPLETELY BALANCED BY THE ADJUSTMENT OF SHEAVES, DAMPERS, AND OTHER VOLUME AND DIVERTING CONTROL DEVICES, TO OBTAIN THE AIR QUANTITIES REQUIRED.		
2.) THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONDITION WHICH PREVENTS THE ADJUSTMENT OF THE EQUIPMENT TO DELIVER THE INDICATED DESIGN AIR QUANTITIES.		
3.) SUBMIT SINGLE LINE DIAGRAMS OF ALL FAN SYSTEMS INDICATING OUTSIDE AIR INTAKE AND DISCHARGE DUCTS IDENTIFIED BY UNIT NUMBER.		
4.) RECORD THE FOLLOWING TEST DATA FOR ALL FANS AND FAN MOTORS INSTALLED AT THE PROJECT AT FINAL BALANCED CONDITIONS:		
a. FAN SPEED (RPM).		
b. FAN STATIC PRESSURE (EXTERNAL AND TOTAL).		
c. MOTOR OPERATING AMPS.		
d. ACTUAL VOLTAGE.		
e. FAN CFM.		
M-12 DUCTWORK - GENERAL REQUIREMENTS		
A.) ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES SHALL BE PROVIDED AND ALL OPERATIONS REQUIRED FOR COMPLETE INSTALLATION OF THE DUCTWORK, DAMPERS AND ALL AUXILIARY WORK OF ANY KIND, NECESSARY TO MAKE THE SYSTEM COMPLETE AND READY FOR SATISFACTORY OPERATION SHALL BE PERFORMED.		
B.) CONSTRUCT ALL EQUIPMENT IN ACCORDANCE WITH REQUIREMENTS OF ALL APPLICABLE CODES.		
C.) ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND REQUIREMENTS OF APPLICABLE CODES.		
D.) INSTALL DUCTS AND HANGERS PLUMB AND LEVEL WITH JOINTS SQUARE AND DEVOID OF SHARP EDGES. ROUTE DUCTWORK TO MINIMIZE DIRECTIONAL CHANGES AND ABRUPT TRANSITIONS. PROVIDE ADEQUATE SPACE AROUND DUCTS TO ASSURE PROPER SUPPORT AND TO ALLOW THE INSTALLATION OF THE INSULATION SPECIFIED. INSTALL VOLUME DAMPERS AT BRANCHES CONNECTED INTO THE MAIN DUCT.		
M-13 DUCT CONSTRUCTION REQUIREMENTS		
A.) CONSTRUCT AND SUPPORT ALL DUCTWORK IN ACCORDANCE WITH THE LATEST STANDARDS OF ASHRAE AND THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. ALL WORK, MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE LATEST REQUIREMENTS OF NFPA 90A AND THE LOCAL AUTHORITIES HAVING JURISDICTION.		
B.) ALL LOW PRESSURE DUCTWORK SHALL BE MADE OF BEST BLOOM GALVANIZED IRON OF THE FOLLOWING U.S. STANDARD GAUGES:		
NO. 24 UP TO 30 INCHES MAXIMUM DIMENSION		
NO. 22 30 INCHES TO 54 INCHES		
NO. 20 55 INCHES TO 84 INCHES		
NO. 18 85 INCHES AND OVER		
C.) NO DUCT SHALL BE LESS THAN 24 GAUGE.		
D.) BRACING, GAUGES AND SUPPORTS INDICATED IN SMACNA MANUALS ARE THE MINIMUM ACCEPTABLE. ADDITIONAL BRACING OR SUPPORTS SHALL BE INSTALLED TO ELIMINATE ANY DISTORTION OR VIBRATION WHEN THE SYSTEMS ARE OPERATING OR UNDER TESTS.		
E.) ALL LONGITUDINAL SEAMS SHALL BE PITTSBURGH TYPE SEAMS LOCATED AT THE CORNERS.		
F.) DUCT SEALANT SHALL BE 3M CO. TYPE EC-800 SEALING COMPOUND OR EQUIVALENT.		
M-14 HANGERS AND SUPPORTS		
A.) GENERAL:		
1.) PROVIDE HANGERS AND SUPPORTS TO SUPPORT THE WEIGHT OF DUCTS AND ASSOCIATED EQUIPMENT WITHIN THE DUCT RUN. FASTEN HANGERS AND SUPPORTS TO CONCRETE STRUCTURE BY INSERTS OR EXPANSION ANCHORS.		
B.) HORIZONTAL DUCTWORK:		
1.) FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 2 FT² OR LESS, HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY 1/8" STEEL STRAP. FOR DUCTS WITH A CROSS-SECTIONAL AREA OF OVER 2 FT² HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY 1/4" STEEL STRAP.		
2.) FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 4 FT² OR LESS, HANGERS SHALL BE NO MORE THAN 8 FT APART; FOR DUCTS WITH A CROSS-SECTIONAL AREA OF MORE THAN 4 FT² BUT NOT OVER 10 FT² HANGERS SHALL BE NO MORE THAN 6 FT APART, AND FOR DUCT WITH A CROSS-SECTIONAL AREA OF MORE THAN 10 FT² HANGERS SHALL BE NO MORE THAN 4 FT. APART. THE DISTANCES BETWEEN HANGERS SHALL BE MEASURED LINEARLY ALONG THE DUCT.		

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Project

Hudson River Museum

Roof Replacement

Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title

MECHANICAL SYMBOLS, ABBREVIATIONS, NOTES & SPEC. 1 OF 2
As Noted

Drawing Number

M-001



SPECIFICATIONS CONTINUED

3.) STRAP HANGERS SHALL BE FASTENED TO DUCT WITH SHEET METAL SCREWS ON 2" CENTERS WITH NOT LESS THAN 2 PER VERTICAL SIDE. FOR DUCTS OVER 48" WIDE, STRAP HANGERS SHALL BE EXTENDED AROUND BOTTOM DUCT NOT LESS THAN 2" FROM EACH EDGE WITH AT LEAST ONE SHEET METAL SCREW PER LEG.

M-15 ACCESS DOORS IN SHEET METAL

A.) DOORS IN DUCTWORK SHALL BE PROVIDED FOR ACCESS TO ALL APPARATUS, ACCESSORIES, AUTOMATIC CONTROLS, VALVES, AUTOMATIC DAMPERS AND DAMPER MOTORS, SMOKE DETECTORS, AND ALL OTHER AREAS AND EQUIPMENT REQUIRING PERIODIC INSPECTION OR SERVICE.

B.) UNLESS OTHERWISE INDICATED, ACCESS DOORS IN DUCTS SHALL BE 20"x20". FOR DUCTS LESS THAN 24", THE DOOR SHALL BE A MINIMUM OF 12" LONG AND 2" SMALLER THAN THE DUCT WIDTH/HEIGHT DIMENSION, DEPENDING ON LOCATION.

C.) ACCESS DOORS SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND INSTALLED TO WITHSTAND THE SAME TEST PRESSURES WITHOUT DEFORMATION, VIBRATION OR LEAKAGE AS THE DUCTWORK IN WHICH THEY ARE PROVIDED. DOORS INSTALLED IN INSULATED DUCTWORK SHALL BE OF THE DOUBLE INSULATED, REINFORCED PANEL TYPE WITH MINIMUM 18 GAUGE SHEET METAL. ACCESS DOORS IN UN-INSULATED DUCTWORK MAY BE SINGLE PANEL CONSTRUCTION OF NOT LESS THAN 18 GAUGE SHEET METAL. ALL ACCESS DOORS SHALL HAVE HINGES, LOCKING DEVICES, AND RUBBER GASKETS AROUND THE PERIMETER.

D.) DOORS SHALL BE FIT CLOSELY. ROUND SOFT RUBBER GASKETING SHALL BE SECURELY ATTACHED TO THE DOORS BY CEMENT AND RIVETS SHALL BE COUNTERSUNK FOR A CONTINUOUS AIRTIGHT SEAL.

M-16 DAMPERS

A.) PROVIDE VOLUME DAMPERS FOR NEW DUCT SYSTEMS IN EACH BRANCH DUCT, WHERE INDICATED, AND WHERE REQUIRED TO ACCOMPLISH AIR BALANCE. VOLUME DAMPERS TO BE FABRICATED WITH 18 GAUGE GALVANIZED STEEL WITH INTERLOCKING BLADES AND HEMMED EDGES SET IN A GALVANIZED STEEL FRAME. PROVIDE SINGLE BLADE BUTTERFLY TYPE DAMPERS WITH MAXIMUM ASSEMBLY LENGTH OF 48 INCHES. FOR LONGER LENGTHS USE MULTIPLE ASSEMBLIES INSTALLED SIDE BY SIDE.

B.) U.L. APPROVED FIRE DAMPERS SHALL BE INSTALLED IN ALL DUCTS PIERCING FIRE RATED WALLS, FLOORS OR CEILINGS WHETHER SPECIFICALLY INDICATED ON DRAWINGS OR NOT, EXCEPT FOR KITCHEN EXHAUST DUCTS. DAMPERS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA-90A AND LOCAL CODES. FIRE DAMPERS SHALL BE SHUTTER TYPE WITH MINIMUM 1½ HOUR RATING IN ACCORDANCE WITH NFPA 252. DAMPER SHALL BE RUSKIN OR AS APPROVED. FIRE DAMPER SHALL COMPLY WITH REQUIREMENTS OF UL 555.

M-17 FLEXIBLE CONNECTIONS

A.) FOR AIR OUTLETS PROVIDE INLET CONNECTIONS OF NEOPRENE COATED AND IMPREGNATED FIBERGLASS CLOTH REINFORCED WITH CONTINUOUS GALVANIZED WIRE HELIX AND PREINSULATED WITH 1½" THICK FIBERGLASS COVERED WITH REINFORCED ALUMINUM FOIL, FLEXIBLE TUBING CORP., "THERMALFLEX" TYPE M-KN (TEMPERATURE RANGE 0-250°F). CUT BACK INSULATION 4" FROM EACH END. SEAL ALL INSULATION ENDS AND JOINTS VAPORTIGHT. LIMIT THE FLEXIBLE CONNECTION LENGTH TO FOUR FEET MAXIMUM. SECURELY FASTEN THE FLEXIBLE RUNOUTS TO THE DUCTWORK. SLIP THE FLEXIBLE CONNECTION OVER A 4" LONG MATCHING SHEET METAL SLEEVE OR FITTING IN THE DUCT PREPARED WITH SEALING COMPOUND. CLAMP THE FLEXIBLE RUNOUT SECURELY TO THE DUCT WITH A 1" WIDE, 18 GAUGE GALVANIZED STEEL, BOLTED CLAMPING COLLAR. REINFORCE THE JOINT WITH SHEET METAL SCREWS AND SEALING COMPOUND.

B.) FAN, CV AND VAV BOX INLET AND DISCHARGE CONNECTIONS SHALL BE MADE WITH FLEXIBLE MATERIAL SO AS TO PROHIBIT THE TRANSFER OF VIBRATION FROM FANS TO DUCTWORK. CONNECTIONS SHALL BE MADE OF HEAVY VINYL AND NEOPRENE CLOTH. THE FLEXIBLE CONNECTIONS SHALL BE APPROXIMATELY 6" LONG AND HELD IN PLACE WITH HEAVY METAL BANDS OR DOUBLE HEMLOCK SECURELY ATTACHED TO PREVENT ANY LEAKAGE AT THE CONNECTION POINTS.

M-18 ACOUSTIC TREATMENT

A.) ALL SUPPLY AND RETURN DUCTWORK WITHIN 20' OF FANS OR WITHIN 5' OF VAV AND CV BOX DISCHARGE, AND ALL TRANSFER AIR DUCTWORK SHALL BE INSTALLED WITH 1" ACOUSTIC LINING. SUCH ACOUSTIC LINING SHALL BE FLEXIBLE GLASS FIBER DUCT LINER; ANSI/ASTM C553 WITH "K" VALUE OF 0.24 AT 75°F; 1.5 LBS./CU. FT. MINIMUM DENSITY; COATED ON AIR SIDE FOR MAXIMUM VELOCITY OF 4000 FEET PER MINUTE; APPROVED BY THE NFPA.

B.) STAPLING METHOD OF ATTACHMENT SHALL NOT BE PERMITTED. MAT-FACED DUCT LINER SHALL BE ADHERED BY A FIRE RETARDANT ADHESIVE SUCH AS BENJAMIN FOSTER 81-99 OR EQUIVALENT. MECHANICAL FASTENERS WHICH DO NOT PIERCE THE SHEET METAL SHALL BE INSTALLED ON 16" CENTERS ON TOP SECTIONS (WHEN WIDTH EXCEEDS 12").

C.) ALL EXPOSED EDGES OF ACOUSTIC LINING SHALL BE INSTALLED WITH SHEET METAL NOSING AND CAULKED.

M-19 VIBRATION ISOLATION

A.) ALL SUSPENDED FANS SHALL BE SUPPORTED WITH STEEL COMPRESSION SPRING AND NEOPRENE OR RUBBER ISOLATED UNIT WITHIN A STEEL HOUSING OR RETAINER LOCATED IN HANGER RODS. MINIMUM COMBINED STATIC DEFLECTION 1½". MINIMUM SPRING RUNOUT - ½". MASON INDUSTRIES, INC. - TYPE DNH.

M-20 ELECTRIC WIRING

A.) THE ELECTRICAL CONTRACTOR WILL ERECT ALL STARTING EQUIPMENT FURNISHED UNDER THIS SECTION, EXCEPT STARTERS SPECIFIED TO BE FACTORY MOUNTED AND WIRED AS ALL INTEGRAL PART OF THE EQUIPMENT, AND WILL DO ALL WIRING NECESSARY TO SUPPLY POWER TO THE ELECTRIC MOTOR PROVIDED UNDER THIS SECTION, INCLUDING POWER TO THE STARTERS AND CONNECTIONS FROM STARTERS TO THE MOTORS.

B.) THIS CONTRACTOR SHALL INSTALL ALL MOTOR CONTROL, TEMPERATURE CONTROL WIRING AND INTERLOCK WIRING EXCLUSIVE OF MOTOR POWER WIRING.

M-21 ELECTRIC MOTOR CONTROLS

A.) FURNISH AND TURN OVER THE ELECTRICAL CONTRACTOR WHO SHALL ERECT AND WIRE THE SAME, SUITABLE STARTING CONTROLLING EQUIPMENT, AND DISCONNECT SWITCHES.

B.) ALL CONTROLLERS SHALL BE ALLEN-BRADLEY, CUTLER-HAMMER, OR GENERAL ELECTRIC, FULLY ENCLOSED IN NEATLY FURNISHED VENTILATED BOXES. CONTROLLERS SHALL BE OF THE COMBINATION STARTER AND UNFUSED SWITCH TYPE.

C.) ALL STARTERS FOR MOTORS ½ HORSEPOWER AND LARGER SHALL BE MAGNETIC ACROSS-THE-LINE TYPE WITH UNFUSED DISCONNECT SWITCH UNLESS OTHERWISE NOTED. SUCH STARTERS SHALL BE 208 VOLT, 3 PHASE, 60 CYCLE, A.C. SOURCE.

D.) ALL MAGNETIC STARTERS SUBJECT TO MANUAL START SHALL HAVE MOMENTARY CONTACT START AND STOP BUTTONS BUILT INTO COVER. ALL MAGNETIC STARTERS SUBJECT TO ELECTRICAL INTERLOCKS OR AUTOMATIC CONTROLS SHALL HAVE HAND-OFF-AUTOMATIC SWITCHES BUILT INTO COVER.

E.) ALL MAGNETIC STARTERS SHALL HAVE THERMAL OVERLOAD AND VOLTAGE PROTECTION IN EACH PHASE LEG. PROVIDE EACH STARTER WITH MINIMUM OF TWO AUXILIARY CONTACTS, ONE NORMALLY OPEN AND ONE NORMALLY CLOSED.

M-22 SEQUENCE OF OPERATIONS

1.) THIS CONTRACTOR SHALL PROVIDE A CONTROL SYSTEM COMPLETE WITH ALL NECESSARY WIRING, VALVES, INTERLOCKS, PANELS, ETC. FOR SYSTEM TO OPERATE AS SPECIFIED IN THE SEQUENCE OF OPERATION.

2.) SUBMITTALS FOR REVIEW

A.) SHOP DRAWINGS: INDICATE ALL MECHANICAL CONTROLLED COMPONENTS AND CONTROL SYSTEM COMPONENTS. LABELED WITH SETTINGS, AND ADJUSTABLE RANGE OF CONTROLS AND LIMITS. INCLUDE WRITTEN DESCRIPTION OF CONTROL SEQUENCE.

B.) INCLUDE FLOW DIAGRAMS FOR EACH CONTROL SYSTEM, GRAPHICALLY DEPICTING CONTROL LOGIC. INCLUDE DRAFT COPIES OF GRAPHIC DISPLAYS INDICATING MECHANICAL SYSTEM COMPONENTS, CONTROL SYSTEM COMPONENTS, AND CONTROLLED FUNCTION STATUS AND VALUE.

M-23 MISCELLANEOUS

A.) THE CONTRACTOR SHALL PROVIDE THE OWNERS WITH CATALOG DATA, OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS AND RECORD (AS-BUILT) DRAWINGS OF ALL COMPLETED WORK. AS-BUILT DRAWINGS SHALL SHOW EXACT LOCATION OF ALL MECHANICAL SYSTEMS, EQUIPMENT, DUCTWORK, PIPING, ETC.

B.) SUBMIT THREE (3) SETS OF AS BUILT DRAWINGS AND AN ELECTRONIC FILE OF THE AS BUILT DOCUMENTS IN AN AUTO CAD LT 2004 FORMAT TO BUILDING MANAGEMENT.

C.) ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

END OF SPECIFICATIONS

Date/Revision

12.10.2021 Bid Issue

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Project

Hudson River Museum
Roof Replacement

Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title

**MECHANICAL
SPECIFICATIONS 2 OF 2**

As Noted

Drawing Number

M-002



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Project

Hudson River Museum
West Wing

Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title

MECHANICAL
DEMOLITION
PLAN

Drawing Number

M-101

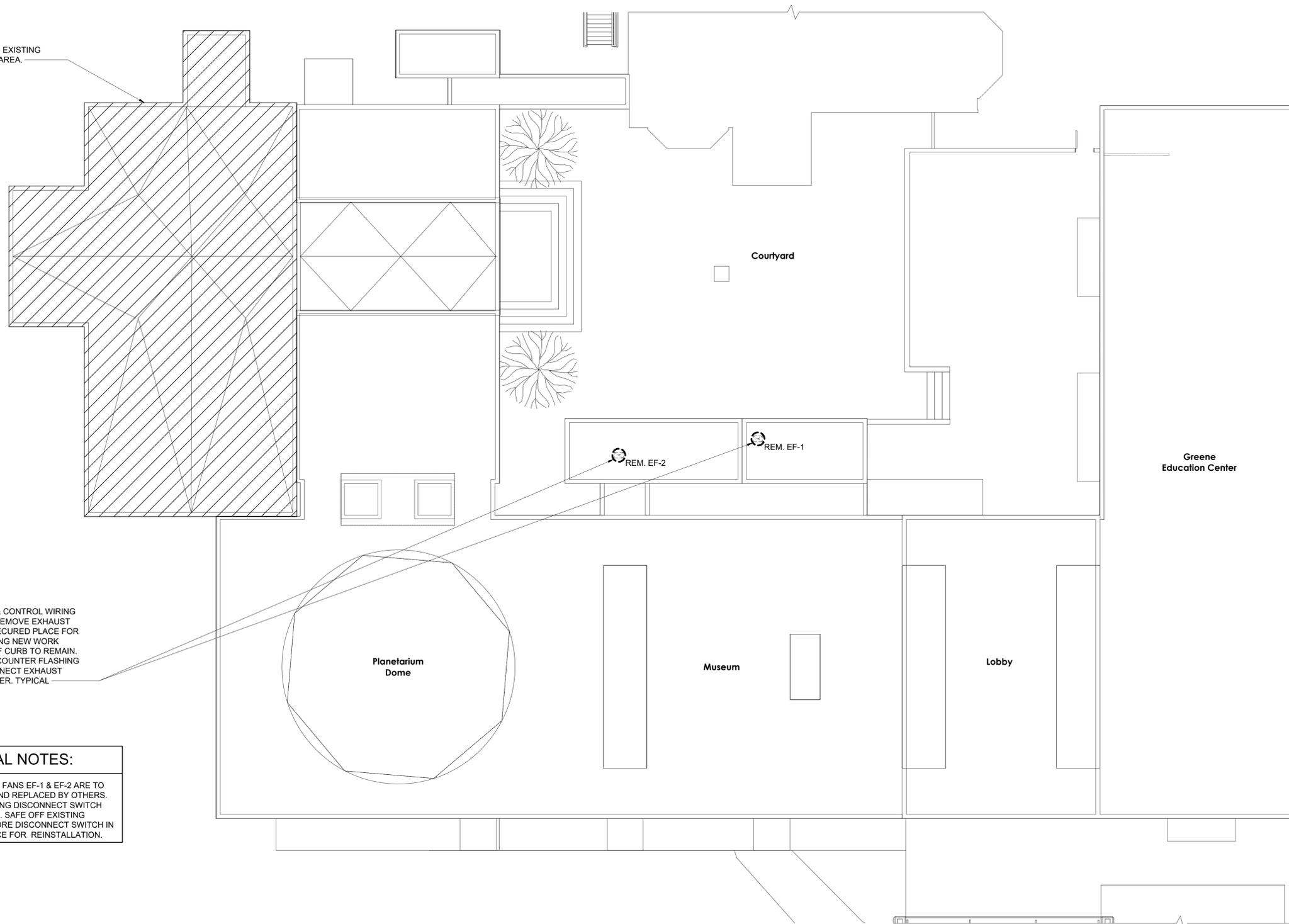


ROOF IS TO REMAIN AS EXISTING
WITHIN THE HATCHED AREA.

DISCONNECT POWER & CONTROL WIRING
FROM EXHAUST FAN. REMOVE EXHAUST
FAN & STORE IT IN A SECURED PLACE FOR
REINSTALLATION DURING NEW WORK
PHASE. EXISTING ROOF CURB TO REMAIN.
PROVIDE FLASHING & COUNTER FLASHING
AS REQUIRED. DISCONNECT EXHAUST
FAN/MOTORIZED DAMPER. TYPICAL

ELECTRICAL NOTES:

1. ROOF EXHAUST FANS EF-1 & EF-2 ARE TO BE REMOVED AND REPLACED BY OTHERS. REMOVE EXISTING DISCONNECT SWITCH AND CIRCUITRY. SAFE OFF EXISTING CIRCUITRY. STORE DISCONNECT SWITCH IN A SECURE PLACE FOR REINSTALLATION.



1

MECHANICAL ROOF DEMOLITION WORK PLAN

SCALE: 3/32" = 1'-0"

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Project

Hudson River Museum
West Wing

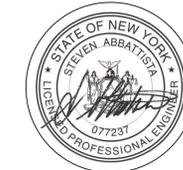
Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title

MECHANICAL
NEW WORK PLAN

Drawing Number

M-201

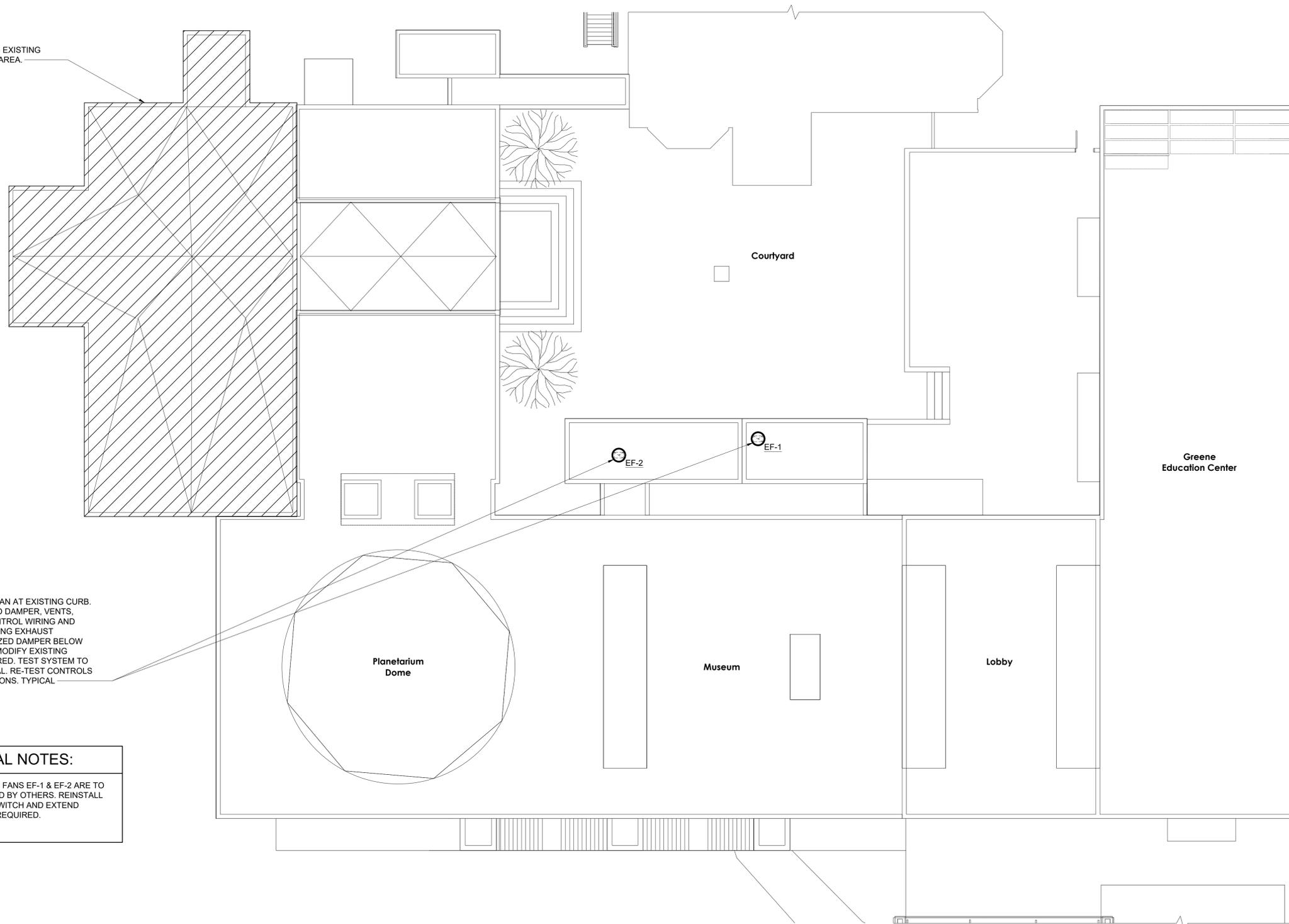


ROOF IS TO REMAIN AS EXISTING
WITHIN THE HATCHED AREA.

REINSTALL EXHAUST FAN AT EXISTING CURB.
REINSTALL MOTORIZED DAMPER, VENTS,
EXTEND POWER & CONTROL WIRING AND
RECONNECT TO EXISTING EXHAUST
DUCTWORK & MOTORIZED DAMPER BELOW
ROOF DECK. EXTEND/MODIFY EXISTING
DUCTWORK AS REQUIRED. TEST SYSTEM TO
CONFIRM OPERATIONAL. RE-TEST CONTROLS
FOR PROPER OPERATIONS. TYPICAL

ELECTRICAL NOTES:

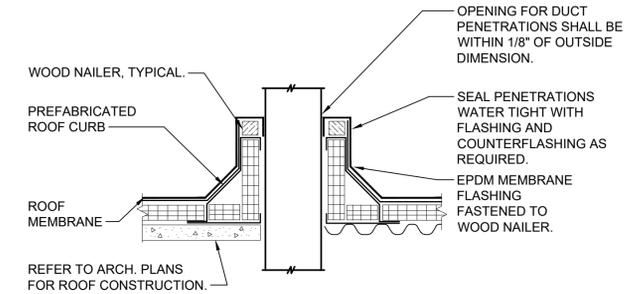
1. ROOF EXHAUST FANS EF-1 & EF-2 ARE TO BE REINSTALLED BY OTHERS. REINSTALL DISCONNECT SWITCH AND EXTEND CIRCUITRY AS REQUIRED.



1

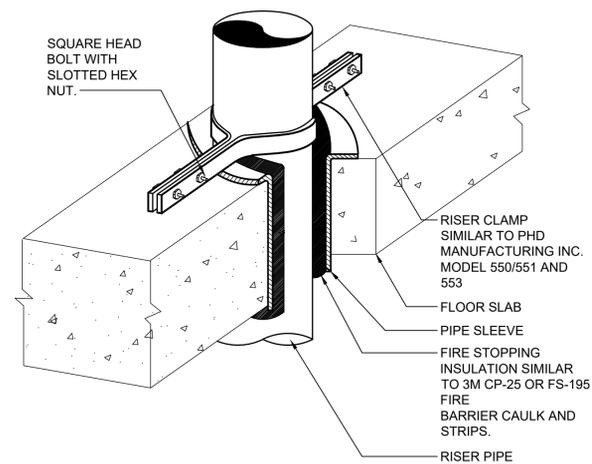
MECHANICAL ROOF NEW WORK PLAN

SCALE: 3/32" = 1'-0"

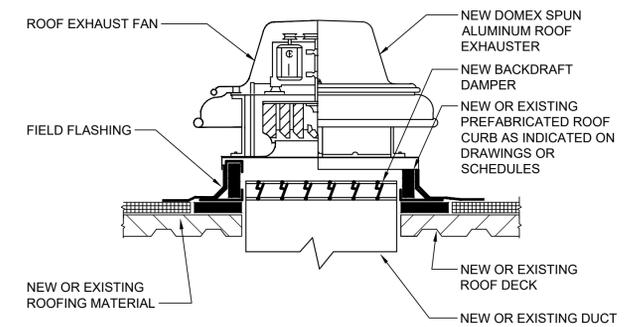


- NOTES:
1. THIS DETAIL SHALL BE USED FOR ALL DUCT PENETRATIONS THROUGH ROOF, BOTH NEW AND EXISTING.
 2. PREFABRICATED ROOF CURB SHALL BE OF PRIME 18 GAUGE GALVANIZED STEEL CONSTRUCTION WITH WELDED CORNERS AND 3" CANT FULLY MITERED WITH SEAMS JOINED BY CONTINUOUS WELDS. CURB SHALL BE FACTORY INSULATED WITH 1-1/2" THICK 3# DENSITY INSULATION AND ASSEMBLED WITH 2x2 WOOD NAILERS. DIMENSIONS OF ROOF CURB SHALL BE VERIFIED BY THIS CONTRACTOR PRIOR TO ORDERING BASED ON DIMENSIONS OF EXISTING UNITS. THIS CONTRACTOR SHALL COORDINATE HEIGHT OF ROOF CURB WITH GENERAL CONTRACTOR PRIOR TO ORDERING.
 3. CONTRACTOR SHALL PROVIDE ALL FLASHING, COUNTERFLASHING, AND ANY OTHER MATERIALS AND LABOR NECESSARY TO ENSURE A WATERTIGHT ROOF PENETRATION ENCLOSURE.

2 DUCT THROUGH ROOF DETAIL
SCALE: NONE



3 VERTICAL PIPE SUPPORT DETAIL
SCALE: NONE



- NOTES:
1. ARRANGEMENT IS SIMILAR FOR UP BLAST TYPE FAN AND LINEAR FANS.
 2. UP BLAST KITCHEN EXHAUST FAN SHALL NOT HAVE A BACK DRAFT DAMPER.
 3. SEE ARCH. DRAWINGS FOR FLASHING AND COUNTER FLASHING DETAILS

1 ROOF TOP EXHAUST FAN DETAIL
SCALE: NONE

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Project
**Hudson River Museum
Roof Replacement**
Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title
M-701 - M-701

As Noted

Drawing Number

4



PLUMBING FIXTURE SCHEDULE								
TAG	SYMBOLS		FIXTURES	PLUMBING CONNECTIONS				DESCRIPTION
	PLAN	ELEVATION		WASTE	VENT	COLD WATER	HOT WATER	
RD-1			ROOF DRAIN	4"	-	-	-	JOSAM 21500 4" SERIES COATED CAST IRON ROOF DRAIN, LARGE POLYPROPYLENE LOCKING DOME, WELJOC® NON-PUNCTURING CLAMP RING WITH INTEGRAL GRAVEL STOP, LARGE SUMP WITH WIDE ROOF FLANGE AND BOTTOM OUTLET.

NOTES:
1.) REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE SPECIFICATIONS, QUANTITY, LOCATIONS, & MOUNTING HEIGHTS.

SYMBOLS AND ABBREVIATIONS

SYMBOL	ABBREVIATION	DESCRIPTION
-	AFF	ABOVE FINISHED FLOOR
-	AHC	ABOVE HUNG CEILING
-	BFP	BACK FLOW PREVENTOR
●	-	BALL VALVE
D	-	BASKET STRAINER
	-	BUTTERFLY VALVE
	-	CHECK VALVE
	-	CIRCUIT SETTER
	CODP	CLEAN OUT DECK PLATE
-	CW	COLD WATER
	-	CONCENTRIC REDUCER
	DCV	DOUBLE CHECK VALVE - BFP
	-	ECCENTRIC REDUCER
C	-	ELBOW DOWN
O	-	ELBOW UP
-	DEM.	EXISTING TO BE REMOVED
-	EX.	EXISTING TO REMAIN
	-	FLEXIBLE CONNECTION
-	FCO	FLOOR CLEAN OUT
-	FS	FLOOR SINK
↑	-	FLOW ARROW
-	FAI	FRESH AIR INTAKE
	-	GATE VALVE
	-	GLOBE VALVE
-	HW	HOT WATER
-	HW HTR	HOT WATER HEATER
-	HWC	HOT WATER RECIRCULATION
-	LDR	LEADER
-	-	MANUAL AIR VENT
-	NEW	NEW WORK
	-	OS&Y GATE VALVE
	-	PLUG VALVE
-	-	PIPE CAP
	-	PRESSURE GAGE
	-	PRESSURE REDUCING VALVE
	-	PUMP
-	PD	PUMP DISCHARGE
-	RPZ	REDUCED PRESSURE ZONE - BFP
-	REL.	REMOVE AND RELOCATE
-	S	SANITARY
	-	SOLENOID VALVE
	-	STRAINER
-	SD	STORM DRAINAGE
O	-	TEE DOWN
O	-	TEE UP
	-	THERMOMETER
-	TYP.	TYPICAL
	-	T&P RELIEF VALVE
≡	-	UNION
-	V	VENT
-	VTR	VENT THROUGH ROOF
-	WCO	WALL CLEAN OUT
-	W	WASTE LINE
	-	2-WAY VALVE
	-	3-WAY VALVE

NOTE: FOR REFERENCE ONLY. NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED IN THIS PROJECT.

GENERAL NOTES

- THE CONTRACT DRAWINGS INDICATE THE EXTENT AND GENERAL ARRANGEMENTS OF THE PLUMBING SYSTEMS. IF ANY DEPARTURES FROM THE DRAWINGS ARE DEEMED NECESSARY BY THE PLUMBING CONTRACTOR, DETAILS OF SUCH DEPARTURES AND THE REASONS THEREFORE SHALL BE SUBMITTED TO THE OWNER AND ENGINEER FOR APPROVAL. NO SUCH DEPARTURES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER AND ENGINEER. EQUIPMENT AND PIPING ARRANGEMENTS SHALL PROVIDE ADEQUATE AND ACCEPTABLE CLEARANCES FOR ENTRY, SERVICING, AND MAINTENANCE. ANY CHANGES TO PIPING AND EQUIPMENT LOCATIONS NECESSARY TO AVOID INTERFERENCE WITH OTHER TRADES SHALL BE MADE AT NO EXTRA COST.
- THE PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE PREVAILING NEW YORK STATE PLUMBING AND BUILDING CODES. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE, THE MORE STRINGENT STANDARD SHALL APPLY.
- THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR PAYING RELATED FEES.
- CONNECTIONS TO EXISTING UTILITIES AND SERVICES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS, INVERT ELEVATIONS, AND SIZES OF EXISTING PLUMBING SERVICES IN FIELD, AND SHALL CONNECT NEW PLUMBING SERVICES AS INDICATED ON DRAWINGS.
- PRIOR TO FABRICATION, THIS CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AND CONDITIONS ON JOB SITE, AND COORDINATE THIS WORK WITH THE WORK OF ALL OTHER TRADES.
- ALL ACCESS PANELS SHALL BE BY GENERAL CONTRACTOR. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR LOCATION.
- PROVIDE ALL PLUMBING FIXTURES, PIPING, VALVES AND ACCESSORY ITEMS AS SPECIFIED AND AS REQUIRED FOR A COMPLETE INSTALLATION. ROUGHING DIMENSIONS OF FIXTURES MUST BE COORDINATED WITH THE GENERAL CONTRACTOR.
- PITCH ALL WASTE, SANITARY, AND STORM DRAIN PIPING AT MAXIMUM SLOPE POSSIBLE, BUT NOT LESS THAN 1/8" PER FOOT FOR PIPING ≥ 3" AND 1/4" PER FOOT FOR PIPING ≤ 2 1/2".
- NO PIPING SHALL RUN EXPOSED IN FINISHED AREAS.
- PROVIDE DIELECTRIC FITTINGS OR COUPLINGS WHEREVER DISSIMILAR METALS ARE JOINED.
- ALL WORK SHALL BE PROPERLY TESTED, BALANCED, AND CLEANED AND DISINFECTED. PROVIDE A ONE YEAR WARRANTY FROM DATE OF FINAL INSPECTION ON ALL PARTS AND LABOR.
- PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES. FOR PIPES PENETRATING FIRE RATED PARTITIONS, THE SPACE BETWEEN THE PIPE AND THE SLEEVE SHALL BE SEALED WITH FIRE STOPPING MATERIAL. PENETRATIONS FOR PIPING SHALL BE MADE BY CORE DRILLING WHENEVER POSSIBLE.
- THE PLUMBING CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, CORE DRILLING, PAINTING, ACCESS PANELS, AND FINAL RESTORATION REQUIRED TO FACILITATE THE INSTALLATION OF PLUMBING PIPING, INCLUDING ABOVE CEILINGS AND IN SHAFTS THAT WILL NOT BE REPLACED OR OPENED UNDER ANY OTHER SCOPE OF WORK RELATED TO THIS PROJECT. CONTRACTOR TO REMOVE AND REPLACE CEILINGS, AND OPEN AND PATCH SHAFTS AND WALLS, AS REQUIRED TO EXECUTE THE PLUMBING WORK.
- NEW PIPING LAYOUT IS PREDICATED ON RECORD DRAWING DATA OF EXISTING RISERS AND DRAWINGS. MODIFICATIONS TO THE LAYOUT MAY BE REQUIRED DUE TO DIFFERENT ACTUAL CONDITIONS, OBSTRUCTIONS, INTERFERENCES, ETC.
- SEE THE ARCHITECTURAL DRAWINGS FOR EXACT PHASING AND TIME SCHEDULE FOR CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY VENTILATION AND EXHAUST AIR WHEN WELDING OR SOLDERING OPERATIONS ARE PERFORMED, AS REQUIRED BY OSHA.

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12.10.2021 Bid Issue

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Project
Hudson River Museum West Wing
Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

PLUMBING SYMBOLS, ABBREVIATIONS, & NOTES

Drawing Number

P-001



SPECIFICATIONS

P-1 GENERAL

A.) THE CONTRACTOR SHALL OBTAIN AND FAMILIARIZE HIMSELF WITH THE BUILDING DESIGN CRITERIA AND CONSTRUCTION REQUIREMENTS PRIOR TO SUBMITTING BID. THE PLUMBING WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL LOCAL PLUMBING AND BUILDING CODES, AS WELL AS THOSE OF THE STATE OF NEW YORK. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE THE MORE STRINGENT STANDARD SHALL APPLY.

B.) PRIOR TO FABRICATION THIS CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AND CONDITIONS ON JOB SITE AND COORDINATE THIS WORK WITH THE WORK OF ALL OTHER TRADES.

C.) PROVIDE ALL PLANT FACILITIES, LABOR, MATERIALS, TOOLS, EQUIPMENT, APPLIANCES, TRANSPORTATION, SUPERVISION, AND RELATED WORK NECESSARY OR INCIDENTAL TO COMPLETE THE WORK SPECIFIED IN THIS SECTION AND AS SHOWN ON THE DRAWINGS.

D.) THE DRAWINGS INDICATE THE EXTENT AND GENERAL ARRANGEMENTS OF THE PLUMBING SYSTEMS. IF ANY DEPARTURES FROM THE DRAWINGS ARE DEEMED NECESSARY BY THE PLUMBING CONTRACTOR, DETAILS OF SUCH DEPARTURES AND THE REASONS THEREFOR SHALL BE SUBMITTED TO THE OWNER AND ENGINEER FOR APPROVAL. NO SUCH DEPARTURES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE OWNER AND ENGINEER. EQUIPMENT AND PIPING ARRANGEMENTS SHALL PROVIDE ADEQUATE AND ACCEPTABLE CLEARANCES FOR ENTRY, SERVICING, AND MAINTENANCE.

E.) CONSTRUCT ALL APPARATUS OF MATERIALS AND PRESSURE SUITABLE FOR THE CONDITIONS ENCOUNTERED DURING CONTINUOUS OPERATION.

F.) WHERE CORROSION CAN OCCUR, APPROPRIATE CORROSION-RESISTANT MATERIALS AND ASSEMBLY METHODS MUST BE USED, INCLUDING ISOLATION OF DISSIMILAR METALS AGAINST GALVANIC INTERACTION. RESISTANCE TO CORROSION SHALL BE ACHIEVED BY THE USE OF THE APPROPRIATE BASE MATERIALS COATINGS AND SHALL BE RESORTED TO ONLY WHEN SPECIFICALLY PERMITTED BY THE SPECIFICATIONS.

G.) CONSTRUCT ALL EQUIPMENT IN ACCORDANCE WITH REQUIREMENTS OF ALL APPLICABLE CODES. ALL PRESSURE VESSELS AND SAFETY DEVICES THAT FALL WITHIN THE SCOPE OF THE ASME CODE SHALL CONFORM TO THE CODE AND BEAR THE ASME LABEL OR STAMP.

H.) ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.

I.) UPON COMPLETION OF WORK THE ENTIRE PLUMBING SYSTEM SHALL BE OPERATED IN THE PRESENCE OF THE OWNER AND ENGINEER TO DEMONSTRATE THAT ALL COMPONENTS ARE INSTALLED AND OPERATING PROPERLY.

P-2 WORK NOT INCLUDED

A.) THE FOLLOWING ITEMS OF WORK ARE TO BE DONE BY OTHERS AND SHALL NOT BE INCLUDED IN THE WORK OF THIS SECTION. HOWEVER, IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO SUPPLY THE OTHER CONTRACTORS WITH THE NECESSARY INFORMATION, DRAWINGS, AND SUPERVISION SO THAT THEY CAN PROPERLY COMPLETE THEIR PHASE OF THE INSTALLATION.

- 1.) ELECTRICAL WIRING AND MOUNTING OF STARTING AND CONTROL EQUIPMENT FOR ELECTRICALLY OPERATED PLUMBING EQUIPMENT.
- 2.) ALL ELECTRIC POWER WIRING EXCEPT WHERE FURNISHED AS AN INTEGRAL PART OF FACTORY ASSEMBLED EQUIPMENT OR AS OTHERWISE REQUIRED FOR AUTOMATIC CONTROLS.

B.) WORK FOR THIS CONTRACTOR SHALL BE LIMITED TO WITHIN FIVE FEET OF THE BUILDING EXTERIOR. ALL WORK TO BE PERFORMED OUTSIDE FIVE FEET OF THE BUILDING EXTERIOR SHALL BE DONE BY OTHERS UNLESS OTHERWISE NOTED.

C.) ALL EXTERIOR STORM-DRAINAGE AND GUTTERS, LEADERS, AND DOWNSPOUTS ARE BY OTHERS.

P-3 VISITING THE PREMISES

A.) THE PLUMBING CONTRACTOR, BEFORE SUBMITTING A BID ON THE WORK, MUST VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL VISIBLE EXISTING CONDITIONS.

B.) THE SUBMISSION OF A BID WILL BE CONSIDERED AN ACKNOWLEDGMENT ON THE PART OF THE BIDDER OF HIS VISITATION TO THE SITE. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF THE WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

C.) INSPECT AND VERIFY ALL CONDITIONS WHICH MAY AFFECT COST OF INSTALLATION. VERIFY EXACT LOCATION OF ALL EXISTING PIPES, DUCTS, BEAMS, ETC., WHETHER SHOWN ON THE DRAWINGS OR NOT, SO FAR AS THESE LOCATIONS RELATE TO THE NEW WORK. PROVIDE ANY OFFSETS IN NEW PIPING OR AS MAY BE REQUIRED FOR PROPER CLEARANCES TO AVOID EXISTING DUCTS, CABLES OR OTHER OBSTRUCTION.

P-4 QUALITY ASSURANCE

A.) THE WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE N.Y. STATE PLUMBING CODES. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE OR ORDINANCE, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

B.) UNLESS OTHERWISE SPECIFIED OR INDICATED, MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS: AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), UNDERWRITERS' LABORATORIES, INC. (UL), AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), AND NATIONAL ELECTRIC CODE.

C.) IF ANY WORK IS PERFORMED AND SUBSEQUENT CHANGES ARE NECESSARY TO CONFORM TO THE ORDINANCES, THE CHANGES SHALL BE MADE AT THE PLUMBING CONTRACTOR'S EXPENSE.

P-5 WORKMANSHIP AND MATERIALS

A.) WORKMANSHIP SHALL BE OF THE BEST QUALITY AND NONE BUT COMPETENT MECHANICS SKILLED IN THEIR TRADES SHALL BE EMPLOYED. THE PLUMBING CONTRACTOR SHALL FURNISH THE SERVICES OF AN EXPERIENCED SUPERINTENDENT, WHO WILL BE CONSTANTLY IN CHARGE OF THE ERECTION OF THE WORK, UNTIL COMPLETED AND ACCEPTED.

B.) UNLESS OTHERWISE HERINAFTER SPECIFIED, ALL MATERIALS AND EQUIPMENT UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BE NEW, OF BEST GRADE, AND AS LISTED IN PRINTED CATALOGS OF THE MANUFACTURER. EACH ARTICLE OF ITS KIND SHALL BE THE STANDARD PRODUCT OF A SINGLE MANUFACTURER.

C.) THE ENGINEER SHALL HAVE THE RIGHT TO ACCEPT OR REJECT MATERIAL, EQUIPMENT, AND/OR WORKMANSHIP AND DETERMINE WHEN THE PLUMBING CONTRACTOR HAS COMPLIED WITH THE REQUIREMENTS HEREIN SPECIFIED.

D.) ALL MANUFACTURED MATERIALS SHALL BE DELIVERED AND STORED IN THEIR

ORIGINAL CONTAINERS.

P-6 MANUFACTURERS' RECOMMENDATIONS

A.) EQUIPMENT INSTALLED UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS' RECOMMENDATIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR HEREIN SPECIFIED.

P-7 EQUIPMENT SUBMITTALS

A.) THE PLUMBING CONTRACTOR SHALL PREPARE A COMPLETE SUBMITTAL OF PLUMBING FIXTURES, PIPING, AND EQUIPMENT INCLUDED UNDER THIS SECTION.

B.) SHOP DRAWINGS: SHOP DRAWINGS SHALL INCLUDE DRAWINGS WITH DIMENSIONS OF ALL EQUIPMENT, SCHEDULES, PERFORMANCE CHARTS, INSTRUCTIONS, BROCHURES, DIAGRAMS, AND OTHER INFORMATION TO ILLUSTRATE THE REQUIREMENTS AND OPERATION OF THE SYSTEM.

P-8 INTERRUPTION OF SERVICES

A.) WHILE WORK IS IN PROGRESS, EXCEPT FOR DESIGNATED SHORT INTERVALS DURING WHICH CONNECTIONS ARE TO BE MADE, CONTINUITY OF SERVICE SHALL BE MAINTAINED TO ALL EXISTING SYSTEMS. INTERRUPTIONS SHALL BE COORDINATED WITH THE OWNERS AS TO TIME AND DURATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INTERRUPTIONS TO SERVICE AND SHALL REPAIR ANY DAMAGES TO EXISTING SYSTEMS CAUSED BY HIS OPERATIONS. ANY SHUT DOWNS MUST BE APPROVED IN WRITING BY THE BUILDING MANAGEMENT PRIOR TO SHUTDOWN.

P-9 INFORMATION

A.) THE PLUMBING CONTRACTOR SHALL KEEP HIMSELF FULLY INFORMED AS TO THE SHAPE, SIZE, AND POSITION OF ALL OPENINGS AND FOUNDATIONS REQUIRED FOR HIS APPARATUS AND SHALL GIVE FULL INFORMATION TO THE GENERAL CONTRACTOR SUFFICIENTLY IN ADVANCE OF THE WORK, SO THAT ALL SUCH OPENINGS AND FOUNDATION MAY BE BUILT IN ADVANCE. HE SHALL ALSO FURNISH ALL SLEEVES AND SUPPORTS HEREIN SPECIFIED OR REQUIRED, SO THE GENERAL CONTRACTOR MAY BUILD SAME IN PLACE.

B.) THE PLUMBING CONTRACTOR SHALL OBTAIN DETAILED INFORMATION FROM THE MANUFACTURERS OF APPARATUS, WHICH HE IS TO PROVIDE, FOR THE PROPER METHODS OF INSTALLATION. HE SHALL ALSO OBTAIN ANY INFORMATION FROM OTHER SUBCONTRACTORS TO ENSURE FULL COMPREHENSION OF THE WORK TO BE DONE AND TO ENSURE COORDINATION BETWEEN WORK UNDER THIS SECTION AND ALL OTHER WORK UNDER THIS CONTRACT.

P-10 OPERATING AND MAINTENANCE MANUALS

A.) OPERATING INSTRUCTIONS: PROVIDE OPERATING INSTRUCTIONS TO THE OWNER WITH RESPECT TO OPERATION FUNCTIONS AND MAINTENANCE PROCEDURES FOR ALL EQUIPMENT AND SYSTEMS INSTALLED.

B.) MAINTENANCE MANUALS: AT THE COMPLETION OF THE PROJECT, FOUR COMPLETE MANUALS CONTAINING THE FOLLOWING SHALL BE TURNED OVER TO THE OWNER:

- 1.) COMPLETE SHOP DRAWINGS OF ALL EQUIPMENT.
- 2.) OPERATION DESCRIPTION OF ALL SYSTEMS.
- 3.) NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF ALL SUPPLIERS OF THE SYSTEMS AND SERVICE AGENTS.
- 4.) PREVENTIVE MAINTENANCE INSTRUCTIONS AND SCHEDULE FOR ALL SYSTEMS.
- 5.) SPARE PARTS LIST OF ALL SYSTEM COMPONENTS.

P-11 REMOVALS

A.) REMOVE AND DISPOSE OF ALL PIPING, AND ACCESSORIES WITHIN THE PROJECT AREA AS SHOWN ON THE DRAWINGS OR AS REQUIRED FOR THE INSTALLATION OF THE WORK OF THIS PROJECT.

B.) THIS WORK SHALL BE EXECUTED IN AN ORDERLY AND CAREFUL MANNER, WITH DUE CONSIDERATION FOR THE PROTECTION OF ADJACENT ACTIVITIES. DUST PRODUCING DEMOLITION SHALL BE ISOLATED WITH PROPER PRECAUTIONS.

C.) THE CONTRACTOR SHALL ASK THE OWNER FOR INSTRUCTIONS IF HE ENCOUNTERS ANY WORK, THE DEMOLITION OF WHICH MIGHT RESULT IN A HAZARDOUS CONDITION.

P-12 DUST PROTECTION

A.) IT IS IMPERATIVE THAT DURING DEMOLITION AND ALSO DURING NORMAL CONSTRUCTION WHERE THERE IS ANY POSSIBILITY OF DUST DUE TO CONSTRUCTION WORK CONTAMINATING THE OWNER'S EQUIPMENT OR CAUSING A NUISANCE TO PERSONNEL, THIS CONTRACTOR SHALL FURNISH AND INSTALL SUITABLE PROTECTION AS REQUIRED.

B.) WHEREVER POLYETHYLENE IS USED AS PROTECTIVE TARPAULINS OR DROP-CLOTH, IT SHALL BE FIRE-RETARDANT POLYETHYLENE SHEETING, .004" THICK.

P-13 TIME AND MANNER

A.) ALL WORK SHALL BE PERFORMED DURING NORMAL WORKING HOURS UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE OR NOTED ON THE PLANS

B.) PRIOR TO THE BEGINNING OF WORK THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF WORK TO THE OWNER BASED ON THE DATES GIVEN IN THE PRE-BID MEETING. ANY SHUTDOWNS OF EXISTING SYSTEMS MUST BE VERIFIED IN WRITING WITH THE OWNER'S REPRESENTATIVE.

C.) ANY SHUT-DOWN OF EXISTING SYSTEMS WHERE SUCH SHUT-DOWN IS REQUIRED FOR THE PERFORMANCE OF THE WORK UNDER THE CONTRACT SHALL BE AT SUCH TIMES AS DESIGNATED BY OWNER'S REPRESENTATIVE. RESTORE SYSTEMS TO ORIGINAL CONDITION AFTER PERFORMANCE WORK. THE INTENT IS TO INSURE MINIMUM INTERFERENCE WITH OPERATION OF EXISTING FACILITIES. REPAIR ANY DAMAGE DONE TO BUILDING RESULTING FROM INSTALLATION OF NEW WORK.

P-14 PIPE LABELS

A.) CONTRACTOR TO PROVIDE OPTI-CODE LABELS FOR ALL NEW PIPING. LETTERS AND ARROWS INDICATING FLOW SHALL BE 2 1/2" HIGH, PLACED EVERY 10' AND SHALL BE WHITE ON A GREEN BACKGROUND AND SHALL CONFORM TO ANSI AND OSHA STANDARDS. LABEL ALL COLD WATER, HOT WATER, HOT WATER RE-CIRCULATING, STORM, SANITARY, VENT, GAS PIPING AS FOLLOWS: "COLD WATER", "HOT WATER", "HOT WATER RECIRC", "STORM", ETC. APPLY OVER INSULATION WHERE INSTALLED.

P-15 PIPE

A.) REFER TO "PLUMBING PIPE MATERIAL SCHEDULE"

P-16 PIPING INSTALLATION - GENERAL REQUIREMENTS

A.) REFER TO DRAWINGS FOR REQUIRED PIPING LAYOUTS. CONNECTION DETAILS INDICATE REQUIRED PIPING AT VARIOUS PIECES OF EQUIPMENT. FLOOR PLANS INDICATE GENERAL ROUTING OF PIPING. SPECIFICATIONS DEFINE MATERIALS, INSTALLATION REQUIREMENTS AND SUPPLEMENTARY REQUIREMENTS TO THOSE SHOWN ON DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE SYSTEM BASED ON ALL DOCUMENTATION PROVIDED, TO EQUIPMENT SCHEDULES FOR NOMINAL FLOW RATES. FINAL SIZING SHALL BE BASED ON FLOW RATE OF CONTRACTOR PURCHASED EQUIPMENT.

B.) PROPER PROVISION SHALL BE MADE FOR EXPANSION AND CONTRACTION IN ALL PORTIONS OF PIPE-WORK, TO PREVENT UNDUE STRAINS ON PIPING OR EQUIPMENT. ALL PIPE SHALL BE SUITABLY REINFORCED AT ALL ANCHOR POINTS.

C.) RUN-OUTS, AND CONNECTIONS TO EQUIPMENT, SHALL BE PROVIDED WITH A FLEXIBLE CONNECTION TO WITHSTAND EXPANSION AND CONTRACTION.

D.) ALL CHANGES IN SIZE AND DIRECTION OF PIPING SHALL BE MADE WITH FITTINGS. DO NOT USE MITER FITTINGS, CLOSE NIPPLES OR STREET ELBOWS.

E.) ALL BRANCH CONNECTIONS SHALL BE MADE WITH TEES, EXCEPT THAT ON STEEL PIPING FORGED STEEL "WELDOLETS" AND "LATROLETS" AS MANUFACTURED BY BONNEY FORGE MAY BE USED WHERE THE BRANCH PIPE IS AT LEAST TWO NOMINAL PIPE SIZES LESS THAN THE MAIN PIPE.

F.) ECCENTRIC REDUCING FITTINGS OR ECCENTRIC REDUCING COUPLINGS SHALL BE USED WHERE REQUIRED BY THE CONTRACT DOCUMENTS OR WHERE REQUIRED TO PREVENT POCKETING OF LIQUID OR NON-CONDENSIBLES.

G.) FITTINGS SHALL BE FACTORY MANUFACTURED. SHOP OR FIELD FABRICATED FITTINGS ARE NOT ACCEPTABLE. FITTINGS SHALL HAVE THE SAME PRESSURE RATINGS AS THE SYSTEM IN WHICH THEY ARE INSTALLED.

H.) ALL FIXTURES SHALL BE INDIVIDUALLY TRAPPED AND VENTED.

I.) GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.

J.) MINIMUM FALL ON ALL SANITARY DRAINS SHALL BE 1/8" PER FOOT FOR PIPING 4" AND LARGER. 3" AND SMALLER SHALL BE INSTALLED AT 1/4" PER FOOT.

K.) A CLEAN-OUT SHALL BE LOCATED AT THE BASE OF EACH STACK AND LEADER.

L.) INSTALL VENT PIPING PENETRATING ROOFED AREAS TO MAINTAIN INTEGRITY OF ROOF ASSEMBLY. VENT PIPING PASSING THROUGH ROOFS SHALL BE 4 INCH MINIMUM. PIPES SMALLER THAN 4 INCH SHALL BE INCREASED IN SIZE BY MEANS OF A 12 INCH LONG INCREASER. PIPES SHALL TERMINATE AT LEAST 12 INCHES ABOVE THE ROOF OR HIGHER IF REQUIRED BY CODE.

M.) ALL GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH CON ED STANDARDS & SPECIFICATIONS.

P-17 SLEEVES AND ESCUTCHEONS

A.) PROVIDE ALL PIPE OPENINGS THROUGH PARTITIONS WITH PIPE SLEEVES. FOR PIPES PENETRATING FIRE RATED PARTITIONS, THE SPACE BETWEEN THE PIPE AND THE SLEEVE SHALL BE SEALED WITH APPROVED FIRE & SMOKE STOPPING MATERIAL.

B.) SLEEVES FOR PIPING PASSING THROUGH MASONRY WALLS SHALL BE SCHEDULE 40, STANDARD GALVANIZED STEEL PIPE; IN FRAMED PARTITIONS SHALL BE 20 GAUGE SHEET METAL. THE SPACE BETWEEN THE PIPE AND ITS SLEEVE SHALL NOT EXCEED ONE-HALF INCH. THE SLEEVE SHALL HAVE A SUFFICIENT LENGTH TO BE FLUSH WITH THE FINISHED WALL SURFACES.

C.) EXPOSED PIPING PASSING THROUGH WALLS, FLOORS OR CEILING SHALL BE FITTED WITH CHROMIUM PLATED CAST BRASS ESCUTCHEONS WITH FASTENING SET SCREWS SIMILAR TO FEE AND MASON MANUFACTURING CO., F. & S. MANUFACTURING CO., OR RITTER PATTERN AND CASTING CO.

P-18 JOINTS AND CONNECTIONS

A.) SOLDERED OR SWEAT: SOLDERED OR SWEAT JOINTS FOR TUBING SHALL BE MADE WITH APPROVED FITTINGS. SURFACES TO BE SOLDERED OR SWEATED SHALL BE PROPERLY CLEANED AND REAMED. THE JOINTS SHALL BE PROPERLY FLUXED AND MADE WITH APPROVED SOLDER. JOINTS IN COPPER WATER TUBING SHALL BE MADE BY APPROPRIATE USE OF APPROVED BRASS OR WROUGHT COPPER WATER FITTINGS IN ACCORDANCE WITH ANSI B16.22, PROPERLY SWEATED OR SOLDERED TOGETHER.

B.) UNIONS: UNIONS IN THE WATER SUPPLY SYSTEM SHALL BE METAL-TO-METAL WITH GROUND SEATS. UNIONS ON DRAINAGE SYSTEMS MAY BE USED ONLY IN THE TRAP SEAL OR ON THE INLET SIDE OF THE TRAP. UNIONS SHALL HAVE METAL-TO-METAL GROUND SEATS.

C.) DIELECTRIC UNIONS/COUPLINGS: INSULATED UNION/COUPLINGS SHALL BE PROVIDED FOR CONNECTING DISSIMILAR MATERIALS. UNION SHALL HAVE A WATER IMPERVIOUS INSULATION BARRIER CAPABLE OF LIMITING GALVANIC CURRENT TO ONE PERCENT OF THE SHORT CIRCUIT CURRENT IN A CORRESPONDING BIMETALLIC JOINT. WHEN DRY, INSULATION BARRIER SHALL BE ABLE TO WITHSTAND A 600-VOLT BREAK DOWN TEST.

P-19 INSULATION - GENERAL REQUIREMENTS

A.) ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES, SHALL BE PROVIDED. ALL OPERATIONS REQUIRED FOR COMPLETE INSTALLATION OF INSULATION AND RELATED WORK AS INDICATED ON THE DRAWING, OR SPECIFIED HEREIN, SHALL BE PERFORMED. THE EXECUTION OF THE WORK SHALL BE IN STRICT ACCORDANCE WITH THE INSULATION MANUFACTURER'S RECOMMENDATIONS AND THE BEST PRACTICE OF THE TRADE.

B.) NO INSULATION SHALL BE APPLIED UNTIL ALL TESTS HAVE BEEN COMPLETED. ONLY INSULATION AND FINISH MATERIALS INCLUDING ADHESIVES, CEMENTS AND MASTICS WHICH CONFORM TO THE REQUIREMENTS OF ALL GOVERNING CODES AND ORDINANCES SHALL BE USED.

C.) ANY EXISTING INSULATION AND SURFACE FINISH DISTURBED OR DAMAGED BY THE INSTALLATION OF NEW EQUIPMENT OR OTHER ALTERATIONS TO THE SYSTEM SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

P-20 INSULATION

A.) ALL PIPE COVERING SPECIFIED HEREIN FOR PIPING SYSTEMS SHALL BE FURNISHED AND INSTALLED BY A COMPETENT PIPE COVERING CONTRACTOR RESPONSIBLE TO THE PLUMBING CONTRACTOR. BEFORE COVERING IS APPLIED, ALL PRESSURE TESTS SHALL HAVE BEEN PERFORMED AND APPROVED, WITH ALL SURFACES TO BE COVERED SHALL HAVE BEEN CLEANED.

B.) THE JACKET SHALL HAVE A PRESSURE SEALING LAB ADHESIVE TO ELIMINATE THE USE OF STAPLES, ADHESIVES, OR BANDS, AND INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.

C.) ALL INSULATION SHALL HAVE A MAXIMUM FLAME SPREAD INDEX OF 25 AND A SMOKE-DEVELOPED INDEX NOT EXCEEDING 450. PIPE INSULATION INSTALLED WITHIN AIR PLENUMS SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723.

D.) PIPE COVERING SHALL BE CONTINUOUS AND SHALL BE CAREFULLY FITTED WITH SIDE AND END JOINTS BUTTED TIGHTLY AND STAGGERED. VALVES, FITTINGS, FLANGES, AND ACCESSORIES SHALL HAVE THE SAME THICKNESS OF PIPE COVERING AS THE ADJACENT PIPE. PIPE COVERING FOR THESE ITEMS SHALL BE FACTORY MOLDED TYPE OR FIELD

FABRICATED.

E.) INSULATE ALL HOT, COLD WATER, HOT WATER RE-CIRCULATION, DRAIN, AND STORM PIPING WITH FIBERGLASS PIPE INSULATION WITH FIRE RETARDANT VAPOR BARRIER JACKET. THICKNESS OF INSULATION SHALL AS PER TABLE C403.2.10.

F.) PIPING VALVES AND FITTINGS ON ALL INSULATED PIPES SHALL BE PROVIDED WITH FABRICATED SECTIONS OF INSULATION OR PRE-MOLDED FITTING COVERS EQUAL IN THICKNESS AND MATERIAL TO ADJOINING PIPE INSULATION.

P-21 HANGERS AND SUPPORTS

A.) ALL PIPING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE BY MEANS OF APPROVED HANGERS AND SUPPORTS. PIPING SHALL BE SUPPORTED TO MAINTAIN REQUIRED GRADING AND PITCHING OF LINES, TO PREVENT VIBRATION AND TO SECURE PIPING IN PLACE, AND SHALL BE SO ARRANGED AS TO PROVIDE FOR EXPANSION AND CONTRACTION. CHAIN, PERFORATED STRAP, BAR, OR WIRE HANGERS ARE NOT PERMITTED.

B.) BRANCHES SHALL HAVE SEPARATE SUPPORTS AND NO BRANCH 5'-0" OR LONGER SHALL BE WITHOUT SUPPORT.

C.) WHERE CODES HAVING JURISDICTION REQUIRE CLOSER SPACING, THE HANGER SPACING SHALL BE AS REQUIRED BY CODE IN LIEU OF THE DISTANCES SPECIFIED HEREIN.

D.) PROVIDE HANGERS AT A MAXIMUM DISTANCE OF 2 FEET FROM ALL CHANGES IN DIRECTION (HORIZONTAL AND VERTICAL) ON BOTH SIDES OF CONCENTRATED LOADS INDEPENDENT OF THE PIPING.

E.) HANGERS IN GENERAL FOR ALL HORIZONTAL PIPING SHALL BE CLEVIS TYPE HANGERS. THESE HANGERS SHALL BE SIZED TO PROVIDE FOR INSULATION PROTECTORS AS HEREIN AFTER SPECIFIED.

F.) PIPING SHALL BE SECURELY FASTENED TO THE STRUCTURE WITHOUT OVERSTRESSING ANY PORTION OF THE SUPPORTS OF THE STRUCTURE ITSELF. SUFFICIENT INTERMEDIATE STEEL SHALL BE PROVIDED TO TRANSFER LOADS TO AREAS WHERE THEY CAN SAFELY BE ACCOMMODATED. PIPE SUPPORTS, ANCHORS AND GUIDES SHALL BE SECURED TO STEEL BY WELDED BRACKETS, BEAM CLAMPS, OR BY FASTENING RODS OVER THE BEAM TOP FLANGE, AND TO CONCRETE BY MEANS OF INSERTS, OR IF GREATER LOAD CARRYING CAPACITY IS REQUIRED, BY MEANS OF STEEL FISHPATHS EMBEDDED IN THE CONCRETE ABOVE THE REINFORCEMENT RODS. ALL HANGERS SHALL BE LOCATED TO PERMIT FREE EXPANSION AND CONTRACTION.

G.) PIPING AND TUBING SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION. MAXIMUM DEFLECTION SHALL BE 1/8". MAXIMUM SPACING BETWEEN SUPPORTS SHALL BE 10FT FOR STEEL PIPING AND 8FT FOR COPPER PIPING 2" AND LARGER, FOR COPPER PIPING LESS THAN 2" SPACING SHALL BE 6FT O.C. MAXIMUM.

H.) PIPE HANGERS AND SUPPORTS COMPLETE WITH RODS, BOLTS, LOCKNUTS, SWIVELS, COUPLINGS, BRACKETS AND ALL OTHER COMPONENTS AND ACCESSORIES SHALL BE PROVIDED.

I.) SUPPORT VERTICAL PIPING AT EVERY FLOOR. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.

J.) PROVIDE COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.

K.) PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.

L.) PROVIDE HANGERS ADJACENT TO MOTOR DRIVEN EQUIPMENT WITH VIBRATION ISOLATION.

M.) UNLESS OTHERWISE SPECIFICALLY APPROVED, HANGER SIZE AND SPACING SHALL BE WITHIN FOLLOWING LIMITS:

PIPING SIZE	MAX. HANGER SPACING	MIN. ROD SIZE
1"	8FT. O.C.	3/8"
1-1/4" TO 2"	10 FT. O.C.	3/8"
2-1/2" TO 3-1/2"	12 FT. O.C.	1/2"
4" AND 5"	12 FT. O.C.	5/8"

P-22 PIPE HANGER TYPES

A.) IN GENERAL, HANGERS SHALL BE OF CLEVIS TYPE OR ROLL TYPE WITH VERTICAL ADJUSTMENT. WHERE SEVERAL LINES OF PIPING RUN AS A COMMON GROUP, THEY SHALL BE SUPPORTED ON A COMMON HANGER BAR OF GALVANIZED CHANNEL OR BACK TO BACK ANGLE SECTIONS OR "UNISTRUT" TYPE.

B.) HANGERS SHALL BE AS FOLLOWS:

APPLICATION CENTRAL IRON FIG.
NO. CLEVIS HANGER 10
RISER CLAMP - THRU 3" 261

C.) ALTERNATE MANUFACTURERS: GRINNELL, GRABLER, CRANE

P-30 MISCELLANEOUS

A.) THE CONTRACTOR SHALL PROVIDE THE OWNERS WITH CATALOG DATA, OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS AND RECORD (AS-BUILT) DRAWINGS OF ALL COMPLETED WORK. AS BUILT DRAWINGS SHALL INCLUDE PUMPS AND PIPING LAY OUT.

B.) ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

C.) THE PLUMBING CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF ALL WORK AS ACTUALLY INSTALLED FROM WORK AS SHOWN ON DESIGN DRAWINGS. SUBMIT AS DRAWING (3) SETS ON 24x36 BLUEPRINTS AND A AUTOCAD ELECTRONIC FORMAT DISK IN VERSION 2004 OR LATER.

D.) ALL MATERIALS, EQUIPMENT, FIXTURES, PIPING, AND DEVICES SHALL BE GUARANTEED TO BE FREE FROM MECHANICAL DEFECTS OR FAULTY WORKMANSHIP FOR A PERIOD OF 1 YEAR FROM THE DATE OF WRITTEN ACCEPTANCE BY THE ENGINEER FOR THE OWNER.

E.) LABOR AND MATERIAL REQUIRED TO FULFILL THE REQUIREMENTS OF THIS GUARANTEE SHALL BE FURNISHED TO THE OWNER BY THIS CONTRACTOR AT NO ADDITIONAL COST.

END OF SPECIFICATIONS

Date/Revision

12.10.2021 Bid Issue

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Hudson River Museum
West Wing

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Drawing Title

PLUMBING SPECIFICATIONS

Drawing Number

P-002



DEMOLITION KEY NOTES	
1	DEMOLISH ROOF DRAIN & ASSOCIATED STORM DRAIN PIPING COMPLETE TO FIRST ELBOW SUFFICIENTLY FOR NEW WORK. TYPICAL
2	EXISTING 4" PLUMBING VENTS. TYPICAL

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Drawing Title
**PLUMBING
DEMOLITION
PLAN**

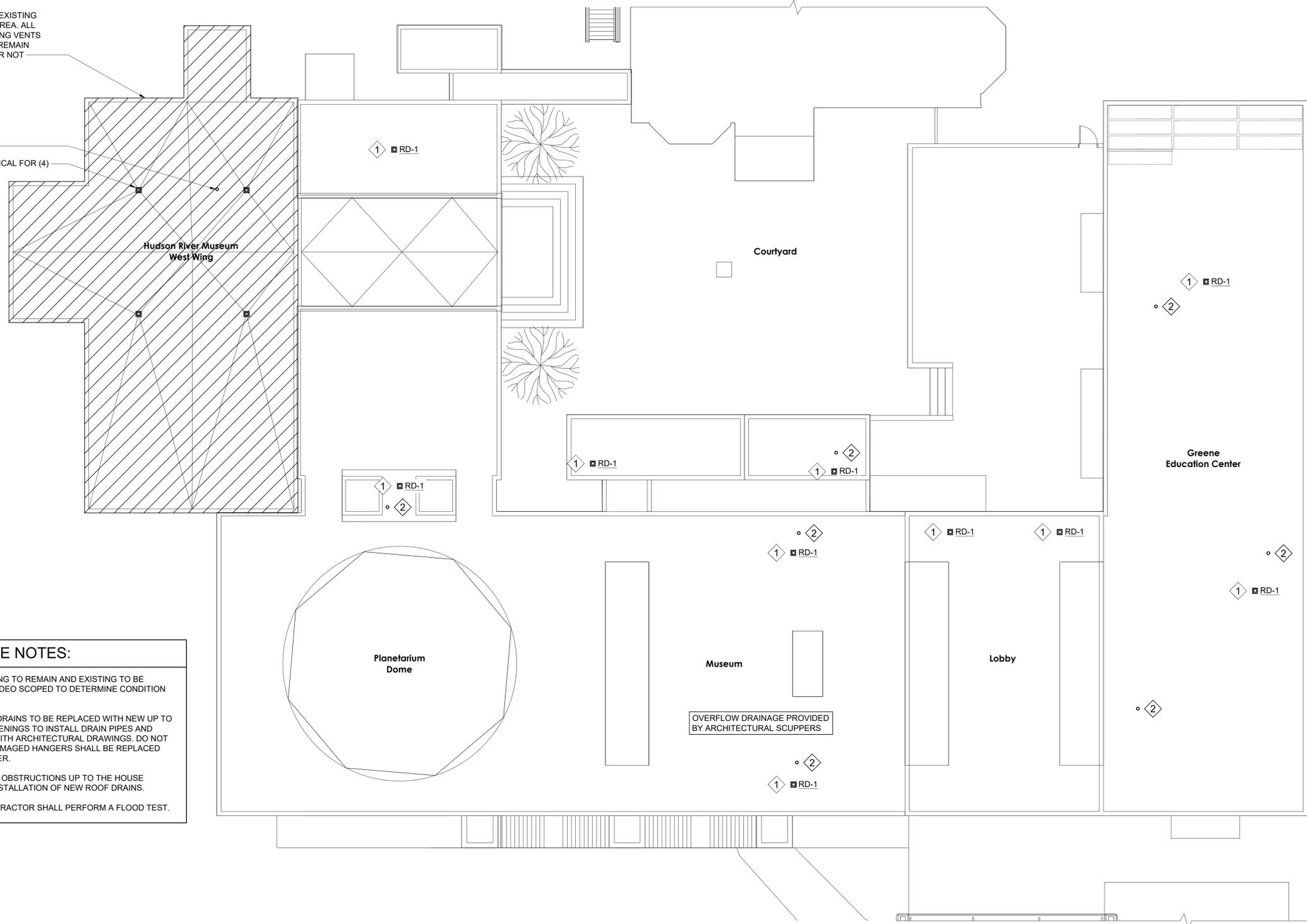
Drawing Number

P-101



EXISTING
ROOF IS TO REMAIN AS EXISTING
WITHIN THE HATCHED AREA. ALL
ROOF DRAINS & PLUMBING VENTS
SHALL BE EXISTING TO REMAIN
WHETHER INDICATED OR NOT

EX. 4" VTR
EX. 3" ROOF DRAIN. TYPICAL FOR (4)



PLUMBING WORK SCOPE NOTES:

1. PRIOR TO REMOVAL, ALL DRAINS, EXISTING TO REMAIN AND EXISTING TO BE REPLACED, SHALL BE INSPECTED AND VIDEO SCOPED TO DETERMINE CONDITION AND DRAIN FUNCTIONALITY.
2. THE DRAIN PIPES FROM ALL NEW ROOF DRAINS TO BE REPLACED WITH NEW UP TO THE FIRST ELBOW. PROVIDE ACCESS OPENINGS TO INSTALL DRAIN PIPES AND ELBOW. FOR LOCATIONS COORDINATE WITH ARCHITECTURAL DRAWINGS. DO NOT REMOVE ANY CEILING HANGERS. ANY DAMAGED HANGERS SHALL BE REPLACED IN-KIND BEFORE APPLICATION OF PLASTER.
3. CLEAN AND CLEAR ALL LEADERS OF ANY OBSTRUCTIONS UP TO THE HOUSE TRAPS AND TEST BEFORE AND AFTER INSTALLATION OF NEW ROOF DRAINS.
4. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL PERFORM A FLOOD TEST.

NEW WORK KEY NOTES

1 NEW ROOF DRAIN & ASSOCIATED STORM DRAIN PIPING. ROUTE NEW 4" STORM DRAIN & CONNECT TO EXISTING STORM DRAIN PIPING BELOW ROOF DECK. EXTEND/MODIFY EXISTING PIPING AS REQUIRED. TYPICAL

2 EXISTING 4" PLUMBING VENTS. VENT STACK EXTENSIONS SHALL BE WIRE BRUSHED AND PAINTED. TYPICAL

Date/Revision
12.10.2021 Bid Issue

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Project
Hudson River Museum West Wing
Hudson River Museum
511 Warburton Avenue
Yonkers, NY 10701

Drawing Title
PLUMBING NEW WORK PLAN

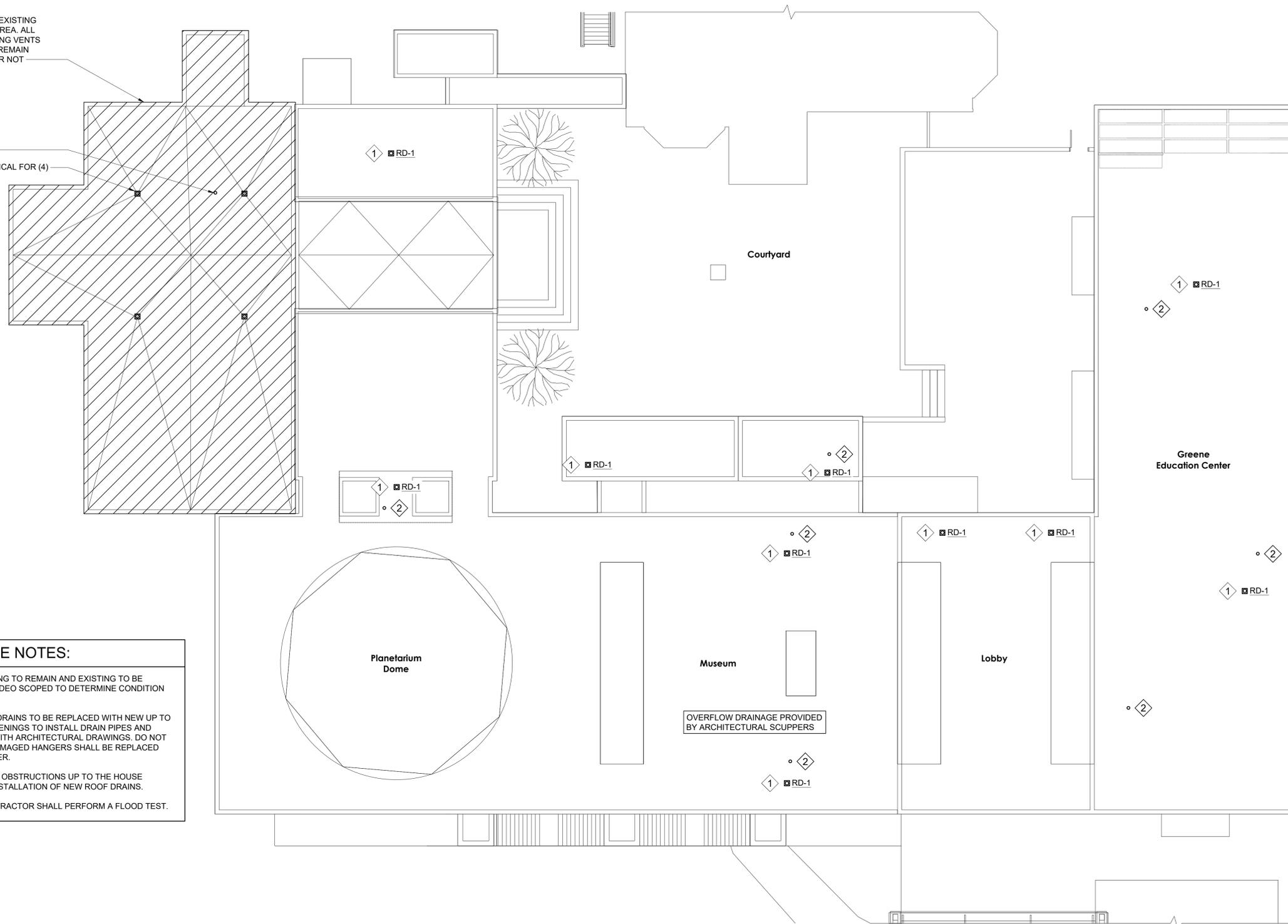
Drawing Number

P-201



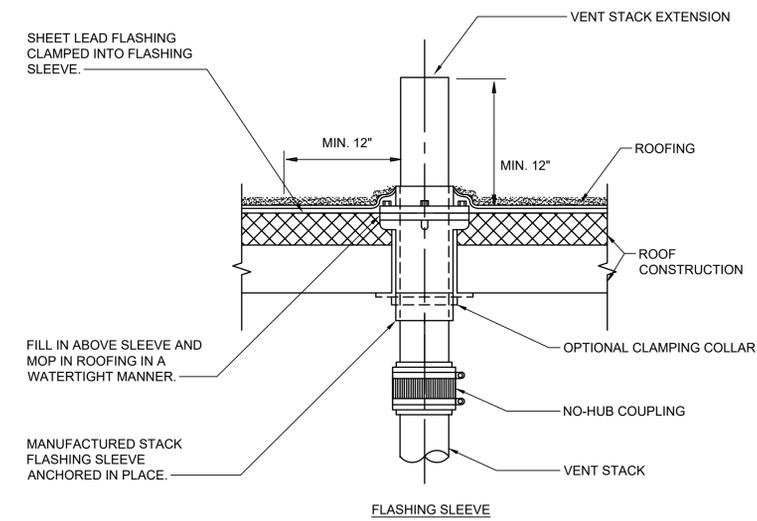
ROOF IS TO REMAIN AS EXISTING WITHIN THE HATCHED AREA. ALL ROOF DRAINS & PLUMBING VENTS SHALL BE EXISTING TO REMAIN WHETHER INDICATED OR NOT

EX. 4" VTR
EX. 3" ROOF DRAIN. TYPICAL FOR (4)



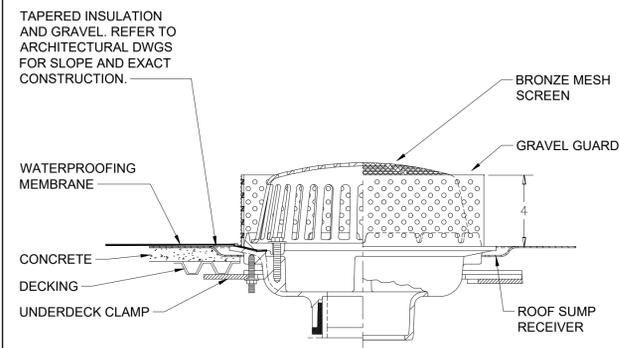
PLUMBING WORK SCOPE NOTES:

1. PRIOR TO REMOVAL, ALL DRAINS, EXISTING TO REMAIN AND EXISTING TO BE REPLACED, SHALL BE INSPECTED AND VIDEO SCOPED TO DETERMINE CONDITION AND DRAIN FUNCTIONALITY.
2. THE DRAIN PIPES FROM ALL NEW ROOF DRAINS TO BE REPLACED WITH NEW UP TO THE FIRST ELBOW. PROVIDE ACCESS OPENINGS TO INSTALL DRAIN PIPES AND ELBOW. FOR LOCATIONS COORDINATE WITH ARCHITECTURAL DRAWINGS. DO NOT REMOVE ANY CEILING HANGERS. ANY DAMAGED HANGERS SHALL BE REPLACED IN-KIND BEFORE APPLICATION OF PLASTER.
3. CLEAN AND CLEAR ALL LEADERS OF ANY OBSTRUCTIONS UP TO THE HOUSE TRAPS AND TEST BEFORE AND AFTER INSTALLATION OF NEW ROOF DRAINS.
4. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL PERFORM A FLOOD TEST.

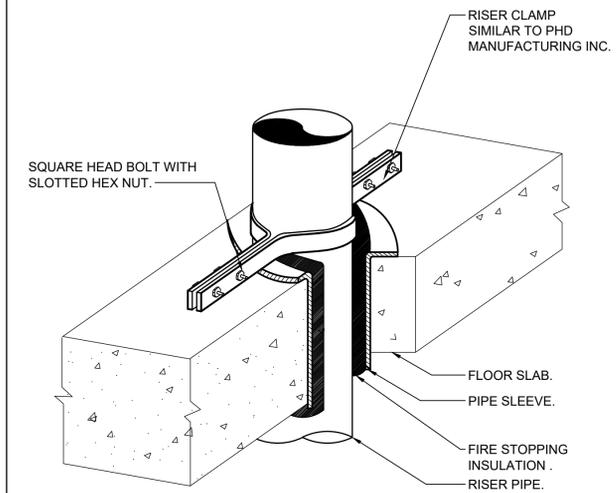


NOTE:
 1. VENT STACK OUTLET TO BE 10 FT.(MIN)
 FROM ANY WALL OR STRUCTURE OR 3
 FT.ABOVE STRUCTURE

3 VENT THRU ROOF
 SCALE: NONE



2 ROOF DRAIN DETAIL
 SCALE: NONE



1 VERTICAL PIPE SUPPORT DETAIL
 SCALE: NONE

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Project
**Hudson River Museum
 Roof Replacement**
 Hudson River Museum
 511 Warburton Avenue
 Yonkers, NY 10701

Drawing Title
P-701 - P-701

As Noted

Drawing Number

8

