



February 2, 2024

Ms. Kim Humphrey
Borough Administrator
Borough of Keyport
70 West Front Street
Keyport, NJ 07735

**RE: Borough of Keyport
Municipal Building Water Intrusion Report**

Dear Kim,

Complying with your request, we inspected the Borough of Keyport Municipal Building to determine the cause of water intrusion at the building. We are providing this compendium report which presents an overview of our investigation as well as our specific conclusions and pertinent supporting data.

Description

The Borough of Keyport Borough Hall was at 70 West Front Street in the Borough of Keyport, and located in Monmouth County New Jersey. It was a brick clad two-story building with a one-story portion in the rear of the structure. The primary façade faced north onto West Front Street with driveway access from Main Street to the east.

We were tasked with identifying the source of water intrusion that had been reported in several locations in the building.

October Investigation

On October 12, 2023, Thom Freeman | RA, LEED AP of Settembrino Architects (SA) was given a guided tour of the building by Borough maintenance staff to ascertain the source of the reported water infiltration and the extent of the damage that it had caused.

Observations

There were signs of substantial water intrusion in the one-story portion, located on the southern end of the building, that had infiltrated from above through the ground floor and into the cellar below. Additionally substantial water intrusion was observed in the second floor of the north elevation, particularly in the ceiling and above the windows.

o Roofing

The roofing was a Styrene Butadiene Styrene (SBS) modified bitumen roofing, of unknown manufacture, with a white granular coating. The membrane over the one and two-story portions of the building was in poor condition and at the end of its useful life. Open/exposed seams with make-shift repairs, membrane buckling (aka mole runs), and inadequate or improper flashing techniques at membrane penetrations were identified.

Additionally, there were large blisters and signs that the cap sheet had, in some locations, delaminated from the substrate.

o Façade

On the north façade, through-wall flashing and weep holes was not observed at many of their expected locations in the brick cavity wall particularly over window openings and at changes of material.

The south façade stepped back to create two separate wall planes at the floor line. Due to the proximity of the water intrusion only the upper portion was reviewed. Weep holes were observed at the base of the masonry veneer but through wall flashing was not.

SA was informed by the Borough that the upper portion of the south façade had previous remediation work completed in that area.

o Mechanical Units

A number of the roof top air conditioning units (RTU(s)) were reported by the Borough to be at the end of their life cycle. Mr. Yoram Ozer, PE, of Eden Engineering LLC, evaluated each of the RTUs. His report and recommendations are attached.

Discussion from Investigation

An SBS roof that has been properly installed and maintained can expect to have a lifespan of approximately 20 years. Deficient installation techniques and a lack of regular maintenance by qualified roofing professionals can substantially reduce that expectancy.

The roofing on both roof levels is beyond its useful life and should be replaced.

Brick is an absorptive material, that by its nature, allows moisture into the outer portion of the wall assembly. Weather resistant barriers, weep holes and through-wall flashing are critical components that directs infiltrated moisture out of wall assembly preventing intrusion into the interior of the structure.

The lack of outwardly observable components in both the roofing and wall components triggered the recommendation of targeted probes to ascertain deficiencies in both the roofing and exterior walls.

Settembrino Architects identified key areas for invasive testing to further investigate the sources of the water intrusion. See Attached.

December Investigation

On December 20 & 21, 2023, seven invasive probes were conducted by J & M Quality Contracting under the direction of Mr. Freeman. The probes were completed by carefully removing individual layers of material to extent needed to review the construction of the wall assembly. Attention was placed on the demolition so that extraneous damage would not be caused to the adjacent conditions.

Additionally, probes are targeted investigations and their finding are generally representative of the anticipated conditions in a structure, the actual findings may change throughout the course of construction when more expansive conditions are revealed. The finding of the probes is as follows:

- Probe 1:
 - There was no through-wall flashing found.
 - The weep hole installed above the 7th course was obstructed and the cavity had been filled solid with concrete grout.
 - There was no weather resistant barrier (WRB) installed.
 - Foam panels were not observed to be taped.

- Probe 2:
 - There was no weep holes or through-wall flashing found at or above the window
 - There was no WRB installed.
 - Foam panels were not observed to be taped.
 - Foreign matter was found in the mortar (caution tape)

- Probe 3:
 - Through-wall flashing was installed upside down and did not bridge the open cores of the veneer.
 - Weep holes were observed to be installed, but were not properly integrated with the through-wall flashing.
 - There was no WRB installed

- Probe 4:
 - There were substantial make-shift repairs
 - There was no flashing observed at the roof gland

- Probe 5:
 - WRB and mortar net was observed in the cavity
 - Through wall flashing was observed to lapped properly in the vertical direction, but improperly lapped in the horizontal.
 - The through-wall flashing did not extend past the face of the veneer as recommended by the International Masonry Institute. See Attached.
 - Weep holes were installed but the cavity was grouted solid blocking their functionality.

- Probe 6:
 - The roof deck and parapet showed no sign moisture intrusion and was functioning properly at this location.

- Probe 7:
 - The roof deck and parapet showed no sign moisture intrusion and was functioning properly at this location.

Discussion from Probe Investigation

The lack of proper waterproofing and flashing techniques in the façade is systemic and has no simple corrective measure. While the possibility exists for individual facades faces may be isolated and their remediation phased, a complete and comprehensive repair program must be developed and implemented to limit further damage to the structure and potentially negative environmental conditions for the occupants. With onsite observation of a design professional, the masonry veneer will need to be removed, industry standard flashing and waterproofing methods employed, and the brick replaced.

Conclusion and Recommendations

1. Remove and replace the roof.
2. Remove the brick veneer, properly waterproof and flash the façade, and re clad with matching brick veneer on the North, East, West, and portions of the South elevations.
3. Replace the RTUs as outlined in the Eden Engineering report.

Working with our independent estimator to develop an order of magnitude estimate the construction budget was determined to be approximately \$3.6 million.

The roofing replacement and facade repairs should be completed concurrently. If not completed as a singular project, further, damaging, water intrusion will continue. If phasing is desired, it can be divided into two phases.

Phase 1: Select HVAC unit replacement, Roof replacement, Repairs to the North and portions of the South facades was estimated to be \$2.7 million.

Phase 2: Repairs to the East, West, and portions of the South facades was estimated to be \$900K.

Sincerely,



Kevin Settembrino, AIA LEED AP
Principal

KMS/arl

Appendices

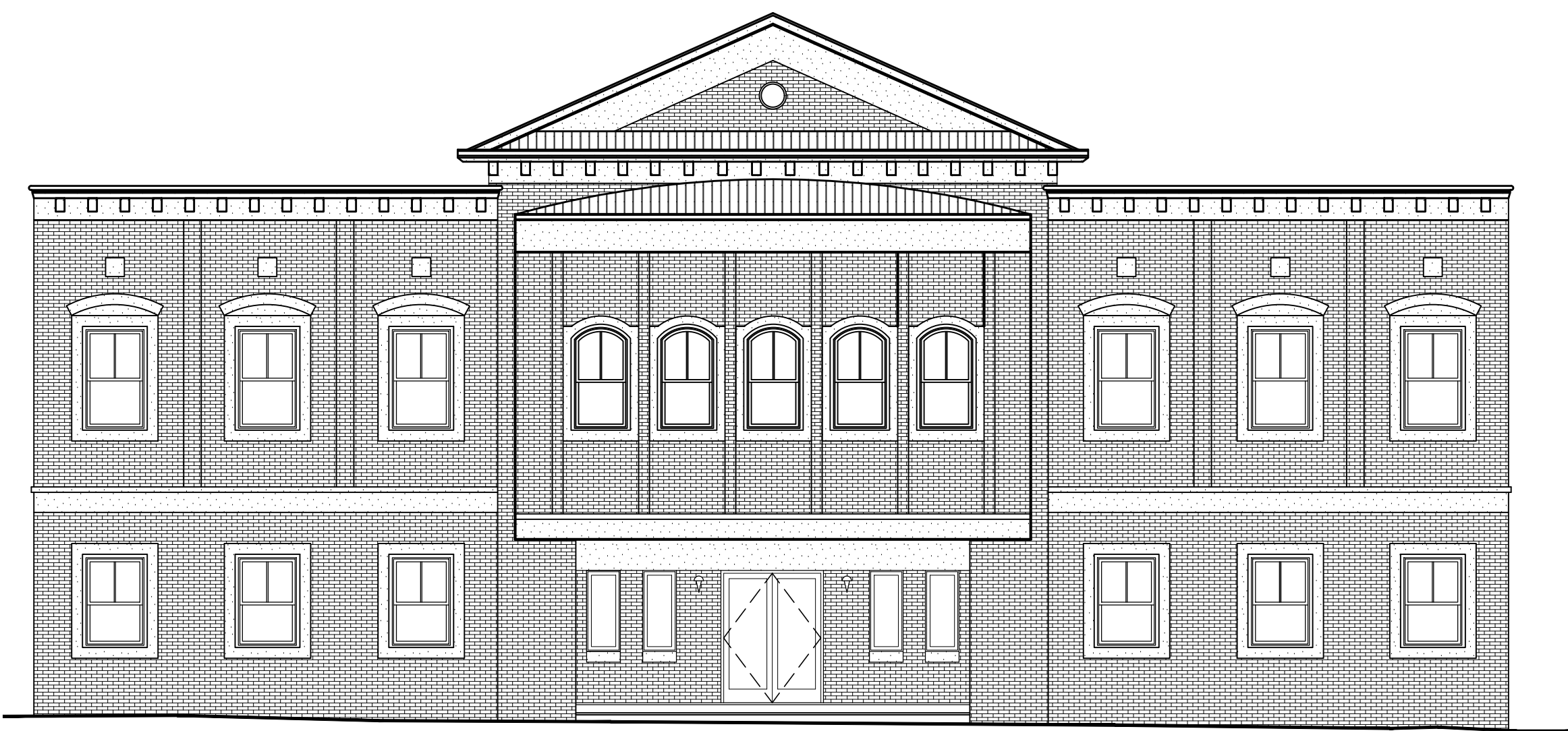
- A. Architect's Drawing G-100.0, Existing
- B. Diagram of Probe Locations
- C. Relevant Photographs
- D. Eden Engineering Report, Dated October 2023
- E. Construction Budget Analysis.



SETTEMBRINO
ARCHITECTS

37 East Washington Avenue
Atlantic Highlands, NJ 07716
732.741.4900 (o)

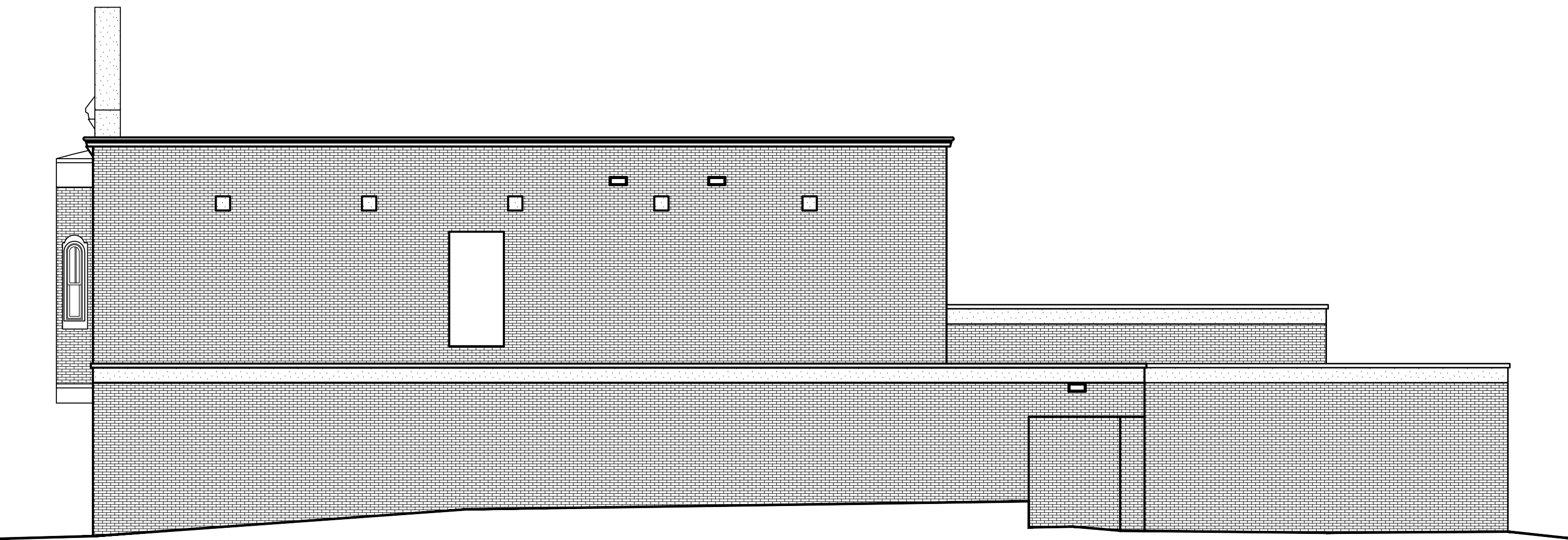
Kevin M Settembrino, AIA, LEED AP
License No. AI 15163



NORTH ELEVATION (FRONT)

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

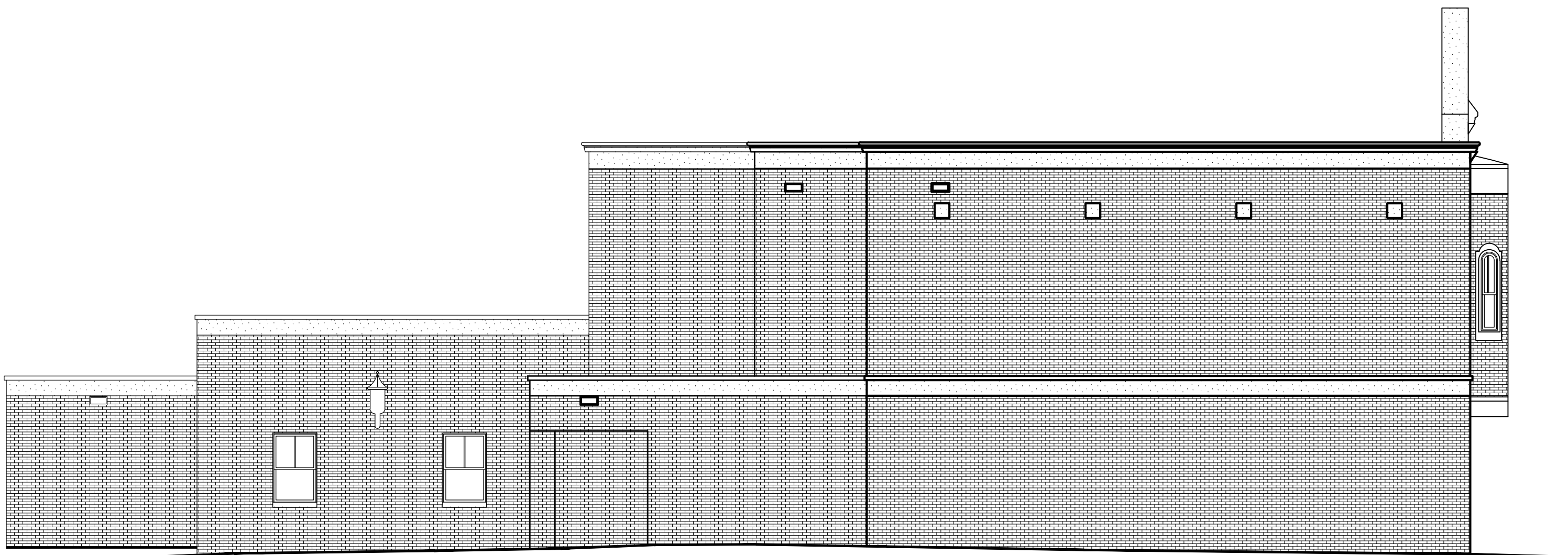
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WEST ELEVATION (RIGHT)

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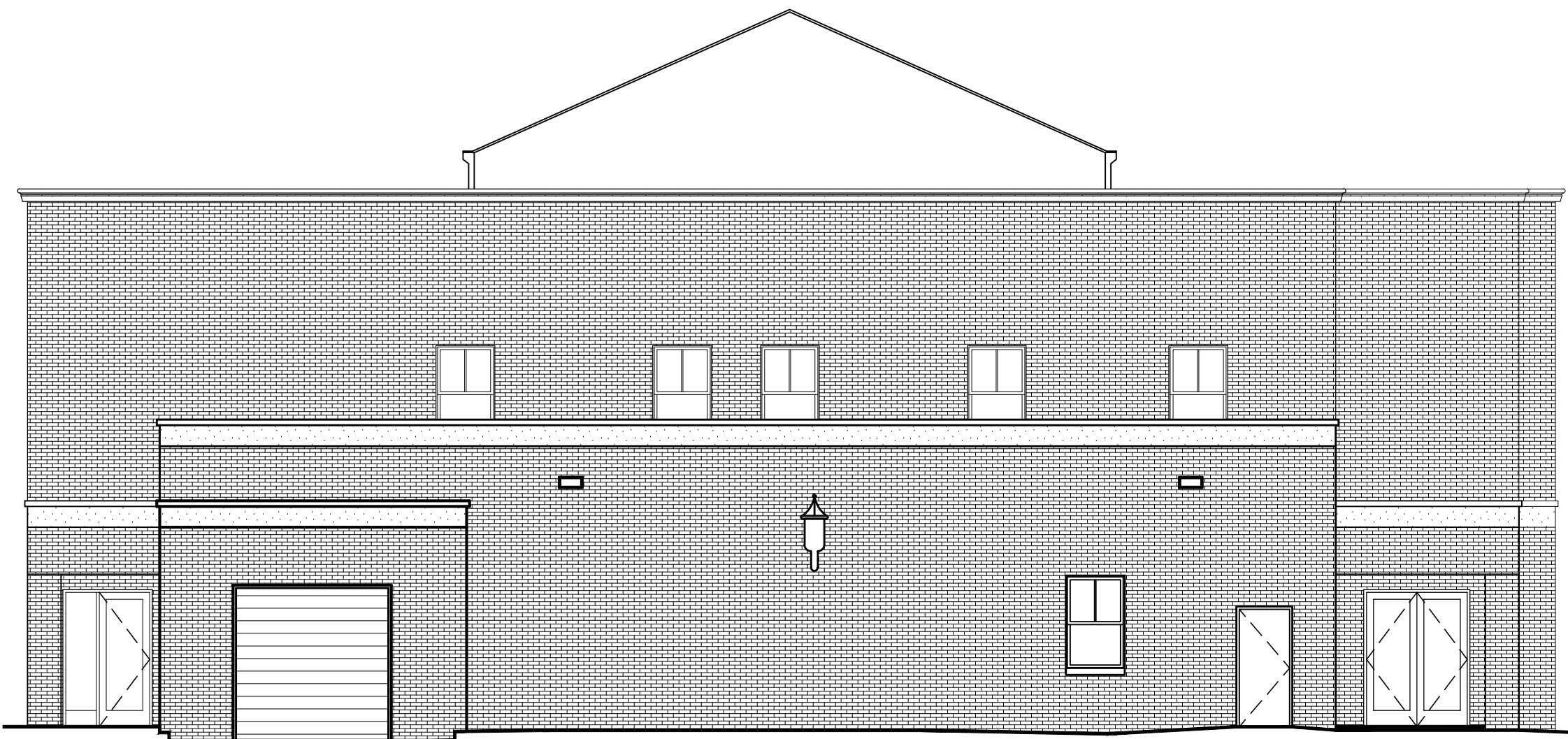
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EAST ELEVATION (LEFT)

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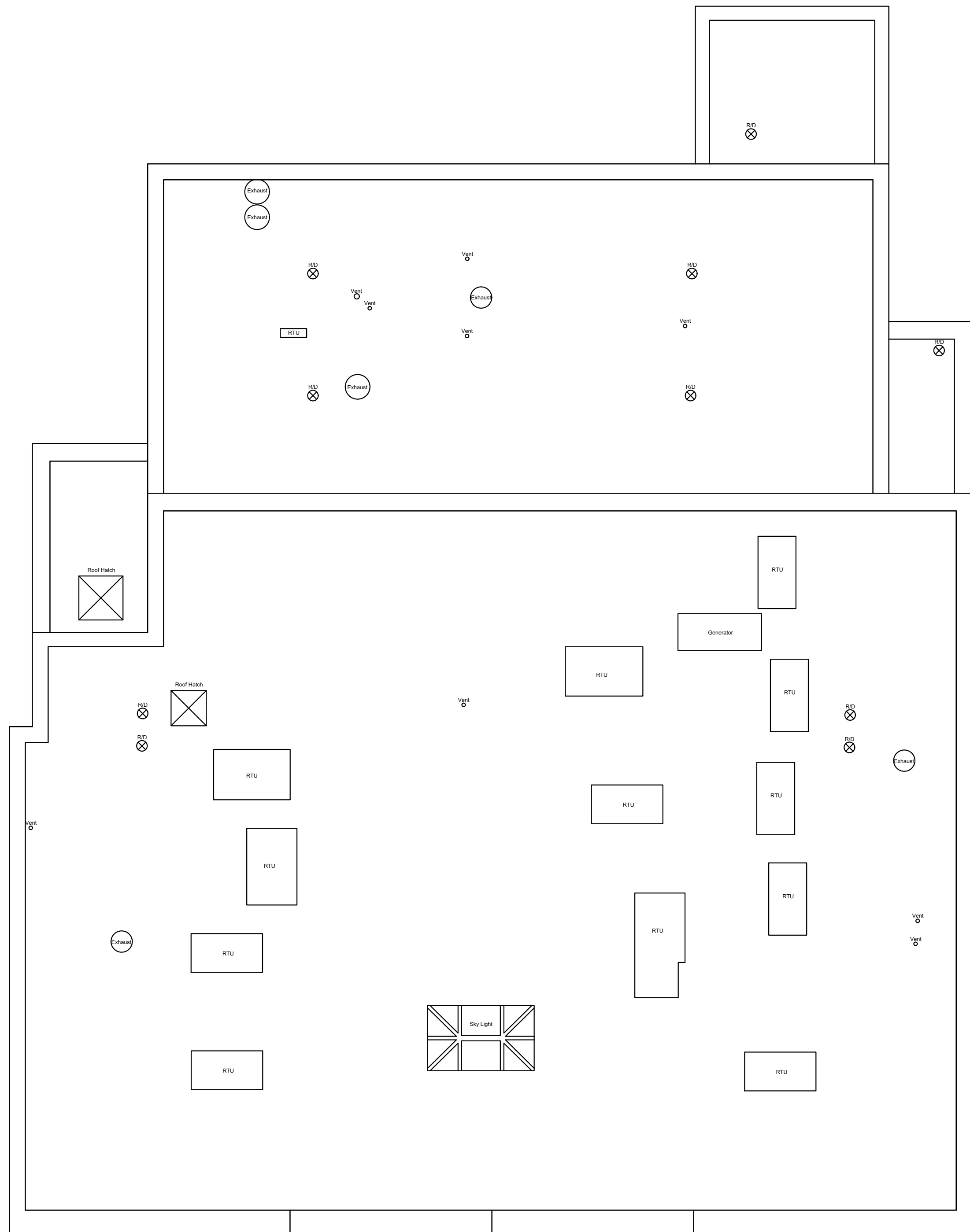
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SOUTH ELEVATION (REAR)

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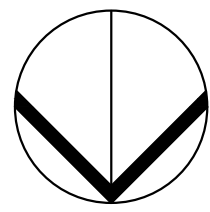
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ROOF PLAN

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

5



No.	Description	Date
X	XXXXX	XXXXXX

JOB NO. 23.039

DRAWN BY: BR CHECKED BY: KMS

DATE: -

CAD FILE: 23039 G-100.dwg

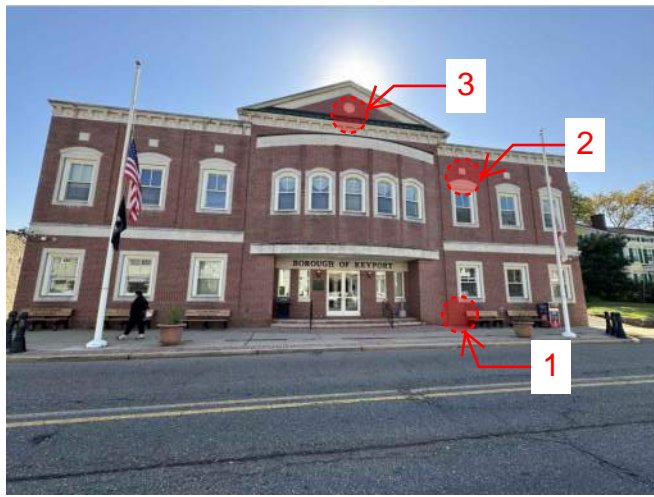
PROPOSED FACADE REPAIRS & ROOF REPLACEMENT AT:

**KEYPORT
MUNICIPAL
BUILDING**

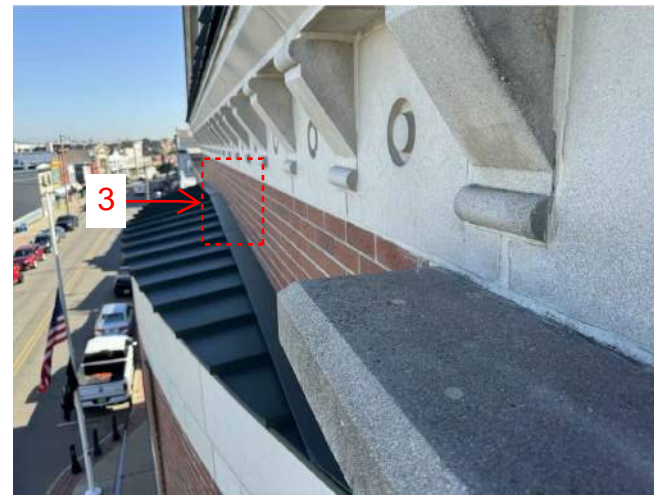
70 WEST FRONT STREET
KEYPORT, NJ 07735

EXISTING

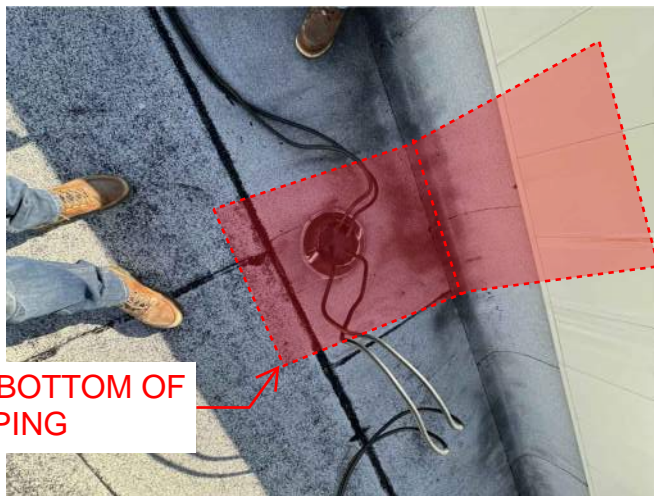
G-100.00



PROBE 1 - 2 - 3



PROBE - 3



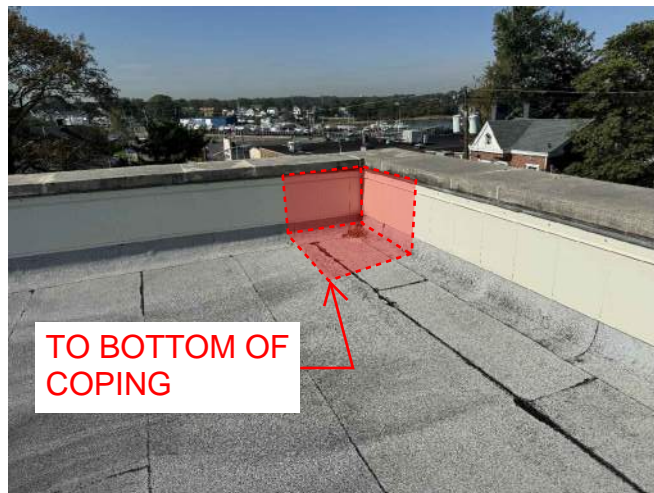
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PROBE - 4



TO SILL

PROBE - 5



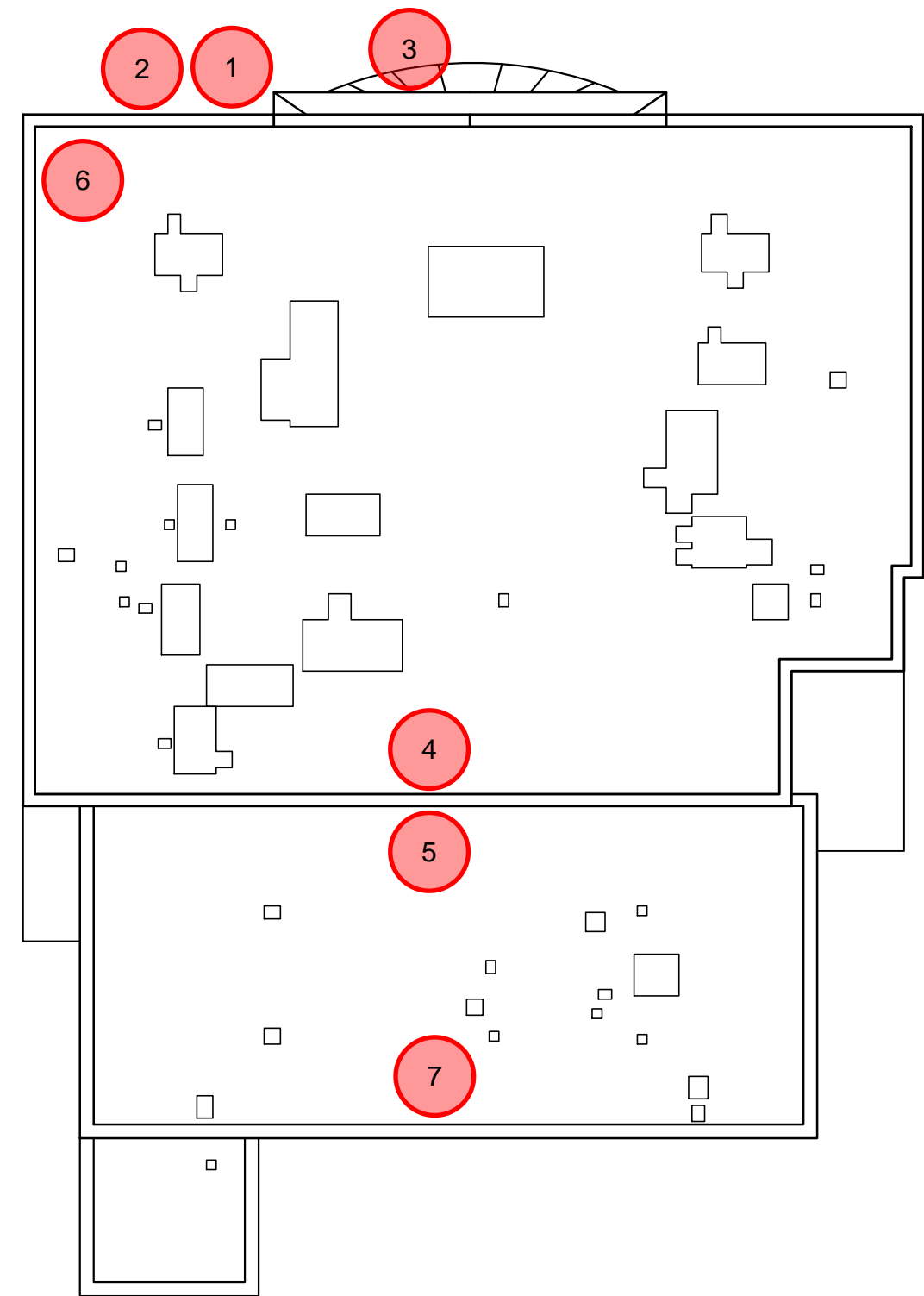
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PROBE - 6



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PROBE - 7



**BOROUGH OF KEYPORT
MUNICIPAL BUILDING
ROOF LEAK INVESTIGATION**

70 W Front St, Keyport, NJ 07735

Drawn By:	TTF
Date Issued:	10-19-23
Scale:	NTS
Project No.:	23.039

ROOF PROBE LOCATIONS

Reference:	Drawing:	SK-1
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Settembrino Architects
37 EAST WASHINGTON AVE
ATLANTIC HIGHLANDS, NJ 07716
732 741 4900
www.settembrino.com



Photo 1 : Probe 1



Photo 2 : Probe 1, missing through wall flashing and with cavity filled solid with grout above weep hole.



Photo 3 : Probe 1, interior of wall opposite of probe. Completed by others.



Photo 4 : Missing flashing and weeps holes at material transitions



Photo 5 : Missing flashing and weeps holes at material transitions



Photo 6 : Probe 2



Photo 7 : Probe 2, no flashing or weep holes found.



Photo 8 : Probe 2, no flashings or weep holes found looking down cavity to window head.



Photo 9 : Probe 2, with foreign body in mortar.



Photo 10 : Probe 3



Photo 11 : Probe 3, inverted and inadequate flashing found.



Photo 12 : Probe 4



Photo 13 : Probe 4, no flashing found.



Photo 14 : Probe 5, grout filled cavity and improperly lapped flashing found.



Photo 15 : Probe 6



Photo 16 : Probe 7



Photo 17 : Probe 7 with dry cant strip found.



Photo 18 : Probe 7, with dry parapet sheathing found.



Photo 19 : Inadaquate and missing flashing components found



Photo 20 : Inadaquate and missing flashing components found



Photo 21 : Inadaquate and missing flashing components found



Photo 22 : Improper membrane lapping found.



Photo 23 : Delaminating membrane found.



Photo 24 : Delaminating membrane found.

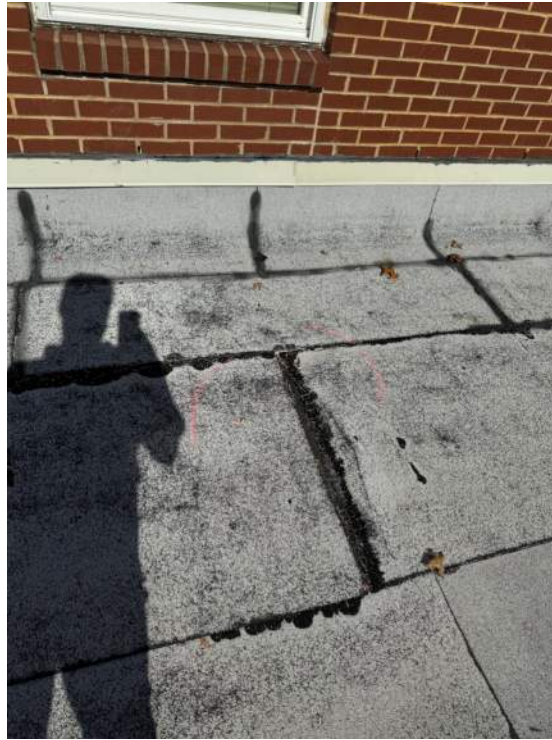


Photo 25 : "Mole Run" in membrane found.

**Roof top units Study for Keyport Municipal Court,
Located at 70 W Front St,
Keyport, NJ 07735.**



Conducted By:

**Eden Engineering LLC
Consulting Engineers
14 Quaker Dr
East Brunswick, NJ 08816**

October 2023

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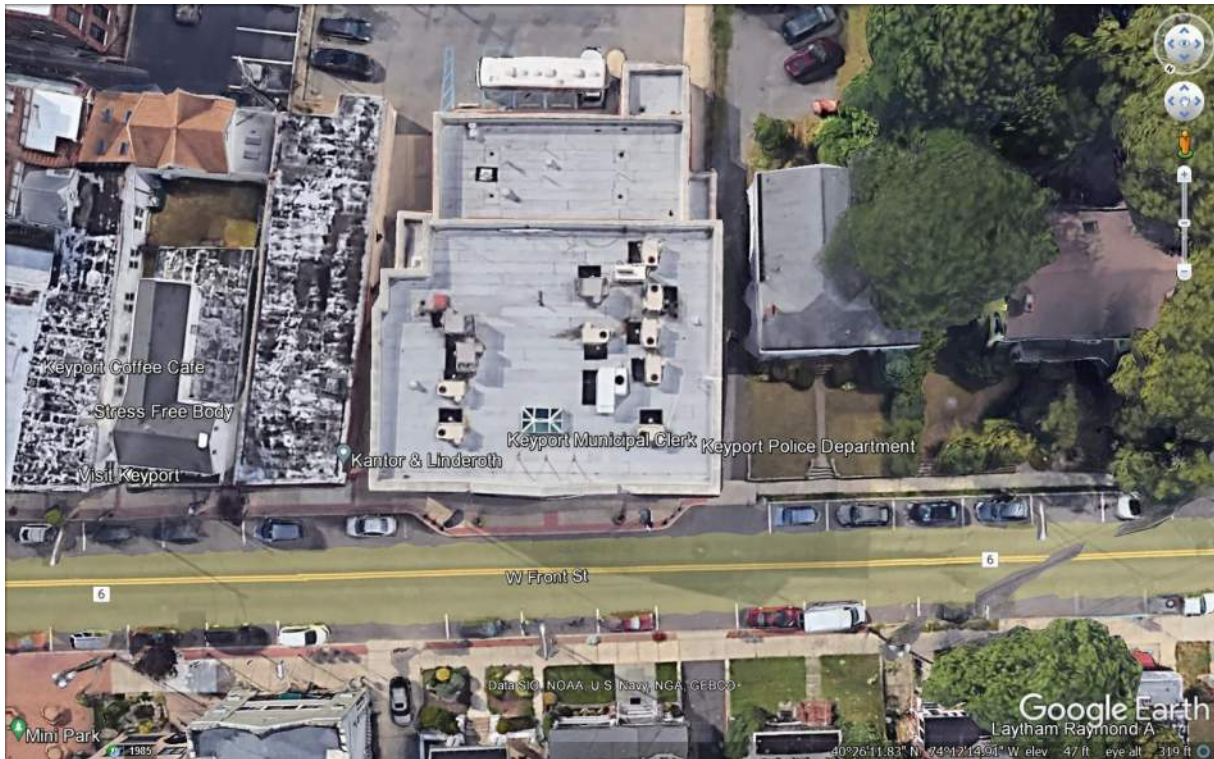
Summary17

Executive Summary

This report contains the results of a study to evaluate the existing roof top units for the Keyport Municipal Court building located at 70 W Front St, Keyport, NJ 07735

The recommendation of this report is for the owner to replace some of the existing units which exceeded their useful life.

The following pages discuss the existing conditions.



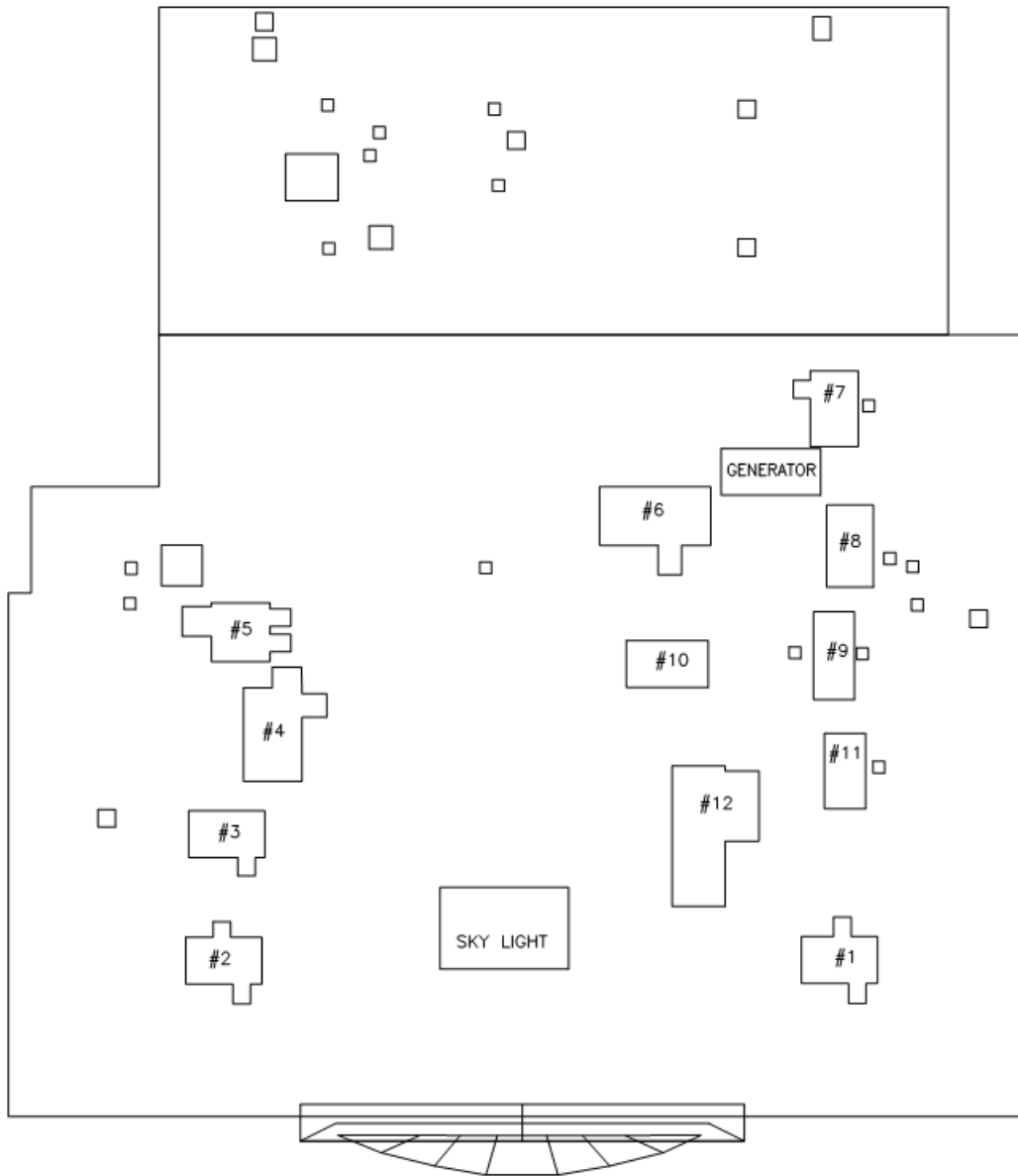
Keyport Municipal Court, Satellite View

Background and Purpose

Eden Engineering, LLC has been retained to evaluate the existing roof top units at Keyport Municipal Court, Located at 70 W Front St, Keyport, NJ 07735.

Methodology

This study is based on site visit.

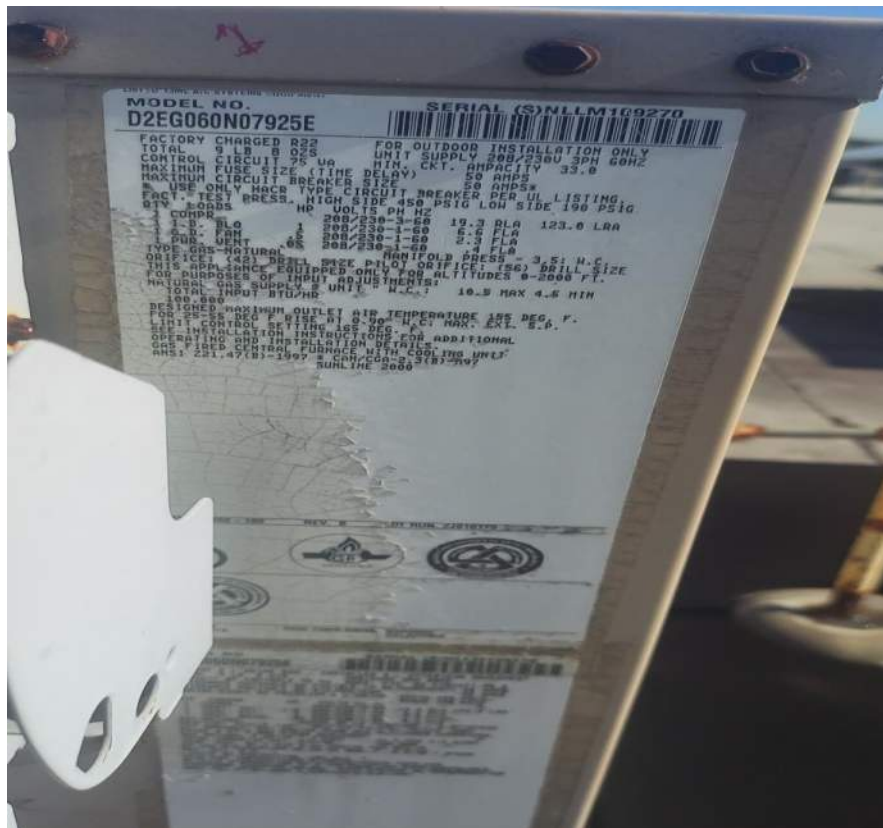


ROOF PLAN

Existing HVAC System

This evaluation is based on our site visit and common HVAC design practice.

Ex. RTU #1



RTU-1

Based on the model number and the serial number the existing RTU have the capacity of 5 ton cooling and were manufactured around October 2003.

Ex. RTU #2



RTU-2

Based on the model number and the serial number the existing RTU have the capacity of 5 ton cooling and were manufactured around November 2020.

Ex. RTU #3



RTU-3

Based on the model number and the serial number the existing RTU have the capacity of 3 ton cooling and were manufactured around June 2020.

Ex. RTU #4



RTU-4

Based on the model number and the serial number the existing RTU have the capacity of 4 ton cooling and were manufactured around August 2011.

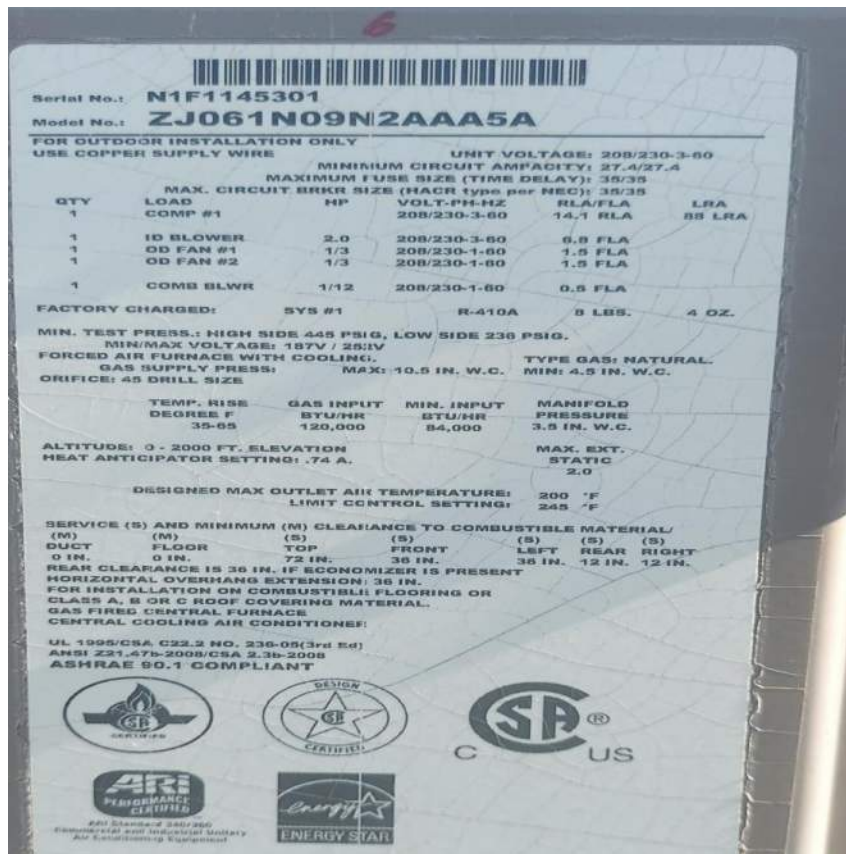
Ex. RTU #5



RTU-5

Based on the model number and the serial number the existing RTU have the capacity of 5 ton cooling and were manufactured around June 2011.

Ex. RTU #6



RTU-6

Based on the model number and the serial number the existing RTU have the capacity of 5 ton cooling and were manufactured around June 2011.

Ex. RTU #8



RTU-8

Based on the model number and the serial number the existing RTU have the capacity of 3 ton cooling and were manufactured around October 2002.

Ex. RTU #10



Model Number ZEO36H05B2A1ABA1A2
Serial Number N2B0610847

Forced Air Furnace with Cooling Unit
 (Air pulsé four avec unité de refroidissement)

FOR OUTDOOR INSTALLATION ONLY (Pour Usage Extérieure Seulement Non-Residentiale)
USE COPPER SUPPLY WIRE ONLY (Utiliser Fil d'Alimentation en Cuivre Seulement)

Power Supply (Alimentation Electrique) **Volts - Phase - Hertz** (Volts-Phase-Hertz) **208/230 - 3 - 60**

Permissible Operating Voltage Range (Plage de Tension Admissible) **Min/Max 187V / 252V**

Short Circuit Current (Courant de Court Circuit) **kA RMS SYMMETRICAL:** (kA RMS Symétrique) **5** **V MAXIMUM:** (V Maximum) **208/230**

Factory Charged (Chargé en Usine) **R410A** **System #1:** (Système #1) **4 lbs 4 oz 1.9 kg**

Min Test Pressure (Pression d'Essai Minimum) **Low Side:** (Côté Bas) **236 psig 1,627 kpa** **High Side:** (Côté Haut) **445 psig 3,068 kpa**

Electrical Loads (Charge Electrique)	HP (Cheval)	Qty (Qté)	Volts - Phase - Hertz (Volts-Phase-Hertz)	Load Current (Courant de Charge)	Lock Rotor Current (Courant Courant Rotor)
Compressor System 1 (Compresseur Système 1)		1	208/230 - 3 - 60	10.4	73
ID Blower Motor (Moteur de Soufflerie)	1.5	1	208/230 - 3 - 60	4.3/4.3	FLA*
DD Fan Motor (Moteur de Ventilateur)	0.5	1	208/230 - 1 - 60	2.3/2.3	FLA
Power Convenience Outlet (Prise Electrique Convenience)					FLA
Combustion Motor 1 (Moteur à Combustion Interne)		1	208/230 - 1 - 60	0.8	FLA

*When the unit has a 1 phase VFD powering a 3 phase motor, the FLA is the input to the VFD.
 * Lorsque l'unité est équipée d'un VFD monophasé alimentant un moteur triphasé, le FLA est l'entrée du VFD.

Min Circuit Amp (Courant Minimum du Circuit)	Max Fuse/Bkr Size (Taille du Fusible/Disjoncteur)	Max Static (Pression Max)
19.6/19.6	75/75	2.00 in. w.c.

Input (Entrée)	Manifold Pressure (Pression de Manivelle)
NORMAL (Normal) 50,000 ft/mk	3.5 in. w.c.
REDUCED (Réduit) ft/mk	in. w.c.

Drill Size (Taille de Perçage)	42
Type Gas (Type des Gaz)	NAT
Inlet Min (Entrée Min)	4.5 in. w.c.
Inlet Max (Entrée Max)	13.5 in. w.c.
Min Rise (FT) (Dépense Min)	15
Max Rise (FT) (Dépense Max)	45
Temp Limit (FT) (Limite de Temp)	240
Max Outlet (FT) (Sortie Max)	100

Service (S) and Minimum (M) Clearance to Combustible Material
 (Service (S) et Minimum (M) Clearance to Combustible Material)

Dist (P)	Floor (M)	Exp (S)	Front (S)	Rear (S)	Left (S)	Right (S)
3	3	3	37	37	12	12

ASME B31.1 **ASME B31.3** **ASME B31.5** **ASME B31.9** **ASME B31.12** **ASME B31.13** **ASME B31.14** **ASME B31.15** **ASME B31.16** **ASME B31.17** **ASME B31.18** **ASME B31.19** **ASME B31.20** **ASME B31.21** **ASME B31.22** **ASME B31.23** **ASME B31.24** **ASME B31.25** **ASME B31.26** **ASME B31.27** **ASME B31.28** **ASME B31.29** **ASME B31.30** **ASME B31.31** **ASME B31.32** **ASME B31.33** **ASME B31.34** **ASME B31.35** **ASME B31.36** **ASME B31.37** **ASME B31.38** **ASME B31.39** **ASME B31.40** **ASME B31.41** **ASME B31.42** **ASME B31.43** **ASME B31.44** **ASME B31.45** **ASME B31.46** **ASME B31.47** **ASME B31.48** **ASME B31.49** **ASME B31.50** **ASME B31.51** **ASME B31.52** **ASME B31.53** **ASME B31.54** **ASME B31.55** **ASME B31.56** **ASME B31.57** **ASME B31.58** **ASME B31.59** **ASME B31.60** **ASME B31.61** **ASME B31.62** **ASME B31.63** **ASME B31.64** **ASME B31.65** **ASME B31.66** **ASME B31.67** **ASME B31.68** **ASME B31.69** **ASME B31.70** **ASME B31.71** **ASME B31.72** **ASME B31.73** **ASME B31.74** **ASME B31.75** **ASME B31.76** **ASME B31.77** **ASME B31.78** **ASME B31.79** **ASME B31.80** **ASME B31.81** **ASME B31.82** **ASME B31.83** **ASME B31.84** **ASME B31.85** **ASME B31.86** **ASME B31.87** **ASME B31.88** **ASME B31.89** **ASME B31.90** **ASME B31.91** **ASME B31.92** **ASME B31.93** **ASME B31.94** **ASME B31.95** **ASME B31.96** **ASME B31.97** **ASME B31.98** **ASME B31.99** **ASME B31.100**

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Ex. RTU #11



Model Number (Numéro de Modèle) **ZE048H07B2A1ABA1A2**
Serial Number (Numéro de Série) **N2M0371585**

FOR OUTDOOR INSTALLATION ONLY (Pour Usage Extérieure Seulement Non-Residentiel)
USE COPPER SUPPLY WIRE ONLY (Utiliser Fil d'Alimentation en Cuivre Seulement)

Power Supply (Alimentation Electrique) **Volts-Phase-Hertz** (Volts-Phase-Hertz) **208/230-3-60**

Permissible Operating Voltage Range (Plage de Tension Admissible) **Min/Max** **187V / 252V**

Short Circuit Current (Courant de Court Circuit) **kA RMS SYMMETRICAL:** (kA RMS Symétrique) **5** **V MAXIMUM:** (V Maximum) **208/230**

Factory Charged (Chargé en Usine) **R410A** **System #1:** (Système #1) **5** **lbs** **6** **oz** **2.4** **kg**

Min Test Pressure (Pression d'Épreuve Minimale)
Low Side: **236** **psig** **High Side:** **445** **psig**
1,627 **kpa** **3,068** **kpa**

Electrical Loads	HP (tq)	Qty (Qnt)	Volts-Phase-Hertz (Volts-Phase-Hertz)	Load Current (Courant de Charge)	Lock Rotor Current (Verrouillage Courant d'Inertie)
Compressor System 1 (Compresseur Système 1)		1	208/230-3-60	13.7	FLA*
OD Blower Motor (Moteur de Soufflerie)	1.5	1	208/230-3-60	4.3/4.3	FLA*
Power Convenience Outlet (Prise Electrique Tertiaire)	0.5	1	208/230-1-60	2.3/2.3	FLA
Combustion Motor 1 (Moteur à Combustion Interne)		1	208/230-1-60	0.8	FLA

*When the unit has a 1 phase VFD powering a 3 phase motor, the FLA is the input to the VFD.
 * Lorsque l'unité est équipée d'un VFD monophase alimentant un moteur triphasé, le FLA est l'entrée du VFD.

Input (Entrée)	Manifold Pressure (Pression d'Assemblage)
NORMAL (Normal) 75.000 psia	3.5 in. w.c.
REDUCED (Réduit) psia	in. w.c.

Drifts (Drifts)	Drifts (Drifts)
Type Gas (Type Gaz) NAT	
Inlet Min (Entrée Min) 4.5 in. w.c.	
Inlet Max (Entrée Max) 13.5 in. w.c.	
Min Rise (P) (Chargement Min) 25	
Max Rise (P) (Chargement Max) 70	
Temp Limit (P) (Limite Temp) 240	
Max Outlet (P) (Sortie Max) 195	

Min Circuit Amp (Ampères Minimum du Circuit) **23.7/23.7** **Max Fuse/Bkr Size** (Câble Size ou Fusible (Ampères)) **30/30** **Max Static** (Statique Max) **2.00** **in. w.c.**

Service (S) and Minimum (M) Clearance to Combustible Material (Service (S) et Déplacement Minimum (M) des Matériaux de Combustion)

Duct (M) (Conduit)	Floor (M) (Plancher)	Top (S) (Haut)	Front (S) (Avant)	Rear (S) (Arrière)	Left (S) (Gauche)	Right (S) (Droite)
36	36	72	36	36	24	24

(S) Rear Clearance with Exconcealer: (Déplacement Arrière avec Exconcealer) **36** **in.**
(S) Horizontal de exhaust extension: (Déplacement en largeur) **36** **in.**
(S) Clearance with Power Exhaust: (Déplacement avec Exchangement Tertiaire) **36** **in.**

ANSI Z39.47/CSA 2.3-2012 **UL 1998/CSA C22.2 NO. 238-11/08 E6**

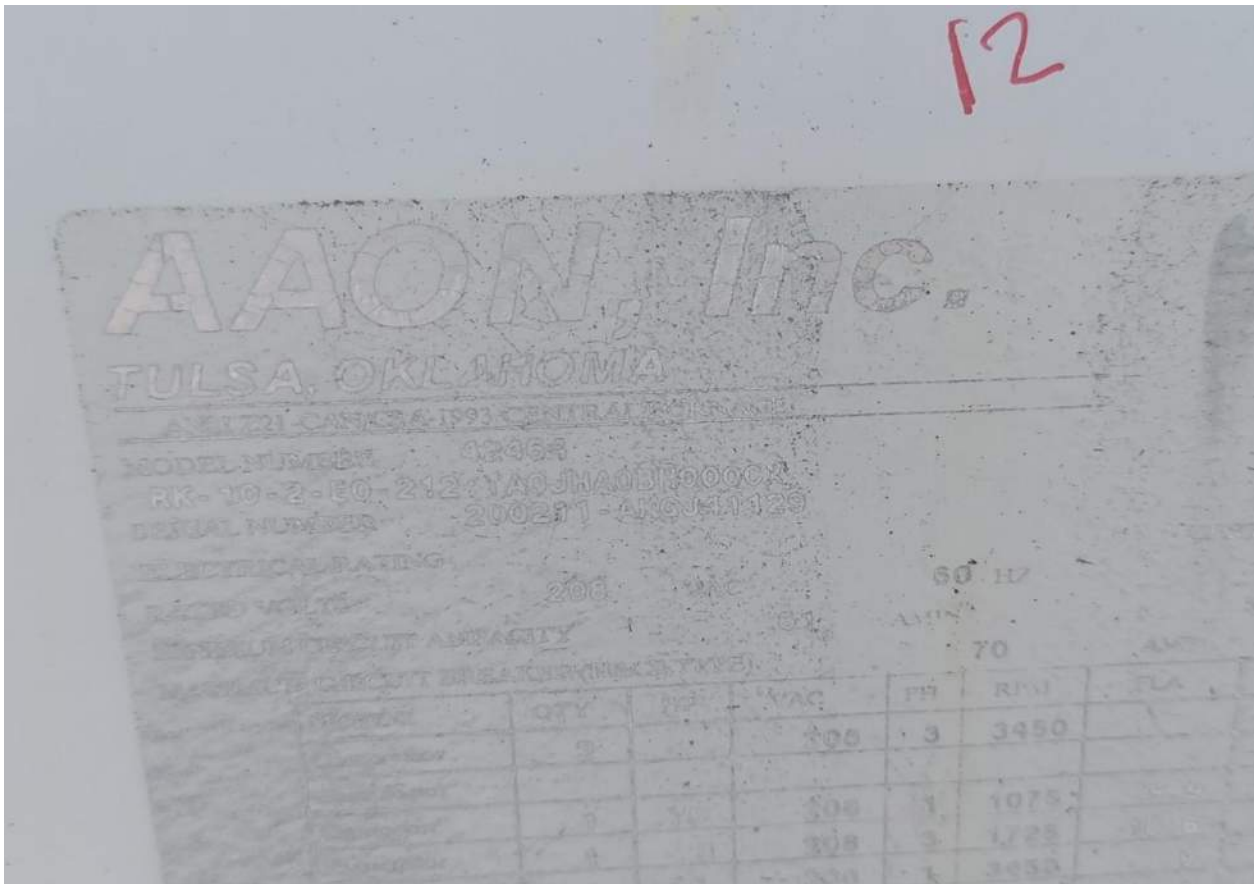
SP **AIR** **STAR** **610**

Certificate of Compliance
Systems Certification Label
ASCE 2-10, CAN-2010, IBC-2009, AC-156

RTU-11

Based on the model number and the serial number the existing RTU have the capacity of 4 ton cooling and were manufactured around November 2020.

Ex. RTU #12



RTU-12

Based on the model number and the serial number the existing RTU have the capacity of 10 ton cooling and were manufactured around November 2002.

Summary

Ex. RTU:

All units except #12 were manufactured by YORK

RTU-2, 3, 7, 9, 10, 11

These units were manufactured around 2020 and are 3 years old and in excellent condition.

RTU-1, 8

These units were manufactured around 2002-2003 and are around 20 years old and have reached the end of their useful life therefore should be replaced with new.

We anticipate a \$60,000 per unit construction cost estimate. They do not include soft costs such as A/E fees, etc.

RTU-4, 5, 6

These units were manufactured around 2011 and are around 12 years old, and are at the last stage of their useful life. Should a funds be available we recommend replacing these units with new.

We anticipate a \$60,000 per unit construction cost estimate. They do not include soft costs such as A/E fees, etc.

RTU-12

This unit were manufactured by AAON around 2002 and is around 21 years old and have reached the end of its useful life therefore should be replaced with new.

We anticipate a \$125,000 construction cost estimate. They do not include soft costs such as A/E fees, etc.

	North	East	South	West	Subtotal	Unit Price	Sub Total	Phase 1	Phase 2
Remove face brick	1950	2700	1700	2700	9050 SF	\$15.00	\$135,750.00	\$54,750.00	\$81,000.00
Install new adhesive backed WRB & flashings	2750	3000	1885	3000	10635 SF	\$5.00	\$53,175.00	\$23,175.00	\$30,000.00
New face brick	1950	2700	1700	2700	9050 SF	\$55.00	\$497,750.00	\$200,750.00	\$297,000.00
Remove metal roofing	200	-	-	20	220 SF	\$15.00	\$3,300.00	\$3,000.00	\$300.00
New metal roofing	200	-	-	20	220 SF	\$50.00	\$11,000.00	\$10,000.00	\$1,000.00
Remove and salvage stone trims	800	300	185	300	1585 SF	\$30.00	\$47,550.00	\$29,550.00	\$18,000.00
Re-install stone trims	800	300	185	300	1585 SF	\$50.00	\$79,250.00	\$49,250.00	\$30,000.00
Remove windows	450	40	125	-	615 SF	\$25.00	\$15,375.00	\$14,375.00	\$1,000.00
Install new aluminum clad wood windows	450	40	125	-	615 SF	\$175.00	\$107,625.00	\$100,625.00	\$7,000.00
Remove aluminum store-front doors	55	-	100	-	155 SF	\$25.00	\$3,875.00	\$3,875.00	\$0.00
Install new aluminum store-front doors	55	-	100	-	155 SF	\$200.00	\$31,000.00	\$31,000.00	\$0.00
Remove steel doors	-	-	20	-	20 SF	\$15.00	\$300.00	\$300.00	\$0.00
Install new steel doors	-	-	20	-	20 SF	\$125.00	\$2,500.00	\$2,500.00	\$0.00
Remove roll-up steel doors	-	-	90	-	90 SF	\$15.00	\$1,350.00	\$1,350.00	\$0.00
Install new roll-up steel doors	-	-	90	-	90 SF	\$100.00	\$9,000.00	\$9,000.00	\$0.00
Remove and replace exterior building lighting	2750	3000	1885	3000	10635 SF	\$10.00	\$106,350.00	\$46,350.00	\$60,000.00
Partial HVAC replacement Units 1 & 8					2 EA	\$60,000.00	\$120,000.00	\$120,000.00	
Partial HVAC replacement Units 4,5 &6					3 EA	\$60,000.00	\$180,000.00	\$180,000.00	
Partial HVAC replacement Unit 12					1 EA	\$125,000.00	\$125,000.00	\$125,000.00	
Salvage and re-install generator on new isolation curb					1 EA	\$65,000.00	\$65,000.00	\$65,000.00	
Salvage stone coping					900 SF	\$30.00	\$27,000.00	\$27,000.00	
Re-install stone coping					900 SF	\$50.00	\$45,000.00	\$45,000.00	
Remove roofing					8100 SF	\$5.00	\$40,500.00	\$40,500.00	
New SBS roof with liquid applied flashings over NVS insulation					8100 SF	\$35.00	\$283,500.00	\$283,500.00	
Remove interior parapet cladding					2100 SF	\$10.00	\$21,000.00	\$21,000.00	
Interior parapet finish with stucco					2100 SF	\$35.00	\$73,500.00	\$73,500.00	
Sub- Total							\$2,085,650.00	\$1,560,350.00	\$525,300.00
GENERAL REQUIREMENTS & GENERAL CONDITIONS					10.00%		\$208,565.00	\$156,035.00	\$52,530.00
PRIMES OH&P					10.00%		\$208,565.00	\$156,035.00	\$52,530.00
SUB-TOTAL							\$2,502,780.00	\$1,872,420.00	\$630,360.00
BONDING AND INSURANCE					2.50%		\$62,569.50	\$46,810.50	\$15,759.00
SUB-TOTAL							\$2,565,349.50	\$1,919,230.50	\$646,119.00
ESCALATION					12.50%		\$320,668.69	\$239,903.81	\$80,764.88
PHASING PREMIUM					5.00%		\$128,267.48	\$95,961.53	\$32,305.95
DESIGN CONTINGENCY					12.50%		\$320,668.69	\$239,903.81	\$80,764.88
CONSTRUCTION CONTINGENCY					10.00%		\$256,534.95	\$191,923.05	\$64,611.90
CONSTRUCTION TOTAL							\$3,591,489.30	\$2,686,922.70	\$904,566.60