NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

NORTH ROCKLAND HIGH SCHOOL
SED NO. 50-02-01-06-0-016-037
106 Hammond Rd
Thiells, NY 10984

OWNER:
North Rockland Central School District
65 Chapel St
Garnerville, NY 10923

ARCHITECT:
MICHAEL SHILALE ARCHITECTS, LLP
140 Park Avenue
New City, NY 10956

STRUCTURAL & PME ENGINEER:
GREENMAN-PEDERSEN, INC.
400 Rella Boulevard
Montebello, NY 10901

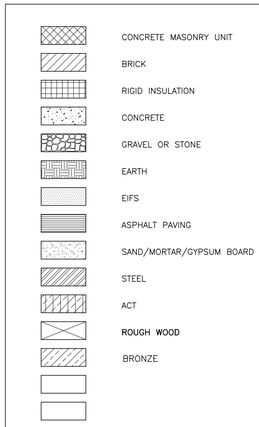
LIST OF DRAWINGS

GENERAL NOTES

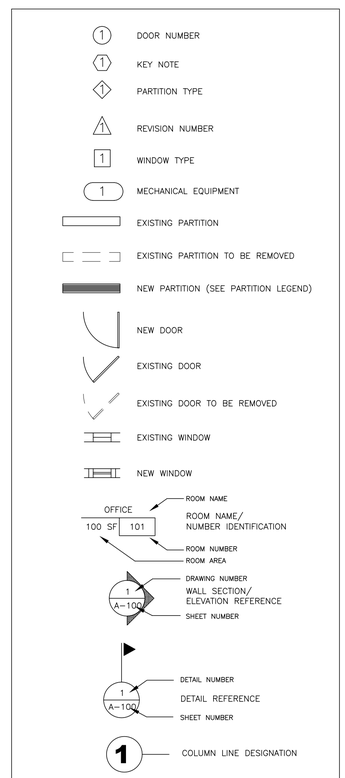
1. ALL PLAN DIMENSIONS ARE NOMINAL U.O.N. DIMENSIONS TO THE FINISHED FACE OF AN ELEMENT OR WALL WILL BE DESIGNATED WITH AN "F" AS SHOWN.

2. G.C. TO VERIFY ALL DIMENSIONS IN THE FIELD AND IS TO NOTIFY ARCHITECT IF THERE ARE ANY DISCREPANCIES.

MATERIALS LEGEND



SYMBOLS LEGEND



ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE
A.F.F.	ABOVE FINISH FLOOR
ASPH	ASPHALT
BLK	BLOCK
BLK'G	BLOCKING
BUR	BUILT UP ROOFING
CLG	CEILING
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONT	CONTINUOUS
C.J.	CONTROL JOINT
DN	DOWN
DIA	DIAMETER
DWG	DRAWING
E.F.	EACH FACE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
E.W.	EACH WAY
E.W.C.	ELECTRICAL WATER COOLER
EL	ELEVATION
ELC	ELECTRICAL CONTRACTOR
E.T.R	EXISTING TO REMAIN
EXIST	EXISTING
EXP	EXPANSION
EXT'G	EXISTING
EXTR	EXTERIOR
FP	FIREPROOF
FIN.	FINISH(ED)
GA	GAUGE
GC	GENERAL CONTRACTOR
GALV	GALVANIZED
GL	GLASS
GWB	GYPSUM WALL BOARD
HDPE	HIGH DENSITY POLYETHYLENE
HM	HOLLOW METAL
H.P.	HIGH POINT
HAC	HEATING & A/C CONTRACTOR
ITR	INDIVIDUAL TREATMENT ROOM
JT	JOINT
LAM	LAMINATE
LAV	LAVATORY
LF	LINEAR FOOT
LP	LOW POINT
MAX	MAXIMUM
MFR	MANUFACTURER
MTL	METAL
MIN	MINIMUM
MO	MASONRY OPENING
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
OC	ON CENTER
OPN'G	OPENING
PBC	PLUMBING CONTRACTOR
PLAS.LAM.	PLASTIC LAMINATE
PL	PLATE
PLY'D	PLYWOOD
RAD	RADIUS
REF.CLG.	REFLECTED CEILING
REQ'D	REQUIRED
RO	ROUGH OPENING
SIM	SIMILAR
S.P.	STARTING POINT
STL	STEEL
SUSP.CLG.	SUSPENDED CEILING
T.O.M.	TOP OF MASONRY
T.O.S.	TOP OF STEEL
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V.I.F.	VERIFY IN FIELD
VCT	VINYL COMPOSITE TILE
W/	WITH
WD	WOOD

ALTERNATES

- ALT. NO. 1: VOID
- ALT NO. 2: REMOVE EXISTING CEILING IN ANNEX GYMNASIUM, PREPARE AND PAINT EXISTING EXPOSED ROOF DECK/STRUCTURAL STEEL/CONDUITS/DUCTWORK, REHANG ELECTRICAL COMPONENTS + FIRE ALARM AUDIO WIRE AND INSTALL NEW SUSPENDED LIGHTING. INSTALL 800 LF OF NEW CABLE TRAYS FOR ELECTRICAL WIRES. INSTALL NEW GYPSUM SOFFIT AT OPERABLE PARTITION TRACK AS PER PLANS. ALLOWANCE NO. 4 FOR CABLE REROUTING WILL BE ACCEPTED AS PART OF THIS ALTERNATE.
- ALT NO. 3: REMOVE EXISTING CEILING IN MAIN GYMNASIUM, PREPARE AND PAINT EXISTING EXPOSED ROOF DECK/STRUCTURAL STEEL/CONDUITS/DUCTWORK, REHANG ELECTRICAL COMPONENTS + FIRE ALARM AUDIO WIRE AND INSTALL NEW SUSPENDED LIGHTING. INSTALL 800 LF OF NEW CABLE TRAYS FOR ELECTRICAL WIRES. INSTALL NEW GYPSUM SOFFIT AT OPERABLE PARTITION TRACK AS PER PLANS. ALLOWANCE NO. 4 FOR CABLE REROUTING. ALLOWANCE NO. 5 FOR CABLE REROUTING WILL BE ACCEPTED AS PART OF THIS ALTERNATE.

ALLOWANCES

- ALLOWANCE NO. 1: CLEAN EXISTING MAIN DUCTWORK FOR 20 LINEAR FEET PER UNIT AT RTUS D1 AND D2.
- ALLOWANCE NO. 2: REPLACE EXISTING SUPPLY AND RETURN PIPING AND INSULATION FOR 20 LINEAR FEET PER UNIT AT RTUS D1 AND D2.
- ALLOWANCE NO. 3: PROVIDE PROPOSAL FROM THIRD PARTY HVAC COMMISSIONING AGENT FOR OWNER TO CONTRACT WITH (DEDUCT ALLOWANCE)
- ALLOWANCE NO. 4: $40,000 ALLOWANCE FOR CABLE ROUTING IN CEILING AS PART OF ALTERNATE NO. 2. CONTRACTOR TO PROVIDE TIME & MATERIAL BACKUP FOR WORK PERFORMED.
- ALLOWANCE NO. 5: $40,000 ALLOWANCE FOR CABLE ROUTING IN CEILING AS PART OF ALTERNATE NO. 3. CONTRACTOR TO PROVIDE TIME & MATERIAL BACKUP FOR WORK PERFORMED.

UNIT PRICES

- UNIT PRICE NO. 1: PROVIDE UNIT PRICE TO ADD OR REDUCE TO 10 LINEAR FEET OF EXISTING MAIN DUCTWORK FOR EACH UNIT. PRICE IS PER 10 LINEAR FEET.
- UNIT PRICE NO. 2: PROVIDE UNIT PRICE TO ADD OR REDUCE EXISTING SUPPLY AND RETURN PIPING AND INSULATION FOR 10 LINEAR FEET. PRICE IS PER 10 LINEAR FEET.
- UNIT PRICE NO. 3: PROVIDE UNIT PRICE TO ADD OR REDUCE 10 LINEAR FEET OF CABLE TRAY TO ALTERNATES NO. 2 AND 3.

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by JR/MAL
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 11/28/23

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
106 Hammond Road, Thiells, NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.smilale.com

Drawing Title: **COVER SHEET**

Drawing No. **A-000**

2020 EXISTING BUILDING CODE OF NEW YORK STATE

BUILDING CODE SUMMARY			
Site	North Rockland Hight School	Date:	12/14/2023
Project Name:	NRHS Chiller Replacement & HVAC Upgrades	Location	Rockland County
Project Number:	43065	Architect of Record	MSA
Project Address:	106 Hammond Road, Thiells NY 10984		

APPLICABLE ORDINANCES, CODES & STANDARD	
2020	Existing Building Code of New York State
2020	Building Code of New York State

EXISTING BUILDING CODE: CHAPTER 1 SCOPE AND ADMINISTRATION	
SECTION 101	GENERAL
101.2 Scope	The provisions of this code shall apply to the repair, alteration, change of occupancy, addition to and relocation of existing buildings.
101.4 Applicability	This code shall apply to the repair, alteration, change of occupancy, addition and relocation of existing buildings, regardless of occupancy, subject to the criteria of Sections 101.4.1 and 101.4.2.
101..4.2 Buildings Previously Occupied	The legal occupancy of any building existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the Fire Code of New York State, or the Property Maintenance Code of New York State, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

EXISTING BUILDING CODE: CHAPTER 2 DEFINITIONS	
SECTION 202	GENERAL DEFINITIONS
EQUIPMENT OR FIXTURE	Any plumbing, heating, electrical, ventilating, air conditioning, refrigerating, and fire protection equipment, and elevators, dumbwaiters, escalators, boilers, pressure vessels and other mechanical facilities or installations that are related to building services. Equipment or fixture shall not include manufacturing, production, or process equipment, but shall include connections from building service to process equipment.

EXISTING BUILDING CODE: CHAPTER 3 PROVISIONS FOR ALL COMPLIANCE METHODS	
SECTION 301	ADMINISTRATION
301.3.2 Work Area Compliance Method	Alterations, additions and changes of occupancy complying with the applicable requirements of Chapters 6 through 12 of this code shall be considered in compliance with the provisions of this code.

EXISTING BUILDING CODE: CHAPTER 6 CLASSIFICATION OF WORK	
SECTION 601	GENERAL
601.2 Work Area	The work area, as defined in Chapter 2, shall be identified on the construction documents.
SECTION 602	ALTERATION - LEVEL 1
602.1 Scope	Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.
602.2 Application	Level 1 alterations shall comply with the provisions of Chapter 7.
SECTION 603	ALTERATION - LEVEL 2
603.1 Scope	Level 2 alterations include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.
603.2 Application	Level 2 alterations shall comply with the provisions of Chapter 7 for Level 1 alterations as well as the provisions of Chapter 8.

EXISTING BUILDING CODE: CHAPTER 7 ALTERATIONS - LEVEL 1	
SECTION 702	BUILDING ELEMENTS AND MATERIALS
702.6 Methods and Materials	New work shall comply with the materials and methods requirements in the Building Code of New York State, Energy Conservation Construction Code of New York State, Mechanical Code of New York State, and Plumbing Code of New York State, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.
SECTION 703	FIRE PROTECTION
703.1 General	Alterations shall be done in a manner that maintains the level of fire protection provided

EXISTING BUILDING CODE: CHAPTER 8 ALTERATIONS LEVEL 2	
SECTION 801	GENERAL
801.2 Alteration Level 1 Compliance	In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 7.
SECTION 802	BUILDING ELEMENTS AND MATERIALS
801.2 Alteration Level 1 Compliance	In addition to the requirements of this chapter, all work shall comply with the requirements of Chapter 7.
SECTION 802	BUILDING ELEMENTS AND MATERIALS
802.6 Fire-Resistance Ratings	Where approved by the code official, buildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the International Building Code has been added, and the building is now sprinklered throughout, the required fire resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code. The building is required to meet the other applicable requirements of the International Building Code.
SECTION 803	FIRE PROTECTION
803.1 Scope	The requirements of this section shall be limited to work areas in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.
803.2 Automatic Sprinkler Systems	Automatic sprinkler systems shall be provided in accordance with the requirements of Sections 803.2.1 through 803.2.4. Installation requirements shall be in accordance with the International Building Code.
804.2.2 Group E	In buildings with occupancies in Groups E, work areas that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur: 1. The work area is required to be provided with automatic sprinkler protection in accordance with the International Building Code as applicable to new construction; and 2. The work area exceeds 50 percent of the floor area.
804.2.2.1 Mixed Use	In work areas containing mixed uses, one or more of which requires automatic sprinkler protection in accordance with Section 804.2.2, such protection shall not be required throughout the work area provided that the uses requiring such protection are separated from those not requiring protection by fire-resistance-rated construction having a minimum 2-hour rating for Group H and a minimum 1-hour rating for all other occupancy groups.

EXISTING BUILDING CODE

SECTION 805	MEANS OF EGRESS
805.1 Scope	The requirements of this section shall be limited to work areas that include exits or corridors shared by more than one tenant within the work area in which Level 2 alterations are being performed, and where specified they shall apply throughout the floor on which the work areas are located or otherwise beyond the work area.
805.3.1 Minimum Number	Every story utilized for human occupancy on which there is a work area that includes exits or corridors shared by more than one tenant within the work area shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the International Building Code. In addition, the exits shall comply with Sections 805.3.1.1 and 805.3.1.2.
SECTION 806	STRUCTURAL
806.2 Existing Structural Elements Carrying Gravity Loads	Any existing gravity load-carrying structural element for which an alteration causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the Building Code of New York State for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the alteration shall be shown to have the capacity to resist the applicable design dead, live and snow loads, including snow drift effects, required by the Building Code of New York State for new structures.
SECTION 807	ELECTRICAL
807.1 New Installations	Newly installed electrical equipment and wiring relating to work done in any work area shall comply with all applicable requirements of NFPA 70 except as provided for in Section 807.3.
SECTION 808	MECHANICAL
807.1 Altered Existing Systems	In mechanically ventilated spaces, existing mechanical ventilation systems that are altered, reconfigured, or extended shall provide not less than 5 cubic feet per minute (cfm) (0.0024 m3/s) per person of outdoor air and not less than 15 cfm (0.0071 m3/s) of ventilation air per person; or not less than the amount of ventilation air determined by the Indoor Air Quality Procedure of ASHRAE 62.1.

2020 ENERGY CONSERVATION CODE OF NEW YORK STATE

BUILDING CODE SUMMARY			
Site	North Rockland High School	Date:	12/14/2023
Project Name:	NRHS Chiller Replacement & HVAC Upgrades	Location	Rockland County
Project Number:	43065	Architect of Record	MSA
Project Address:	106 Hammond Road, Thiells NY 10984		

APPLICABLE ORDINANCES, CODES & STANDARD	
2020	Existing Building Code of New York State
2020	Building Code of New York State
2020	Energy Conservation Code of New York State

ENERGY CONSERVATION CODE: CHAPTER 4 COMMERCIAL ENERGY EFFICIENCY			
SECTION C402	Building Envelope Requirements		
Table C402.1.3	Building Envelope Requirements - Opaque Assemblies		
	Climate Zone 5A	Walls	Average R-Value
	Mass	Above Grade	R-11.4ci
	Climate Zone 5A	Roofs	Average R-Value
	Wood Framed or Other	Insul entirely above roof deck	R-30ci
SECTION C403	Building Mechanical Systems		
C403.1 General	Mechanical systems and equipment serving the building heating, cooling, ventilating or refrigerating needs shall comply with this section.		
C403.1.1 Calculation of Heating and Cooling Loads (Mandatory)	Design loads associated with heating, ventilating and air conditioning of the building shall be determined in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent computational procedure using the design parameters specified in Chapter 3. Heating and cooling loads shall be adjusted to account for load reductions that are achieved where energy recovery systems are utilized in the HVAC system in accordance with the ASHRAE HVAC Systems and Equipment Handbook by an approved equivalent computational procedure.		

ENERGY CONSERVATION CODE: CHAPTER 5 EXISTING BUILDING	
SECTION C503	ALTERATIONS
C503.1 General	Alterations to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems.
C503.4 Heating and cooling Systems	New heating, cooling and duct systems that are part of the alteration shall comply with Sections C403.

ENERGY CODE

MANUAL OF PLANNING STANDARDS 2022

MANUAL OF PLANNING STANDARDS SUMMARY			
Owner:	North Rockland Central School District	Date:	2/5/2024
Project Name:	NRHS Chiller Replacement & HVAC Upgrades	Location	Rockland County
Project Number:	43065	Architect of Record	MSA
Project Address:	10984		

APPLICABLE ORDINANCES, CODES & STANDARD	
2020	Existing Building Code of New York State
2020	Building Code of New York State
2020	Energy Conservation Code of New York State
2020	Fire Code of New York State

PART III: ENVIRONMENT	
S304	ACOUSTICAL ENVIRONMENT
S304-2 - Mechanical/ Electrical/ Plumbing Noise Control	a. Achieving the proper level of ambient noise in an academic space is critical. If the level is too high, communication between teachers and students will be partially or fully masked. If too low, the slightest noises (pencils dropping, rustling of papers, etc.) will appear to be intensified in their level of disturbance. The intent of this section is to recommend the design of mechanical / electrical / plumbing systems to meet the sound standards of ANSI/ASA S12.60-latest version in classrooms and Large Group Instruction spaces used by any grade level. Sound levels do not apply to mechanical / electrical / plumbing systems used solely for emergency purposes such as fire alarm notification devices or emergency generators. b. Table S304-1 is a table of ambient noise criteria for mechanical equipment based on the single number room criteria "RC" curves. The values and ranges represent general limits of acceptability for typical building occupancies. Designs should not exceed upper values stated in Table for instructional spaces. Lower values may be more appropriate and should be based on a careful analysis of economics, space usage and user needs. c. Locations of mechanical and electrical equipment should be carefully chosen to not have an adverse impact on the ambient noise level in the adjacent spaces. To avoid excessive vibration of the building structure by mechanical air-handling units, chillers, compressors, transformers, etc., locate equipment rooms on grade whenever possible. Exterior equipment should be installed in locations such that the sound generated by the equipment will not intrude on instructional spaces at levels that exceed interior HVAC sound levels. d. When locating electrical receptacles for switches and outlets, no back-to-back boxes should be installed in sound-critical rooms. Offset boxes at least two stud cavities from each other.

PART VI: HEATING, VENTILATION AND AIR CONDITIONING REQUIREMENTS	
S602	THERMAL ENVIRONMENT
S602-6 - Mechanical Cooling (Air Conditioning)	a. During the normal school year there are many days when mechanical cooling provided by refrigeration equipment would be desirable, and to an even greater extent, when there is extensive summer use of rooms. b. Mechanical cooling for interior spaces with no exterior operable windows: Interior spaces of pupil occupancy, which are approved because of educational program, shall be provided with equipment for mechanical cooling when a temperature of 78ºF cannot be maintained in the spaces.
S603	CONTROLS
S603 - Controls	a. New HVAC controls should be DDC (direct digital control) with electric actuators. DDC hardware and software should be specified open protocol and web-based communication. Temperature sensors/controls should be provided for every student occupied space. Groups of small spaces (such as offices) with similar building exposures may share sensors. SED recommends temperature sensors for kindergarten through second grades be located closer to the floor to more accurately provide for the comfort of younger students. b. Building automation control workstations and temperature Control Panels should be located so as to be under the supervision of the building supervisor, either in the custodian's office, mechanical equipment room, or in a central area. Subpanels of lower control hierarchy should be located near equipment and spaces served for ease of maintenance and troubleshooting. Control indicator panels for rooftop units should be situated within the building so as to be readily accessible to facility staff. c. Provide a sequence of operation for all HVAC&R equipment that is clearly written to be applicable to the spaces served and that maintains the code required ventilation and occupant comfort. Program to take advantage of natural free cooling whenever outdoor temperatures are favorable. d. Consider employing variable frequency drives on pump and fan motors for energy efficiency under part load conditions. e. Air flow monitoring stations. Please see Section S306. f. Provide motorized, low leakage, insulated dampers at all HVAC&R intakes, relief and exhaust air openings.

MANUAL OF PLANNING STANDARDS

No.	Revisions	Date
1	ISSUED FOR BIDDING	01-08-25

REG. EXP DATE: 12-31-25

Drawn by MAL/JC
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 01/02/24

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

100 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
CODE ANALYSIS

Drawing No.
B-100

COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code: 90.1 (2016) Standard
Project Title: NRHS RTU, Boiler, Chiller Replacement
Location: Thiells, New York
Climate Zone: 5a
Project Type: Alteration

Construction Site:
106 Hammond Rd
Thiells, New York 10984

Owner/Agent:
North Rockland Central School District
65 Chapel Street
Garnerville, New York 10923
845-942-3000

Designer/Contractor:
Greenman-Pedersen, Inc.
2 Executive Blvd
Suffern, New York 10901
845-368-4050

Mechanical Systems List

Quantity	System Type & Description
2	HVAC System -Main Gym Single Package Heat Pump Heating Mode: Capacity = 368 kBtu/h, Proposed Efficiency = 3.20 COP, Required Efficiency = 3.20 COP Cooling Mode: Capacity = 384 kBtu/h, , Air Economizer Proposed Efficiency = 11.00 EER, Required Efficiency = 9.50 EER Proposed Part Load Efficiency = 10.60 IEER, Required Part Load Efficiency = 10.60 IEER Fan System: D-1, D-2	Main Gym -- Compliance (Brake HP and fan efficiency method) : Passes Fans: FAN 1 Supply, Single-Zone VAV, 9000 CFM, 10.0 motor nameplate hp, 8.4 design brake hp (8.4 max. BHP), 85.0 fan efficiency grade, 91.5 total fan efficiency, 85.0 design fan efficiency FAN 2 Exhaust, Single-Zone VAV, 6049 CFM, 5.0 motor nameplate hp, 3.3 design brake hp (3.3 max. BHP), 85.0 fan efficiency grade, 85.8 total fan efficiency , 85.0 design fan efficiency , fan exception: Single fan <= 5HP Pressure Drop Credits: Particulate filtration credit: MERV 13 through 15, 1.9608 credit Energy recover device, other than Coil Runaround Loop, 1.4684 credit SYSTEM VERIFICATION REQUIRED.
4	HVAC System - Annex Gym Single Package Heat Pump Heating Mode: Capacity = 132 kBtu/h, Proposed Efficiency = 3.20 COP, Required Efficiency = 3.20 COP Cooling Mode: Capacity = 162 kBtu/h, Air Economizer Proposed Efficiency = 10.60 EER, Required Efficiency = 10.60 EER Proposed Part Load Efficiency = 11.60 IEER, Required Part Load Efficiency = 11.60 IEER Fan System: RTU-3,4,5,6	ANNEX GYM -- Compliance (Brake HP and fan efficiency method) : Passes Fans: FAN 3 Supply, Single-Zone VAV, 4000 CFM, 5.0 motor nameplate hp, 2.9 design brake hp (2.9 max. BHP), 85.0 fan efficiency grade, 79.1 total fan efficiency, 73.3 design fan efficiency , fan exception: Single fan <= 5HP FAN 4 Exhaust, Single-Zone VAV, 2431 CFM, 1.5 motor nameplate hp, 1.2 design brake hp (1.2 max. BHP), 85.0 fan efficiency grade, 78.1 total fan efficiency, 73.4 design fan efficiency , fan exception: Single fan <= 5HP Pressure Drop Credits: Particulate filtration credit: MERV 13 through 15, 0.8715 credit Energy recover device, other than Coil Runaround Loop, 0.6638 credit SYSTEM VERIFICATION REQUIRED.
2	Condensing Boiler Heating: Hot Water Boiler, Capacity 150 kBtu/h, Gas No minimum efficiency requirement applies	

Quantity System Type & Description

PLANT COMPLIANCE REQUIRED.

NOTE: COMPLIANCE WITH PATH B

2 Air-Cooled Screw Chillers
Cooling: Water Chiller, Capacity 275 tons, Condenser Air-Cooled, Rotary Screw or Scroll Chiller
Proposed Efficiency: 10.10 EER-FL, Required Efficiency: 10.10 EER-FL
Proposed Part Load Efficiency: 18.80 EER-IPLV, Required Part Load Efficiency: 14.00 EER-IPLV

PLANT COMPLIANCE REQUIRED.

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2016) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Peter Catapano — Name - Title
Signature
02/14/2024 — Date

COMcheck Software Version COMcheckWeb
Inspection Checklist

Energy Code: 90.1 (2016) Standard

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
4.2.2, 6.4.4.2.1, 6.7.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001
4.2.2, 8.4.1.1, 8.4.1.2, 8.7 [PR6][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** E-001
6.7.2.4 [PR5][1]	Detailed instructions for HVAC systems commissioning included on the plans or specifications for projects >=50,000 ft2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001, Section 230800

Additional Comments/Assumptions:

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
6.4.3.7 [FO9][1]	Freeze protection and snow/ice melting system sensors for future connection to controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.1.4, 6.4.1.5 [ME1][1]	HVAC equipment efficiency verified. Non-NAECA HVAC equipment labeled as meeting 90.1.	Efficiency:_____	Efficiency:_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
6.4.3.4.1 [ME3][1]	Stair and elevator shaft vents have motorized dampers that automatically close.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.4.3.4.2, 6.4.3.4.3 [ME4][1]	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001
6.4.3.4.5 [ME39][1]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.4.3.4.4 [ME5][1]	Ventilation fans >0.75 hp have automatic controls to shut off fan when not required.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.4.3.8 [ME6][1]	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.5.3.2.1 [ME40][2]	DX cooling systems >= 75 kBtu/h (>= 65 kBtu/h effective 1/2016) and chilled-water and evaporative cooling fan motor hp >= ½ designed to vary supply air volume as a function of load and control with operational requirements.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004 *See the Mechanical Systems list for values.*
6.4.4.1.1 [ME7][1]	Insulation exposed to weather protected from damage. Insulation outside of the conditioned space and associated with cooling systems is vapor retardant.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001
6.4.4.1.2 [ME8][1]	HVAC ducts and plenums insulated per Table 6.8.2. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	R-_____	R-_____	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Ducts/plenums located in heated, semi-heated, or cooled spaces.
6.4.4.1.3 [ME9][1]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	____ in.	____ in.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001, Spec 230719

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.4.3.4 [ME41][1]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.4.4.2.1 [ME10][1]	Ducts and plenums having pressure class ratings are Seal Class A construction.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.8.1-15, 6.8.1-16 [ME110][1]	Electrically operated DX-DOAS units meet requirements per Tables 6.8.1-15 or 6.8.1-16.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.4.4.2.2 [ME11][1]	Ductwork operating >3 in. water column requires air leakage testing.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.2.2.1 [ME50][1]	Three-pipe hydronic systems using a common return for hot and chilled water are not used.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
6.4.3.11.2 [ME105][1]	Electricity use and efficiency are trended every 15 minutes and graphically displayed, including hourly, daily, monthly, and annual data. Data are preserved for 36 months or more.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.2.3 [ME19][1]	Dehumidification controls provided to prevent reheating, recooling, mixing of hot and cold airstreams or concurrent heating and cooling of the same airstream.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.5.2.4.1 [ME68][1]	Humidifiers with airstream mounted preheating jackets have preheat auto-shutoff valve set to activate when humidification is not required.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.2.4.2 [ME69][1]	Humidification system dispersion tube has outlets in the airstream of air-handling units insulated >= R-0.5.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.2.5 [ME70][1]	Preheat coils controlled to stop heat output whenever mechanical cooling, including economizer operation, is active.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.5.2.6 [ME106][1]	Units that provide ventilation air to multiple zones and operate in conjunction with zone heating and cooling systems are prevented from using heating or heat recovery to warm supply air above 60°F when representative building loads or outdoor air temperature indicate that most zones demand cooling.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.4.7 [ME107][1]	Chilled-water cooling coils provide a 15°F or higher temperature difference between entering and leaving water temperatures and a minimum of 57°F leaving water temperature at design conditions			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.3.1.3 [ME74][1]	Fans have efficiency grade (FEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Individual fans with motor nameplate horsepowerof > 5 hp. **Location on plans/spec:** M-004
6.5.3.6 [ME72][1]	Motors for fans >= 1/12 hp and < 1 hp are electronically-commutated motors or have a minimum motor efficiency of 70%. These motors are also speed adjustable for either balancing or remote control.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.5.3.4 [ME108][1]	Parallel-flow fan-powered VAV air terminals have automatic controls to a) turn off the terminal fan except when space heating is required or if required for ventilation; b) turn on the terminal fan as the first stage of heating before the heating coil is activated; and c) during heating for warmup or setback temperature control, either operate the terminal fan and heating coil without primary air or reverse the terminal damper logic and provide heating from the central air handler through primary air.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.3.7 [ME109][1]	Required minimum outdoor air rate is the larger of minimum outdoor air rate or minimum ventilation rate determined in ASHRAE Standard 62.1, Standard 170, or applicable codes or accreditation standards. Outdoor air ventilation systems shall comply with one of the following: a) design minimum system outdoor air provided < 135% of the required minimum outdoor air rate, b) dampers, ductwork, and controls allow the system to supply <= the required minimum outdoor air rate with a single set-point adjustment, or c) system includes exhaust air energy recovery complying with Section 6.5.6.1.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.5.3.3 [ME42][1]	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply. *See the Mechanical Systems list for values.*

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.4.2 [ME25][1]	HVAC pumping systems with >= 3 control values designed for variable fluid flow (see section details).			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.4.3, 6.5.4.3.1, 6.5.4.3.2 [ME26][1]	Fluid flow shutdown in pumping systems to multiple chillers or boilers when systems are shut down.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001, 230993
6.5.4.4 [ME27][1]	Temperature reset by representative building loads in pumping systems >10 hp for chiller and boiler systems >300,000 Btu/h.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-003, 230993
6.5.4.6 [ME79][1]	Chilled-water and condenser water piping sized according to design flow rate and total annual hours of operation (Table 6.5.4.6).			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-003
6.5.6.1 [ME56][1]	Exhaust air energy recovery on systems meeting Tables 6.5.6.1-1, and 6.5.6.1-2.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.5.6.2 [ME31][1]	Condenser heat recovery system that can heat water to 85 °F or provide 60% of peak heat rejection is installed for preheating of service hot water.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Total installed heat capacity of water cooled systems = 6 MMBtu/h of heat rejection.
6.5.7.1 [ME100][1]	Conditioned supply air to space with mechanical exhaust <= the greater of criteria of supply flow, required ventilation rate, exhaust flow minu the available transfer air (see section details).			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.7.2.1 [ME32][1]	Kitchen hoods >5,000 cfm have make up air >=50% of exhaust air volume.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.7.2.2 [ME47][1]	Kitchen hoods with a total exhaust airflow rate >5000 cfm meet replacement air, ventilation system, or energy recovery requirements shown in Table 6.5.7.1.3.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.7.2.3 [ME48][1]	Kitchen hoods with a total exhaust airflow rate >5000 cfm meet replacement air, ventilation system, or energy recovery requirements.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.7.2.4 [ME49][1]	Approved field test used to evaluate design air flow rates and demonstrate proper capture and containment of kitchen exhaust systems.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.8.1 [ME34][1]	Unenclosed spaces that are heated use only radiant heat.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.9 [ME35][1]	Hot gas bypass limited to: <=240 kBtu/h - 15% >240 kBtu/h - 10%			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.4.3.9 [ME63][1]	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
6.5.10 [ME73][1]	Doors separating conditioned space from the outdoors have controls that disable/reset heating and cooling system when open.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Alteration project to existing building.

Additional Comments/Assumptions:

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10][2]	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
8.4.3 [EL11][2]	New buildings have electrical energy use measurement devices installed. Where tenant spaces exist, each tenant is monitored separately. In buildings with a digital control system the energy use is transmitted to to control system and displayed graphically.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
10.4.1 [EL9][2]	Electric motors meet requirements where applicable.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
6.4.3.1.2 [FI3][1]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001, 230993
6.4.3.2 [FI20][1]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001, 230993
6.4.3.3.1 [FI21][1]	HVAC systems equipped with at least one automatic shutdown control.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
6.4.3.3.2 [FI22][1]	Setback controls allow automatic restart and temporary operation as required for maintenance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001, 230993
6.4.3.5 [FI5][1]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** 230993
6.4.3.12 [FI200][1]	Air economizer has a fault detection and diagnostics (FDD) system (see details for configuration and operational requirements).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
6.4.3.6 [FI6][1]	When humidification and dehumidification are provided to a space, simultaneous operation is prohibited. Humidity control prohibits the use of fossil fuel or electricity to produce RH > 30% in the warmest zone humidified and RH < 60% in the coldest zone dehumidified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** 230993
6.7.2.1 [FI7][1]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
6.7.2.2 [FI8][1]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
6.7.2.3 [FI9][1]	An air and/or hydronic system balancing report is provided for HVAC systems serving zones >5,000 ft2 of conditioned area.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-001, 230594
6.7.2.4 [FI10][1]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** 230593
10.4.3 [FI24][2]	Elevators are designed with the proper lighting, ventilation power, and standby mode.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

No.	Revisions	Date
1	ISSUED FOR BID	01/08/25

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
106 Hammond Rd.
Thiells NY 10984
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-8000
www.shilale.com

Drawing Title
ENERGY CODE COMPLIANCE

Drawing No.
EN-001

PRE–ABATEMENT WORK NOTES:

1. THESE DRAWINGS HAVE BEEN PREPARED BY UTILIZING THE OWNERS ORIGINAL CONSTRUCTION DOCUMENTS IN ORDER TO ILLUSTRATE THE EXISTING CONDITIONS OF THE SITE AND STRUCTURES THEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL VERIFICATION OF ALL EXISTING CONDITIONS IN THE FIELD.
2. THE CONTRACTOR SHALL DETERMINE EXACT FINAL LOCATIONS OF PERSONNEL AND WASTE DECONTAMINATION ENCLOSURES, PICK UP AREA FOR REFUSE AND ASBESTOS DEBRIS, THESE LOCATIONS SHALL BE REVIEWED AND PROPERLY APPROVED BY THE DISTRICT PRIOR TO COMMENCEMENT OF WORK. THIS CONTRACTOR SHALL ESTABLISH, LABEL AND MAINTAIN PROPER EXITS AND WAYS OF DEPARTURE WITHIN EACH WORK AREA FOR NORMAL AND EMERGENCY USE BY WORKERS DURING ALL ABATEMENT.
3. THE CONTRACTOR, PRIOR TO BIDDING, SHALL BE RESPONSIBLE TO BECOME COMPLETELY FAMILIAR WITH ALL ASPECTS OF THE PROJECT, INCLUDING, BUT NOT LIMITED TO, ALL DEMOLITION AND CONSTRUCTION WORK AS SHOWN IN THE COMPLETE SET OF DRAWINGS AND IN THE PROJECT MANUAL/SPECIFICATIONS, IN ORDER THAT THE FULL SCOPE OF WORK WHICH MAY ENCOUNTER ASBESTOS CONTAINING MATERIALS IS UNDERSTOOD AND ACCOUNTED FOR BY THE CONTRACTOR IN THIS PROJECT WHETHER OR NOT SHOWN IN THESE DOCUMENTS.

ASBESTOS REMOVAL GENERAL NOTES:

1. ASBESTOS ABATEMENT INDICATED ON THIS DRAWING SHALL BE PERFORMED BY A NYS DEPARTMENT OF LABOR LICENSED ASBESTOS CONTRACTOR, THAT SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND QUANTITIES PRIOR TO BID.
2. THE CONTRACTOR SHALL PERFORM ALL CONTRACT WORK IN ACCORDANCE WITH CONTRACT SPECIFICATIONS, NEW YORK STATE DEPARTMENT OF LABOR (NYSDOL) INDUSTRIAL CODE RULE 56, OSHA, NESHAPS, AHEA, NYSDEC AND ALL OTHER APPLICABLE CODES.
3. THE CONTRACTOR SHALL MAINTAIN THE SITE AS NEAT AS POSSIBLE AND ORDERLY DURING THE WORK. ALL LOOSE DEBRIS WHICH MAY BLOW OFF THE SITE SHALL BE COLLECTED AND DISPOSED OF PROPERLY BY THE CONTRACTOR ON A DAILY BASIS AS PART OF THE PROJECT.
4. THE CONTRACTOR SHALL PROVIDE BARRIERS AROUND THE WORK AREAS IN ORDER TO ENSURE SAFE PASSAGE BY ANY PERSON. THESE BARRIERS SHALL ALSO SERVE TO KEEP ALL UNAUTHORIZED PERSONS OUT THE PROJECT AREA FOR THE DURATION OF THE WORK.
5. VARIANCES: CONTRACTOR SHALL PAY FOR AND OBTAIN ANY NECESSARY SITE SPECIFIC VARIANCES.
6. THE CONTRACTOR SHALL MAINTAIN SECURITY IN THE BUILDING AND THE WORK AREAS AT ALL TIMES.
7. PROJECT STAGING, STORAGE, SCHEDULING AND ACCESS SHALL BE COORDINATED WITH AND APPROVED BY THE ARCHITECT, CM AND OWNER PRIOR TO PROCEEDING WITH WORK.
8. SHOULD IT BE NECESSARY, CONTRACTOR SHALL COORDINATE SHUT DOWN AND LOCK OUT OF THE ELECTRICAL POWER WITH OWNER'S POWER WITH OWNER'S REPRESENTATIVE PRIOR TO THE COMMENCEMENT OF WORK.
9. ALL TEMPORARY POWER TO THE WORK AREA SHALL BE BROUGHT IN FROM OUTSIDE THE WORK AREA THROUGH A GROUND–FAULT CIRCUIT INTERRUPTER AT THE SOURCE.
10. CONTRACTOR SHALL COORDINATE HOOKUP OF WATER SERVICE FOR DECONTAMINATION PURPOSED WITH OWNER'S REPRESENTATIVE. WATER FOR THE DECONTAMINATION UNITS IS AVAILABLE FROM THE OWNER.
11. THE OWNER OR OWNER'S REPRESENTATIVE IS RESPONSIBLE TO CONTRACT FOR NYSDOL PROJECTS MONITORING/AIR SAMPLING TECHNICIAN SERVICES AS REQUIRED.
12. CONTRACTOR TO PROVIDE A COPY OF SDS'S FOR ANY CHEMICAL AGENTS TO BE USED DURING THE ASBESTOS ABATEMENT TO THE PROJECT MONITOR AND THE OWNER'S REPRESENTATIVE.
13. CONTRACTOR SHALL REQUEST AND RECEIVE PROJECT MONITOR AND OWNER'S REPRESENTATIVE APPROVAL OF ALL WORK BEFORE ANY ABATEMENT IS UNDERTAKEN.
14. UNDER NO CIRCUMSTANCES SHALL CONTAMINATED WASTE WATER BE FILTERED THOUGH A SYSTEM WITHOUT AT LEAST A 5.0 MICRON PARTICLE SIZE COLLECTION CAPABILITY.
15. DRAWINGS ATTEMPT TO INDICATE THE GENERAL SCOPE OF EXISTING CONDITIONS AND ITEMS EFFECTED BY THE ABATEMENT WORK. CONTRACTOR SHALL EXAMINE THE WORK AREA PRIOR TO BID AND SHALL INCLUDE FIELD VARIATIONS FROM THOSE SHOWN WITH IN THE GENERAL INTENT OF THE WORK.
16. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ASBESTOS CONTAINING MATERIALS CONTAINED WITHIN THE PROJECT AND ASSOCIATED WITH ALL PROJECT WORK, IN COMPLIANCE WITH ALL APPLICABLE LAWS, RULES, REGULATIONS AND ALL REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION.
17. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ASBESTOS CONTAINING MATERIALS CONTAINED WITHIN THE PROJECT AND ASSOCIATED WITH ALL PROJECT WORK, IN THE MOST EFFICIENT AND COST EFFECTIVE METHOD POSSIBLE, WHICH ALSO COMPLIES WITH THE REQUIREMENTS LISTED ABOVE.

POST–ABATEMENT WORK NOTES:

1. PROVIDE ALL APPLICABLE CODE RULE 56 PROCEDURES, CLEAN UP, AND ADDITIONAL TESTING AS REQUIRED.
2. PRIOR TO ABATEMENT, ALL CONTRACTORS WILL SURVEY EXISTING CONDITIONS IN THE ABATEMENT AND GENERAL WORK AREAS. ITEMS/MATERIALS/ETC. DAMAGED, OR NON–FUNCTIONAL SHALL BE LISTED, NOTED, PHOTOGRAPHED AND REVIEWED WITH THE PROJECT INSPECTOR. ALL OTHER ITEMS/MATERIALS SHALL BE REVIEWED WITH THE PROJECT INSPECTOR. ALL OTHER ITEMS/MATERIALS SHALL BE ASSUMED TO BE IN GOOD CONDITION AND GOOD WORKING ORDER. IT SHALL BE THE RESPONSIBILITY OF THE ABATEMENT CONTRACTOR TO MAINTAIN ALL MATERIALS, ITEMS, EQUIPMENT, SYSTEMS, ETC. IN ITS ORIGINAL CONDITION AND RETURN TO OWNER/GC, ETC. IN SAME CONDITION AT THE END OF THIS CONTRACT.
3. REMOVE ALL TEMPORARY ENCLOSURES, BARRIERS, ETC. REINSTALL ITEMS/WORK PREVIOUSLY REMOVED, ALL TAPE AND ADHESIVE RESIDUALS TO BE REMOVED. TEST AND REPAIR.
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE AGAINST DAMAGE TO THE EXISTING WORK TO REMAIN IN PLACE. ANY DAMAGE TO SUCH WORK SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ARCHITECT AND OWNER AT NO ADDITIONAL COST TO THE CONTRACT.
5. AT COMPLETION OF THE ABATEMENT WORK, A CONDITION SURVEY SHALL BE DONE BY ALL CONTRACTORS AND PROJECT INSPECTOR (SEE NOTE #2). ANY VARIATION (I.E. DAMAGE BY THE CONTRACTOR), AND OTHERWISE NOT INCLUDED AS PART OF THE RECONSTRUCTION WORK, SHALL BE REPAIRED/RESTORED BY THE ABATEMENT CONTRACTOR.
6. THE CONTRACTOR SHALL, UPON COMPLETION OF THE REMOVAL, PROVIDE WRITTEN DOCUMENTATION (INCLUDING ALL APPROPRIATE THIRD PARTY TESTING RESULTS) THAT THE PROJECT WORK AREAS ARE COMPLETELY FREE OF ALL ASBESTOS CONTAINING MATERIALS.
7. THE CONTRACTOR SHALL PROVIDE RECORDS OF ALL ASBESTOS CONTAINING MATERIALS REMOVED FROM THE SITE, INCLUDING THE COMPOSITION AND VOLUMES OF DISPOSED MATERIALS AND THE FINAL DISPOSAL SITE(S).

1 ABATEMENT NOTES
SCALE: NTS

PLAN NORTH

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	02–15–24	BIDDING DOCUMENTS

Drawn by: ANM
Checked by: RL
Project No.:
Scale: AS NOTED
Date: 01–18–23

Quality Environmental Solutions & Technologies, Inc.
1298 NYS Route 9
Wappingers Falls, NY 12590
Tel: (845) 298–6031

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50–02–01–06–0–016–037

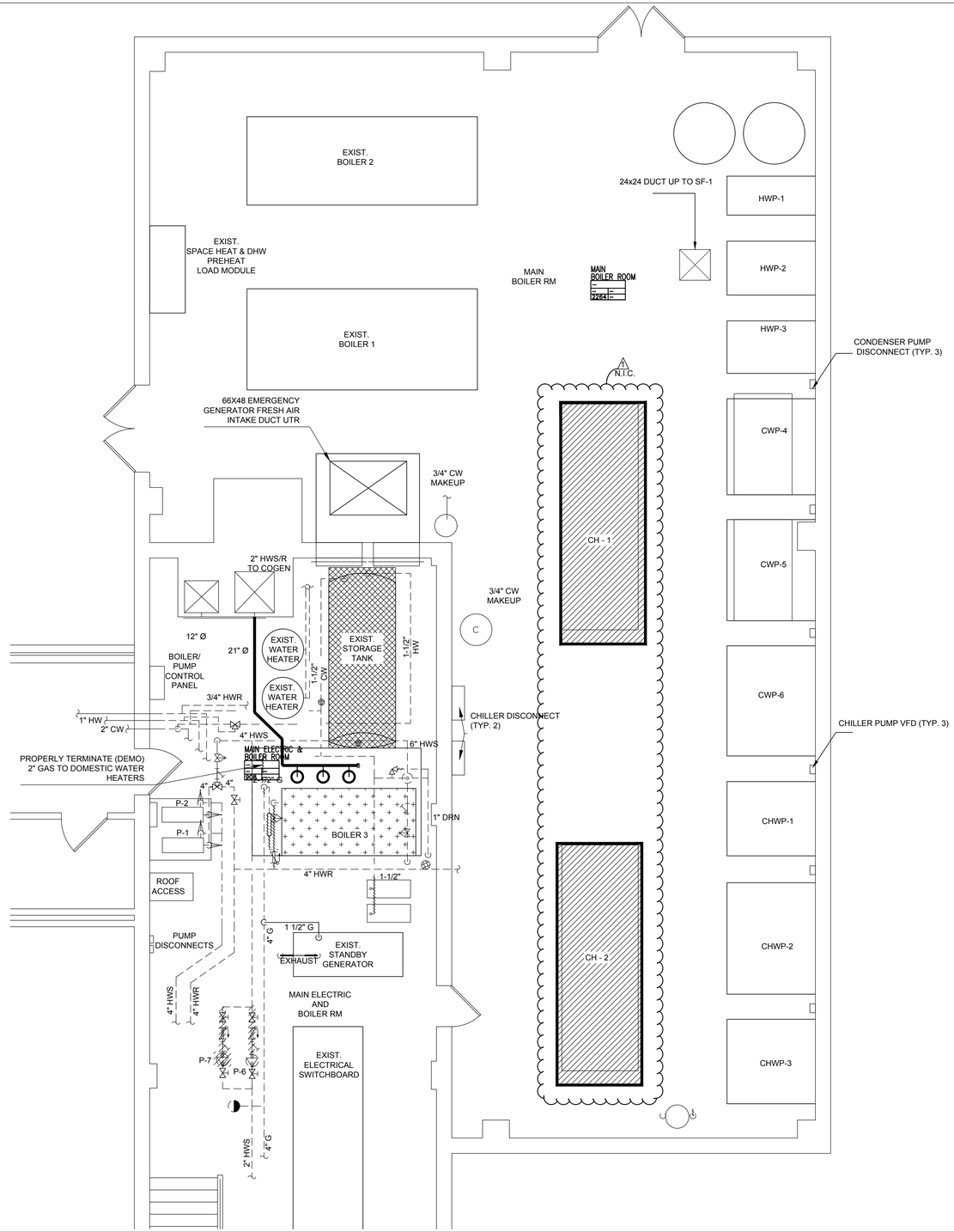
106 Hammond Road, Thiells NY 10984

COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

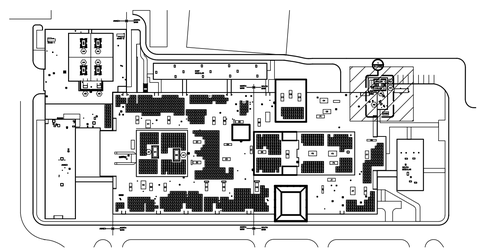
Drawing Title: **ABATEMENT NOTES**

Drawing No.: **AA-000**



ASBESTOS ABATEMENT LEGEND

- CHILLER WITH ACM GASKETTS
- ACM TANK INSULATION
- PACM BOILER AND COMPONENTS
- ACM BOILER EXHAUST BREECHING INSULATION
- FIBERGLASS PIPE INSULATION WITH ACH MUDDED JOINT ELBOWS/FITTINGS
- STANDBY GENERATOR ACM EXHAUST PIPING TO BE REMOVED



KEY PLAN

PLAN NORTH

1 MECHANICAL ROOM - ACM ABATEMENT

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

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1, THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	02-15-24	BIDDING DOCUMENTS

STATE OF NEW YORK — ANTHONY MICHAEL SHILALE — 087934 — LICENSED ARCHITECT

REG. EXP. DATE: 11-30-25

Drawn by ANM
Checked by RL
Project No.
Scale AS NOTED
Date 02-15-24

Mechanical & Electrical Engineer:

Environmental Consultant:
Quality Environmental Solutions & Technologies, Inc.
1298 NYS Route 9
Wappingers Falls, NY 12590
Tel: (845) 298-6031

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

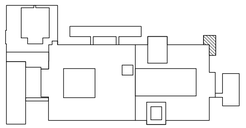
HIGH SCHOOL SED# 50-02-01-06-0-018-037

108 Ratsmouth Road,
Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

DRAWING TITLE: MECHANICAL ROOM ABATEMENT PLAN

Drawing No. AA-100



AREA OF WORK

PLAN NORTH

KEY PLAN

1. SEE MEP DRAWINGS FOR DEMOLITION OF MECHANICAL, ELECTRICAL, AND PLUMBING ITEMS.
2. COORDINATE ALL ROOF PENETRATIONS REQUIRED FOR NEW MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.

GENERAL NOTES

D1 VOID

D2 REMOVE EXISTING CHILLERS IN BOILER ROOM. REMOVE EXISTING CHILLER SUPPORT STRUCTURE AND PATCH MATCH EXISTING. COORDINATE WITH MECHANICAL DRAWINGS TO COORDINATE ROOF PENETRATION.

D3 REMOVE EXISTING COOLING TOWER AND EXISTING STRUCTURAL DUNNAGE. PREPARE ROOF FOR PATCHING

D4 REMOVE EXISTING BOILER #3 IN BOILER ROOM. PREPARE FOR NEW HIGH EFFICIENCY CONDENSING BOILER.

D5 EXISTING HOUSEKEEPING PAD TO REMAIN.

D6 DEMOLISH EXISTING HOUSEKEEPING PAD. REMOVE ANY PROTRUDING OBJECTS FROM THE EXISTING SLAB. PREPARE FOR SLAB PATCHING.

D7 EXISTING AIR INTAKE TO BE REMOVED/RELOCATED. PREPARE ROOF FOR PATCHING.

D8 EXISTING HVAC EQUIPMENT TO BE REMOVED/RELOCATED FOR NEW CHILLERS. PREPARE ROOF FOR PATCHING.

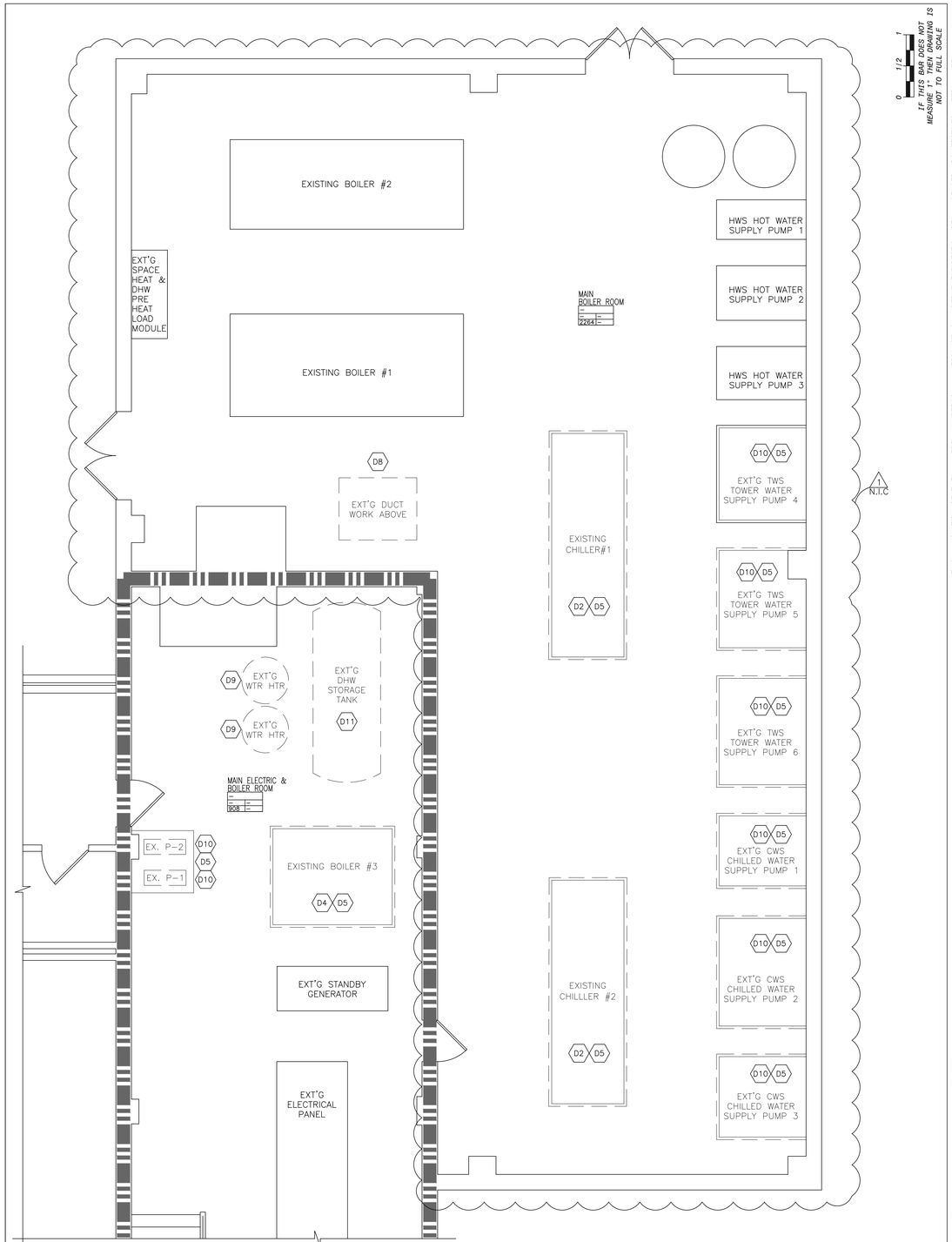
D9 EXISTING DOMESTIC HOT WATER HEATERS TO BE REMOVED.

D10 EXISTING PUMPS TO BE REMOVED.

D11 EXISTING HW STORAGE TANK TO BE REMOVED.

D12 SAW-CUT ROOF PENETRATION FOR NEW MECHANICAL EQUIPMENT. SEE MECHANICAL DRAWINGS. SEE STRUCTURAL DRAWINGS FOR TEMPORARY SHORING AND SIZE.

DEMOLITION KEY NOTES



1 BOILER ROOM DEMOLITION FLOOR PLAN

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

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by MAL/JR
Checked by MS/JC
Project No. 4306S
Scale AS NOTED
Date 09-28-23

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

108 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

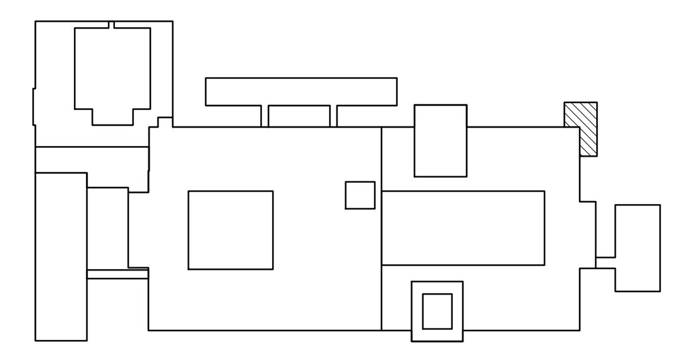
Drawing Title
DEMO BOILER ROOM FLOOR PLAN

Drawing No.
D-101

LEGEND

- EXISTING THROUGH WALL LOUVER
- EXISTING THROUGH WALL SCUPPER
- EXISTING PIPE PENETRATION
- EXISTING ROOF DRAIN
- EXISTING VENTILATOR OR MECHANICAL PENETRATION
- EXISTING EQUIPMENT PAD
- EXISTING ROOF HATCH
- EXISTING LADDER
- EXISTING MECHANICAL EQUIPMENT
- ROOF VENT
- EXISTING FRESH AIR INTAKE
- EXISTING CHIMNEY
- NEW PROTECTION RAILING

KEY PLAN



AREA OF WORK

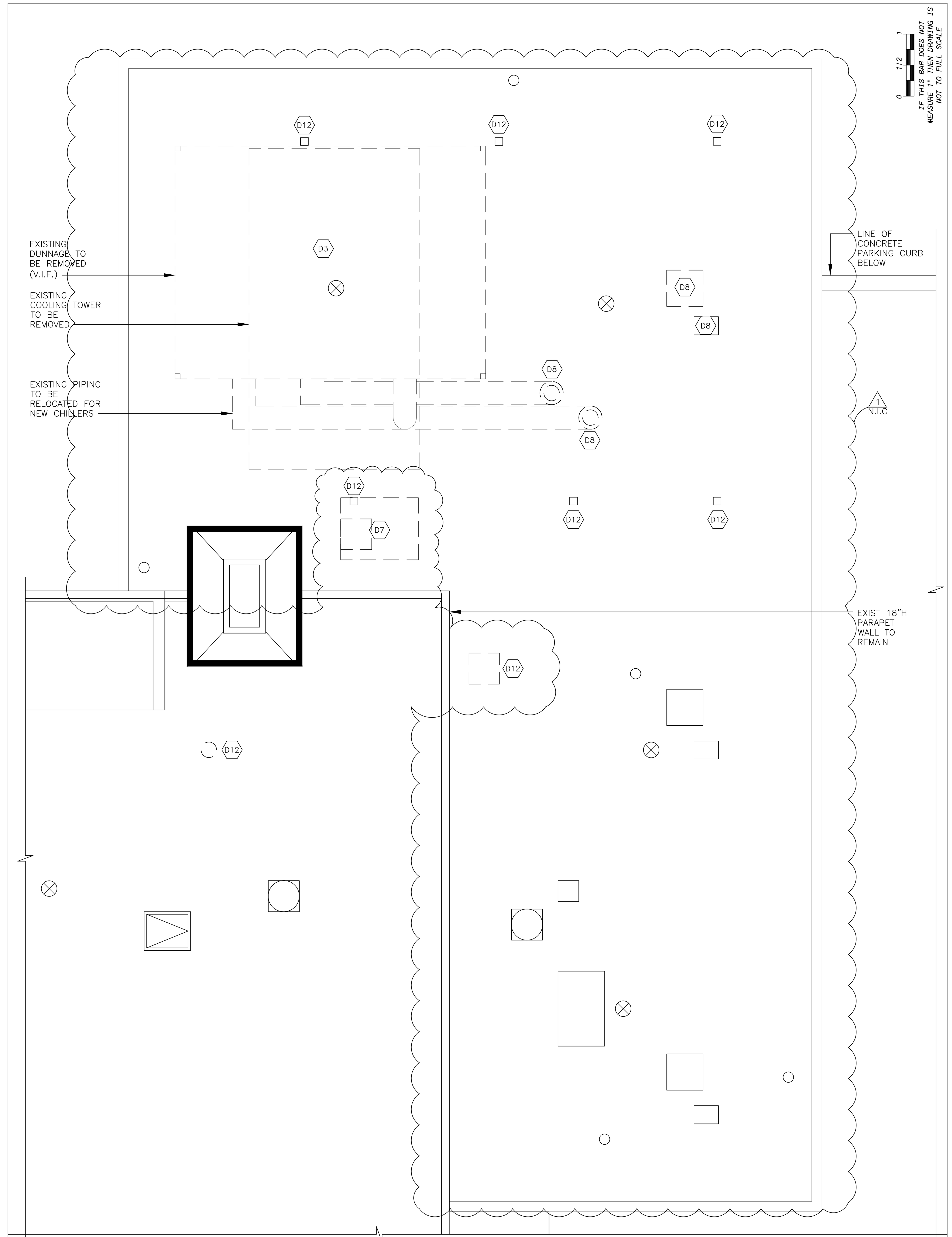
PLAN NORTH

GENERAL NOTES

1. SEE MEP DRAWINGS FOR DEMOLITION OF MECHANICAL, ELECTRICAL, AND PLUMBING ITEMS.
2. COORDINATE ALL ROOF PENETRATIONS REQUIRED FOR NEW MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.

DEMOLITION KEY NOTES

- D1 VOID
- D2 REMOVE EXISTING CHILLERS IN BOILER ROOM. REMOVE EXISTING CHILLER SUPPORT STRUCTURE AND PATCH MATCH EXISTING. COORDINATE WITH MECHANICAL DRAWINGS TO COORDINATE ROOF PENETRATION.
- D3 REMOVE EXISTING COOLING TOWER AND EXISTING STRUCTURAL DUNNAGE. PREPARE ROOF FOR PATCHING
- D4 REMOVE EXISTING BOILER #3 IN BOILER ROOM. PREPARE FOR NEW HIGH EFFICIENCY CONDENSING BOILER.
- D5 EXISTING HOUSEKEEPING PAD TO REMAIN.
- D6 DEMOLISH EXISTING HOUSEKEEPING PAD. REMOVE ANY PROTRUDING OBJECTS FROM THE EXISTING SLAB. PREPARE FOR SLAB PATCHING.
- D7 EXISTING AIR INTAKE TO BE REMOVED/RELOCATED. PREPARE ROOF FOR PATCHING.
- D8 EXISTING HVAC EQUIPMENT TO BE REMOVED/RELOCATED FOR NEW CHILLERS. PREPARE ROOF FOR PATCHING.
- D9 EXISTING DOMESTIC HOT WATER HEATERS TO BE REMOVED.
- D10 EXISTING PUMPS TO BE REMOVED.
- D11 EXISTING HW STORAGE TANK TO BE REMOVED.
- D12 SAW-CUT ROOF PENETRATION FOR NEW MECHANICAL EQUIPMENT. SEE MECHANICAL DRAWINGS. SEE STRUCTURAL DRAWINGS FOR TEMPORARY SHORING AND SIZE.



1 BOILER ROOM DEMOLITION ROOF PLAN

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

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by ML
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 10-30-23

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

106 Hammond Road, Thiells NY 10984

COUNTY OF ROCKLAND

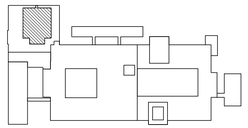
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
DEMO BOILER ROOM ROOF PLAN

Drawing No.
D-102

- EXISTING THROUGH WALL LOUVER
- EXISTING THROUGH WALL SCUPPER
- EXISTING PIPE PENETRATION
- EXISTING ROOF DRAIN
- EXISTING VENTILATOR OR MECHANICAL PENETRATION
- EXISTING EQUIPMENT PAD
- EXISTING ROOF HATCH
- EXISTING LADDER
- EXISTING MECHANICAL EQUIPMENT
- ROOF VENT
- EXISTING FRESH AIR INTAKE
- EXISTING CHIMNEY
- NEW PROTECTION RAILING

LEGEND



IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

0 1/2 1

AREA OF WORK

PLAN NORTH

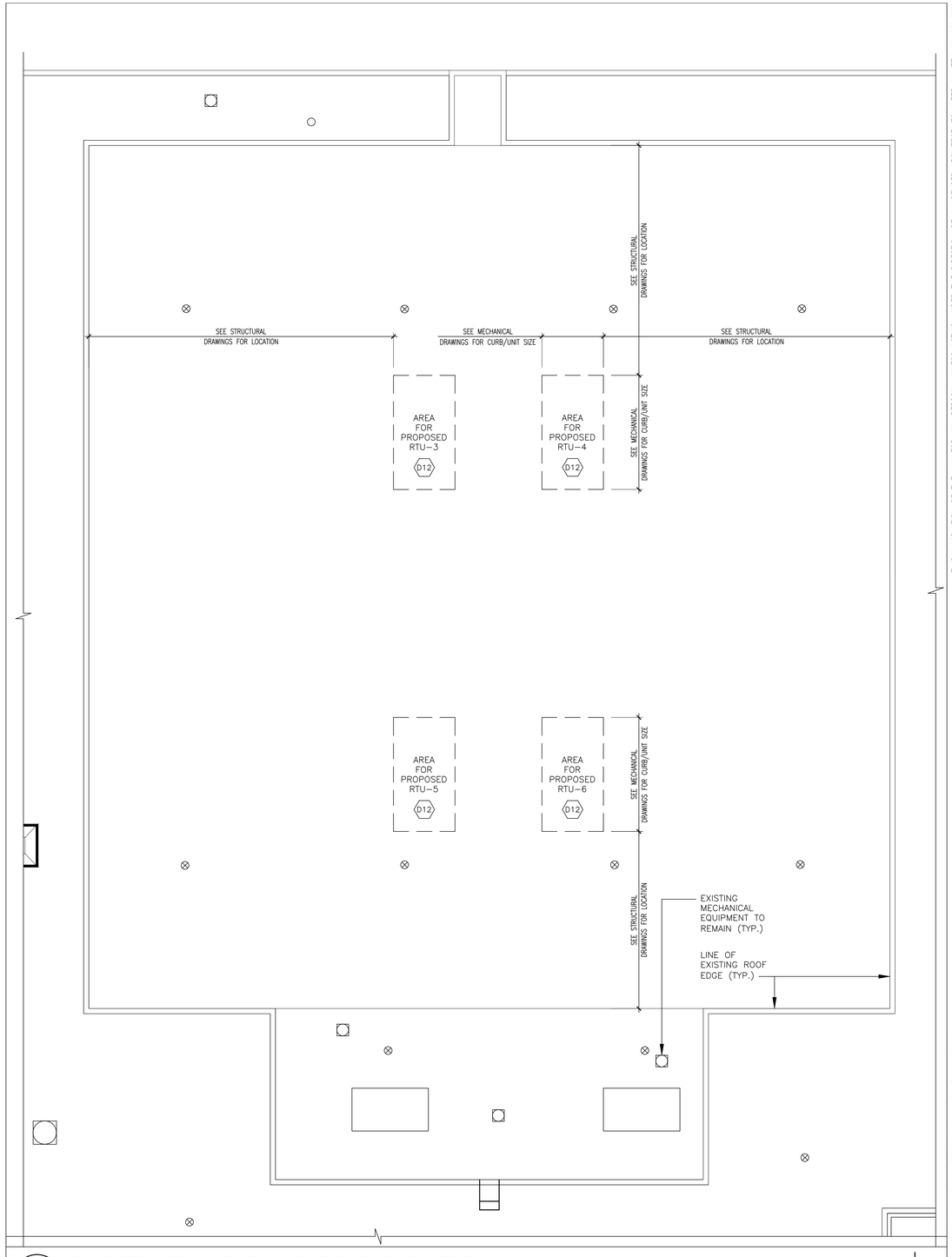
KEY PLAN

1. SEE MEP DRAWINGS FOR DEMOLITION OF MECHANICAL, ELECTRICAL, AND PLUMBING ITEMS.
2. COORDINATE ALL ROOF PENETRATIONS REQUIRED FOR NEW MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.

GENERAL NOTES

- D1 VOID
- D2 REMOVE EXISTING CHILLERS IN BOILER ROOM. REMOVE EXISTING CHILLER SUPPORT STRUCTURE AND PATCH MATCH EXISTING. COORDINATE WITH MECHANICAL DRAWINGS TO COORDINATE ROOF PENETRATION.
- D3 REMOVE EXISTING COOLING TOWER AND EXISTING STRUCTURAL DUNNAGE. PREPARE ROOF FOR PATCHING
- D4 REMOVE EXISTING BOILER #3 IN BOILER ROOM. PREPARE FOR NEW HIGH EFFICIENCY CONDENSING BOILER.
- D5 EXISTING HOUSEKEEPING PAD TO REMAIN.
- D6 DEMOLISH EXISTING HOUSEKEEPING PAD. REMOVE ANY PROTRUDING OBJECTS FROM THE EXISTING SLAB. PREPARE FOR SLAB PATCHING.
- D7 EXISTING AIR INTAKE TO BE REMOVED/RELOCATED. PREPARE ROOF FOR PATCHING.
- D8 EXISTING HVAC EQUIPMENT TO BE REMOVED/RELOCATED FOR NEW CHILLERS. PREPARE ROOF FOR PATCHING.
- D9 EXISTING DOMESTIC HOT WATER HEATERS TO BE REMOVED.
- D10 EXISTING PUMPS TO BE REMOVED.
- D11 EXISTING HW STORAGE TANK TO BE REMOVED.
- D12 SAW-CUT ROOF PENETRATION FOR NEW MECHANICAL EQUIPMENT. SEE MECHANICAL DRAWINGS. SEE STRUCTURAL DRAWINGS FOR TEMPORARY SHORING AND SIZE.

DEMOLITION KEY NOTES



1 **ANNEX GYM DEMOLITION ROOF PLAN**
SCALE: 1/8"=1'-0"

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by ML
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 10-30-23

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

108 Hammond Road.
Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
DEMO ANNEX GYM ROOF PLAN

Drawing No.
D-103

GENERAL NOTES:

1. ALL STRUCTURAL ITEMS FOR THIS PROJECT HAVE BEEN DESIGNED IN ACCORDANCE WITH APPROPRIATE PROVISIONS OF EACH OF THE FOLLOWING:
   - A. BUILDING CODE: 2020 BUILDING CODE OF NEW YORK STATE.
   - B. STRUCTURAL STEEL: THE A.I.S.C. "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS ANSI/AISC 360-16."
   - C. CONCRETE: A.C.I. "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", ACI 318-14.
2. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS AND THE ARCHITECTURAL AND MECHANICAL DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ARCHITECT AND/OR STRUCTURAL ENGINEER PRIOR TO PERFORMING WORK.
3. IN ANY CASE OF CONFLICT BETWEEN THE NOTES, DETAILS, AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS SHALL GOVERN.
4. DETAILS DESIGNATED AS "TYPICAL" APPLY TO ALL AREAS OF SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
5. MECHANICAL/PLUMBING/ELECTRICAL OPENINGS SHALL BE COORDINATED BY CONTRACTOR. FINAL SIZES AND LOCATIONS TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.
6. CONTRACTOR IS RESPONSIBLE FOR AND SHALL VERIFY AND COORDINATE ALL DIMENSIONS, DETAILS, AND EXISTING CONDITIONS BEFORE PROCEEDING WITH WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND/OR STRUCTURAL ENGINEER.
7. CONTRACTOR SHALL FULLY BRACE AND OTHERWISE PROTECT ALL WORK IN PROGRESS UNTIL THE STRUCTURE IS COMPLETED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS, APPROVALS, AS WELL AS THEIR ASSOCIATED FEES, FOR ALL TRADES, EXCEPT WHERE SPECIFIED AND AGREED UPON ELSEWHERE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING WITH CLIENT'S REPRESENTATIVE FOR RIGGING AND HOISTING FACILITIES FOR HANDLING MATERIALS AND REMOVAL OF DEBRIS.
10. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIAR WITH CONDITIONS THEREON AND TO DETERMINE THE EXTENT OF ALL FACILITIES AND SERVICES REQUIRED TO PERFORM THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
11. THE CONTRACTOR SHALL MAINTAIN ONE COPY OF THE LATEST CONTRACT DOCUMENTS INCLUDING ALL CHANGES AT THE JOB SITE FOR THE USE OF THE ARCHITECT AND/OR ENGINEER.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO CLIENT FOR THE ACTS AND OMISSIONS OF ALL THEIR EMPLOYEES AND ALL SUBCONTRACTORS, THEIR AGENTS AND EMPLOYEES, AND ALL OTHER PERSONS PERFORMING ANY OF THE WORK FOR THE CONTRACTOR.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INCURRED ANYWHERE WITHIN THE BOUNDARIES OF THE PROPERTY, AND ANY DAMAGE SHALL BE PROMPTLY REPAIRED TO ORIGINAL CONDITION TO THE SATISFACTION OF THE CLIENT'S REPRESENTATIVE AND/OR EoR AT NO COST TO THE CLIENT.
14. DURING THE COURSE OF THE WORK, THE CONTRACTOR SHALL REGULARLY REMOVE ALL UNUSED MATERIAL, RUBBISH, AND DEBRIS FROM THE PROPERTY AND BROOM CLEAN DAILY. THE SITE AND PREMISES SHALL BE KEPT REASONABLY CLEAN, NEAT AND ORDERLY TO THE SATISFACTION OF THE CLIENT'S REPRESENTATIVE.
15. THE CONTRACTOR SHALL CONTROL CLEANING OPERATIONS TO PREVENT DIRT OR DUST FROM LEAVING THE JOB SITE AND INFILTRATING AREAS NOT INVOLVED IN THE PROJECT.
16. WHEN OPEN FLAME OR SPARK-PRODUCING TOOLS AND EQUIPMENT SUCH AS WELDING RODS ARE BEING USED, THE CONTRACTOR SHALL PROVIDE FIRE GUARDS TO MAINTAIN A FIRE WATCH OVER THE OPERATION OF THESE ITEMS AT ALL TIMES DURING THE USE AND UNTIL ALL MATERIALS HAVE COOLED SUFFICIENTLY TO NO LONGER CONSTITUTE A FIRE HAZARD.
17. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCE OR PROCEDURES OF FOR THE SAFETY PRECAUTIONS AND PROGRAMS. THESE ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
18. DO NOT SCALE DRAWINGS. USE DIMENSIONAL NOTATION ONLY.
19. LARGE SCALE DWGS. (i.e. SECTIONS, DETAILS, ETC.) TAKE PRECEDENCE OVER SMALL SCALE DWGS.
20. SUBMIT SHOP DRAWINGS, PRODUCT DATA FOR APPROVAL PRIOR TO PURCHASE AND FABRICATION OF MATERIALS AND COMPONENTS. REPRODUCTION OF CONTRACT DRAWINGS TO BE USED AS SHOP DRAWINGS IS NOT PERMITTED.
21. ALL REQUESTS FOR SUBSTITUTIONS OF MATERIALS OR DETAILS SHOWN IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED FOR APPROVAL DURING THE BIDDING PERIOD. ONCE BIDS ARE ACCEPTED, PROPOSED SUBSTITUTIONS WILL BE CONSIDERED ONLY WHEN THEY ARE OFFICIALLY SUBMITTED WITH AN IDENTIFIED SAVINGS TO BE DEDUCTED FROM THE CONTRACT.
22. THE WORK SHALL BE IN ACCORDANCE WITH APPROVED SUBMITTALS EXCEPT THAT THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE ARCHITECT'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES, OR SIMILAR SUBMITTALS, UNLESS THE CONTRACTOR HAS SPECIFICALLY NOTIFIED THE ARCHITECT OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND (1) THE ARCHITECT HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION AS A MINOR CHANGE WORK, OR (2) A CHANGE ORDER OR CONSTRUCTION CHANGE DIRECTIVE HAS BEEN ISSUED AUTHORIZING THE DEVIATION. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES, OR SIMILAR SUBMITTALS, BY THE ARCHITECT'S APPROVAL THEREOF.

STEEL CONSTRUCTION NOTES:

1. ALL STRUCTURAL STEEL WORK SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE OF STANDARD PRACTICE. STRUCTURAL STEEL SHALL BE NEW, CLEAN, AND STRAIGHT, AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
   - A. WIDE FLANGE ROLLED SHAPES: ASTM A992, GRADE 50 (Fy = 50 KSI).
   - B. PLATES, ANGLES, BARS, CHANNELS, AND S SHAPES: ASTM A36 (Fy = 36 KSI).
   - C. RECTANGULAR HSS: ASTM A500, GRADE B (Fy = 46 KSI).
   - D. ROUND HSS: ASTM A500, GRADE B (Fy = 42 KSI).
   - E. PIPE: ASTM A53, TYPE E OF S, GRADE B (Fy = 35 KSI).
2. ALL ANCHOR RODS, UNLESS OTHERWISE NOTED, SHALL BE ASTM F1554, GRADE 36.
3. ALL BOLTED CONNECTIONS, UNLESS OTHERWISE NOTED, SHALL BE 3/4"Ø A325 HIGH STRENGTH BOLTS, IN BEARING TYPE CONNECTIONS AND SHALL BE PROVIDED WITH HARDENED WASHERS UNDER THE TURNED ELEMENT (NUT OR BOLT THREAD).
4. ALL STRUCTURAL STEEL SHALL BE PAINTED WITH ONE COAT OF SHOP PRIMER. THE EXCEPTIONS INCLUDE WHERE FIELD WELDING OR SLIP CRITICAL BOLTING IS TO BE DONE, WHERE STEEL IS TO RECEIVE SPRAY-ON FIREPROOFING, WHERE STEEL IS TO BE EMBEDDED IN CONCRETE, AND WHERE STEEL IS TO BE HOT-DIPPED GALVANIZED.
5. STRUCTURAL STEEL EXPOSED TO WEATHER, EXCESSIVE MOISTURE, OR CORROSIVE ENVIRONMENT AND AS INDICATED ON CONSTRUCTION DOCUMENTS, SHALL BE HOT-DIPPED GALVANIZED, MEETING REQUIREMENTS OF ASTM A123 AND A153 AS APPLICABLE.
7. CONNECTIONS MAY BE WELDED OR HIGH STRENGTH BOLTED. ALL CONNECTIONS SHALL CONFORM TO THE TYPICAL CONNECTION DETAILS SHOWN ON THE DRAWINGS.
8. INSTALLATION AND TIGHTENING OF ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE AISC "SPECIFICATION FOR THE STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS."
9. ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE - STEEL (AWS D1.1) AND SHALL BE DONE BY A.W.S. QUALIFIED WELDERS USING E70XX ELECTRODES.
10. ALL CONTACT SURFACES WITHIN HIGH STRENGTH BOLTED CONNECTIONS AND WELDING AREAS SHALL BE FREE OF OIL, PAINT, AND LACQUER.
11. ALL EXPOSED EDGES OF PLATES, BEAMS, ETC. SHALL BE SHOP GROUND SMOOTH AND UNIFORM.
12. THE CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF ALL ROOF OPENINGS SHOWN ON THE STRUCTURAL, ARCHITECTURAL AND/OR MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. ANY STEEL WHICH IS NOT SHOWN ON THE CONTRACT DRAWINGS AS FURNISHED BY THE STRUCTURAL STEEL CONTRACTOR AND WHICH IS REQUIRED BY THE MECHANICAL, PLUMBING, AND ELECTRICAL TRADES FOR OPENINGS AND/OR TO SUPPORT THEIR WORK SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR REQUIRING SUCH STEEL, UNLESS OTHERWISE NOTED.
13. CUTS, HOLES, COPING, ETC. REQUIRED IN STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES SHALL BE SHOWN ON THE STRUCTURAL STEEL SHOP DRAWINGS AND BE MADE IN THE SHOP. HOLES SHALL BE REINFORCED AND APPROVED BY THE STRUCTURAL ENGINEER.
14. BURNING OF HOLES, CUTS, ETC. IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED, EXCEPT WITH THE SPECIFIC WRITTEN PERMISSION OF THE ENGINEER.
15. FOR MISCELLANEOUS STEEL, SEE ARCHITECTURAL DRAWINGS.
16. SUBMIT ALL STRUCTURAL STEEL SHOP DRAWINGS FOR REVIEW PRIOR TO ANY FABRICATION.
17. ALL CONNECTIONS, BOTH FIELD AND SHOP, ARE SUBJECT TO SPECIAL INSPECTIONS.

DESIGN LOADS:

1. ROOF LOADS:
   ROOF DEAD LOAD= 20 PSF
   ROOF LIVE LOAD= 20 PSF

2. SNOW LOADS:

   GROUND SNOW LOAD, Pg = 30 PSF
   FLAT ROOF SNOW LOAD, Pf = 23.1 PSF
   SNOW EXPOSURE FACTOR, Ce = 1.0
   SNOW LOAD IMPORTANCE FACTOR, I = 1.1
   THERMAL FACTOR, Ct = 1.0

3. WIND LOADS:

   BASIC WIND SPEED, Vult = 122 MPH
   RISK CATEGORY - III
   WIND EXPOSURE - C

4. SEISMIC LOADS:

   SEISMIC RISK CATEGORY - III
   SEISMIC IMPORTANCE FACTOR, I = 1.25
   MAPPED SPECTRAL RESPONSE ACCELERATIONS:
   Ss = 0.288
   S1 = 0.061
   SITE CLASS - D
   SPECTRAL RESPONSE COEFFICIENTS:
   Sds = 0.301
   SD_1 = 0.098
   SEISMIC DESIGN CATEGORY - B

CONCRETE CONSTRUCTION NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE A.C.I. "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).
2. CONCRETE DESIGN MIXES SHALL CONFORM WITH ASTM C94, AND HAVE PROPERTIES AS INDICATED BELOW:

   UTILITY PAD : f'c=4,000 psi AT 28 DAYS
   MAX. W/C RATIO: 0.50
   AIR CONTENT: 3% MAX.

3. SLUMP SHALL BE LIMITED TO 4 INCHES. FOR CONCRETE WITH HRWR (SUPER-P), SLUMP SHALL BE LIMITED TO 2-4 INCHES PRIOR TO ADDITION OF HRWR, AND A MAXIMUM OF 8 INCHES AFTER ADDITION OF HRWR.
4. ADMIXTURES USED IN CONCRETE SHALL BE AS ALLOWED BY THE SPECIFICATIONS AND ONLY WITH LABORATORY DESIGN MIX APPROVAL. ALL ADMIXTURES SHALL CONTAIN NO MORE CHLORIDE IONS THAN ARE PRESENT IN MUNICIPAL DRINKING WATER.
5. CONCRETE MATERIALS SHALL BE AS INDICATED BELOW:
   - A. PORTLAND CEMENT: ASTM C150, TYPE I/II
   - B. FLY ASH: ASTM C618 - 15% - 25% OF CEMENTITOUS MATERIAL
   - C. NORMAL-WEIGHT AGGREGATES: ASTM C33, 3/4" MAXIMUM
   - D. WATER: ASTM C94 AND POTABLE
6. ADMIXTURES SHALL BE AS INDICATED BELOW:
   - A. AIR-ENTRAINING ADMIXTURE: ASTM C260
   - B. WATER REDUCING ADMIXTURE: ASTM C494, TYPE A
   - C. WATER REDUCING AND RETARDING ADMIXTURE: ASTM C494 TYPE D
   - D. WATER-REDUCING, ACCELERATING ADMIXTURE: ASTM C494 TYPE E
   - E. HIGH RANGE WATER REDUCING ADMIXTURE (SUPER-PLASTICIZER): ASTM C494, TYPE F
   - F. HIGH RANGE WATER REDUCING AND RETARDING ADMIXTURE: ASTM C494 TYPE G
6. TEST CYLINDERS SHALL BE TAKEN FROM THE MIXER IN ACCORDANCE WITH ASTM C172-14a "STANDARD PRACTICE FOR SAMPLING FRESHLY MIXED CONCRETE" AND THE PROJECT SPECIFICATIONS.
7. THE METHOD FOR CONVEYING CONCRETE TO THE PLACE OF DEPOSIT SHALL COMPLY WITH CODE ACI PRC-304.4-20 OR ACI PRC-304.2-17.
8. ALL SURFACES OF CONCRETE SHALL BE FORMED FOR FOOTINGS, EXCEPT SURFACES OPEN TO VIEW. REFER TO PROJECT SPECIFICATIONS FOR FURTHER DESCRIPTION.
9. EPOXY JOINT FILLER SHALL BE A TWO-COMPONENT SEMI RIGID RESIN, 100% SOLIDS, AND HAVE A MINIMUM SHORE A HARDNESS OF 80 WHEN MEASURED IN ACCORDANCE WITH ASTM D 2240.
10. ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE, NEW BILLET STEEL, DEFORMED BARS, CONFORMING TO ASTM A-615, GRADE 60. ALL BARS SHALL BE SECURELY SUPPORTED AND WIRED IN PLACE PRIOR TO CONCRETE PLACEMENT.
11. ALL WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A-185.
12. FIBER REINFORCING SHALL BE MONOFILAMENT POLYPROPYLENE FIBERS FOR SECONDARY REINFORCEMENT, ASTM C1116, TYPE III.
13. VAPOR RETARDER SHALL CONFORM TO ASTM E1745, CLASS C, WITH MINIMUM 10 MIL. THICKNESS.
14. REINFORCING STEEL SHOWN IN SECTIONS ARE SCHEMATIC INDICATIONS THAT REINFORCING EXISTS. SEE SECTION NOTES, SCHEDULES, PLAN NOTES, ETC. FOR ACTUAL REINFORCING REQUIRED.
15. UNLESS OTHERWISE NOTED, ALL BARS MARKED CONT. SHALL BE SPLICED AT ALL LAP POINTS AND CORNERS AND DEVELOPED AT NON-CONTINUOUS ENDS AS TYPICAL DETAILS. SPLICE CONTINUOUS TOP BARS AT CENTER BETWEEN SUPPORTS AND SPLICE CONTINUOUS BOTTOM BARS AT SUPPORTS. WELDED WIRE FABRIC SHALL BE LAPPED 12 INCHES OR TWO SPACES, WHICHEVER IS LONGER. SHEETS SHALL BE WIRED TOGETHER.
16. CONCRETE COVER FOR REINFORCING BARS SHALL BE AS SHOWN IN DETAILS.
17. AT OPENINGS IN CONCRETE WALLS, PROVIDE ADDED REINFORCEMENT IN ACCORDANCE WITH THE TYPICAL DETAILS UNLESS OTHERWISE NOTED.
18. REINFORCEMENT SHALL NOT BE WELDED OR HEATED IN ANY WAY.
19. SLEEVES, MECHANICAL OPENINGS, CONDUITS, PIPES, RECESSES, DEPRESSIONS, CURBS, AND ALL EMBEDDED ITEMS SHALL BE PROVIDED FOR AS SHOWN ON THE ARCHITECTURAL AND MECHANICAL DRAWINGS AND AS REQUIRED BY EQUIPMENT MANUFACTURERS. MINIMUM CONCRETE BETWEEN SLEEVES SHALL BE 6". INSTALLATION OF THESE ITEMS SHALL BE COORDINATED WITH SHOP DRAWINGS OF TRADES REQUIRING THESE ITEMS.
20. SET FORMS TO FOLLOW SLOPES AND GRADES DEFINED ON PLAN, KEEPING MEMBER DEPTHS CONSTANT AS DETAILED OR SCHEDULED, UNLESS NOTED OTHERWISE. SLOPE UNIFORMLY BETWEEN ELEVATIONS GIVEN.
21. UNDER NO CIRCUMSTANCES SHALL CONCRETE BE PUMPED THROUGH ALUMINUM PIPES. CONCRETE SHALL NOT BE PLACED IN CONTACT WITH ALUMINUM, ALUMINUM MIXING DRUMS, TRUCK MIXERS, BUGGLES, CHUTES, CONVEYORS, TREMIE PIPES, AND OTHER EQUIPMENT MADE OF ALUMINUM SHALL NOT BE USED ON THIS PROJECT.
22. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR FABRICATION, BENDING, AND PLACEMENT OF CONCRETE REINFORCEMENT. SHOP DRAWINGS SHALL COMPLY WITH ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
23. DO NOT PLACE CONCRETE WITHOUT APPROVED STRUCTURAL SHOP DRAWINGS AND ANY ARCHITECTURAL/MEP SHOP DRAWINGS RELATED TO THE CONCRETE WORK, INCLUDING BUT NOT LIMITED TO LOCATIONS OF OPENINGS, PIPE SLEEVES, REGLETS, DOVETAIL SLOTS, DRIPS, EQUIPMENET INSERTS, ETC.
24. ALL CONCRETE REINFORCING IS SUBJECT TO INSPECTION BY THE DESIGN ENGINEER PRIOR TO CONCRETE PLACEMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCY FROM ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
25. COLD OR HOT WEATHER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE CODE REQUIREMENTS.

SUBMITTALS REQ'D, STRUCTURAL:

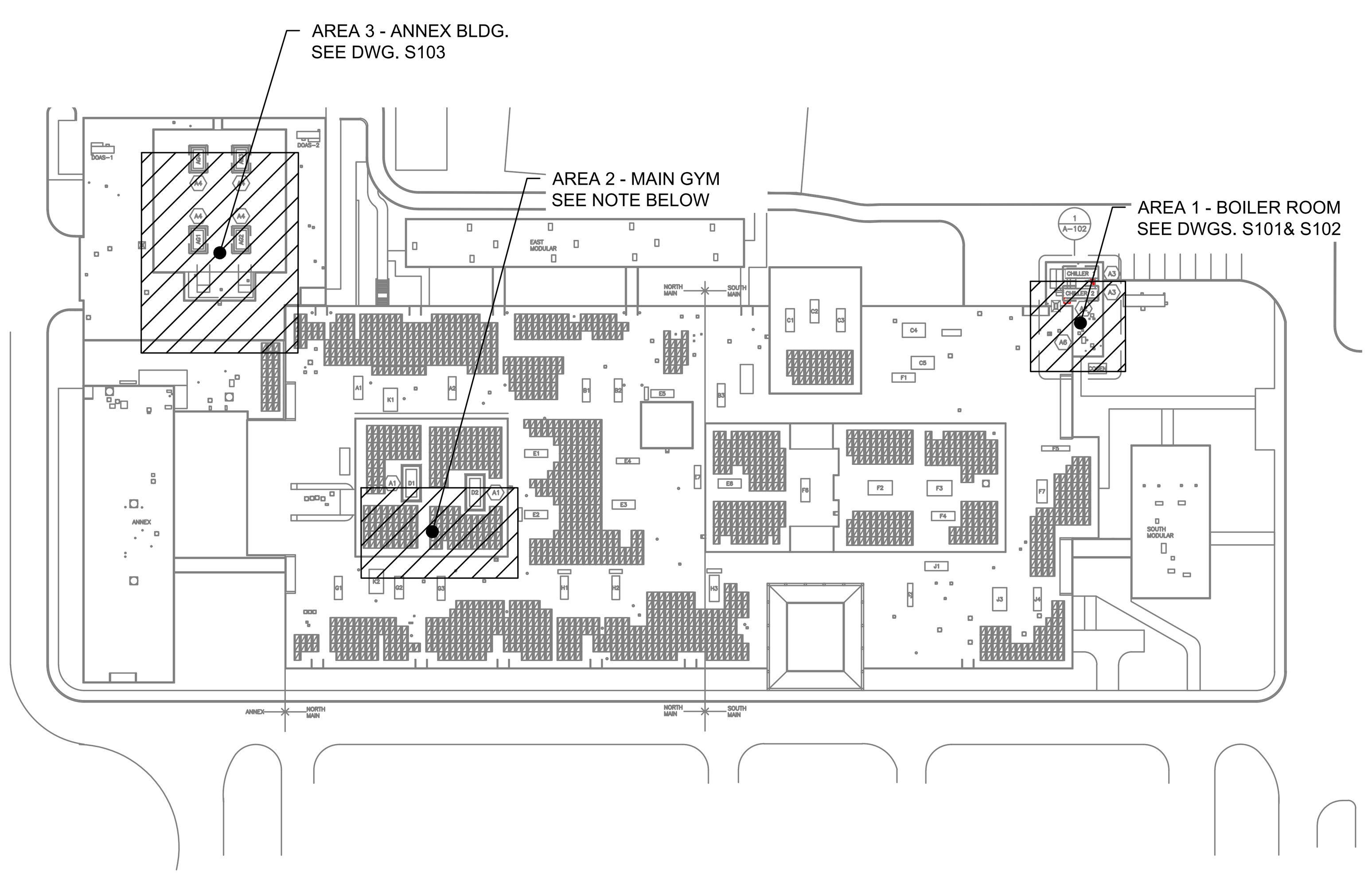
1. THE FOLLOWING ITEMS REQUIRE SUBMITTAL OF SHOP AND ERECTION DRAWINGS, FOR REVIEW:
   - a. REINFORCING STEEL FOR CAST-IN-PLACE CONCRETE
   - b. STRUCTURAL STEEL

2. THE FOLLOWING ITEMS REQUIRE SUBMITTAL OF SHOP AND ERECTION DRAWINGS AND STRUCTURAL CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK:
   - a. CONCRETE DESIGN MIXES

STRUCTURAL INSPECTION SCHEDULE	
(ESTABLISHED PER NYCBC 2022 CHAPTER 17)	
SPECIAL INSPECTIONS	
ITEM	CODE REFERENCE
STRUCTURAL STEEL - WELDING	BC 1705.2.1
STRUCTURAL STEEL - DETAILS	BC 1705.2.2
STRUCTURAL STEEL - HIGH STRENGTH BOLTING	BC 1705.2.3

ABBREVIATIONS:

A.R.	ANCHOR ROD	FDN.	FOUNDATION	PROJ.	PROJECTION
ACI	AMERICAN CONCRETE INSTITUTE	FIN.	FINISH	PSF	POUNDS PER SQUARE FOOT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	FLR.	FLOOR	PSI	POUNDS PER SQUARE INCH
ARCH.	ARCHITECT	FTG.	FOOTING	R	RADIUS
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	GA.	GAUGE	REINF.	REINFORCEMENT
BLDG.	BUILDING	GALV.	GALVANIZED	REQ'D	REQUIRED
BM.	BEAM	H.S.A.	HEADED STUD ANCHOR	RTU	ROOF TOP UNIT
BOTT.	BOTTOM	HK.	HOOK	S.O.G.	SLAB ON GRADE
BRG.	BEARING	HORIZ.	HORIZONTAL	SCHED.	SCHEDULE
CLR.	CLEAR	J.B.E.	JOIST BEARING ELEVATION	SECT.	SECTION
COL.	COLUMN	JST.	JOIST	SEOR	STRUCTURAL ENGINEER OF RECORD
CONC.	CONCRETE	JT.	JOINT	SIM.	SIMILAR
CONN.	CONNECTION	L	ANGLE	SJI	STEEL JOIST INSTITUTE
CONT.	CONTINUOUS	LG.	LONG	SPA.	SPACING
DIA., or Ø	DIAMETER	LLH	LONG LEG HORIZONTAL	SPECS.	SPECIFICATIONS
DIM.	DIMENSION	LLV	LONG LEG VERTICAL	STD.	STANDARD
DN.	DOWN	LONG.	LONGITUDINAL	STIFF.	STIFFENER
DO	DITTO	MAX.	MAXIMUM	STL.	STEEL
DTL.	DETAIL	MBM	METAL BUILDING MANUFACTURER	TOC	TOP OF CONCRETE
DWG.	DRAWING	MECH.	MECHANICAL	TOS	TOP OF STEEL
E.W.	EACH WAY	MFR.	MANUFACTURER	TOW	TOP OF WALL
EA.	EACH	MIN.	MINIMUM	TRANS.	TRANSVERSE
EL.	ELEVATION	MISC.	MISCELLANEOUS	TYP.	TYPICAL
EQ.	EQUAL	MTL.	METAL	U.N.O.	UNLESS NOTED OTHERWISE
EXIST.	EXISTING	N.S.	NEAR SIDE	VERT.	VERTICAL
EXP.	EXPANTION	O.C.	ON CENTER	W/	WITH
F.S.	FAR SIDE	O.F.	OUTSIDE FACE	WP	WORK POINT
		OPNG.	OPENING	WWF	WELDED WIRE FABRIC
		PED.	PEDESTAL	CL	CENTER LINE
		PLF	POUNDS PER FOOT	PL	PLATE



KEY PLAN

NOTE:
INSTALLATION OF NEW ROOF TOP UNITS ON MAIN GYM ROOF WILL NOT REQUIRE ANY STRUCTURAL MODIFICATION OR REINFORCEMENT OF EXISTING STRUCTURAL MEMBERS.

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP. DATE: 10-31-26

Drawn by Y.Y
Checked by R.B
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC

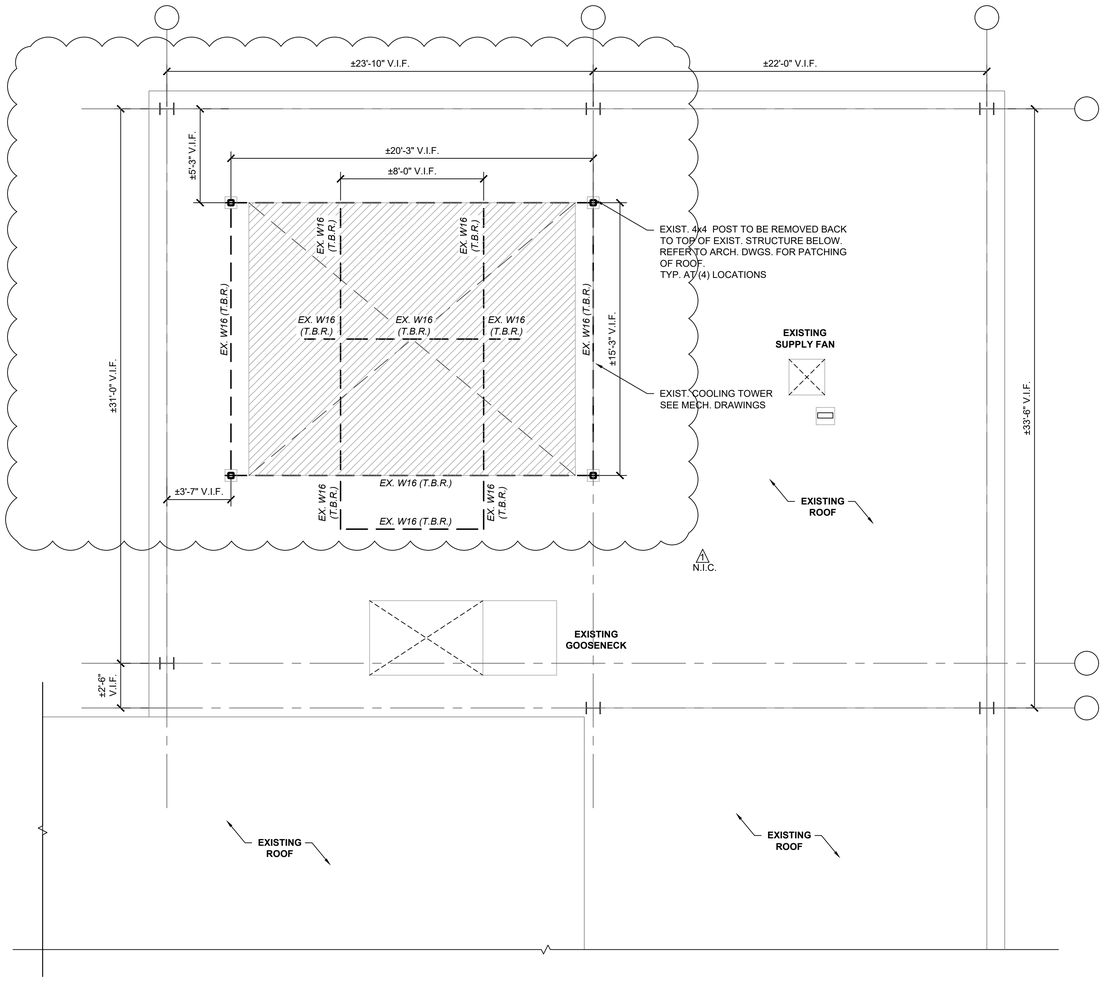
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-8200
www.shilale.com

Drawing Title
GENERAL NOTES AND ABBREVIATIONS

Drawing No.
S-001

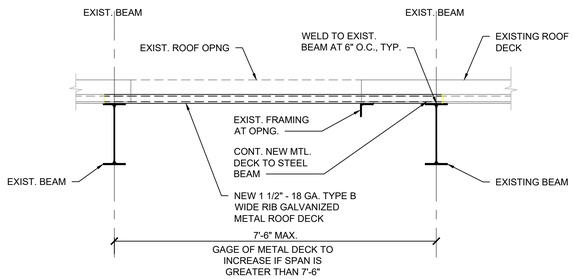


1 BOILER ROOM ROOF EXISTING DUNNAGE DEMOLITION PLAN

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

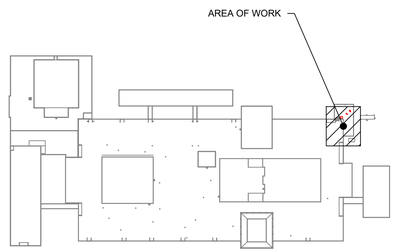
PLAN NOTES:

1. EXISTING CONSTRUCTION IS THE BEST REPRESENTATION OF INFORMATION GATHERED IN THE FIELD. CONTRACTOR SHALL SURVEY AND CONFIRM EXISTING CONSTRUCTION PRIOR TO BEGINNING ANY WORK. NOTIFY ARCHITECT IF ANY DISCREPANCIES ARE DISCOVERED.
2. CONTRACTOR SHALL BRACE, SHORE, PROTECT, ETC. EXISTING CONSTRUCTION AS REQUIRED TO PROVIDE SAFE WORK ENVIRONMENT AND OVERALL BUILDING STABILITY.
3. CARE SHALL BE TAKEN NOT TO DISTURB OR DAMAGE EXISTING STRUCTURE STEEL, CONCRETE SLAB, ETC. WHILE REMOVING ITEMS TO BE DEMOLISHED.
4. COORDINATE DEMOLITION WORK WITH NEW CONSTRUCTION SHOWN ON DRAWINGS.
5. FOR REMOVAL OF EXISTING COOLING TOWER, ALL ASSOCIATED PIPING, AND OTHER EXISTING MECHANICAL EQUIPMENT, REFER TO MECHANICAL DRAWINGS.
6. T.B.R. INDICATES STEEL TO BE REMOVED.
7. FOR GENERAL NOTES, SEE DRAWINGS S-001.
8. FOR NEW CHILLERS DUNNAGE FRAMING PLAN AND DETAILS, SEE DRAWINGS S-102.
9. FOR CLOSING EXISTING ROOF OPENINGS, SEE DETAIL 2/ S-101.



2 TYP. ROOF OPENING CLOSURE DETAIL

SCALE: 3/4" = 1'- 0"



KEY PLAN

1/2" 0 1" IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by Y.Y
Checked by R.B
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

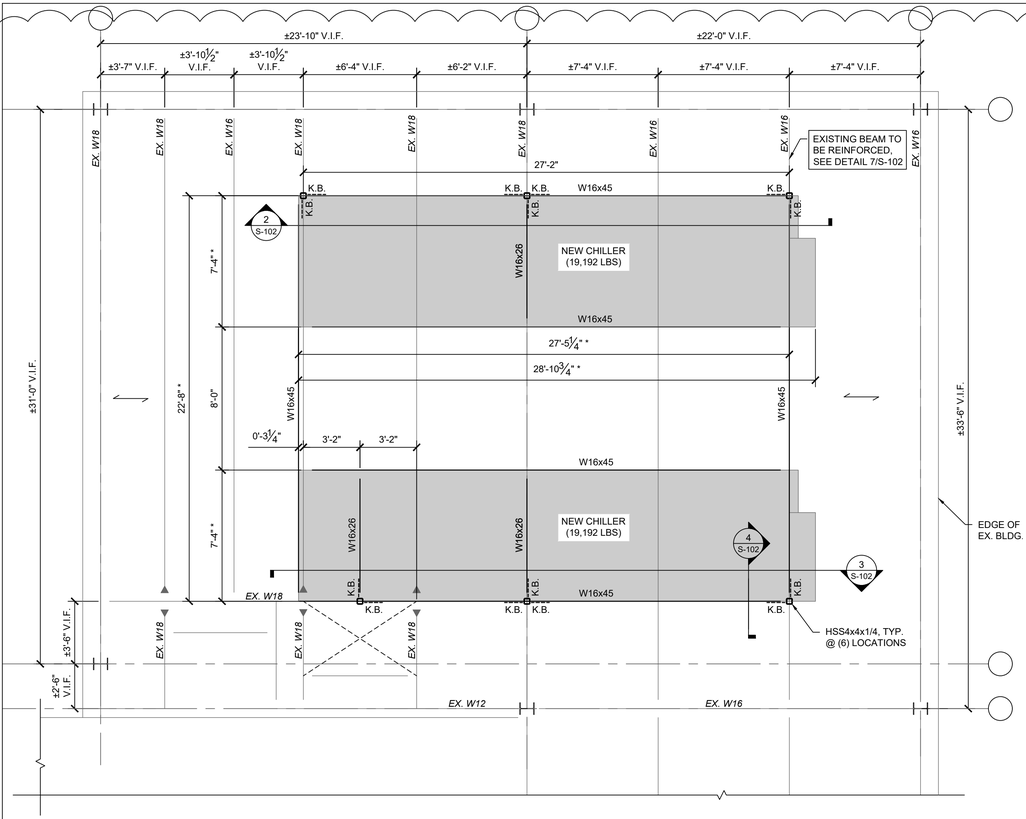
COUNTY OF ROCKLAND

108 Hammond Road, Thiells NY 10984

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-8200
www.shilale.com

Drawing Title
BOILER ROOM ROOF EXISTING DUNNAGE DEMOLITION PLAN

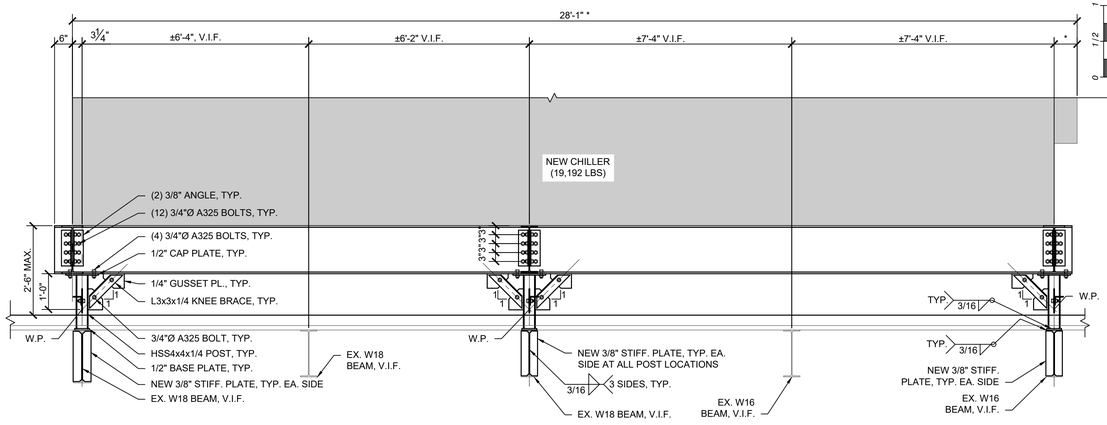
Drawing No.
S-101



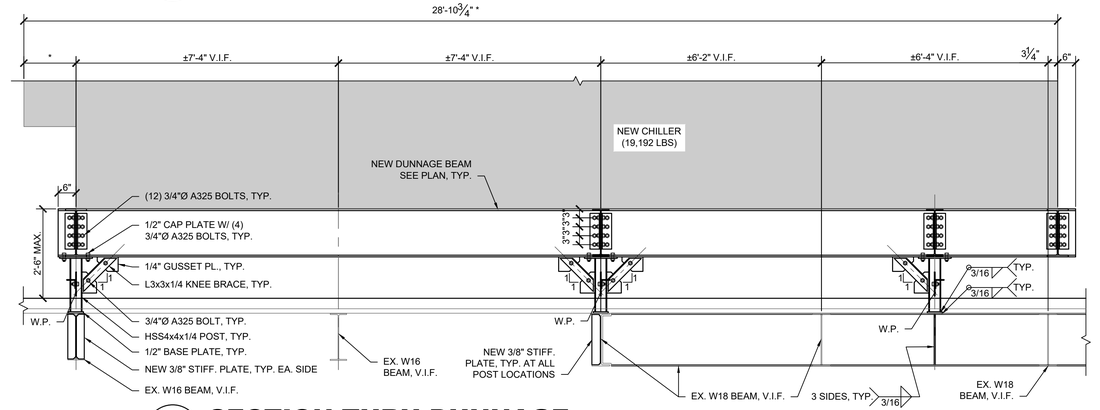
1 CHILLERS DUNNAGE FRAMING PLAN
SCALE: 1/4" = 1'- 0"

PLAN NOTES:

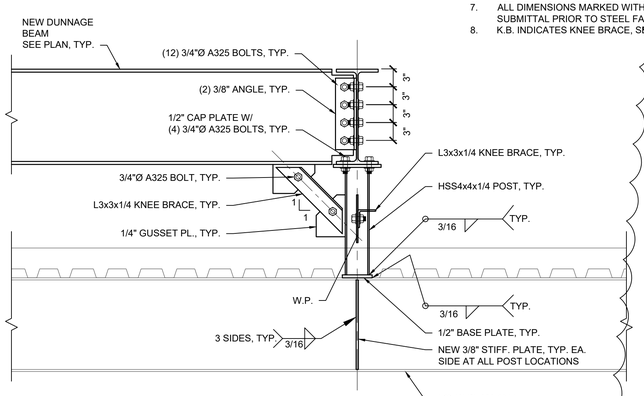
1. EXISTING CONSTRUCTION IS THE BEST REPRESENTATION OF INFORMATION GATHERED IN THE FIELD. CONTRACTOR SHALL SURVEY AND CONFIRM EXISTING CONSTRUCTION PRIOR TO BEGINNING ANY WORK. NOTIFY ARCHITECT IF ANY DISCREPANCIES ARE DISCOVERED.
2. EXISTING ROOF FRAMING CONSISTS OF METAL ROOF DECK SPANNING OVER STRUCTURAL STEEL BEAMS SUPPORTED ON STRUCTURAL STEEL GIRDERS AND COLUMNS.
3. ⟷ INDICATES SPAN OF EXISTING METAL DECK.
4. CONTRACTOR SHALL BRACE, SHORE, PROTECT, ETC. EXISTING CONSTRUCTION AS REQUIRED TO PROVIDE SAFE WORK ENVIRONMENT AND OVERALL BUILDING STABILITY.
5. NEW MECHANICAL EQUIPMENT SHALL BE CENTERED ON DUNNAGE BEAMS IN BOTH DIRECTIONS.
6. ALL NEW DUNNAGE STEEL SHALL BE HOT-DIPPED GALVANIZED.
7. ALL DIMENSIONS MARKED WITH AN ASTERISK (*) SHALL BE COORDINATED WITH APPROVED MECHANICAL SUBMITTAL PRIOR TO STEEL FABRICATION,
8. K.B. INDICATES KNEE BRACE, SEE SECTIONS FOR SIZE.



2 SECTION THRU DUNNAGE
SCALE: 1/2" = 1'- 0"

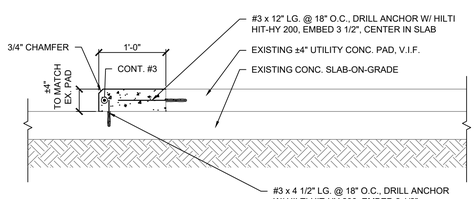


3 SECTION THRU DUNNAGE
SCALE: 1/2" = 1'- 0"

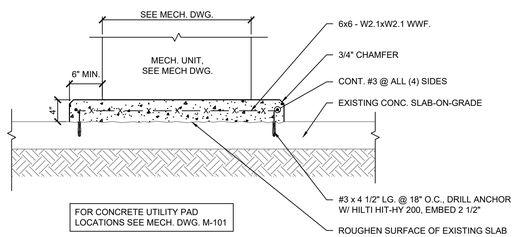


4 TYP. SECTION AT POST
SCALE: 1" = 1'- 0"

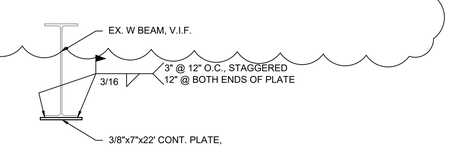
N.T.C.



5 TYP. CONC. UTILITY PAD EXTENSION
SCALE: 1" = 1'- 0"

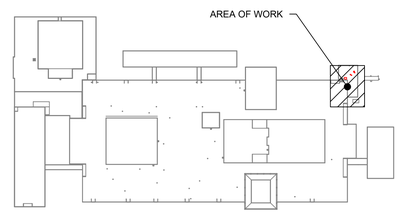


6 TYP. CONC. UTILITY PAD
SCALE: 1" = 1'- 0"



NOTES:
1. REINFORCING PLATE MUST BE CONTINUOUS.
2. CENTER PLATE UNDER EXISTING BEAM.
3. RESTORE FIREPROOFING TO MATCH EXISTING.

7 TYP. BEAM REINFORCING
SCALE: 1" = 1'- 0"



KEY PLAN

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by Y.Y
Checked by R.B
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
108 Hammond Road, Thiells NY 10984

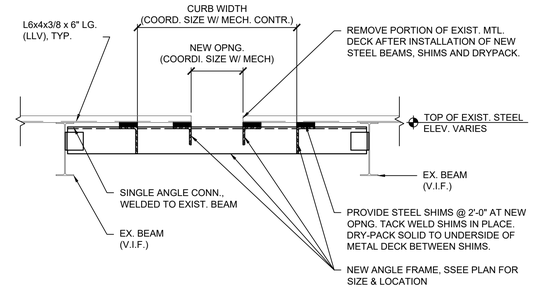
HSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-8500
www.shilale.com

Drawing Title
CHILLERS DUNNAGE FRAMING PLAN, SECTIONS AND DETAILS

Drawing No.
S-102

1 ANNEX BLDG. ROOF FRAMING PLAN

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

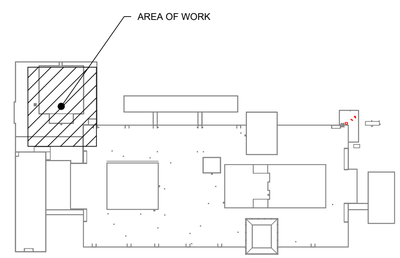


2 TYPICAL SECTION AT NEW RTU ROOF OPNG.

SCALE: 3/4" = 1'- 0"

PLAN NOTES:

1. EXISTING CONSTRUCTION IS THE BEST REPRESENTATION OF INFORMATION GATHERED IN THE FIELD. CONTRACTOR SHALL SURVEY AND CONFIRM EXISTING CONSTRUCTION PRIOR TO BEGINNING ANY WORK. NOTIFY ARCHITECT IF ANY DISCREPANCIES ARE DISCOVERED.
2. EXISTING ROOF FRAMING CONSISTS OF METAL ROOF DECK SPANNING OVER STRUCTURAL STEEL BEAMS SUPPORTED ON STRUCTURAL STEEL GIRDERS AND COLUMNS.
3. ←——→ INDICATES SPAN OF EXISTING METAL DECK.
4. CONTRACTOR SHALL BRACE, SHORE, PROTECT, ETC. EXISTING CONSTRUCTION AS REQUIRED TO PROVIDE SAFE WORK ENVIRONMENT AND OVERALL BUILDING STABILITY.
5. NEW MECHANICAL EQUIPMENT SHALL BE CENTERED OVER TWO EXISTING BEAMS AS SHOWN ON PLAN.
6. ALL DIMENSIONS MARKED WITH AN ASTERISK (*) SHALL BE COORDINATED WITH APPROVED MECHANICAL SUBMITTAL PRIOR TO STEEL FABRICATION.
7. EXISTING LAYOUT AND DESIGN IS BASED ON PRELIMINARY SITE INFORMATION DUE TO LIMITED ACCESS. PRIOR TO CONSTRUCTION, ENGINEER SHALL BE PROVIDED WITH FULL ACCESS TO EXISTING ROOF STRUCTURE TO CONFIRM EXISTING STEEL FRAMING. ADJUSTMENT TO THE DESIGN WILL BE PROVIDED AFTER ENGINEER'S SITE VISIT.



KEY PLAN

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by Y.Y
Checked by R.B
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

106 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-8500
www.shilale.com

Drawing Title
ANNEX BLDG. ROOF FRAMING PLAN & TYPICAL DETAIL

Drawing No.
S-103

LEGEND

- XX — EXISTING RTU TO REMAIN
- XX — EXISTING RTU TO BE REMOVED AND REPLACED WITH NEW
- XX — NEW RTU TO BE INSTALLED
- XX — EXISTING COOLING TOWER TO BE REMOVED. INSTALL NEW AIR-COOLED CHILLERS

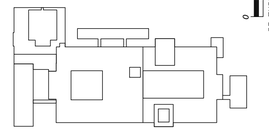
GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF EXISTING SITE AND FACILITIES FOR INSTALLATION OF NEW UNITS. CONTRACTOR WILL BE RESPONSIBLE FOR SITE RESTORATION AND FOR ANY DAMAGE TO EXISTING FACILITIES OR EQUIPMENT.
2. ALLOWANCE NO. 1 – CONTRACTOR SHALL PROVIDE ALLOWANCE TO CLEAN 20LF OF EXISTING DUCT-WORK IN UNITS D1 AND D2. CONTRACTOR SHALL PROVIDE AS-BUILTS TO SPECIFY AREAS OF CLEANING WITH DIMENSIONS INDICATED IN LINEAR FEET.

CONSTRUCTION KEY NOTES

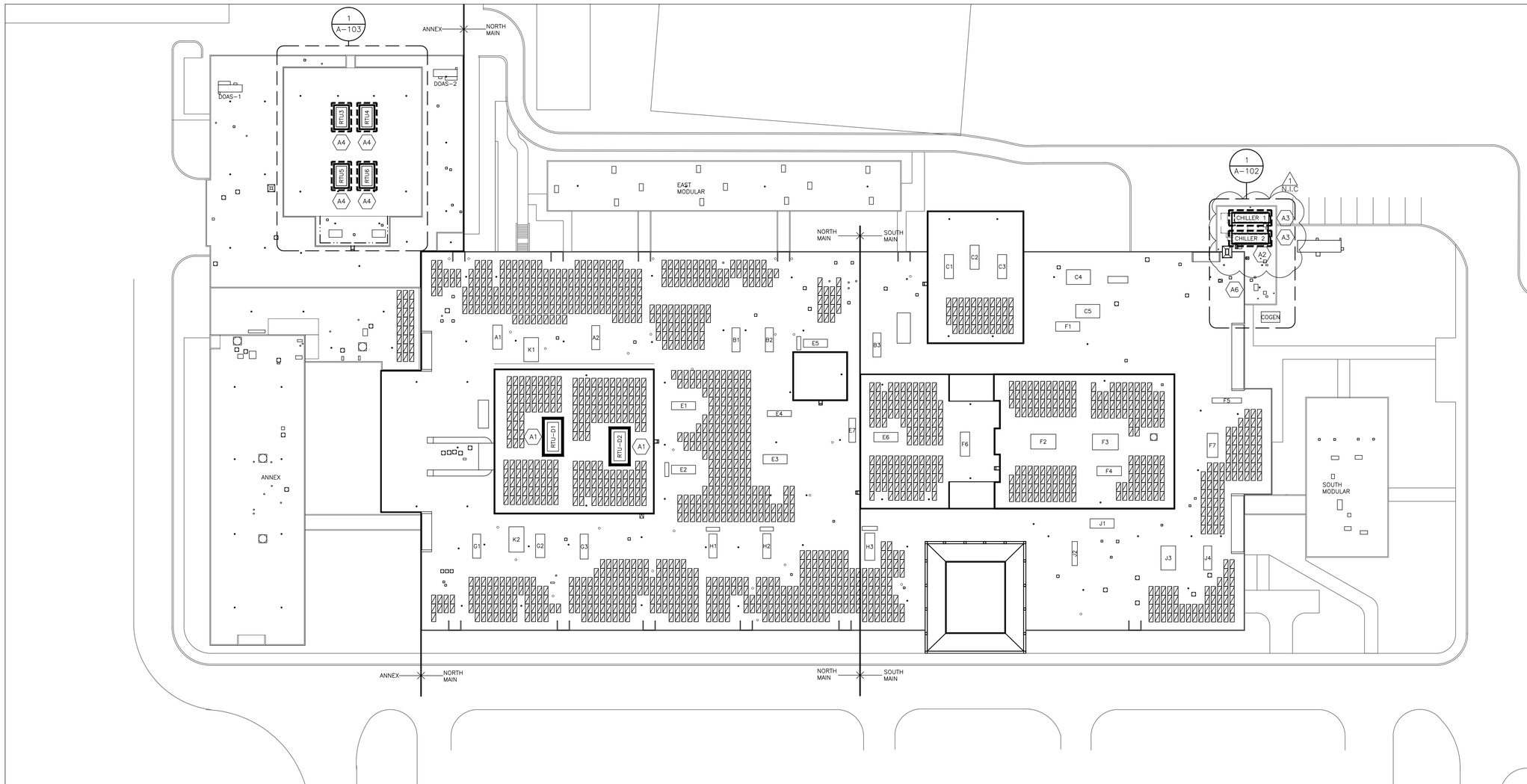
- A1 — REMOVE AND REPLACE EXISTING AIR HANDLING UNIT WITH NEW. PROVIDE A ROOF EXTENDER CURB AND ADAPTER CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-004. INCLUDE ALL ROOFING EXTENSIONS AND FLASHING REQUIRED. SEE DETAIL 1/A-501.
- A2 — REROUTE EXISTING PIPING TO NEW ROOFTOP AIR-COOLED CHILLERS. SEE DRAWING 1/A-102 FOR NEW ROOFTOP CHILLERS. SEE MECHANICAL DRAWINGS FOR PIPE DIAGRAMS
- A3 — INSTALL NEW AIR-COOLED CHILLER WITH NEW STRUCTURAL DUNNAGE AS NOTED IN STRUCTURAL DRAWINGS. SEE SCHEDULE OF CHILLER ON M-003. INCLUDE NEW ROOFING AND FLASHING AS REQUIRED. SEE MECHANICAL SCHEDULES AND DRAWING A-102.
- A4 — INSTALL NEW AIR HANDLER UNIT WITH NEW MECHANICAL ROOF PENETRATIONS AS REQUIRED. PROVIDE A NEW ROOF CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-003. INCLUDE ALL ROOFING CURB'S AND FLASHING REQUIRED. SEE DETAIL 2/A-500.
- A5 — VOID
- A6 — PROVIDE NEW HIGH EFFICIENCY CONDENSING BOILER. SEE SCHEDULE OF BOILERS ON M-003.
- A7 — PROVIDE NEW HOT WATER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.
- A8 — PROVIDE NEW CHILLER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.
- A9 — PATCH ROOF WHERE EXISTING MECHANICAL EQUIPMENT/ROOF PENETRATION WHERE REMOVED. SEE DETAIL 3/A-501
- A10 — NEW MECHANICAL ROOF PENETRATION WITH ROOF FLASHING. SEE DETAILS 4/A-500, 3/A-501, AND MECHANICAL DRAWINGS.
- A11 — PROVIDE NEW DOMESTIC INDIRECT HOT WATER HEATER. SEE MECHANICAL DRAWINGS.
- A12 — PROVIDE NEW EXPANSION TANK ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.
- A13 — PROVIDE NEW GLYCOL MAKEUP UNIT ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.

KEY PLAN



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PLAN NORTH



PLAN NORTH

1 NORTH ROCKLAND HIGH SCHOOL ROOF PLAN

SCALE: 1"=40'-0"

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by MAL/JR
Checked by MS/JC
Project No. 4365
Scale AS NOTED
Date 09-28-23

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

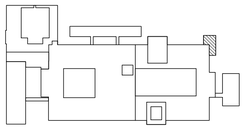
COUNTY OF ROCKLAND

106 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, LLP.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: ROOF PLAN

Drawing No. A-100



AREA OF WORK

PLAN NORTH

KEY PLAN

GENERAL NOTES

A1 REMOVE AND REPLACE EXISTING AIR HANDLING UNIT WITH NEW. PROVIDE A ROOF EXTENDER CURB AND ADAPTER CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-004. INCLUDE ALL ROOFING EXTENSIONS AND FLASHING REQUIRED. SEE DETAIL 1/A-501.

A2 REROUTE EXISTING PIPING TO NEW ROOFTOP AIR-COOLED CHILLERS. SEE DRAWING 1/A-102 FOR NEW ROOFTOP CHILLERS. SEE MECHANICAL DRAWINGS FOR PIPE DIAGRAMS

A3 INSTALL NEW AIR-COOLED CHILLER WITH NEW STRUCTURAL DUNNAGE AS NOTED IN STRUCTURAL DRAWINGS. SEE SCHEDULE OF CHILLER ON M-003. INCLUDE NEW ROOFING AND FLASHING AS REQUIRED. SEE MECHANICAL SCHEDULES AND DRAWING A-102.

A4 INSTALL NEW AIR HANDLER UNIT WITH NEW MECHANICAL ROOF PENETRATIONS AS REQUIRED. PROVIDE A NEW ROOF CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-003. INCLUDE ALL ROOFING CURB'S AND FLASHING REQUIRED. SEE DETAIL 2/A-500.

A5 VOID

A6 PROVIDE NEW HIGH EFFICIENCY CONDENSING BOILER. SEE SCHEDULE OF BOILERS ON M-003.

A7 PROVIDE NEW HOT WATER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.

A8 PROVIDE NEW CHILLER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.

A9 PATCH ROOF WHERE EXISTING MECHANICAL EQUIPMENT/ROOF PENETRATION WHERE REMOVED. SEE DETAIL 3/A-501

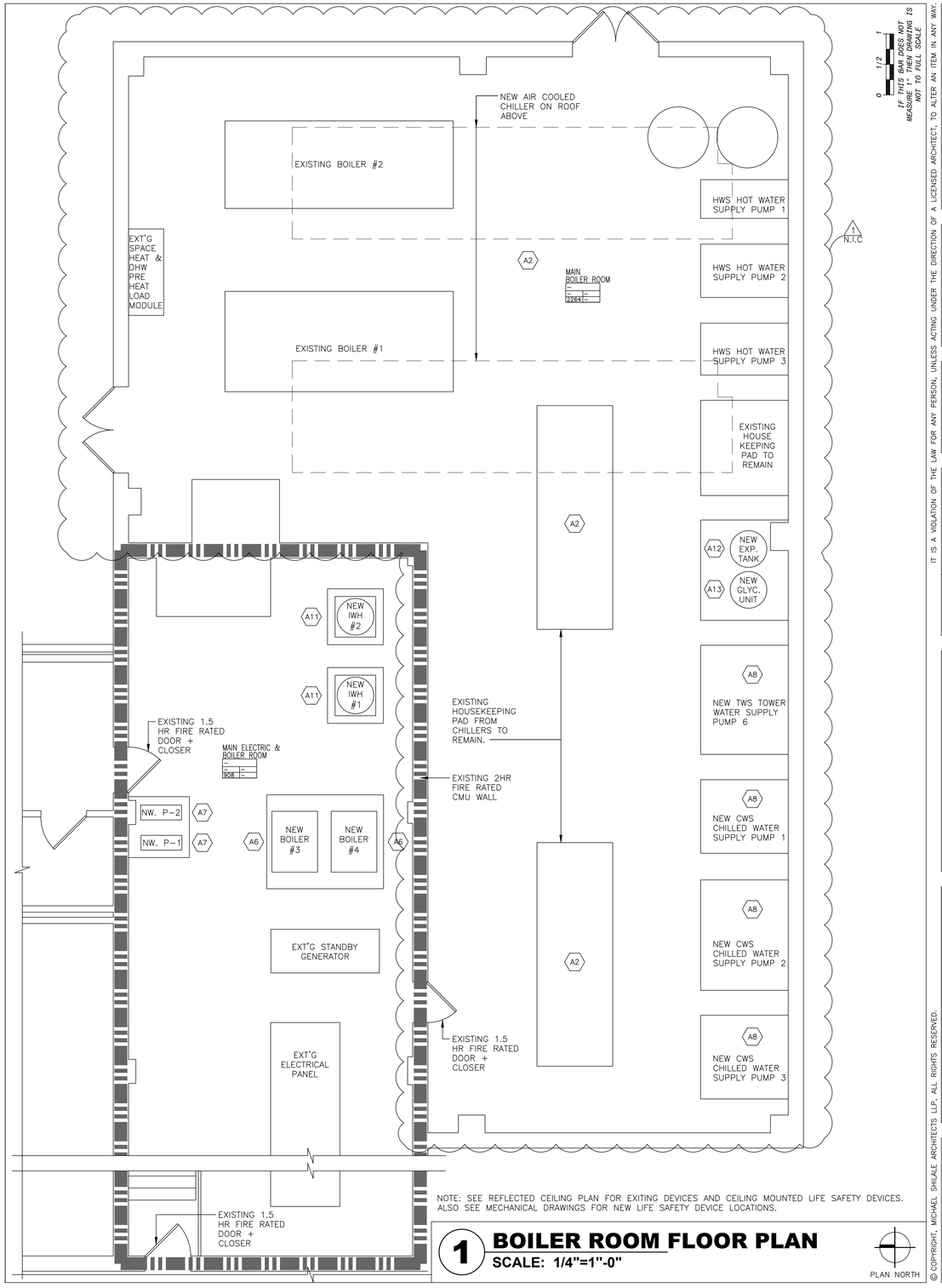
A10 NEW MECHANICAL ROOF PENETRATION WITH ROOF FLASHING. SEE DETAILS 4/A-500, 3/A-501, AND MECHANICAL DRAWINGS.

A11 PROVIDE NEW DOMESTIC INDIRECT HOT WATER HEATER. SEE MECHANICAL DRAWINGS.

A12 PROVIDE NEW EXPANSION TANK ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.

A13 PROVIDE NEW GLYCOL MAKEUP UNIT ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.

CONSTRUCTION KEY NOTES



NOTE: SEE REFLECTED CEILING PLAN FOR EXITING DEVICES AND CEILING MOUNTED LIFE SAFETY DEVICES. ALSO SEE MECHANICAL DRAWINGS FOR NEW LIFE SAFETY DEVICE LOCATIONS.

1 BOILER ROOM FLOOR PLAN
SCALE: 1/4"=1"-0"

PLAN NORTH

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by RH
Checked by MS/JC
Project No. 4306S
Scale AS NOTED
Date 09-28-23

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

106 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

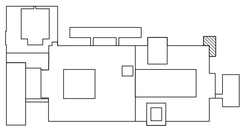
Drawing Title
BOILER ROOM FLOOR PLAN

Drawing No.
A-101

EXISTING THROUGH WALL LOUVER
EXISTING THROUGH WALL SCUPPER
EXISTING PIPE PENETRATION
EXISTING ROOF DRAIN
EXISTING VENTILATOR OR MECHANICAL PENETRATION
EQ EXISTING EQUIPMENT PAD
EXISTING ROOF HATCH
EXISTING LADDER

EXISTING MECHANICAL EQUIPMENT
ROOF VENT
EXISTING FRESH AIR INTAKE
EXISTING CHIMNEY
NEW PROTECTION RAILING
AREA OF ROOF PATCHING

LEGEND



AREA OF WORK

PLAN NORTH

KEY PLAN

1. PROVIDE ROOF FLASHING AT ALL NEW ROOF PENETRATIONS. SEE MECHANICAL DRAWINGS

GENERAL NOTES

A1 REMOVE AND REPLACE EXISTING AIR HANDLING UNIT WITH NEW. PROVIDE A ROOF EXTENDER CURB AND ADAPTER CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-004. INCLUDE ALL ROOFING EXTENSIONS AND FLASHING REQUIRED. SEE DETAIL 1/A-501.

A2 REROUTE EXISTING PIPING TO NEW ROOFTOP AIR-COOLED CHILLERS. SEE DRAWING 1/A-102 FOR NEW ROOFTOP CHILLERS. SEE MECHANICAL DRAWINGS FOR PIPE DIAGRAMS

A3 INSTALL NEW AIR-COOLED CHILLER WITH NEW STRUCTURAL DUNNAGE AS NOTED IN STRUCTURAL DRAWINGS. SEE SCHEDULE OF CHILLER ON M-003. INCLUDE NEW ROOFING AND FLASHING AS REQUIRED. SEE MECHANICAL SCHEDULES AND DRAWING A-102.

A4 INSTALL NEW AIR HANDLER UNIT WITH NEW MECHANICAL ROOF PENETRATIONS AS REQUIRED. PROVIDE A NEW ROOF CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-003. INCLUDE ALL ROOFING CURB'S AND FLASHING REQUIRED. SEE DETAIL 2/A-500.

A5 VOID

A6 PROVIDE NEW HIGH EFFICIENCY CONDENSING BOILER. SEE SCHEDULE OF BOILERS ON M-003.

A7 PROVIDE NEW HOT WATER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.

A8 PROVIDE NEW CHILLER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.

A9 PATCH ROOF WHERE EXISTING MECHANICAL EQUIPMENT/ROOF PENETRATION WHERE REMOVED. SEE DETAIL 3/A-501

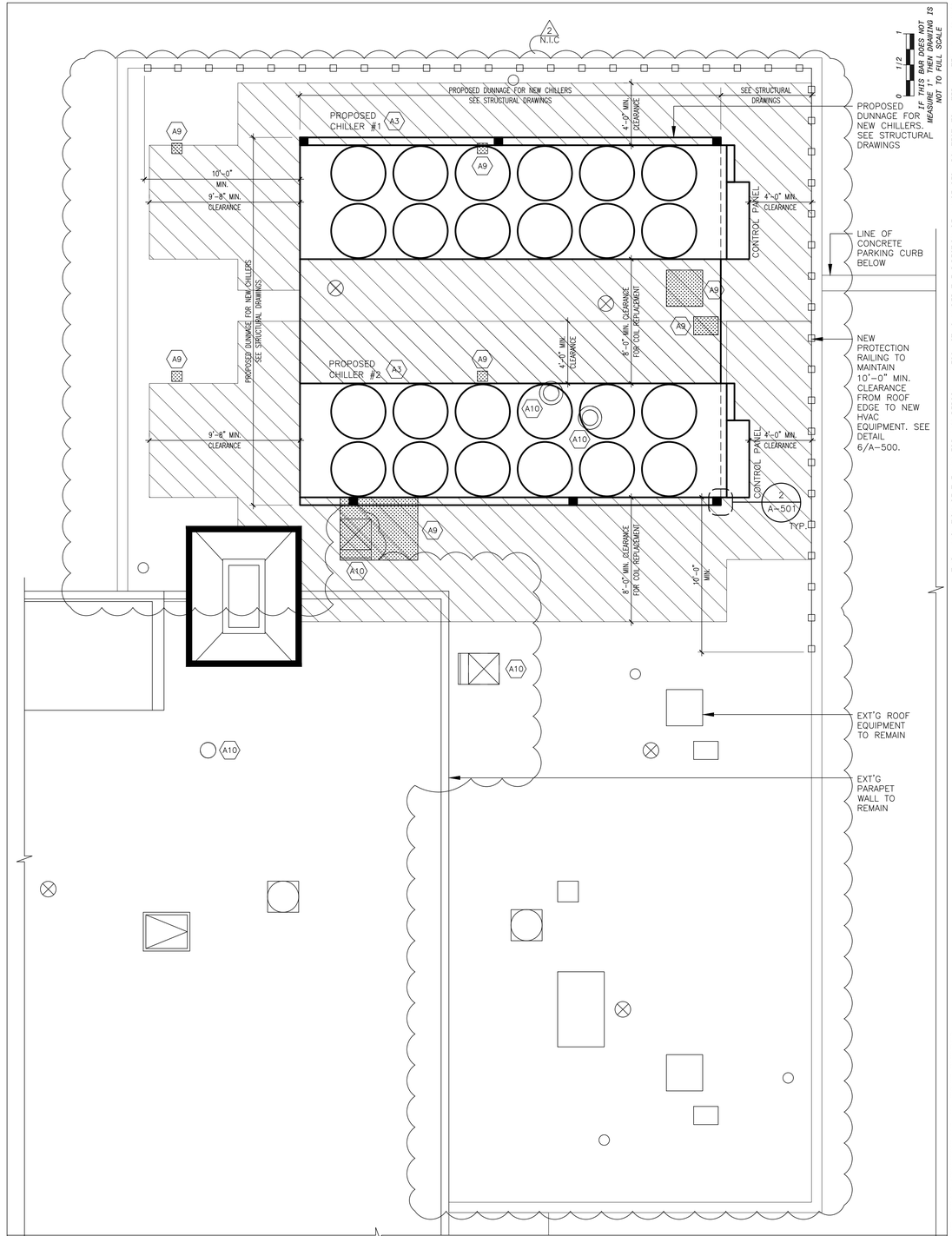
A10 NEW MECHANICAL ROOF PENETRATION WITH ROOF FLASHING. SEE DETAILS 4/A-500, 3/A-501, AND MECHANICAL DRAWINGS.

A11 PROVIDE NEW DOMESTIC INDIRECT HOT WATER HEATER. SEE MECHANICAL DRAWINGS.

A12 PROVIDE NEW EXPANSION TANK ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.

A13 PROVIDE NEW GLYCOL MAKEUP UNIT ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.

CONSTRUCTION KEY NOTES



1 BOILER ROOM ROOF PLAN
SCALE: 1/4"=1'-0"

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by	ML
Checked by	MS/JC
Project No.	4306S
Scale	AS NOTED
Date	10-30-23

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

106 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, LLP.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

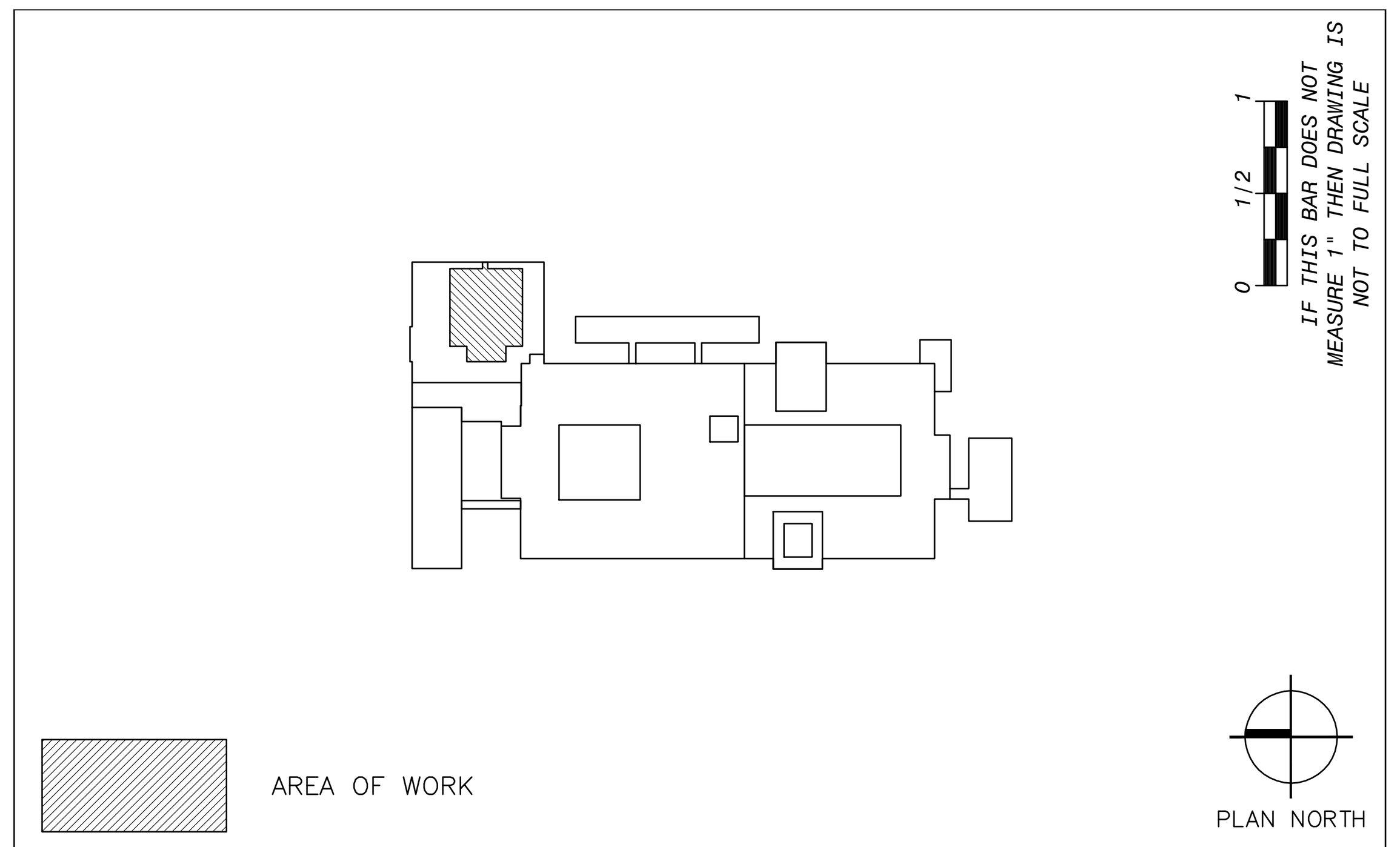
Drawing Title
BOILER ROOM ROOF PLAN

Drawing No.
A-102

LEGEND

- EXISTING THROUGH WALL LOUVER
- EXISTING THROUGH WALL SCUPPER
- EXISTING PIPE PENETRATION
- EXISTING ROOF DRAIN
- EXISTING VENTILATOR OR MECHANICAL PENETRATION
- EQ — EXISTING EQUIPMENT PAD
- EXISTING ROOF HATCH
- EXISTING LADDER
- EXISTING MECHANICAL EQUIPMENT
- ROOF VENT
- EXISTING FRESH AIR INTAKE
- EXISTING CHIMNEY
- NEW PROTECTION RAILING
- AREA OF ROOF PATCHING

KEY PLAN

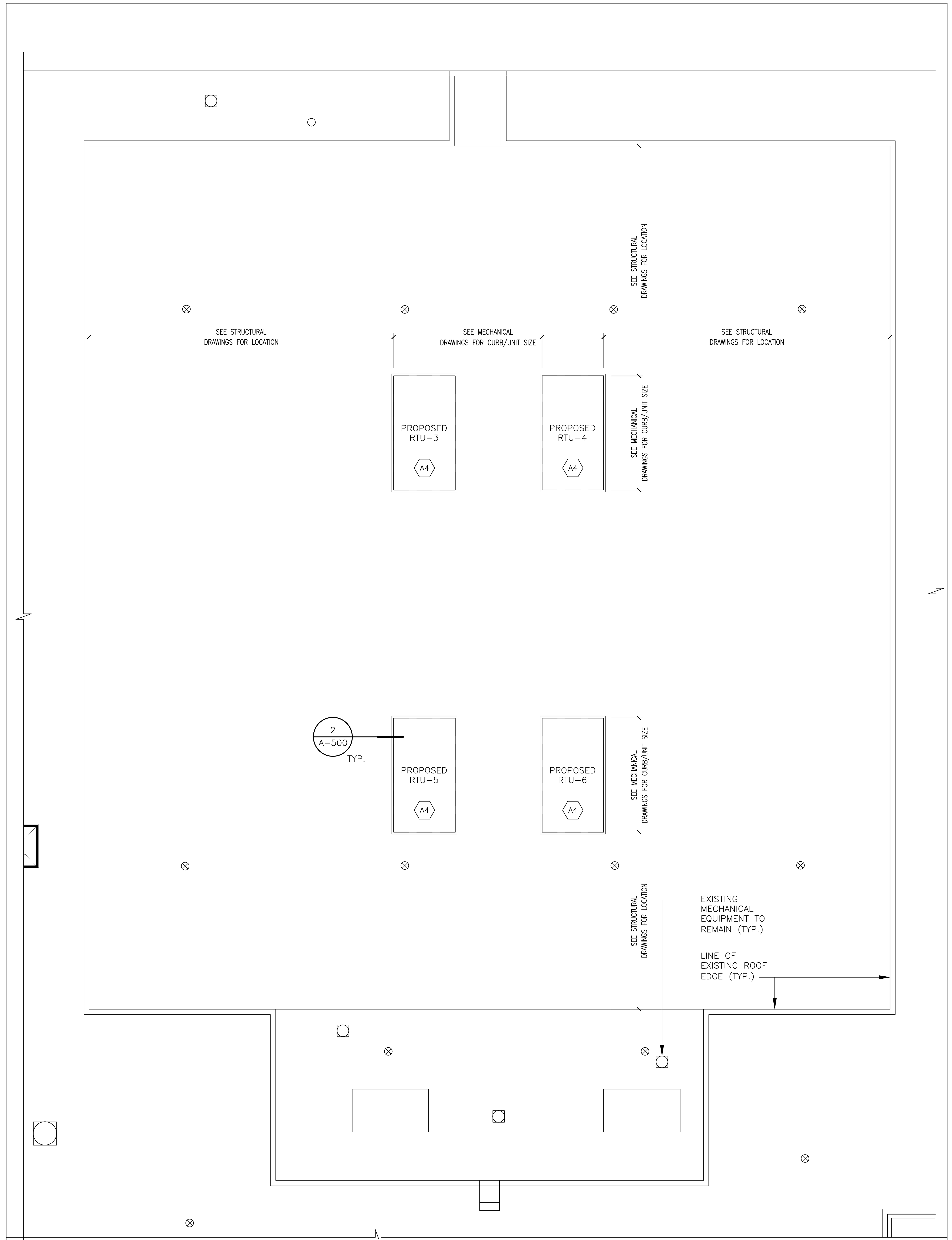


GENERAL NOTES

1. PROVIDE ROOF FLASHING AT ALL NEW ROOF PENETRATIONS. SEE MECHANICAL DRAWINGS

CONSTRUCTION KEY NOTES

- A1 — REMOVE AND REPLACE EXISTING AIR HANDLING UNIT WITH NEW. PROVIDE A ROOF EXTENDER CURB AND ADAPTER CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-004. INCLUDE ALL ROOFING EXTENSIONS AND FLASHING REQUIRED. SEE DETAIL 1/A-501.
- A2 — REROUTE EXISTING PIPING TO NEW ROOFTOP AIR-COOLED CHILLERS. SEE DRAWING 1/A-102 FOR NEW ROOFTOP CHILLERS. SEE MECHANICAL DRAWINGS FOR PIPE DIAGRAMS
- A3 — INSTALL NEW AIR-COOLED CHILLER WITH NEW STRUCTURAL DUNNAGE AS NOTED IN STRUCTURAL DRAWINGS. SEE SCHEDULE OF CHILLER ON M-003. INCLUDE NEW ROOFING AND FLASHING AS REQUIRED. SEE MECHANICAL SCHEDULES AND DRAWING A-102.
- A4 — INSTALL NEW AIR HANDLER UNIT WITH NEW MECHANICAL ROOF PENETRATIONS AS REQUIRED. PROVIDE A NEW ROOF CURB FOR UNIT, INCLUDE PIPE CHASE CURB AND INSULATED PIPE CABINET, SEE SCHEDULE OF AIR HANDLING UNITS ON M-003. INCLUDE ALL ROOFING CURB'S AND FLASHING REQUIRED. SEE DETAIL 2/A-500.
- A5 — VOID
- A6 — PROVIDE NEW HIGH EFFICIENCY CONDENSING BOILER. SEE SCHEDULE OF BOILERS ON M-003.
- A7 — PROVIDE NEW HOT WATER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.
- A8 — PROVIDE NEW CHILLER PUMPS. SEE MECHANICAL DRAWINGS. INSTALL ON EXISTING HOUSEKEEPING PADS.
- A9 — PATCH ROOF WHERE EXISTING MECHANICAL EQUIPMENT/ROOF PENETRATION WHERE REMOVED. SEE DETAIL 3/A-501
- A10 — NEW MECHANICAL ROOF PENETRATION WITH ROOF FLASHING. SEE DETAILS 4/A-500, 3/A-501, AND MECHANICAL DRAWINGS.
- A11 — PROVIDE NEW DOMESTIC INDIRECT HOT WATER HEATER. SEE MECHANICAL DRAWINGS.
- A12 — PROVIDE NEW EXPANSION TANK ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.
- A13 — PROVIDE NEW GLYCOL MAKEUP UNIT ON EXISTING HOUSEKEEPING PAD. SEE MECHANICAL DRAWINGS.



1 **ANNEX GYM ROOF PLAN**
SCALE: 1/8"=1'-0"

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by: ML
Checked by: MS/JC
Project No.: 43065
Scale: AS NOTED
Date: 10-30-23

Mechanical & Electrical Engineer:
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

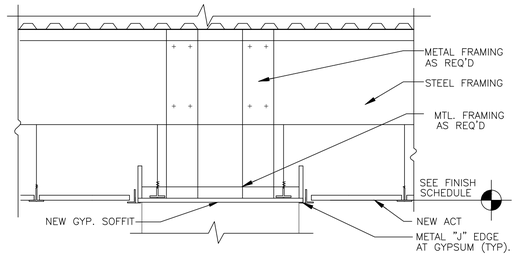
HIGH SCHOOL SED# 50-02-01-06-0-016-037

106 Hammond Road, Thiells NY 10984
COUNTY OF ROCKLAND

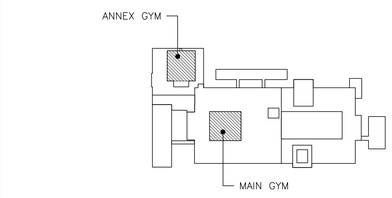
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: **ANNEX GYM ROOF PLAN**

Drawing No.: **A-103**



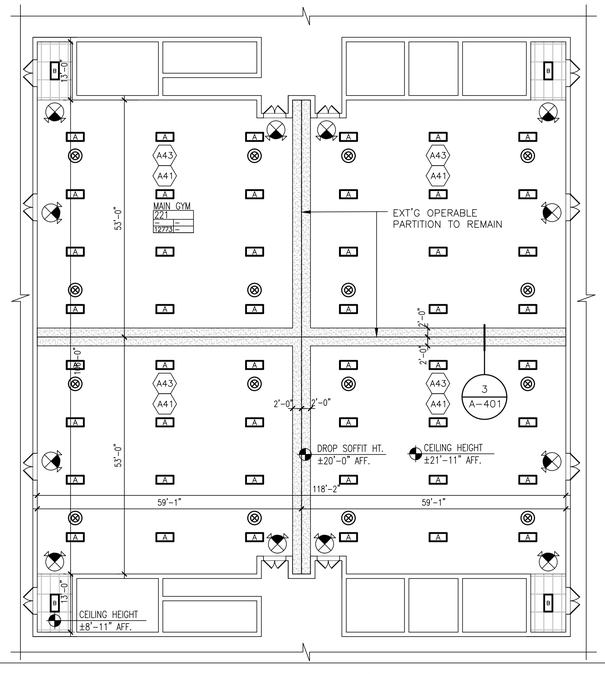
6 FLUSH GYP. SOFFIT DETAIL
SCALE: NTS



AREA OF WORK

PLAN NORTH

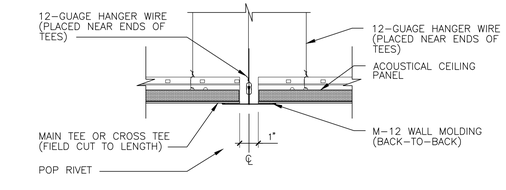
KEY PLAN



2 MAIN GYMNASIUM RCP - ALTERNATE 3
SCALE: 1/16"=1"-0"

PLAN NORTH

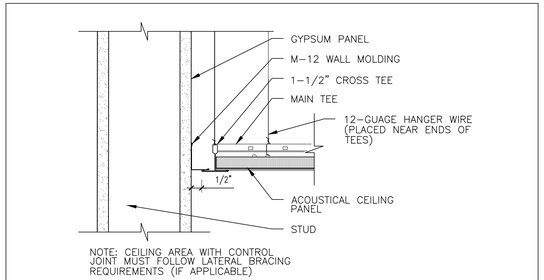
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE (0, 1/2, 1)



5 ACT CLG E.J. DETAIL
SCALE: NTS

	EXT'G CEILING TO REMAIN
	EXISTING EXIT SIGN/EMERGENCY LIGHT WITH SELF-CONTAINED BATTERY BACKUP.
	NEW EXIT SIGN ARROW INDICATES DIRECTION OF TRAVEL. SHADED PORTION INDICATES ILLUMINATED FACE.
	NEW EXIT SIGN/EMERGENCY LIGHT WITH SELF-CONTAINED BATTERY BACKUP.
	NEW EMERGENCY LIGHT WITH SELF-CONTAINED BATTERY BACKUP.
H	EXISTING HEAT DETECTOR
	EXISTING SUPPLY AIR CEILING DIFFUSER TO REMAIN
	SUPPLY AIR CEILING DIFFUSER
	RETURN AIR CEILING DIFFUSER
	NEW CONCENTRIC SUPPLY/RETURN AIR CEILING DIFFUSER
	CEILING RECESSED MOUNTED LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	NEW 2' x 2' RECESSED LIGHT FIXTURE
A	NEW 2' x 4' HIGH-BAY SUSPENDED LIGHT FIXTURE
B	NEW 2X4 RECESSED LIGHT FXITURE
	NEW 1' x 4' LIGHT FIXTURE
	EXISTING BEAM

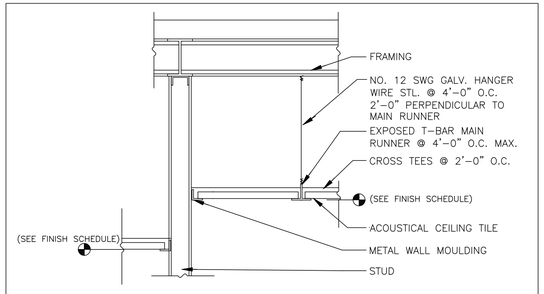
RCP LEGEND



4 ACT CLG @ WALL E.J. DETAIL
SCALE: NTS

A40	ALTERNATE NO. 2: REMOVE EXISTING CEILING IN ANNEX GYMNASIUM, PAINT EXISTING EXPOSED ROOF/CEILING ASSEMBLY, REHANG ELECTRICAL COMPONENTS + FIRE ALARM AUDIO WIRE AND INSTALL NEW SUSPENDED LIGHTING. INSTALL NEW CABLE TRAYS FOR ELECTRICAL WIRES. INSTALL NEW GYPSUM SOFFIT AT OPERABLE PARTITION TRACK AS PER PLANS.
A41	ALTERNATE NO. 3: REMOVE EXISTING CEILING IN MAIN GYMNASIUM, PAINT EXISTING EXPOSED ROOF/CEILING ASSEMBLY, REHANG ELECTRICAL COMPONENTS + FIRE ALARM AUDIO WIRE AND INSTALL NEW SUSPENDED LIGHTING. INSTALL NEW CABLE TRAYS FOR ELECTRICAL WIRES. INSTALL NEW GYPSUM SOFFIT AT OPERABLE PARTITION TRACK AS PER PLANS.
A42	REMOVE ALL EXT'G CEILING TILE IN ANNEX GYMNASIUM FOR INSTALLATION OF NEW DIFFUSERS. PAINT EXT'G GRID AND INSTALL NEW 2X2 CEILING TILE INTO EXT'G GRID. REMOVE AND REINSTALL ALL EXT'G ELECTRICAL EQUIPMENT/FIXTURES AS REQ'D.
A43	REMOVE ALL EXT'G CEILING TILE IN MAIN GYMNASIUM FOR MODIFICATION TO EXT'G DUCTWORK. PAINT EXT'G GRID AND INSTALL NEW 2X2 CEILING TILE INTO EXT'G GRID. REMOVE AND REINSTALL ALL EXT'G ELECTRICAL EQUIPMENT/FIXTURES AS REQ'D. REPLACE EXT'G WOOD TRIM AT OPERABLE PARTITION TRACK AND PAINT ENTIRE EXT'G SOFFIT.

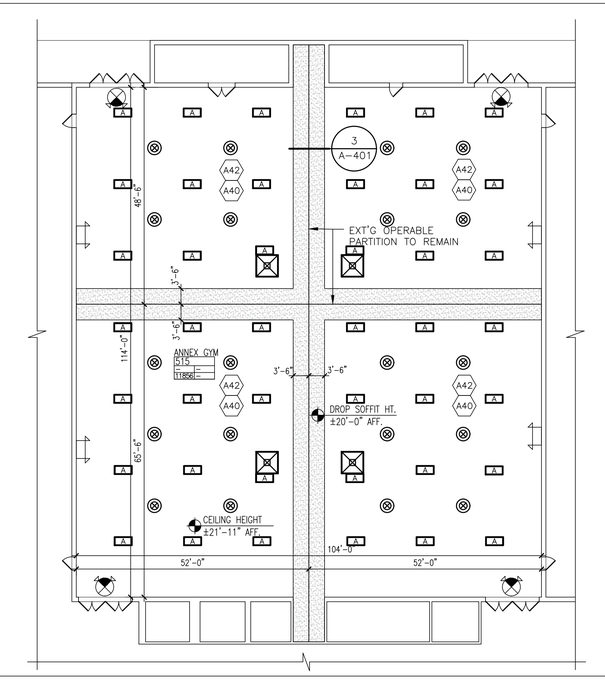
RCP KEY NOTES



3 ACT DETAIL (TYP.)
SCALE: NTS

1. ALL ELECTRICAL FIXTURES AND DEVICES NOT SHOWN HEREIN ARE EXISTING TO REMAIN.
2. REMOVE, STORE AND REINSTALL ALL EXISTING CEILING TILES, MODIFY AS NECESSARY FOR NEW INSTALLATION. PROVIDE NEW TILE TO MATCH EXISTING WHERE TILES HAVE BEEN DAMAGED.

RCP GENERAL NOTES



1 ANNEX GYMNASIUM RCP - ALTERNATE 2
SCALE: 1/16"=1"-0"

PLAN NORTH

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by	ML
Checked by	MS/JC
Project No.	4306S
Scale	AS NOTED
Date	09-28-23

Mechanical & Electrical Engineer:

Structural Engineer:

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.

NORTH ROCKLAND HIGH
SCHOOL CHILLER & HVAC
UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

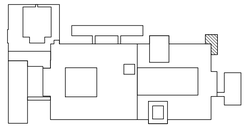
COUNTY OF ROCKLAND

100 Hammond Road,
Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10958 Tel 845-708-9200
www.shilale.com

Drawing Title
GYMNASIUM REFLECTED CEILING PLANS

Drawing No.
A-400



AREA OF WORK

PLAN NORTH

KEY PLAN

EXT'G CEILING TO REMAIN

EXISTING EXIT SIGN/EMERGENCY LIGHT WITH SELF-CONTAINED BATTERY BACKUP.

NEW EXIT SIGN ARROW INDICATES DIRECTION OF TRAVEL. SHADED PORTION INDICATES ILLUMINATED FACE.

NEW EXIT SIGN/EMERGENCY LIGHT WITH SELF-CONTAINED BATTERY BACKUP.

NEW EMERGENCY LIGHT WITH SELF-CONTAINED BATTERY BACKUP.

(H) EXISTING HEAT DETECTOR

EXISTING SUPPLY AIR CEILING DIFFUSER TO REMAIN

SUPPLY AIR CEILING DIFFUSER

RETURN AIR CEILING DIFFUSER

NEW CONCENTRIC SUPPLY/RETURN AIR CEILING DIFFUSER

CEILING RECESSED MOUNTED LIGHT FIXTURE

WALL MOUNTED LIGHT FIXTURE

NEW 2' x 2' RECESSED LIGHT FIXTURE

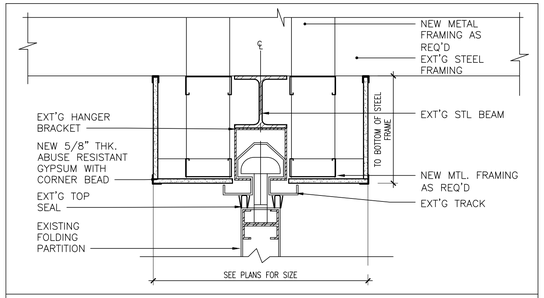
A NEW 2' x 4' HIGH-BAY SUSPENDED LIGHT FIXTURE

B NEW 2X4 RECESSED LIGHT FIXTURE

NEW 1' x 4' LIGHT FIXTURE

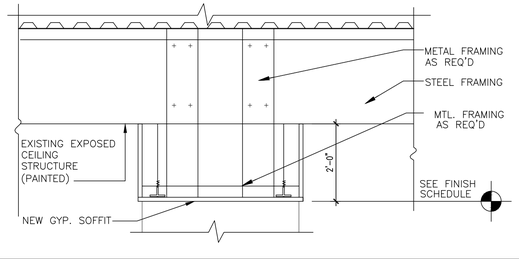
EXISTING BEAM

RCP LEGEND



3 SOFFIT DETAIL OPP. PARTITION

SCALE: 3/4"=1'- 0"



2 DROP GYP. SOFFIT DETAIL

SCALE: NTS

(A40) ALTERNATE NO. 2: REMOVE EXISTING CEILING IN ANNEX GYMNASIUM. PAINT EXISTING EXPOSED ROOF/CEILING ASSEMBLY, REHANG ELECTRICAL COMPONENTS + FIRE ALARM AUDIO WIRE AND INSTALL NEW SUSPENDED LIGHTING. INSTALL NEW CABLE TRAYS FOR ELECTRICAL WIRES. INSTALL NEW GYPSUM SOFFIT AT OPERABLE PARTITION TRACK AS PER PLANS.

(A41) ALTERNATE NO. 3: REMOVE EXISTING CEILING IN MAIN GYMNASIUM, PAINT EXISTING EXPOSED ROOF/CEILING ASSEMBLY, REHANG ELECTRICAL COMPONENTS + FIRE ALARM AUDIO WIRE AND INSTALL NEW SUSPENDED LIGHTING. INSTALL NEW CABLE TRAYS FOR ELECTRICAL WIRES. INSTALL NEW GYPSUM SOFFIT AT OPERABLE PARTITION TRACK AS PER PLANS.

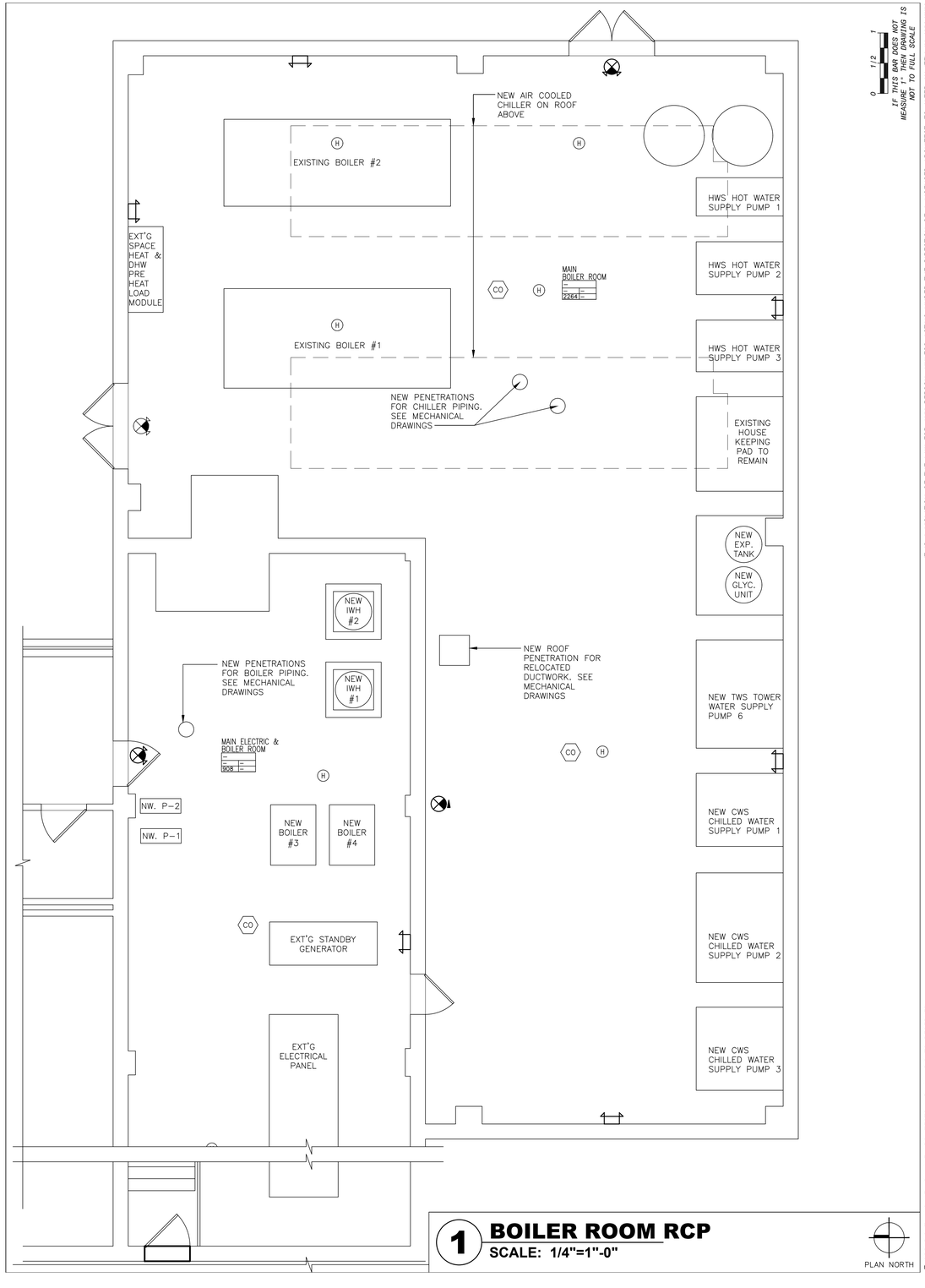
(A42) REMOVE ALL EXT'G CEILING TILE IN ANNEX GYMNASIUM FOR INSTALLATION OF NEW DIFFUSERS. PAINT EXT'G GRID AND INSTALL NEW 2X2 CEILING TILE INTO EXT'G GRID. REMOVE AND REINSTALL ALL EXT'G ELECTRICAL EQUIPMENT/FIXTURES AS REQ'D.

(A43) REMOVE ALL EXT'G CEILING TILE IN MAIN GYMNASIUM FOR MODIFICATION TO EXT'G DUCTWORK. PAINT EXT'G GRID AND INSTALL NEW 2X2 CEILING TILE INTO EXT'G GRID. REMOVE AND REINSTALL ALL EXT'G ELECTRICAL EQUIPMENT/FIXTURES AS REQ'D. REPLACE EXT'G WOOD TRIM AT OPERABLE PARTITION TRACK AND PAINT ENTIRE EXT'G SOFFIT.

RCP KEY NOTES

1. ALL ELECTRICAL FIXTURES AND DEVICES NOT SHOWN HEREIN ARE EXISTING TO REMAIN.
2. REMOVE, STORE AND REINSTALL ALL EXISTING CEILING TILES, MODIFY AS NECESSARY FOR NEW INSTALLATION. PROVIDE NEW TILE TO MATCH EXISTING WHERE TILES HAVE BEEN DAMAGED.

RCP GENERAL NOTES



PLAN NORTH

1 BOILER ROOM RCP

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

1/2 0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by ML
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 01/02/24

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

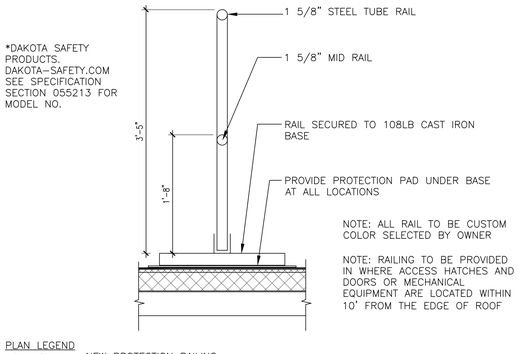
COUNTY OF ROCKLAND

108 Haverstraw Road, Suffern, NY 10901

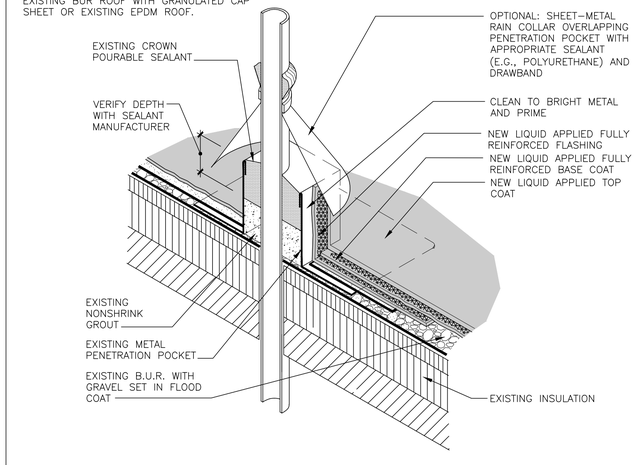
MICHAEL SHILALE ARCHITECTS, LLP
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: BOILER ROOM REFLECTED CEILING PLAN

Drawing No. A-401



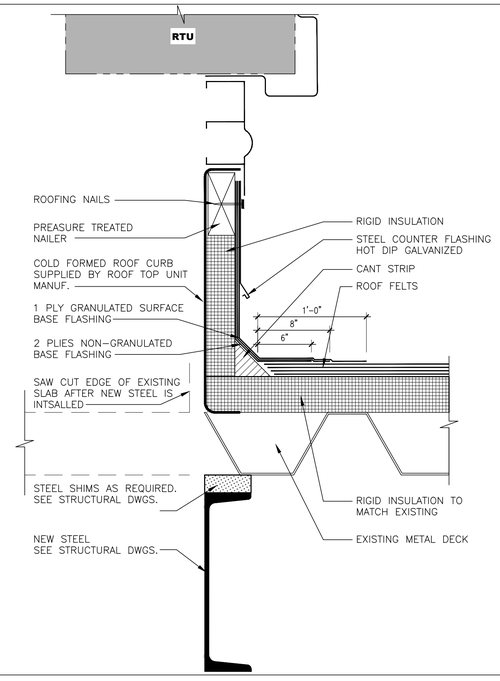
6 PROTECTION RAILING DETAIL
SCALE: 1"=1'-0"



NOTES

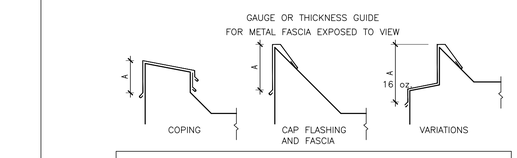
1. PRIMING OF THE SUBSTRATE IS REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

4 PENETRATION POCKET (SINGLE)
SCALE: 3" = 1'-0"



NOTE: SEE STRUCTURAL DWG FOR CURB AND DECK STRUCTURE

2 TYPICAL CURB DETAIL AT NEW RTUS AG1, AG2, AG3, AND AG4
SCALE: 3"=1'-0"

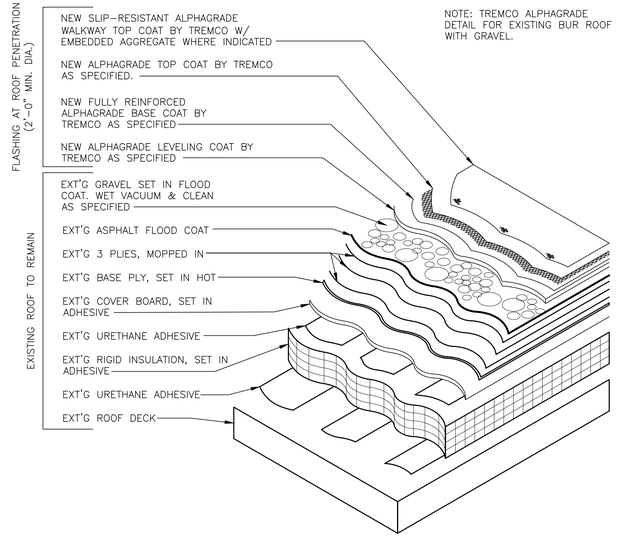


RECOMMENDED MINIMUM GAUGES FOR FASCIA SHOWN ABOVE				
EXPOSED FACE WITHOUT BREAKS "A" DIMENSION	CLEAT REQUIRED	GALVANIZED IRON	COLD ROLLED COPPER	ALUMINUM 3003-H14
UP TO 4" FACE	NO	26 GA.	16 oz.	.032" (20 GA.)
4" TO 6" FACE	YES	26 GA.	16 oz.	.040" (18 GA.)
6" TO 8" FACE	YES	24 GA.		.050" (16 GA.)
8" TO 10" FACE	YES	22 GA.	20 oz.	.064" (14 GA.)
10" TO 15" FACE	YES	20 GA.	ADD BRAKES TO STIFFEN	.080" (12 GA.)

NOTE:

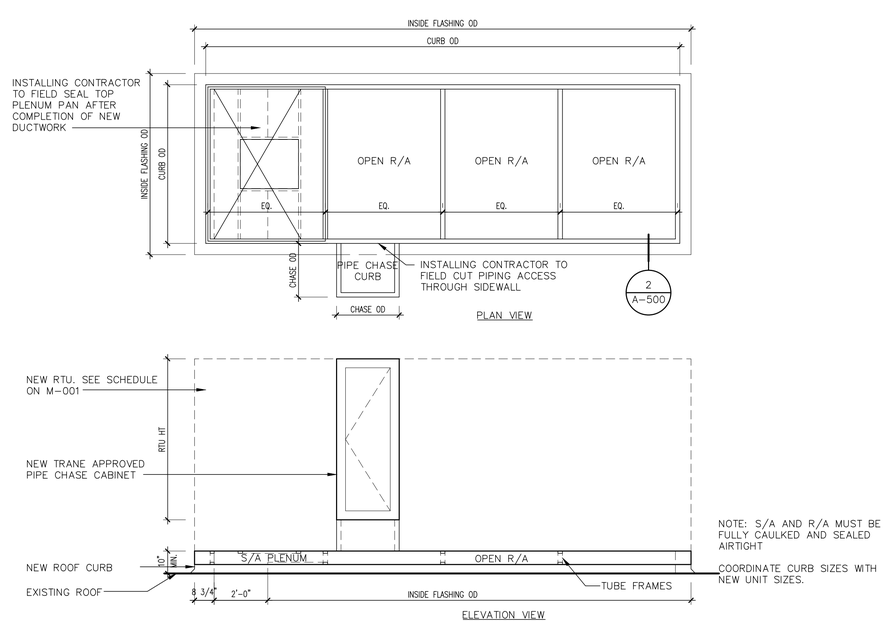
1. WHEN USING THE ABOVE TABLE, OTHER ITEMS SHOULD BE CONSIDERED, SUCH AS FASTENING PATTERN. FOR INSTANCE, IF THE METAL CAN ONLY BE FASTENED AT 100' FOOT INTERVALS, A HEAVIER GAUGE METAL WOULD BE REQUIRED. ALL CLEATS SHALL BE CONTINUOUS AND OF SAME MATERIAL OF EQUAL OR GREATER THICKNESS THAN THE FASCIA METAL USED.

5 FASCIA THICKNESS
SCALE: N.T.S.



NOTES: SEE SPECIFICATION SECTION 070150.72 FOR SPECIFIC ROOFING PRODUCTS

3 B.U.R. W/ LIQUID APPLIED FLASHING
SCALE: N.T.S.



1 TYPICAL CURB DETAIL
SCALE: 3/8"=1'-0"

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by SP
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 10-06-23

Mechanical & Electrical Engineer:

Structural Engineer:

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.

NORTH ROCKLAND HIGH
SCHOOL CHILLER & HVAC
UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

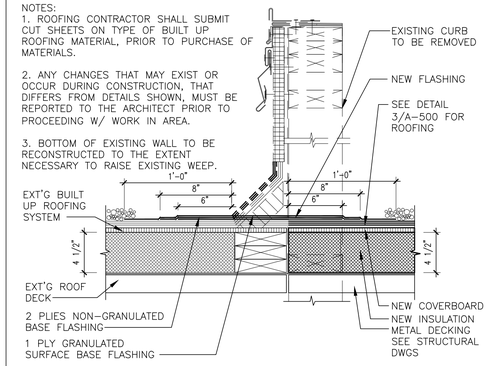
COUNTY OF ROCKLAND

100 Hammond Road,
Thiells NY 10984

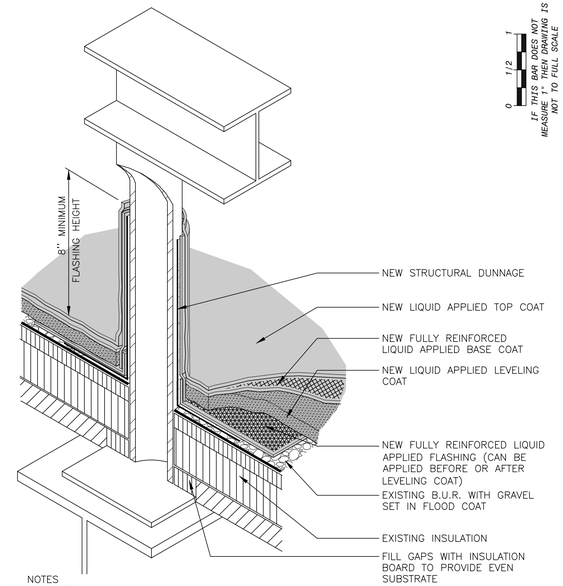
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
ROOF DETAILS

Drawing No.
A-500

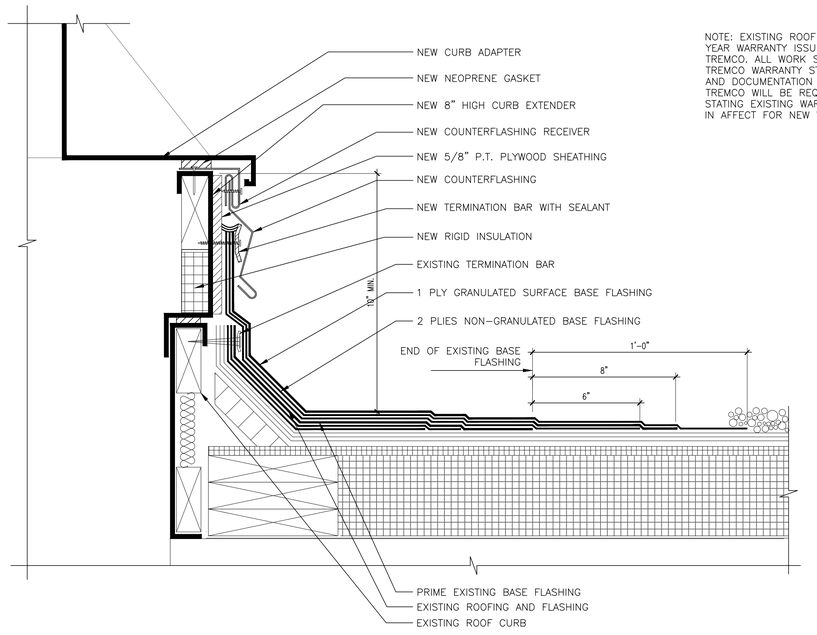


3 ROOF PATCHING
SCALE: 1-1/2"=1'-0"



NOTES
1. PRIMING OF THE SUBSTRATE IS REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.
3. THE EXISTING LOOSE GRAVEL MUST BE REMOVED AND THE ROOF MUST BE REPAIRED PER MANUFACTURER REQUIREMENTS PRIOR TO APPLICATION OF THE LEVELING COAT.

2 EQUIPMENT SUPPORT STAND LEG
SCALE: N.T.S.



1 TYPICAL CURB ADAPTOR DETAIL AT RTU-D1 AND RTU-D2
SCALE: 3"=1'-0"

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by ML
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 10-06-23

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

106 Hammond Road. Pearl River, NY 10965

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: ROOF DETAILS

Drawing No.: A-501

CODE	MATERIAL	MANUFACTURER	PRODUCT	CATALOG NO.	FINISH	COLOR	REMARKS
ACT1	2'X2' CEILING TILE	USG	FROST (FL)	418		BY ARCH	DONN DX SUSPENSION SYSTEM
ACT2	2'X4' CEILING TILE	USG	FROST (FL)	450		BY ARCH	DONN DX SUSPENSION SYSTEM
ACT3	2'X2' CEILING TILE	ARMSTRONG	ULTIMA	3352		BY ARCH	W/ EXISTING GRID SYSTEM U.O.N. PROVIDE UNIVERSAL HOLD DOWN CLIP BY ARMSTRONG MODEL #FZUHDCA
CT1	CERAMIC FLOOR TILE	DAL-TILE	MOSAICS UNGLAZED			BY ARCH	
CT2	CERAMIC FLOOR TILE	DAL-TILE	GLAZED WALL TILE			BY ARCH	
CT3	CERAMIC BASE	DAL-TILE				BY ARCH	
CT4	CERAMIC TILE	CROSSVILLE TILE	VERANDA/STONE	6x6		BY ARCH	
CT5	CERAMIC BASE	CROSSVILLE TILE	VERANDA/STONE	BULLNOSE BASE		BY ARCH	
QT1	QUARRY TILE	DALTILE	QUARRY TILE	6X6		BY ARCH	
PT1	LATEX FINISH	BENJAMIN MOORE	REGAL SELECT	549	EGGSHELL	BY ARCH	(1) COAT PT4, (2) COATS PT1
PT2	LATEX FINISH	BENJAMIN MOORE	REGAL SELECT	551	SEMI-GLOSS	BY ARCH	(1) COAT PT4, (2) COATS PT2
PT3	LATEX FINISH	BENJAMIN MOORE	REGAL SELECT	547	FLAT	BY ARCH	(1) COAT PT4, (2) COATS PT3
PT4	LATEX PRIMER	BENJAMIN MOORE	MULTI PURPOSE PRIMER	067	FLAT	BY ARCH	
PT5	LATEX FINISH	BENJAMIN MOORE	DTM ACRYLIC	HP29	SEMI-GLOSS	BY ARCH	(3) COAT PT5
PT9	NON-SLIP EPOXY COATING	INDUSTRIAL FLOOR CORPORATION	EPOXY QUARTZ FLOOR		FLAKE	BY ARCH	WWW.FLOOREPOXYINDUSTRIAL.COM
PT10	LATEX ENAMEL PRIMER	MOORECRAFT	SUPERSPEC	253		BY ARCH	
PT11	LATEX ENAMEL	MOORECRAFT	SUPERSPEC	276	SEMI-GLOSS	BY ARCH	
PT12	ALKYD FINISH	BENJAMIN MOORE	DTM ACRYLIC	HP25	LOW LUSTRE	BY ARCH	(3) COAT PT12
VCT1	VINYL TILE	ARMSTRONG	STAN. COLOR CHART			BY ARCH	
VB1	VINYL BASE	ROPPE	VINYL BASE	700 SERIES		BY ARCH	STANDARD TOE BASE
GB1	GYPSUM BOARD	USG					
GB2	GYPSUM	USG		TYPE X			
GB3	GYP BD	USG					
MRGB	GYP BD	CERTAINTEED	DRYWALL	M2 TECH			
WB1	4" WOOD BASE		CLEAR PINE	COLONIAL		BY ARCH	SUBMIT SAMPLES
WC1	2 1/2" WOOD CASING		CLEAR PINE	COLONIAL		BY ARCH	SUBMIT SAMPLES
CBU1	CEMENTITIOUS BACKER UNIT	USG	"DURO-ROCK"				
ST1	WOOD STAIN	BENJAMIN MOORE	MOORE'S PENET STN	241	LOW LUSTER	BY ARCH	SUBMIT SAMP. (1) COAT ST1
ST2	P.T. WOOD STAIN	BENJAMIN MOORE	MOORE WOOD	070	SEMI-TRANS	BY ARCH	(2) COATS ST2
V1	VARNISH	BENJAMIN MOORE	BEN WOOD POLY				SUBMIT SAMP.(2) COATS V-1
STD	PT DECK STAIN	CABOT		0700 SERIES			
SRT	SOLID RUBBER TILE	JOHNSONITE		SOLID	SQUARE RT	BY ARCH	24"x24" TILE
BF	BLOCK FILLER	BENJAMIN MOORE	BLOCK FILLER	958-11			
CS1	CONCRETE STAIN	INSL-X	TUFFCRETE	CST - 5XXX		BY ARCH	
SL1	SELF LEVELING UNDERLAYMENT	ARDEX	K-13				

FINISH MATERIAL SCHEDULE
REMARKS
1. -
2. -
3. -
4. -
5. -

FINISH MATERIAL SCHEDULE

ROOM FINISH SCHEDULE

Level	Room Number	Name	WALL NORTH	WALL EAST	WALL SOUTH	WALL WEST	BASE	FLR	CLG	NOTES	REMARKS
FIRST FLOOR	-	MAIN ELECTRIC & BOILER ROOM	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.		
FIRST FLOOR	221	MAIN GYM	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	ACT3, GB1	1	
FIRST FLOOR	515	ANNEX GYM	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	E.T.R.	ACT3, GB1	1	

NOTES:
1. BASE BID PAINT EXISTING ACT GRID WITH PT5, INSTALL NEW CEILING TILE.

FINISH SCHEDULE

No.	Date	Revisions
1	01-08-25	ISSUED FOR BIDDING

REG. EXP DATE: 12-31-25

Drawn by ML
Checked by MS/JC
Project No. 43065
Scale AS NOTED
Date 02/15/24

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH
SCHOOL CHILLER & HVAC
UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

106 Hammond Road,
Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
FINISH SCHEDULE

Drawing No.
A-600

SAFETY NOTES:

1. SPECIAL PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR SO THAT EQUIPMENT ON THE APPLICATION AND ITS INSTALLATION WILL NOT AFFECT THE FOLLOWING:
   - EGRESS TO AND FROM THE BUILDING FIRE SAFETY OR CREATE A FIRE HAZARD
   - STRUCTURAL SAFETY OF THE BUILDING.
   - ACCUMULATION OF DUST AND DEBRIS. THE CONTRACTOR SHALL LEAVE THE SITE BROOM CLEAN EACH DAY.
2. ASBESTOS MUST FIRST BE INVESTIGATED AND VERIFIED IN FIELD BEFORE ANY DEMOLITION OR CONSTRUCTION WORK TO BE PERFORMED. ASBESTOS FREE MUST BE CERTIFIED FOR ALL HVAC EQUIPMENT, DUCTWORK, AND ALL PIPING INSULATION.
3. CONSTRUCTION WORK SHALL BE CONFINED TO WORK AREAS NOTED ON THE DRAWINGS AND SHALL INVOLVE TEMPORARY INTERRUPTION OF HEATING, WATER AND ELECTRIC SERVICES TO THE BUILDING SYSTEMS ONLY AS SCHEDULED WITH NEW YORK CITY.
4. FIRE SAFETY: ALL BUILDING MATERIALS STORED IN CONSTRUCTION AREA, AND/OR IN ANY AREA OF THE BUILDING ARE TO BE SECURED IN A LOCKED AREA. ACCESS TO SUCH AREAS TO BE CONTROLLED BY THE FACILITY AND/OR GENERAL CONTRACTOR.
5. CONTRACTOR SHALL PROVIDE BARRICADES AROUND WORK AREAS AS REQUIRED TO PREVENT UNAUTHORIZED PERSONS FROM ENTERING THEREIN.
6. THE CONTRACTOR SHALL SUBMIT SAFETY PLAN FOR CONSTRUCTION MANAGER'S APPROVAL.
7. CONFINED SPACES: ALL WORK WITHIN CONFINED SPACES SHALL BE CONDUCTED IN ACCORDANCE WITH OSHA REGULATIONS.

SUMMARY OF WORK:

THE WORK OF THIS PROJECT INCLUDES HVAC UPGRADES AT NORTH ROCKLAND HIGH SCHOOL. PROVIDE MATERIALS AND SERVICES AS FOLLOWS. THE FOLLOWING IS NOT INTENDED TO BE A COMPLETE DESCRIPTION OF THE WORK; PERFORM THE WORK AS HEREINAFTER DESCRIBED IN THESE CONTRACT DOCUMENTS.

A. REMOVE EXISTING WATER COOLED CHILLER, COOLING TOWER ON ROOF, CHILLED WATER PUMPS, CONDENSER WATER PUMPS, GLYCOL FEED SYSTEM INCLUDING EXPANSION TANKS FOR CHILLED WATER LOOP AND ALL ASSOCIATED CHILLED WATER AND CONDENSER WATER PIPING AND CONTROLS.
B. PROVIDE NEW AIR-COOLED SCREW CHILLERS ON ROOF OF MECHANICAL ROOM, PROVIDE NEW CHILLED WATER PUMPS, GLYCOL FEED SYSTEM INCLUDING EXPANSION TANKS FOR CHILLED WATER LOOP AND ASSOCIATED PIPING AND CONTROLS. EQUIPMENT IS TO BE TIED INTO EXISTING BMS SYSTEM.
C. REPLACE EXISTING BOILER, HOT WATER PUMPS AND ASSOCIATED PIPING AND CONTROLS SERVING PERIMETER RADIATORS. REPLACE GLYCOL FEED SYSTEM, EXPANSION TANKS FOR HOT WATER LOOP.
D. REMOVE EXISTING DOMESTIC HOT WATER SYSTEM AND REPLACE WITH NEW DOMESTIC HOT WATER SYSTEM .
E. DEMOLISH TWO(2) EXISTING ROOFTOP AIR HANDLING UNITS FOR THE MAIN GYM ROOF. DEMOLISH EXISTING ADAPTER CURB, PIPING, VALVE CONNECTIONS AND DUCTWORK TO UNIT, AS INDICATED. FURNISH AND INSTALL TWO(2) ROOFTOP AIR HANDLING UNITS WITH NEW ADAPTER CURBS, FURNISH AND INSTALL NEW PIPING AND COIL CONTROL VALVE CONNECTIONS, AS INDICATED. INTERCONNECT UNITS TO THE EXISTING BMS.
F. FURNISH AND INSTALL FOUR (4) NEW ROOFTOP AIR HANDLING UNITS FOR THE ANNEX GYM. FURNISH AND INSTALL NEW DUCTWORK AND AIR INLETS AND OUTLETS. FURNISH AND INSTALL NEW HOT WATER PIPING, CONTROL VALVES AND PUMPS FOR COIL CONNECTIONS TO UNIT. INTERCONNECT UNITS TO THE EXISTING BMS.
G. PERFORM ALL REQUIRED CLEANING, TESTING AND AIR AND WATER BALANCING OF THE NEW EQUIPMENT.
H. PERFORM START UP AND COMMISSIONING OF THE NEW EQUIPMENT.

MECHANICAL DEMOLITION NOTES:

1. DEMOLITION/RELOCATIONS: CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND RELOCATION'S OF SERVICES, EQUIPMENT AND MATERIAL RELATING TO HIS/HER RESPECTIVE TRADE. INCLUDE IN BID THE COST TO PROVIDE DEMOLITION OF ALL ELECTRICAL EQUIPMENT AND SYSTEMS ASSOCIATED WITH THE RENOVATION WORK. ALL DEMOLITION WORK SHALL COORDINATE WITH OWNER.
2. WHERE EXISTING WALLS, FLOORS OR CEILINGS ARE REMOVED OR PENETRATED, AND WHERE EXISTING END WALLS OF THE BUILDING ARE POINTS OF CONNECTION OF ADDITIONS, ALL SERVICES, PIPING, CONDUIT, CONTROL AND/OR SWITCH DEVICES, LIGHTS, OR OTHER HVAC, PLUMBING, FIRE PROTECTION OR ELECTRICAL EQUIPMENT SHALL BE REMOVED (AND/OR RELOCATED WHERE THEY MUST REMAIN IN SERVICE, OR SERVE, AREAS BEYOND THE IMMEDIATE WORK) CONTRACTOR SHALL FIELD VERIFY CONDITIONS AT THE SITE.
3. PRIOR TO DEMOLITION CONTRACTOR SHALL REVIEW WITH OWNER ALL MATERIALS TO BE REMOVED. SHOULD THE OWNER OPT TO KEEP ANY MATERIALS THE CONTRACTOR SHALL REMOVE AND DELIVER THE PARTS TO THE OWNER ON THE SITE WHERE SO DIRECTED. OTHERWISE ALL DEMOLISHED OR REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND BE DISPOSED OF IN A LEGAL MANNER.
4. DEMOLITION SHALL INCLUDE REMOVAL OF ALL PARTS AND PIECES IN THEIR ENTIRETY BACK TO POINTS INDICATED OR IF NOT INDICATED BACK TO THEIR POINT OF SOURCE. REMOVE CONDUCTORS FROM REMAINING CONDUITS WHERE IT IS INDICATED. WHERE CONDUCTORS REMAINED IN CONDUITS-DISCONNECT, ISOLATE AND CAPPED THEM TO ENSURE SAFETY AND PROTECTION. WHERE CONDITIONS PROHIBIT TOTAL REMOVAL OF THE WORK, THE REMAINING PORTION SHALL BE CUT FLUSH WITH THE SURROUNDING SURFACE AND BE CAPPED, PLUGGED OR SEALED AND THE SURROUNDING SURFACE SHALL BE REFINISHED IN AN APPROVED MANNER.
5. MAINTAIN EXISTING UTILITIES INDICATED OR REQUIRED TO REMAIN, KEEP IN SERVICE, AND PROTECT AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN SCHEDULED WITH THE OWNER.
6. DO NOT REMOVE EXISTING STRUCTURAL WORK. DO NOT REMOVE OPERATIONAL ELEMENTS AND SAFETY-RELATED COMPONENTS IN A MANNER RESULTING IN A REDUCTION OF CAPACITIES TO PERFORM IN THE MANNER INTENDED OR RESULTING IN DECREASED OPERATIONAL LIFE, INCREASED MAINTENANCE, OR DECREASED SAFETY.
7. REMOVALS, DISCONNECTIONS, AND RELOCATIONS SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE INVOLVED AND SHALL BE EMPLOYED BY A CONTRACTOR LICENSED IN THE TRADE INVOLVED. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ACCEPTED TRADE PRACTICES.
8. PROVIDE ADEQUATE TEMPORARY SUPPORT FOR WORK TO REMAIN, TO PREVENT FAILURE. DO NOT ENDANGER OTHER WORK.
9. PROTECTION: PROVIDE ADEQUATE PROTECTION WHERE REQUIRED FOR THE PRESENT BUILDING AND ITS CONTENTS. TEMPORARY DUSTPROOF BARRIERS AND BARRICADES SHALL BE ERECTED WHERE REQUIRED FOR PROTECTION OF PERSONNEL, PROTECTION FROM DUST AND DIRT, FOR SECURITY, FIRE AND WEATHER PROTECTIVE REASONS. CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST FIRE BY EMPLOYING FIRE DEPARTMENT TYPE HOSES AND PORTABLE FIRE EXTINGUISHERS AS REQUIRED BY OSHA AND/OR THE OWNER'S INSURANCE UNDERWRITER.
10. USE TEMPORARY ENCLOSURES, OR OTHER SUITABLE METHODS TO LIMIT DUST AND DIRT RISING AND SCATTERING TO LOWEST PRACTICAL LEVEL. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
11. ALL EXISTING EQUIPMENT REQUIRED TO BE REUSED SHALL BE CLEANED, RECONDITIONED, CALIBRATED AND ADJUSTED. IN ALL INSTANCES WHERE CONTRACTOR FINDS THAT EXISTING EQUIPMENT IS DEFECTIVE TO THE POINT WHERE IT CANNOT BE PROPERLY RESTORED AND WILL NOT OPERATE PROPERLY, HE SHALL REPORT THE SPECIFIC INSTRUMENTS OR EQUIPMENT TO THE OWNER/ENGINEER FOR DIRECTIONS.
12. TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, HEATING, AIR CONDITIONING, AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING, AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE PROJECT OFFICER.
13. ELECTRICAL CONTRACTOR SHALL RING OUT AND IDENTIFY ALL CIRCUITS REMAINING IN CONTRACT AREA, AFTER DEMOLITION. REMOVE ALL CIRCUITS BACK TO POINT OF SOURCE. MARK PANEL CIRCUITS NO LONGER IN USE "SPARE".
14. CONTRACTOR IS RESPONSIBLE TO REVIEW THE DRAWINGS AND THE EXISTING CONDITIONS PERTAINING TO THIS CONTRACT WORK AND MAKE THE ARCHITECT/ ENGINEER AWARE OF ANY DEVIATIONS IN THE EXISTING CONDITIONS AND/OR DRAWINGS PERTAINING TO THIS CONTRACT WORK PRIOR TO ANY EXECUTION OF THIS SCOPE OF WORK.

ADDENDUM NOTES

SCHOOL DISTRICT WILL PURCHASE THE ROOFTOP HVAC UNITS ON STATE CONTRACT FROM THE MANUFACTURE. THE SCHOOL DISTRICT WILL ALSO PURCHASE THE CONTROL PACKAGES & PROGRAMING ON STATE CONTRACT FROM THE DISTRICTS BMS PROVIDER. THE MECHANICAL CONTRACTOR'D SCOPE IS TO DEMOLISH EXISTING UNITS AND INSTALL NEW UNITS D-1, D-2, RTU-3, 4, 5, 6

HVAC NOTES:

1. THE WORK SHALL COMPLY WITH THE 2020 BUILDING CODE OF NYS. IN ADDITIONS, THE WORK SHALL COMPLY WITH ALL OTHER RELEVANT CODES, RULES AND ORDINANCES OF THIS STATE OF NEW YORK, ALL LOCAL, STATE AND FEDERAL AUTHORITIES HAVING JURISDICTION.
2. CONTRACTOR SHALL PAY ALL FEES AND TAXES, OBTAIN ALL PERMITS AND APPROVALS, FILE THE REQUIRED DOCUMENTS AND CAUSE ALL INSPECTIONS.
3. CONTRACTOR SHALL PROVIDE ALL WORK, EQUIPMENT, LABOR AND MATERIAL REQUIRED FOR A COMPLETE AND TROUBLE FREE INSTALLATION.
4. ALL DUCTWORK ELBOWS SHALL BE EITHER LONG RADIUS OR SQUARE WITH TURNING VANES.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT, PIPING, CONTROLS, DUCTWORK, REGISTERS, SUPPORTS, DAMPERS, AND ACCESSORIES PRIOR TO FABRICATION AND INSTALLATION. SUBMIT ALL REPORTS FOR REVIEW SUCH AS TESTING, ADJUSTING, AND BALANCING, AND COMMISSIONING.
6. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS AND NOTIFY OWNER OF ANY DISCREPANCIES BEFORE COMMENCING WORK.
7. PROVIDE AN AIR BALANCE REPORT FOR THE EQUIPMENT SHOWN ON THE DRAWINGS.
8. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER TO THE SATISFACTION OF THE OWNER.
9. EXCEPT AS NOTED, ALL MATERIAL AND EQUIPMENT SHALL BE NEW AND IN GOOD CONDITION. WHERE APPLICABLE BY CODE AND/OR THESE SPECIFICATIONS, EQUIPMENT AND MATERIALS SHALL BE LABELED BY THE REQUISITE GOVERNING AGENCY.
10. SURVEY THE INSTALLATION SITE PRIOR TO BID. DETERMINE THE CONSTRAINTS OF THE EXISTING AVAILABLE SPACE PERTAINING TO EQUIPMENT SIZE AND CONFIGURATION AND EXAMINE THE CONDITIONS UNDER WHICH THE EQUIPMENT WILL BE INSTALLED. VERIFY ALL MEASUREMENTS AT THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DIMENSIONAL COMPATIBILITY OF THE DUCTWORK AND EQUIPMENT WITH THE SPACE.
11. SHIP AND DELIVER EQUIPMENT KNOCKED DOWN AS NECESSARY TO FIT THROUGH EXISTING BUILDING OPENINGS. VERIFY IN FIELD THE CONSTRAINTS OF THE EXISTING BUILDING PRIOR TO FABRICATION OF EQUIPMENTS. INCLUDE IN THE BID ALL COSTS ASSOCIATED WITH RIGGING AND DELIVERY OF EQUIPMENT AS REQUIRED BY THE EXISTING BUILDING CONDITIONS.
12. SCHEDULE AND NOTIFY THE OWNER AND BUILDING MANAGEMENT IN ADVANCE PRIOR TO SHUTDOWN OF ANY SERVICES.
13. UPON COMPLETION OF THE PROJECT, PROVIDE AS-BUILT DRAWINGS TO THE OWNER. FOR QUANTITY OF COPIES, REFER TO GENERAL SPECIFICATIONS OR AS DIRECTED BY ARCHITECT.
14. IT IS THE INTENT OF THESE CONTRACT DOCUMENTS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IF AN ITEM OF WORK IS SHOWN ON THE DRAWINGS, IT SHALL BE CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION, WHETHER SPECIFICALLY MENTIONED OR NOT.
15. RENDER FULL COOPERATION TO OTHER TRADES AND COORDINATE THE WORK WITH OTHER TRADES. THIS CONTRACTOR SHALL ASSIST IN WORKING OUT SPACE CONDITIONS.
16. PERFORM ALL CUTTING AND PATCHING NECESSARY FOR THE PROPER INSTALLATION OF THIS WORK. REPAIR ANY DAMAGE DONE BY THIS WORK AND REPAIR ANY DAMAGE CAUSED.
17. ON ACCEPTANCE OF CONTRACT, CONTRACTOR AGREES TO GUARANTEE THE WORK AND EQUIPMENT FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF INITIAL OPERATION. MANUFACTURED EQUIPMENT SHALL CARRY FULL PERIOD OF MANUFACTURER'S GUARANTEE, AND SHALL NOT BE LESS THAN ONE (1) YEAR. COMPRESSORS SHALL CARRY AN EXTENDED WARRANTY OF FIVE YEARS.

HVAC DESIGN CRITERIA

A. SITE (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2021 HANDBOOK CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
   1. 41.07°N, 73.71°W
   2. ELEVATION: 397 FT
   3. CLIMATE ZONE 5A.

B. OUTSIDE DESIGN CONDITIONS (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2013 CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
   1. HEATING DB (99.6%): 8.7°F DB
   2. COOLING DB/MCWB (1%): 86.4°F DB, 71.9°F WB

C. INSIDE DESIGN CONDITIONS (PER NYSED MANUAL OF PLANNING STANDARDS S602-6 B. AND 2015 ASHRAE HANDBOOK CH 7 TABLE 6):
   1. HEATING INDOOR SETPOINT: 72°F
   2. COOLING INDOOR SETPOINT: 78°F, 60% RH

D. ACOUSTICS (PER NYSED MANUAL OF PLANNING STANDARDS, TABLE S304-1):
   1. DESIGN REQUIREMENTS FOR HVAC SYSTEM NOISE FOR CLASSROOMS, 7-12: RC 25-30.

E. FILTRATION: MERV 13 (PER NYSED MANUAL OF PLANNING STANDARDS).

F. DEMAND CONTROL VENTILATION IS REQUIRED FOR GYMNASIUM ROOFTOP UNITS.

SEQUENCE OF OPERATIONS

1. SEE SPECIFICATIONS.

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE 2020 NYS BUILDING CODE, 2020 NYS MECHANICAL CODE, AND 2020 NYS ENERGY CONSERVATION CODE, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
2. PROVIDE A COMPLETE OPERABLE SYSTEM IN A WORKMANLIKE MANNER. OUTLINE DESCRIPTION AND EQUIPMENT; DO NOT LIMIT CONTRACTOR'S LIABILITY FOR THE INSTALLATION OF A COMPLETE OPERABLE SYSTEM
3. THE CONTRACTOR SHALL FIELD VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND NOTIFY THE OWNER OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN IN THESE DOCUMENTS. ALL DIMENSIONS AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, COORDINATE WITH ACTUAL FIELD CONDITION.
4. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FILE ALL REQUIRED CERTIFICATES OF INSURANCE WITH THE BUILDING DEPARTMENT. OBTAIN ALL REQUIRED PERMITS AND PAY ALL FEES REQUIRED.
5. COORDINATION OF ALL WORK UNDER THIS CONTRACT SHALL BE MAINTAINED TO ENSURE THE QUALITY AND TIMELY COMPLETION OF THE WORK/PROJECT.
6. THE CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED TO COMPLETE THE WORK OR TO MAKE ITS PARTS FIT TOGETHER PROPERLY WITHOUT COMPROMISING THE QUALITY OF THE WORK. RESTORE WALLS AND CEILINGS TO MATCH EXISTING.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTIONS, AND OFF ALIGNMENTS ACCORDING TO CODES AND STANDARDS OF GOOD PRACTICE.
8. THE TERM "FINISH FLOOR" SHALL MEAN THE NORMAL FINISHED SURFACE OF THE FLOOR LEVEL. ALL ELEVATIONS GIVEN FOR EXISTING BUILDINGS ARE TO FINISHED FLOOR. THE CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS FOR EXISTING STRUCTURES PRIOR TO THE COMMENCEMENT OF WORK.
9. THE CONTRACTOR SHALL PATCH AND REPAIR ALL FLOORS, WALLS CEILINGS, ETC. DAMAGED OR EXPOSED DUE TO WORK OR REMOVALS AND FINISH TO MATCH ADJOINING SURFACES.
10. ALL NEWLY INSTALLED, PATCHED WORK AND ALL AFFECTED AREAS SHALL BE PAINTED, ALL PAINTING WORK SHALL BE PERFORMED TO COVER THE ENTIRE HORIZONTAL OR VERTICAL SURFACE TO THE CLOSEST CORNER IN ALL FOUR DIRECTIONS. COLOR TO MATCH EXISTING CONDITIONS.
11. WORK NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE OWNER, SHALL BE INCLUDED IN THE WORK THE SAME AS IF HEREIN SPECIFIED OR INDICATED.
12. DURING CONSTRUCTION, TEMPORARY BAFFLES TO SEAL OPENINGS TO PREVENT DUST AND DIRT FROM FILTERING INTO OCCUPIED AREAS ARE TO BE PROVIDED BY CONTRACTOR.
13. ALL WORK SHALL BE INSTALLED SO THAT ALL PARTS REQUIRED ARE READILY ACCESSIBLE FOR INSPECTION, OPERATION, MAINTENANCE AND REPAIR.
14. CONTRACTOR SHALL MAINTAIN FREE AND UNOBSTRUCTED ACCESS FROM ALL FLOORS AND ADJACENT SPACES INTO THE EXISTING FIRE STAIRS TO OUTSIDE OF THE BUILDING AT ALL TIMES.
15. CONTRACTOR SHALL MAINTAIN FREE FROM DEBRIS AND ACCUMULATED REFUSE, AND SHALL HAVE SOLE RESPONSIBILITY FOR PROTECTING ALL DANGEROUS AREAS FROM ENTRY BY UNAUTHORIZED PARTIES. SITE WILL BE LEFT BROOM CLEAN AT THE END OF EACH WORKING DAY.
16. PROVIDE BARRICADES AROUND WORK AREAS AS REQUIRED TO PREVENT BUILDING OCCUPANTS AND OTHER UNAUTHORIZED PERSONS FROM ENTERING THEREIN.
17. CONTRACTOR IS TO NOTIFY IMMEDIATELY THE OWNER OF ANY HAZARDOUS MATERIALS ENCOUNTERED IN ENCLOSED SPACES. ANY SUCH MATERIALS SHALL BE PROMPTLY TESTED AND REMOVED BY A QUALIFIED CONSULTANT AS PER D.O.B. STANDARDS & THE LAW.
18. CONTRACTOR SHALL RELOCATE AND PATCH ANY EXISTING ITEMS INTERFERING WITH THE INSTALLATION OF NEW WORK WHETHER SHOWN OR NOT ON THE DRAWINGS AT NO COST TO OWNER.
19. THERE WILL BE NO CHANGE IN USE, EGRESS OR OCCUPANCY BECAUSE OF THE WORK OF THIS CONTRACT.
20. THE MECHANICAL CONTRACTOR SHALL PROVIDE POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO PNEUMATIC DAMPER AND VALVE OPERATORS, THERMOSTATS, AUTOMATIC CONTROL INSTRUMENTATION. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
21. FOR POWERED EQUIPMENT INTENDED FOR DEMOLITION, COORDINATE WITH THE ELECTRICAL TRADE TO ENSURE THAT POWER SUPPLIES AND DISCONNECT SWITCHES ASSOCIATED WITH THE EQUIPMENT ARE SHUT-OFF AND DISCONNECTED.
22. TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, STEAM, HEATING, AIR CONDITIONING AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING, AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE PROJECT OFFICER.
23. PROVIDE EQUIPMENT MAINTENANCE MANUALS AND REQUIRED EQUIPMENT LABELS FOR ALL MECHANICAL, ELECTRICAL AND SERVICE HOT WATER HEATING EQUIPMENT. TO THE AUTHORITY WITHIN 90 DAYS AFTER SYSTEM ACCEPTANCE.
24. WHERE MANUFACTURERS NAMES AND PRODUCT NUMBERS ARE INDICATED ON THE DRAWINGS IT SHALL BE CONSTRUED TO MEAN THE ESTABLISHING OF QUALITY AND PERFORMANCE STANDARDS OF SUCH ITEMS. ALL OTHER PRODUCTS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THEY SHALL BE DEEMED EQUAL.
25. ALL WORK ON THESE DRAWINGS SHALL BE CONSIDERED NEW WORK WHETHER STATED OR NOT EXCEPT WHERE SPECIFICALLY NOTED AS "EXISTING TO REMAIN".
26. DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER, SHALL BE INCLUDED IN THE WORK THE SAME AS IF HEREIN SPECIFIED OR INDICATED.
27. THE WORD "PROVIDE" USED ON DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT MEANS "FURNISH AND INSTALL". WHEN ONLY ONE PART OF ACTION IS REQUIRED, EITHER "FURNISH" OR "INSTALL" WILL BE USED ACCORDINGLY (TYP., U.O.W.N.).
28. ALL DISCONNECT SWITCHES, STARTERS, AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
29. DESIGN LOADS ASSOCIATED WITH HEATING, VENTILATING, AND AIR CONDITIONING HAVE BEEN DETERMINED IN ACCORDANCE WITH ANSI/ASHRAE/ACCA STANDARD 183.

CALCULATIONS

COMBUSTION AIR REQUIREMENTS FOR EMERGENCY GENERATOR.

1. EXISTING EMERGENCY GENERATOR RATED: 55 KW
2. AS PER NYS FGC 304.6.2, ONE PERMANENT OPENING REQUIRES MINIMUM FREE AREA OF 734 SQ MM PER 1 KW.
3. FREE AREA REQUIRED IS 40,370 SQ MM = 61.71 SQ IN = 0.43 SQ FT.
4. A 36 x 18 FRESH AIR OPENING UP THROUGH ROOF COMPLIES WITH THE REQUIRED COMBUSTION AIR FOR THE EMERGENCY GENERATOR.

COMBUSTION AIR REQUIREMENTS FOR THE BOILERS.

1. DESIGN COMPLIES WITH THE MANUFACTURER'S INSTRUCTIONS AS PER NYS FGC 304.1
2. MIN. FREE AREA OF 1 SQ IN PER 3,000 BTU/H.

1/2" 0 1 — IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
100 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-9200
www.shilale.com

Drawing Title
MECHANICAL GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS

Drawing No.
M-001

SHEETMETAL LEGEND

SINGLE LINE	DOUBLE LINE					
	UP DN	SUPPLY DUCT (UP & DN)				SIDEWALL SUPPLY REGISTER (SR)
	UP DN	RETURN OR EXHAUST DUCT (UP & DN)				SIDEWALL RETURN REGISTER (RR)
12 x 10	12 x 10	RECTANGULAR DUCTWORK (WIDTH X DEPTH)		TCD	TCD	AUTOMATIC TEMPERATURE CONTROL DAMPER (OPPOSED BLADE)
12 x 10	12 x 10	FLAT OVAL DUCTWORK (WIDTH X DEPTH)				FLEXIBLE CONNECTOR. INSTALL AT ALL MOTOR DRIVEN EQUIPMENT
10"ø	10"ø	ROUND DUCTWORK (SIZE, DIAMETER)				FLEXIBLE DUCT (MAXIMUM LENGTH NOT TO EXCEED 36 INCHES)
		VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES)				TRANSITION WITH FLAT SIDE
	W R	RADIUS ELBOW (I.D. RADIUS IS DUCT WIDTH)				TRANSITION ON CENTER
		RADIUSED TEE WITH VOLUME DAMPERS (I.D. RADIUS IS DUCT WIDTH)				RECTANGULAR TO ROUND TRANSITION
		SQUARE THROATED TEE WITH TURNING VANES & VOLUME DAMPERS				BRANCH TAKE-OFF WITH VOLUME DAMPER
DN	DN	CHANGE IN ELEVATION (UP) (DN) IN DIRECTION OF AIR FLOW			W R R	RADIUS OFFSET (I.D. RADIUS IS DUCT WIDTH)
		VOLUME DAMPER (SINGLE OR OPPOSED BLADE) AS SPECIFIED				ROUND TAP TO RECTANGULAR DUCT (SPIN-IN-FITTING OR BELL MOUTH) & VOLUME DAMPER
AD	AD	ACCESS DOOR (BOTTOM SHOWN)		SD,FD,OR FD/SD	SD,FD,OR FD/SD	SMOKE DAMPER, FIRE DAMPER, OR SMOKE/FIRE DAMPER W/ACCESS DOOR
AD	AD	ACCESS DOOR (SIDE SHOWN)				SUPPLY DUCT WITH SPLITTER DAMPER AND SQUARE-THROAT ELBOW
		DUCTWORK TO BE REMOVED, INCLUDING ALL SUPPORTS AND HANGERS				SUPPLY DUCT WITH SPLITTER DAMPER AND RADIUS ELBOW (I.D. RADIUS IS DUCT WIDTH)
		CEILING DIFFUSER (CD) W/SQUARE NECK				
		CEILING DIFFUSER (CD) W/ROUND NECK				
		CEILING EXHAUST REGISTER/GRILLE (ER)/(EG) OR RETURN REGISTER/GRILLE (RR)/(RG) W/SQUARE NECK				
		CEILING EXHAUST REGISTER/GRILLE (ER)/(EG) OR RETURN REGISTER/GRILLE (RR)/(RG) W/ROUND NECK				

DEMOLISH

A — A SECTION A-A

DETAIL NUMBER

DRAWING NUMBER WHERE DETAIL IS DRAWN — H501

DETAIL INDICATION

SECTION NUMBER

DRAWING NUMBER WHERE SECTION IS DRAWN — A / H001

DIRECTION OF VIEW

SECTION INDICATION

PIPING LEGEND

CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY TO TOWER
CWR	CONDENSER WATER RETURN FROM TOWER
CD	CONDENSATE DRAIN
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
MUW	MAKE UP WATER
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
ATV	ATMOSPHERIC VENT
	EXISTING TO REMAIN
X	EXISTING TO BE REMOVED
	POINT OF CONNECTION
	POINT OF DISCONNECTION

SPECIALTY LEGEND

	AUTOMATIC AIR VENT
MV	MANUAL AIR VENT
	AIR SEPARATOR
	FLEXIBLE CONNECTOR
	VENTURI FLOWMETER
	FLOWLIMITING FITTING
	PRESSURE GAUGE W/NEEDLE VALVE
	THERMOMETER
	THERMOMETER WELL
FS	FLOW SWITCH
PS	PRESSURE SWITCH
	Y-LINE STRAINER
	Y-LINE STRAINER W/VALVE
T	THERMOSTAT (48" AFF) (ELECTRIC) (REFER TO SPECIFICATION)
S	DUCT SMOKE DETECTOR
H	HUMIDITY SENSOR
C	CO2 SENSOR

FITTING LEGEND

	ELBOW TURNED UP
	ELBOW TURNED DOWN
	TEE TURNED UP
	TEE TURNED DOWN
	TEE (SIDE)
	RISE OR DROP IN PIPE
	UNION
	FLANGE
	PIPE CAP
	CLEANOUT W/ PLUG
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
UP	PIPE PITCH UP
DN	PIPE PITCH DOWN

VALVE LEGEND

	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	GLOBE VALVE
	CALIBRATED BALANCING VALVE
	PUMP TRIPLE DUTY VALVE
	LUBRICATED PLUG VALVE
	ANGLE VALVE
	CHECK VALVE
	RELIEF VALVE
	HOSE END DRAIN VALVE
	MODULATING TWO WAY VALVE
	MODULATING THREE WAY VALVE
	ELECTRIC MOTOR ACTUATOR
	SOLENOID ACTUATOR
BS	BOILER EMERGENCY SHUTOFF-RED

ABBREVIATIONS

AD	ACCESS DOOR
AF	AIR FILTER
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
AV	AUTOMATIC AIR VENT
AMP	AMPERE
BHP	BRAKE HORSEPOWER
BOIL.	BOILER
BTUH	BRITISH THERMAL UNITS PER HOUR
CAI	COMBUSTION AIR INTAKE
CC	COOLING COIL
CD	CEILING DIFFUSER
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CO	CLEAN OUT
CONT.	CONTINUED
CR	CEILING RETURN
CT	COOLING TOWER
CW	COLD WATER
DEG, °	DEGREES
dB	DECIBELS
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DPT	DEW POINT TEMPERATURE
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
ER	EXHAUST REGISTER
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EX. EXIST.	EXISTING
FD	FIRE DAMPER
FD/SD	COMBINATION FIRE/SMOKE DAMPER
FF	FINAL FILTER
FL	FLOOR
FLA	FULL LOAD AMPS
FLD	FLOOR DRAIN
FM	WATER FLOW MEASURING STATION
FPM	FEET PER MINUTE
FT	FEET
GAL	GALLONS
GPM	GALLONS PER MINUTE
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
HC	HEATING COIL
HE	HEAT EXCHANGER
HGT	HEIGHT
HP	HORSEPOWER OR HEAT PUMP
HWB	HOT WATER BOILER
HZ	HERTZ
IN	INCH
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT
LWT	LEAVING WATER TEMPERATURE
LxWxH	LENGTH BY WIDTH BY HEIGHT
MAX	MAXIMUM
MBH	ONE THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
MIN	MINIMUM
NIC	NOT IN CONTRACT
NOM	NOMINAL
OA	OUTSIDE AIR
P	PUMP
PD	PRESSURE DROP
PF	PREFILTER
PH	PREHEAT COIL
PRV	PRESSURE REDUCING VALVE/POWER ROOF VENTILATOR
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
REQD	REQUIRED
RF	RETURN AIR FAN
RG	RETURN GRILLE
RH	REHEAT COIL
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SF	SUPPLY AIR FAN
SD	SMOKE DAMPER
SG	SPECIFIC GRAVITY
SP	STATIC PRESSURE
SR	SUPPLY REGISTER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SENS	SENSIBLE
SF	SQUARE FEET
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
TEMP	TEMPERATURE
THK	THICK
TG	TOP GRILLE (WALL TYPE)
TO	TRANSFER OPENING
TR	TOP REGISTER (WALL TYPE)
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UTR	UP TO ROOF
V	VENT, VOLTS, OR VOLUME
VA	VENTILATION AIR
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL)
VIV	VARIABLE INLET VANE
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
W	WATTS, WIDTH
WBT	WET BULB TEMPERATURE (°F)
WC	WATER COLUMN
WG	WATER GAUGE
WMS	WIRE MESH SCREEN
WPD	WATER PRESSURE DROP

1/2 — 0 — 1

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by	A.W	Scale	AS NOTED
Checked by	P.C	Date	12/06/23
Project No.	43065		

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

196 Haverstraw Road, Suffern NY 10901

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-8200
www.shilale.com

Drawing Title
MECHANICAL LEGEND, SYMBOLS AND ABBREVIATIONS

Drawing No.
M-002

AIR COOLED SCREW CHILLER SCHEDULE

CHILLER TAG			CH-1 AND CH-2
LOCATION			MECHANICAL ROOM - ROOF
MAX DIMENSIONS (OVERALL)	LENGTH X WIDTH (IN)		346 X 88
	HEIGHT (IN)		99
	OPERATING WEIGHT (LBS)		19,192
REFRIGERATION CAPACITY (TONS), EACH			275
COMPRESSORS	QUANTITY		2
	CAPACITY STEPS		-
	KW INPUT (TOTAL)		-
EVAPORATOR	TEMP. ENT °F		54
	TEMP. LVG °F		44
	GPM		649.7
	MAX PD - FT.		16.3
	FOULING FACTOR		0.0001
CONDENSER	AMBIENT AIR TEMP °F		95
	FANS PER MODULE	QUANTITY	12
		FAN MOTOR HP	-
		FAN MOTOR POWER PER FAN	-
ELECTRICAL DATA (PER POWER SUPPLY)	QUANTITY (# OF POWER SUPPLIES)		1
	VOLTS/PH/HZ		460/3/60
	MCA (AMPS)		483.6
	MOCP (AMPS)		600
REFRIGERANT DATA	REFRIGERANT TYPE		R-513A
	# OF CIRCUITS		2
	REFRIGERANT CHARGE EACH(LB)		293/310
	REFRIGERANT SAFETY CLASS		A1
DIMENSION OF CONDENSER STEEL DUNNAGE			SEE STRUCTURAL PLANS
A-WEIGHTED SOUND PRESSURE (DBA)			70
TOTAL SYSTEM, COOLING EFFICIENCY(KW/TON)			1.34
RATED EFFICIENCY, AHRI EER			9.989
IPLV (BTU/Wh)			18.80
IPLV (EER)			18.80
BASIS OF DESIGN	MANUFACTURER		CARRIER
	MODEL		30XV275M
	SERIAL		NA

REMARKS
1. PROVIDE OPERATIONS AND MAINTENANCE MANUALS, CONTRACTOR TO INSTALL UNIT PER MFGR'S IOM MANUAL.
2. SHIP CHILLER PACKAGED PER EACH MODULE.
3. PROVIDE DIGITAL SCROLL LEAD COMPRESSOR.
4. PROVIDE VARIABLE SPEED DRIVE.
5. PROVIDE ISOLATION VALVES ON EVAPORATOR AND CONDENSER.
6. PROVIDE ENERGY MANAGEMENT MODULE AND BACNET CARD.
7. PROVIDE FINE MESH STRAINER ON EACH EVAPORATOR AND CONDENSER BRANCH LINE.
8. PROVIDE MICROPROCESSOR CONTROL FOR EACH CHILLER WITH BACNET BMS INTERFACE FOR MONITORING.
9. PROVIDE MINIMUM 3' CLEARANCE IN ALL DIRECTIONS FOR SERVICE.
10. PROVIDE DISCONNECT SWITCH INSTALLED BY FACTORY.

PIPE INSULATION SCHEDULE

FLUID	THICKNESS	OPERATING TEMP RANGE, °F
CHILLED WATER (LESS THAN 1-1/2")	0.5"	40-60
CHILLED WATER (1-1/2" AND GREATER)	1.0"	40-60
CONDENSER WATER (ALL SIZES)	NONE	60-105
MAKE-UP WATER (ALL SIZES)	0.5"	40-60
HWS&R (LESS THAN 1-1/2")	1.5"	141-200
HWS&R (1-1/2" AND GREATER)	2.0"	141-200
HTS&R(LESS THAN 1-1/2")	4.0"	251-350
HTS&R(1-1/2" AND GREATER)	4.5"	251-350
REFRIGERANT (LESS THAN 1-1/2")	1.0"	<40

N.T.C.

PIPE SIZE SCHEDULE

PIPE SIZE	FLOW RANGE
3/4"	0-4 GPM
1"	5-7.5 GPM
1-1/4"	8-16 GPM
1-1/2"	17-24 GPM
2"	25-48 GPM
2-1/2"	49-77 GPM
3"	78-140 GPM
4"	141-280 GPM
5"	281-500 GPM
6"	501-800 GPM

MINIMUM PIPE SIZES SHALL BE PROVIDED AS SCHEDULED ABOVE. WHERE PIPE SIZES INDICATED ELSEWHERE WITHIN DRAWINGS CONFLICT WITH SCHEDULED FLOW, THE LARGER SIZE PIPE SHALL BE PROVIDED. MINIMUM PIPE SIZE 3/4".

WATER PUMP SCHEDULE (SEE DRAWING M-301)

UNIT NUMBER		HWP-4, HWP-5	HWP-6, HWP-7	HWP-8, HWP-9, HWP-10, HWP-11	P-1, P-2,P-3 EXISTING	P-4, P-5, P-6 EXISTING	P-7, P-8	P-9, P-10
LOCATION		MECHANICAL RM	MECHANICAL RM	MECHANICAL RM	CHILLER RM	CHILLER RM	ANNEX GYM MEZZANINE	MECHANICAL RM
SYSTEM SERVICE		BOILER B-3, B-4	BOILER B-3, B-4	BOILER B-3, B-4 CIRCULATORS	CHILLED WATER LOOP	PRIMARY CHILLED WATER LOOP CH-1, CH-2	ROOFTOP UNITS RTU-3, RTU-4, RTU-5. RTU-6	IWH-1, IWH-2
TYPE		BASE MOUNTED END SUCTION	CLOSE COUPLED IN-LINE CENTRIFUGAL	CLOSE COUPLED IN-LINE CENTRIFUGAL	HORIZONTAL SPLIT CASE - DOUBLE SUCTION	HORIZONTAL SPLIT CASE - DOUBLE SUCTION	CLOSE COUPLED IN-LINE CENTRIFUGAL ECM	CLOSE COUPLED IN-LINE CENTRIFUGAL
PUMP DATA	IMPELLER DIA. (IN)	9.5	6	N/A	13.75	10.5	3.75	4.375
	SUCTION CONN. (IN)	2.5	1.5	N/A	6	6	2	1
	DISCHARGE CONN. (IN)	2	1.5	N/A	6	6	2	1
	CAPACITY (GPM)	150	35	150	463	850	49.2	27
	TOTAL HD (FT.)	70	35	20	190	80	10	10
	WORKING FLUID	WATER - 30% PG	WATER - 30% PG	WATER - 30% PG	WATER - 30% PG	WATER - 30% PG	WATER	WATER
	FLUID TEMP °F	160	160	160	44	44	140	180
MOTOR	TYPE	NEMA PREMIUM, VFD READY	NEMA	NEMA	EXISTING NEMA PREMIUM, VFD READY	EXISTING NEMA PREMIUM, VFD READY	NEMA	NEMA
	H.P.	7.5	1	3	40	25	0.25	0.25
	RATED R.P.M.	1800	1800	N/A	1750	1750	1800	1800
	DUTY POINT R.P.M.	1538	1681	2525	1628	1601	1653	1437
	ENCL. TYPE	ODP	ODP	ODP	ODP	ODP	ODP	ODP
	V/PH/HZ	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/1/60	460/3/60
	DUTY POINT BHP	3.56	0.534	1.19	32	21	0.174	0.119
	DUTY POINT EFF. (%)	72.8	57.5	N/A	70.0	75	70.2	55.2
OPERATING WEIGHT (LB)		350	84	50	EXIZTING	EXISTING	60	46
PUMP BASE DIMENSIONS (L x W) (IN)		35 x 15	NA - SUPPORTED FROM CEILING	NA - SUPPORTED FROM FLOOR	EXISTING	EXISTING	NA- SUPPORTED FROM CEILING	NA- SUPPORTED FROM CEILING
BASIS OF DESIGN	MANUFACTURER	BELL & GOSSETT	BELL & GOSSETT	BELL & GOSSETT	EXISTING	EXISTING	BELL & GOSSETT ECM	BELL & GOSSETT
	MODEL	e-1510-2BD-SS-213T	e-90 1.5AB	ECOCIRC XL 45-375	EXISTING	EXISTING	e-90 2AAC ECM	e-90E

REMARKS
1. PROVIDE OPERATIONS AND MAINTENANCE MANUALS.
2. PROVIDE NEW 6" TALL EQUIPMENT PAD, EXTEND 6" BEYOND EQUIPMENT BASE IN ALL DIRECTIONS.
3. PROVIDE VIBRATION ISOLATORS.
4. PROVIDE VFD FOR ALL UNITS WITH 5 MOTOR HP AND GREATER. PROVIDE MOTOR STARTER/DISCONNECT FOR ALL OTHER PUMPS.
5. ELECTRICAL MOTORS SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES C405.8(1) THOUGH C405.8(4) WHEN TESTED AND RATED IN ACCORDANCE WITH THE DOE 10 CFR 431.
6. CHILLED WATER PUMPS P-4, P-5, AND P-6 TO BE REFURNISHED, NEW VFD COMPATIBLE MOTORS AND VFD'S.

BOILER-BURNER UNIT SCHEDULE

UNIT NO		B-3, B-4
LOCATION		MECHANICAL ROOM
TYPE		CONDENSING
RATING	GROSS I.B.R. OUTPUT (BTU/HR)	1,419,000
	MIN OVERALL BOILER EFFICIENCY (%)	94.6
	NET I.B.R. OUTPUT (WATER) @ 100% (BTU/H)	NA
	TURNDOWN RATIO	20:1
DESIGN HOT WATER SUPPLY TEMPERATURE (°F)		180
DESIGN HOT WATER RETURN TEMPERATURE (°F)		160
SYSTEM DESIGN PRESSURE (PSI)		12
MAX ALLOWABLE OPERATING PRESSURE (PSIG)		160
FLUE OUTLET & AIR INTAKE SIZE (INCHES)		6
SUPPLY OUTLET SIZE (INCHES)		4
RETURN INLET SIZE (INCHES)		4
FUEL DATA	GAS CONNECTION, NPT (IN)	2
	GAS FIRING RATE (CFH)	1500
	INLET PRESSURE RANGE (IN. WC)	4.0 - 14
ELECTRICAL DATA	VOLTS/PH/HZ	120/1/60
	POWER, FLA	16
	OPERATING AMPS, MCA	-
OVERALL DIMENSIONS WITHOUT CONTROLS (L X W X H) (INCHES)		57.4 X 28 X 78
HOUSE KEEPING CONCRETE PAD DIMENSIONS (INCHES)		-
OPERATING WEIGHT (LBS)		1654
BASIS OF DESIGN	BOILER MANUFACTURER	AERCO
	BOILER MANUFACTURER & MODEL NO.	BENCHMARK 1500

REMARKS
1. PROVIDE OPERATIONS AND MAINTENANCE MANUALS, CONTRACTOR TO INSTALL UNIT PER MFGR'S IOM MANUAL.
2. SHIP BOILER PACKAGED AND SHOULD FIT THROUGH STANDARD 3 FOOT DOOR WIDTH.
3. VERIFY IN FIELD CONNECTION LOCATIONS AND CLEARANCES FOR BOILERS, REFER TO MANUFACTURER'S DOCUMENTS.
4. PROVIDE CONTROL PANEL.
5. NEW YORK STATE EDUCATION DEPARTMENT CONTROL COMPLIANCE, WIRING, AND OTHER EQUIPMENT AS NECESSARY TO SATISFY THE SEQUENCE OF OPERATION.
6. VENTLESS GAS TRAIN
7. BOILER SHALL UTILIZE NON-METALLIC VENT.
8. CONTROLLER SHALL DISPLAY AN ALERT WHEN O2 LEVEL IS ABOVE OR BELOW CRITICAL VALUES.
9. COMBUSTION O2 LEVELS SHALL NOTE EXCEED 7% THROUGHOUT ENTIRE FIRING RANGE.
10. BOILER MANUFACTURER TO PROVIDE AND CONTROL FIELD INSTALLED, MOTORIZED ISOLATION VALVES ON EACH BOILER.
11. PROVIDE BOILER SEQUENCING WITH HW RESET.
12. BOILER SHALL BE EQUIPPED WITH COMBUSTION AIR TEMPERATUER COMPENSATION TO AUTOMATICALLY COMPENSATE FOR AIR DENSITY CHANGES BY ADJUSTING OXYGEN AND OPTIMIZE THE COMBUSTION EFFICIENCY UNDER ALL SEASONAL TEMPERATURE CHANGES.
13. BOILER STAGING POINT NOT TO EXCEED 40%
14. BOILER MANUFACTURER TO PROVIDE 10 YEAR NON-PRORATED HEAT EXCHANGER WARRANTY.
15. BOILER MANUFACTURER TO PROVIDE 2 YEAR NON-PRORATED CONTROLLER WARRANTY.
16. BOILER MANUFACTURER TO PROVIDE LETTER OF GUARANTEE FOR AS BUILT FLUE AND COMBUSTION AIR INSTALLATION.
17. PROVIDE CONDENSATE NEUTRALIZER FOR EACH BOILER AND COMMON FLUE DRAINS.

COMBUSTION AIR DAMPER SCHEDULE

MARK	SERVICE	SIZE (WxH, IN)	BASIS OF DESIGN
D-1	COMBUSTION AIR (WH-1)	36X36	RUSKIN CD50

EXPANSION TANK SCHEDULE

UNIT #	SERVICE	LOCATION	SYSTEM TEMP RANGE		INITIAL PRESS. IN TANK PSIG	MIN. VOLUME GAL	ACCEPT VOLUME GAL	PIPE SIZE TO TANK	WEIGHT (LBS)	BASIS OF DESIGN	
			MIN °F	MAX °F						MANUFACTURER	MODEL #
ET-1	CHILLED WATER	BOILER RM	40	90	5	80	80	1	928	BELL & GOSSETT	B-300
ET-2	HOT WATER	BOILER RM	140	190	12	50	34.56	1-1/2	651	BELL & GOSSETT	B-200

EXPANSION TANK SCHEDULE NOTES:
1. PROVIDE HORIZONTAL, ASME BLADDER EXPANSION TANK FULLY CHARGED TO MEET THE REQUIREMENTS OF THIS SCHEDULE.

WATER MAKE-UP UNIT

UNIT NO.		MU-1	MU-2
PUMP DATA	FLOW RATE (GPM)	5	5
	MAX. PRESSURE (PSIG)	60	60
	RPM	3600	3600
	HP	3/4	3/4
	V/PH/Hz	115/1/60	115/1/60
TANK SIZE (GAL)		55	55
UNIT DIMENSIONS (LxWxH)(IN)		30 x 30 x 60	30 x 30 x 60
UNIT WEIGHT (LBS)		600	600

REMARKS:
1. PROVIDE A PACKAGED MAKE-UP UNIT WHICH SHALL BE CAPABLE OF MAINTAINING THE SYSTEM FILL PRESSURE AT 30 PSIG. PROVIDE A POLYETHYLENE TANK WITH REMOVABLE LID, STRAINER, ISOLATION VALVES, PUMP WITH OPEN DRIP PROOF MOTOR, CHECK/BALANCING VALVE, EXPANSION TANK, DISCHARGE PRESSURE GAUGE, STEEL PIPING, LOW LEVEL CUT-OUT, AND CONTROL/ALARM PANEL WITH INDICATOR LIGHTS IN A NEMA 4 ENCLOSURE.
2. REFER TO DETAIL 7/M502 FOR PIPING AND INSTALLATION.
3. PROVIDE OPERATION AND MAINTENANCE MANUAL.
4. BASIS OF DESIGN: BELL & GOSSETT GMU-60.

AIR SEPARATOR SCHEDULE

UNIT #	SERVICE	LOCATION	TYPE	AIR SEPARATOR			OPERATING WEIGHT (LBS)	BASIS OF DESIGN	
				SIZE (IN)	FLOW (GPM)	PRESS. DROP (FT H20)		MANUFACTURER	MODEL #
AS-1	CHILLED WATER	MECHANICAL RM	COALESCING AIR & DIRT	8	480	0.3	1083	BELL & GOSSETT	CRS-8F
AS-2	HOT WATER	MECHANICAL RM	COALESCING AIR & DIRT	8	480	0.3	1083	BELL & GOSSETT	CRS-8F

CHEMICAL SHOT FEEDER SCHEDULE

UNIT #	SERVICE	LOCATION	TYPE	SIZE (GAL)	MAX. PRESS. (PSIG)	WEIGHT (LBS)	BASIS OF DESIGN	
							MANUFACTURER	MODEL #
CF-1	CHILLED WATER	BOILER RM	VERTICAL BY-PASS	5	300	38	NEPTUNE	DBF-5HP
CF-2	HOT WATER	BOILER RM	VERTICAL BY-PASS	5	300	38	NEPTUNE	DBF-5HP

DOMESTIC INDIRECT WATER HEATER SCHEDULE

UNIT #	SERVICE	LOCATION	CAPACITY (GAL)	WATER TEMP RANGE		BASIS OF DESIGN	
				INLET °F	OUTLET °F	MANUFACTURER	MODEL #
IWH-1	HOT WATER	BOILER RM	200	40	140	AO SMITH	HWGV200ASW660
IWH-2	HOT WATER	BOILER RM	200	40	140	AO SMITH	HWGV200ASW660

INDIRECT WATER HEATER SCHEDULE NOTES:
1. PROVIDE 210 GALLON 2-PORT BUFFER TANK, ASME CODE SECTION VIIIM MAX PRESSURE 125 PSIG, MAX FLOW RATE 55 GPM.

1/2 0 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL, SED# 50-02-01-06-0-010-037
COUNTY OF ROCKLAND
108 Ramapo Road, Thiells NY 10984

MICHAEL SHILAE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilae.com

Drawing Title
MECHANICAL SCHEDULES - 1

Drawing No.
M-003

MECHANICAL VENTILATION SCHEDULE

ROOM	OCCUPANCY CLASSIFICATION	FLOOR AREA (FT^2)	ROOM VOLUME (FT^3)	OCCUPANT LOAD (OCCUPANT/1,000 FT^2)	# OF OCCUPANTS	REQUIRED CFM/OCCUPANT	REQUIRED CFM/FT^2	BREATHING ZONE OUTDOOR AIRFLOW (CFM)	ZONE DISTRIBUTION EFFECTIVENESS	TOTAL ROOM OUTDOOR AIR REQUIRED (CFM)	ACTUAL ROOM OUTDOOR AIRFLOW RATE (CFM)	TOTAL SUPPLY AIRFLOW (CFM)	AIR CHANGE RATE (ACH)
									COOLING	COOLING	COOLING	COOLING	COOLING
MAIN GYM	GYM	12736	318400	7	89	20	0.18	4076	0.8	5094	5095	9000	1.7
ANNEX GYM	GYM	11810	295250	7	83	20	0.18	3779	0.8	4724	4725	9000	1.8

MECHANICAL VENTILATION SCHEDULE NOTES :
1. ACTUAL OUTDOOR AIR VENTILATION SUPPLY IS BASED OFF MAX OCCUPANCY POSTED IN GYMNASIUM

ROOFTOP HEAT PUMP UNIT SCHEDULE

UNIT #	AREA SERVED	SUPPLY FAN					RETURN/EXHAUST FAN				COOLING					HEATING – HEAT PUMP			HEATING COIL (30% GLYCOL)				FILTER	ELECTRICAL			WEIGHT (LBS)	MAKE & MODEL NO.	REMARKS
		AIRFLOW (CFM)	OUTSIDE AIR (CFM)	ESP (IN WC)	TSP (IN WC)	MOTOR (hP)	AIRFLOW (CFM)	ESP (IN WC)	TSP (IN WC)	MOTOR (hP)	NOMINAL CAPACITY (TONS)	REFRIG.	TOTAL CAPACITY (MBH)	SENS. CAPACITY (MBH)	EER	CONDENSER EAT (°F DB)	EDB/LDB (°F)	TOTAL CAPACITY (MBH)	COP	EDB/LDB (°F)	FLOW (GPM)	EWT/LWT (°F)	TOTAL CAPACITY (MBH)	MERV	MCA	MAX FUSE SIZE	VOLT/PH/HZ			
RTU-D1	MAIN GYM	9000	4500	1.25	3.35	10	6049	1.0	2.23	5	40	R410A	384.4	233.1	11.0	95	69.5/104.1	368.5	3.2	69.5/99.8	30.6	180/160	299.2	14	90.3	100	460/3/60	7912	TRANE HORIZON OANE480A4	
RTU-D2	MAIN GYM	9000	4500	1.25	3.35	10	6049	1.0	2.23	5	40	R410A	384.4	233.1	11.0	95	69.5/104.1	368.5	3.2	69.5/99.8	30.6	180/160	299.2	14	90.3	100	460/3/60	7912	TRANE HORIZON OANE480A4	
RTU-3	ANNEX GYM	4000	2250	1.50	3.25	5	2431	1.0	2.18	1.5	15	R410A	162.8	117.4	10.6	95	60.8/84.7	110.5	3.2	60.8/115.7	24.6	180/160	240.2	14	42.3	50	460/3/60	3914	TRANE HORIZON OADG015C3	
RTU-4	ANNEX GYM	4000	2250	1.50	3.25	5	2431	1.0	2.18	1.5	15	R410A	162.8	117.4	10.6	95	60.8/84.7	110.5	3.2	60.8/115.7	24.6	180/160	240.2	14	42.3	50	460/3/60	3914	TRANE HORIZON OADG015C3	
RTU-5	ANNEX GYM	4000	2250	1.50	3.25	5	2431	1.0	2.18	1.5	15	R410A	162.8	117.4	10.6	95	60.8/84.7	110.5	3.2	60.8/115.7	24.6	180/160	240.2	14	42.3	50	460/3/60	3914	TRANE HORIZON OADG015C3	
RTU-6	ANNEX GYM	4000	2250	1.50	3.25	5	2431	1.0	2.18	1.5	15	R410A	162.8	117.4	10.6	95	60.8/84.7	110.5	3.2	60.8/115.7	24.6	180/160	240.2	14	42.3	50	460/3/60	3914	TRANE HORIZON OADG015C3	

REMARKS:
1. BASIS OF DESIGN IS BY TRANE OR APPROVED EQUAL.
2. RTU - D1 & D2 TO HAVE ADAPTER CURBS.
3. RTU - 3, 4, 5, 6, MECHANICAL CONTRACTOR TO PROVIDE NEW 14" HIGH INSULATED ROOF CURB WITH VIBRATION ISOLATORS, GENERAL CONTRACTOR TO INSTALL.
4. PROVIDE SUPPLY AND RETURN SMOKE DETECTORS (FACTORY INSTALLED) TO SHUTDOWN UNIT.
5. PROVIDE 4" PLEATED AIR FILTERS, MERV 14 RATING, SEE SPEC 234100 FOR MORE INFO. MC TO REPLACE ALL FILTERS PRIOR TO TURN OVER.
6. PROVIDE START-UP BY MANUFACTURER'S AUTHORIZED TECHNICIAN.
7. PROVIDE FACTORY INSTALLED 0-100% ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL.
8. UNIT TO BE DELIVERED VIA CRANES, ALL NECESSARY PERMITS FOR RIGGING REQUIRED.
9. MC TO PROVIDE FACTORY INSTALLED VFD W/ INTEGRAL MOTOR STARTERS FOR EACH FAN, EC TO FURNISH AND INSTALL NON-FUSIBLE TYPE DISCONNECT SWITCHES(FIELD INSTALL)
10. MC TO FURNISH UNIT WITH CONVENIENCE OUTLET AND SUPPLY AN EXHAUST FAN SERVICE LIGHT. COORDINATE WITH EC.
11. PROVIDE WITH MODULATING DIGITAL SCROLL COMPRESSORS AND MODULATING HOT GAS REHEAT.
12. PROVIDE WITH 2" DOUBLE WALL CONSTRUCTION.
13. PROVIDE HOT GAS BYPASS WITH CONTINUOUS CAPACITY MODULATION (MAXIMUM 25% TOTAL CAPACITY).
14. PROVIDE FACTORY ZONE AND TEMPERATURE SENSORS FOR PROPER INSTALLATION AND COORDINATION WITH UNIT CONTROLS
15. PROVIDE BACNET COMPATIBLE CONTROLS FOR INTERCONNECTION TO EXISTING SIEMENS BMS SYSTEM. FULL DDC CONTROL OF ENERGY WHEELS (WHERE APPLICABLE) INCLUDING FROST PROTECTION VIA ENERGY WHEEL VFD SPEED CONTROL, 100% ECONOMIZER MODE VIA ENERGY WHEEL BYPASS DAMPERS
16. MECHANICAL TO PROVIDE HEATING CONTROL VALVE, SEE COIL PIPING DETAILS ON DRAWING M503.
17. UNIT WEIGHT DOES NOT INCLUDES WEIGHT OF CURB. EXACT CURB WEIGHT TO BE CONFIRMED WITH MANUFACTURER.
18. MC TO FIELD INSTALL VIBRATION ISOLATION SUPPORTS FOR ENERGY RECOVERY WHEEL AT EACH UNIT.
19. POWER/CIRCUIT INFORMATION OF NEW UNITS TO BE COORDINATED WITH ELECTRICAL CONTRACTOR. SHOWN HERE FOR REFERENCE ONLY.
20. UNITS TO TO BE PROVIDED WITH AND HAVE DEMAND CONTROL VENTILATION.
21. UNITS TO HAVE TWO CO2 SENSORS PER UNIT MOUNTED IN CONDITIONED SPACE.

ROOFTOP HEAT PUMP UNIT SCHEDULE - CONTINUED

UNIT #	ENERGY RECOVERY WHEEL													
	WINTER CONDITIONS								SUMMER CONDITIONS							
	SUPPLY AIR			EXHAUST AIR			THERMAL EFF %	HEAT RECOVERED MBH	SUPPLY AIR			EXHAUST AIR			THERMAL EFF %	HEAT RECOVERED MBH
	INLET DB/WB	OUTLET DB/WB	AIR PD	INLET DB/WB	OUTLET DB/WB	AIR PD			INLET DB/WB	OUTLET DB/WB	AIR PD	INLET DB/WB	OUTLET DB/WB	AIR PD		
RTU-D1	9/5.6	64.1/55.6	0.78	75/63	31.6/31.4	0.98	83%	424.32	88/76	77/67.3	0.78	75/65	83.5/72.3	0.98	84%	148.95
RTU-D2	9/5.6	64.1/55.6	0.78	75/63	31.6/31.4	0.98	83%	424.32	88/76	77/67.3	0.78	75/65	83.5/72.3	0.98	84%	148.95
RTU-3	9/5.6	53.6/46.8	0.98	70/58	25.2/24.3	0.98	73%	163.46	77/63	75.5/63	0.98	75/63	76.5/63.1	0.98	74%	6.96
RTU-4	9/5.6	53.6/46.8	0.98	70/58	25.2/24.3	0.98	73%	163.46	77/63	75.5/63	0.98	75/63	76.5/63.1	0.98	74%	6.96
RTU-5	9/5.6	53.6/46.8	0.98	70/58	25.2/24.3	0.98	73%	163.46	77/63	75.5/63	0.98	75/63	76.5/63.1	0.98	74%	6.96
RTU-6	9/5.6	53.6/46.8	0.98	70/58	25.2/24.3	0.98	73%	163.46	77/63	75.5/63	0.98	75/63	76.5/63.1	0.98	74%	6.96

AIR OUTLETS SCHEDULE

TAG	SERVICE	TYPE	FACE SIZE (IN)	NECK SIZE (IN)	MOUNTING	MAX. NOISE CRITERIA (NC)	BASIS OF DESIGN		REMARKS
							MFR.	MODEL #	
S-1	SUPPLY	STEEL ROUND PLAQUE DIFFUSER	27-3/8"Ø	SEE PLANS	DUCT MOUNTED	25	NAILOR	RUNI	1, 3, 4, 5
R-1	RETURN	STEEL RETURN REGISTER	24x24	-	LAY IN	25	NAILOR	6145H	1, 2, 3, 4, 5
S-3	SUPPLY	STEEL SUPPLY GRILLE	6X4	-	WALL MOUNTED	25	NAILOR	6145H	3,4,5
TG	RETURN	STEEL RETURN GRILLE	SEE PLANS	-	WALL MOUNTED	25	NAILOR	6145H	3,4,5

NOTES:
1. NECK SIZES ARE INDICATED ON THE PLANS.
2. PROVIDE 48X24 CEILING MODULE.
3. PROVIDE VOLUME DAMPERS OPPOSED BLADE DAMPER FROM MANUFACTURER.
4. COORDINATE FINISH, BORDER TYPE, AND INSTALLATION WITH ARCHITECTURAL PLANS.
5. OR APPROVED EQUAL

1/2" IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

106 Haverstraw Road, Suffern NY 10954

COUNTY OF ROCKLAND

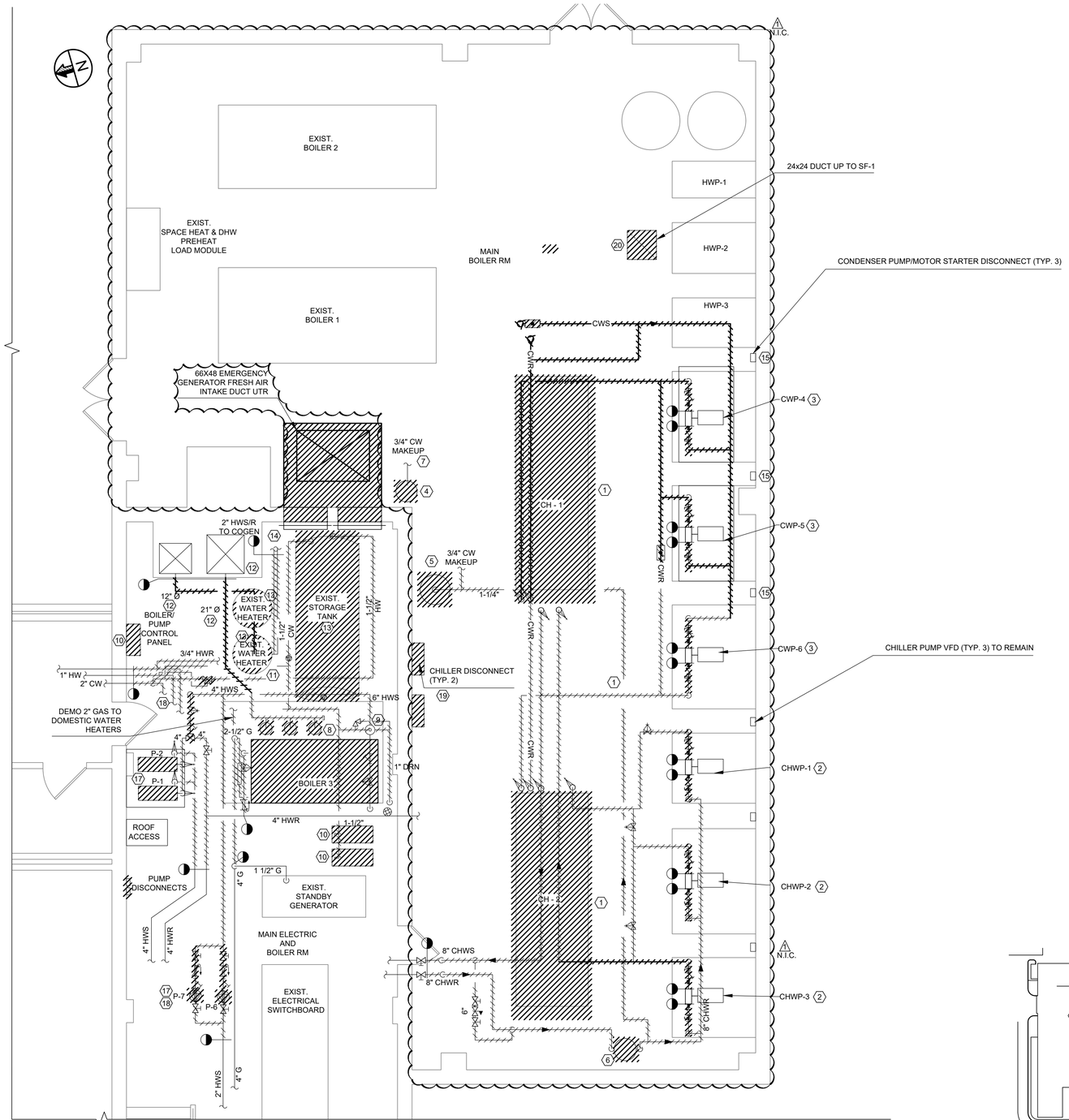
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-768-9209
www.shilale.com

Drawing Title
MECHANICAL SCHEDULES - 2

Drawing No.
M-004

NOTES:

1. ALL EXISTING CONCRETE PADS TO REMAIN.

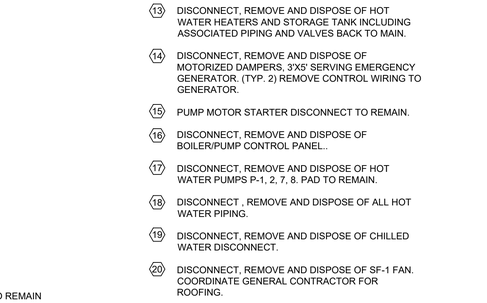


1 MECHANICAL ROOM - CHILLER REMOVAL

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

KEYED NOTES:

1. REMOVE AND DISPOSE OF EXISTING CENTRIFUGAL CHILLER, SYSTEM PIPING, EQUIPMENT AND CONTROLS. ASSOCIATED EXISTING CONCRETE PADS TO REMAIN.
2. EXISTING CHILLED WATER PUMPS, PIPING, AND CONCRETE PAD TO REMAIN.
3. EXISTING CONDENSER WATER PUMPS, PIPING, AND CONCRETE PAD TO REMAIN.
4. DISCONNECT, REMOVE AND DISPOSE OF GLYCOL TANK AND SYSTEM.
5. DISCONNECT, REMOVE AND DISPOSE OF EXPANSION TANK FOR CHILLERS.
6. DISCONNECT, REMOVE AND DISPOSE OF AIR SEPARATOR, VALVES AND ASSOCIATED PIPING FOR CHILLER.
7. DISCONNECT, REMOVE AND DISPOSE OF MAKE-UP WATER SYSTEM FOR CHILLERS.
8. DISCONNECT AND DISPOSE HOT WATER BOILER AND ASSOCIATED PIPING. EXISTING CONCRETE PAD TO REMAIN.
9. DISCONNECT, REMOVE AND DISPOSE OF AIR SEPARATOR FOR HEATING SYSTEM.
10. DISCONNECT, REMOVE AND DISPOSE OF EXPANSION TANK FOR HEATING SYSTEM.
11. DISCONNECT, REMOVE AND DISPOSE OF MAKE-UP WATER SYSTEM AND VALVES FOR HEATING SYSTEM.
12. DISCONNECT, REMOVE AND DISPOSE OF BREECHING AND INSULATION, CAP AND SEAL AT CHIMNEY.
13. DISCONNECT, REMOVE AND DISPOSE OF HOT WATER HEATERS AND STORAGE TANK INCLUDING ASSOCIATED PIPING AND VALVES BACK TO MAIN.
14. DISCONNECT, REMOVE AND DISPOSE OF MOTORIZED DAMPERS, 3'X5' SERVING EMERGENCY GENERATOR. (TYP. 2) REMOVE CONTROL WIRING TO GENERATOR.
15. PUMP MOTOR STARTER DISCONNECT TO REMAIN.
16. DISCONNECT, REMOVE AND DISPOSE OF BOILER/PUMP CONTROL PANEL..
17. DISCONNECT, REMOVE AND DISPOSE OF HOT WATER PUMPS P-1, 2, 7, 8. PAD TO REMAIN.
18. DISCONNECT , REMOVE AND DISPOSE OF ALL HOT WATER PIPING.
19. DISCONNECT, REMOVE AND DISPOSE OF CHILLED WATER DISCONNECT.
20. DISCONNECT, REMOVE AND DISPOSE OF SF-1 FAN. COORDINATE GENERAL CONTRACTOR FOR ROOFING.



KEY PLAN

PLAN NORTH

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

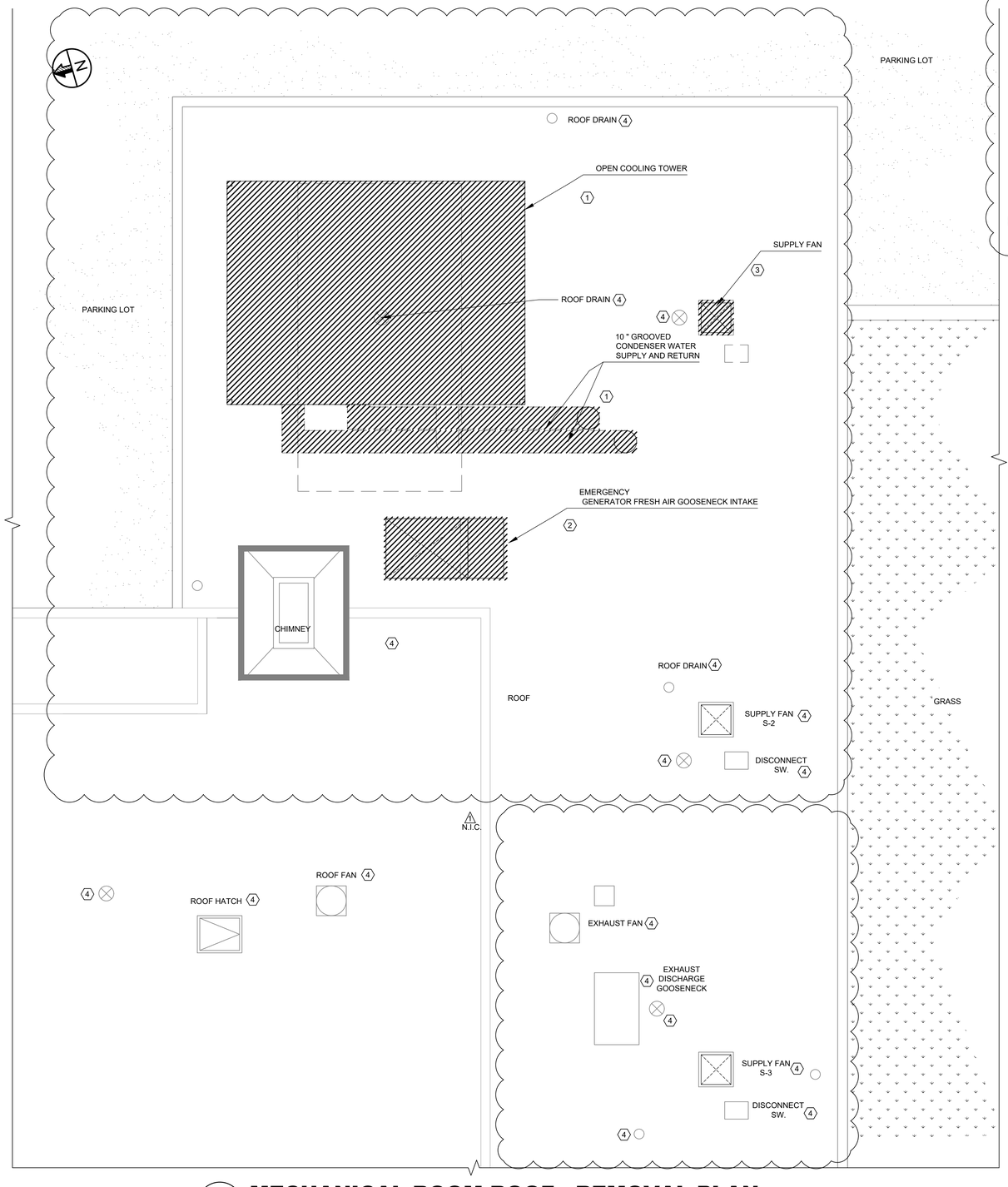
COUNTY OF ROCKLAND

150 Hamwood Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-8200
www.shilale.com

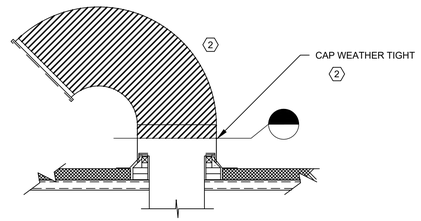
Drawing Title
MECHANICAL ROOM - BOILER CHILLER REMOVAL

Drawing No.
MD-101



1 MECHANICAL ROOM ROOF - REMOVAL PLAN

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



4 FRESH AIR GOOSENECK -REMOVE

SCALE: NONE

N.I.C.

KEYED NOTES:

1. DRAIN, DISCONNECT, REMOVE AND DISPOSE OF OPEN COOLING TOWER, PIPING AND MAKE-UP WATER SYSTEM.
2. DISCONNECT, REMOVE AND DISPOSE OF FRESH AIR DUCTWORK FOR EMERGENCY GENERATOR. CAP WEATHER TIGHT EXISTING ROOF OPENING.
3. DISCONNECT, REMOVE AND DISPOSE OF SUPPLY FAN COORDINATE WITH GENERAL CONTRACTOR.
4. EXISTING EQUIPMENT TO REMAIN.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

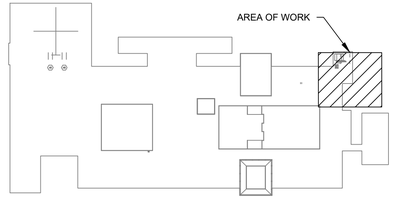
2 OPEN COOLING TOWER -REMOVE

SCALE: NONE

N.I.C.

3 SUPPLY FAN -REMOVE

SCALE: NONE



KEY PLAN

PLAN NORTH

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

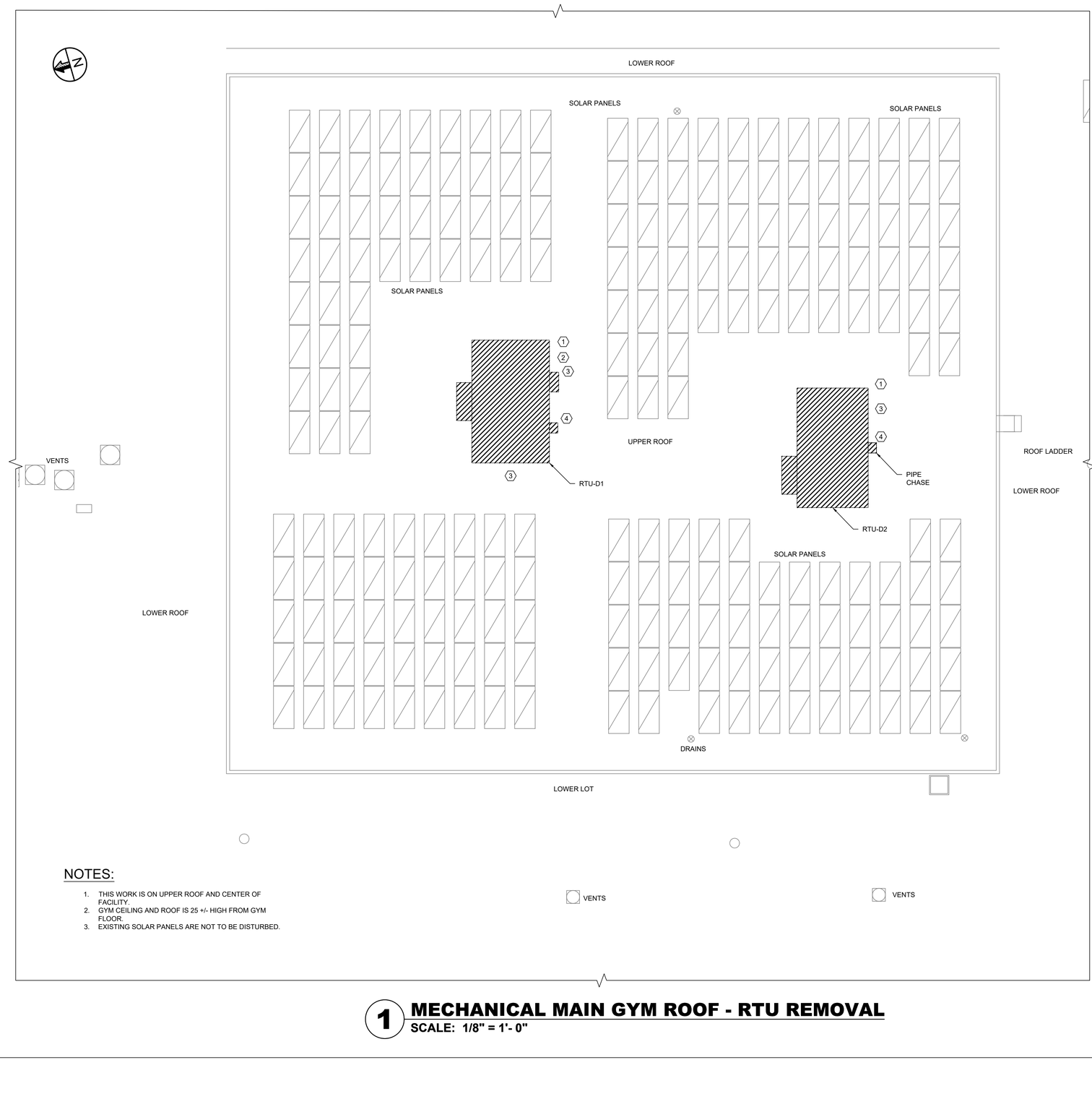
COUNTY OF ROCKLAND

158 Haverstraw Road.
Suffern, NY 10901

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL ROOM ROOF - COOLING TOWER REMOVAL

Drawing No.
MD-102



NOTES:

1. THIS WORK IS ON UPPER ROOF AND CENTER OF FACILITY.
2. GYM CEILING AND ROOF IS 25 +/- HIGH FROM GYM FLOOR.
3. EXISTING SOLAR PANELS ARE NOT TO BE DISTURBED.

1 MECHANICAL MAIN GYM ROOF - RTU REMOVAL
SCALE: 1/8" = 1'- 0"

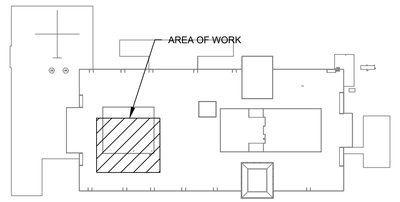
KEYED NOTES:

1. DISCONNECT, REMOVE AND DISPOSE OF EXISTING ROOFTOP UNITS, SUPPLY AND RETURN DUCTWORK, HOT WATER SUPPLY AND RETURN PIPING AND ASSOCIATED CONTROLS. ORIGINAL ROOF CURB TO REMAIN. REFER TO DETAIL 1/M.501 FOR HWS/HWR PIPING REMOVALS. HOT WATER PIPING TO BE CUT BELOW ROOF IN CEILING OF GYM.
2. DISCONNECT, REMOVE AND DISPOSE OF EXISTING CURB ADAPTER.
3. EXISTING ROOF CURBS TO REMAIN.
4. PATCH ROOFING AS REQUIRED / EXISTING HWS & HWR PIPING HOLES.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

2 RTU-1 REMOVAL
SCALE: NONE

3 RTU-2 REMOVAL
SCALE: NONE



KEY PLAN

PLAN NORTH

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

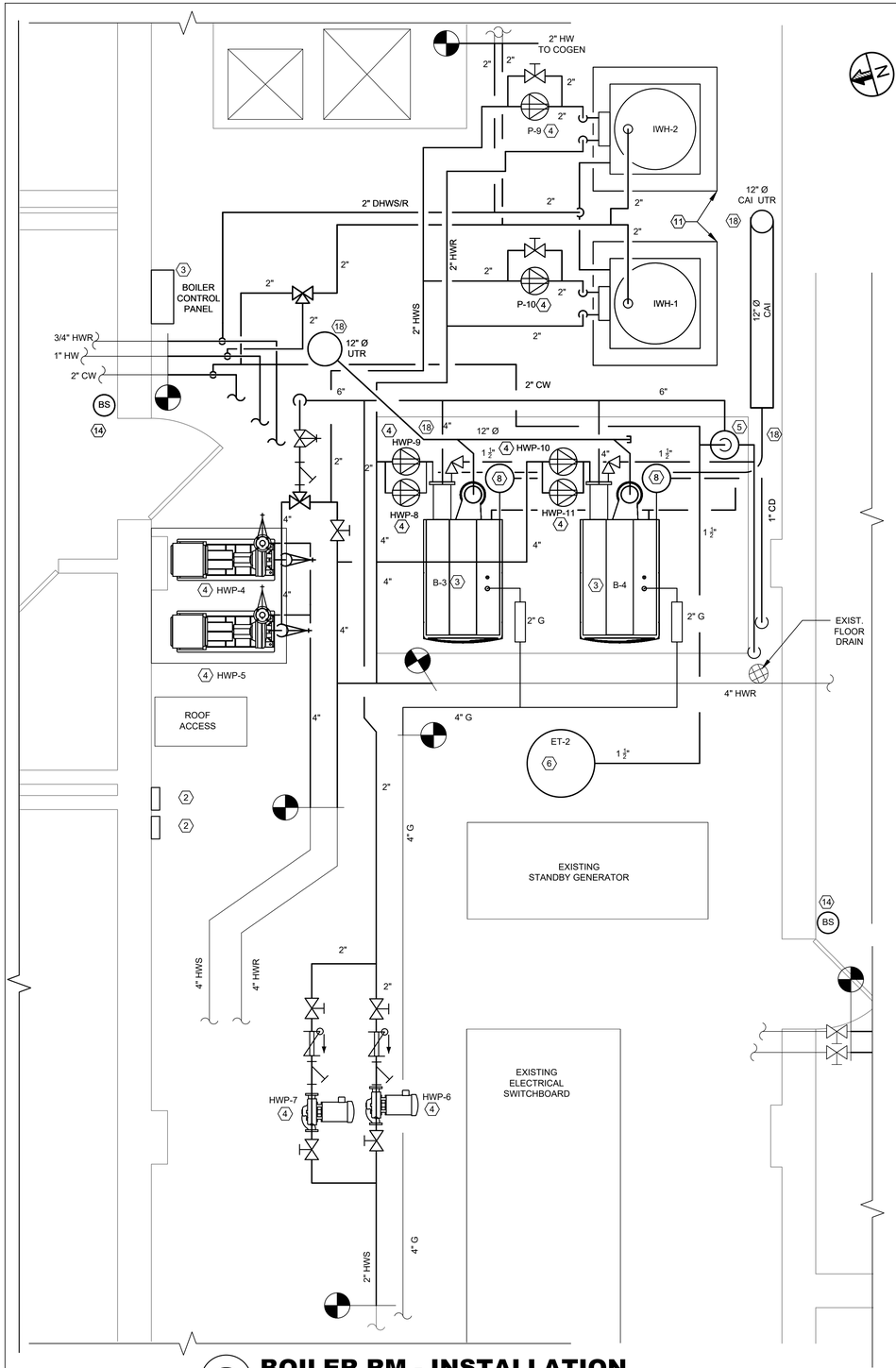
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
108 Hammond Road, Thiells NY 10984

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

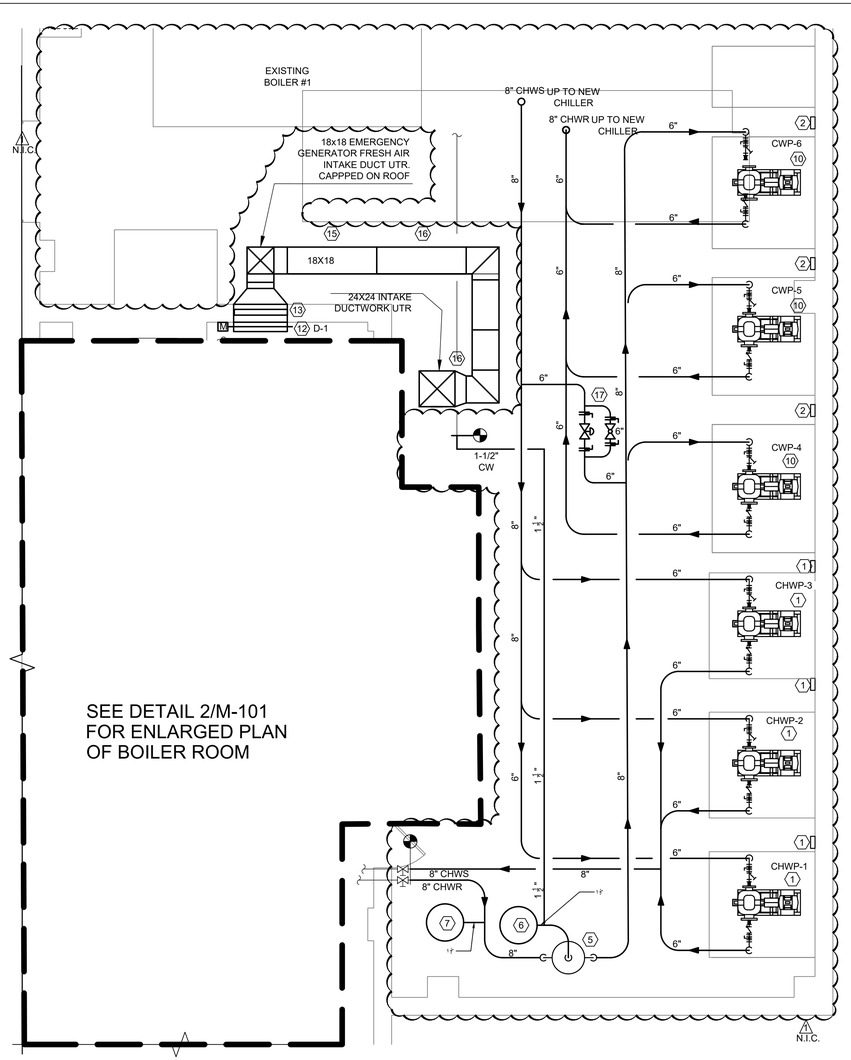
Drawing Title
MECHANICAL MAIN GYM - RCP

Drawing No.
MD-103



2 BOILER RM - INSTALLATION

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



SEE DETAIL 2/M-101
FOR ENLARGED PLAN
OF BOILER ROOM

1 MECHANICAL ROOM - INSTALLATION

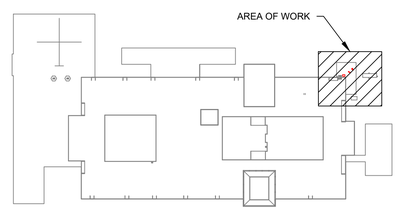
SCALE: 1/4" = 1'- 0"

KEYED NOTES:

1. EXSITING CHILLED WATER PUMPS, PIPING, AND VFD. SEE PUMP SCHEDULE ON M003.
2. FURNISH AND INSTALL NEW VFD CONTROLS FOR ASSOCIATED PUMPS.
3. FURNISH AND INSTALL NEW HOT WATER CONDENSING BOILER, CONTROLS, BREECHING AND PIPING AND CONTROL PANEL.
4. FURNISH AND INSTALL NEW HOT WATER PUMPS CONTROL PANEL AND PIPING, SEE PUMP SCHEDULE ON M003.
5. FURNISH AND INSTALL NEW AIR SEPARATOR AND ASSOCIATED PIPING.
6. FURNISH AND INSTALL FLOOR MOUNTED NEW EXPANSION TANK AND ASSOCIATED PIPING, SUPPORT TANK FROM CEILING..
7. FURNISH AND INSTALL NEW GLYCOL MAKEUP UNIT AND ASSOCIATED PIPING ON 36X36X4" CONCRETE PAD AS PER MANUFACTURER.
8. FURNISH AND INSTALL CONDENSATE NEUTRALIZER FOR THE CONDENSING BOILERS. SEE DETAIL ON M-505.
9. FURNISH AND INSTALL DOMESTIC HOT WATER HEAT EXCHANGER, SEE SCHEDULE ON M003.
10. EXISTING CONDENSER WATER PUMPS WITH NEW MOTOR AND NEW VFD.
11. NEW CONCRETE PAD, SEE STRUCTURAL DRAWING, S-102.
12. NEW MOTORIZED DAMPER FOR EMERGENCY GENERATOR COMBUSTION AIR, INTERLOCK WITH GENERATOR, FOR SIZES SEE COMBUSTION AIR DAMPER SCHEDULE ON M-003.
13. FIRE DAMPER WITH ACCESS DOOR FOR RESETTING DAMPER. TYP. 2 SIZE TO MATCH DUCT
14. INSTALL BOILER EMERGENCY SHUT OFF SWITCH-SHUTDOWN
15. INSTALL 2 HR FIRE RATED DUCT WRAP ON ALL INTERIOR EMERGENCY GENERATOR DUCTWORK.
16. INSTALL AND CONNECT FRESH AIR DUCT UP TO ROOF , 18X18 & 24X24 WITH 2 HR FIRE WRAP
17. INSTALL CONTROL VALVE CV-1 AND BY-PASS WITH ISOLATION VALVES .
18. ROUTE AND INSTALL BOILER FRESH AIR AND FLUE IN BOILER ROOM AND UP THROUGH ROOF. COORDINATE ACTUAL ROUTING IN FIELD.

NOTES:

1. SEE PIPING DIAGRAMS AND DETAILS FOR ALL VALVES AND FITTINGS.
2. ALL DUCTWORK AND PIPING TO BE INSULATED.
3. TEST AND BALANCE ALL PIPING AND DUCTWORK
4. SEE PIPING RISER DIAGRAMS AND DETAILS FOR PIPE SIZES AND FITTINGS.



KEY PLAN

PLAN NORTH

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by	A.W
Checked by	P.C
Project No.	43065
Scale	AS NOTED
Date	12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

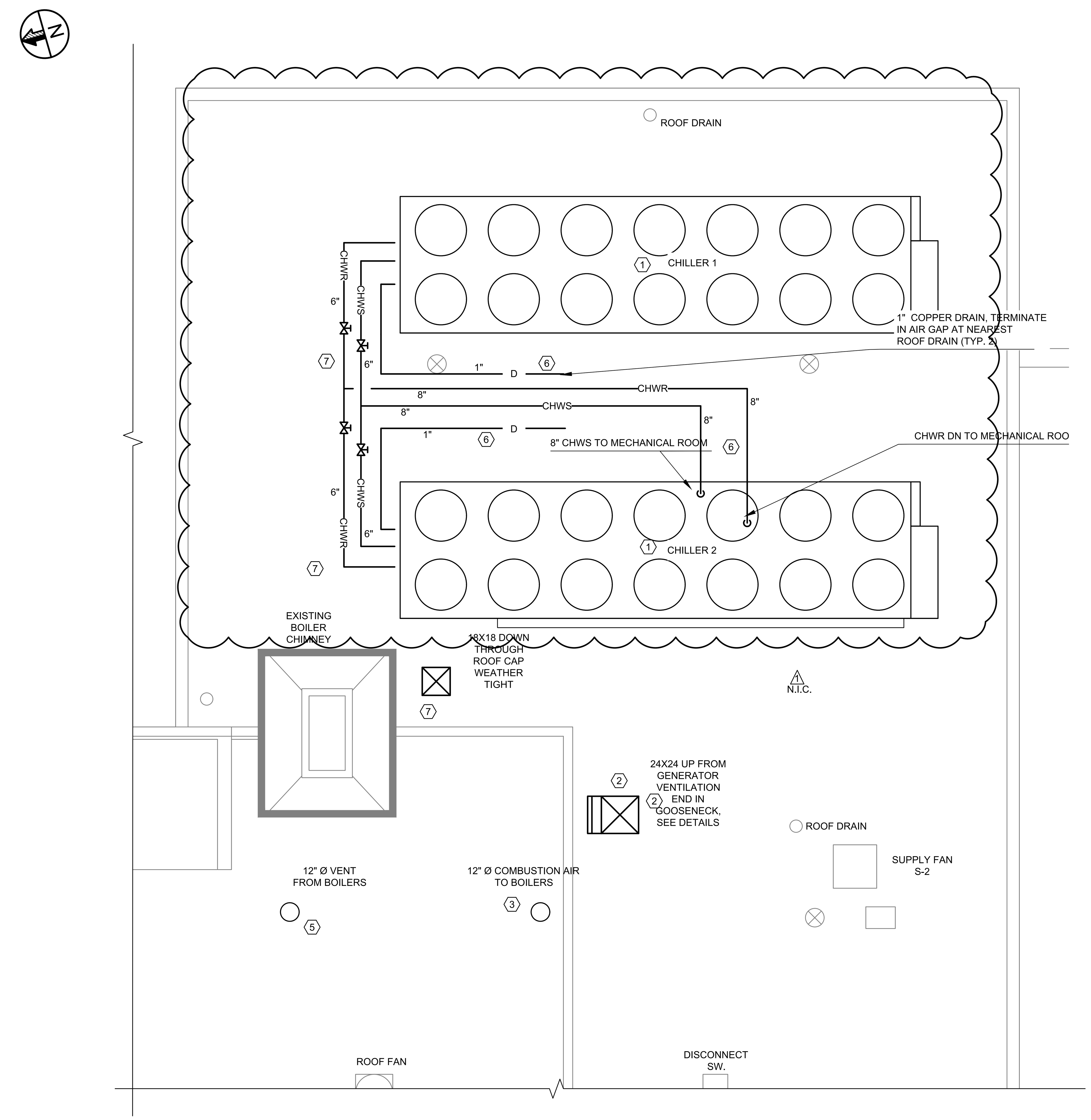
COUNTY OF ROCKLAND

108 Hammond Road, Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-8200
www.shilale.com

Drawing Title
MECHANICAL ROOM
BOILER CHILLER
INSTALL PLAN

Drawing No.
M-101



1 MECHANICAL ROOM ROOF - NEW WORK

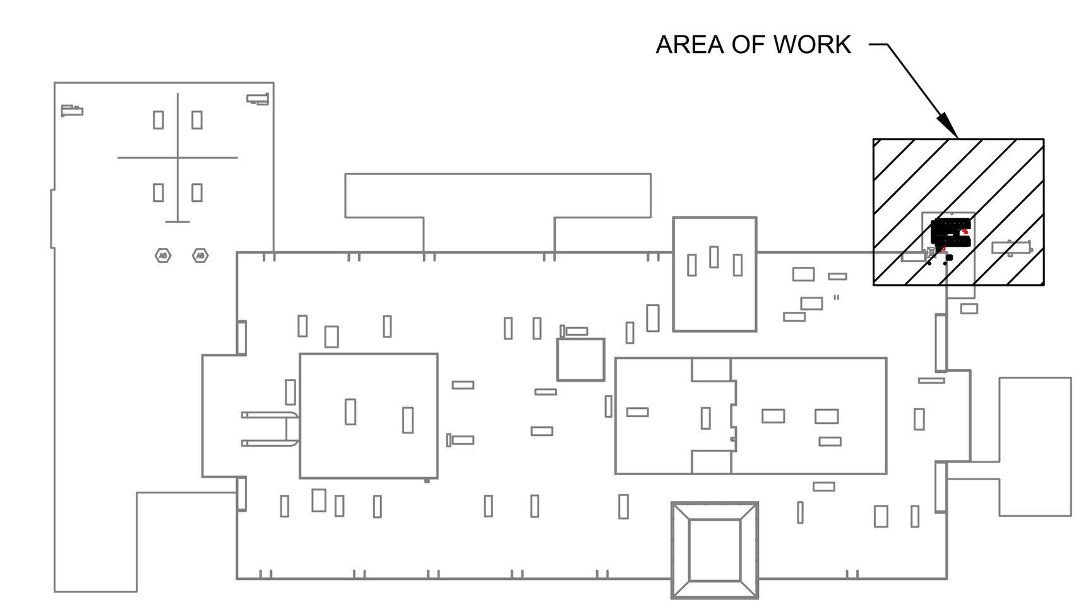
SCALE: 1/4" = 1'- 0"

KEYED NOTES:

1. FURNISH, INSTALL AND CONNECT NEW AIR-COOLED CHILLERS AND ASSOCIATED PIPING AND VALVES, CONTROLS, INSULATION, START UP, AND BALANCING. SUPPORTS AND WEATHER PROOF INSULATION, SUPPORTS SEE 2/M-301. SEE STRUCTURAL FOR SUPPORT STEEL.
2. FURNISH AND INSTALL VENTILATION GOOSENECK AIR DUCTWORK FOR EMERGENCY GENERATOR. SEE DETAIL 4/M-504
3. FURNISH AND INSTALL 12" COMBUSTION AIR INTAKE VENT FOR CONDENSING BOILERS. TERMINATE IN GOOSENECK, MIN. 3' ABOVE ROOF, WITH MESH SCREEN, MIN. 1"X1" AT INLET. ROUTING AND LOCATION TO BE VERIFIED IN THE FIELD, SEE DETAIL 4/M-504
4. INSTALL DRAINS AS REQUIRED, ROUTE TO ROOF DRAIN .
5. INSTALL AND CONNECT BOILER 12" FLUE STACK UP THROUGH ROOF WEATHER TIGHT, MIN 3' ABOVE ROOF, ROUTING AND LOCATION TO BE VERIFIED IN THE FIELD. SEE DETAIL 3/M-504.
6. INSTALL CHILLED WATER SUPPLY AND RETURN PIPING SUPPORT AND WEATHER PROOF INSULATION.
7. CAP TERMINATED TERMINATED VENTILATION DUCTWORK WEATHER TIGHT, MATCH EXISTING.

GENERAL NOTES:

1. SEE PIPING DIAGRAM AND DETAILS FOR ALL VALVING, FITTINGS AND SIZES.



KEY PLAN

PLAN NORTH

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by	A.W
Checked by	P.C
Project No.	43065
Scale	AS NOTED
Date	12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

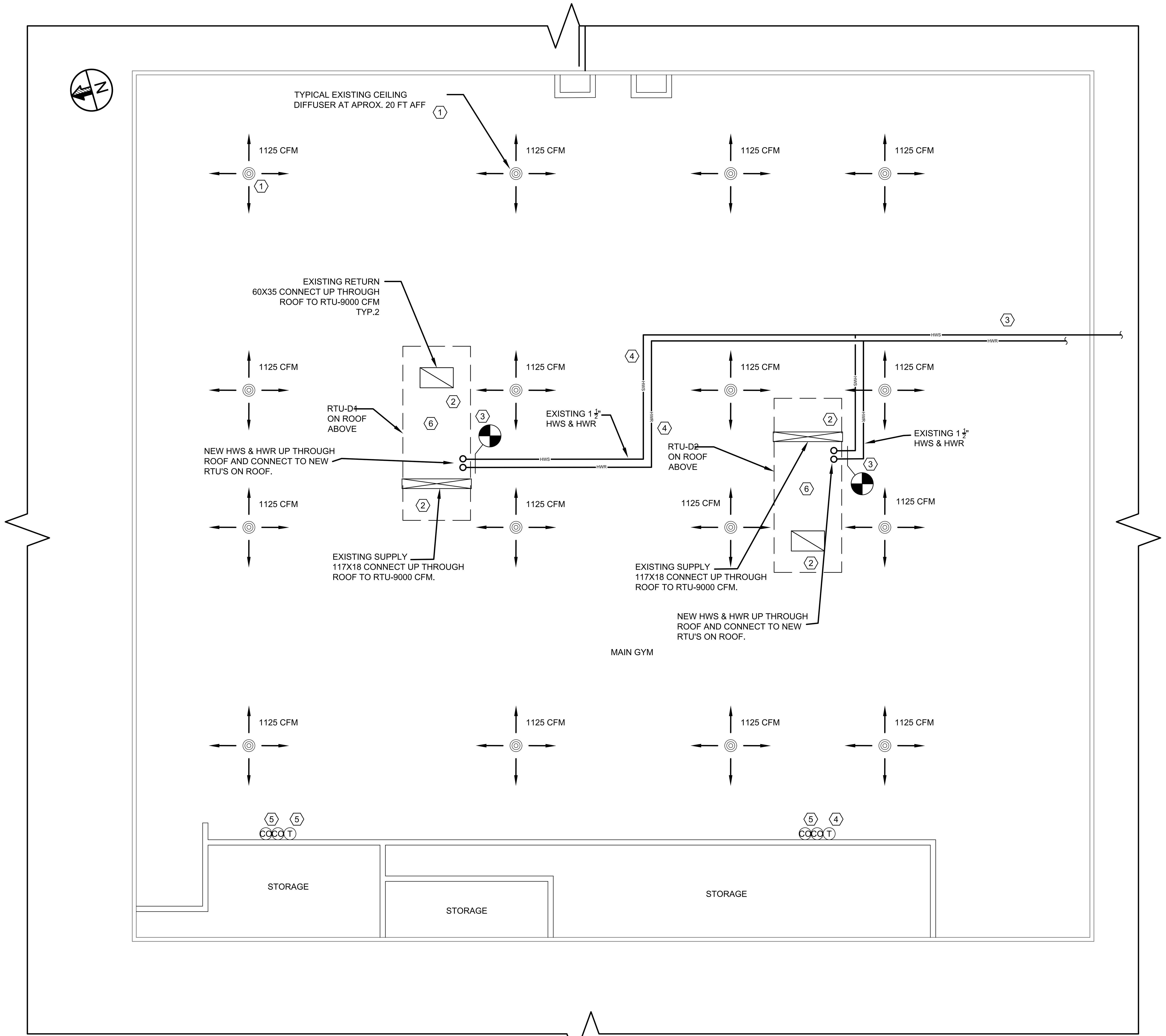
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title: MECHANICAL ROOM ROOF - INSTALL

Drawing No. M-102



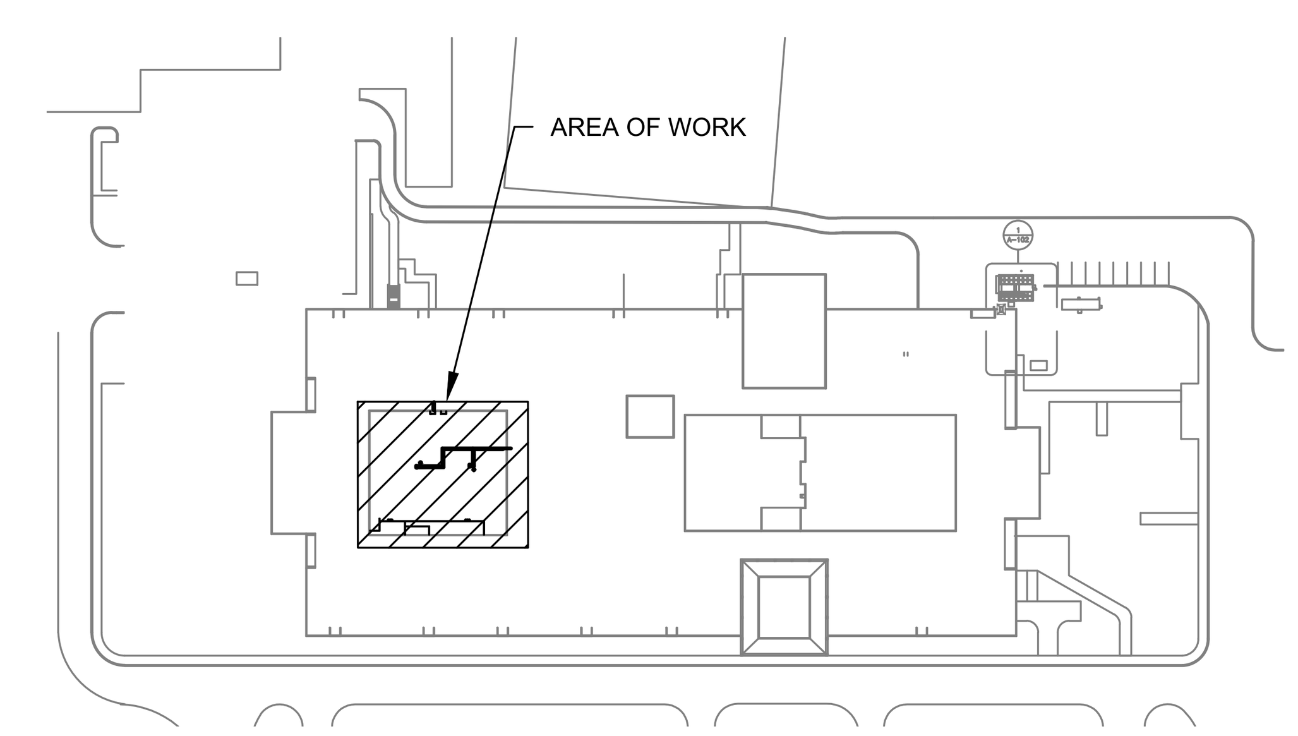
1 MECHANICAL MAIN GYM ROOF - RCP INSTALL
SCALE: 1/8" = 1'- 0"

KEYED NOTES:

1. BALANCE EXISTING CEILING DIFFUSERS. NOTE CEILING IS AT 20 FEET +/-. TYPICAL OF 16.
2. CONNECT NEW RTU-D1 AND RTU-D2 SUPPLY AND RETURN DUCTWORK TO MAIN GUM EXISTING SUPPLY AND RETURN DUCTWORK . OFFSET AND TRANSITION SUPPLY AND RETURN DUCTWORK AS REQUIRED IN GYM CEILING, COORDINATE WITH ALL TRADES.
3. CONTRACTOR TO VERIFY LOCATION OF EXISTING HWS & HWR PIPING CONCEALED WITHIN THE HUNG CEILING. CONNECT TO EXISTING HWS & HWR IN CEILING. TEST, INSULATE AND BALANCE ALL PIPING. REFER TO MAIN GYM HOT WATER PIPING DIAGRAM ON M-303.
4. INSTALL AND CONNECT THERMOSTAT FOR RTU D1 &D 2.
5. INSTALL AND CONNECT C02 SENSOR AT SAME LEVEL AS THERMOSTATS FOR RTU-D1&D2 FOR DEMAND CONTROL VENTILATION.
6. TEST NEW DUCTWORK AS REQUIRED.

NOTES:

1. GYM CEILING AND ROOF IS 20 +/- HIGH FROM GYM FLOOR.
2. ALL DUCTWORK AND PIPING TO BE INSULATED.
3. TEST AND BALANCE ALL PIPING AND DUCTWORK



KEY PLAN

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

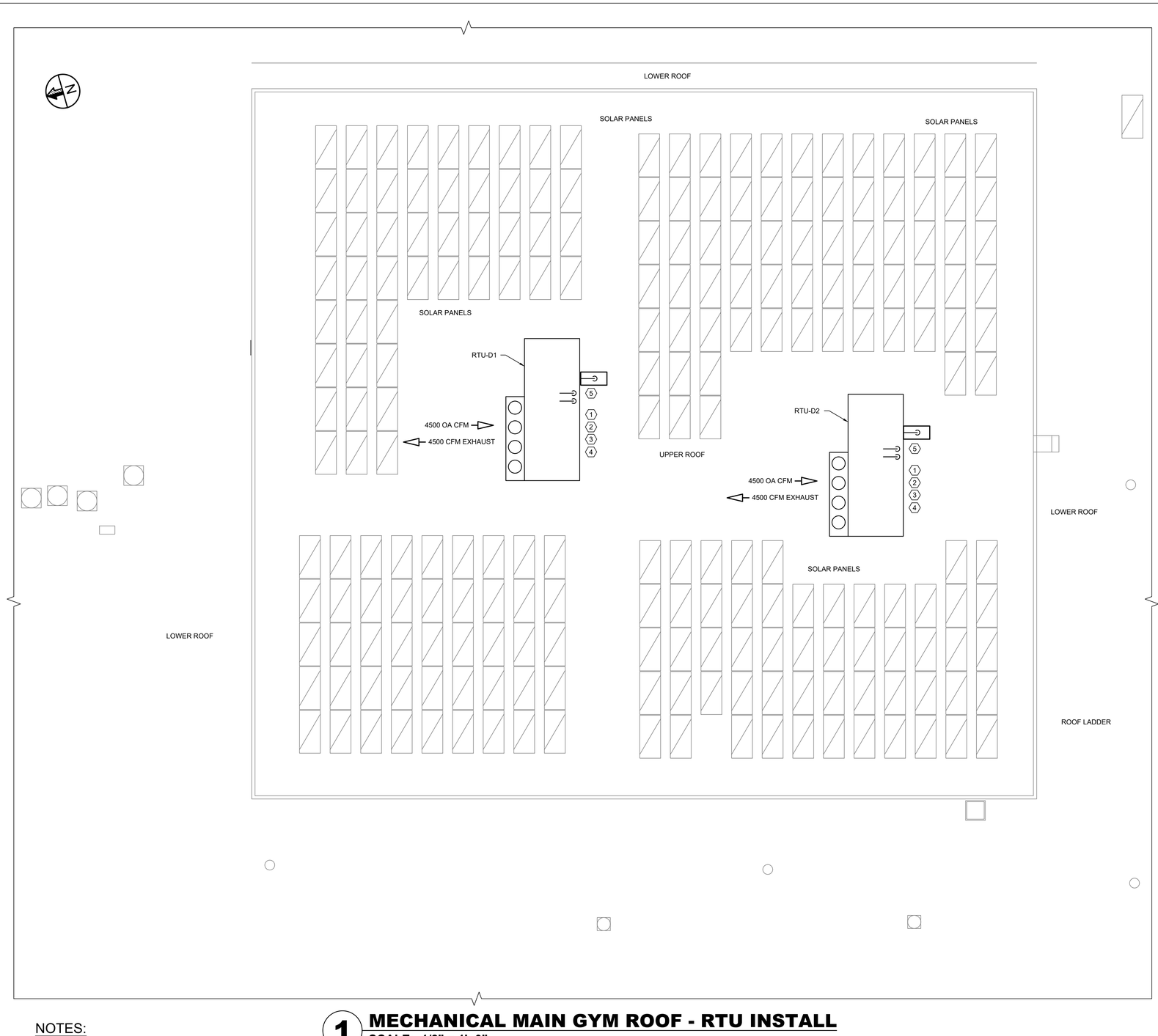
Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.

Drawing Title: MECHANICAL MAIN GYM - RCP INSTALL
Drawing No. M-103



KEYED NOTES:

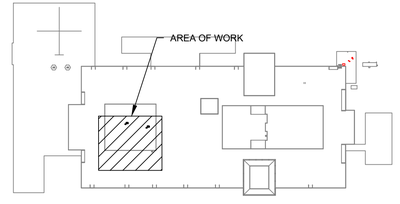
1. INSTALL, CONNECT, TEST, AND BALANCE NEW RTU-D1, D2. SEE M-003 ON EXISTING CURB AND CURB ADAPTORS.
2. INSTALL AND CONNECT ROOFTOP UNITS HHWS & HWR PIPING, INSTALL HOT WATER ISOLATION VALVES ON BOTH SUPPLY AND RETURN AND ONE SET OF VALVES IN UNIT AND ANOTHER SET OF VALVES JUST BELOW ROOF IN GYM CEILING. REFER TO DETAIL 3/M-303. PRESSURE BALANCE AND TEST AS REQUIRED.
3. INSTALL AND CONNECT ROOFTOP STANDALONE CONTROLS IN UNIT.
4. INSTALL ADAPTER CURBS . VERIFY EXACT DIMENSIONS OF ADAPTER CURB IN THE FIELD.
5. 1-1/4" CONDENSATE DRAIN TO SPILL ONTO SPLASH BLOCK ON ROOF.

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

GENERAL NOTES

1. FOR ADDITIONAL INFORMATION AND SPECIFICS REGARDING AIR HANDLING UNIT INSTALLATION, SEE THE AIR HANDLING UNIT SPECIFICATION. PROVIDE EXTRA PARTS AS DEPICTED IN THE SPECIFICATION.
2. INSTALL DUCT SMOKE DETECTORS FOR THE NEW AIR HANDLING UNITS TO COMPLY TO CODE. EXISTING DUCT SMOKE DETECTORS ON SUPPLY SIDE TO BE REPLACED WITH NEW. NEW DUCT SMOKE DETECTORS SHALL BE INSTALLED ON A STRAIGHT DUCT ON THE RETURN SIDE. NEW SMOKE DETECTORS SHALL BE CONNECTED TO THE EXISTING FIRE ALARM CONTROL PANEL. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.
3. PERFORM A COMPLETE BALANCING TEST OF THE DUCTS AND BRANCHES SERVING THE NEW UNITS. PROVIDE BALANCING REPORT TO ENGINEER FOR REVIEW AND APPROVAL. SEE REFERENCE DRAWINGS FOR LOCATION OF EXISTING DUCT, DIFFUSERS, ETC. IN EACH SPACE BEING SERVED.
4. THE CONTRACTOR IS RESPONSIBLE FOR RIGGING THE UNITS. CONTRACTOR SHALL INSTALL UNITS WITH PROPER LIFTS AND EQUIPMENT IN A SAFE WORKMAN-LIKE MANNER. CONTRACTOR IS RESPONSIBLE TO PULL PERMITS RELATED TO RIGGING AND INSTALLING THE UNITS.
5. CONTRACTOR SHALL COORDINATE WITH OWNER REGARDING THE SHUTDOWN AND REMOVAL OF EQUIPMENT.
6. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTRUCTIONS TO ENSURE ALL INSTALLATION CLEARANCES ARE MET AND THAT THE UNIT IS INSTALLED AS PER LATEST NYS MECHANICAL CODE.
7. PROVIDE AN ALLOWANCE FOR DUCT CLEANING THE EXISTING DUCTWORK.
8. PROVIDE ADEQUATE MEANS FOR CONDENSATE DISPOSAL FOR EACH UNIT, SEE DETAIL 2/M-504.



KEY PLAN

PLAN NORTH

NOTES:

1. THIS WORK IS ON UPPER ROOF AND CENTER OF FACILITY.
2. GYM CEILING AND ROOF IS 25 +/- HIGH FROM GYM FLOOR.
3. EXISTING SOLAR PANELS ARE NOT TO BE DISTURBED.

1 MECHANICAL MAIN GYM ROOF - RTU INSTALL

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

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

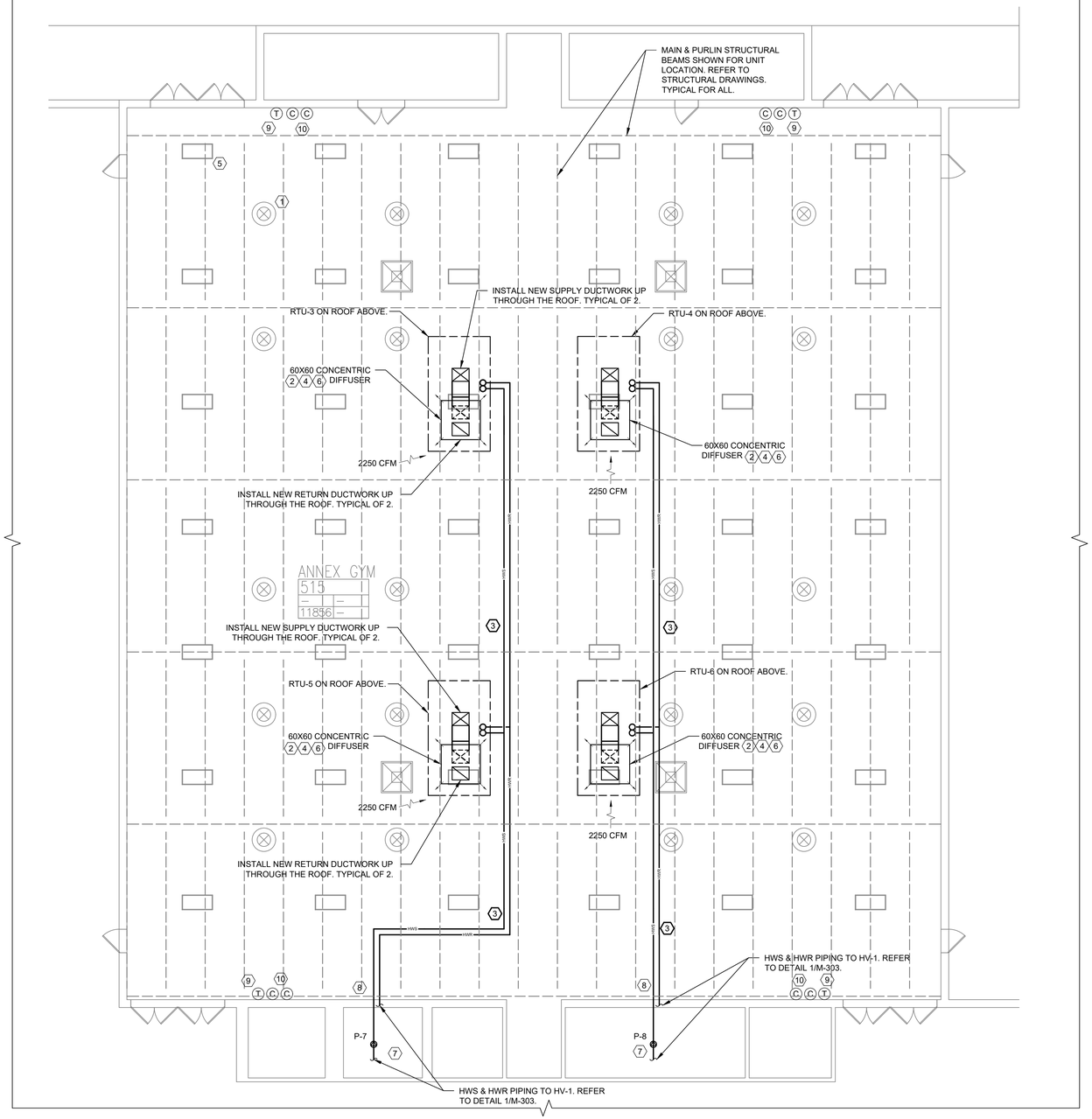
COUNTY OF ROCKLAND

108 Hammond Road, Thiells NY 10984

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL MAIN GYM ROOF - INSTALL

Drawing No.
M-104



1 MECHANICAL ANNEX GYM RCP - RTU INSTALL

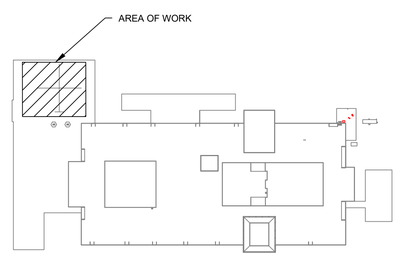
SCALE: 1/8" = 1'- 0"

KEYED NOTES:

1. EXISTING CEILING DIFFUSER TO REMAIN. TYPICAL OF 20.
2. FURNISH & INSTALL CEILING CONCENTRIC DIFFUSER. REFER TO DETAIL 6/M-501 FOR INSTALLATION ELEVATION AND CONFICURATION.
3. HWS & HWR PIPING TO BE INSTALLED & CONCEALED WITHIN THE HUNG CEILING. INSTALL ISOLATION VALVES AT EACH RTU. SEE DETAIL 1/M-303, M-503.
4. COORDINATE WITH ELECTRICAL CONTRACTOR, REMOVE, AND RELOCATE ONE EXISTING CEILING LIGHTING AS REQUIRED.
5. EXISTING LIGHTING FIXTURE TO REMAIN. TYPICAL OF 38.
6. COORDINATE WITH ARCHITECT DRAWINGS FOR ACTUAL LOCATION OF CONCENTRIC SUPPLY AND RETURN DIFFUSERS AND DUCTWORK.
7. INSTALL AND CONNECT IN-LINE PUMP P-7, P-8 IN MER ROOM ABOVE GYM OFFICE. SEE DETAIL 1/M-303, M-503.
8. PIPE WALL PENETRATION SEE SEE DETAIL 2/M-502, M-503..
9. INSTALL AND CONNECT THERMOSTAT FOR RTU-3, RTU-4, RTU-5, RTU-6.
10. INSTALL AND CONNECT C02 SENSOR AT SAME LEVEL AS THERMOSTATS FOR RTU-3, RTU-4, RTU-5, RTU-6 FOR DEMAND CONTROL VENTILATION.

NOTES:

1. GYM CEILING AND ROOF IS 20 +/- HIGH FROM GYM FLOOR.
2. ALL DUCTWORK AND PIPING TO BE INSULATED.
3. TEST AND BALANCE ALL PIPING AND DUCTWORK
4. EXISTING CEILING DIFFUSERS ARE NOT CONNECTED TO NEW RTU'S.



KEY PLAN

PLAN NORTH

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by	A.W
Checked by	P.C
Project No.	43065
Scale	AS NOTED
Date	12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

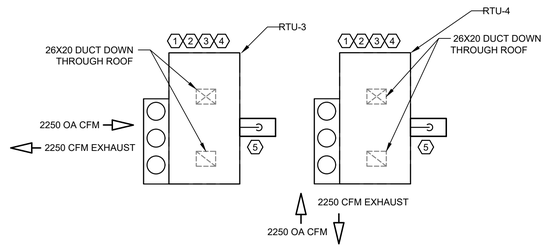
COUNTY OF ROCKLAND

150 Hamwood Road, Thiells NY 10984

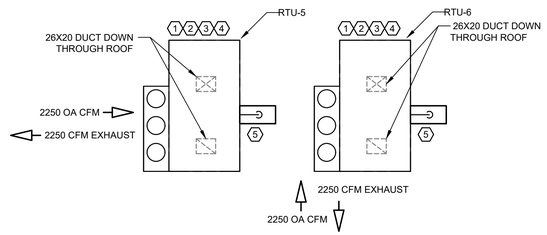
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-8500
www.shilale.com

Drawing Title: MECHANICAL ANNEX GYM 1ST FLOOR - INSTALL

Drawing No.: M-105



UPPER ANNEX GYM ROOF



LOWER ROOF

1 MECHANICAL ANNEX GYM ROOF - RTU INSTALL

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

KEYED NOTES:

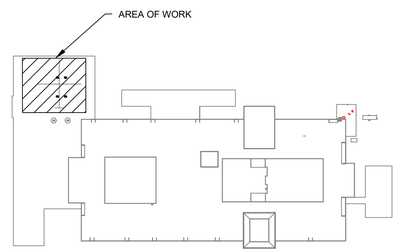
1. INSTALL, CONNECT , TEST AND BALANCE NEW ROOFTOP UNITS 3, 4, 5, 6. SEE UNITS SCHEDULE ON DRAWING M-003.
2. INSTALL AND CONNECT ROOFTOP UNITS HWS & HWR PIPING, INSTALL HOT WATER ISOLATION VALVES ON BOTH SUPPLY AND RETURN AND ONE SET OF VALVES IN UNIT AND ANOTHER SET OF VALVES JUST BELOW ROOF IN GYM CEILING. REFER TO DETAIL 3/M-303.
3. INSTALL AND CONNECT ROOFTOP STANDALONE CONTROLS IN UNIT .
4. INSTALL ROOF CURBS, COORDINATE WITH GENERAL CONTRACTOR FOR ROOF AND WORK.
5. 1-1/4" CONDENSATE DRAIN TO SPILL ONTO SPLASH BLOCK ON ROOF.

GENERAL NOTES:

1. FOR ADDITIONAL INFORMATION AND SPECIFICS REGARDING AIR HANDLING UNIT INSTALLATION, SEE THE AIR HANDLING UNIT SPECIFICATION. PROVIDE EXTRA PARTS AS DEPICTED IN THE SPECIFICATION.
2. INSTALL DUCT SMOKE DETECTORS FOR THE NEW AIR HANDLING UNITS TO COMPLY TO CODE. EXISTING DUCT SMOKE DETECTORS ON SUPPLY SIDE TO BE REPLACED WITH NEW. NEW DUCT SMOKE DETECTORS SHALL BE INSTALLED ON A STRAIGHT DUCT ON THE RETURN SIDE. NEW SMOKE DETECTORS SHALL BE CONNECTED TO THE EXISTING FIRE ALARM CONTROL PANEL. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.
3. PERFORM A COMPLETE BALANCING TEST OF THE DUCTS AND BRANCHES SERVING THE NEW UNITS. PROVIDE BALANCING REPORT TO ENGINEER FOR REVIEW AND APPROVAL. SEE REFERENCE DRAWINGS FOR LOCATION OF EXISTING DUCT, DIFFUSERS, ETC. IN EACH SPACE BEING SERVED.
4. THE CONTRACTOR IS RESPONSIBLE FOR RIGGING THE UNITS. CONTRACTOR SHALL INSTALL UNITS WITH PROPER LIFTS AND EQUIPMENT IN A SAFE WORKMAN-LIKE MANNER. CONTRACTOR IS RESPONSIBLE TO PULL PERMITS RELATED TO RIGGING AND INSTALLING THE UNITS.
5. CONTRACTOR SHALL COORDINATE WITH OWNER REGARDING THE SHUTDOWN AND REMOVAL OF EQUIPMENT.
6. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTRUCTIONS TO ENSURE ALL INSTALLATION CLEARANCES ARE MET AND THAT THE UNIT IS INSTALLED AS PER LATEST NYS MECHANICAL CODE.
7. PROVIDE AN ALLOWANCE FOR DUCT CLEANING THE EXISTING DUCTWORK.
8. PROVIDE ADEQUATE MEANS FOR CONDENSATE DISPOSAL FOR EACH UNIT, SEE DETAIL 2/M-504.

NOTES:

1. THIS WORK IS ON ROOF AND CENTER OF FACILITY.
2. GYM CEILING AND ROOF IS 25 +/- HIGH FROM GYM FLOOR.



KEY PLAN

PLAN NORTH

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL, SED# 50-02-01-06-0-010-037

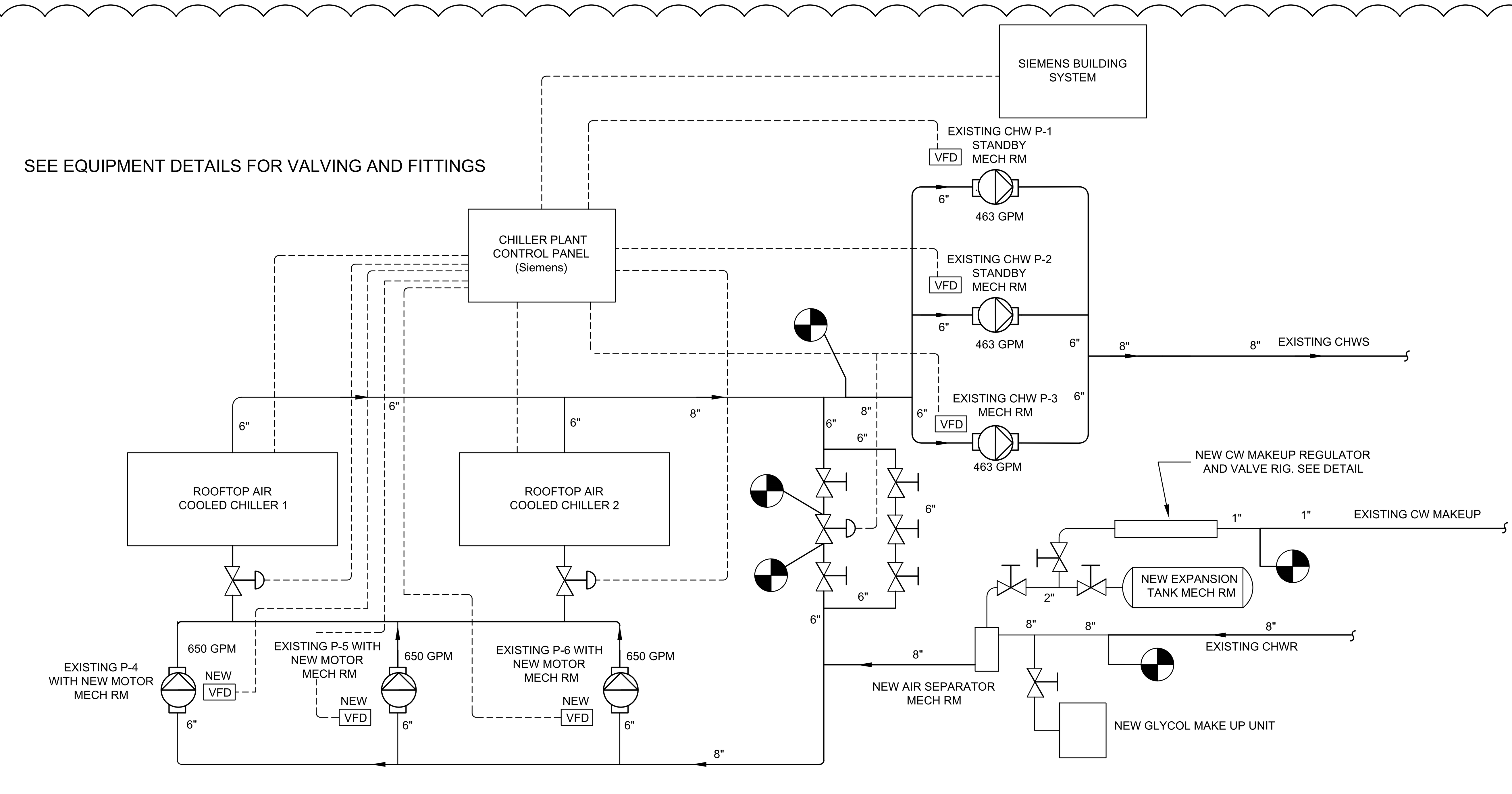
COUNTY OF ROCKLAND

106 Ramapo Road, Thiells, NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

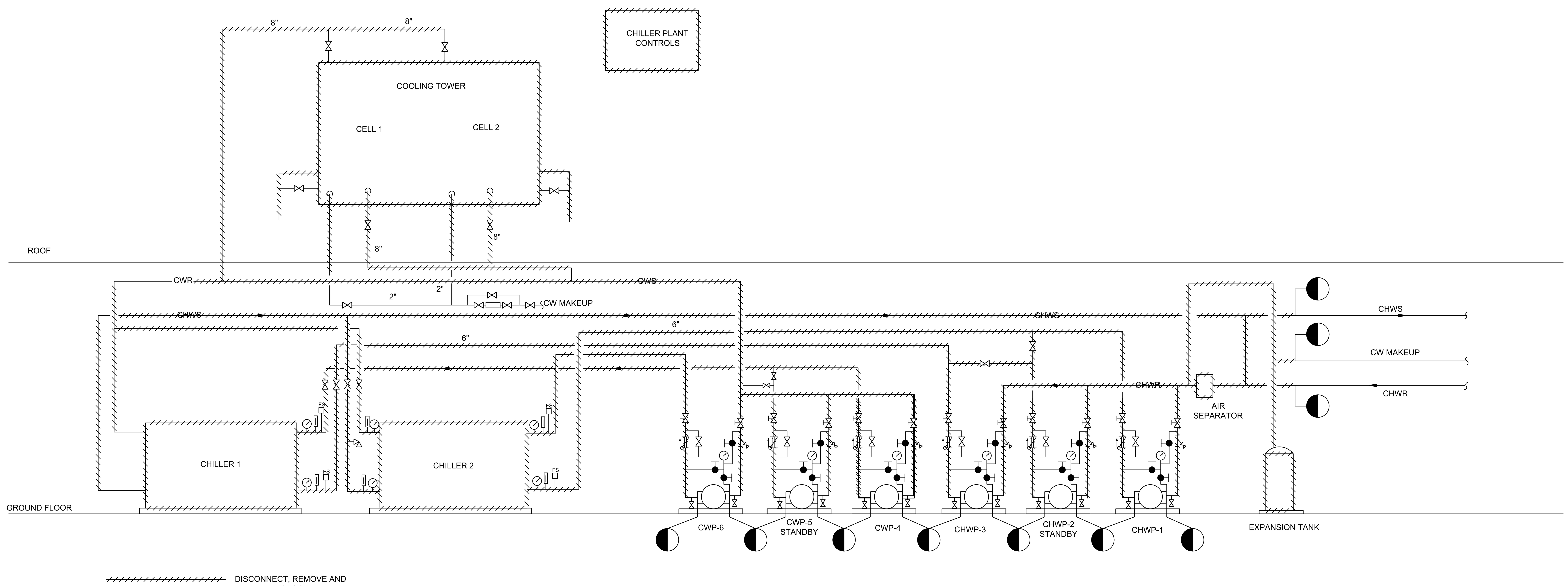
Drawing Title
MECHANICAL ANNEX GYM ROOF - INSTALL

Drawing No.
M-106



2 CHILLED WATER RISER - INSTALLATION

SCALE: NONE



1 CONDENSER & CHILLED WATER RISER - DEMOLITION

SCALE: NONE

N.I.C.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

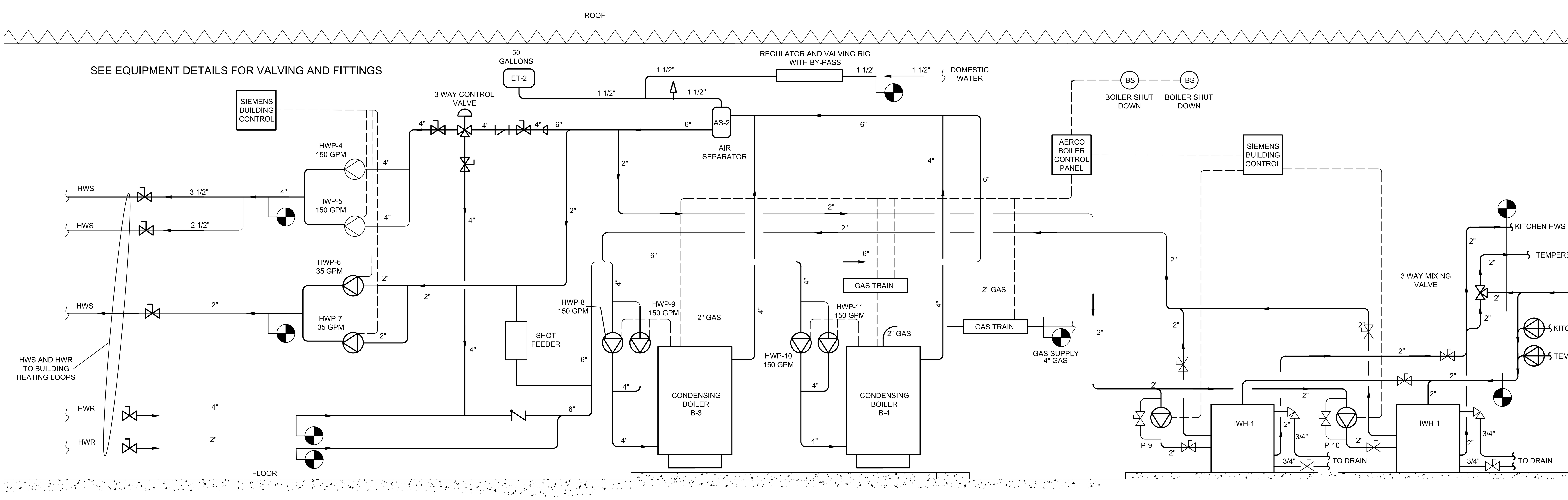
HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

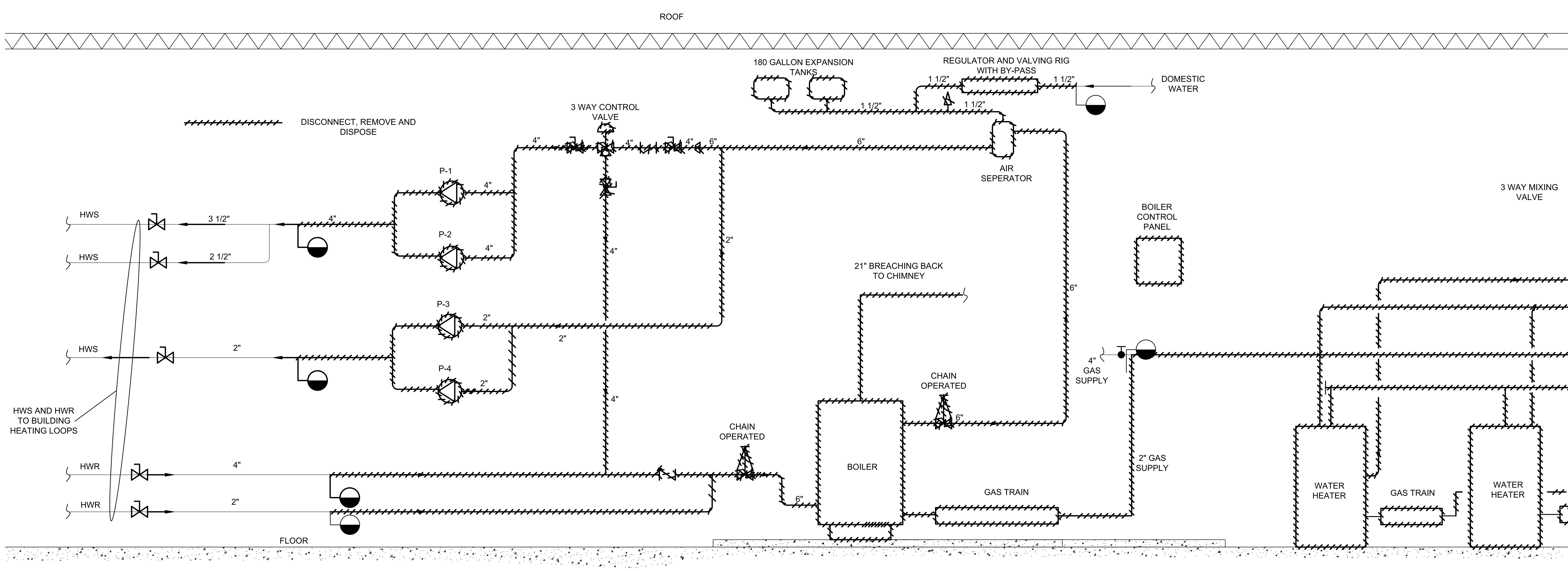
Drawing Title
MECHANICAL RISER DIAGRAM - CHILLER

Drawing No.
M-301



2 BOILER RISER DIAGRAM - INSTALLATION

SCALE: NONE



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP. DATE: 10-31-26

Drawn by: A.W
Checked by: P.C
Project No.: 43065
Scale: AS NOTED
Date: 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

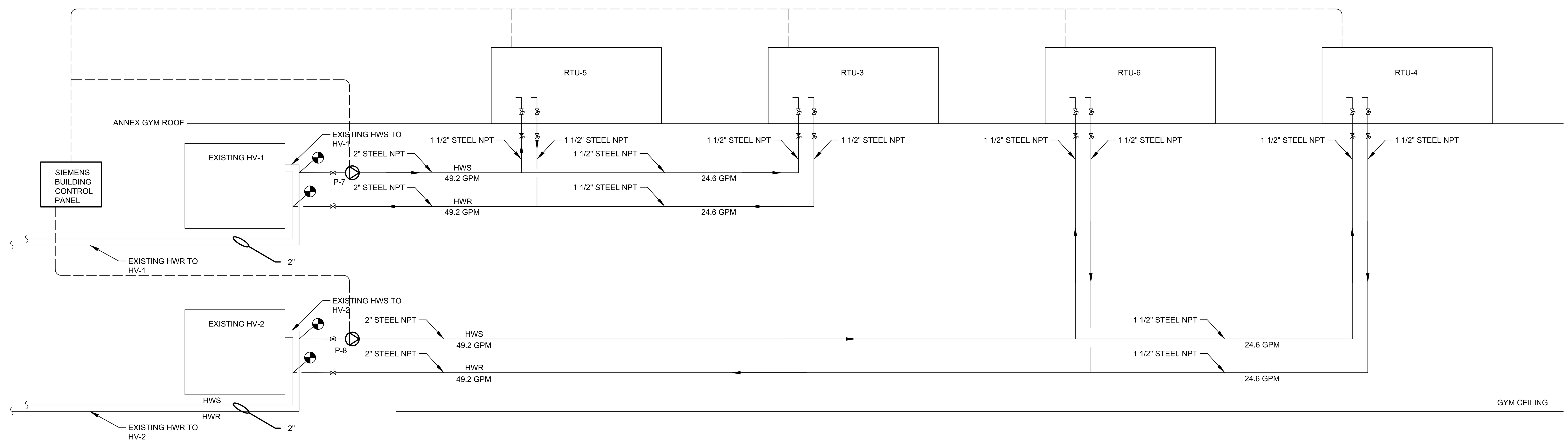
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
106 Hammond Road, Thiells NY 10984
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

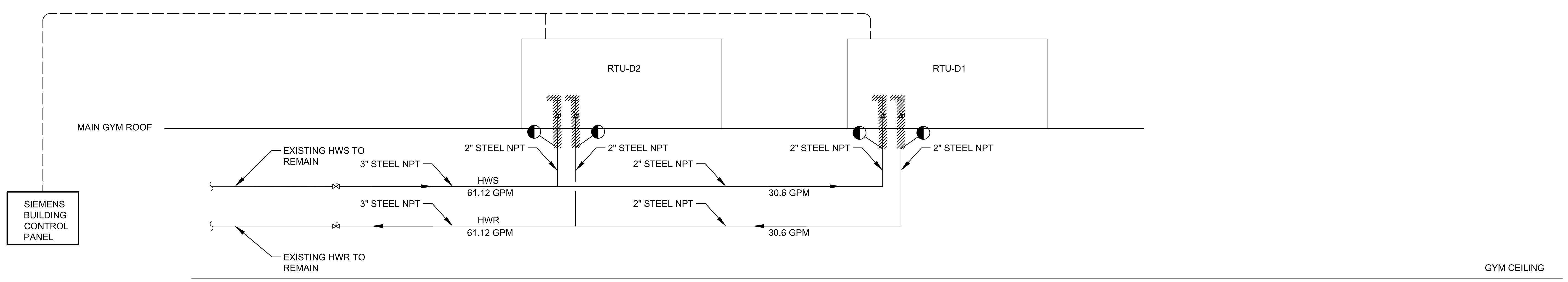
Drawing Title: MECHANICAL RISER DIAGRAM - BOILER

Drawing No. M-302



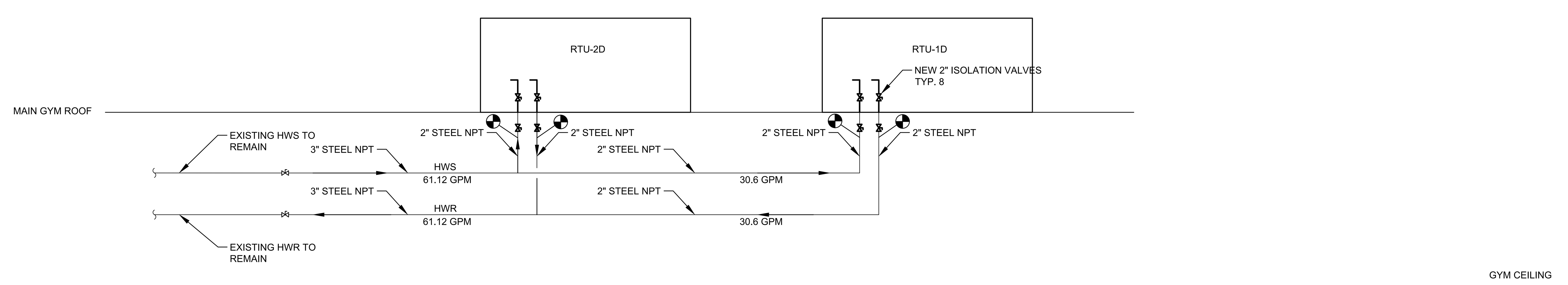
1 ANNEX GYM HOT WATER PIPING DIAGRAM

SCALE: NONE



2 MAIN GYM HOT WATER PIPING DIAGRAM - REMOVAL

SCALE: NONE



3 MAIN GYM HOT WATER PIPING DIAGRAM - INSTALLATION

SCALE: NONE

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
106 Hammond Road, Thiells NY 10984
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL RISER DIAGRAM - ANNEX GYM

Drawing No.
M-303

SEQUENCE OF OPERATIONS:

REFER TO SPECIFICATION SECTION 230993 FOR SEQUENCE OF OPERATION AND CONTROL OF MECHANICAL EQUIPMENT LISTED AND SHOWN ON DRAWING M003. REFER TO MECHANICAL EQUIPMENT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

A. GENERAL:

1. THE OCCUPANCY MODE (UNOCCUPIED OR OCCUPIED) SHALL BE DETERMINED THROUGH A USER-DEFINABLE TIME SCHEDULE. SUMMERTIME MODE SHALL INCLUDE TIMES DURING WHICH HEATING IS NOT REQUIRED. WINTERTIME MODE SHALL INCLUDE TIMES DURING WHICH HEATING IS REQUIRED.
2. BOILER B-3 SHALL BE THE PRIMARY LEAD BOILER. BOILER B-4 SHALL BE THE LAG BOILER, SEE LEAD-LAG PROGRAMMING CONTROLS BELOW.
3. BOILER B-4 SHALL RUN WHEN MAINTENANCE IS REQUIRED ON BOILER B-3.
4. NEW BREAK GLASS STATION AT EACH BOILER ROOM DOORWAY SHALL SHUT DOWN BOTH BOILER PRIMARY CONTROL CIRCUITS AND CLOSE MAIN FUEL VALVES.

B. WINTERTIME OCCUPIED MODE:

HEATING MODE SHALL BE INITIATED WHEN OUTSIDE TEMPERATURE FALLS BELOW 55°F, (ADJUSTABLE). THE HOT WATER BOILER SHALL BE ENGAGED AND MAINTAIN AT LEAST MINIMUM HOT WATER TEMPERATURE REQUIRED BY THE BOILER.

1. BOILER B-3: B-3 SHALL MODULATE TO MAINTAIN HOT WATER SUPPLY TEMPERATURE SETPOINT OF 180°F (ADJ.).
   a. PUMP P-4/5: P-4/5 SHALL BE ENERGIZED AND SHALL OPERATE AT A CONSTANT SPEED WHENEVER B-3 IS ENERGIZED (HARDWIRED TO BOILER CONTROLLER). B-3 SHALL NOT OPERATE UNLESS P-4/5 IS RUNNING. P-4/5 FLOW RATE SHALL BE IN ACCORDANCE WITH BOILER MANUFACTURER'S PUMPING REQUIREMENTS.
   b. B-3 BURNERS SHALL FULLY MODULATE AS FACTORY BURNER SET PROGRAMMING.
   c. LOW RETURN TEMPERATURE: WHENEVER THE HOT WATER RETURN TEMPERATURE FALLS BELOW 140°F (ADJ.) AND B-1 IS ENERGIZED, AN ALARM SHALL GENERATE.

2. BOILER B-4: B-4 SHALL MODULATE TO MAINTAIN HOT WATER SUPPLY TEMPERATURE SETPOINT OF 180°F (ADJ.).
   a. PUMP P-6/7: P-6/7 SHALL BE ENERGIZED AND OPERATE AT VARIABLE SPEED WHENEVER B-4 IS ENERGIZED (HARD WIRED TO BOILER CONTROLLER). B-4 SHALL NOT OPERATE UNLESS P-6/7 IS RUNNING. P-6/7 FLOW RATE SHALL BE IN ACCORDANCE WITH BOILER MANUFACTURER'S PUMPING REQUIREMENTS.
   b. B-4 BURNERS SHALL FULLY MODULATE AS FACTORY BURNER SET PROGRAMMING.
   c. LOW RETURN TEMPERATURE: WHENEVER THE HOT WATER RETURN TEMPERATURE FALLS BELOW 140°F (ADJ.) AND B-4 IS ENERGIZED, AN ALARM SHALL GENERATE.

3. SECONDARY PUMPS:
   a. PUMPS P-8/9 AND P-10/11: P-8/9 AND P-10/11 SHALL OPERATE AT VARIABLE SPEED TO MAINTAIN ZONE HOT WATER SUPPLY TEMPERATURE AT A SETPOINT (BASED ON OUTSIDE AIR TEMPERATURE RESET) WHENEVER ANY OF THE PRIMARY PUMPS (P-4/5 OR P-6/7) IS ENERGIZED.
   b. PUMPS P-8/9 AND P-10/11: P-8/9 AND P-10/11 SHALL ALTERNATE TO EQUALIZE RUN TIME. SELECTION OF LEAD PUMP IS EVALUATED ON A WEEKLY BASIS. THE PUMP WITH THE LEAST RUNTIME IS THE LEAD PUMP. THE PUMP WITH THE MOST RUNTIME IS THE LAG PUMP.
   c. THE DDC SYSTEM USES CURRENT SWITCHES TO CONFIRM THE LEAD PUMP IS IN THE DESIRED STATE (I.E. ON OR OFF) AND GENERATES AN ALARM IF STATUS DEVIATES FROM DDC START/STOP CONTROL. IF THE LEAD PUMP GOES INTO ALARM, THE LAG PUMP STARTS.

4. OUTSIDE AIR TEMPERATURE RESET:
   a. NATURAL GAS MODE (BOILER B-4): B-4 SHALL MODULATE TO MAINTAIN HOT WATER SETPOINT ACCORDING TO THE MANUFACTURER'S SUGGESTED PROTOCOL. HOT WATER SUPPLY TEMPERATURE MAY BE RESET TO 140 DEG F (ADJ.)
   b. OUTSIDE AIR RESET MODE SHALL BE CANCELED IF THE PRIMARY HOT WATER RETURN TEMPERATURE DROPS TO 140 DEG F. (ADJ.) WHENEVER B-3 IS ENERGIZED. THERE IS NO HOT WATER RETURN LOW LIMIT FOR B-4.

5. LEAD LAG PROGRAMMING CONTROL:

   A LEAD-LAG PROGRAMMING CONTROL SHALL SEQUENCE AUTOMATICALLY THE FIRING OF MULTIPLE BOILERS WITH CHANGING LOAD CONDITIONS. THE FIRST (LEAD) BOILER STARTS-UP AND REACHES ITS BURNER DELIVERY (HIGH FIRE) RATE. IF THE FIRST BOILER IS UNABLE TO MEET THE REQUIRED WATER TEMPERATURE, THE SECOND (LAG) BOILER SHALL AUTOMATICALLY FIRE. BOILERS SHALL OPERATE IN UNISON, MODULATING TO MEET THE DEMAND. IF THE DEMAND IS LESS THAN THE CAPACITY PROVIDED BY BOTH BOILERS FIRING AT LOW FIRE, THE LAG BOILER SHALL AUTOMATICALLY SHUT DOWN. THE LEAD BOILER SHALL SHUT DOWN WHEN THE DEMAND HAS BEEN EXCEEDED. SELECTION OF THE LEAD BOILER SHALL BE MADE EITHER MANUALLY BY MEANS OF A SELECTOR DIAL ON THE CONTROL CABINET OR AUTOMATICALLY AS A FUNCTION OF RUN TIME.

6. BURNER OPERATING CONTROLS:

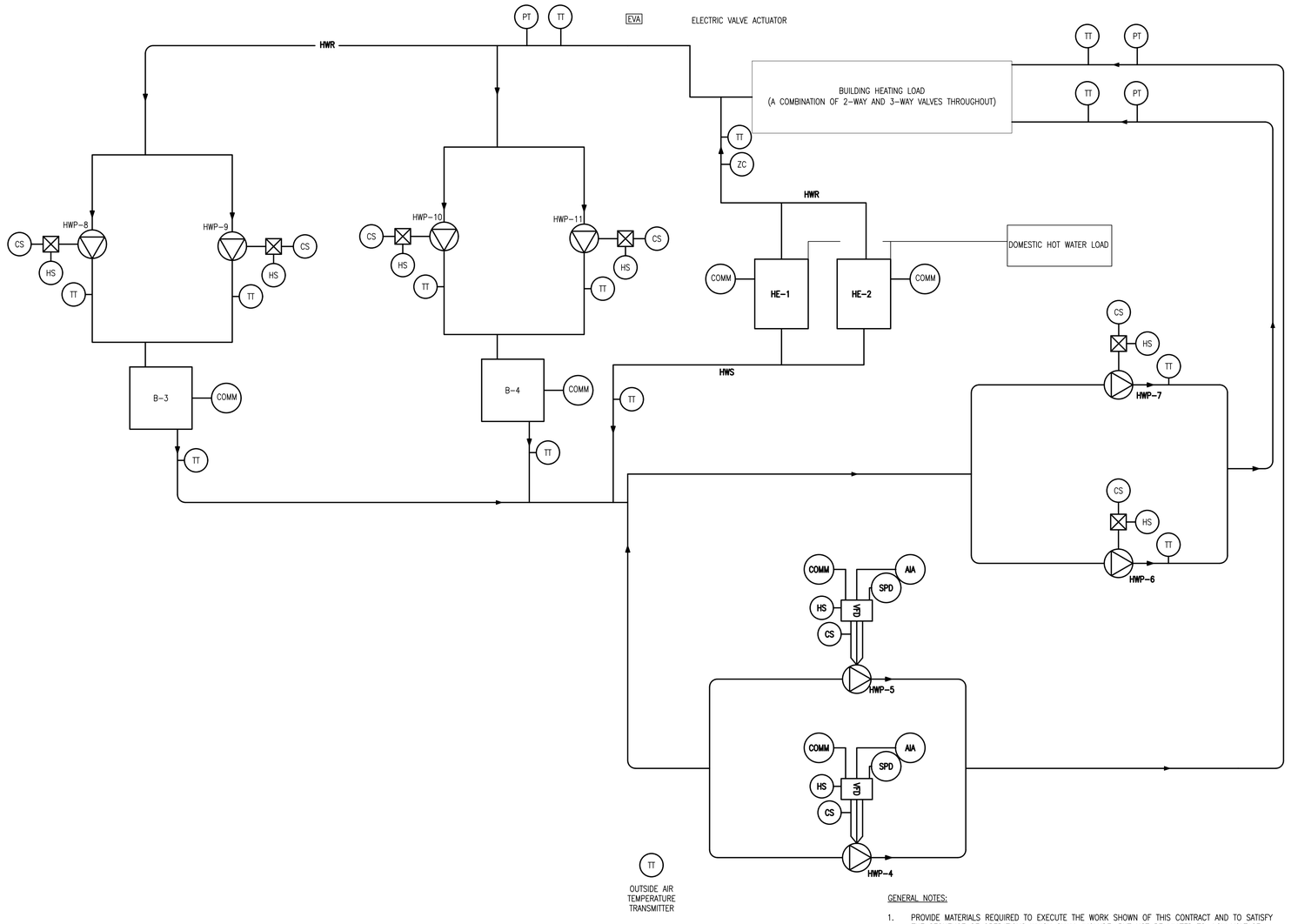
   TO MAINTAIN SAFE OPERATING CONDITIONS, THE FOLLOWING BURNER SAFETY CONTROLS LIMIT BURNER OPERATION.
   a. HIGH TEMPERATURE LIMIT: AUTOMATIC AND MANUAL RESET STOPS BURNER IF OPERATING CONDITIONS RISE ABOVE MAXIMUM BOILER DESIGN TEMPERATURE. LIMIT SWITCH TO BE MANUALLY RESET ON THE CONTROL INTERFACE.
   b. LOW-WATER CUTOFF SWITCH: ELECTRONIC PROBE SHALL PREVENT BURNER OPERATION ON LOW WATER. CUTOFF SWITCH SHALL BE MANUALLY RESET ON THE CONTROL INTERFACE.
   c. BLOCKED INLET SAFETY SWITCH: MANUAL-RESET PRESSURE SWITCH FIELD MOUNTED ON BOILER COMBUSTION-AIR INLET.
   d. HIGH AND LOW GAS PRESSURE SWITCHES: PRESSURE SWITCHES SHALL PREVENT BURNER OPERATION ON LOW OR HIGH GAS PRESSURE. PRESSURE SWITCHES TO BE MANUALLY RESET ON THE CONTROL INTERFACE.
   e. BLOCKED DRAIN SWITCH: BLOCKED DRAIN SWITCH SHALL PREVENT BURNER OPERATION WHEN TRIPPED. SWITCH TO BE MANUALLY RESET ON THE CONTROL INTERFACE.
   f. LOW AIR PRESSURE SWITCH: PRESSURE SWITCHES SHALL PREVENT BURNER OPERATION ON LOW AIR PRESSURE. SWITCH TO BE MANUALLY RESET ON THE CONTROL INTERFACE.
   g. AUDIBLE ALARM: FACTORY MOUNTED ON CONTROL PANEL WITH SILENCE SWITCH; SHALL SOUND ALARM FOR ANY LOCKOUT CONDITIONS.
   h. EACH BURNER SHALL BE PROVIDED WITH A FLAME FAILURE (COMBUSTION SAFETY) PROGRAMMING CONTROL WHICH SHALL DE-ENERGIZE ALL ELECTRICALLY OPERATED FUEL VALVES AND BURNER EQUIPMENT WITHIN FOUR SECONDS, AND ACTUATE A VISUAL ALARM MOUNTED ON THE CONTROL PANEL AFTER AN OPERATING FLAME FAILURE HAS OCCURRED. AUTOMATIC START UP AND SHUTDOWN PROGRAMMING SHALL BE A PART OF THIS SAFETY EQUIPMENT.
   i. CARBON MONOXIDE SHUT DOWN: BURNER EQUIPMENT SHALL BE SHUT DOWN BY THE STAND ALONE CO SYSTEM ON DETECTION OF HIGH CARBON MONOXIDE LEVELS.
   j. LOW FIRE HOLD AQUASTAT: A LOW FIRE HOLD MINIMUM TEMPERATURE AQUASTAT SHALL LIMIT BURNER MODULATION TO PREVENT BOILER FROM MODULATING TO HIGH FIRE UNTIL WATER TEMPERATURE REACHES 180°F.

C. WINTERTIME UNOCCUPIED MODE: THE BOILER SHALL MODULATE ACCORDING TO THE SAME SEQUENCE ABOVE. THE TEMPERATURE CONTROL SYSTEM SHALL BE CAPABLE OF NIGHT SETBACK.

D. SUMMERTIME MODE: BOILERS B-3 AND B-4 SHALL BE TO MAINTAIN DOMESTIC HOW WATER HEATING REQUIREMENTS. THE SUMMER SWING VALVE SWITCH SHALL BE SET TO OFF. PRIMARY LOOP PUMPS SHALL BE OFF. SECONDARY LOOP PUMPS SHALL BE OFF.

CONTROLS SYMBOLS

TT	TEMPERATURE TRANSMITTER	VFD	VARIABLE FREQUENCY DRIVE
PT	PRESSURE TRANSMITTER	⊠	MOTOR STARTER
CS	CURRENT TRANSMITTER	DPS	DIFFERENTIAL PRESSURE SENSOR
HS	HAND SWITCH (HAND-OFF-AUTO SWITCH)	SPD	SPEED COMMAND
ZC	VALVE OR DAMPER POSITION CONTROLLER	AIA	ANALOG INPUT
ES	DAMPER END SWITCH	COMM	COMMUNICATION
		ADJ	ADJUSTABLE
		EVA	ELECTRIC VALVE ACTUATOR



GENERAL NOTES:

1. PROVIDE MATERIALS REQUIRED TO EXECUTE THE WORK SHOWN OF THIS CONTRACT AND TO SATISFY THE SEQUENCE OF OPERATIONS WHICH SHALL INCLUDE, BUT NOT BE LIMITED TO: LOW VOLTAGE WIRING, CONDUIT, MATERIALS, PROGRAMMING, SOFTWARE, HARDWARE, AND APPURTENANCES.
2. PROVIDE LOW VOLTAGE WIRING IN EMT CONDUIT THROUGHOUT. PAINT TO MATCH EXISTING FINISHES.
3. SCHEDULE THE WORK WITH THE OWNER AND NOTIFY THE OWNER AT LEAST 48 HOURS IN ADVANCE OF PERFORMING ANY SHUTDOWNS.
4. PERFORM CUTTING AND PATCHING AS REQUIRED TO ACCESS THE EXISTING VENT DAMPERS OR TO OTHERWISE EXECUTE THE WORK. RESTORE FINISHES TO MATCH EXISTING TO THE SATISFACTION OF THE OWNER.

1 CONTROL SYSTEM SCHEMTIC DIAGRAM
SCALE: N.T.S.

1/2" IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901
Mechanical & Electrical Engineer:
Structural Engineer:

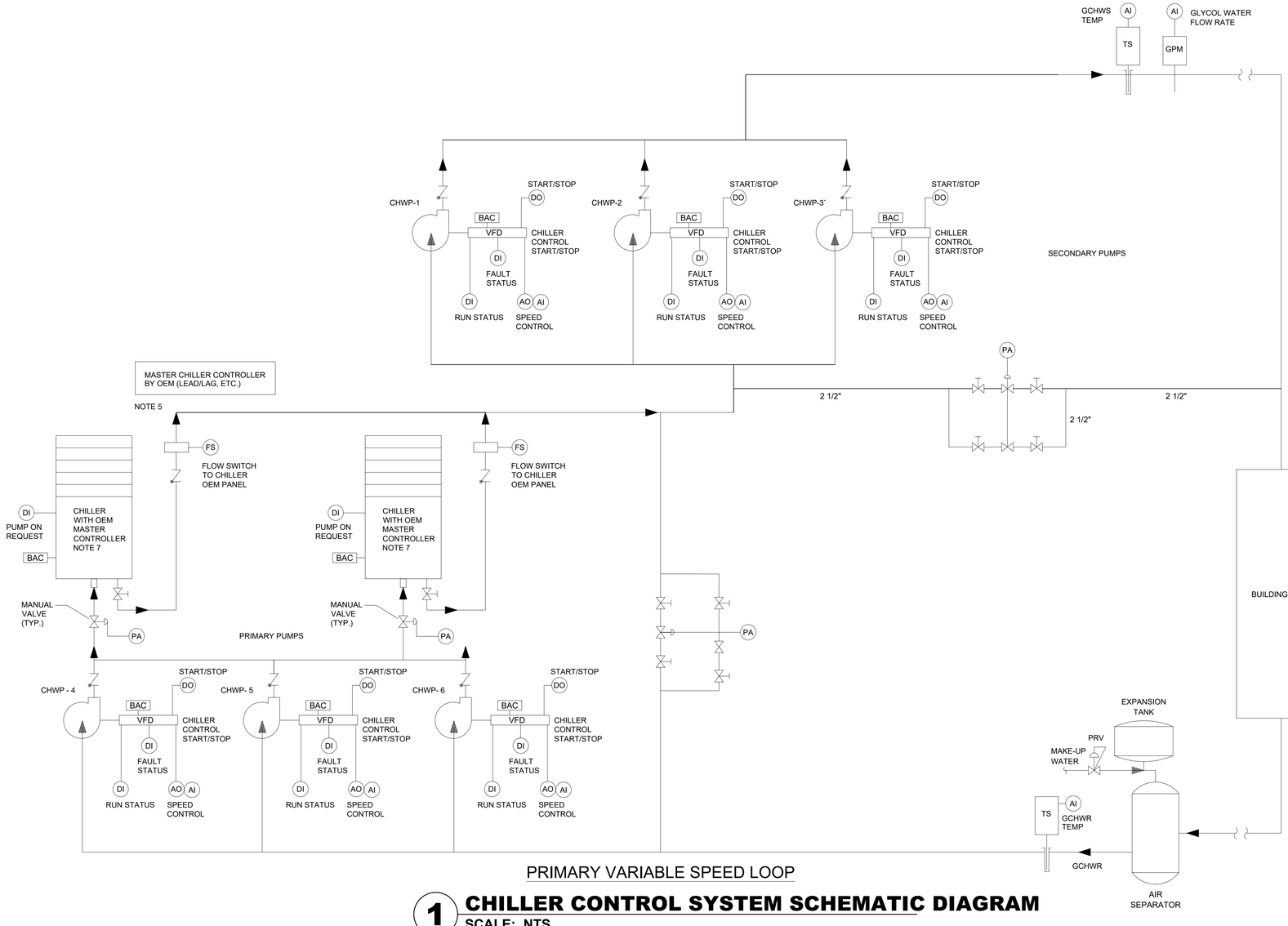
NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
100 Hammond Road, Suffern, NY 10901

MICHAEL SHILALE ARCHITECTS, L.L.P.
149 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL CONTROL DIAGRAMS - BOILER

Drawing No.
M-401

N.T.C.



PRIMARY VARIABLE SPEED LOOP

1 CHILLER CONTROL SYSTEM SCHEMATIC DIAGRAM

SCALE: NTS

NOTES:

1. FOR COMPLETE VALVE AND INSTRUMENTATION REQUIREMENTS SEE CONTRACT SPECIFICATION.
2. USE MODULATING 2-WAY VALVES FOR THROTTLING OF AHU AND TERMINAL UNITS.
3. PROVIDE A SYSTEM DIFFERENTIAL PRESSURE TRANSMITTER TO PROVIDE VARIABLE FLOW CONTROL SIGNAL TO AUTOMATICALLY CONTROL THE SPEED OF THE GLYCOL CHILLED WATER PUMP. PROVIDE SEPARATE CHILLER DIFFERENTIAL PRESSURE TRANSMITTER(S) TO MODULATE SYSTEM BYPASS VALVE(S). PROVIDE MODULATING 2-WAY BYPASS VALVES SIZED IN THE AGGREGATE FOR THE FLOW REQUIRED TO SATISFY THE CRITICAL MINIMUM FLOW OF GLYCOL PUMP (40-45% VFD) AND FOR FLOW REQUIREMENT OF CHILLER AT TRANSIENT FULL LOAD WITH MINIMUM FLOW. COORDINATE WITH CHILLER MANUFACTURER AND WATER BALANCER TO SET REQUIRED FLOW AND MINIMUM AMOUNT OF MODULAR CHILLER MODULES REQUIRED TO BE OPEN WHEN CHILLER IS IDLE TO ENSURE PRIMARY LOOP GLYCOL PUMP IS NEVER "DEAD HEADED".
4. NOT USED
5. LOCAL MODULAR MASTER CHILLER CONTROL PANEL SHALL STAGE ON AS REQUIRED THE INTERNAL MODULAR CHILLER MODULES TO SATISFY THE WATER TEMPERATURE SETPOINT. CHILLER MANUFACTURER SHALL ROTATE LEAD MODULE TO ENSURE EQUAL RUN TIME ON ALL MODULES. CHILLER MANUFACTURER SHALL CONFIGURE MASTER CHILLER CONTROL PANEL TO ALLOW CURRENT LEAD MODULE AND ANY OTHER MODULE NEEDED TO BE OPEN TO ALLOW SYSTEM FLOW, EVEN IF THE CHILLER IS IDLE. TCC SHALL WIRE AN OEM PROVIDED FLOW SWITCH TO CHILLER MASTER PANEL AS SAFETY INTERLOCK. TCC SHALL INTEGRATE CHILLER OEM MASTER PANEL VIA BACnet INTERFACE TO THE BMS/DDC SYSTEM. TCC SHALL PROVIDE ALL PRIMARY LOOP CONTROL AND MONITORING REQUIREMENTS AS PER THE POINTS LIST.
6. SECONDARY LOOP CONTROLS INCLUDING LAG/LEAD OF SECONDARY PUMPS AND MODULATION OF PRIMARY LOOP HX CONTROL VALVE TO MAINTAIN SECONDARY LOOP SUPPLY TEMPERATURE BY TCC. ALL OTHER SECONDARY LOOP MONITORING AND CONTROLS INCLUDING SECONDARY LOOP DIFFERENTIAL PRESSURE TRANSMITTER AND BYPASS VALVE CONTROL BY TCC.
7. EACH MODULE SHALL BE PROVIDED WITH A MOTORIZED ISOLATION VALVE (NOT SHOWN) CONTROLLED BY OEM.
8. PROVIDE DIFFERENTIAL PRESSURE TRANSMITTER TO PROVIDE VARIABLE FLOW CONTROL SIGNAL TO OPERATING SECONDARY CHILLED WATER PUMPS AND DIFFERENTIAL PRESSURE VALVE. PROVIDE 2-WAY VALVE BYPASS SIZED IN THE AGGREGATE FOR THE FLOW REQUIRED TO SATISFY THE CRITICAL MINIMUM FLOW (40%-45% VFD SPEED). TCC TO COORDINATE WITH WATER BALANCER.
9. PROVIDE OEM SUPERVISORY MASTER CONTROLLER TO LEAD/LAG CONTROL MULTIPLE CHILLER BANKS.
10. DIFFERENTIAL PRESSURE SHALL BE MEASURED AT OR NEAR THE MOST REMOTE TERMINAL UNIT OR THE TERMINAL UNIT REQUIRING THE GREATEST DIFFERENTIAL PRESSURE.
11. ALL CONTROL VALVES TO HAVE MANUEL BY-PASS WITH ISOLATION VALVES AND BALANCING VALVE.

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

136 Hammond Road, Suffern NY 10901

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL CONTROL DIAGRAM - CHILLER

Drawing No.
M-402

GENERAL NOTES

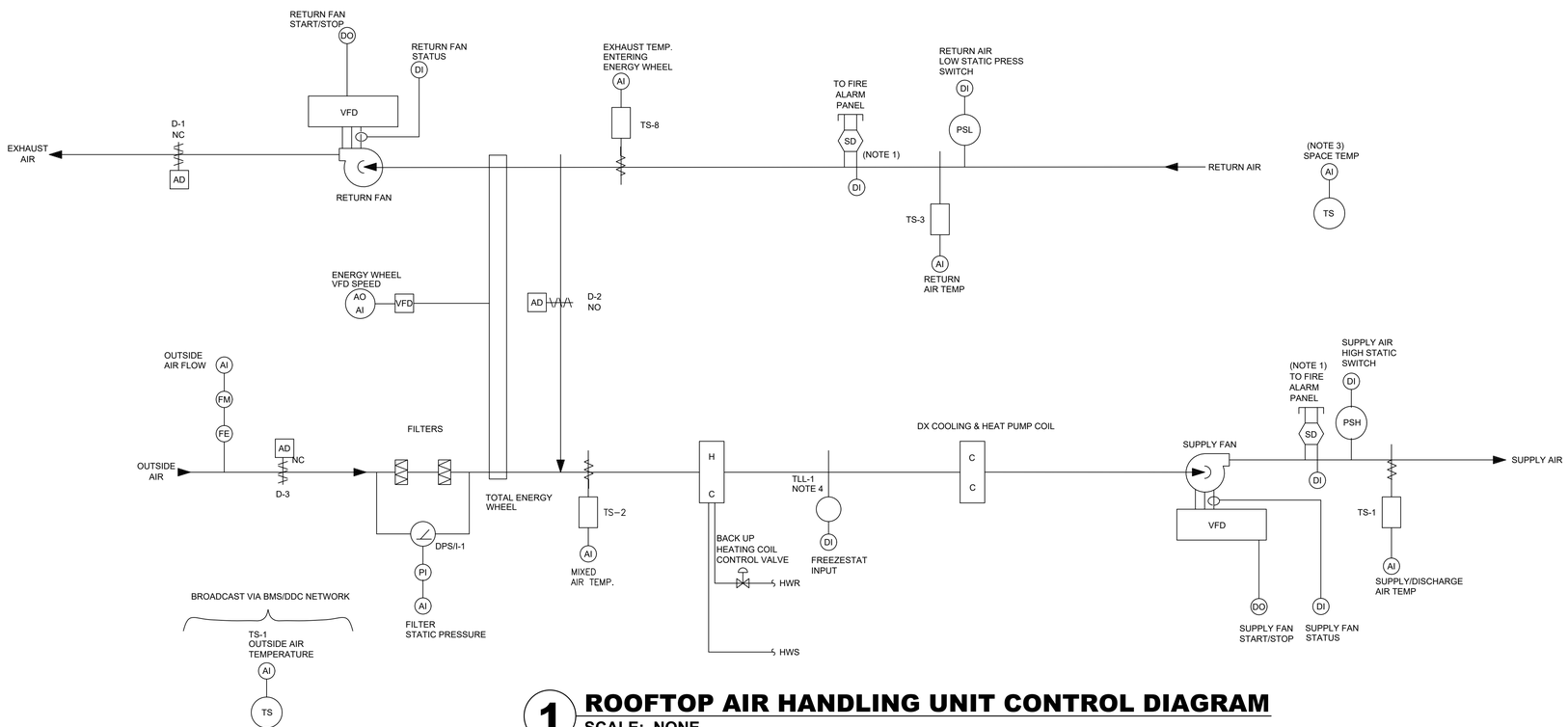
1. DUCT SMOKE DETECTORS SHALL BE PROVIDED IN MAIN SUPPLY AND RETURN DUCT FOR SYSTEMS OVER 1,000 CFM AND ALSO UPSTREAM OF EACH STORY RETURN DUCT/ RISER CONNECTION WHERE RETURN AIR RISERS SERVE TWO OR MORE STORIES FOR SYSTEMS OVER 15,000 CFM.
2. INTEGRATE AIR FLOW MEASURING APPARATUS INTO THE BMS/DDC NETWORK. PROVIDE ONE OUTSIDE AIR FLOW MEASURING STATION FOR EACH OUTSIDE AIR INTAKE PORT. PROVIDE FACTORY INSTALLED AIRFLOW STATION.
3. PROVIDE NEW THERMOSTATS WITH LOCK BOXES IN ROOMS BEING SERVED BY AHU. CONTRACTOR SHALL PROVIDE ALL ASSOCIATED CONTROL WIRING.
4. SAFETY SHUTDOWN DEVICES SHALL BE HARDWIRED TO THE FAN STARTER CIRCUIT IN ADDITION TO THE DDC SYSTEM. COORDINATE WITH MANUFACTURER FOR SHUTDOWN UNDER ALL MODES OF OPERATION.
5. MECHANICAL CONTRACTOR SHALL HIRE A FIRE ALARM SUBCONTRACTOR. FIRE ALARM CONTRACTOR TO FURNISH FIRE ALARM SYSTEM COMPLIANT SMOKE DETECTORS TO THE MECHANICAL CONTRACTOR WHO SHALL IN TURN FURNISH THEM TO THE CENTRAL AIR HANDLING UNIT MANUFACTURER FOR FACTORY INSTALLATION OR TO THE SHEET METAL CONTRACTOR FOR FIELD DUCTWORK INSTALLATION FOR THE FLOOR RETURN/RISER RETURN CONNECTIONS AS APPLICABLE. CONTRACTOR SHALL PROVIDE ALL SIGNAL AND CONTROL POWER WIRING TO UNIT.
6. CONTRACTOR TO PROVIDE OCCUPANCY SENSORS IN EACH SPACE. SENSORS ARE TO BE INTERCONNECTED TO THE BMS.

LEGEND

VFD	VARIABLE FREQUENCY DRIVE
TLL-1	TEMPERATURE LOW LIMIT
TCC	TEMPERATURE CONTROLS CONTRACTOR
TS-1	OUTSIDE AIR TEMP
TS-2	MIXED AIR TEMP
TS-3	HEATING COIL DISCHARGE
TS-4	DISCHARGE AIR TEMP
TS-5	RETURN AIR TEMP
FE	FLOW ELEMENT
FM	FLOW METER
DCV	DEMAND CONTROL VENTILATION
CO2	CARBON DIOXIDE
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
LON	LONWORKS NETWORK CONNECTION
BMS	BUILDING MANAGEMENT SYSTEM
PSL	PRESSURE SWITCH LOW
PSH	PRESSURE SWITCH HIGH
DPS/I	DIFF. PRESSURE SWITCH/INDICATOR
AD	DPR ACTUATORS

DIAGRAM NOTES

1. THE POINT LISTED HEREIN ARE THE MINIMUM POINTS REQUIRED FOR THE CONTROL AND MONITORING OF THIS EQUIPMENT. THIS POINT LIST IS TYPICAL FOR EACH MECHANICAL/ELECTRICAL SYSTEM OF THIS TYPE. IF THE SEQUENCE OF OPERATION REQUIRES ADDITIONAL OR DIFFERING INFORMATION, IT MUST BE PROVIDED BY THE RESPECTIVE PROVIDER OF THE CONTROLS FOR THIS TYPE OF EQUIPMENT AS COORDINATED BY THE GENERAL AND MECHANICAL CONTRACTORS.
2. THE TCC SHALL PROVIDE ALL DIGITAL ALARM LOGIC. ALL DIGITAL ALARMS SHALL BE COMPATIBLE WITH THE EXISTING SIEMENS BMS SYSTEM.
3. THE TCC SHALL PROVIDE ALL TRENDING AND ANALOG ALARMING VIA THE SOFTWARE USED AT THE EXISTING SIEMENS BMS SYSTEM.
4. PROVIDE ACCUMULATED AIR FLOW FOR VALIDATION OF PURGE-MODE AND FOR PERMANENT VALIDATION OF OCCUPANT VENTILATION.
5. PROVIDE MANUAL RESET DEVICE. NOTE THAT THIS DEVICE BOTH ALARMS IN THE BMS AND IS HARDWIRED TO THE VFDS FOR SHUTDOWN OF THE FANS IN ALL OPERATING CONDITIONS OF THE VFD.
6. PROVIDE THE ALARM WHEN AT THE CALCULATED DIFFERENTIAL BETWEEN OUTSIDE AIR AND SPACE AIR CO2 VALUE IS 1000 ppm.
7. PROVIDE LON COMMUNICATION CONNECTION TO THIS DEVICE MAPPING ALL REQUIRED POINTS INTO THE LNS DATABASE.



1 ROOFTOP AIR HANDLING UNIT CONTROL DIAGRAM
SCALE: NONE

HEAT PUMPS ARE TO BE PRIMARY HEATING.
HOT WATER COILS TO BE SECONDARY BACK UP HEATING.
DURING DX COIL DEFROST MODE HOT WATER COILS TO BE USED.
HOT WATER VALVES TO BE 5% OPEN ALL TIME FOR FREEZE PROTECTION.
CIRCULATION PUMPS TO BE ON ALL TIMES.
SEE SEQUENCE OF OPERATION FOR DETAILS

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE
0 1/2 1

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

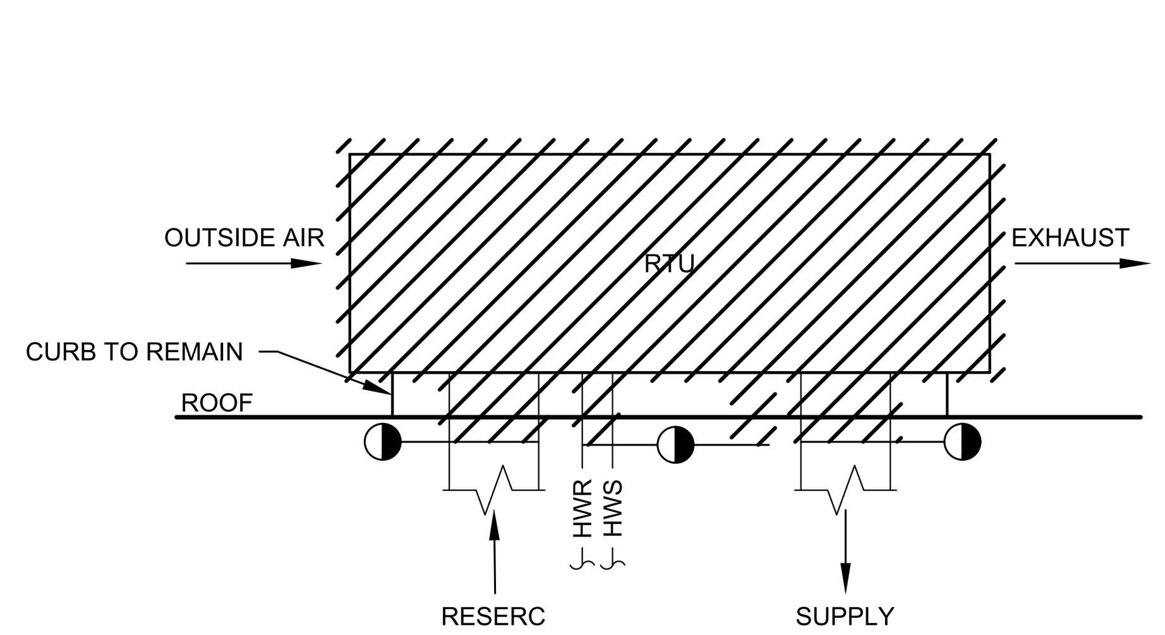
GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901
Mechanical & Electrical Engineer:
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
106 Ramapoo Road, Thiells NY 10984

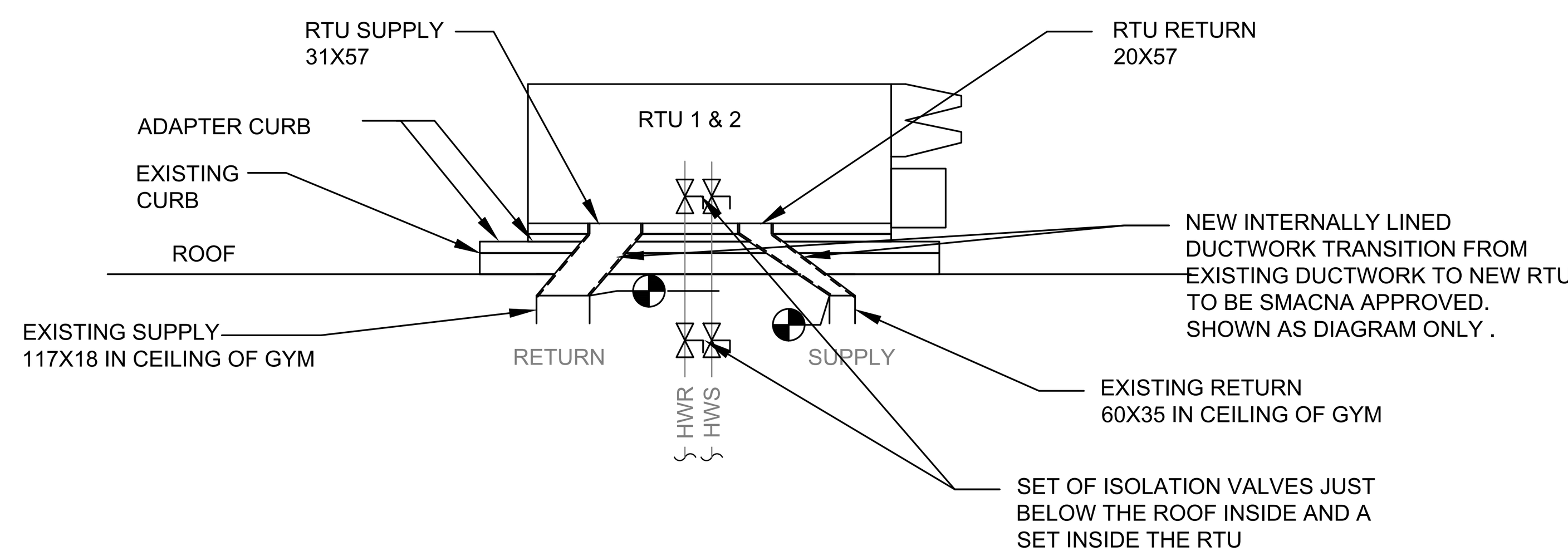
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-9500
www.shilale.com

Drawing Title
MECHANICAL CONTROL DIAGRAMS - RTU'S

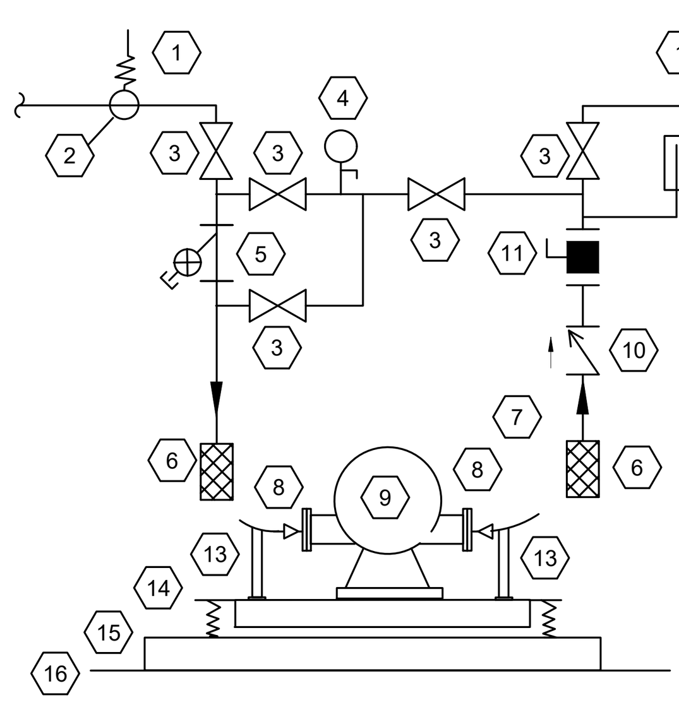
Drawing No.
M-403



1 RTU REMOVAL DETAIL
SCALE: NONE



2 RTU INSTALL DETAIL
SCALE: NONE

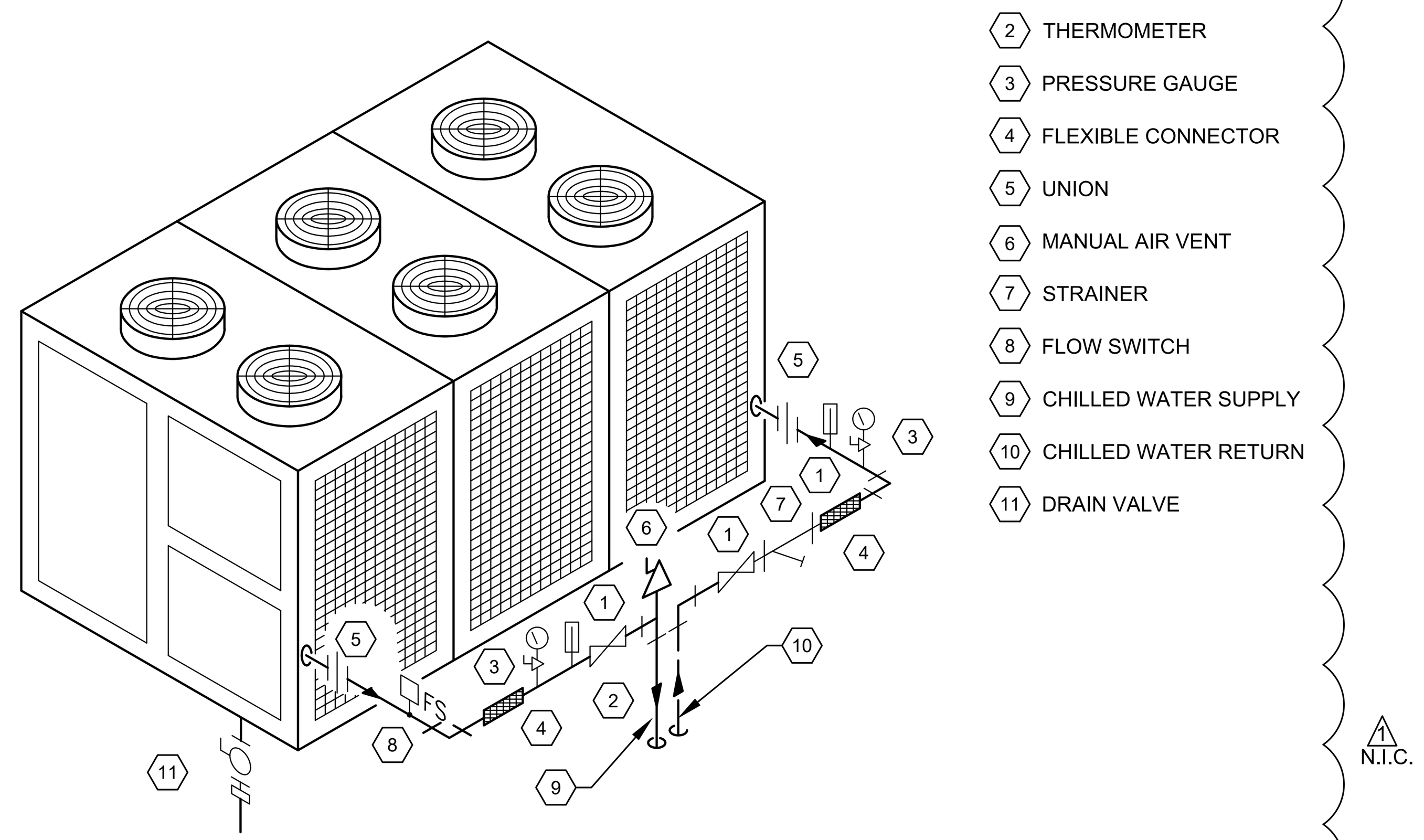


1. SPRING TYPE VIBRATION ISOLATION PIPE HANGERS, TYPICAL
2. INSTALL HANGER AS CLOSE TO PIPE ELBOW AS POSSIBLE. PROVIDE SWAY CONSTRAINTS
3. SHUT OFF VALVE
4. PRESSURE GAGE (COMPOUND GAGE REQUIRED)
5. STRAINER W/ DRAIN
6. FLEX. CONNECTOR
7. LONG RADIUS ELBOW (TYPICAL)
8. PIPE INCREASER/DECREASER
9. PUMP
10. CHECK VALVE
11. BALANCING VALVE
12. THERMOMETER
13. 1" MIN. DIA. PIPE STAND (TYPICAL)
14. INERTIA BASE
15. 4" HIGH CONCRETE HOUSE KEEPING PAD
16. FLOOR

NOTES:

ALL TEMPERATURE AND PRESSURE MEASURING STATIONS SHOWN ABOVE SHALL BE LOCAL INDICATORS (I.E. THERMOMETER AND PRESSURE GAGES) SEE FLOW DIAGRAMS FOR ALL THE T, P, F REQUIRING INTERFACE WITH ENERGY MANAGEMENT SYSTEM.

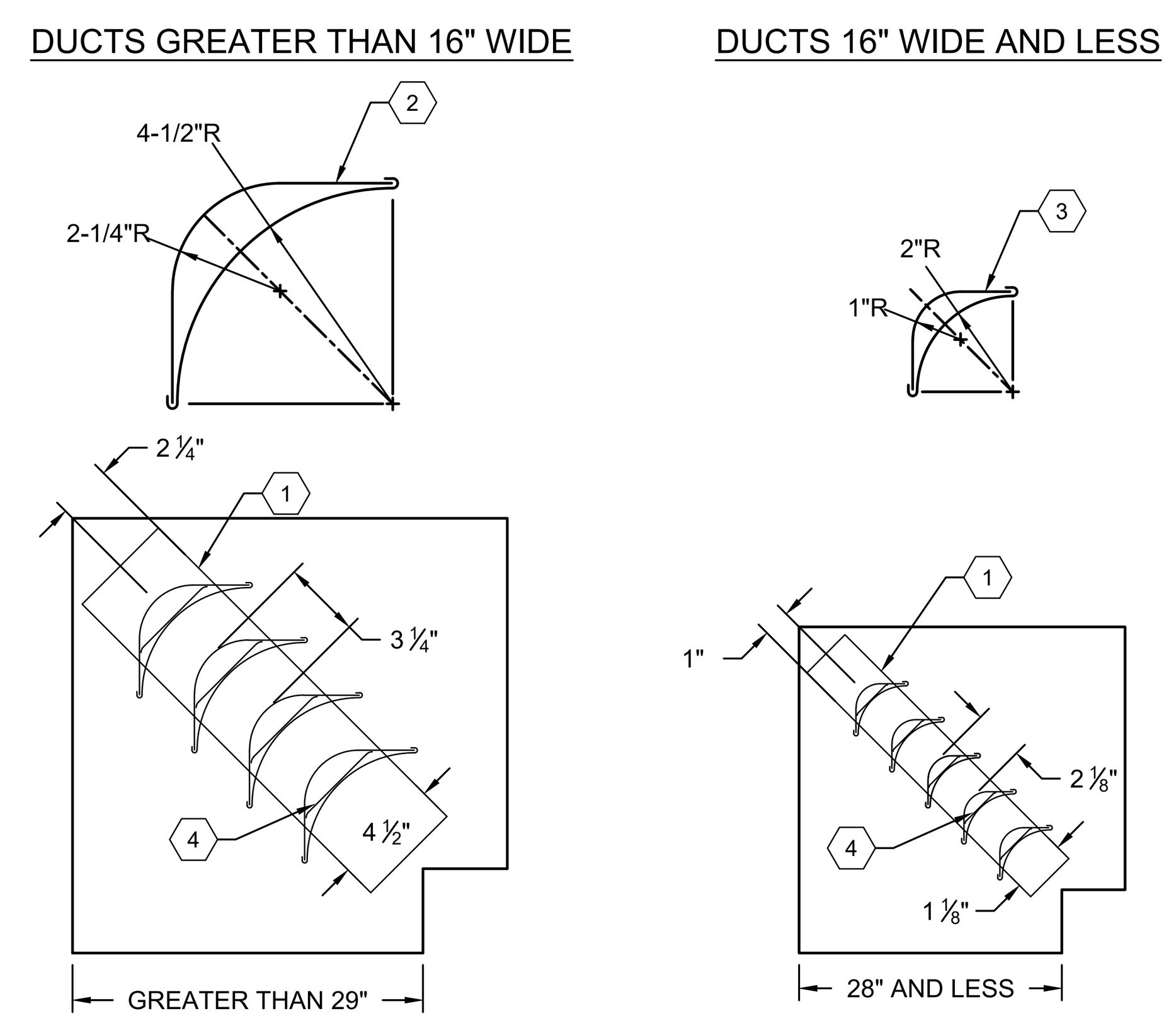
3 HOT AND CHILLED WATER PUMP DETAIL
SCALE: NONE



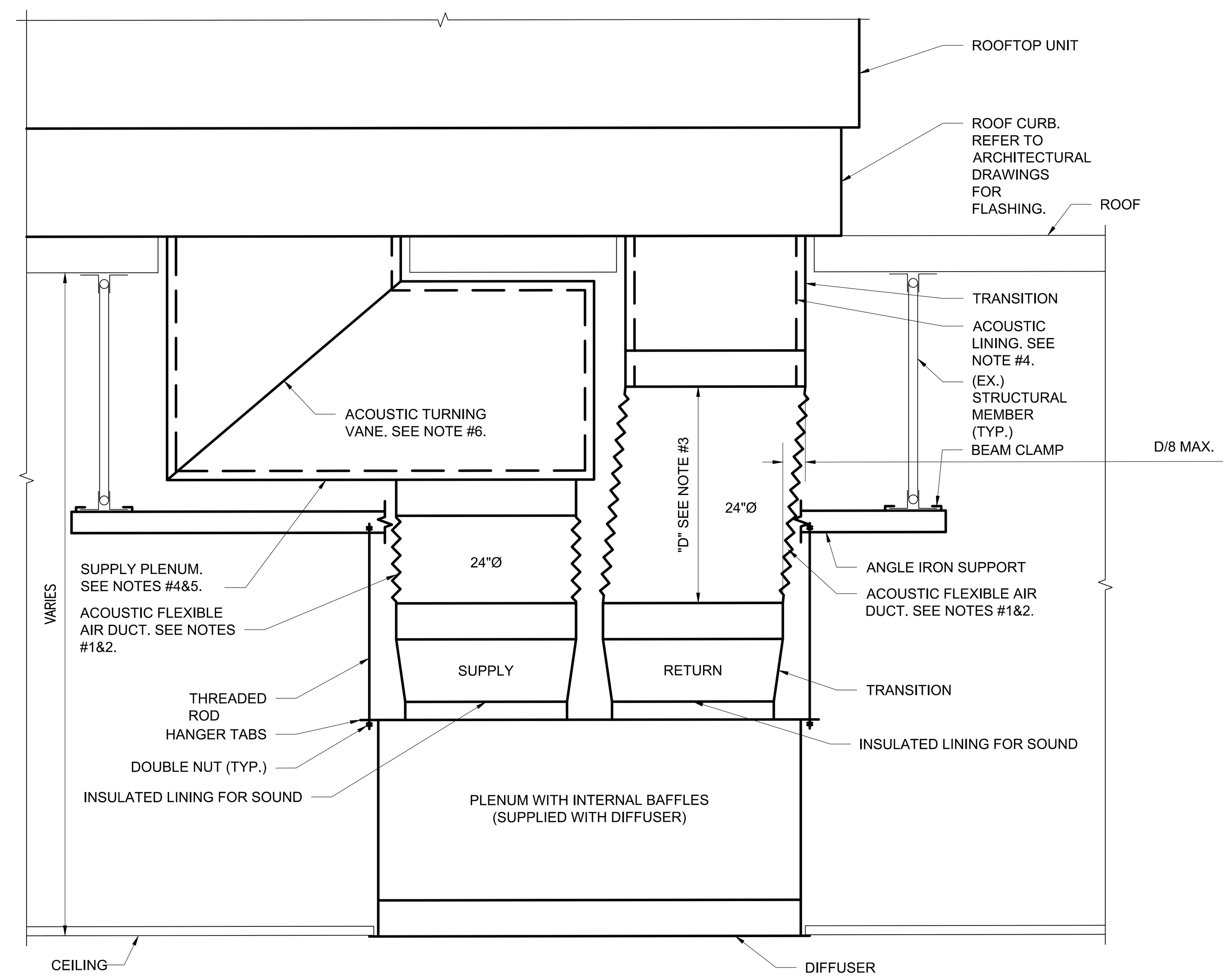
1. GATE VALVE
2. THERMOMETER
3. PRESSURE GAUGE
4. FLEXIBLE CONNECTOR
5. UNION
6. MANUAL AIR VENT
7. STRAINER
8. FLOW SWITCH
9. CHILLED WATER SUPPLY
10. CHILLED WATER RETURN
11. DRAIN VALVE

4 AIR COOLED CHILLER PIPING DETAIL
SCALE: NONE

1. 22 GA VANE RUNNER BOLTED, SCREWED OR WELDED TO DUCT
2. LARGE DOUBLE VANE, MIN 24 GA, 72" MAX UNSUPPORTED VANE LENGTH
3. SMALL DOUBLE VANE, MIN 26 GA, 48" MAX UNSUPPORTED VANE LENGTH
4. TURNING VANE MOUNTED ON EACH TAB OF RUNNER. EVERY RUNNER TAB MUST RECEIVE A TURNING VANE.



5 DUCTWORK DETAILS
SCALE: NONE



NOTES:
1. PROVIDE A UL LISTED ACOUSTIC FLEXIBLE AIR DUCT FACTORY COMPOSED OF A RESILIENT CALENDARED FILM LINER DUCT PERMANENTLY BONDED TO A COATED SPRING STEEL WIRE HELIX AND SUPPORTING A FIBERGLASS INSULATING BLANKET WITH LOW PERMEABILITY OUTER VAPOR BARRIER OF FIBERGLASS REINFORCED FILM LAMINATE. DUCT SHALL BE 24"Ø UNLESS OTHERWISE NOTED ON THE PLANS. BASIS OF DESIGN, THERMAFLEX M-KE.
2. MAXIMUM OFFSET FOR FLEXIBLE DUCT SHALL BE 1/8 OF ITS INSTALLED LENGTH. USE ROUND, LONG RADIUS GALVANIZED STEEL ELBOWS IF A GREATER OFFSET IS REQUIRED. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
3. FLEXIBLE DUCT SHALL BE LIMITED TO 5 FEET IN LENGTH.
4. DUCT SHALL BE INTERNALLY LINED WITH 1" THICK ACOUSTIC FIBERGLASS DUCT LINER (JOHNS MANVILLE LINACOUSTIC RC-HP OR EQUAL).
5. CLEAR INSIDE DIMENSIONS OF SUPPLY PLENUM SHALL BE 24"X24" MINIMUM.
6. PROVIDE 4" DOUBLE WALL ACOUSTIC TURNING VANES WHERE SHOWN (DUCTMATE 4AVGA24 OR EQUAL).

6 CONCENTRIC DIFFUSER RTU 3-6 DETAIL
SCALE: NONE

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by	A.W
Checked by	P.C
Project No.	43065
Scale	AS NOTED
Date	12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

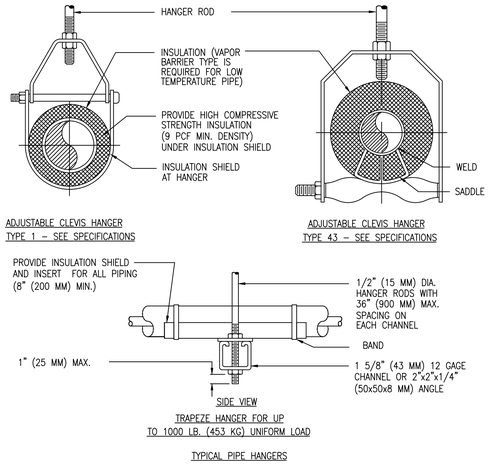
106 Hammond Road, Thiells NY 10984

COUNTY OF ROCKLAND

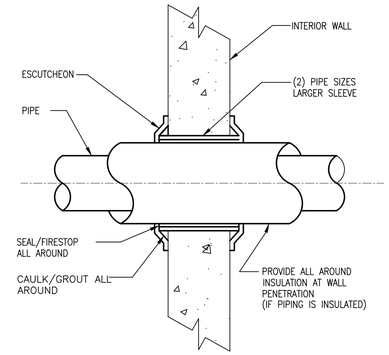
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL DETAILS - 1

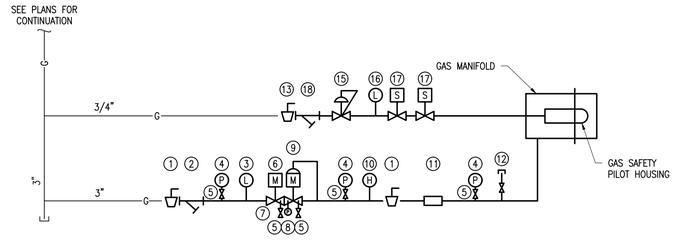
Drawing No.
M-501



1 PIPE HANGER DETAIL
SCALE: NTS



2 WALL PENETRATION
SCALE: NTS



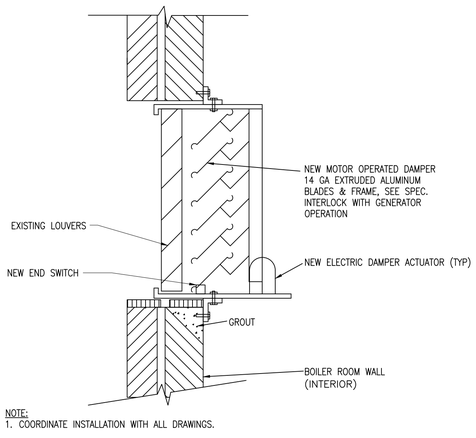
KEYED NOTES:

1 MANUAL BALL VALVE
2 MAIN GAS STRAINER
3 MAIN GAS LOW PRESSURE SWITCH
4 GAS PRESSURE GAUGE
5 MANUAL TEST VALVE
6 MAIN MOTORIZED GAS VALVE WITH PROOF OF CLOSURE
7 MAIN GAS VALVE BODY
8 GAS LOW PRESSURE SWITCH (AUTO RESET)
9 MAIN REGULATOR/MOTORIZED SHUTOFF GAS VALVE WITH PROOF OF CLOSURE
10 MAIN GAS HIGH PRESSURE SWITCH
11 FUEL FLOW CONTROL VALVE (BUTTERFLY VALVE)
12 TEST COCK WITH PLUG
13 PILOT MANUAL BALL VALVE
14 PILOT STRAINER
15 PILOT GAS PRESSURE REGULATOR
16 PILOT GAS LOW PRESSURE SWITCH (MANUAL RESET)
17 PILOT SOLENOID VALVE
18 PILOT STRAINER

NOTES:

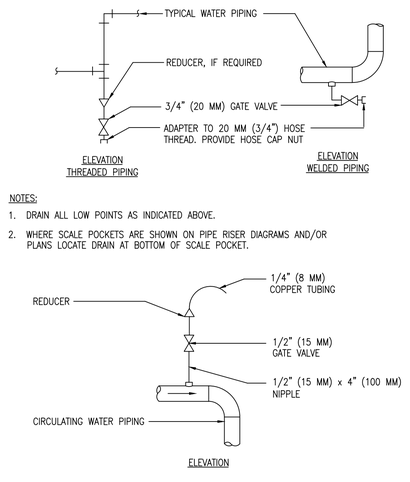
1. PROVIDE A LISTED, APPROVED, VENTLESS GAS TRAIN ASSEMBLY IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND SPECIFICATIONS.
2. SUBMIT BURNER GAS PIPING SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.

3 BOILER GAS TRAIN
SCALE: NTS



NOTE:
1. COORDINATE INSTALLATION WITH ALL DRAWINGS.

4 MOTORIZED DAMPER DETAIL
SCALE: NTS

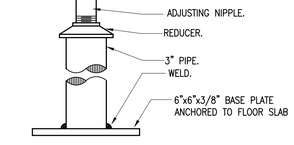


NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

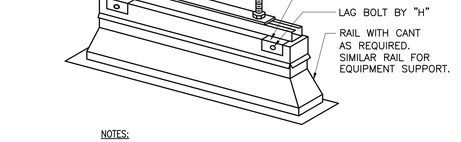
TYPICAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN

5 AIR VENT AND DRAIN DETAIL
SCALE: NTS

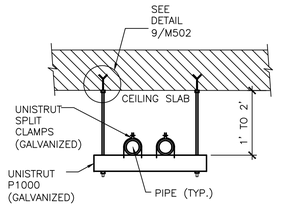


6 ADJUSTABLE PIPE/EQUIPMENT SUPPORT
SCALE: NTS

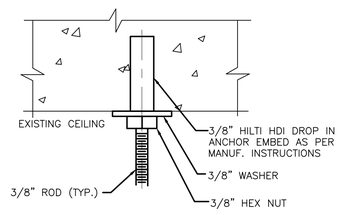


NOTES:
1. PIPING SUPPORTS TO BE INSTALLED 8'–0" ON CENTER.

7 ROOF DUCT SUPPORT
SCALE: NTS



8 PIPE SUPPORT DETAIL
SCALE: NTS



9 HANGER DETAIL
SCALE: NTS

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

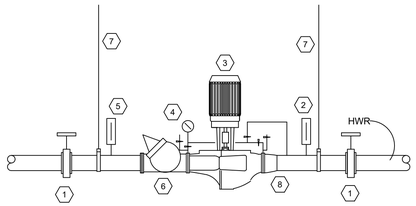
Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
108 Hammond Road, Blauvelt NY 10964

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

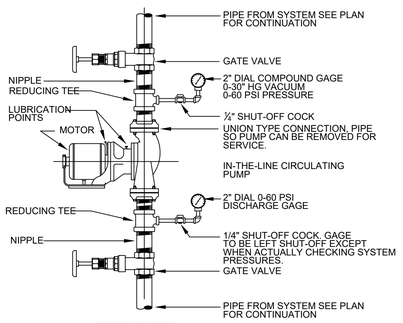
Drawing Title
MECHANICAL DETAILS - 2

Drawing No.
M-502



1. ISOLATION VALVE
2. THERMOMETER
3. INLINE PUMP
4. PRESSURE GAUGE
5. THERMOMETER
6. PUMP TRIPLE DUTY VALVE
7. PIPE HANGER
8. PIPE REDUCER (AS NEEDED)

1 INLINE PUMP DETAIL
SCALE: NTS



SIDE ELEVATION

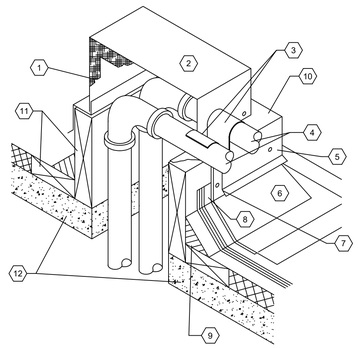
INSTALLATION NOTES

1. THE PUMP SHALL BE INSTALLED DEAD LEVEL, AND SHALL NOT TOUCH OR REST ON ANY PART OF THE BUILDING STRUCTURE.
2. THE ELECTRICAL CONNECTION TO THE PUMP SHALL BE MADE THROUGH THE USE OF FLEXIBLE CONDUIT (GREENFIELD) AT LEAST 18" LONG.
3. THE PUMP SHALL BE INSTALLED SO THAT THE PUMP CAN BE COMPLETELY REMOVED WITHOUT THE DISMANTLING OR REMOVAL OF ANY PIPING OR VALVES.
4. THE MOTOR AND COUPLING SHALL BE CHECKED AND PROPERLY ALIGNED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
5. THE ADJACENT PIPING SHALL BE CAREFULLY FITTED AND ERECTED SO THAT THE PUMP CAN BE INSTALLED OR REMOVED FROM THE PIPE WITHOUT FORCING OR SPRINGING.
6. AFTER THE SYSTEM HAS BEEN COMPLETED AND THE PUMP STARTED THE PUMP AND SYSTEM SHALL BE CHECKED FOR VIBRATION AND EXCESSIVE NOISE AND IMMEDIATELY CORRECTED.

LUBRICATION NOTES

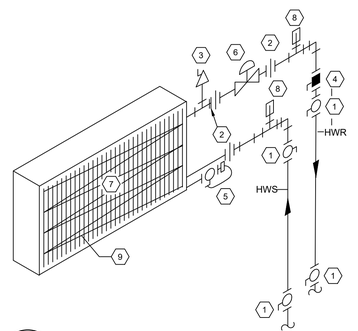
1. AFTER COMPLETION OF THE SYSTEM AND BEFORE START-UP , THE PUMP SHALL BE LUBRICATED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
2. A METAL INSTRUCTION PLATE SHALL BE ATTACHED TO THE PUMP IN A LOCATION WHERE IT IS CLEARLY VISIBLE. THESE INSTRUCTIONS SHALL INDICATE THE RECOMMENDED LUBRICANT, THE POINTS OF LUBRICATION, AND THE RECOMMENDED FREQUENCY OF LUBRICATION.

3 INLINE CIRCULATION PUMP AT BOILER DETAIL
SCALE: NTS



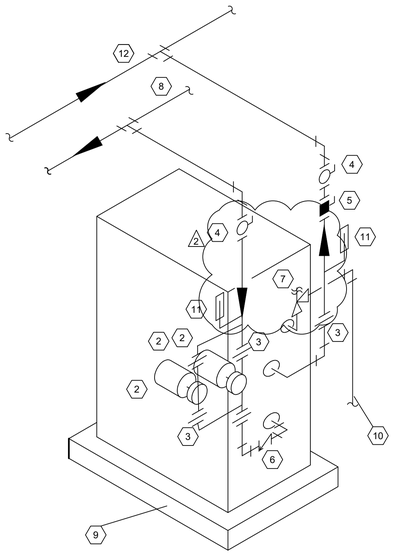
1. INSULATE INSIDE OF HOOD
2. SHEET METAL HOOD
3. SHEET METAL OR FLEX-TUBE COLLAR
4. SLOPE PIPES AWAY FROM HOOD
5. FASTENERS-APPROX. 24" O.C.
6. BASE FLASHING
7. FASTENERS-APPROX. 8" O.C.
8. 2" NOMINAL ABOVE CANT
9. FIBER CANT STRIP SET IN BITUMEN
10. CAP FLASHING
11. WOOD BLOCKING
12. ROOF DECK

2 ROOF PIPE PENETRATION DETAIL
SCALE: NTS



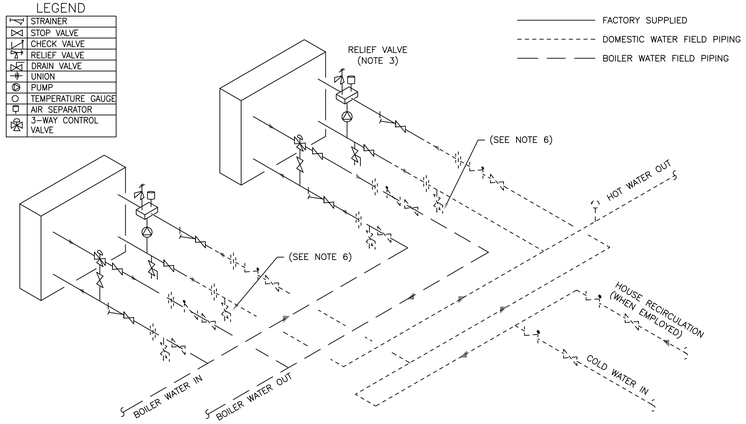
1. BALL VALVE
2. UNION
3. MANUAL AIR VENT
4. CALIBRATED BALANCING VALVE
5. DRAIN VALVE
6. TWO-WAY CONTROL VALVE (ELECTRIC)
7. HEATING COIL
8. THERMOMETER
9. FREEZE STAT (SERPENTINE)

4 AHU HOT WATER COIL
SCALE: NONE



1. BOILER
2. CIRCULATING PUMP
3. UNION
4. BALL VALVE
5. CALIBRATED BALANCING VALVE
6. CHECK VALVE
7. PRESSURE RELIEF VALVE
8. HOT WATER RETURN PIPING
9. 6" CONCRETE HOUSEKEEPING PAD
10. PIPE TO FLOOR DRAIN
11. THERMOMETER
12. HOT WATER SUPPLY PIPING

6 BOILER PIPING DETAIL
SCALE: NONE



5 DOMESTIC HW HEAT EXCHANGER PIPING DETAIL
SCALE: NTS

NOTES:
1. FOR ACTUAL SIZES AND LOCATIONS OF PIPING AND OTHER CONNECTIONS TO THE HEATER, SEE DIMENSIONAL DRAWING.
2. REDUCERS, ON THE WATER INLET SIDE, SHOULD BE LOCATED ADJACENT TO THE HEATER. EXPANSION FITTINGS, ON THE WATER INLET SIDE, SHOULD BE LOCATED AS FAR AS POSSIBLE FROM THE HEATER.
3. DRAIN VALVE SHOULD BE PIPED DIRECTLY TO A FLOOR DRAIN. RELIEF VALVE SHOULD BE PIPED VERTICALLY TO A HEIGHT 19" ABOVE THE FLOOR.
4. HEATERS SHOULD BE PIPED REVERSE RETURN OR BALANCING DEVICES ON THE OUTLETS SHOULD BE EMPLOYED
5. REFER TO SMARTPLATE APPLICATIONS GUIDE, SP-1010, TO DETERMINE IF SYSTEM REQUIRES A BUFFER TANK.
6. INSTALL A HOSE CONNECTION AT THE HOT WATER OUTLET.

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by	A.W
Checked by	P.C
Project No.	43065
Scale	AS NOTED
Date	12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

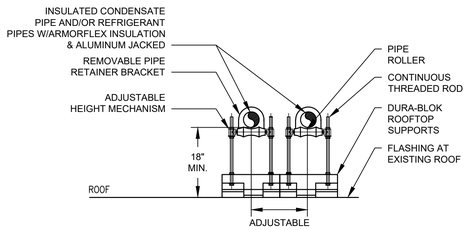
COUNTY OF ROCKLAND

196 Haverstraw Road, Suffern NY 10901

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-768-9200
www.shilale.com

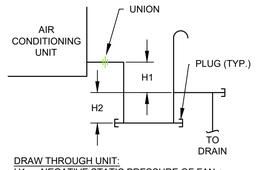
Drawing Title
MECHANICAL DETAILS - 3

Drawing No.
M-503



NOTE:
1. FURNISH AND INSTALL PIPE MOUNTED PEDESTALS FOR MULTIPLE PIPE SUPPORTS MANUFACTURED BY COOPER B-LINE, (DURA-BLOK ROOFTOP SUPPORTS) DB SERIES OR APPROVED EQUAL.
2. PIPING SUPPORTS TO BE INSTALLED 8'-0" ON CENTER.

1 ROOF PIPE SUPPORT
SCALE: NONE



DRAW THROUGH UNIT:
H1= NEGATIVE STATIC PRESSURE OF FAN + 1" MIN.
H2= H1

2 CONDENSATE DRAIN TRAP SIZING
SCALE: NONE

NOTE:
1. MC RESPONSIBLE TO VERIFY AND COMPLY WITH MANUFACTURERS INSTALLATION INSTRUCTIONS FOR PROPER TRAP SIZING.

1. DOUBLE WALL FLUE PIPE
2. STACK CAP
3. PARAPET WALL
4. STORM COLLAR
5. TALL CONE FLASHING
6. MAINTAIN CLEARANCE FROM COMBUSTIBLES
7. ROOF SUPPORT BRACKET
8. SILICONE SEALANT

3 DOUBLE WALL FLUE PIPE DETAIL
SCALE: NONE

1. SHEET METAL INTAKE DUCT
2. ½" GALVANIZED SCREEN
3. DUCT SIZE + 25%
4. ANGLE TACK WELDED
5. ROOF CURB
6. METAL ROOF DECK

4 INTAKE GOOSENECK DETAIL
SCALE: NONE

Drawing Title
MECHANICAL DETAILS - 4

Drawing No.
M-504

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-8500
www.shilale.com

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
156 Haverstraw Road,
Suffern NY 10964

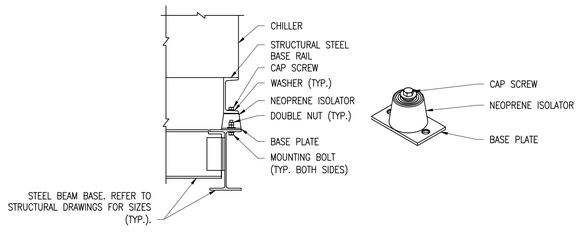
Mechanical & Electrical Engineer:
Structural Engineer:
GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Drawn by	A.W
Checked by	P.C
Project No.	43065
Scale	AS NOTED
Date	12/06/23

REG. EXP DATE: 10-31-26

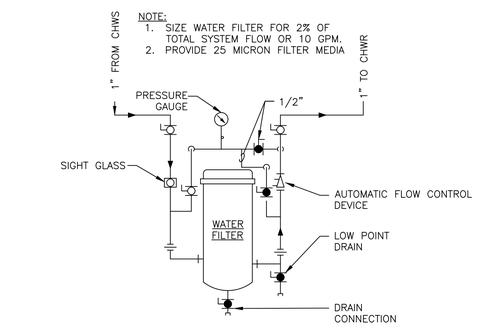
No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE
0 1/2 1

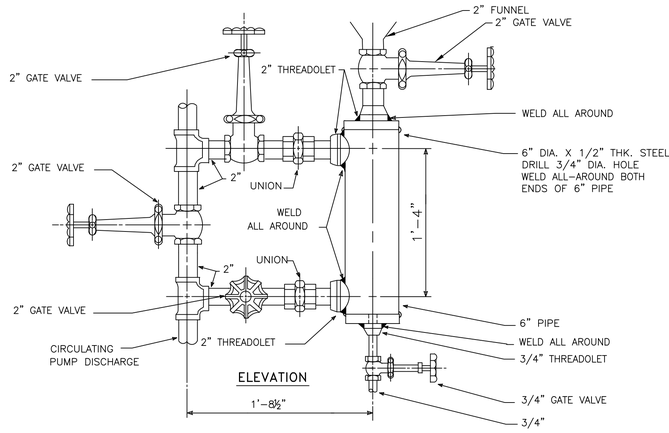


NOTES:
1. COORDINATE MOUNTING HOLE LOCATIONS AND QUANTITIES WITH OTHER TRADES PRIOR TO FABRICATION AND INSTALLATION OF STEEL AND EQUIPMENT.
2. COORDINATE EQUIPMENT DELIVERY WITH THE INSTALLATION OF THE VIBRATION ISOLATORS.
3. PROVIDE STAINLESS MOUNTING BOLTS OF THE GRADE, SIZE, AND QUANTITY REQUIRED BY THE ISOLATOR MANUFACTURER. ALIGN ISOLATOR WITH STEEL DUNNAGE SUCH THAT ALL ISOLATOR MOUNTING HOLES ARE UTILIZED. IF ISOLATORS WITH FOUR HOLES ARE FURNISHED, THEN FOUR MOUNTING BOLTS PER ISOLATOR SHALL BE REQUIRED.

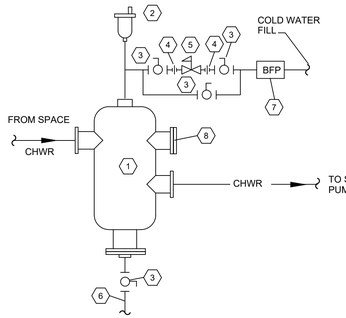
4 CHILLER VIBRATION ISOLATION DETAIL
SCALE: NONE



2 WATER FILTER
SCALE: NONE

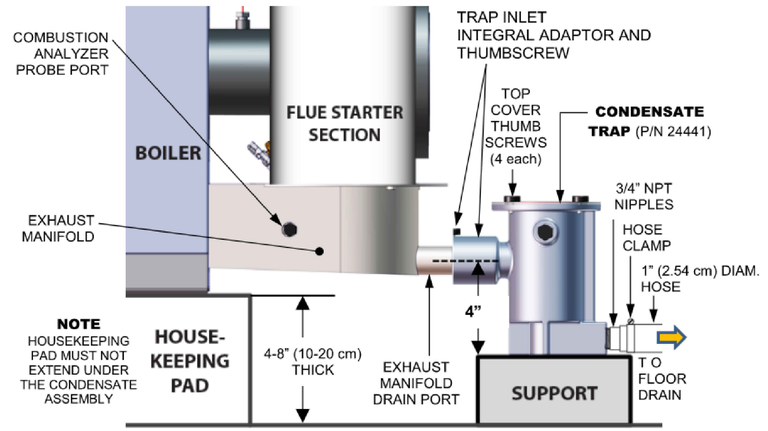


3 WATER TREATMENT SHOT FEEDER
SCALE: NONE



1. AIR SEPARATOR
2. HIGH CAPACITY FLOAT TYPE AIR VENT
3. BALL VALVE
4. UNION
5. REDUCING VALVE WITH CHECK VALVE
6. 1" BLOWDOWN, PIPE TO FLOOR DRAIN
7. BACKFLOW PREVENTER
8. STRAINER REMOVAL FLANGE

5 AIR SEPARATOR PIPING DETAIL
SCALE: NONE



6 CONDENSATE NEUTRALIZER DETAIL
SCALE: NONE

1/2" 0 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by A.W
Checked by P.C
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
106 Hammond Road, Thiells NY 10984
COUNTY OF ROCKLAND

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL DETAILS - 5

Drawing No.
M-505

POWER & SYSTEMS SYMBOL LIST

SYMBOL	DESCRIPTION
2,4	CONDUIT AND WIRE RUN CONCEALED IN FLOOR, CEILING OR WALL IN NEW CONSTRUCTION & SURFACE IN EXISTING CONSTRUCTION. HASH MARKS DENOTE NUMBER OF WIRES IF MORE THAN TWO ARE REQUIRED. ARROWS DENOTE HOMERUNS OF PARTICULAR CIRCUITS, MINIMUM 2#12 THHN/THWN IN 3/4" CONDUIT. ALL BRANCH CIRCUITS FOR 120V IF GREATER THAN 100 FEET SHALL BE ONE SIZE LARGER MINIMUM, AND FOR 277V IF MORE THAN 200 FEET ONE SIZE LARGER MINIMUM (BOTH TO MEET VOLTAGE DROP REQUIREMENTS) " " DENOTES GROUND CONDUCTOR TO MATCH CIRCUIT WIRES
— PNL-1	"PNL" INDICATES PANEL DESIGNATION, "1" INDICATES CIRCUIT NUMBER. CIRCUIT WIRE SHALL BE MINIMUM 2#12 THHN/THWN IN 3/4" CONDUIT, U.O.I. COMPUTER CIRCUIT SHALL ALSO BE PROVIDED WITH A SEPARATE NEUTRAL
	LIGHTING AND POWER PANEL BOARD, FLUSH MOUNTED IN WALL WITH COVER.
	LIGHTING AND POWER PANEL BOARD, SURFACE MOUNTED ON WALL.
	SAME AS ABOVE BUT WITH GUTTER TAP.
	WIRING TROUGH/SPLICE BOX, SIZE AS REQUIRED.
5	MOTOR. HORSEPOWER INSCRIBED, PHASES INDICATED BY CIRCUITING.
	CIRCUIT BREAKER.
	FUSED SWITCH, RATING AND FUSING INDICATED.
	UNFUSED SWITCH.
	AUTOMATIC TRANSFER SWITCH.
	GROUND
J	JUNCTION BOX.
WP	DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 125V. (NEMA 5-20R) MOUNTED 18" A.F.F. U.O.I. SUBSCRIPT "WP" INDICATES WEATHER PROOF. SUBSCRIPT "K" INDICATES SAFETY TYPE.
	DUPLEX THREE WIRE GROUNDED RECEPTACLE, 20A, 125V. (NEMA 5-20R) WITH "GFI" GROUND FAULT INTERRUPTER STANCION MOUNTED 18" A.F.F. U.O.I.
VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT
30 / 2 / U	SWITCH RATING FUSE SIZE ("U" IF UNFUSED) POLES DISCONNECT SWITCH, RATING AND FUSING NOTED. HORSEPOWER RATING AS REQUIRED BY MOTOR LOAD. "WP" INDICATES WEATHERPROOF NEMA 4X ENCLOSURE, OTHERWISE NEMA-1. SUBSCRIPT "L" INDICATES LOCKABLE TYPE.
	EMERGENCY BATTERY PACK WITH TWO HEADS
EXIT	EMERGENCY BATTERY PACK WITH TWO HEADS AND EXIT SIGNS.
BS	BOILER EMERGENCY SHUTOFF SWITCH.

EXISTING LIGHTING AND POWER SYSTEM LIST

SYMBOL	DESCRIPTION
	EXISTING JUNCTION BOX
	EXISTING DISCONNECT SWITCH/MOTOR STARTER
	EXISTING PANEL

NOTE - ALL THE ABOVE SYMBOLS MAY NOT BE USED

GENERAL NOTES:

1. FOR AN EXPLANATION OF ABBREVIATIONS AND SYMBOLS USED ON THESE DRAWINGS, SEE THE ABBREVIATION LIST AND SYMBOLS LIST ON THIS SHEET.
2. ALL ELECTRICAL WORK SHALL BE DONE IN COMPLIANCE WITH 2020 NYS BUILDING CODE, NATIONAL ELECTRIC CODE 2017 AND ALL OTHER APPLICABLE CODE & LOCAL LAWS AS REQUIRED.
3. THE CONTRACTOR SHALL CHECK THE LOCATION, NUMBER AND SIZE OF ALL CHASES PROVIDED ON THE CONSTRUCTION PLANS AND ARRANGE FOR ANY CHASES REQUIRED FOR CABINET OR BOXES.
4. THE CONTRACTOR SHALL COORDINATE WITH THE HVAC, PLUMBING, ARCHITECTURAL AND STRUCTURAL TRADES FOR EXACT LOCATIONS OF MOTORS AND EQUIPMENT, IN ORDER TO AVOID INTERFERENCE.
5. THE CONTRACTOR SHALL CHECK WITH THE HVAC TRADE CONCERNING THE LOCATION OF STEEL PLATE FIRE STOPS IN CORRIDORS AND HUNG CEILINGS AND SHALL FURNISH THE HVAC TRADE WITH SIZES AND LOCATIONS OF OPENINGS NECESSARY TO ACCOMMODATE THE ELECTRICAL CONDUITS PIERCING THE FIRE STOPS.
6. IN UNFINISHED PORTIONS OF THE BUILDING, SUCH AS BOILER ROOM, FAN ROOMS, PIPE SPACES, ETC., LOCATIONS OF CONDUIT AND OUTLETS ARE APPROXIMATE AND SHALL CLEAR PIPING AND ALL OTHER CONSTRUCTION. CONDUIT IN THESE PORTIONS OF THE BUILDING SHALL BE RUN EXPOSED.
7. IN THE BOILER ROOM, SYSTEM CONDUITS, SUCH AS FOR LIGHTING AND POWER FEEDERS, LOW VOLTAGE, FIRE SIGNAL, ETC., SHALL NOT BE RUN OVER BOILERS.
8. NO CONDUIT SHALL BE RUN IN ANY FLOOR IN CONTACT WITH THE EARTH UNLESS OTHERWISE DIRECTED ON THE PLAN. IN SUCH AREAS, CONDUIT FOR MOTORS AND STARTERS SHALL BE RUN OVERHEAD, SUPPORTED AS REQUIRED.
9. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND FLUSH TYPE IN FINISHED AREAS (AT NEW WALLS/PARTIONS), UNLESS OTHERWISE NOTED. THE JUNCTION AND PULL BOXES SHALL BE LOCATED TO SUIT CONDUIT ENTRANCE, BUT SHALL, IN ALL CASES, BE LOCATED TO AVOID INTERFERENCE WITH EQUIPMENT FROM OTHER TRADES AND SHALL BE LOCATED SO THAT COVERS ARE READILY ACCESSIBLE.
10. UNLESS OTHERWISE NOTED ON FLOOR PLANS OR IN FLOOR PLAN NOTES, SWITCHES SHALL BE INSTALLED AT 4'-0" ABOVE FINISHED FLOOR. WHERE SWITCH HEIGHTS ARE GIVEN ON THESE DRAWINGS FOR AREAS IN WHICH THERE ARE TILE WAINSCOTS, SUCH AS TOILETS, LOCKER ROOMS, ETC. THE CONTRACTOR SHALL ADJUST SWITCH HEIGHTS, IF NECESSARY TO AVOID INTERFERENCE WITH THE WAINSCOT.
11. CONTRACTOR SHALL PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS ON NORMAL AND EMERGENCY CIRCUITS.
12. PROVIDE FIRE STOP SEALS TO ALL PENETRATIONS OF ALL EXISTING FLOORS, SLABS, AND WALLS/PATITIONS; AND ALL NEW FIRE RATED WALLS & PARTITIONS.
13. PROVIDE DEFLECTION FITTINGS AT ALL REQUIRED CROSSINGS OF EXPANSION POINTS.
14. ALL CIRCUITS CONTAINING GFI OUTLETS AND CIRCUITS RECOMMENDED BY THE MANUFACTURERS SHALL HAVE A SEPARATE DEDICATED NEUTRAL.
15. ALL COMPONENTS SHOWN ON RISER DIAGRAMS, BUT NOT ON THE PLAN OR VICE VERSA, SHALL BE INCLUDED AS IF SHOWN ON BOTH.
16. CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS OTHERWISE SPECIFICALLY INDICATED ON THE DRAWINGS.
17. THE ELECTRICAL CONTRACTOR SHALL REVIEW ALL TRADES CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.
18. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICES EXCEPT FOR EXIT SIGNS.
19. RIGID NONMETALLIC CONDUIT (RNMC) SHALL NOT BE INSTALLED WITHIN THE BUILDING FOOTPRINT. UNLESS OTHERWISE INDICATED.
20. NO CONDUIT IN THE BUILDING SHALL BE IN CONTACT WITH THE EARTH UNLESS OTHERWISE NOTED.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING EACH CKT IN ALL MANHOLES, HAND HOLES, WIRE WAYS & ALL OTHER ENCLOSURES & AT ALL TERMINATION.
22. ALL SERVICE ENTRANCE CONDUITS ARE TO BE PITCHED AS REQUIRED AND SEALED AT THE POINT OF ENTRY TO THE BUILDING IN ORDER TO AVOID WATER PENETRATION TO THE BUILDING THROUGH THESE CONDUITS.
23. FINAL LOCATION OF ALL ELECTRICAL EQUIPMENTS, DEVICES SHALL BE COORDINATED AT FIELD WITH ALL OTHER TRADES AND WITH EXISTING BUILDING ELEMENTS, PIPES, EQUIPMENTS, DEVICES ETC. IN ORDER TO HAVE CODE COMPLIANT INSTALLATION.
28. ROUTING OF ELECTRICAL CONDUITS IF SHOWN IN THE DRAWINGS ARE TENTATIVE. THE CONTRACTOR IS RESPONSIBLE TO FINALIZE THE ROUTING OF ALL ELECTRICAL CONDUITS AT FIELD IN COORDINATION WITH ALL OTHER TRADES AND EXISTING BUILDING ELEMENTS, STRUCTURES, PIPES, EQUIPMENTS, & DEVICES ETC. FOR CODE COMPLIANT INSTALLATION.
29. THE ELECTRICAL CONTRACTOR IS REQUIRED TO COORDINATE WITH THE MECHANICAL CONTRACTOR DURING THE MECHANICAL EQUIPMENT SUBMITTAL REVIEW PROCESS IN ORDER TO VERIFY THE REQUIREMENT OF INSTALLING NEUTRAL WIRE IN THE CONDUIT TO FEED ALL HVAC EQUIPMENT SUCH AS ROOF TOP UNIT PRIOR TO INSTALLATION OF THE WIRES IN CONDUIT.
30. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH OTHER TRADES AT FIELD SO THAT NO FOREIGN SYSTEM SUCH AS PIPING, DUCT, LEAK PROTECTION APPARATUS, OR OTHER EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION SHALL BE RUN OVER THE ELECTRICAL EQUIPMENT INSTALLATION.
31. THE CONTRACTOR IS REQUIRED TO PERFORM CONTINUITY AND INSULATION RESISTANCE TEST BY MEGGER FOR ALL FEEDERS AND BRANCH CIRCUITS BEING INSTALLED AND BEING MODIFIED UNDER THIS PROJECT.

ABBREVIATIONS

A	AMPERE	KWH	KILOWATT HOUR
AC	ALTERNATING CURRENT	LP	LIGHTING PANEL
ACCU	A/C CONDENSING UNIT	LS	LOUDSPEAKER
AF	FUSE RATING IN AMPS	LTG	LIGHTING
AFF	ABOVE FINISHED FLOOR	MCC	MOTOR CONTROL CENTER
AHU	AIR HANDLING UNIT	MECH	MECHANICAL
ARCH	ARCHITECTURAL	MER	MECHANICAL EQUIPMENT ROOM
AS	SWITCH RATING IN AMPS	MIC	MICROPHONE
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUG ONLY
A/C	AIR CONDITIONING	MTD	MOUNTED
C	CONDUIT	N	NEUTRAL
CB	CIRCUIT BREAKER	N.C.	NORMALLY CLOSED
CLG	CEILING	N.O.	NORMALLY OPEN
CKT(S)	CIRCUIT(S)	P	POLE(S)
COL	COLUMN	PB	PULL BOX
DHWH	DOMESTIC HOT WATER HEATER	PNL	PANEL
DSP	DUPLEX SUMP PUMP	PPP	PORT PATCH PANEL
DWBS	DUPLEX WATER BOOSTER PUMP	POS	POINT OF SALE
DWG	DRAWING	PP	POWER PANEL
E	EXISITNG TO REMAIN	PWR	POWER
ER	EXISITNG TO BE REMOVED	RC	REMOTE CONTROL
ERR	EXISITNG TO BE RELOCATED	REL	RELOCATED
EBBH	ELECTRIC BASEBOARD HEATER	RGC	RIGID GALVANIZED CONDUIT
EC	EMPTY CONDUIT	RTU	ROOF TOP UNIT
ECC	ELECTRIC CABINET CONVECTOR	SECT	SECTION
ECH	ELECTRIC CABINET HEATER	SP	SPARE
EF	EXHAUST FAN	SPF	SMOKE PURGE FAN
EMR	ELEVATOR MECHANICAL ROOM	SPR	SPARE
EUH	ELECTRIC UNIT HEATER	STD	STANDARD
EXH	EXHAUST	SUR	SURFACE
FL	FLOOR	SW	SWITCH
FPB	FAN POWER BOX	SWBD	SWITCHBOARD
G	GUARD	TEF	TOILET EXHAUST FAN
GND	GROUND	TEL	TELEPHONE
GFI	GROUND FAULT INTERRUPTER	TV	TELEVISION
IG	ISOLATED GROUND	TYP	TYPICAL
IWB	INTERACTIVE WHITE BOARD	UOI	UNLESS OTHERWISE INDICATED
JB	JUNCTION BOX	V	VOLT
KEF	KITCHEN EXHAUST FAN	VAV	VARIABLE AIR VOLUME
KVA	KILOVOLT AMPERE	W	WATT
KW	KILOWATT	WP	WEATHER PROOF
AFCI	ARC FAULT CIRCUIT INTERRUPTER		

NOTE - ALL THE ABOVE ABBREVIATIONS MAY NOT BE USED

ELECTRICAL CONSTRUCTION NOTES

1. CONTRACTOR SHALL MAINTAIN UNINTERRUPTED POWER SUPPLY TO THE SCHOOL BUILDING DURING THE CONSTRUCTION. POWER IS TO BE MAINTAINED AT ALL TIMES, UNLESS OTHERWISE INSTRUCTED, ALONG WITH THE ADEQUATE POWER SUPPLY FOR THE CONCURRENT CONSTRUCTION AND MAINTENANCE PROJECTS.
2. THE MAINTENANCE OF POWER SUPPLY INCLUDES BOTH THE OVERALL POWER SERVICE TO THE BUILDING AS WELL AS LOCAL POWER SUPPLY TO THE SCHOOL AREAS TEMPORARILY AFFECTED BY THE WORK OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE ALL HIS WORK WITH THE SCHOOL.
3. PROVIDING UNINTERRUPTED POWER SERVICE TO THE ENTIRE BUILDING AND POWER SUPPLY TO SCHOOL AREAS TEMPORARILY AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE ACCOMPLISHED BY VARIOUS MEANS SUCH AS TEMPORARY BYPASS FEEDERS, TEMPORARY SWITCHES SUPPLYING PERMANENT FEEDERS, ETC.
4. THE CONTRACTOR SHALL ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED, TO ASSURE THAT SERVICES WILL BE SHUTDOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY DISCONNECTIONS/RECONNECTIONS TO EXISTING WORK.
5. THE CONTRACTOR SHALL GIVE THIRTY DAYS WRITTEN NOTICE IN ADVANCE TO THE SCHOOL OF ANY REQUIRED SHUTDOWN, INCLUDING THE ESTIMATED PERIOD.
6. THE CONTRACTOR IS REQUIRED TO COORINATE WITH THE SCHOOL FACILITY TO ARRANAGE FOR A METERED POWER FOR CONSTRUCTION PURPOSE BASED ON A RATE DEFINED BY THE FACILITY. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY CONSTRUCTION POWER.

ELECTRICAL DEMOLITION NOTES

1. THE DEMOLITION WORK SHALL BE CARRIED ON IN EVERY RESPECT IN A THOROUGH AND WORKMANLIKE MANNER.
2. ALL DEMOLITION, REMOVAL, AND DISPOSAL WORK SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE BUILDING CODE AND WITH ALL STATE AND FEDERAL REGULATIONS.
3. REMOVE ALL DEBRIS NOT EXPLICITLY DESIGNATED TO BE SALVAGED (TO REMAIN) FROM THE PREMISES AND LEGALLY DISPOSE OFF AWAY FROM PREMISES.
4. ITEMS INDICATED TO BE SALVAGED SHALL BE REMOVED EITHER BEFORE DEMOLITION OR DURING THE PROCESS OF THE WORK, STORED AND PROTECTED ON THE SITE IN A LOCATION DESIGNATED BY THE OWNER'S REPRESENTATIVE. THESE ITEMS WILL BE IDENTIFIED AND RETAINED BY THE OWNER.
5. CAREFULLY REMOVE AND PROTECT ALL ITEMS TO BE SAVED AND REUSED AS INDICATED ON DRAWINGS. REPLACE ANY ITEMS THAT ARE DAMAGED BY REMOVAL AT YOUR OWN COST. NOTIFY THE OWNER IN WRITING OF ANY ITEM THAT IS DAMAGED PRIOR TO REMOVAL SO THAT THEY MAY ASCERTAIN THE ITEM'S CONDITION.
6. PROTECT MATERIALS, SURFACES AND STRUCTURE, WHICH ARE TO REMAIN, FROM DAMAGE; IF DAMAGE OCCURS, REPAIR OR REPLACEMENT SHALL BE MADE BY THE CONTRACTOR, TO THE SATISFACTION OF THE OWNER, AND AT THE EXPENSE OF THE CONTRACTOR.
7. DISCONNECT, REMOVE AND RELOCATE ANY ELECTRICAL EQUIPMENT NOT SHOWN ON THESE DRAWINGS AS PART OF THIS CONTRACT, BUT INTERFERES WITH THE WORK UNDER THIS CONTRACT. THIS WORK SHALL NOT BE CONSIDERED EXTRA AND SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
8. VISIT AND EXAMINE CAREFULLY THE AREAS AFFECTED BY THIS WORK TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND WITH THE DIFFICULTIES THAT ATTEND THE EXECUTION OF THIS WORK
9. RELOCATE AND/OR ALTER THE EXISTING BUILDING COMPONENTS AS DIRECTED BY OWNER'S REPRESENTATIVE. ALL RELOCATION OR ALTERATIONS TO BUILDING SHALL BE RESTORED TO THEIR ORIGINAL WORKING CONDITIONS AFTER SUCH RELOCATION OR ALTERATION WORK.
10. AT THE COMPLETION OF DEMOLITION WORK, ALL RUBBISH, DEBRIS AND WASTE MATERIALS SHALL BE REMOVED BY THE CONTRACTOR AND THE PREMISES SHALL BE LEFT IN CLEAN CONDITION.
11. THE CONTRACTOR SHALL DISCONNECT THE CIRCUIT WIRING NOT IN USE AND SHALL REMOVE ALL NECESSARY WIRING MATERIALS, INCLUDING EXPOSED CONDUITS AND JUNCTION BOXES WHICH IMPEDE THE NEW WORK.
12. MAINTAIN CONTINUITY FOR ALL EQUIPMENT TO REMAIN. PROVIDE ALL REQUIRED ACCESSORIES, WIRING AND CONDUIT AS REQUIRED.
13. SUBSTANTIAL JOB COMPLETION INCORPORATES DEMOLITION OF EXISTING SYSTEMS IN CONTRACT.
14. THE EXISTING FIRE ALARM SYSTEM SHALL REMAIN OPERATIONAL AT ALL TIMES DURING CONSTRUCTION.
15. THE CONTRACTOR IS REQUIRED TO COORDINATE WITH GC AND ALL OTHER TRADES TO REVIEW THE EXISTING ELECTRICAL COMPONENTS, CONDUITS, DEVICES, PULL BOX, JUNCTION BOX ETC. THAT ARE ASSOCIATED WITH THE WALL THAT ARE BEING DEMOLISHED OR RESURFACED. REROUTE THE CONDUITS AND RELOCATE THOSE ELECTRICAL COMPONENTS AS REQUIRED AND FOR THE COMPLETION OF GC WORK. EXTEND CONDUIT WIRING AS REQUIRED TO REROUTING. MAINTAIN CIRCUIT CONTINUITY OF THE DEVICES THAT ARE BEING AFFECTED.

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by	J.J
Checked by	S.H
Project No.	43065
Scale	AS NOTED
Date	12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

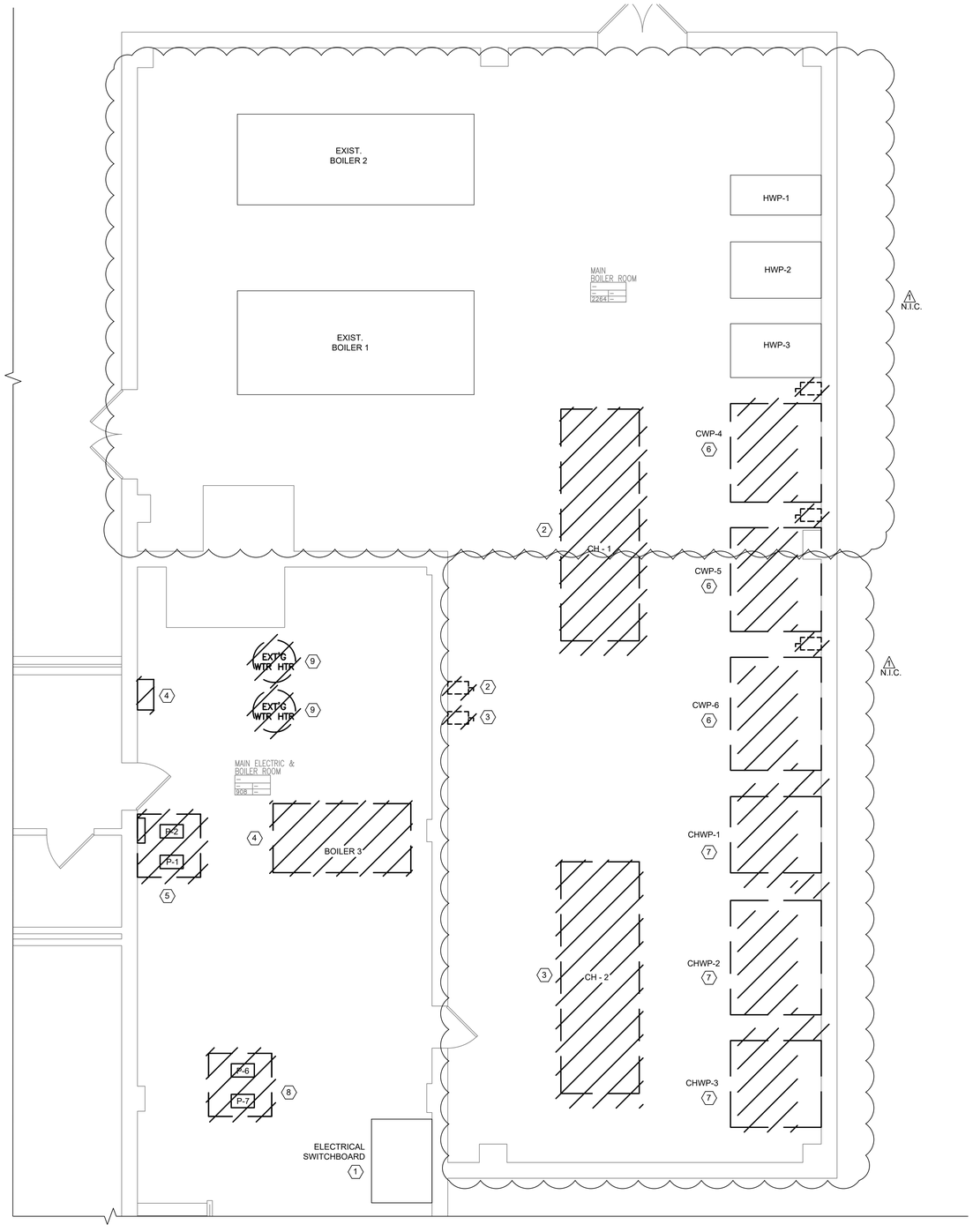
COUNTY OF ROCKLAND

196 Haverstraw Road, Suffern, NY 10901

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-9200
www.shilale.com

Drawing Title
ELECTRICAL NOTES AND ABBREVIATIONS

Drawing No.
E-001



1 MECHANICAL ROOM - CHILLER REMOVAL

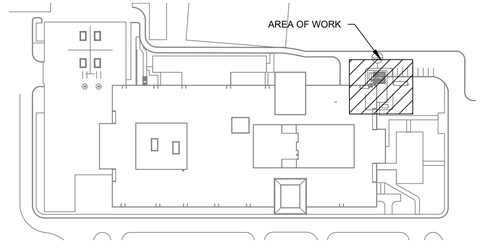
SCALE: 1/4" = 1'- 0"

DEMOLITION NOTES:

1. FOR ELECTRICAL SYMBOLS & LEGENDS, GENERAL NOTES AND ABBREVIATIONS, REFER TO DWG E001.00
2. MAINTAIN CIRCUIT CONTINUITY TO AREAS NOT AFFECTED BY DEMOLITION.
3. CIRCUITS AVAILABLE AFTER DEMOLITION MAY BE UTILIZED TO FEED THE NEW LOADS AS SHOWN.
4. FIELD VERIFY EXISTING "SPARE" CIRCUIT BREAKERS IN FIELD.
5. CIRCUIT NUMBERS INDICATED ON BRANCH CIRCUIT HOMERUNS ARE BASED ON AS-BUILT DOCUMENTS AND FIELD CONDITIONS AT THE TIME OF SURVEY. THE INDICATED CIRCUIT NUMBERS ARE FOR DESIGN PURPOSES ONLY. COORDINATE ACTUAL CIRCUIT NUMBERS AT THE TIME OF INSTALLATION AND PROVIDE AN ACCURATE, TYPE-WRITTEN PANELBOARD DIRECTORY FOR EACH PANELBOARD. ANY UNUSED BREAKER SHALL BE TURNED TO THE "OFF" POSITION, AND LABELED AS "SPARE".
6. THE CONTRACTOR IS TO COORDINATE ALL SHUTDOWNS AND DISRUPTIONS TO NORMAL SERVICES WITH THE SCHOOL'S FIELD REPRESENTATIVE AND THE FACILITY.
7. COORDINATE ALL DEMOLITION WORK FOR THE MECHANICAL EQUIPMENT WITH THE RESPECTIVE CONTRACTOR.
8. CONTRACTOR MUST FIELD VERIFY ALL CONNECTIONS PRIOR TO REMOVAL. PROTECT ALL FEEDER AND BRANCH CIRCUITS SERVING OTHER AREAS. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY OUTAGES.
9. PATCH AND PAINT THE AREA AFTER REMOVALS HAVE BEEN DONE TO MATCH SURROUNDINGS.

KEYED NOTES:

1. EXISTING 480/277V, 3PH, 4W MAIN ELECTRICAL SWITCHBOARD TO REMAIN. CONTRACTOR SHALL VERIFY THE EXACT LOCATION IN FIELD.
2. MECHANICAL CONTRACTOR TO REMOVE EXISTING CHILLER #1. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE MAIN ELECTRICAL SWITCHBOARD (600A, 3P). CIRCUIT AVAILABLE AFTER DEMOLITION SHALL BE UTILIZED TO FEED THE NEW CHILLER #1.
3. MECHANICAL CONTRACTOR TO REMOVE EXISTING CHILLER #2. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE MAIN ELECTRICAL SWITCHBOARD (600A, 3P). CIRCUIT AVAILABLE AFTER DEMOLITION SHALL BE UTILIZED TO FEED THE NEW CHILLER #2.
4. MECHANICAL CONTRACTOR TO REMOVE EXISTING BOILER #3. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE.
5. MECHANICAL CONTRACTOR TO REMOVE EXISTING BOILER PUMPS P1 & P2 ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE. CIRCUITS AVAILABLE AFTER DEMOLITION WILL BE UTILIZED TO FEED THE NEW PUMPS IN THE AREA.
6. MECHANICAL CONTRACTOR TO REMOVE EXISTING CONDENSER WATER PUMPS (TYP. FOR 3) . ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE.
7. EXISTING CHILLED WATER PUMPS SHALL REMAIN (TYP. FOR 3) .
8. MECHANICAL CONTRACTOR TO REMOVE EXISTING BOILER PUMPS P6 & P7 ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE. CIRCUITS AVAILABLE AFTER DEMOLITION WILL BE UTILIZED TO FEED THE NEW PUMPS IN THE AREA.
9. MECHANICAL CONTRACTOR TO REMOVE EXISTING WATER HEATERS. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE.



KEY PLAN

PLAN NORTH

1/2" IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

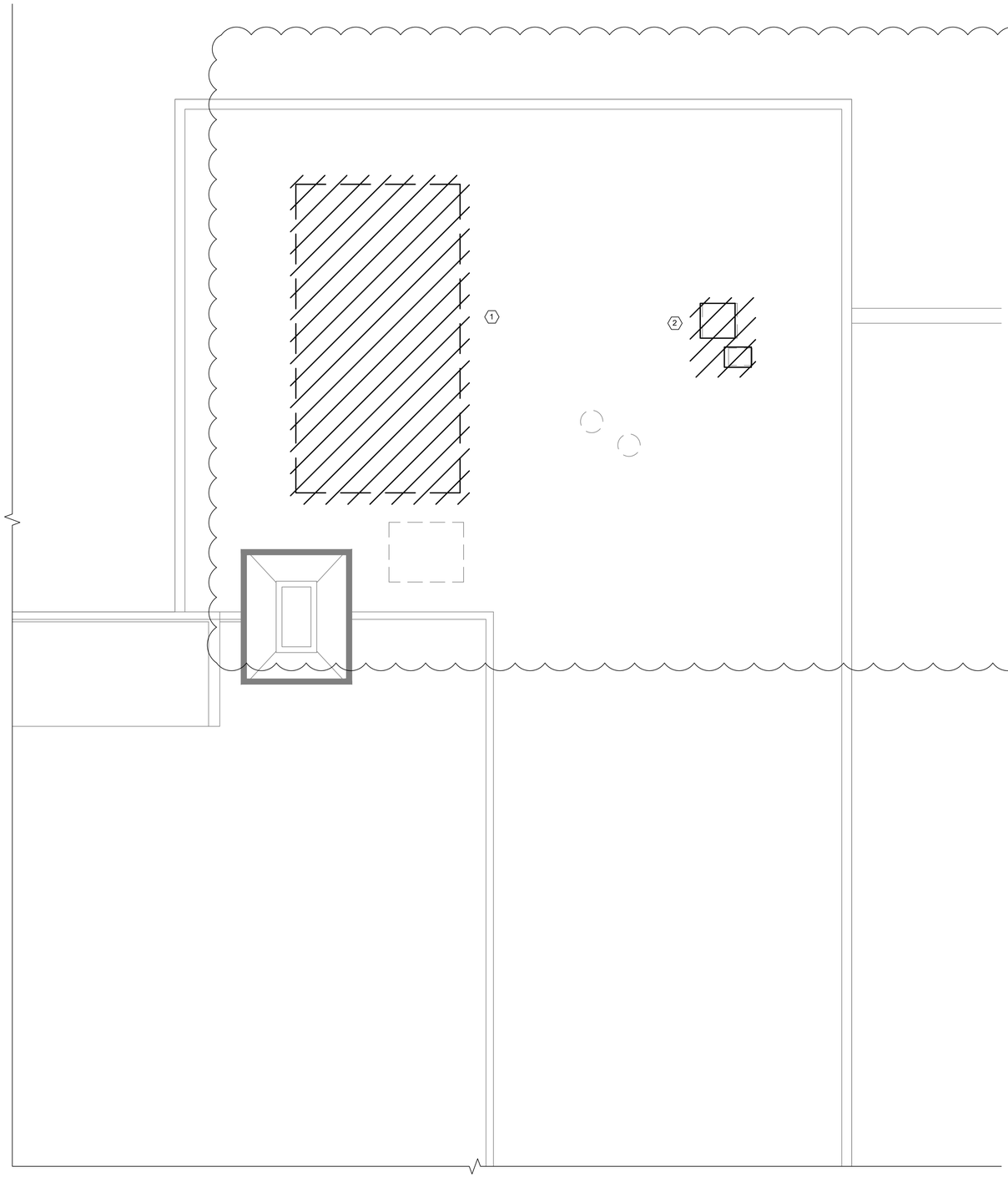
COUNTY OF ROCKLAND

156 Haverstraw Road, Suffern NY 10954

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-768-9200
www.shilale.com

Drawing Title
MECHANICAL ROOM - BOILER CHILLER REMOVAL

Drawing No.
ED-101



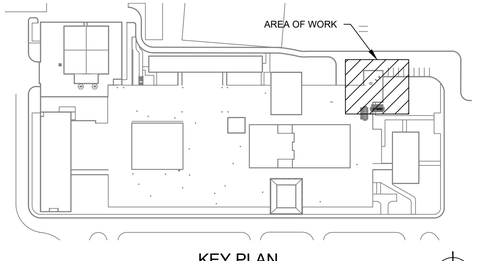
DEMOLITION NOTES:

1. FOR ELECTRICAL SYMBOLS & LEGENDS, GENERAL NOTES AND ABBREVIATIONS, REFER TO DWG E001.00
2. MAINTAIN CIRCUIT CONTINUITY TO AREAS NOT AFFECTED BY DEMOLITION.
3. CIRCUITS AVAILABLE AFTER DEMOLITION MAY BE UTILIZED TO FEED THE NEW LOADS AS SHOWN.
4. FIELD VERIFY EXISTING "SPARE" CIRCUIT BREAKERS IN FIELD.
5. CIRCUIT NUMBERS INDICATED ON BRANCH CIRCUIT HOMERUNS ARE BASED ON AS-BUILT DOCUMENTS AND FIELD CONDITIONS AT THE TIME OF SURVEY. THE INDICATED CIRCUIT NUMBERS ARE FOR DESIGN PURPOSES ONLY. COORDINATE ACTUAL CIRCUIT NUMBERS AT THE TIME OF INSTALLATION AND PROVIDE AN ACCURATE, TYPE-WRITTEN PANELBOARD DIRECTORY FOR EACH PANELBOARD. ANY UNUSED BREAKER SHALL BE TURNED TO THE "OFF" POSITION, AND LABELED AS "SPARE".
6. THE CONTRACTOR IS TO COORDINATE ALL SHUTDOWNS AND DISRUPTIONS TO NORMAL SERVICES WITH THE SCHOOL'S FIELD REPRESENTATIVE AND THE FACILITY.
7. COORDINATE ALL DEMOLITION WORK FOR THE MECHANICAL EQUIPMENT WITH THE RESPECTIVE CONTRACTOR.
8. CONTRACTOR MUST FIELD VERIFY ALL CONNECTIONS PRIOR TO REMOVAL. PROTECT ALL FEEDER AND BRANCH CIRCUITS SERVING OTHER AREAS. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY OUTAGES.
9. PATCH AND PAINT THE AREA AFTER REMOVALS HAVE BEEN DONE TO MATCH SURROUNDINGS.

KEYED NOTES:

(1) MECHANICAL CONTRACTOR TO REMOVE EXISTING COOLING TOWER. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE.

(2) MECHANICAL CONTRACTOR TO REMOVE EXISTING SUPPLY FAN S-1. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE.



KEY PLAN

PLAN NORTH

1 MECHANICAL ROOM ROOF - REMOVAL PLAN
SCALE: 1/4" = 1'- 0"

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH
SCHOOL CHILLER & HVAC
UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

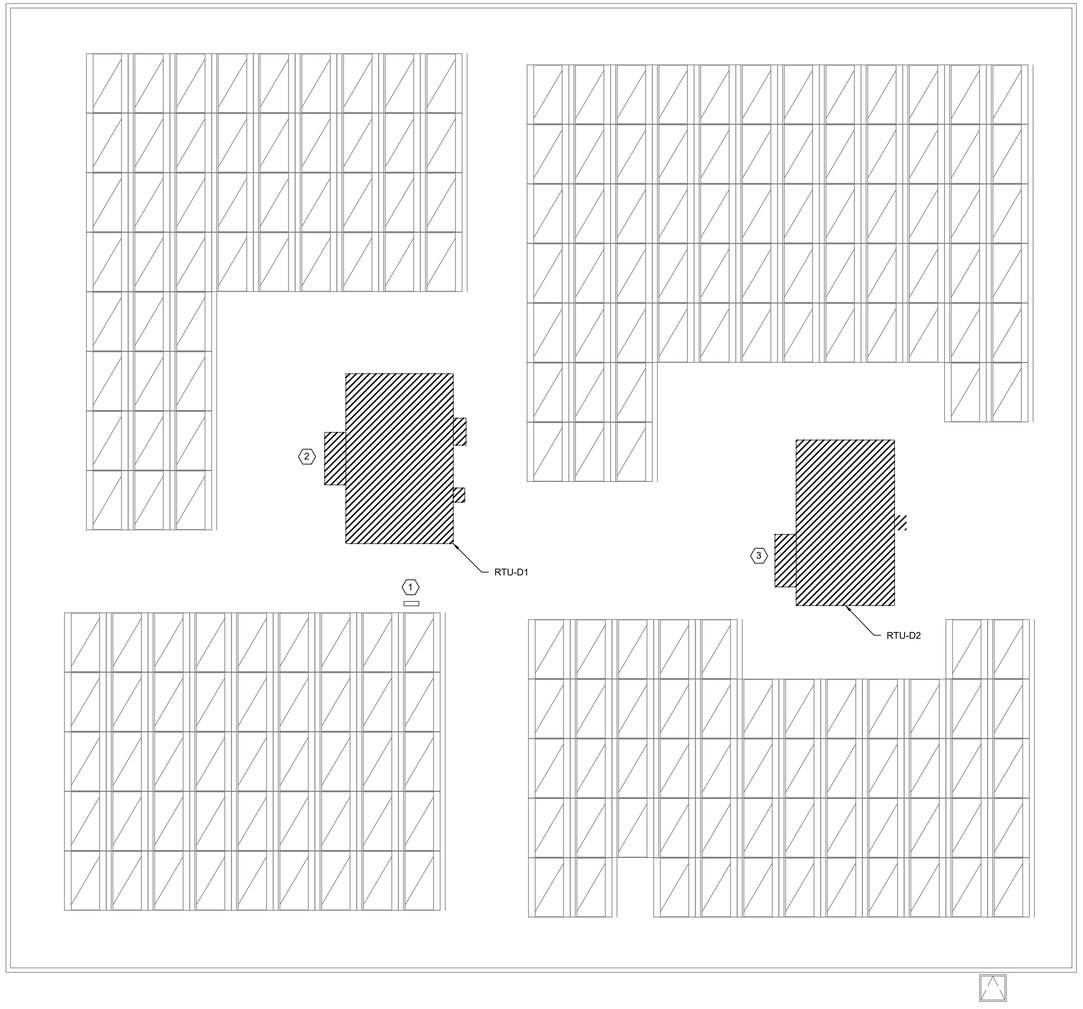
COUNTY OF ROCKLAND

136 Hammond Road,
Thiells NY 10984

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL ROOM ROOF - COOLING TOWER REMOVAL

Drawing No.
ED-102



DEMOLITION NOTES:

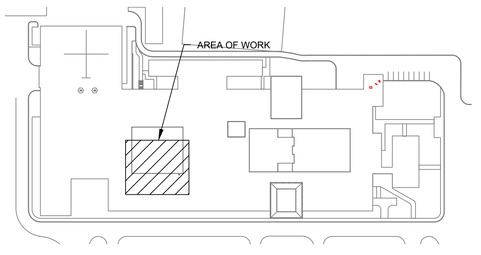
1. FOR ELECTRICAL SYMBOLS & LEGENDS, GENERAL NOTES AND ABBREVIATIONS, REFER TO DWG E001.00
2. MAINTAIN CIRCUIT CONTINUITY TO AREAS NOT AFFECTED BY DEMOLITION.
3. CIRCUITS AVAILABLE AFTER DEMOLITION MAY BE UTILIZED TO FEED THE NEW LOADS AS SHOWN.
4. FIELD VERIFY EXISTING "SPARE" CIRCUIT BREAKERS IN FIELD.
5. CIRCUIT NUMBERS INDICATED ON BRANCH CIRCUIT HOMERUNS ARE BASED ON AS-BUILT DOCUMENTS AND FIELD CONDITIONS AT THE TIME OF SURVEY. THE INDICATED CIRCUIT NUMBERS ARE FOR DESIGN PURPOSES ONLY. COORDINATE ACTUAL CIRCUIT NUMBERS AT THE TIME OF INSTALLATION AND PROVIDE AN ACCURATE, TYPE-WRITTEN PANELBOARD DIRECTORY FOR EACH PANELBOARD. ANY UNUSED BREAKER SHALL BE TURNED TO THE "OFF" POSITION, AND LABELED AS "SPARE".
6. THE CONTRACTOR IS TO COORDINATE ALL SHUTDOWNS AND DISRUPTIONS TO NORMAL SERVICES WITH THE SCHOOL'S FIELD REPRESENTATIVE AND THE FACILITY.
7. COORDINATE ALL DEMOLITION WORK FOR THE MECHANICAL EQUIPMENT WITH THE RESPECTIVE CONTRACTOR.
8. CONTRACTOR MUST FIELD VERIFY ALL CONNECTIONS PRIOR TO REMOVAL. PROTECT ALL FEEDER AND BRANCH CIRCUITS SERVING OTHER AREAS. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY OUTAGES.
9. PATCH AND PAINT THE AREA AFTER REMOVALS HAVE BEEN DONE TO MATCH SURROUNDINGS.

KEYED NOTES:

(1) APPROXIMATE LOCATION OF THE EXISTING TO REMAIN 800A, 480/277V, 3PH, 4W ELECTRICAL PANELBOARD HPA LOCATED IN THE MEZZANINE LEVEL BELOW THE ROOF. CONTRACTOR SHALL VERIFY THE EXACT LOCATION IN FIELD.

(2) MECHANICAL CONTRACTOR TO REMOVE EXISTING RTU-D1. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE PANEL HPA (50A, 3P). CIRCUIT AVAILABLE AFTER DEMOLITION SHALL BE UTILIZED TO FEED THE NEW RTU-1.

(3) MECHANICAL CONTRACTOR TO REMOVE EXISTING RTU-D2. ELECTRICAL CONTRACTOR SHALL DISCONNECT THE EXISTING POWER CIRCUITRY ALONG WITH ALL ASSOCIATED CONDUIT, WIRING, DISCONNECT SWITCHES, JUNCTION/PULL BOXES, ETC. BACK TO THE SOURCE PANEL HPA (50A, 3P). CIRCUIT AVAILABLE AFTER DEMOLITION SHALL BE UTILIZED TO FEED THE NEW RTU-2.



KEY PLAN

PLAN NORTH

1 ELECTRICAL MAIN GYM ROOF - RTU REMOVAL

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

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE
0 1/2 1

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-08-0-016-037

150 Hammond Road, Thiells NY 10984

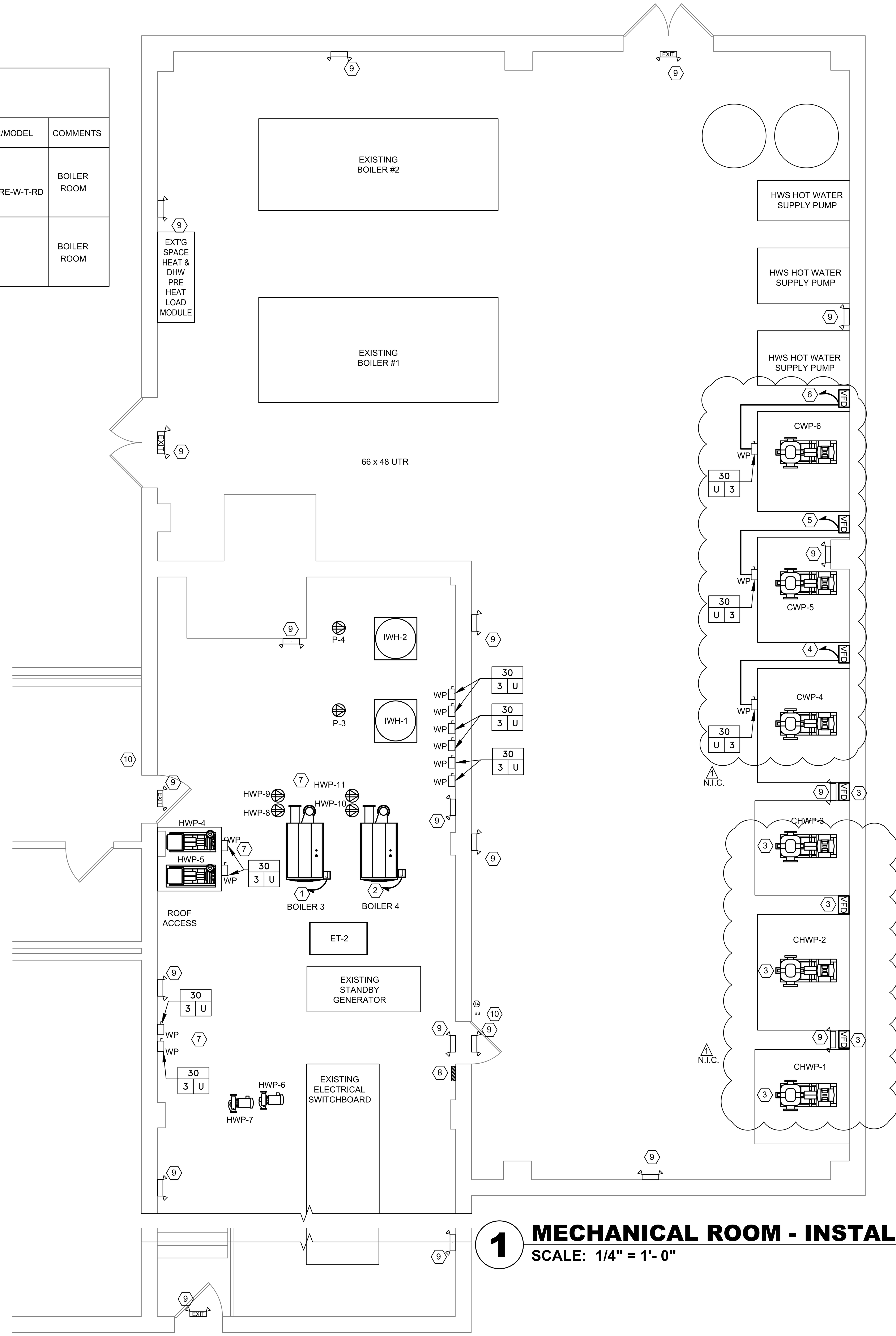
COUNTY OF ROCKLAND

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
ELECTRICAL MAIN GYM ROOF - RTU REMOVAL

Drawing No.
ED-103

TYPE	DESCRIPTION	MOUNTING	FIXTURE WATTAGE	VOLTAGE	MANUFACTURER/MODEL	COMMENTS
A1 WALL MOUNTED EMERGENCY LIGHT	INDOOR EMERGENCY LIGHT/EXIT COMBO	WALL MOUNTED	4 W	120	LITHONIA # ECRG-H0-SQ-M6-ERE-W-T-RD	BOILER ROOM
A2 WALL MOUNTED EMERGENCY LIGHT	INDOOR EMERGENCY LIGHT	WALL MOUNTED	3 W	120	LITHONIA # EU2C-HO	BOILER ROOM



1 MECHANICAL ROOM - INSTALLATION

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

PLAN NOTES:

1. REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
2. ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE.
3. PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGINATION.
4. INVESTIGATE ALL EXISTING BRANCH CIRCUITS AND UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
5. CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
6. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
7. REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
8. PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
9. THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
10. ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.
11. VFD LOCATION IS SHOWN FOR REFERENCE ONLY. THE VFD WITH DISCONNECT SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE ALL WORK WITH THE MECHANICAL CONTRACTOR.

KEYED NOTES:

(1) POWER SUPPLY FOR THE NEW BOILER #3. UTILIZE A 120V, 1P, 20A SPARE CIRCUIT FROM THE NEAREST AVAILABLE 120/208V PANELBOARD TO FEED THE UNIT. RUN 2#12, 1#12G IN 3/4" C.

(2) POWER SUPPLY FOR THE NEW BOILER #4. UTILIZE A 120V, 1P, 20A SPARE CIRCUIT FROM THE NEAREST AVAILABLE 120/208V PANELBOARD TO FEED THE UNIT. RUN 2#12, 1#12G IN 3/4" C.

(3) EXISTING CHILLED WATER PUMPS ALONG WITH ASSOCIATED VFD CONTROLLERS SHALL REMAIN. REFER TO THE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

(4) POWER SUPPLY FOR THE NEW PUMP CWP-4. UTILIZE THE EXISTING CIRCUITRY AVAILABLE AFTER DEMOLITION TO FEED THE NEW UNITS. PROVIDE A 3P, 200A CIRCUIT BREAKER AT THE SOURCE PANEL AND RUN 3#3/0, 1#6G IN 2"C. PROVIDE A 20A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.

(5) POWER SUPPLY FOR THE NEW PUMP CWP-5. UTILIZE THE EXISTING CIRCUITRY AVAILABLE AFTER DEMOLITION TO FEED THE NEW UNITS. PROVIDE A 3P, 25A CIRCUIT BREAKER AT THE SOURCE PANEL AND RUN 3#10, 1#10G IN 1"C. PROVIDE A 30A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.

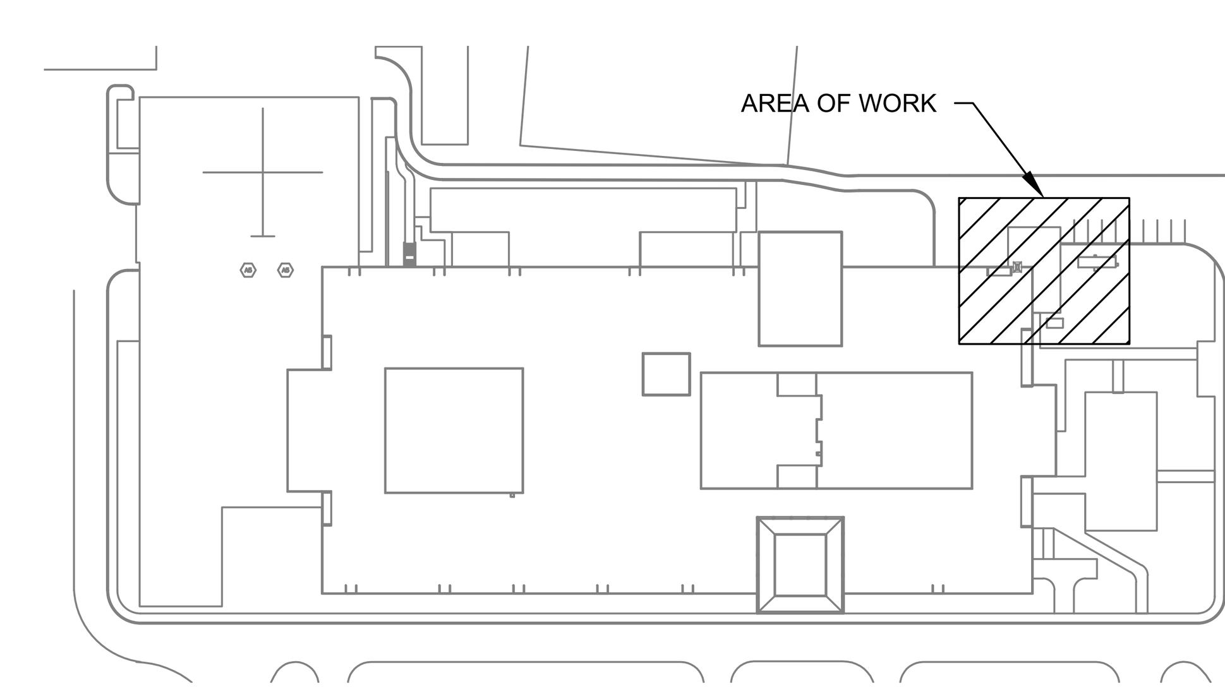
(6) POWER SUPPLY FOR THE NEW PUMP CWP-6. UTILIZE THE EXISTING CIRCUITRY AVAILABLE AFTER DEMOLITION TO FEED THE NEW UNITS. PROVIDE A 3P, 25A CIRCUIT BREAKER AT THE SOURCE PANEL AND RUN 3#10, 1#10G IN 1"C. PROVIDE A 30A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.

(7) POWER SUPPLY FOR THE NEW PUMPS P-3, P-4, HWP-4 THRU HWP-11. UTILIZE THE EXISTING CIRCUITRY AVAILABLE AFTER DEMOLITION TO FEED THE NEW UNITS. PROVIDE A 3P, 20A CIRCUIT BREAKER AT THE SOURCE PANEL AND RUN 3#12, 1#12G IN 3/4"C. PROVIDE A 30A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT (TYP. FOR 10). COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.

(8) EXISTING 100A, 120/208V, 3PH, 4W PANEL. PROVIDE A NEW 20A, 1P CIRCUIT BREAKER AT THE EXISTING SPACE # 15.

(9) POWER SUPPLY FOR THE NEW EMERGENCY LIGHTING WALL PACKS. UTILIZE THE NEW 20A, 1P CIRCUIT BREAKER AT PANEL CHP-CB. PROVIDE NEW WIRINGS AND CONDUIT AS NECESSARY.

(10) BOILER EMERGENCY SHUTOFF SWITCH (TYP FOR 2). COORDINATE WITH MECHANICAL CONTRACTOR FOR LOCATION AND INSTALLATION REQUIREMENTS OF THE DEVICES TO SHUT DOWN THE BOILER AND GAS VALVE TO THE BOILER. PROVIDE AND INSTALL ALL WIRING AND ASSOCIATED CONNECTIONS REQUIRED FOR A COMPLETE CODE COMPLIANT INSTALLATION IN A NEAT AND WORKMANLIKE MANNER.



KEY PLAN

PLAN NORTH

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

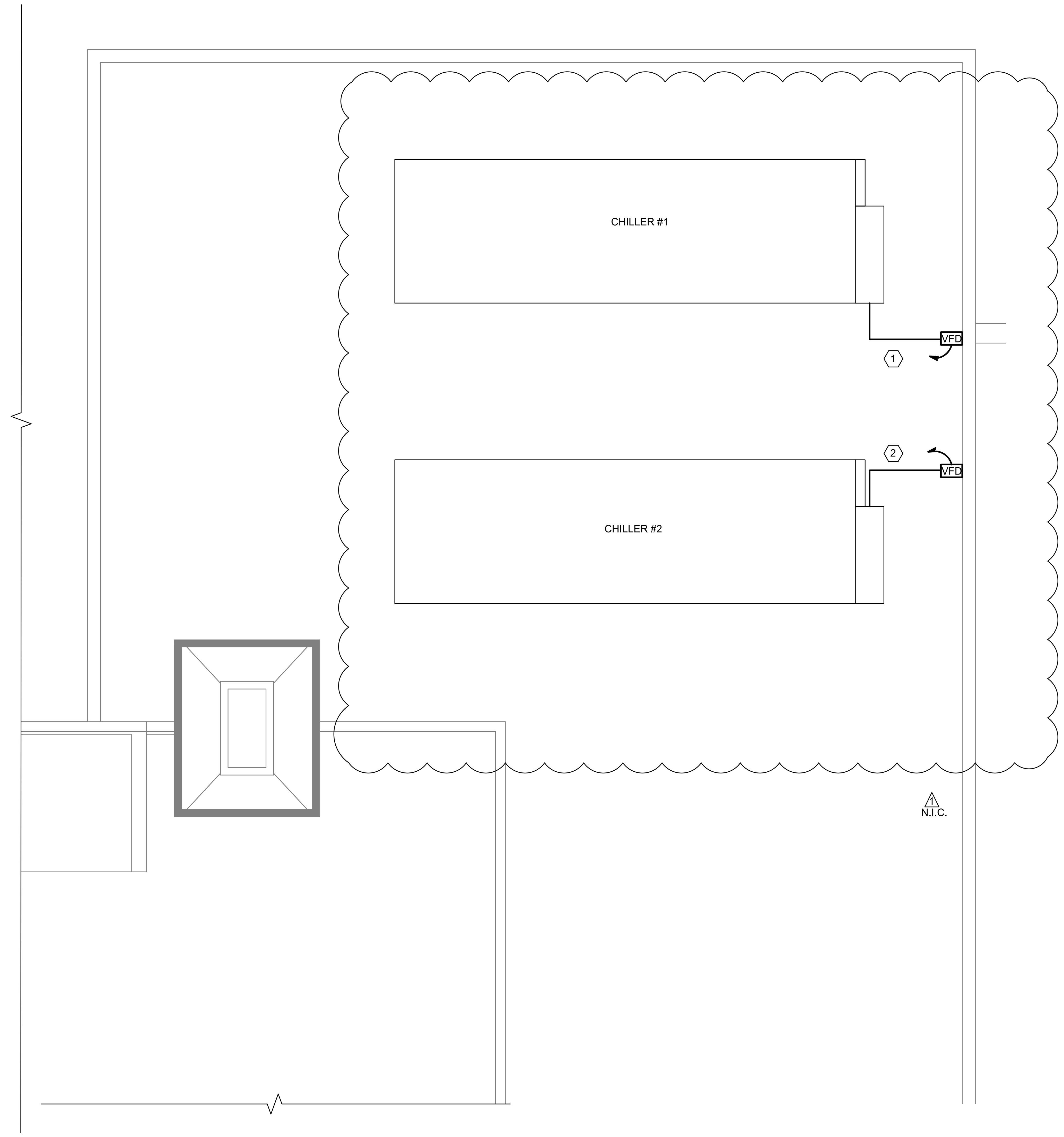
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
106 Hammond Road, Thiells NY 10984
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
MECHANICAL ROOM - BOILER_CHILLER INSTALLATION

Drawing No.
E-101



1 MECHANICAL ROOM ROOF - NEW WORK

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

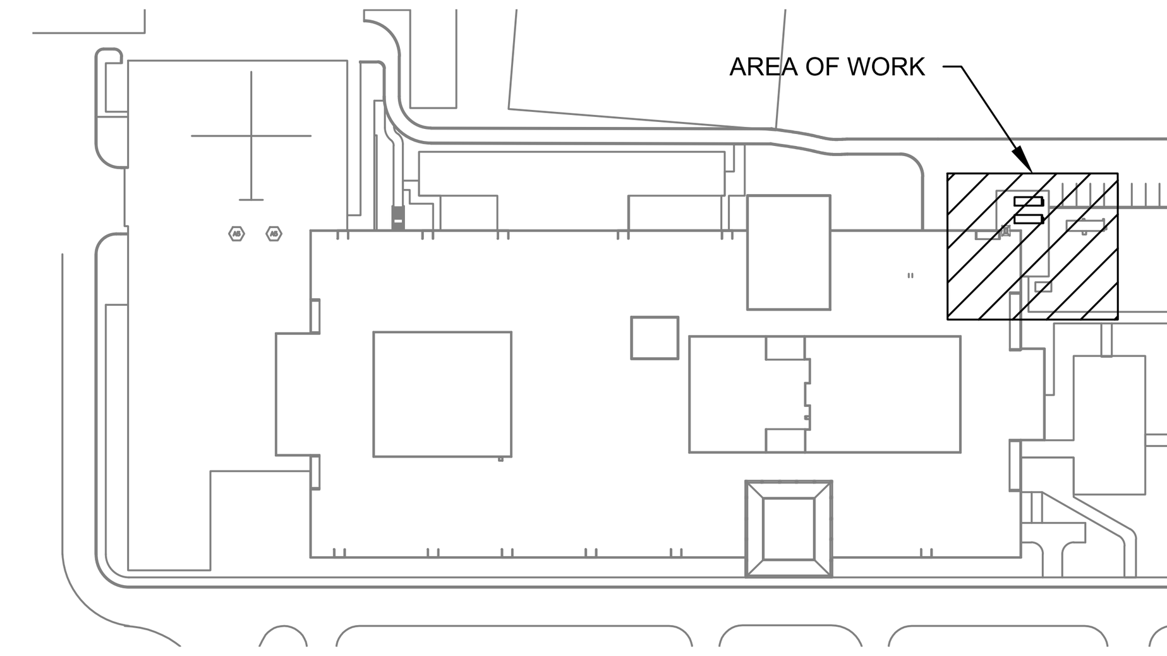
PLAN NOTES:

1. REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
2. ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE.
3. PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGINATION.
4. INVESTIGATE ALL EXISTING BRANCH CIRCUITS AND UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
5. CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
6. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
7. REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
8. PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
9. THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
10. ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.
11. VFD LOCATION IS SHOWN FOR REFERENCE ONLY. THE VFD WITH DISCONNECT SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE ALL WORK WITH THE MECHANICAL CONTRACTOR.

KEYED NOTES:

1. POWER SUPPLY FOR THE NEW CHILLER #1. UTILIZE THE EXISTING CIRCUIT AVAILABLE AFTER THE REMOVAL OF THE EXISTING CHILLER #1. REPLACE THE EXISTING 600A, 3P SWITCH WITH A 800A SWITCH FUSED AT 700A TO FEED THE NEW UNIT. RUN 2 SETS OF [3#500MCM, 1#1/0G IN 3 1/2"C]. PROVIDE A 800A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
2. POWER SUPPLY FOR THE NEW CHILLER #2. UTILIZE THE EXISTING CIRCUIT AVAILABLE AFTER THE REMOVAL OF THE EXISTING CHILLER #2. REPLACE THE EXISTING 600A, 3P SWITCH WITH A 800A SWITCH FUSED AT 700A TO FEED THE NEW UNIT. RUN 2 SETS OF [3#500MCM, 1#1/0G IN 3 1/2"C]. PROVIDE A 800A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE



KEY PLAN

PLAN NORTH

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

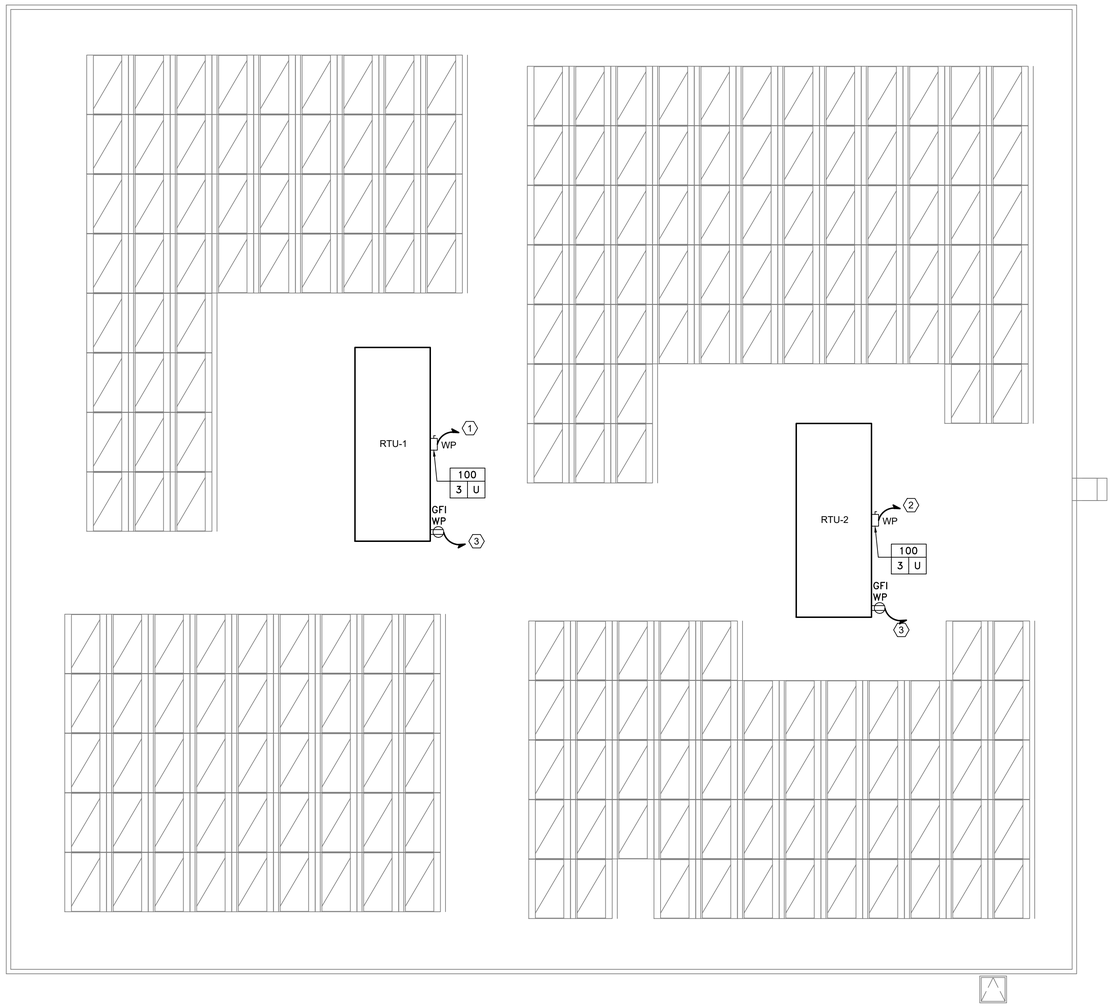
HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.

Drawing Title: MECHANICAL ROOM ROOF - CHILLER INSTALLATION

Drawing No. E-102



1 ELECTRICAL MAIN GYM ROOF - RTU INSTALL

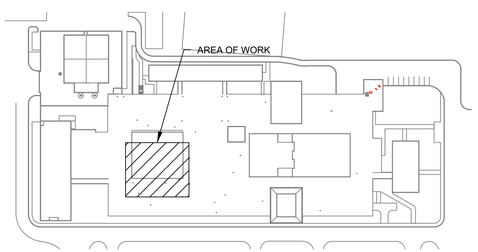
SCALE: 1/8" = 1'- 0"

PLAN NOTES:

1. REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
2. ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE.
3. PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGINATION.
4. INVESTIGATE ALL EXISTING BRANCH CIRCUITS AND UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
5. CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
6. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
7. REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
8. PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
9. THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
10. ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.
11. VFD LOCATION IS SHOWN FOR REFERENCE ONLY. THE VFD WITH DISCONNECT SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE ALL WORK WITH THE MECHANICAL CONTRACTOR.

KEYED NOTES:

1. POWER SUPPLY FOR THE NEW UNIT RTU-1. REPLACE THE EXISTING 50A, 3P CIRCUIT BREAKER AT PANELBOARD HPA AVAILABLE AFTER THE REMOVAL OF THE EXISTING UNIT WITH A NEW 100A, 3P CIRCUIT BREAKER IN SWITCHBOARD HPA TO FEED THE NEW UNIT. RUN 3#1, 1#6G IN 1 1/2"C. PROVIDE A 100A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
2. POWER SUPPLY FOR THE NEW UNIT RTU-2. REPLACE THE EXISTING 50A, 3P CIRCUIT BREAKER AT PANELBOARD HPA AVAILABLE AFTER THE REMOVAL OF THE EXISTING UNIT WITH A NEW 100A, 3P CIRCUIT BREAKER IN SWITCHBOARD HPA TO FEED THE NEW UNIT. RUN 3#1, 1#6G IN 1 1/2"C. PROVIDE A 100A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
3. PROVIDE A 120V, 1P, 20A CIRCUIT BREAKER IN THE NEAREST AVAILABLE 120/208V PANELBOARD TO FEED THE NEW CONVENIENCE OUTLETS.



KEY PLAN

PLAN NORTH

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE
0 1/2 1

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

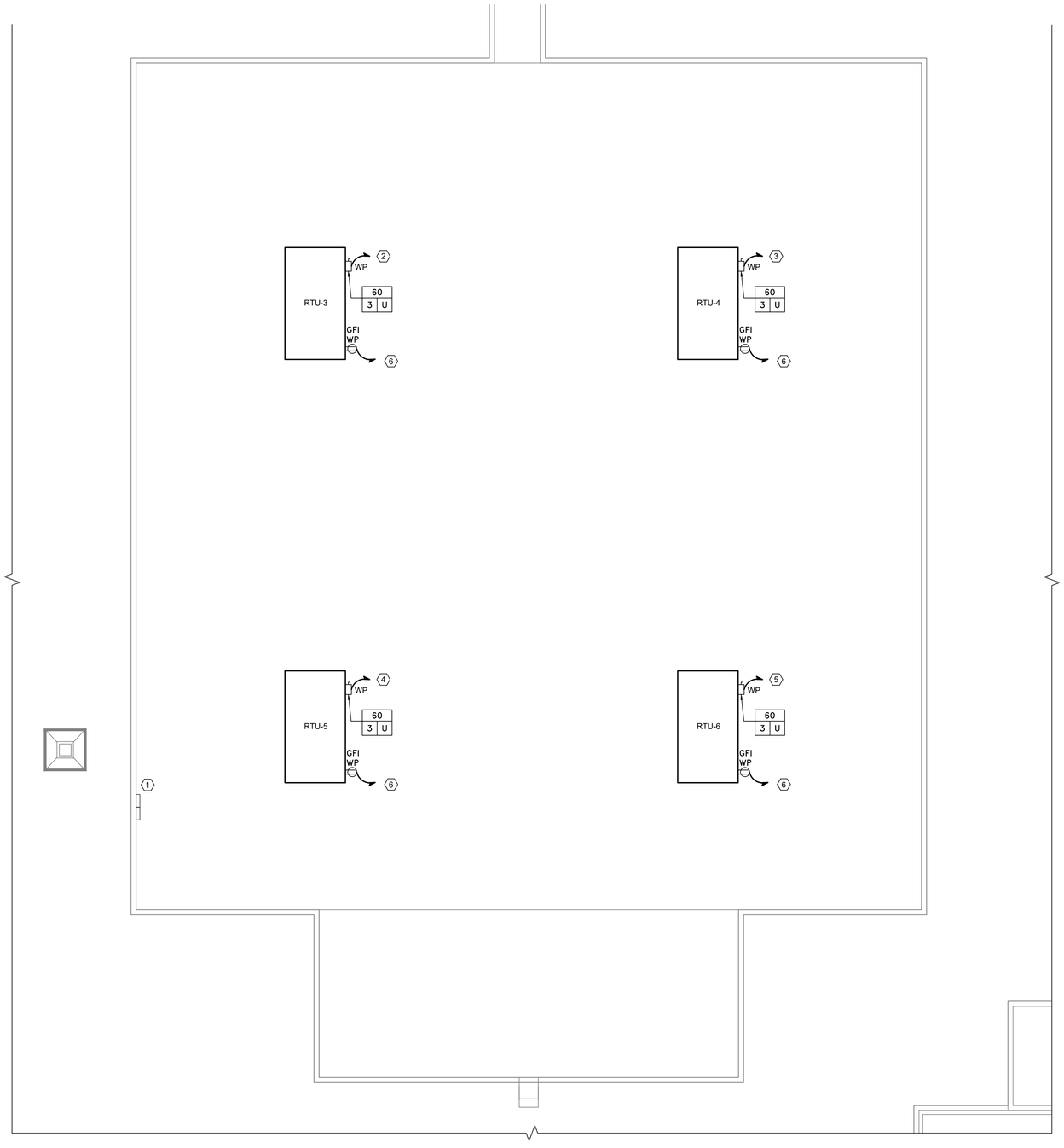
COUNTY OF ROCKLAND

150 Hammond Road, Thiells NY 10984

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-709-8200
www.shilale.com

Drawing Title
ELECTRICAL MAIN GYM ROOF - RTU INSTALLATION

Drawing No.
E-103



1 ELECTRICAL ANNEX GYM ROOF - RTU INSTALL

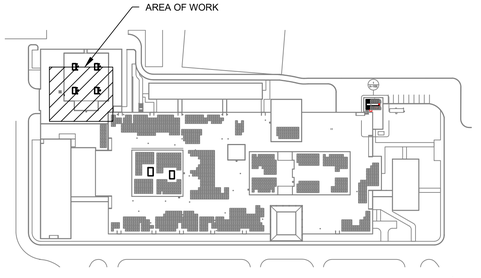
SCALE: 1/8" = 1'- 0"

PLAN NOTES:

1. REFER TO ADDITIONAL INSTALLATION NOTES ON DRAWING E-001.
2. ALL NEW BRANCH CIRCUIT SHALL BE RUN WITH MINIMUM OF 2#12+1#12G IN 3/4" CONDUIT, UNLESS OTHERWISE NOTED. FOR POWER BRANCH CIRCUIT, MC CABLE SHALL BE INSTALLED FOR RECESSED INSTALLATION ONLY, EITHER IN NEW WALLS OR ABOVE HUNG CEILING WHERE POSSIBLE.
3. PROVIDE LABELS ON ALL ELECTRICAL EQUIPMENT INDICATING CIRCUIT ORIGINATION.
4. INVESTIGATE ALL EXISTING BRANCH CIRCUITS AND UPDATE ALL EXISTING PANEL DIRECTORIES AFFECTED BY NEW WORK.
5. CONTRACTOR SHALL PERFORM AMP PROBE READINGS ON EXISTING SERVICE EQUIPMENT BEFORE AND AFTER WORK TO ENSURE EQUIPMENT WILL NOT BE LOADED BEYOND ITS MAX AMPACITY.
6. CONTRACTOR SHALL MAINTAIN CONTINUITY TO ALL EXISTING CIRCUITRY TO REMAIN WHICH ARE AFFECTED BY THE SCOPE OF WORK; CONTRACTOR SHALL FURNISH ALL NECESSARY JUNCTION BOXES, CONDUIT, AND WIRES AS REQUIRED TO KEEP CONTINUITY.
7. REFER TO MECHANICAL PLANS FOR EQUIPMENT TO BE SUPPLIED BY OTHER TRADES AND INSTALLED/WIRED UNDER THIS SECTION. COORDINATE LOCATION OF DEVICES WITH OTHER CONTRACTORS.
8. PROVIDE FIRESTOPPING FOR ALL PENETRATIONS TO MATCH EXISTING FIRE RATING WHERE APPLICABLE. ALL CORE DRILLS SHALL BE VERIFIED BY BUILDING REPRESENTATIVE PRIOR TO COMMENCING WORK. XRAY ALL FLOOR SLABS PRIOR TO ROUGH-INS FOR CORE DRILL WORK.
9. THE CONTRACTOR SHALL FIELD ROUTE FEEDER FOR NEW POWER PANELS. COORDINATE EXACT ROUTING PATH WITH OWNER. SUBMIT A PROPOSED ROUTING PATH TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO RUNNING ANY CONDUIT OR WIRE ASSOCIATED WITH THIS FEEDER.
10. ALL GROUNDING SHALL BE PROVIDED BY THE CONTRACTOR AS PER NEC 2017.
11. VFD LOCATION IS SHOWN FOR REFERENCE ONLY. THE VFD WITH DISCONNECT SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE ALL WORK WITH THE MECHANICAL CONTRACTOR.

KEYED NOTES:

1. APPROXIMATE LOCATION OF THE EXISTING TO REMAIN 225A, 480/277V, 3PH, 4W 2-SECTION ELECTRICAL PANELBOARD DPM LOCATED IN THE FLOOR BELOW. CONTRACTOR SHALL VERIFY THE EXACT LOCATION IN FIELD.
2. POWER SUPPLY FOR THE NEW UNIT RTU-3. REPLACE THE EXISTING 30A, 3P SPARE CIRCUIT BREAKER AT PANELBOARD DPM-SECTION 1 (CKT #6) WITH A NEW 50A, 3P CIRCUIT BREAKER TO FEED THE NEW UNIT. RUN 3#6, 1#10G IN 1"C. PROVIDE A 60A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
3. POWER SUPPLY FOR THE NEW UNIT RTU-4. REPLACE THE EXISTING 30A, 3P SPARE CIRCUIT BREAKER AT PANELBOARD DPM-SECTION 1 (CKT #7) WITH A NEW 50A, 3P CIRCUIT BREAKER TO FEED THE NEW UNIT. RUN 3#6, 1#10G IN 1"C. PROVIDE A 60A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
4. POWER SUPPLY FOR THE NEW UNIT RTU-5. REPLACE THE EXISTING 30A, 3P SPARE CIRCUIT BREAKER AT PANELBOARD DPM-SECTION 1 (CKT #8) WITH A NEW 50A, 3P CIRCUIT BREAKER TO FEED THE NEW UNIT. RUN 3#6, 1#10G IN 1"C. PROVIDE A 60A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
5. POWER SUPPLY FOR THE NEW UNIT RTU-6. REPLACE THE EXISTING 30A, 3P SPARE CIRCUIT BREAKER AT PANELBOARD DPM-SECTION 2 (CKT #7) WITH A NEW 50A, 3P CIRCUIT BREAKER TO FEED THE NEW UNIT. RUN 3#6, 1#10G IN 1"C. PROVIDE A 60A, 3P UNFUSED DISCONNECT SWITCH AT THE UNIT. COORDINATE ALL WORK WITH MECHANICAL DRAWINGS.
6. PROVIDE A 120V, 1P, 20A CIRCUIT BREAKER IN THE NEAREST AVAILABLE 120/208V PANELBOARD TO FEED THE NEW CONVENIENCE OUTLETS.



KEY PLAN

PLAN NORTH

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

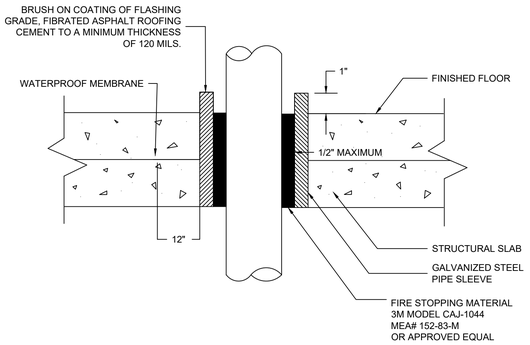
COUNTY OF ROCKLAND

146 Hammond Road, Blauvelt NY 10964

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

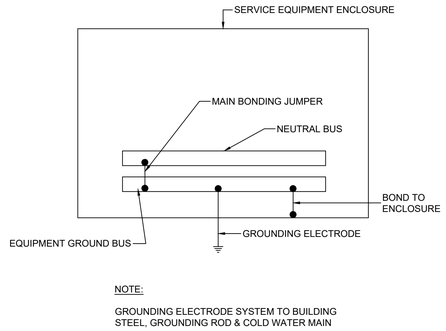
Drawing Title
ELECTRICAL ANNEX GYM ROOF - RTU INSTALLATION

Drawing No.
E-104



1 CONDUIT PENETRATION THRU WATERPROOF SLAB

SCALE: NTS

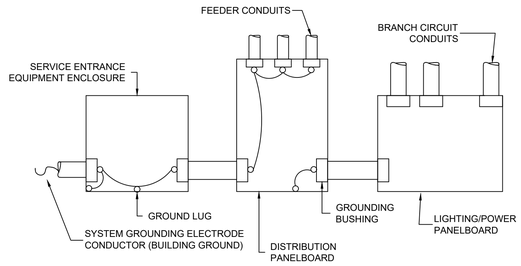


NOTE:

GROUNDING ELECTRODE SYSTEM TO BUILDING STEEL, GROUNDING ROD & COLD WATER MAIN

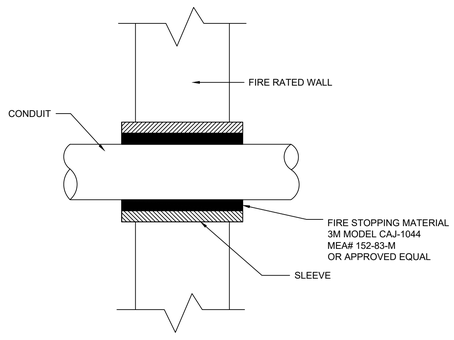
2 GROUNDING SYSTEM WITH GROUND BUS & NEUTRAL BUS

SCALE: NTS



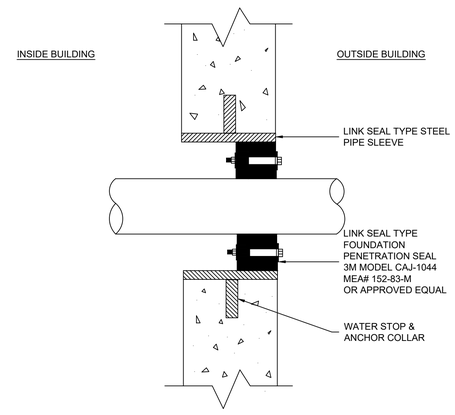
3 GROUNDING RACEWAY EQUIPMENT GROUNDING SYSTEM

SCALE: NTS



4 CONDUIT PENETRATION THRU THRU FIRE RATED WALL

SCALE: NTS



5 CONDUIT PENETRATION THRU THRU FOUNDATION WALL

SCALE: NTS

Drawing Title
ELECTRICAL DETAILS

Drawing No.
E-501

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-8200
www.shilale.com

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

COUNTY OF ROCKLAND

150 Ramapo Rd.
Thiells NY 10984

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

Drawn by	J.J
Checked by	S.H
Project No.	43065
Scale	AS NOTED
Date	12/06/23

REG. EXP DATE: 10-31-26

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE
0 1/2 1

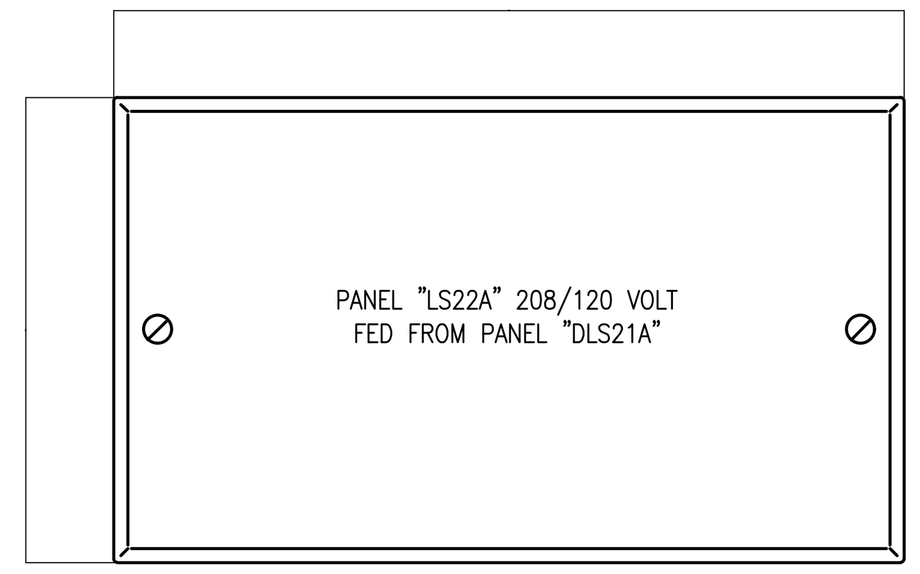
BRANCH CIRCUIT VOLTAGE DROP

CONDUCTOR AWG	#12	#10	#8
MAXIMUM CONDUCTOR LENGTH (IN FT.) AT 120V	95	160	245
MAXIMUM CONDUCTOR LENGTH (IN FT.) AT 208V,1PH	170	280	425
GROUND CONDUCTOR AWG	#12	#12	#12

NOTES:

1. INCREASE BRANCH CIRCUIT CONDUCTOR AS REQUIRED.
2. BASED ON 20 AMP CIRCUIT LOADED TO 10 AMP USING SINGLE PHASE, 2 WIRE CIRCUITS.
3. SCHEDULE REPRESENTS MINIMUM CONDUCTOR SIZE BASED ON LENGTH OF BRANCH CIRCUIT CONDUCTOR FROM PANEL TO PHYSICAL CENTER OF LOAD TO OVERCOME VOLTAGE DROP. 3% VOLTAGE DROP ASSUMED.
4. TRANSITION FROM LARGER CONDUCTOR SIZE TO #12 FOR FINAL TERMINATION TO OUTLET DEVICE. PROVIDE JUNCTION BOX WITHIN 10' OF OUTLET. EXTEND #12 CONDUCTOR TO OUTLET.

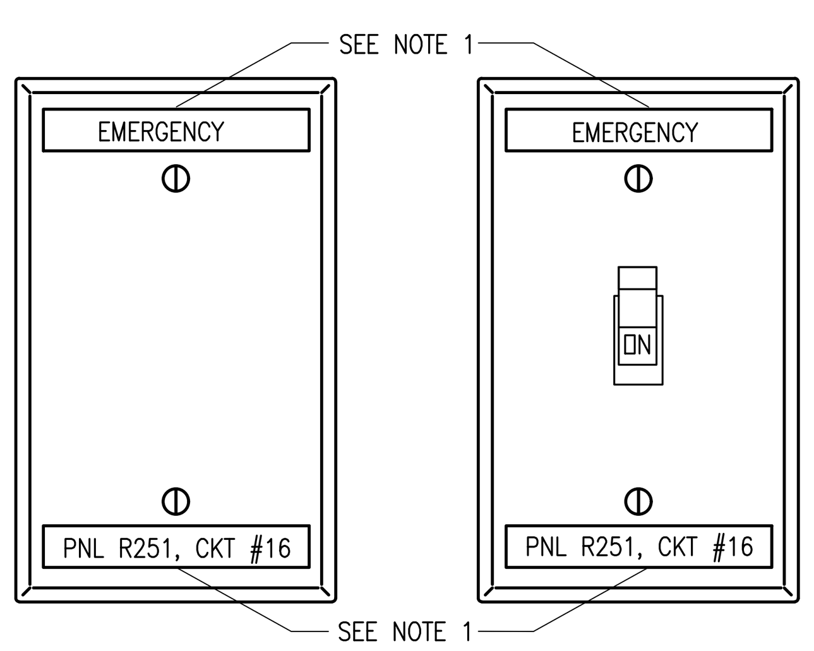
1 BRANCH CIRCUIT VOLTAGE DROP
SCALE: NTS



NOTES:

1. NAMEPLATES SHALL HAVE WHITE LETTERS ON BLACK BACKGROUND.
2. NAMEPLATES SHALL BE FASTENED BY MACHINE SCREWS. ADHESIVES WILL NOT BE ALLOWED.
3. NAME PLATES SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT INCLUDING, BUT NOT LIMITED TO, PANELBOARDS, SWITCHBOARDS, MOTOR CONTROL CENTERS, STARTERS, JUNCTION BOXES, PULL BOXES, DISCONNECT SWITCHES, TRANSFORMERS, CABINETS, ETC.

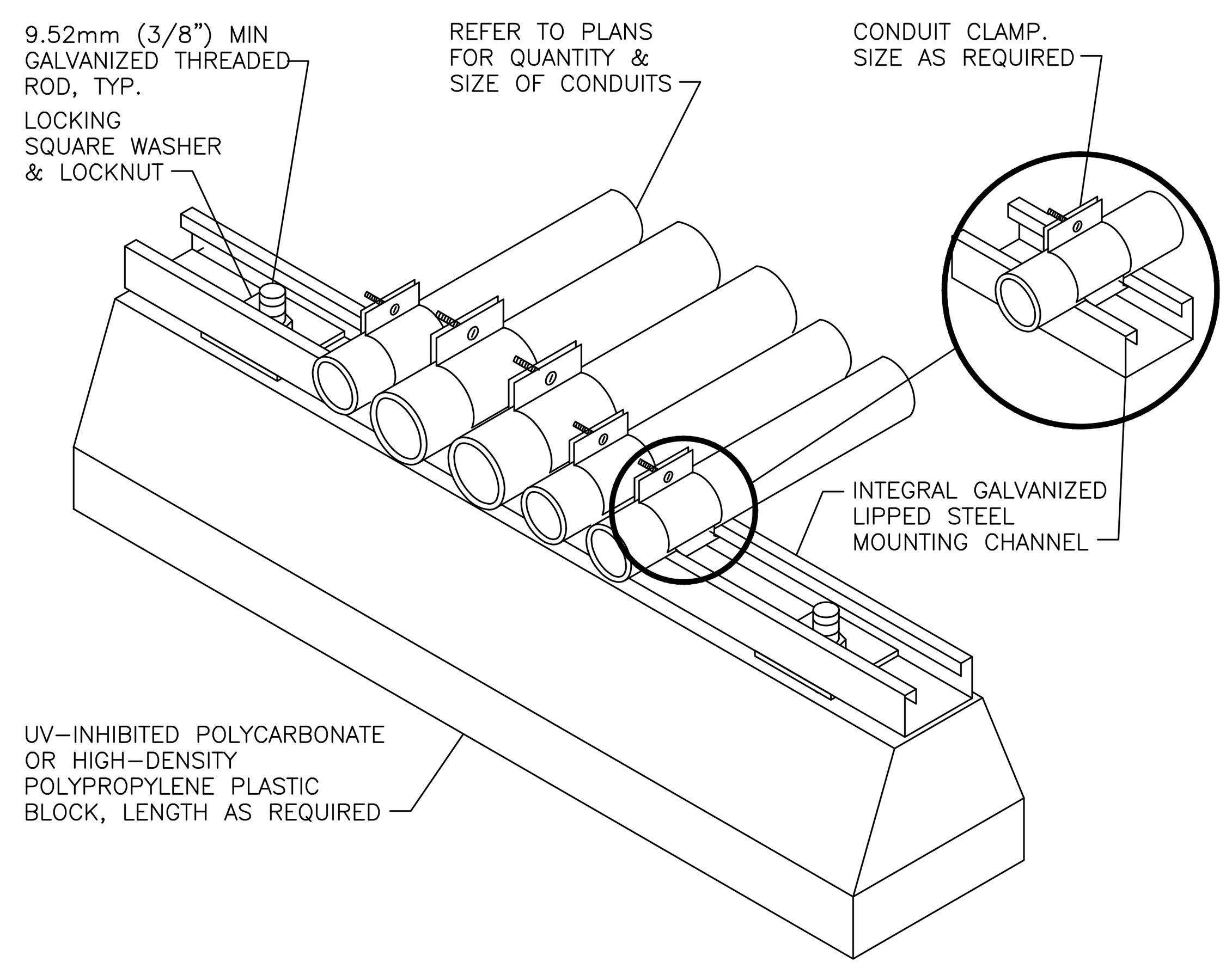
2 TYPICAL ENGRAVED NAME PLATE
SCALE: NTS



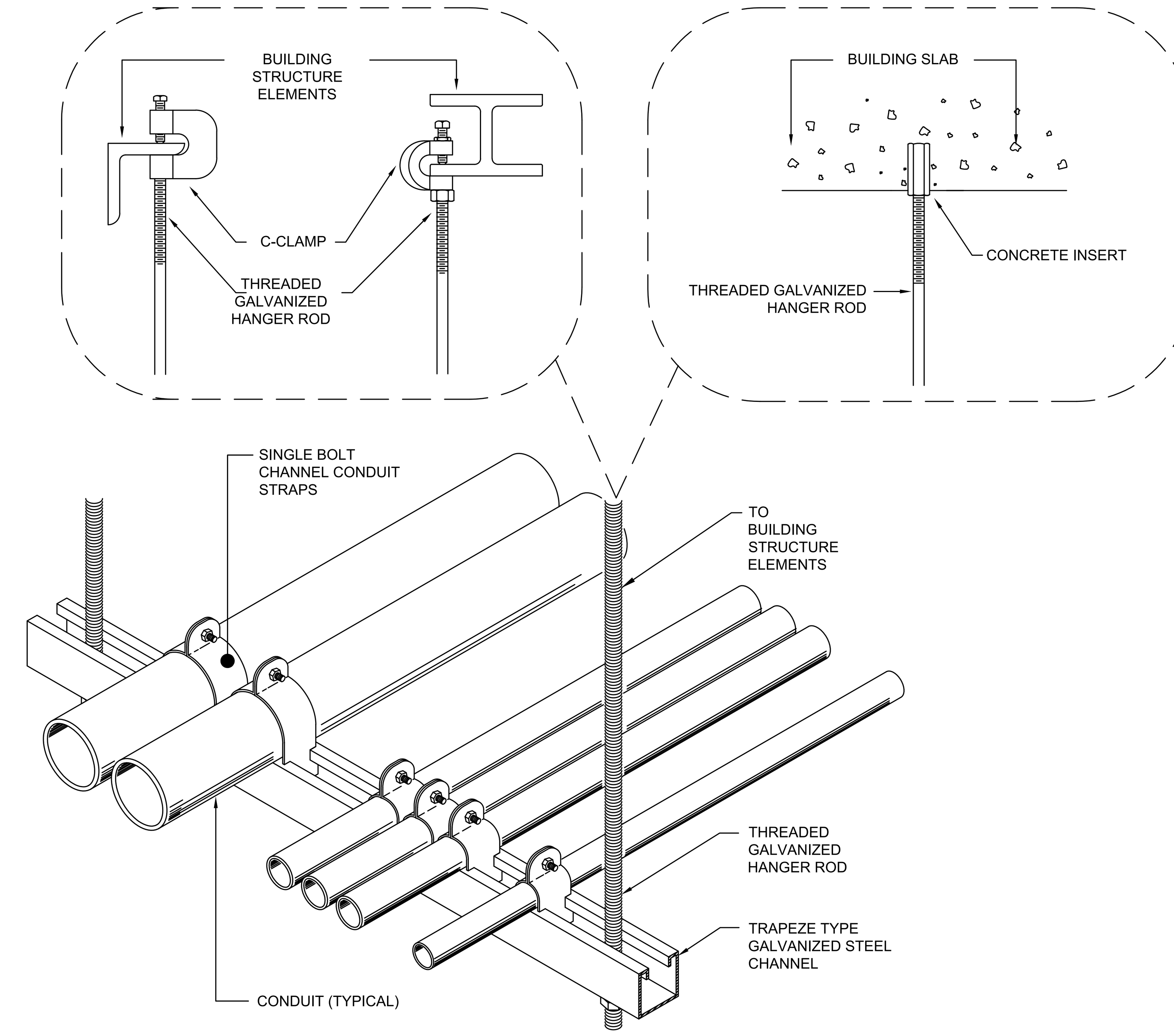
NOTES:

1. AT A MINIMUM, ELECTRICAL CONTRACTOR SHALL PROVIDE TYPED LABELS WITH PTOUCH MACHINE TO INDICATE PANEL NAME AND CIRCUIT NUMBER. PROVIDE 'EMERGENCY' TYPED LABEL FOR CIRCUITS CONNECTED TO EMERGENCY PANELS. COORDINATE EXACT NAMING WITH FACILITY'S PERSONNEL. IF FACILITY STANDARD IS ENGRAVED COVERPLATES, THE ELECTRICAL CONTRACTOR SHALL PROVIDE ENGRAVED COVERPLATES TO MATCH FACILITY REQUIREMENTS.

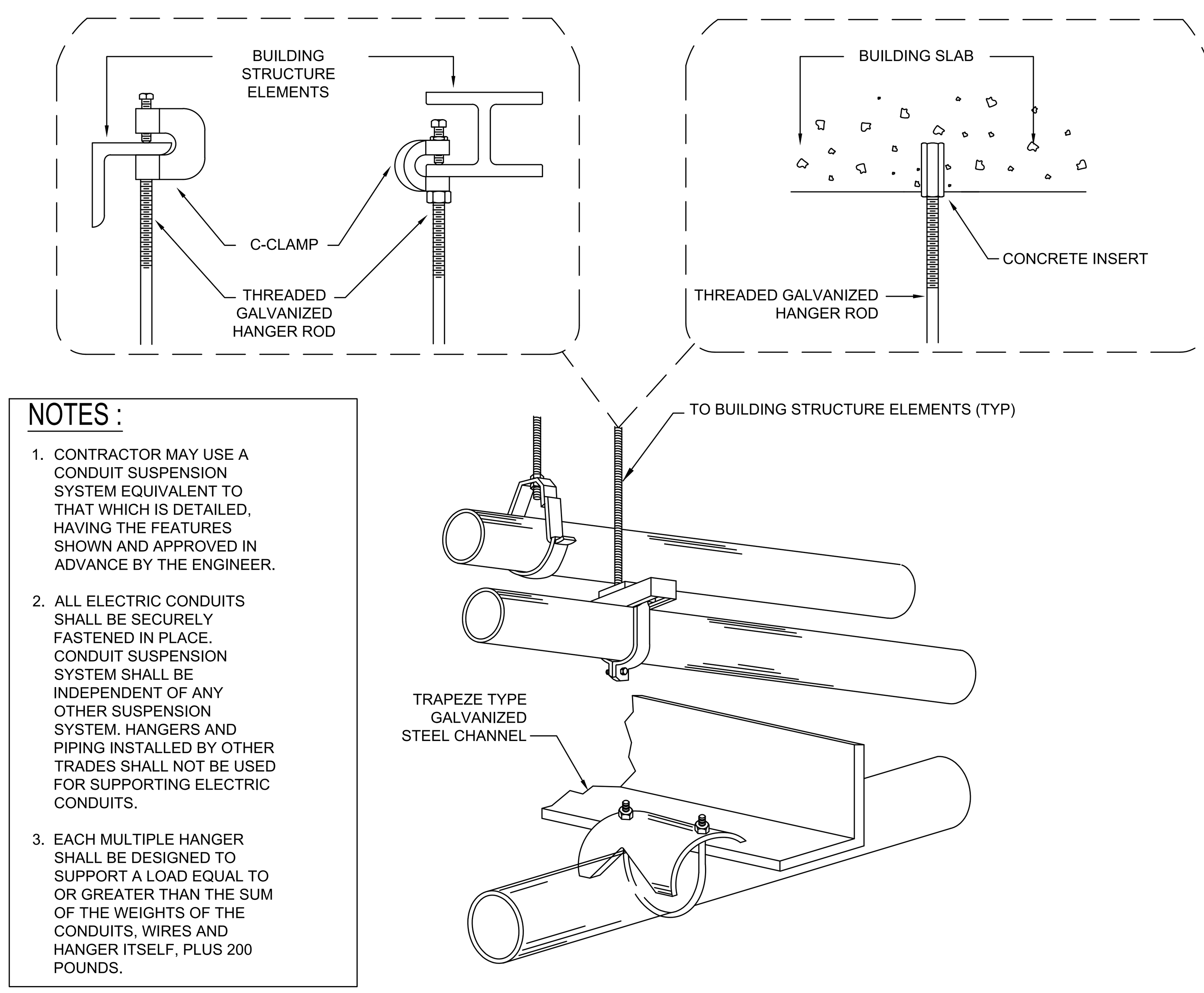
3 TYPICAL COVERPLATE AND SWITCH
SCALE: NTS



4 ROOF CONDUIT SUPPORT DETAIL
SCALE: N.T.S.



5 SUSPENDED SYSTEM MULTIPLE CONDUITS
SCALE: NTS



NOTES :

1. CONTRACTOR MAY USE A CONDUIT SUSPENSION SYSTEM EQUIVALENT TO THAT WHICH IS DETAILED, HAVING THE FEATURES SHOWN AND APPROVED IN ADVANCE BY THE ENGINEER.
2. ALL ELECTRIC CONDUITS SHALL BE SECURELY FASTENED IN PLACE. CONDUIT SUSPENSION SYSTEM SHALL BE INDEPENDENT OF ANY OTHER SUSPENSION SYSTEM. HANGERS AND PIPING INSTALLED BY OTHER TRADES SHALL NOT BE USED FOR SUPPORTING ELECTRIC CONDUITS.
3. EACH MULTIPLE HANGER SHALL BE DESIGNED TO SUPPORT A LOAD EQUAL TO OR GREATER THAN THE SUM OF THE WEIGHTS OF THE CONDUITS, WIRES AND HANGER ITSELF, PLUS 200 POUNDS.

6 SUSPENDED SYSTEM SINGLE CONDUIT
SCALE: NTS

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
106 Hammond Road, Thiells NY 10984
COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
ELECTRICAL DETAILS - SHEET 2

Drawing No.
E-502

GENERAL NOTES:

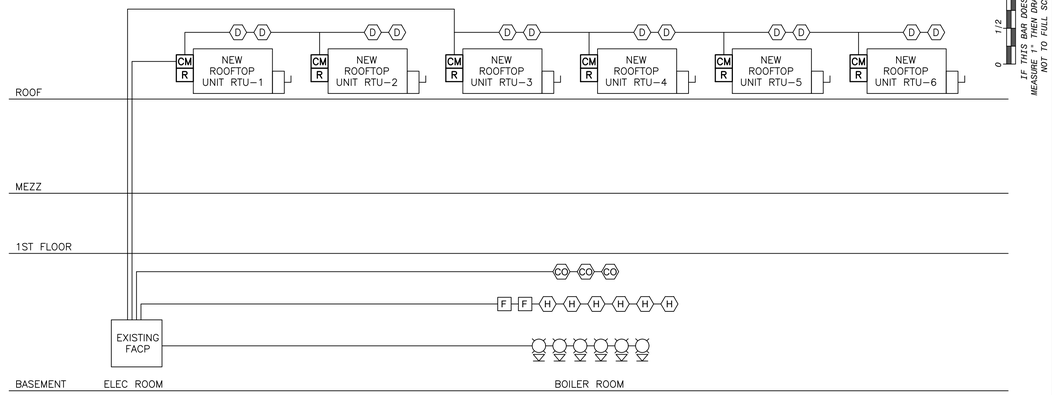
1. ALL WIRING, POWER, CONDUCTORS, CONDUITS ETC. SHALL MEET NYS ELECTRICAL CODE ARTICLE 760.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE NYS BUILDING CODE AND NFPA 72.
3. ALL FIRE ALARM CIRCUITS SHALL BE SIZED TO INCLUDE A MINIMUM OF 20% SPARE CAPACITY.
4. ALL FIRE ALARM EQUIPMENT SHALL BE INSTALLED WITH AESTHETICS IN MIND, AS FOLLOWS: PAINT ALL NEW CONDUIT AND BOXES TO MATCH EXISTING CONDITIONS, PATCH AND PAINT LOCATIONS OF REMOVED BOXES TO MATCH EXISTING.
5. ALL FIRE ALARM CABINETS SHALL BE CLEARLY LABELED WITH A LAMINATE ENGRAVED LABEL.
6. ALL FIRE ALARM WIRE SHALL BE CLEARLY LABELED IN JUNCTION BOXES AND CABINETS. ALL TERMINALS SHALL BE NUMBERED AND LABELED. ALL CONNECTIONS SHALL BE EITHER SOLDERED, APPROVED TERMINAL STRIPS OR SCOTCH LOCKS.
7. ALL FIRE ALARM CONDUCTORS SHALL BE PROTECTED BY EITHER BUILDING CONSTRUCTION OR CONDUIT. LOADING DOCKS, GARAGES, SUPPRESSION AND EXTINGUISHING SYSTEM WIRING, MECHANICAL AND ELECTRICAL ROOMS AND OTHER LOCATIONS SUBJECT TO MECHANICAL DAMAGE SHALL BE IN FULL RIGID CONDUIT. IN ALL AREAS, WIRING MUST MEET NEC ARTICLE 760.
8. FIRE ALARM CABLES SHALL NOT BE MIXED WITH NON FIRE ALARM CABLING. LOW VOLTAGE FIRE ALARM CABLING SHALL NOT BE MIXED OR WIRED NEAR ANY AC CIRCUIT.
9. ALL NOTIFICATION CIRCUITS SHALL BE A MINIMUM OF 12 AWG AND ALL OTHER LOW VOLTAGE FIRE ALARM CIRCUITS SHALL BE 14 AWG MINIMUM.
10. ALL WIRING SHALL BE INSPECTED TO ASSURE THERE ARE NO OPENS, SHORTS OR EARTH GROUNDS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY AND ALL ABANDONED FIRE ALARM CABINETS, DEVICES, AND WIRE. PAINT, PATCH AND CLEANUP SHALL ALSO BE INCLUDED.
12. FIRE ALARM PANEL SHALL PROVIDE CONTINUOUSLY SUPERVISED MONITORING OF ALL SYSTEMS FOR OPENS, SHORTS AND GROUNDS.
13. UPON ENTERING THE PANEL ALARM MODE, THE ALARM INDICATING DEVICE SHALL BE ACTIVATED, AND HVAC LOADS SHALL SHUT DOWN. THE DIGITAL COMMUNICATOR SHALL NOTIFY THE CENTRAL RECEIVING STATION.
14. CONTRACTOR SHALL PROVIDE ALL NECESSARY ADDITIONAL RELAY DEVICES OR POWER TRANSFORMERS FOR PROPER OPERATION OF ALL INTERLOCKED DEVICES WITH FIRE ALARM PANEL.
15. BATTERY BACKUP SHALL PROVIDE A MINIMUM OF 24 HRS OPERATION WITH A 10 MINUTE ALARM AT THE END OF 24 HRS.
16. ALL WIRING SHALL BE IN ACCORDANCE WITH NFPA CODES 70, 72, 72E, AS WELL AS LOCAL AND STATE CODE REQUIREMENTS.
17. FIRE ALARM SYSTEM SHALL BE TESTED IN ACCORDANCE WITH NFPA CODES 70, 72, 72E, AS WELL AS ALL LOCAL AND STATE CODE REQUIREMENTS.
18. ENTIRE FIRE DETECTION AND ALARM SYSTEM SHALL BE FURNISHED AND INSTALLED BY A N.Y. STATE LICENSED ALARM CONTRACTOR.
19. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL APPURTENANCES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM. MODEL NUMBERS GIVEN MAY NOT INCLUDE ALL SPECIFIC REQUIRED ACCESSORIES FOR COMPLETE INSTALLATION.
20. GENERAL LOCATIONS ARE SHOWN ON PLANS. DETECTORS SHALL NOT BE MOUNTED FURTHER THAN 30' APART AND THOSE ALONG WALLS SHALL NOT BE FURTHER THAN 15'-16' FROM THE WALL.
21. SMOKE DETECTORS MUST BE MOUNTED AT LEAST 3 FEET AWAY FROM ANY AIR REGISTER.
22. ALL CELING MOUNT DEVICES MUST BE SECURELY FASTENED TO BUILDING CONSTRUCTION.
23. DEVICE LOCATIONS MUST BE READILY ACCESSIBLE TO ALLOW FOR MAINTENANCE AND REPAIR.
24. DUCT MOUNTED SMOKE DETECTORS SHALL BE MOUNTED ON THE DUCTWORK IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. DETECTORS SHALL BE PROVIDED WITH A REMOTE LED.
25. ALL AUXILIARY RELAYS FOR FAN SHUTDOWN, ETC SHALL BE WIRED A MAXIMUM OF 3 FT FROM THE CONTROLLED DEVICE. THE AUXILIARY RELAY SHALL FUNCTION WITHIN THE REQUIRED VOLTAGE AND CURRENT OF THE CONTROLLED DEVICE. SLAVE OR INTERPOSING RELAYS SHALL BE INCLUDED AND POWERED BY THE FIRE ALARM CONTROL PANEL IN A FAIL-SAFE (FIRE FUNCTION) POSITION. POWER TO THE INTERPOSING RELAY SHALL BE MONITORED BY THE FIRE ALARM SYSTEM.
26. RISER DIAGRAM ON THIS DRAWING IS FOR DESIGN PURPOSE ONLY. FIRE ALARM CONTRACTOR SHALL PROVIDE A COMPLETE RISER DIAGRAM WITH ACTUAL FIELD WIRING REQUIRED.
27. THE CONTRACTOR IS TO RE-PROGRAM THE EXISTING FIRE ALARM SYSTEM TO MATCH THE EXISTING SEQUENCE OF OPERATION.

ABBREVIATIONS

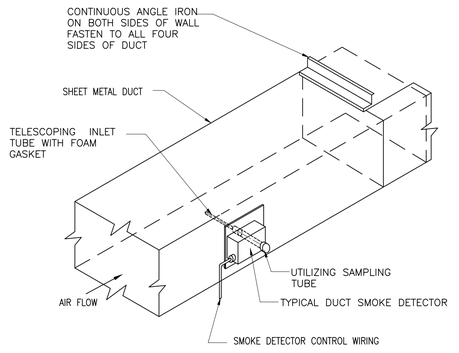
ABBREVIATION:	DESCRIPTION:
A	AMPERE
AC	ALTERNATING CURRENT
ACS	ADMINISTRATIVE CONTROL STATION
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
A/C	AIR CONDITIONING
C	CONDUIT
CAB	CABINET
CLG	CEILING
CB	CIRCUIT BREAKER
CKT(S)	CIRCUIT(S)
COL	COLUMN
DWG	DRAWING
EC	EMPTY CONDUIT
ELEC	ELECTRIC
EMR	ELEVATOR MECHANICAL ROOM
EMT	ELECTRIC METALLIC TUBING
EXH	EXHAUST
EXIST	EXISTING
FATB	FIRE ALARM TERMINAL BOX
FL	FLOOR
G	GUARD
GND	GROUND
GFI	GROUND FAULT INTERRUPTER
GRC	GALVANIZED RIGID CONDUIT
IG	ISOLATED GROUND
JB	JUNCTION BOX
KVA	KILOVOLT AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LP	120/208V PANEL
LS	LOUDSPEAKER
LTG	LIGHTING
MATV	MASTER TELEVISION
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MIC	MICROPHONE
MTD	MOUNTED
N	NEUTRAL
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
O & R	ORANGE AND ROCKLAND
P	POLE(S)
PB	PULL BOX
PNL	PANEL
PP	277/480V PANEL
RC	REMOTE CONTROL
SP	SPARE
SSB	SOLID STATE BALLAST
STD	STANDARD
SW	SWITCH
SWBD	SWITCHBOARD
TEL	TELEPHONE
TV	TELEVISION
TYP	TYPICAL
V	VOLT
W	WATT
WP	WEATHERPROOF

SYMBOLS:

FACP	EXISTING FIRE ALARM SYSTEM CONTROL PANEL
CM	CONTROL MODULE. "WP" INDICATES WEATHERPROOF
R	RELAY
D	DUCT MOUNTED SMOKE DETECTOR
CO	CO DETECTOR
S	SMOKE DETECTOR
F	MANUAL PULL STATION
H	HEAT DETECTOR
	FIRE SIGNAL HORN WITH FIRE SIGNAL STROBE. HORN WITH FIRE SIGNAL STROBES SHALL BE WALL-MOUNTED SUCH THAT THE TOP OF STROBE LENS IS LOCATED AT 96" ABOVE THE FINISHED FLOOR OR 6" BELOW THE CEILING, WHICHEVER IS LOWER.



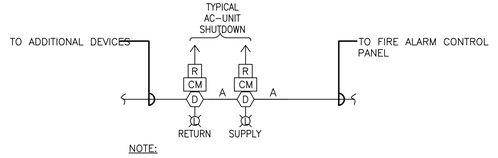
1 PARTIAL RISER DIAGRAM
SCALE: NTS



NOTE:

HVAC CONTRACTOR SHALL INSTALL DUCT SMOKE DETECTOR AS PER MANUFACTURER'S RECOMMENDATIONS AND NFPA 72.

2 TYPICAL DUCT MOUNTED SMOKE DETECTOR DETAIL
SCALE: NTS



NOTE:

ALL DUCT DETECTORS SHALL BE PROVIDED WITH A REMOTE LED LIGHT FOR VISUAL IDENTIFICATION.

3 TYPICAL FAN SHUTDOWN DETAIL
SCALE: NTS

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901
Mechanical & Electrical Engineer:
Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES
HIGH SCHOOL SED# 50-02-01-06-0-016-037
COUNTY OF ROCKLAND
108 Haverstraw Road, Suffern, NY 10901

MICHAEL SHILALE ARCHITECTS, L.L.P.
149 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

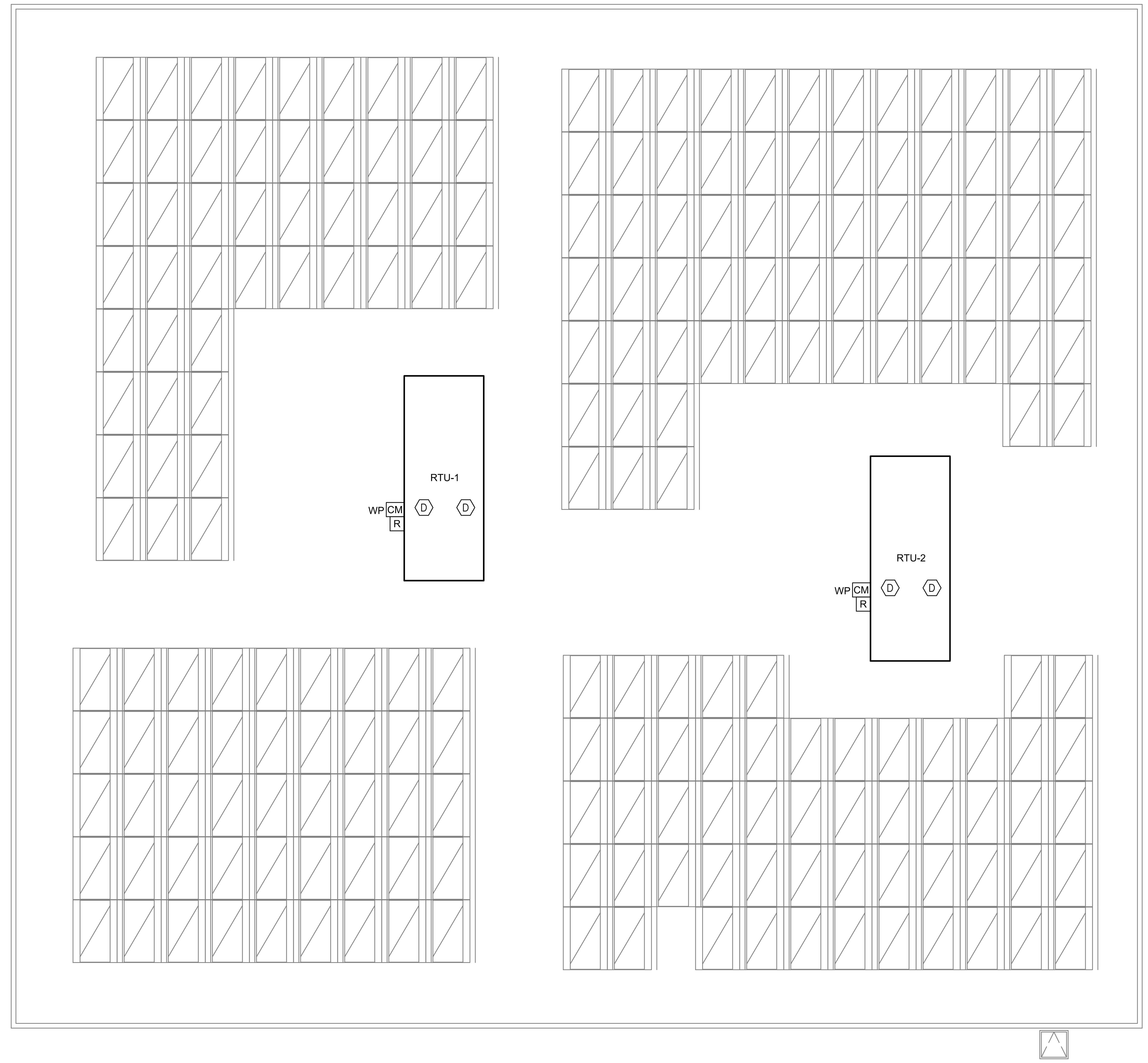
Drawing Title
FIRE ALARM GENERAL NOTES, SYMBOL LIST & ABBREVIATIONS

Drawing No.
FA-001

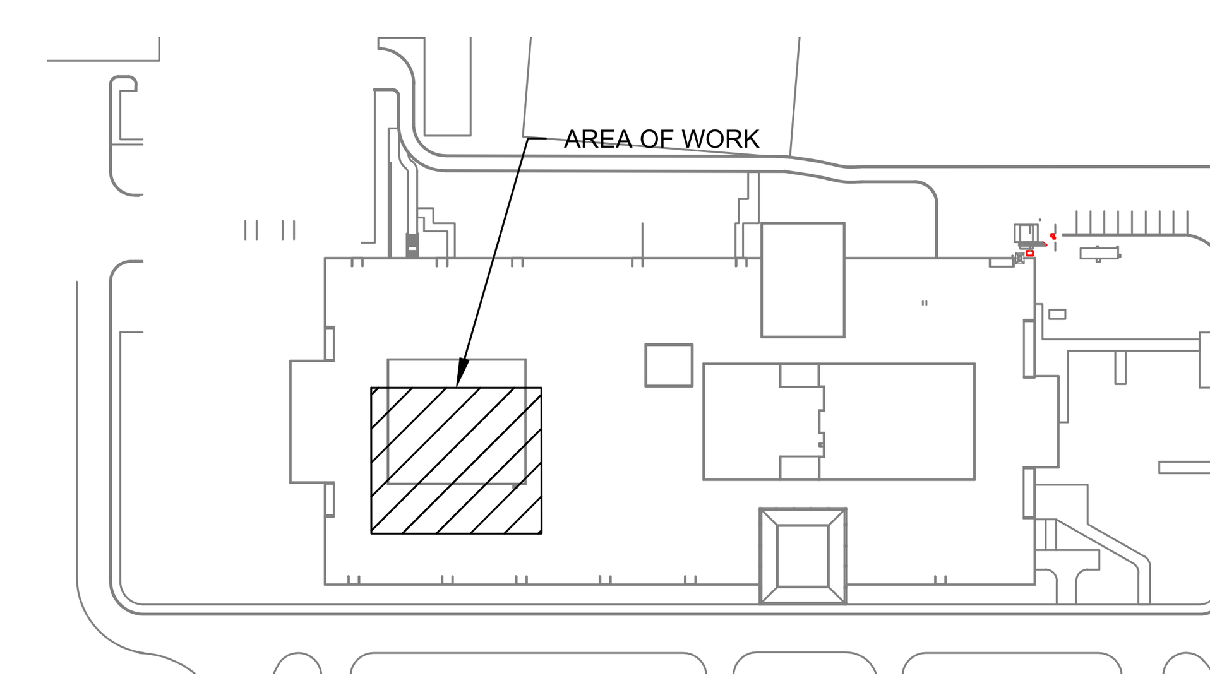
PLAN NOTES:

1. FOR GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND FIRE ALARM SYSTEM DRAWING LIST REFER TO DWG FA001.00.
2. FOR EXACT LOCATION AND QUANTITIES OF MECHANICAL AND PLUMBING EQUIPMENT AND DEVICES, REFER TO MECHANICAL AND PLUMBING DWGS.
3. ALL CONDUIT PENETRATIONS THROUGH FIRE RATED PARTITIONS ARE TO BE PROVIDED WITH FIRE STOP SEALS AS REQUIRED BY CODE TO MAINTAIN FIRE RATING OF PARTITIONS.
4. UNLESS OTHERWISE NOTED ON DRAWING, MOUNTING HEIGHTS OUTLETS AND EQUIPMENT SHALL BE AS INDICATED ON SYMBOL LIST & SPECIFICATIONS.
5. ACCESS SHALL BE PROVIDE TO EACH DETECTOR FOR PERIODIC INSPECTION, MAINTENANCE AND TESTING AS PER SECTION 907.12 OF N.Y.C. BUILDING CODE.

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE



1 FIRE ALARM MAIN GYM ROOF - RTU INSTALL
SCALE: 1/8" = 1'- 0"



KEY PLAN

PLAN NORTH

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

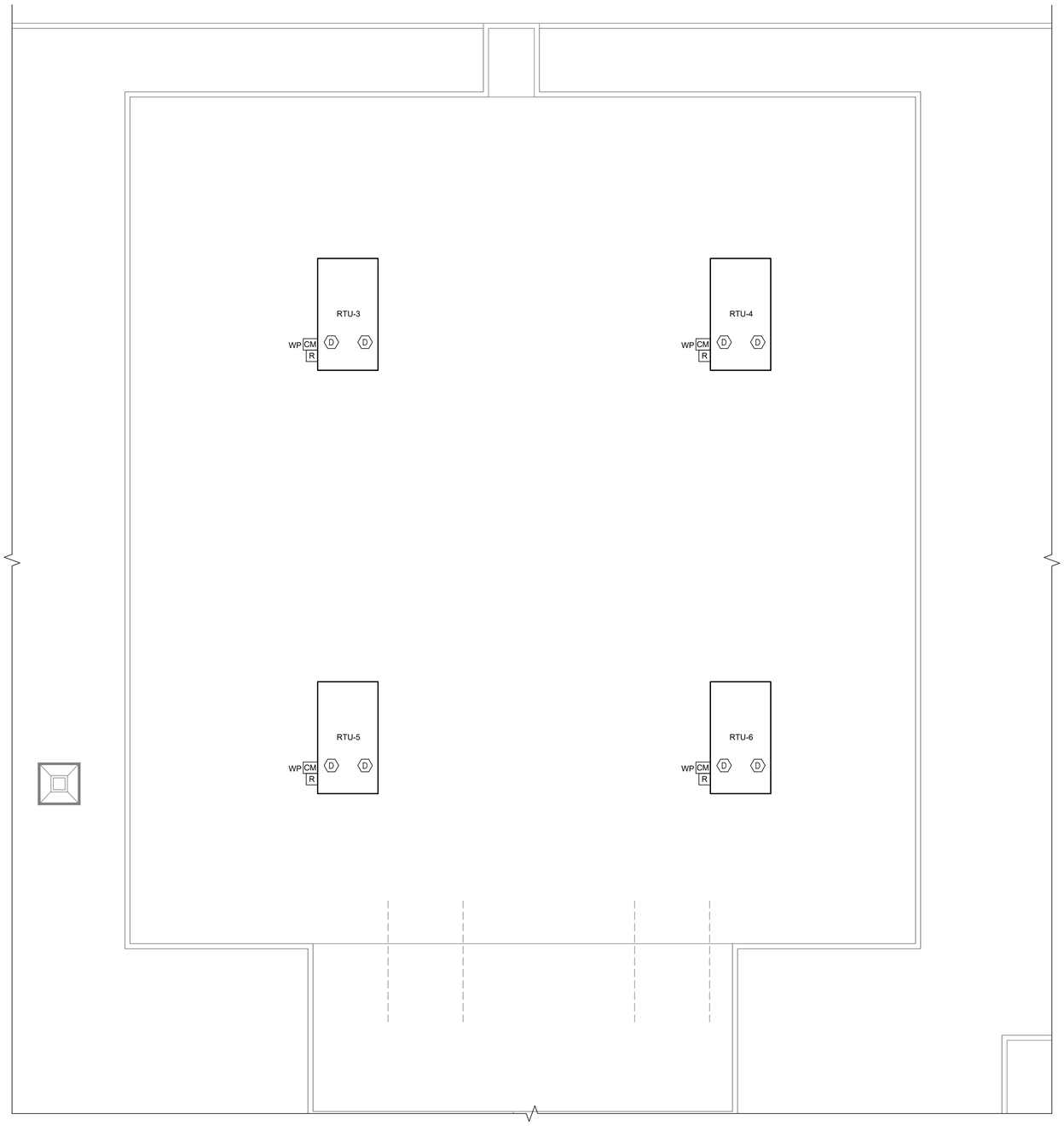
106 Hammond Road, Thiells NY 10984

COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
FIRE ALARM MAIN GYM ROOF - RTU INSTALLATION

Drawing No.
FA-101

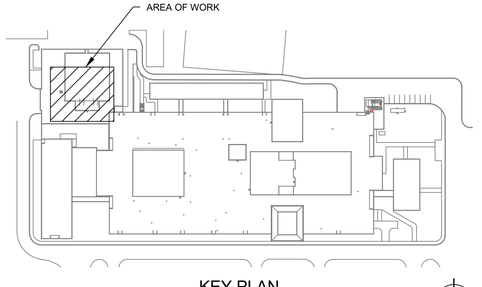


1 FIRE ALARM ANNEX GYM ROOF - RTU INSTALL

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

PLAN NOTES:

1. FOR GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND FIRE ALARM SYSTEM DRAWING LIST REFER TO DWG FA001.00.
2. FOR EXACT LOCATION AND QUANTITIES OF MECHANICAL AND PLUMBING EQUIPMENT AND DEVICES, REFER TO MECHANICAL AND PLUMBING DWGS.
3. ALL CONDUIT PENETRATIONS THROUGH FIRE RATED PARTITIONS ARE TO BE PROVIDED WITH FIRE STOP SEALS AS REQUIRED BY CODE TO MAINTAIN FIRE RATING OF PARTITIONS.
4. UNLESS OTHERWISE NOTED ON DRAWING, MOUNTING HEIGHTS OUTLETS AND EQUIPMENT SHALL BE AS INDICATED ON SYMBOL LIST & SPECIFICATIONS.
5. ACCESS SHALL BE PROVIDE TO EACH DETECTOR FOR PERIODIC INSPECTION, MAINTENANCE AND TESTING AS PER SECTION 907.12 OF N.Y.C. BUILDING CODE.



KEY PLAN

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1", THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by J.J
Checked by S.H
Project No. 43065
Scale AS NOTED
Date 12/06/23

GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Mechanical & Electrical Engineer:

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-010-037

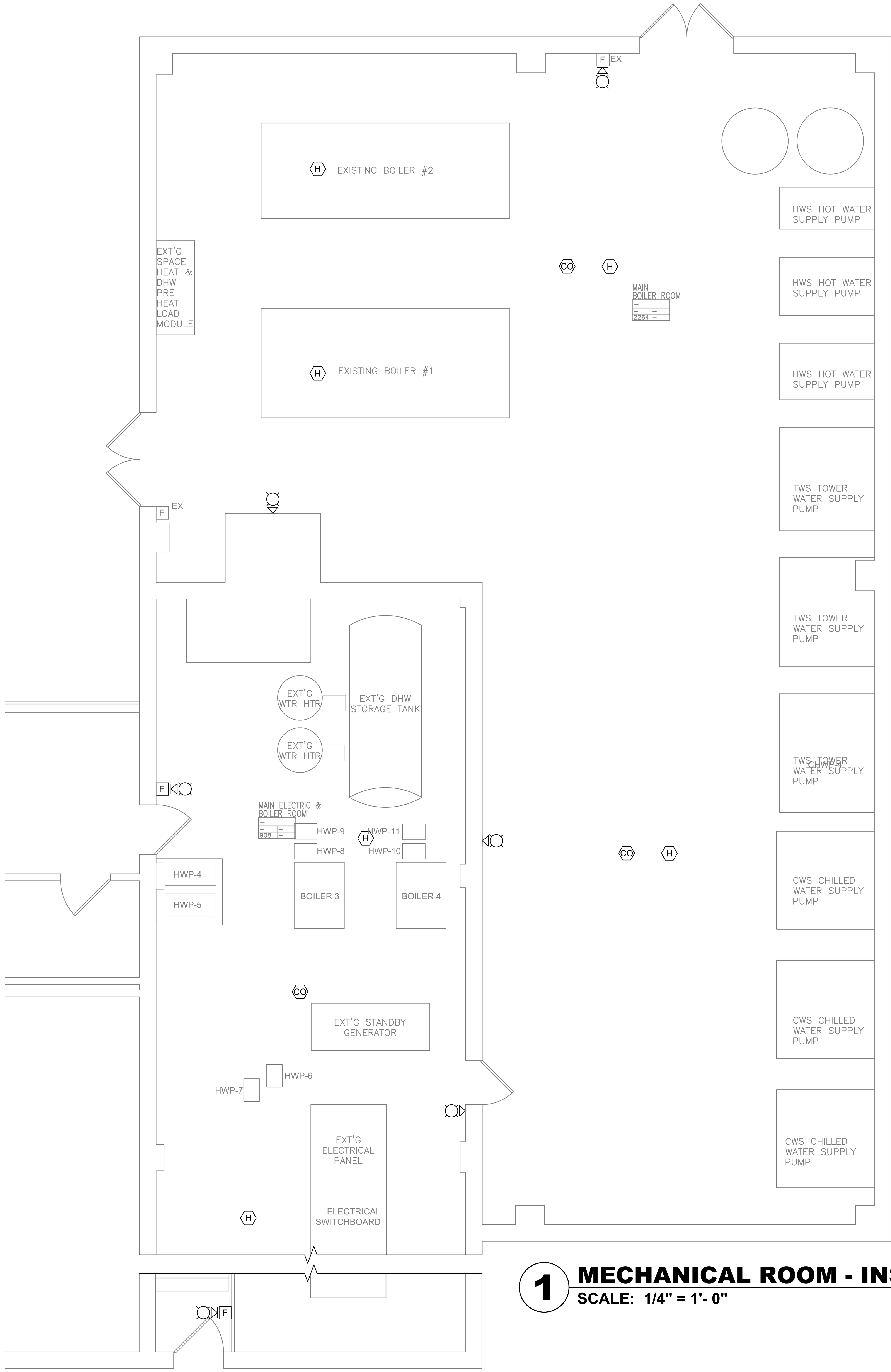
COUNTY OF ROCKLAND

136 Hammond Road, Thiells NY 10984

MSA
MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
FIRE ALARM ANNEX GYM ROOF - RTU INSTALLATION

Drawing No.
FA-102

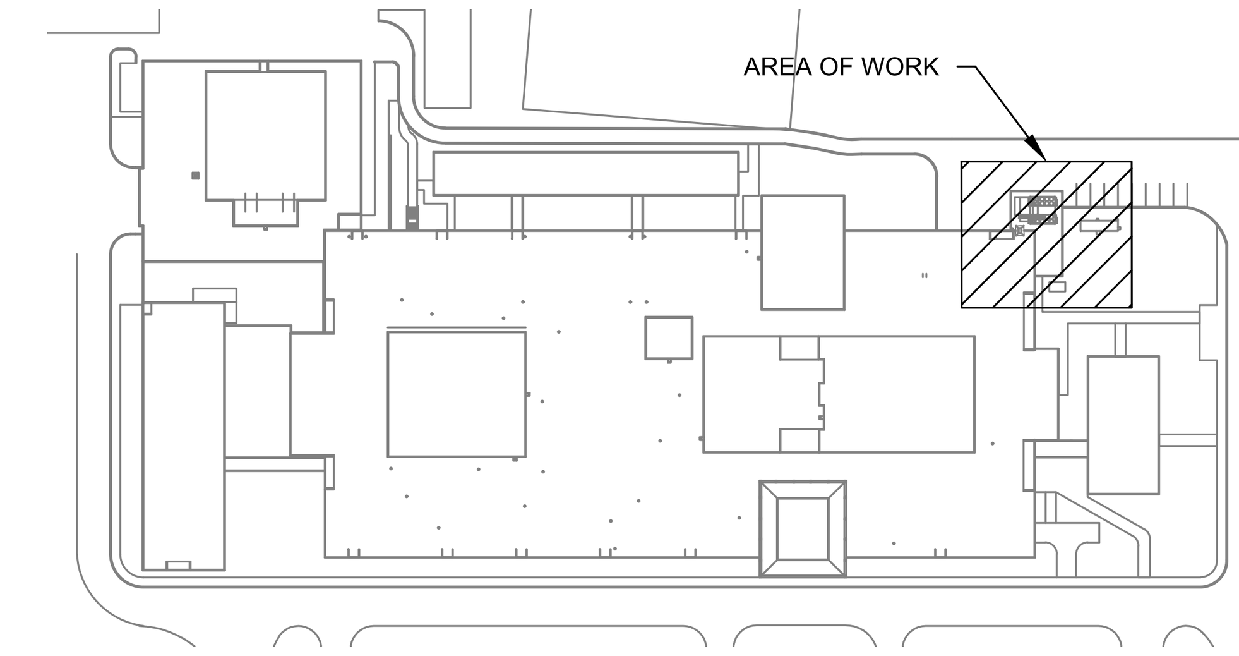


1 MECHANICAL ROOM - INSTALLATION

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

PLAN NOTES:

1. FOR GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND FIRE ALARM SYSTEM DRAWING LIST REFER TO DWG FA001.00.
2. FOR EXACT LOCATION AND QUANTITIES OF MECHANICAL AND PLUMBING EQUIPMENT AND DEVICES, REFER TO MECHANICAL AND PLUMBING DWGS.
3. ALL CONDUIT PENETRATIONS THROUGH FIRE RATED PARTITIONS ARE TO BE PROVIDED WITH FIRE STOP SEALS AS REQUIRED BY CODE TO MAINTAIN FIRE RATING OF PARTITIONS.
4. UNLESS OTHERWISE NOTED ON DRAWING, MOUNTING HEIGHTS OUTLETS AND EQUIPMENT SHALL BE AS INDICATED ON SYMBOL LIST & SPECIFICATIONS.
5. ACCESS SHALL BE PROVIDE TO EACH DETECTOR FOR PERIODIC INSPECTION, MAINTENANCE AND TESTING AS PER SECTION 907.12 OF N.Y.C. BUILDING CODE.



KEY PLAN

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

No.	Date	Revisions
1	01/08/25	ISSUED FOR BID

REG. EXP DATE: 10-31-26

Drawn by

Checked by

Project No. 43065

Scale AS NOTED

Date 12/06/23

Mechanical & Electrical Engineer: GREENMAN PEDERSEN, INC
2 EXECUTIVE BOULEVARD, SUITE 202, SUFFERN, NY 10901

Structural Engineer:

NORTH ROCKLAND HIGH SCHOOL CHILLER & HVAC UPGRADES

HIGH SCHOOL SED# 50-02-01-06-0-016-037

106 Hammond Road, Thiells NY 10984

COUNTY OF ROCKLAND

MICHAEL SHILALE ARCHITECTS, L.L.P.
140 Park Avenue New City, NY 10956 Tel 845-708-9200
www.shilale.com

Drawing Title
FIRE ALARM MECHANICAL ROOM - BOILER INSTALLATION

Drawing No.
FA-103