HVAC Equipment Replacement at

Princeton Middle School

217 Walnut Ln, Princeton, NJ 08540

Princeton Public Schools

25 Valley Rd, Princeton, NJ 08540

FVHD architects planners
Fraytak Veisz Hopkins Duthie P C
New Jersey | Pennsylvania | fvhdpc.com

CM Engineers, LLC

CONSULTING ENGINEERS | CHESTER - NEW JERSEY

BUILDING ANALYSIS

(FROM INTERNATIONAL BUILDING CODE 2021 NEW JERSEY EDITION)

THE FLOOR PLAN AREA AND HEIGHT OF THE SCHOOL BUILDING IS NOT CHANGED UNDER THIS PROJECT, THEREFOR NO ANALYSIS OF THE EXISTING BUILDING HAS BEEN PROVIDED.

FIRE EXTINGUISHER SCHEDULE

(FROM NATIONAL FIRE PROTECTION ASSOCIATION CODES)

THE FLOOR PLAN AREA OF THE SCHOOL IS NOT CHANGED UNDER THIS PROJECT, THEREFORE NO ANALYSIS OF FIRE EXTINGUISHERS HAS BEEN PROVIDED.

EGRESS ANALYSIS

(FROM NEW JERSEY REHABILITATION SUBCODE 5:23-6)

THE OCCUPANT LOAD OF THE SCHOOL IS NOT CHANGED UNDER THIS PROJECT, THEREFORE NO CHANGES HAVE BEEN MADE TO EGRESS.

TABULATION OF PLUMBING FIXTURES

(FROM NATIONAL STANDARD PLUMBING CODE 2018 EDITION)

THE FUNCTIONAL CAPACITY OF THE SCHOOL IS NOTE CHANGED UNDER THIS PROJECT. NO PLUMBING FIXTURES HAVE BEEN REMOVED. THEREFOR NO ANALYSIS OF PLUMBING FIXTURES HAS BEEN PROVIDED.

EXISTING FIRE ALARM SYSTEM NOTE

IF ANY PORTION OF THE EXISTING FIRE ALARM SYSTEM MUST BE TAKEN OUT OF SERVICE FOR ANY LENGTH OF TIME, THE LOCAL FIRE MARSHAL MUST BE CONTACTED AND MUST APPROVE SHUTDOWN PLANS, PROCEDURES AND FIRE WATCH PLANS THAT WILL BE IMPLEMENTED.

CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE LOCAL FIRE MARSHAL CONCERNING THE EXISTING FIRE ALARM SYSTEM SHUTDOWN PLANS, PROCEDURES AND FIRE WATCH PLANS THAT WILL BE IMPLEMENTED FOR SYSTEM INTERRUPTIONS DURING CONSTRUCTION.

NOTE THAT TEMPORARILY COVERING EXISTING DETECTION DEVICES TO PREVENT ACCIDENTAL ALARM ACTIVATIONS DUE TO DUST AND DIRT CONSTITUTES A PARTIAL SHUTDOWN OF THE EXISTING FIRE ALARM SYSTEM.

ABBREVIATIONS

AB	Anchor bolt	E	East	JC	Janitor's closet	REF	Reference (s)
ACB	Acoustical ceiling board	EA	Each	JT	Joint	REM	Remove
ADJ	Adjacent	EC	Electrical contractor			REQ	Required
AFF	Above finished floor	EL	Elevation	L	Length	RWC	Rain water conductor
AL	Aluminum	ELEC	Electrical	LDR	Leader		
ALT. BID	Alternate bid	EPDM	Ethylene propylene diene monomers	LPT	Low point	S	South
ANOD	Anodized					SCH	Schedule
APX	Approximate	EQ	Equal	MAX	Maximum	SHTH	Sheathing
ARCH	Architect	EQP	Equipment	MFR	Manufacturer	SIM	Similar
		ETR	Existing To Remain	MS	Middle School	SPEC	Specification
BLDG	Building	EXG	Existing	MIN	Minimum	SQ	Square
BLK	Block			MISC	Miscellaneous	SST	Stainless steel
BLKG	Blocking	FB	Face brick			STD	Standard
BOT	Bottom	FF	Finish floor	N	North	STR	Structural
BRG	Bearing	FFE	Finished floor elevation	NIC	Not in contract		
BRK	Brick	FLR	Floor	NO	Number	T&G	Tongue and groove
BRZ	Bronze	FND	Foundation	NTS	Not to scale	THK	Thick
BS	Both sides	FR	Frame			TOM	Top of masonry
		FRT	Fire retardant	O/C	On center	TOS	Top of steel
CJ	Control joint	FT	Feet	OD	Outside diameter	TYP	Typical
CL	Centerline / closet	FTG	Footing	OH	Overhead		
CLG	Ceiling			OPP	Opposite	UL	Underwriter's laboratory
CLR	Clear	GA	Gauge			UNO	Unless noted otherwise
CMU	Concrete masonry unit	GC	General contractor	PL	Plate		
COL	Column	GF	Ground face	PNT	Paint (ed)	VERT	Vertical
CONC	Concrete	GYP	Gypsum wall board	PR	Pair	VIF	Verify In Field
CONT	Continuous	GV	Galvanized	PSF	Pounds per square foot		
CST	Cast stone			PSI	Pounds per square inch	W	West
		HS	High School	PVMT	Pavement	W/	With
D	Drain (s)	HM	Hollow metal	PWD	Plywood	W/O	Without
DBL	Double	HOR	Horizontal			WD	Wood
DIM	Dimension	HP	Highpoint	QTY	Quantity		
DN	Down						
DR	Door	INS	Insulate (d), (ion)				
DS	Downspout	INT	Interior				

DRAWING INDEX

ARCHITECTURAL	
G001	COVER SHEET, DRAWING INDEX, AND ABBREVIATIONS
A101	PARTIAL FLOOR PLANS, NOTES, AND FIRE-RATED PENETRATION CHART
A102	KITCHEN CEILING PLAN, PHOTOS, AND DETAILS
A201	EXISTING ROOF PLAN, ROOF WARRANTY LEGEND, AND NOTES
A202	EDPM ROOF DETAILS, STRUCTURAL DETAILS, AND NOTES
A203	SBS ROOF DETAILS
MECHANICAL	
MD-01	MECHANICAL - 1ST FLOOR DUCTWORK DEMOLITION PLANS
MD-02	MECHANICAL - 1ST FLOOR PIPING DEMOLITION PLANS
MD-03	MECHANICAL - 2ND FLOOR DUCTWORK DEMOLITION PLANS
MD-04	MECHANICAL - ROOF DEMOLITION PLANS
M-01	MECHANICAL - 1ST FLOOR DUCTWORK NEW WORK PLANS
M-02	MECHANICAL - 1ST FLOOR PIPING NEW WORK PLANS
M-03	MECHANICAL - 2ND FLOOR DUCTWORK NEW WORK PLANS
M-04	MECHANICAL - 2ND FLOOR PIPING DEMOLITION & NEW WORK PLANS
M-05	MECHANICAL - ROOF NEW WORK PLANS
M-06	MECHANICAL - CONTROLS SHEET 1
M-07	MECHANICAL - CONTROLS SHEET 2
M-08	MECHANICAL - CONTROLS SHEET 2
M-09	MECHANICAL - SCHEDULES
M-10	MECHANICAL - DETAILS
M-11	MECHANICAL - SPECIFICATIONS
ELECTRICAL	
ED-01	ELECTRICAL - ROOF DEMOLITION PLAN
E-01	ELECTRICAL - 1ST FLOOR DEMOLITION & NEW WORK PLANS
E-02	ELECTRICAL - 2ND FLOOR DEMOLITION & NEW WORK PLANS
E-03	ELECTRICAL - ROOF NEW WORK PLAN
E-04	ELECTRICAL - LIGHTING DEMOLITION & NEW WORK PLANS
E-05	ELECTRICAL - PARTIAL PLANS
E-06	ELECTRICAL - NOTES & DETAILS
E-07	ELECTRICAL - SPECIFICATIONS
PLUMBING	
P-01	PLUMBING - ROOF NEW WORK PLAN
P-02	PLUMBING - GAS RISER DIAGRAM
P-03	PLUMBING - SPECIFICATIONS

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PROGRESS SET
NOT FOR CONSTRUCTION
10/31/2025
Date

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
GRD

Drawn By
BO

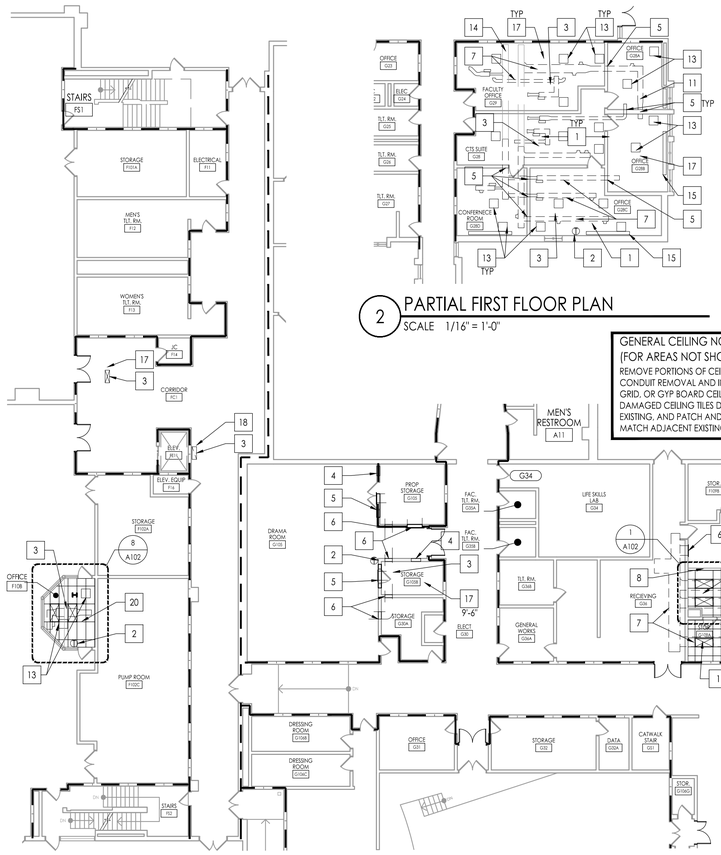
Scale

Drawing Name
COVER SHEET, DRAWING INDEX, AND ABBRIVIATIONS

Revisions

No.	Date	Description

Drawing Number
G001



1 PARTIAL FIRST FLOOR PLAN

SCALE 1/16" = 1'-0"

2 PARTIAL FIRST FLOOR PLAN

SCALE 1/16" = 1'-0"

FINISH NOTE:
PAINT ALL AREAS LEFT EXPOSED BY DEMOLITION AND NEW CONSTRUCTION. PAINT SHALL MATCH EXISTING ADJACENT SURFACES. REF GENERAL ARCHITECTURAL SHEETS NOTES FOR ADDITIONAL FINISH INFORMATION.

CEILING NOTE:
ANY, AND ALL, CEILING REMOVAL WORK DONE IN ASSOCIATION WITH THIS PROJECT. WILL BE REASSEMBLED/PATCHED WITH LIKE MATERIALS OF EXISTING CEILING, THIS INCLUDES, BUT IS NOT LIMITED TO, PLASTER, GYP BOARD AND ACOUSTIC LAY-IN TILES AND GRID. PAINT TO MATCH IF REQUIRED.

WALL PENETRATION NOTE:
REFERENCE FIRE-RATED PENETRATIONS CHART (UL DES # INFO) FOR INFILL AT RATED WALLS, THIS SHEET, MAINTAIN ASSIGNED RATING WITH LIKE MATERIALS. TYP.

FIRE PROTECTION NOTE:
REFERENCE MECHANICAL FOR AREAS WHERE FIRE PROTECTION SYSTEM IS TO BE ALTERED AND/OR MODIFIED. TYP.

GENERAL CEILING NOTE (FOR AREAS NOT SHOWN):
REMOVE PORTIONS OF CEILING REQUIRED FOR ELECTRICAL CONDUIT REMOVAL AND INSTALLATIONS. REINSTALL PANELS AND GRID, OR GYP BOARD CEILINGS, TO MATCH EXISTING. REPLACE DAMAGED CEILING TILES DURING CONSTRUCTION TO MATCH EXISTING, AND PATCH AND PAINT ALL GYP BOARD CEILING TO MATCH ADJACENT EXISTING CEILING.

PLAN LEGEND & SYMBOLS

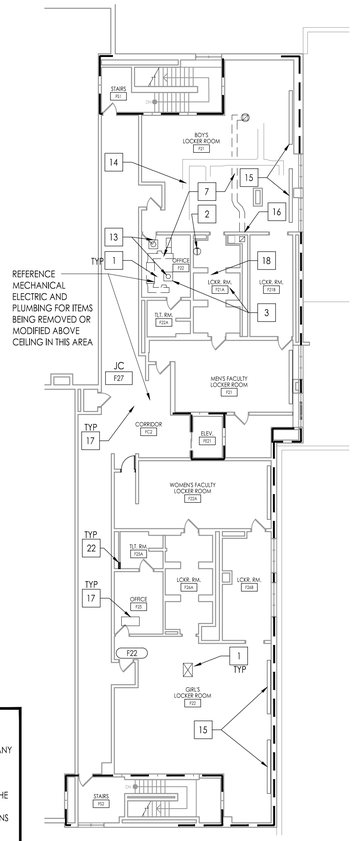
- (2) HOUR FIRE WALL
- (1) HOUR FIRE SEPARATION
- EXISTING WALLS AND CHASES
- X — INDICATES CONSTRUCTION NOTE
- XX / AXXX — section number, WALL SECTION, drawing number
- XXXX / 000 — ROOM NAME / NUMBER
- X — INDICATES PHOTO DIRECTION

EXISTING FIRE ALARM SYSTEM NOTE

IF ANY PORTION OF THE EXISTING FIRE ALARM SYSTEM MUST BE TAKEN OUT OF SERVICE FOR ANY LENGTH OF TIME, THE LOCAL FIRE MARSHAL MUST BE CONTACTED AND MUST APPROVE SHUTDOWN PLANS, PROCEDURES AND FIRE WATCH PLANS THAT WILL BE IMPLEMENTED.

CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COMPLYING WITH THE REQUIREMENTS OF THE LOCAL FIRE MARSHAL CONCERNING THE EXISTING FIRE ALARM SYSTEM SHUTDOWN PLANS, PROCEDURES AND FIRE WATCH PLANS THAT WILL BE IMPLEMENTED FOR SYSTEM INTERRUPTIONS DURING CONSTRUCTION.

NOTE THAT TEMPORARILY COVERING EXISTING DETECTION DEVICES TO PREVENT ACCIDENTAL ALARM ACTIVATIONS DUE TO DUST AND DIRT CONSTITUTES A PARTIAL SHUTDOWN OF THE EXISTING FIRE ALARM SYSTEM.



3 PARTIAL SECOND FLOOR PLAN

SCALE 1/16" = 1'-0"

CONSTRUCTION NOTES

1. REMOVE AND STORE EXISTING ACOUSTICAL CEILING TILES AND SUSPENSION GRID TO ACCOMMODATE DEMOLITION AND HVAC NEW WORK. FOLLOWING COMPLETION OF WORK, REINSTALL ALL EXISTING PANELS AND GRID TO PREVIOUS LOCATIONS, UNLESS SUPERCEDED BY REFLECTED CEILING PLAN OR MECHANICAL/ELECTRICAL DRAWINGS. REPLACE ALL DAMAGED, OR DETERIORATED CEILING TILES AND SUSPENSION GRID WITH NEW TO MATCH EXISTING. REFERENCE MECHANICAL/ELECTRIC DRAWINGS.
2. PATCH AND REPAIR EXISTING WALL AT AREA OF REMOVED WALL MOUNTED THERMOSTAT. PATCH WALLS AND PAINT TO MATCH ADJACENT AT AREAS OF REMOVED WALL MOUNTED CONDUIT. TYP
3. MECHANICAL EQUIPMENT MOUNTED BELOW DECK ABOVE CEILING. REF MECHANICAL FOR ITEMS TO BE REMOVED AND REPLACED IN THIS AREA.
4. INFILL EXISTING HVAC WALL PENETRATION, AND OR REMOVAL OF EXISTING GRILL, WITH LIKE MATERIAL AND PAINT TO MATCH ADJACENT WALLS. TYP.
5. IN LOCATIONS WHERE NEW DUCT IS THRU EXISTING OPENINGS, FIELD VERIFY EXISTING OPENING AND MAKE REQUIRED MODIFICATIONS TO EXISTING WALL: THIS MAY REQUIRE ENLARGING OPENING AND/OR PATCHING EXISTING WALLS WITH LIKE MATERIAL WHERE DUCT IS SMALLER THEN EXISTING OPENING. REF 4/A102 TYP
6. NEW OPENING IN EXISTING WALL FOR NEW DUCT AND GRILL. REF 4/A102 FOR NEW WALL PENETRATION IN CMU, AND REF 6/A102 FOR NEW PENETRATION THRU METAL STUD AND GYP WALL. TYP
7. INDICATES NEW DUCT INSTALLED HIGH. REF MECHANICAL . TYP.
8. FRAME IN NEW BULK HEAD AT ROOM TRANSITION WITH 3 5/8" METAL STUD FRAMING AND 5/8" WATER RESISTANT GYP BOARD PAINTED. FRAME BULKHEAD AT 2' BELOW CEILING HEIGHT. REF 2/A102. BULKHEAD DETAIL (PAINT TO MATCH EXISTING)
9. REPLACE EXISTING CEILING IN THIS AREA 8" BELOW EXISTING FINISH. TEMPORARILY REMOVE ALL CEILING EQUIPMENT AND REINSTALL INTO NEW CEILING. REF MECHANICAL FOR FIRE PROTECTION SYSTEM RELOCATION. PATCH AND REPAIR EXISTING ADJACENT WALL AFTER CEILING IS INSTALLED. REF 3/A102 FOR CEILING EDGE AND HANGER DETAIL. TYP.
10. NEW DISHWASHER HOOD. REF MECHANICAL. PATCH AND REPAIR EXISTING CEILING TILE AND GRID AFFECTED BY HOOD INSTALLATION, MATCH EXISTING CEILING GRID AND TILE WITH EXISTING . TYP.
11. INDICATES EXISTING KITCHEN EXHAUST HOOD ABOVE TO REMAIN. REF MECHANICAL
12. NEW DUCT THRU WALL IN EXISTING LOCATIONS. MODIFY EXISTING OPENING TO ACCOMMODATED NEW DUCT SIZE. REF 4/A102 FOR "SIM" CONDITION. REF MECHANICAL FOR SIZE AND LOCATION
13. INDICATES NEW DIFFUSERS IN NEW/REINSTALLED CEILING. REF MECHANICAL EXACT AMOUNT AND LOCATIONS
14. INDICATES EXISTING DUCT TO REMAIN. REF MECHANICAL
15. INDICATES EXISTING FIN TUBE AND METAL SHROUD. REF MECHANICAL
16. CMU THRU-WALL DUCT TO ROOF. REFERENCE "FIRE RATED PENETRATION CHART" THIS SHEET FOR ALL RATED WALL PENETRATIONS AND 6/A102 FOR NEW OPENING AND INFILL. REF MECHANICAL FOR LOCATION AND SIZE. TYP.
17. REMOVE EXISTING CEILING TILE AND GRID FOR DEMOLITION AND REINSTALLATION OF NEW HVAC EQUIPMENT ABOVE CEILING. STORE EXISTING CEILING TILE AND GRID FOR REINSTALLATION. INSTALL EXISTING CEILING AT EXISTING HEIGHT, ANY GRID OR CEILING TILE DAMAGED FROM REMOVAL TO BE REPLACED WITH MATCHING MATERIAL. REF MECHANICAL, ELECTRICAL AND PLUMBING FOR EXTENT OF NEW CONSTRUCTION. TYP.
18. HARD LID. GYP BOARD. CEILING. REF MECHANICAL FOR FULL EXTENT OF DEMOLITION AND NEW CONSTRUCTION. REMOVE ONLY AS NEEDED FOR NEW WORK. PATCH AND REPAIR WITH LIKE MATERIAL AND PAINT CEILING TO MATCH EXISTING.
19. INFILL EXISTING CEILING WITH LIKE MATERIAL AT LOCATIONS OF EXISTING MECHANICAL DEVICES BEING REMOVED. REF MECHANICAL EXACT AMOUNT AND LOCATION
20. REMOVE EXISTING CEILING TILE AND GRID AND ALL PERIMETER TRIM. FOR DEMOLITION AND REINSTALLATION OF NEW HVAC EQUIPMENT ABOVE CEILING. NEW CEILING TO MATCH EXISTING AT EXISTING HEIGHT. REF MECHANICAL, ELECTRICAL AND PLUMBING FOR EXTENT OF NEW CONSTRUCTION WITH ITEMS TO BE TEMPORARILY REMOVED AND REINSTALLED.
21. EXISTING EXPOSED STEEL COLUMN TO REMAIN. PREP AREA AT COLUMN TO RECEIVE NEW CEILING PERIMETER TRIM, ALL SIDE TO MATCH EXISTING.
22. SAW CUT AND REMOVE PORTION OF EXISTING CHASE WALL FOR NEW PIPE INSTALLATION. REF MECHANICAL. TOOTH NEW CMU INTO EXISTING WALL. POINT UP WORK AND PRIME AND PAINT TO MATCH. REF 5/A101 FOR RATED CMU CHASE WALL CONSTRUCTION

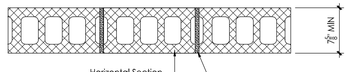
FIRE-RATED PENETRATION CHART

UL CLASSIFIED SYSTEM

CONCRETE OR BLOCK WALLS		
TYPE OF PENETRATE	FIRE RATING	
CIRCULAR BLANK OPENINGS	1	CAJ 0055, CAJ 0070
	2	CAJ 0055, CAJ 0070
SINGLE METAL PIPES OR CONDUIT	1	CAJ 1226, WJ 1021
	2	CAJ 1226, WJ 1021
SINGLE NON-METALLIC PIPE OR CONDUIT (I.E. PVC, CPVC, ABS, FRP, ENT)	1	CAJ 2109, CAJ 2098, CAJ 2167
	2	CAJ 2109, CAJ 2098, CAJ 2167
SINGLE INSULATED PIPES	1	CAJ 5090, CAJ 5091, CAJ 5061
	2	CAJ 5090, CAJ 5091, CAJ 5061
ELECTRICAL BUSWAY	1	CAJ 6006, CAJ 6017
	2	CAJ 6006, CAJ 6017
NON-INSULATED MECHANICAL DUCTWORK WITHOUT DAMPERS	1	CAJ 7046, CAJ 7051, WJ 7021, WJ 7022
	2	CAJ 7046, CAJ 7051, WJ 7021, WJ 7022
MIXED PENETRANTS	1	CAJ 8041, CAJ 8056, WJ 8007
	2	CAJ 8041, CAJ 8056, WJ 8007

GYPSUM WALLBOARD ASSEMBLIES		
TYPE OF PENETRANT	FIRE RATING	UL CLASSIFIED SYSTEM
METAL PIPES OR CONDUIT	1	WL 1054, WL 1058, WL 1164
	2	WL 1054, WL 1058, WL 1164
NON-METALLIC PIPES OR CONDUIT	1	WL 2078, WL 2075, WL 2128
	2	WL 2078, WL 2075, WL 2128
SINGLE OR BUNDLED CABLES	1	WL 3065, WL 3111, WL 3112
	2	WL 3065, WL 3111, WL 3112
CABLE TRAY	1	WL 4011, WL 4019
	2	WL 4011, WL 4019
INSULATED PIPES	1	WL 5028, WL 5029, WL 5047
	2	WL 5028, WL 5029, WL 5047
NON-INSULATED MECHANICAL DUCTWORK WITHOUT DAMPERS	1	WL 7017, WL 7040, WL 7042
	2	WL 7040, WL 7042
MIXED PENETRANTS	1	WL 1095, WL 8013
	2	WL 1095, WL 8013

Design No. U905
Bearing Wall Rating - 2 HR
Nonbearing Wall Rating - 2 HR



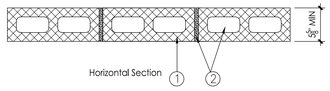
1. Concrete Blocks*- Various Designs.
   Classifications D-2 (2hr).
   See Concrete Blocks category for list of eligible manufacturers.
2. Mortar- Blocks laid in full bed of mortar, nom 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

*Bearing the UL Classification Marking

4 TYPICAL RATED CONSTRUCTION - 8" CONCRETE MASONRY UNITS

N.T.S.

Design No. U906
Bearing Wall Rating - 2 HR
Nonbearing Wall Rating - 2 HR



1. Concrete Blocks*- Nominal 6 by 8 in., hollow or solid.
   Classification D-2 (2 hr)
   Anchor Concrete Products, Inc.
   Empire Materials Co.
   Florida Rock Industries, Inc.
2. Mortar- Blocks laid in full bed of mortar, nom 3/8 in. thick, of not less than 2-1/4 and not more than 3 1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

*Bearing the UL Classification Marking

5 TYPICAL RATED CONSTRUCTION - 6" CONCRETE MASONRY UNITS

N.T.S.

GENERAL DEMOLITION NOTES:

A. ALL CONTRACTORS ARE ADVISED TO VISIT THE SITE AND VERIFY ALL AREAS AND CONDITIONS PRIOR TO SUBMITTING THEIR BIDS. THE CONTRACTOR MUST NOTIFY THE ARCHITECT OF ANY DISCREPANCIES AND/OR OMISSIONS IN WRITING AT LEAST SEVEN DAYS PRIOR TO THE RECEIPT OF BIDS. FAILURE TO SO NOTIFY THE ARCHITECT INDICATES THAT ANY ADDITIONAL COSTS ASSOCIATED WITH THE DISCREPANCIES AND / OR OMISSIONS ARE INCLUDED IN THE CONTRACTOR'S BID AND THAT NO CHANGE TO THE CONTRACT AMOUNT WILL BE MADE AFTER THE RECEIPT OF BIDS OR THE AWARD OF CONTRACTS.

B. ALL MECHANICAL OR ELECTRICAL DISCONNECTS SHALL BE MADE BY THE RESPECTIVE TRADES. ALL EQUIPMENT, DEVICES, FIXTURES, ETC. SHALL BE REMOVED FROM THE SITE BY THE RESPECTIVE CONTRACTOR. NOTE: THE EXISTING FIRE ALARM SYSTEM SHALL NOT BE DIMINISHED NOR SHALL EXISTING FIRE ALARM DEVICES BE REMOVED UNTIL NEW DEVICES ARE READY FOR SWITCHOVER.

C. UNLESS NOTED OTHERWISE ALL DEMOLITION MATERIAL SHALL BE REMOVED OFF SITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

D. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT PORTIONS OF THE EXISTING CONSTRUCTION WHICH ARE ADJACENT TO AREAS TO BE DEMOLISHED. MAKE ALL CUTS AS NEATLY AS POSSIBLE. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR ITEMS BEING REMOVED.

E. IF NOT OTHERWISE NOTED OR DETAILED, ALL SURFACES LEFT ROUGH OR UNFINISHED BY DEMOLITION AND WHICH ARE EXPOSED TO VIEW, SHALL BE PATCHED TO MATCH ADJACENT SURFACES AND FINISHED TO PROVIDE A UNIFORM APPEARANCE WITH REGARD TO SIZE, SHAPE, COLOR, TEXTURE AND MATERIAL.

F. THE CONTRACTOR SHALL PROVIDE A PHYSICAL BARRIER TO CONTAIN DUST AND DIRT AROUND THE DEMOLITION AREA AND SHALL MAKE EVERY EFFORT TO KEEP THE DEMOLITION SITE AND SURROUNDING AREAS AS CLEAN AS POSSIBLE.

G. NO DEMOLITION OF STEEL SHALL BEGIN UNTIL PROPER BRACING OF EXISTING ROOF IS IN PLACE AND ALL PROTECTION IS IN PLACE AND APPROVED BY ARCHITECT & OWNER TO ENSURE THE SAFETY OF THE PUBLIC, THE BUILDING OCCUPANTS, CONSTRUCTION WORKERS AND TO CONTAIN DUST AND DIRT WITHIN THE AREA OF DEMOLITION.

H. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REGARDING THE REMOVAL AND DISPOSAL OF ALL MATERIALS & EQUIPMENT.

I. THE CONTRACTORS SHALL TAKE INTO ACCOUNT THEIR METHODS OF CONSTRUCTION FOR THE NEW WORK AND INCLUDE IN THEIR BID THE COST OF ADDITIONAL DEMOLITION WORK NECESSARY TO FACILITATE THE CONSTRUCTION. THIS INCLUDES ITEMS TO REMAIN THAT NEED TO BE RELOCATED DO TO SIZE OF, OR LOCATION OF, NEW EQUIPMENT.

J. THE DEMOLITION WORK SHOWN ON THIS PLAN IS INTENDED TO BE A GENERAL OVERVIEW OF MAJOR DEMOLITION WORK REQUIRED. IT IS NOT A COMPLETE AND EXCLUSIVE REPRESENTATION OF ALL DEMOLITION WORK NEEDED FOR EXECUTION OF THE PROJECT. WHEN PREPARING THEIR BIDS, CONTRACTORS MUST REFER TO THE FULL SET OF CONSTRUCTION DOCUMENTS FOR VARIOUS MISCELLANEOUS ITEMS WHICH MUST BE REMOVED AND/OR RELOCATED AS PART OF THE WORK. (REFERENCE MECHANICAL, ELECTRIC AND PLUMING FOR ADDITIONAL DEMOLITION PLANS AND NOTES)

GENERAL CONSTRUCTION NOTES:

THESE NOTES SHALL APPLY TO ALL WORK THROUGHOUT THE PROJECT.

A. ALL CONTRACTORS SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS BEFORE SUBMITTING A BID. DISCREPANCIES OR OMISSIONS MUST BE REPORTED TO THE ARCHITECT IN WRITING (15) DAYS PRIOR TO BID OPENING. IF HE OR SHE DOES NOT, CONTRACTOR SHALL CORRECT SAME AT NO CHANGE IN CONTRACT PRICE.

B. CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE ALL REQUIRED SAFETY PROTECTION DURING CONSTRUCTION.

C. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A SUFFICIENT WORK FORCE TO MEET COMPLETION DATES AS OUTLINED IN THE SPECIFICATIONS. NO EXCEPTIONS WILL BE ALLOWED.

D. CONTRACTOR SHALL PROVIDE ALL REQUIRED SAFETY PROTECTION DURING CONSTRUCTION.

E. DO NOT SCALE THE DRAWINGS.

F. DETAILS NOTED "TYPICAL" IMPLY ALL SUCH CONDITIONS BE TREATED SIMILARLY.

G. ALL WORK PERTAINING TO THESE DRAWINGS SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND IN AGREEMENT WITH ALL AGENCIES HAVING JURISDICTION.

H. THE CONTRACTOR IS RESPONSIBLE TO SECURE ALL PERMITS. TO OBTAIN APPROVALS AS REQUIRED AND COORDINATE INSPECTION WITH LOCAL BUILDING INSPECTOR. ALL PERMIT AND APPLICATION FEES, (INCLUDING REVIEW FEES, ETC) WILL BE PAID BY THE CONTRACTOR AND REIMBURSED BY THE OWNER.

I. DRAWINGS AND SPECIFICATIONS COMPLEMENT EACH OTHER. WORK NOT SHOWN ON DRAWING BUT CALLED FOR IN THE SPECIFICATIONS IS STILL REQUIRED, AND ALL WORK NOT CALLED FOR IN SPECIFICATIONS, BUT CALLED OUT OR SHOWN IN DRAWINGS IS STILL REQUIRED.

J. UNLESS OTHERWISE NOTED AND UNLESS FACTORY FINISHED, ALL EXPOSED SURFACES OF CMU, CONCRETE, PLASTER, WOOD, GYPSUM BOARD, HOLLOW METAL, HARDWOODS, MISCELLANEOUS METALS ETC., ARE TO RECEIVE PRIME AND FINISH COATS OF PAINT OR CLEAR FINISH AS SPECIFIED AND IN COLORS AS SELECTED BY ARCHITECT. EXCLUDED FROM THIS IS BRICK.

K. ALL EXISTING FINISHES NOTED IN PLAN ARE TO BE FIELD VERIFIED : CEILINGS, WALLS AND FLOORS.

L. THE OWNER WILL REMOVE AND RE-INSTALL ALL MOVEABLE EQUIPMENT. EACH CONTRACTOR IS RESPONSIBLE TO REMOVE, STORE AND RE-INSTALL EXISTING BUILT-IN EQUIPMENT REQUIRED TO PERFORM THEIR WORK UNLESS NOTED OTHERWISE.

M. CALL BEFORE YOU DIG, BEFORE DIGGING CONTRACTOR SHALL CALL 1-800-242-1776 TO HAVE UTILITIES IDENTIFY UNDERGROUND LOCATION OF ALL SERVICE LINES.

N. ALL OUTSIDE CORNERS OF INTERIOR CONCRETE MASONRY UNITS (CMU) ARE TO BE BULLNOSED UNLESS NOTED OTHERWISE.

O. ALL BLOCKING FOR THE PROJECT SHALL BE FIRE RETARDANT TREATED WOOD BLOCKING, UNLESS OTHERWISE NOTED.

GENERAL ARCHITECTURAL SHEET NOTES:

THESE ARE GENERAL NOTES FOR PATCHING AND REPAIRING SURFACES DAMAGED FROM REMOVAL AND OR REINSTALLATION. EXISTING SURFACES THAT ARE NEWLY EXPOSED THAT ARE UNFINISHED OR NEED TO MATCH EXISTING FINISH. ALL CONDITIONS NEED TO BE VERIFIED IN FIELD

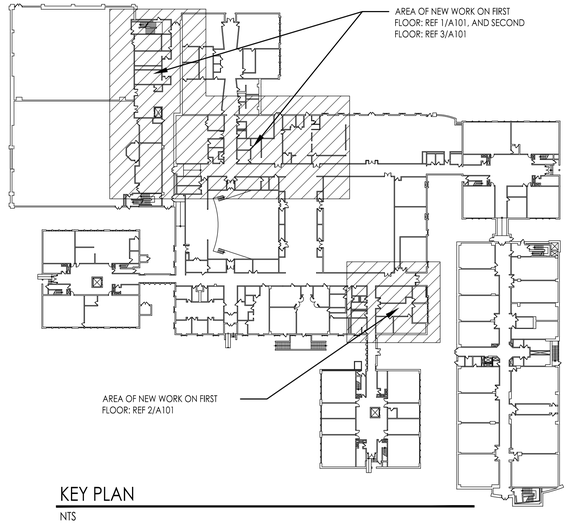
A. SEE SPECIFICATION FOR ADDITIONAL INFORMATION ON MATERIALS / MANUFACTURER / PERFORMANCE AND WARRANTY INFORMATION .

B. WITHIN THE EXISTING BUILDING, AT ALL AREAS OF NEW CONSTRUCTION ADJACENT TO EXISTING, NEW CONSTRUCTION SHALL BE FINISHED TO MATCH EXISTING ADJACENT CONSTRUCTION INCLUDING BRICK, TILE, PLASTER, PAINT, BASE, CEILING, ETC.

C. IN ALL SPACES WHERE EXISTING DUCT IS REPLACED WITH NEW SMAILLER/LARGER DUCT, WHERE UNFINISHED WALLS ARE EXPOSED, WILL BE FINISHED TO MATCH EXISTING, TYPICAL.

D. IN SPACES WITH EXISTING HORIZONTAL METAL SHROUDS TO REMAIN THAT ARE DAMAGED WITH LOOSE AND/OR SHARP CORNERS, WILL BE TIGHTENED UP WITH SHEET METAL SCREWS THAT MATCH EXISTING.

E. IN SPACES WHERE CEILING UNITS , OR EQUIPMENT ABOVE CEILING, ARE REMOVED OR REPLACED; GYP BOARD OR PLASTER, PATCH TO NEW LIKE CONDITION WITH LIKE MATERIAL AND PAINT TO MATCH EXISTING. IN AREAS OF ACOUSTIC TILE IN CEILING GRID, MATCH EXISTING CEILING TILE AND GRID AT ARES OF INFILL. (REF PLAN FOR CEILINGS BEING REMOVED AND REPLACED)



KEY PLAN

NTS

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PROGRESS SET - NOT FOR CONSTRUCTION 10/31/2025
Dates

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
GRD

Drawn By
BO

Scale
1" = 20'- 0" UNO

Drawing Name
PARTIAL FLOOR PLANS, NOTES, AND FIRE-RATED PENETRATION CHART

Revisions

No.	Date	Description

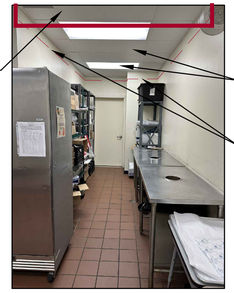
Drawing Number
A101

NOTE: REF FIRE RATED PENETRATION CHART FOR NEW PIPING AND WIRING THROUGH FIRE RATED WALLS. REF PLAN FOR FIRE RATED WALL LOCATIONS

REMOVE EXISTING CEILING, AS REQUIRED, FOR NEW METAL STUD AND GYP BULKHEAD CONSTRUCTION. REF X/A102. PATCH AND REPAIR CEILING AT NEW BULKHEAD WITH LIKE MATERIALS AND FINISHES

REMOVE ENTIRE CEILING AND LIGHTS IN THIS LOCATION FOR NEW MECHANICAL WORK. GYP BOARD CEILING ABOVE TO REMAIN

NEW CEILING AND NEW LIGHTS AT 8'-0" ABOVE FINISHED FLOOR. V.I.F., COORDINATED WITH MECHANICAL



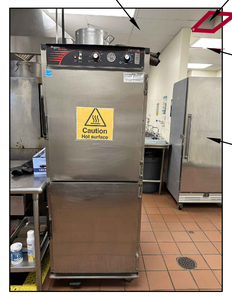
A PHOTOGRAPH
KITCHEN (HALLWAY CEILING)

EXISTING KITCHEN CEILING TO REMAIN

INFILL CEILING AT ABANDONED EQUIPMENT WITH LIKE MATERIALS, REF MECHANICAL

INDICATES AREA OF NEW BULKHEAD, ALIGN WITH EDGE OF WALL AND PAINT TO MATCH

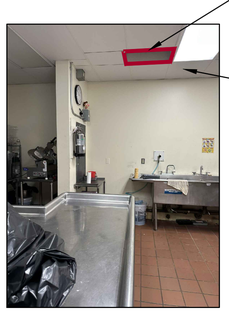
INDICATES EXISTING THERMOSTAT TO BE REMOVED, REF MECHANICAL. PATCH AND REPAIR WALLS TO MATCH AT AREAS OF REMOVED, AND OR, RELOCATED THERMOSTATS, TYP.



B PHOTOGRAPH
KITCHEN

INFILL CEILING AT ABANDONED EQUIPMENT WITH LIKE MATERIALS, REF MECHANICAL

EXISTING KITCHEN CEILING TO REMAIN



C PHOTOGRAPH
KITCHEN (TYP. CEILING INFILL)

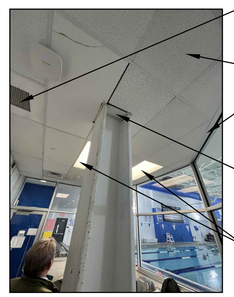
EXISTING DIFFUSERS TO BE REMOVED, REF MECHANICAL

REMOVE EXISTING CEILING, ALL CEILING TILE AND GRID

EXISTING ALUMINUM STOREFRONT. ALIGN BOTTOM OF NEW CEILING WITH STOREFRONT MULLION, REF 7/A102

REINSTALL NEW CEILING AT EXISTING STEEL COLUMN TO MATCH EXISTING CEILING

EXISTING LIGHTING TO BE TEMPORARILY REMOVED AND REINSTALLED WITH NEW CEILING, REF ELECTRIC AND MECHANICAL



D PHOTOGRAPH
POOL OFFICE

GENERAL SHEET NOTES:

THESE ARE GENERAL NOTES FOR PATCHING AND REPAIRING SURFACES DAMAGED FROM REMOVAL AND OR REINSTALLATION. EXISTING SURFACES THAT ARE NEWLY EXPOSED THAT ARE UNFINISHED OR NEED TO MATCH EXISTING FINISH, ALL CONDITIONS NEED TO BE VERIFIED IN FIELD

A. SEE SPECIFICATION FOR ADDITIONAL INFORMATION ON MATERIALS / MANUFACTURER / PERFORMANCE AND WARRANTY INFORMATION .

B. WITHIN THE EXISTING BUILDING, AT ALL AREAS OF NEW CONSTRUCTION ADJACENT TO EXISTING, NEW CONSTRUCTION SHALL BE FINISHED TO MATCH EXISTING ADJACENT CONSTRUCTION INCLUDING BRICK, TILE, PLASTER, PAINT, BASE, CEILING, ETC.

C. IN ALL SPACES WHERE EXISTING UNITS ARE REPLACED WITH NEW SMALLER UNITS, WHERE UNFINISHED FLOORS AND WALLS ARE EXPOSED, WILL BE FINISHED TO MATCH EXISTING. REF DETAILS FOR ADDITIONAL INFORMATION.

D. IN LOCATIONS WHERE SURFACE MOUNTED DEVICES AND CONDUIT NEED TO BE MOVED/RELOCATED FROM NEW HVAC UNIT SIZE. PATCH ALL HOLES IN WALL FROM EXISTING FASTENERS. SCRAPE OLD PAINT. CLEAN AND PAINT AREA TO MATCH EXISTING WALL. REFERENCE MECHANICAL AND ELECTRIC ITEMS TO BE RELOCATED.

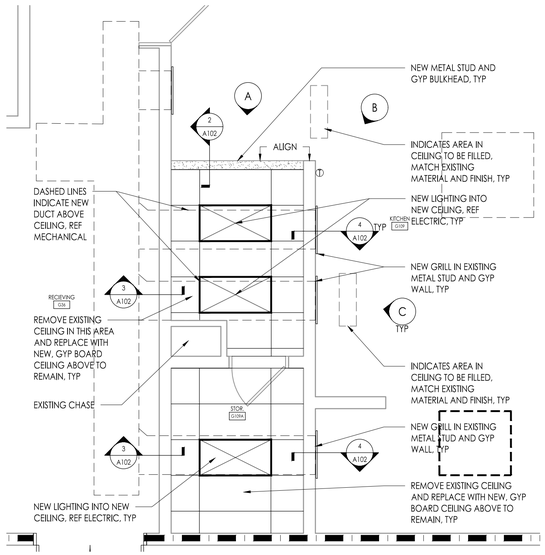
E. SPACES WITH VERTICAL PIPE SHROUDS THAT ARE NOT STAINLESS STEEL WILL BE PAINTED TO MATCH ADJACENT WALL. REF MECHANICAL FOR ADDITIONAL INFORMATION.

F. IN SPACES WHERE CEILING UNITS ARE REPLACED AND LEAVE EXPOSED EXISTING SURFACES: GYP BOARD OR PLASTER, PATCH TO NEW LIKE CONDITION WITH LIKE MATERIAL AND PAINT TO MATCH EXISTING.

G. REF A101 FOR PLAN LEGEND

H. REF SHEET A101 FOR GENERAL DEMOLITION AND GENERAL CONSTRUCTION NOTES

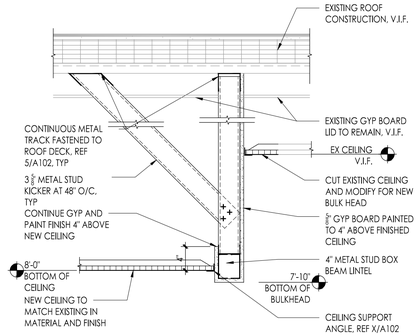
I. REF SHEET A101 FOR FIRE RATED PENETRATIONS CHART AND ASSOCIATED DETAILS



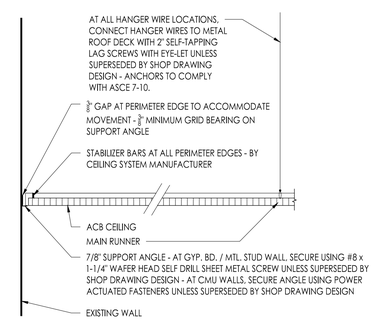
1 KITCHEN CEILING PLAN
SCALE 1/4" = 1'-0"

CEILING NOTE:

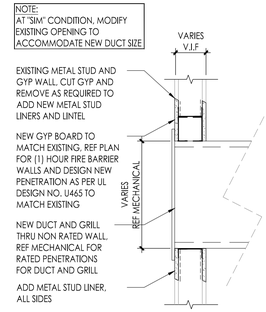
CEILINGS AT AREAS OF REMOVED EQUIPMENT AND SHROUDS. PATCH EXISTING CEILING GRID AND TILE WITH LIKE MATERIAL, TYP



2 BULKHEAD AND BRACING DETAIL
Scale: 1"=1'-0"



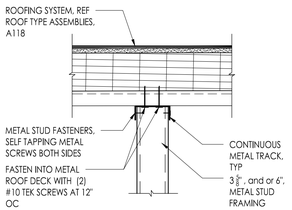
3 ACB SEISMIC BRACING DETAIL
Scale: 1"=1'-0"



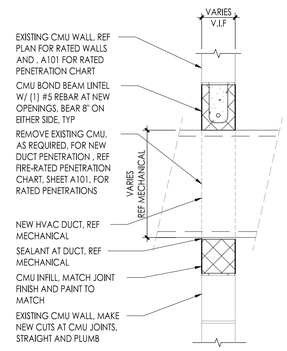
4 NEW DUCT PENETRATION
Scale: 1"=1'-0"

FINISH NOTE:

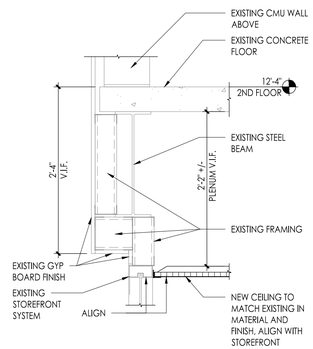
1. PAINT ALL AREAS LEFT EXPOSED BY DEMOLITION AND NEW CONSTRUCTION. PAINT SHALL MATCH EXISTING ADJACENT SURFACES. REF GENERAL SHEETS NOTES FOR ADDITIONAL FINISH INFORMATION.



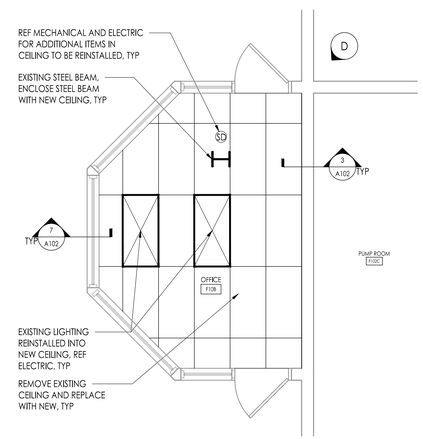
5 CAPTURE TRACK AT METAL DECK
1-1/2" = 1'-0"



6 NEW DUCT PENETRATION @ CMU
Scale: 1"=1'-0"



7 CEILING DETAIL
Scale: 1"=1'-0"



8 OFFICE F10B CEILING PLAN
SCALE 1/4" = 1'-0"

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PROGRESS SET - NOT FOR CONSTRUCTION
10/31/2025
Date

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
GRD

Drawn By
BO

Scale
AS NOTED

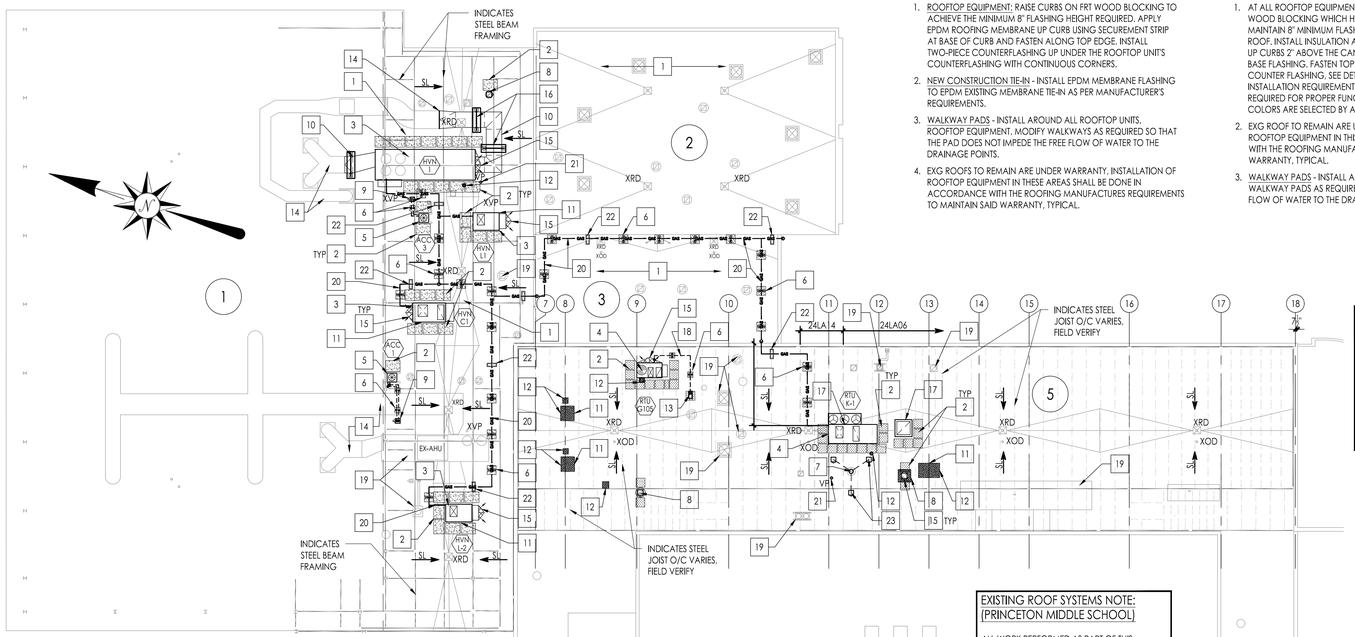
Drawing Name
KITCHEN CEILING PLAN, PHOTOS, AND DETAILS

Revisions

No.	Date	Description

Drawing Number
A102

Princeton Middle School
217 Walnut Lane, Princeton, NJ 08540



CONSTRUCTION NOTES - EPDM

1. ROOFTOP EQUIPMENT; RAISE CURBS ON FRT WOOD BLOCKING TO ACHIEVE THE MINIMUM 8" FLASHING HEIGHT REQUIRED. APPLY EPDM ROOFING MEMBRANE UP CURB USING SECUREMENT STRIP AT BASE OF CURB AND FASTEN ALONG TOP EDGE. INSTALL TWO-PIECE COUNTERFLASHING UP UNDER THE ROOFTOP UNIT'S COUNTERFLASHING WITH CONTINUOUS CORNERS.
2. NEW CONSTRUCTION TIE-IN - INSTALL EPDM MEMBRANE FLASHING TO EPDM EXISTING MEMBRANE TIE-IN AS PER MANUFACTURER'S REQUIREMENTS.
3. WALKWAY PADS - INSTALL AROUND ALL ROOFTOP UNITS, ROOFTOP EQUIPMENT. MODIFY WALKWAYS AS REQUIRED SO THAT THE PAD DOES NOT IMPEDE THE FREE FLOW OF WATER TO THE DRAINAGE POINTS.
4. EXG ROOFS TO REMAIN ARE UNDER WARRANTY. INSTALLATION OF ROOFTOP EQUIPMENT IN THESE AREAS SHALL BE DONE IN ACCORDANCE WITH THE ROOFING MANUFACTURES REQUIREMENTS TO MAINTAIN SAID WARRANTY, TYPICAL..

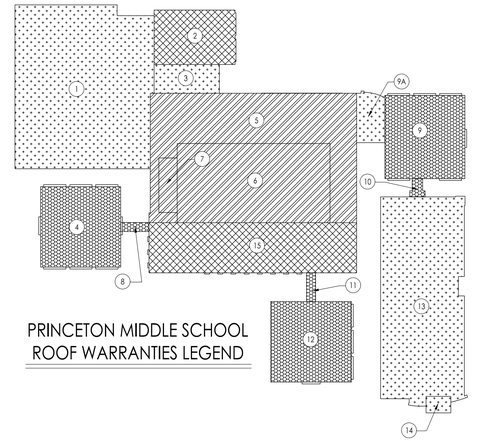
CONSTRUCTION NOTES - SBS

1. AT ALL ROOFTOP EQUIPMENT ON FULLY ENCLOSED CURBS, INSTALL ON WOOD BLOCKING WHICH HAS BEEN FASTENED TO THE ROOF DECK TO MAINTAIN 8" MINIMUM FLASHING HEIGHT FROM THE SURFACE OF THE ROOF. INSTALL INSULATION AND CANT STRIP, RUN ROOF MEMBRANE UP CURBS 2" ABOVE THE CANT STRIP. INSTALL SBS MODIFIED BITUMEN BASE FLASHING. FASTEN TOP EDGE AND INSTALL A REMOVABLE COUNTER FLASHING. SEE DETAIL AND FOLLOW MFR'S LATEST INSTALLATION REQUIREMENTS. CURBS MUST ALSO BE SET LEVEL WHERE REQUIRED FOR PROPER FUNCTIONING OF THE ROOF TOP UNIT. ALL COLORS ARE SELECTED BY ARCH.
2. EXG ROOF TO REMAIN ARE UNDER WARRANTY. INSTALLATION OF ROOFTOP EQUIPMENT IN THIS AREAS SHALL BE DONE IN ACCORDANCE WITH THE ROOFING MANUFACTURES REQUIREMENTS TO MAINTAIN SAID WARRANTY, TYPICAL.
3. WALKWAY PADS - INSTALL AROUND ALL ROOFTOP UNITS. MODIFY WALKWAY PADS AS REQUIRED SO THAT THE PAD MUST NOT IMPEDE THE FREE FLOW OF WATER TO THE DRAINAGE POINTS.

SHEET NOTES:

1. REFERENCE MECHANICAL PLUMBING AND ELECTRIC SHEETS FOR ALL ROOF TOP EQUIPMENT. ROOF TOP PLUMBING AND ELECTRICAL.
2. REFERENCE ALL MEP SHEETS FOR ITEMS AND EQUIPMENT TO BE REMOVED ON ROOF.
3. REFERENCE A201 FOR ROOF WARRANTY INFORMATION AND ASSOCIATED ROOF DETAILS
4. REFERENCE A101 FOR GENERAL DEMOLITION AND GENERAL NOTES

	PRJ. #	AREA	MANUFACTURER/ WARRANTY #	ROOFING SYSTEM	DATE INSTALLED	WARRANTY EXPIRATION	RECOMMENDED REPLACEMENT YEAR
	N/A	11,988 S.F.+/-	CARLISLE / 1017622	EPDM	09/14/2007	09/16/2027	2027
	N/A	23,991 S.F.+/-	CARLISLE /1040923	EPDM	08/26/2008	08/26/2028	2028
	N/A	29,889 S.F.+/-	CARLISLE /1129174	EPDM	08/27/2013	01/07/2034	2034
	N/A	47,882 S.F.+/-	GARLAND /PENDING	SBS	2023	2043	2043



PRINCETON MIDDLE SCHOOL
ROOF WARRANTIES LEGEND

ROOF KEYNOTES

1. REFERENCE MECHANICAL, PLUMBING, AND ELECTRICAL FOR ITEMS BEING REMOVED AND NEW ITEM INSTALLATIONS. ALL ROOFING WORK SHALL BE DONE WITH ROOF TYPES AND WARRANTIES INDICATED ON THIS SHEET, REF ROOF WARRANTIES LEGEND.
2. WALKWAY PADS - INSTALL AROUND ALL NEW ROOFTOP UNITS, ROOFTOP EQUIPMENT. MODIFY WALKWAY PADS AS REQUIRED SO THAT THE PAD MUST NOT IMPEDE THE FREE FLOW OF WATER TO THE DRAINAGE POINTS. REF ROOF TYPE WARRANTY INFORMATION, REF 3/A202 (EPDM) AND 6/A203 (SBS) FOR WALK PAD DETAILS AND NOTES.
3. NEW UNIT ON NEW CURB IN EXISTING LOCATION. FIELD VERIFY THAT NEW UNIT SETS ON EXISTING CURB STEEL. REMOVE EXISTING STEEL THAT IS UN-USED BY NEW UNIT, AND ADD NEW STEEL SUPPORT AND NEW ROOF DECK IN LOCATIONS WHERE NEW CURB IS NOT SUPPORTED BY EXISTING STEEL. REF 13/A202 FOR CURB REINFORCEMENT AND 10/A202 FOR JOIST REINFORCEMENT. REF A201 FOR ROOF WARRANTIES INFO AND A202, A203 FOR FLASHING DETAILS.
4. NEW UNIT ON NEW CURB. REF MECHANICAL AND ROOF TYPE WARRANTIES INFORMATION. REF 13/A202 FOR UNIT STEEL REINFORCEMENT, REF A202 AND A203 FOR FLASHING DETAILS.
5. NEW UNIT ON EXISTING RAIL. REF MECHANICAL AND ROOF TYPE WARRANTY INFORMATION.
6. NEW PIPE SUPPORT ON WARE PAD. REF PLUMBING AND MECHANICAL SHEETS, REF ROOF TYPE WARRANTY INFORMATION ON THIS SHEET AND 1/A202 (EPDM) AND 3/A203 (SBS)
7. EXISTING HEAT STACK WITH NEW EXTENSION WITH GALVANIZED STEEL GUIDE WIRE TO SUPPORT AT ROOF. REF MECHANICAL FOR EXTENSION AD SUPPORT
8. NEW EXHAUST FAN IN EXISTING LOCATION ON NEW CURB OVER EXISTING REINFORCING STEEL. REF MECHANICAL FOR CURB AND EQUIPMENT INFORMATION. A201 FOR ROOF WARRANTY INFORMATION, AND A202 (EPDM) AND A203 (SBS) FOR FLASHING DETAILS.
9. NEW PIPE CURB. REF MECHANICAL FOR CURB INFO, REF A202 FOR ROOF WARRANTY INFORMATION, AND FLASHING DETAIL 4/A202 AND 7/A203.
10. NEW EXPOSED ROOFTOP DUCT WORK WITH SUPPORTS ON WARE PADS. REF MECHANICAL FOR SUPPORTS AND 5/A203.
11. CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING STEEL ANGLE SUPPORTS, INSTALLATION OF NEW STEEL ANGLE SUPPORTS AND ROOF INFILL WITH NEW MECHANICAL UNIT AND EXISTING CONDITIONS IN FIELD. REF TO 6/A103 FOR NEW CURB DETAILS AND SUPPORTS. REFER TO MECHANICAL DRAWINGS.
12. ROOF INFILL AT REMOVED EQUIPMENT. REF A102 FOR ROOF TYPE AND WARRANTY INFORMATION. INFILL PER MANUFACTURER'S RECOMMENDATIONS. REF 10/A103
13. CONCRETE SPLASH BLOCK ON WARE PAD. REF MECHANICAL FOR SPLASH BLOCK INFORMATION. REF 2/A102 AND ROOF WARRANT INFORMATION
14. EXISTING SURFACE MOUNTED DUCT ON EXISTING STANDS. REF MECHANICAL FOR NEW DUCT TIE-INS TO EXISTING
15. PROVIDE CRICKET AT NEW RTU'S AT ¼"/FT FOR POSITIVE DRAINAGE AT UNITS. REF ROOF WARRANTY INFORMATION THIS SHEET.
16. SURFACE MOUNTED DUCT STAND ON WARE PAD. REF MECHANICAL AND REF 7/A203
17. TYPICAL FLASHING AT ROOF TOP EQUIPMENT CURB. REF 14/A202 FOR EPDM AND 2/A203 FOR SBS ROOFS. REF ROOF WARRANTY LEGEND
18. NEW CONDENSATE LINE ON PIPE SUPPORT WITH WARE PAD. REF 1/A202 AND 3/A203
19. EXISTING ROOF TOP EQUIPMENT TO REMAIN. REF MECHANICAL
20. NEW GAS LINE ON PIPE SUPPORTS. REF ROOF TYPE AND WARRANTY LEGEND. REF PLUMBING SHEETS
21. NEW VENT PIPE PENETRATION. REF 15/A202 AND PLUMBING SHEETS
22. FIXED PIPE SUPPORT. REF 16/A202 AND 8/A203 FOR FLASHING DETAILS AND PLUMBING SHEETS
23. SUSPENSION WIRE STEEL SUPPORT AND FLASHING. REF 12/A202 FOR SUPPORT SYSTEM AND FLASHING AND REF MECHANICAL SHEETS

EXISTING ROOF SYSTEMS NOTE: (PRINCETON MIDDLE SCHOOL)

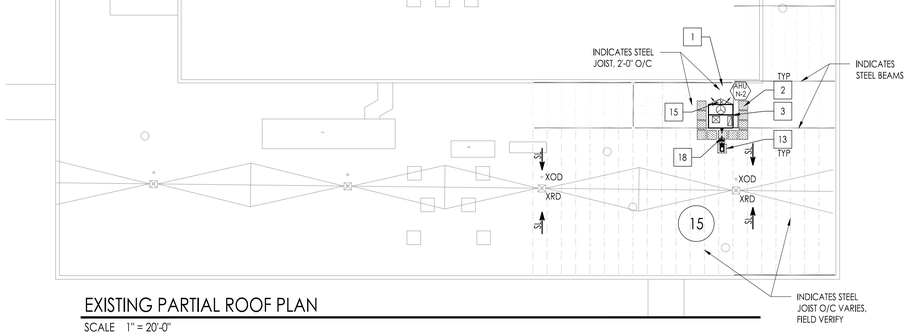
ALL WORK PERFORMED AS PART OF THIS PROJECT THAT IMPACTS OR MODIFIES THE EXISTING ROOFING SYSTEM IN ANY FORM SHALL BE PERFORMED IN A MANNER APPROVED BY THE ROOFING MANUFACTURER SUCH THAT THE EXISTING ROOF WARRANTY IN PLACE AT THE TIME OF THE WORK SHALL NOT BE VOIDED. (REFERENCE ROOF HISTORY LEGEND, THIS SHEET, FOR ROOF TYPE AND WARRANTY INFORMATION)

GENERAL ROOF CONSTRUCTION NOTES:

A. PROVIDE ROOFING MATERIALS THAT COMPLY WITH A CLASS "A" SYSTEM.
B. INSTALL WATER DIVERTING CRICKETS ON HIGH SIDE OF ROOF AT ROOFTOP UNITS, AS SHOWN ON PLAN.
C. ALL WORK PERTAINING TO THESE DRAWINGS SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND WITH ALL AGENCIES HAVING JURISDICTION.
D. FRT WOOD BLOCKING SHOWN ON DRAWINGS IS DIAGRAMMATIC. PROVIDE FIRE RETARDANT TREATED WOOD BLOCKING CONSTRUCTION IN THICKNESS AND HEIGHT TO MATCH THICKNESS OF INSULATION AND/OR TAPERED INSTALLATION AS RECOMMENDED BY ROOFING MANUFACTURER AND TO MAINTAIN A CONSTANT ROOF EDGE. ELEVATION IN A HORIZONTAL PLANE UNLESS NOTED OTHERWISE.
E. ALL CONDITIONS MEETING THE ROOF SURFACE PERPENDICULAR MUST BE MODIFIED TO CREATE A MINIMUM 8" FLASHING HEIGHT. CURBS AND WALL COUNTER FLASHINGS MUST BE RAISED.
F. CONTRACTOR SHALL MAKE NECESSARY TIE-INS AND ALTERATIONS TO EXISTING ROOF IN ACCORDANCE WITH ORIGINAL ROOF MANUFACTURERS REQUIREMENTS, SO AS TO MAINTAIN ORIGINAL WARRANTY ON EXISTING ROOF. (REFERENCE ROOF WARRANTY LEGEND.)
G. CONTRACTOR RESPONSIBLE TO RECTIFY ANY PONDING WATER ON FINISHED ROOF SURFACE THAT REMAINS AFTER 48 HOURS AT NO ADDITIONAL COST .
H. CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION. CONTRACTOR SHALL PROVIDE ALL REQUIRED SAFETY PROTECTION DURING CONSTRUCTION.
J. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A SUFFICIENT WORK FORCE TO MEET COMPLETION DATES AS OUTLINED IN THE SPECIFICATIONS. NO EXCEPTIONS WILL BE ALLOWED.
K. DO NOT SCALE THE DRAWINGS.
L. DETAILS NOTED "TYPICAL" IMPLY ALL SUCH CONDITIONS BE TREATED SIMILARLY.
M. ALL WORK PERTAINING TO THESE DRAWINGS SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND IN AGREEMENT WITH ALL AGENCIES HAVING JURISDICTION.
N. REF SHEET A101 FOR GENERAL CONSTRUCTION NOTES.

STAGING NOTES:

1. NO STAGING IS PERMITTED ON THE SIDEWALKS.
2. TEMPORARY TOILETS SHALL BE PROVIDED BY THE CONTRACTOR AND PLACEMENT COORDINATED WITH OWNER.
3. CONSTRUCTION SAFETY FENCING SHALL BE INSTALLED AROUND ALL STAGING AREAS.
4. THE CONTRACTOR IS TO CONTACT THE LOCAL MUNICIPALITY AND CONFIRM WORKING HOURS AND COMPLY WITH ALL NOISE ORDINANCE REQUIREMENTS.
5. PARKING, OF CONSTRUCTION VEHICLES, DUMPSTER, AND EQUIPMENT IS NOT PERMITTED ON THE STREETS.
6. DUMPSTERS MUST BE EMPTIED AT THE END OF EACH WORK DAY.
7. NO ENTRANCES, EXITS OR DRIVEWAYS SHALL BE BLOCKED AT ANY TIME.
8. ALL STAGING AREAS MUST BE APPROVED IN ADVANCE BY THE OWNER. THE CONTRACTOR MUST SUBMIT A STAGING PLAN AND HAVE THE PLAN APPROVED BY THE OWNER. IF CHANGES TO THE STAGING PLAN MUST BE MADE DURING THE PROJECT, THE CONTRACTOR MUST RESUBMIT A REVISED PLAN TO THE OWNER AND OBTAIN WRITTEN APPROVAL BEFORE ADJUSTING THE STAGING AREAS.
9. THE CONTRACTOR IS NOT PERMITTED TO USE THE ROOFS THAT ARE NOT IN CONTRACT IN ANY CAPACITY.
10. ALL LAWN AND PAVED AREAS DAMAGED OR DISTURBED IN ANY WAY SHALL BE CLEANED AND RESTORED TO PRE-CONSTRUCTION CONDITION AT THE CONCLUSION OF THE WORK.



EXISTING PARTIAL ROOF PLAN
SCALE 1" = 20'-0"

STRUCTURAL NOTES:

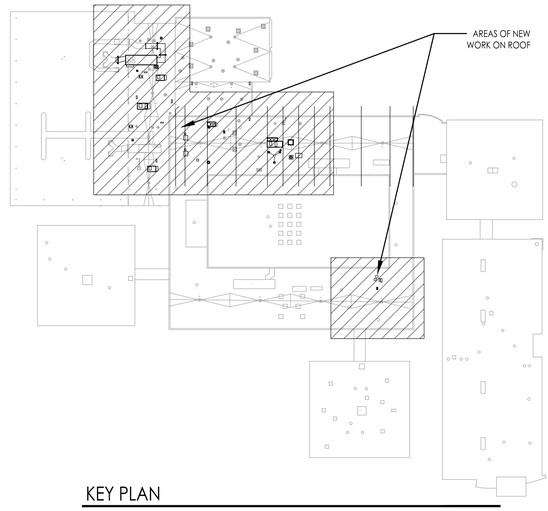
1. CONTRACTOR IS TO FIELD VERIFY THE EXISTING ROOF STRUCTURE AND LOCATIONS OF EXISTING MECHANICAL, ELECTRICAL, AND PLUMBING EQUIPMENT PRIOR TO PLACEMENT AND INSTALLATION OF NEW HVAC UNITS, DUCTS, AND ASSOCIATED EQUIPMENT.
2. CONTRACTOR IS TO NOTIFY ARCHITECT IN THE EVENT THE NEW HVAC WORK HAS BEEN ALTERED OR CHANGED IN WEIGHTS AND/OR LOCATIONS DO TO EXISTING CONDITIONS FOR ITEMS MENTIONED IN NOTE #1.

PLAN SYMBOLS

- X / AXX — FLASHING DETAIL AND DRAWING NUMBER
- # — CONSTRUCTION NOTE
- SL — DIRECTION OF ROOF SLOPE
- ¼" PER FOOT SLOPED TAPERED INSULATION CRICKETS
- # — INDICATES ROOF NUMBER, REF WARRANTY LEGEND

PLAN LEGEND

- INDICATES STEEL BEAM
- INDICATES TYPICAL STEEL JOIST
- EXISTING (24LA14) STEEL JOIST
- WALKWAY PADS (SBS) REF 6/A203
- WALKWAY PADS (EPDM) REF 3/A202
- RTU — ROOF TOP UNIT
- GAS — GAS LINE ON PIPE SUPPORT
- XRD — EXISTING ROOF DRAIN
- XVP — EXISTING VENT PIPE
- VP — NEW VENT PIPE, REF 15/A202
- EF — EXHAUST FAN UNIT, REF 6/A202
- PC — PIPE CURB
- PIPE SUPPORT ON WARE PAD, (GAS AND CONDUIT LINES) REF ROOF WARRANTY LEGEND, THIS SHEET, FOR ROOF TYPE AND 1/A202 AND 3/A203 FOR ROOF DETAILS
- EXTERIOR ROOF DUCT SUPPORT ON WEAR PAD, REF MECHANICAL
- FIXED GAS LINE SUPPORT WITH FLASHING, REF 16/A202 AND 8/A203 AND MECHANICAL



KEY PLAN
NTS

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PROGRESS SET - NOT FOR CONSTRUCTION
10/31/2025
Date

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

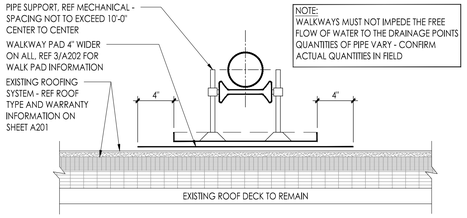
Project Number
5607
Project Date
10.31.2025
Checked By
GRD
Drawn By
BO
Scale
1" = 20'- 0"

Drawing Name
EXISTING ROOF PLAN, ROOF WARRANTY LEGEND, AND NOTES

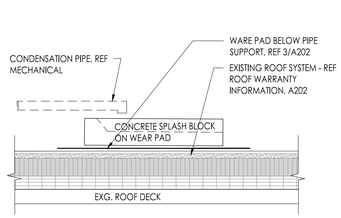
Revisions

No.	Date	Description

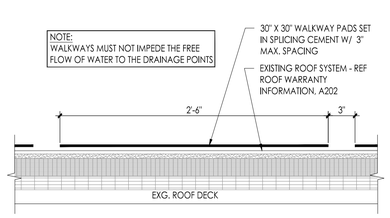
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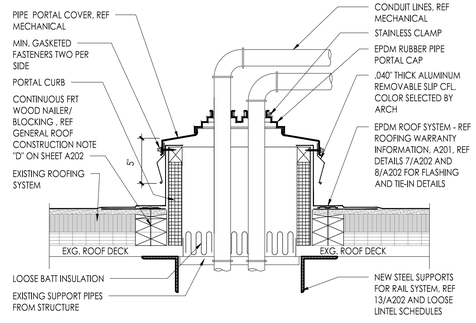
1 TYPICAL PIPE SUPPORT DETAIL
1-1/2" = 1'-0"



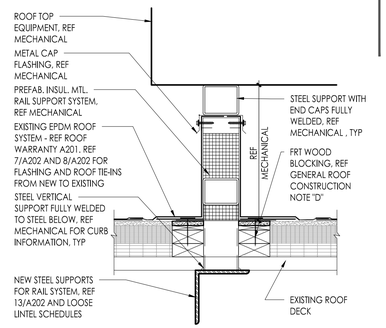
2 TYPICAL SPLASH BLOCK DETAIL
1-1/2" = 1'-0"



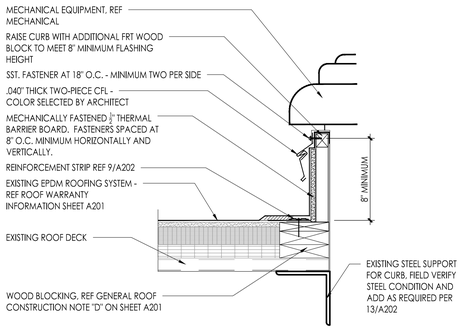
3 TYPICAL WALK WAY PAD DETAIL (EPDM)
1-1/2" = 1'-0"



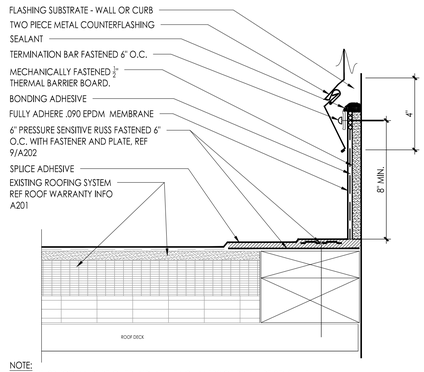
4 TYPICAL PIPE CURB FLASHING (EPDM)
1-1/2" = 1'-0"



5 EQUIPMENT SUPPORT RAIL DETAIL (EPDM)
1-1/2" = 1'-0"



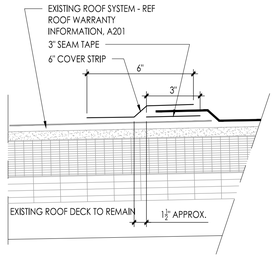
6 EQUIPMENT CURB DETAIL (EPDM)
1-1/2" = 1'-0"



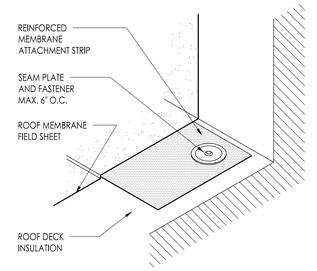
NOTE:
ALL VERT. SPLICES MUST BE OVERLAID WITH TWO LAYERS OF PRESSURE SENSITIVE ELASTOFORM FLASHING, 6" WIDE AT BOTTOM COVERED BY 12" WIDE. SEE MANUFACTURERS DETAILS AND GUIDELINES.

7 TYPICAL BASE FLASHING DETAIL
3" = 1'-0"

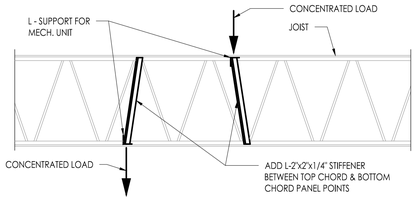
NOTES:
1. PRIOR TO SEAM TAPE INSTALLATION PRIME SPLICE AREAS
2. OVERLAP ENDS OF CUT PIECES A MINIMUM OF 1"
3. LAP SEALANT IS TO COVER THE EDGE OF SEAM TAPE



8 TYPICAL LAP SPLICE DETAIL
3" = 1'-0"

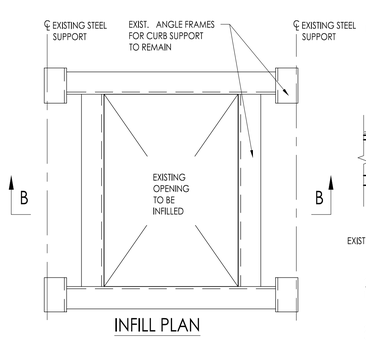


9 TYPICAL SECUREMENT STRIP DETAIL
3" = 1'-0"

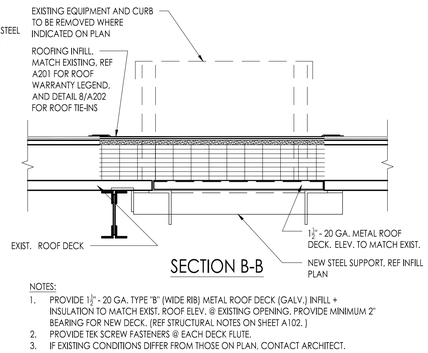


NOTE:
SUPPORTING LOAD AT CONDENSERS, MECHANICAL UNITS AND ALL CONCENTRATED LOADS GREATER THAN 100 lbs. OMIT IF LOAD IS WITHIN 3" OF A PANEL POINT.

10 TYPICAL DETAIL OF REINF'D JOIST



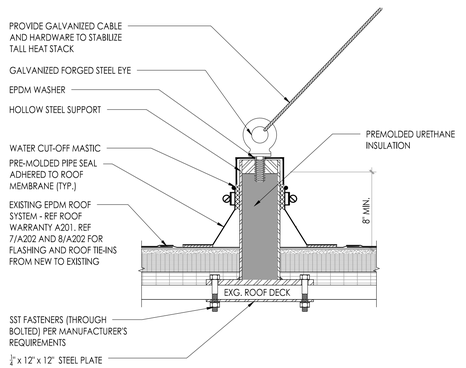
INFILL PLAN



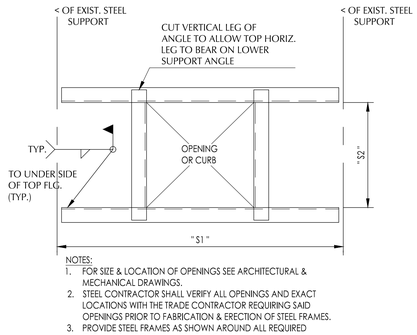
SECTION B-B

NOTES:
1. PROVIDE 1½" - 20 GA. TYPE "B" (WIDE RIB) METAL ROOF DECK (GALV.) INFILL + INSULATION TO MATCH EXIST. ROOF ELEV. @ EXISTING OPENING. PROVIDE MINIMUM 2" BEARING FOR NEW DECK. (REF STRUCTURAL NOTES ON SHEET A102.)
2. PROVIDE TEK SCREW FASTENERS @ EACH DECK FLUTE.
3. IF EXISTING CONDITIONS DIFFER FROM THOSE ON PLAN, CONTACT ARCHITECT.

11 DECK AND ROOF INFILL - STEEL DECK
1 1/2" = 1'-0"



12 SUSPENSION WIRE SUPPORT
N.T.S.



NOTES:
1. FOR SIZE & LOCATION OF OPENINGS SEE ARCHITECTURAL & MECHANICAL DRAWINGS.
2. STEEL CONTRACTOR SHALL VERIFY ALL OPENINGS AND EXACT LOCATIONS WITH THE TRADE CONTRACTOR REQUIRING SAID OPENINGS PRIOR TO FABRICATION & ERECTION OF STEEL FRAMES.
3. PROVIDE STEEL FRAMES AS SHOWN AROUND ALL REQUIRED OPENINGS LARGER THAN 8" AT ROOF.
4. PROVIDE STEEL ANGLES ON ALL SIDES OF OPENINGS UNLESS BEAM IS SHOWN ON PLAN. ANGLE SIZES TO BE:
   FOR "S1" OR "S2" ≤ 6'-6" L-4"x4"x5/16"
   FOR "S1" OR "S2" > 6'-6" L-6"x6"x3/8"
5. PROVIDE STEEL ANGLES ON ALL SIDES OF MECH'L CURBS UNLESS BEAM IS SHOWN ON PLAN. ANGLE SIZES TO BE L-6"x6"x3/8".
6. FOR SIZE & LOCATION OF MECH'L UNITS. SEE ARCH'L & MECH'L DWGS.

13 TYPICAL DETAIL AT EXISTING ROOF UNDER NEW CURB
3/4" = 1'-0"

GENERAL STRUCTURAL STEEL NOTES:

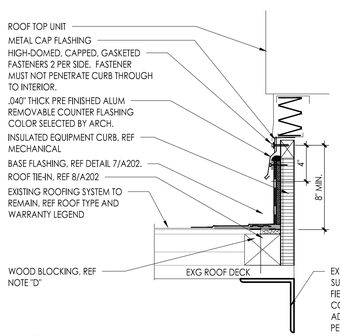
1. ALL STRUCTURAL STEEL DETAILS SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST ISSUE OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN".
2. CONNECTIONS SHALL BE DESIGNED TO DEVELOP THE FULL STRENGTH OF THE MEMBER OVER THE REQUIRED SPAN, 1 1/2 TIMES FOR COMPOSITE MEMBERS. ALL SHOP CONNECTIONS ARE TO BE WELDED OR BOLTED.
3. WELDING SHALL BE DONE IN CONFORMITY WITH THE LATEST CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION OF THE AMERICAN WELDING SOCIETY. ALL WELDS SHALL DEVELOP THE FULL STRENGTH OF THE MATERIAL BEING WELDED, UNLESS OTHERWISE NOTED.
4. ALL STRUCTURAL STEEL SHALL RECEIVE ONE SHOP COAT OF PAINT EXCEPT CONTACT SURFACES, WITHIN 4 INCHES OF FIELD WELDS, UNLESS OTHERWISE NOTED.
5. SHOP DRAWINGS OF ALL STRUCTURAL STEEL SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL.
6. ALL STEEL PLATES, ANGLES, CHANNELS ARE TO BE ASTM A-36 UNLESS INDICATED OTHERWISE.

STEEL ROOF DECK

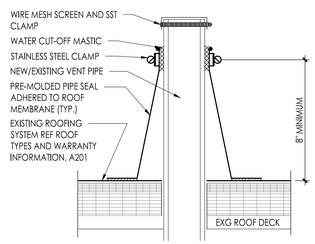
1. DECK SHALL BE 20 GAGE GALVANIZED 1.5" WIDE RIB VARIETY (TYPE B) CONTINUOUS OVER AT LEAST 3 SPANS.
2. WELDS TO BE MADE IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS BY CERTIFIED WELDERS. REF 5/A102, SEE DRAWINGS FOR ADDITIONAL SPECIFIC REQUIREMENTS CONCERNING WELDING.

MISCELLANEOUS

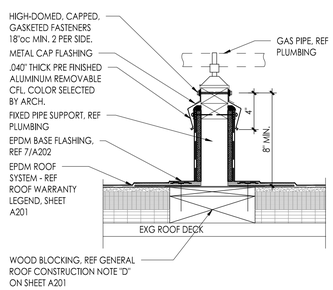
1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, SECTIONS AND ELEVATIONS ON THE JOB.
2. CONSULT THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR VERIFICATION OF LOCATION AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, WASHES, DRIPS, REVEALS, DEPRESSIONS, EQUIPMENT PADS AND OTHER PRODUCT REQUIREMENTS.
3. REPRODUCTIONS OF CONTRACT DOCUMENTS ARE NOT ACCEPTABLE AS SHOP DRAWINGS AND WILL BE REJECTED.
4. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. IN THE CASE OF CONFLICT BETWEEN SPECIFICATIONS AND GENERAL NOTES, MORE STRINGENT REQUIREMENTS SHALL GOVERN.



14 CURB FLASHING DETAIL (EPDM)
1-1/2" = 1'-0"



15 VENT PIPE DETAIL
1 1/2" = 1'-0"



16 FIXED PIPE SUPPORT FLASHING DETAIL
1-1/2" = 1'-0"

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PROGRESS SET - NOT FOR CONSTRUCTION 10/31/2025
Date

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
GRD

Drawn By
BO

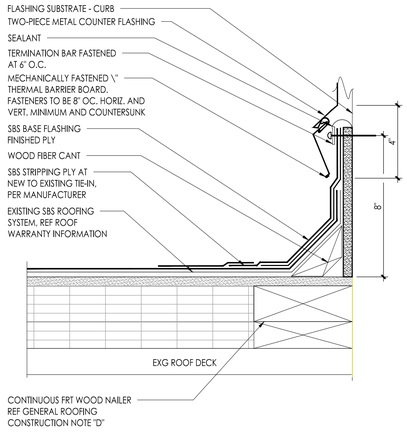
Scale
1 1/2" = 1'- 0" UNO

Drawing Name
EPDM ROOF DETAILS, STRUCTURAL DETAILS, AND NOTES

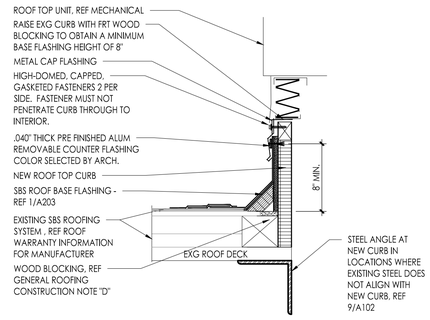
Revisions

No.	Date	Description

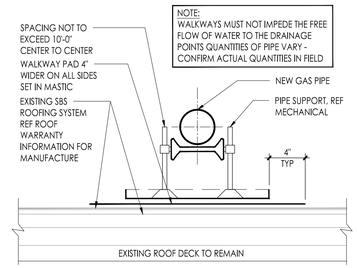
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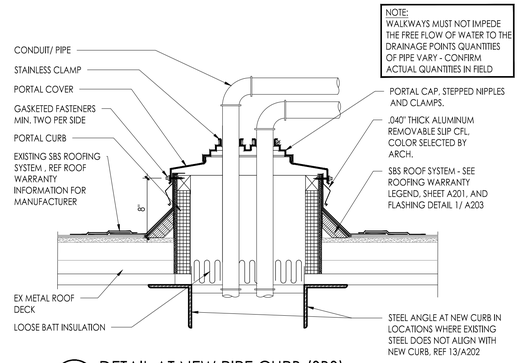
1 TYPICAL BASE FLASHING DETAIL (SBS)
3" = 1'-0"



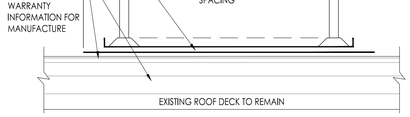
2 ROOFTOP UNIT FLASHING DETAIL (SBS)
1-1/2" = 1'-0"



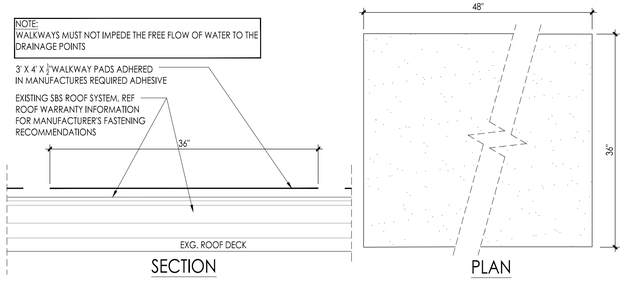
3 PIPE SUPPORT DETAIL (SBS)
1-1/2" = 1'-0"



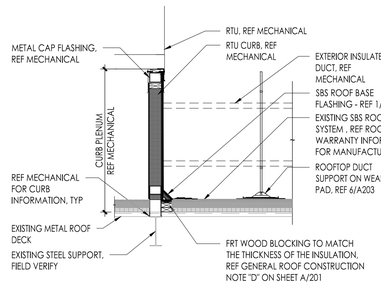
4 DETAIL AT NEW PIPE CURB (SBS)
1-1/2" = 1'-0"



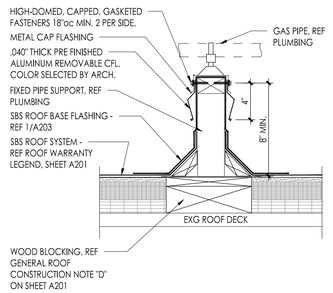
5 DUCT SUPPORT ON WEAR PAD (SBS)
1-1/2" = 1'-0"



6 TYPICAL WALKWAY PAD (SBS)
N.T.S.



7 RTU CURB DETAIL
1/2" = 1'-0"



8 FIXED PIPE SUPPORT FLASHING DETAIL
1-1/2" = 1'-0"

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217 Walnut Ln, Princeton, NJ 08540

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Drawn By
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Scale
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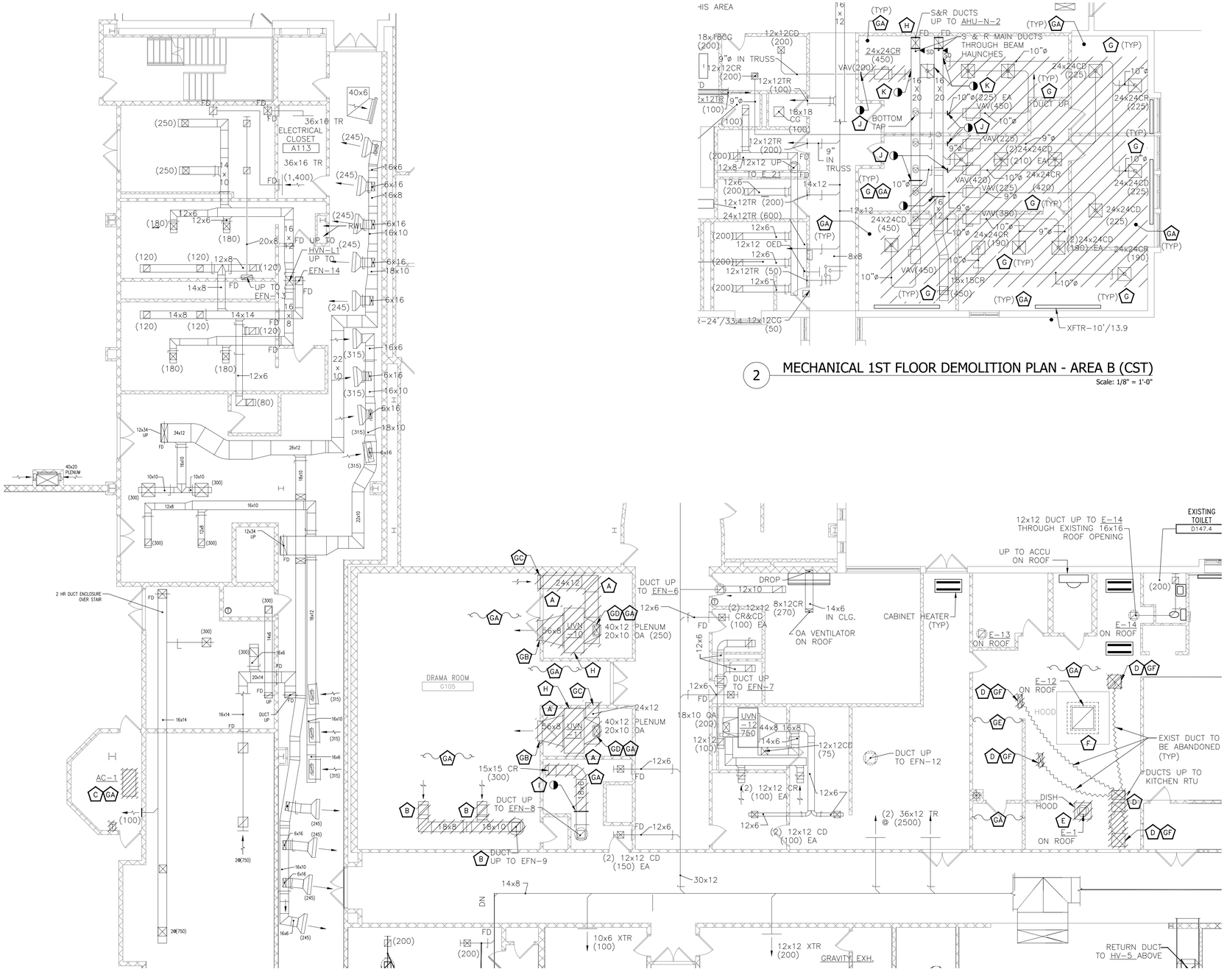
Drawing Name
SBS ROOF DETAILS

Revisions

No.	Date	Description

Drawing Number
A203

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



2 MECHANICAL 1ST FLOOR DEMOLITION PLAN - AREA B (CST)
Scale: 1/8" = 1'-0"

1 MECHANICAL 1ST FLOOR DEMOLITION PLAN - AREA A
Scale: 1/8" = 1'-0"

DEMOLITION NOTES

A. REMOVE EXISTING AIR HANDLER, UNIT SUPPORTS, DUCTWORK, OUTDOOR AIR DUCTS, GRILLES, THERMOSTAT & ASSOCIATED CONTROLS IN THEIR ENTIRETY. PATCH & SEAL ALL ROOF AND WALL PENETRATIONS.

B. CONTRACTOR SHALL REMOVE EXISTING EXHAUST DUCTWORK, AIR DEVICES, HANGERS, SUPPORTS, ETC., IN THEIR ENTIRETY UP THROUGH ROOF. PATCH AND SEAL ROOF PENETRATION.

C. CONTRACTOR SHALL REMOVE EXISTING SPLIT SYSTEM ABOVE CEILING, DUCTWORK, GRILLES, SUPPORTS, REFRIGERANT PIPING, CONDENSATE PUMP & PIPING, THERMOSTAT & ASSOCIATED CONTROLS IN THEIR ENTIRETY. REFER TO PIPING DEMOLITION DRAWING FOR ADDITIONAL INFORMATION.

D. EXISTING DUCTWORK UP TO RTU, ASSOCIATED SUPPORTS, DIFFUSERS, GRILLES, & CONTROLS SHALL BE REMOVED IN THEIR ENTIRETY. THE BRANCH DUCTS ABOVE CEILING SHALL BE ABANDONED IN PLACE AS SHOWN. DUCT DROPS, DUCT RUNS, AND DIFFUSER LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED PRIOR TO DEMOLITION.

E. EXISTING EXHAUST FAN, GRILLE, DUCTWORK, SUPPORTS, ETC. SHALL BE REMOVED. ROOF PENETRATION SHALL BE REUSED FOR NEW EQUIPMENT. SEE NEW WORK PLAN.

F. KITCHEN EXHAUST HOOD AND ASSOCIATED EXHAUST FAN SHALL REMAIN.

G. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING VAV BOXES & ASSOCIATED CONTROLS TO LOCATION SHOWN. CONTRACTOR SHALL REMOVE ALL DUCTWORK, DAMPERS, DIFFUSERS, GRILLES, ETC. DOWNSTREAM OF VAV BOXES. SEE NEW WORK PLAN.

H. HOT WATER, CONDENSATE DRAIN PIPING & REFRIGERANT PIPING SHALL BE REMOVED. REFER TO PIPING DEMOLITION DRAWINGS FOR SCOPE OF WORK.

I. CONTRACTOR SHALL CUT BACK EXISTING EXHAUST DUCTWORK IN JANITOR'S CLOSET TO ACCOMMODATE NEW DUCT LAYOUT. SEE NEW WORK PLANS.

J. REMOVE EXISTING DUCT TO LOCATION SHOWN.

K. REMOVE EXISTING BRANCH DUCT TO MAIN. INSTALL A PIECE OF GALVANIZED SHEET METAL OVER OPENING (22 GAUGE), SEAL CAP TO DUCT & AROUND EDGES AND SECURE WITH SHEET METAL SCREWS.

GENERAL CONSTRUCTION DEMOLITION NOTES

GA. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REMOVED TO ACCOMMODATE THE REMOVAL & INSTALLATION OF MECHANICAL EQUIPMENT & DUCTWORK. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

GB. NEW SIDEWALL SUPPLY GRILLES ARE SMALLER THAN EXISTING. PATCH WALL & MATCH TO SURROUNDING CONDITIONS TO ACCOMMODATE NEW SIZE. SEE ARCHITECTURAL PLANS.

GC. EXISTING RETURN AIR GRILLES ARE BEING REMOVED. REFER TO ARCHITECTURAL DRAWINGS FOR REPAIR OF WALL OPENING.

GD. ROOF OPENING SHALL BE REPAIRED. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.

GE. EXISTING CEILING STRUCTURE SHALL BE REMOVED AND LOWERED TO 8FT AFF TO ACCOMMODATE NEW DUCTWORK. REFER TO ARCHITECTURAL PLANS.

GF. REPAIR CEILING WHERE EXISTING AIR DEVICES HAVE BEEN REMOVED. SEE ARCHITECTURAL PLANS.

GENERAL DEMOLITION NOTES

1. THE EXISTING DUCTWORK SHALL BE DEMOLISHED AND REMOVED FROM THE SITE BY THE CONTRACTOR. CONNECTING DUCTWORK WILL BE CUT BACK AND REMOVED BASED ON THE SHEETMETAL CONTRACTORS REQUIREMENTS.

2. CONTRACTOR SHALL DEVELOP DETAILED WRITTEN PLAN TO COORDINATE ALL DEMOLITION AND NEW WORK IN ORDER TO MINIMIZE DOWNTIME OF THE HVAC SYSTEMS. THIS PLAN SHALL BE COMPLETED AND APPROVED BY THE OWNER. THE PLAN SHALL BE COMPLETED AND SUBMITTED WITHIN 2 WEEKS OF CONTRACTOR SELECTION. OWNER APPROVAL IS REQUIRED BEFORE ANY WORK CAN COMMENCE.

3. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION WITHOUT EXTRA PAYMENT, ANY OF THE OWNERS PROPERTY OR PROPERTY OR WORK BY/OF OTHER CONTRACTORS THAT SHALL BECOME DAMAGED DUE TO THE NEGLIGENCE OF EMPLOYEES OR AGENTS OF THE CONTRACTOR. SUCH REPAIRS SHALL MEET THE APPROVAL OF THE OWNER. PARTICULAR CARE SHALL BE EXERCISED TO PROTECT FIRE ALARM AND SECURITY WIRING.

4. CONTRACTOR SHALL TAKE PROPER CARE AND PROTECT ALL PORTIONS OF THE WORK UNTIL ITS ACCEPTANCE. ANY AND ALL PORTIONS OF THE WORK LIABLE TO DAMAGE UNDER THIS OR OTHER SECTIONS, BY FREEZING OR INCLEMENT WEATHER MUST BE THOROUGHLY AND COMPLETELY PROTECTED BY ANY SUBSTANTIAL MEANS UNTIL NOT FURTHER REQUIRED. TEMPORARY HEAT SHALL BE REMOVED FROM THE PREMISES ONLY WHEN ITS REMOVAL IS APPROVED BY THE ENGINEER.

5. THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE DEMOLITION OF THE SYSTEM. FOREMAN SHALL BE ON SITE AT ALL TIMES DURING WORK BY ALL TRADES. SUB CONTRACTORS WILL NOT BE PERMITTED TO WORK IF FORMAN IS NOT ONSITE.

6. SAFE OPEN ENDS OF DUCTWORK TO BE REUSED DURING DEMOLITION TO MINIMIZE DEBRIS FROM ENTERING DUCTS DURING DEMOLITION. CONTRACTOR SHALL BLANK-OFF THE EXISTING SUPPLY AIR AND RETURN AIR OPENINGS IN THE AIR SHAFT BEFORE DEMOLITION CAN BEGIN.

7. AT LEAST ONCE A DAY, OR AS REQUIRED BY THE OWNER, GATHER ALL RUBBISH, INCLUDING CARTONS, CRATES AND PACKAGING MATERIALS, DEBRIS AND OTHER WASTE MATERIALS. WASTE TO BE PLACED IN TRASH BIN/DUMPSTER PROVIDED BY CONTRACTOR. ALL DEBRIS TO BE REMOVED DURING OFF HOURS.

8. WHEN WORK IS PERFORMED IN OCCUPIED AREAS, TRASH REMOVAL SHOULD BE CONTINUOUS TO PREVENT HEALTH AND SAFETY ISSUES.

9. PROTECT ALL WORK AND EQUIPMENT AGAINST DAMAGE OR THEFT UNTIL FINAL INSPECTION, TESTED AND ACCEPTED. CAREFULLY STORE AND PROTECT MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH ARE NOT IMMEDIATELY INSTALLED. CLOSE OPEN ENDS OF WORK WITH TEMPORARY PLUGS OR COVERS DURING CONSTRUCTION TO PREVENT ENTRY DEBRIS.

10. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS.

11. SHIFT WORK AND STAGING WILL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL PROVIDE SCHEDULE AND PREMIUM TIME FOR ALL DEMOLITION AND REMOVAL OF MATERIALS IN THEIR PROPOSAL. ALL DEMOLITION OF DUCTWORK AND PIPING WORK SHALL BE COMPLETED ON OFF HOURS. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH OWNER.

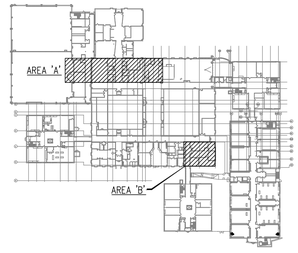
12. WHEN THE DEMOLITION OR INSTALLATION OF WORK REQUIRES THE SHUTDOWN OF AN EXISTING OPERATING SYSTEM, A MINIMUM OF 72 HOURS WRITTEN NOTICE SHALL BE GIVEN TO THE OWNER BEFORE WORK IS STARTED.

13. CONTRACTOR SHALL PHOTOGRAPH ALL EXISTING CONDITIONS FOR OWNER AND SUBMIT TO OWNER BEFORE DEMOLITION BEGINS.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONS PERFORMING THE WORK OF THIS CONTRACT.

15. THIS CONTRACTOR SHALL OBTAIN AND READ ALL SITE, JOB AND CORPORATE SAFETY AND SECURITY RULES AND REGULATIONS FROM THE OWNER, AND SIGN OFF ON THEM IF REQUIRED. THIS CONTRACTOR SHALL ADEQUATELY INFORM AND INSTRUCT ALL EMPLOYEES, AND OTHERS PERFORMING WORK FOR HIM, OF SUCH RULES AND REGULATIONS. THESE INSTRUCTIONS ARE THE MINIMUM THAT WILL BE ACCEPTED ON THIS PROJECT. CONTRACTOR SHALL ALLOW 4HRS FOR EACH EMPLOYEE TO BE TRAINED IN SITE SAFETY PROTOCOLS.

16. ALL OF THE ABOVE RULES AND REGULATIONS ARE NOT MEANT TO REPLACE OR ELIMINATE INDIVIDUAL CONTRACTORS SAFETY PROGRAMS OR CHANGE ANY LOCAL, STATE OR FEDERAL RULES AND REGULATIONS, BUT RATHER TO AUGMENT THEM AS REQUIRED FOR THE INDIVIDUAL PREMISES ON WHICH THIS WORK IS BEING PERFORMED



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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

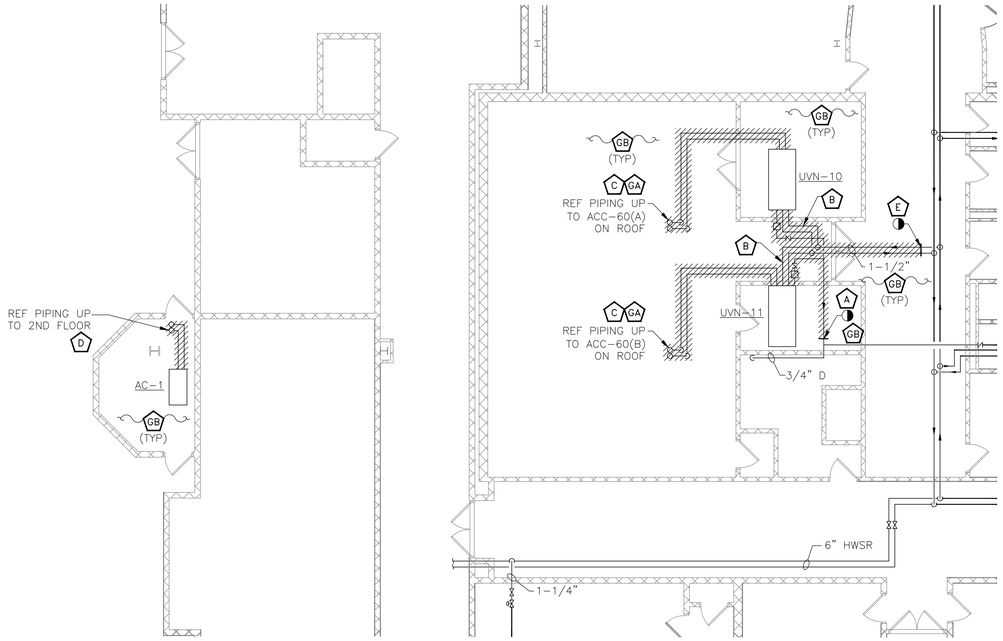
Scale
AS NOTED

Drawing Name
MECHANICAL - 1ST FLOOR DUCTWORK DEMOLITION PLANS

Revisions

No.	Date	Description

Drawing Number
MD-01



1 MECHANICAL 1ST FLOOR PIPING DEMOLITION PLAN - AREA A

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

PIPING DEMOLITION NOTES (DETAIL 1)

A REMOVE EXISTING CONDENSATE PIPING TO LOCATION SHOWN AND CAP.

B REMOVE HOT WATER PIPING STRAINERS, GAUGES, CONTROL VALVES, THERMOMETERS, ETC., IN THEIR ENTIRETY.

C REMOVE EXISTING REFRIGERANT PIPING FROM FAN COIL UNIT UP THRU ROOF.

D REMOVE EXISTING REFRIGERANT PIPING FROM FAN COIL UNIT UP THRU FLOOR. OPENINGS IN FLOOR SHALL BE REUSED TO ROUTE NEW REFRIGERANT PIPING.

E REMOVE PIPING BACK TO LOCATION SHOWN AND INSTALL NEW ISOLATION VALVES.

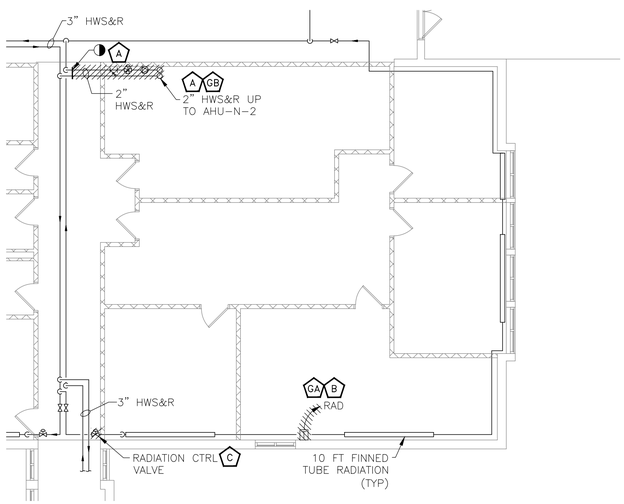
GENERAL CONSTRUCTION DEMOLITION NOTES

GA REMOVE EXISTING PIPE PORTAL ON ROOF. THE ROOF SHALL BE REPAIRED. SEE ARCHITECTURAL DRAWINGS.

GB EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REMOVED TO ACCOMMODATE THE REMOVAL & INSTALLATION OF PIPING & DUCTWORK. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

GENERAL DEMOLITION NOTES

1. WHERE EXISTING SPLIT SYSTEMS ARE BEING REMOVED, CONTRACTOR SHALL RECOVER THE EXISTING REFRIGERANT AND SHALL DISPOSE OF IN ACCORDANCE WITH THE LATEST, FEDERAL, STATE & LOCAL GUIDELINES AND REGULATIONS. CONTRACTOR SHALL PROVIDE DOCUMENTATION OF THE AMOUNT OF REFRIGERANT REMOVED AND WHERE IT WAS DISPOSED.
2. WHERE EXISTING PIPING IS NOTED TO BE REMOVED, THE ASSOCIATED HANGERS, SUPPORTS, INSULATION, ETC., SHALL BE REMOVED IN THEIR ENTIRETY.



2 MECHANICAL 1ST FLOOR PIPING DEMOLITION PLAN - AREA B (CST)

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

PIPING DEMOLITION NOTES (DETAIL 2)

A REMOVE EXISTING HOT WATER PIPING FROM COIL IN UNIT BACK TO HOT WATER MAINS AND INSTALL NEW ISOLATION VALVES. REMOVE STRAINERS, GAUGES, CONTROL VALVES, THERMOMETERS, FREEZE PUMP, ETC.

B REMOVE EXISTING THERMOSTAT FOR HOT WATER RADIATION CONTROL VALVE. FIELD VERIFY LOCATION.

C REMOVE EXISTING CONTROL VALVE. INSTALL NEW CONTROL VALVE IN SAME LOCATION. SEE PIPING NEW WORK PLAN.

GENERAL CONSTRUCTION DEMOLITION NOTES

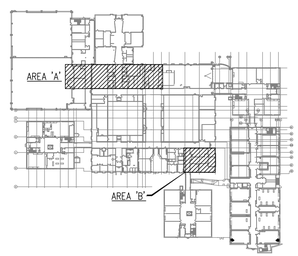
GA REPAIR WALL & PAINT WHERE EXISTING THERMOSTAT IS BEING REMOVED.

GB REPAIR HOLE IN DECK. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.

GENERAL DEMOLITION NOTES

1. WHERE EXISTING PIPING IS NOTED TO BE REMOVED, THE ASSOCIATED HANGERS, SUPPORTS, INSULATION, ETC., SHALL BE REMOVED IN THEIR ENTIRETY.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
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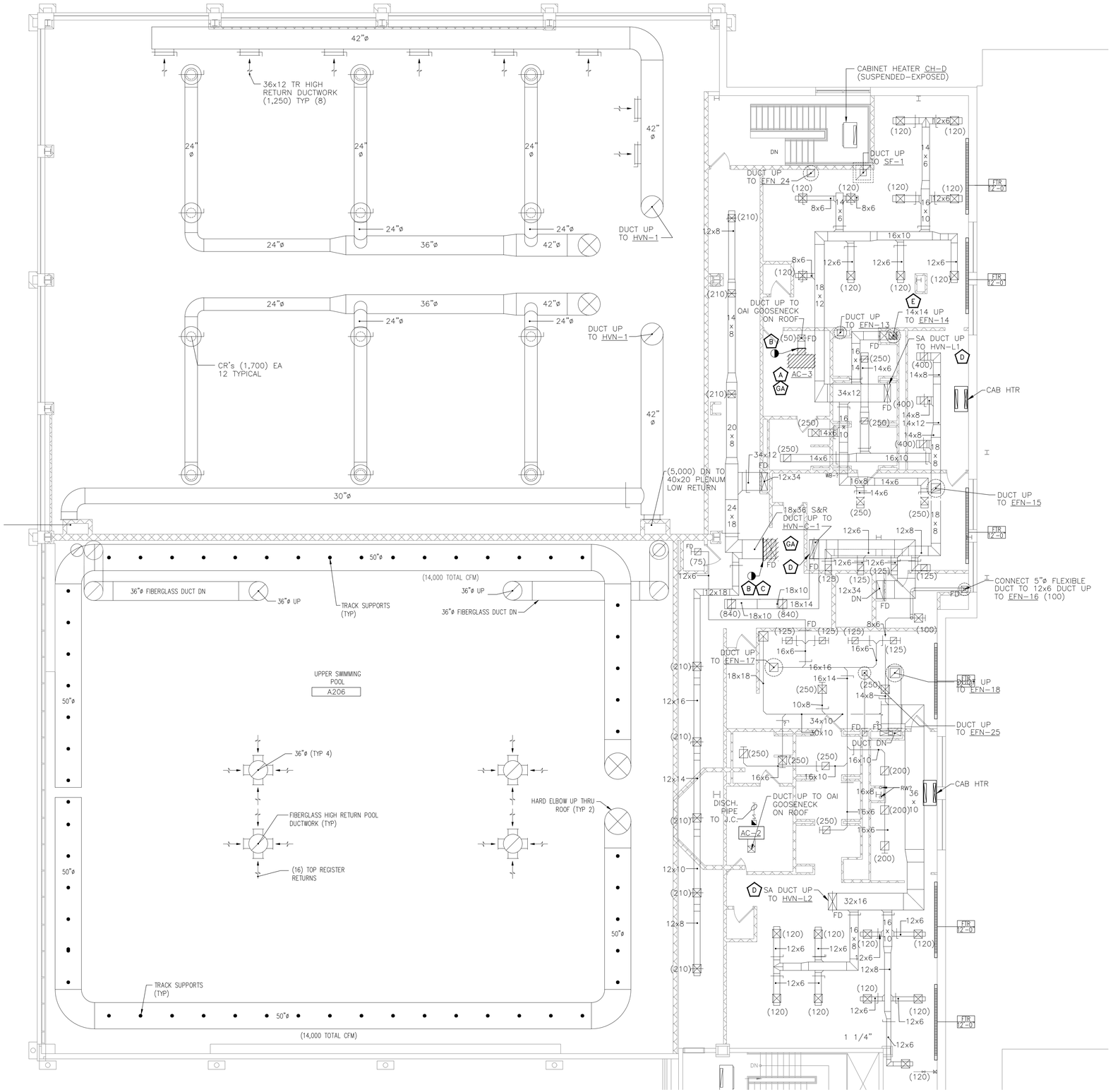
Project Number
5607
Project Date
10.31.2025
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JTM
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JCS
Scale
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Drawing Name
MECHANICAL - 1ST FLOOR PIPING DEMOLITION PLANS

Revisions

No.	Date	Description

Drawing Number
MD-02



1 MECHANICAL 2ND FLOOR DEMOLITION PLAN

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

DEMOLITION NOTES

A. CONTRACTOR SHALL REMOVE EXISTING SPLIT SYSTEM ABOVE CEILING, DUCTWORK, GRILLES, SUPPORTS, REFRIGERANT PIPING, CONDENSATE PUMP & PIPING, THERMOSTAT & ASSOCIATED CONTROLS IN THEIR ENTIRETY. REFER TO PIPING DEMOLITION DRAWING FOR ADDITIONAL INFORMATION.

B. REMOVE EXISTING DUCT TO LOCATION SHOWN.

C. REMOVE EXISTING FIRE DAMPER.

D. DUCT SHALL BE MODIFIED FOR CONNECTION TO NEW ROOFTOP EQUIPMENT. SEE NEW WORK PLAN.

E. REMOVE EXISTING EXHAUST DUCT UP TO EXHAUST FAN. EXTEND EXISTING EXHAUST DUCT AS SHOWN ON NEW WORK PLAN.

GENERAL CONSTRUCTION DEMOLITION NOTES

GA. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REMOVED TO ACCOMMODATE THE REMOVAL & INSTALLATION OF MECHANICAL EQUIPMENT & DUCTWORK. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

GENERAL DEMOLITION NOTES

1. THE EXISTING DUCTWORK SHALL BE DEMOLISHED AND REMOVED FROM THE SITE BY THE CONTRACTOR. CONNECTING DUCTWORK WILL BE CUT BACK AND REMOVED BASED ON THE SHEETMETAL CONTRACTORS REQUIREMENTS.

2. CONTRACTOR SHALL DEVELOP DETAILED WRITTEN PLAN TO COORDINATE ALL DEMOLITION AND NEW WORK IN ORDER TO MINIMIZE DOWNTIME OF THE HVAC SYSTEMS. THIS PLAN SHALL BE COMPLETED AND APPROVED BY THE OWNER. THE PLAN SHALL BE COMPLETED AND SUBMITTED WITHIN 2 WEEKS OF CONTRACTOR SELECTION. OWNER APPROVAL IS REQUIRED BEFORE ANY WORK CAN COMMENCE.

3. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION WITHOUT EXTRA PAYMENT, ANY OF THE OWNERS PROPERTY OR PROPERTY OR WORK BY/OF OTHER CONTRACTORS THAT SHALL BECOME DAMAGED DUE TO THE NEGLIGENCE OF EMPLOYEES OR AGENTS OF THE CONTRACTOR. SUCH REPAIRS SHALL MEET THE APPROVAL OF THE OWNER. PARTICULAR CARE SHALL BE EXERCISED TO PROTECT FIRE ALARM AND SECURITY WIRING.

4. CONTRACTOR SHALL TAKE PROPER CARE AND PROTECT ALL PORTIONS OF THE WORK UNTIL ITS ACCEPTANCE. ANY AND ALL PORTIONS OF THE WORK LIABLE TO DAMAGE UNDER THIS OR OTHER SECTIONS, BY FREEZING OR INCLEMENT WEATHER MUST BE THOROUGHLY AND COMPLETELY PROTECTED BY ANY SUBSTANTIAL MEANS UNTIL NOT FURTHER REQUIRED. TEMPORARY HEAT SHALL BE REMOVED FROM THE PREMISES ONLY WHEN ITS REMOVAL IS APPROVED BY THE ENGINEER.

5. THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE DEMOLITION OF THE SYSTEM. FOREMAN SHALL BE ON SITE AT ALL TIMES DURING WORK BY ALL TRADES. SUB CONTRACTORS WILL NOT BE PERMITTED TO WORK IF FORMAN IS NOT ONSITE.

6. SAFE OPEN ENDS OF DUCTWORK TO BE REUSED DURING DEMOLITION TO MINIMIZE DEBRIS FROM ENTERING DUCTS DURING DEMOLITION. CONTRACTOR SHALL BLANK-OFF THE EXISTING SUPPLY AIR AND RETURN AIR OPENINGS IN THE AIR SHAFT BEFORE DEMOLITION CAN BEGIN.

7. AT LEAST ONCE A DAY, OR AS REQUIRED BY THE OWNER, GATHER ALL RUBBISH, INCLUDING CARTONS, CRATES AND PACKAGING MATERIALS, DEBRIS AND OTHER WASTE MATERIALS. WASTE TO BE PLACED IN TRASH BIN/DUMPSTER PROVIDED BY CONTRACTOR. ALL DEBRIS TO BE REMOVED DURING OFF HOURS.

GENERAL DEMOLITION NOTES

8. WHEN WORK IS PERFORMED IN OCCUPIED AREAS, TRASH REMOVAL SHOULD BE CONTINUOUS TO PREVENT HEALTH AND SAFETY ISSUES.

9. PROTECT ALL WORK AND EQUIPMENT AGAINST DAMAGE OR THEFT UNTIL FINAL INSPECTION, TESTED AND ACCEPTED. CAREFULLY STORE AND PROTECT MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH ARE NOT IMMEDIATELY INSTALLED. CLOSE OPEN ENDS OF WORK WITH TEMPORARY PLUGS OR COVERS DURING CONSTRUCTION TO PREVENT ENTRY DEBRIS.

10. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS.

11. SHIFT WORK AND STAGING WILL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL PROVIDE SCHEDULE AND PREMIUM TIME FOR ALL DEMOLITION AND REMOVAL OF MATERIALS IN THEIR PROPOSAL. ALL DEMOLITION OF DUCTWORK AND PIPING WORK SHALL BE COMPLETED ON OFF HOURS. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH OWNER.

12. WHEN THE DEMOLITION OR INSTALLATION OF WORK REQUIRES THE SHUTDOWN OF AN EXISTING OPERATING SYSTEM, A MINIMUM OF 72 HOURS WRITTEN NOTICE SHALL BE GIVEN TO THE OWNER BEFORE WORK IS STARTED.

13. CONTRACTOR SHALL PHOTOGRAPH ALL EXISTING CONDITIONS FOR OWNER AND SUBMIT TO OWNER BEFORE DEMOLITION BEGINS.

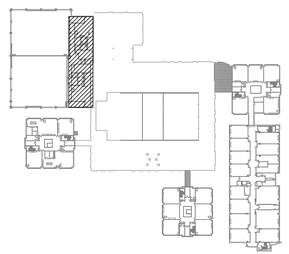
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONS PERFORMING THE WORK OF THIS CONTRACT.

15. THIS CONTRACTOR SHALL OBTAIN AND READ ALL SITE, JOB AND CORPORATE SAFETY AND SECURITY RULES AND REGULATIONS FROM THE OWNER, AND SIGN OFF ON THEM IF REQUIRED. THIS CONTRACTOR SHALL ADEQUATELY INFORM AND INSTRUCT ALL EMPLOYEES, AND OTHERS PERFORMING WORK FOR HIM, OF SUCH RULES AND REGULATIONS. THESE INSTRUCTIONS ARE THE MINIMUM THAT WILL BE ACCEPTED ON THIS PROJECT. CONTRACTOR SHALL ALLOW 4HRS FOR EACH EMPLOYEE TO BE TRAINED IN SITE SAFETY PROTOCOLS.

16. ALL OF THE ABOVE RULES AND REGULATIONS ARE NOT MEANT TO REPLACE OR ELIMINATE INDIVIDUAL CONTRACTORS SAFETY PROGRAMS OR CHANGE ANY LOCAL, STATE OR FEDERAL RULES AND REGULATIONS, BUT RATHER TO AUGMENT THEM AS REQUIRED FOR THE INDIVIDUAL PREMISES ON WHICH THIS WORK IS BEING PERFORMED

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



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NJ - 21A0197900 | PA - RA426
Date
Architect

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

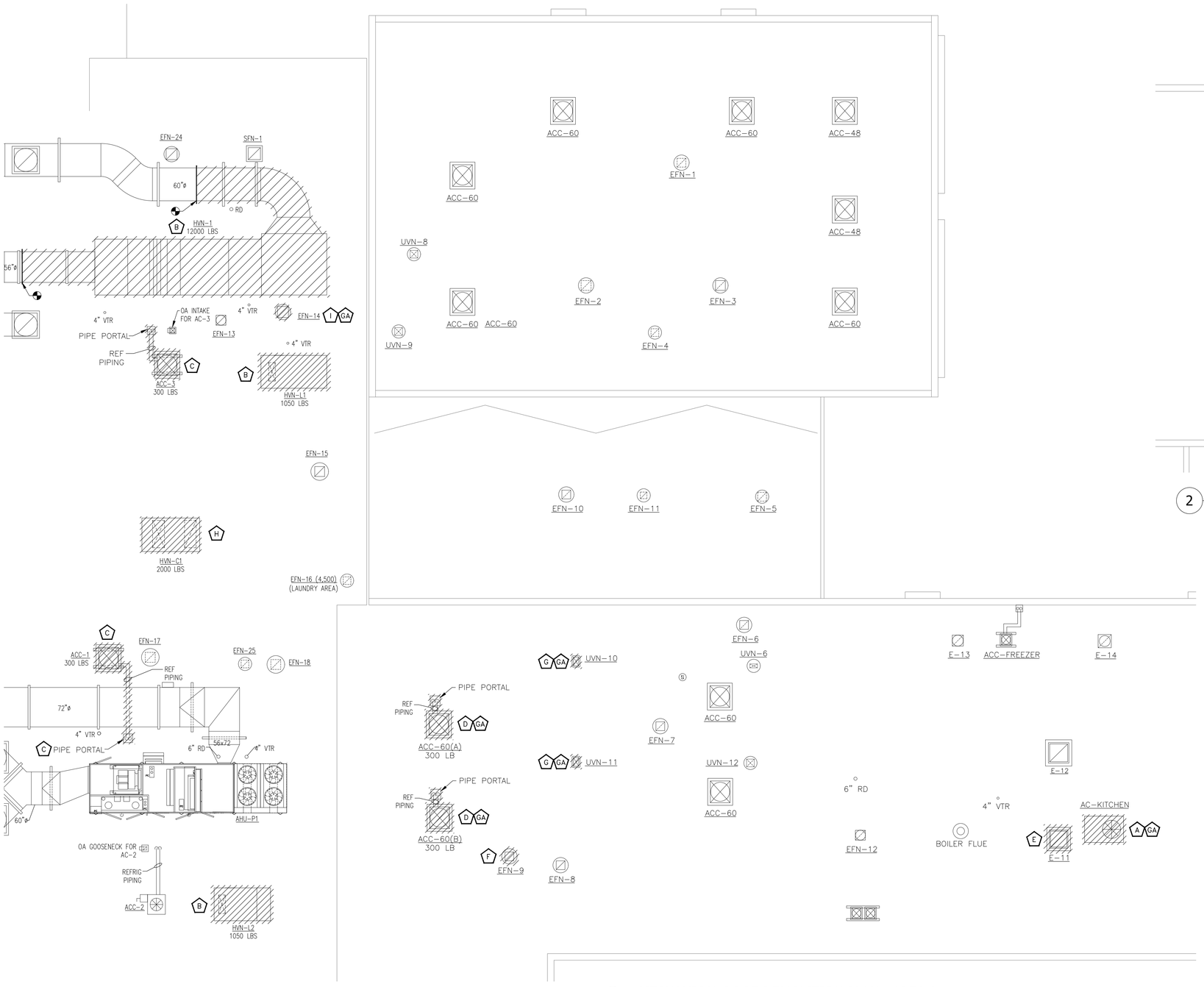
Scale
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Drawing Name
MECHANICAL - 2ND FLOOR DUCTWORK DEMOLITION PLANS

Revisions

No.	Date	Description

Drawing Number
MD-03



2 MECHANICAL ROOF DEMOLITION PLAN - AREA B

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

1 MECHANICAL ROOF DEMOLITION PLAN - AREA A

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

DEMOLITION NOTES

A. REMOVE EXISTING ROOFTOP UNIT, DUCTWORK, CURB, CONTROLS, & CONTROL WIRING IN ITS ENTIRETY. ROOF SHALL BE REPAIRED. REFER TO ARCHITECTURAL DWGS.

B. REMOVE EXISTING ROOFTOP UNIT, CURB, CONTROLS, & CONTROL WIRING IN ITS ENTIRETY. NEW UNIT TO BE INSTALLED IN THE SAME LOCATION ON A NEW ROOF CURB.

C. REMOVE EXISTING CONDENSING UNIT, CONTROL WIRING, & REFRIGERANT PIPING IN ITS ENTIRETY. PIPE PORTAL CAP SHALL BE REMOVED. THE CURB FOR THE PIPE PORTAL & EXISTING EQUIPMENT RAILS SHALL REMAIN. NEW UNIT TO BE INSTALLED IN THE SAME LOCATION.

D. REMOVE EXISTING CONDENSING UNIT, CONTROL WIRING, REFRIGERANT PIPING, SUPPORT RAILS & PIPE PORTAL IN THEIR ENTIRETY. PATCH AND SEAL ROOF TO MATCH EXISTING ROOF CONSTRUCTION. REFER TO ARCHITECTURAL DWGS.

E. EXISTING EXHAUST FAN AND CURB SHALL BE REMOVED AND REPLACED. OPENING WILL BE REUSED FOR NEW EXHAUST FAN. REFER TO ARCHITECTURAL DWGS.

F. EXISTING EXHAUST FAN AND CURB SHALL BE REMOVED. REMOVE ALL CONTROLS IN THEIR ENTIRETY. CAP AND SEAL ROOF PENETRATION. REFER TO ARCHITECTURAL DWGS.

G. EXISTING OUTSIDE AIR INTAKE HOOD & CURB SHALL BE REMOVED. PATCH AND SEAL ROOF TO MATCH EXISTING ROOF CONSTRUCTION.

DEMOLITION NOTES

H. REMOVE EXISTING ROOFTOP UNIT, CONTROLS, & CONTROL WIRING IN ITS ENTIRETY. NEW UNIT TO BE INSTALLED ON A PLENUM CURB IN THE SAME LOCATION.

I. RELOCATE EXISTING EXHAUST FAN TO LOCATION SHOWN ON NEW WORK DRAWING.

GENERAL CONSTRUCTION DEMOLITION NOTES

GA. REPAIR ROOF & OPENING IN ROOF DECK. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.

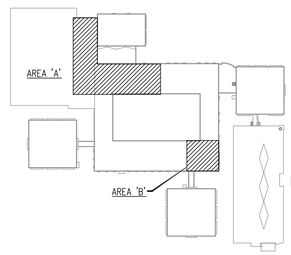
GENERAL DEMOLITION NOTES

1. THE LOCATION OF THE ROOFTOP EQUIPMENT HAS NOT BEEN VERIFIED FOR ITS DIMENSIONAL ACCURACY NOR ITS EXACT LOCATION. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO THE START OF WORK.
2. CONTRACTOR SHALL PROVIDE A SHOP DRAWING FOR THE NEW WORK FOR REVIEW & APPROVAL BY THE ENGINEER.

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



KEY PLAN

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

Scale
AS NOTED

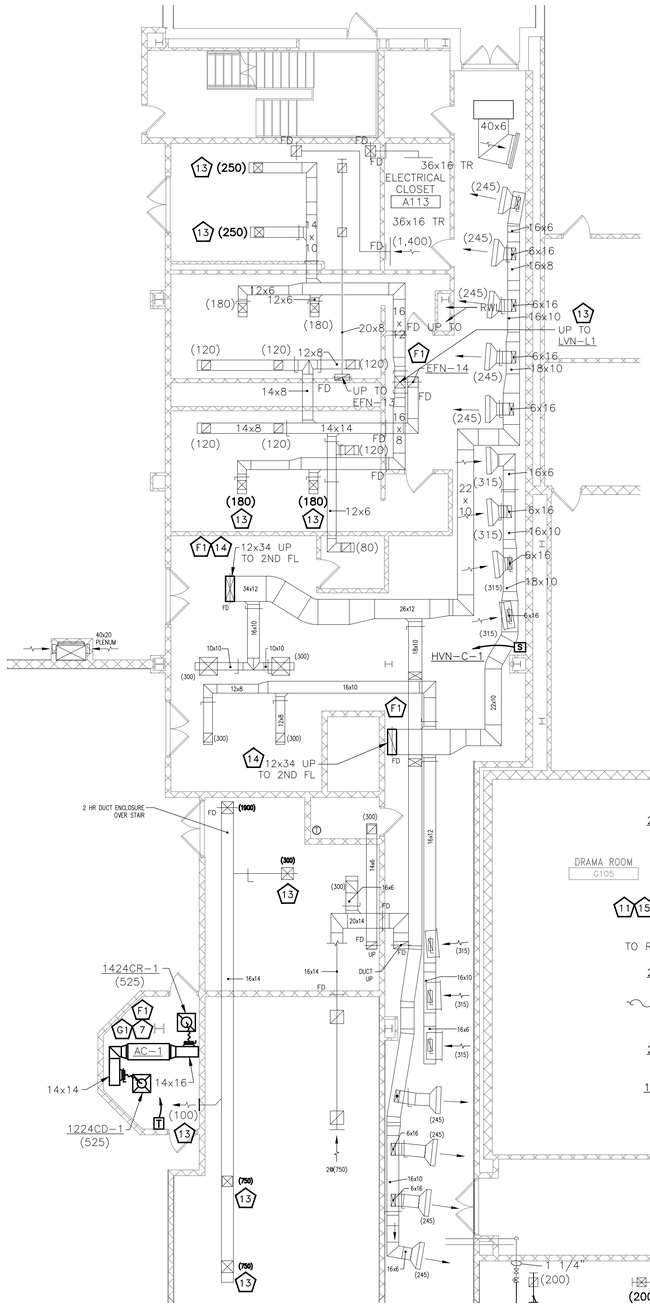
Drawing Name
MECHANICAL - ROOF DEMOLITION PLANS

Revisions

No.	Date	Description

Drawing Number
MD-04

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



2 MECHANICAL 1ST FLOOR NEW WORK PLAN - AREA B (CST)
Scale: 1/8" = 1'-0"

1 MECHANICAL 1ST FLOOR NEW WORK PLAN - AREA A
Scale: 1/8" = 1'-0"

NEW WORK NOTES

1. TAP BOTTOM OF DUCT IF SPACE DOES NOT ALLOW INSTALLATION OFF SIDE OF DUCT AS SHOWN.
2. DUCT SHALL BE INSTALLED TIGHT TO THE UNDERSIDE OF THE BAR JOIST.
3. PROVIDE & INSTALL PHOTOELECTRIC SMOKE DETECTOR WITH SAMPLING TUBE IN THE RETURN AIR DUCT. THE SMOKE DETECTOR SHALL DE-ENERGIZE THE SUPPLY AIR FAN WHEN ACTIVATED. SMOKE DETECTOR SHALL ALARM TO BUILDING FIRE ALARM SYSTEM.
4. INSTALL A NESTED, MITERED FITTING WITH SINGLE WIDTH TURNING VANES.
5. EXTEND 6X6 HOOD EXHAUST COLLAR UP THRU CEILING. USE A SLOPED DUCT TRANSITION TO INCREASE DUCT TO 10X10 AND EXTEND THRU ROOF. ALL NEW DUCTWORK SHALL BE STAINLESS STEEL. EXHAUST DUCT SHALL BE INDEPENDENTLY SUPPORTED.
6. INSTALL NEW DISHWASHER HOOD CENTERED OVER EXISTING DISH WATER. BOTTOM OF HOOD SHALL BE AT 80" AFF. USE 304 STAINLESS STEEL THREADED ROD AND FASTENERS TO HANG HOOD FROM STRUCTURE ABOVE. INSTALL STAINLESS STEEL ESCUTCHEON PLATES OVER OPENING IN CEILING TILES WHERE THREADED RODS COME THRU.
7. CONTRACTOR SHALL INSTALL NEW SPLIT SYSTEM UNIT ABOVE CEILING IN LOCATION SHOWN. UNIT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE USING 3/8" THREADED ROD WITH NEOPRENE ISOLATORS. REFER TO PIPING DRAWING FOR INSTALLATION OF REFRIGERANT & DRAIN PIPING. PROVIDE TCONT302 THERMOSTAT.
8. CONTRACTOR SHALL TRANSITION EXISTING DUCTWORK TO NEW ROOFTOP UNIT. SEE ROOF PLAN.
9. MAXIMUM LENGTH OF INLET DUCT TO VAV BOX SHALL BE 3 DUCT DIAMETERS.
10. INSTALL 1" THICK ACOUSTICAL LINER IN RETURN AIR DUCT AS MANUFACTURED BY JOHNS MANVILLE, MODEL: LINACOUSTIC RC. DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
11. CONTRACTOR SHALL INSTALL A 10FT SECTION OF DOUBLE-WALL INSULATED DUCT OVER ENTRY WAY CORRIDOR. THERE SHALL BE NO JOINTS IN THE 10FT SECTION.
12. INSTALL DUCTWORK TIGHT TO UNDERSIDE OF DECK AS POSSIBLE.
13. BALANCE AIR FLOWS TO THE VALUES INDICATED.
14. SUPPLY AIR DUCT FROM UNIT HVN-C1, AIR BALANCE ALL DIFFUSERS ON 1ST FLOOR AS SHOWN. RETURN AIR UP TO THE SAME SYSTEM IS FOR INFORMATION ONLY.
15. TOP OF DUCT ELEVATION SHALL BE AT THE BOTTOM OF THE BAR JOIST.

PLUMBING NEW WORK NOTES

P1. THE PLUMBING CONTRACTOR SHALL RELOCATE THE EXISTING COLD WATER PIPING TO ACCOMMODATE THE INSTALLATION OF THE NEW DISHWASHER HOOD. INSTALL A NEW BRAIDED STAINLESS STEEL FLEX PIPE.

P2. INSTALL A 1/2"ø, 304 STAINLESS STEEL DRAIN PIPE FROM THE DRAIN CONNECTION ON THE HOOD TO THE MAIN DRAIN PAN FOR THE EQUIPMENT. ROUTE THE DRAIN PIPE ALONG THE BACK OF THE DISHWASHER AND CUT A 1/2"ø HOLE IN THE BACK PANEL ABOUT 4" ABOVE THE TRAY SLIDE AND CONNECT TO BACK PANEL WITH A THREADED CONNECTOR AND 6" STAINLESS STEEL FLEX HOSE.

GENERAL CONSTRUCTION NEW WORK NOTES

G1. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REPLACED AFTER INSTALLATION OF MECHANICAL WORK HAS BEEN COMPLETED. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

G2. CREATE NEW WALL OPENING FOR NEW SUPPLY AIR GRILLE. SEE ARCHITECTURAL DRAWINGS FOR FRAMING DETAILS.

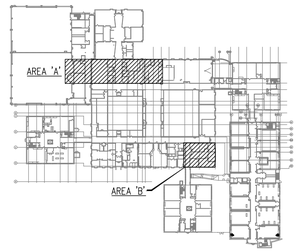
G3. INSTALL A NEW HUNG CEILING AT 8FT AFF. SEE ARCHITECTURAL DRAWINGS FOR DETAILS.

G4. EXISTING CEILING GRID & TILES SHALL BE MODIFIED TO ACCOMMODATE NEW EXHAUST DUCT. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.

FIRE PROTECTION NEW WORK NOTES

F1. FIRE PROTECTION CONTRACTOR SHALL MODIFY EXISTING BRANCH PIPING AND SPRINKLER HEADS TO ACCOMMODATE THE INSTALLATION AND/OR MODIFICATION OF NEW AND EXISTING MECHANICAL EQUIPMENT, DUCTWORK & PIPING. COORDINATE WITH MECHANICAL CONTRACTOR. ALL WORK SHALL COMPLY WITH NFPA 13 AS WELL AS ALL APPLICABLE SITE, LOCAL, STATE, AND FEDERAL REQUIREMENTS AND CODES. FIRE PROTECTION CONTRACTOR SHALL PROVIDE A DETAILED INSTALLATION DRAWING AND HYDRAULIC CALCULATIONS, WHICH SHALL BE SIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE OF NEW JERSEY.

1. CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS FOR REVIEW & APPROVAL FOR THE INSTALLATION OF ALL NEW HVAC EQUIPMENT, DUCTWORK & PIPING BASED ON THE APPROVED SUBMITTALS. THE SCALE SHALL BE 1/2"=1'-0" (OR LARGER). INDICATE LOCATION OF EQUIPMENT FROM BUILDING WALLS & STRUCTURES, STEEL LOCATIONS, BOTTOM OF STEEL ELEVATION, AND LOCATION OF PIPE PORTALS AND OTHER ROOF PENETRATIONS. INCLUDE ELEVATIONS OF EQUIPMENT ON CURBS & RAILS, ELEVATIONS OF DUCTWORK AND PIPING (AS APPLICABLE), SUPPORT LOCATIONS, TYPES OF SUPPORTS, ETC.
2. REFER TO STRUCTURAL DRAWINGS FOR REQUIRED FRAMING BENEATH NEW ROOFTOP EQUIPMENT.
3. ANY WORK REQUIRED ON IN OCCUPIED AREAS SHALL BE PRICED ON PREMIUM TIME.
4. PROVIDE STANDARD SPECIALTIES, VALVES AND GAGES FOR EACH HOT WATER COIL. SEE COIL DETAIL.
5. CONTRACTORS SHOULD PLAN TO LIMIT WORKING FROM LADDERS WHENEVER POSSIBLE. ALLOWANCES FOR MAN LIFTS, SCAFFOLDS, ETC. SHALL BE PROVIDED.
6. ALL CONTRACTORS SHALL STRICTLY ADHERE TO ALL OWNER SAFETY POLICIES AND REQUIREMENTS.
7. ALL CONTRACTORS WILL BE RESPONSIBLE FOR DISPOSAL OF ANY AND ALL DEBRIS AND MATERIAL GENERATED BY THEIR SCOPE OF WORK. DUMPSTERS SHALL BE PROVIDED BY THE CONTRACTOR.
8. ALL DUCT WORK SHALL BE FLANGED AND ALL JOINTS SEALED WITH HARDCAST. PROVIDE OWNER WITH MSDS OF SEALANT FOR APPROVAL. LEAK TEST AS PER SPECIFICATION.
9. CONTRACTOR SHALL FIRE PROOF ALL OPENINGS IN FIRE RATED WALLS, FLOORS OR CEILINGS. SEE ARCHITECTURAL PLANS FOR FIRE RATED DESIGNATION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK INCLUDING SUBCONTRACTORS. THE CONTRACTOR SHALL ASSIGN A PROJECT MANAGER TO COORDINATE WORK WITH OWNER AND SUBCONTRACTORS.
11. CONTRACTOR SHALL UTILIZE BONDED ROOFER FOR ALL ROOFING WORK.
12. MAINTAIN SERVICE CLEARANCE AROUND ALL HVAC UNITS AS PER MANUFACTURER'S RECOMMENDATIONS.
13. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.
14. ALL DIFFUSERS, RETURN AIR AND EXHAUST GRILLES SHALL HAVE VOLUME DAMPERS IN THE DUCT TAKE-OFFS UNLESS OTHERWISE SPECIFIED.
15. BALANCING CONTRACTOR SHALL BE NEBB CERTIFIED. BALANCE AIRFLOWS & WATER FLOW FOR ALL MECHANICAL EQUIPMENT INSTALLED/MODIFIED ON THIS PROJECT INCLUDING ALL BRANCH DUCTWORK & AIR DEVICES. BALANCING CONTRACTOR SHALL WORK WITH THE BMS CONTRACTOR TO SET UP EACH UNIT. PROVIDE REPORTS IN ACCORDANCE WITH NEBB STANDARDS.
16. ALL NEW HVAC UNITS, WITH THE EXCEPTION OF THE SPLIT SYSTEMS (I.E. AC-1 & AC-3), SHALL HAVE THE EXISTING SMOKE DETECTOR REMOVED AND NEW ONES INSTALLED AT LOCATION SHOWN ON THE NEW WORK PLANS. FIRE ALARM CONTRACTOR SHALL PROVIDE THE DETECTOR & WIRE INTO THE FIRE ALARM SYSTEM. MECHANICAL CONTRACTOR SHALL INSTALL THE DETECTOR. ELECTRICAL CONTRACTOR SHALL WIRE THE DETECTOR TO THE 'STOP' CONTACT IN THE UNIT.
17. WHERE EXISTING DUCTWORK IS BEING MODIFIED TO CONNECT TO NEW ROOFTOP EQUIPMENT, ACCESS DOORS SHALL BE PROVIDED TO ALLOW ACCESS TO EXISTING FIRE DAMPERS.
18. ALL SQUARE ELBOWS SHALL HAVE SINGLE-WIDTH TURNING VANES.



KEY PLAN

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
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Drawn By
JCS

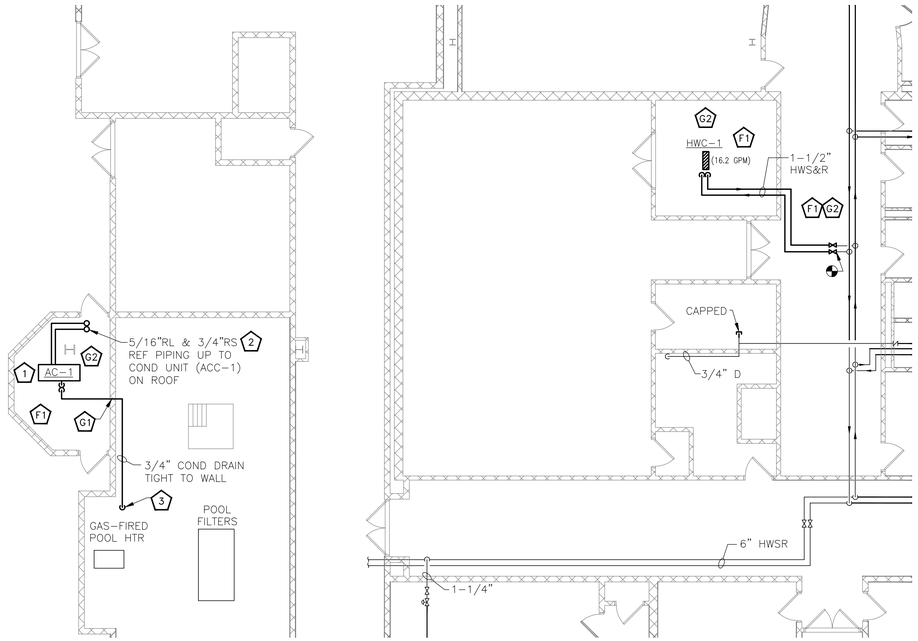
Scale
AS NOTED

Drawing Name
MECHANICAL - 1ST FLOOR DUCTWORK NEW WORK PLANS

Revisions

No.	Date	Description

Drawing Number
M-01



1 MECHANICAL 1ST FLOOR PIPING NEW WORK PLAN - AREA A

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

PIPING NEW WORK NOTES (DETAIL 1)

1. INSTALL 3" HIGH GALVANIZED SECONDARY DRAIN PAN WITH SEALED CORNERS BENEATH AIR HANDLER.
2. REFRIGERANT SUCTION LINE SHALL BE INSULATED. SEE PIPING INSULATION SCHEDULE.
3. TERMINATE DRAIN PIPING AT NEAREST FLOOR DRAIN. FIELD VERIFY LOCATION.

GENERAL CONSTRUCTION NEW WORK NOTES

G1. CORE DRILL & INSTALL SLEEVE IN CONCRETE WALL FOR INSTALLATION OF NEW CONDENSATE DRAIN PIPE.

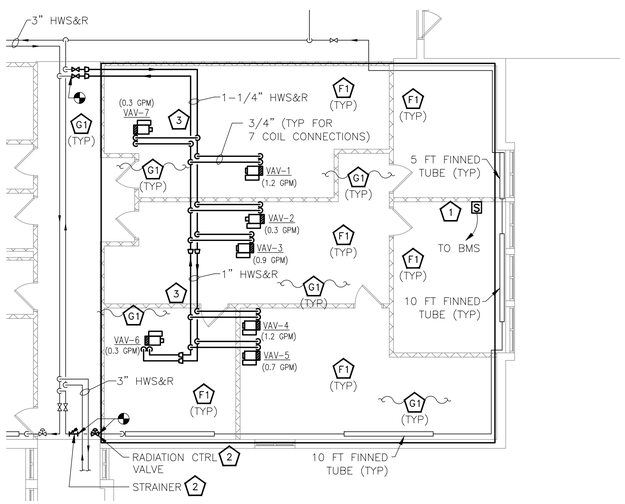
G2. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REPLACED AFTER INSTALLATION OF DUCTWORK & PIPING WORK HAS BEEN COMPLETED. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

GENERAL NEW WORK NOTES

1. SLOPE NEW CONDENSATE PIPING 1/4" PER FOOT IN DIRECTION OF FLOW.
2. NEW CONDENSATE DRAIN PIPING SHALL BE INSULATED. SEE INSULATION SCHEDULE.
3. THE HOT WATER PIPING & EQUIPMENT IN THE "A, 'B' & 'D' WINGS SHALL BE PURGED OF AIR AFTER ALL PIPING MODIFICATIONS HAVE BEEN COMPLETE TO ENSURE ALL NO COIL OR BASEBOARD IS AIR-BOUND.
4. ALL PIPING PENETRATIONS THRU FLOORS, WALLS & CEILINGS SHALL BE SEALED WITH 3-HR FIRE RATED CAULKING.
5. BALANCING CONTRACTOR SHALL BE NEBB CERTIFIED. BALANCE AIRFLOWS & WATER FLOW FOR ALL MECHANICAL EQUIPMENT INSTALLED/MODIFIED ON THIS PROJECT INCLUDING ALL BRANCH DUCTWORK & AIR DEVICES. BALANCING CONTRACTOR SHALL WORK WITH THE BMS CONTRACTOR TO SET UP EACH UNIT. PROVIDE REPORTS IN ACCORDANCE WITH NEBB STANDARDS.
6. PROVIDE DIELECTRIC UNIONS WHEN JOINING DISSIMILAR PIPE MATERIALS.

FIRE PROTECTION NEW WORK NOTES

F1. FIRE PROTECTION CONTRACTOR SHALL MODIFY EXISTING BRANCH PIPING AND SPRINKLER HEADS TO ACCOMMODATE THE INSTALLATION AND/OR MODIFICATION OF NEW AND EXISTING MECHANICAL EQUIPMENT, DUCTWORK & PIPING. COORDINATE WITH MECHANICAL CONTRACTOR. ALL WORK SHALL COMPLY WITH NFPA 13 AS WELL AS ALL APPLICABLE SITE, LOCAL, STATE, AND FEDERAL REQUIREMENTS AND CODES. FIRE PROTECTION CONTRACTOR SHALL PROVIDE A DETAILED INSTALLATION DRAWING AND HYDRAULIC CALCULATIONS, WHICH SHALL BE SIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE OF NEW JERSEY.



2 MECHANICAL 1ST FLOOR PIPING NEW WORK PLAN - AREA B (CST)

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

PIPING NEW WORK NOTES (DETAIL 2)

1. INSTALL TEMPERATURE SENSOR FOR FINNED TUBE RADIATION 3 FT OFF OF EXTERIOR WALL.
2. INSTALL A NEW 2-WAY, MODULATING, LOW VOLTAGE CONTROL VALVE. MATCH EXISTING LINE SIZE. INSTALL NEW STRAINER WITH BLOW-OFF VALVE UPSTREAM OF CONTROL VALVE.
3. COORDINATE THE HOT WATER PIPE ROUTING WITH THE INSTALLATION OF THE NEW VAV BOXES AND DUCTWORK.

GENERAL CONSTRUCTION NEW WORK NOTES

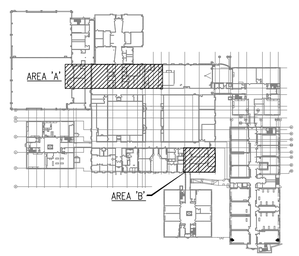
G1. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REPLACED AFTER INSTALLATION OF DUCTWORK & PIPING WORK HAS BEEN COMPLETED. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

GENERAL NEW WORK NOTES

1. THE HOT WATER PIPING & EQUIPMENT IN THE "A, 'B' & 'D' WINGS SHALL BE PURGED OF AIR AFTER ALL PIPING MODIFICATIONS HAVE BEEN COMPLETE TO ENSURE ALL NO COIL OR BASEBOARD IS AIR-BOUND.
2. ALL PIPING PENETRATIONS THRU FLOORS, WALLS & CEILINGS SHALL BE SEALED WITH 3-HR FIRE RATED CAULKING.
3. BALANCE THE WATER FLOW TO EACH VAV BOX ACCORDING TO THE VAV BOX SCHEDULE.
4. AFTER CLEANING & FLUSHING OF HW SYSTEM HAS BEEN COMPLETED (SEE SPECIFICATION ON DRAWING M-11), PERFORM THE FOLLOWING WORK SCOPE:
   - 4.1. THE STRAINERS IN EACH OF THE MAIN SYSTEM PUMPS SHALL BE PULLED, CLEANED & REINSTALLED.
   - 4.2. THE STRAINERS UPSTREAM OF EACH VAV BOX COIL CONTROL VALVE & UPSTREAM OF THE BASEBOARD CONTROL VALVE SHALL BE CLEANED.

ADD/ALTERNATE #3

THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
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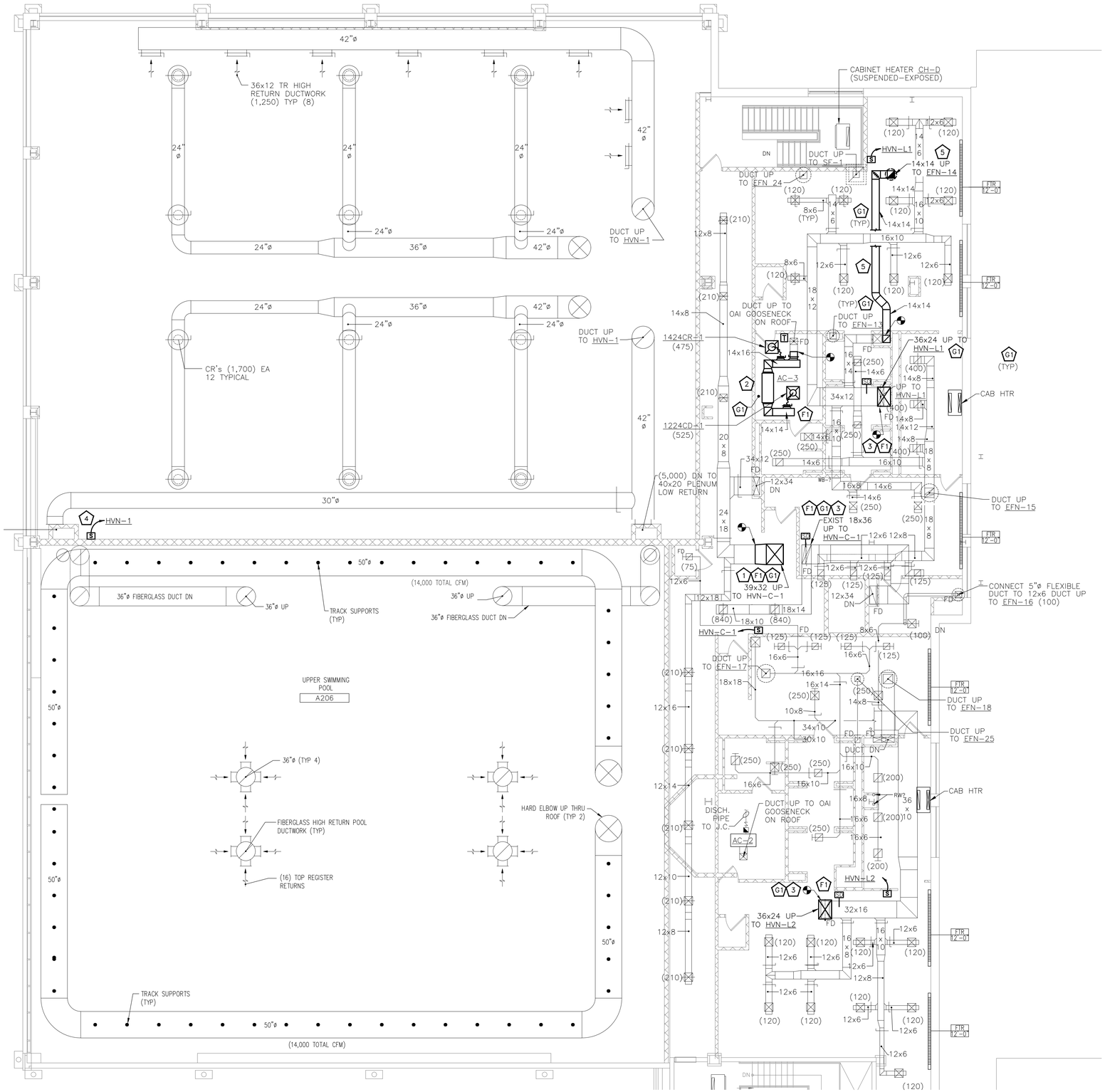
Scale
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Drawing Name
MECHANICAL - 1ST FLOOR PIPING NEW WORK PLANS

Revisions

No.	Date	Description

Drawing Number
M-02



1 MECHANICAL 2ND FLOOR NEW WORK PLAN

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

NEW WORK NOTES

1. CONTRACTOR SHALL TRANSITION EXISTING SUPPLY DUCTWORK AS REQUIRED TO MATE UP WITH SUPPLY CONNECTION ON THE NEW ROOFTOP UNIT. THE NEW UNIT IS BEING PROVIDED WITH A PLENUM CURB IN THE EVENT THE CONNECTIONS DO NOT LINE UP, ALLOWING FOR A HARD DUCT CONNECTION. PROVIDE A SHOP DRAWING TO ENGINEER FOR REVIEW & APPROVAL OF DETAILED CONNECTIONS TO NEW UNIT AND CURB.
   SEE NEW ROOF PLAN.
2. CONTRACTOR SHALL INSTALL NEW SPLIT SYSTEM UNIT ABOVE CEILING IN LOCATION SHOWN. UNIT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE USING 3/8" THREADED ROD WITH NEOPRENE ISOLATORS. RECONNECT TO EXISTING OUTSIDE AIR DUCT. REFER TO PIPING DRAWING FOR INSTALLATION OF REFRIGERANT PIPING. PROVIDE TCONT302 THERMOSTAT.
3. MODIFY EXISTING DUCTWORK TO TRANSITION UP TO CONNECTION ON NEW UNIT.
4. LOCATE SPACE TEMPERATURE SENSOR ON LOWER LEVEL WHERE SHOWN.
5. INSTALL NEW EXHAUST DUCTWORK AS SHOWN. SEE NEW ROOF PLAN FOR RELOCATION OF EXISTING EXHAUST FAN.

GENERAL CONSTRUCTION NEW WORK NOTES

G1. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REPLACED AFTER INSTALLATION OF MECHANICAL WORK HAS BEEN COMPLETED. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

FIRE PROTECTION NEW WORK NOTES

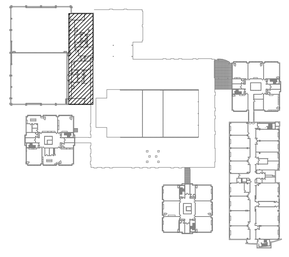
F1. FIRE PROTECTION CONTRACTOR SHALL MODIFY EXISTING BRANCH PIPING AND SPRINKLER HEADS TO ACCOMMODATE THE INSTALLATION AND/OR MODIFICATION OF NEW AND EXISTING MECHANICAL EQUIPMENT, DUCTWORK & PIPING. COORDINATE WITH MECHANICAL CONTRACTOR. ALL WORK SHALL COMPLY WITH NFPA 13 AS WELL AS ALL APPLICABLE STATE, LOCAL, STATE, AND FEDERAL REQUIREMENTS AND CODES. FIRE PROTECTION CONTRACTOR SHALL PROVIDE A DETAILED INSTALLATION DRAWING AND HYDRAULIC CALCULATIONS, WHICH SHALL BE SIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE OF NEW JERSEY.

GENERAL WORK NOTES

1. CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS FOR REVIEW & APPROVAL FOR THE INSTALLATION OF ALL NEW HVAC EQUIPMENT BASED ON THE APPROVED SUBMITTALS. THE SCALE SHALL BE 1/2"=1'-0" (OR LARGER). INDICATE LOCATION OF EQUIPMENT FROM BUILDING WALLS & STRUCTURES AND LOCATIONS OF PIPE PORTALS AND OTHER ROOF PENETRATIONS. INCLUDE ELEVATIONS OF EQUIPMENT ON CURBS & RAILS, ELEVATIONS OF DUCTWORK AND PIPING (AS APPLICABLE), SUPPORT LOCATIONS, TYPES OF SUPPORTS, ETC.
2. REFER TO STRUCTURAL DRAWINGS FOR REQUIRED FRAMING BENEATH NEW ROOFTOP EQUIPMENT.
3. ANY WORK REQUIRED ON IN OCCUPIED AREAS SHALL BE PRICED ON PREMIUM TIME.
4. PROVIDE STANDARD SPECIALTIES, VALVES AND GAGES FOR EACH HOT WATER COIL. SEE COIL DETAIL.
5. CONTRACTORS SHOULD PLAN TO LIMIT WORKING FROM LADDERS WHENEVER POSSIBLE. ALLOWANCES FOR MAN LIFTS, SCAFFOLDS, ETC. SHALL BE PROVIDED.
6. ALL CONTRACTORS SHALL STRICTLY ADHERE TO ALL OWNER SAFETY POLICIES AND REQUIREMENTS.
7. ALL CONTRACTORS WILL BE RESPONSIBLE FOR DISPOSAL OF ANY AND ALL DEBRIS AND MATERIAL GENERATED BY THEIR SCOPE OF WORK. DUMPSTERS SHALL BE PROVIDED BY THE CONTRACTOR.
8. ALL DUCT WORK SHALL BE FLANGED AND ALL JOINTS SEALED WITH HARDCAST. PROVIDE OWNER WITH MSDS OF SEALANT FOR APPROVAL. LEAK TEST AS PER SPECIFICATION.
9. CONTRACTOR SHALL FIRE PROOF ALL OPENINGS IN FIRE RATED WALLS, FLOORS OR CEILINGS. SEE ARCHITECTURAL PLANS FOR FIRE RATED DESIGNATION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL WORK INCLUDING SUBCONTRACTORS. THE CONTRACTOR SHALL ASSIGN A PROJECT MANAGER TO COORDINATE WORK WITH OWNER AND SUBCONTRACTORS.
11. CONTRACTOR SHALL UTILIZE BONDED ROOFER FOR ALL ROOFING WORK.
12. MAINTAIN SERVICE CLEARANCE AROUND ALL HVAC UNITS AS PER MANUFACTURER'S RECOMMENDATIONS.
13. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.
14. ALL DIFFUSERS, RETURN AIR AND EXHAUST GRILLES SHALL HAVE VOLUME DAMPERS IN THE DUCT TAKE-OFFS UNLESS OTHERWISE SPECIFIED.
15. BALANCING CONTRACTOR SHALL BE NEBB CERTIFIED. BALANCE AIRFLOWS & WATER FLOW FOR ALL MECHANICAL EQUIPMENT INSTALLED/MODIFIED ON THIS PROJECT INCLUDING ALL BRANCH DUCTWORK & AIR DEVICES. BALANCING CONTRACTOR SHALL WORK WITH THE BMS CONTRACTOR TO SET UP EACH UNIT. PROVIDE REPORTS IN ACCORDANCE WITH NEBB STANDARDS.
16. ALL NEW HVAC UNITS, WITH THE EXCEPTION OF THE SPLIT SYSTEMS (I.E. AC-1 & AC-3), SHALL HAVE THE EXISTING SMOKE DETECTOR REMOVED AND NEW ONES INSTALLED AT LOCATION SHOWN ON THE NEW WORK PLANS. FIRE ALARM CONTRACTOR SHALL PROVIDE THE DETECTOR & WIRE INTO THE FIRE ALARM SYSTEM. MECHANICAL CONTRACTOR SHALL INSTALL THE DETECTOR. ELECTRICAL CONTRACTOR SHALL WIRE THE DETECTOR TO THE 'STOP' CONTACT IN THE UNIT.
17. WHERE EXISTING DUCTWORK IS BEING MODIFIED TO CONNECT TO NEW ROOFTOP EQUIPMENT, ACCESS DOORS SHALL BE PROVIDED TO ALLOW ACCESS TO EXISTING FIRE DAMPERS.
18. ALL SQUARE ELBOWS SHALL HAVE SINGLE-WIDTH TURNING VANES.

ADD/ALTERNATE #1.
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2.
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

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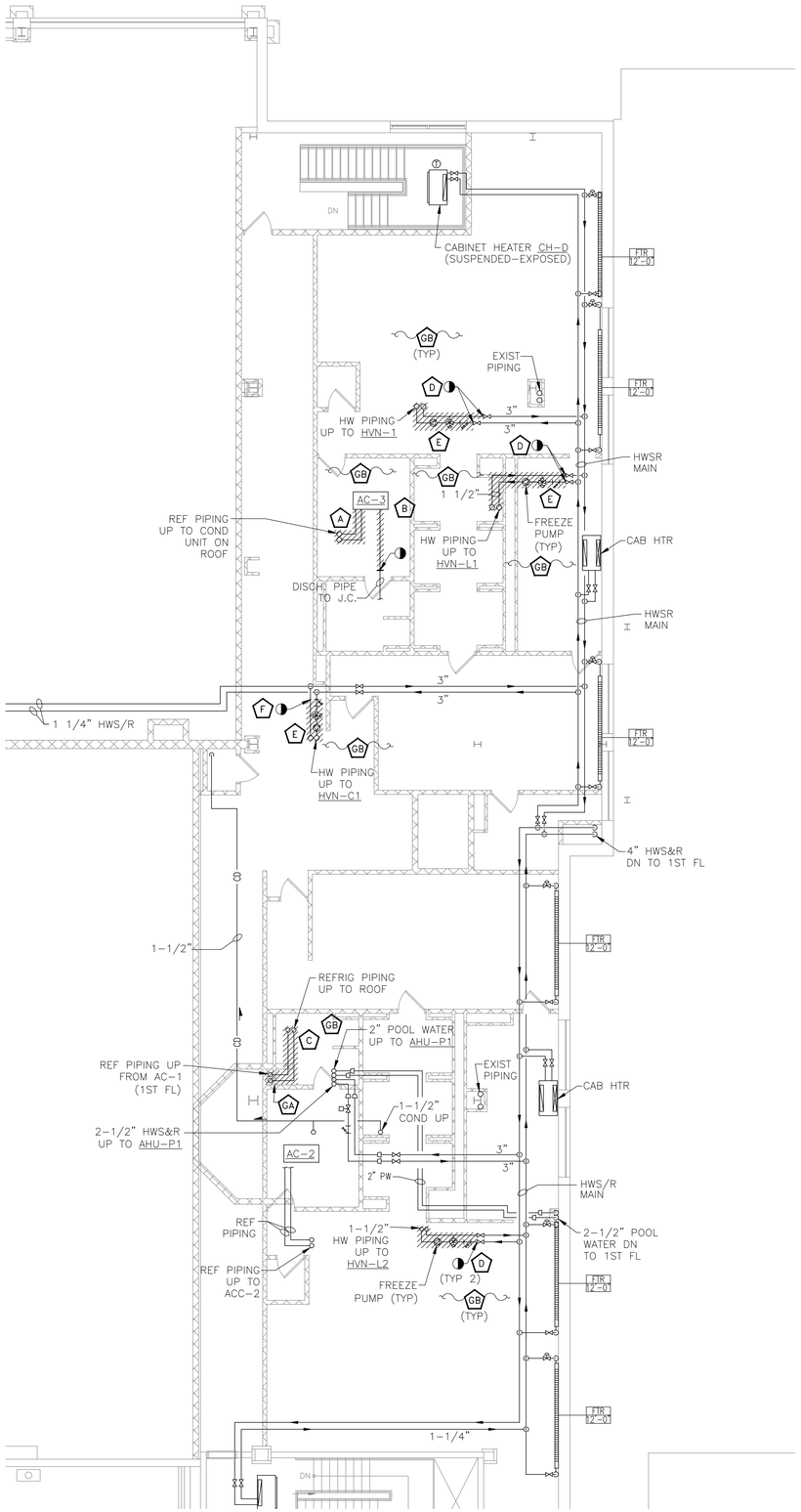
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Drawing Name
MECHANICAL - 2ND FLOOR DUCTWORK NEW WORK PLANS

Revisions

No.	Date	Description

Drawing Number
M-03



1 MECHANICAL 2ND FLOOR PIPING DEMOLITION PLAN

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

PIPING DEMOLITION NOTES

A. REMOVE EXISTING REFRIGERANT PIPING FROM FAN COIL UNIT UP THRU ROOF. OPENING SHALL REMAIN FOR NEW REFRIGERANT PIPING.

B. REMOVE EXISTING CONDENSATE PIPING TO LOCATION SHOWN.

C. REMOVE EXISTING REFRIGERANT PIPING FROM AC-1 (1ST FL) UP THRU ROOF TO ACC-1.

D. REMOVE EXISTING HOT WATER PIPING BACK TO MAIN ISOLATION VALVES AND INSTALLED A PIPE CAP. INSTALL LOCK OUT-TAG OUT DEVICE & LOCK IN THE CLOSED POSITION.

E. REMOVE EXISTING PIPING UP THRU ROOF TO HEATING COIL IN UNIT. REMOVE STRAINERS, GAUGES, CONTROL VALVES, THERMOMETERS, FREEZE PUMP, ETC.

F. REMOVE HOT WATER PIPING BACK TO LOCATION SHOWN AND CAP.

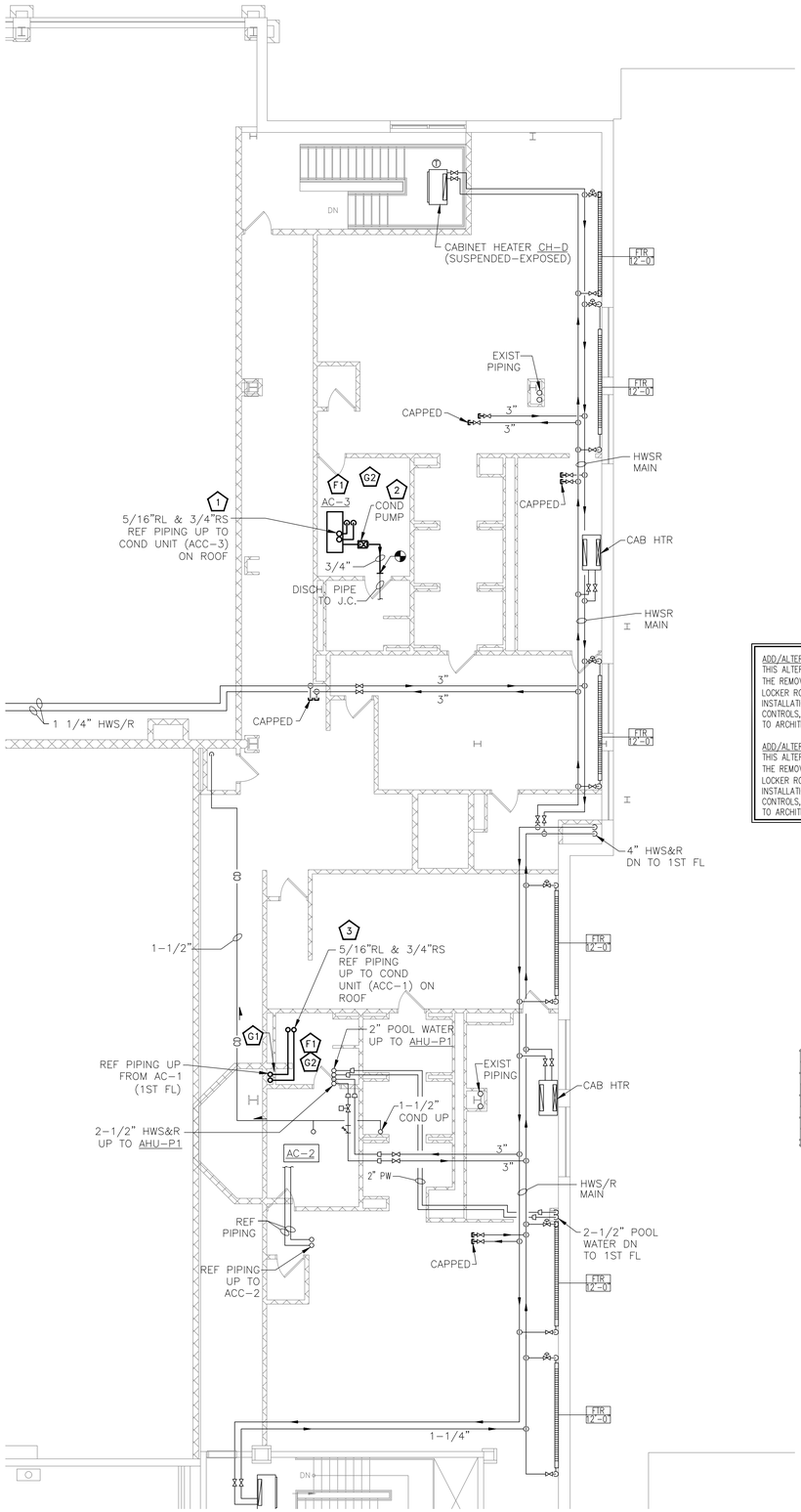
GENERAL CONSTRUCTION DEMOLITION NOTES

GA. REMOVE SECTION OF CHASE WALL TO ALLOW FOR THE REMOVAL & INSTALLATION OF NEW REFRIGERANT PIPING. SEE ARCHITECTURAL DRAWINGS.

GB. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REMOVED TO ACCOMMODATE THE REMOVAL & INSTALLATION OF PIPING & DUCTWORK. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

GENERAL DEMOLITION NOTES

1. WHERE EXISTING SPLIT SYSTEMS ARE BEING REMOVED, CONTRACTOR SHALL RECOVER THE EXISTING REFRIGERANT AND SHALL DISPOSE OF IN ACCORDANCE WITH THE LATEST, FEDERAL, STATE & LOCAL GUIDELINES AND REGULATIONS. CONTRACTOR SHALL PROVIDE DOCUMENTATION OF THE AMOUNT OF REFRIGERANT REMOVED AND WHERE IT WAS DISPOSED.
2. WHERE EXISTING PIPING IS NOTED TO BE REMOVED, THE ASSOCIATED HANGERS, SUPPORTS, INSULATION, ETC., SHALL BE REMOVED IN THEIR ENTIRETY.



2 MECHANICAL 2ND FLOOR PIPING NEW WORK PLAN

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

PIPING NEW WORK NOTES

1. REFRIGERANT SUCTION LINE SHALL BE INSULATED. SEE PIPING INSULATION SCHEDULE.
2. INSTALL NEW CONDENSATE PUMP AS MANUFACTURED BY LITTLE GIANT, MODEL: VCCA-20ULS (115V). TRANSITION PUMP DISCHARGE FROM 3/8" TUBING TO 3/4" INSULATED COPPER PIPING. PUMP SHALL BE INSTALLED IN A SHALLOW PAN & HUNG FROM STRUCTURE USING 3/8" THREADED ROD.

GENERAL CONSTRUCTION NEW WORK NOTES

G1. REPAIR EXISTING CHASE WALL AFTER NEW REFRIGERANT PIPING HAS BEEN INSTALLED. SEE ARCHITECTURAL DRAWINGS.

G2. EXISTING CEILINGS, GRID, LIGHTING, ETC. SHALL BE REPLACED AFTER INSTALLATION OF DUCTWORK & PIPING WORK HAS BEEN COMPLETED. SEE ARCHITECTURAL PLANS FOR REQUIRED CEILING WORK.

GENERAL NEW WORK NOTES

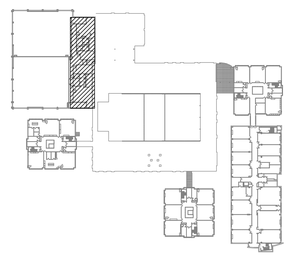
1. SLOPE NEW CONDENSATE PIPING 1/4" PER FOOT IN DIRECTION OF FLOW.
2. NEW CONDENSATE DRAIN PIPING SHALL BE INSULATED. SEE INSULATION SCHEDULE.
3. THE HOT WATER PIPING & EQUIPMENT IN THE 'A', 'B' & 'D' WINGS SHALL BE PURGED OF AIR AFTER ALL PIPING MODIFICATIONS HAVE BEEN COMPLETE TO ENSURE ALL NO COIL OR BASEBOARD IS AIR-BOUND.
4. ALL PIPING PENETRATIONS THRU FLOORS, WALLS & CEILINGS SHALL BE SEALED WITH 3-HR FIRE RATED CAULKING.
5. PROVIDE DIELECTRIC UNIONS WHEN JOINING DISSIMILAR PIPE MATERIALS.

FIRE PROTECTION NEW WORK NOTES

F1. FIRE PROTECTION CONTRACTOR SHALL MODIFY EXISTING BRANCH PIPING AND SPRINKLER HEADS TO ACCOMMODATE THE INSTALLATION AND/OR MODIFICATION OF NEW AND EXISTING MECHANICAL EQUIPMENT, DUCTWORK & PIPING. COORDINATE WITH MECHANICAL CONTRACTOR. ALL WORK SHALL COMPLY WITH NFPA 13 AS WELL AS ALL APPLICABLE SITE, LOCAL, STATE, AND FEDERAL REQUIREMENTS AND CODES. FIRE PROTECTION CONTRACTOR SHALL PROVIDE A DETAILED INSTALLATION DRAWING AND HYDRAULIC CALCULATIONS, WHICH SHALL BE SIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE OF NEW JERSEY.

ADD/ALTERNATE #1
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ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
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Checked By
JTM

Drawn By
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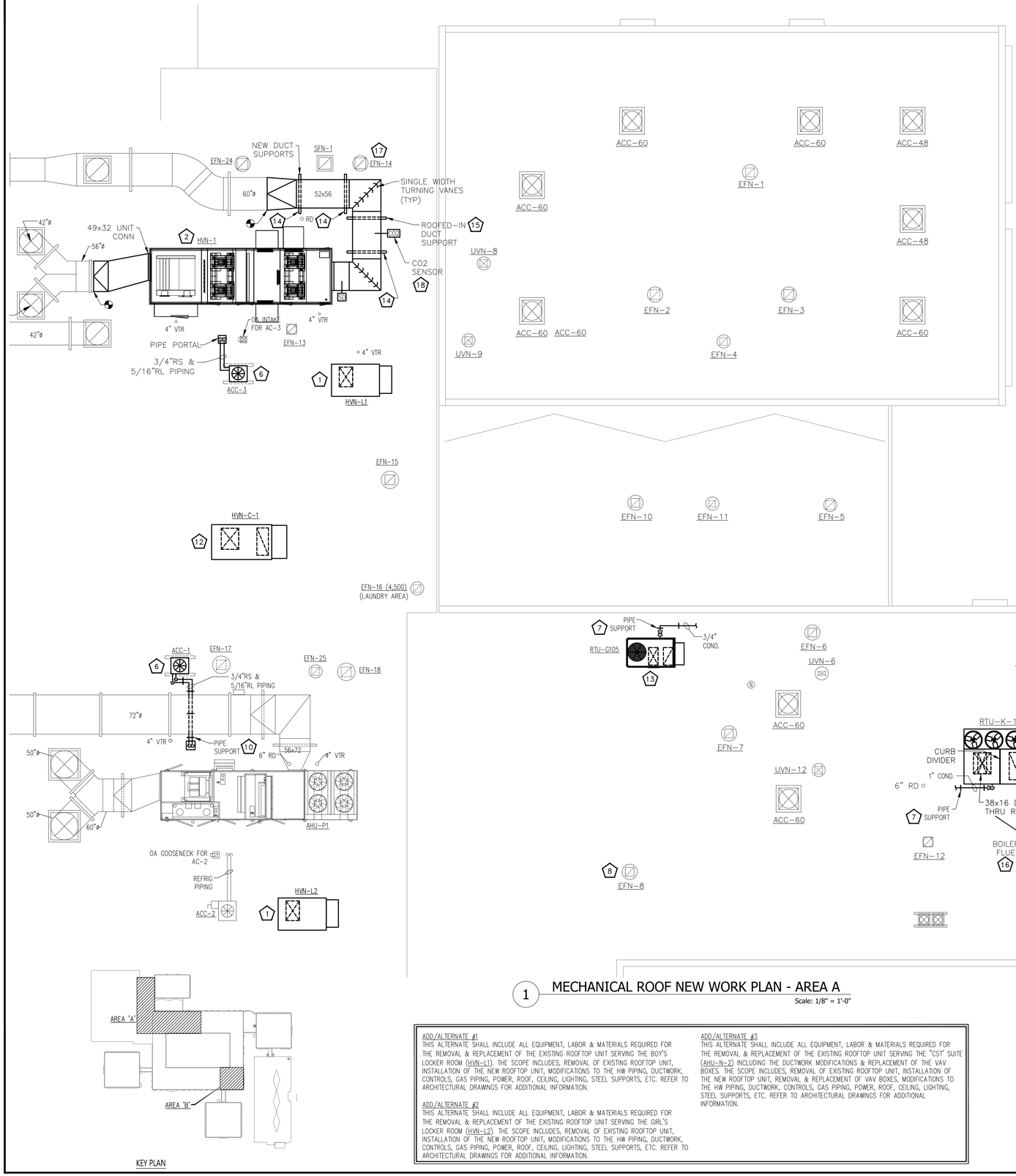
Scale
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Drawing Name
MECHANICAL - 2ND FLOOR PIPING DEMOLITION & NEW WORK PLANS

Revisions

No.	Date	Description

Drawing Number
M-04



2 MECHANICAL ROOF NEW WORK PLAN - AREA B

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

1 MECHANICAL ROOF NEW WORK PLAN - AREA A

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

KEY PLAN

NEW WORK NOTES

1. INSTALL NEW AIR HANDLER ON A NEW ROOF CURB. COORDINATE EXACT LOCATION WITH EXISTING DUCTWORK AND STRUCTURAL STEEL. CONTRACTOR SHALL MAKE DUCT CONNECTIONS FROM UNIT TO EXISTING DISTRIBUTION BELOW THE ROOF. CURB HEIGHT SHALL BE MODIFIED IF CONNECTIONS CANNOT BE MADE. PROVIDE A SHOP DRAWING FOR REVIEW & APPROVAL SHOWING THE DUCTWORK TRANSITIONS. CURB SHALL NOT BE ORDERED UNTIL SHOP DRAWING IS APPROVED BY THE ENGINEER.
2. INSTALL NEW AIR HANDLER ON NEW ROOF CURB. COORDINATE EXACT LOCATION WITH EXISTING STRUCTURAL STEEL. CONTRACTOR SHALL CONNECT TO EXISTING DUCTWORK ON ROOF AS SHOWN AND PROVIDE TRANSITIONS AS REQUIRED IN ORDER TO MAKE CONNECTIONS.
3. CONTRACTOR SHALL APPLY ONE (1) COAT OF SHERWIN-WILLIAMS, PRO-CRYL PRIMER OVER EXISTING EXTERIOR DUCTWORK. APPLY PER MANUFACTURER'S INSTRUCTIONS. APPLY TWO (2) TOP COATS OF SHERWIN-WILLIAMS, SHER-CRYL HPA SEMI-GLOSS ACRYLIC PAINT. COLOR TO BE SELECTED BY OWNER.
4. INSTALL NEW ROOFTOP UNIT ON NEW, RETURN AIR INSULATED PLENUM ROOF CURB. LENGTH OF CURB SHALL BE 12" PAST RETURN AIR DUCT CONNECTION. CONTRACTOR SHALL DETERMINE THE OVERALL LENGTH OF THE CURB. COORDINATE EXACT LOCATION OF NEW DUCT PENETRATIONS THROUGH ROOF WITH EXISTING STRUCTURAL STEEL.
5. INSTALL NEW EXHAUST FAN ON NEW CURB IN LOCATION SHOWN. COORDINATE WITH FIRST FLOOR PLAN FOR EXACT LOCATION OVER EXISTING DISHWASHER. ADJUST ROOF PENETRATION SIZE AS NEEDED TO ACCOMMODATE NEW CURB SIZE. BALANCING CONTRACTOR SHALL ADJUST THE BELT AND SHEAVE AS REQUIRED IN ORDER TO REACH THE TARGET AIRFLOW OF 400 CFM.
6. CONTRACTOR SHALL INSTALL NEW CONDENSING UNIT ON EXISTING EQUIPMENT RAILS. INSTALL NEW GALVANIZED UNISTRUT AS REQUIRED. SECURE NEW CONDENSING TO UNISTRUT AT ALL FOUR (4) CORNERS. RUN NEW REFRIGERANT PIPING DOWN THRU PIPE PORTAL CURB. REFRIGERANT SUCTION LINE SHALL BE INSULATED. INSTALL A NEW PORTAL CAP AND RUBBER BOOTS FOR REFRIGERANT PIPING AND CONTROL WIRING.
7. CONDENSATE DRAIN PIPE SUPPORTS SHALL BE AS MANUFACTURED BY EATON, DURA-BLOK: DB10 SERIES. LENGTH SHALL BE 10 INCHES. SLOPE PIPING 1/8" (MIN) IN DIRECTION OF FLOW. USE B2400 SERIES PIPE CLAMPS TO SECURE PIPE & CONDUIT TO SUPPORT. PROVIDE A 1/2" THICK WHITE RUBBER PAD BENEATH EACH SUPPORT. EXTEND PIPING 2 FEET PAST CURB IN DIRECTION OF ROOF SLOPE SO WATER DOES NOT ACCUMULATE AT BASE OF UNIT. REFER TO CONDENSATE TRAP DETAIL.

NEW WORK NOTES

8. REPLACE EXISTING BELT. BALANCE EXHAUST FAN TO 300 CFM. ADJUST BELTS AND SHEAVES AS REQUIRED. REPLACE SHEAVE IF NECESSARY.
9. TRANSITION SUPPLY FROM UNIT CONNECTION TO 38x16 IN CURB.
10. REFRIGERANT PIPE SUPPORTS SHALL BE DURA-BLOK, MODEL: DB-10. USE GALVANIZED UNISTRUT MEMBERS FOR VERTICAL AND HORIZONTAL MEMBERS TO ACHIEVE THE DESIRED HEIGHT OF PIPING. INSTALL A 1/2" THICK WHITE RUBBER MAT BENEATH EACH SUPPORT.
11. REPLACE EXISTING BELTS. BALANCE EXHAUST FAN TO 6,400 CFM. ADJUST BELTS AND SHEAVES AS REQUIRED. REPLACE SHEAVE IF NECESSARY.
12. INSTALL NEW AIR HANDLER ON A NEW INSULATED PLENUM ROOF CURB. FIELD CUT OPENINGS TO MATCH WITH EXISTING SUPPLY & RETURN DUCTWORK. COORDINATE LOCATION STRUCTURAL STEEL. CONTRACTOR SHALL MAKE DUCT CONNECTIONS FROM CURB TO EXISTING DISTRIBUTION BELOW THE ROOF.
13. INSTALL NEW AIR HANDLER ON A NEW ROOF CURB. COORDINATE EXACT LOCATION WITH STRUCTURAL STEEL & NEW DUCT PENETRATIONS THRU ROOF.
14. FREE-STANDING DUCT SUPPORT. REFER TO DUCT SUPPORT DETAIL.
15. INSTALL A ROOFED-IN DUCT SUPPORT. INSTALL AN EQUIPMENT RAIL MATCHING THE HEIGHT OF THE EXISTING RAILS. ATTACH GALVANIZED SUPPORT MEMBERS AT BASE OF DUCT & UP ALONG SIDE OF DUCT. CONTACT MIRO INDUSTRIES FOR THE SIZES AND ATTACHMENT REQUIREMENTS.
16. EXTEND EXISTING FLUE PIPE SO OUTLET IS 9'-0" ABOVE ROOF. MATCH EXISTING FLUE CONSTRUCTION. INSTALL THREE (3) GUY WIRES AND PITCH POCKETS TO STABILIZE FLUE.
17. RELOCATE EXISTING EXHAUST FAN TO LOCATION SHOWN. INSTALL FAN ON A NEW 14" HIGH ROOF CURB.
18. INSTALL A CO2 SENSOR WITH A NEMA 3R ENCLOSURE IN RETURN AIR DUCT.

GENERAL WORK NOTES

1. CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS FOR REVIEW & APPROVAL FOR THE INSTALLATION OF ALL NEW HVAC EQUIPMENT BASED ON THE APPROVED SUBMITTALS. THE SCALE SHALL BE 1/2"=1'-0" (OR LARGER). INDICATE LOCATION OF EQUIPMENT FROM BUILDING WALLS & STRUCTURES AND LOCATIONS OF PIPE PORTALS AND OTHER ROOF PENETRATIONS. INCLUDE ELEVATIONS OF EQUIPMENT ON CURBS & RAILS, ELEVATIONS OF DUCTWORK AND PIPING (AS APPLICABLE), SUPPORT LOCATIONS, TYPES OF SUPPORTS, ETC.

GENERAL WORK NOTES

2. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FRAMING BENEATH NEW ROOFTOP EQUIPMENT.
3. CONTRACTOR SHALL HIRE A ROOFING COMPANY THAT HAS 5 YEARS MINIMUM EXPERIENCE WITH EXISTING ROOFING SYSTEM AND CAN MAINTAIN THE ROOF'S WARRANTY. REFER TO ARCHITECTURAL DWGS.
4. CONTRACTOR SHALL HIRE MANUFACTURER'S REPRESENTATIVE TO STARTUP EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S STARTUP CHECK LIST SHEETS. THE PRESSURE TEST & EVACUATION OF THE REFRIGERANT PIPING SHALL BE CONDUCTED TO MANUFACTURER'S REQUIREMENTS. RESULTS SHALL BE DOCUMENTED.
5. SEE PLUMBING DRAWINGS FOR GAS PIPING INFORMATION.
6. CONDENSATE DRAIN PIPING SHALL BE TYPE 'K' COPPER. PVC PIPING SHALL NOT BE USED.
7. PROVIDE DIELECTRIC UNIONS WHEN JOINING DISSIMILAR PIPE MATERIALS.
8. BALANCING CONTRACTOR SHALL BE NEBB CERTIFIED. BALANCE AIRFLOWS & WATER FLOW FOR ALL MECHANICAL EQUIPMENT INSTALLED/MODIFIED ON THIS PROJECT INCLUDING ALL BRANCH DUCTWORK & AIR DEVICES. BALANCING CONTRACTOR SHALL WORK WITH THE BMS CONTRACTOR TO SET UP EACH UNIT. PROVIDE REPORTS IN ACCORDANCE WITH NEBB STANDARDS.
9. INSTALL NEW ROOFTOP EQUIPMENT LEVEL IN BOTH DIRECTIONS. SHIM CURB AS REQUIRED TO KEEP UNIT LEVEL.

ADD/ALTERNATE #1
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ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
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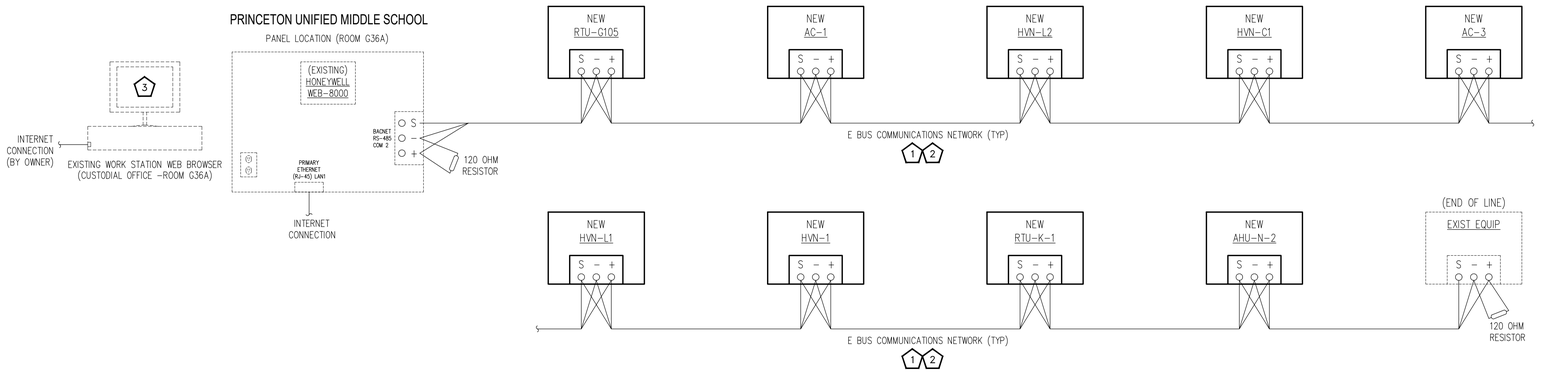
Scale
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Drawing Name
MECHANICAL - ROOF NEW WORK PLANS

Revisions

No.	Date	Description

Drawing Number
M-05



THE CONTROLS CONTRACTOR SHALL BE AN APPROVED HONEYWELL DEALER HAVING EXPERIENCE WITH THE HONEYWELL WEB 8000 SERIES TRIDIUM PLATFORM.

1 CONTROL SYSTEM ARCHITECTURE

MECHANICAL NEW WORK NOTES

1. CONTROLS CONTRACTOR SHALL INTERFACE NEW EQUIPMENT INTO EXISTING HONEYWELL WEB CONTROLLER. BACNET COMMUNICATIONS BUS WIRING TO BE DAISY CHAINED WITH OTHER DEVICES PER NETWORK DIAGRAM. COMMUNICATION CABLE SHALL BE 18 GAUGE, ARMORED SHIELDED TWISTED PAIR (STP). PROVIDE AN RS485 REPEATER AS REQUIRED BY THE HONEYWELL WEB-600E SYSTEM REQUIREMENTS.
2. DO NOT RUN COMM BUS WITH ANY AC WIRING.
3. MODIFY WORK STATION GRAPHICS AT EACH WORK STATION AS REQUIRED FOR NEW EQUIPMENT.

HVN-L1 & HVN-L2 SEQUENCE OF OPERATION

THE ROOFTOP UNIT SHALL HAVE AN ONBOARD CONTROLLER TO CONTROL THE FUNCTION OF THE UNIT. MANUFACTURER SHALL CONFIGURE UNIT AND THE BAS CONTRACTOR SHALL PROVIDE THE REMAINING FUNCTIONS OF THIS SEQUENCE.

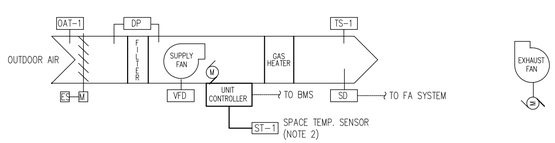
THE UNIT SHALL ENTER UNOCCUPIED OR OCCUPIED MODE THROUGH BAS WORKSTATION. OCCUPIED: 5:00AM TO 10:00PM. CONFIRM HOURS OF OPERATION WITH OWNER. THE SEQUENCES FOR EACH MODE ARE AS FOLLOWS:

UNOCCUPIED:
WHEN THE H&V UNIT DE-ENERGIZED, THE SUPPLY FAN WILL DE-ENERGIZE AND THE OUTSIDE AIR DAMPER SHALL CLOSE. AN END SWITCH ON THE DAMPER SHALL PROVE THE DAMPER HAS FULLY CLOSED. ALSO, THE ASSOCIATED EXHAUST FANS (EFN-15 FOR HVN-L1, EFN-17 FOR HVN-L2) FOR THE LOCKER ROOMS SHALL ALSO BE DE-ENERGIZED.

OCCUPIED:
WHEN THE H&V UNIT IS ENERGIZED, THE OUTSIDE AIR DAMPER SHALL OPEN AND THE SUPPLY AIR FAN IS ENERGIZED. THE ASSOCIATED EXHAUST FAN (EFN-15 FOR HVN-L1, EFN-17 FOR HVN-L2) FOR THE LOCKER ROOMS SHALL ALSO BE ENERGIZED.

TEMPERATURE CONTROL
THE BAS SHALL MONITOR THE TEMPERATURE OF THE SPACE TEMPERATURE SENSOR. THE TEMPERATURE SET POINT SHALL BE 72 F (ADJ.). THE GAS HEAT SHALL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE THAT WILL BE RESET BASED ON THE DIFFERENTIAL BETWEEN THE ACTUAL ROOM TEMPERATURE AND ITS SET POINT.

ALARMS
- IF THE H&V UNIT IS COMMANDED TO START BUT STATUS OF THE SUPPLY FAN MOTOR IS NOT DETECTED OR THE END SWITCH IS NOT MADE, AN ALARM SHALL BE ISSUED AT THE CONTROL SYSTEM FRONT END.
- IF THE EXHAUST FAN IS COMMANDED TO START BUT STATUS OF THE EXHAUST FAN MOTOR IS NOT DETECTED AT THE BAS, AN ALARM SHALL BE ISSUED AT THE CONTROL SYSTEM FRONT END.
- THE SMOKE DETECTOR SHALL DE-ENERGIZE THE H&V UNIT AND ASSOCIATED EXHAUST FAN IF PRODUCTS OF COMBUSTION ARE SENSED. THE FIRE ALARM SYSTEM SHALL MONITOR THE STATUS OF THE SMOKE DETECTOR. IF THE SMOKE DETECTOR IS ENERGIZED A SUPERVISORY ALARM WILL BE INITIATED AT THE FIRE ALARM SYSTEM.
- IF THE SPACE TEMPERATURE DROPS TO 5F (ADJ.) BELOW THE SET POINT, A SPACE TEMPERATURE ALARM SHALL BE ISSUED AT THE CONTROL SYSTEM FRONT END.''
- VFD GENERAL ALARM
- CLOGGED FILTER



1 HVN-L1 & L2 GAS-FIRED HEATING AND VENTILATING CONTROL DIAGRAM
SCALE: NONE

POINTS LIST					
POINT DESIGNATION	POINT DESCRIPTION	POINT TYPE	PART NO. AND/OR DESCRIPTION	SYSTEM INTEGRATION	NOTES
OAD-1	OUTSIDE AIR DAMPER	UNIT	–	BAS	PROVIDE ACTUATOR AND END SWITCH
DP-1	DIFF PRESS FILTER	UNIT	–	BAS	0-1.5"WC
SF-1	FAN STATUS	DIGITAL INPUT	HAWKEYE CURRENT SENSOR	BAS	NOTE 6
OCC/UNOCC	UNIT START/STOP	DIGITAL OUTPUT	–	BAS	THRU VFD
SPEEDF-1	FAN SPEED	UNIT	–	BAS	THRU VFD
TS-1	DISCHARGE AIR TEMPERATURE	UNIT	–	BAS	0-150°F
SD-1	SMOKE DETECTOR	DIGITAL INPUT	–	BAS	NOTE 4
ST-1	SPACE TEMPERATURE SENSOR	ANALOG INPUT	ASM01642 SP ADJ.	BAS	0-100°F (NOTE 2)
SSEFN-15 & 17	EXHAUST FAN START/STOP	DIGITAL OUTPUT	–	BAS	FAN STARTER
SEFN-15 & 17	EXHAUST FAN STATUS	DIGITAL INPUT	HAWKEYE CURRENT SENSOR	BAS	NOTE 6
OAT-1	OA TEMPERATURE SENSOR	UNIT	–	BAS	–

POINTS LIST NOTES

1. BAS CONTRACTOR SHALL INCLUDE 8 HOURS TO ASSIST WITH TESTING OF SYSTEMS TO PROVE SEQUENCE OF OPERATIONS.
2. TEMPERATURE SPACE WALL SENSOR PROVIDED BY MANUFACTURER AND INSTALLED AND WIRED BY BAS CONTRACTOR.
3. UNIT CONTROLLER PROVIDED WITH BACNET (MSTP) FOR INTERFACE TO BMS.
4. SMOKE DETECTOR SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. POWER WIRING BY THE ELECTRICAL CONTRACTOR. FIRE ALARM CONTRACTOR SHALL TIE THE SMOKE DETECTOR INTO THE BUILDING FIRE ALARM SYSTEM. THE BMS SHALL ALSO MONITOR THE SMOKE DETECTOR.
5. BAS CONTRACTOR SHALL MAP POINTS TO THE TRIDIUM SYSTEM. OWNER/ENGINEER TO DETERMINE WHICH POINTS TO MAP.
6. CURRWNT SENSOR SHALL HAVE AN ADJUSTABLE RANGE. PROVIDE CALIBRATION CERTIFICATE FOR DEVICE.

HVN-C1 SEQUENCE OF OPERATION

THE ROOFTOP UNIT SHALL HAVE AN ONBOARD CONTROLLER TO CONTROL THE FUNCTION OF THE UNIT. MANUFACTURER SHALL CONFIGURE UNIT AND THE BAS CONTRACTOR SHALL PROVIDE THE REMAINING FUNCTIONS OF THIS SEQUENCE.

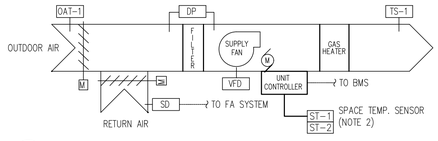
THE UNIT SHALL ENTER UNOCCUPIED OR OCCUPIED MODE THROUGH WORKSTATION. OCCUPIED: 5:00AM TO 10:00PM. CONFIRM HOURS OF OPERATION WITH OWNER. THE SEQUENCES FOR EACH MODE ARE AS FOLLOWS:

UNOCCUPIED:
WHEN THE H&V UNIT DE-ENERGIZED, THE SUPPLY FAN WILL DE-ENERGIZE AND THE OUTSIDE AIR DAMPER SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN.

OCCUPIED:
WHEN THE H&V UNIT IS ENERGIZED, THE OUTSIDE AIR DAMPER SHALL OPEN AND THE SUPPLY AIR FAN IS ENERGIZED AND THE RETURN AIR DAMPER SHALL OPEN TO ITS PRESET SETTING.

TEMPERATURE CONTROL
THE BAS SHALL MONITOR THE TEMPERATURE OF THE TWO SPACE TEMPERATURE SENSORS (ONE ON THE FIRST AND SECOND FLOORS). THE TEMPERATURE SET POINT SHALL BE 72 F (ADJ.) AND CONTROLLED TO THE SENSOR FURTHEST FROM SETPOINT. THE GAS HEAT SHALL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE THAT WILL BE RESET BASED ON THE DIFFERENTIAL BETWEEN THE ACTUAL ROOM TEMPERATURE AND ITS SET POINT.

ALARMS
- IF THE H&V UNIT IS COMMANDED TO START BUT STATUS OF THE SUPPLY FAN MOTOR IS NOT DETECTED, AN ALARM SHALL BE ISSUED AT THE CONTROL SYSTEM FRONT END.
- THE SMOKE DETECTOR SHALL DE-ENERGIZE THE H&V UNIT AND ASSOCIATED EXHAUST FAN IF PRODUCTS OF COMBUSTION ARE SENSED. THE FIRE ALARM SYSTEM SHALL MONITOR THE STATUS OF THE SMOKE DETECTOR. IF THE SMOKE DETECTOR IS ENERGIZED A SUPERVISORY ALARM WILL BE INITIATED AT THE FIRE ALARM SYSTEM.
- IF THE SPACE TEMPERATURE DROPS TO 5F (ADJ.) BELOW THE SET POINT, A SPACE TEMPERATURE ALARM SHALL BE ISSUED AT THE CONTROL SYSTEM FRONT END.''
- VFD GENERAL ALARM
- CLOGGED FILTER



2 HVN-C1 GAS-FIRED HEATING AND VENTILATING CONTROL DIAGRAM
SCALE: NONE

POINTS LIST					
POINT DESIGNATION	POINT DESCRIPTION	POINT TYPE	PART NO. AND/OR DESCRIPTION	SYSTEM INTEGRATION	NOTES
OAD-1	OUTSIDE AIR DAMPER	UNIT	–	BAS	PROVIDE ACTUATOR
RAD-1	RETURN AIR DAMPER	UNIT	–	BAS	PROVIDE ACTUATOR
DP-1	DIFF PRESS FILTER	UNIT	–	BAS	0-1.5"WC
SF-1	FAN STATUS	DIGITAL INPUT	HAWKEYE CURRENT SENSOR	BAS	NOTE 6
OCC/UNOCC	UNIT START/STOP	DIGITAL OUTPUT	–	BAS	THRU VFD
SPEEDF-1	FAN SPEED	UNIT	–	BAS	THRU VFD
TS-1	DISCHARGE AIR TEMPERATURE	UNIT	–	BAS	0-150°F
SD-1	RA SMOKE DETECTOR	DIGITAL INPUT	–	BAS	NOTE 4
ST-1 & 2	SPACE TEMPERATURE SENSORS	ANALOG INPUT	ASM01642 SP ADJ.	BAS	0-100°F (NOTE 2)

POINTS LIST NOTES

1. BAS CONTRACTOR SHALL INCLUDE 8 HOURS TO ASSIST WITH TESTING OF SYSTEMS TO PROVE SEQUENCE OF OPERATIONS.
2. TEMPERATURE SPACE WALL SENSOR PROVIDED BY MANUFACTURER AND INSTALLED AND WIRED BY BAS CONTRACTOR.
3. UNIT CONTROLLER PROVIDED WITH BACNET (MSTP) FOR INTERFACE TO BMS.
4. SMOKE DETECTOR SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. POWER WIRING BY THE ELECTRICAL CONTRACTOR. FIRE ALARM CONTRACTOR SHALL TIE THE SMOKE DETECTOR INTO THE BUILDING FIRE ALARM SYSTEM. THE BMS SHALL ALSO MONITOR THE SMOKE DETECTOR.
5. BAS CONTRACTOR SHALL MAP POINTS TO THE TRIDIUM SYSTEM. OWNER/ENGINEER TO DETERMINE WHICH POINTS TO MAP.
6. CURRWNT SENSOR SHALL HAVE AN ADJUSTABLE RANGE. PROVIDE CALIBRATION CERTIFICATE FOR DEVICE.

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST' SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

HVN-1 GYM SEQUENCE OF OPERATION

THE AIR HANDLER UNIT SHALL HAVE AN ONBOARD CONTROLLER TO CONTROL THE FUNCTION OF THE UNIT AS PROVIDED BY THE BAS CONTRACTOR. CONTRACTOR SHALL PROGRAM AND CONFIGURE THE UNIT AND COMPLETE THE GRAPHICS ON THE TRIDIUM SYSTEM.

THE UNIT SHALL ENTER UNOCCUPIED OR OCCUPIED MODE THROUGH WORKSTATION. OCCUPIED: 5:00AM TO 10:00PM. CONFIRM HOURS OF OPERATION WITH OWNER. THE SEQUENCES FOR EACH MODE ARE AS FOLLOWS:

UNOCCUPIED:
WHEN THE H&V UNIT DE-ENERGIZED, THE SUPPLY FAN AND RETURN AIR FAN WILL DE-ENERGIZE AND THE OUTSIDE AIR DAMPER, RELIEF DAMPER SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN.

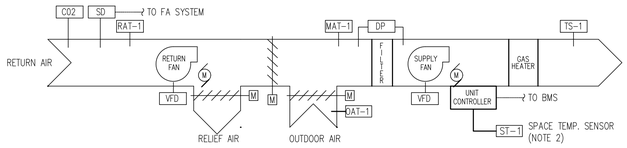
OCCUPIED:
WHEN THE H&V UNIT IS ENERGIZED, THE OUTSIDE AIR DAMPER AND RETURN AIR DAMPER SHALL OPEN TO THE SELECTED POSITION AND THE SUPPLY AIR FAN AND RETURN AIR FAN ARE ENERGIZED. THE RELIEF DAMPER SHALL OPEN AND CLOSE BASED ON THE OUTSIDE AIR DAMPER.

VENTILATION CONTROL:
DURING OCCUPIED MODES, THE OUTDOOR AIR DAMPER SHALL BET TO INTRODUCE 2,000 CFM OF OUTDOOR AIR (MIN POSITION). IF THE CO2 CONCENTRATION IS 800 PPM OR LESS, THE DAMPER WILL REMAIN AT ITS MINIMUM POSITION. IF THE CO2 INCREASES ABOVE 800PPM THE OUTDOOR AIR DAMPER SHALL MODULATE OPEN. WHEN THE CO2 LEVEL REACHES 1,000 PPM, THE DAMPER WILL BE AT ITS MAXIMUM VENTILATION POSITION OF 10,000 CFM. AS THE CO2 CONCENTRATION BEGINS TO DROP BELOW 1,000 PPM, THE DAMPER SHALL START TO MODULATE TOWARD THE MINIMUM POSITION.

NOTE: AIRFLOW BALANCER SHALL SET THE MIN/MAX OUTDOOR AIR DAMPER POSITIONS BASED ON CO2 LEVELS FROM 800 TO 1,000 PPM. THE DAMPER POSITION SHALL LINEAR BETWEEN THE MIN/MAX CO2 LEVELS.

TEMPERATURE CONTROL
THE BAS SHALL MONITOR THE TEMPERATURE OF THE SPACE TEMPERATURE SENSOR IN THE GYM. THE TEMPERATURE SET POINT SHALL BE 72 F (ADJ.). THE GAS HEAT SHALL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE THAT WILL BE RESET BASED ON THE DIFFERENTIAL BETWEEN THE ACTUAL ROOM TEMPERATURE AND ITS SET POINT.

ALARMS
- IF THE H&V UNIT IS COMMANDED TO START BUT STATUS OF THE SUPPLY FAN MOTOR OR RETURN AIR FAN IS NOT DETECTED, AN ALARM SHALL BE ISSUED AT THE CONTROL SYSTEM FRONT END.
- THE SMOKE DETECTOR SHALL DE-ENERGIZE THE H&V UNIT AND ASSOCIATED EXHAUST FAN IF PRODUCTS OF COMBUSTION ARE SENSED. THE FIRE ALARM SYSTEM SHALL MONITOR THE STATUS OF THE SMOKE DETECTOR. IF THE SMOKE DETECTOR IS ENERGIZED A SUPERVISORY ALARM WILL BE INITIATED AT THE FIRE ALARM SYSTEM.
- IF THE SPACE TEMPERATURE DROPS TO 5F (ADJ.) BELOW THE SET POINT, A SPACE TEMPERATURE ALARM SHALL BE ISSUED AT THE CONTROL SYSTEM FRONT END."
- VFD GENERAL ALARM FOR THE SUPPLY OR RETURN AIR FANS.
- CLOGGED FILTER
- HIGH CO2 CONCENTRATION (ALARM POINT SHALL BE 1100PPM (ADJ)



3 HVN-1 GAS-FIRED HEATING AND VENTILATING CONTROL DIAGRAM
SCALE: NONE

POINTS LIST					
POINT DESIGNATION	POINT DESCRIPTION	POINT TYPE	PART NO. AND/OR DESCRIPTION	SYSTEM INTEGRATION	NOTES
OAD-1	OUTSIDE AIR DAMPER	ANALOG OUTPUT	–	BAS	PROVIDE ACTUATOR
RAD-1	RETURN AIR DAMPER	ANALOG OUTPUT	–	BAS	PROVIDE ACTUATOR
DP-1	DIFF PRESS FILTER	DIGITAL INTPUT	–	BAS	0-1.5"WC
SF-1 & RF-1	FAN STATUS	DIGITAL INPUT	HAWKEYE CURRENT SENSOR	BAS	THRU VFD
SSF-1 & RF-1	FAN START/STOP	DIGITAL OUTPUT	–	BAS	THRU VFD
SPEEDSF-1 & RF-1	FAN SPEED	ANALOG INPUT	–	BAS	THRU VFD
TS-1	DISCHARGE AIR TEMPERATURE	ANALOG INPUT	–	BAS	0-150°F
SD-1	RA SMOKE DETECTOR	DIGITAL INPUT	–	BAS	NOTE 5
ST-1	SPACE TEMPERATURE SENSOR	ANALOG INPUT	ASM01642 SP ADJ.	BAS	0-100°F (NOTE 2)
RAT-1	DISCHARGE AIR TEMPERATURE	ANALOG INPUT	–	BAS	0-150°F
MAT-1	MIX AIR ENTHALPY	ANALOG INPUT	–	BAS	NOTE 5
OAT-1	OA ENTHALPY	ANALOG INPUT	–	BAS	–
CO2	CARBON DIOXIDE SENSOR	ANALOG INPUT	–	BAS	–

POINTS LIST NOTES

1. BAS CONTRACTOR SHALL INCLUDE 8 HOURS TO ASSIST WITH TESTING OF SYSTEMS TO PROVE SEQUENCE OF OPERATIONS.
2. TEMPERATURE SPACE WALL SENSOR PROVIDED AND INSTALLED AND WIRED BY BAS CONTRACTOR.
3. UNIT CONTROLLER PROVIDED WITH BACNET (MSTP) FOR INTERFACE TO BMS.
4. SMOKE DETECTOR SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. POWER WIRING BY THE ELECTRICAL CONTRACTOR. FIRE ALARM CONTRACTOR SHALL TIE THE SMOKE DETECTOR INTO THE BUILDING FIRE ALARM SYSTEM. THE BMS SHALL ALSO MONITOR THE SMOKE DETECTOR.
5. BAS CONTRACTOR SHALL MAP POINTS TO THE TRIDIUM SYSTEM. OWNER/ENGINEER TO DETERMINE WHICH POINTS TO MAP.

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

Scale
AS NOTED

Drawing Name
MECHANICAL - CONTROLS SHEET 1

Revisions

No.	Date	Description

Drawing Number
M-06

AHU-N-2 (VAV) CONTROL SEQUENCE OF OPERATION

THE ROOFTOP SHALL INCLUDE AN INTERGRAL CONTROLLER SUPPLIED BY THE ROOFTOP MANUFACTURER. THE MANUFACTURER REPRESENTATIVE SHALL CONFIGURE THE UNIT TO THE SEQUENCE BELOW. THE ROOFTOP UNIT SHALL BE INTEGRATED INTO THE EXISTING TRIDIUM BAS SYSTEM. THE UNIT CONTROLLER SHALL MONITOR AND CONTROL THE MECHANICAL FUNCTIONS OF THE ROOFTOP UNIT. DATA FROM THIS CONTROLLER SHALL COMMUNICATE THROUGH A BACNET MSTP MODULE TO THE TRIDIUM CONTROL SYSTEM. BAS CONTRACTOR IS RESPONSIBLE FOR CONFIGURING AND MAPPING THE AVAILABLE POINTS FROM THE ROOTOP CONTROLLER AND PROVIDING INPUT/OUTPUT CONTROLLER, END DEVICES AND PROGRAMMING FOR THE FUNCTION NOT PART OF THE ROOFTOP CONTROLLER WITH IS THE VAV BOXES AND BASEBOARD HEATING CONTROL. THE BAS CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE OPERATION OF THE SYSTEM.

ENERGIZED/DE-ENERGIZE:
THE ROOFTOP UNIT SHALL BE ENERGIZED/DE-ENERGIZED THROUGH THE HONEYWELL CONTROL SYSTEM. THE ROOFTOP UNIT SHALL BE SCHEDULED FOR AUTOMATIC OPERATION ON A TIME OF DAY BASIS FOR OCCUPIED AND UNOCCUPIED MODES.

OCCUPIED: THE SYSTEM SHALL HAVE AN OPTIMAL START SEQUENCE. DURING THE OPTIMAL START, THE SUPPLY AIR FAN SHALL START AND THE DAMPERS SHALL BE POSITIONED FOR 100% RECIRCULATION. THE ROOFTOP UNIT SHALL OPERATE TO ACHIEVE THE OCCUPIED MODE TEMPERATURE SET POINT 15 MINUTES PRIOR TO THE OCCUPIED MODE. THE OCCUPIED MODE TIMES SHALL BE PROVIDED BY THE OWNER. THE PROGRAM SHALL BE CAPABLE OF LEARNING THE OPTIMAL TIME TO START BASED ON THE OUTDOOR AIR TEMPERATURE AND SPACE TEMPERATURE.

ONCE THE OCCUPIED MODE TIME AND TEMPERATURE IS REACHED, THE OUTSIDE AIR DAMPER SHALL OPEN TO ITS MINIMUM VENTILATION POSITION (FAIL-SAFE CLOSED) AND THE RETURN AIR DAMPER SHALL OPEN (FAIL-SAFE OPEN) TO ITS CORRESPONDING POSITION. THE SUPPLY AIR FAN SHALL THEN START AND MODULATE TO SATISFY THE STATIC PRESSURE SET POINT IN THE SUPPLY DUCT. THE AIR BALANCER SHALL DETERMINE THE STATIC PRESSURE SET POINT. THE ROOFTOP UNIT SHALL MAINTAIN THE DISCHARGE AIR TEMPERATURE SET POINT OF 52 °F AS MEASURED IN THE SUPPLY AIR DUCT..

UN-OCCUPIED:
THE ROOFTOP UNIT SHALL DE-ENERGIZE AND ALL DAMPERS SHALL GO TO THEIR FAIL-SAFE POSITION.

UN-OCCUPIED SETBACK: THE SYSTEM SHALL MAINTAIN THE SETBACK TEMPERATURE OF 63 °F (ADJUST) FOR ALL ZONES EXCEPT FOR THE MAIN CORRIDOR WHICH SHALL BE 67 °F (ADJUST). IF ANY TEMPERATURE SENSOR SENSES A TEMPERATURE 1 °F BELOW SET POINT, THE ROOFTOP UNIT SHALL START THE SUPPLY AIR FAN, EXHAUST FAN SHALL BE OFF, AND ALL REHEAT VALVES SHALL BE COMMANDED TO OPEN 100%. THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED AND THE RETURN AIR DAMPER OPEN. THE UNIT SHALL REMAIN ENERGIZED UNTIL THE LOWEST SPACE TEMPERATURE REACHES 3 °F (ADJUST) ABOVE ITS SET POINT.

UN-OCCUPIED SETUP: THE SYSTEM SHALL MAINTAIN THE SETBACK TEMPERATURE OF 80 °F (ADJUST) FOR ALL ZONES. IF ANY TEMPERATURE SENSOR SENSES A TEMPERATURE 1 °F ABOVE SET POINT, THE ROOFTOP UNIT SHALL START THE SUPPLY AIR FAN, EXHAUST FAN SHALL BE OFF, AND THE MECHANICAL COOLING CIRCUIT SHALL BE ENERGIZED. ALL REHEAT VALVES SHALL BE COMMANDED TO CLOSE 100%. THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED AND THE RETURN AIR DAMPER OPEN. THE UNIT SHALL REMAIN ENERGIZED UNTIL THE HIGHEST SPACE TEMPERATURE REACHES 3 °F (ADJUST) BELOW ITS SET POINT.

DISCHARGE AIR TEMPERATURE CONTROL
THE UNIT SHALL UTILIZE ITS MECHANICAL COOLING STAGES TO MAINTAIN A SUPPLY AIR TEMPERATURE OF 50°F TO 60°F, AS MEASURED IN THE SUPPLY DUCT. THE SUPPLY AIR TEMPERATURE SET POINT SHALL BE RESET GRADUALLY BASED ON THE POSITION OF THE VAV DAMPERS. IF 80% OF THE VAV DAMPERS ARE AT MINIMUM POSITION AND THE RETURN AIR HUMIDITY IS LESS THAN 58%, THE DISCHARGE AIR TEMPERATURE WILL BE RESET UP 1 °F. IF AFTER 15 MINUTES (ADJUST) 80% OF THE VAV DAMPERS ARE STILL AT MINIMUM POSITION AND THE RETURN AIR HUMIDITY IS LESS THAN 58%, THE DISCHARGE TEMPERATURE SHALL BE RESET UP ANOTHER DEGREE, AND SO ON.

IF 80% OF THE VAV DAMPERS ARE 100 % OPEN OR THE RETURN AIR HUMIDITY IS GREATER THAN 58% , THE DISCHARGE AIR TEMPERATURE WILL BE RESET DOWN 1 °F. IF AFTER 15 MINUTES (ADJUST) 80% OF THE VAV DAMPERS ARE STILL 100% OPEN OR THE RETURN AIR HUMIDITY IS GREATER THAN 58%, THE DISCHARGE TEMPERATURE SHALL BE RESET DOWN ANOTHER DEGREE, AND SO ON.

AIR-SIDE ECONOMIZER:
THE ROOFTOP UNIT SHALL HAVE AN AIR-SIDE DRY BULB CONTROLLED ECONOMIZER. WHEN THE OUTDOOR AIR TEMPERATURE IS EQUAL TO OR LESS THAN 50 °F, THE UNIT SHALL BE IN ECONOMIZER MODE. THE OUTSIDE AIR DAMPER SHALL BEGIN TO MODULATE OPEN, UTILIZING THE OUTDOOR AIR FOR FREE COOLING. AS THE OUTDOOR AIR DAMPER PASSES ITS MINIMUM VENTILATION POSITION, THE EXHAUST AIR FAN SHALL ENERGIZE. THE SPEED OF THE EXHAUST FAN SHALL INCREASE IN PROPORTION TO THE OUTDOOR AIR DAMPER POSITION. THE RETURN AIR DAMPER SHALL CLOSE IN PROPORTION TO THE OUTDOOR AIR DAMPER.

SPACE TEMPERATURE:
THE SPACE TEMPERATURE OF 71°F (ADJUST) SHALL BE MAINTAINED BY CONTROLLING THE VAV CONTROL DAMPER. IF THE VAV BOX DAMPER IS AT MINIMUM COOLING POSITION AND THE SPACE TEMPERATURE DROPS 1° F (ADJUST) BELOW SET POINT, THE VAV BOX SHALL GO TO INTO HEATING MODE. THE HOT WATER REHEAT CONTROL VALVE SHALL BEGIN TO MODULATE OPEN ADDING HEAT TO THE SPACE TO SATISFY ITS RESPECTIVE TEMPERATURE SENSOR. CONVERSELY, AS THE SPACE TEMPERATURE INCREASES TO 1° F ABOVE THE SET POINT, THE VAV BOX DAMPER SHALL MODULATE OPEN TO ALLOW MORE COOLING TO SATISFY ITS RESPECTIVE TEMPERATURE SENSOR. THE SPACE TEMPERATURE SET POINT SHALL BE 71 °F (ADJUSTABLE).

BASEBOARD CONTROL
A TEMPERATURE SENSOR LOCATED NEXT TO THE OUTSIDE WALL SHALL CONTROL THE HW BASEBOARD CONTROL VALVE. BASEBOARD SENSOR SET POINT SHALL BE 2°F BELOW SPACE TEMPERATURE SETPOINT.

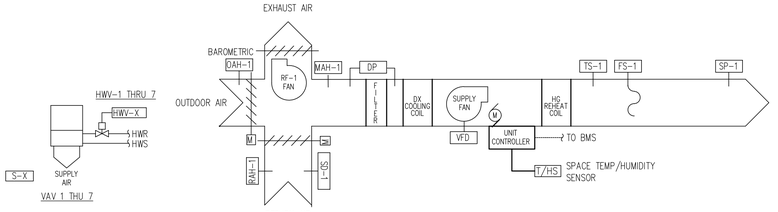
SAFETIES:
THE SMOKE DETECTOR SHALL BE INTERLOCKED TO THE UNIT'S START CIRCUIT. THE SMOKE DETECTOR SHALL DE-ENERGIZE THE UNIT UPON ACTIVATION. THE AIR DAMPERS SHALL GO TO THEIR FAIL-SAFE POSITIONS.

THE FIRE ALARM CONTRACTOR SHALL PROVIDE, INSTALL AND MONITOR THE SMOKE DETECTOR. THE ELECTRICAL CONTRACTOR SHALL WIRE SMOKE DETECTOR TO UNIT'S START CIRCUIT. THE CONTROL CONTRACTOR SHALL MONITOR SMOKE DETECTOR ALARM.

A FREEZE STAT SHALL BE INSTALLED IN THE SUPPLY AIR DUCT, UPSTREAM OF THE VAV BOXES. THE SET POINT SHALL BE 38 °F. IF THE SUPPLY AIR TEMPERATURE DROPS BELOW 45 °F, THE UNIT SHALL DE-ENERGIZE. THE DAMPERS SHALL GO TO THEIR FAIL-SAFE POSITIONS.

A CURRENT SWITCH ON THE SUPPLY AIR FAN SHALL CONFIRM IF THE FAN IS IN THE DESIRED STATE AND GENERATES AN ALARM IF STATUS DEVIATES FROM DDC START/STOP CONTROL.

ALARMS:
- THE ROOFTOP UNIT IS DE-ENERGIZED BY THE SMOKE DETECTOR ACTIVATION AND ALARMS TO THE BUILDING FIRE ALARM SYSTEM.
- THE LOW TEMPERATURE ALARM IS ACTIVATED WHEN THE AIR TEMPERATURE IS BELOW 45°F (ADJUST)
- THE SPACE TEMPERATURE DEVIATES FROM SET POINT OF 5°F. (ADJUST)
- THE SUPPLY AIR FAN FAIL.
- CLOGGED FILTER SWITCH
- REFRIGERANT DETECTION SYSTEM



4 AHU-N-2 CONTROL DIAGRAM
SCALE: NONE

POINTS LIST					
POINT DESIGNATION	POINT DESCRIPTION	POINT TYPE	PART NO. AND/OR DESCRIPTION	SYSTEM INTEGRATION	NOTES
RAD-1	RETURN AIR DAMPER	UNIT	–	BAS	PROVIDE ACTUATOR
OAD-1	OUTSIDE AIR DAMPER	UNIT	–	BAS	PROVIDE ACTUATOR
DP-1	DIFF PRESS FILTER	UNIT	–	BAS	0-1.5"WC
SF-1	FAN STATUS	DIGITAL INPUT	HARKEYE CURRENT SENSOR	BAS	NOTE 1
SSF-1	UNIT START/STOP	DIGITAL OUTPUT	–	BAS	–
SPEEDSF-1	FAN SPEED	ANALOG OUTPUT	–	BAS	THRU VFD
TS-1	DISCHARGE AIR TEMPERATURE	UNIT	–	BAS	NOTE 4
FS-1	FREEZESTAT	DIGITAL INPUT	–	BAS	SET AT 38° NOTE 4 & 6
SD-1	SMOKE DETECTOR	DIGITAL INPUT	–	BAS	NOTES 1, 2 & 3
TH-1	TEMP/HUMIDITY	ANALOG INPUT	ASM0182	BAS	0-100°F, 0-100RH% NOTE 12
HWV-1,2,3,4,5,6,7	HOT WATER CONTROL VALVE	ANALOG OUTPUT	–	BAS	NOTE 5
OAH-1	OA ENTHALPY	UNIT	–	BAS	–
SAF-1	SUPPLY AIR FLOW	UNIT	–	BAS	–
RAH-1	RETURN AIR ENTHALPY	UNIT	–	BAS	–
RF-1	RELIEF FAN STATUS	DIGITAL INPUT	HARKEYE CURRENT SENSOR	BAS	NOTE 1
S-1,2,3,4,5,6,7	SPACE TEMPERATURE SENSOR	ANALOG INPUT	VAISALA HMW92D	BAS	NOTE 4
SP-1	STATIC PRESSURE TRANSMITTER	ANALOG INPUT	–	BAS	NOTE 4
BSP-1	BUILDING STATIC PRESSURE	ANALOG INPUT	–	BAS	NOTE 4
BBV-1	BASEBOARD CONTROL VALVE	ANALOG OUTPUT	–	BAS	NOTE 5
BBT-1	BASEBOARD TEMPERATURE SENSOR	ANALOG INPUT	VAISALA HMW92D	BAS	NOTE 4
VAV-1,2,3,4,5,6,7	VAV DAMPER	ANALOG OUTPUT	–	BAS	NOTE 10
VAV FLOW 1,23,4,5,6,7	VAV AIR FLOW	ANALOG INPUT	–	BAS	NOTE 10
REFRIG	REFRIG DETECTION	CONTACT	–	BAS	NOTE 11

POINTS LIST NOTES
1. CURRENT SENSOR SHALL HAVE AN ADJUSTABLE RANGE. PROVIDE CALIBRATION CERTIFICATE FOR EACH DEVICE.
2. ELECTRICAL CONTRACTOR SHALL WIRE SMOKE DETECTOR TO START CIRCUIT OF UNIT. SMOKE DETECTOR SHALL BE ADDRESSABLE TO FIRE ALARM SYSTEM AND PROVIDE ADDITIONAL CONTRACT FOR BMS.
3. FIRE ALARM CONTRACTOR SHALL WIRE FROM SMOKE DETECTOR TO FIRE ALARM PANEL. BMS CONTRACTOR TO WIRE TO BMS.
4. PROVIDED & INSTALLED BY BMS CONTRACTOR.
5. PROVIDE A MODEL: SPACE SAVER SPIVQ, 1" CONTROL VALVE. PRESSURE DROP IS 6.9 FT WITH A MAX FLOW RATE OF 3.5 GPM. PROVIDE A HONEYWELL, LOW VOLTAGE ACTUATOR. VALVE SHALL FAIL IN LAST POSITION. BALANCE EACH TO THE FLOWS PROVIDED IN THE SCHEDULES.
6. PROVIDE A 20 FT SENSING ELEMENT, MANUAL RESET SWITCH, AND GROMMET WITH CLIPS FOR MOUNTING SENSING ELEMENT IN DUCT.
7. BMS CONTRACTOR SHALL MAP ALL POINTS FROM UNIT TO BMS SYSTEM. BMS CONTRACTOR SHALL PROVIDE WORKSTATION GRAPHICS. GRAPHIC SHALL INCLUDE SITE MAP OF FACILITY AND GRAPHIC OF EACH SYSTEM. GRAPHIC SHALL INCLUDE STATUS, TEMP, HUMIDITY, ALARMS, ETC. BMS CONTRACTOR SHALL ALSO PROVIDE HISTORY LOGS ON ALL CONTROL AND MONITORING POINTS AT 5 MINUTE INTERVALS.
8. BMS CONTRACTOR SHALL INCLUDE 16 HOURS FOR TRAINING AND ADDITIONAL 80 HOURS TO ASSIST WITH TESTING OF SYSTEMS TO PROVE SEQUENCE OF OPERATIONS.
9. PROVIDE CALIBRATION CERTIFICATE FOR EACH DEVICE.
10. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL VAV BOXES. BAS TO WIRE AND PROGRAM.
11. BAS CONTRACTOTR SHALL WIRE THE REFRIGERANT DETECTION SYSTEM TO OPEN THE VAV BOXES WHEN REFRIGERANT IS DETECTED.
12. PROVIDED BY MANUFACTURER AND INSTALLED AND WIRED BY BAS CONTRACTOR.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

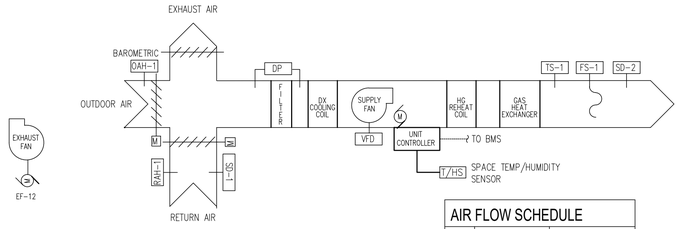
Scale
AS NOTED

Drawing Name
MECHANICAL - CONTROLS SHEET 2

Revisions

No.	Date	Description

Drawing Number
M-07



5 RTU-K-1 CONTROL DIAGRAM
SCALE: NONE

AIR FLOW SCHEDULE		
UNIT NO.	COOKING MODE SUPPLY/OA (CFM)	NORMAL OPERATION SUPPLY/OA (CFM)
RTU-1	5300/5300	2500/500

POINTS LIST					
POINT DESIGNATION	POINT DESCRIPTION	POINT TYPE	PART NO. AND/OR DESCRIPTION	SYSTEM INTEGRATION	NOTES
RAD-1	RETURN AIR DAMPER	UNIT	–	BAS	PROVIDE ACTUATOR
OAD-1	OUTSIDE AIR DAMPER	UNIT	–	BAS	PROVIDE ACTUATOR
DP-1	DIFF PRESS FILTER	UNIT	–	BAS	0-1.5"WC
SF-1	FAN STATUS	DIGITAL INPUT	HARKEYE CURRENT SENSOR	BAS	NOTE 2
OCC/UNOCC-1	UNIT START/STOP	DIGITAL OUTPUT	–	BAS	–
SPEEDSF-1	FAN SPEED	UNIT	–	BAS	THRU VFD
TS-1	DISCHARGE AIR TEMPERATURE	UNIT	–	BAS	0-150°F
FS-1	FREEZESTAT	DIGITAL INPUT	–	BAS	SET AT 38°F (NOTE 7)
SD-1 & 2	SMOKE DETECTOR	DIGITAL INPUT	–	BAS	NOTE 5
TH-1	TEMP/HUMIDITY	ANALOG INPUT	ASM0182	BAS	0-100°F, 0-100RH% (NOTE 8)
HWV-1	HOT WATER CONTROL VALVE	ANALOG OUTPUT	–	BAS	CONTROL EX. CONTROL VALVE
OAH-1	OA ENTHALPY	UNIT	–	BAS	–
RAH-1	RETURN AIR ENTHALPY	UNIT	–	BAS	–
SEF-12	EXHAUST FAN STATUS	DIGITAL INPUT	HARKEYE CURRENT SENSOR	BAS	NOTE 2

POINTS LIST NOTES

1. BAS CONTRACTOR SHALL INCLUDE 8 HOURS TO ASSIST WITH TESTING OF SYSTEMS TO PROVE SEQUENCE OF OPERATIONS.
2. CURRENT SENSOR SHALL HAVE AN ADJUSTABLE RANGE. PROVIDE CALIBRATION CERTIFICATE FOR EACH DEVICE.
3. BAS CONTRACTOR SHALL PROVIDE AND INSTALL A WALL MOUNTED TEMPERATURE AND HUMIDITY SENSOR VAISALA HMW92D.
4. SMOKE DETECTOR SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. POWER WIRING BY THE ELECTRICAL CONTRACTOR. FIRE ALARM CONTRACTOR SHALL TIE THE SMOKE DETECTOR INTO THE BUILDING FIRE ALARM SYSTEM. THE BMS SHALL ALSO MONITOR THE SMOKE DETECTOR.
5. BAS CONTRACTOR SHALL MAP ROOFTOP POINTS TO THE TRIDIUM SYSTEM. OWNER/ENGINEER TO DETERMINE WHICH POINTS TO MAP.
6. THE KITCHEN VENTILATION SYSTEM SHALL AUTOMATICALLY ACTIVATE "COOKING MODE" WHENEVER COOKING OPERATIONS OCCUR. THE ACTIVATION SHALL BE BY AN APPROVED MEANS PER IMC SECTION 507.
7. PROVIDE A 20 FT SENSING ELEMENT, MANUAL RESET SWITCH, AND GROMMET WITH CLIPS FOR MOUNTING SENSING ELEMENT IN DUCT.
8. MANUFACTURER TO PROVIDE. INSTALL AND WIRE BY BAS CONTRACTOR.

RTU-K-1 CONTROL SEQUENCE OF OPERATION

THE ROOFTOP SHALL INCLUDE AN INTERGRAL CONTROLLER SUPPLIED BY THE ROOFTOP MANUFACTURER. THE MANUFACTURER REPRESENTATIVE SHALL CONFIGURE THE SYSTEM FOR THE SEQUENCE BELOW. A HONEYWELL CONTROLLER SHALL PROVIDED TO STATUS ON THE KITCHEN HOOD. THE ROOFTOP UNIT SHALL BE INTEGRATED INTO THE EXISTING TRIDIUM BAS SYSTEM. THE UNIT CONTROLLER SHALL MONITOR AND CONTROL THE MECHANICAL FUNCTIONS OF THE ROOFTOP UNIT. DATA FROM THIS CONTROLLER SHALL COMMUNICATE THROUGH A BACNET MSTP MODULE TO THE TRIDIUM CONTROL SYSTEM. BAS CONTRACTOR IS RESPONSIBLE FOR CONFIGURING AND MAPPING THE AVAILABLE POINTS FROM THE ROOFTOP CONTROLLER AND PROVIDING INPUT/OUTPUT CONTROLLER, END DEVICES AND PROGRAMMING FOR THE HEATING FUNCTION OF THE SYSTEM.

THE UNIT SHALL HAVE THREE MODES OF OPERATION, "COOKING", "NORMAL OPERATION", AND "UNOCCUPIED". THE AIR FLOWS FOR COOKING AND NORMAL OPERATION SHALL BE AS INDICATED ON THIS DRAWING. THE UNIT SHALL BE FULLY DE-ENERGIZED IN UNOCCUPIED MODE. THE UNIT SHALL REMAIN IN NORMAL OPERATION MODE UNTIL THE OVEN EXHAUST HOOD AND FAN IS ENERGIZED. THE UNIT SHALL ENTER UNOCCUPIED MODE ACCORDING TO A TIME CLOCK. CONFIRM SCHEDULE WITH OWNER. WHEN THE KITCHEN EXHAUST FAN IS ENERGIZED, THE FOLLOWING SEQUENCE OCCURS:

COOKING MODE:
1. EXHAUST FAN EF-12 ON.
2. RTU-K-1 SUPPLY FAN TO 100%.
3. OUTSIDE AIR DAMPER 100% OPEN.
4. HEATING PER BELOW.
5. COOLING PER BELOW.

WHEN THE FAN OFF BUTTON IS PRESSED AND NORMAL OPERATION MODE IS ACTIVATED, THE FOLLOWING SEQUENCE OCCURS:

NORMAL OPERATION MODE:
1. SUPPLY FAN TO MINIMUM SETPOINT.
2. OUTDOOR AIR DAMPER TO MINIMUM SETPOINT.
3. EXHAUST FAN EF-12 OFF.
4. HEATING PER BELOW.
5. COOLING PER BELOW.

SUPPLY BLOWER SEQUENCE: THE SUPPLY AIR FAN IS PROVIDED WITH A FACTORY MOUNTED VARIABLE FREQUENCY DRIVE. THE SUPPLY AIR FAN SPEED IS CONTROLLED WITH THE FOLLOWING SEQUENCES FOR TWO POSITION CONSTANT VOLUME (COOKING/NORMAL OPERATION) THESE SPEEDS SHALL BE DETERMINED BY THE TAB CONTRACTOR AND PROGRAMMED BY THE UNIT MANUFACTURER DURING CONFIGURING THE UNIT. REFER TO TABLE FOR DESIGN SUPPLY & OUTSIDE AIR QUANTITIES IN EACH MODE.

COOLING SEQUENCE: THE COOLING IS CONTROLLED TO MAINTAIN THE SPACE TEMPERATURE SET POINT. THE MECHANICAL COOLING WILL BE LOCKED OUT WHEN THE OUTSIDE AIR IS < 55°F – 2°F HYSTERESIS, ADJUSTABLE.

PACKAGED DX COOLING: UNIT IS PROVIDED WITH A VARIABLE SPEED COMPRESSOR AND ECM CONDENSING FANS. DDC WILL PROVIDE A DIGITAL SIGNAL TO MODULATE THE COOLING TO MAINTAIN THE SPACE TEMPERATURE SET POINT (ADJ.). THIS SIGNAL WILL COME WIRED TO THE FACTORY PROVIDED CONDENSING SECTION.

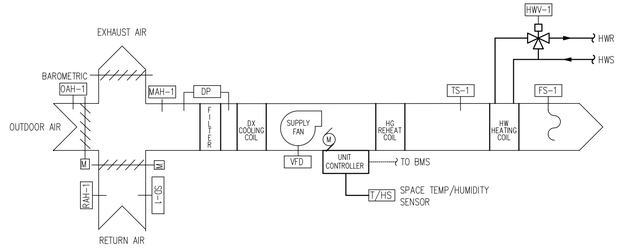
DEHUMIDIFICATION SEQUENCE: THE COOLING IS CONTROLLED TO MAINTAIN THE EVAPORATIVE COIL DEW POINT TEMPERATURE OF 57°F. THE DEHUMIDIFICATION SEQUENCE WILL BE LOCKED OUT WHEN THE OA TEMPERATURE IS LESS THAN 47°F.

HOT GAS REHEAT SEQUENCE: WHEN THE SPACE DEWPOINT CONTROLLER CALLS FOR DEHUMIDIFICATION, THE OUTDOOR AIR CAN BE REHEATED VIA MODULATING HOT GAS REHEAT FOR SPACE NEUTRAL APPLICATIONS. THE CONTROLLER WILL MODULATE THE HOT GAS REHEAT REHEAT VALVE WITH A 0–10 V SIGNAL TO MAINTAIN THE SUPPLY TEMPERATURE SET POINT (ADJ.).

HEATING SEQUENCE: THE HEATING IS CONTROLLED TO MAINTAIN THE SPACE TEMPERATURE SET POINT. THE HEATING WILL BE LOCKED OUT WHEN THE OUTSIDE AIR IS > 70°F + 2°F HYSTERESIS, ADJUSTABLE.
GAS HEAT: DDC WILL MODULATE A GAS HEATER TO MAINTAIN THE SUPPLY TEMPERATURE SET POINT (ADJ.).

BUILDING FREEZE PROTECTION: IF THE SUPPLY AIR TEMPERATURE DROPS BELOW 45°F (ADJUSTABLE), THE DDC WILL DE-ENERGIZE THE UNIT AND ACTIVATE THE ALARM OUTPUT AFTER A PRESET TIME DELAY.

ALARMS:
- THE ROOFTOP SUPPLY AIR FAN IS DE-ENERGIZED BY THE SMOKE DETECTOR ACTIVATION AND ALARMS TO THE BUILDING FIRE ALARM SYSTEM.
- THE LOW TEMPERATURE ALARM IS ACTIVATED WHEN THE AIR TEMPERATURE IS BELOW 38°F.
- THE SPACE TEMPERATURE DEVIATES FROM SETPOINT BY 5°F. (ADJUSTABLE)
- THE SUPPLY AIR FAN FAILS
- VFD GENERAL ALARM
- CLOGGED FILTER
- REFRIGERANT DETECTION SYSTEM



6 RTU-G105 CONTROL DIAGRAM
SCALE: NONE

POINTS LIST					
POINT DESIGNATION	POINT DESCRIPTION	POINT TYPE	PART NO. AND/OR DESCRIPTION	SYSTEM INTEGRATION	NOTES
RAD-1	RETURN AIR DAMPER	ANALOG OUTPUT	–	BAS	PROVIDE ACTUATOR
OAD-1	OUTSIDE AIR DAMPER	ANALOG OUTPUT	–	BAS	PROVIDE ACTUATOR
DP-1	DIFF PRESS FILTER	DIGITAL INPUT	–	BAS	0-1.5"WC
SF-1	FAN STATUS	DIGITAL INPUT	–	BAS	THRU VFD
SSF-1	FAN START/STOP	DIGITAL OUTPUT	–	BAS	THRU VFD
SPEEDSF-1	FAN SPEED	ANALOG OUTPUT	–	BAS	THRU VFD
TS-1	DISCHARGE AIR TEMPERATURE	ANALOG INPUT	–	BAS	0-150°F
FS-1	FREEZESTAT	DIGITAL INPUT	–	BAS	SET AT 38°F (NOTE 5)
SD-1	RA SMOKE DETECTOR	DIGITAL INPUT	–	BAS	NOTE 3
TH-1	TEMP/HUMIDITY	ANALOG INPUT	VAISALA NOTE 2	BAS	0-100°F, 0-100RH%
HWV-1	HOT WATER CONTROL VALVE	ANALOG OUTPUT	–	BAS	CONTROL EX. CONTROL VALVE
OAH-1	OA ENTHALPY	ANALOG INPUT	–	BAS	–
MAH-1	MIXED AIR ENTHALPY	ANALOG INPUT	–	BAS	–
RAH-1	RETURN AIR ENTHALPY	ANALOG INPUT	–	BAS	–

POINTS LIST NOTES

1. BAS CONTRACTOR SHALL INCLUDE 8 HOURS TO ASSIST WITH TESTING OF SYSTEMS TO PROVE SEQUENCE OF OPERATIONS.
2. BAS CONTRACTOR SHALL PROVIDE AND INSTALL VAISALA WALL MOUNTED TEMPERATURE AND HUMIDITY SENSOR HMW92D.
3. SMOKE DETECTOR SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. POWER WIRING BY THE ELECTRICAL CONTRACTOR. FIRE ALARM CONTRACTOR SHALL TIE THE SMOKE DETECTOR INTO THE BUILDING FIRE ALARM SYSTEM. THE BMS SHALL ALSO MONITOR THE SMOKE DETECTOR.
4. BAS CONTRACTOR SHALL MAP ROOFTOP POINTS TO THE TRIDIUM SYSTEM. OWNER/ENGINEER TO DETERMINE WHICH POINTS TO MAP.
5. PROVIDE A 20 FT SENSING ELEMENT, MANUAL RESET SWITCH, AND GROMMET WITH CLIPS FOR MOUNTING SENSING ELEMENT IN DUCT.

RTU-G105 CONTROL SEQUENCE OF OPERATION

THE ROOFTOP SHALL INCLUDE AN INTERGRAL CONTROLLER SUPPLIED BY THE ROOFTOP MANUFACTURER. THE MANUFACTURER REPRESENTATIVE SHALL CONFIGURE THE SYSTEM FOR THE SEQUENCE BELOW. A HONEYWELL CONTROLLER SHALL PROVIDED TO CONTROL THE HOT WATER CONTROL VALVE. THE ROOFTOP UNIT SHALL BE INTEGRATED INTO THE EXISTING TRIDIUM BAS SYSTEM. THE UNIT CONTROLLER SHALL MONITOR AND CONTROL THE MECHANICAL FUNCTIONS OF THE ROOFTOP UNIT. DATA FROM THIS CONTROLLER SHALL COMMUNICATE THROUGH A BACNET MSTP MODULE TO THE TRIDIUM CONTROL SYSTEM. BAS CONTRACTOR IS RESPONSIBLE FOR CONFIGURING AND MAPPING THE AVAILABLE POINTS FROM THE ROOFTOP CONTROLLER AND PROVIDING INPUT/OUTPUT CONTROLLER, END DEVICES AND PROGRAMMING FOR THE HEATING FUNCTION OF THE SYSTEM.

ENERGIZED/DE-ENERGIZE:
THE ROOFTOP SHALL BE ENERGIZED/DE-ENERGIZED THROUGH THE BAS SYSTEM. THE ROOFTOP UNIT SHALL BE SCHEDULED FOR AUTOMATIC OPERATION ON A TIME OF DAY BASIS FOR OCCUPIED AND UNOCCUPIED MODES. (OCCUPIED 5:000AM TO 10:00PM ADJUSTABLE)

OCCUPIED: THE SYSTEM SHALL HAVE AN OPTIMAL START SEQUENCE. DURING THE OPTIMAL START, THE SUPPLY AIR FAN SHALL START AND THE DAMPERS SHALL BE POSITIONED FOR 100% RE-CIRCULATION. THE AIR HANDLER UNIT SHALL OPERATE TO ACHIEVE THE OCCUPIED MODE TEMPERATURE SET POINT OF 72°F (ADJUST) AT THE SPACE TEMPERATURE/HUMIDITY SENSOR BY THE OCCUPIED TIME. THE PROGRAM SHALL BE CAPABLE OF LEARNING THE OPTIMAL TIME TO START BASED ON THE OUTDOOR AIR TEMPERATURE AND SPACE TEMPERATURE.

ONCE THE OCCUPIED MODE TIME AND TEMPERATURE IS REACHED, THE OUTSIDE AIR DAMPER SHALL OPEN TO ITS MINIMUM VENTILATION POSITION (FAIL-SAFE CLOSED) AND THE RETURN AIR DAMPER (FAIL-SAFE OPEN) AND THE EXISTING RELIEF DAMPER SHALL OPEN AS THE SUPPLY AIR FAN STARTS. THE ROOFTOP UNIT SHALL MAINTAIN A SPACE TEMPERATURE OF 72°F (ADJ.) AND MAINTAIN THE RELATIVE HUMIDITY BELOW 55%. IF THE TEMPERATURE IS SATISFIED BUT THE RELATIVE HUMIDITY REACHES ITS SET POINT, THE DEHUMIFICATION MODE WILL BE ENERGIZED AND THE HOT GAS REHEAT COIL WILL ENABLE TO MAINTAIN THE SPACE SET POINT. IF THE SPACE TEMPERATURE DROPS TO 2°F BELOW SET POINT THE HOT WATER HEATING COIL CONTROL VALVE (FAIL-SAFE OPEN) SHALL MODULATE TO MAINTAIN THE SPACE SET POINT.

UN-OCCUPIED:
THE ROOFTOP UNIT SHALL DE-ENERGIZE AND ALL DAMPERS SHALL GO TO THEIR FAIL-SAFE POSITION BASED ON AN OPTIMAL START STRATEGY.

UN-OCCUPIED SETBACK: THE SYSTEM SHALL MAINTAIN THE SET-UP TEMPERATURE OF 63°F (ADJUST) IN THE SPACE. IF TEMPERATURE SENSOR IN THE SPACE SENSES A TEMPERATURE BELOW SET POINT, THE ROOFTOP UNIT SHALL START AND THE HOT WATER HEATING COIL HEAT THE SPACE UNTIL THE SPACE TEMPERATURE REACHES 67°F (ADJUST). THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE RETURN AIR DAMPER SHALL REMAIN OPEN.

UN-OCCUPIED SET-UP: THE SYSTEM SHALL MAINTAIN THE SET BACK TEMPERATURE OF 80°F (ADJUST) IN THE SPACE. IF TEMPERATURE SENSOR SENSES A TEMPERATURE ABOVE SET POINT, THE ROOFTOP UNIT SHALL START AND THE HOT WATER HEATING COIL HEAT THE SPACE UNTIL THE SPACE TEMPERATURE REACHES 76°F (ADJUST). THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE RETURN AIR DAMPER SHALL REMAIN OPEN.

AIR-SIDE ECONOMIZER:
THE AIR HANDLER SHALL HAVE AN AIR-SIDE ENTHALPY CONTROLLED ECONOMIZER. IF THE MIXED AIR ENTHALPY IS GREATER THAN THE OUTSIDE AIR ENTHALPY, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN. THE RETURN AIR DAMPER SHALL CLOSED IN PROPORTION TO THE OUTSIDE AIR DAMPER.

SAFETIES:
THE SMOKE DETECTOR SYSTEM IS INTERLOCKED TO THE SUPPLY AIR FAN. THE SMOKE DETECTOR SHALL DE-ENERGIZE THE SUPPLY AIR FAN UPON ACTIVATION. THE AIR DAMPERS SHALL GO TO THEIR FAIL-SAFE POSITIONS.

A LOW TEMPERATURE STAT IN THE DISCHARGE OF THE ROOFTOP UNIT SHALL DE-ENERGIZE THE SUPPLY AIR FAN WHEN THE TEMPERATURE IS BELOW SUPPLY AIR SET POINT OF 45°F (ADJUST), AN ALARM SHALL BE ENUNCIATED BACK TO THE BAS. THE AIR DAMPERS SHALL GO TO THEIR FAIL-SAFE POSITIONS.

A CURRENT SWITCH ON THE SUPPLY AIR FAN AND RELIEF AIR FANS SHALL CONFIRM IF THE FANS ARE IN THE DESIRED STATE.

ALARMS:
- THE ROOFTOP UNIT IS DE-ENERGIZED BY THE SMOKE DETECTOR ACTIVATION AND ALARMS TO BUILDING FIRE ALARM SYSTEM.
- THE LOW TEMPERATURE ALARM IS ACTIVATED WHEN THE AIR TEMPERATURE IS BELOW 45°F (ADJUST)
- THE SPACE TEMPERATURE DEVIATES FROM SET POINT BY 5°F. (ADJUSTABLE)
- THE SPACE RELATIVE HUMIDITY EXCEEDS 60%RH.
- THE SUPPLY AIR FAN FAILS.
- VFD GENERAL ALARM
- CLOGGED FILTER
- REFRIGERANT DETECTION SYSTEM

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607
Project Date
10.31.2025
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Drawn By
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Scale
AS NOTED

Drawing Name
MECHANICAL - CONTROLS SHEET 2

Revisions

No.	Date	Description

Drawing Number
M-08

ROOFTOP UNIT SCHEDULE

UNIT NO.	MFR	MODEL	SERVICE	SUPPLY FAN SECTION: SUPPLY CFM	O.A. CFM	ESP (IN WG)	NO OF SA FANS	SPEED (RPM)	HP (EA)	RETURN / EXHAUST FAN SECTION: CFM	ESP (IN WG)	NO OF FANS	SPEED (RPM)	HP (EA)	DX COOLING COIL: TOTAL CAP (MBH)	SENS CAP (MBH)	ROWS	FINS/IN	EAT (DB/WB)	LAT (DB/WB)	FACE VEL. (FPM)	REFRIG TYPE	GAS HEAT: INPUT (MBH)	OUTPUT (MBH)	EAT (°F)	LAT (°F)	HEAT PUMP HEATING: CAPACITY (MBH)	EAT (DB)	LAT (WB)	HOT GAS REHEAT: CAPACITY (MBH)	LAT (DB)	LAT (WB)	PRE FILTER SECTION: EFFICIENCY (%)	ELECTRICAL SECTION: VOLTS	PHASE	HERTZ	FLA	MCA	MOCP	WEIGHT: OPERATING (LBS)	REMARKS
RTU-G105	TRANE	WHK060A4S00**H2C0A1B1A0A4	DRAMA ROOM	2000	500	1.8	1	1335	3	–	–	–	–	–	58.2	45.5	–	–	80/67	57/57	–	R-454B	–	–	–	–	55.1	70	99.7	47.5	74.6	61.35	4" – MERV 13	460	3	60	14.8	17	20	982	NOTES 1,8,9,10
HVN–1	TRANE	CSAA035	GYM	20000	10000	2.4	2	1800	20	20000	1.0	2	1800	10	–	–	–	–	–	–	–	–	1875	1500	35	103.2	–	–	–	–	–	–	4" – MERV 13	460	3	60	80	93	125	10440	NOTES 2,7,8,9,10
HVN–C1	AAON	RNA–016–C–A–3–00000–CB3K0	POOL/LOCKER CORRIDOR	4500	1000	1.5	1	1168	5	–	–	–	–	–	–	–	–	–	–	–	–	–	540	437.4	52	100	–	–	–	–	–	–	4" – MERV 13	460	3	60	9	11	15	1890	NOTES 3,8,9,10
HVN–L1	AAON	RNA–009–B–A–3–00000–CB3L0	BOYS' LOCKERS	3200	3200	1.5	1	1768	3	–	–	–	–	–	–	–	–	–	–	–	–	–	390	315.9	10	101.2	–	–	–	–	–	–	4" – MERV 13	460	3	60	6	7	15	1130	NOTES 4,8,9,10
HVN–L2	AAON	RNA–009–B–A–3–00000–CB3L0	GIRLS' LOCKERS	3850	3850	2	1	2047	5	–	–	–	–	–	–	–	–	–	–	–	–	–	390	315.9	10	85.8	–	–	–	–	–	–	4" – MERV 13	460	3	60	8.3	10	15	1142	NOTES 4,8,9,10
RTU–K–1	AAON	RNA–025–C–A–3–GAB0C–CB2L0	KITCHEN	5300	5300	1.5	1	1217	5	–	–	–	–	–	309.5	202.9	6	12	95/75	58.2/57	266.9	R-454B	540	432.1	10	86	–	–	–	101.2	75	63.2	4" – MERV 13	460	3	60	58	63	80	2977	NOTES 5,8,9,10
AHU–N–2	AAON	RNA–007–A–A–3–FAA02–00000	CST SUITE	2150	300	2	1	1809	3	2150	1.0	1	1021	2	69.2	52.9	3	14	77.8/64.0	52.9/52.0	252.7	R-454B	–	–	–	–	–	–	–	50.9	75	60.6	4" – MERV 13	460	3	60	19	22	30	1190	NOTES 6,8,9,10

NOTES:
1. PROVIDE WITH SINGLE ZONE VAV CONTROLLER, 2" DOUBLE WALL CONSTRUCTION, BACNET MSTP, VFD FOR SUPPLY AIR FAN, NON–FUSED DISCONNECT SWITCH, PHASE PROTECTION, 115V OUTLET, FULLY MODULATING ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF, DOWN FLOW ECONOMIZER RAIN HOOD, SS DRAIN PAN, PREMIUM EFFICIENCY MOTOR, MODULATING OA AND RA DAMPERS FOR 100% ECONOMIZER OPERATION, HOT GAS REHEAT COIL, DEHUMIDIFICATION CONTROL, CLOGGED FILTER AND CONDENSATE OVERFLOW SWITCHES, REMOTE SAFETY SHUTDOWN TERMINALS, DIGITAL TEMPERATURE AND HUMIDITY SENSOR, RETURN AIR SMOKE DETECTOR, REFRIGERANT SAFETY SYSTEM COMPLIANT WITH IMC. PROVIDE 14" HIGH SEISMIC CURB FOR THE UNIT.
2. PROVIDE 2" R13 DOUBLE WALL CONSTRUCTION WITH THERMAL BREAK, VFD FOR SUPPLY AIR FAN, PREMIUM EFFICIENCY MOTOR, WEATHER HOODS, STAINLESS STEEL DRAIN PAN, OUTSIDE AIR DAMPERS AND ACTUATORS, FAN ISOLATION, CLOGGED FILTER SWITCH, DIGITAL TEMPERATURE SPACE SENSOR, 14" SIESMIC ROOF CURB, DIRECT DRIVE PLENUM FAN & 115V CONVENIENCE OUTLET.
3. PROVIDE WITH CONSTANT AIRFLOW VOLUME CONTROLLER, 2" R13 DOUBLE WALL CONSTRUCTION, DIGITAL SPACE TEMPERATURE SENSOR, BACNET MSTP, NON–FUSED DISCONNECT SWITCH, 115V OUTLET, PHASE PROTECTION, CLOGGED FILTER SWITCH, REMOTE SAFETY SHUTDOWN TERMINALS, VFD FOR SUPPLY FAN, PREMIUM EFFICIENCY MOTOR, AIR FLOW MONITORING STATION FOR OA, 24" SIESMIC 2" INSULATED PLENUM ROOF CURB (BOTTOM SOLID, CONTRACTOR SHALL CUT OPENINGS IN FIELD AND SPECIFY LOCATION OF DIVIDER BETWEEN SUPPLY AND RETURN AIR OPENINGS, MODULATING GAS HEAT WITH 10:1 TURNDOWN.
4. PROVIDE WITH CONSTANT AIRFLOW VOLUME AND MUA CONTROLLER, 2" R13 DOUBLE WALL CONSTRUCTION, DIGITAL SPACE TEMPERATURE SENSOR, SUPPLY AND OA TEMP SENSORS, BACNET MSTP, NON–FUSED DISCONNECT SWITCH, 115V OUTLET, PHASE PROTECTION, CLOGGED FILTER SWITCH, REMOTE SAFETY SHUTDOWN TERMINALS, VFD FOR SUPPLY FAN, PREMIUM EFFICIENCY MOTOR, AIR FLOW MONITORING STATION FOR OA, 14" SIESMIC ROOF CURB (TRANSITION TO EXISTING DUCTWORK TO BE ACHIEVED IN CURB. CONTRACTOR SHALL VERIFY HEIGHT OF CURB DURING SHOP DRAWINGS SUBMITTAL), STAINLESS STEEL HEX WITH MODULATING GAS HEAT WITH 10:1 TURNDOWN.

NOTES:
5. PROVIDE WITH VARIABLE AIRFLOW VOLUME CONTROLLER, 2" R13 DOUBLE WALL CONSTRUCTION, DIGITAL SPACE TEMPERATURE & HUMIDITY SENSOR, MODULATING HOT GAS REHEAT, BACNET MSTP, NON–FUSED DISCONNECT SWITCH, 115V OUTLET, PHASE PROTECTION, CLOGGED FILTER SWITCH, REMOTE SAFETY SHUTDOWN TERMINALS, FULLY MODULATING ENTHALPY ECONOMIZER, DIGITAL SCROLL COMPRESSOR, A2L REFRIGERANT SAFETY SYSTEM COMPLIANT WITH IMC 2024, SS DRAIN PAN, VFD FOR SUPPLY FAN, PREMIUM EFFICIENCY MOTOR, BAROMETRIC RELIEF, AIR FLOW MONITORING STATION FOR OA, MODULATING OA AND RA DAMPERS FOR 100% ECONOMIZER OPERATION, ECM CONTROLLED CONDENSER FAN, STAINLESS STEEL HEX WITH MODULATING GAS HEAT WITH 18:1 TURNDOWN (RTU–K–1 ONLY), 24" SIESMIC 2" INSULATED PLENUM ROOF CURB (BOTTOM SOLID, CONTRACTOR SHALL CUT OPENINGS IN FIELD AND SPECIFY LOCATION OF DIVIDER BETWEEN SUPPLY AND RETURN AIR OPENINGS DURING SHOP DRAWING SUBMITTAL.
6. PROVIDE WITH VARIABLE AIRFLOW VOLUME CONTROLLER, 2" R13 DOUBLE WALL CONSTRUCTION, DIGITAL SPACE TEMPERATURE & HUMIDITY SENSOR, MODULATING HOT GAS REHEAT, BACNET MSTP, NON–FUSED DISCONNECT SWITCH, 115V OUTLET, PHASE PROTECTION, CLOGGED FILTER SWITCH, REMOTE SAFETY SHUTDOWN TERMINALS, FULLY MODULATING ENTHALPY ECONOMIZER, DIGITAL SCROLL COMPRESSOR, A2L REFRIGERANT SAFETY SYSTEM COMPLIANT WITH IMC 2024, SS DRAIN PAN, VFD FOR SUPPLY FAN, PREMIUM EFFICIENCY MOTOR, BAROMETRIC RELIEF, AIR FLOW MONITORING STATION FOR OA, MODULATING OA AND RA DAMPERS FOR 100% ECONOMIZER OPERATION, ECM CONTROLLED CONDENSER FAN, 14" SIESMIC ROOF CURB.
7. UNIT REQUIRES A SECOND 480V 3PH 60HZ 15A CIRCUIT FOR THE GAS HEAT. DISCONNECTS FOR BOTH CIRCUITS SHALL BE LOCATED ON THE LEFT SIDE OF THE UNIT.
8. PROVIDE START–UP FOR THE MECHANICAL AND MAPPING OF POINTS. PROVIDE AN ADDITIONAL 8HRS FOR ASSISTANCE ON COMMISSIONING OF UNIT. ALL ITEMS PROVIDED BY MANUFACTURER REPRESENTATIVE. PROVIDE TWO (2), 8 HR DAYS OF TRAINING FOR OWNER AT TWO SEPARATE TIMES AS FACILITY PERSONNEL WILL NOT BE AVAILABLE FOR A SINGLE TRAINING CLASS.
9. WEIGHT OF UNIT DOES NOT INCLUDE WEIGHT OF SUPPORT CURB. CONTRACTOR SHALL CONFIRM CURB SIZE AND DUCT ORIENTATION THROUGH DUCT SHOP DRAWINGS BEFORE PROVIDING SUBMITTALS FOR CURBS.
10. PROVIDE TWO (2) YEAR WARRANTY ON ALL PARTS AND LABOR. WHERE HVAC UNITS HAVE A DX COOLING CIRCUIT(S), PROVIDE A FOUR (4) YEAR EXTENDED WARRANTY ON COMPRESSORS & COMPRESSOR PARTS.

SPLIT SYSTEM SCHEDULE

UNIT NO.	MFR	MODEL	SERVICE	BLOWER SECTION: SUPPLY CFM	O.A. CFM	SUPPLY FAN HP	COOLING SECTION: TOTAL CAP (MBH)	SENS CAP (MBH)	EAT (DB/WB)	LAT (DB/WB)	HEATING – ELEC HEAT: kW	EAT (DB)	LAT (DB)	FLA (AMPS)	MCA (AMPS)	MOP (AMPS)	POWER (V/PH/HZ)	HEATING – HEAT PUMP: TOTAL CAP (MBH)	EAT (DB)	LAT (DB)	ELECTRICAL SECTION – EVAPORATORS: FLA (AMPS)	MCA (AMPS)	MOP (AMPS)	POWER (V/PH/HZ)	FILTER SECTION: FILTER	WEIGHT (LBS)	REMARKS
AC–1	TRANE	5TAMXC03AV31	POOL OBSERVATION RM	525	100	3/4	18.4	12.9	80/67	56.8/55.3	–	–	–	–	–	–	–	11.2	70	89.7	–	5	15	208/1/60	MERV 8	142	SEE NOTES
AC–3	TRANE	5TAMXD04AV31	BOYS' COACH OFFICE	525	50	3/4	18.4	12.9	80/67	56.8/55.3	2.9	70	87.3	13.8	22	25	208/1/60	11.2	70	89.7	–	5	15	208/1/60	MERV 8	142	SEE NOTES

NOTES:
1. PROVIDE BACNET INTERFACE, WALL MOUNTED TEMPERATURE SENSOR, CONDENSATE PUMP WITH RESERVOIR AND SENSOR, HIGH EFFICIENCY FILTER, LOW AMBIENT, WIND BAFFLES, HAIL GUARD.
2. PROVIDE A TWO (2) YEAR WARRANTY ON PARTS AND LABOR AND A FOUR (4) YEAR EXTENDED WARRANTY ON COMPRESSOR & COMPRESSOR PARTS.
3. PROVIDE FACTORY START–UP, COMMISSIONING AND BACNET POINT MAPPING. PROVIDE FOUR (4) HOURS FOR TRAINING.

CONDENSING UNIT SCHEDULE

UNIT NO.	MFR	MODEL	LOCATION	CAPACITY: NOMINAL TONNAGE	SEER2	ELECTRICAL SECTION: MCA (AMPS)	MOP (AMPS)	POWER (V/PH/HZ)	REFRIG	WEIGHT (LBS)
ACC–1	TRANE	5TWR4018A1	ROOF	1.5	14.3	12	20	208/1/60	R–454B	174
ACC–1	TRANE	5TWR4018A1	ROOF	1.5	14.3	12	20	208/1/60	R–454B	174

HOT WATER COIL SCHEDULE

UNIT NO.	MANUF.	MODEL	ROOM	FIN HEIGHT (IN)	FIN LENGTH (IN)	AREA (SQ FT)	WIDTH (IN)	AIRFLOW (CFM)	VEL (FPM)	APD ("WC)	EAT (F)	LAT (F)	EWT (F)	LWT (F)	CAPACITY (MBH)	GPM	WATER PD (FT)	ROWS	DRY WT (LBS)	REMARKS
HWC–1	TRANE	DWLB24018G0BA172DAAA0AA	G105 DRAMA	18	24	3.0	8	2,000	667	.39	35	110	180	160	162.7	16.3	0..83	2	62.5	SEE NOTES

NOTES:
1. PROVIDE FLANGED CONNECTIONS ON BOTH SIDES FOR DUCT CONNECTION, 16GA GALVANIZED STEEL COIL CASING, ALUMINUM FIN MATERIAL, 174 FINS/FT., .016" COPPER TUBE THICKNESS, COPPER COIL CONNECTION, 3/8" DRAIN AND VENT CONNECTIONS. CAPACITY BASED ON WATER.
2. CONTRACTOR SHALL VERIFY SPACE AND SIZING DURING SHOP DRAWING SUBMITTAL BEFORE SUBMITTING COIL TO ENSURE COIL CAN BE INSTALLED WITHOUT CONFLICTS.

PIPE SERVICE SCHEDULE

SERVICE	PIPE MATERIAL	FITTINGS
HOT WATER PIPING	TYPE "L" COPPER PIPING	TYPE "L" COPPER/BRONZE FITTINGS, SODERED JOINTS
COLD CONDENSATE	TYPE "L" COPPER PIPING	TYPE "L" COPPER/BRONZE FITTINGS, SODERED JOINTS
REFRIGERANT LIQUID & SUCTION	TYPE ACR "L" COPPER PIPING	TYPE "L" COPPER/BRONZE FITTINGS, BRAZED JOINTS

NOTES:
1. MECHANICAL JOINTS SUCH AS PRO–PRESS FITTING ARE NOT ALLOWED.

PIPE INSULATION SERVICE SCHEDULE

SERVICE	INSULATION MATERIAL	JACKET
HOT WATER PIPING	FIBERGLASS INSULATION (NOTE 2)	VAPOR BARRIER AND ASJ JACKET – PVC JACKET FOR FITTINGS
COLD CONDENSATE	1/2" FIBERGLASS INSULATION	VAPOR BARRIER AND ASJ JACKET – PVC JACKET FOR FITTINGS
REFRIGERANT SUCTION	1/2" FIBERGLASS INSULATION	VAPOR BARRIER AND ASJ JACKET – PVC JACKET AND FITTINGS

NOTES:
1. ZESTON, 300 SERIES PVC JACKETING AND FITTING COVERS (30MIL) COLOR SHALL BE WHITE.
2. DIAMETER LESS THAN 1 ½" USE 1 ½" OF INSULATION. DIAMETER GREATER THAN 1 ½" USE 2" OF INSULATION.

VAV UNITS WITH HW REHEAT COIL SCHEDULE

UNIT NO.	MANUF.	MODEL	INLET (IN)	MAX. AIRFLOW (CFM)	MIN. AIRFLOW (CFM)	APD ("WC)	POWER (VOLTS)	HTG. AIRFLOW (CFM)	EAT (F)	LAT (F)	EWT (F)	LWT (F)	CAPACITY (MBH)	GPM	WATER PD (FT)	ROWS	REMARKS
VAV–1	TITUS	DESV	7	450	180	.07	24	180	54	95	180	166	8.0	1.2	.77	1	NOTES
VAV–2	TITUS	DESV	5	225	90	.04	24	90	54	95	180	156	4.0	1	.10	1	NOTES
VAV–3	TITUS	DESV	7	420	170	.07	24	170	54	95	180	163	7.6	1	.50	1	NOTES
VAV–4	TITUS	DESV	7	450	180	.07	24	180	54	95	180	166	8.0	1.2	.77	1	NOTES
VAV–5	TITUS	DESV	7	380	155	.06	24	155	54	95	180	159	6.9	1	.26	1	NOTES
VAV–6	TITUS	DESV	5	225	90	.04	24	90	54	95	180	156	4	1	.10	1	NOTES
VAV–7	TITUS	DESV	5	200	80	.03	24	80	54	96	180	155	3.7	1	.10	1	NOTES

NOTES:
1. PROVIDE 1" ECO–SHIELD LINER INSULATION, 120/24V TRANSFORMER, AIR FLOW STATION. HOT WATER COILS COPPER TUBE WITH .016"THICKNESS WITH 10 FPI ALUMINUM FINS.

DUCT SERVICE SCHEDULE

SERVICE	DUCT MATERIAL	PRESSURE CLASS
SUPPLY/RETURN INTERIOR	GALVANIZED STEEL	4" PRESSURE CLASS – FLANGED AND GASKETED FITTINGS
GENERAL RETURN / EXHAUST	GALVANIZED STEEL	NEG. 4" PRESSURE CLASS – FLANGED AND GASKETED FITTINGS
SUPPLY/RETURN EXTERIOR	GALVALUME STEEL	NEG. 6" PRESSURE CLASS – FLANGED AND GASKETED FITTINGS DOUBLE WALL CONSTRUCTION, 2" 6 PCF FIBERGLASS INSULATION

NOTES:
1. OUTDOOR SUPPLY AND RETURN DUCTWORK SHALL BE PAINTED. SEE SPECIFICATION.

DUCT INSULATION SERVICE SCHEDULE

LOCATION	INSULATION MATERIAL	MIN R–VALUE	JACKET
SUPPLY DUCTWORK INTERIOR CONCEALED	2" 1.5 PCF FIBERGLASS INSULATION	6.0	FOIL AND PAPER JACKET WITH VAPOR BARRIER (NOTE 1)
SUPPLY DUCTWORK INTERIOR EXPOSED	2" 6 PCF FIBERGLASS BOARD INSULATION	6.0	WITH VAPOR BARRIER AND MATALLIC SURFACE (NOTE 2)

NOTES:
1. JOHNS MANVILLE MICROLITE, EQ FSK TYPE.
2. CERTAINTEED CERTA–PRO DUCT BOARD. FOIL TAPE ALL JOINTS. SECURE INSULATION USING 10 GA WELD PINS. ADHESIVE PINS ARE NOT ALLOWED.

EXHAUST FAN SCHEDULE

UNIT NO.	MFR	MODEL	LOCATION	AREA SERVED	CFM	E.S.P. (IN W.G.)	FAN (RPM)	ELECTRICAL: VOLTS	PHASE	HERTZ	HP	WEIGHT (LBS)	REMARKS
E–11	GREENHECK	GB–100HP–4	ROOF	DISHWASHER HOOD	400	1.0	1757	208	3	60	1/4	55	1

NOTES:
1. PROVIDE FAN WITH BACKDRAFT DAMPER, 14" GPI–19 HIGH ROOF CURB, GALVANIZED BIRDSCREEN, NEMA 3 TOGGLE SWITCH, PRE–WIRED DISCONNECT SWITCH & VARI–GREEN MOTOR. (SPEED DIAL ON MOTOR)

DAMPER SCHEDULE

UNIT	TYPE	FUNCTION	MAUNFACTURER	MODEL	NOTES
VD	VOLUME	CONTROL/BALANCING	GREENHECK	VCD–23	1
VD	VOLUME	CONTROL/BALANCING	GREENHECK	VCDR–50	2

NOTES:
1. PROVIDE WITH GALVANIZED CONSTRUCTION WITH TPE BLADE SEALS. DAMPER SHALL BE RATED FOR 5"WG
2. PROVIDE WITH GALVANIZED CONSTRUCTION WITH BRONZE AXLE BEARINGS. SEALS. DAMPER SHALL BE RATED FOR 4"WG

EXHAUST HOOD SCHEDULE

UNIT NO.	MFR	MODEL	LOCATION	AREA SERVED	SIZE (LxWxH)	CFM	APD (IN W.G.)	MATERIAL	WEIGHT (LBS)	REMARKS
HD–1	GREENHECK	GD2	KITCHEN	DISHWASHER	3'x3'x2'	400	0.307	430 SS	83	1, 2

NOTES:
1. COORDINATE MOUNTING DETAIL WITH ARCHITECTURAL PLANS.
2. INCLUDE CONDENSATE BAFFLE & 1/2" CONDENSATE DRAIN CONNECTION.

VALVE SCHEDULE

SERVICE	FUNCTION	VALVE SIZE (IN)	VALVE TYPE	MAUNFACTURER/ MODEL NUMBER	DESCRIPTION	RATING
HOT WATER	ISOLATION	UP TO 2–1/2"	BALL VALVE	NIBCO / 585–70	CLASS 300, 2–PIECE BODY, FULL PORT, REINFORCED TFE SEATS	RATED FOR 200 PSIG AT 300 F
HOT WATER	PICV	UP TO 2"	CONTROL VALVE	BELL & GOSSET ULTRA SETTER	BRASS BODY, BRASS FLOW SETTING, MODULATION CARTRIDGE	MAX PRESSURE 400 PSIG TEMP RANGE 32–250F
HOT WATER	CHECK	UP TO 2–1/2"	CHECK VALVE	NIBCO / T–433	CLASS 150, Y–PATTERN, BRONZE BODY, AND BONNET, BRONZE SEAT DISC	RATED FOR 200 PSIG AT 300 F
HOT WATER	BALANCING	UP TO 2–1/2"	CIRCUIT SETTER	BELL & GOSSET PLUS CB–3/4S	CLASS 150, BRONZE BODY, 304SS BALL, STEM O RING EPDM	RATED FOR 250 PSIG AT 225 F

AIR DEVICE SCHEDULE

UNIT NO.	MFR	MODEL	DESCRIPTION	MATERIAL	COLOR	MOUNTING	REMARKS
SG–1	PRICE	520	SIDEWALL SUPPLY GRILLE	STEEL	–	WALL	NOTE 1,2
CD–1	PRICE	SPD	CEILING PLAQUE DIFFUSER	STEEL	WHITE	LAY–IN	NOTE 3
RG–1	PRICE	SPD	CEILING PLAQUE DIFFUSER	STEEL	WHITE	LAY–IN	NOTE 3
RG–2	PRICE	510Z	SIDEWALL RETURN GRILLE	STEEL	–	WALL	NOTE 2,4
RG–3	PRICE	82	CEILING RETURN GRILLE	ALUMINUM	–	LAY–IN	NOTE 5

NOTES:
1. 3/4" BLADE SPACING, DOUBLE DEFLECTION GRILLE WITH FRONT BLADES PARALLEL TO THE LONG DIMENSION.
2. GRILLES SHALL BE PAINTED TO MATCH THE COLOR OF THE WALL. COORDINATE WITH OWNER & ARCHITECT FOR COLOR SELECTION.
3. 24x24 MODULE WITH ROUND NECK. PROVIDE WITH EXTERNAL FOIL BACK INSULATION.
4. RETURN GRILLE WITH 0° DEFLECTION & 3/4" BLADE SPACING.
5. GRILLE TO BE WHITE. 0° CORE, 1" SQUARE & 1" DEPTH.

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN–L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN–L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU–N–2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

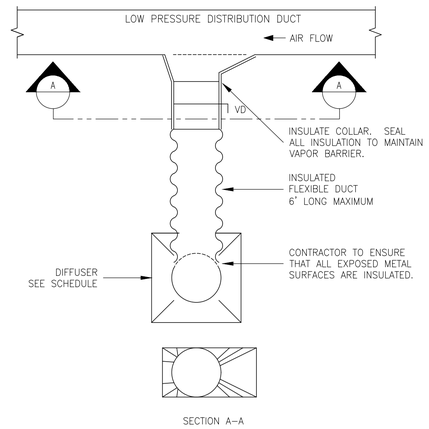
Project Number
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Project Date
10.31.2025
Checked By
JTM
Drawn By
JCS
Scale
AS NOTED

Drawing Name
MECHANICAL - SCHEDULES

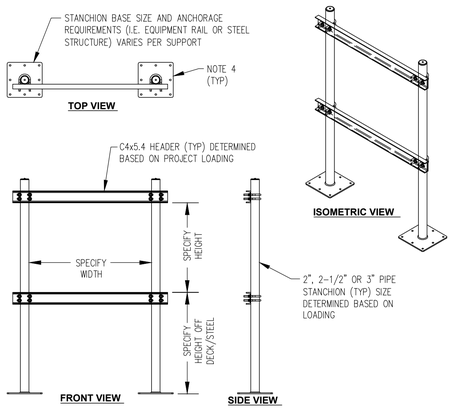
Revisions

No.	Date	Description

Drawing Number
M-09

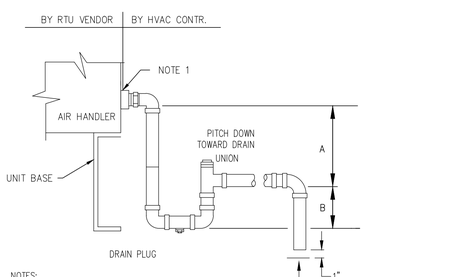


1 CEILING DIFFUSER WITH FLEX DUCT DETAIL
SCALE: NONE



6 DUCT SUPPORT DETAIL
SCALE: NTS

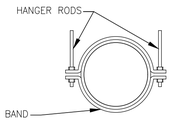
NOTES:
1. BASIS OF DESIGN: MIRO INDUSTRIES, MODEL: 80S-ST.
2. CONTRACTOR SHALL PROVIDE MIRO INDUSTRIES AN APPROVED DUCTWORK SHOP DRAWING FOR THEIR REVIEW AND DETERMINATION OF THE SPECIFIC DUCTWORK SUPPORT REQUIRED AT EACH LOCATION.
3. CONTRACTOR SHALL PROVIDE MIRO INDUSTRIES THE WIDTH & HEIGHTS NOTED IN THE DETAIL ABOVE.
4. INSTALL A RUBBER PAD BENEATH EACH STANCHION BASE. COLOR OF PAD SHALL MATCH THAT OF ROOF. PAD SHALL EXTEND 4" (MIN) BEYOND EDGE OF SUPPORT. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL PAD INFORMATION.



NOTES:
1. CONTRACTOR SHALL VERIFY CONNECTION SIZE.
2. DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE NIPPLE ON THE DRAIN PAN. ALL DRAIN PIPING SHALL BE COPPER.

UNIT TYPE	A	B
Draw Thru	5"	3"

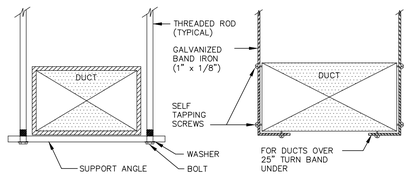
10 CONDENSATE TRAP DETAIL
Scale: NTS



HANGER STRAPS OR RODS		
MAX. DUCT ø IN.	QUANTITY/SIZE IN.	MAX. SPACING IN.
10	TWO 1/4"ø RODS	120

NOTES:
1. BAND SHALL BE 16 GAUGE.
2. TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

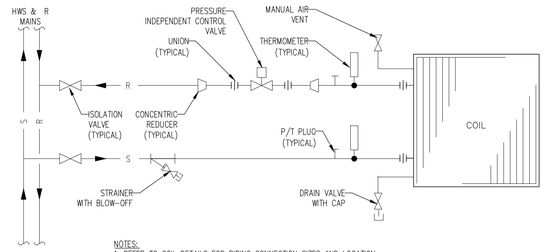
2 ROUND DUCT HANGERS
Scale: NTS



METHOD OF HANGING DUCTWORK
(N.T.S.)

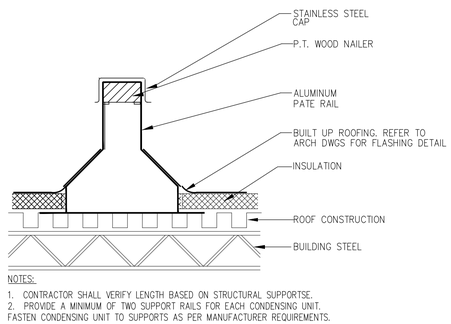
DUCT WIDTH	ROD DIAMETER	SUPPORT ANGLE OR EQUIVALENT CHANNEL	MAXIMUM SPACING
25" TO 30"	3/8"	1 1/2" x 1 1/2" x 1/8"	8'-0" O.C.
31" TO 42"	3/8"	1 1/2" x 1 1/2" x 1/8"	6'-0" O.C.
42" TO 60"	1/2"	1 1/2" x 1 1/2" x 1/8"	6'-0" O.C.
61" TO 82"	1/2"	2" x 2" x 1/4"	4'-0" O.C.

3 SQUARE DUCT HANGERS
SCALE: NONE



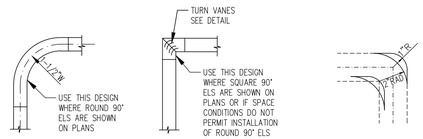
NOTES:
1. REFER TO COIL DETAILS FOR PIPING CONNECTION SIZES AND LOCATION.
2. INSTALL PIPING TO MAINTAIN ACCESS TO COIL.
3. CONTROL VALVE SHALL BE SIZED FOR A 5 PSI DROP AT THE DESIGN FLOW RATE.

7 TYPICAL HOT WATER COIL PIPING DETAIL
Scale: NTS

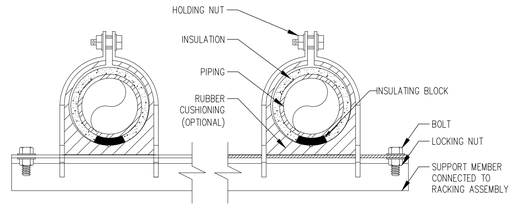


NOTES:
1. CONTRACTOR SHALL VERIFY LENGTH BASED ON STRUCTURAL SUPPORTSE.
2. PROVIDE A MINIMUM OF TWO SUPPORT RAILS FOR EACH CONDENSING UNIT. FASTEN CONDENSING UNIT TO SUPPORTS AS PER MANUFACTURER REQUIREMENTS.

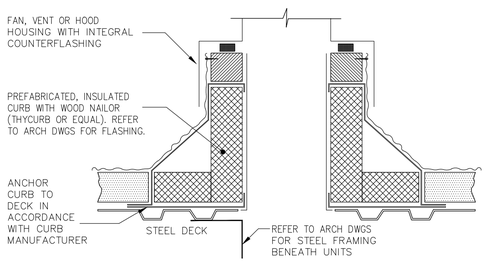
11 CONDENSING UNIT SUPPORT RAIL DETAIL
Scale: NTS



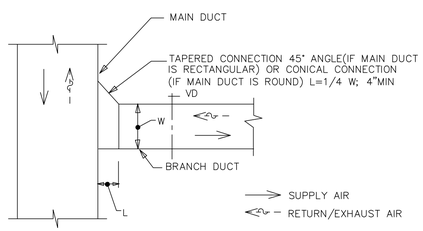
4 LOW PRESSURE DUCT DETAILS
Scale: NTS



8 UNISTRUT PIPE/TUBING CLAMP ASSEMBLY
SCALE: NONE

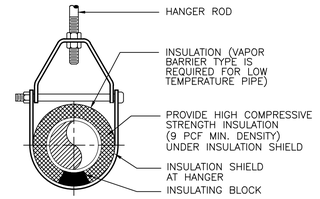


8 ROOF CURB DETAIL
SCALE: NONE

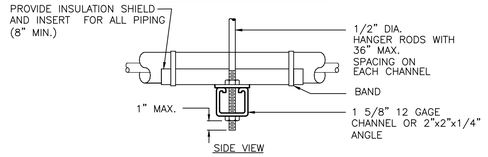


DUCT TAKE-OFF

12 BRANCH TAKE-OFF DETAIL
SCALE: NONE



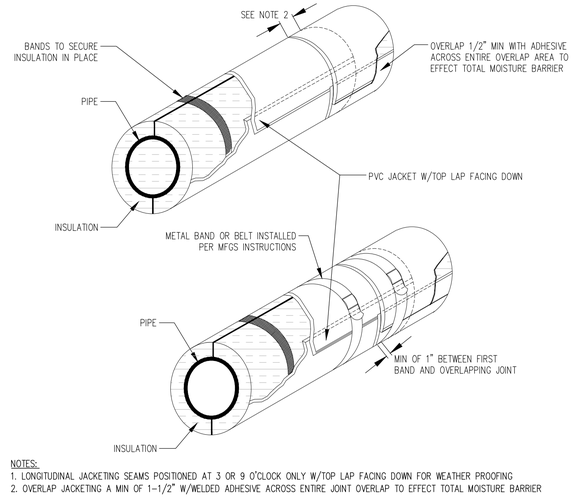
ADJUSTABLE CLEVIS HANGER
TYPE 1 – SEE SPECIFICATIONS



TRAPEZE HANGER FOR UP TO 1000 LB. (453 KG) UNIFORM LOAD

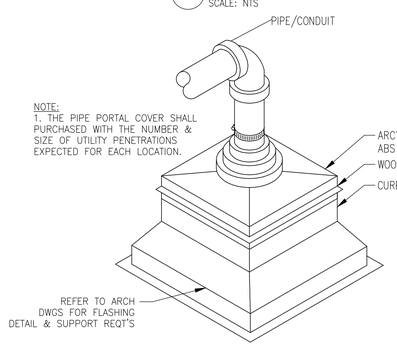
MAXIMUM PIPE/TUBING SUPPORT SPACING (FT)										
NOM. SIZE IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
PIPE FT.	7	7	7	9	10	11	12	14	16	17
TUBING FT.	5	6	7	8	8	9	10	12	13	14
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.										

5 TYPICAL PIPE HANGER DETAIL
Scale: NTS



NOTES:
1. LONGITUDINAL JACKETING SEAMS POSITIONED AT 3 OR 9 O'CLOCK ONLY W/TOP LAP FACING DOWN FOR WEATHER PROOFING
2. OVERLAP JACKETING A MIN OF 1-1/2" W/WELDED ADHESIVE ACROSS ENTIRE JOINT OVERLAP TO EFFECT TOTAL MOISTURE BARRIER

9 TYPICAL PIPE INSULATION DETAIL
SCALE: NTS



NOTE:
1. THE PIPE PORTAL COVER SHALL PURCHASED WITH THE NUMBER & SIZE OF UTILITY PENETRATIONS EXPECTED FOR EACH LOCATION.

13 SINGLE PIPE PORTAL
SCALE: NTS

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Date
Architect

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

Scale
AS NOTED

Drawing Name
MECHANICAL - DETAILS

Revisions

No.	Date	Description

Drawing Number
M-10

MECHANICAL SPECIFICATION

WORK INCLUDED

A. INCLUDE ALL LABOR, MATERIALS, APPLIANCES, TOOLS, TRANSPORTATION, STORAGE, CERTIFICATES, DRAWINGS, TEMPORARY WORK, CLEANING, START-UP, COMMISSIONING AND ALL OTHER CONTRACTOR SERVICES REQUIRED TO MAKE THE INSTALLATION COMPLETE IN EVERY RESPECT, GUARANTEED TO BE SAFE AND READY FOR USE AND OPERATION IN A MANNER SATISFACTORY TO THE OWNER AND ALL THE MECHANICAL WORK SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

LAWS AND ORDINANCES

A. ALL LOCAL AND STATE LAWS AND REGULATIONS AND RECOMMENDATIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION AND INTERNATIONAL BUILDING MECHANICAL CODE GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY MADE PART OF THESE SPECIFICATIONS. RESPONSIBILITY FOR COMPLIANCE TO THEIR PROVISIONS IS INCLUDED.

B. INFORM THE ENGINEER OF ANY WORK OR MATERIALS, WHICH OBVIOUSLY VIOLATES ANY OF THE APPLICABLE CODES AND REGULATIONS BEFORE PROCEEDING WITH THE WORK. FAILURE TO DO SO INDICATES ACCEPTANCE OF THE WORK AS SHOWN BY THE ENGINEER, AND RESPONSIBILITY FOR CORRECTING SUCH WORK SHALL BE MADE BY THE CONTRACTOR AT NO COST TO THE OWNER.

C. ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTY, LOCAL OR MUNICIPAL, AND OTHER RECOGNIZED AUTHORITIES EXERCISING OR ASSERTING JURISDICTION OVER THE CONSTRUCTION WORK AT THE PROJECT.

STANDARDS

A. MATERIALS SPECIFIED BY REFERENCE TO A SPECIFIC STANDARD SUCH AS THE AMERICAN SOCIETY OF TESTING MATERIALS, UNDERWRITERS LABORATORIES, AMERICAN NATIONAL STANDARDS INSTITUTE, FEDERAL SPECIFICATIONS, A TRADE STANDARD OR OTHER SIMILAR STANDARD SHALL COMPLY WITH THE LATEST REVISION THEREOF IN EFFECT AT THE TIME OF BIDDING, EXCEPT AS MODIFIED BY TYPE, CLASS OR GRADE OR MODIFIED BY SUCH REFERENCE.

B. WHERE COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED, AND THEY ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, THE MORE STRINGENT REQUIREMENTS WILL BE ENFORCED UNLESS THE CONTRACT DOCUMENTS INDICATE OTHERWISE.

C. REFER REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, AND UNCERTAINTIES AS TO WHICH QUALITY LEVEL IS MORE STRINGENT TO THE ENGINEER BEFORE PROCEEDING.

INTENT OF THE DRAWINGS AND SPECIFICATIONS

A. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS IN GOOD WORKING ORDER, READY FOR OPERATION, INCLUDING ALL ACCESSORIES AND ITEMS REQUIRED FOR PROPER OPERATION.

B. IT SHALL BE UNDERSTOOD THAT THE MECHANICAL DRAWINGS SHOW THE GENERAL RUN OF PIPING, DUCTWORK AND THE APPROXIMATE LOCATION OF ALL EQUIPMENT. DO NOT SCALE THE DRAWINGS TO DETERMINE EXACT POSITIONS AND CLEARANCES. OBTAIN FROM THE ARCHITECT ANY DIMENSIONS NOT SHOWN.

C. METHODS OF CONSTRUCTION AND DETAILS OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS ARE SUBJECT TO THE OWNER'S APPROVAL.

D. MAKE A THOROUGH EXAMINATION OF ALL SURFACES RECEIVING THE WORK OF THIS SECTION, AND BEFORE STARTING THE INSTALLATION, NOTIFY THE ENGINEER IN WRITING OF ANY DEFECT WHICH WILL AFFECT THE SATISFACTORY COMPLETION OF ANY WORK.

E. CONTRACTOR SHALL CONFORM TO THE OWNER'S SITE STANDARDS FOR QUALITY, WORKMANSHIP, MATERIALS, EQUIPMENT, ETC. IF THERE IS A DISCREPANCY BETWEEN THE SITE STANDARD AND INFORMATION SHOWN ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. THE ENGINEER WILL CONFER WITH THE OWNER AND THE CONTRACTOR WILL BE INSTRUCTED ON HOW TO PROCEED.

PERMITS AND CERTIFICATES

A. THIS CONTRACTOR SHALL OBTAIN ALL NECESSARY NOTICES, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENTS OR AUTHORITIES ASSERTING OR HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THE WORK. CONTRACTOR SHALL PAY FOR PERMIT FEES, SPECIAL TESTING, ETC AS REQUIRED BY THIS PROJECT.

B. THE CONTRACTOR SHALL ARRANGE FOR INSPECTIONS AND TESTS OF ANY OR PART OF THE WORK IF SO REQUIRED BY AUTHORITIES OR LOCAL UTILITY OR SERVICE COMPANIES HAVING JURISDICTION. NOTIFY OWNER AND ENGINEER 72 HOURS IN ADVANCE OF ALL INSPECTIONS.

C. THE CONTRACTOR SHALL OBTAIN ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS TO ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

D. THE CONTRACTOR SHALL NOTIFY THE OWNER IN A TIMELY MANNER THAT INSPECTIONS ARE REQUIRED, SO AS NOT TO HOLD UP THE PROGRESS OF THE WORK.

RELATIONS WITH OTHER TRADES

A. CONFER WITH OTHERS ENGAGED IN THE CONSTRUCTION OF THE BUILDING WHOSE WORK MIGHT AFFECT THE INSTALLATION, AND ARRANGE ALL PARTS OF THE WORK AND EQUIPMENT IN PROPER RELATION TO THE WORK AND EQUIPMENT OF OTHERS, WITH THE BUILDING CONSTRUCTION AND WITH THE ARCHITECTURAL FINISH SO THAT IT WILL HARMONIZE IN SERVICE AND APPEARANCE. SPECIAL CARE SHALL BE TAKEN IN THE INSTALLATION OF EQUIPMENT AND PIPING WHERE CONCEALED TO ASSURE THAT IT DOES NOT PROJECT BEYOND FINISHED LINES OF FLOORS, CEILINGS, WALLS AND CABINETS.

B. WHERE, DUE TO UNION REGULATIONS OR OTHER TRADE AGREEMENTS, ANY OF THE WORK SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN IS CONSIDERED OTHER TRADES, SUBCONTRACT THE WORK IN QUESTION AND ASSUME FULL RESPONSIBILITY FOR THE COMPLETE INSTALLATION.

APPROVED MATERIALS

A. ALL MATERIAL AND EQUIPMENT SHALL BE NEW (EXCEPT WHERE FURNISHED OR DIRECTED FOR RE-USE BY OWNER),OF MAKES AND KINDS SPECIFIED HEREIN, OR AS INCLUDED IN THE DRAWINGS, WITHOUT EXCEPTION. WHERE ONE BRAND, MAKE OR DEVICE IS SHOWN OR SPECIFIED, THE PRODUCTS OF OTHER MANUFACTURERS SHALL BE REGARDED AS ACCEPTABLE WHEN, IN THE OPINION OF THE ENGINEER, IT IS A RECOGNIZED EQUAL CONSIDERING QUALITY, WORKMANSHIP, ECONOMY OF OPERATION AND SUITABILITY FOR THE PURPOSE INTENDED.

B. WHERE SUCH APPROVED SUBSTITUTION OR DEVIATION REQUIRES A DIFFERENT QUANTITY OR ARRANGEMENT OF PIPING, WIRING, SUPPORTS, FOUNDATIONS, DUCTWORK, AND ANY OTHER EQUIPMENT OR ACCESSORIES NORMAL TO THIS EQUIPMENT, FURNISH SAID CHANGES AND ADDITIONS, AND PAY ALL COSTS FOR ALL CHANGES TO THIS WORK AND THE WORK OF OTHER TRADES AFFECTED BY THE SUBSTITUTION OR DEVIATION.

SUBMITTALS, SCHEDULE AND SHOP DRAWINGS

A. EQUIPMENT AND MATERIALS MUST BE INACCORDANCE WITH DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTIONS ARE ALLOWED UNLESS DENOTED BY CONTRACTOR AND APPROVED BY ENGINEER. PROVIDE WITH AN INDEX OF SUBMITTALS. ALL SUBMITTALS MUST BE IDENTIFIED WITH THE SAME NAME USED ON THE DRAWINGS. PROVIDE ALL SUBMITTALS IN ELECTRONIC FORM.

B. PROVIDE A CONSTRUCTION SCHEDULE USING MICROSOFT PROJECT MANAGER INCLUDING LEAD TIMES FOR EQUIPMENT, PHASING, ETC. SUBMIT SCHEDULE WITHIN ONE WEEK OF CONTRACT AWARD. SCHEDULE SHALL BE UPDATED EVERY WEEK.

C. SUBMIT SHOP DRAWINGS AND OBTAIN WRITTEN APPROVAL OF SAME BEFORE ORDERING OR INSTALLING ANY OF THE EQUIPMENT OR MATERIAL. EQUIPMENT OR MATERIAL ORDERED OR INSTALLED WITHOUT WRITTEN APPROVAL WILL NOT BE ACCEPTED. SHOP DRAWINGS SHALL BE PRESENTED IN AUTOCAD VERSION 2004 OR LATER. SHOP DRAWING SCALE SHALL BE NO SMALLER THAN $\frac{1}{4}$ INCHES EQUALS 1 FOOT. IF THE ENGINEER'S DESIGN DRAWING IS SUBMITTED AS THE SHOP DRAWING, IT WILL BE RETURNED WITH NO COMMENTS.

D. THE CHECKING OF SHOP DRAWING AND SAMPLES AND THE USE OF THE APPROVAL STAMP WILL BE ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT. THE STAMP OF APPROVAL DOES NOT INDICATE APPROVAL OF EVERY DETAIL OF THE DRAWINGS NOR OF THE WORK AND METHODS INDICATED THEREON.

HANGER, SUPPORTS AND SEISMIC RESTRAINTS

A. CONTRACTOR TO OBTAIN THE DESIGN AND PREPARATION OF SHOP DRAWINGS FOR PIPE, DUCTWORK AND EQUIPMENT SUPPORTS AND SEISMIC RESTRAINTS AS SPECIFIED IN THE INTERNATIONAL BUILDING CODE FROM A QUALIFIED PROFESSIONAL ENGINEER. ALL DRAWINGS SHALL BE SEALED AND SIGNED BY A QUALIFIED PROFESSIONAL ENGINEER. UNLESS OTHERWISE SPECIFIED THE SEISMIC DESIGN CATEGORY IS B.

CUTTING AND PATCHING

A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE CUTTING, PATCHING AND FIRE STOPPING (FM APPROVED MATERIAL) OF ALL HOLES/HANGERS REQUIRED TO INSTALL MATERIALS AND EQUIPMENT THEY SUPPLY.

B. NO STRUCTURAL ELEMENTS SHALL BE CUT OR DRILLED.

RECORD DRAWINGS

FURNISH FOR RECORD DRAWINGS AS PART OF THIS WORK, CONSISTING OF A COMPLETE SET OF AUTOCAD VERSION 2004 COMPATIBLE DRAWINGS ON CD AND INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. THIS SHALL INCLUDE CHANGES AND ADDENDUM OF THIS SECTION WHICH EXISTS IN THE COMPLETED WORK. DURING CONSTRUCTION KEEP AN ACCURATE RECORD ON A SET OF CONTRACT DRAWINGS, ALL DEVIATIONS BETWEEN THE WORK SHOWN AND THE WORK INSTALLED. ELECTRONIC FILES SHALL BEAR THE NOTATION "RECORD DRAWINGS OF WORK AS-BUILT", AND MUST BE DELIVERED TO THE ENGINEER AT THE COMPLETION OF THE WORK. INCLUDE IN THE BID AND BEAR THE COST OF THESE ELECTRONIC FILES.

DEMOLITION NOTES:

1. THE EXISTING DUCTWORK, PIPING, EQUIPMENT ETC. SHALL BE DEMOLISHED AND REMOVED FROM THE SITE BY THE CONTRACTOR.

2. CONTRACTOR SHALL DEVELOP DETAILED WRITTEN PLAN TO COORDINATE ALL DEMOLITION AND NEW WORK IN ORDER TO MINIMIZE DOWNTIME OF THE AIR HANDLING SYSTEM. THIS PLAN SHALL BE COMPLETED AND APPROVED BY THE OWNER. THE PLAN SHALL BE COMPLETED AND SUBMITTED WITHIN 2 WEEKS OF CONTRACTOR SELECTION. OWNER APPROVAL IS REQUIRED BEFORE ANY WORK CAN COMMENCE.

3. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION WITHOUT EXTRA PAYMENT, ANY OF THE OWNERS PROPERTY OR PROPERTY OR WORK BY OTHER CONTRACTORS THAT SHALL BECOME DAMAGED DUE TO THE NEGLIGENCE OF EMPLOYEES OR AGENTS OF THE CONTRACTOR. SUCH REPAIRS SHALL MEET THE APPROVAL OF THE OWNER. PARTICULAR CARE SHALL BE EXERCISED TO PROTECT FIRE ALARM WIRING.

4. CONTRACTOR SHALL TAKE PROPER CARE AND PROTECT ALL PORTIONS OF THE WORK UNTIL ITS ACCEPTANCE. ANY AND ALL PORTIONS OF THE WORK LIABLE TO DAMAGE UNDER THIS OR OTHER SECTIONS, BY FREEZING OR INCLEMENT WEATHER MUST BE THOROUGHLY AND COMPLETELY PROTECTED BY ANY SUBSTANTIAL MEANS UNTIL, UNTIL SAME HAS BEEN PUT IN COMPLETE OPERATING CONDITION AND ACCEPTED BY THE OWNER.

5. THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE DEMOLITION OF THE SYSTEM.

6. SAFE OPEN ENDS OF DUCTWORK TO BE REUSED DURING DEMOLITION TO MINIMIZE DEBRIS FROM ENTERING DUCTS DURING DEMOLITION, CONTRACTOR SHALL BLANK-OFF THE EXISTING SUPPLY AIR AND RETURN AIR OPENINGS IN THE AIR SHAFT BEFORE DEMOLITION CAN BEGIN.

7. PROTECT ALL WORK AND EQUIPMENT AGAINST DAMAGE OR THEFT UNTIL FINAL INSPECTION, TESTED AND ACCEPTED. CAREFULLY STORE AND PROTECT MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH ARE NOT IMMEDIATELY INSTALLED. CLOSE OPEN ENDS OF WORK WITH TEMPORARY PLUGS OR COVERS DURING CONSTRUCTION TO PREVENT ENTRY DEBRIS.

8. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS.

9. SHIFT WORK AND STAGING WILL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL PROVIDE SCHEDULE AND PREMIUM TIME FOR ALL DEMOLITION AND REMOVAL OF MATERIALS IN THEIR PROPOSAL.

10. WHEN THE DEMOLITION OR INSTALLATION OF WORK REQUIRES THE SHUTDOWN OF AN EXISTING OPERATING SYSTEM, A MINIMUM OF 72 HOURS WRITTEN NOTICE SHALL BE GIVEN TO THE OWNER BEFORE WORK IS STARTED.

11. PROVIDE DETAILS OF DISPOSAL OF CLEANING AGENTS AND FLUSHING SOLUTIONS FOR OWNER APPROVAL.

12. CONTRACTOR SHALL MARK IN YELLOW PAINT ALL DEMO ITEMS AND SCHEDULE A WALK THRU WITH OWNER AND ARCHITECT/ENGINEER PRIOR TO ANY DEMOLITION WORK.

13. REPAIR DAMAGE TO WALLS, FLOORS AND CEILING LEFT FROM REMOVING EXISTING EQUIPMENT, HANGERS, SUPPORTS, ETC. TO MATCH ADJACENT AREAS IN MATERIAL, FIRE RATING (WITH FM APPROVED MATERIALS) AND FINISH.

DAMAGE TO PROPERTY

A. RESTORE TO ITS ORIGINAL CONDITION WITHOUT EXTRA PAYMENT, ANY OF THE OWNERS PROPERTY OR PROPERTY OR WORK BY/OF OTHER CONTRACTORS THAT SHALL BECOME DAMAGED DUE TO THE NEGLIGENCE OF EMPLOYEES OR AGENTS OF THE CONTRACTOR. SUCH REPAIRS SHALL MEET THE APPROVAL OF THE OWNER. PARTICULAR CARE SHALL BE EXERCISED WITHIN ROOMS OF SPECIAL CONSTRUCTION, SUCH AS CLEAN AND STERILE ROOMS, FROM SCRATCHING OR OTHER IMPERFECTIONS CAUSED BY INSTALLATION OF WORK UNDER THIS CONTRACT.

B. TAKE PROPER CARE AND PROTECT ALL PORTIONS OF THE WORK UNTIL ITS ACCEPTANCE. ANY AND ALL PORTIONS OF THE WORK LIABLE TO DAMAGE UNDER THIS OR OTHER SECTIONS, BY FREEZING OR INCLEMENT WEATHER MUST BE THOROUGHLY AND COMPLETELY PROTECTED BY ANY SUBSTANTIAL MEANS UNTIL, NOT FURTHER REQUIRED. IT SHALL BE REMOVED FROM THE PREMISES ONLY WHEN ITS REMOVAL IS APPROVED BY THE ENGINEER.

C. PROTECT PLATED AND POLISHED MATERIAL AND TRIMMINGS AGAINST DAMAGE.

REPLACEMENT OF DEFECTIVE WORK

WHEN, IN THE OPINION OF THE OWNER OR CONSTRUCTION MANAGER ANY MATERIAL INSTALLED IS SUBSTANDARD IN APPEARANCE OR FUNCTION, OR DOES NOT MEET GENERALLY ACCEPTED STANDARDS OF WORKMANSHIP, ALL SUCH MATERIALS SHALL BE REPLACED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE OWNER.

SUPERVISION

THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE INSTALLATION OF THE MATERIAL FURNISHED UNDER THIS SPECIFICATION, UNTIL SAME HAS BEEN PUT IN COMPLETE OPERATING CONDITION AND ACCEPTED BY THE OWNER.

DIVISION OF WORK

NO REASSIGNMENT OF THE DIVISION OF RESPONSIBILITY FOR ANY WORK HEREIN SPECIFIED FOR ANY RESPECTIVE TRADE SHALL BE MADE WITHOUT THE PRIOR WRITTEN ACCEPTANCE OF THE OWNER AND ENGINEER.

RUBBISH

A. AT LEAST ONCE A DAY, OR AS REQUIRED BY THE OWNER, GATHER ALL RUBBISH, INCLUDING CARTONS, CRATES AND PACKAGING MATERIALS, DEBRIS AND OTHER WASTE MATERIALS. WASTE TO BE PLACED IN TRASH BINS OR DUMPSTERS.

B. WHEN WORK IS PERFORMED IN OCCUPIED AREAS, TRASH REMOVAL SHOULD BE CONTINUOUS TO PREVENT HEALTH AND SAFETY ISSUES.

ASBESTOS

A. CONTRACTOR SHALL NOTIFY OWNER ANY SUSPECTED ASBESTOS IN AREA OF WORK.

B. OWNER SHALL BE RESPONSIBLE FOR ALL TESTING AND REMEDIATION PRIOR TO ANY WORK IN THAT AREA. WORK SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR.

PROTECTION

PROTECT ALL WORK AND EQUIPMENT AGAINST DAMAGE OR THEFT UNTIL FINALLY INSPECTED, TESTED AND ACCEPTED. CAREFULLY STORE AND PROTECT MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH ARE NOT IMMEDIATELY INSTALLED. CLOSE OPEN ENDS OF WORK WITH TEMPORARY PLUGS OR COVERS DURING CONSTRUCTION TO PREVENT ENTRY DEBRIS.

GUARANTEES

A. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS.

B. DURING THE GUARANTEE PERIOD ANY DEFECTS IN WORKMANSHIP, MATERIAL OR EQUIPMENT WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. ANY DAMAGE OR LOSS, EXCLUSIVE OF BUILDING'S CONTENTS, DUE TO SUCH DEFECTS, WILL ALSO BE MADE GOOD AT CONTRACTOR'S EXPENSE. DEFECTS WILL BE REMEDIED WITHIN A REASONABLE TIME, AS SPECIFIED IN NOTICE FROM THE ENGINEER. AFTER THE SPECIFIED TIME, OWNER MAY HAVE DEFECTS AND DAMAGES REMEDIED AT THE CONTRACTOR'S EXPENSE.

C. GUARANTEE PERIOD SHALL BE TWO (2) YEARS, PARTS & LABOR AND A FOUR (4) YEAR EXTENDED WARRANTY ON COMPRESSORS & COMPRESSOR PARTS.

D. GUARANTEE PERIOD SHALL START WHEN THE WORK INCLUDED IN CONTRACT DOCUMENTS IS ACCEPTED BY THE OWNER AND/OR RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

WORK IN EXISTING AREAS

A. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS.

B. SHIFT WORK AND STAGING WILL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

C. SCRAP AND DEBRIS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND DISPOSED OF. WHEN REQUESTED BY OWNER, MOVE EQUIPMENT REMOVED TO A STORAGE PLACE ON THE PREMISES AND LEAVE AS PROPERTY OF THE OWNER.

D. WHEN INSTALLATION OF THE NEW WORK REQUIRES THE SHUTDOWN OF AN EXISTING OPERATING SYSTEM, A MINIMUM OF 72 HOURS WRITTEN NOTICE SHALL BE GIVEN TO THE OWNER BEFORE WORK IS STARTED.

CLEANING AND FLUSHING

A. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF PIPING AND EQUIPMENT.

B. FLUSH OUT PIPING AFTER INSTALLATION AND BEFORE FINAL CONNECTIONS ARE MADE, AT LEAST TWICE, IN A MANNER AS DIRECTED AND/OR ACCEPTED BY THE OWNER. MAKE ALL TEMPORARY CONNECTIONS AND PROVIDE ALL EQUIPMENT REQUIRED FOR THE CLEANING AT NO EXTRA EXPENSE TO THE OWNER.

C. FILL SYSTEM WITH FRESH WATER AND ADD LIQUID ALKALINE COMPOUND WITH EMULSIFYING AGENTS AND DETERGENTS (SUCH AS 1% TRISODIUM PHOSPHATE SOLUTION) TO REMOVE GREASE AND PETROLEUM PRODUCTS FROM PIPING. CIRCULATE SOLUTION FOR A MINIMUM OF 24HRS, DRAIN SYSTEM, FLUSH/CIRCULATE WITH CLEAN WATER FOR TWO HOURS, DRAIN, AND CLEAN STRAINER SCREENS. REFILL WITH FRESH WATER.

D. PROVIDE DETAILS OF DISPOSAL OF CLEANING AGENTS AND FLUSHING SOLUTIONS.

METAL CASE LIQUID THERMOMETERS AND PRESSURE GAGES

A. PROVIDE TRERICE OR EQUAL CHROME-PLATED BRASS 9" LONG CASE WITH SATIN-FACED NONREFLECTIVE ALUMINUM WITH PERMANENTLY ETCHED SCALE MARKINGS TUBE WITH GLASS WINDOW. CONNECTOR SHALL BE ADJUSTABLE TYPE, 180° IN VERTICAL PLANE AND 360° IN HORIZONTAL PLANE. THE STEM SHALL BE BRASS FOR THERMOWELL INSTALLATION AND OF LENGTH TO SUIT INSTALLATION. THE ACCURACY SHALL BE +/-1% OF RANGE.

B. PROVIDE TRERICE OR EQUAL DIRECT-MOUNTING, DIAL TYPE PRESSURE GAGE. CASE SHALL BE DRY TYPE DRAWN STEEL 4.5" DIAMETER DIAL WITH BOURDON TUBE PRESSURE ELEMENT. DIAL SHALL BE SATIN-FACED NONREFLECTIVE ALUMINUM WITH PERMANENTLY ETCHED SCALE MARKINGS WITH GLASS WINDOW. DESIGN PRESSURE OF GAGE SHALL BE TWO TIMES MAXIMUM OPERATING PRESSURE. THE ACCURACY SHALL BE GRADE A +/-1% OF MIDDLE HALF. PRESSURE GAGE FITTINGS; VALVES NPS 1/4" BRASS NEEDLE TYPE, SYPHONS; NPS 1/4" COIL OF BRASS TUBING WITH THREADED ENDS, SNUBBERS; ASME B40.5, NPS 1/4" BRASS BUSHING WITH CORROSION-RESISTANT, POROUS-METAL DISC OF MATERIAL SUITABLE FOR THE SYSTEM FLUID AND WORKING PRESSURE.

SAFETY

A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONS PERFORMING THE WORK OF THIS CONTRACT.

B. THIS CONTRACTOR SHALL OBTAIN AND READ ALL SITE, JOB AND CORPORATE SAFETY AND SECURITY RULES AND REGULATIONS FROM THE OWNER, AND SIGN OFF ON THEM IF REQUIRED. THIS CONTRACTOR SHALL ADEQUATELY INFORM AND INSTRUCT ALL EMPLOYEES, AND OTHERS PERFORMING WORK FOR HIM, OF SUCH RULES AND REGULATIONS. THESE INSTRUCTIONS ARE THE MINIMUM THAT WILL BE ACCEPTED ON THIS PROJECT.

C. ALL OF THE ABOVE RULES AND REGULATIONS ARE NOT MEANT TO REPLACE OR ELIMINATE INDIVIDUAL CONTRACTOR SAFETY PROGRAMS OR CHANGE ANY LOCAL, STATE OR FEDERAL RULES AND REGULATIONS, BUT RATHER TO AUGMENT THEM AS REQUIRED FOR THE INDIVIDUAL PREMISES ON WHICH THIS WORK IS BEING PERFORMED.

CONTROL WIRING

A. THE BAS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL, LOW VOLTAGE AND COMMUNICATION WIRING.

B. ALL CONTROL, LOW VOLTAGE AND COMMUNICATION WIRING SHALL BE INSTALLED IN EMT CONDUIT.

C. THE BAS CONTRACTOR SHALL PROVIDE THE POWER REQUIREMENTS TO ALL CONTROL PANELS. COORDINATE POWER SOURCE WITH ENGINEER.

DUCTWORK

A. FIRE DAMPERS: DUCTS OR RETURN AIR OPENINGS PENETRATING RATED PARTITIONS, FLOORS ETC. SHALL HAVE FIRE DAMPERS WITH ACCESS PROVISIONS. FIRE DAMPERS SHALL BE OUT OF THE AIR STREAM TYPE AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL PERIMETER CLEARANCE OPENINGS AT FIRE WALL PENETRATIONS SHALL BE THOROUGHLY FIRE STOPPED USING "THERMAFIBER" SAFING INSULATION OR APPROVED EQUAL. MINIMUM SIZE ACCESS DOOR IN DUCT FOR FIRE DAMPERS TO BE 12"X12", OR 2" LESS THAN DUCT WIDTH BY 12" LONG, WHICHEVER IS LARGER; ARCHITECTURAL ACCESS DOORS SHALL BE PROVIDED BY OTHERS WITHIN NON-ACCESSIBLE CEILING AS REQUIRED. FIRE DAMPERS SHALL BEAR THE LABEL OF AN APPROVED TESTING AGENCY, BE CLASSIFIED AND IDENTIFIED IN ACCORDANCE WITH UL 555 AND FM APPROVED.

B. DUCT CONSTRUCTION
SEE DRAWING SCHEDULES. ALL DUCTWORK SHALL BE FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS FOR THE LISTED OR GREATER PRESSURE CLASS.

C. DUCT SEALING
ALL JOINTS AND SEAMS SHALL BE SEALED WITH HARDCAST PRESSURE SENSITIVE ADHESIVE TAPE OR WATER BASED DUCT SEALANT. SMACNA SEAL CLASS A. SEALANT MSD SHEETS SHALL BE PROVIDED TO THE OWNER FOR APPROVAL.

D. DUCT AIR LEAKAGE TESTING
ALL NEW DUCTWORK SHALL BE TESTED IN ACCORDANCE TO SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL. LEAKAGE CLASS 6 SHALL BE MET FOR RECTANGULAR METAL DUCTWORK. LEAKAGE CLASS 3 SHALL BE MET FOR ROUND AND OVAL METAL DUCTWORK.

E. MANUAL BALANCING DAMPERS MEETING THE FOLLOWING SPECIFICATIONS SHALL BE FURNISHED AND INSTALLED WHERE SHOWN ON PLANS AND/OR AS DESCRIBED IN SCHEDULES.

RECTANGULAR DAMPERS SHALL CONSIST OF:
A 16 GA. (1.5MM) GALVANIZED STEEL HAT CHANNEL FRAME WITH 5 IN. (127MM) DEPTH; TRIPLE V TYPE BLADES FABRICATED FROM 16 GA. (1.5MM) GALVANIZED STEEL; 1/2 IN. (12MM) DIA PLATED STEEL AXLES; EXTERNAL (OUT OF THE AIRSTREAM) BLADE-TO-BLADE LINKAGE. DAMPER MANUFACTURER'S PRINTED APPLICATION AND PERFORMANCE DATA INCLUDING PERFORMANCE, VELOCITY AND TEMPERATURE LIMITATIONS SHALL BE SUBMITTED FOR APPROVAL SHOWING DAMPER SUITABLE FOR PRESSURES TO 4.0 IN. W.G. (1 KPA), VELOCITIES TO 2000 FPM (10.2M/S) AND TEMPERATURES TO 180°F (82OC). TESTING AND RATINGS TO BE IN ACCORDANCE WITH AMCA STANDARD 500-D. 11/2 IN. (38MM) STANDOFF BRACKET IS STANDARD, IT IS USED TO EXTEND THE MANUAL QUADRANT AWAY FROM THE DUCTWORK TO ACCOMMODATE EXTERNAL INSULATION.

ROUND MANUAL BALANCING DAMPERS MEETING THE FOLLOWING SPECIFICATIONS: SHALL BE FURNISHED AND INSTALLED WHERE SHOWN ON PLANS AND/OR AS DESCRIBED IN SCHEDULES. DAMPERS SHALL CONSIST OF: A 20 GA. (1MM) GALVANIZED STEEL FRAME WITH 6 3/8 IN. (162MM) DEPTH; BLADES FABRICATED FROM 20 GA. (1MM) GALVANIZED STEEL; 3/8 IN. (10MM) SQUARE PLATED STEEL AXLES; ACETAL BEARINGS. DAMPER MANUFACTURER'S PRINTED APPLICATION AND PERFORMANCE DATA INCLUDING PRESSURE, VELOCITY AND TEMPERATURE LIMITATIONS SHALL BE SUBMITTED FOR APPROVAL SHOWING DAMPER SUITABLE FOR PRESSURES TO 1.0 IN. WG (.25 KPA), VELOCITIES TO 2000 FPM (10.2 M/S) AND TEMPERATURES TO 180°F (82OC). TESTING AND RATINGS TO BE IN ACCORDANCE WITH AMCA STANDARD 500-D. 11/2 IN. (38MM) STANDOFF BRACKET (WITH EXTENDED PIN) TO ACCOMMODATE FOR THE THICKNESS OF EXTERNAL DUCT INSULATION.

BASIS OF DESIGN IS GREENHECK MODEL MBD-15 FOR RECTANGULAR DUCTWORK AND MBDR-50 FOR ROUND DUCTWORK.

PROVIDE ACCESS DOOR FOR EACH DAMPER, TURNING VANE, REHEAT COIL, ETC. USE DUCTMATE SANDWICH MODEL DI(SIZE)GA FOR RECTANGULAR DUCT AND MODEL DRI(SIZE)GA FOR CIRCULAR DUCT OR EQUIVALENT MODELS. SIZE ACCESS DOOR TO DUCT SIZE.

DUCT INSULATION

A. DUCTWORK: SEE DRAWING SCHEDULE
1. INTERIOR DUCTWORK SUPPLY/RETURN CONCEALED TO BE FIBERGLASS WRAP, FSK 2" 1.5 PCF DENSITY, R-6 MINIMUM WITH VAPOR FACE TAPED AND WIRED TIED. SEAL ALL JOINTS WITH MATCHING VAPOR BARRIER TAPE.
2. INTERIOR DUCTWORK SUPPLY/RETURN EXPOSED TO BE 2" 6 PCF DENSITY, R-6 MINIMUM FIBERGLASS ASJ BOARD. SECURE INSULATION WITH WELD PINS & SEAL ALL JOINTS WITH MATCHING VAPOR BARRIER TAPE.
3. EXTERIOR DUCTWORK SUPPLY/RETURN TO BE 2" 6 PCF DENSITY, R-6 MINIMUM FIBERGLASS ASJ BOARD WITH VAPOR BARRIER TAPE. EXTERIOR SHALL BE DOUBLE WALL DUCT OR FLEXCLAD-400 45MILS THICK OR EQUAL. INSTALL TO MANUFACTURER'S REQUIREMENTS. FLEXCLAD SHALL BE PITCHED ON TOP OF DUCTS FOR DRAINAGE.

NATURAL GAS PIPING

A. NATURAL GAS PIPING SHALL BE SCH. 40 BLACK STEEL. MATERIALS SHALL COMPLY WITH A.S.T.M. A-53, A-106, A-47 AND ANSI B-16.9. ALL SIZES 2 1/2" AND LARGER SHALL BE BUTT-WELDED AND CONFORM TO A.S.M.E. CODE 831.9. ALL SIZES 2" AND SMALLER SHALL BE THREADED AND CONFORM TO ANSI B1.20.1.

B. PROVIDE A GAS COCK, DIRT LEG AND UNION AT THE POINT OF CONNECTION TO EACH PIECE OF EQUIPMENT.

C. CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURER AND PROVIDE APPROPRIATE PRESSURE REGULATOR IF REQUIRED.

D. TEST GAS PIPING IN ACCORDANCE WITH INTERNATIONAL GAS CODE AND PLUMBING INSPECTOR'S REQUIREMENTS BUT NOT LESS THAN 10 PSI. THE TEST DURATION SHALL BE 1 HOUR PER 500CF OF SYSTEM VOLUME BUT NOT LESS THAN (2) HOURS WITHOUT DROP IN PRESSURE OR LEAKAGE. TESTING MEDIUM SHALL BE NITROGEN OR AN INERT GAS.

E. GAS PIPING INSTALLED ON THE ROOF OF A BUILDING SHALL BE SUPPORTED AS INDICATED IN BUILDING HVAC AND PLUMBING PLANS AND DETA



2 MECHANICAL ROOF DEMOLITION PLAN - AREA B

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

1 MECHANICAL ROOF DEMOLITION PLAN - AREA A

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

ELECTRICAL DEMOLITION NOTES

- (A) REMOVE EXISTING DISCONNECT SWITCH (IF NOT PART OF THE UNIT). EXISTING POWER CIRCUIT WILL POWER THE NEW EQUIPMENT. SEE NEW WORK PLAN.
- (B) REMOVE EXISTING DISCONNECT SWITCH. PULL BACK POWER WIRING TO EXISTING PANEL MP-U5.
- (C) REMOVE EXISTING DISCONNECT SWITCH. PULL BACK POWER WIRING TO EXISTING PANEL MP-U5L.
- (D) REMOVE EXISTING DISCONNECT SWITCH. PULL BACK POWER WIRING TO EXISTING PANEL MP-U7.
- (E) REMOVE EXISTING POWER WIRING & DISCONNECT SWITCH (IF SWITCH IS SEPARATE EQUIPMENT) FROM EXISTING EQUIPMENT BACK TO SOURCE. REMOVE WIRING FROM BREAKER AND UPDATE PANEL SCHEDULE TO LABEL BREAKER AS "SPARE".
- (F) DISCONNECT POWER FROM EXISTING EXHAUST FAN & EXTEND TO NEW LOCATION. SEE NEW WORK PLAN.

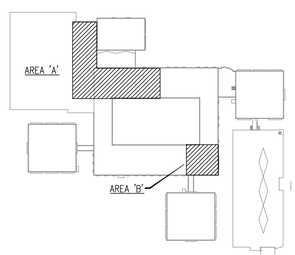
ELECTRICAL GENERAL DEMOLITION NOTES

1. WHERE EXISTING POWER WIRING IS BEING REMOVED BACK TO PANEL, CONTRACTOR SHALL REMOVED CONDUIT, SUPPORTS, HANGERS, ETC., IN THEIR ENTIRETY.
2. THE ELECTRICAL CONTRACTOR SHALL TRACE THE POWER CIRCUITS FOR THE EXISTING EQUIPMENT THAT IS BEING REPLACED TO CONFIRM THE ELECTRICAL PANEL THEY ARE POWERED FROM. THE CONDUCTOR & GROUND SIZES SHALL ALSO BE NOTED FOR EACH. THIS SURVEY SHALL BE COMPLETED WITHIN TWO (2) WEEKS OF PROJECT AWARD AND SHALL BE PROVIDED TO THE ENGINEER FOR THEIR REVIEW.
3. REFER TO DRAWING E-05 FOR PARTIAL PLANS OF ELECTRICAL ROOMS.
4. WHERE EXISTING POWER WIRING & CONDUITS ARE BEING REMOVED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY DAMAGED OR MARKED-UP CEILING TILES. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TILE SPECIFICATION.

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JD

Scale
AS NOTED

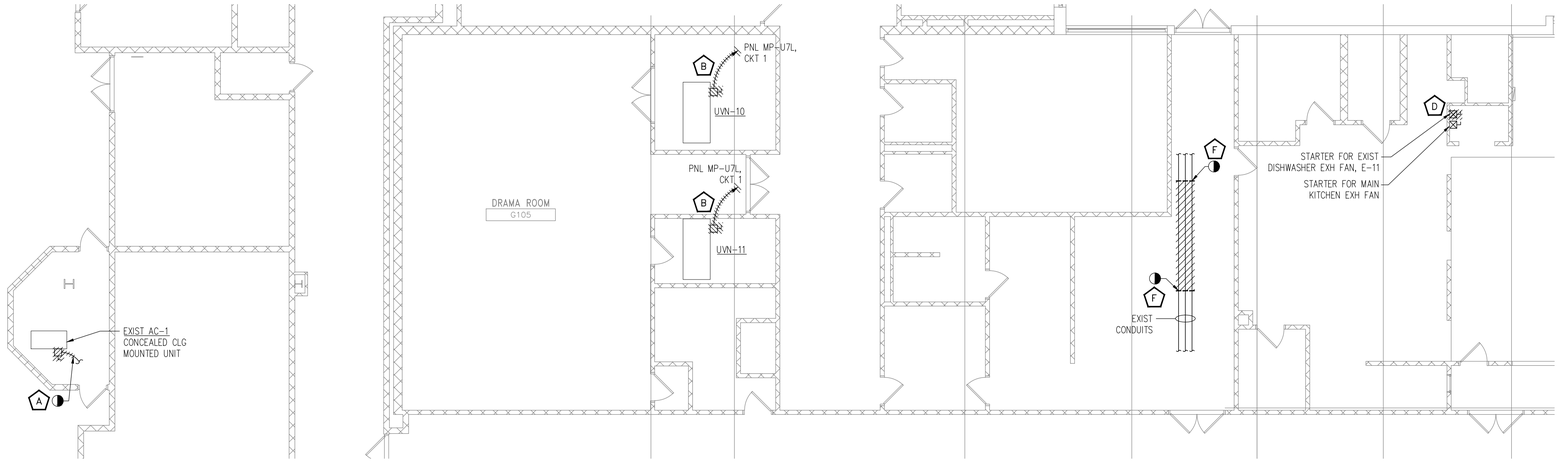
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ELECTRICAL - ROOF DEMOLITION PLAN

Revisions

No.	Date	Description

Drawing Number
ED-01

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N.J. PROFESSIONAL ENGINEER LICENSE NUMBER: 24GE02823800



1 ELECTRICAL 1ST FLOOR DEMOLITION PLAN - AREA A

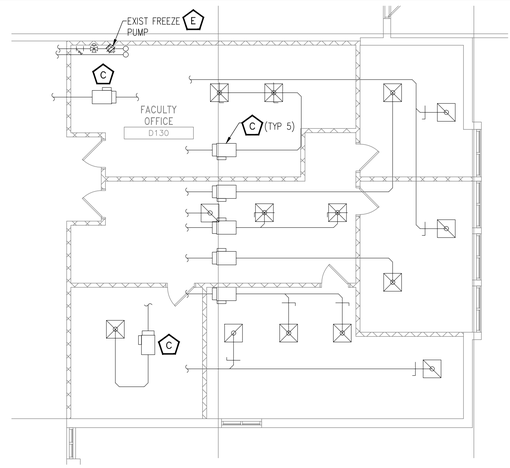
Scale: 1/8" = 1'-0"

ELECTRICAL DEMOLITION NOTES

- (A) REMOVE EXISTING DISCONNECT. EXISTING POWER CIRCUIT WILL POWER THE NEW EVAPORATOR. SEE NEW WORK PLAN.
- (B) REMOVE EXISTING DISCONNECT SWITCH. PULL BACK POWER WIRING TO EXISTING PANEL MP-U7L.
- (C) REMOVE EXISTING 120V POWER FROM EACH BOX & RETAIN TO POWER NEW VAV BOXES.
- (D) REMOVE EXISTING 208V-3PH STARTER & REPLACE WITH NEW. SEE NEW WORK PLAN.
- (E) REMOVE POWER & DISCONNECT SWITCH FOR EXISTING FREEZE PROTECTION PUMP. REMOVE POWER WIRING BACK TO SOURCE AND UPDATE PANEL SCHEDULE. LABEL AS 'SPARE'.
- (F) REMOVE SECTION OF EXISTING CONDUIT & POWER WIRING TO LOCATION SHOWN.

ELECTRICAL GENERAL DEMOLITION NOTES

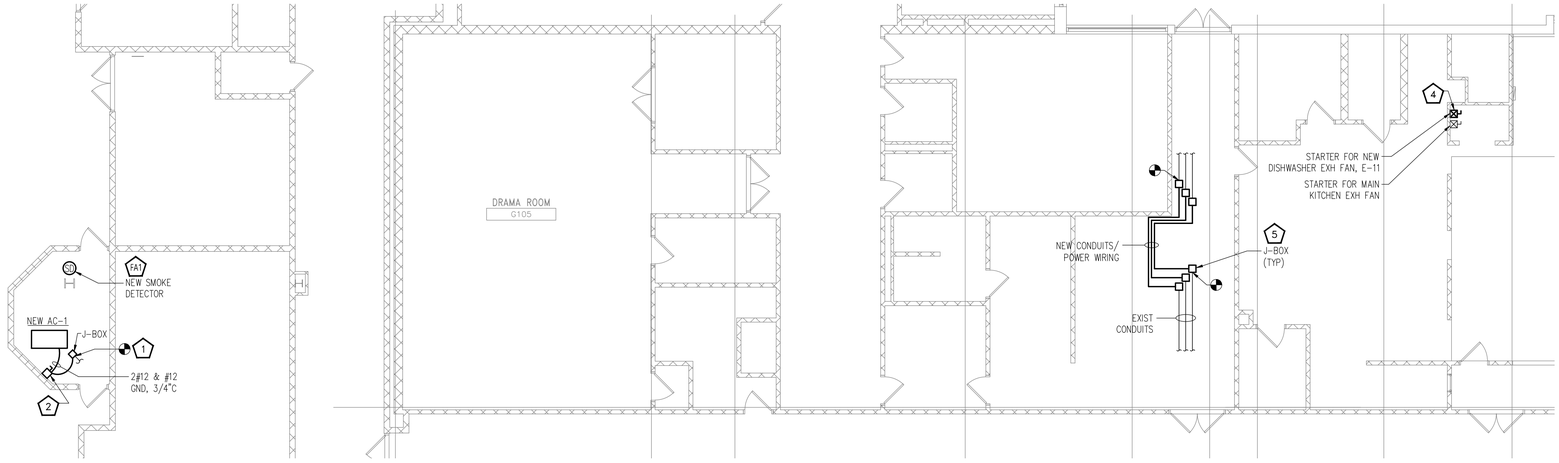
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2. THE ELECTRICAL CONTRACTOR SHALL TRACE THE POWER CIRCUITS FOR THE EXISTING EQUIPMENT THAT IS BEING REPLACED TO CONFIRM THE ELECTRICAL PANEL THEY ARE POWERED FROM. THE CONDUCTOR & GROUND SIZES SHALL ALSO BE NOTED FOR EACH. THIS SURVEY SHALL BE COMPLETED WITHIN TWO (2) WEEKS OF PROJECT AWARD AND SHALL BE PROVIDED TO THE ENGINEER FOR THEIR REVIEW.
3. REFER TO DRAWING E-05 FOR PARTIAL PLANS OF ELECTRICAL ROOMS.
4. WHERE EXISTING POWER WIRING & CONDUITS ARE BEING REMOVED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY DAMAGED OR MARKED-UP CEILING TILES. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TILE SPECIFICATION.



2 ELECTRICAL 1ST FLOOR DEMOLITION PLAN - AREA B

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

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



3 ELECTRICAL 1ST FLOOR NEW WORK PLAN - AREA A

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

ELECTRICAL NEW WORK NOTES

- (1) INSTALL NEW J-BOX AND EXTEND EXISTING POWER WIRING TO NEW DISCONNECT SWITCH FOR EVAPORATOR.
- (2) INSTALL A NEW LOCKABLE 20A, 2-P NEMA-1 DISCONNECT SWITCH FOR EVAPORATOR.
- (3) RECONNECT EXISTING 120V POWER TO EACH NEW VAV BOX. WIRE PER MANUFACTURER'S INSTRUCTIONS. INSTALL J-BOXES AND EXTEND EXISTING POWER WIRING AS NECESSARY. WIRE & GROUND SIZE SHALL MATCH EXISTING.
- (4) INSTALL A NEW 208V-3PH STARTER RATED FOR 15A. THE STARTER SHALL HAVE THERMAL OVERLOADS AND A VISUAL RUNNING LIGHT. COORDINATE WITH APPROVED EXHAUST FAN SUBMITTAL. PROVIDE STARTER SUBMITTAL FOR REVIEW & APPROVAL.
- (5) INSTALL NEW NEMA 1, J-BOX AND REROUTE EXISTING POWER WIRING AROUND NEW DUCTWORK. MATCH SIZE OF EXISTING CONDUIT & CONDUCTORS. COORDINATE WITH MECHANICAL CONTRACTOR.

FIRE ALARM NEW WORK NOTES

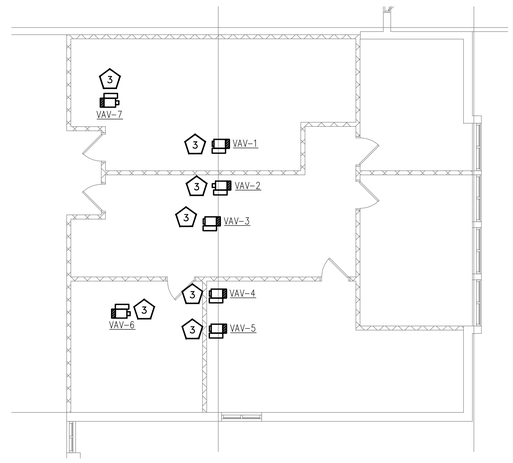
- (FA1) INSTALL A NEW CEILING MOUNTED SMOKE DETECTOR AT LOCATION SHOWN. WIRE TO EXISTING FIRE ALARM PANEL. DETECTOR SHALL BE SUITABLE FOR HIGH RELATIVE HUMIDITY ENVIRONMENTS.

FIRE ALARM GENERAL NEW WORK NOTES

1. NEW SMOKE DETECTORS SHALL BE INSTALLED FOR EACH NEW HVAC UNIT BEING INSTALLED. REFER TO MECHANICAL DRAWINGS FOR LOCATION OF DETECTORS & ADDITIONAL INFORMATION.

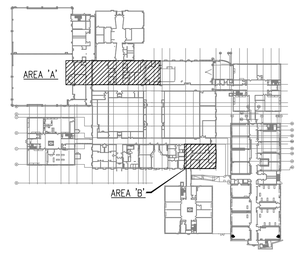
ELECTRICAL GENERAL NEW WORK NOTES

1. TERMINATE ALL NEW POWER WIRING TO NEW HVAC EQUIPMENT WITH FLEXIBLE CONDUIT.
2. INSTALL PULL BOXES WHERE REQUIRED BY THE NEC FOR ALL NEW POWER FEEDS.
3. REFER TO DRAWING E-05 FOR PARTIAL PLANS OF ELECTRICAL ROOMS.
4. WHERE NEW POWER/CONTROL WIRING & CONDUITS ARE BEING INSTALLED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY DAMAGED OR MARKED-UP CEILING TILES. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TILE SPECIFICATION.



4 ELECTRICAL 1ST FLOOR NEW WORK PLAN - AREA B

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



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Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JD

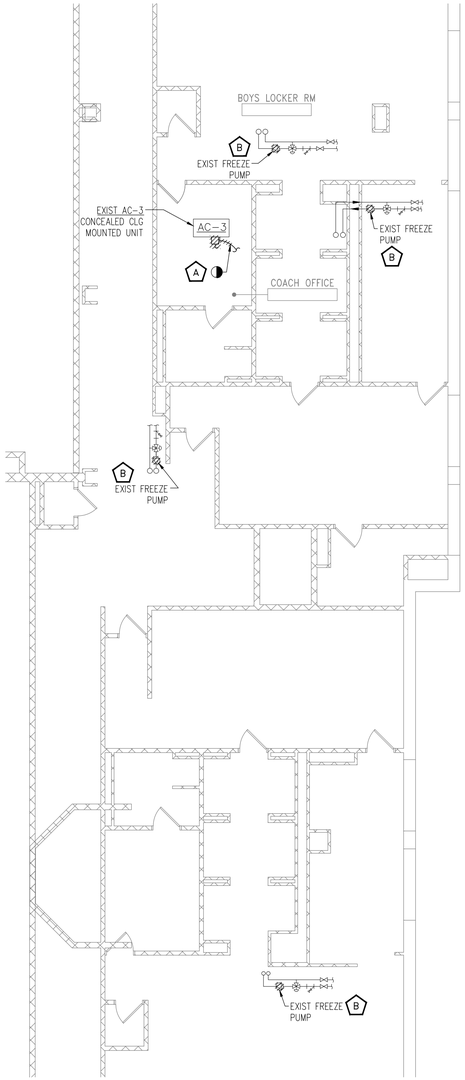
Scale
AS NOTED

Drawing Name
ELECTRICAL - 1ST FLOOR DEMOLITION & NEW WORK PLANS

Revisions

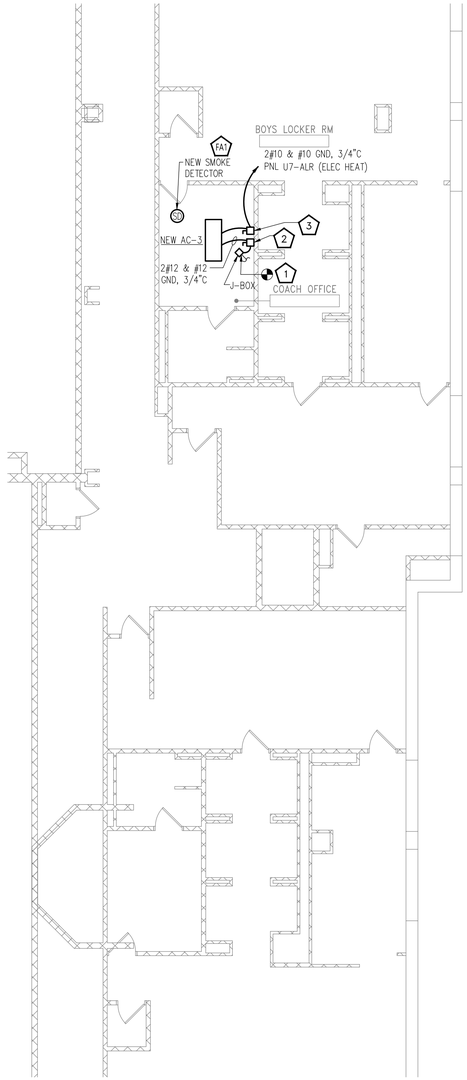
No.	Date	Description

Drawing Number
E-01



1 ELECTRICAL 2ND FLOOR DEMOLITION PLAN - AREA A

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



2 ELECTRICAL 2ND FLOOR NEW WORK PLAN - AREA A

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

ELECTRICAL DEMOLITION NOTES

A — REMOVE EXISTING DISCONNECT. EXISTING POWER CIRCUIT WILL POWER THE NEW EVAPORATOR. SEE NEW WORK PLAN.

B — REMOVE POWER & DISCONNECT SWITCH FOR EXISTING FREEZE PROTECTION PUMP. REMOVE POWER WIRING BACK TO SOURCE AND UPDATE PANEL SCHEDULE. LABEL AS 'SPARE'.

ELECTRICAL GENERAL DEMOLITION NOTES

1. WHERE EXISTING POWER WIRING IS BEING REMOVED BACK TO PANEL, CONTRACTOR SHALL REMOVED CONDUIT, SUPPORTS, HANGERS, ETC., IN THEIR ENTIRETY.
2. THE ELECTRICAL CONTRACTOR SHALL TRACE THE POWER CIRCUITS FOR THE EXISTING EQUIPMENT THAT IS BEING REPLACED TO CONFIRM THE ELECTRICAL PANEL THEY ARE POWERED FROM. THE CONDUCTOR & GROUND SIZES SHALL ALSO BE NOTED FOR EACH. THIS SURVEY SHALL BE COMPLETED WITHIN TWO (2) WEEKS OF PROJECT AWARD AND SHALL BE PROVIDED TO THE ENGINEER FOR THEIR REVIEW.
3. REFER TO DRAWING E-05 FOR PARTIAL PLANS OF ELECTRICAL ROOMS.
4. WHERE EXISTING POWER WIRING & CONDUITS ARE BEING REMOVED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY DAMAGED OR MARKED-UP CEILING TILES. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TILE SPECIFICATION.

ELECTRICAL NEW WORK NOTES

1 — INSTALL NEW J-BOX AND EXTEND EXISTING POWER WIRING TO NEW DISCONNECT SWITCH FOR EVAPORATOR.

2 — INSTALL A NEW LOCKABLE 20A, 2-P NEMA-1 DISCONNECT SWITCH FOR EVAPORATOR.

3 — INSTALL A NEW LOCKABLE 25A, 2-P NEMA-1 DISCONNECT SWITCH FOR ELEC HEAT.

ELECTRICAL GENERAL NEW WORK NOTES

1. TERMINATE ALL NEW POWER WIRING TO NEW HVAC EQUIPMENT WITH FLEXIBLE CONDUIT.
2. INSTALL PULL BOXES WHERE REQUIRED BY THE NEC FOR ALL NEW POWER FEEDS.
3. REFER TO DRAWING E-05 FOR PARTIAL PLANS OF ELECTRICAL ROOMS.
4. WHERE NEW POWER/CONTROL WIRING & CONDUITS ARE BEING INSTALLED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY DAMAGED OR MARKED-UP CEILING TILES. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TILE SPECIFICATION.

FIRE ALARM NEW WORK NOTES

FA1 — INSTALL A NEW CEILING MOUNTED SMOKE DETECTOR AT LOCATION SHOWN. WIRE TO EXISTING FIRE ALARM PANEL. DETECTOR SHALL BE SUITABLE FOR HIGH RELATIVE HUMIDITY ENVIRONMENTS.

FIRE ALARM GENERAL NEW WORK NOTES

1. NEW SMOKE DETECTORS SHALL BE INSTALLED FOR EACH NEW HVAC UNIT BEING INSTALLED. REFER TO MECHANICAL DRAWINGS FOR LOCATION OF DETECTORS & ADDITIONAL INFORMATION.

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



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CERTIFICATE OF AUTHORIZATION: 24GA28121800
PRINCIPAL IN CHARGE: JOSEPH T. MISTRETTA, PE

N.J. PROFESSIONAL ENGINEER LICENSE NUMBER: 24GE02823800

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JD

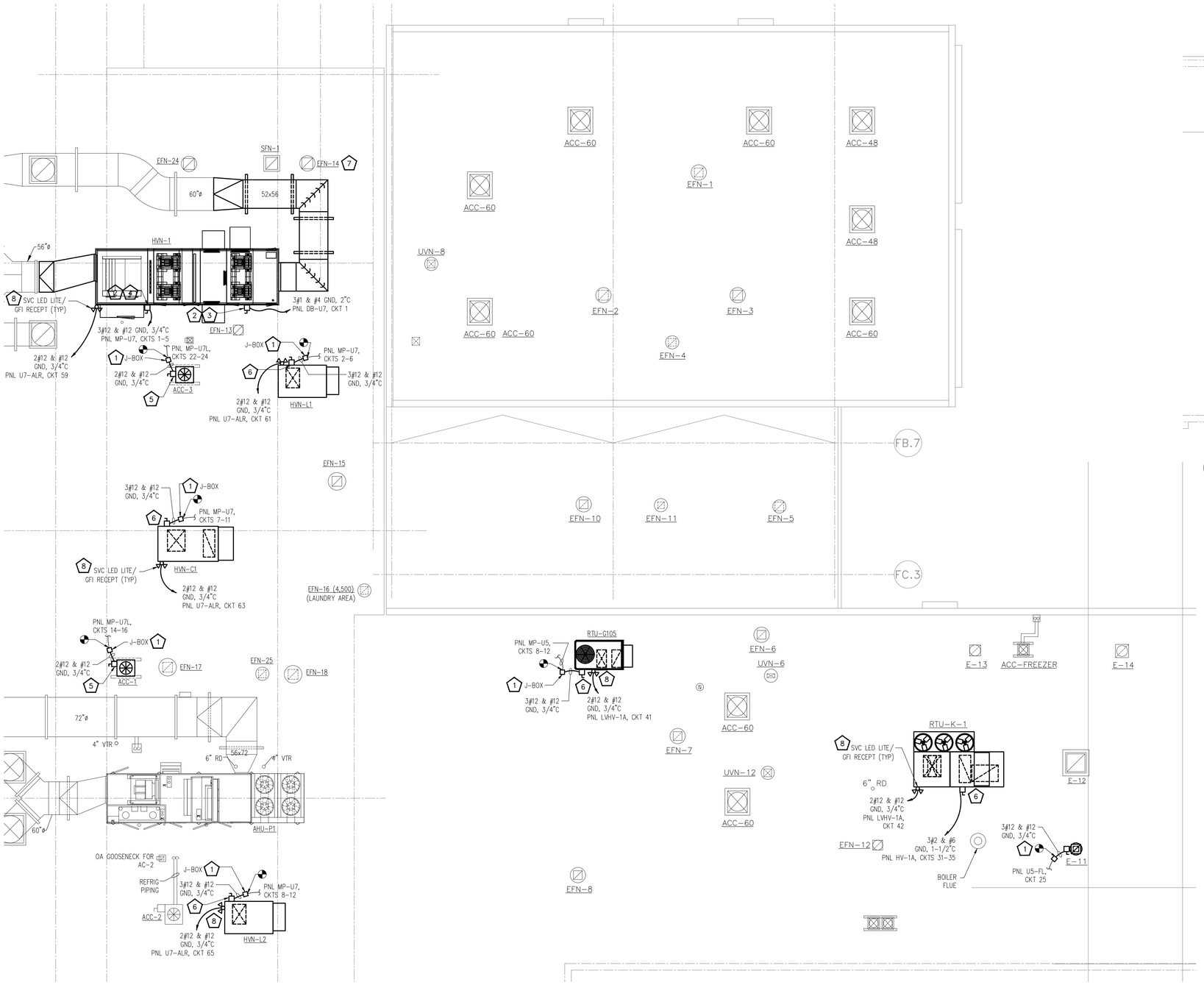
Scale
AS NOTED

Drawing Name
ELECTRICAL - 2ND FLOOR DEMOLITION & NEW WORK PLANS

Revisions

No.	Date	Description

Drawing Number
E-02



1 MECHANICAL ROOF NEW WORK PLAN - AREA A

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

2 MECHANICAL ROOF NEW WORK PLAN - AREA B

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

ELECTRICAL NEW WORK NOTES

1. INSTALL NEW J-BOX BELOW ROOF DECK AND EXTEND EXISTING POWER WIRING TO NEW DISCONNECT SWITCH.
2. POWER WIRING SHALL COME UP THRU A NEW PIPE PORTAL DIRECTLY BELOW NEW DISCONNECT SWITCH. WIRE TO SINGLE POINT POWER CONNECTION ON UNIT. FIELD VERIFY LOCATION.
3. INSTALL A 125A, 3-P DISCONNECT SWITCH IN A NEMA 3R ENCLOSURE.
4. INSTALL A 20A, 3-P DISCONNECT SWITCH IN A NEMA 3R ENCLOSURE.
5. INSTALL A 20A, 2-P DISCONNECT SWITCH IN A NEMA 3R ENCLOSURE. USE GALVANIZED UNISTRUT & STAINLESS STEEL FASTENERS SECURED TO EQUIPMENT RAILS TO SUPPORT NEW DISCONNECT SWITCH.
6. NEW UNIT IS SUPPLIED WITH A FACTORY MOUNTED DISCONNECT SWITCH.
7. EXTEND EXISTING POWER WIRING TO RELOCATED EXHAUST FAN. INSTALL J-BOX IN AN ACCESSIBLE LOCATION. NEW CONDUCTOR SIZES SHALL MATCH EXISTING.
8. REFER TO DRAWING E-06 FOR DETAIL OF SERVICE LITE/RECEPTACLE.

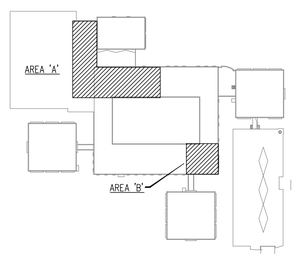
ELECTRICAL GENERAL NEW WORK NOTES

1. TERMINATE ALL NEW POWER WIRING TO NEW HVAC EQUIPMENT WITH FLEXIBLE CONDUIT.
2. ALL POWER WIRING FOR NEW PACKAGED ROOFTOP EQUIPMENT SHALL BE ROUTED UP THRU THE EQUIPMENT CURB AND TO THE MAIN DISCONNECT SWITCH.
3. ALL NEW POWER WIRING TO EQUIPMENT NOT BEING PROVIDED WITH A UNIT MOUNTED & WIRED DISCONNECT SWITCH SHALL BE BROUGHT UP THRU THE ROOF IN A NEW PIPE PORTAL. COORDINATE LOCATION & NUMBER OF PORTALS WITH THE MECHANICAL CONTRACTOR.
4. INSTALL PULL BOXES WHERE REQUIRED BY THE NEC FOR ALL NEW POWER FEEDS.
5. REFER TO DRAWING E-05 FOR PARTIAL PLANS OF ELECTRICAL ROOMS.
6. WHERE NEW POWER/CONTROL WIRING & CONDUITS ARE BEING INSTALLED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY DAMAGED OR MARKED-UP CEILING TILES. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TILE SPECIFICATION.

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CSI" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



KEY PLAN

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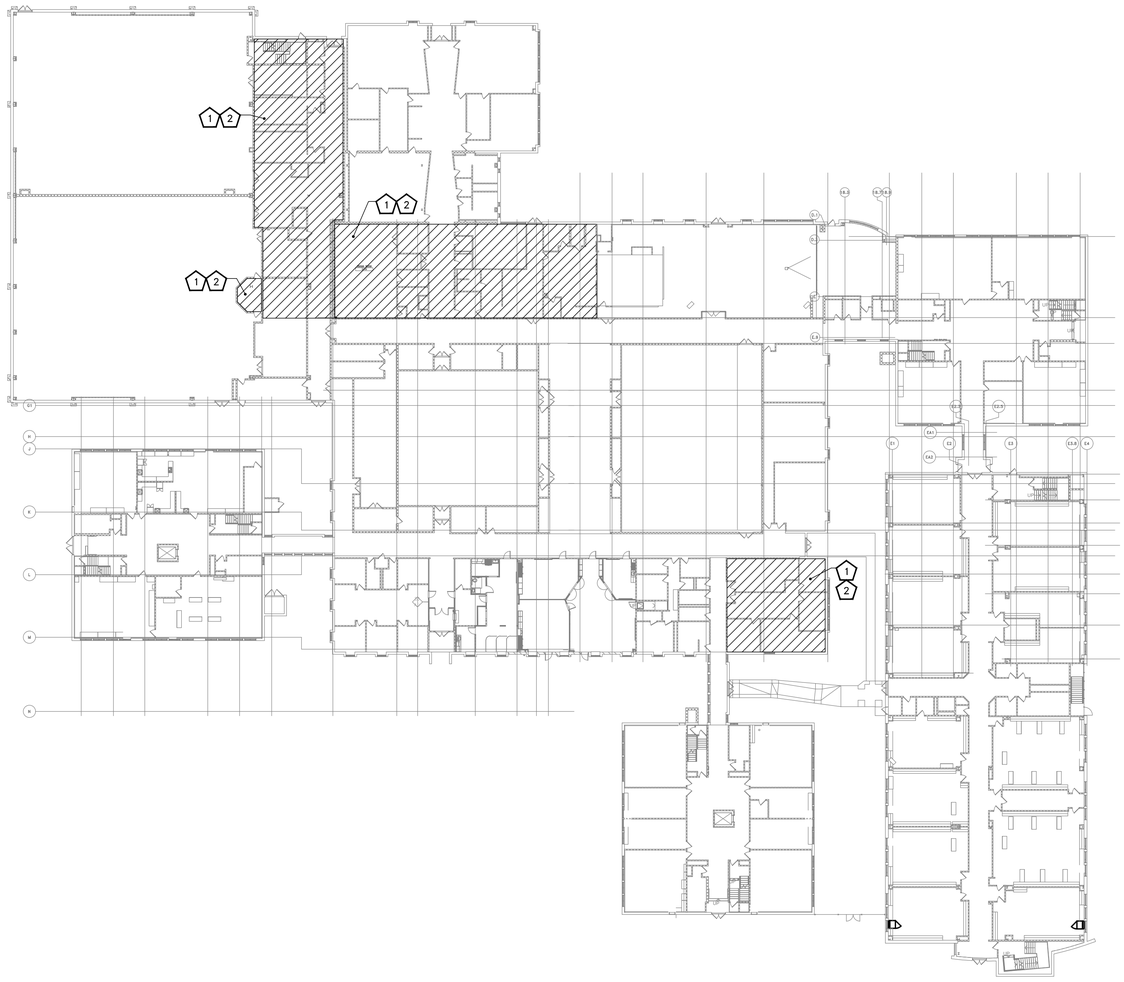
Drawing Name
ELECTRICAL - ROOF NEW WORK PLAN

Revisions

No.	Date	Description

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Drawing Number
E-03



1 1ST FLOOR - LIGHTING DEMOLITION & NEW WORK PLAN

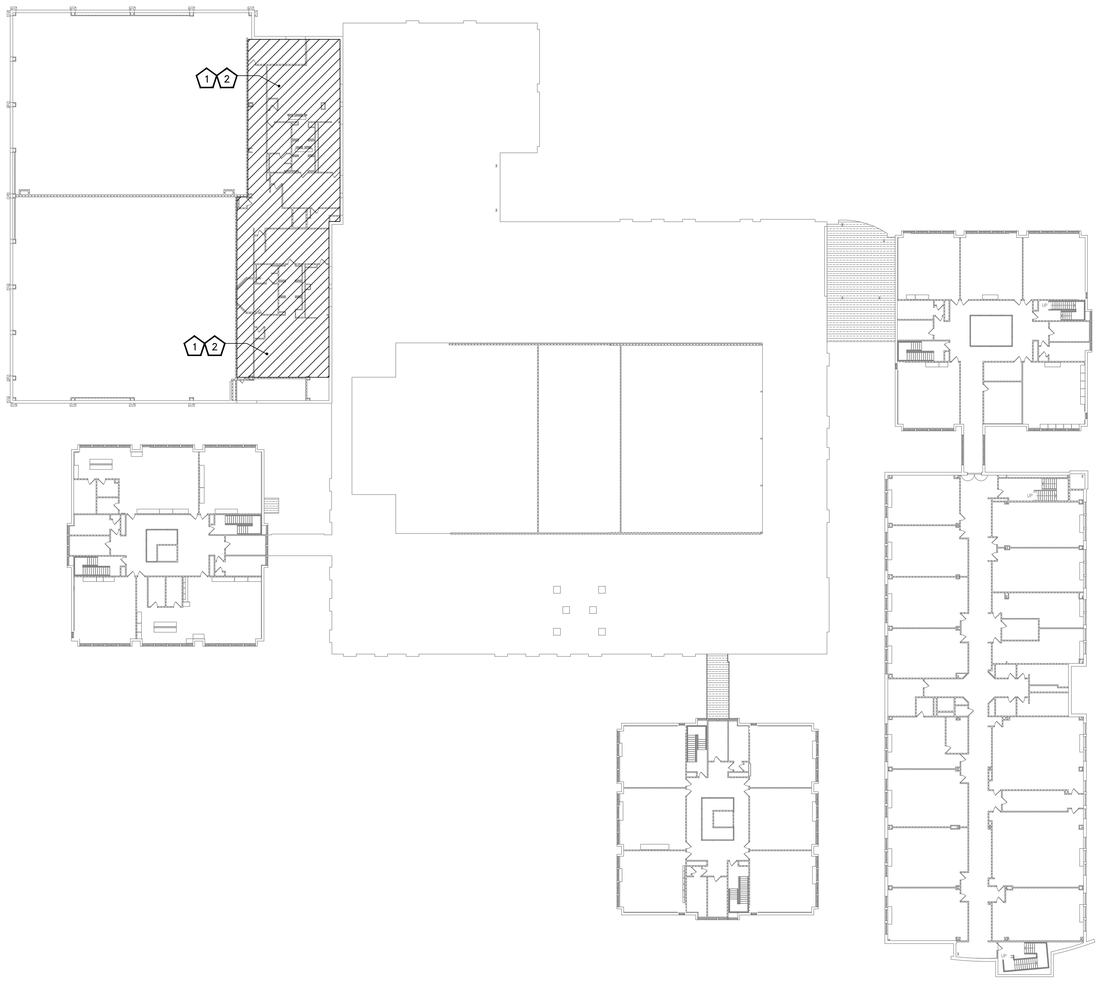
Scale: 1/32" = 1'-0"

ELECTRICAL DEMOLITION & NEW WORK NOTES

1. REMOVE EXISTING LIGHT FIXTURES, SMOKE DETECTORS, OCCUPANCY SENSORS, ETC., IN HATCHED AREA TO ACCOMMODATE THE REMOVAL & INSTALLATION OF EXISTING/NEW MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. AFTER NEW EQUIPMENT, DUCTWORK & PIPING HAS BEEN INSTALLED, THE LIGHT FIXTURES, SMOKE DETECTORS, OCCUPANCY SENSORS, ETC. SHALL BE REINSTALLED.
2. REFER TO ARCHITECTURAL DRAWINGS FOR SCOPE OF WORK REQUIRED FOR CEILINGS. WHERE NECESSARY, ELECTRICAL CONTRACTOR SHALL EXTEND EXISTING POWER WIRING FOR REINSTALLATION OF EXISTING LIGHT FIXTURES, SENSORS, ETC.

ELECTRICAL GENERAL NOTES

1. COORDINATE WORK WITH GENERAL CONTRACTOR & MECHANICAL CONTRACTOR.



2 2ND FLOOR - LIGHTING DEMOLITION & NEW WORK PLAN

Scale: 1/32" = 1'-0"

ELECTRICAL DEMOLITION & NEW WORK NOTES

1. REMOVE EXISTING LIGHT FIXTURES, SMOKE DETECTORS, OCCUPANCY SENSORS, ETC., IN HATCHED AREA TO ACCOMMODATE THE REMOVAL & INSTALLATION OF EXISTING/NEW MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. AFTER NEW EQUIPMENT, DUCTWORK & PIPING HAS BEEN INSTALLED, THE LIGHT FIXTURES, SMOKE DETECTORS, OCCUPANCY SENSORS, ETC. SHALL BE REINSTALLED.
2. REFER TO ARCHITECTURAL DRAWINGS FOR SCOPE OF WORK REQUIRED FOR CEILINGS. WHERE NECESSARY, ELECTRICAL CONTRACTOR SHALL EXTEND EXISTING POWER WIRING FOR REINSTALLATION OF EXISTING LIGHT FIXTURES, SENSORS, ETC.

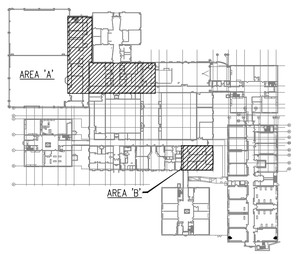
ELECTRICAL GENERAL NOTES

1. COORDINATE WORK WITH GENERAL CONTRACTOR & MECHANICAL CONTRACTOR.

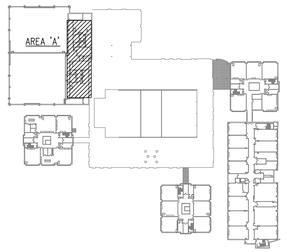
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ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

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THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CSI" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



1ST FLOOR KEY PLAN



2ND FLOOR KEY PLAN

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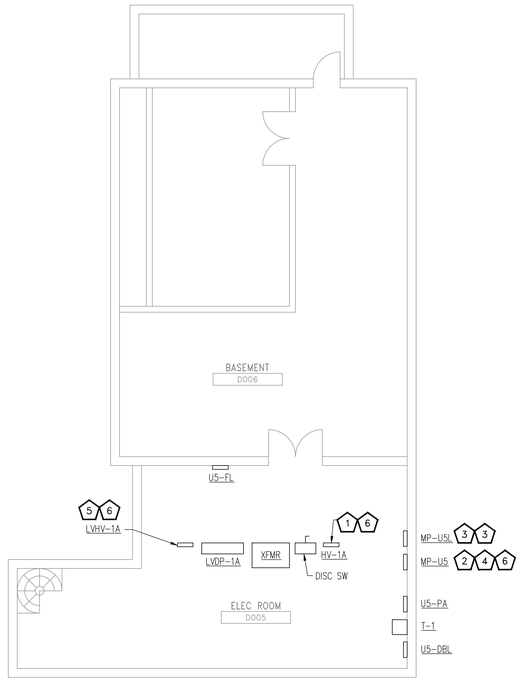
Scale
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Drawing Name
ELECTRICAL - LIGHTING DEMOLITION & NEW WORK PLANS

Revisions

No.	Date	Description

Drawing Number
E-04



1 BASEMENT ELECTRICAL ROOM - DEMOLITION & NEW WORK PLAN

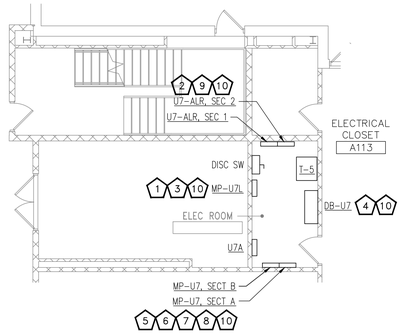
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ELECTRICAL DEMOLITION & NEW WORK NOTES

1. POWER FOR NEW RTU-K-1: INSTALL A NEW 80A, 3-P BREAKER IN CKTS 31-35. BREAKER SCCR RATING SHALL BE 14KA.
2. POWER FOR EXIST ACC-60 (G105): REMOVE POWER WIRING FROM EXISTING 20A BREAKER IN CKTS 13-15. UPDATE PANEL SCHEDULE, LABEL CKTS 13-15 AS "SPARE".
3. POWER FOR EXIST EFN-9 (G105): REMOVE POWER WIRING FROM EXISTING 20A BREAKER IN CKT 12. UPDATE PANEL SCHEDULE, LABEL CKT 12 AS "SPARE".
4. POWER FOR NEW AHU-N-2: REMOVE 60A, 3-P BREAKER FROM CKTS 2-6 & INSTALL A NEW 30A, 3-P BREAKER IN SAME LOCATION. BREAKER SCCR RATING SHALL BE 18KA.
5. POWER FOR SERVICE LIGHTS/RECEPTACLES: INSTALL THREE (3) NEW 20A, 1-P BREAKERS IN CKTS, 40, 40 & 42. BREAKER SHORT CIRCUIT RATING SHALL MATCH EXISTING BREAKERS.
6. WITHIN 3 WEEKS OF AWARD, THE CONTRACTOR SHALL INSTALL AN AMP METER ON EXISTING PANELBOARDS. AMP READINGS SHALL BE TAKEN EVERY 15 MINUTES FOR ONE (1) WEEK. THE RESULTS OF THE METERING SHALL BE PUT INTO GRAPHICAL FORM AN PROVIDED TO THE ENGINEER FOR REVIEW.

ELECTRICAL GENERAL DEMOLITION NOTES

1. WHERE EXISTING POWER WIRING IS BEING REMOVED BACK TO PANEL, CONTRACTOR SHALL REMOVED CONDUIT, SUPPORTS, HANGERS, ETC., IN THEIR ENTIRETY.
2. ALL BREAKERS THAT WILL REMAIN AS A "SPARE" SHALL BE PUT IN THE OFF POSITION.
3. INSTALL PULL BOXES WHERE REQUIRED BY THE NEC FOR ALL NEW POWER FEEDS.
4. THE ELECTRICAL CONTRACTOR SHALL PERFORM AN ARC FLASH STUDY OF THE MAIN SWITCHBOARD TO EACH SUB PANEL THAT IS EITHER REMOVING OR ADDING NEW BREAKERS, INCLUDING SUB PANELS THAT MAY BE FED FROM PANELS ADDING OR REMOVING BREAKERS. LABEL EACH PANEL IN ACCORDANCE WITH 2020 EDITION OF THE NEC.
5. THE ELECTRICAL CONTRACTOR SHALL PERFORM AN ELECTRICAL COORDINATION STUDY FROM THE MAIN SWITCHBOARD TO EACH SUB PANEL THAT IS EITHER REMOVING OR ADDING NEW BREAKERS. INCLUDE SUB PANELS THAT MAY BE FED FROM PANELS ADDING OR REMOVING BREAKERS. ENSURE THAT ALL NEW BREAKERS ARE INCLUDED IN THE MODEL AND ARE FULLY COORDINATED PRIOR TO PURCHASING THE BREAKERS. COORDINATION STUDY SHALL BE SIGNED AND SEALED BY A LICENSED PE IN THE STATE OF NEW JERSEY.



2 1ST FLOOR ELECTRICAL ROOM - DEMOLITION & NEW WORK PLAN

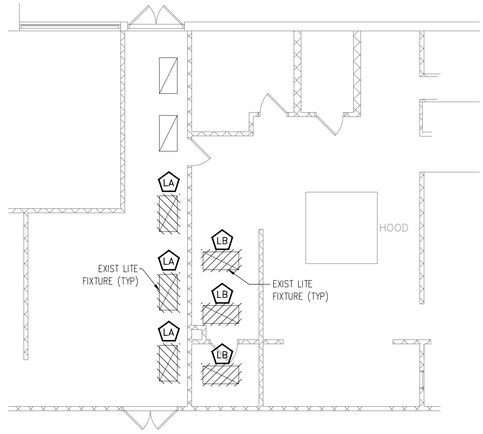
Scale: 1/8" = 1'-0"

ELECTRICAL DEMOLITION & NEW WORK NOTES

1. POWER FOR NEW AC-3 EVAP: REMOVE EXISTING 30A, 2-P BREAKER IN CKTS 21&23 AND INSTALL A NEW 15A, 2-P BREAKER IN SAME LOCATION. BREAKER SCCR RATING SHALL BE 10kA.
2. POWER FOR NEW AC-3 ELEC HEAT: INSTALL A NEW 25A, 2-P BREAKER IN CKTS 81-83. BREAKER SCCR RATING SHALL BE 10KA.
3. POWER FOR EXIST UVN-10&11 (G105): REMOVE POWER WIRING FROM EXISTING 20A BREAKER IN CKT 1. UPDATE PANEL SCHEDULE, LABEL CKT 1 AS "SPARE".
4. POWER FOR NEW HVN-1 (GYM SA&RA FANS): INSTALL A NEW 110A, 3-P BREAKER IN CKT 1. BREAKER SCCR RATING SHALL BE 65KA.
5. POWER FOR EXIST HVN-1 & NEW HVN-1 (GYM GAS HTR): REMOVE POWER WIRING FROM EXISTING UNIT (HVN-1) TO 60A BREAKER IN CKTS 1-5. REMOVE EXISTING BREAKER & INSTALL A NEW 20A, 3-P BREAKER IN SAME LOCATION FOR GAS HEATER. BREAKER SCCR RATING SHALL BE 65KA.
6. POWER FOR NEW HVN-L1 (BOY'S LOCKER RM): REMOVE EXISTING 20A, 3-P BREAKER IN CKTS 2-6. INSTALL A NEW 15A, 3-P BREAKER IN SAME LOCATION. BREAKER SCCR RATING SHALL BE 35KA.
7. POWER FOR NEW HVN-C1 (CORRIDOR): REMOVE EXISTING 20A, 3-P BREAKER IN CKTS 7-11. INSTALL A NEW 15A, 3-P BREAKER IN SAME LOCATION. BREAKER SCCR RATING SHALL BE 35KA.
8. POWER FOR NEW HVN-L2 (GIRL'S LOCKER RM): REMOVE EXISTING 20A, 3-P BREAKER IN CKTS 8-12. INSTALL A NEW 15A, 3-P BREAKER IN SAME LOCATION. BREAKER SCCR RATING SHALL BE 35KA.
9. POWER FOR SERVICE LIGHTS/RECEPTACLES: USE FOUR (4) EXISTING 20A, 1-P BREAKERS IN CKTS, 59, 61, 63 & 65. BREAKER SCCR RATING SHALL BE 10KA.
10. WITHIN 3 WEEKS OF AWARD, THE CONTRACTOR SHALL INSTALL AN AMP METER ON EXISTING PANELBOARDS. AMP READINGS SHALL BE TAKEN EVERY 15 MINUTES FOR ONE (1) WEEK. THE RESULTS OF THE METERING SHALL BE PUT INTO GRAPHICAL FORM AN PROVIDED TO THE ENGINEER FOR REVIEW.

ELECTRICAL GENERAL DEMOLITION NOTES

1. WHERE EXISTING POWER WIRING IS BEING REMOVED BACK TO PANEL, CONTRACTOR SHALL REMOVED CONDUIT, SUPPORTS, HANGERS, ETC., IN THEIR ENTIRETY.
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3. INSTALL PULL BOXES WHERE REQUIRED BY THE NEC FOR ALL NEW POWER FEEDS.
4. THE ELECTRICAL CONTRACTOR SHALL PERFORM AN ARC FLASH STUDY OF THE MAIN SWITCHBOARD TO EACH SUB PANEL THAT IS EITHER REMOVING OR ADDING NEW BREAKERS, INCLUDING SUB PANELS THAT MAY BE FED FROM PANELS ADDING OR REMOVING BREAKERS. LABEL EACH PANEL IN ACCORDANCE WITH 2020 EDITION OF THE NEC.
5. THE ELECTRICAL CONTRACTOR SHALL PERFORM AN ELECTRICAL COORDINATION STUDY FROM THE MAIN SWITCHBOARD TO EACH SUB PANEL THAT IS EITHER REMOVING OR ADDING NEW BREAKERS. INCLUDE SUB PANELS THAT MAY BE FED FROM PANELS ADDING OR REMOVING BREAKERS. ENSURE THAT ALL NEW BREAKERS ARE INCLUDED IN THE MODEL AND ARE FULLY COORDINATED PRIOR TO PURCHASING THE BREAKERS. COORDINATION STUDY SHALL BE SIGNED AND SEALED BY A LICENSED PE IN THE STATE OF NEW JERSEY.



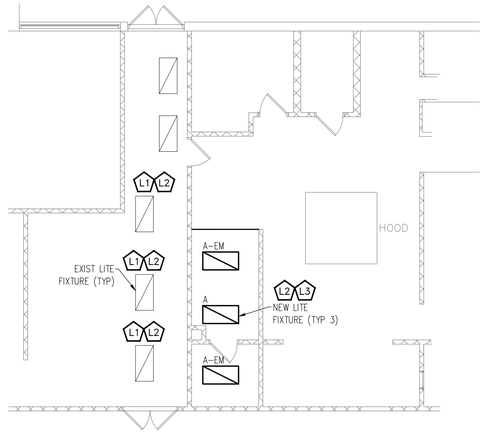
3 KITCHEN - LIGHTING DEMOLITION PLAN

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

LIGHTING DEMOLITION NOTES

A. REMOVE EXISTING LITE FIXTURE & MOUNTING HARDWARE. RETAIN FIXTURE FOR REINSTALLATION. SEE NEW WORK PLAN.

B. REMOVE EXISTING LITE FIXTURE. NEW FIXTURES TO BE INSTALLED. SEE NEW WORK PLAN.



4 KITCHEN - LIGHTING NEW WORK PLAN

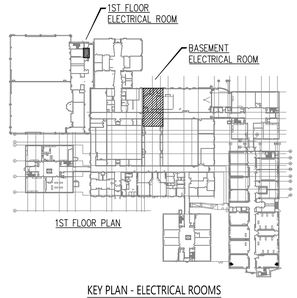
Scale: 1/8" = 1'-0"

LIGHTING NEW WORK NOTES

L1. REINSTALL EXISTING FIXTURE TO THE SIDE OF THE THE NEW DUCT. BOTTOM OF FIXTURE SHALL BE 2" (±) ABOVE BOTTOM OF DUCT. INSTALL USING GALVANIZED UNISTRUT. COORDINATE WITH MECHANICAL PLANS & SHOP DRAWINGS.

L2. MODIFY/EXTEND EXISTING POWER WIRING TO LITE FIXTURES AS REQUIRED.

L3. COORDINATE LOCATION OF NEW LITE FIXTURE WITH NEW CEILING GRID. SEE ARCHITECTURAL DRAWINGS.



KEY PLAN - ELECTRICAL ROOMS

ADD/ALTERNATE #1
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ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

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Drawing Name
ELECTRICAL - PARTIAL PLANS

Revisions

No.	Date	Description

Drawing Number
E-05

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PRINCIPAL IN CHARGE: JOSEPH T. MISTRETTA, PE
N.J. PROFESSIONAL ENGINEER LICENSE NUMBER: 24GE02823800

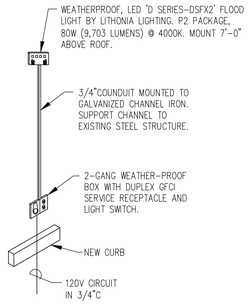
ELECTRICAL LEGEND

POWER SYMBOLS

- 120V COMMERCIAL GRADE DUPLEX RECEPTACLE
- GFI — 120V COMMERCIAL GRADE GROUND FAULT CURRENT INTERRUPTING DUPLEX RECEPTACLE
- 120V COMMERCIAL GRADE QUAD RECEPTACLE
- CK 60" — 120V COMMERCIAL GRADE RECESSED CLOCK RECEPTACLE MTD. 60" AFF
- 120V COMMERCIAL GRADE DEDICATED SIMPLEX RECEPTACLE
- 120V COMMERCIAL GRADE DEDICATED DUPLEX RECEPTACLE
- 120V COMMERCIAL GRADE FLUSH MOUNTED COMBINATION QUAD RECEPTACLE AND TELEPHONE/DATA JACK (FR = FIRE RATED)
- VOICE – CONDUIT AND BACK BOX ROUGH IN
- DATA – CONDUIT AND BACK BOX ROUGH IN
- VOICE / DATA – CONDUIT AND BACK BOX ROUGH IN
- ISOCDUCT – LEGRAND WIREMOLED ALA4800 SERIES OR APPROVED EQUAL
- HARDWIRE POWER CONNECTION
- ST — LAB PANEL SHUNT TRIP PUSH BUTTON
- ETB — EQUIPMENT TERMINAL BOX (POWER)
- J — JUNCTION BOX – HARDWIRE TO EQUIPMENT
- J — JUNCTION BOX – WALL OR CEILING MOUNTED
- DISCONNECT SWITCH
- STARTER/DISCONNECT SWITCH
- POWER PANEL – 120V
- POWER PANEL – 480V
- ISOL. — ISOLATED GROUND

LIGHTING SYMBOLS

- EXIT SIGN
- EMERGENCY LIGHTING
- S_A — SINGLE POLE SWITCH COMMERCIAL GRADE. 'A' (ALPHA-DENOTE) IDENTIFIES LIGHT FIXTURE CONTROLLED.
- S_3 — SINGLE POLE, 3-WAY, WALL MOUNTED, COMMERCIAL GRADE SWITCH
- S_4 — SINGLE POLE, 4-WAY, WALL MOUNTED, COMMERCIAL GRADE SWITCH
- S_{3DR} — SINGLE POLE, 3-WAY, WALL MOUNTED, OVERRIDE, COMMERCIAL GRADE SWITCH
- S_{4DR} — SINGLE POLE, 4-WAY, WALL MOUNTED, OVERRIDE, COMMERCIAL GRADE SWITCH
- S_{DIM} — SINGLE POLE, WALL MOUNTED, DIMMER, COMMERCIAL GRADE SWITCH
- S — SINGLE POLE, WALL MOUNTED, COMMERCIAL GRADE SWITCH
- S_{DR} — SINGLE POLE, WALL MOUNTED, OVERRIDE, COMMERCIAL GRADE SWITCH
- S_{WP} — WEATHERPROOF LIGHT SWITCH
- GF1 — LED FLOOD LIGHT AND GROUND FAULT RECEPTACLE FOR ROOF TOP HVAC UNIT. DUAL HEAD 6 LED LIGHTING FIXTURE AS MANUFACTURED BY LITHONIA LIGHTING. MODEL NUMBER OFLP 6 MO. UNIT SUPPLIED WITH MOTION SENSOR WITH MANUAL OVERIDE



1 SERVICE LIGHT DETAIL
SCALE: NTS

DEMOLITION NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS AS REQUIRED TO COMPLETE ANY NECESSARY DEMOLITION AND/OR REMOVAL OF ITEMS AS INDICATED ON DRAWINGS OR AS OTHERWISE DIRECTED BY OWNER.

2. PROVIDE TEMPORARY PROTECTION AS REQUIRED TO PRESERVE EXISTING ITEMS INDICATED TO REMAIN AND RESTORE DAMAGED WORK TO THE CONDITION EXISTING PRIOR TO START OF WORK, UNLESS OTHERWISE DIRECTED.

3. ELECTRICAL CONTRACTOR SHALL BE COORDINATED WITH OWNER AND MECHANICAL CONTRACTOR BEFORE DISCONNECTING MECHANICAL DEVICES, CONTROLS OR EQUIPMENT.

4. ALL ELECTRICAL DEMOLITION WORK SHALL BE COORDINATED WITH OWNER 72 HOURS PRIOR TO START OF DEMOLITION WORK. ALL ELECTRICAL POWER CIRCUITS TO BE DEMOLISHED SHALL BE TRACED AND IDENTIFIED PRIOR TO EXECUTION OF WORK.

5. ELECTRICAL CONTRACTOR SHALL REMOVE ALL UNUSED AND ABANDONED ELECTRICAL DEVICES.

6. ALL ACTIVE MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS TO REMAIN SHALL BE FULLY PROTECTED FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION.

7. CONTRACTOR SHALL DEVELOP DETAILED WRITTEN PLAN TO COORDINATE ALL DEMOLITION WORK IN ORDER TO MINIMIZE DOWNTIME OF THE ELECTRICAL SYSTEMS. THIS PLAN SHALL BE COMPLETED AND APPROVED BY THE OWNER. THE PLAN SHALL BE COMPLETED AND SUBMITTED WITHIN 2 WEEKS OF CONTRACTOR SELECTION. OWNER APPROVAL IS REQUIRED BEFORE ANY WORK CAN COMMENCE.

8. THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION WITHOUT EXTRA PAYMENT, ANY OF THE OWNERS PROPERTY OR WORK BY/OF OTHER CONTRACTORS THAT SHALL BECOME DAMAGED DUE TO THE NEGLIGENCE OF EMPLOYEES OR AGENTS OF THE CONTRACTOR. SUCH REPAIRS SHALL MEET THE APPROVAL OF THE OWNER.

9. CONTRACTOR SHALL TAKE PROPER CARE AND PROTECT ALL PORTIONS OF THE WORK UNTIL ITS ACCEPTANCE.

10. THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE DEMOLITION OF THE SYSTEM.

11. AT LEAST ONCE A DAY, OR AS REQUIRED BY THE OWNER, GATHER ALL RUBBISH, INCLUDING CARTONS, CRATES AND PACKAGING MATERIALS, DEBRIS AND OTHER WASTE MATERIALS. WASTE TO BE PLACED IN TRASH BIN/DUMPSTER PROVIDED BY CONTRACTOR.

12. WHEN WORK IS PERFORMED IN OCCUPIED AREAS, TRASH REMOVAL SHOULD BE CONTINUOUS TO PREVENT HEALTH AND SAFETY ISSUES.

13. PROTECT ALL WORK AND EQUIPMENT AGAINST DAMAGE OR THEFT UNTIL FINAL INSPECTION, TESTED AND ACCEPTED. CAREFULLY STORE AND PROTECT MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH ARE NOT IMMEDIATELY INSTALLED. CLOSE OPEN ENDS OF WORK WITH TEMPORARY PLUGS OR COVERS DURING CONSTRUCTION TO PREVENT ENTRY DEBRIS.

14. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS.

15. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONS PERFORMING THE WORK OF THIS CONTRACT.

16. THIS CONTRACTOR SHALL OBTAIN AND READ ALL SITE, JOB AND CORPORATE SAFETY AND SECURITY RULES AND REGULATIONS FROM THE OWNER, AND SIGN OFF ON THEM IF REQUIRED. THIS CONTRACTOR SHALL ADEQUATELY INFORM AND INSTRUCT ALL EMPLOYEES, AND OTHERS PERFORMING WORK FOR HIM, OF SUCH RULES AND REGULATIONS. THESE INSTRUCTIONS ARE THE MINIMUM THAT WILL BE ACCEPTED ON THIS PROJECT.

17. ALL OF THE ABOVE RULES AND REGULATIONS ARE NOT MEANT TO REPLACE OR ELIMINATE INDIVIDUAL CONTRACTORS SAFETY PROGRAMS OR CHANGE ANY LOCAL, STATE OR FEDERAL RULES AND REGULATIONS, BUT RATHER TO AUGMENT THEM AS REQUIRED FOR THE INDIVIDUAL PREMISES ON WHICH THIS WORK IS BEING PERFORMED

18. THE ELECTRICAL CONTRACTOR SHALL SURVEY AND VERIFY ALL PANELS AND BREAKERS POWER THE EQUIPMENT. THE PANEL SCHEDULES SHOWN ON THIS DRAWINGS ARE FOR REFERENCE AND SHALL BE CONFIRMED.

19. ELECTRICAL CONTRACTOR TO DISPOSE OF ALL REMOVED ELECTRICAL MATERIAL.

ELECTRICAL GENERAL NOTES

1. INSTALL ALL WORK IN ACCORDANCE WITH THE 2020 NATIONAL ELECTRIC CODE AND ALL APPLICABLE STATE AND LOCAL CODES. WHERE THE PROJECT DRAWINGS AND/OR SPECIFICATIONS DIFFER FROM THE GOVERNING CODE THE MORE STRINGENT REQUIREMENTS WILL GOVERN THE INSTALLATION.

2. CONTRACTOR SHALL PAY FOR ALL REQUIRED PERMITS AND LICENSES REQUIRED UNDER THIS CONTRACT.

3. THE CONTRACTOR SHALL VISIT AND INSPECT THE PREMISES IN ORDER TO BE FAMILIAR THE THE EXISTING SITE CONDITIONS WHICH MAY AFFECT THE INSTALLATION OF THE WORK SHOWN ON THE PROJECT DRAWINGS. NO ADDITIONAL COMPENSATION SHALL BE GRANTED FOR THE CONTRACTOR'S FAILURE TO VISIT AND INSPECT THE SITE.

4. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL WORK AS SHOWN ON THE PROJECT DRAWINGS AND SPECIFICATIONS WITH THE FOLLOWING UNDERSTANDINGS:
   A. THE PROJECT DRAWINGS ARE ONLY DIAGRAMMATIC IN NATURE AND ARE INTENDED TO OUTLINE THE BASIC SYSTEMS TO BE PROVIDED. THEREFORE MINOR DETAILS AND APPERTURANCES MAY OR NOT BE SHOWN. THE OMISSION OF A MINOR COMPONENT SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO FURNISH AND INSTALL ALL SUCH ITEMS NECESSARY TO PROVIDE A COMPLETE, OPERATIVE, AND CODE COMPLIANT SYSTEM TO THE OWNER. IF THERE ARE ANY DOUBTS TO THE EXTEND OR SCOPE OF WORK REQUIRED THE ENGINEER SHALL BE CONTACTED TO PROVIDE CLARIFICATION DURING THE BID PHASE
   B. THE PROJECT DRAWINGS SHOW INTENDED EQUIPMENT LOCATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MINOR ADJUSTMENTS OR RELOCATIONS NECESSARY DUE TO THE CHOICE OF EQUIPMENT AND COORDINATION CONFLICTS. ALL EQUIPMENT RELOCATIONS MUST BE APPROVED BY THE ARCHITECT OR ENGINEER.

5. WORK UNDER THIS CONTRACT INCLUDES THE FURNISHING OF EQUIPMENT, MATERIAL, TOOLS, TRANSPORTATION, SERVICES, SCAFFOLDING, SUPERVISION, LABOR AND OTHER APPURTENANCES REQUIRED FOR THE FABRICATION, INSTALLATION,OR APPLICATION AND COMPLETION OF THE WORK UNDER THIS SECTION AS SHOWN OR IMPLIED ON THE PROJECT DRAWINGS AND SPECIFICATIONS.

6. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, EXISTING UTILITY LOCATIONS, AND ELECTRICAL EQUIPMENT REQUIREMENTS PRIOR TO STARTING WORK.

7. CONTRACTOR TO SUBMIT CUTSHEETS AND CALCULATIONS WHERE APPLICABLE FOR ANY EQUIPMENT OR DEVICES THAT DIFFER FROM THOSE SPECIFIED ON THE PROJECT DRAWINGS OR SPECIFICATIONS PRIOR TO THE START OF WORK. SUBSTITUTIONS WILL ONLY BE GRANTED THAT REDUCE THE OWNER'S OVERALL INSTALLED COST OR PROVIDE A SUBSTANTIALLY BETTER FINISHED PROJECT.

8. COORDINATE ALL WORK WITH THAT OF OTHER TRADES AFFECTING, OR EFFECTED BY, WORK OF THIS SECTION. COOPERATE WITH SUCH TRADES TO ASSURE THE STEADY PROGRESS OF ALL WORK UNDER THIS CONTRACT.

9. ARRANGE ALL WORK TO PROCEED AS RAPIDLY AS POSSIBLE IN COOPERATION WITH OTHER TRADES. COOPERATE WITH OTHER TRADES TO HAVE ALL WORK RACEWAY, WIRING, ETC TO THE BEST ADVANTAGE.

10. ALL EQUIPMENT, MATERIALS, INSTALLATIONS AND CONSTRUCTION ACTIVITIES SHALL COMPLY WITH ALL REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION WHEREVER THEY APPLY.

11. CONTRACTOR SHALL BE RESPONSIBLE FOR PLANNING HIS OWN WORK AND FOR ANY DAMAGE CAUSED TO THE OWNER OR OTHER CONTRACTORS BY IMPROPER WORK EXECUTION OR PLACEMENT OF RACEWAYS, WIRING, AND EQUIPMENT

12. PROVIDE TEMPORARY LIGHTING AND POWER DURING CONSTRUCTION.

ELECTRICAL GENERAL NOTES

13. MAINTAIN ELECTRIC SERVICE CONTINUITY TO ALL EQUIPMENT OUTSIDE OF CONSTRUCTION AREA. NOTIFY TENANTS IN WRITING 48 HOURS IN ADVANCE OF ANTICIPATED UTILITY OUTAGES. OBTAIN WRITTEN PERMISSION TO CONDUCT ALL WORK REQUIRING AN OUTAGE TO OCCUPIED SPACES.

14. CONDUIT RUNS ARE DIAGRAMMATIC AND EQUIPMENT LOCATIONS ARE APPROXIMATE. ELECTRICAL CONTRACTOR IS TO ROUTE CONDUIT AND TO VERIFY EXISTING CONDITIONS IN THE FIELD.

15. All BRANCH CIRCUITS SERVING MOTOR OPERATED EQUIPMENT SHALL BE RUN IN EMT WHERE EXPOSED OR IN FRAMED PARTITIONS FROM THE PANEL BOARD TO DISCONNECT OR CONTROLLER.

16. ALL CONDUIT TERMINATING AT MOTORS, SOLENOID VALVES, VIBRATING DEVICES, DUCT AND PIPE MOUNTED SWITCHES AND DEVICES SHALL TERMINATE IN FLEXIBLE METAL CONDUIT FOR INDOOR EQUIPMENT OR LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR OUTDOOR EQUIPMENT.

17. ALL BRANCH CIRCUITS SHALL BE IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE. MC CABLE MAY BE USED, WHERE PERMITTED BY CODE, FOR ALL SUBSEQUENT DEVICES.

18. ALL WIRING TO BE COPPER WITH 600V INSULATION. ALL WIRING TO #4 AND SMALLER SHALL BE TYPE THHN/THWN-2, ALL WIRING LARGER THAN #4 SHALL BE XHHW. ALL WIRING UNDERGROUND TO BE TYPE XHHW-2.

19. ALL POWER WIRING TO BE MINIMUM #12 AWG SIZE, ALL CONTROL WIRING TO BE #14 AWG UNLESS OTHERWISE NOTED

20. ALL CONDUIT TO BE 3/4" MINIMUM SIZE UNLESS OTHERWISE NOTED.

21. WIRE ALL 20A CIRCUITS USING #12 AWG, ALL 30A CIRCUITS USING #10 AWG UNLESS OTHERWISE NOTED.

22. SIZE BRANCH CIRCUITS, PANEL HOME RUNS, AND DEVICE CIRCUITING PER NEC 310-15. WHERE SINGLE PHASE 20A AND 30A BRANCH CIRCUITS EXCEED 100 FEET IN LENGTH INCREASE CONDUCTOR SIZE ONE SIZE FOR EVERY ADDITIONAL 100 FEET OF CONDUCTOR LENGTH UNLESS THE CONDUCTOR HAS ALREADY BEEN INCREASED DUE TO CONDUIT FILL DERATING.

23. ALL BRANCH CIRCUITS ARE TO CONTAIN A GREEN COLORED EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC TABLE 250.95.

24. GROUNDING AND BONDING OF ALL NON CURRENT CARRY METALLIC PARTS OF ALL ELECTRICAL EQUIPMENT AND ENCLOSURES INCLUDING CONDUITS, SUPPORTS, CONTROLLERS, RACEWAYS, TRANSFORMERS, ELECTRICAL PANELS, MOTOR FRAMES, ETC. INSTALLED OR CONNECTED UNDER THIS CONTRACT SHALL BE PROPERLY CONNECTED TO THE GROUNDING SYSTEM, REGARDLESS OF WHETEHER OR NOT THE CONNECTIONS ARE SHOWN ON THE PROJECT DRAWINGS.

25. ALL NEW CIRCUITS SHALL NOT SHARE NEUTRALS UNLESS SHOWN OTHERWISE ON THE PROJECT DRAWINGS. EACH NEW CIRCUIT SHALL BE ROUTED WITH IT'S OWN DEDICATED NEUTRAL FROM OVER CURRENT PROTECTION DEVICE TO POINT OF CONNECTION AT EQUIPMENT.

26. ALL ISOLATED GROUND CIRCUITS SHALL HAVE A DEDICATED #12 IG CONDUCTOR INSTALLED IN ADDITION TO THE SAFETY GROUND CONDUCTOR.

27. PROVIDE INSULATING BUSHINGS FOR CONDUCTOR PROTECTION AT CONDUIT TERMINATIONS.

ELECTRICAL GENERAL NOTES

28. SEAL ALL FLOOR AND WALL PENETRATIONS TO MAINTAIN FIRE RATING OF WALL OR FLOOR. CONSULT SPECIFIED TECHNOLOGIES INC. PRODUCT AND APPLICATION GUIDE (OR EQUIVALENT) TO DETERMINE THE APPROPRIATE FIRE STOP SYSTEM TO BE UTILIZED FOR A GIVEN PENETRATION TYPE. PROVIDE PRODUCTS AND SEAL PENETRATION PER THE MANUFACTURER'S INSTRUCTIONS IN ORDER TO MAINTAIN THE LISTINGS OF THE SEALED PENETRATION. PROVIDE ALL NECESSARY DOCUMENTATION TO THE AUTHORITY HAVING JURISDICTION.

29. PROVIDE ALL ROOF PENETARTIONS IN A MANNER APPLICABLE FOR THE ROOFING SYSTEM AND THAT MAINTAINS ANY EXISTING ROOF WARRANTY.

30. BEFORE ENERGIZING OR STARTING ANY DEVICE OR PIECE OF EQUIPMENT VERIFY THAT IT HAS BEEN INSTALLED INACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ADHERE TO ALL MANUFACTURER'S GUIDELINES AND START-UP REQUIREMENTS.

31. ALL DISCONNECT SWITCHES, STARTERS, OPERATORS, AND ENCLOSURES SHALL BE UL LISTED AND/OR FACTORY MUTUAL (FM) APPROVED.

32. LOCATE ELECTRICAL EQUIPMENT IN THE FIELD AS SPACE LIMITATIONS AND CONDITIONS PERMIT IN ORDER TO SATISFY MINIMUM WORKING SPACE OF NEC 110-26.

33. PROVIDE MOUNTING FRAMES AND STRUCTURAL SUPPORT FROM PLATFORMS, FLOORS, AND CEILING STEEL AS REQUIRED FOR ELECTRICAL EQUIPMENT. STRUCTURAL SUPPORT SHALL BE CONSTRUCTED TO MAINTAIN A SAFETY FACTOR OF 4 WITH A 200 LB MINIMUM.

34. LABEL ALL NEW ELECTRICAL EQUIPMENT, PANELS WITH MINIMUM 1/2" LETTERS USING THERMAL TRANSFER LABEL SYSTEM. PROVIDE TYPE WRITTEN PANEL SCHEDULES FOR ALL PANEL BOARDS.

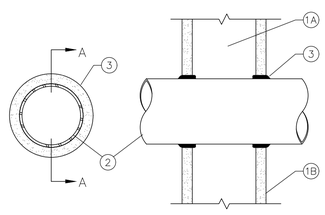
35. NO COMBUSTIBLE MATERIALS SHALL BE UTILIZED IN CEILING PLENUMS.

36. CONTRACTOR TO FOLLOW ALL OWNER SITE AND SAFETY RULES. CONTRACTOR IS RESPONSIBLE FOR DAILY SITE CLEANING FOR THEIR ACTIVITIES. BROOM CLEAN DAILY AND REMOVE ALL CONSTRUCTION DEBRIS FROM THE BUILDING AND GROUNDS DAILY

37. ALL MECHANICAL ROTATING EQUIPMENT SHALL BE TESTED TO ENSURE PROPER ROTATION. CHECK ALL BEARINGS FOR PROPER LUBRICATION PRIOR TO START-UP.

38. CONTRACTOR SHALL CONDUCT A TEST OF THE EMERGENCY AND EGRESS LIGHTING WHEN REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

39. UPON COMPLETION PROVIDE AN ACCURATE "MARKED-UP" SET OF PROJECT DRAWINGS REFLECTING ALL FIELD CHANGES TO THE OWNER.



SYSTEM NO. WL1001
(FORMERLY SYSTEM NO. 202)
F RATING – 1 HR
T RATING – 0 HR

SECTION A-A

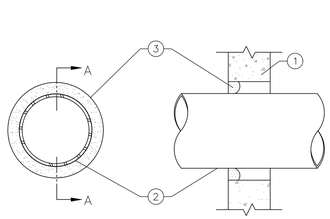
1. WALL ASSEMBLY – ONE hr FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL INCLUDE THE FOLLOWING FEATURES:
   A. STUDS – STEEL STUDS TO BE MIN. 3-5/8" WIDE AND SPACED MAX. 24" O.C.
   B. WALLBOARD, GYPSUM – 5/8" THICK 4'-0" WIDE WITH SQUARE OR TAPERED EDGES. MAX. DIA. OF OPENINGS IN WALLBOARD IS 13-1/2"

2. PIPE OR CONDUIT – NOM. 12"ø(OR SMALLER) SCH. 10 (OR HEAVIER) STEEL PIPE NOM. 12"ø (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12"ø (OR SMALLER) CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE, NOM. 6"ø (OR SMALLER) STEEL CONDUIT NOM. 4"ø (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING, NOM 6"ø (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING OR NOM. 1"ø (OR SMALLER) FLEXIBLE STEEL CONDUIT. A MAX. OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.

3. FILL, VOID OR CAVITY MATERIALS* CAULK – CAULK FILL MATERIAL INSTALLED TO COMPLETELY FILL ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND GYPSUM WALLBOARD WITH A MIN 1/4"ø BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. CAULK INSTALLED SYMMETRICALLY ON BOTH SIDES OF THE WALL ASSEMBLY.

* – BEARING THE UL CLASSIFICATION MARKING.

2 CONDUIT PENETRATIONS - GYPSUM WALLBOARD
SCALE: NONE



SYSTEM NO. CAJ1027
(FORMERLY SYSTEM NO. 202)
F RATING – 3 HR
T RATING – 0 HR

SECTION A-A

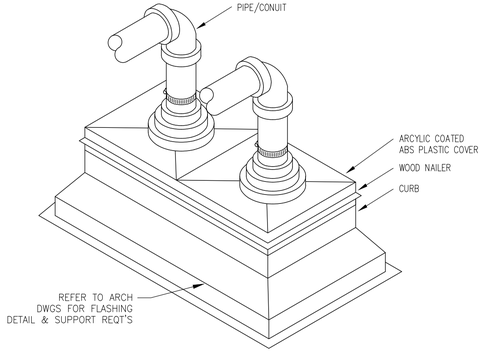
1. FLOOR OR WALL ASSEMBLY – MIN 4-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF THROUGH OPENING IS 12-1/4 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN FIRE RESISTANCE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. PIPE OR CONDUIT – NOM 10 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 6 IN. DIAM (OR SMALLER) RIGID STEEL CONDUIT, NOM 4 IN. DIAM (OR SMALLER) STEEL EMT OR NOM 3 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE. MAX ONE PIPE OR CONDUIT PER THROUGH OPENING. MAX ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF OPENING IS 3/4 IN. MIN ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF OPENING IS 0 IN. (POINT CONTACT). PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

3. FILL, VOID OR CAVITY MATERIALS*– PUTTY– MOLDABLE PUTTY MATERIAL KNEADED BY HAND AND APPLIED TO FILL ANNULAR SPACE TO A MIN DEPTH OF 1 IN., FLUSH WITH TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, REQUIRED PUTTY THICKNESS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL. MINNESOTA MINING & MFG. CO. – MPS-2+. *BEARING THE UL CLASSIFICATION MARKING

* – BEARING THE UL CLASSIFICATION MARKING.

3 CONDUIT PENETRATIONS - MASONRY PARTITION
SCALE: NONE



4 MULTI PIPE PORTAL
Scale: NTS

NOTE:
1. COORDINATE WITH MECHANICAL CONTRACTOR FOR THE TOTAL NUMBER & SIZE OF PORTAL OPENINGS REQUIRED AT EACH PIECE OF EQUIPMENT.

LIGHT FIXTURE SCHEDULE

FIXTURE NO.	FIXTURE SYMBOL	MANUF.	MODEL	DESCRIPTION	LUMENS	COLOR	LUMENS/ WATT	FINISH	WATTS	VOLATGE	REMARKS
A	▭	LITHONIA LIGHTING	EPANL-2x4-4000LM-80CRI-40K-MVOLT	2x4 FLAT PANEL LED	4,240	4000K	113	WHITE	38	120-277V	–
A-EM	▭	LITHONIA LIGHTING	EPANL-2x4-4000LM-80CRI-40K-MVOLT-E10W	2x4 FLAT PANEL LED	4,240	4000K	113	WHITE	38	120-277V	NOTE 1

NOTE 1: PROVIDE 10W EMERGENCY BATTERY PACK.

WILLIAM D. HOPKINS III, AIA, LEED AP
NJ - 21A0170000 | PA - RA012326
GEORGE R. DUTHIE JR., AIA, PP
NJ - 21A0129900
JASON J. DUBOWITCH, AIA
NJ - 21A0197900 | PA - RA426
Date
FVHD architects planners
Fraytak Veisz Hopkins Duthie P C
Corporate: 1515 Lower Ferry Road - Trenton - New Jersey 08618
Pennsylvania: 140 Wilfordel Ave - Hort Circle - Pennsylvania 19453
FVHDPC.COM

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JD

Scale
AS NOTED

Drawing Name
ELECTRICAL - NOTES & DETAILS

Revisions

No.	Date	Description

Drawing Number
E-06

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NEW JERSEY STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS
CERTIFICATE OF AUTHORIZATION: 24GA28121800
PRINCIPAL IN CHARGE: JOSEPH T. MISTRETTA, PE
N.J. PROFESSIONAL ENGINEER LICENSE NUMBER: 24GE02823800

ELECTRICAL SPECIFICATION

WORK INCLUDED

A. INCLUDE ALL LABOR, MATERIALS, APPLIANCES, TOOLS, TRANSPORTATION, STORAGE, CERTIFICATES, DRAWINGS, TEMPORARY WORK, CLEANING, START-UP, COMMISSIONING AND ALL OTHER CONTRACTOR SERVICES REQUIRED TO MAKE THE INSTALLATION COMPLETE IN EVERY RESPECT, GUARANTEED TO BE SAFE AND READY FOR USE AND OPERATION IN A MANNER SATISFACTORY TO THE OWNER AND ALL THE MECHANICAL WORK SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

B. ELECTRICAL WORK SHALL INCLUDE PROVIDING POWER AND 120V OR HIGHER, FOR ALL EQUIPMENT, STARTERS, DISCONNECT SWITCHES, INTERLOCK CONTROL WIRING OF MOTORS AND 120V TO CONTROL PANELS.

C. THE ELECTRICAL CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST APPROVED VERSION OF NFPA 70E.

LAWS AND ORDINANCES

A. ALL LOCAL AND STATE LAWS AND REGULATIONS AND RECOMMENDATIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, UNDERWRITERS LABORATORIES AND INTERNATIONAL BUILDING CODES GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY MADE PART OF THESE SPECIFICATIONS. RESPONSIBILITY FOR COMPLIANCE TO THEIR PROVISIONS IS INCLUDED.

B. INFORM THE ENGINEER OF ANY WORK OR MATERIALS, WHICH OBVIOUSLY VIOLATES ANY OF THE APPLICABLE CODES AND REGULATIONS BEFORE PROCEEDING WITH THE WORK. FAILURE TO DO SO INDICATES ACCEPTANCE OF THE WORK AS SHOWN BY THE ENGINEER, AND RESPONSIBILITY FOR CORRECTING SUCH WORK SHALL BE MADE BY THE CONTRACTOR AT NO COST TO THE OWNER.

C. ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTY, LOCAL OR MUNICIPAL, AND OTHER RECOGNIZED AUTHORITIES EXERCISING OR ASSERTING JURISDICTION OVER THE CONSTRUCTION WORK AT THE PROJECT.

D. EQUIPMENT, MATERIAL AND INSTALLATION SHALL COMPLY WITH THE LATEST APPROVED VERSIONS OF THE FOLLOWING CODES, ORDINANCES AND STANDARDS, AS APPLICIABLE. NFPA 70, NFPA 70E, FACTORY MUTUAL FIRE CO. (FM), FACTORY INSURANCE ASSOC. (FIA), INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS (IEEE), NATIONAL ELECTRICAL MANUFACTURERS ASSOC. (NEMA), NFPA, INSTITUTE OF POWER CABLE ENGINEERS ASSOC. (IPCEA) NATIONAL SAFETY CODE (NESC), UNDERWRITER'S LABORATORIES, INC. (UL) AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).

STANDARDS

A. MATERIALS SPECIFIED BY REFERENCE TO A SPECIFIC STANDARD SUCH AS THE AMERICAN SOCIETY OF TESTING MATERIALS, UNDERWRITERS LABORATORIES, AMERICAN NATIONAL STANDARDS INSTITUTE, FEDERAL SPECIFICATIONS, A TRADE STANDARD OR OTHER SIMILAR STANDARD SHALL COMPLY WITH THE LATEST REVISION THEREOF IN EFFECT AT THE TIME OF BIDDING, EXCEPT AS MODIFIED BY TYPE, CLASS OR GRADE OR MODIFIED BY SUCH REFERENCE.

B. WHERE COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED, AND THEY ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, THE MORE STRINGENT REQUIREMENTS WILL BE ENFORCED UNLESS THE CONTRACT DOCUMENTS INDICATE OTHERWISE.

C. REFER REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, AND UNCERTAINTIES AS TO WHICH QUALITY LEVEL IS MORE STRINGENT TO THE ENGINEER BEFORE PROCEEDING.

INTENT OF THE DRAWINGS AND SPECIFICATIONS

A. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS IN GOOD WORKING ORDER, READY FOR OPERATION, INCLUDING ALL ACCESSORIES AND ITEMS REQUIRED FOR PROPER OPERATION.

B. IT SHALL BE UNDERSTOOD THAT THE ELECTRICAL DRAWINGS SHOW THE GENERAL RUN OF PIPING, DUCTWORK AND THE APPROXIMATE LOCATION OF ALL EQUIPMENT. DO NOT SCALE THE DRAWINGS TO DETERMINE EXACT POSITIONS AND CLEARANCES. OBTAIN FROM THE ARCHITECT ANY DIMENSIONS NOT SHOWN.

C. METHODS OF CONSTRUCTION AND DETAILS OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS ARE SUBJECT TO THE OWNER'S APPROVAL.

D. MAKE A THOROUGH EXAMINATION OF ALL SURFACES RECEIVING THE WORK OF THIS SECTION, AND BEFORE STARTING THE INSTALLATION, NOTIFY THE ENGINEER IN WRITING OF ANY DEFECT WHICH WILL AFFECT THE SATISFACTORY COMPLETION OF ANY WORK.

E. CONTRACTOR SHALL CONFORM TO THE OWNER'S SITE STANDARDS FOR QUALITY, WORKMANSHIP, MATERIAL, EQUIPMENT, ETC. IF THERE IS A DISCREPANCY BETWEEN THE SITE STANDARD AND INFORMATION SHOWN ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. THE ENGINEER WILL CONFER WITH THE OWNER AND THE CONTRACTOR WILL BE INSTRUCTED ON HOW TO PROCEED.

PERMITS AND CERTIFICATES

A. THIS CONTRACTOR SHALL OBTAIN ALL NECESSARY NOTICES, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENTS OR AUTHORITIES ASSERTING OR HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THE WORK.

B. THE CONTRACTOR SHALL ARRANGE FOR INSPECTIONS AND TESTS OF ANY OR PART OF THE WORK IF SO REQUIRED BY AUTHORITIES OR LOCAL UTILITY OR SERVICE COMPANIES HAVING JURISDICTION. NOTIFY OWNER AND ENGINEER 72 HOURS IN ADVANCE OF ALL INSPECTIONS.

C. THE CONTRACTOR SHALL OBTAIN ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS TO ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

D. THE CONTRACTOR SHALL NOTIFY THE OWNER IN A TIMELY MANNER THAT INSPECTIONS ARE REQUIRED, SO AS NOT TO HOLD UP THE PROGRESS OF THE WORK.

RELATIONS WITH OTHER TRADES

A. CONFER WITH OTHERS ENGAGED IN THE CONSTRUCTION OF THE BUILDING WHOSE WORK MIGHT AFFECT THE INSTALLATION, AND ARRANGE ALL PARTS OF THE WORK AND EQUIPMENT IN PROPER RELATION TO THE WORK AND EQUIPMENT OF OTHERS, WITH THE BUILDING CONSTRUCTION AND WITH THE ARCHITECTURAL FINISH SO THAT IT WILL HARMONIZE IN SERVICE AND APPEARANCE. SPECIAL CARE SHALL BE TAKEN IN THE INSTALLATION OF EQUIPMENT AND PIPING WHERE CONCEALED TO ASSURE THAT IT DOES NOT PROJECT BEYOND FINISHED LINES OF FLOORS, CEILINGS, WALLS AND CABINETS.

B. WHERE, DUE TO UNION REGULATIONS OR OTHER TRADE AGREEMENTS, ANY OF THE WORK SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN IS CONSIDERED OTHER TRADES, SUBCONTRACT THE WORK IN QUESTION AND ASSUME FULL RESPONSIBILITY FOR THE COMPLETE INSTALLATION.

APPROVED MATERIALS

A. ALL MATERIAL AND EQUIPMENT SHALL BE NEW (EXCEPT WHERE FURNISHED OR DIRECTED FOR RE-USE BY OWNER),OF MAKES AND KINDS SPECIFIED HEREIN, OR AS INCLUDED IN THE DRAWINGS, WITHOUT EXCEPTION. WHERE ONE BRAND, MAKE OR DEVICE IS SHOWN OR SPECIFIED, THE PRODUCTS OF OTHER MANUFACTURERS SHALL BE REGARDED AS ACCEPTABLE WHEN, IN THE OPINION OF THE ENGINEER, IT IS A RECOGNIZED EQUAL CONSIDERING QUALITY, WORKMANSHIP, ECONOMY OF OPERATION AND SUITABILITY FOR THE PURPOSE INTENDED.

B. WHERE SUCH APPROVED SUBSTITUTION OR DEVIATION REQUIRES A DIFFERENT QUANTITY OR ARRANGEMENT OF PIPING, WIRING, SUPPORTS, FOUNDATIONS, DUCTWORK, AND ANY OTHER EQUIPMENT OR ACCESSORIES NORMAL TO THIS EQUIPMENT, FURNISH SAID CHANGES AND ADDITIONS, AND PAY ALL COSTS FOR ALL CHANGES TO THIS WORK AND THE WORK OF OTHER TRADES AFFECTED BY THE SUBSTITUTION OR DEVIATION.

SUBMITTALS, SCHEDULE AND SHOP DRAWINGS

A. EQUIPMENT AND MATERIALS MUST BE INACCORDANCE WITH DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTIONS ARE ALLOWED UNLESS DENOTED BY CONTRACTOR AND APPROVED BY ENGINEER. EIGHT (8) COPIES WILL BE PROVIDED ALONG WITH AN INDEX OF SUBMITTALS TO BE PROVIDED. ALL SUBMITTALS MUST BE IDENTIFIED WITH THE SAME NAME USED ON THE DRAWINGS.

B. PROVIDE A CONSTRUCTION SCHEDULE USING MICROSOFT PROJECT MANAGER INCLUDING LEAD TIMES FOR EQUIPMENT, PHASING, ETC.

C. SUBMIT SHOP DRAWINGS AND OBTAIN WRITTEN APPROVAL OF SAME BEFORE ORDERING OR INSTALLING ANY OF THE EQUIPMENT OR MATERIAL. EQUIPMENT OR MATERIAL ORDERED OR INSTALLED WITHOUT WRITTEN APPROVAL WILL NOT BE ACCEPTED. SHOP DRAWINGS SHALL BE PRESENTED ON AUTOCAD VERSION 2004 OR LATER. SHOP DRAWING SCALE SHALL BE NO SMALLER THAN $\frac{1}{8}$ INCHES EQUALS 1 FOOT.

D. THE CHECKING OF SHOP DRAWING AND SAMPLES AND THE USE OF THE APPROVAL STAMP WILL BE ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT. THE STAMP OF APPROVAL DOES NOT INDICATE APPROVAL OF EVERY DETAIL OF THE DRAWINGS NOR OF THE WORK AND METHODS INDICATED THEREON.

HANGER, SUPPORTS AND SEISMIC RESTRAINTS

A. CONTRACTOR TO OBTAIN THE DESIGN AND PREPARATION OF SHOP DRAWINGS FOR CONDUITS, CABLE TRAYS AND EQUIPMENT SUPPORTS AND SEISMIC RESTRAINTS AS SPECIFIED IN THE INTERNATIONAL BUILDING CODE FROM A QUALIFIED PROFESSIONAL ENGINEER. ALL DRAWINGS SHALL BE SEALED AND SIGNED BY A QUALIFIED PROFESSIONAL ENGINEER. UNLESS SPECIFIED, THE SEISMIC DESIGN CATEGORY IS C.

EQUIPMENT START-UP

ALL ELECTRICAL EQUIPMENT START-UP SHALL BE CONDUCTED BY MANUFACTURER'S REPRESENTATIVE. START-UP CHECKLISTS SHALL BE COMPLETED AND PROVIDED TO THE OWNER.

CUTTING AND PATCHING

A. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE CUTTING, PATCHING AND FIRE STOPPING OF ALL HOLES/HANGERS REQUIRED TO INSTALL MATERIALS AND EQUIPMENT THEY SUPPLY.

B. NO STRUCTURAL ELEMENTS SHALL BE CUT OR DRILLED.

C. THE CONTRACTOR SHALL REPLACE THE INTEGRITY OF RATED PARTITIONS, COLUMN AND BEAM FIREPROOFING EFFECTED BY ITS WORK.

RECORD DRAWINGS

FURNISH AS-BUILT DRAWINGS AS PART OF THIS WORK, CONSISTING OF A COMPLETE SET OF AUTOCAD VERSION 2004 COMPATIBLE DRAWINGS ON CD AND INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. THIS SHALL INCLUDE CHANGES AND ADDENDUM OF THIS SECTION WHICH EXISTS IN THE COMPLETED WORK. DURING CONSTRUCTION KEEP AN ACCURATE RECORD ON A SET OF CONTRACT DRAWINGS, ALL DEVIATIONS BETWEEN THE WORK SHOWN AND THE WORK INSTALLED. ELECTRONIC FILES SHALL BEAR THE NOTATION "RECORD DRAWINGS OF WORK AS-BUILT", AND MUST BE DELIVERED TO THE ENGINEER AT THE COMPLETION OF THE WORK. INCLUDE IN THE BID AND BEAR THE COST OF THESE ELECTRONIC FILES.

DAMAGE TO PROPERTY

A. RESTORE TO ITS ORIGINAL CONDITION WITHOUT EXTRA PAYMENT, ANY OF THE OWNERS PROPERTY OR PROPERTY OR WORK BY/OF OTHER CONTRACTORS THAT SHALL BECOME DAMAGED DUE TO THE NEGLIGENCE OF EMPLOYEES OR AGENTS OF THE CONTRACTOR. SUCH REPAIRS SHALL MEET THE APPROVAL OF THE OWNER. PARTICULAR CARE SHALL BE EXERCISED WITHIN ROOMS OF SPECIAL CONSTRUCTION, SUCH AS CLEAN AND STERILE ROOMS, FROM SCRATCHING OR OTHER IMPERFECTIONS CAUSED BY INSTALLATION OF WORK UNDER THIS CONTRACT.BT

B. TAKE PROPER CARE AND PROTECT ALL PORTIONS OF THE WORK UNTIL ITS ACCEPTANCE. ANY AND ALL PORTIONS OF THE WORK LIABLE TO DAMAGE UNDER THIS OR OTHER SECTIONS, BY FREEZING OR INCLEMENT WEATHER MUST BE THOROUGHLY AND COMPLETELY PROTECTED BY ANY SUBSTANTIAL MEANS UNTIL NOT FURTHER REQUIRED. IT SHALL BE REMOVED FROM THE PREMISES ONLY WHEN ITS REMOVAL IS APPROVED BY THE ENGINEER.

C. PROTECT PLATED AND POLISHED MATERIAL AND TRIMMINGS AGAINST DAMAGE.

REPLACEMENT OF DEFECTIVE WORK

WHEN, IN THE OPINION OF THE OWNER OR CONSTRUCTION MANAGER ANY MATERIAL INSTALLED IS SUBSTANDARD IN APPEARANCE OR FUNCTION, OR DOES NOT MEET GENERALLY ACCEPTED STANDARDS OF WORKMANSHIP, ALL SUCH MATERIALS SHALL BE REPLACED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE OWNER.

SUPERVISION

THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE INSTALLATION OF THE MATERIAL FURNISHED UNDER THIS SPECIFICATION, UNTIL SAME HAS BEEN PUT IN COMPLETE OPERATING CONDITION AND ACCEPTED BY THE OWNER.

DIVISION OF WORK

NO REASSIGNMENT OF THE DIVISION OF RESPONSIBILITY FOR ANY WORK HEREIN SPECIFIED FOR ANY RESPECTIVE TRADE SHALL BE MADE WITHOUT THE PRIOR WRITTEN ACCEPTANCE OF THE OWNER AND ENGINEER.

RUBBISH

A. AT LEAST ONCE A DAY, OR AS REQUIRED BY THE OWNER, GATHER ALL RUBBISH, INCLUDING CARTONS, CRATES AND PACKAGING MATERIALS, DEBRIS AND OTHER WASTE MATERIALS. WASTE TO BE PLACED IN TRASH BINS OR DUMPSTERS.

B. WHEN WORK IS PERFORMED IN OCCUPIED AREAS, TRASH REMOVAL SHOULD BE CONTINUOUS TO PREVENT HEALTH AND SAFETY ISSUES.

ASBESTOS

A. CONTRACTOR SHALL NOTIFY OWNER ANY SUSPECTED ASBESTOS IN AREA OF WORK.

B. OWNER SHALL BE RESPONSIBLE FOR ALL TESTING AND REMEDIATION PRIOR TO ANY WORK IN THAT AREA. WORK SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR.

PROTECTION

PROTECT ALL WORK AND EQUIPMENT AGAINST DAMAGE OR THEFT UNTIL FINALLY INSPECTED, TESTED AND ACCEPTED. CAREFULLY STORE AND PROTECT MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH ARE NOT IMMEDIATELY INSTALLED. CLOSE OPEN ENDS OF WORK WITH TEMPORARY PLUGS OR COVERS DURING CONSTRUCTION TO PREVENT ENTRY DEBRIS.

GUARANTEES

A. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS.

B. DURING THE GUARANTEE PERIOD ANY DEFECTS IN WORKMANSHIP, MATERIAL OR EQUIPMENT WILL BE CORRECTED AT THE CONTRACTORS' EXPENSE. ANY DAMAGE OR LOSS, EXCLUSIVE OF BUILDING'S CONTENTS, DUE TO SUCH DEFECTS, WILL ALSO BE MADE GOOD AT CONTRACTOR'S EXPENSE. DEFECTS WILL BE REMEDIED WITHIN A REASONABLE TIME, AS SPECIFIED IN NOTICE FROM THE ENGINEER. AFTER THE SPECIFIED TIME, OWNER MAY HAVE DEFECTS AND DAMAGES REMEDIED AT THE CONTRACTOR'S EXPENSE.

C. GUARANTEE PERIOD SHALL BE TWO (2) YEARS, PARTS & LABOR.

D. GUARANTEE PERIOD SHALL START WHEN THE WORK INCLUDED IN CONTRACT DOCUMENTS IS ACCEPTED BY THE OWNER AND/OR RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

WORK IN EXISTING AREAS

A. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS.

B. SHIFT WORK AND STAGING WILL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

C. SCRAP AND DEBRIS ASSOCIATED WITH THIS CONTRACTOR, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND DISPOSED OF. WHEN REQUESTED BY OWNER, MOVE EQUIPMENT REMOVED TO A STORAGE PLACE ON THE PREMISES AND LEAVE AS PROPERTY OF THE OWNER.

D. WHEN INSTALLATION OF THE NEW WORK REQUIRES THE SHUTDOWN OF AN EXISTING OPERATING SYSTEM, A MINIMUM OF 72 HOURS WRITTEN NOTICE SHALL BE GIVEN TO THE OWNER BEFORE WORK IS STARTED.

E. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS. ALL WORK SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND FOLLOW ALL SECURITY AND SAFETY STANDARD OPERATING PROCEDURES.

F. SHIFT WORK AND STAGING REQUIRED SHALL BE AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL UNDERSTAND THE STAGING PLAN BEFORE SUBMITTING THE PROPOSAL. CONTRACTOR SHALL PROVIDE A STAGING PLAN AND OVERTIME ALLOWANCE IN THE PROPOSAL.

SAFETY

A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONS PERFORMING THE WORK OF THIS CONTRACT.

B. THIS CONTRACTOR SHALL OBTAIN AND READ ALL SITE, JOB AND CORPORATE SAFETY AND SECURITY RULES AND REGULATIONS FROM THE OWNER, AND SIGN OFF ON THEM IF REQUIRED. THIS CONTRACTOR SHALL ADEQUATELY INFORM AND INSTRUCT ALL EMPLOYEES, AND OTHERS PERFORMING WORK FOR HIM, OF SUCH RULES AND REGULATIONS. THESE INSTRUCTIONS ARE THE MINIMUM THAT WILL BE ACCEPTED ON THIS PROJECT.

C. ALL OF THE ABOVE RULES AND REGULATIONS ARE NOT MEANT TO REPLACE OR ELIMINATE INDIVIDUAL CONTRACTOR'S SAFETY PROGRAMS OR CHANGE ANY LOCAL, STATE OR FEDERAL RULES AND REGULATIONS, BUT RATHER TO AUGMENT THEM AS REQUIRED FOR THE INDIVIDUAL PREMISES ON WHICH THIS WORK IS BEING PERFORMED.

D. THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE SPECIFIED WORK. CONTRACTOR SHALL PERFORM ALL WORK TO OSHA AND CLIENT'S HEALTH AND SAFETY REQUIREMENTS.

E. WHEN PERFORMING WORK ON THE ROOF ALL CONTRACTORS MUST COMPLY WITH THE OWNER'S STANDARD OPERATING PROCEDURE FOR ROOF SAFETY.

F. THE ELECTRICAL CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH NFPA 70E.

REMOVALS AND DEMOLITION

A. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL ELECTRICAL FACILITIES RENDERED INACTIVE OR OBSOLETE BY THE SCOPE OF THE MECHANICAL WORK. THE CONTRACTOR IS RESPONSIBLE FOR THIS SCOPE OF WORK EVEN IF SUCH ELECTRICAL FACILITIES ARE NOT EXPLICITLY SHOWN ON THE ELECTRICAL DRAWINGS. THE CONTRACTOR SHALL VISIT THE SITE, REFER TO THE MECHANICAL AND PLUMBING DRAWINGS, AND COORDINATE WITH THE MECHANICAL AND PLUMBING CONTRACTOR(S), AND INCLUDE ALL ELECTRICAL DEMOLITION WORK INCLUDING, HOWEVER NOT NECESSARILY LIMITED TO, THE COMPLETE REMOVAL OF ALL ELECTRICAL AND CONTROL WIRES, CONDUIT, JUNCTION BOXES, ENCLOSURE AND RACEWAY SUPPORT SYSTEMS, DISCONNECT SWITCHES, CIRCUIT BREAKERS ETC. INTENDED FOR REMOVAL.

B. THE ELECTRICAL CONTRACTOR SHALL REMOVE, IN THEIR ENTIRETY OR AS OTHERWISE INDICATED, ALL ELECTRICAL OUTLETS, RECEPTACLES, SWITCHES, LIGHTING FIXTURES, TELE DATA OUTLETS, AND OTHER DEVICES AS REQUIRED, COMPLETE WITH ASSOCIATED WIRING, CONDUITS, AND SURFACE RACEWAY SYSTEMS ETC. FROM THE AFFECTED AREAS. PROVIDE ALL DEMOLITION LABOR AND EQUIPMENT COSTS AS REQUIRED BY THE CONTRACT DRAWINGS & WORK NOTES, AND AS INSTRUCTED IN THE FIELD BY THE GENERAL CONTRACTOR.

C. WHERE THE REMOVAL OF EXISTING FACILITIES RESULT IN THE DEENERGIZATION OF EXISTING REMAINING FACILITIES, THE CONTRACTOR SHALL INSTALL JUNCTION BOXES AND/OR OTHER DEVICES, PROVIDE BYPASS CONNECTIONS NECESSARY TO MAKE THE AFFECTED CIRCUITS CONTINUOUS AND READY FOR OPERATION. OTHERWISE, WIRING SHALL BE REMOVED BACK TO THE NEAREST INTENDED POWER SOURCE AND SAFELY TERMINATED.

D. THE CONTRACTOR SHALL REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL FACILITIES THAT INTERFERE WITH THE NEW ARCHITECTURAL, MECHANICAL, PLUMBING, STRUCTURAL, AND ELECTRICAL LAYOUTS AND SPACES. REFER TO THE ARCHITECTURAL, MECHANICAL, PLUMBING AND STRUCTURAL DRAWINGS, AND COORDINATE WITH THE GENERAL, MECHANICAL, PLUMBING AND TEMPERATURE CONTROL CONTRACTORS.

E. PRIOR TO THE COMMENCEMENT OF WORK, ELECTRICAL POWER SHALL BE DISCONNECTED AND/OR SAFED OFF AS REQUIRED. TEMPORARY LIGHTING AND POWER FOR ALL TRADES, REMAINING BUILDING OCCUPANTS, AND CRITICAL BUILDING SERVICES SHALL BE PROVIDED WITHOUT EXCEPTION. UNDER NO CIRCUMSTANCES SHALL POWER BE INTERRUPTED TO ANY AREA WITHOUT PRIOR WRITTEN APPROVAL FROM BUILDING MANAGEMENT.

F. REMOVE EXPOSED CONDUITS, WIRE WAYS, OUTLET BOXES, HANGERS, SUPPORTS AND DEVICES MADE OBSOLETE BY THIS WORK UNLESS BEING REUTILIZED FOR THE NEW INSTALLATION. THE REUTILIZATION OF EXISTING FACILITIES BY THE CONTRACTOR SHALL RENDER A FINISHED INSTALLATION IN STRICT ACCORDANCE WITH THE NEC WITHOUT EXCEPTION.

G. PROVIDE TEMPORARY CONSTRUCTION LIGHTING AND POWER AS REQUIRED BY ALL TRADES. PROVIDE RECONNECTIONS AND TEMPORARY INSTALLATION AS REQUIRED. ALL TEMPORARY FACILITIES SHALL BE SUPPLIED AND INSTALLED PER THE LATEST APPROVED VERSION OF NEC 527 UNDER ALL CIRCUMSTANCES. REMOVE ALL TEMPORARY FACILITIES AT JOB COMPLETION.

H. FOR ALL EQUIPMENT CALLED FOR REMOVAL, THE CONTRACTOR SHALL DISCONNECT AND REMOVE ALL EXISTING WIRING AND CONDUIT BACK TO IT'S RESPECTIVE SOURCE UNLESS OTHERWISE NOTED.

I. ELECTRIC PANEL COVERS ARE NOT TO BE LEFT OFF AT ANY TIME UNLESS MEN ARE WORKING ON, ADEQUATELY PROTECTING AND BARRICADING THEM AS REQUIRED. COVERS SHALL BE REPLACED EACH NIGHT BEFORE LEAVING JOB SITE.

J. REMOVE AND PROPERLY DISPOSE OF ALL REMOVALS IN ACCORDANCE WITH APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS UNLESS OTHERWISE REQUESTED OR DIRECTED BY THE BUILDING PROPERTY MANAGER.

K. THE REMOVAL OF ANY FIRE ALARM, COMMUNICATIONS, DATA AND SECURITY EQUIPMENT AND ASSOCIATED CABLING SHALL BE COORDINATED WITH BUILDING OPERATING PERSONNEL. EXISTING BASE BUILDING FIRE ALARM SYSTEM (AND FLOOR SECURITY SYSTEM WHERE APPLICABLE) INTEGRITY SHALL BE MAINTAINED AT ALL TIMES BEFORE, DURING AND AFTER DEMOLITION.

L. EXISTING CONDUITS WHEN REUSED, SHALL BE THOROUGHLY CLEANED AND REFURBISHED BEFORE REUSE. NEW AND ALL EXISTING REUSED SETSCREW-TYPE CONNECTORS SHALL BE RETIGHTENED.

ELECTRICAL IDENTIFICATION

A. GENERAL REQUIREMENTS FOR PANELS, DISCONNECT SWITCHES, CIRCUIT BREAKERS, TRANSFORMERS, ETC. SHALL HAVE PERMENANT NAMEPLATES: NAMEPLATES SHALL BE PREPRINTED ON RIGID PLASTIC AND PERMENANTLY AFFIXED TO THE OUTSIDE OF THE EQUIPMENT.

B. ALL DISTRIBUTION PANELS SHALL HAVE CIRCUIT DIRECTORIES IDENTIFIED WITH PRINTED PLASTIC WITH PERMANENT-ADHESIVE BACKING.

CONDUITS

A. CONDUIT SHALL BE INSTALLED TO MAINTAIN CLEARANCE FROM OTHER PIPING, VALVES OR OTHER MECHANICAL EQUIPMENT, AND SHALL NOT BE INSTALLED WITHIN 6" OF HOT WATER, STEAM PIPING, FLUES OR OTHER HOT SURFACES.

B. ALL CONDUITS SHALL BE TERMINATED WITH SUITABLE BUSHINGS TO PROTECT THE ENCLOSED WIRES FROM ABRASION. INSULATED METALLIC BUSHINGS SHALL BE USED ON CONDUITS 1 $\frac{1}{4}$"AND LARGER.

C. ALL CONDUIT TO BE 3/4" MINIMUM SIZE UNLESS OTHERWISE NOTED.

D. INTERIOR POWER WIRING, INCLUDING MECHANICAL AND ELECTRICAL ROOMS, SHALL BE IN GALVANIZED ELECTRICAL METALLIC TUBING (EMT). CONTROL WIRING IN MECHANICAL & ELECTRICAL ROOMS SHALL ALSO BE IN EMT.

E. EXTERIOR POWER AND CONTROL WIRING SHALL BE IN GALVANIZED RIGID METALLIC CONDUIT (RMC)

BOXES

A. PULL BOXES SHALL BE OF AMPLE SIZE FOR THE APPLICATION, AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST APPROVED VERSION OF THE NEC.

B. PULL BOXES SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.

C. PULL BOXES SHALL BE INSTALLED BETWEEN A MAXIMUM OF EVERY 3 RIGHT ANGLE BENDS OR THE EQUIVALENT. LONG CONDUITS RUNS SHALL HAVE A PULL BOX AT LEAST EVERY 100'-0".

D. LOCATION OF OUTLETS, EQUIPMENT, CONDUIT, ETC. EXCEPT WHERE SHOWN IN DIMENSIONED DETAIL IS ONLY APPROXIMATE. THE EXACT LOCATION WILL BE DETERMINED DURING INSTALLATION.

DISCONNECT SWITCHES

A. FURNISH AND INSTALL PROPERLY SIZED AND RATED DISCONNECT SWITCHES AS INDICATED ON DRAWINGS AND AS REQUIRED BY APPLICABLE CODES FOR THE SAFE DISCONNECTION OF ELECTRICAL OR MECHANICAL EQUIPMENT.

B. ALL DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE, QUICK MAKE AND BREAK, NON FUSIBLE AS WITH DEFEATABLE DOOR LOCK INTERLOCK WHICH PREVENTS THE DOOR FROM OPENING WHEN THE SWITCH IS "ON" AND ALL SHALL HAVE PROVISION FOR PADLOCKING IN THE "OFF" POSITION. FUSIBLE SWITCHES SHALL BE PROVIDED WHERE SPECIFIED AND SHALL HAVE REJECTIONTYPE FUSE CLIPS.

C. ALL DISCONNECT SWITCHES SHALL BE MANUFACTURED IN ACCORDANCE WITH NEMA STANDARDS AND SHALL CONFORM WITH NEC REQUIREMENTS AND SHALL BEAR THE UL LABEL.

D. DISCONNECT SWITCHES SHALL BE IN NEMA-3R ENCLOSURE WHERE MOUNTED OUTDOORS.

PANELBOARDS

A. FURNISH AND INSTALL CIRCUIT BREAKER TYPE PANEL BOARDS AS INDICATED IN THE PANEL SCHEDULES WITH BREAKERS OF FRAME AND TRIP RATINGS AS SHOWN.

B. CIRCUIT BREAKERS SHALL BE QUICK MAKE, THERMAL-MAGNETIC AND HAVE COMMON TRIP ON ALL MULTIPLE BREAKERS. TRIP INDICATION SHALL CLEARLY BE SHOWN BY BREAKER HANDLE TAKING POSITION BETWEEN "ON" AND "OFF" WHEN BREAKER IS TRIPPED AND BY INDICATION. THE INDICATION SHALL CONSIST OF A HIGHLY VISIBLE RED TRIPPED CIRCUIT INDICATOR.

C. BUS BAR CONNECTIONS TO THE BRANCH CIRCUITS SHALL BE "PHASE SEQUENCE" TYPE. THREE (3) PHASE, FOUR (4) WIRE BUSSING SHALL BE SUCH THAT ANY THREE (3) ADJACENT SINGLE POLE BREAKERS ARE INDIVIDUALLY CONNECTED TO EACH OF THE THREE (3) DIFFERENT PHASES IN SUCH A MANNER THAT TWO (2) OR THREE (3) POLE BREAKERS CAN BE INSTALLED AT ANY LOCATION. ALL CURRENT CARRYING PARTS OF THE BUS ASSEMBLY SHALL BE COPPER.

D. ALL TERMINALS FOR FEEDER AND BRANCH CIRCUIT CONDUCTORS IN THE PANELBOARD MAINS AND NEUTRAL SHALL BE UL LISTED AS SUITABLE FOR THE TYPE OF CONDUCTOR SPECIFIED.

E. PANEL BOARDS SHALL BE LISTED BY UL AND BEAR THE UL LABEL.

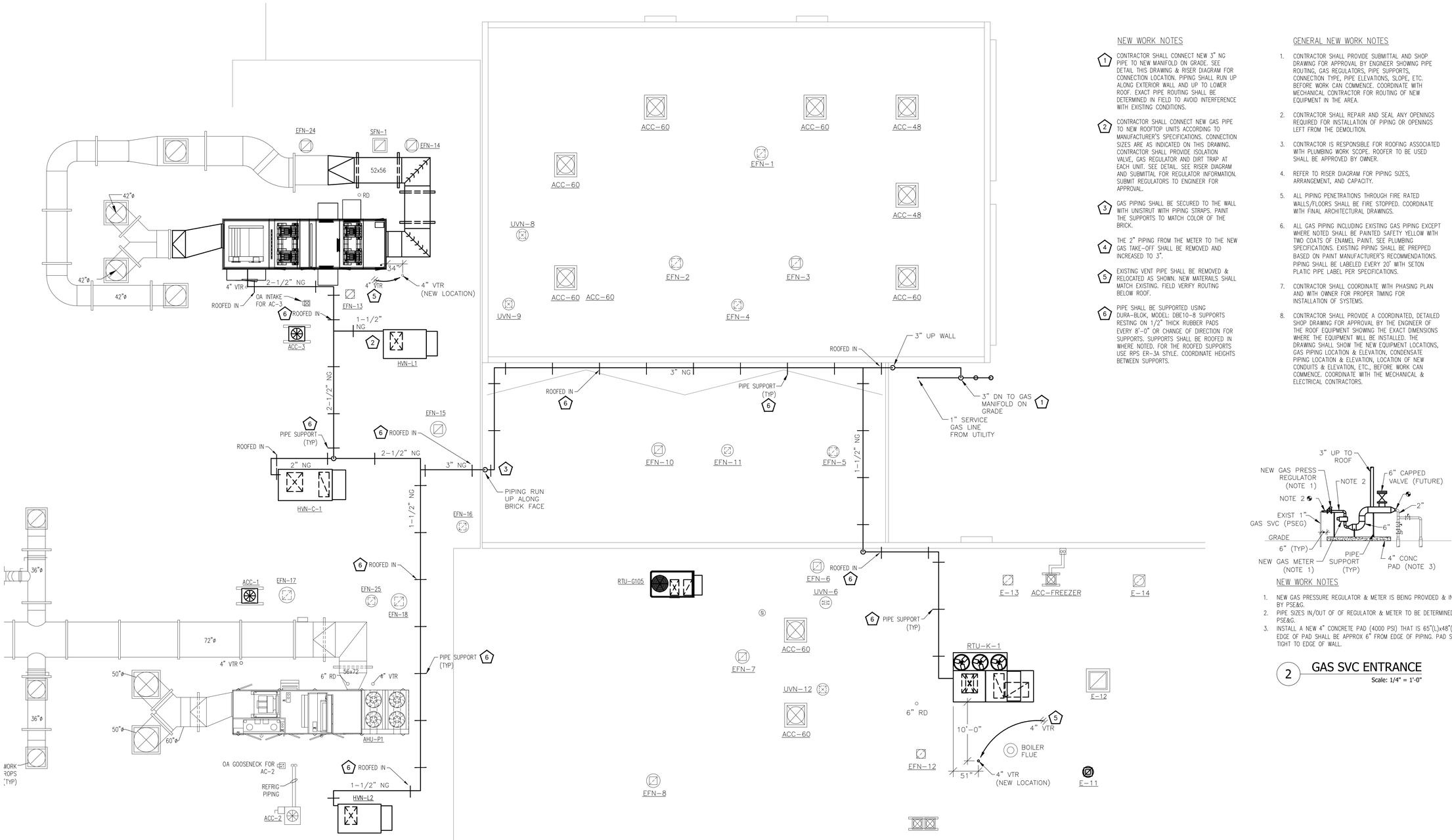
F. THE PANELBOARD ASSEMBLY SHALL BE ENCLOSED IN A STEEL CABINET IN ACCORDANCE WITH NEMA AND UL STANDARDS, FABRICATED FROM GALVANIZED STEEL OR EQUIVALENT RUST RESISTANT STEEL. FRONTS SHALL INCLUDE DOORS AND HAVE FLUSH, CYLINDER TUMBLER-TYPE LOCKS WITH CATCHES AND SPRING LOADED STAINLESS STEEL DOOR PULLS. DOORS SHALL BE MOUNTED WITH COMPLETELY CONCEALED STEEL HINGES. FRONTS SHALL NOT BE REMOVABLE WITH DOOR IN THE LOCKED POSITION. A CIRCUIT DIRECTORY FRAME AND CARD PLASTIC COVERING SHALL BE PROVIDED ON THE INSIDE OF THE DOOR. THE DIRECTORY CARD SHALL PROVIDE A SPACE AT LEAST 5" HIGH x 3" WIDE AND SHALL BE TYPE WRITTEN TO IDENTIFY ALL EQUIPMENT TO AS-BUILT CONDITIONS. PROVIDE LAMINATED BAKELITE 1"X3.5" SCREW MOUNTED NAME PLATE.

G. NEUTRAL BUS & EQUIPMENT GROUND BUS SHALL BE COPPER.

H. 200% RATED NEUTRAL BUS.

WIRE AND CABLE (GENERAL REQUIREMENTS)

A. CONDUCTORS SHALL RUN CONTINUOUS FROM OUTLET TO OUTLET. SPLICES AND TAPES WILL NOT BE ALLOWED ALONG THE CONDUCTOR. CONDUCTORS SHALL TERMINATE IN TERMINAL LUGS OR CONNECTORS MADE UP OF INSULATED TERMINAL POSTS, APPROVED AND LIST



1 MECHANICAL ROOF NEW WORK PLAN - AREA A

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

NEW WORK NOTES

1. CONTRACTOR SHALL CONNECT NEW 3" NG PIPE TO NEW MANIFOLD ON GRADE. SEE DETAIL THIS DRAWING & RISER DIAGRAM FOR CONNECTION LOCATION. PIPING SHALL RUN UP ALONG EXTERIOR WALL AND UP TO LOWER ROOF. EXACT PIPE ROUTING SHALL BE DETERMINED IN FIELD TO AVOID INTERFERENCE WITH EXISTING CONDITIONS.
2. CONTRACTOR SHALL CONNECT NEW GAS PIPE TO NEW ROOFTOP UNITS ACCORDING TO MANUFACTURER'S SPECIFICATIONS. CONNECTION SIZES ARE AS INDICATED ON THIS DRAWING. CONTRACTOR SHALL PROVIDE ISOLATION VALVE, GAS REGULATOR AND DIRT TRAP AT EACH UNIT. SEE DETAIL SEE RISER DIAGRAM AND SUBMITTAL FOR REGULATOR INFORMATION. SUBMIT REGULATORS TO ENGINEER FOR APPROVAL.
3. GAS PIPING SHALL BE SECURED TO THE WALL WITH UNISTRUT WITH PIPING STRAPS. PAINT THE SUPPORTS TO MATCH COLOR OF THE BRICK.
4. THE 2" PIPING FROM THE METER TO THE NEW GAS TAKE-OFF SHALL BE REMOVED AND INCREASED TO 3".
5. EXISTING VENT PIPE SHALL BE REMOVED & RELOCATED AS SHOWN. NEW MATERIALS SHALL MATCH EXISTING. FIELD VERIFY ROUTING BELOW ROOF.
6. PIPE SHALL BE SUPPORTED USING DURA-BLOK, MODEL: DBE10-8 SUPPORTS RESTING ON 1/2" THICK RUBBER PADS EVERY 8'-0" OR CHANGE OF DIRECTION FOR SUPPORTS. SUPPORTS SHALL BE ROOFED IN WHERE NOTED. FOR THE ROOFED SUPPORTS USE RPS ER-3A STYLE. COORDINATE HEIGHTS BETWEEN SUPPORTS.

GENERAL NEW WORK NOTES

1. CONTRACTOR SHALL PROVIDE SUBMITTAL AND SHOP DRAWING FOR APPROVAL BY ENGINEER SHOWING PIPE ROUTING, GAS REGULATORS, PIPE SUPPORTS, CONNECTION TYPE, PIPE ELEVATIONS, SLOPE, ETC. BEFORE WORK CAN COMMENCE. COORDINATE WITH MECHANICAL CONTRACTOR FOR ROUTING OF NEW EQUIPMENT IN THE AREA.
2. CONTRACTOR SHALL REPAIR AND SEAL ANY OPENINGS REQUIRED FOR INSTALLATION OF PIPING OR OPENINGS LEFT FROM THE DEMOLITION.
3. CONTRACTOR IS RESPONSIBLE FOR ROOFING ASSOCIATED WITH PLUMBING WORK SCOPE. ROOFER TO BE USED SHALL BE APPROVED BY OWNER.
4. REFER TO RISER DIAGRAM FOR PIPING SIZES, ARRANGEMENT, AND CAPACITY.
5. ALL PIPING PENETRATIONS THROUGH FIRE RATED WALLS/FLOORS SHALL BE FIRE STOPPED. COORDINATE WITH FINAL ARCHITECTURAL DRAWINGS.
6. ALL GAS PIPING INCLUDING EXISTING GAS PIPING EXCEPT WHERE NOTED SHALL BE PAINTED SAFETY YELLOW WITH TWO COATS OF ENAMEL PAINT. SEE PLUMBING SPECIFICATIONS. EXISTING PIPING SHALL BE PREPPED BASED ON PAINT MANUFACTURER'S RECOMMENDATIONS. PIPING SHALL BE LABELED EVERY 20' WITH SETON PLATIC PIPE LABEL PER SPECIFICATIONS.
7. CONTRACTOR SHALL COORDINATE WITH PHASING PLAN AND WITH OWNER FOR PROPER TIMING FOR INSTALLATION OF SYSTEMS.
8. CONTRACTOR SHALL PROVIDE A COORDINATED, DETAILED SHOP DRAWING FOR APPROVAL BY THE ENGINEER OF THE ROOF EQUIPMENT SHOWING THE EXACT DIMENSIONS WHERE THE EQUIPMENT WILL BE INSTALLED. THE DRAWING SHALL SHOW THE NEW EQUIPMENT LOCATIONS, GAS PIPING LOCATION & ELEVATION, CONDENSATE PIPING LOCATION & ELEVATION, LOCATION OF NEW CONDUITS & ELEVATION, ETC., BEFORE WORK CAN COMMENCE. COORDINATE WITH THE MECHANICAL & ELECTRICAL CONTRACTORS.

NEW WORK NOTES

1. NEW GAS PRESSURE REGULATOR & METER IS BEING PROVIDED & INSTALLED BY PSE&G.
2. PIPE SIZES IN/OUT OF OF REGULATOR & METER TO BE DETERMINED BY PSE&G.
3. INSTALL A NEW 4" CONCRETE PAD (4000 PSI) THAT IS 65"(L)x48"(W)x4"(D). EDGE OF PAD SHALL BE APPROX 6" FROM EDGE OF PIPING. PAD SHALL BE TIGHT TO EDGE OF WALL.

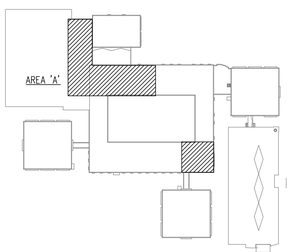
2 GAS SVC ENTRANCE

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

ADD/ALTERNATE #1
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE BOY'S LOCKER ROOM (HVN-L1). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #2
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE GIRL'S LOCKER ROOM (HVN-L2). THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



KEY PLAN

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NEW JERSEY STATE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS
CERTIFICATE OF AUTHORIZATION: 24GA28121800
PRINCIPAL IN CHARGE: JOSEPH T. MISTRETTA, PE
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NJ - 21A019179801 | PA - RA426
Date
Architect
FVHD architects planners
Fraytak Veisz Hopkins Duthie P C
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Pennsylvania: 140 Wilfordel Park - Horsham Center - Pennsylvania 19453
FVHDPC.COM

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

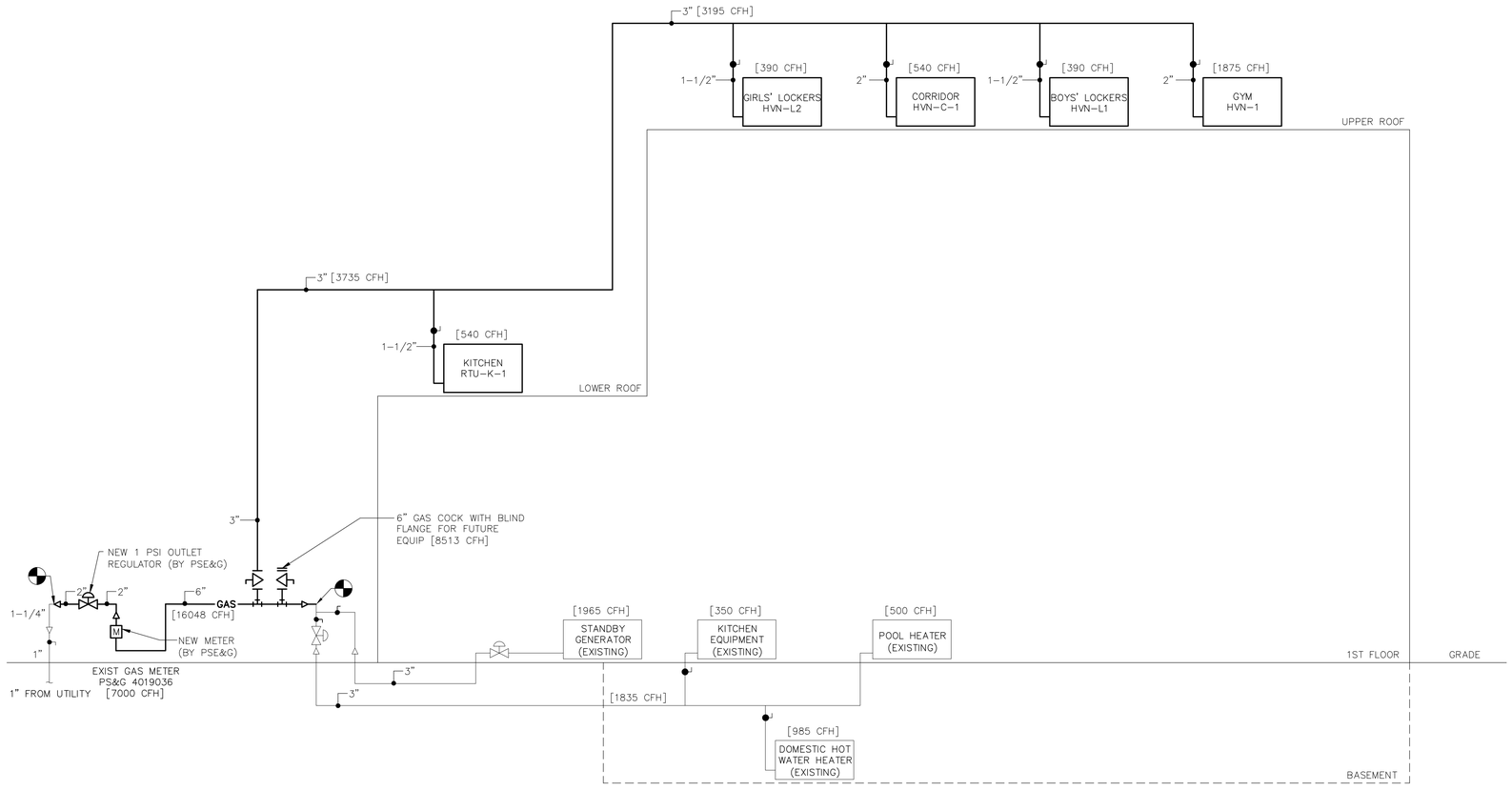
Scale
AS NOTED

Drawing Name
PLUMBING - ROOF NEW WORK PLAN

Revisions

No.	Date	Description

Drawing Number
P-01



1 GAS PIPING DIAGRAM

Scale: NTS

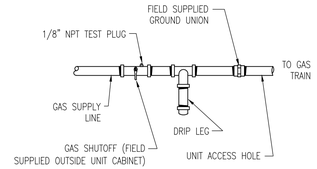
NOTES:
1. CONTRACTOR SHALL SUBMIT LOAD LETTER TO THE GAS COMPANY IN COORDINATION WITH INCREASE IN CONNECTED LOAD. COORDINATE WITH GAS COMPANY FOR ANY CHANGES TO THE GAS REGULATOR AND/OR METER AS REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND SCHEDULING THE WORK BY THE GAS COMPANY.
2. GAS CONSUMPTION VALUES ARE INPUT RATINGS.
3. ALL GAS PIPING IS BLACK STEEL. EXTERIOR PIPING SHALL BE PAINTED. SEE SPECIFICATION.
4. THE PIPING SIZES ARE BASED ON A GAS PRESSURE AT THE OUTLET OF THE MAIN BLDG REGULATOR OF 1 PSI AND A MINIMUM GAS PRESSURE AT THE EQUIPMENT OF 7" W.C. GAS REGULATORS SHALL BE PROVIDED AT EACH PIECE OF EQUIPMENT. REGULATORS SHALL BE MAXITROL MODEL 325-9L210E. SIZE OF REGULATOR SHALL MATCH SIZES INDICATED ON THIS RISER DIAGRAM.

EXISTING CONNECTED GAS LOAD:	3,800 CUF/HR
GAS LOAD TO BE REMOVED:	0 CUF/HR
GAS LOAD TO BE ADDED UNDER THIS PROJECT:	3,735 CUF/HR
GAS LOAD TO BE ADDED UNDER FUTURE PROJECT:	8,513 CUF/HR
NEW CONNECTED GAS LOAD TOTAL:	16,048 CUF/HR

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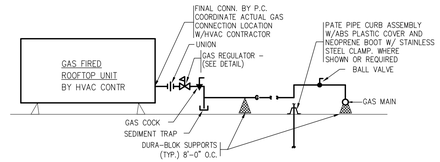
ADD/ALTERNATE #2
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ADD/ALTERNATE #3
THIS ALTERNATE SHALL INCLUDE ALL EQUIPMENT, LABOR & MATERIALS REQUIRED FOR THE REMOVAL & REPLACEMENT OF THE EXISTING ROOFTOP UNIT SERVING THE "CST" SUITE (AHU-N-2) INCLUDING THE DUCTWORK MODIFICATIONS & REPLACEMENT OF THE VAV BOXES. THE SCOPE INCLUDES, REMOVAL OF EXISTING ROOFTOP UNIT, INSTALLATION OF THE NEW ROOFTOP UNIT, REMOVAL & REPLACEMENT OF VAV BOXES, MODIFICATIONS TO THE HW PIPING, DUCTWORK, CONTROLS, GAS PIPING, POWER, ROOF, CEILING, LIGHTING, STEEL SUPPORTS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



2 TYPICAL GAS PIPING DETAIL

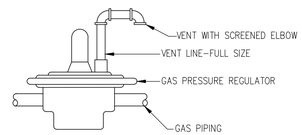
SCALE: NONE



3 TYPICAL GAS CONNECTION TO ROOFTOP UNIT

SCALE: NONE

NOTES:
1. CONTRACTOR SHALL OBTAIN A GAS PRESSURE READING AT DISCHARGE OF MAIN PRESSURE REGULATOR FOR BUILDING. IF THE PRESSURE IS GREATER THAN 8" W.C., INSTALL REGULATOR SHOWN WITH AN OUTLET PRESSURE OF 9" W.C. OTHERWISE, REGULATOR IS NOT REQUIRED.
2. GAS PIPING SHALL BE SUPPORTED. CONTRACTOR SHALL INSTALL AN RCS FAST RAC SUPPORT RAIL SYSTEM WHICH SHALL BE USED FOR THE BASE TO ATTACH THE REQUIRED PIPE SUPPORTS.



4 GAS PRESSURE REGULATOR DETAIL

SCALE: NONE

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FVHD architects planners
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Corporate: 1515 Lower Ferry Road - Trenton - New Jersey 08618
Pennsylvania: 140 Whitford Park - Mont Clare - Pennsylvania 19453

Project Name
HVAC Equipment Replacement at Princeton Middle School

Project Owner Name
Princeton Public Schools

Project Location
217 Walnut Ln, Princeton, NJ 08540

Project Number
5607

Project Date
10.31.2025

Checked By
JTM

Drawn By
JCS

Scale
AS NOTED

Drawing Name
PLUMBING - GAS RISER DIAGRAM

Revisions

No.	Date	Description

Drawing Number
P-02

PLUMBING SPECIFICATION

WORK INCLUDED
A. INCLUDE ALL LABOR, MATERIALS, APPLIANCES, TOOLS, TRANSPORTATION, STORAGE, CERTIFICATES, DRAWINGS, TEMPORARY WORK, CLEANING, START–UP, COMMISSIONING AND ALL OF CONTRACTORS SERVICES REQUIRED TO MAKE THE INSTALLATION COMPLETE IN EVERY RESPECT, GUARANTEED TO BE SAFE AND READY FOR USE AND OPERATION IN A MANNER SATISFACTORY TO THE OWNER AND ALL THE PLUMBING WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

LAWS AND ORDINANCES
A. ALL LOCAL AND STATE LAWS AND REGULATIONS AND RECOMMENDATIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION AND NATIONAL STANDARD PLUMBING CODE GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY MADE PART OF THESE SPECIFICATIONS. RESPONSIBILITY FOR COMPLIANCE TO THEIR PROVISIONS IS INCLUDED.
B. INFORM THE ENGINEER OF ANY WORK OR MATERIALS, WHICH OBVIOUSLY VIOLATES ANY OF THE APPLICABLE CODES AND REGULATIONS BEFORE PROCEEDING WITH THE WORK. FAILURE TO DO SO INDICATES ACCEPTANCE OF THE WORK AS SHOWN BY THE ENGINEER, AND RESPONSIBILITY FOR CORRECTING SUCH WORK SHALL BE MADE BY THE CONTRACTOR AT NO COST TO THE OWNER.
C. ALL WORK SHALL MEET OR EXCEED THE LATEST REQUIREMENTS OF ALL NATIONAL, STATE, COUNTY, LOCAL OR MUNICIPAL, AND OTHER RECOGNIZED AUTHORITIES EXERCISING OR ASSERTING JURISDICTION OVER THE CONSTRUCTION WORK AT THE PROJECT.

STANDARDS
A. MATERIALS SPECIFIED BY REFERENCE TO A SPECIFIC STANDARD SUCH AS THE AMERICAN SOCIETY OF TESTING MATERIALS, UNDERWRITERS LABORATORIES, AMERICAN NATIONAL STANDARDS INSTITUTE, FEDERAL SPECIFICATIONS, A TRADE STANDARD OR OTHER SIMILAR STANDARD SHALL COMPLY WITH THE LATEST REVISION THEREOF IN EFFECT AT THE TIME OF BIDDING, EXCEPT AS MODIFIED BY TYPE, CLASS OR GRADE OR MODIFIED BY SUCH REFERENCE.
B. WHERE COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED, AND THEY ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS THE MORE STRINGENT REQUIREMENTS WILL BE ENFORCED UNLESS THE CONTRACT DOCUMENTS INDICATE OTHERWISE.
C. REFER REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, AND UNCERTAINTIES AS TO WHICH QUALITY LEVEL IS MORE STRINGENT TO THE ENGINEER BEFORE PROCEEDING.

INTENT OF THE DRAWINGS AND SPECIFICATIONS
A. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS IN GOOD WORKING ORDER, READY FOR OPERATION, INCLUDING ALL ACCESSORIES AND ITEMS REQUIRED FOR PROPER OPERATION.
B. IT SHALL BE UNDERSTOOD THAT THE PLUMBING DRAWINGS SHOW THE GENERAL RUN OF PIPING AND THE APPROXIMATE LOCATION OF ALL APPARATUS. DO NOT SCALE THE DRAWINGS TO DETERMINE EXACT POSITIONS AND CLEARANCES. OBTAIN FROM THE ARCHITECT ANY DIMENSIONS NOT SHOWN.
C. METHODS OF CONSTRUCTION AND DETAILS OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS ARE SUBJECT TO THE ENGINEERS' APPROVAL.
D. MAKE A THROUGH EXAMINATION OF ALL SURFACES RECEIVING THE WORK OF THIS SECTION, AND BEFORE STARTING THE INSTALLATION, NOTIFY THE ENGINEER IN WRITING OF ANY DEFECT WHICH WILL AFFECT THE SATISFACTORY COMPLETION OF ANY WORK.

E. CONTRACTOR SHALL CONFORM TO THE OWNER'S SITE STANDARDS FOR QUALITY, WORKMANSHIP, MATERIALS, EQUIPMENT, ETC. IF THERE IS A DISCREPANCY BETWEEN THE SITE STANDARD AND INFORMATION SHOWN ON THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. THE ENGINEER WILL CONFER WITH THE OWNER AND THE CONTRACTOR WILL BE INSTRUCTED ON HOW TO PROCEED.

PERMITS AND CERTIFICATES
A. THIS CONTRACTOR SHALL OBTAIN ALL NECESSARY NOTICES, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENTS OR AUTHORITIES ASSERTING OR HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THE WORK.
B. THE CONTRACTOR SHALL ARRANGE FOR INSPECTIONS AND TESTS OF ANY OR PART OF THE WORK IF SO REQUIRED BY AUTHORITIES OR LOCAL UTILITY OR SERVICE COMPANIES HAVING JURISDICTION, AND PAY ALL CHARGES INCURRED. NOTIFY OWNER AND ENGINEER 72 HOURS IN ADVANCE OF ALL INSPECTIONS.
C. THE CONTRACTOR SHALL OBTAIN ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS TO ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
D. THE CONTRACTOR SHALL NOTIFY THE OWNER IN A TIMELY MANNER THAT INSPECTIONS ARE REQUIRED, SO AS NOT TO HOLD UP THE PROGRESS OF THE WORK.

RELATIONS WITH OTHER TRADES
A. CONFER WITH OTHERS ENGAGED IN THE CONSTRUCTION OF THE BUILDING WHOSE WORK MIGHT AFFECT THE INSTALLATION, AND ARRANGE ALL PARTS OF THE WORK AND EQUIPMENT IN PROPER RELATION TO THE WORK AND EQUIPMENT OF OTHERS, WITH THE BUILDING CONSTRUCTION AND WITH THE ARCHITECTURAL FINISH SO THAT IT WILL HARMONIZE IN SERVICE AND APPEARANCE. SPECIAL CARE SHALL BE TAKEN IN THE INSTALLATION OF EQUIPMENT AND PIPING WHERE CONCEALED TO ASSURE THAT IT DOES NOT PROJECT BEYOND FINISHED LINES OF FLOORS, CEILINGS, WALLS AND CABINETS.
B. WHERE, DUE TO UNION REGULATIONS OR OTHER TRADE AGREEMENTS, ANY OF THE WORK SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN IS NOT CONSIDERED PLUMBING WORK, SUBCONTRACT THE WORK IN QUESTION AND ASSUME FULL RESPONSIBILITY FOR THE COMPLETE INSTALLATION.

APPROVED MATERIALS
A. ALL MATERIAL AND EQUIPMENT SHALL BE NEW, OF MAKES AND KINDS SPECIFIED HEREIN, OR AS INCLUDED IN THE DRAWINGS, WITHOUT EXCEPTION. WHERE ONE BRAND, MAKE OR DEVICE IS SHOWN OR SPECIFIED, THE PRODUCTS OF OTHER MANUFACTURERS SHALL BE REGARDED AS ACCEPTABLE WHEN, IN THE OPINION OF THE ENGINEER, IT IS A RECOGNIZED EQUAL CONSIDERING QUALITY, WORKMANSHIP, ECONOMY OF OPERATION AND SUITABILITY FOR THE PURPOSE INTENDED.
B. WHERE SUCH APPROVED SUBSTITUTION OR DEVIATION REQUIRES A DIFFERENT QUANTITY OR ARRANGEMENT OF PIPING, WIRING, SUPPORTS, FOUNDATIONS, DUCTWORK, AND ANY OTHER EQUIPMENT OR ACCESSORIES NORMAL TO THIS EQUIPMENT, FURNISH SAID CHANGES AND ADDITIONS, AND PAY ALL COSTS FOR ALL CHANGES TO THIS WORK AND THE WORK OF OTHER TRADES AFFECTED BY THE SUBSTITUTION OR DEVIATION.

SUBMITTALS, SCHEDULE AND SHOP DRAWINGS
A. EQUIPMENT AND SUBMITTALS MUST BE INACCORDANCE WITH DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTIONS ARE ALLOWED UNLESS DENOTED BY CONTRACTOR AND APPROVED BY ENGINEER. EIGHT (8) COPIES WILL BE PROVIDED ALONG WITH AN INDEX OF SUBMITTALS TO BE PROVIDED. ALL SUBMITTALS MUST BE IDENTIFIED WITH THE SAME NAME USED ON THE DRAWINGS.
B. PROVIDE CONSTRUCTION SCHEDULE USING MICROSOFT PROJECT MANAGER INCLUDING LEAD TIMES FOR EQUIPMENT, PHASING, ETC.
C. SUBMIT SHOP DRAWINGS AND OBTAIN WRITTEN APPROVAL OF SAME BEFORE ORDERING OR INSTALLING ANY OF THE EQUIPMENT OR MATERIAL. EQUIPMENT OR MATERIAL ORDERED OR INSTALLED WITHOUT WRITTEN APPROVAL WILL NOT BE ACCEPTED. SHOP DRAWINGS SHALL BE PRESENTED ON AUTOCAD VERSION 2004 OR LATER. SHOP DRAWING SCALE SHALL BE NO SMALLER THAN ¼ INCHES EQUALS 1 FOOT.
D. THE CHECKING OF SHOP DRAWING AND SAMPLES AND THE USE OF THE APPROVAL STAMP WILL BE ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT. THE STAMP OF APPROVAL DOES NOT INDICATE APPROVAL OF EVERY DETAIL OF THE DRAWINGS NOR OF THE WORK AND METHODS INDICATED THEREON.

HANGER AND SUPPORT
A. CONTRACTOR TO OBTAIN THE DESIGN AND PREPARATION OF SHOP DRAWINGS FOR PIPE AND EQUIPMENT SUPPORTS, AND SEISMIC RESTRAINT BY A QUALIFIED PROFESSIONAL ENGINEER. ALL DRAWINGS SHALL BE SEALED AND SIGNED BY A QUALIFIED PROFESSIONAL ENGINEER. UNLESS OTHERWISE SPECIFIED, THE SEISMIC DESIGN CATEGORY IS B.

CUTTING AND PATCHING

A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE CUTTING, PATCHING AND FIRE STOPPING OF ALL HOLES/HANGERS REQUIRED TO INSTALL MATERIALS AND EQUIPMENT THEY SUPPLY.
B. NO STRUCTURAL ELEMENTS SHALL BE CUT OR DRILLED.

RECORD DRAWINGS
A. FURNISH AS–BUILT DRAWINGS AS PART OF THIS WORK, CONSISTING OF A COMPLETE SET OF AUTOCAD COMPATIBLE DRAWINGS ON CD, SUITABLE FOR REPRODUCTION AND INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. THIS SHALL INCLUDE CHANGES AND ADDENDUM OF THIS SECTION WHICH EXISTS IN THE COMPLETED WORK. DURING CONSTRUCTION KEEP AN ACCURATE RECORD ON A SET OF CONTRACT DRAWINGS, ALL DEVIATIONS BETWEEN THE WORK SHOWN AND THE WORK INSTALLED. DRAWINGS SHALL BEAR THE NOTATION "RECORD DRAWING OF WORK AS–BUILT", AND MUST BE DELIVERED TO THE ENGINEER AT THE COMPLETION OF THE WORK. INCLUDE IN THE BID AND BEAR THE COST OF THESE TRANSPARENCIES AND THE PREPARATION OF RECORD DRAWINGS.

DAMAGE TO PROPERTY
A. RESTORE TO ITS ORIGINAL CONDITION WITHOUT EXTRA PAYMENT, ANY OF THE OWNERS PROPERTY THAT SHALL BECOME DAMAGED DUE TO THE NEGLIGENCE OF EMPLOYEES OR AGENTS OF THE CONTRACTOR. SUCH REPAIRS SHALL MEET THE APPROVAL OF THE OWNER. PARTICULAR CARE SHALL BE EXERCISED WITHIN ROOMS OF SPECIAL CONSTRUCTION, SUCH AS CLEAN AND STERILE ROOMS, FROM SCRATCHING OR OTHER IMPERFECTIONS CAUSED BY INSTALLATION OF WORK UNDER THIS CONTRACT.
B. TAKE PROPER CARE AND PROTECT ALL PORTIONS OF THE WORK UNTIL ITS ACCEPTANCE. ANY AND ALL PORTIONS OF THE WORK LIABLE TO DAMAGE UNDER THIS OR OTHER SECTIONS, BY FREEZING OR INCLEMENT WEATHER MUST BE THOROUGHLY AND COMPLETELY PROTECTED BY ANY SUBSTANTIAL MEANS UNTIL NOT FURTHER REQUIRED. IT SHALL BE REMOVED FROM THE PREMISES ONLY WHEN ITS REMOVAL IS APPROVED BY THE ENGINEER.
C. PROTECT PLATED AND POLISHED MATERIAL AND TRIMMINGS AGAINST DAMAGE.

TESTS

A. INCLUDE ALL TESTS SPECIFIED AND/OR REQUIRED UNDER LAWS, RULES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.
B. ALL PARTS OF THE WORK SHALL BE TESTED AND ADJUSTED TO WORK PROPERLY AND BE LEFT IN PERFECT OPERATING CONDITION UPON COMPLETION OF THE WORK. CORRECT DEFECTS DISCLOSED BY THESE TESTS WITHOUT ADDITIONAL COST TO THE OWNER. REPEAT TESTS ON REPAIRED OR REPLACED WORK IF DEEMED NECESSARY BY THE ENGINEER.
C. NOTIFY THE OWNER AND ENGINEER AT LEAST 72 HOURS IN ADVANCE OF ALL TESTS. FURNISH ALL NECESSARY INSTRUMENTS, GAUGES AND OTHER EQUIPMENT REQUIRED FOR THESE TESTS. IF TESTS CANNOT BE COMPLETED AS SCHEDULED, PAY ALL EXPENSES INCURRED BY THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVES REQUIRED TO BE PRESENT. EXPENSES SHALL INCLUDE THE COST OF TRAVELING, LODGING AND MEALS. TO AVOID SUCH OCCURRENCES, MAKE PRELIMINARY TESTS PRIOR TO GIVING NOTICE AND CONDUCTING FINAL TESTS.
D. TEST PIPING AND PROVE TIGHT AS SPECIFIED AND/OR REQUIRED, IN THE PRESENCE OF AUTHORITIES REQUESTING WITNESSING OF THE FINAL TESTS. MAKE TESTS IN STAGES IF SO ORDERED TO FACILITATE THE WORK OF OTHERS.
E. BE RESPONSIBLE FOR EXISTING BUILDING AND WORK OF OTHER TRADES DISTURBED OR DAMAGED BY TESTS OR REPAIR AND REPLACEMENT OF WORK. ALL WORK DISTURBED SHALL BE RESTORED TO ORIGINAL CONDITION AT NO COST TO THE OWNER.
F. TEST REVISED AND ALTERED DRAINAGE PIPING TO POINT OF CONNECTION WITH EXISTING PIPE WITH A FLOW OF WATER EQUAL TO EXPECTED MAXIMUM DISCHARGE FOR 30 MINUTES WITH NO LEAKAGE ALLOWED.
G. TEST NEW AND ALTERED WATER PIPING WITH BUILDING WATER AT BUILDING WORKING PRESSURE FOR A PERIOD OF ONE HOUR WITH NO LEAKAGE PERMITTED.
H. TEST NEW GAS PIPING AT A PRESSURE OF 75 PSIG FOR A PERIOD OF FOUR HOURS WITH NO LEAKAGE PERMITTED. HIGH PRESSURE COMPRESSED AIR PIPING AND NITROGEN GAS PIPING SHALL BE TESTED AT A PRESSURE OF 150 psig FOR A PERIOD OF FOUR HOURS WITH NO DROP OF PRESSURE PERMITTED.
I. CONTRACTOR TO COOPERATE WITH OWNER AND OTHER CONTRACTORS IN OBTAINING TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.

REPLACEMENT OF DEFECTIVE WORK
A. WHEN, IN THE OPINION OF THE ENGINEER ANY MATERIAL INSTALLED IS SUBSTANDARD IN APPEARANCE OR FUNCTION, OR DOES NOT MEET GENERALLY ACCEPTED STANDARDS OF WORKMANSHIP, ALL SUCH MATERIALS SHALL BE REJECTED TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE OWNER.

SUPERVISION
A. THE CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE INSTALLATION OF THE MATERIAL FURNISHED UNDER THIS SPECIFICATION, UNTIL SAME HAS BEEN PUT IN COMPLETE OPERATING CONDITION AND ACCEPTED BY THE OWNER.

DIVISION OF WORK
A. NO REASSIGNMENT OF THE DIVISION OF RESPONSIBILITY FOR ANY WORK HEREIN SPECIFIED FOR ANY RESPECTIVE TRADE SHALL BE MADE WITHOUT THE PRIOR WRITTEN ACCEPTANCE OF THE OWNER AND ENGINEER.

RUBBISH
A. AT LEAST ONCE A DAY OR AS REQUIRED BY THE OWNER GATHER ALL RUBBISH, INCLUDING CARTONS, CRATES AND PACKAGING MATERIALS, DEBRIS AND OTHER WASTE MATERIALS. PILE SAME IN DESIGNATED LOCATIONS CONVENIENT TO RUBBISH REMOVAL FACILITIES.
B. RUBBISH SHALL BE REMOVED FROM PREMISES BY THE CONTRACTORS ONCE EACH WEEK, OR MORE FREQUENTLY IF DIRECTED OR REQUIRED.

PROTECTION
A. PROTECT ALL WORK AND EQUIPMENT AGAINST DAMAGE OR THEFT UNTIL FINALLY INSPECTED, TESTED AND ACCEPTED. CAREFULLY STORE AND PROTECT MATERIALS AND EQUIPMENT RECEIVED ON SITE WHICH ARE NOT IMMEDIATELY INSTALLED. CLOSE OPEN ENDS OF WORK WITH TEMPORARY PLUGS OR COVERS DURING CONSTRUCTION TO PREVENT ENTRY DEBRIS.

GUARANTEES
A. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS.
B. DURING THE GUARANTEE PERIOD ANY DEFECTS IN WORKMANSHIP, MATERIAL OR EQUIPMENT WILL BE CORRECTED AT THE CONTRACTORS' EXPENSE. ANY DAMAGE OR LOSS, EXCLUSIVE OF BUILDINGS CONTENTS, DUE TO SUCH DEFECTS, WILL ALSO BE MADE GOOD AT CONTRACTOR'S EXPENSE. DEFECTS WILL BE REMEDIED AND DAMAGES OR LOSSES WILL BE MADE GOOD WITHIN A REASONABLE TIME, AS SPECIFIED IN NOTICE FROM THE ENGINEER. AFTER THE SPECIFIED TIME, OWNER MAY HAVE DEFECTS REMEDIED AND DAMAGES OR LOSSES MADE GOOD AT THE CONTRACTOR'S EXPENSE.
C. GUARANTEE PERIOD SHALL BE TWO (2) YEARS, PARTS & LABOR.
D. GUARANTEE PERIOD SHALL START WHEN THE WORK INCLUDED IN CONTRACT DOCUMENTS IS ACCEPTED BY THE OWNER.

WORK IN EXISTING BUILDING

A. PERFORM WORK IN EXISTING BUILDING WHEN AND AS DIRECTED. ALL WORK IS TO BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE OCCUPANTS.
B. THE WORK IS PREDICATED ON THE PERFORMANCE OF THE WORK DURING NORMAL WORKING HOURS. WHEN SO DIRECTED, INSTALL OR PERFORM WORK DURING OVERTIME HOURS, AND THE ADDITIONAL COST WILL ONLY INVOLVE THE "PREMIUM" PORTION OF THE WAGES PAID.
C. SCRAP AND DEBRIS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND DISPOSED OF. WHEN REQUESTED BY OWNER, MOVE EQUIPMENT REMOVED TO A STORAGE PLACE ON THE PREMISES AND LEAVE AS PROPERTY OF THE OWNER.
D. WHEN INSTALLATION OF THE NEW WORK REQUIRES THE SHUTDOWN OF AN EXISTING OPERATING SYSTEM, A MINIMUM OF 72 HOURS WRITTEN NOTICE SHALL BE GIVEN TO THE OWNER BEFORE WORK IS STARTED.
E. THE WORK SPECIFIED SHALL INCLUDE REPAIR TO EXISTING SYSTEMS REQUIRED WHEN SUCH SYSTEMS ARE DISTURBED OR OTHERWISE DAMAGED AS A RESULT OF THE EXECUTION OF THIS WORK.
F. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH SITE COMP CONSTRUCTION STANDARDS. PROVIDE ALL NECESSARY TEMPORARY PARTIONS TO ENSURE THAT GMP SPACES ARE NOT IMPACTED BY CONSTRUCTION ACTIVITIES.

CLEANING AND ADJUSTING
A. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF PIPING AND EQUIPMENT.
B. FLUSH OUT PIPING AFTER INSTALLATION AND BEFORE FINAL CONNECTIONS ARE MADE, AT LEAST TWICE, IN A MANNER AS DIRECTED AND/OR ACCEPTED BY THE OWNER. MAKE ALL TEMPORARY CONNECTIONS AND PROVIDE ALL EQUIPMENT REQUIRED FOR THE CLEANING AT NO EXTRA EXPENSE TO THE OWNER.
C. DISINFECTION
D. ALL FIXTURES SHALL BE SECURED TO PREVENT USE PRIOR TO INSPECTION AND ACCEPTANCE BY OWNER.

1. DISINFECT INTERIOR POTABLE WATER DISTRIBUTION SYSTEM IN ACCORDANCE WITH REQUIREMENTS OF LOCAL AUTHORITIES. PROVIDE THE FOLLOWING PROCEDURE WHERE NO PRESCRIBED METHOD EXISTS:
– AFTER SYSTEM IS FLUSHED, FILL IN WITH EITHER 50–PPM CHLORINE–WATER SOLUTION AND LET STAND FOR 24 HOURS, OR 200–PPM CHLORINE–WATER SOLUTION AND LET STAND FOR 3 HOURS.
– BLEED ALL OUTLETS TO ASSURE FILLING ALL THE SYSTEM.
– FLUSH SYSTEM WITH POTABLE WATER UNTIL RISIDUAL CLORINE BY ORTHOTOLIDIN TEST IS NOT GREATER THAN THAT OF THE INCOMING WATER SUPPLY.
– REPEAT PROCEDURE IF CONTAMINATION STILL PERSISTS AFTER FURTHER TEST.
– PROVIDE FINAL WATER CHEMISTRY RESULTS AND "CERTIFICATE OF COMPLETION OF CLORINATION" TO OWNER.

SAFETY
A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONS PERFORMING THE WORK OF THIS CONTRACT.
B. THIS CONTRACTOR SHALL OBTAIN AND READ ALL SITE, JOB AND CORPORATE SAFETY AND SECURITY RULES AND REGULATIONS FROM THE OWNER, AND SIGN OFF ON THEM IF REQUIRED. THIS CONTRACTOR SHALL ADEQUATELY INFORM AND INSTRUCT ALL EMPLOYEES, AND WORKERS PERFORMING WORK FOR HIM, OF SUCH RULES AND REGULATIONS. THESE INSTRUCTIONS ARE THE MINIMUM THAT WILL BE ACCEPTED ON THIS PROJECT.
C. ALL OF THE ABOVE RULES AND REGULATIONS ARE NOT MEANT TO REPLACE OR ELIMINATE INDIVIDUAL CONTRACTORS SAFETY PROGRAMS OR CHANGE ANY LOCAL, STATE OR FEDERAL RULES AND REGULATIONS, BUT RATHER TO AUGMENT THEM AS REQUIRED FOR THE INDIVIDUAL PREMISES ON WHICH THIS WORK IS BEING PERFORMED.

INSPECTIONS

A. FURNISH ALL LABOR, EQUIPMENT, SUPPLIES AND MATERIALS, AS WELL AS PERFORM ALL OPERATIONS REQUIRED, LICENSES OR PERMITS FOR THE WORK INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
B. CONTRACTOR TO PROVIDE ASSISTANCE TO THE OWNER FOR ALL NECESSARY NOTICES, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION.

DRAINAGE PIPING

A. ALL STORM, SANITARY, WASTE AND VENT PIPING ABOVE GRADE AND UNDERGROUND SHALL BE NO–HUB CAST IRON SOIL PIPE AND FITTINGS (CISPI 301 A.S.T.M. A888) WITH HEAVY–DUTY CORROSION RESISTANT STAINLESS STEEL COUPLINGS AND INTEGRAL RUBBER SLEEVE UNLESS OTHERWISE NOTED IN SCHEDULE. CLEVIS HANGERS INSTALLED 5'–0" O.C. AND AT FITTINGS.
B. ALL STORM AND SANITARY RISERS SHALL HAVE CLEANOUT TEE AND PLUG AT THE BASE OF EVERY RISER.

WATER PIPING AND ACCESSORIES

A. ALL WATER PIPING (COLD WATER, HOT WATER, HOT WATER RECIRCULATION, NON POTABLE, AND TEMPERED WATER) SHALL BE COPPER TYPE "L" HARD TEMPER CONFORMING TO A.S.T.M. B–88 WITH LEAD FREE SOLDERED JOINTS.
B. FITTING SHALL BE CAST COPPER ALLOY SOLDER END CONFORMING TO ANSI B16.18 OR WROUGHT COPPER CONFORMING TO ANSI 16.22. NO BENDING WILL BE PERMITTED.
C. SOLDER JOINTS: FILTER METAL SHALL CONFORM TO ASTM B 32. CUT END OF TUBING SQUARE AND REMOVE BURRS. CLEAN INSIDE OF FITTING AND OUTSIDE OF TUBING WITH SAND CLOTH. MAKE JOINT WITH NON–CORROSIVE PASTE FLUX CONFORMING TO ADA STM 1.0. CORED SOLDER IS NOT PERMITTED. SOLDER SHALL BE ALLOY SB5, COMPOSED OF 95% TIN AND 5% ANTIMONY.
D. VALVES SHALL BE BALL TYPE WITH ENDS SUITABLE FOR SOLDERING, APOLLO SERIES 70–200–01.
E. WATER HAMMER ARRESTORS SHALL BE J.R. SMITH SERIES 5000, SEE DOMESTIC WATER RISER DIAGRAM FOR FIXTURE UNIT NUMBERS FOR SIZING.
F. EMERGENCY SHOWERS TO COMPLY WITH ANSI Z358–1.
G. ALL BACKFLOW PREVENTERS SHALL BE REDUCED PRESSURE ZONE TYPE UNLESS OTHERWISE NOTED. BACKFLOW PREVENTERS SHALL BE INSTALLED BETWEEN 1'–0" AND 5'–0" ABOVE FINISHED FLOOR FOR ACCESS AND TESTING. PROVIDE WITH AIR GAP FITTING AND ACCESS TO FLOOR DRAIN.

PIPING INSULATION

A. INSULATION OF DOMESTIC COLD WATER, HOT WATER, HOT WATER RECIRCULATION AND NON POTABLE WATER PIPING SHALL BE PREMOLDED FIBERGLASS PIPE COVERING WITH A WHITE ALL SERVICE JACKET AND SELF SEALING LAP, MANVILLE MICRO–LOK.

B. REFER TO SCHEDULES FOR INSULATION THICKNESS.

C. FITTINGS SHALL BE PREMOLDED WHITE PVC COVERS WITH FIBERGLASS INSERTS, ZESTON #2000.

D. INSULATION OF NEW HORIZONTAL STORM PIPING AND EXISTING ROOF SUMP SHALL BE 1–1/2" THICK FIBERGLASS BLANKET.

E. INSULATION TO BE FLAME RATED FOR 25 AND SMOKE RATED FOR 50.

PIPING SUPPORTS

A. PIPING ON WALL ABOVE THE FLOOR SHALL BE SUPPORTED BY MANUFACTURED SUPPORTS SIMILAR TO "UNISTRUT". OTHER SUPPORTS SHALL BE SUBMITTED BY CONTRACTOR FOR APPROVAL.

B. PIPING IN CEILING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE ON APPROVED CLEVIS HANGERS.

C. SEISMIC RESTRAINT SUPPORTS: PROVIDE SEISMIC RESTRAINTS FOR PIPING AND EQUIPMENT IN ACCORDANCE WITH SECTION 1600 OF THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE.

PIPE, VALVE AND EQUIPMENT IDENTIFICATION
A. IDENTIFY ALL EXPOSED OR CONCEALED PIPING WITH PLASTIC PIPE MARKERS EVERY 10'. ALL VALVES SHALL BE TAGGED WITH BRASS LABELS AND A VALVE SCHEDULE SHALL BE PROVIDE BY THE CONTRACTOR TO THE OWNER.

PIPE INSTALLATION
A. THE WORD "PIPING" IN THIS SPECIFICATION SHALL MEAN PIPE, FITTING, FLANGES, NIPPLES, AND VALVES.
B. DRAINAGE PIPING 3" SIZE AND SMALLER SHALL BE RUN AT A UNIFORM GRADE AT LEAST ¼" PER FOOT, AND PIPING LARGER THAN 3" SIZE SHALL BE RUN AT A GRADE OF NOT LESS THAN 1/8" PER FOOT UNLESS OTHERWISE INDICATED.
C. DRAINAGE PIPING SHALL BE RUN STRAIGHT AS POSSIBLE AND SHALL HAVE EASY BENDS WITH LONG TURN FITTINGS.
D. VENT PIPES SHALL BE GRADED TO FREE THEMSELVES OF ANY WATER OR CONDENSATION.
E. WATER PIPING SHALL BE RUN FREE OF TRAPS AND UNNECESSARY BENDS. ANY TRAPS FORMED SHALL BE PROVIDED WITH DRIP VALVES TO COMPLETELY DRAIN THE SYSTEMS.
F. CHECK THE DRAWINGS FOR SPACE LIMITATIONS PERMITTED FOR THE INSTALLATION OF PIPING SUCH AS SHAFTS, CHASES, AND FURRED CEILINGS.
G. INSTALL PIPING CLOSE AND PARALLEL TO THE STRUCTURAL MEMBERS AND TIGHT TO THE UNDERSIDE OF THE FLOOR CONSTRUCTION TO GIVE MAXIMUM HEADROOM AND CREATE THE LEAST POSSIBLE FURRING WHERE FURRED BEAMS OR CEILINGS ARE INDICATED.
H. INSTALL PIPING SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, REPAIR, OR REPLACEMENT.
I. ALL PIPING SHALL HAVE REDUCING FITTINGS. NO BUSHINGS WILL BE PERMITTED ON ANY PIPING WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT.
J. REAM OR FILE SCREWED PIPE OF TUBING TO ORIGINAL BORE AND REMOVE BURRS.

INSTALLATION OF HANGERS AND SUPPORTS

A. WHERE NO INSERTS HAVE BEEN PROVIDED, PIPES SHALL BE SUPPORTED FROM HEAVY DUTY ADHESIVE ANCHORS SIMILAR TO HILTI HVA, USING ONLY HAS RODS AND HFA INSERTS FOR PIPING OVER 2" IN SIZE AND HAS RODS FOR PIPING 2" AND SMALLER. ALLOW A MINIMUM OF ONE–HOUR SETTING TIME BEFORE DISTURBING THE INSERT IN ANY MANNER. MANUFACTURERS INSTALLATION INSTRUCTIONS SHALL BE STRICTLY ADHERED TO. FOR LIGHTWEIGHT PIPING AND WHERE APPROVED BY ENGINEER, ATTACH THE ROD AND HANGER TO A 2" X 2" ANGLE FASTENED TO THE SLAB BY TWO STAR NO. 7000 DOUBLE EXPANSION SHIELDS, NO SMALLER THAN 3/8" INCH SIZE. THE RODS ON ALL HANGERS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOADS WHICH THEY CARRY.
B. REGARDLESS OF THE TYPE OF CONSTRUCTION (I.E., CONCRETE, CONCRETE–DECK–STEEL OR VARIATIONS THERETO), PARTICULAR CARE SHALL BE TAKEN TO SUPPORT ALL MAIN LINES AND ALL LARGE AND HEAVY PIPES IN A SATISFACTORY MANNER, INCLUDING THE FURNISHING AND INSTALLATION OF SUPPLEMENTARY STEEL, IF REQUIRED.
C. THIS SECTION SHALL COORDINATE WITH THE OTHER SECTIONS THAT USE COMMON MEANS OF SUPPORT. SUBMIT FOR APPROVAL ALL PERTINENT DESIGN DATA RELATING TO THE SUPPORTING SYSTEMS AS WELL AS VERIFICATION OF THE RESPONSIBILITY FOR THE SUPPORT.
D. DO NOT HANG PIPING FROM THE DUCTWORK OF OTHER PIPING. HANGERS SHALL NOT BE FASTENED BY MEANS OF VERTICAL EXPANSION BOLTS.

REMOVALS, MODIFICATIONS, RECONNECTIONS, AND RELOCATIONS

A. THIS CONTRACTOR SHALL INCLUDE REMOVAL OR RELOCATION OF EXISTING EQUIPMENT, PIPING, FIXTURES, ETC. AS REQUIRED TO ACCOMMODATE THE NEW WORK. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID TO ASCERTAIN WORK REQUIRED. INCLUDE ALL COSTS IN THE BID PRICE TO ACCOMPLISH THIS WORK.

B. WHERE EQUIPMENT AND PIPING ARE REMOVED OR PIPING INTERRUPTED OR DAMAGED, PROVIDE THE REQUIRED RELOCATION, RECONNECTION OR REARRANGEMENT TO RESTORE TO SERVICE ALL ITEMS, PIPING, ETC. NOT MADE OBSOLETE BY THIS WORK.

C. THIS CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT IT IS A PREREQUISITE THAT HE EXAMINE THE SPECIFICATIONS AND DRAWINGS AND ALSO VISIT THE SITE OF WORK IN ORDER TO BECOME THOROUGHLY ACQUAINTED WITH THE EXTENT AND REQUIREMENTS OF THE WORK. AS WELL AS THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS SPECIFIED IS TO BE PERFORMED. CLAIMS FOR EXTRA COMPENSATION WILL NOT BE ALLOWED FOR ANY WORK THAT MAY BE CAUSED BY EXISTING CONDITIONS, WHICH CONDITION SHOULD HAVE BEEN FORESEEN SUBSEQUENT TO JOB SITE VISIT.

FIELD MEASUREMENTS, LAYOUT AND POSITIONING

A. VERIFY TYPES AND MATERIALS FOR CEILING, WALLS AND FLOORS, BOTH EXISTING AND NEW AND MAKE NEW OR REVISED INSTALLATIONS COMPATIBLE.

B. NEW PLUMBING INSTALLATIONS SHALL ALLOW FOR THE REQUIRED AND RECOMMENDED SERVICE, MAINTENANCE, REPAIR OR SAFEETY CLEARANCES.

C. THE DRAWINGS INDICATE REQUIRED SIZE AND POINTS OF TERMINATIONS OF PIPES AND SUGGESTED ROUTES TO CONFORM TO STRUCTURE. HOWEVER, IT IS NOT INTENDED THAT DRAWINGS INDICATE EXACT LOCATIONS AND ALL NECESSARY OFFSETS WHICH MIGHT HAVE TO BE MADE TO CONFORM T