PHASE 1 HVAC IMPROVEMENTS AT THE
LP WILSON COMMUNITY CENTER
601 MATIANUK AVENUE
WINDSOR, CT 06095

S/P+A PROJECT NO. 21.288

DATE: December 22, 2022

The following changes to the Drawings and Project Specifications shall become a part of the Drawings and Project Specifications; superseding previously issued Drawings and Project Specifications to the extent modified by Addendum No. 1.

General Information/Clarifications:

- Pre-Bid sign-in sheet, attached as part of this Addendum. (2 pages)
- RFI's: As indicated in the Bid RFI Log, attached as part of this Addendum. (1 page)
- The Bid Due Date has been changed to January 5, 2023, 11:00 A.M.
- Existing Roof Information: South roof is an SR Products modified built-up roof including flood coat with stones, installed in 2013, with 16 years left on warranty. North roof is Siplast modified built-up roof installed in 2004 with Two (2) years left on this warranty. Contact is Greg Rose of Simon Roofing – 860-559-5175.

Changes to the Specifications:

- Delete: Bid Form in its entirety.
- Add: Revised Bid Form, attached as part of this Addendum. (3 pages)
- Delete: Specification Section 012300 "Alternates" in its entirety.
- Add: Revised Specification Section 012300 "Alternates", attached as part of this Addendum. (2 pages)

New Drawings:

Add: Drawing M104 "Mechanical Ceiling Work Plan", attached as part of this Addendum.

Changes to the Drawings:

- Delete: Drawing M001, dated November 18, 2022, in its entirety.
- Add: Revised Drawing M001, dated December 21, 2022, attached as part of this Addendum.
- Delete: Drawing M102, dated November 18, 2022, in its entirety.
- Add: Revised Drawing M102, dated December 21, 2022, attached as part of this Addendum.
- Delete: Drawing M103, dated November 18, 2022, in its entirety.
- Add: Revised Drawing M103, dated December 21, 2022, attached as part of this Addendum.
- Delete: Drawing M202, dated November 18, 2022, in its entirety.

- Add: Revised Drawing M202, dated December 21, 2022, attached as part of this Addendum.

- Delete: Drawing M401, dated November 18, 2022, in its entirety.
- Add: Revised Drawing M401, dated December 21, 2022, attached as part of this Addendum.

- Delete: Drawing MD101, dated November 18, 2022, in its entirety.
- Add: Revised Drawing MD101, dated December 21, 2022, attached as part of this Addendum.

- Delete: Drawing MD102, dated November 18, 2022, in its entirety.
- Add: Revised Drawing MD102, dated December 21, 2022, attached as part of this Addendum.

- Delete: Drawing E003, dated November 18, 2022, in its entirety.
- Add: Revised Drawing E003, dated December 21, 2022, attached as part of this Addendum.

- Delete: Drawing E104, dated November 18, 2022, in its entirety.
- Add: Revised Drawing E104, dated December 21, 2022, attached as part of this Addendum.

The bid due dates are Changed by this Addendum.

The Addendum consists of ten (10) pages of 8½" x 11" text, and ten (10) pages of 30" x 42" drawings.

End of Addendum #1

LP WILSON COMMUNITY CENTER
HVAC RENOVATION PROJECT
Walkthrough Sign-in Sheet
December 8, 2022 - 10:00 AM

Name	Company Name & Address	Phone/Email
Lon Isaacson	Air Temp Mechanical 63 Fuller Way Berlin, CT 06037	Phone: 860-734-3062
		e-mail: lon@ctairtemp.com
Chuck Waterfield	Windsor Board of Ed 601 Matianuck Ave Windsor, CT 06095	Phone: 860-687-2000 ext. 1223
		e-mail: cwaterfield@windsorct.org
Whit Przech Buildings and Facilities Manager	Town of Windsor 275 Broad Street Windsor, CT 06095	Phone: 860-285-1870
		e-mail: przech@townofwindsorct.com
Gary Dowgewicz Town Building Management	Windsor Town Hall 275 Broad Street Windsor CT 06095	Phone: 860.285.1872
		e-mail: dowgewicz@townofwindsorct.com
		Phone:
		e-mail:
		Phone:
		e-mail:
		Phone:
		e-mail:
		Phone:
		e-mail:

LP WILSON COMMUNITY CENTER
HVAC RENOVATION PROJECT
Walkthrough Sign-in Sheet
December 8, 2022 - 10:00 AM

Name	Company Name & Address	Phone/Email
Jim Peckingham	Silver/Petrucelli & Associates 3190 Whitney Ave. Hamden, CT	Phone: 203-230-9007
		e-mail: jpeckingham@silverpetrucelli.com
David St.Onge	SK Mechanical 266 Center St. Manchester, CT 06040	Phone: 860-533-2320
		e-mail: kbayha@skmechanical-llc.com
Brian Karwowski	Sav-Mor Cooling & Heating 231 Captain Lewis Dr. Southington, CT 06489	Phone: 860-621-9959
		e-mail: brian@savmorct.com
Marco Aglieco	Automated Logic 23 Village Lane Weythersfield, CT 06492	Phone: 860-488-2703
		e-mail: marco.aglieco@carrier.com
Steven Grening	West State Mechanical P. O. Box 1045 Torrington, CT 06790	Phone: 860-601-1691
		e-mail: wsm_steve@yahoo.com
Lee Scheinfeld	Action Air Systems, Inc. 131 Adams St. Manchester, CT 06042	Phone: 860-645-8838
		e-mail: lee@actionairsystems.com
Dan Gates	All State Construction 449 Cooke St. Farmington, CT 06032	Phone: 860-678-0678
		e-mail: dgates@allstateconstructioninc.com
Jason Harvey	Sav-Mor Cooling & Heating 231 Captain Lewis Dr. Southington, CT 06489	Phone: 860-621-9959
		e-mail: jay@savmorct.com

SILVER/PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

BID RFI LOG

Project: **Windsor - Phase 1 HVAC Improvements at LP Wilson Community Center**

S/P+A Project #: **21.288**

RFI Deadline: **12/27/22**
Bids Due: **01/03/23**

RFI #	QUESTION	DATE RECEIVED	RESPONSE	ADDENDUM # ISSUED
001	In reviewing the bid documents, it appears that we need to complete an AIA A305-2020. Is this correct? I only see page one, not the rest of the document. Do we need to obtain the form from AIA itself to complete?	12/01/22	Page numbers on TOC for AIA A305-2020 is incorrect. Document AIA A305-2020 is now a 1-page document. Complete the document and submit Exhibits A though E along with the Bid Form.	1
002	Re: Ceiling Replacement Notes - it would help a great deal if a Reflected Ceiling Plan (RCP) could be issued to help verify the overall scope of work. Some rooms are fitted with suspended ceilings, some rooms are without these ceilings. Other notes call for painting of ceiling cassette units that are exposed in rooms without ceilings, thus the need for the RCP.	12/09/22	Refer to Drawing M104, attached as part of this Addendum.	1
003	Drawing M102 - Note #7: Bid Alternate for running DOAS-2 & DOAS-3 ductwork on roof in lieu of above existing ceilings. Bid Form only lists an Add Alternate Bid for replacement of finned tube radiation. Please clarify.	12/09/22	Refer to Revised Bid Form, and Revised Specifications Section 0123000 "Alternates", attached as part of this Addendum.	1
004	There are (2) types of roofing systems in place, one with loose stone on top, and one without. Please provide any info. on existing manufacturer's roofing warranty for both types of roofing, and contact info. for the approved roofing contractor who is authorized by the given roofing manufacturer to maintain any existing warranty.	12/09/22	South roof not a part of phase one is by SR Products modified built-up flood coat with stones installed in 2013, 16 years left on warranty. North side is Siplast modified built-up roof installed in 2004. Two years left on this warranty. Contact is Greg Rose Simon Roofing.	1
005	Please provide contact info. for local representative of Siemens Industry, for Fire Alarm System interface.	12/09/22	Jennifer Rossi SIEMENS | Smart Infrastructure Siemens Industry, Inc. 104 Sebethe Drive, Cromwell, CT 06416 Main: 860-635-4113 Mobile: 860-262-4834 jennifer.rossi@siemens.com	1
006	Note (1) on drawing E102 says that there are (45) 120V circuits between the 1" & 1 ¼" conduit we need to remove/relocate. By code, we cannot accomplish that without more conduits. We are only allowed to run (3) circuits per conduit without having to upsize the wire/and or conduit. I can do what the drawing says, but there will most certainly be a change order right off the bat in this case.	12/19/22	Use of #10 AWG conductors for the 120V circuits would address any conductor derating required. Base the bids on the assumption that all 120V circuits are run with #10 AWG.	1
007	Is there a wire/conduit requirement for sizing of feeders for panels MDP-2, H-1 & H-2? Thanks.	12/12/22	See Rev-1 of Drawing E003 issued with Addendum 1.	1
008	Please provide a detail showing the area of the building that would require the existing drop ceiling to be removed and a new ceiling to be installed	12/15/22	Refer to Drawing M104, attached as part of this Addendum.	1
009	What is the distance from MDP-2 to H-1 and H-2?	2022-12-21	Approximately 235-feet to H-1. Approximately 330-feet to H-2. Measured on the shortest route parallel to building lines.	1
010	Can the bid due date be extended? Because of Christmas the previous week and New Years being observed on Monday Jan 2nd, it will be extremely difficult to receive quotes from our vendors and have enough time to put the bid together by 11am coming off of a holiday weekend.	2022-12-21	The Bid Due Date has been extended to 11:00 AM, January 5, 2023.	1

(To be submitted in duplicate)

BIDDER: _____
Name

_____
Address

To: **Mr. Whit Przech**
Building & Facilities Manager
275 Broad Street, Top Floor
Windsor, CT 06095

Project: **Phase 1 HVAC Improvements at**
LP Wilson Community Center-Town of Windsor
601 Matianuk Avenue
Windsor, CT 06095

In preparing this bid, we have carefully examined the Bidding Documents for this Project. We have visited the site and noted the conditions affecting the Work.

We hereby submit our bid on the above referenced project. We are enclosing our bid surety in the amount of 10% of our base bid which will be returned to us after the award is made. Following award, we will be able to provide the required 100% Performance Bond and 100% Labor and Materials Bond from the following insurance company: _____.

We will provide the requested Certificate of Insurance from the following insurance Company: _____.

The Bidding Documents referred to include Drawings and Project Manual dated November 18, 2022 for the above referenced project, prepared by Silver/Petrucelli + Associates, Inc., Hamden, Connecticut.

We propose to perform the work described in the Bidding Documents, in keeping with definitions of Article 1 of the Instructions to Bidders, for the Base Bid Sum as follows:

Base Bid (Total Cost for Roof Replacement):

Phase 1 HVAC Improvements at LP Wilson Community Center - Windsor for a Total Cost of:

$ _____ Dollars ($ .00).
written figure

We will commence work _____ calendar days after receipt of "Notice to Proceed" or signing of Contract. We will be able to substantially complete the project within _____ calendar days thereafter, but no later than _____, 2023.

Alternates

ADD ALTERNATE NO. 1: Replacement of all Finned Tube Radiation: For the work, methods, procedures and materials (See Section 012300 and the Construction Documents), we propose to Add to the Base Bid a total of

_____ Dollars ($ .00)
Written figure

The project schedule will be increased by _____ calendar days to complete the work indicated under Alternate 1.

ADD ALTERNATE NO. 2: Provision of DOAS-2 Ductwork Installed on Roof: For the work, methods, procedures and materials (See Section 012300 and the Construction Documents), we propose to Add to the Base Bid a total of

_____ Dollars ($ .00)
Written figure

The project schedule will be increased/decreased by _____ calendar days to complete the work indicated under Alternate 2.

ADD ALTERNATE NO. 3: Provision of DOAS-3 Ductwork Installed on Roof: For the work, methods, procedures and materials (See Section 012300 and the Construction Documents), we propose to Add to the Base Bid a total of

_____ Dollars ($ .00)
Written figure

The project schedule will be increased/decreased by _____ calendar days to complete the work indicated under Alternate 3.

Exceptions: _____

If written notice of the acceptance of this Bid is mailed, telegraphed or delivered to the undersigned at the Address designated below, within ninety (90) days after the date of Bid Opening, or any time thereafter before this Bid is withdrawn, the undersigned will, within ten (10) days after the date of mailing, telegraphing or delivering of the notice, execute and deliver a contract in the Standard Form of Agreement Between the Owner and Contractor, AIA Document A101, or similar contract modified as may be mutually agreed upon.

The undersigned acknowledges that he has examined the documents, visited and examined the site as required under "Instructions to Bidders", examined the availability of labor and materials and further agrees to comply with all the requirements as to the conditions of employment and wage rates set forth by the Department of Labor.

Addenda:

The undersigned acknowledges receipt of the following addenda to the Contract Documents, listed by number and date:

Number , Dated: _____ Number , Dated: _____
Number , Dated: _____ Number , Dated: _____

Exceptions: _____

ATTACHMENTS – Attached hereto (by Contractor) is:

1. **Bid Bond**
2. **100% Performance Bond**
3. **100% Labor and Materials Bond**

NON-COLLUSIVE BID STATEMENT

The undersigned bidder certifies that his bid is made independently and without collusion, agreement, understanding or planned course of action with any other bidder and that the contents of his bid shall not be disclosed to anyone other than his employees, agents or sureties prior to the official bid opening.

Date: _____

Signature: _____

Printed Name and Title
of Agent submitting bid: _____

Name of Company: _____

Address: _____

Telephone Number: _____ Fax Number: _____

E-mail: _____

This Bid may be withdrawn prior to the scheduled Bid Opening or any postponement thereof.

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

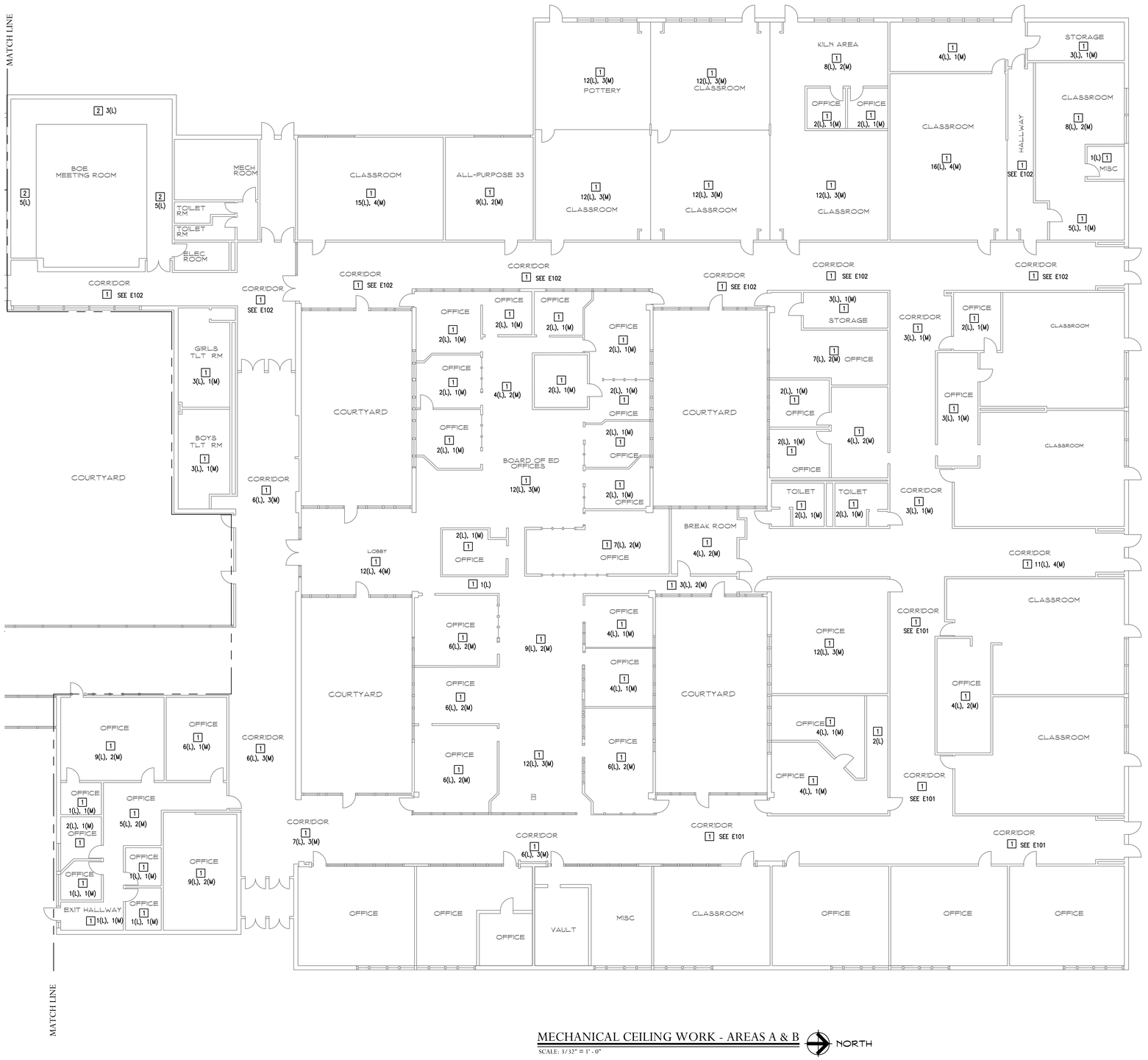
3.1 SCHEDULE OF ALTERNATES

A. **ADD ALTERNATE NO. 1: Replacement of all Finned Tube Radiation:** Add to the Base Bid the labor, materials and equipment to incorporate into the scope of work replacement of all finned tube radiation, as indicated in the Specifications and the Drawings. The Work includes the provision of all related components and conditions of the finned tube radiation system, including warranty.

B. **ADD ALTERNATE NO. 2: Provision of DOAS-2 Ductwork Installed on Roof:** Add to the Base Bid the labor, materials and equipment to incorporate into the scope of work **Provision of DOAS-2 Ductwork Installed on Roof**, as indicated in the Specifications and the Drawings. The Work includes the provision of all related components and conditions of the **DOAS-2 Ductwork Installed on Roof**, including warranty.

C. **ADD ALTERNATE NO. 3: Provision of DOAS-3 Ductwork Installed on Roof:** Add to the Base Bid the labor, materials and equipment to incorporate into the scope of work **Provision of DOAS-3 Ductwork Installed on Roof**, as indicated in the Specifications and the Drawings. The Work includes the provision of all related components and conditions of the **DOAS-3 Ductwork Installed on Roof**, including warranty.

END OF SECTION 012300



CEILING PLAN NOTES

1. CEILING IN THIS ROOM/AREA IS TO BE REMOVED AND REPLACED WITH NEW GRID AND TILES UPON COMPLETION OF NEW MECHANICAL WORK. REFER TO CEILING REPLACEMENT NOTES, THIS DRAWING.
2. SOFFIT IN THIS ROOM IS TO BE REMOVED AND REPLACED AS REQUIRED TO REMOVE EXISTING AIR HANDLING UNIT AND DUCTWORK. REPLACE SOFFIT WITH NEW GRID AND TILES UPON COMPLETION OF NEW MECHANICAL WORK. REFER TO CEILING REPLACEMENT NOTES, THIS DRAWING.

CEILING REPLACEMENT NOTES

1. CONTRACTOR SHALL REMOVE CEILING TILES AND GRIDS AS REQUIRED TO PERFORM INSTALLATION OF NEW MECHANICAL SYSTEMS. REPLACE ALL CEILING TILES AND GRIDS WITH NEW MATERIALS UPON COMPLETION OF INSTALLATION.
2. REMOVE AND STORE ALL CEILING DEVICES IN CEILINGS BEING REMOVED. REINSTALL ALL EXISTING CEILING DEVICES IN NEW CEILINGS. DEVICES TO BE REINSTALLED INCLUDE, BUT ARE NOT LIMITED TO LIGHT FIXTURES, EXIT SIGNS, HEAT/SMOKE DETECTORS, SPEAKERS, ALARM DEVICES, REMOTE TEST SWITCHES, MOTION SENSORS, PROJECTORS, ETC. NUMBERS SHOWN IN EACH SPACE ARE FOR (L) LIGHTS AND (M) MISC MOTION SENSORS, DETECTORS, ETC.
3. ERECT TEMPORARY SMOKE BARRIERS WHERE REMOVAL OF CEILINGS WILL ALLOW SMOKE TO MIGRATE TO ADJACENT CORRIDORS OR EXIT ACCESS WHEN PORTIONS OF BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. COORDINATE WITH FIRE DEPARTMENT.
4. TEMPORARILY RELOCATE SPRINKLER HEADS IN AREAS WHERE CEILINGS ARE REMOVED TO WITHIN 12" OF ROOF DECK. REINSTALL SPRINKLER HEADS IN NEW CEILING TILES.
5. ELECTRICAL DEVICE QUANTITIES LISTED ON THIS DRAWING ARE INTENDED TO BE IN ADDITION TO THOSE NOTED ON DRAWINGS E101 & E102, NOTE #1.

MECHANICAL CEILING WORK - AREAS A & B

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

NORTH

Project Title:

Phase 1 HVAC Improvements at the
LP Wilson Community Center - Town of Windsor

601 Matianuk Avenue
Windsor, Connecticut 06095

SILVER / PETRUCELLI + ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue, Hamden, CT 06518-2340
Tel. 203 230 9007 Fax. 203 230 8247
silverpetrucelli.com

Revision:	Description:	Date:	Revised By:
	ISSUED FOR BIDS	11/18/2022	JP
	ADDENDUM NO.1	12/21/2022	JP

Drawing Title:

MECHANICAL CEILING WORK PLAN AREAS A & B

Date: NOVEMBER 18, 2022
Scale: AS NOTED
Drawn By: JP
Project Number: 21-288

Drawing Number: M104

ABBREVIATIONS

(NOT ALL SYMBOLS ARE USED)

(###)	CFM
ABV	ABOVE
AC	AIR COMPRESSOR
ACU–#	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AF	AIRFOIL
AFC	ADJUSTABLE FREQUENCY CONTROLLER
AFF	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AHU–#	AIR HANDLING UNIT
AL	ACOUSTIC LINING
ALD	AUTOMATIC LOUVER DAMPER
APD	AIR PRESSURE DROP
AUTO	AUTOMATIC
B–#	BOILER
BC	BACKWARD CURVED
BD	BELT DRIVE
BMCS	BUILDING MANAGEMENT & CONTROL SYSTEM
IBT	INVERTED BUCKET TRAP
BTU	BRITISH THERMAL UNIT
C–#	CHILLER
CAP	CAPACITY
CB–#	CHILLED BEAM
CC–#	COOLING COIL
CD	CONDENSATE DRAIN – GRAVITY
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CLG	CEILING
CONV–#	HOT WATER CONVECTOR
CPD	CONDENSATE PUMPED DISCHARGE
CR	CEILING REGISTER
CT–#	COOLING TOWER
CTD	CEILING TRANSFER DUCT
CUH–#	CABINET UNIT HEATER HOT WATER
CV	CONTROL VALVE
CW	COLD WATER
D&T	DRIP AND TRAP
dB	DECIBELS
DB	DRY BULB
DD	DIRECT DRIVE
DDC	DIRECT DIGITAL CONTROL
DIFF	DIFFUSER
DL	DOOR LOUVER
DN	DOWN
DOAS	DEDICATED OUTDOOR AIR SYSTEM
DP	DEWPOINT TEMPERATURE
DR	DROP
DTWS	DUAL TEMPERATURE WATER SUPPLY
DTWR	DUAL TEMPERATURE WATER RETURN
DX	DIRECT EXPANSION
EF–#	EXHAUST FAN
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EG	EXHAUST GRILLE
EHC–#	ELECTRIC HEATING COIL
ENT	ENTERING
HEPA	HIGH EFFICIENCY PARTICULATE FILTER
ER	EXHAUST REGISTER
ES	END SUCTION
ESP	EXTERNAL STATIC PRESSURE
ET–#	EXPANSION TANK
EUH–#	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
EX	EXTERNAL
EXTG	EXISTING
EXH	EXHAUST
F	DEGREES FAHRENHEIT
F&B	FACE & BYPASS DAMPER
FA	FACE AREA
FBO	FURNISHED BY OTHERS
	INSTALLED BY HVAC SUBCONTRACTOR
FC	FORWARD CURVE
FCU	FAN COIL UNIT
FD	FIRE DAMPER WITH ACCESS DOOR
FF	FINAL FILTER
FIBO	FURNISHED AND INSTALLED BY OTHERS
FIN FL	FINISH FLOOR
FL	FLOOR
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FPF	FINS PER FOOT
FPV	FAN POWERED VAV BOX
FT	FEET
F.T.	FLOAT & THERMOSTATIC TRAP
FTR	FIN TUBE RADIATION
FV	FACE VELOCITY
GC	GENERAL CONTRACTOR
GIH	GRAVITY INTAKE HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GWLS	GEOTHERMAL WATER LOOP SUPPLY
GWLR	GEOTHERMAL WATER LOOP RETURN
H/C	HEATING/COOLING
H–#	HUMIDIFIER
H–O–A	HAND–OFF–AUTOMATIC
HC–#	HEATING COIL
hd	FEET OF HEAD
HP	HORSEPOWER
HTG	HEATING
HTR	HEATER
HV–#	HEATING AND VENTILATING UNIT
HVAC	HEATING, VENTILATING &
	AIR CONDITIONING
HX–#	HEAT EXCHANGER CONVERTOR
ID	INSIDE DIMENSION
IN	INCHES
IV	INLET GUIDE VANES
IL	INLINE
LAT	LEAVING AIR TEMPERATURE
KW	KILOWATT
KWH	KILOWATT HOUR
LD	LINEAR DIFFUSER
LIN	LINEAR
LRA	LOCKED ROTOR AMPERES
LPR	LOW PRESSURE RETURN
LPS	LOW PRESSURE SUPPLY
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAT	MIXED AIR TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTU'S
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
MER	MECHANICAL EQUIPMENT ROOM
MEZZ	MEZZANINE
MFS	MAXIMUM FUSE SIZE
MIN	MINIMUM
MOT	MOTOR
MUA	MAKE–UP AIR
MV	MOTORIZED VALVE
NC	NORMALLY CLOSED
NC	NOISE CRITERIA
NFA	NET FREE AREA
NIC	NOT IN THIS CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAT	OUTDOOR AIR TEMPERATURE
OAI	OUTDOOR AIR INTAKE
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIMENSION
O.E. T.D.	OPEN END TRANSFER DUCT
P–#	PUMP
PB	PUSH BUTTON
PBD	PARALLEL BLADE DAMPER
PD	PRESSURE DROP
PF	PREFILTER
PH	PHASE
PHC	PREHEAT COIL
PPH	POUND PER HOUR
PRV	PRESSURE REDUCING VALVE
PSI	POUND PER SQUARE INCH
RA	RETURN AIR
RAF–#	RETURN AIR FAN
RAT	RETURN AIR TEMPERATURE
REG	REGISTER
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RM	ROOM
RP	RADIANT PANEL
RPM	REVOLUTIONS PER MINUTE
RS	RISE
RTU–#	ROOFTOP AIR CONDITIONING UNIT
SA	SUPPLY AIR
SAF–#	SUPPLY AIR FAN
SAT	SUPPLY AIR TEMPERATURE
SB	SECURITY BARS
VSC	VERTICAL SPLIT CASE
HSC	HORIZONTAL SPLIT CASE
SD	SMOKE DAMPER
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
SQ FT	SQUARE FOOT (AREA)
ST	SINGLE POLE SWITCH
	W/THERMAL OVERLOAD
SWR	SIDE WALL REGISTER
T'STAT	THERMOSTAT
TD	TEMPERATURE DIFFERENCE
TEMP	TEMPERATURE
TG	AIR TRANSFER GRILLE
TOT	TOTAL
TN–HR	TON HOUR REFRIGERATION
TRD	TRANSFER DUCT
TT	THERMOSTATIC TRAP
TYP	TYPICAL
UC	UNDERCUT DOOR
UH–#	UNIT HEATER HOT WATER
UV–#	UNIT VENTILATOR
VAV–#	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VE	VOLUME EXTRACTOR
VFD	VARIABLE FREQUENCY DRIVE
VI	VIBRATION ISOLATOR
VSF	VARIABLE SPEED FAN SWITCH
W/	WITH
WB	WET BULB
WFM	WATER FLOW MEASURING STATION
WMS	WIRE MESH SCREEN
WPD	WATER PRESSURE DROP
WT	WEIGHT (LBS)
ZD	ZONE DAMPER

SYMBOL LEGEND

(NOT ALL SYMBOLS ARE USED)

	PRESSURE/TEMPERATURE PORT	OR	PIPE UNION	X	MECHANICAL PLAN NOTE REFERENCE, NUMBER INDICATES PLAN NOTE
T	TEMPERATURE GAUGE/ TEMPERATURE INDICATOR	AV	AIR VENT, AUTOMATIC	C_F	CUBIC FEET PER MINUTE
	PRESSURE GAUGE		AIR VENT, MANUAL		DUCT STATIC PRESSURE
	BUTTERFLY VALVE	OR	PUMP OR FAN	VD	VOLUME DAMPER
	SHUT–OFF VALVE		STRAINER	BD	BACKDRAFT DAMPER
	ANGLE GATE VALVE		STRAINER, BLOW OFF	SPS	DUCT STATIC PRESSURE SENSOR
	GLOBE VALVE		1" DOOR UNDERCUT	MD	MOTORIZED DAMPER
	BALL OR BUTTERFLY VALVE		RETURN GRILLE		SUPPLY OR OUTSIDE AIR DUCT UP OR CEILING SUPPLY DIFFUSER
	ANGLE GLOBE VALVE	T	THERMOSTAT OR SPACE TEMPERATURE SENSOR		SUPPLY OR OUTSIDE AIR DUCT DOWN
M	TWO WAY MOTORIZED CONTROL VALVE	P	PRESSURE SENSOR		RETURN OR EXHAUST DUCT UP OR CEILING RETURN GRILLE
M	THREE WAY MOTORIZED CONTROL VALVE		DIRECTION OF FLOW		RETURN OR EXHAUST DUCT DOWN
	CHECK VALVE	M	METER	FC	FLEXIBLE CONNECTION
	OS & Y	DIA. OR ø	DIAMETER		DUCT TRANSITION
	SAFETY RELIEF VALVE (PRESS. & TEMP.)	OR	THERMOMETER		RECTANGULAR TO ROUND TRANSITION
	DRAIN VALVE W/ HOSE COUPLING W/CAP		PIPE TEE, OUTLET UP		DUCT WORK, DIRECTION OF FLOW
	CAP		PIPE ELBOW, TURNED UP		POSITIVE PRESSURE DUCT
	PIPE CONNECTION BOTTOM		PIPE TEE, OUTLET DOWN		NEGATIVE PRESSURE DUCT
	PIPE CONNECTION TOP	HWS	HOT WATER SUPPLY	UP	CHANGE OF ELEVATION
	PIPE COUPLING (JOINT)	HWR	HOT WATER RETURN		LINED DUCT WORK
	ELBOW, 90°	CHWS	CHILLED WATER SUPPLY		SINGLE LINE LINED DUCT WORK
	PIPE ELBOW, TURNED DOWN	CHWR	CHILLED WATER RETURN		DIRECTION OF SUPPLY OR OUTSIDE AIR
	PIPE TEE		POINT OF CONNECTION		DIRECTION OF RETURN OR EXHAUST AIR
	CALIBRATED BALANCING VALVE		RETURN OR EXHAUST DUCT UP		AIR TERMINAL UNIT
H	HUMIDISTAT/HUMIDITY SENSOR		SUPPLY OR OUTSIDE AIR DUCT UP	S	DUCT SMOKE DETECTOR
H	DUCT MOUNTED HUMIDITY SENSOR	SD	SMOKE DAMPER	FD	FIRE DAMPER WITH ACCESS DOOR AS REQUIRED
CO2	DUCT MOUNTED CARBON DIOXIDE SENSOR	FSD	COMBINATION FIRE AND SMOKE DAMPER		DUCT ACCESS DOOR
HWS	HOT WATER SUPPLY	45 CHWS	45°F CHILLED WATER SYSTEM SUPPLY	57 CHWS	57°F CHILLED WATER SYSTEM SUPPLY
HWR	HOT WATER RETURN	45 CHWR	45°F CHILLED WATER SYSTEM RETURN	57 CHWR	57°F CHILLED WATER SYSTEM RETURN
	PIPE ANCHOR		PIPE GUIDE		

GENERAL

1. THE INTENT OF THESE CONTRACT DOCUMENTS IS FOR THE CONTRACTOR TO FURNISH AND INSTALL COMPLETE MECHANICAL AND ELECTRICAL SYSTEMS. THESE MECHANICAL AND ELECTRICAL SYSTEMS INCLUDE PLUMBING, FIRE PROTECTION, HVAC, ELECTRICAL AND ALL ASSOCIATED SPECIAL SYSTEMS. ALL SYSTEMS SHALL BE COMPLETE IN ALL RESPECTS. OPERATING, TESTED, ADJUSTED, APPROVED BY THE AUTHORITIES HAVING JURISDICTION AND READY FOR BENEFICIAL USE BY THE OWNER.
2. THE CONTRACTOR SHALL OBTAIN AND REVIEW ALL CONTRACT DOCUMENTS, INCLUDING PROJECT MANUAL, PLANS AND SPECIFICATIONS OF ALL TRADES BEFORE SUBMITTING BID. REFER TO SPECIFICATIONS, PROJECT MANUAL AND PLANS, INCLUDING ALL EQUIPMENT SCHEDULES FOR MECHANICAL AND ELECTRICAL INFORMATION. CONTRACTOR SHALL WALK THROUGH BUILDING PRIOR TO SUBMITTING BID.
3. ALL OF THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO FORM A TOTAL DESIGN PACKAGE. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER TO DETERMINE WHICH TRADE CONTRACTOR IS RESPONSIBLE FOR VARIOUS PORTIONS OF THE WORK.
4. ALL WORK AND ACTION DEPICTED AND DESCRIBED SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
5. PROVIDE SUPPORT/BRACING OF EQUIPMENT AND BUILDING SERVICES FOR SEISMIC RESTRAINT AS REQUIRED BY CODE.
6. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
7. ALL EQUIPMENT, MATERIALS AND RELATED SYSTEMS COMPONENTS SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
8. REPAIR AND/OR REPLACE AT NO COST TO OWNER ALL EQUIPMENT AND MATERIALS DAMAGED DURING CONSTRUCTION.
9. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF EQUIPMENT WITH ALL TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION ARE TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
10. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION OF LIGHT FIXTURES AND MOUNTING HEIGHTS OF EQUIPMENT, INCLUSIVE OF RECEPTACLES, SWITCHES, THERMOSTATS, ETC. ALL SUCH EQUIPMENT AND COLORS SHALL BE COORDINATED WITH THE ARCHITECT. CONTACT ARCHITECT FOR CLARIFICATION OF MOUNTING REQUIREMENTS, IF INFORMATION IS NOT CONTAINED IN THE DRAWINGS.
11. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE APPLICABLE CODES IN THE ORDINANCES AND THE REGULATORY AGENCIES HAVING JURISDICTION.
12. ALL EQUIPMENT SHALL BE LOCATED IN ACCESSIBLE LOCATIONS. WHEN A PIECE OF EQUIPMENT MUST BE LOCATED ABOVE AN INACCESSIBLE CEILING OR WALL THEN THE APPROPRIATE ACCESS DOOR SHALL BE PROVIDED. THESE SHALL BE COORDINATED WITH THE ARCHITECT.
13. WHEN CONFLICTS OCCUR BETWEEN THE DRAWINGS AND/OR SPECIFICATIONS IT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR SHALL CARRY AS PART OF THE BID THE LARGER QUANTITY AND/OR MORE EXPENSIVE ITEM(S).
14. CONTRACTORS SHALL COORDINATE THEIR WORK WITH ALL OWNER–FURNISHED EQUIPMENT, INCLUDING REQUIRED SERVICE CONNECTIONS, RECEPTACLES, ETC. BEFORE INSTALLATION.
15. CONTRACTORS SHALL PROVIDE ALL REQUIRED SLEEVES AND SEALS FOR PIPES OR CONDUIT PENETRATING WALLS OR FLOOR SLABS WITH FIRE STOPPING SEALANT WHERE REQUIRED.
16. ELECTRICAL CONDUITS & BOXES TO BE CONCEALED IN WALLS OR ABOVE CEILING WHEREVER POSSIBLE.
17. COORDINATE ALL PIPING AND CONDUITS LEAVING THE BUILDING WITH THE SITE CONTRACTOR(S) BEFORE INSTALLATION.
18. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT.
19. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO AND WITHIN 50 FEET OF ISOLATED EQUIPMENT THROUGHOUT MECHANICAL EQUIPMENT ROOMS.
20. LOCATE ALL TEMPERATURE, PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP/DOWN STREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
21. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS AND OTHER CONCEALED MECHANICAL EQUIPMENT.
22. ALL EQUIPMENT, PIPING, DUCT WORK SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
23. LOCATION AND SIZES OF ALL FLOOR, WALL AND ROOF PENETRATIONS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
24. INSTALL COMPLETE OPERATING SYSTEMS. PROVIDE ALL COMPONENTS, DEVICES, CONTROLS, RELAYS, TRANSFORMERS, ETC., WHETHER INDICATED OR NOT, FOR COMPLETE SYSTEMS AS INTENDED BY THE CONSTRUCTION DOCUMENTS.
25. ALL NEW EQUIPMENT SPECIFIED IN THE SCHEDULES SHALL BE CONNECTED TO THE EXISTING BUILDING AUTOMATION SYSTEM.
26. SOME PART OF THE BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. REFER TO PHASING PLAN FOR MORE INFORMATION. MAINTAIN EXISTING SERVICES TO OCCUPIED AREAS. SEAL ALL DUCTWORK AND VENTILATION OPENINGS COMMUNICATING CONSTRUCTION AREAS WITH OCCUPIED AREAS TO PREVENT THE TRANSFER OF AIR CONTAMINATED BY CONSTRUCTION ACTIVITIES.
27. ALL PENETRATIONS THRU RATED WALLS, FLOORS & CEILINGS SHALL BE SEALED USING U.L. LISTED METHODS APPROPRIATE FOR INDICATED RATING

HVAC

1. PIPING AND DUCT WORK LAYOUTS AS INDICATED ON THE DRAWINGS ARE DIAGRAMMATIC; PROVIDE ADDITIONAL TRANSITIONS AND OFFSETS AS REQUIRED FOR COORDINATION WITH BUILDING CONSTRUCTION AND THE WORK OF OTHER TRADES.
2. PROVIDE VOLUME DAMPERS, THROTTLING VALVES AND ISOLATION VALVES AS SPECIFIED AND AS INDICATED ON THE DRAWINGS.
3. PROVIDE FIRE DAMPERS AT DUCT PENETRATIONS OF FIRE RATED PARTITIONS.
4. PROVIDE SMOKE DETECTORS ON THE SUPPLY AND RETURN SIDE OF ALL AIR HANDLING EQUIPMENT 2000 CFM AND OVER.
5. ALL MOTORS AND EQUIPMENT SHALL BE OF EFFICIENCIES THAT ARE ELIGIBLE FOR UTILITY COMPANY ENERGY INCENTIVE PROGRAMS.
6. THE AUTOMATIC TEMPERATURE CONTROL SYSTEM SHALL BE COMPLETE IN ALL REGARDS, TESTED AND CAPABLE OF ACHIEVING THE SEQUENCES OF OPERATION. ALL DEVICES SHALL BE UNDER SYSTEM CONTROL. ALL ZONES SHALL BE THERMOSTATICALLY CONTROLLED WHETHER OR NOT A THERMOSTAT, SENSOR OR CONTROLLER IS INDICATED.
7. MAINTAIN MANUFACTURER'S RECOMMENDED MINIMUM CLEARANCES FOR INSTALLATION OF EQUIPMENT.
8. FLEX DUCT RUNS SHALL NOT BE LONGER THAN 5 FT.
9. PROVIDE VOLUME DAMPERS AT ALL SUPPLY DIFFUSERS, RETURN GRILLES, AND EXHAUST GRILLES.
10. PROVIDE VANDAL RESISTANT COVERS THERMOSTATS, AS NOTED.
11. ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.
12. PROVIDE ALL 90 DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED. ELBOWS SHALL BE UNVANED SMOOTH RADIUS CONSTRUCTION WITH A RADIUS EQUAL TO 1–1/2 TIMES THE WIDTH OF THE DUCT. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.
13. COORDINATE DIFFUSER, REGISTER AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS.
14. PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS CONNECTED TO AIR HANDLING UNITS, FANS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
15. ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
16. PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, COILS AND OTHER ITEMS LOCATED IN DUCTWORK WHICH REQUIRE SERVICE OR INSPECTION.
17. PROVIDE ACCESS DOORS IN DUCTWORK FOR OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL FANS, VALVES AND MECHANICAL EQUIPMENT.
18. SUPPLY AND RETURN DUCTS FROM THE MAIN AIR HANDLING UNIT SHALL HAVE ACOUSTICAL LINING, R VALUE OF 5, WITHIN 10' FT OF UNIT. METAL NOSINGS SHALL BE SECURELY INSTALLED OVER TRANSVERSELY ORIENTED LINER EDGES FACING THE AIR STREAM AT FAN DISCHARGE, AT ACCESS DOORS, AND AT ANY INTERVAL OF LINED DUCT PRECEDED BY UNLINED DUCT METAL NOSING SHALL BE USED ON UPSTREAM EDGES OF LINER AT EVERY TRANSVERSE JOINT.
19. DUCTWORK SHALL BE PRESSURE TESTED AND SEALED FOR LEAKAGE.
20. THE SUPPLY AIR SYSTEM SHALL BE PURGED TO ENSURE ALL FOREIGN PARTICLES ARE REMOVED PRIOR TO FINAL CONNECTION OF SUPPLY AIR DIFFUSERS.
21. ALL ELBOWS AND TEES FROM DOWNFLOW ROOF MOUNTED UNITS SHALL BE WRAPPED WITH A SOUND LAGGING MATERIAL, IN ADDITION TO DUCT LINER.

PIPING

1. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION.
2. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
3. UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES AND IN LONG PIPING RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.
4. ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
5. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS AND OTHER EQUIPMENT WHICH REQUIRED VIBRATION ISOLATION, EXCEPT WATER COILS. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE.
6. ALL PENETRATIONS THRU RATED WALLS, FLOORS & CEILINGS SHALL BE SEALED USING U.L. LISTED METHODS APPROPRIATE FOR INDICATED RATING
7. PROVIDE SWING JOINTS AT ALL BRANCH CONNECTIONS TO WATER SUPPLY AND RETURN. PROVIDE ISOLATION VALVES AT ALL BRANCH CONNECTIONS..
8. PROVIDE AIR VENTS AT ALL HIGH POINTS.
9. INSTALL DRAIN VALVES WITH HOSE CONNECTION AT ALL LOW POINTS.
10. PROVIDE HOSE END CAPS WITH CHAIN ON ALL DRAIN VALVES.

PHASING NOTES

1. WORK SHALL BE PHASED TO ALLOW OWNER TO CONTINUE BUSINESS OPERATIONS DURING THE CONSTRUCTION PERIOD. COORDINATE SCHEDULING WITH OWNER, GENERAL CONTRACTOR AND AFFECTED TENANTS PRIOR TO COMMENCING WORK IN AREAS AFFECTED BY DEMOLITION OR NEW CONSTRUCTION.
2. WORK REQUIRING INTERRUPTION OF ESSENTIAL BUILDING SERVICES SHALL BE PERFORMED DURING UNOCCUPIED PERIODS (AFTER BUSINESS HOURS). ESSENTIAL SERVICES SHALL INCLUDE BUT NOT LIMITED TO VENTILATION, WATER AND SEWER SERVICE, POWER, AND TELECOMMUNICATIONS. HEATING AND AIR CONDITIONING SHALL BE CONSIDERED TO BE ESSENTIAL WHEN CONDITIONS WILL CAUSE TEMPERATURES IN THE BUILDING TO FALL BELOW 68°F OR EXCEED 75°F.
2. VENTILATION SHALL BE MAINTAINED IN ALL SPACES DURING CONSTRUCTION. COORDINATE PHASING WITH OWNER AND SUBCONTRACTORS AS REQUIRED TO MAINTAIN POWER AND CONTROL OF ALL EXISTING AND NEW HVAC EQUIPMENT DURING OCCUPIED PERIODS.

COMMISSIONING NOTES

1. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO SUPPORT THE COMMISSIONING AGENT IN THE COMMISSIONING OF HVAC SYSTEMS INSTALLED OR MODIFIED AS WORK OF THIS CONTRACT.
2. THE CONTRACTOR SHALL DEMONSTRATE THAT EACH SYSTEM IS INSTALLED, OPERATIONAL, AND CONTROLLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS AND AS OUTLINED BY THE COMMISSIONING PLAN, TO BE PROVIDED BY THE COMMISSIONING AGENT.
3. SYSTEMS TO BE COMMISSIONED SHALL INCLUDE ALL NEW AND EXISTING HVAC SYSTEMS INCLUDING PACKAGED ROOFTOP AIR CONDITIONING EQUIPMENT, AIR HANDLING UNITS, FANS, PUMPS, BOILERS, AIR TERMINAL UNITS, AND HEATING TERMINAL EQUIPMENT.
4. FOR COMMISSIONING REQUIREMENTS, REFER TO SPECIFICATION SECTION 019113 – GENERAL COMMISSIONING REQUIREMENTS AND SECTION 230800 – COMMISSIONING OF HVAC SYSTEMS.

HVAC CONTROLS COORDINATION

1. CONTRACTOR SHALL COORDINATE EQUIPMENT CONTROLS REQUIREMENTS WITH HVAC VENDORS AND TOWN'S CONTROL VENDOR PRIOR TO RELEASING EQUIPMENT ORDERS.
2. INSTALLED CONTROLS SHALL BE CAPABLE OF THE INDICATED SEQUENCE OF OPERATION AND ALL INDICATED AND AVAILABLE POINTS SHALL BE ADDRESSIBLE FROM THE TOWN'S AUTOMATED LOGIC FACILITIES MANAGEMENT SYSTEM.
3. REFER TO SECTIONS 230900 AND 230993 FOR ADDITIONAL REQUIREMENTS AND COORDINATE REQUIREMENTS WITH VENDORS.

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Drawing Title:

MECHANICAL
LEGEND & NOTES

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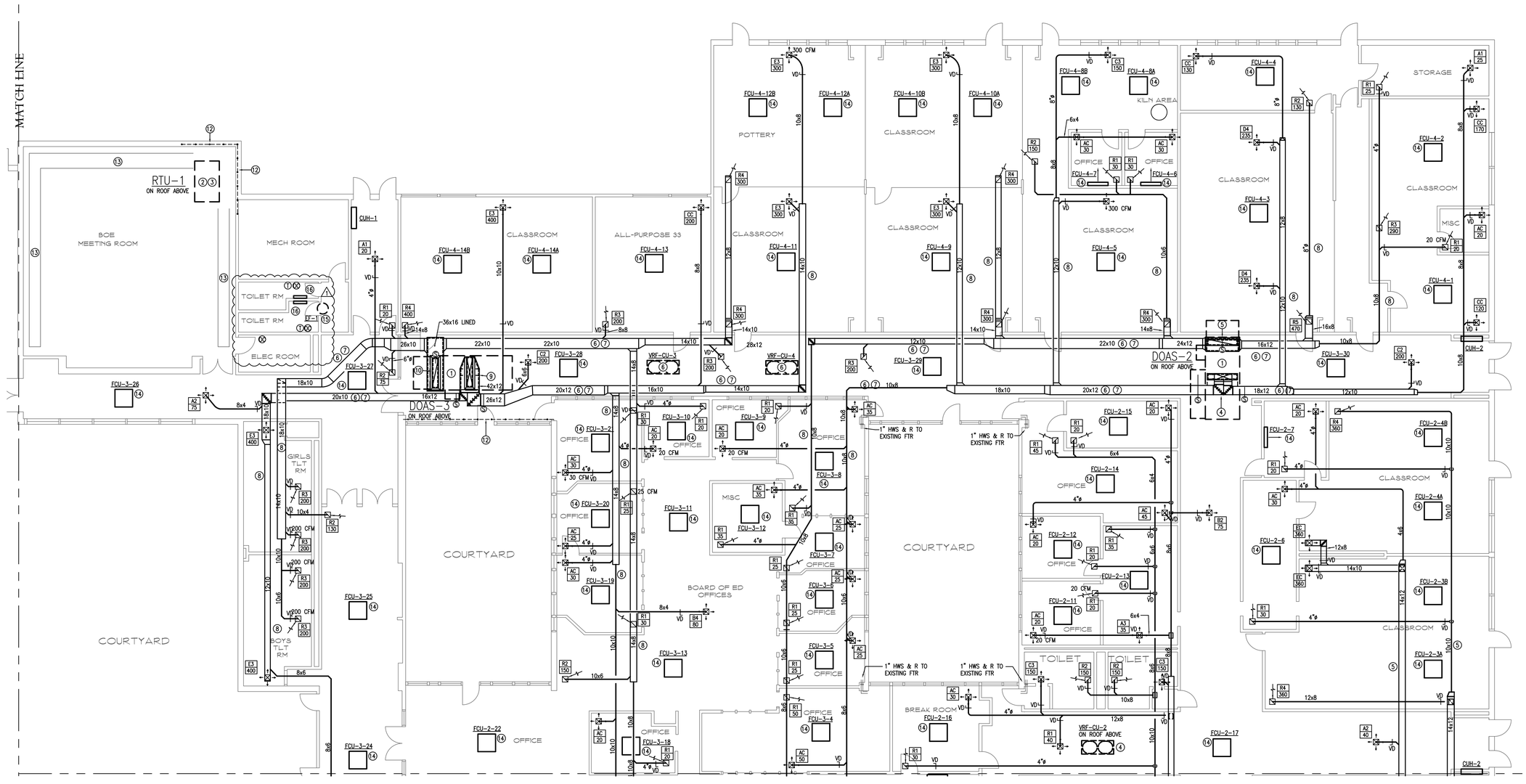


MECHANICAL PLAN NOTES

1. INSTALL DOAS UNIT CURB MOUNTED ON ROOF ABOVE. PROVIDE FRAMED ROOF OPENINGS FOR SUPPLY AND RETURN DUCTS AND PROVIDE STRUCTURAL SUPPORT FOR ROOF CURBS. REFER TO CURB SUPPORT DETAIL, DRAWING M302. PROVIDE DUCT TRANSITIONS AND FLEXIBLE CONNECTIONS AT INLET AND DISCHARGE. PROVIDE HOT WATER SUPPLY AND RETURN PIPING UP THROUGH CURB TO HEATING COIL. REFER TO HVAC PIPING PLAN. COORDINATE EXACT LOCATION WITH EXISTING ROOF FRAMING.
2. INSTALL ROOFTOP HVAC UNIT CURB MOUNTED ON ROOF ABOVE. REFER TO CURB SUPPORT DETAIL, DRAWING M302. PROVIDE FRAMED ROOF OPENINGS FOR SUPPLY AND RETURN DUCTS. PROVIDE DUCT TRANSITIONS AND FLEXIBLE CONNECTIONS AT INLET AND DISCHARGE. PROVIDE HOT WATER SUPPLY AND RETURN PIPING UP THROUGH CURB TO HEATING COIL. COORDINATE EXACT LOCATION WITH EXISTING ROOF FRAMING.
3. PROVIDE SUPPLY AND RETURN DUCTS DOWN THROUGH ROOF TO EXISTING DUCTWORK. PROVIDE DUCT TRANSITIONS AND OFFSETS AS REQUIRED.
4. 20x12 & 18x12 SUPPLY DUCTS, COMBINE TO LINED 38x14 ELBOW UP, AND PROVIDE LINED TRANSITION TO DOAS UNIT DISCHARGE.
5. 28x16x66L RETURN LINED PLENUM. PROVIDE LINED 54x14 RETURN DUCT UP WITH TRANSITION TO DOAS UNIT INLET.
6. BASE BID: INSTALL SUPPLY & RETURN DUCTWORK ABOVE CEILING. PROVIDE DUCT OFFSETS AS REQUIRED. RELOCATE AND RAISE EXISTING PIPING, WIRING AND CONDUIT AS REQUIRED TO INSTALL DUCTWORK. REFER TO ELECTRICAL DRAWINGS FOR DETAILS RELATED TO RELOCATION OF WIRING, CABLE AND CONDUIT.
7. BID ALTERNATE: INSTALL SUPPLY & RETURN DUCTWORK ON ROOF. PROVIDE INSULATION AND WEATHERPROOF JACKET. REFER TO DUCT INSULATION SPECIFICATIONS, AND DETAILS, DRAWING M302.
8. INSTALL DUCTWORK, INDICATED SIZE OR EQUIVALENT. RUN DUCTWORK BETWEEN BEAMS AND ABOVE GIRDERS. PROVIDE BRANCH DUCT TAPS OFF BOTTOM OF DUCT MAIN WHERE REQUIRED.
9. LINED 42x14 SUPPLY DUCT. ELBOW UP AND PROVIDE LINED TRANSITION TO UNIT DICHARGE.
10. LINED 66x14 RETURN DUCT UP FROM 36x16 PLENUM, TRANSITION UP TO UNIT INLET.
11. VRF OUTDOOR UNIT MOUNTED ON STEEL SUPPORT FRAME. REFER TO HVAC PIPING PLANS.
12. INSTALL ROOF GUARD RAIL, REFER TO DETAIL DRAWING M302.
13. CLEAN INTERIOR OF EXISTING SUPPLY AND RETURN DUCTWORK SERVING RTU-1 INCLUDING REGESTERS AND GRILLES. REFER TO DUCT CLEANING NOTES, THIS DRAWING.
14. INSTALL VRF SYSTEM INDOOR UNIT. COORDINATE EXACT LOCATION IN FIELD. REFER TO HVAC PIPING PLAN.
15. REPLACE EXISTING ROOF EXHAUST FAN ON NEW ROOF CURB. CONNECT TO EXISTING DUCTWORK & POWER WIRING.
16. REPLACE EXISTING CONVECTOR IN-KIND.

MECHANICAL PLAN - AREA B

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

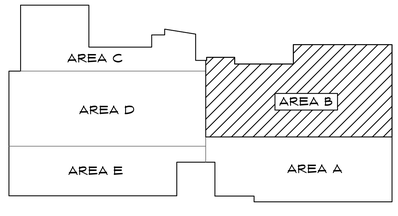
NORTH

CEILING REPLACEMENT NOTES

1. CONTRACTOR SHALL REMOVE CEILING TILES AND GRIDS AS REQUIRED TO PERFORM INSTALLATION OF NEW MECHANICAL SYSTEMS. REPLACE ALL CEILING TILES AND GRIDS WITH NEW MATERIALS UPON COMPLETION OF INSTALLATION.
2. REMOVE AND STORE ALL CEILING DEVICES IN CEILINGS BEING REMOVED. REINSTALL ALL EXISTING CEILING DEVICES IN NEW CEILINGS. DEVICES TO BE REINSTALLED INCLUDE, BUT ARE NOT LIMITED TO LIGHT FIXTURES, EXIT SIGNS, HEAT/SMOKE DETECTORS, SPEAKERS, ALARM DEVICES, REMOTE TEST SWITCHES, MOTION SENSORS, PROJECTORS, ETC.
3. ERECT TEMPORARY SMOKE BARRIERS WHERE REMOVAL OF CEILINGS WILL ALLOW SMOKE TO MIGRATE TO ADJACENT CORRIDORS OR EXIT ACCESS WHEN PORTIONS OF BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. COORDINATE WITH FIRE DEPARTMENT.
4. TEMPORARILY RELOCATE SPRINKLER HEADS IN AREAS WHERE CEILINGS ARE REMOVED TO WITHIN 12" OF ROOF DECK. REINSTALL SPRINKLER HEADS IN NEW CEILING TILES.

DUCT CLEANING NOTES

1. CLEAN INTERIOR OF ALL EXISTING SUPPLY AND RETURN DUCTWORK SERVING NEW EQUIPMENT INSTALLED AS WORK OF THIS PROJECT. DUCTWORK SHALL BE CLEANED IN ACCORDANCE WITH NATIONAL AIR DUCT CLEANERS ASSOCIATION (NADCA) STANDARD ACR 2013. WORK SHALL BE PERFORMED BY CONTRACTOR CERTIFIED IN DUCT CLEANING BY NADCA OR OTHER NATIONALLY RECOGNIZED INDUSTRY ORGANIZATION.
2. PROVIDE DUCT OPENINGS AS REQUIRED TO PERFORM DUCT CLEANING. CLOSE AND SEAL OPENINGS UPON COMPLETION OF WORK.



KEY PLAN
NOT TO SCALE
NORTH

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MECHANICAL PLAN
AREA B

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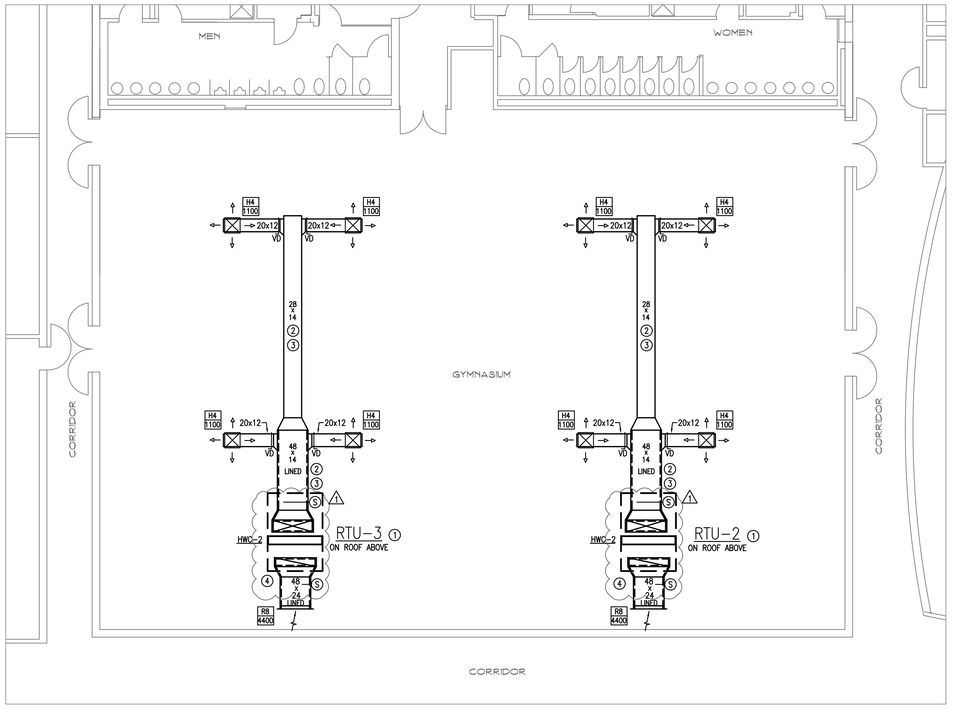


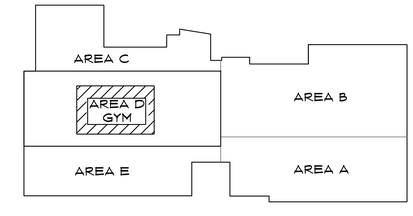
MECHANICAL PLAN NOTES

1. INSTALL RTU CURB MOUNTED ON ROOF ABOVE. REFER TO CURB SUPPORT DETAIL, DRAWING M302. PROVIDE FRAMED ROOF OPENINGS FOR SUPPLY AND RETURN DUCTS. PROVIDE LINED SUPPLY AND RETURN DUCTS WITH TRANSITIONS AND FLEXIBLE CONNECTIONS AT INLET AND DISCHARGE. PROVIDE HW PIPE VESTIBULE CURB MOUNTED AND FLASHED AND SEALED TO UNIT AND ROOF. COORDINATE EXACT LOCATION WITH EXISTING ROOF FRAMING.
2. INSTALL DUCT MAIN BETWEEN JOISTS, INDICATED SIZE OR EQUIVALENT. RELOCATED/REWORK DIAGONAL JOIST BRACING AND TIES AS REQUIRED.
3. BID ALTERNATE: PROVIDE FABRIC SUPPLY DUCTS, FABRIC-AIR OR EQUAL IN LIEU OF METAL SUPPLY DUCTS.
4. INSTALL NEW SUPPLY AND RETURN DUCT SMOKE DETECTORS.

MECHANICAL PLAN - GYMNASIUM AREA D

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

NORTH



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MECHANICAL PARTIAL PLAN - AREA D GYMNASIUM

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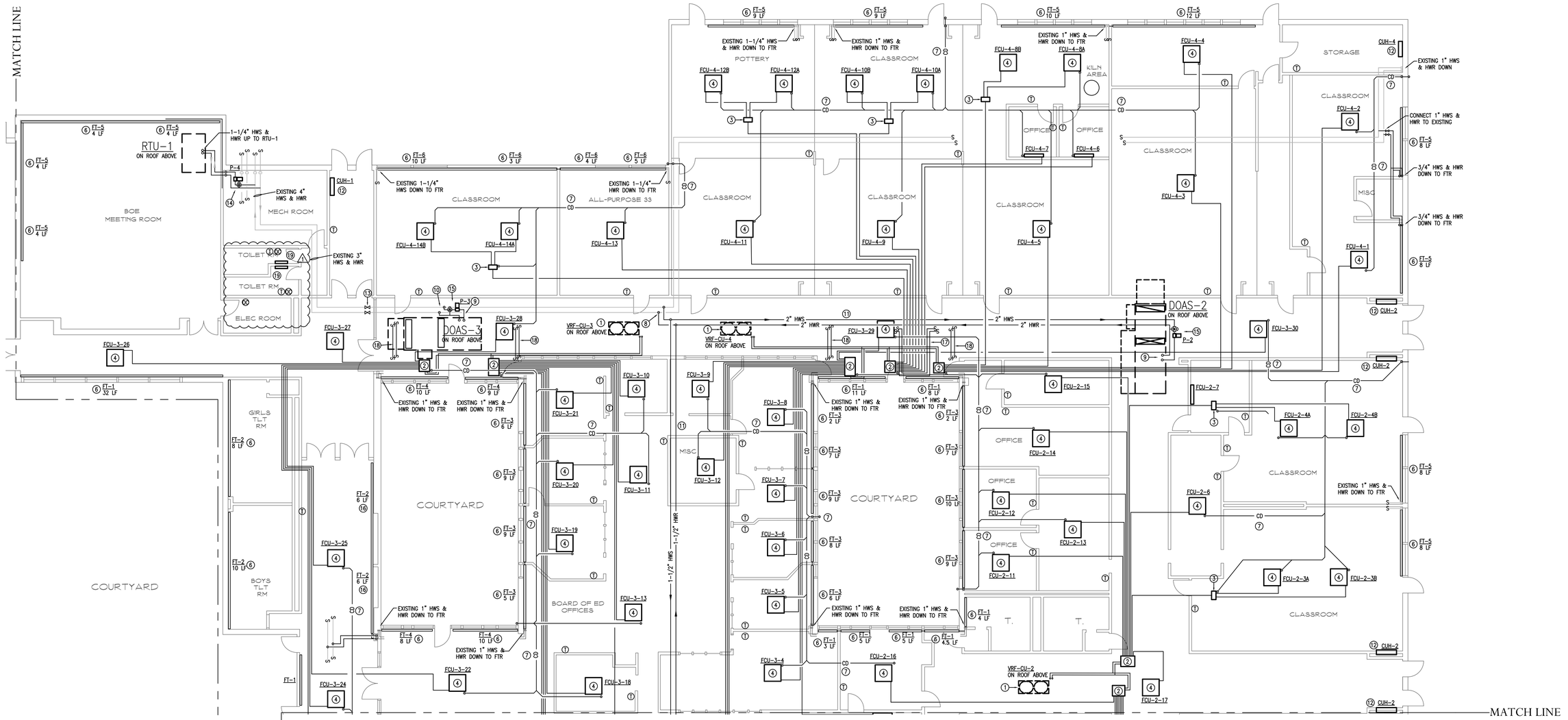
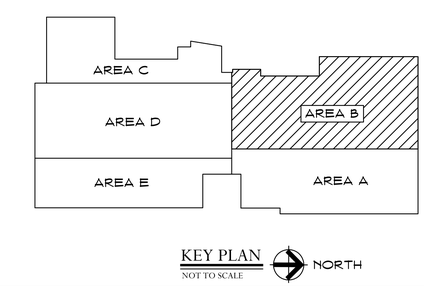


MECHANICAL PLAN NOTES

1. VRF HEAT RECOVERY UNIT MOUNTED ON ROOF ABOVE. PROVIDE REFRIGERANT LINES THROUGH ROOF TO MULTIPORT DISTRIBUTION CONTROLLER (MDC) LOCATED IN CEILING SPACE. REFRIGERANT LINE SIZES TO BE PROVIDED BY VRF SYSTEM MANUFACTURER.
2. INSTALL MDC ABOVE CEILING SUSPENDED FROM STRUCTURE. COORDINATE INSTALLATION WITH DUCTWORK. PROVIDE REFRIGERANT LINES FROM ROOF MOUNTED UNIT TO MDC AND LIQUID & SECTION LINES FROM MDC TO FAN COIL UNITS. PROVIDE SHUT-OFF VALVES AT EACH REFRIGERANT LINE CONNECTION. PROVIDE CONDENSATE DRAIN FROM MDC TO CONDENSATE DRAINAGE SYSTEM. REFRIGERANT LINE SIZES TO BE PROVIDED BY VRF SYSTEM MANUFACTURER.
3. INSTALL SUB-MDC ABOVE CEILING SUSPENDED FROM STRUCTURE. PROVIDE LIQUID & SUCTION REFRIGERANT LINES WITH SHUT-OFF VALVES AND CONNECTION TO CONDENSATE DRAINAGE SYSTEM.
4. INSTALL CEILING CASSETTE SUSPENDED FROM STRUCTURE. MODIFY CEILING GRID AS REQUIRED. PROVIDE LIQUID & SUCTION REFRIGERANT LINES AND CONDENSATE DRAIN.
5. INSTALL WALL HIGH MOUNTED FAN COIL UNIT. PROVIDE LIQUID & SUCTION REFRIGERANT LINES AND CONDENSATE DRAIN.
6. BID ALTERNATE: REPLACE EXISTING FINNED TUBE RADIATION, FINNED LENGTH AS INDICATED. REFER TO FINNED TUBE RADIATION DETAILS, DRAWING M302. PROVIDE NEW 2-POSITION CONTROL VALVE. PATCH, REPAIR AND RESTORE WALL FINISH TO MATCH EXISTING.
   BASE BID: EXISTING FINNED TUBE RADIATION TO REMAIN. REPLACE ONLY EXISTING CONTROL VALVE.
7. PROVIDE 1-1/2" CONDENSATE DRAIN PITCHED 1/8" PER FOOT TO DISCHARGE. PROVIDE 1" CONDENSATE LINE FROM EACH FAN COIL UNIT AND MDC CONNECTED TO TOP OF MAIN CONDENSATE DRAIN. PROVIDE CLEANOUT PLUG AT EACH CHANGE OF DIRECTION. DISCHARGE AT 6" ABOVE GRADE WITH SPLASH BLOCK. COORDINATE ROUTING IN FIELD.
8. CONNECT NEW 3" HWS & HWR TO EXISTING.
9. 2" HWS & HWR UP INTO UNIT COIL SECTION. CORE AND SEAL PIPE PENETRATIONS UP THROUGH FLOOR OF UNIT AS REQUIRED. COROINATE EXACT LOCATION WITH APPROVED UNIT. INSTALL HW CIRCULATOR AND 3-WAY CONTROL VALVE IN CEILING SPACE. REFER TO HOT WATER COIL PIPING DIAGRAM, DRAWING M301.
10. CONNECT NEW 2" HWS & HWR TO EXISTING.
11. INSTALL NEW HWS & HWR PIPING ABOVE CEILING. COORDINATE ROUTING IN FIELD.
12. INSTALL NEW CUH IN PLACE OF EXISTING. CONNECT TO EXISTING HWS & HWR. MODIFY WALL OPENING AND PROVIDE FINISH TRIM PIECES AS REQUIRED.
13. REPLACE EXISTING 3" GATE VALVES.
14. 1-1/4" HWS & HWR SERVING RTU COIL, CONNECT TO EXISTING 4" HWS & HWR. CORE DRILL WALL AND ROOF PENETRATIONS AND SEAL AS REQUIRED. INSTALL HW CIRCULATOR AND 3-WAY CONTROL VALVE.
15. INSTALL HW CIRCULATOR AND 3-WAY CONTROL VALVE IN CEILING SPACE. PROVIDE DRIP PAN WITH FLOAT SWITCH.
16. INSTALL NEW FINNED TUBE RADIATION, FINNED LENGTH AS INDICATED. PROVIDE 3/4" HWS & HWR FROM EXISTING ABOVE CEILING. RUN PIPING DOWN WALL IN NEW PIPE ENCLOSURE. REFER TO FINNED TUBE RADIATION DETAIL, DRAWING M302.
17. RAISE EXISTING PIPING EXPANSION LOOP UP INTO BEAM SPACE TO ALLOW INSTALLATION OF NEW SYSTEMS.
18. RAISE EXISTING HWS & HWR PIPING UP INTO BEAM SPACE TO ALLOW INSTALLATION OF NEW SYSTEMS.
19. REPLACE EXISTING CONVECTOR IN-KIND. PROVIDE NEW CONTROL VALVE TEMPERATURE SENSOR & SHUT-OFFS.

MECHANICAL PLAN - AREA B
SCALE: 1/8" = 1'- 0"

NORTH



KEY PLAN
NOT TO SCALE

NORTH

Project Title:

Phase 1 HVAC Improvements at the
LP Wilson Community Center - Town of Windsor

601 Matianuk Avenue
Windsor, Connecticut 06095

SILVER / PETRUCELLI + ASSOCIATES
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Revision:	Description:	Date:	Revised By:
	ISSUED FOR BIDS	11/18/2022	JP
1	ADDENDUM NO.1	12/21/2022	JP

Drawing Title:

MECHANICAL
PIPING PLAN
AREA B

Date: NOVEMBER 18, 2022
Scale: AS NOTED
Drawn By: JP
Project Number: 21-285

Drawing Number: M202

DEDICATED OUTSIDE AIR HEAT PUMP SCHEDULE

NUMBER	AREA SERVED	MANUFACTURER AND MODEL	SUPPLY AIR FANS					EXHAUST AIR FAN					ELECTRICAL			ENERGY RECOVERY HEAT EXCHANGER												COOLING PERFORMANCE								HOT WATER COIL						HEAT PUMP PERFORMANCE			SUPPLY FILTERS			RETURN FILTERS			OPER WT (LBS)	NOTES
			CFM LOW/HIGH	SP (IN WG) TSP	SP (IN WG) ESP	QNTY	HP EACH	CFM LOW/HIGH	SP (IN WG) TSP	SP (IN WG) ESP	QNTY	HP EACH	Volts/Phs/Hz	MCA	MOCP	TYPE	OA CFM	EXH CFM	MAX APD (IN.WG.)	SUMMER OA EAT °F DB/WB	SUMMER OA LAT °F DB/WB	SUMMER EXH EAT °F DB/RH	SUMMER EXH LAT °F DB/WB	WINTER OA EAT °F DB/WB	WINTER OA LAT °F DB/WB	WINTER EXH EAT °F DB/WB	WINTER EXH LAT °F DB/WB	COIL CFM	NET SENS MBH	NET TOTAL MBH	MRC LB/HR	ENT AIR EAT DB/WB	UNIT LVG AIR DB/WB/DP	COIL APD (IN.WG.)	MIN EER	MIN MRE (LB/KWH)	HEATING MBH	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	GPM	MAX WPD (FT.HD.)	MAX APD (IN.WG.)	HEATING MBH	AMBIENT (°F)	MIN COP	TYPE	INITIAL (IN.WG.)	FINAL (IN.WG.)	TYPE	INITIAL (IN.WG.)	FINAL (IN.WG.)		
DOAS-1	BOE AREAS A & B EAST	TRANE HORIZON MODEL OADG020C1	3560/4560	3.5	1.7	1	5.0	3560/4560	3.0	1.7	1	5.0	208/3/60	105	125	ENTHALPY WHEEL	4894	4894	0.67	95/74	80.6/67.2	75/64	89.1/71.3	8/8	51.4/46	70/58	28/28	4560	147	231	116.5	80.6/67.2	72/58.7/49.1	0.3	16.1	5.45	284	51.4	108.5	180	160	29.1	1.4	0.15	145.1	8.0	3.0	PREFILTER: MERV 8 FINAL FILTER: MERV 13	0.3	1.0	MERV 8	0.1	0.7	4800	
DOAS-2	BOE AREAS A & B WEST	TRANE HORIZON MODEL OADG015C1	2575/3350	3.25	1.7	1	3.0	2575/3350	2.8	1.7	1	3.0	208/3/60	83	100	ENTHALPY WHEEL	3611	3611	0.86	95/74	81.7/67.8	75/64	89.1/70.7	8/8	48/43	70/58	31/31	3350	112	174	85.1	81.7/67.7	72/58.8/49.2	0.4	14.9	5.06	245	47.8	114.9	180	160	25.1	1.1	0.11	112.9	8.0	3.1	PREFILTER: MERV 8 FINAL FILTER: MERV 13	0.3	1.0	MERV 8	0.1	0.7	4300	
DOAS-3	BOE AREAS A & B WEST	TRANE HORIZON MODEL OADG017C1	2975/3870	3.1	1.7	1	5.0	2975/3870	2.8	1.7	1	5.0	208/3/60	103	125	ENTHALPY WHEEL	3870	3870	0.86	95/74	80.6/67.2	75/64	89.1/71.3	8/8	51.7/46	70/58	28/27	3870	125	199	102.4	80.6/67.1	72/58.4/48.4	0.3	16.0	5.55	258	51.7	112.7	180	160	26.4	1.2	0.11	138.8	8.0	3.3	PREFILTER: MERV 8 FINAL FILTER: MERV 13	0.3	1.0	MERV 8	0.1	0.7	4700	

NOTES:
1. SUPPLY AND EXHAUST FAN LOW & HIGH CFMs INDICATED ARE FOR NORMAL VENTILATION MODE AND 30% INCREASED VENTILATION MODE. FAN STATIC PRESSURE IS AT HIGHER CFM.
2. PROVIDE 2" DOUBLE WALL CONSTRUCTION. INCLUDE INTERNAL PIPE CHASE. UNIT CASING SHALL ACCOMMODATE HOT WATER COIL PIPING AND ACCESSORIES INCLUDING CONTROL VALVES AND SHUTOFF VALVES.
3. FURNISH UNITS WITH 100% RECIRCULATION DAMPER FOR UNOCCUPIED HEATING MODE.
4. FURNISH UNITS WITH SINGLE POINT POWER CONNECTION, CONVENIENCE OUTLET.
5. FURNISH WITH VFD AND DISCONNECT SWITCH FOR SUPPLY FAN AND EXHAUST FAN.
6. FURNISH WITH ENTHALPY ENERGY RECOVERY WHEEL, HOT GAS REHEAT COIL, AND HOT WATER REHEAT COIL.
7. ALL FAN MOTOR DRIVE ASSEMBLIES SHALL BE MOUNTED ON VIBRATION ISOLATORS.
8. ENERGY WHEEL CROSS LEAKAGE SHALL BE LESS THAN 10%.
9. FURNISH WITH EXTERNAL HOT WATER PIPE CHASE CURB MOUNTED.

PACKAGED ROOFTOP HEAT PUMP SCHEDULE

SYMBOL	AREA SERVED	MANUFACTURER	SUPPLY FAN TOTAL CFM	TSP	ESP	HP	DRIVE	OUTSIDE AIR (CFM) MIN/MIN	OUTSIDE AIR (CFM) MIN/MAX	ELECTRICAL VOLTS/ø	MCA	MOCP	COOLING MINIMUM CAPACITY TOTAL (MBH)	COOLING MINIMUM CAPACITY SENS. (MBH)	EAT db/wb (°F)	AMBIENT (°F)	MIN EER/IEER	CAPACITY CONTROL	HOT WATER COIL HEATING MBH	EAT (°F)	LAT (°F)	EWT (°F)	LWT (°F)	GPM	ROWS	MAX WPD (FT.HD.)	MAX APD (IN.WG.)	HEAT PUMP PERFORMANCE HEATING MBH	AMBIENT (°F)	MIN COP @17°F	FILTERS TYPE	COMBINED APD INITIAL (IN.WG.)	COMBINED APD FINAL (IN.WG.)	OPER. WEIGHT (LBS)	NOTES
RTU-1	BOE MEETING RM	TRANE WHC102	2800	2.0	1.7	5	DIRECT	100	620	208/3	46	60	101	74	79/66	95	12.0/15.5	2-STAGE	122	55	95	180	160	12	2	0.4	0.8	46	8.0	2	PREFILTER: MERV 8 FINAL FILTER: MERV 13	0.3	1.0	1500	
RTU-2	GYM	TRANE WSJ150	4400	2.7	2.1	5	BELT	500	1400	208/3	78	100	148	109	80/67	95	10.6/13.5	2-STAGE	160	56	90	180	160	16	2	1.0	0.7	75.4	8.0	2	PREFILTER: MERV 8 FINAL FILTER: MERV 13	0.3	1.0	2500	
RTU-3	GYM	TRANE WSJ150	4400	2.7	2.1	5	BELT	500	1400	208/3	78	100	148	109	80/67	95	10.6/13.5	2-STAGE	160	56	90	180	160	16	2	1.0	0.7	75.4	8.0	2	PREFILTER: MERV 8 FINAL FILTER: MERV 13	0.3	1.0	2500	

NOTES:
1. FURNISH WITH SUPPLY FAN VFD. INTAKE WEATHER HOOD, DISCONNECT SWITCH, HINGED ACCESS DOORS, 100% OA & RA DAMPERS, CO2 CONTROL, AND COMPARATIVE ENTHALPY ECONOMIZER.
2. FURNISH WITH FACTORY INSTALLED BACNET CONTROLS.
3. FURNISH WITH FILTER SWITCH, STAINLESS STEEL CONDENSATE PAN AND CONDENSATE PAN OVERFLOW SWITCH.
4. OMITTED
5. FURNISH WITH POWER EXHAUST FANS, PROVIDE VFD FOR SUPPLY FANS.
6. PROVIDE NEW ROOF CURBS DESIGNED FOR WIND AND SEISMIC RESTRAINT REQUIREMENTS.
7. FURNISH WITH HOT WATER COILS WITH PERFORMANCE AS SCHEDULED. UNIT CONTROLS SHALL SEQUENCE COIL WITH HEAT PUMP FUNCTION.
8. FURNISH HW PIPING VESTIBULE WITH ACCESS DOOR, FLASHED AND SEALED TO UNIT CABINET AND ROOF.

COIL CIRCULATOR SCHEDULE

SYMBOL	SERVICE	TYPE	GPM	FT. HD.	MOTOR RPM	MOTOR HP	MOTOR VOLTS/ø	FLUID	MANUFACTURER & MODEL	NOTES
P-1	DOAS-1 HW COIL	IN-LINE	29.1	7	VARIABLE	1/6	115/1	WATER	ARMSTRONG MODEL R20-75	
P-2	DOAS-2 HW COIL	IN-LINE	25.1	7	VARIABLE	1/6	115/1	WATER	ARMSTRONG MODEL R20-75	
P-3	DOAS-3 HW COIL	IN-LINE	26.4	7	VARIABLE	1/6	115/1	WATER	ARMSTRONG MODEL R20-75	
P-4	RTU-1 HW COIL	IN-LINE	12	7	VARIABLE	1/16	115/1	WATER	ARMSTRONG MODEL H20-20	
P-5	RTU-2 HW COIL	IN-LINE	16	7	VARIABLE	1/6	115/1	WATER	ARMSTRONG MODEL R20-75	
P-6	RTU-3 HW COIL	IN-LINE	16	7	VARIABLE	1/6	115/1	WATER	ARMSTRONG MODEL R20-75	

1. PROVIDE DRIP PAN WITH FLAOT SWITCH AT EACH LOCATION ABOVE FINISHED CEILING.

CABINET UNIT HEATER SCHEDULE

SYMBOL	CFM HIGH SPD	SP (IN WC)	HP	ELECTRICAL VOLTS/ø	ELECTRICAL AMPS	HEATING CAPACITY (MBH)	EAT (°F)	EWT (°F)	GPM	ΔTe (°F)	MAX ΔPe (FT.HD.)	DIMENSIONS L x H x D (INCHES)	TYPE	MFGR & MODEL NO.	NOTES
CUH-1	330	0	1/15	115/1	0.8	34	60	200	2.5	27	0.6	43 x 25 x 9.5	WALL SURFACE MOUNTED	STERLING W03	
CUH-2	420	0	1/10	115/1	0.8	42	60	200	2.5	34	0.6	47 x 25 x 9.5	WALL RECESSED	STERLING RW04	
CUH-3	420	0	1/10	115/1	0.8	42	60	200	2.5	34	0.6	47 x 25 x 9.5	WALL SURFACE MOUNTED	STERLING W04	
CUH-4	225	0	1/15	115/1	0.8	26	60	200	2.5	21	0.5	35 x 25 x 9.5	WALL SURFACE MOUNTED	STERLING W02	
CUH-5	225	0	1/15	115/1	0.8	26	60	200	2.5	21	0.5	35 x 25 x 9.5	WALL/FLOOR MOUNTED	STERLING F02	

NOTES:
1. FURNISH THERMOSTAT, AQUASTAT, DISCONNECT SWITCH, AND SPEED CONTROL.
2. FURNISH MOTOR WITH INTERNAL THERMAL OVERLOAD PROTECTION.
3. FURNISH WITH FRONT STAMPED SUPPLY AND RETURN GRILLES.
4. FURNISH WITH INTEGRAL THERMOSTAT AND DISCONNECT SWITCH.
5. PROVIDE TRIM PIECES AS REQUIRED TO FINISH WALL OPENINGS.

SUPPLY DIFFUSER/GRILLE SCHEDULE

TAG	NECK SIZE	TYPE	CFM	MAX TOTAL PRESSURE (IN. WG.)	MAX NC	MAX NECK VEL (FPM)	MANUFACTURER & MODEL NO.	NOTES
A	4"ø	CEILING DIFFUSER	0-50	.10	12	600	TITUS MODEL TMS	
B	6"ø	CEILING DIFFUSER	51-100	.10	17	500	TITUS MODEL TMS	
C	8"ø	CEILING DIFFUSER	101-200	.10	17	570	TITUS MODEL TMS	
D	10"ø	CEILING DIFFUSER	201-270	.10	17	500	TITUS MODEL TMS	
E	12"ø	CEILING DIFFUSER	271-400	.10	19	510	TITUS MODEL TMS	
F	14"ø	CEILING DIFFUSER	401-535	.10	19	500	TITUS MODEL TMS	
G	15"ø	CEILING DIFFUSER	536-735	.10	19	600	TITUS MODEL TMS	
H	18"ø	CEILING DIFFUSER	1100	.10	19	600	TITUS MODEL TMS	
VAV1	8"ø	VAV CEILING DIFFUSER	245	.10	20	700	TITUS MODEL T3SQ-2	

NOTES:
1. PROVIDE BORDER FOR LAY-IN, SURFACE MOUNTED OR DUCT MOUNTED AS REQUIRED.
2. DUCT RUNOUTS, DROPS AND FLEX DUCTS TO DIFFUSERS SHALL BE NECK SIZE OR EQUIVALENT.
3. PROVIDE TRANSITION FROM DUCT RUNOUT OR FLEX DUCT TO DIFFUSER NECK WHERE REQUIRED.
4. USE FLEXIBLE DUCT CONNECTIONS TO CEILING MOUNTED DIFFUSERS ONLY, LENGTH NOT TO EXCEED 6 FEET.
5. INSTALL DUCT VOLUME DAMPERS IN BRANCH DUCTS TO ALL DIFFUSERS.
6. FURNISH VAV DIFFUSER WITH WALL MOUNTED THERMOSTAT AND BACNET BMS INTERFACE.
7. DIFFUSERS AIR PATTERN AS INDICATED ON PLAN.

LEGEND: TAG — CFM — PATTERN (1-WAY, 2-WAY, 3-WAY 4-WAY, CORNER)

EXHAUST FAN SCHEDULE

SYMBOL	AREA SERVED	TYPE	CFM	EXTERNAL STATIC PRESS (IN. WG.)	ELECTRICAL VOLTS/ø	ELECTRICAL HP	MAX SONES	DRIVE	MANUFACTURER & MODEL	OPERATING WEIGHT (LBS)	NOTES
EF-1	TOILET & ELEC ROOMS	ROOF CENTRIFUGAL	475	0.5	120/1	1/6	10.0	DIRECT	GREENHECK G-095-VG	60	

NOTES:
1. FURNISH WITH VARIABLE SPEED EC MOTORS WITH THERMAL OVERLOAD PROTECTION.
2. FURNISH WITH ROOF CURB.
3. FURNISH WITH MOTORIZED BACKDRAFT DAMPER, BIRD SCREEN, SPEED CONTROLLER, DISCONNECT SWITCH.
4. PROVIDE OCCUPANT SENSORS (QNTY 3) INSTALLED IN EACH SPACE TO ENERGIZE FAN.

USE 650 BTUH/LF OF GLASS FINNED TUBE RADIATION SCHEDULE

SYMBOL	HEATING CAPACITY @ 160° EWT (BTUH/LF)	GPM	EWT (°F)	WPD (IN/10')	HEATING ELEMENT TUBES/FINS	FINS PER FT	TOP OF ENCLOSURE INCHES AFF	TYPE	MFGR & MODEL NO.	NOTES
FT-1	680	2.0	160	2	3/4" CU/3.25" AL	48	10	ONE TIER SLOPE TOP	SLANT-FIN 351-10	
FT-2	1040	2.0	160	2	3/4" CU/3.25" AL	48	14	TWO TIER SLOPE TOP	SLANT-FIN 351-14	
FT-3	1040	2.0	160	2	3/4" CU/3.25" AL	48	14	TWO TIER SLOPE TOP	SLANT-FIN 351-14	WITH KNOB OPERATED DAMPER
FT-4	864	2.0	160	2	3/4" CU/3.25" AL	40	14	TWO TIER FLAT TOP	SLANT-FIN 95-10	
FT-5	1450	4.0	160	2	3/4" CU/3.25" AL	40	25	TWO TIER SLOPE TOP	SLANT-FIN JA-21	
FT-6	1450	4.0	160	2	3/4" CU/3.25" AL	40	25	TWO TIER SLOPE TOP	SLANT-FIN JA-21	WITH KNOB OPERATED DAMPER

NOTES:
1. PROVIDE DIELECTRIC UNIONS FOR CONNECTIONS TO STEEL PIPE.
2. PROVIDE CONTINUOUS WALL TO WALL ENCLOSURES. COLOR TO BE SELECTED BY OWNER.
3. HEATING CAPACITY FOR 2-TIER ELEMENT IS TOTAL CAPACITY OF BOTH TIERS.
4. PROVIDE KNOB OPERATED DAMPERS FOR OFFICES.
5. FURNISH FT-4 WITH ANODIZED ALUMINUM GRILLE.

RETURN/EXHAUST GRILLE SCHEDULE

TAG	NECK SIZE	TYPE	CFM	NEG STATIC PRESSURE (IN. WG.)	MAX NC	MAX NECK VEL (FPM)	MANUFACTURER & MODEL NO.	NOTES
R1	6x6	CEILING EGGCRATE GRILLE	0-50	.04	13	500	TITUS MODEL 50R	
R2	8x8	CEILING EGGCRATE GRILLE	51-185	.04	13	500	TITUS MODEL 50R	
R3	10x10	CEILING EGGCRATE GRILLE	186-295	.04	13	500	TITUS MODEL 50R	
R4	12x12	CEILING EGGCRATE GRILLE	296-440	.04	13	500	TITUS MODEL 50R	
R5	14x14	CEILING EGGCRATE GRILLE	441-610	.04	13	500	TITUS MODEL 50R	
R6	16x16	CEILING EGGCRATE GRILLE	611-810	.04	13	500	TITUS MODEL 50R	
R7	18x18	CEILING EGGCRATE GRILLE	811-1240	.04	13	600	TITUS MODEL 50R	
R8	48x24	SIDEWALL RETURN GRILLE	4400	.07	17	600	TITUS MODEL 50R	

NOTES:
1. PROVIDE BORDER FOR LAY-IN, SURFACE MOUNTED OR DUCT MOUNTED AS REQUIRED.
2. DUCT RUNOUTS, DROPS AND FLEX DUCTS SHALL BE NECK SIZE OR EQUIVALENT.
3. PROVIDE TRANSITION FROM DUCT RUNOUT OR FLEX DUCT TO GRILLE NECK WHERE REQUIRED.
4. USE FLEXIBLE DUCT CONNECTIONS TO CEILING MOUNTED GRILLES ONLY, LENGTH NOT TO EXCEED 6 FEET.
5. INSTALL DUCT VOLUME DAMPERS IN BRANCH DUCTS TO ALL DIFFUSERS.

LEGEND: TAG — CFM

Project Title:
Phase 1 HVAC Improvements at the
LP Wilson Community Center - Town of Windsor
601 Matianuk Avenue
Windsor, Connecticut 06095

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Revision:	Description:	Date:	Revised By:
	ISSUED FOR BIDS	11/18/2022	JP
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Drawing Title:
MECHANICAL EQUIPMENT SCHEDULES

Date: NOVEMBER 18, 2022
Scale: AS NOTED
Drawn By: JP
Project Number: 21-288

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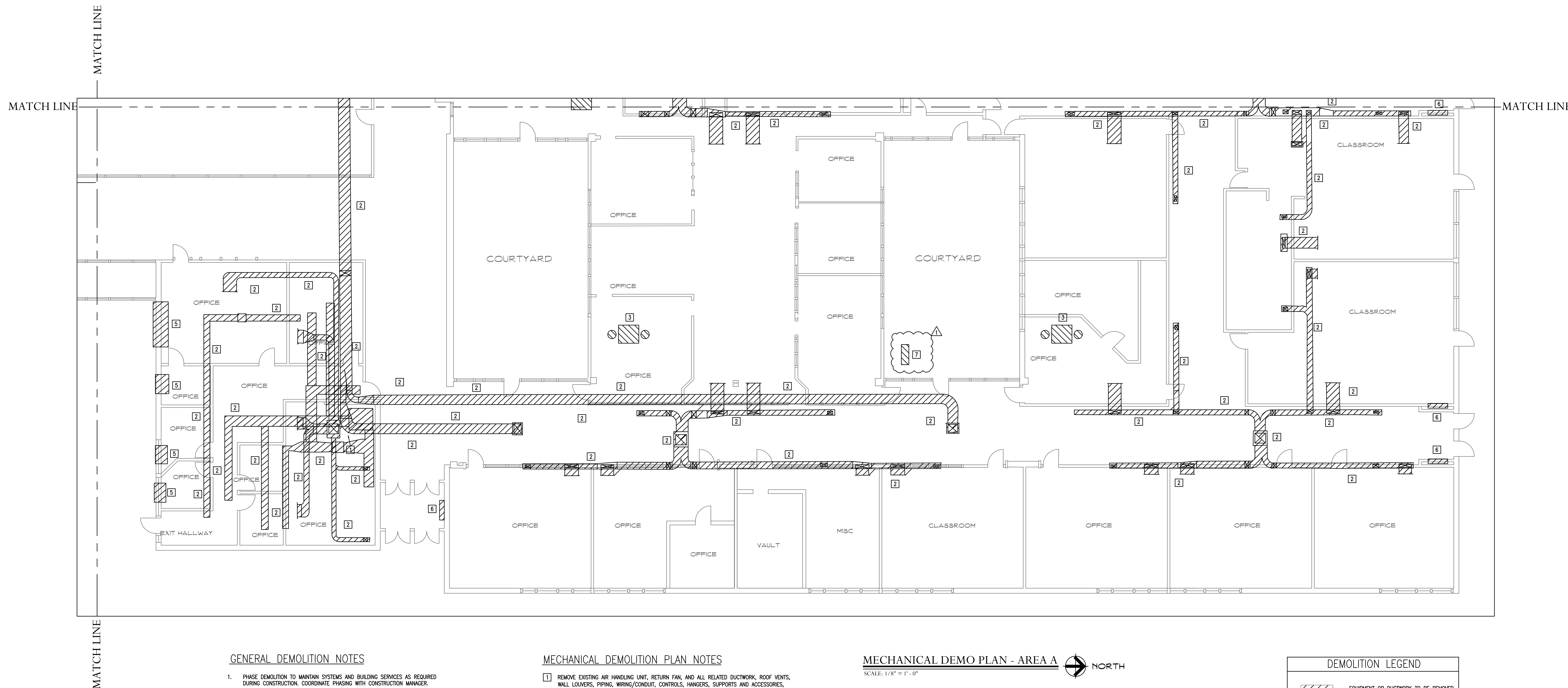


GENERAL DEMOLITION NOTES

1. PHASE DEMOLITION TO MAINTAIN SYSTEMS AND BUILDING SERVICES AS REQUIRED DURING CONSTRUCTION. COORDINATE PHASING WITH CONSTRUCTION MANAGER.
2. RECLAIM ALL REFRIGERANT PRIOR TO COMMENCING DEMOLITION OF AIR CONDITIONING EQUIPMENT.
3. PATCH, REPAIR AND SEAL ALL WALL AND ROOF OPENINGS RESULTING FROM MECHANICAL/ELECTRICAL DEMOLITION. RESTORE FINISHES WITH MATERIALS MATCHING EXISTING. PROVIDE PROTECTION FROM WEATHER DURING CONSTRUCTION.
4. REWORK PIPING, DUCT, AND ELECTRICAL CONNECTIONS FOR EQUIPMENT BEING RELOCATED.
5. ENSURE THAT POWER IS SECURED OFF PRIOR TO COMMENCING EQUIPMENT REMOVAL. SECURE POWER BACK TO PANEL FOR EQUIPMENT BEING REMOVED.
6. PROVIDE TEMPORARY CAPS OR COVERS FOR ALL OPENED PIPE, DUCT, AND CONDUIT TO PREVENT INTRODUCTION OF FOREIGN MATERIAL.
7. ALL WASTE MATERIALS AND EQUIPMENT SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF BY THE CONTRACTOR.
8. STORE OR OTHERWISE PROTECT EQUIPMENT BEING RELOCATED FROM DAMAGE DURING CONSTRUCTION.
9. ALL MECHANICAL SYSTEMS DESIGNATED FOR REMOVAL SHALL BE REMOVED IN THEIR ENTIRETY. REMOVE ALL EXISTING EQUIPMENT, PIPING, DUCTWORK, WIRING, CONTROLS, AND SUPPORTS INCLUDING HANGERS, PADS, AND FOUNDATIONS, UNLESS SPECIFICALLY INDICATED TO REMAIN.
10. SYSTEM DEMOLITION SHALL BE PHASED IN CONJUNCTION WITH CONSTRUCTION PHASING AS REQUIRED TO MAINTAIN OCCUPANCY DURING CONSTRUCTION.
11. SYSTEMS DEPICTED ARE BASED ON AS-BUILT DRAWINGS AND SITE INVESTIGATION. DEMOLITION CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF SYSTEMS TO BE REMOVED.
12. EXISTING DOMESTIC WATER SERVICE, DOMESTIC WATER HEATING, AND DISTRIBUTION SYSTEM TO REMAIN EXCEPT WHERE OTHERWISE INDICATED.
13. REMOVE AND REPLACE CEILINGS AS REQUIRED TO REMOVE SYSTEMS TO BE REMOVED ABOVE CEILINGS.

MECHANICAL DEMOLITION PLAN NOTES

[1] REMOVE EXISTING AIR HANDLING UNIT, RETURN FAN, AND ALL RELATED DUCTWORK, ROOF VENTS, WALL LOUVERS, PIPING, WIRING/CONDUIT, CONTROLS, HANGERS, SUPPORTS AND ACCESSORIES, EXCEPT WHERE NOTED ETR. CAP HOT WATER PIPING AT MAINS. PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.

⚠1 [2] REMOVE DUCTWORK, DIFFUSERS, GRILLES, ACCESSORIES, AND SUPPORTS.

[3] REMOVE EXISTING ENERGY RECOVERY VENTILATOR, AND ALL RELATED DUCTWORK, ROOF VENTS, WIRING/CONDUIT, CONTROLS, HANGERS, SUPPORTS AND ACCESSORIES, EXCEPT WHERE NOTED ETR. PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.

[4] REMOVE EXISTING UNIT VENTILATOR, AND ALL RELATED DUCTWORK, PIPING, ROOF VENTS, WIRING/CONDUIT, CONTROLS, HANGERS, SUPPORTS AND ACCESSORIES, EXCEPT WHERE NOTED ETR. PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.

[5] REMOVE EXISTING PACKAGED TERMINAL AIR CONDITIONER, AND ALL RELATED WIRING/CONDUIT, CONTROLS, SUPPORTS AND ACCESSORIES, PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.

[6] REMOVE EXISTING CABINET UNIT HEATER. ALLOW FOR CONNECTION TO EXISTING PIPING.

⚠1 [7] REMOVE EXISTING DUCTLESS SPLIT SYSTEM AND ASSOCIATED INDOOR UNIT(S), PIPING, WIRING, CONTROLS, AND SUPPORTS.

EXISTING WINDOW AIR CONDITIONERS

REMOVE ALL EXISTING WINDOW AIR CONDITIONERS AND RETURN TO OWNER.

CEILING DEMOLITION NOTES

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF CEILING TILES AND GRIDS AS REQUIRED TO PERFORM REMOVAL OF EXISTING, AND INSTALLATION OF NEW MECHANICAL SYSTEMS.
2. REMOVE AND STORE ALL EXISTING CEILING DEVICES INCLUDING BUT NOT LIMITED TO LIGHT FIXTURES, EXIT SIGNS, HEAT/SMOKE DETECTORS, REMOTE TEST SWITCHES, SPEAKERS, ALARM DEVICES, MOTION SENSORS, PROJECTORS, ETC.
3. REINSTALL CEILING DEVICES IN NEW CEILINGS UPON COMPLETION OF NEW MECHANICAL AND ELECTRICAL WORK.

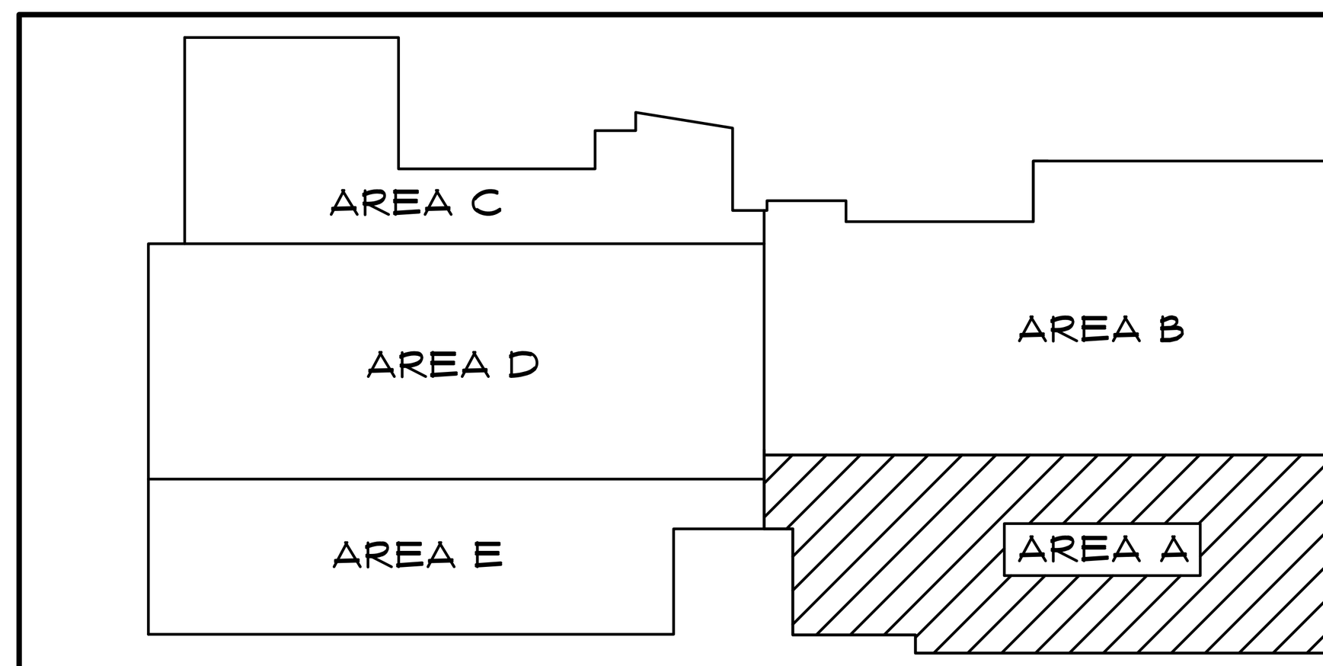
MECHANICAL DEMO PLAN - AREA A

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

NORTH

DEMOLITION LEGEND

(hatched box)	EQUIPMENT OR DUCTWORK TO BE REMOVED
(hatched line)	PIPING TO BE REMOVED
ETR	EXISTING TO REMAIN



KEY PLAN
NOT TO SCALE
NORTH

Project Title:

Phase 1 HVAC Improvements at the
LP Wilson Community Center - Town of Windsor

601 Matianuk Avenue
Windsor, Connecticut 06095

SILVER / PETRUCELLI + ASSOCIATES
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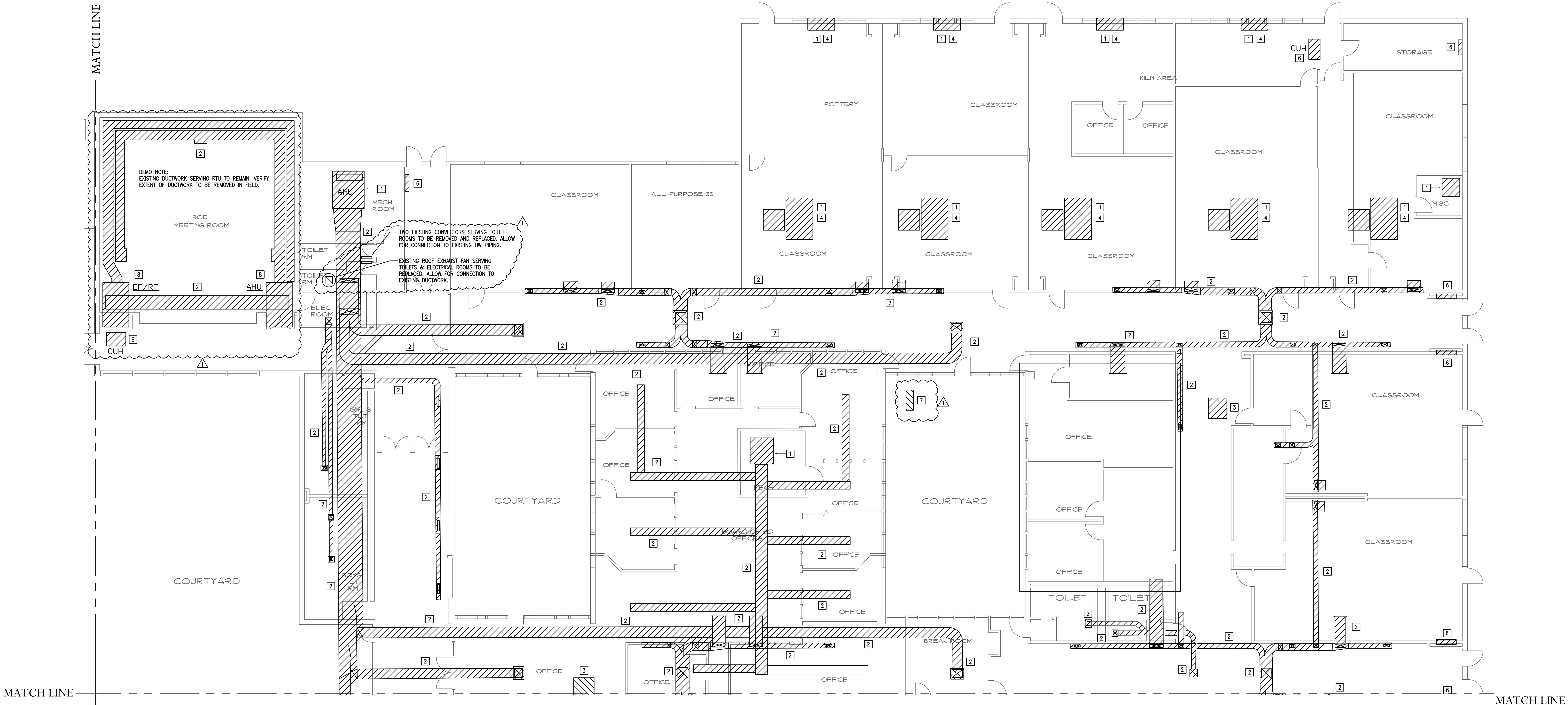
Revision:	Description:	Date:	Revised By:
	ISSUED FOR BIDS	11/18/2022	JP
⚠1	ADDENDUM NO.1	12/21/2022	JP

Drawing Title:

MECHANICAL DEMOLITION PLAN AREA A

Date: NOVEMBER 18, 2022
Scale: AS NOTED
Drawn By: JP
Project Number: 21-288

Drawing Number: MD101



MECHANICAL DEMO PLAN - AREA B

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

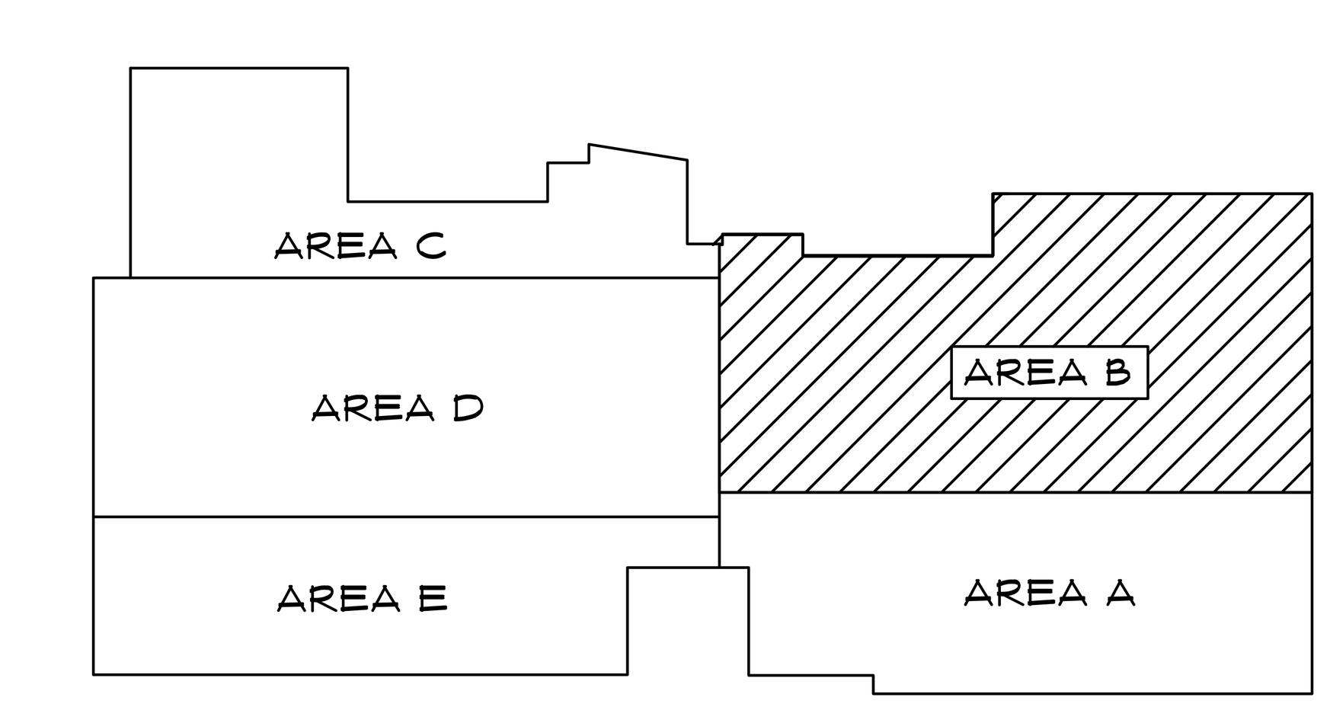
NORTH

MECHANICAL DEMOLITION PLAN NOTES

1. REMOVE EXISTING AIR HANDLING UNIT, RETURN FAN, AND ALL RELATED DUCTWORK, ROOF VENTS, WALL LOUVERS, PIPING, WIRING/CONDUIT, CONTROLS, HANGERS, SUPPORTS AND ACCESSORIES, EXCEPT WHERE NOTED ETR. CAP HOT WATER PIPING AT MAINS. PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.
2. REMOVE DUCTWORK, DIFFUSERS, GRILLES, ACCESSORIES, AND SUPPORTS.
3. REMOVE EXISTING ENERGY RECOVERY VENTILATOR, AND ALL RELATED DUCTWORK, ROOF VENTS, WIRING/CONDUIT, CONTROLS, HANGERS, SUPPORTS AND ACCESSORIES, EXCEPT WHERE NOTED ETR. PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.
4. REMOVE EXISTING UNIT VENTILATOR, AND ALL RELATED DUCTWORK, PIPING, ROOF VENTS, WIRING/CONDUIT, CONTROLS, HANGERS, SUPPORTS AND ACCESSORIES, EXCEPT WHERE NOTED ETR. PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.
5. REMOVE EXISTING PACKAGED TERMINAL AIR CONDITIONER, AND ALL RELATED WIRING/CONDUIT, CONTROLS, SUPPORTS AND ACCESSORIES, PATCH AND REPAIR WALL AND ROOF OPENINGS WITH MATERIALS MATCHING EXISTING.
6. REMOVE EXISTING CABINET UNIT HEATER. ALLOW FOR CONNECTION TO EXISTING PIPING.
7. REMOVE EXISTING DUCTLESS SPLIT SYSTEM AND ASSOCIATED INDOOR UNIT(S), PIPING, WIRING, CONTROLS, AND SUPPORTS.
8. REMOVE EXISTING AIR HANDLING UNIT, RETURN/EXHAUST FAN AND ASSOCIATED DUCTWORK, GRILLES, REGISTERS, WIRING, PIPING CONTROLS, SUPPORTS, AND ACCESSORIES. EXISTING DUCTWORK SERVING PACKAGED ROOFTOP UNIT TO REMAIN. VERIFY DUCTWORK TO REMAIN IN FIELD. BLANK-OFF EXISTTING OUTSIDE AIR AND EXHAUST LOUVERS WITH INSULATED SHEETMETAL PANEL SEALED WEATHERTIGHT.

EXISTING WINDOW AIR CONDITIONERS

REMOVE ALL EXISTING WINDOW AIR CONDITIONERS AND RETURN TO OWNER.



KEY PLAN
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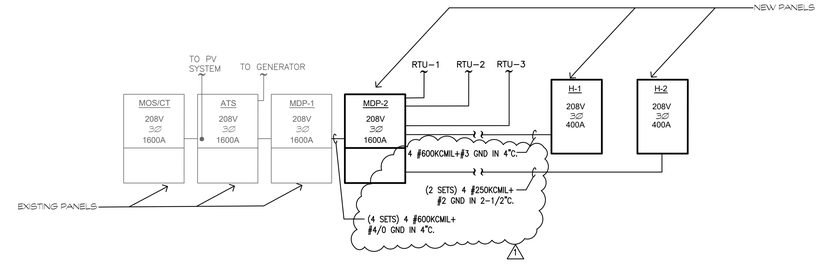
Revision:	Description:	Date:	Revised By:
	ISSUED FOR BIDS	11/18/2022	JP
1	ADDENDUM NO.1	12/21/2022	JP

Drawing Title:
MECHANICAL DEMOLITION PLAN AREA B

Date: NOVEMBER 18, 2022
Scale: AS NOTED
Drawn By: JP
Project Number: 21-288
Drawing Number: MD102



ELECTRICAL ONE-LINE RISER DIAGRAM

NOT TO SCALE

Project Title:

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Revision:	*Description:*	*Date:*	*Revised By:*
	ISSUED FOR BIDS	11/18/22	DR
1	ADDENDUM #1	12/21/22	RRB

Drawing Title:

ELECTRICAL
ONE-LINE DIAGRAM

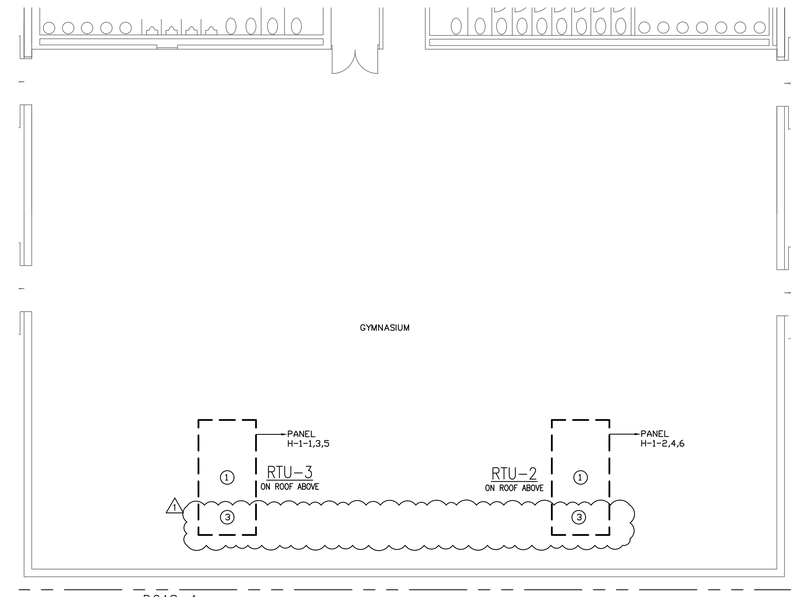
Date: November 18, 2022
Scale: NOT TO SCALE
Drawn By: DR
Project Number: 21-288

Drawing Number:

E003

PLAN NOTES

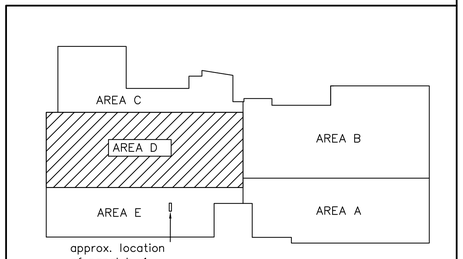
1. CEILINGS IN THIS AREA WILL BE IMPACTED/REMOVED TO ALLOW FOR NEW DUCTWORK ROUTING. CONTRACTOR SHALL ALLOW FOR REMOVAL AND REINSTALLATION OR TEMPORARY SUPPORT OF EXISTING LIGHT FIXTURES (ASSUME 30 FIXTURES). CONTRACTOR SHALL PROVIDE SIMILAR WORK FOR MISCELLANEOUS OTHER ELECTRICAL DEVICES (EXIT SIGNS, OCCUPANCY SENSORS, ETC) IN THIS AREA (ASSUME 8 DEVICES). CONTRACTOR SHALL PROVIDE J-HOOK SUPPORT FOR EXISTING LOW VOLTAGE AND ARMORED CABLE THAT IS CURRENTLY IMPROPERLY SUPPORTED BY THE CEILING. ALLOW FOR 2 ROWS OF HOOKS ON 5' SPACING FOR THE LENGTH OF ALL CORRIDOR AREAS WHERE CEILING REMOVAL IS REQUIRED. GROUP AND GATHER CABLES INTO SUPPORTS.
2. CABINET UNIT HEATER TO BE REPLACED IN SAME LOCATION. DISCONNECT EXISTING 120V, 20A CIRCUIT FROM EXISTING UNIT AND RECONNECT TO NEW.
3. PROVIDE (2) NEW DUCT SMOKE DETECTORS FOR NEW HVAC EQUIPMENT. DETECTORS SHALL BE COMPATIBLE WITH EXISTING SIEMENS FIRE ALARM CONTROL PANEL. THESE SHALL BE INSTALLED BY THE HVAC CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR. COORDINATE EXACT LOCATION IN FIELD. PROVIDE ALL REQUIRED MATERIALS, LABOR AND PROGRAMMING TO MONITOR THE DETECTORS VIA THE FACP AND SHUT DOWN THE ASSOCIATED UNIT ON DETECTION OF SMOKE.
4. ROOFTOP HVAC UNIT IS PROVIDED WITH A SEPARATE COIL CIRCULATOR PUMP (120V, FRACTIONAL HP). PROVIDE CONNECTION FROM EXISTING RECEPTACLE CIRCUIT IN THIS AREA TO THE PUMP. COORDINATE RECEPTACLE OR TOGGLE DISCONNECT CONNECTION REQUIREMENT WITH EQUIPMENT FURNISHED.
5. FCU-1 & 3 UNITS SHALL BE CIRCUITED TO PANEL H-2. FCU-5 UNITS SHALL BE CIRCUITED TO PANEL H-1. REFER TO PANEL SCHEDULES FOR CIRCUIT ASSIGNMENTS.



ELECTRICAL PLAN - AREA D

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

nORTH



KEY PLAN

NOT TO SCALE

nORTH

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1	ADDENDUM #1	12/21/22	RRB

Drawing Title:

ELECTRICAL PLAN
AREA D

Date: November 18, 2022
Scale: 1/8" = 1'-0"
Drawn By: DR
Project Number: 21-288

Drawing Number: E104