

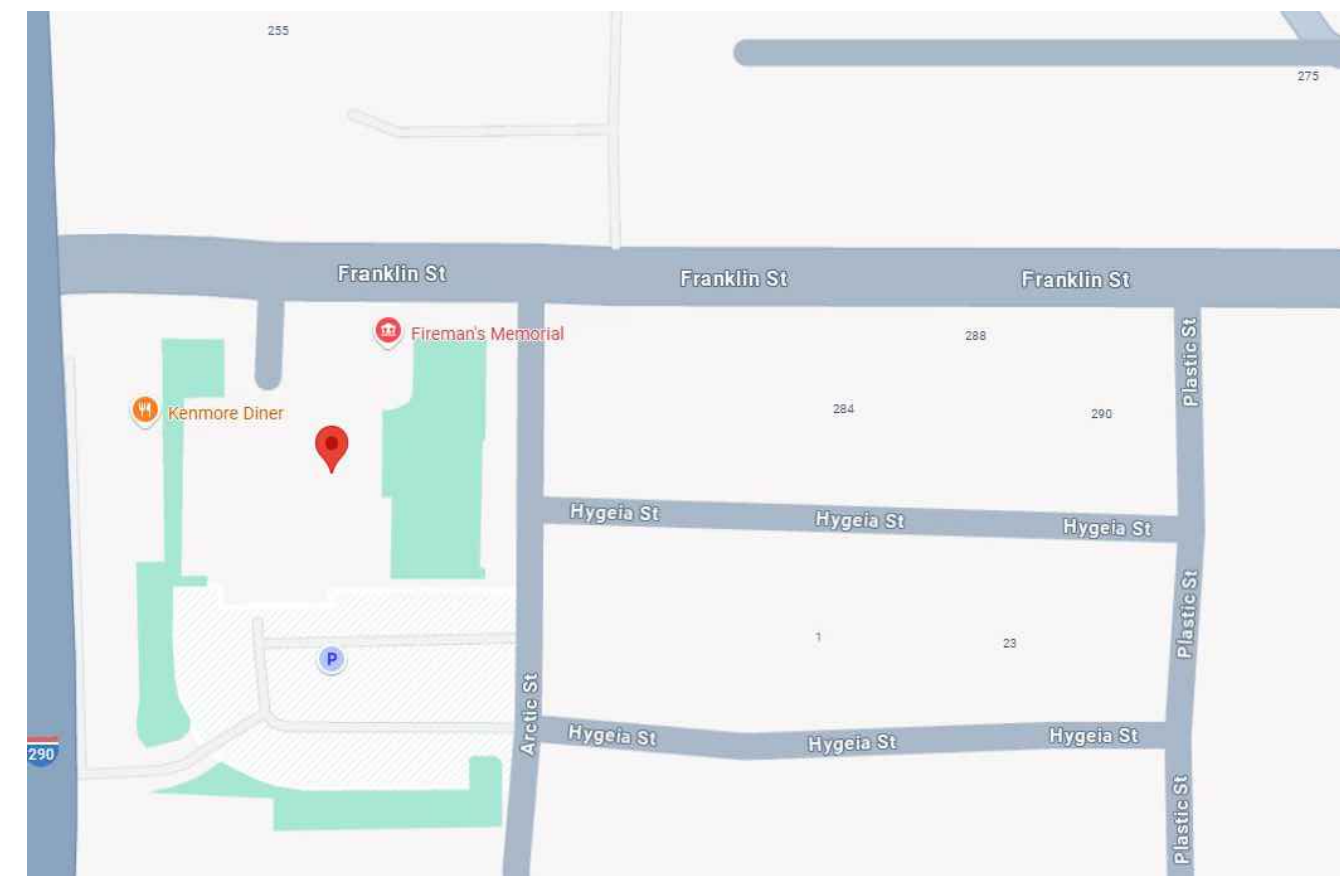
JUNE 6, 2025
BID DOCUMENTS



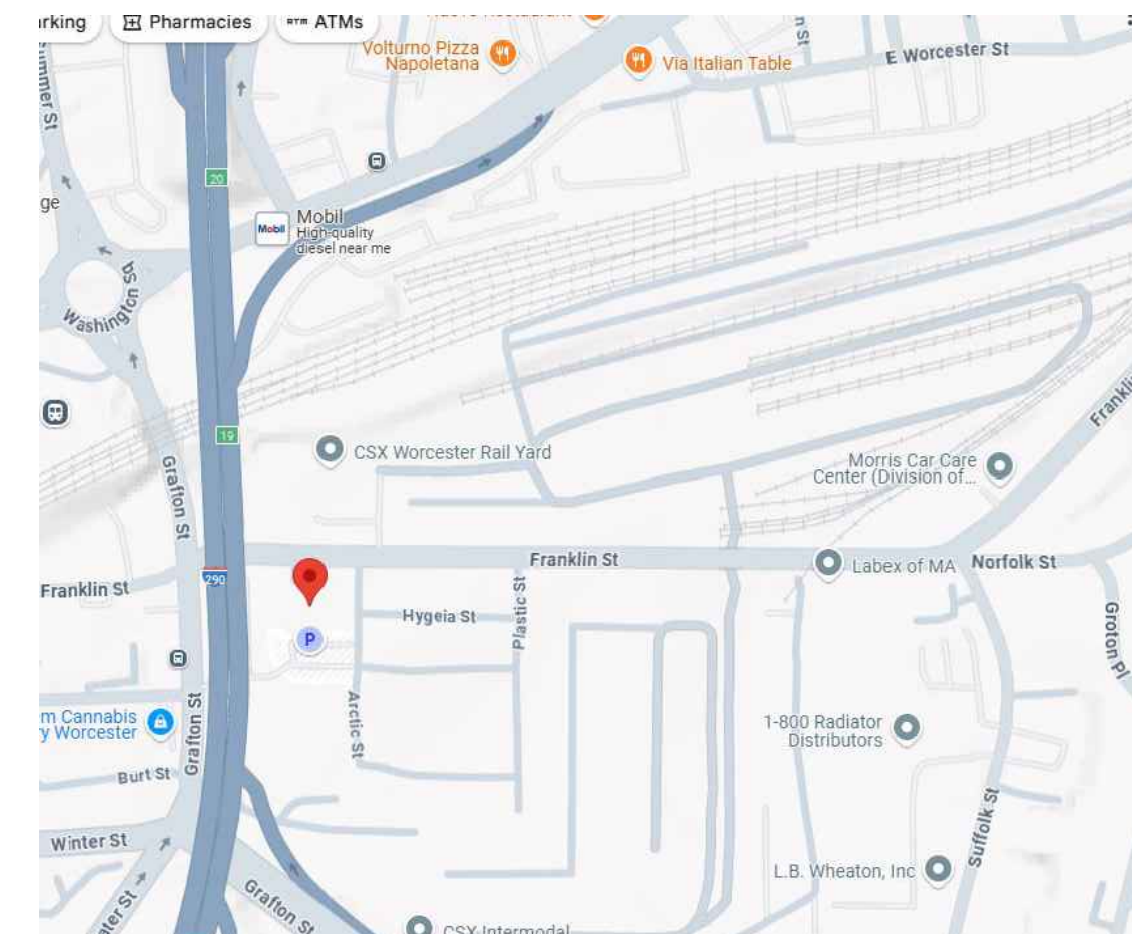
INDEX OF DRAWINGS

C000	COVER SHEET
M001	MECHANICAL LEGEND, NOTES AND ABBREVIATIONS
MD101	MECHANICAL DUCTWORK DEMOLITION PLAN - ROOF
M101	MECHANICAL DUCTWORK PLAN - ROOF
E000	ELECTRICAL LEGEND, NOTES AND ABBREVIATIONS
ED101	ELECTRICAL ROOF DEMOLITION PART PLANS
E101	ELECTRICAL ROOF PART PLANS

VICINITY MAP



LOCALITY MAP



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AMP

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CONSULTANT

PROJECT NAME

WORCESTER FIRE DEPT.

ROOFTOP
UNIT
REPLACEMENT
FRANKLIN
STREET
FIRE
STATION

266 FRANKLIN ST,
WORCESTER, MA 01604

PLAN

[illegible]

PROJECT NO.: 25-0005100

SIGNED BY: _____ DCG

HECKED BY: _____ CH _____

DATE: _____

HEET NAME

OVER SHEET

HEET NUMBER

001

\\BLST\Proj\2025\25-0000100 - Worcester 266 Franklin St RTU\00 Drawings\0412_Mech\25-0000100_M001_MECHANICAL LEGEND, NOTES AND ABBREVIATIONS.dwg (M001) June 5, 2025 - 11:26 AM daniel.graham

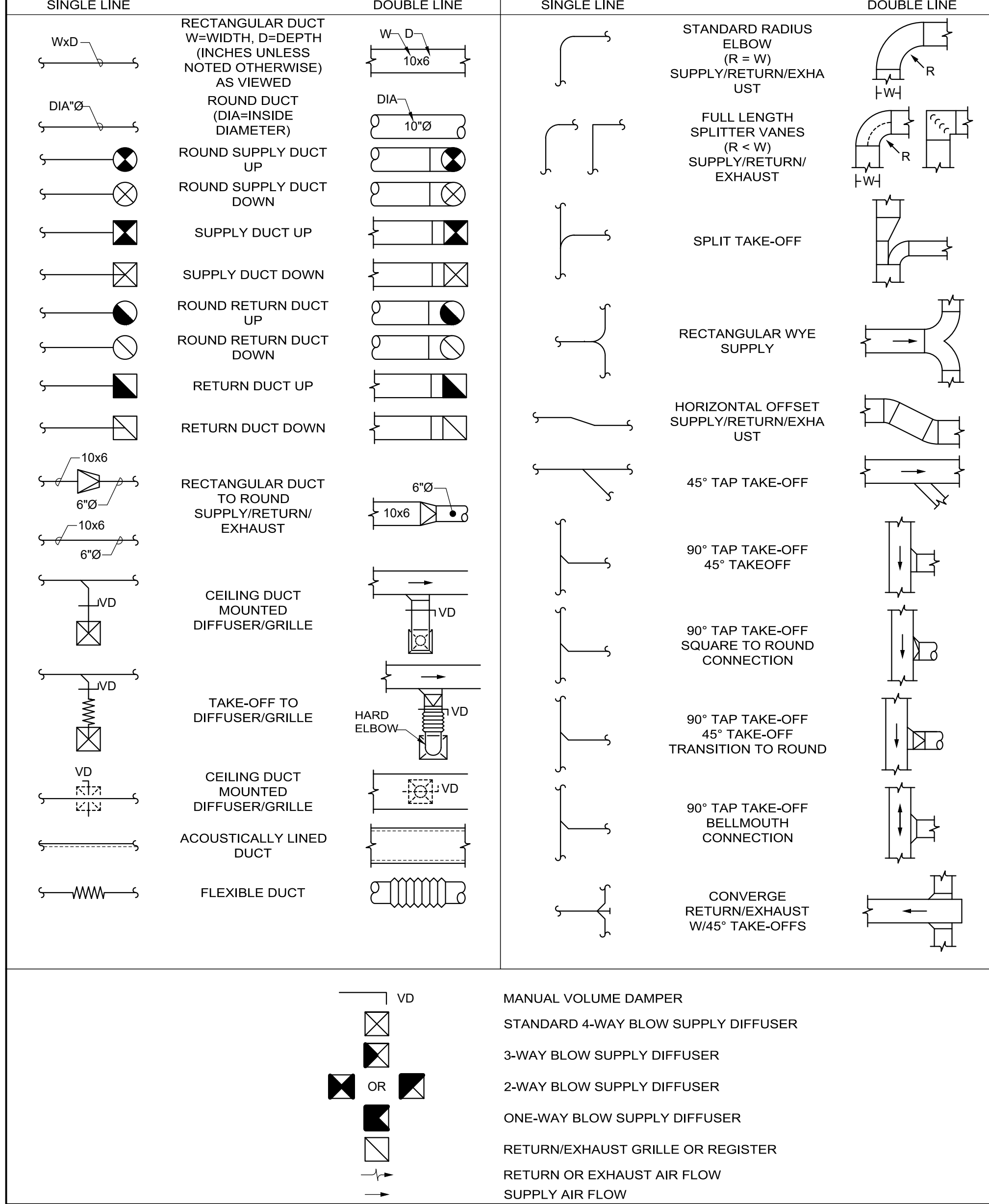
MECHANICAL GENERAL NOTES

- GENERAL NOTES APPLY TO ALL MECHANICAL DRAWINGS.
- THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERRABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
- THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
- THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING DUCTWORK IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD.
- CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF AXCELIS TECHNOLOGIES.
- SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH AXCELIS TECHNOLOGIES. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST ONE WEEK IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO AXCELIS TECHNOLOGIES AND THE GENERAL CONTRACTOR.
- DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
- ALL WORK 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 AXCELIS TECHNOLOGIES.
- VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
- ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
- CONTRACTOR SHALL TEST AND CALIBRATE ALL CONTROLS AND VERIFY ALL ARE FULLY FUNCTIONAL, AND SUBMIT DOCUMENTATION. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE ADEQUATE COVERING TO ALL OPEN ENDS OF DUCTWORK AND PIPING TO PREVENT DUST, DIRT AND DEBRIS FROM ENTERING DURING CONSTRUCTION.
- PROVIDE ALL REQUIRED CUTTING AND PATCHING FOR WORK INDICATED. PROVIDE PATCHING FOR VOIDS LEFT BY THE REMOVAL OF EXISTING DUCTWORK EQUIPMENT, CONTROLS, ETC. PATCHING SHALL BE PROVIDED FOR FLOORS, WALLS, CEILINGS, AND ROOF. PATCHING SHALL BE MADE WITH SIMILAR MATERIALS TO MATCH EXISTING CONDITIONS AND PAINTED TO MATCH ADJACENT SURFACES.
- THE CONTRACTOR SHALL REMOVE, TEMPORARILY STORE AND RE-INSTALL SUSPENDED CEILING AS REQUIRED FOR WORK INDICATED. REPLACE ANY CEILING TILES DAMAGED DURING CONSTRUCTION WITH NEW CEILING TILES TO MATCH THE EXISTING CEILING TILES. MODIFY EXISTING CEILING TILES TO ACCOMMODATE NEW WORK INDICATED.
- THE CONTRACTOR SHALL NOTE THAT THE BUILDING IS BEING USED BY AXCELIS EMPLOYEES. ALL WORK SHALL BE PERFORMED IN AS SAFE A MANNER AS POSSIBLE. ALL WORK AREAS SHALL BE MADE AS SAFE AT THE END OF EACH DAY AND AREAS UNDER CONSTRUCTION SHALL BE BROOM SWEEP DAILY.
- WHEN SECTION OF DUCTWORK IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED DUCT SHALL PREVAIL. SIZE OF DUCT RUN-OUTS TO DIFFUSER SHALL EQUAL DIFFUSER NECK SIZE.
- THE FIRE PROOFING OF THE BUILDING STRUCTURE IS NOT TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, DUCTWORK, ETC. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED AT THE EXPENSE OF THE TRADE.
- CONTRACTOR SHALL PROVIDE AND SUBMIT DOCUMENTATION FOR TESTING AND BALANCING OF ALL AIR SYSTEMS, OPERATING AND MAINTENANCE MANUALS, AND AS BUILT DRAWINGS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE SECURITY AND WEATHER PROTECTION FOR TEMPORARY ROOF OPENINGS. .
- THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT (INCLUDING ALL BATTERY OPERATED LIFTS, LADDERS, TOOLS, ETC.) REQUIRED TO COMPLETE THE WORK INDICATED ON THE PLANS.
- THE CONTRACTOR SHALL FOLLOW OSHA GUIDELINES WHEN WORKING IN THE FACILITY AND PAY PARTICULAR ATTENTION WHEN WORKING FROM A LADDER OR BATTERY OPERATED LIFT. WORK AREAS SHALL BE ISOLATED FROM AXCELIS PERSONNEL WITH ORANGE SAFETY CONES AND YELLOW CAUTION TAPE OR ORANGE BARRICADES.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES.
- REFER TO THE PROJECT SPECIFICATIONS FOR FURTHER REQUIREMENTS.

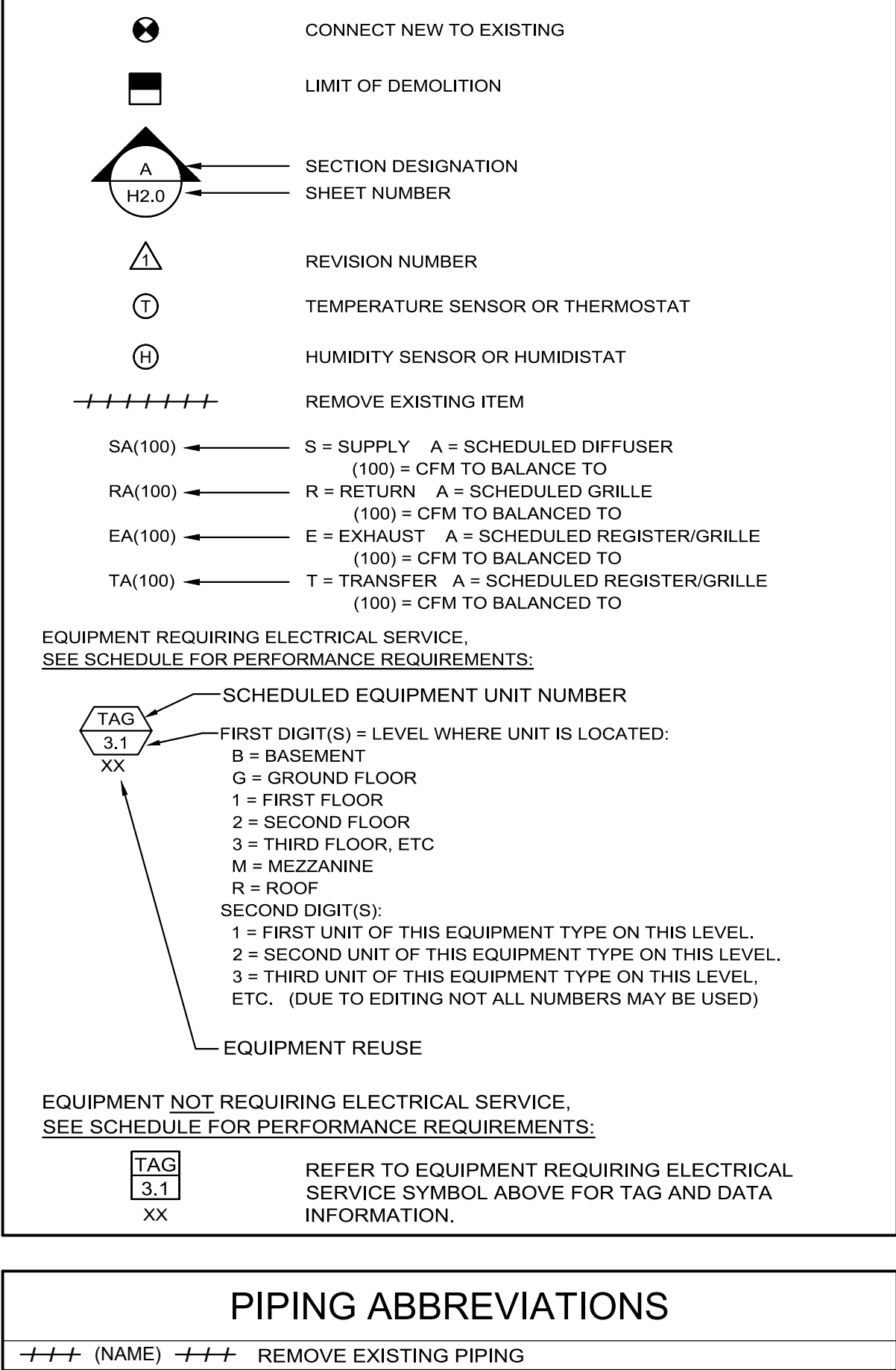
ABBREVIATIONS

GENERAL		NOM	NOMINAL
ADDL	ADDITIONAL	NTS	NOT TO SCALE
ALT	ALTITUDE OR ALTERNATE	OA	OUTSIDE AIR
AMP	AMPERE	PD	PRESSURE DROP
ATC	AUTOMATIC TEMPERATURE CONTROL	PH	PHASE
ATM	ATMOSPHERE	POS	PROVIDED BY OTHER SECTION
BHP	BRAKE HORSEPOWER	PSI	POUNDS PER SQUARE INCH
BLDG	BUILDING	QTY	QUANTITY
BTU	BRITISH THERMAL UNIT	R	RADIUS
BTUH	BTU PER HOUR	RA	RETURN AIR
CFM	CUBIC FEET PER MINUTE	RET	RETURN
CLG	CEILING OR COOLING	REQ'D	REQUIRED
CO	CARBON MONOXIDE		
COL	COLUMN		
CONN	CONNECTION	RM	ROOM
CONTR	CONTRACTOR	RPM	REVOLUTIONS PER MINUTE
D	DRAIN OR DEPTH	SCH	SCHEDULE
DB	DRY BULB TEMPERATURE	SPECS	SPECIFICATIONS
DEG	DEGREE	SF	SQUARE FEET
DIA	DIAMETER	SUP	SUPPLY
DIM	DIMENSION	T	TEMPERATURE
DN	DOWN	TEL	TELEPHONE
EA	EACH OR EXHAUST AIR	TEMP	TEMPERATURE
EAT	ENTERING AIR TEMPERATURE	TSTAT	THERMOSTAT
EFF	EFFICIENCY	TON	12,000 BTUH COOLING CAPACITY
ELEC	ELECTRICAL	TOT	TOTAL
ENT	ENTER	TYP	TYPICAL
ESP	EXTERNAL STATIC PRESSURE	V	VOLTS (ELECTRICAL)
EXIST	EXISTING	VEL	VELOCITY
EXT	EXTERNAL		
F	FAHRENHEIT	W	WIDTH OR WATT
FLA	FULL LOAD AMPS	W/	WITH
FLEX	FLEXIBLE	W/O	WITHOUT
FFM	FEET PER MINUTE	X	EXISTING EQUIPMENT TO BE REMOVED
FT	FEET	XM	EXISTING EQUIPMENT TO REMAIN
		XN	NEW LOCATION OF RELOCATED EQUIPMENT
		XR	EXISTING EQUIPMENT TO BE RELOCATED
		DUCT	
		BOD	BOTTOM OF DUCT
		DIFF	DIFFUSER
		FBD	FLAT BOTTOM DUCT
		FD	FIRE DAMPER (W/ ACCESS DOOR)
		OA	OUTSIDE AIR
		RA	RETURN AIR
		RG	RETURN GRILLE
		RR	RETURN REGISTER
		SA	SUPPLY AIR
		SG	SUPPLY GRILLE
		SR	SUPPLY REGISTER
		TG	TRANSFER GRILLE
		TD	TOP OF DUCT
		TR	TRANSFER
		TSP	TOTAL STATIC PRESSURE (IN. WG)
		VD	VOLUME DAMPER
		EQUIPMENT	
		DWDI	DOUBLE WIDTH DOUBLE INLET
		DX	DIRECT EXPANSION
		REG	REGISTER
		RF	RETURN FAN
		RTU	ROOF TOP UNIT
		SF	SUPPLY FAN
		SWSI	SINGLE WIDTH SINGLE INLET
		NO	NORMALLY OPEN
		N	NUMBER
		NC	NOT APPLICABLE
		NC	NORMALLY CLOSED OR NOISE CRITERIA
		NIC	NOT IN CONTRACT
		NO	NORMALLY OPEN
		N	NUMBER

DUCTWORK



CALLOUT SYMBOLS



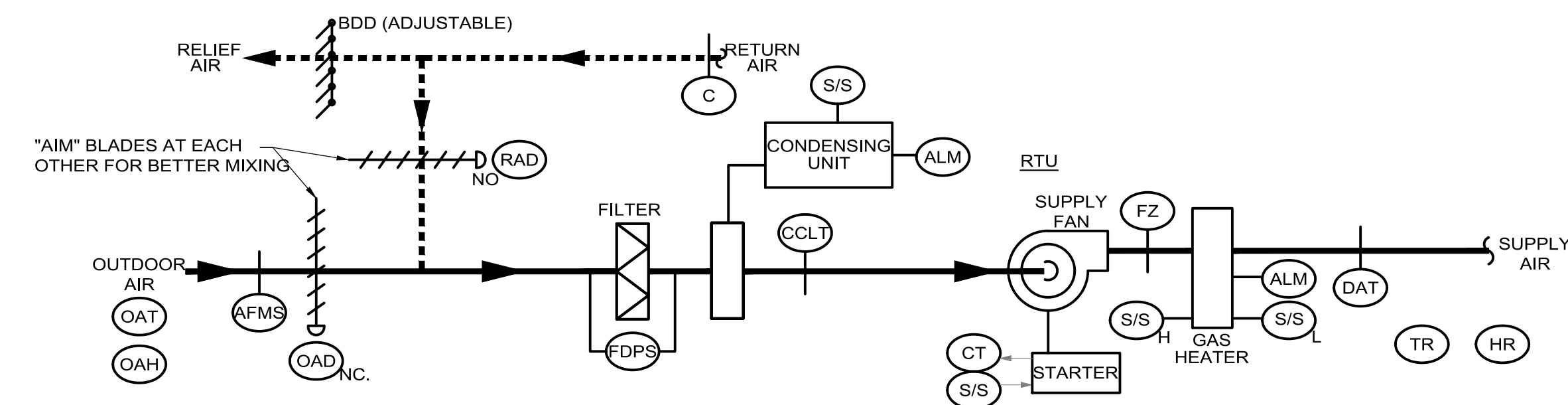
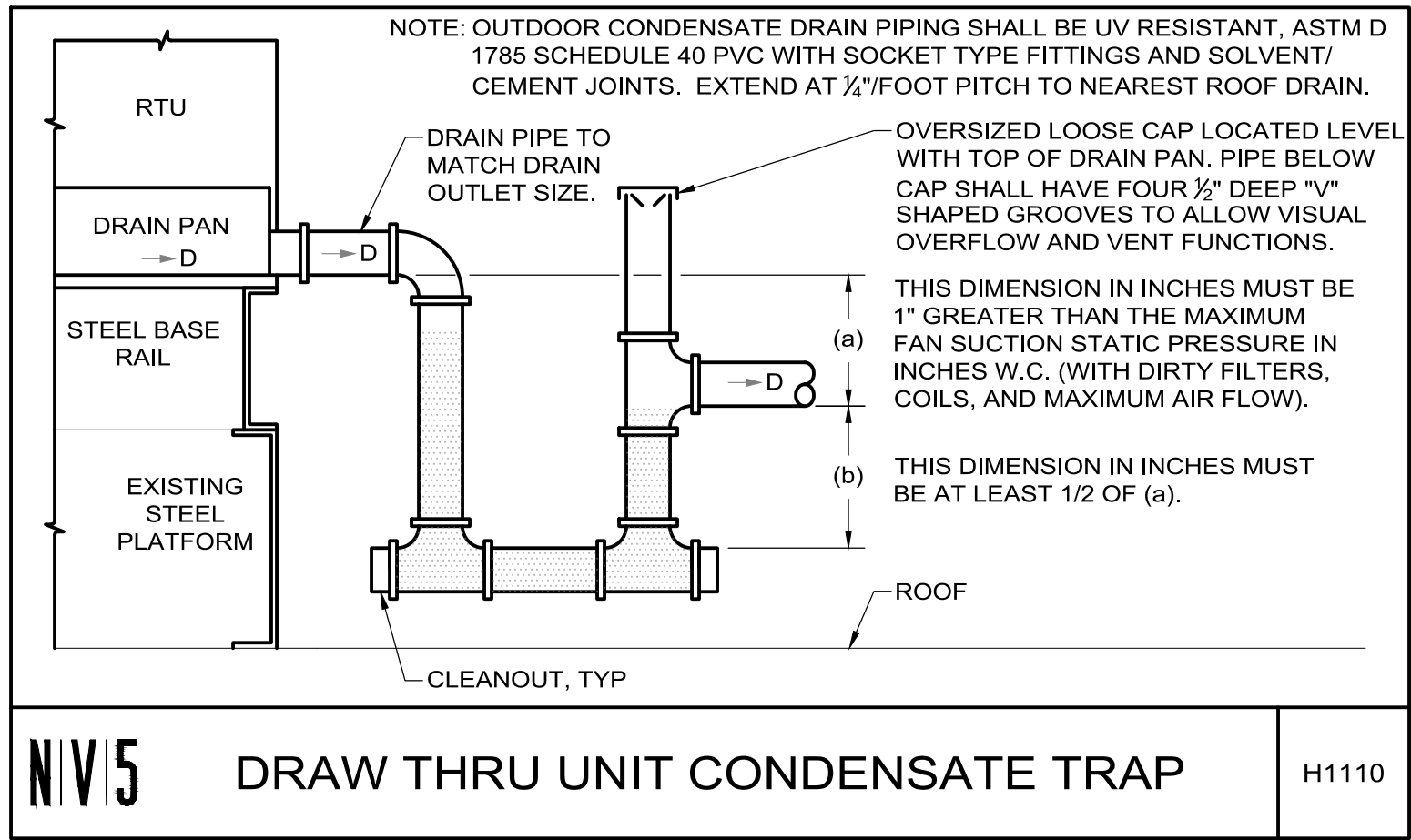
PIPING ABBREVIATIONS

+++ (NAME) +++ REMOVE EXISTING PIPING

PACKAGED DX ROOFTOP AIR HANDLING UNIT SCHEDULE

TAG	LOCATION	REFRIGERANT		SUPPLY FAN				DX COOLING							INDIRECT GAS-FIRED HEATER DATA							ELECTRICAL					FILTER DATA (SEE FILTER SCHEDULE)	WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
		TYPE	CHARGE (LBS)	CFM	EXT. STATIC PRESS. (IN.WG)	MOTOR		CAPACITY (MBH)		*UNIT LAT (°F)		ROWS	FINS PER INCH	EER	CAPACITY (MBH)			AIR DATA		GAS PRESS. (IN.WG)	HZ	V	PH	MCA	MOCP					
						RPM	HP	TOTAL	SENS.	DB	WB				INPUT	OUTPUT	MIN. EFF (%)	EAT (°F)	LAT (°F)											
RTU-2	ROOF	R-454B	6.25	1150	1.0	2490	1	36	30.4	55	54	2	17	11.5	110	89.9	81	68	90	4	208	1	60	28	40	MERV 13	482	BRYANT / 582LP04A110A3B0AA		
RTU-3	ROOF	R-454B	4.85	950	1.0	1050	1/2	30	25.2	55	54	3	17	11.05	60	48.1	81	68	90	4	208	1	60	20.6	30	MERV 13	348	BRYANT / 575CNWB30060		
RTU-4	ROOF	R-454B	4.2	750	1.0	1050	1/2	24	20.0	55	54	3	17	11.05	40	39	81	68	90	4	208	1	60	15.9	20	MERV 13	339	BRYANT / 575CNWB24040		
RTU-5	ROOF	R-454B	4.85	950	1.0	1050	1/2	30	25.2	55	54	3	17	11.05	60	39	81	68	90	4	208	1	60	20.6	30	MERV 13	348	BRYANT / 575CNWB30060		
NOTES:																														
1) REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.																														

NOTES:
1) REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.



ROOFTOP UNIT CONTROL SEQUENCES

ROOFTOP UNIT CONTROL SEQUENCES (CV, <15,000 CFM)

ROOF TOP UNIT CONTROLS

GENERAL

- ROOFTOP UNIT SHALL BE STARTED AND STOPPED VIA DDC CONTROLLER. COORDINATE OCCUPIED AND UNOCCUPIED SCHEDULES WITH OWNER. ALL SETPOINTS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
- LOCAL HAND-OFF-AUTOMATIC SWITCH (H-O-A) FOR FANS SHALL OVERRIDE DDC START/STOP (S/S) COMMANDS. ALL HARDWIRED SAFETIES SHALL BE ACTIVE IN BOTH "H" AND "A" POSITIONS.
- ALL TEMPERATURES LISTED ARE FAHRENHEIT.
- ALL TEMPERATURE SENSORS IN THE UNIT AND DUCTWORK SHALL BE AVERAGING TYPE EXCEPT FOR FREEZE/STATS WHICH SHALL BE LOW POINT READING TYPE.
- PROVIDE APPROPRIATE ANTI-RECYCLE TIME DELAYS AND SAFETIES ON COMPRESSOR AND GAS HEATER STAGING.

FAN CONTROL

- WHILE IN UNOCCUPIED MODE (OR OFF ON SAFETY OR MANUAL DISCONNECT) THE SUPPLY AND EXHAUST FAN (EF) SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) AND EXHAUST AIR DAMPER (EAD) CLOSED, THE CONDENSING UNIT AND GAS HEATER OFF, AND THE RETURN AIR DAMPER (RAD) OPEN.
- WHEN STARTED IN OCCUPIED MODE, THE SUPPLY FAN SHALL START IN RECIRCULATION MODE, THEN THE OAD AND RAD SHALL OPEN TO THE MINIMUM OUTDOOR AIR POSITION AS CONTROLLED BY AIR FLOW MONITORING STATION (AFMS - SEE CO2 CONTROL), THE EAD SHALL OPEN, AND THE EXHAUST FAN (EF) SHALL START.

OCCUPIED HEATING CONTROL

- UPON A DROP IN ROOM TEMPERATURE BELOW THE ROOM HEATING SETPOINT OF 70°F, GAS HEATER SHALL BE STAGED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPERATURE.
- DISCHARGE AIR TEMPERATURE SENSOR DAT SHALL STAGE THE GAS HEATER TO MAINTAIN A MINIMUM TEMPERATURE OF 50°F DURING THE HEATING SEASON.

OCCUPIED COOLING CONTROL

- UPON A RISE IN ROOM TEMPERATURE ABOVE THE ROOM COOLING SETPOINT OF 75°F, THE COOLING CYCLE SHALL BE ACTIVATED.
- THE FIRST MEANS OF COOLING SHALL BE ACTIVATION OF THE ECONOMIZER. IF THE OUTSIDE AIR ENTHALPY IS BELOW THE ROOM ENTHALPY, THE OUTSIDE AND RETURN AIR DAMPERS SHALL BE PROPORTIONALLY MODULATED UP TO 100% OUTDOOR AIR TO MAINTAIN SPACE TEMPERATURE SETPOINT. DAT SHALL OVERRIDE, IF REQUIRED, TO LIMIT SUPPLY AIR TEMPERATURE TO 55°F MINIMUM DURING ECONOMIZER COOLING (LIMIT SHALL NOT RESULT IN REDUCTION OF THE MINIMUM OUTDOOR AIRFLOW). IF ADDITIONAL COOLING IS REQUIRED, THE CONDENSING UNIT'S COMPRESSORS SHALL BE STAGED ON AS REQUIRED. FOR LOW LOAD OPERATION, HGB SHALL BE USED. THE REVERSE SHALL OCCUR ON A DROP IN SPACE TEMPERATURE BELOW COOLING SETPOINT.

- IF THE OUTSIDE AIR ENTHALPY RISES ABOVE THE ROOM AIR ENTHALPY THE ECONOMIZER SHALL BE POSITIONED TO PROVIDE MINIMUM OUTDOOR AIRFLOW AND THE CONDENSING UNIT STAGED TO MAINTAIN ROOM COOLING SETPOINT TEMPERATURE. DAT SHALL LIMIT SUPPLY AIR TO 48°F MINIMUM, DURING MECHANICAL COOLING.

UNOCCUPIED CONTROL

- IF, WHEN THE UNIT IS OFF, THE ROOM TEMPERATURE FALLS BELOW 56°F, THE UNIT SHALL START WITH RAD OPEN AND OAD CLOSED AND GAS HEATER SHALL BE CONTROLLED BY DAT TO SUPPLY 90°F AIR. WHEN ROOM TEMPERATURE RISES ABOVE 60°F, THE UNIT SHALL SHUT DOWN. EF SHALL REMAIN OFF WITH EAD CLOSED.

WARM-UP CONTROL

- DDC CONTROLLER SHALL PROVIDE OPTIMUM START CAPABILITY. IF SPACE TEMPERATURE IS BELOW 63°F, WARM-UP SHALL BE DONE WITH RAD OPEN, OAD CLOSED, AND GAS HEATER CONTROLLED BY DAT TO SUPPLY 90°F AIR. WHEN ROOM TEMPERATURE RISES ABOVE 69°F, OCCUPIED MODE SHALL START. EF SHALL REMAIN OFF WITH EAD CLOSED.

SAFETIES

- IN ADDITION TO THE CO SAFETY SHOWN ABOVE (FOR BUILDINGS WITH RESIDENTIAL UNITS), THE FOLLOWING SAFETIES EACH WITH ITS OWN MANUAL RESET BUTTON, SHALL SHUT DOWN THE UNIT VIA HARDWARE BEFORE H-O-A.
 - ANY FREEZE/STAT (FZ) SHALL SHUTDOWN THE UNIT WHENEVER THE TEMPERATURE IS LESS THAN 35°F.

ALARMS

- IF EITHER THE SUPPLY OR EXHAUST FAN FAILS OR IF ANY SAFETY IS TRIPPED, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE FRONT END.
- IF FILTER PRESSURE DROP EXCEEDS SETPOINT (INITIALLY 0.6") FOR 10 MINUTES, THE DDC CONTROLLER SHALL GIVE A DETAILED ALARM SIGNAL TO THE FRONT END.



STAMP

CLIENT

CONSULTANT

PROJECT NAME

WORCESTER FIRE DEPT.

KEY PLAN

REVISION/ISSUANCE

#

DESCRIPTION

DATE

PROJECT NO.:

DESIGNED BY:

CHECKED BY:

DATE:

SCALE:

SHEET NAME

MECHANICAL

LEGEND,

NOTES

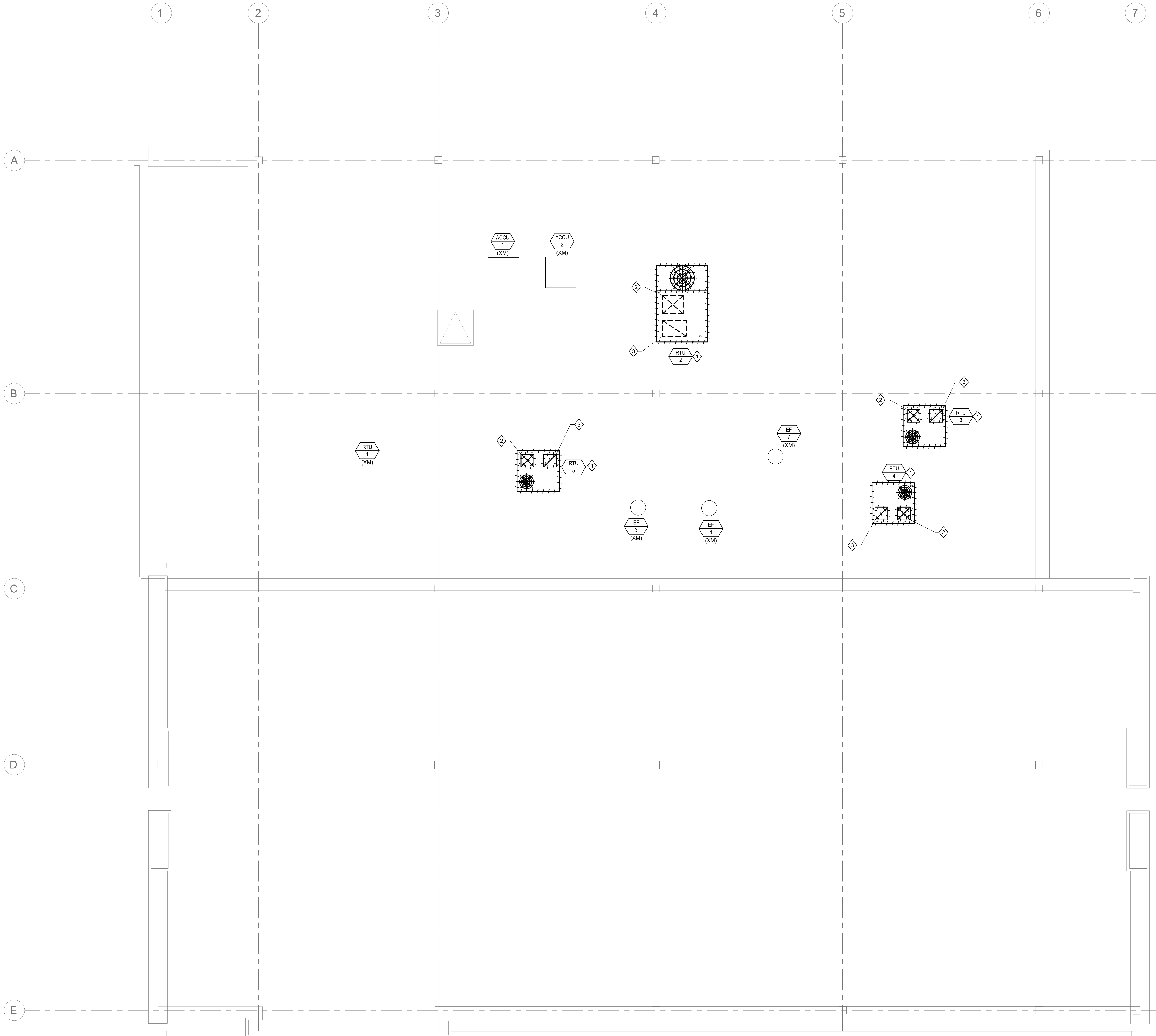
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ABBREVIATIONS

SHEET NUMBER

M001

N:\BL\EST\Projects\2025\25-0005100 - Worcester 266 Franklin St. RTU\000 Drawings\04012_Mech\25-0005100 MD101 MECHANICAL DEMOLITION ROOF PLAN.dwg [M101] June 5, 2025 - 11:06 AM daniel.givoda



1 MECHANICAL DUCTWORK DEMOLITION PLAN - ROOF
MD 101 1/4" = 1' - 0"

DEMOLITION GENERAL NOTES

- REFER TO THE MECHANICAL DEMOLITION PLAN ON THIS SHEET FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
- THE LOCATIONS OF EXISTING EQUIPMENT INCLUDING PIPING, DUCTWORK, EQUIPMENT, CONDUITS, ETC ARE SHOWN IN AN APPROXIMATE WAY ONLY. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS AND COMMENCEMENT OF WORK TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
- TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
- COORDINATE EQUIPMENT REMOVAL WITH ALL PARTIES TO PROVIDE DISCONNECTION. REMOVE EQUIPMENT BY UNFASTENING AT THE SUPPORTS OR ATTACHMENTS. ALSO REMOVE THE ATTACHMENTS FROM THE BUILDING, LEAVING NO COMPONENT OF THE ORIGINAL INSTALLATION.
- PROMPTLY REPAIR ANY DAMAGE CAUSED DURING/BY THE EXECUTION OF WORK. DAMAGE INCLUDES BUT IS NOT LIMITED TO DESTRUCTION OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.
- NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
- ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
- ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
- DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND PROPERLY DISPOSE OF CHEMICALS, LIQUIDS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS BEFORE PROCEEDING WITH DEMOLITION OPERATIONS.
- ALL DEMOLITION / REUSE SCOPE ASSOCIATED WITH LOW VOLTAGE WIRING FOR CONTROLS AND ASSOCIATED INTERLOCKS SHALL BE INCLUDED IN THIS CONTRACT.

KEYNOTES

1	EXISTING ROOF TOP UNIT TO BE REMOVED. DISCONNECT EXISTING POWER FEED AND MAKE SAFE. DISCONNECT EXISTING GAS PIPING AND CAP PIPE. DISCONNECT THE EXISTING CONTROL WIRING AND THERMOSTAT. THERMOSTAT AND WIRING SHALL BE REUSED FOR THE NEW RTU. THE EXISTING UNIT ROOF CURB SHALL REMAIN AND BE PROVIDED WITH A CURB ADAPTOR TO BE REUSED FOR THE INSTALLATION OF NEW THE NEW ROOF TOP UNIT.
2	DISCONNECT ROOFTOP UNIT FROM EXISTING SUPPLY DUCTWORK, EXISTING DUCT RISER DOWN TO REMAIN AND BE REUSED BY NEW RTU.
3	DISCONNECT ROOFTOP UNIT FROM EXISTING RETURN AIR DUCTWORK, EXISTING DUCT RISER DOWN TO REMAIN AND BE REUSED BY NEW RTU.

STAMP

**100%
BID SET
06/06/2025**

THE PROFESSIONAL ENGINEER'S SEAL APPLIED TO THIS SHEET APPLIES ONLY TO THE MATERIAL AND DESIGN SHOWN ON THIS SHEET. ALL CHANGES AGREED UPON BY THE ENGINEER AND THE OWNER'S REPRESENTATIVE SHALL BE CONSIDERED PART OF THE DESIGN. THE ENGINEER'S SEAL SHALL NOT BE CONSIDERED A GUARANTEE OF THE QUALITY OF THE DESIGN OR THE ACCURACY OF THE INFORMATION PROVIDED HEREON.

CLIENT

CONSULTANT

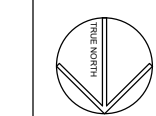
PROJECT NAME

WORCESTER FIRE DEPT.

**ROOFTOP
UNIT
REPLACEMENT
FRANKLIN
STREET
FIRE
STATION**

266 FRANKLIN ST.
WORCESTER, MA 01604

KEY PLAN



REVISION/ISSUANCE

#	DESCRIPTION	DATE

PROJECT NO.: 25-0005100

DESIGNED BY: OCG

CHECKED BY: CH

DATE: 06/06/2025

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

SHEET NAME

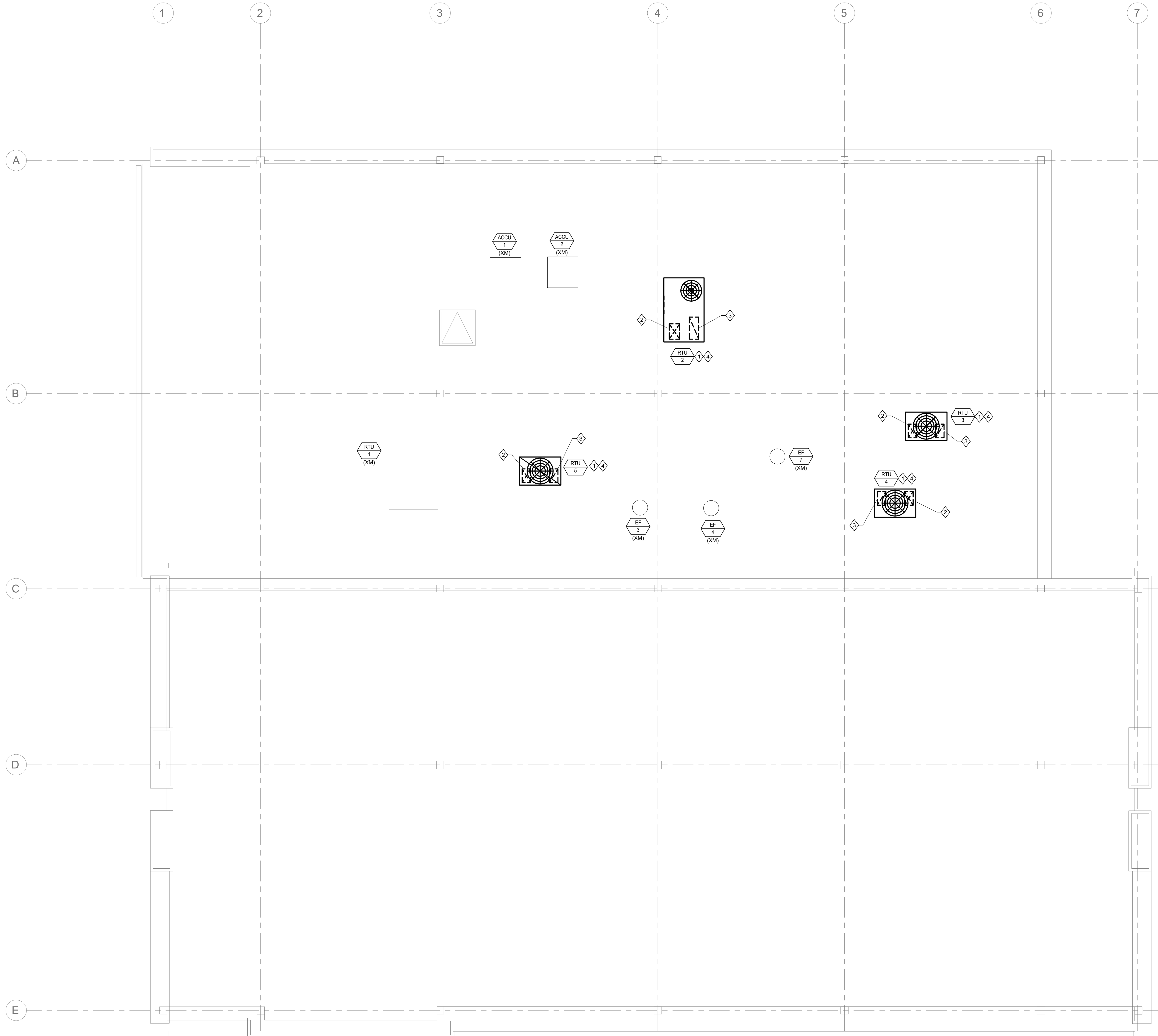
**MECHANICAL
DUCTWORK
DEMOLITION
PLAN - ROOF**

SHEET NUMBER

MD101

1/4" = 1' - 0"
0 4' 8'

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1 MECHANICAL DUCTWORK PLAN - ROOF
M 101 1/4" = 1' - 0"

GENERAL NOTES

- REFER TO M000 FOR LEGEND, DETAILS, AND GENERAL NOTES.
- INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, RECOMMENDATIONS, AND GOOD PRACTICE NORMAL TO THE TRADE. ALL EQUIPMENT SHALL BE INSTALLED AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS. INSTALLATION SHALL INCLUDE PROVISIONS FOR ACCESS TO NORMAL MAINTENANCE ITEMS, PROVIDE ADEQUATE STRUCTURAL SUPPORTS AND SECURE MOUNTING METHODS WITH PROVISIONS FOR VIBRATION ISOLATION AND EXPANSION WHERE REQUIRED.
ROOF WORK NOTES
1. ROOF WORK NOTES SHALL APPLY TO ALL MECHANICAL AND STRUCTURAL NEW WORK DRAWINGS.
2. PROVIDE ADEQUATE WEATHER PROTECTION AGAINST WIND, RAIN, SNOW, ETC. FOR ALL ROOF OPENINGS DURING CONSTRUCTION.
3. EXISTING ROOFS SHALL BE THOROUGHLY PROTECTED TO PREVENT DAMAGE FROM CONSTRUCTION AND/OR RIGGING. ANY ROOF DAMAGE SHALL BE REPAIRED WITHOUT ANY ADDITIONAL COST TO THE CONTRACT.
4. FIELD VERIFY RIGGING REQUIREMENTS PRIOR TO SUBMITTING A PROPOSAL. COORDINATE ALL RIGGING WITH EXISTING CONDITIONS, INCLUDING PARKING.

KEYNOTES

- | | |
|---|--|
| 1 | INSTALL NEW PACKAGED ROOF TOP UNIT PER MANUFACTURER RECOMMENDATIONS. UNIT INSTALLATION SHALL UTILIZE THE EXISTING ROOF CURB FROM THE UNIT THAT HAS BEEN REMOVED. CURB ADAPTORS SHALL BE PROVIDED TO MODIFY THE EXISTING ROOF CURB TO ACCOMMODATE THE NEW UNIT AND DUCTWORK CONFIGURATION. COORDINATE CURB ADAPTORS WITH RTU MANUFACTURER'S DIMENSIONED DRAWINGS. UPON COMPLETION OF MODIFICATIONS THE CURB SHALL BE SEALED AIRWEATHER TIGHT! |
| 2 | CONNECT NEW RTU SUPPLY AIR DISCHARGE TO EXISTING SUPPLY AIR DUCTWORK, PROVIDE ALL REQUIRED DUCTWORK TRANSITIONS AND FITTINGS NEEDED TO MAKE FINAL CONNECTIONS TO THE EXISTING DUCTWORK |
| 3 | CONNECT NEW RTU RETURN AIR INTAKE TO EXISTING RETURN AIR DUCTWORK. PROVIDE ALL REQUIRED DUCTWORK TRANSITIONS AND FITTINGS NEEDED TO MAKE FINAL CONNECTIONS TO THE EXISTING DUCTWORK |
| 4 | CONNECT NEW RTU GAS FIRED FURNACE TO EXISTING GAS PIPING. PROVIDE ALL REQUIRED VALVES AND ACCESSORIES TO ENSURE A COMPLETE INSTALLATION. REFER TO MANUFACTURER'S INSTALLATION AND OPERATION MANUAL FOR DETAILS. |

GENERAL RTU INSTALLATION NOTES

- PROVIDE UNITS WITH CURB ADAPTORS.
- EXISTING THERMOSTAT/CONTROL WIRING TO REMAIN. RECONNECT EXISTING CONTROL WIRING/THERMOSTAT TO NEW RTU UNITS.
- RECONNECT GAS PIPING TO NEW RTU UNITS.
- RECONNECT EXISTING POWER FEEDS TO NEW RTU UNITS. REFER TO ELECTRICAL DRAWINGS.

STAMP

**100%
BID SET**
06/06/2025

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CLIENT

CONSULTANT

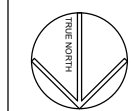
PROJECT NAME

WORCESTER FIRE DEPT.

ROOFTOP
UNIT
REPLACEMENT
FRANKLIN
STREET
FIRE
STATION

266 FRANKLIN ST.
WORCESTER, MA 01604

KEY PLAN



REVISION/ISSUANCE

#	DESCRIPTION	DATE

PROJECT NO.: 25-0005100

DESIGNED BY: OCG

CHECKED BY: CH

DATE: 06/06/2025

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

SHEET NAME

MECHANICAL
DUCTWORK
PLAN - ROOF

SHEET NUMBER

M101

1/4" = 1' - 0"
0 4' 8'

MECHANICAL EQUIPMENT SCHEDULE																														
LOAD TAG	STARTER LOCATION	LOAD					STARTER					POWER SOURCE					CONNECTION					BRANCH CIRCUIT	REMARKS							
		HP	FLA	KVA	VOLT	PH	NEMA SIZE	TYPE	OVERCURRENT			PB	HOA	INDICATING LIGHTS			CPT	AUXILIARY		PANEL	EXISTING C/B			FLEX	JB	REC	DISC			
									CB	RK1 FUSE	MCP			R	G	A		CONTACTS									AS	AF	NEMA	
																		NO	NC											
RTU-2	NOTE 8	20	4.2	208	1															PPM-17	25A/2P	X				30	25	3R	2#10+10G-3/4"C	NOTES 11,12
RTU-3	NOTE 8	16.5	3.4	208	1															PPM-13	30A/2P	X				30	30	3R	2#10+10G-3/4"C	NOTES 11,12
RTU-4	NOTE 8	12.7	2.6	208	1															PPM-16	20A/2P	X				30	20	3R	2#12+12G-3/4"C	NOTES 11,12
RTU-5	NOTE 8	16.5	3.4	208	1																					30	25	3R	2#10+10G-3/4"C	NOTES 11,12
NOTES: 1. NOTES 2-6 APPLY TO ALL APPLICABLE LOADS. 2. PROVIDE THERMAL OVERLOAD UNITS FOR ALL STARTERS SIZED TO MATCH LOAD NAMEPLATE AND NEC REQUIREMENTS. 3. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION. THE FINAL THREE FEET (MAXIMUM) SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT. 4. COPPER BRANCH CIRCUIT CONDUCTOR SIZING BASED UPON NEC TABLE 310.15(B)(16), MAKE ADJUSTMENTS TO CONDUCTORS FOR TEMPERATURE OR VOLTAGE DROP THAT EXCEED NEC AND SPECIFICATION CRITERIA. 5. RACEWAY SIZES ARE BASED UPON GRSC AND LFMC WITH THWN CONDUCTORS. 6. VFD SHALL BE CONTROLLED VIA REMOTE 4-20mA OR 0-5V SIGNAL PROVIDED BY THE HVAC ATC CONTRACTOR. 7. REQUIRED DISCONNECT IS PROVIDED INTEGRAL/PREWIRE TO MECHANICAL EQUIPMENT. 8. REQUIRED STARTER IS PROVIDED INTEGRAL/PREWIRE TO MECHANICAL EQUIPMENT. 9. DISCONNECT FOR 251W AND 252W MOTORS SHALL BE SIX POLE. 10. PROVIDE NEUTRAL FROM SOURCE TO STARTER ONLY FOR 120V CONTROL POWER OF 208V 3PH UNITS. 11. FUSES FOR DISCONNECT SWITCHES SHALL BE CLASS RK5. 12. RECONNECT/EXTEND EXISTING BRANCH CIRCUIT WIRING TO NEW UNIT AS REQUIRED.																		KEY FVNR FULL VOLTAGE NON-REVERSING FVR FULL VOLTAGE REVERSING 2S1W TWO SPEED SINGLE WINDING 2S2W TWO SPEED TWO WINDING RVAT REDUCED VOLTAGE AUTOTRANSFORMER RVPW REDUCED VOLTAGE PART WINDING RVYDOT REDUCED VOLTAGE WYE DELTA OPEN TRANSITION RVYDCT REDUCED VOLTAGE WYE DELTA CLOSED TRANSITION NMS MANUAL MOTOR STARTER CB CIRCUIT BREAKER MCP MOTOR CIRCUIT PROTECTOR PB START AND STOP PUSH BUTTON HOA HAND-OFF-AUTOMATIC SELECTOR SWITCH CPT CONTROL POWER TRANSFORMER VFD VARIABLE FREQUENCY DRIVE W/O BYPASS VFD/B VARIABLE FREQUENCY DRIVE W/ BYPASS CNTCR CONTACTOR - NO THERMAL OVERLOAD												

3 1/8"

1 1/2"

PANEL R26C

225A 208Y/120V

FED FROM RD26A

1/2" LETTERS

(TYPICAL)

NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.

2. NAMEPLATE TO BE 1/16" THICK PLASTIC WITH BLACK CENTER LAMINATION. FACE SHALL BE WHITE, ENGRAVED LETTERS SHALL BE BLACK.

3. SECURE NAMEPLATE TO SURFACES WITH HIGH STRENGTH ADHESIVE CEMENT. UTILIZE MECHANICAL FASTENERS FOR ALL EXTERIOR LOCATIONS.

4. TYPICAL FOR MOUNTING ON "SWITCHBOARDS", "PANELBOARDS", "STARTERS", "DISCONNECTS", AND "TRANSFORMERS".

NV5

TYPICAL ENGRAVED PLASTIC NAMEPLATE DETAIL

E303

AIR TERMINAL

TOP MOUNTED BASE

PRESSURE CABLE CONNECTION

CABLE

MASONRY FASTENER

MASONRY FASTENER (TYPICAL FOR 2)

NV5

TOP MOUNTED AIR TERMINAL BASE DETAIL

E112

AIR TERMINAL

BASE

CONDUCTOR

FLAT SURFACE AIR TERMINAL BASE WITH PRESSURE TYPE CABLE CONNECTOR (BRONZE), BOND WITH ADHESIVE CEMENT ONLY.

CABLE FASTENER

ADHESIVE

NOTES:

1. THE ROOFING MANUFACTURER SHALL APPROVE ADHESIVES USED FOR THE ATTACHMENT OF AIR TERMINALS AND FITTINGS TO THE ROOFING SYSTEM. ATTACHMENT OF LIGHTNING PROTECTION SYSTEM COMPONENTS SHALL NOT IMPACT THE ROOF WARRANTY.

NV5

AIR TERMINAL-FLAT ROOF MOUNT DETAIL

E103

WEATHERPROOF LOCKABLE DISCONNECTING MEANS MOUNTED ON UNI-STRUT SUPPORT SYSTEM.

LIQUIDTIGHT FLEXIBLE METAL CONDUIT

WEATHERPROOF LIGHTING FIXTURE (HUBBELL #WV1/VX2-VBLU15-VL15LGVCG-15)(19W LED)

CIRCUITRY IN RIGID GALVANIZED STEEL CONDUIT

120 VOLT DUPLEX, GROUND FAULT RECEPTACLE AND LIGHT SWITCH IN 2 GANG WEATHERPROOF WHILE IN USE ENCLOSURES

GALVANIZED RIGID STEEL CONDUIT

ROOF CURB

ROOF MEMBRANE AND INSULATION

ROOF DECK

NOTES:

1. LOCATION OF RECEPTACLE AND DISCONNECT SWITCH IS REPRESENTATIVE AND SHALL BE INSTALLED PER MECHANICAL EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

2. MAINTAIN WORK SPACE IN ACCORDANCE WITH NEC 110.26.

3. REFER TO POWER PLAN FOR EXACT RACEWAY AND MOUNTING MATERIAL REQUIREMENTS.

NV5

ROOF TOP MECHANICAL EQUIPMENT LIGHTING & RECEPTACLE DETAIL

E204R

CABLE

BONDING PLATE WITH PRESSURE TYPE CABLE CONNECTION, PROVIDE FOR ALL METAL OBJECTS WITHIN 6'-0" OF THE LIGHTNING PROTECTION SYSTEM.

NV5

BONDING PLATE DETAIL

E105

ELECTRICAL DEMOLITION NOTES

1. REFER TO THE MECHANICAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE DEMOLITION LIMITS TO FULLY COMPLY WITH VARIOUS REQUIREMENTS OF THE CONTRACT DOCUMENTS.

2. THE ELECTRICAL DEMOLITION PLANS ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.

3. PERFORM ELECTRICAL DEMOLITION WORK AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN COOPERATION WITH THE OTHER TRADES AND AS SCHEDULED AND APPROVED BY THE OWNER'S REPRESENTATIVE. DISCONNECT AND MAKE SAFE ALL ELECTRICAL EQUIPMENT IDENTIFIED FOR REMOVAL ON THE ELECTRICAL AND HVAC PLANS.

4. THE LOCATIONS OF EXISTING EQUIPMENT INCLUDING CONDUITS, ETC ARE SHOWN IN AN APPROXIMATE WAY ONLY. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS AND COMMENCEMENT OF WORK TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.

5. POWER OUTAGES CAUSED BY DEMOLITION THAT AFFECT OTHER AREAS SHALL BE HELD TO A MINIMUM. SHUTDOWNS SHALL BE COORDINATED WITH USERS AND THE OWNER. NIGHT, WEEKEND, AND/OR HOLIDAY TIME REQUIRED TO PERFORM ELECTRICAL DEMOLITION WORK OR NEW ELECTRICAL WORK SHALL BE CARRIED AS PART OF THE CONTRACT COST.

6. CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.

7. PROMPTLY REPAIR ANY DAMAGE CAUSED DURINGBY THE EXECUTION OF WORK. DAMAGE INCLUDES BUT IS NOT LIMITED TO DESTRUCTION OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.

8. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.

9. THE EXISTING FIRE ALARM SYSTEM SHALL REMAIN FULLY FUNCTIONAL DURING THE ENTIRE DEMOLITION AND CONSTRUCTION PERIOD. REUSE OF EXISTING FIRE ALARM SYSTEM RACEWAYS SHALL NOT BE ALLOWED. ALL REQUIRED SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE AND THE AUTHORITY HAVING JURISDICTION. DEMOLITION OF THE EXISTING SYSTEM SHALL NOT COMMENCE UNTIL THE NEW SYSTEM HAS BEEN COMPLETELY INSTALLED, TESTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.

10. CREATE AND SUBMIT IMPAIRMENT PLANS TO THE OWNER AND AHJ IF ANY PORTION OF THE EXISTING FIRE ALARM SYSTEM IS TAKEN OUT OF SERVICE DURING THE EXECUTION OF THE PROJECT.

LIGHTNING PROTECTION LEGEND

AT

AIR TERMINAL

DOWN CONDUCTOR WITH GROUND ROD.

LIGHTNING PROTECTION CABLE

EXOTHERMIC BONDING CONNECTION

BOLTED BONDING CONNECTION

EXISTING EQUIPMENT LEGEND

XM

EXISTING EQUIPMENT TO REMAIN

X

EXISTING EQUIPMENT TO BE REMOVED

XR

EXISTING EQUIPMENT TO BE RELOCATED

XN

NEW LOCATION OF EXISTING RELOCATED EQUIPMENT

NR

EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER

EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE

EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

LIGHTING FIXTURE LEGEND

HW2 Q2,a

LIGHTING FIXTURE WALL MOUNTED

SWITCH LEGEND

S WP

SINGLE POLE SWITCH, WEATHERPROOF

WIRING DEVICE LEGEND

S GF1

DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V

"S"- INDICATES CIRCUIT NUMBER

"GFI"- INDICATES INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER

"WPF"- INDICATES WEATHERPROOF

J

JUNCTION BOX

MOTOR & CONTROLS LEGEND

60AS 60AF

FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED.

3R

"3R" - INDICATES NEMA TYPE 3R ENCLOSURE

60AS

"60AS" - INDICATES 60AMP SWITCH

50AF

"50AF" - INDICATES 50AMP FUSES

ATL

EQUIPMENT TAG, TOP ALPHANUMERIC CORRESPONDS TO EQUIPMENT ID REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.

ABBREVIATIONS

A/AMP

AMPERE

KWH

KILOWATT HOURS

AC

ALTERNATING CURRENT

LTG

LIGHTING

ADA

AMERICAN WITH DISABILITIES

MCB

MAIN CIRCUIT BREAKER

AF

AMPERE FRAME

MEC

MASSACHUSETTS ELECTRICAL CODE

AFF

ABOVE FINISHED FLOOR

M/G

MOTOR/GENERATOR SET

AFG

ABOVE FINISHED GRADE

MH

MANHOLE

AIC

AMPERE INTERRUPTING CAPACITY

MLO

MAIN LUGS ONLY

AL

ALUMINUM

MTD

MOUNTED

AT

AMPERE TRIP

MTG

MOUNTING

ATS

AUTOMATIC TRANSFER SWITCH

NC

NORMALLY CLOSED CONTACT

AWG

AMERICAN WIRE GAUGE

NEC

NATIONAL ELECTRICAL CODE

B

BURIED

NO

NORMALLY OPEN CONTACT

C

CONDUIT

NTS

NOT TO SCALE

CA

CABLE

#

NUMBER

CATV

CABLE TELEVISION

OPD

OVER CURRENT PROTECTION DEVICE

CCTV

CLOSED CIRCUIT TELEVISION SYSTEM

POS

PROVIDED UNDER OTHER SECTIONS

CB

CIRCUIT BREAKER

PVC

POLYVINYL CHLORIDE

CKT

CIRCUITS

PWR

POWER

CPU

CENTRAL PROCESSING UNIT

RGS

RIGID GALVANIZED STEEL

ℓ

CENTERLINE

RMS

ROOT MEAN SQUARE VALUE

dB

DECIBEL

RPM

REVOLUTIONS PER MINUTE

DC

DIRECT CURRENT

SPD

SURGE PROTECTIVE DEVICE

DWG

DRAWING

SN

SOLID NEUTRAL

EC

ELECTRICAL CONTRACTOR

SWBD

SWITCHBOARD

EMT

ELECTRIC METALLIC TUBING

TB

TERMINAL BLOCK

FDR

FEEDER

TEL

TELEPHONE

FLMT

FLEXIBLE LIQUID TIGHT METALLIC TUBING

TERMN

TERMINAL

FREQ

FREQUENCY

TSP

TWISTED SHIELDED-PAIR

GEC

GROUNDING ELECTRODE CONDUCTOR

TVSS

TRANSIENT VOLTAGE SURGE SUPPRESSER

GFI

GROUND FAULT INTERRUPTING

TYP

TYPICAL

GND

GROUND

UG

UNDERGROUND

HH

HANDHOLE

UNO

UNLESS NOTED OTHERWISE

HP

HORSEPOWER

UPS

UNINTERRUPTIBLE POWER SUPPLY

HVAC

HEATING, VENTILATING AND AIR CONDITIONING

UTP

UNSHIELDED TWISTED-PAIR

HZ

HERTZ

V

VOLTS

IG

ISOLATED GROUND

VA

VOLT-AMPERE

JB

JUNCTION BOX

VSD

VARIABLE SPEED DRIVE

KVA

KILOVOLT-AMPERE

W

WATTS

KW

KILOWATT

WP

WEATHERPROOF

NV5

200 Brickstone Square,
Andover, MA 01810-1456
T. 978.296.6200
www.nv5.com

STAMP

100%
BID SET
06/06/2025

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CLIENT

CONSULTANT

PROJECT NAME

WORCESTER FIRE DEPT.

ROOFTOP UNIT REPLACEMENT FRANKLIN STREET FIRE STATION

266 FRANKLIN ST.
WORCESTER, MA 01604

KEY PLAN

REVISION/ISSUANCE

#	DESCRIPTION	DATE

PROJECT NO.:

25-0005100

DESIGNED BY:

MM

CHECKED BY:

JF

DATE:

06/06/2025

SCALE:

NTS

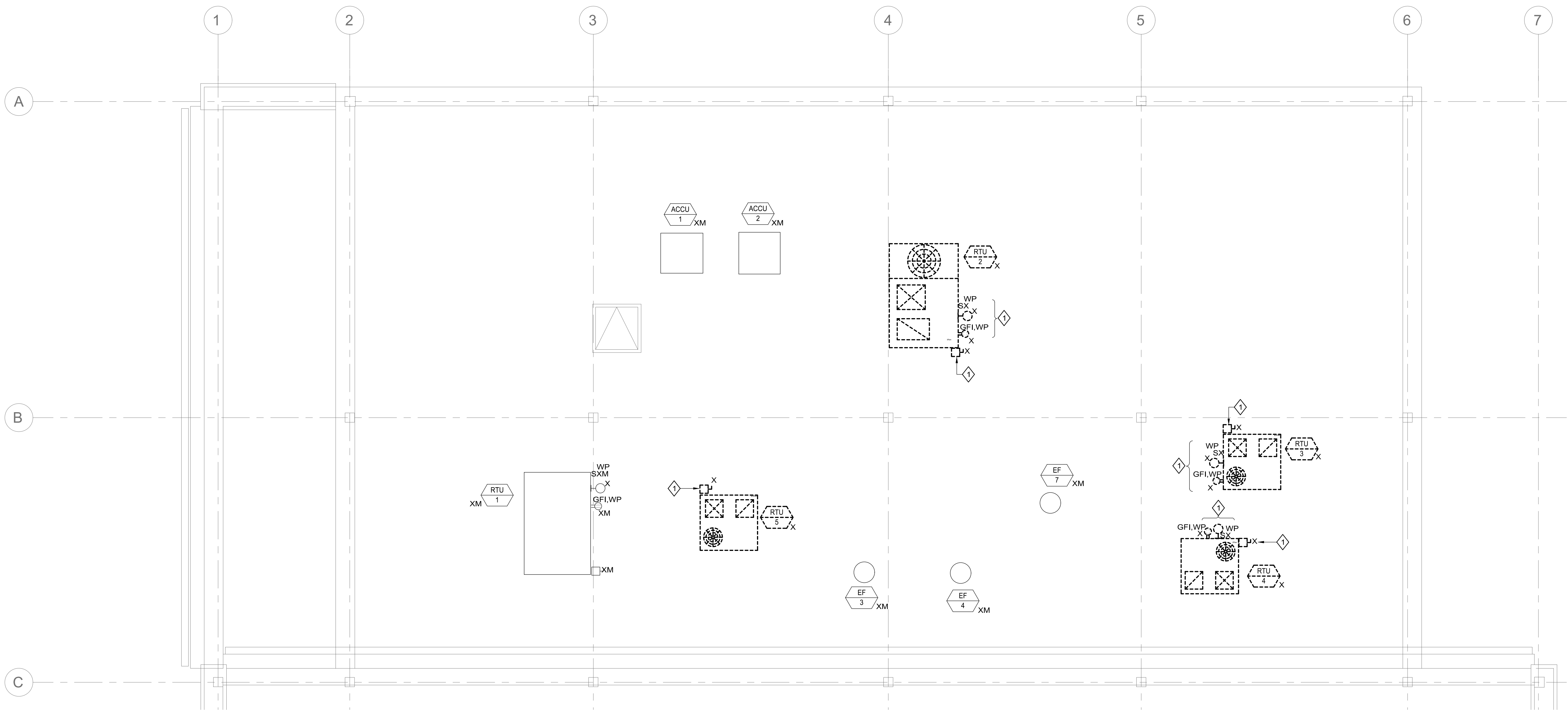
SHEET NAME

ELECTRICAL LEGEND, NOTES AND ABBREVIATIONS

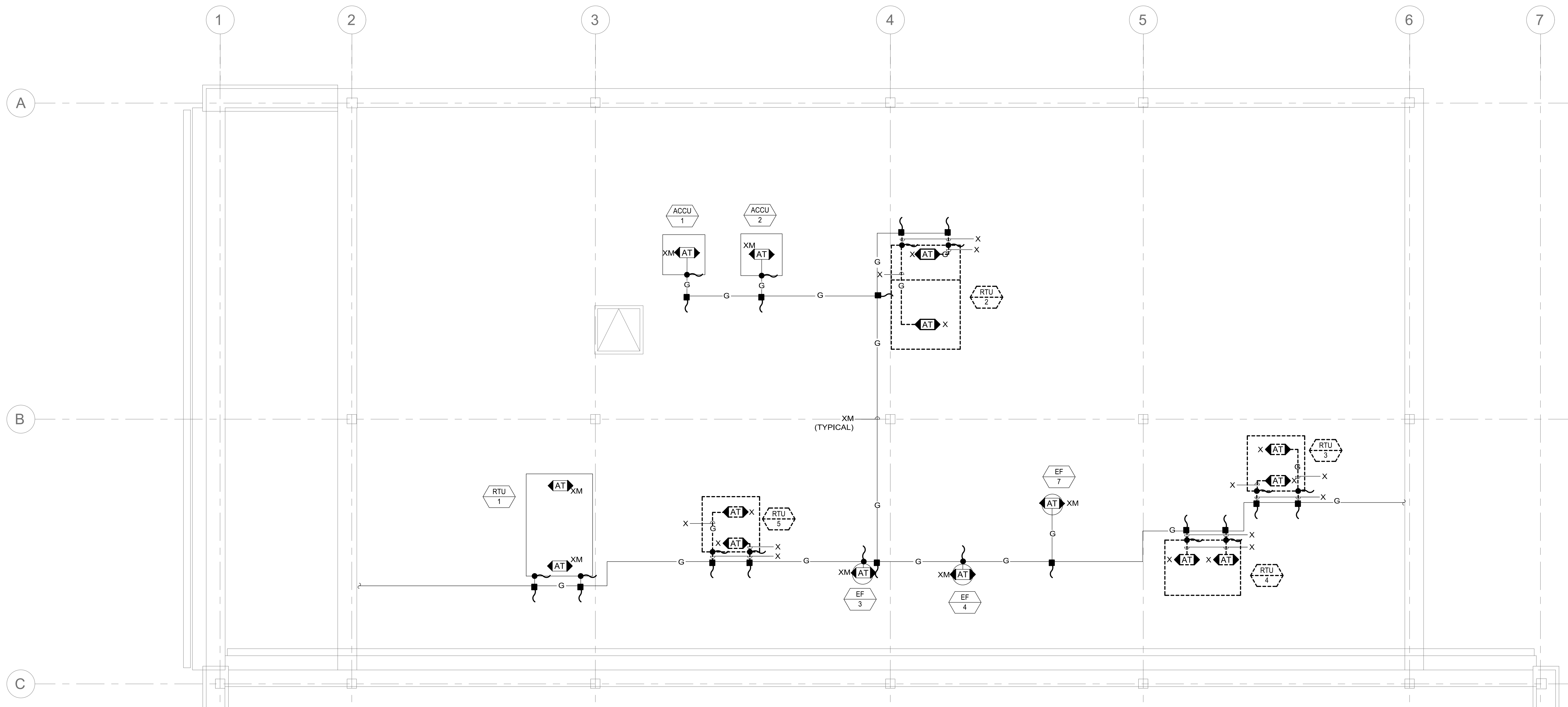
SHEET NUMBER

E 001

N:\BEST Project\2025\25-0005100 - Worcester 266 Franklin St 15 RTU\000 Drawings\000\15-0005100-ED101 ELECTRICAL POWER DEMOLITION PLAN - R00P.dwg [R00P] Jun 5, 2025 - 11:02 AM dmsd.grw\ds



1 ELECTRICAL ROOF POWER DEMOLITION PART PLAN
ED 101 1/4" = 1' - 0"



2 ELECTRICAL ROOF LIGHTNING PROTECTION DEMOLITION PART PLAN
ED 101 1/4" = 1' - 0"

1/4" = 1' - 0" 0 4' 8'

NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND DEMOLITION NOTES.
2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, MOUNTING DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

KEYNOTES

EXISTING EQUIPMENT SHALL BE DISCONNECTED/REMOVED AS ILLUSTRATED. RELATED BRANCH CIRCUIT WIRING/CONDUIT SHALL BE RETAINED FOR REUSE. PROVIDE WEATHERPROOF JUNCTION BOX MOUNTED AT FINISHED ROOF AND INTERCEPT/MAKE SAFE EXISTING BRANCH CIRCUIT WIRING FOR REUSE.

NOTES:

1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

STAMP

**100%
BID SET**
06/06/2025

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CLIENT

CONSULTANT

PROJECT NAME

WORCESTER FIRE DEPT.

**ROOFTOP
UNIT
REPLACEMENT
FRANKLIN
STREET
FIRE
STATION**

266 FRANKLIN ST.
WORCESTER, MA 01604

KEY PLAN



REVISION/ISSUANCE

#	DESCRIPTION	DATE

PROJECT NO.: 25-0005100

DESIGNED BY: DSG

CHECKED BY: CHK

DATE: 06/06/2025

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

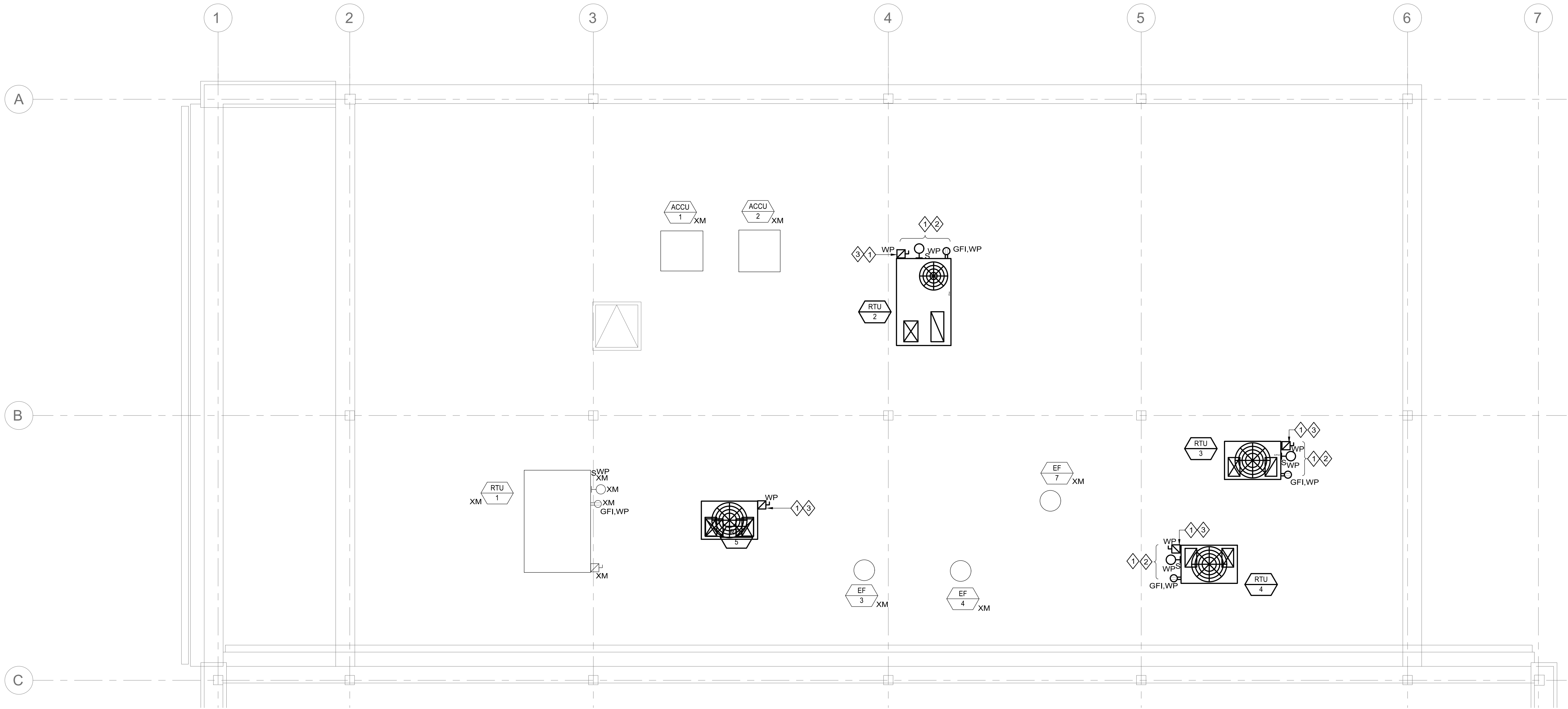
SHEET NAME

**ELECTRICAL
ROOF
DEMOLITION
PART PLANS**

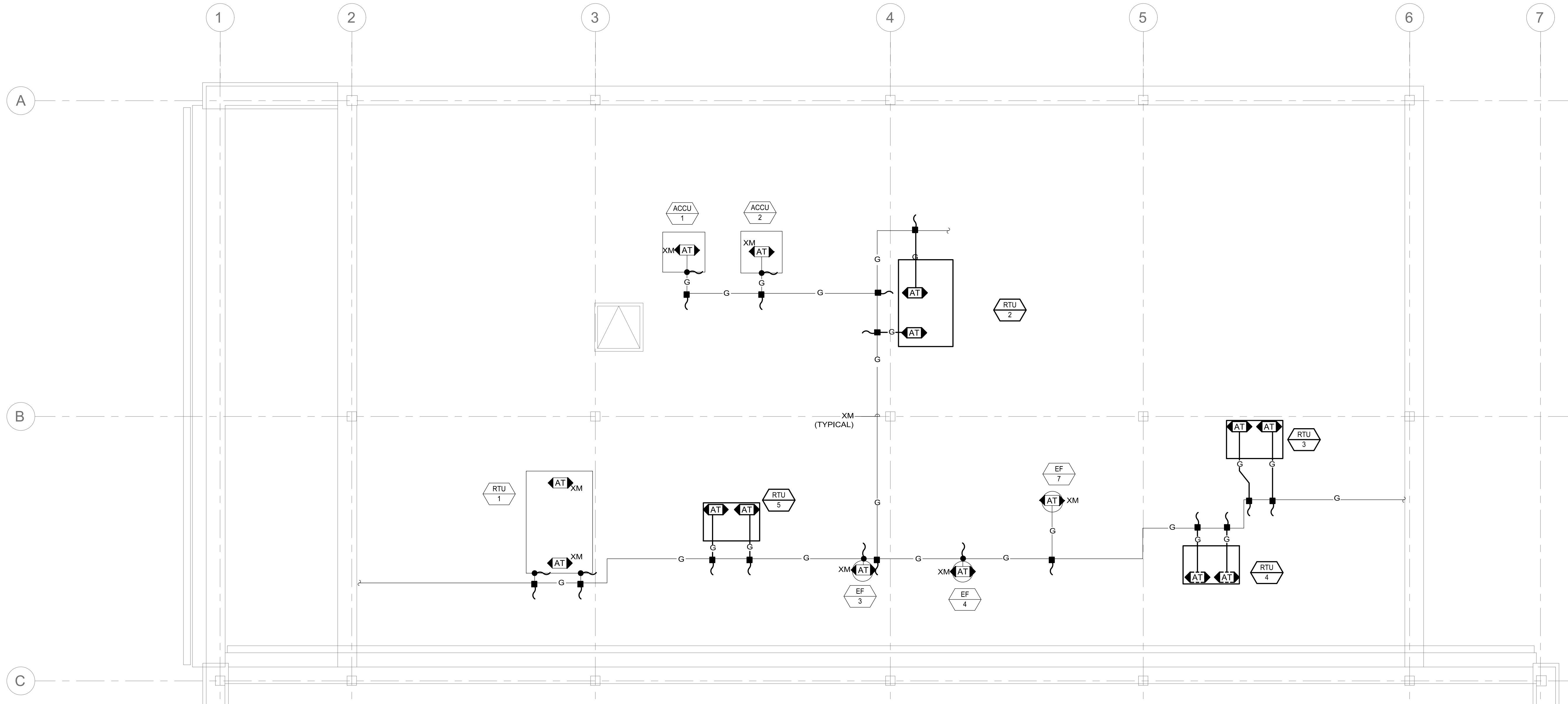
SHEET NUMBER

ED101

N:\BEST Projects\2025\25-0005100 - Worcester Fire Dept - 266 Franklin St - RTU\000 Drawings\000 ELEC\25-0005100 E101 ELECTRICAL POWER PLAN - Roof.dwg [PAPER] June 5, 2025 - 11:06 AM daniel.graham



1 ELECTRICAL ROOF POWER PART PLAN
E 101 1/4" = 1' - 0"



2 ELECTRICAL ROOF LIGHTNING PROTECTION PART PLAN
E 101 1/4" = 1' - 0"

1/4" = 1' - 0" 0 4' 8'

NOTES:

1. REFER TO DRAWING E000 FOR LEGEND, SYMBOLS AND DEMOLITION NOTES.
2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, MOUNTING DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.
4. ALL EXPOSED BRANCH CIRCUITRY ON THE ROOF SHALL BE INSTALLED IN RIGID METAL CONDUIT WITH FLEXIBLE CONNECTIONS TO ALL MECHANICAL EQUIPMENT UTILIZING LIQUID TIGHT FLEXIBLE METAL CONDUIT NOT TO EXCEED 18". ALL PENETRATIONS OF WEATHER TIGHT BOXES SHALL UTILIZE WEATHERPROOF HUBS. ALL CONDUIT SUPPORTS SHALL BE HOT DIPPED GALVANIZED. EXPOSED HORIZONTAL RUNS SHALL BE MINIMIZED.
5. ALL FASTENERS, MISCELLANEOUS SUPPORTS (UNISTRUT OR EQUAL) AND HARDWARE UTILIZED FOR THE ELECTRICAL INSTALLATION SHALL BE STAINLESS STEEL.
6. ALL ROOF PENETRATIONS SHALL BE IN ACCORDANCE WITH THE ROOFING MANUFACTURER'S INSTRUCTIONS TO MAINTAIN THE INTEGRITY AND ANY REMAINING WARRANTY ON THE ROOFING SYSTEM.

LIGHTNING PROTECTION NOTES:

1. THE LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF UL 96A, NFPA 780 AND ANSI WITH CONFORMANCE TO ALL APPLICABLE LOCAL CODES AND ORDINANCES.
2. THE ROOFING MANUFACTURER SHALL APPROVE ADHESIVES USED FOR THE ATTACHMENT OF AIR TERMINALS AND FITTINGS TO THE ROOFING SYSTEM. ATTACHMENT OF LIGHTNING PROTECTION SYSTEM COMPONENTS SHALL NOT IMPACT THE ROOF WARRANTY.
3. ALL COMPONENTS ARE INTENDED TO BE COPPER, BARE COPPER SHALL NOT BE INSTALLED WHERE IN DIRECT CONTACT WITH ALUMINUM.
4. CONNECTIONS TO STRUCTURAL STEEL AND CONCEALED AND/OR BELOW GRADE CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. HIGH COMPRESSION CONNECTIONS MAY BE USED WHERE EXPOSED ABOVE GRADE.
5. THE INSTALLATION SHALL BE COMPLETED IN A NEAT AND WORKMAN LIKE MANNER WITH ALL CONDUCTORS INSTALLED PARALLEL AND/OR PERPENDICULAR TO THE STRUCTURE.

KEYNOTES	
1	RECONNECT/EXTEND EXISTING BRANCH CIRCUIT WIRING/CONDUIT TO NEW EQUIPMENT AS REQUIRED.
2	REFER TO DETAIL E204R ON DRAWING E001 FOR ADDITIONAL INFORMATION.
3	REFER TO MECHANICAL EQUIPMENT SCHEDULE ON DRAWING E001 FOR ADDITIONAL INFORMATION.
NOTES:	
1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.	

STAMP

**100%
BID SET
06/06/2025**

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CLIENT

CONSULTANT

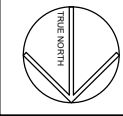
PROJECT NAME

WORCESTER FIRE DEPT.

**ROOFTOP
UNIT
REPLACEMENT
FRANKLIN
STREET
FIRE
STATION**

266 FRANKLIN ST.
WORCESTER, MA 01604

KEY PLAN



REVISION/ISSUANCE		
#	DESCRIPTION	DATE

PROJECT NO.: 25-0005100
DESIGNED BY: M/M
CHECKED BY: J/F
DATE: 06/06/2025
SCALE: 1/4" = 1' - 0"

SHEET NAME

**ELECTRICAL
ROOF
PART PLANS**

SHEET NUMBER

E101