HOPKINTON FIRE STATION HVAC UPGRADE

73 MAIN STREET, HOPKINTON, MA 01748

BID DOCUMENTS

27 MARCH 2024

BID #24-05-002IFB

DRAWING INDEX

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E1.2 ELECTRICAL SECOND FLOOR PLAN	X	X	X	X
E1.3 ELECTRICAL ROOF PLAN	X	X	X	X
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FOR REFERENCE ONLY (ORIGINAL CONSTR. DRAWINGS - DATED 8/8/96				
H-1 FIRST FLOOR HVAC PLAN AND BASEMENT				X
H-2 SECOND FLOOR HVAC PLAN				X
NEW OR REVISED ISSUE:	X			
NON REVISED ISSUE:	--			

GRLA PROJECT NUMBER: 2019034.01

CLIENT:

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2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID DOCUMENTS - MARCH 27, 2024

G | R | L | A

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CODE ANALYSIS

Project	Hopkinton Fire Station HVAC Upgrade 73 Main Street Hopkinton, MA 01748
Applicable Building Code	780 CMR Massachusetts State Building Code (Ninth Edition) Existing Building Code of Massachusetts (International Existing Building Code 2015 (IEBC 2015) with Massachusetts Amendments)
Applicable Electrical Code	780 CMR 27.00 governs the electrical components, equipment and systems used in buildings and structures covered by 780 CMR. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of 527 CMR 12.00.
Applicable Mechanical Code	Mechanical appliances, equipment and systems shall be constructed, installed and maintained in accordance with the International Mechanical Code and 248 CMR.
Applicable Accessibility Codes and Regulations	Americans With Disabilities Act - 2010 ADA Standards for Accessible Design, "2010 Standards." 521 CMR Massachusetts Architectural Access Board (MAAB)
Applicable Energy Code	Buildings shall be designed and constructed in accordance with the International Energy Conservation Code-2018 ("IECC") as modified by 780 CMR 13.00. These amendments are intended to expressly apply to the IECC, and are also applicable, in intent, to ANSI/ASHRAE/IESNA90.1.
Project Summary	The proposed construction will include HVAC upgrade at Hopkinton Fire Department Headquarters including removal and disposal of rooftop HVAC units and replacing with a new units on the roof including related ductwork and including all associated work such as structural reinforcement, electrical, acoustical ceiling work, painting, drywall, roof patching, and associated work as indicated on the Bidding and Contract Documents. This work will be publicly bid through MGL Chapter 149.

Use Classification (780 CMR/ 2015 IBC Chapter 3)	B	Offices
	R-1	Sleeping Quarters
	S-2	Storage
Construction Classification (780 CMR/ 2015 IBC Chapter 6): V B	The building is a mix of non-combustible and combustible construction due to wood framing in some areas.	

Building Characteristics

	Building Area (gsf) per 780 CMR 502.1 Definitions
Basement	220 sf
First Floor	9,262 sf
Second Floor	7,156 sf
Total	16,638 sf

Number of Floors per Building	2

Occupancy Loads	Function of Space	Floor Area Per Occupant	Area (sf)	Occupancy
Per 780 CMR Table 1004.1.2 Maximum Floor Area Allowances per Occupant	Basement	300 gross (Mechanical)	220	1
	First Floor	200 gross (Parking vehicles)	5,856	30
		100 gross (Office Area)	1,483	15
		300 sf (Storage)	1,923	7
	Second Floor	200 gross (Residential)	2,600	13
		100 gross (Offices)	4,556	46
	Total		16,638	112

Existing Building Code of Massachusetts (IEBC-2015 with Massachusetts Amendments)

104.2.2.1 Building Investigation and Evaluation (Mass. Amendments)	For any proposed work regulated by 780 CMR 34.00 and subject to section 107 of 780 CMR, as a condition of the issuance of a permit the building owner shall cause the existing building (or portion thereof) to be investigated and evaluated in accordance with the provisions of 780 CMR 34.00. The investigation and evaluation shall be in sufficient detail to ascertain the effects of the proposed work on at least these systems: structural, means of egress, fire protection, energy conservation, lighting, hazardous materials, accessibility, and ventilation for the space under consideration and, where necessary, the entire building or structure and its foundation impacted by the proposed work. The results of the investigation and evaluation, along with any proposed compliance alternatives, shall be submitted to the building official in written report form.	Evaluation of effects of proposed work per 104.2.2.1 are included in this Code Summary below.
301.1.2 Work area compliance method.	Repairs, alterations, additions, changes in occupancy and relocated buildings complying with the applicable requirements of Chapters 5 through 13 of this code shall be considered in compliance with the provisions of this code.	
501.2 Work area.	As defined in Chapter 2, a "Work area" is the area of all reconfigured spaces where work is occurring within the scope of a project. These areas are to be shown clearly on the construction documents. Work areas exclude other portions of the building where incidental work is ongoing.	
SECTION 503 ALTERATION—LEVEL 1	503.1 Scope. Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. 503.2 Application. Level 1 alterations shall comply with the provisions of Chapter 7.	Scope of work reflects criteria for Level 1 Alteration
701.2 Conformance	An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.	The proposed work will not alter the building such that the building becomes less safe than its existing condition.
702.1 Interior finishes.	All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the International Building Code.	Complies
803.4 Interior finish.	The interior finish of walls and ceilings in exits and corridors in any work area shall comply with the requirements of the International Building Code. Exception: Existing interior finish materials that do not comply with the interior finish requirements of the International Building Code shall be permitted to be treated with an approved fire-retardant coating in accordance with the manufacturer's instructions to achieve the required rating.	The interior finish of corridor and exit walls and ceilings in work areas must meet the flame spread and smoke-development limitations and requirements of the IBC. "Corridors" and "Exits" are defined in IBC Section 202, and flame-spread and smoke-developed classifications are determined from IBC Table 803.11 and based on ASTM E84. To be able to maintain some interior finish materials that do not comply with the flame-spread and smoke-development requirements of the code, the exception provides the option of available technology for the use of fire-retardant treatment of such surfaces as long as the code official approves the coating and it is applied in accordance with the manufacturer's instructions to achieve the required rating.
803.4.1 Supplemental interior finish requirements	Where the work area on any floor exceeds 50 percent of the floor area, Section 803.4 shall also apply to the interior finish in exits and corridors serving the work area throughout the floor.	The work area does not exceed 50% of either floor area. Therefore the provisions of 803.4.1 do not apply.
TABLE 803.11 INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY	Sprinklered Use Classification :	II (Business)
	Interior exit stairways and ramps and exit passageways, ramps and exit passageways	Class B (Class C permitted in Business use)
	Corridors and enclosure for exit access stairways and ramps	Class C
	Rooms and enclosed spaces	Class C
702.6 Materials and methods.	All new work shall comply with the materials and methods requirements in the International Building Code, International Energy Conservation Code, International Mechanical Code, and International Plumbing Code, as applicable, that specify material standards, detail of installation and connection, joints, penetrations, and continuity of any element, component, or system in the building.	Complies
(IBC) 1015.6 Mechanical equipment, systems and devices.	Guards shall be provided where various components that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall extend not less than 30 inches (762 mm) beyond each end of such components. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.	Safety guard rails are included in the project scope where new roof-top equipment is within 10 feet of a roof edge/ drop-off.
SECTION 703 FIRE PROTECTION	Alterations shall be done in a manner that maintains the level of fire protection provided.	The building is currently protected throughout with an approved automatic fire suppression system. Any level of fire protection that currently exists in a building will not be adversely affected or lessened as a result of any alteration. Ric example, removing and replacing the existing ceiling and rearranging some fire sprinkler heads shall ultimately provide the same level of sprinkler coverage and protection that existed prior to the alterations being undertaken.
SECTION 704 MEANS OF EGRESS	Alterations shall be done in a manner that maintains the level of protection provided for the means of egress.	No change in egress.
707.2 Addition or replacement of roofing or replacement of equipment.	Where addition or replacement of roofing or replacement of equipment results in additional dead loads, structural components supporting such reroofing or equipment shall comply with the gravity load requirements of the International Building Code.	See Structural Drawings for information regarding structural reinforcement of existing roof framing due to increased loads of new equipment.
SECTION 708 ENERGY CONSERVATION	708.1 Minimum requirements. Level 1 alterations to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the International Energy Conservation Code or International Residential Code. The alterations shall conform to the energy requirements of the international Energy Conservation Code or International Residential Code as they relate to new construction only.	Complies

521 CMR Massachusetts Architectural Access Board

SECTION 3.0 Jurisdiction	All work performed on public buildings or facilities (see 521 CMR 5.00: DEFINITIONS), including construction, reconstruction, alterations, remodeling, additions, and changes of use shall conform to 521 CMR.	Includes municipal buildings which allow access by the public. Applies
Existing Buildings	If the work being performed amounts to less than 30% of the full and fair cash value of the building and if the work costs $100,000 or more, then the work being performed is required to comply with 521 CMR. In addition, an accessible public entrance and an accessible toilet room, telephone, drinking fountain (if toilets, telephones and drinking fountains are provided) shall also be provided in compliance with 521 CMR. Exception: Whether performed alone or in combination with each other, the following types of alterations are not subject to 521 CMR 3.3.1, unless the cost of the work exceeds $500,000 or unless work is being performed on the entrance or toilet. (When performing exempted work, a memo stating the exempted work and its costs must be filed with the permit application or a separate building permit must be obtained.) b. Alteration work which is limited solely to electrical mechanical, or plumbing systems; to abatement of hazardous materials; or retrofit of automatic sprinklers and does not involve the alteration of any elements or spaces required to be accessible under 521 CMR. Where electrical outlets and controls are altered, they must comply with 521 CMR. c. Roof repair or replacement, window repair or replacement, repointing and masonry repair work.	Alteration work is limited solely to electrical and mechanical systems and does not involve the alteration of any elements or spaces required to be accessible under 521 CMR. Where electrical outlets and controls are altered, they must comply with 521 CMR. The cost of the work is estimated to be less than $500,000

GENERAL LEGEND

GRAPHIC SYMBOLS

- A — COLUMN BUBBLE
- A-A / A1.01 — SECTION DETAIL
- A-A / A1.01 — PLAN DETAIL
- 1 / 4 AX.X 2 / 3 — INTERIOR ELEVATION
- X / AX.X — EXTERIOR ELEVATION
- ROOM NAME / XXX — ROOM NAME / ROOM NUMBER
- EL. 0'-0" LOCATION — ELEVATION MARKER
- XXX — DOOR NUMBER
- XXX — WALL TYPE
- 1 — NOTE / REVISION
- X — WINDOW TYPE
- LIMIT OF WORK
- MATCH LINE
- CHANGE IN FLOOR FINISH

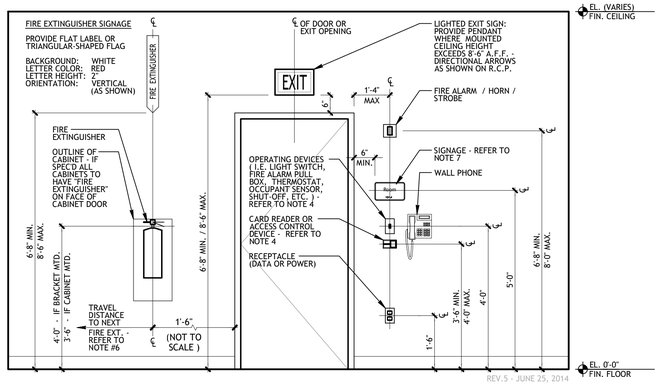
ABBREVIATIONS

<	ANGLE	IN.	INCH(ES)
C	CENTERLINE	INSUL.	INSULATED
@	AT	INT.	INTERIOR
PL	PLATE	IRR.	IRRIGATION
Ø	DIAMETER	KVA	KILOVOLT
±	PLUS OR MINUS	KW	KILOWATT
#	NUMBER		
&	AND	L.	LONG
		L.P.	LOW POINT
A.B.	AIR BARRIER, ANCHOR BOLT	MB	MARKER BOARD
AC	AIR CONDITIONING	MAX	MAXIMUM
ACT.	ACOUSTICAL CEILING TILE	MECH.	MECHANICAL
		MEZZ.	MEZZANINE
ADJ.	ADJUSTABLE	MFTG.	MANUFACTURING
AFF.	ABOVE FINISH FLOOR	MIN	MINIMUM
ALUM.	ALUMINUM	MR	MOISTURE RESISTANT
A.P.	ACCESS PANEL	MTG.	MOUNTING
ARCH.	ARCHITECT(URAL)	MTL.	METAL
ATTEN.	ATTENUATION		
AUX.	AUXILIARY	N/A	NOT APPLICABLE
		NIC	NOT IN CONTRACT
BD.	BOARD	NTS	NOT TO SCALE
B.O.	BOTTOM OF		
BLKG.	BLOCKING	OC	ON CENTER
		OD	OUTSIDE DIAMETER
CPT	CARPET	OH	OVERHEAD, OPPOSITE HAND, OVERHANG, OVERHEAD DOOR
CFM	CUBIC FEET PER MINUTE		
C.T.	CERAMIC TILE		
CL.	CLOSET		
CLG.	CEILING	PL	PLATE
CLR.	CLEAR(ANCE)	PLYWD.	PLYWOOD
CMU.	CONCRETE MASONRY UNIT	PNT.	PAINT, PAINTED
		POLY	POLYETHYLENE
COL.	COLUMN	PVC	POLYVINYL CHLORIDE
COMM.	COMMUNICATION	PT	PORCELAIN TILE, PRESSURE TREATED
CONC.	CONCRETE		
CONT.	CONTINUOUS		
C.P.R.	C.P.R. STATION	QT	QUARRY TILE
CW.	CURTAIN WALL		
		R.A.	RETURN AIR
D.O.	DOOR OPENING	RCP	REFLECTED CEILING PLAN
DET.	DETAIL	R.D.	ROOF DRAIN
D.F.	DRINKING FOUNTAIN	REF.	REFERENCE
DIA.	DIAMETER	REINF.	REINFORCE(D), (ING)
DIM.	DIMENSION	REQD.	REQUIRED
DN.	DOWN	REQS.	REQUIREMENTS
DW	DISHWASHER	REV.	REVISION(S),REVISED
DWG.	DRAWING	R.L.	RAIN LEADER
		RO	ROUGH OPENING
EA	EACH	RM.	ROOM
EF	EXHAUST FAN	RWL.	RAIN WATER LEADER
EL.	ELEVATION (DATUM)		
ELEC.	ELECTRICAL	S.A.	SUPPLY AIR
ELEV.	ELEVATOR (ELEVATION)	S.C.	SOLID CORE
EMER.	EMERGENCY	SCHED.	SCHEDULE
E.P.	ELECTRICAL PANEL	SF	SQUARE FOOT(FEET)
EQ	EQUAL	SIM.	SIMILAR
EQUIP.	EQUIPMENT	SP	SECURITY PANEL
ETR	EXISTING TO REMAIN	SPECS.	SPECIFICATIONS
EW.	EACH WAY	SQ.IN.	SQUARE INCHE(S)
EXIST.	EXISTING	SS.	STAINLESS STEEL
EXP	EXPANSION	STD.	STANDARD
EXT.	EXTERIOR	STL.	STEEL
		STOR.	STORAGE
F.A.	FIRE ALARM	STRUCT.	STRUCTURAL
FAP	FIRE ALARM PANEL		
F.C.	(GWB) FIRE CODE	TGB	TOP AND BOTTOM
F.C.O.	FLOOR CLEAN OUT	TEL.	TELEPHONE
F.D.	FLOOR DRAIN, FIRE DAMPER	TEMP.	TEMPERED, TEMPORARY
		T&G	TONGUE & GROOVE
FDC	FIRE DEPARTMENT CONNECTION	T.D.	TOP OF
		T.R.	TRANSFORMER
FE	FIRE EXTINGUISHER	TYP.	TYPICAL
FEC	FIRE EXTINGUISHER CABINET	U.L.	UNDERWRITERS LABORATORIES
F.O.	FACE OF		
FIN.	FINISH(ED)	UNO	UNLESS NOTED OTHERWISE
FL.	FLOOR		
F.O.M.	FACE OF MASONRY		
FRMG.	FRAMING	VB	VAPOR BARRIER
		VCT.	VINYL COMPOSITION TILE
GA.	GAUGE	VERT.	VERTICAL
GALV.	GALVANIZED	VIF	VERIFY IN FIELD
GC	GENERAL CONTRACTOR		
GFI	GROUND FAULT	W.	WIDE
GND	GROUND	WD	WOOD
GWB	GYPSUM WALLBOARD	WF	WIDE FLANGE
		WH.	WATER HEATER
H.C.	HANDICAPPED	W.W.M.	WELDED WIRE MESH
HORIZ.	HORIZONTAL	W.O.	WATER OIL SEPARATOR
H.P.	HORSEPOWER, HIGH POINT	WP	WEATHERPROOF
HGT.	HEIGHT		
H.W.	HOT WATER		

MATERIAL SYMBOLS

- EARTH/COMPACT FILL
- POROUS FILL/GRAVEL
- CONCRETE
- CONCRETE MASONRY UNIT
- BRICK MASONRY (PLAN and SECTION)
- GROUT, CEMENTITOUS ELEMENTS, GYPSUM SOFFITS
- GYPSUM BOARD (SECTION)
- PLYWOOD
- FINISH WOOD
- WOOD BLOCKING
- WOOD STUD
- BATT INSULATION
- RIGID INSULATION
- SPRAY FOAM INSULATION
- STEEL
- ALUMINUM / OTHER METALS

TYPICAL MOUNTING HEIGHTS



NOTES:

1.) ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT AT EXIT SIGNS WHERE HEIGHTS SHALL BE MEASURED TO BOTTOM OF SIGNAGE FRAME.

2.) ALL DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE AS SHOWN ABOVE WHEREVER POSSIBLE.

3.) ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED. COORDINATE HEIGHTS AND LOCATIONS OF ALL DEVICES AND EQUIPMENT WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. ALL CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

4.) ALL OPERATING DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AND CENTERLINES AS INDICATED ON THIS DETAIL AS MEASURED FROM THE OUTER EDGE OF FRAME AT DOORS, SIDELIGHTS, GLAZING, ETC. UNLESS NOTED OR DIRECTED OTHERWISE. THE PREFERRED LOCATION FOR FIRE ALARM PULL BOXES, CARD READERS, AND ACCESS CONTROL DEVICES SHALL BE THE LATCH SIDE OF DOOR. AT AREAS WITH MULTIPLE DEVICES OR LOCATION CONFLICTS, COORDINATE DEVICE LOCATION WITH INTERIOR ELEVATIONS, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS, AND THE ARCHITECT/ENGINEER OF RECORD.

5.) REVIEW AND CONFIRM ALL FIRE EXTINGUISHER TYPES, SIZES, AND LOCATIONS WITH AUTHORITY HAVING JURISDICTION.

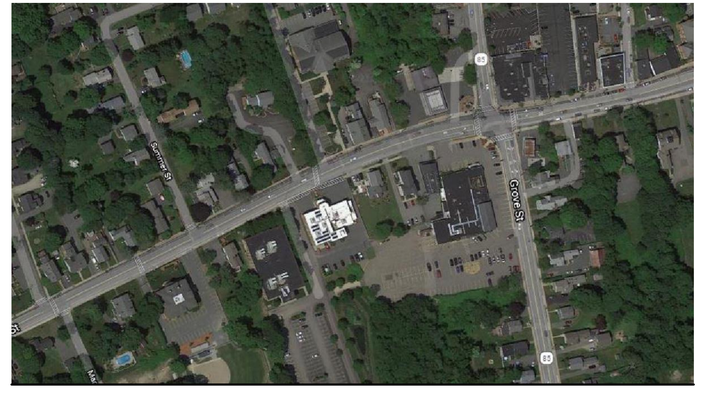
6.) UNLESS NOTED OR DIRECTED OTHERWISE ELSEWHERE IN DRAWING SET, FIRE EXTINGUISHERS SHALL BE LOCATED AS FOLLOWS:

TYPE OF FIRE / HAZARD	EXTINGUISHER TYPE	MAX. TRAVEL DISTANCE / SPACING
TYPE 'A'	TYPE 2-A	75' MAX. TRAVEL / ONE (1) EXTINGUISHER FOR EVERY 3000 SQ.FT.
TYPE 'B' / LIGHT HAZARD	TYPE 10-B	50' MAX. TRAVEL
TYPE 'B' / MOD. HAZARD	TYPE 20-B	50' MAX. TRAVEL
TYPE 'B' / HIGH HAZARD	TYPE 40-B	30' MAX. TRAVEL
TYPE 'C'	-->	TYPE AND SPACING IS BASED ON CLASS 'A' OR 'B' RATING WHERE ENERGIZED EQUIPMENT IS IN USE.
TYPE 'D'	CLASS 'D'	NOT MORE THAN 75' FROM THE HAZARD
TYPE 'K'	CLASS 'K'	30' MAX. TRAVEL

7.) SIGNAGE FONTS SHALL BE 5/8" TO 2" HIGH. BRAILLE CELLS SHALL BE 0.059" IN DIAMETER. THE VERTICAL SEPARATION BETWEEN CELLS SHALL BE AT LEAST 0.395" AND THE HORIZONTAL SEPARATION SHALL BE AT LEAST 0.241".

T1 TYPICAL MOUNTING HEIGHTS
SCALE: 1/2" = 1'-0"

LOCUS PLAN



HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

PROJECT: 73 MAIN STREET HOPKINTON, MA 01748

CLIENT: TOWN OF HOPKINTON

18 MAIN STREET
HOPKINTON, MA 01748

FIRM:
G | R | L | A
Gorman Richardson Lewis Architects
239 South Street Hopkinton, MA 01748
www.grlarchitects.com

KEY PLAN:

REMARKS:

REVISIONS:

No.	Description	Date

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SEAL / ORIENTATION:

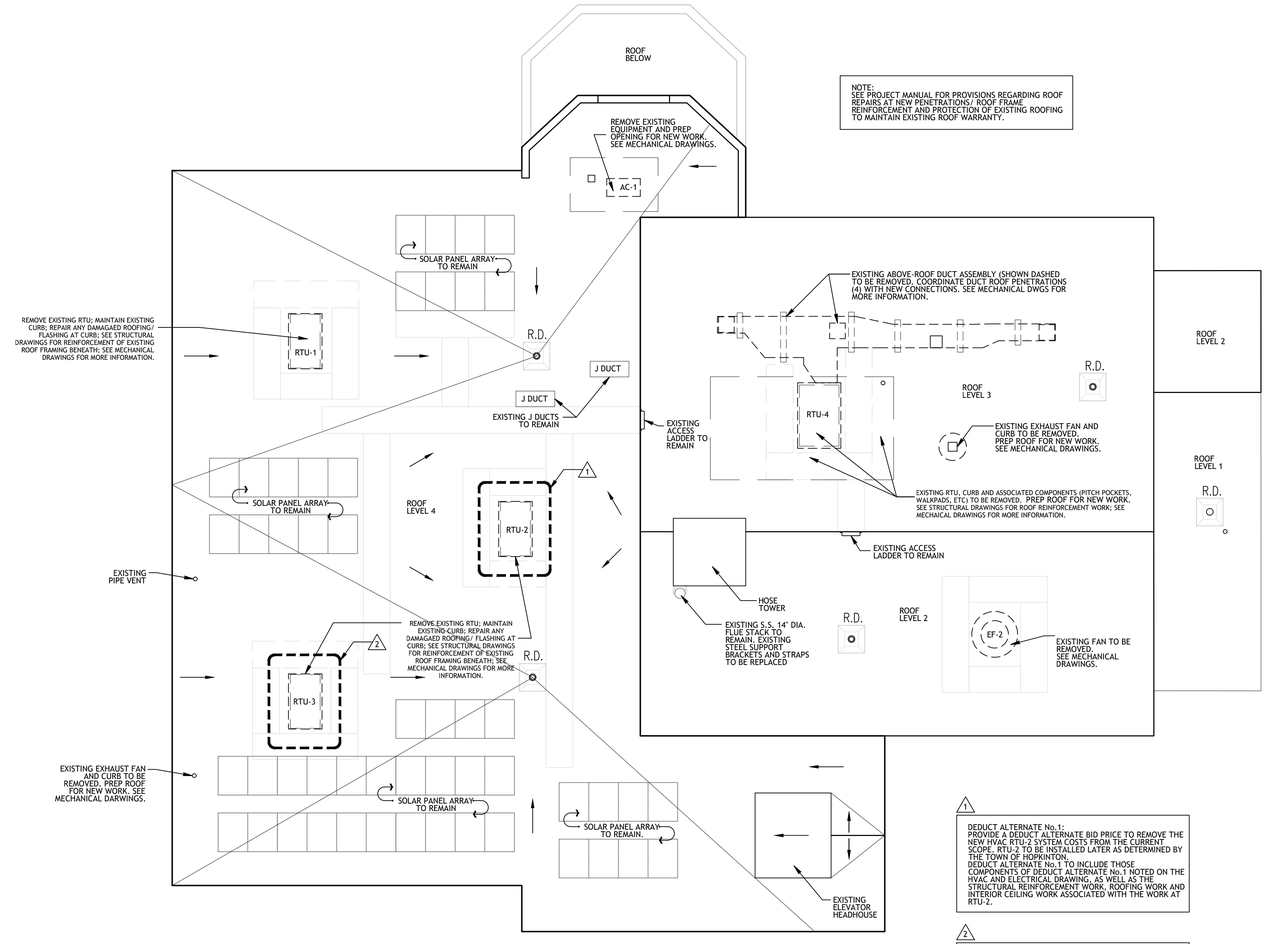
DATA:

Date:	MARCH 27. 2024
Proj. No.:	2019023.01
Scale:	AS NOTED
Drawn By:	JCB / EH
Checked By:	GO
File Name:	_G-01.dwg

TITLE: CODE ANALYSIS & GENERAL NOTES

SHEET: G0.1

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - BID DOCUMENTS - MARCH 27, 2024



NOTE:
SEE PROJECT MANUAL FOR PROVISIONS REGARDING ROOF REPAIRS AT NEW PENETRATIONS/ ROOF FRAME REINFORCEMENT AND PROTECTION OF EXISTING ROOFING TO MAINTAIN EXISTING ROOF WARRANTY.

1

DEDUCT ALTERNATE No.1:
PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE TOWN OF HOPKINTON.
DEDUCT ALTERNATE No.1 TO INCLUDE THOSE COMPONENTS OF DEDUCT ALTERNATE No.1 NOTED ON THE HVAC AND ELECTRICAL DRAWING, AS WELL AS THE STRUCTURAL REINFORCEMENT WORK, ROOFING WORK AND INTERIOR CEILING WORK ASSOCIATED WITH THE WORK AT RTU-2.

2

DEDUCT ALTERNATE No.2:
PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE TOWN OF HOPKINTON.
DEDUCT ALTERNATE No.2 TO INCLUDE THOSE COMPONENTS OF DEDUCT ALTERNATE No.2 NOTED ON THE HVAC AND ELECTRICAL DRAWING, AS WELL AS THE STRUCTURAL REINFORCEMENT WORK, ROOFING WORK AND INTERIOR CEILING WORK ASSOCIATED WITH THE WORK AT RTU-3.

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
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FIRM

G | R | L | A

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KEY PLAN

REMARKS

REVISIONS

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DATA

Date:	MARCH 27, 2024
Proj. No.:	2019023.01
Scale:	1/8"=1'-0"
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File Name:	AD1.3.dwg

TITLE

DEMOLITION ROOF PLAN

SHEET

AD1.3

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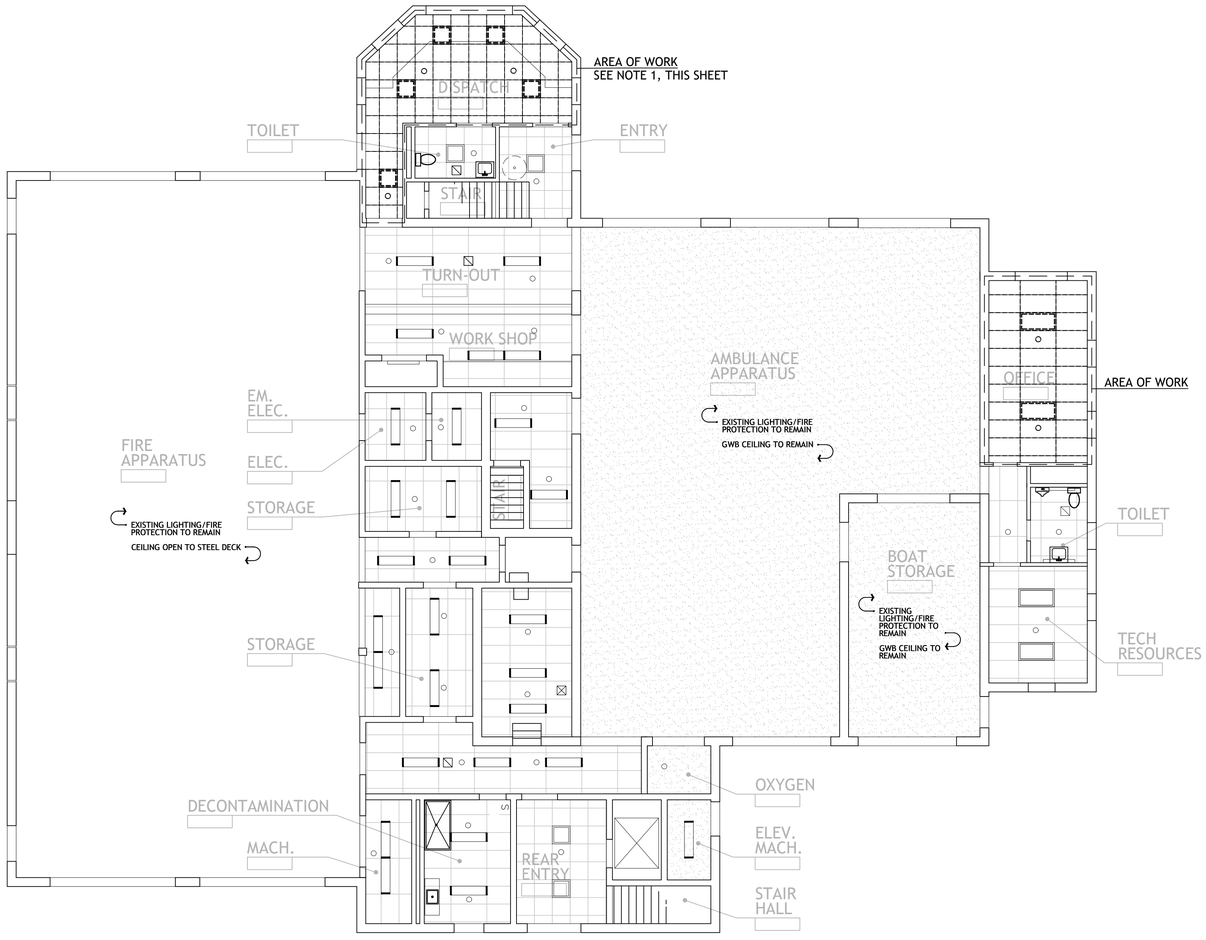

REFLECTED CEILING PLAN SYMBOL LEGEND

- LIGHT FIXTURE
- RETURN DIFFUSER
- SUPPLY DIFFUSER
- SPRINKLER HEAD
- LIGHT FIXTURE - EXISTING
- RETURN DIFFUSER - EXISTING
- SUPPLY DIFFUSER - EXISTING
- SPRINKLER HEAD - EXISTING
- LIGHT FIXTURE - TO BE REMOVED
- RETURN DIFFUSER - TO BE REMOVED
- SUPPLY DIFFUSER - TO BE REMOVED
- SPRINKLER HEAD - TO BE REMOVED
- EXISTING ACOUSTIC CEILING TILE AND GRID (LIGHT SOLID LINE TO REMAIN)
- EXISTING ACOUSTIC CEILING TILE AND GRID TO BE REMOVED
- EXISTING GWB SOFFIT / CEILING

NOTES AND SPECIFICATIONS

1. EXISTING ACT PANELS, EXPOSED GRID SUSPENSION SYSTEM, LIGHT FIXTURES AND REGISTERS/DIFFUSERS TO BE REMOVED, AS REQUIRED TO ACCOMMODATE NEW HVAC WORK . COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS. ALL ACT PANELS TO BE REPLACED WITH NEW PANELS TO MATCH EXISTING; EXISTING EXPOSED GRID SUSPENSION SYSTEM TO BE CAREFULLY REMOVED, SALVAGED, AND REINSTALLED. DAMAGED GRID MEMBERS TO BE REPLACED WITH NEW. LIGHT FIXTURES, REGISTERS AND DIFFUSERS TO BE REINSTALLED (SEE MECHANICAL & ELECTRICAL DRAWINGS).

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

TOWN OF HOPKINTON

18 MAIN STREET
HOPKINTON, MA 01748

FIRM

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KEY PLAN

REMARKS

REVISIONS

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TITLE

DEMOLITION
1ST FLOOR
REFLECTED
CEILING PLAN

SHEET

AD2.1

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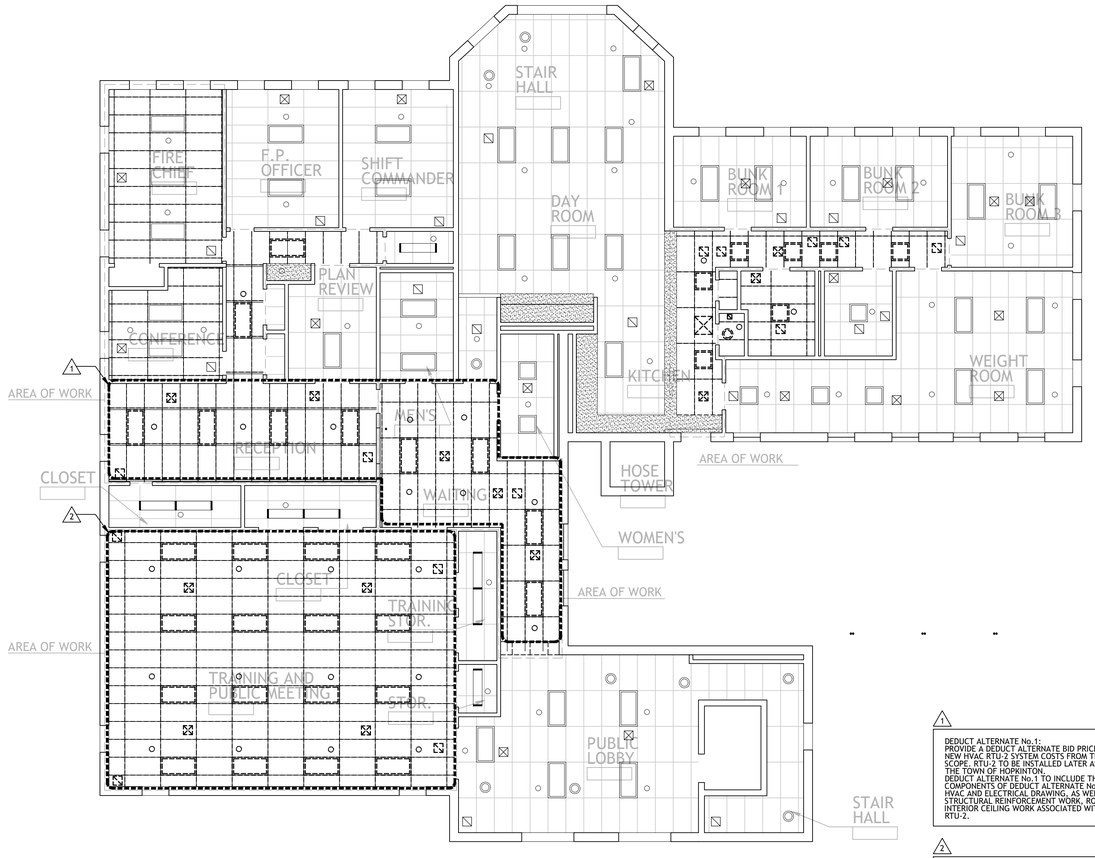

REFLECTED CEILING PLAN SYMBOL LEGEND

- LIGHT FIXTURE
- RETURN DIFFUSER
- SUPPLY DIFFUSER
- SPRINKLER HEAD
- LIGHT FIXTURE - EXISTING
- RETURN DIFFUSER - EXISTING
- SUPPLY DIFFUSER - EXISTING
- SPRINKLER HEAD - EXISTING
- LIGHT FIXTURE - TO BE REMOVED
- RETURN DIFFUSER - TO BE REMOVED
- SUPPLY DIFFUSER - TO BE REMOVED
- SPRINKLER HEAD - TO BE REMOVED
- EXISTING ACOUSTIC CEILING TILE AND GRID (LIGHT SOLID LINE TO REMAIN)
- EXISTING ACOUSTIC CEILING TILE AND GRID TO BE REMOVED
- EXISTING GWB SOFFIT / CEILING

NOTES AND SPECIFICATIONS

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1 DEDUCT ALTERNATE No.1:
PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE TOWN OF HOPKINTON.
DEDUCT ALTERNATE No.1 TO INCLUDE THOSE COMPONENTS OF DEDUCT ALTERNATE No.1 NOTED ON THE HVAC AND ELECTRICAL DRAWING, AS WELL AS THE STRUCTURAL REINFORCEMENT WORK, ROOFING WORK AND INTERIOR CEILING WORK ASSOCIATED WITH THE WORK AT RTU-2.

2 DEDUCT ALTERNATE No.2:
PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE TOWN OF HOPKINTON.
DEDUCT ALTERNATE No.2 TO INCLUDE THOSE COMPONENTS OF DEDUCT ALTERNATE No.2 NOTED ON THE HVAC AND ELECTRICAL DRAWING, AS WELL AS THE STRUCTURAL REINFORCEMENT WORK, ROOFING WORK AND INTERIOR CEILING WORK ASSOCIATED WITH THE WORK AT RTU-3.

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TITLE
DEMOLITION SECOND FLOOR REFLECTED CEILING PLAN

SHEET
AD2.2

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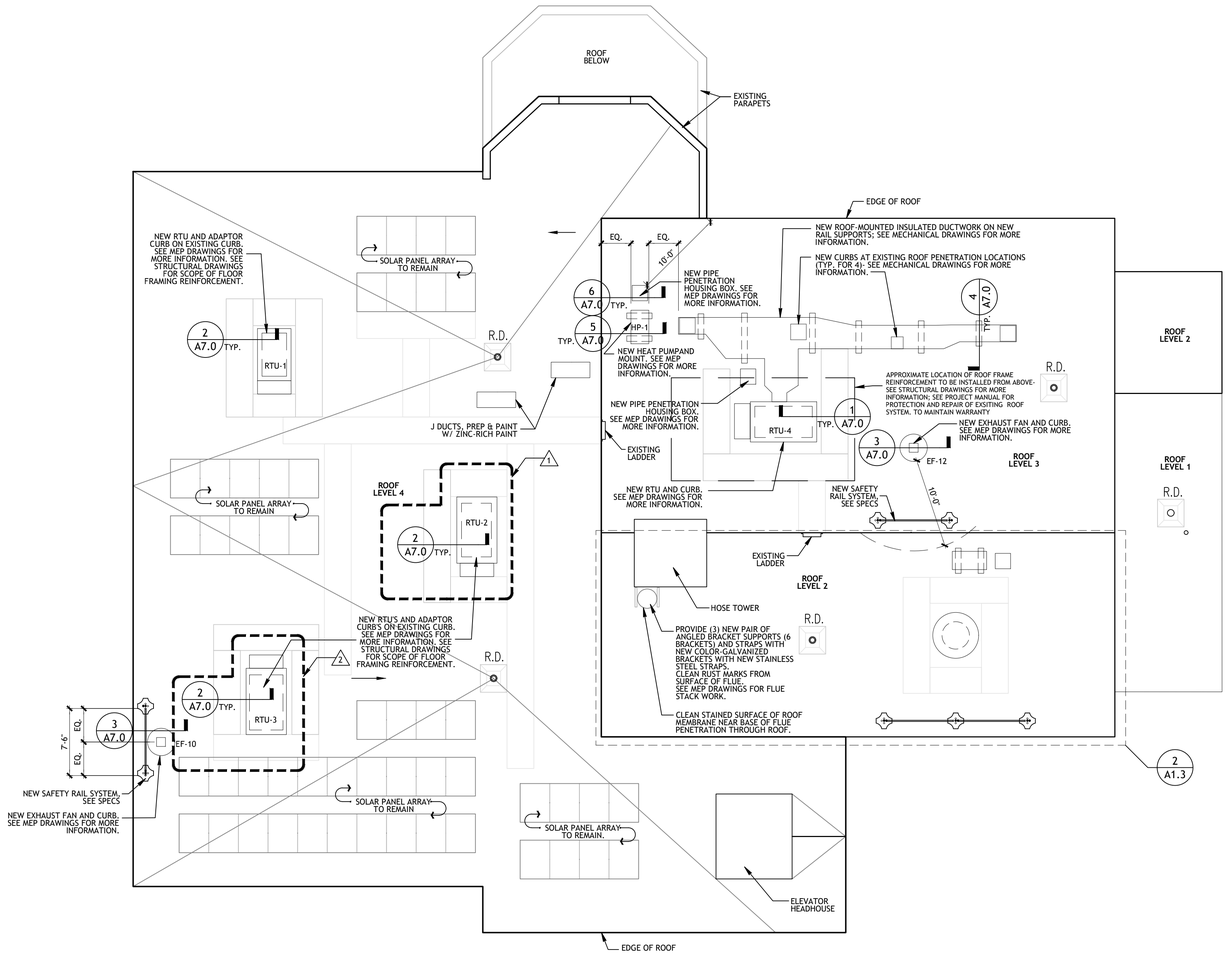


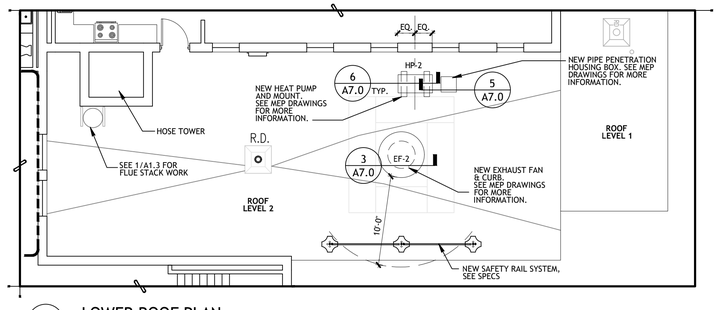
1 ROOF PLAN
SCALE: 1/8" = 1'-0"

1

DEDUCT ALTERNATE No.1:
PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE TOWN OF HOPKINTON.
DEDUCT ALTERNATE No.1 TO INCLUDE THOSE COMPONENTS OF DEDUCT ALTERNATE No.1 NOTED ON THE HVAC AND ELECTRICAL DRAWING, AS WELL AS THE STRUCTURAL REINFORCEMENT WORK, ROOFING WORK AND INTERIOR CEILING WORK ASSOCIATED WITH THE WORK AT RTU-2.

2

DEDUCT ALTERNATE No.2:
PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE TOWN OF HOPKINTON.
DEDUCT ALTERNATE No.2 TO INCLUDE THOSE COMPONENTS OF DEDUCT ALTERNATE No.2 NOTED ON THE HVAC AND ELECTRICAL DRAWING, AS WELL AS THE STRUCTURAL REINFORCEMENT WORK, ROOFING WORK AND INTERIOR CEILING WORK ASSOCIATED WITH THE WORK AT RTU-3.



2 LOWER ROOF PLAN
SCALE: 1/8" = 1'-0"

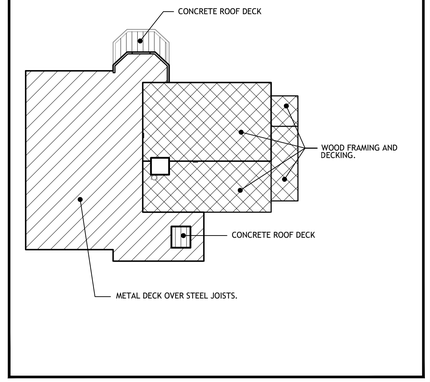
SYMBOL LEGEND

FE	WALL MOUNT FIRE EXTINGUISHER	VF	VENTILATION FAN
CO	CARBON MONOXIDE SENSOR		DRAIN CLEAN OUT
FP	FIRE ALARM PULL STATION	FD	FLOOR DRAIN
T	THERMOSTAT		

GENERAL PLAN NOTES

1. THE INFORMATION SHOWN ON THIS PLAN HAS BEEN COMPILED FROM VARIOUS SOURCES AND MAY NOT REFLECT THE ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD.
2. ALL DIMENSIONS SHOWN ARE APPROXIMATE; CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD.
3. SEE MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS FOR MORE INFORMATION; SEE PROJECT MANUAL FOR MORE INFORMATION.
4. SEE PROJECT MANUAL FOR PROVISIONS REGARDING ROOF REPAIRS AT NEW PENETRATIONS/ ROOF FRAME REINFORCEMENT AND PROTECTION OF EXISTING ROOFING TO MAINTAIN EXISTING ROOF WARRANTY.
5. THE NUMBER AND LOCATIONS OF ALL VENT PENETRATIONS, STATIC VENTS, AND ROOF PENETRATIONS SHOWN ARE BASED OFF OF LIMITED FIELD OBSERVATIONS; THE ACTUAL AMOUNT AND LOCATIONS OF PENETRATIONS VARY; CONTRACTOR TO VERIFY THE AMOUNT AND LOCATIONS OF PENETRATIONS IN THE FIELD.

KEYPLAN



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Bid # 24-05-002IFB

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TITLE
CONSTRUCTION ROOF PLAN

SHEET
A1.3

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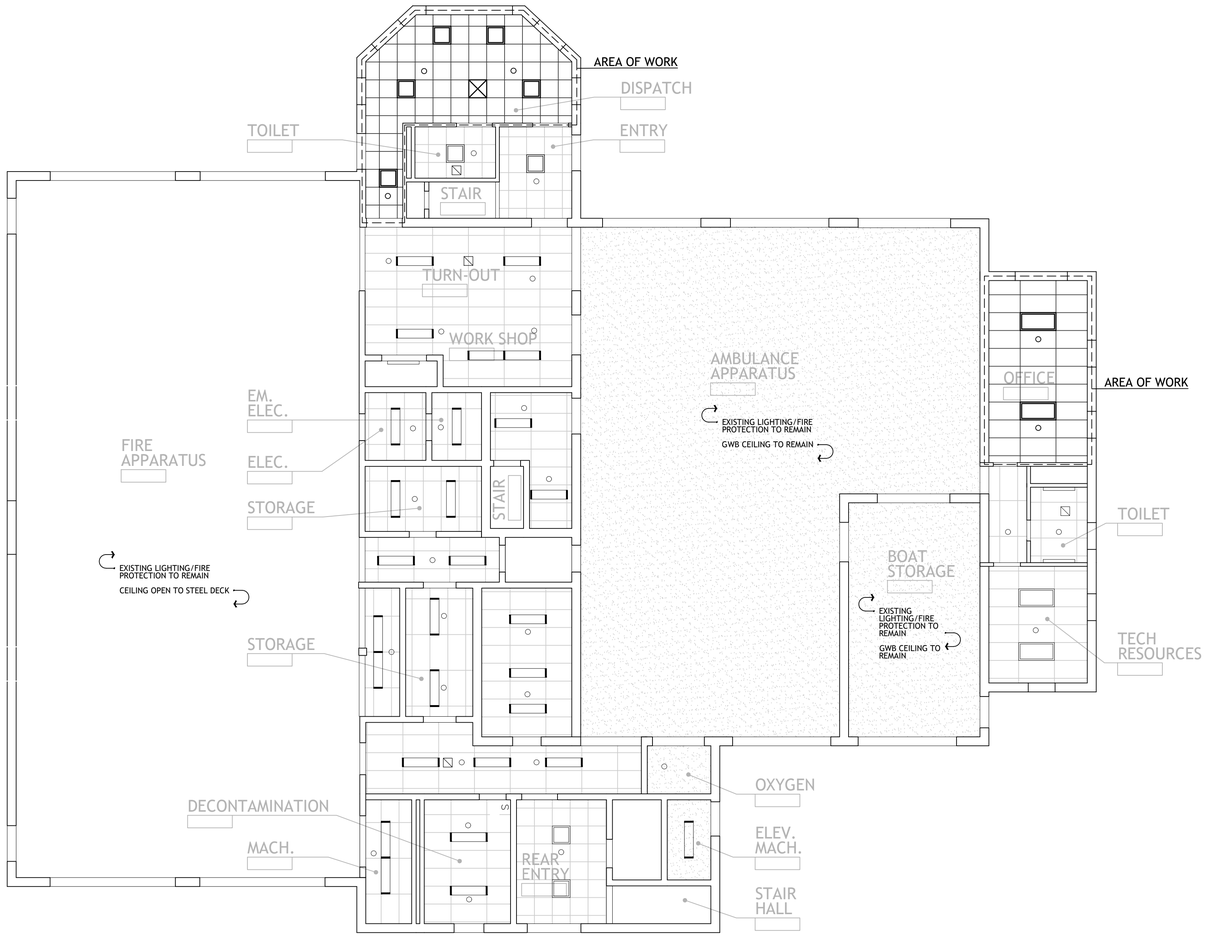

REFLECTED CEILING PLAN SYMBOL LEGEND

- LIGHT FIXTURE
- RETURN DIFFUSER
- SUPPLY DIFFUSER
- SPRINKLER HEAD
- LIGHT FIXTURE - EXISTING
- RETURN DIFFUSER - EXISTING
- SUPPLY DIFFUSER - EXISTING
- SPRINKLER HEAD - EXISTING
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- GWB SOFFIT / CEILING
- EXISTING ACOUSTIC CEILING TILE AND GRID (LIGHT SOLID LINE TO REMAIN)
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TITLE

1ST FLOOR REFLECTED CEILING PLAN

SHEET

A2.1

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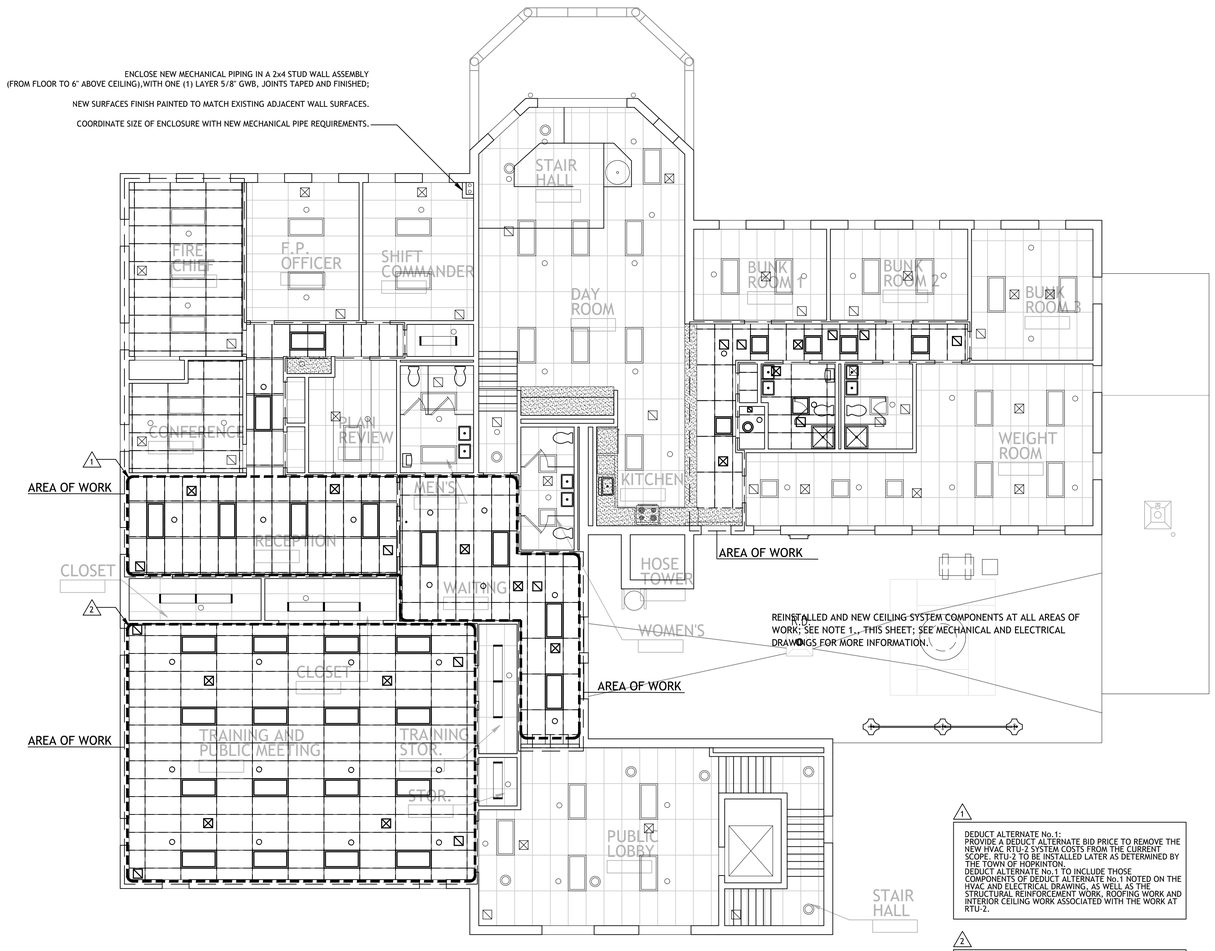

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REFLECTED CEILING PLAN SYMBOL LEGEND

- LIGHT FIXTURE
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- SUPPLY DIFFUSER
- SPRINKLER HEAD
- LIGHT FIXTURE - EXISTING
- RETURN DIFFUSER - EXISTING
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2. REINSTALL SUSPENDED CEILING GRID COMPONENTS REMOVED DURING DEMOLITION; REPLACE ALL DAMAGED COMPONENTS WITH NEW TO MATCH EXISTING. INSTALL NEW 2x2 BEVELED TEGULAR EDGE CEILING PANELS (ACT-3)

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TITLE
SECOND FLOOR REFLECTED CEILING PLAN

SHEET
A2.2

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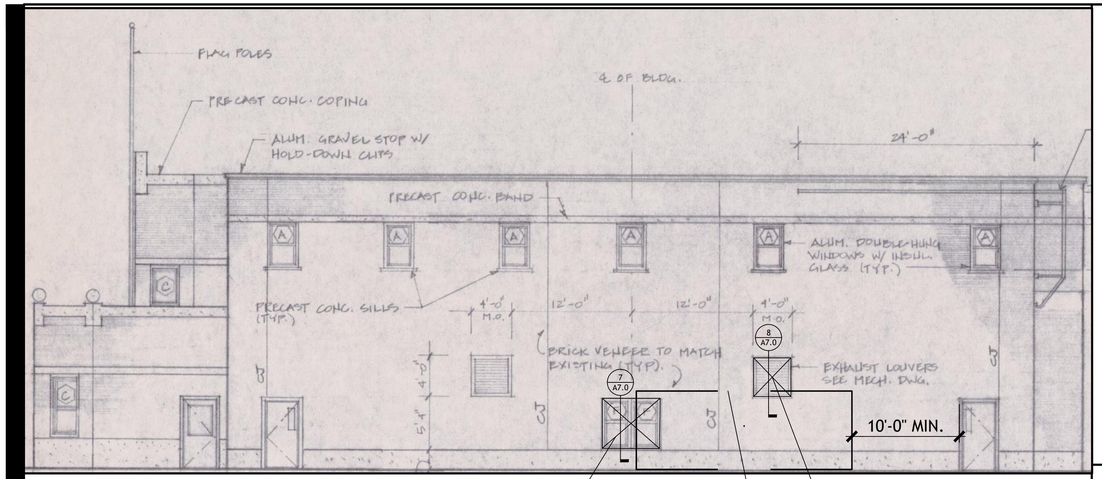
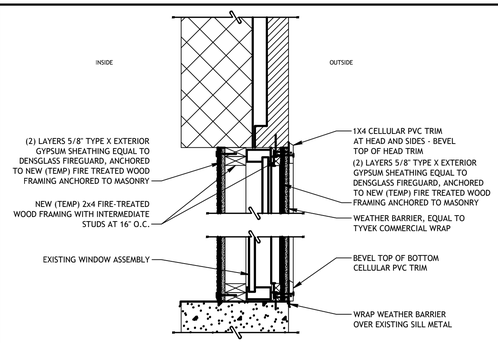
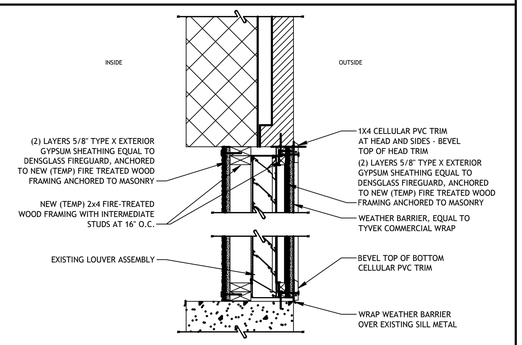


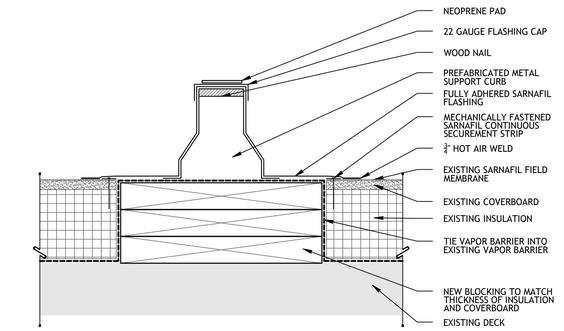
9 WEST ELEVATION
SCALE: N.T.S.



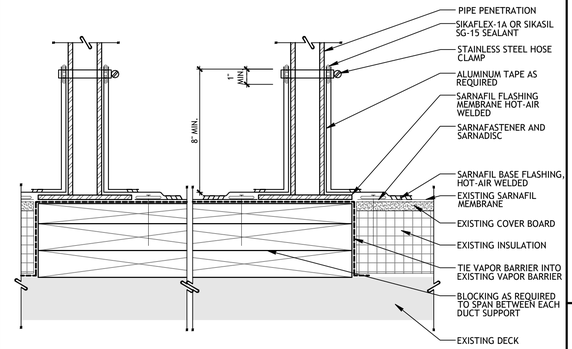
7 1-HR FIRE-RATED ASSEMBLY AT EXISTING WINDOW OPENING △2
SCALE: 1" = 1'-0"



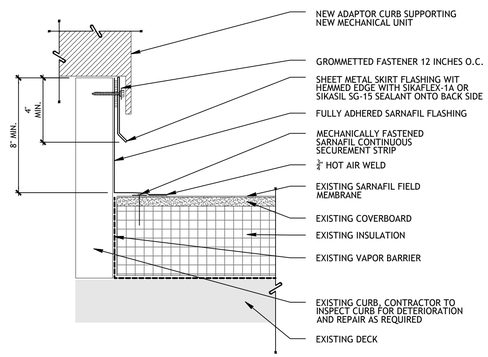
8 1-HR FIRE-RATED ASSEMBLY AT EXISTING LOUVER OPENING
SCALE: 1" = 1'-0"



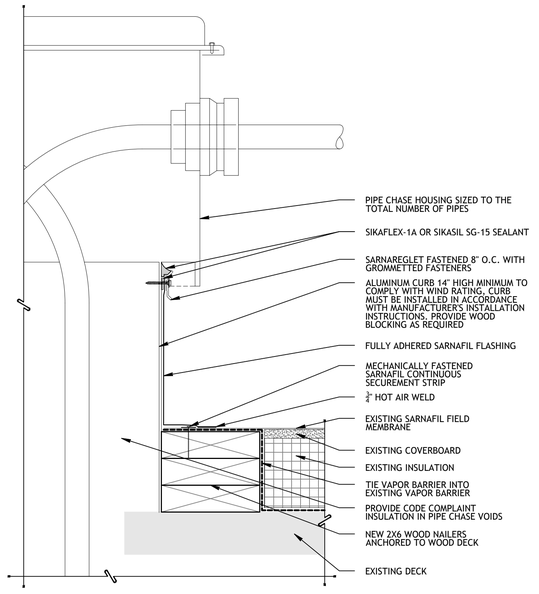
5 MECHANICAL UNIT SUPPORT RAIL
SCALE: 3"=1'-0"



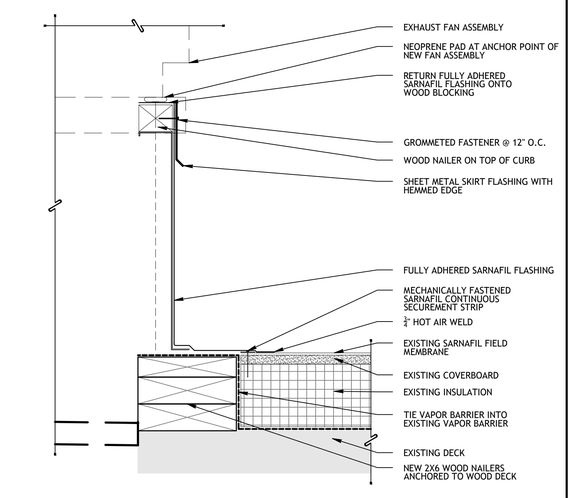
4 PIPE BOOT FOR DUCT SUPPORT
SCALE: 3"=1'-0"



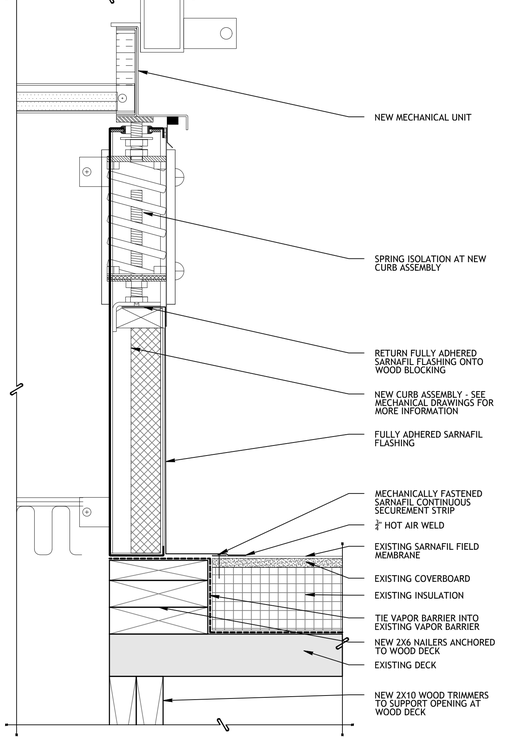
2 MECHANICAL CURB FLASHING AT RTU-1, 2, & 3 △1 △2
SCALE: 3"=1'-0"



6 PIPE HOUSING ENCLOSURE AND CURB
SCALE: 3"=1'-0"



3 EXHAUST FAN CURB
SCALE: 3"=1'-0"



1 MECHANICAL CURB FLASHING AT RTU-4
SCALE: 3"=1'-0"

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TITLE
TYPICAL ROOF DETAILS

SHEET
A7.0

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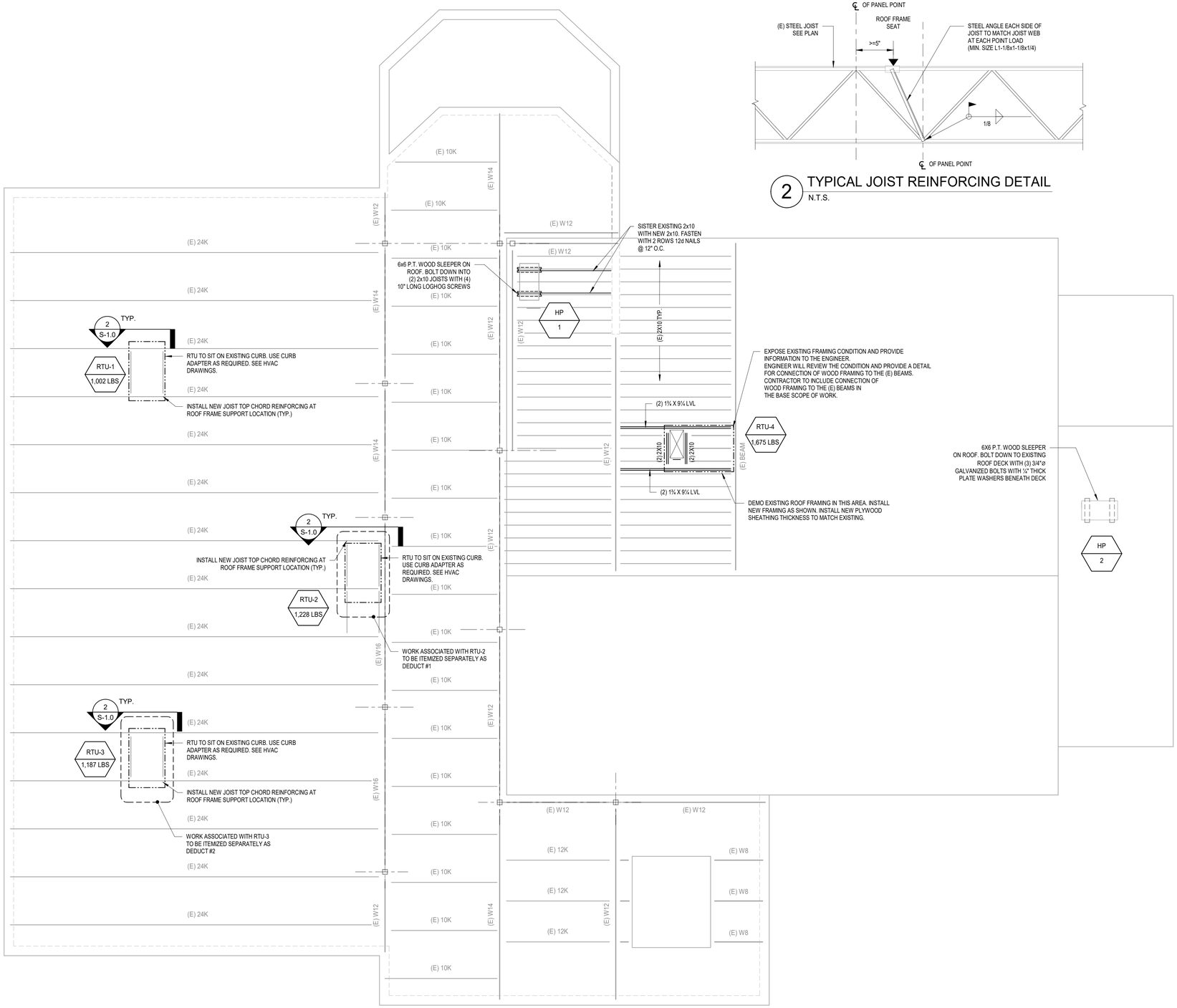

1 ROOF FRAMING PLAN
SCALE: 3/16" = 1'-0"

2 TYPICAL JOIST REINFORCING DETAIL
N.T.S.

GENERAL NOTES:

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS AND THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
2. THE STRUCTURAL HAS BEEN DESIGNED IN ACCORDANCE WITH THE PROVISIONS OF THE NINTH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE.
3. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING REQUIRED TO ERECT AND HOLD NEW STRUCTURES IN PROPER ALIGNMENT UNTIL PERMANENT SUPPORTS AND LATERAL BRACING ARE IN PLACE.
4. THE CONTRACTOR IS RESPONSIBLE FOR SHORING AND BRACING THE EXISTING BUILDING COMPONENTS PRIOR TO THE START OF DEMOLITION.
5. WHERE CONSTRUCTION OCCURS WITHIN OR ADJACENT TO EXISTING CONSTRUCTION, THE CONTRACTOR SHALL FIELD MEASURE THE EXISTING BUILDING DIMENSIONS AND COMPONENTS AND COORDINATE CONSTRUCTION DETAILS WITH THE ACTUAL DIMENSIONS.
6. THE STRUCTURES WERE DESIGNED FOR THE FOLLOWING LOADS:

ROOF SNOW LOADS
GROUND SNOW, Pg 40 PSF
FLAT ROOF SNOW, Pf 35 PSF
SNOW DRIFT PER MA CODE

7. MECHANICAL UNIT WEIGHTS AND LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY LOCATIONS AND WEIGHTS SHOWN AND REPORT DISCREPANCIES TO THE ARCHITECT.
8. STRUCTURAL DRAWINGS MAY REPRESENT CONSTRUCTION WITH A REFERENCE SCALE. DUE TO THE INHERENT PROCESS OF DRAWING DEVELOPMENT AND PRESENTATION NOT ALL WORK MAY BE SHOWN "EXACT" IN THAT SCALE. DO NOT "SCALE" DRAWINGS TO OBTAIN ANY MISSING INFORMATION OR TO INTERPRET ANY INFORMATION NOT SPECIFICALLY DIMENSIONED FOR "EXACT" DETAILING OR CONSTRUCTION PURPOSES.

ENGINEERED LUMBER

1. LVL BEAMS SHALL BE MANUFACTURED BY THE FOLLOWING, OR APPROVED EQUAL:

MICRO-LAM BY I-LEVEL
VERSA-LAM 2800 BY BOISE CASCADE
GP LAM 2.0E BY GEORGIA PACIFIC

2. LVL BEAMS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

ALLOWABLE BENDING STRESS Fb= 2,600 PSI
ALLOWABLE SHEAR STRESS Fv= 285 PSI
MODULUS OF ELASTICITY E= 1,900,000 PSI

3. ENGINEERED LUMBER SHALL BE MANUFACTURED IN A PLANT EVALUATED FOR FABRICATION BY THE GOVERNING CODE EVALUATION SERVICE AND UNDER THE SUPERVISION OF A THIRD- PARTY INSPECTION AGENCY LISTED BY THE CORRESPONDING EVALUATION SERVICE.
4. ENGINEERED LUMBER MATERIALS, IF STORED PRIOR TO INSTALLATION, SHALL BE PROTECTED FROM THE WEATHER THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANS AND ANY SHOP DRAWINGS AND MANUFACTURERS INSTALLATION SUGGESTIONS. TEMPORARY CONSTRUCTION LOADS THAT CAUSE STRESSES BEYOND DESIGN LIMITS ARE NOT PERMITTED. SAFETY BRACING IS TO BE PROVIDED BY THE INSTALLER TO KEEP THE LVL BEAMS STRAIGHT AND PLUMB AS REQUIRED AND TO ENSURE ADEQUATE LATERAL SUPPORT FOR THE INDIVIDUAL LVL MEMBERS AND THE ENTIRE SYSTEM UNTIL THE SHEATHING MATERIAL HAS BEEN APPLIED.
5. HOLES ARE NOT TO BE CUT IN BEAMS, COLUMNS, OR JOISTS UNLESS PREVIOUSLY APPROVED BY THE ENGINEER AND ONLY IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. ALL ENGINEERED WOOD PRODUCTS SHALL BE IDENTIFIED BY A STAMP INDICATING THE PRODUCT TYPE AND GRADE, NER, ICBO, ES OR CCMC EVALUATION REPORT NUMBER, MANUFACTURER'S NAME, PLANT NUMBER AND THE INDEPENDENT INSPECTION AGENCY'S LOGO.
7. JOIST HANGERS AND FRAMING HARDWARE SHALL BE AS MANUFACTURED BY SIMPSON STRONG TIE COMPANY OR EQUAL. UNLESS SPECIFICALLY NOTED ON THE DRAWINGS, USE FRAMING HARDWARE SUITABLE FOR THE INTENDED APPLICATION.

WOOD FRAMING

1. LUMBER SHALL BE SPRUCE-PINE-FIR NO. 1 / NO. 2 OR BETTER WITH THE FOLLOWING MINIMUM PROPERTIES:

ALLOWABLE BENDING STRESS Fb= 875 PSI
ALLOWABLE SHEAR STRESS Fv= 70 PSI
COMPRESSION Fc= 1,100 PSI
MODULUS OF ELASTICITY E= 1,400,000 PSI

2. PLYWOOD ROOF SHEATHING SHALL BE APA RATED SHEATHING, C-D EXPOSURE 1, 32/16 SPAN RATING. LONG DIMENSION SHALL BE PERPENDICULAR TO SUPPORTS. JOINTS SHALL BE STAGGERED. T HICKNESS SHALL MATCH EXISTING ROOF SHEATHING.
3. FASTEN ROOF SHEATHING TO SUPPORTING MEMBERS WITH 10D NAILS AT 6" CC AROUND THE PERIMETER OF INDIVIDUAL SHEETS AND 6" CC WITHIN THE FIELD.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL HAS BEEN DESIGNED IN ACCORDANCE WITH THE THIRTEENTH EDITION OF AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "STEEL CONSTRUCTION MANUAL, ALLOWABLE STRESS DESIGN".
2. STRUCTURAL STEEL FABRICATION AND ERECTION SHALL COMPLY WITH THE PROVISIONS OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", CURRENT ADDITION AND "THE SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS", CURRENT ADDITION.
3. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING:

STRUCTURAL STEEL W-SHAPES - ASTM A992, Fy=50 KSI
OTHER STRUCTURAL STEEL SHAPES, PLATES, BARS - ASTM A36, Fy=36 KSI

4. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE". WELD ELECTRODES SHALL BE E70XX. PROVIDE A MINIMUM OF 3/16" CONTINUOUS FILLET WELD UNLESS OTHERWISE NOTED.

PROJECT
HOPKINTON
FIRE STATION
HVAC UPGRADE RE-BID
BID # 24-05-002IFB
73 MAIN STREET
HOPKINTON, MA 01748

CLIENT
TOWN OF HOPKINTON
83 WOOD STREET
HOPKINTON, MA 01748

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KEY PLAN

REMARKS

REVISIONS
No. Description Date

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SEAL / ORIENTATION

DATA
Date: MARCH 27, 2024
Proj. No.: 210057
Scale: As indicated
Drawn By: CMH
Checked By: BMT
File Name:

TITLE
ROOF FRAMING PLAN AND GENERAL NOTES

SHEET
S-1.0

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

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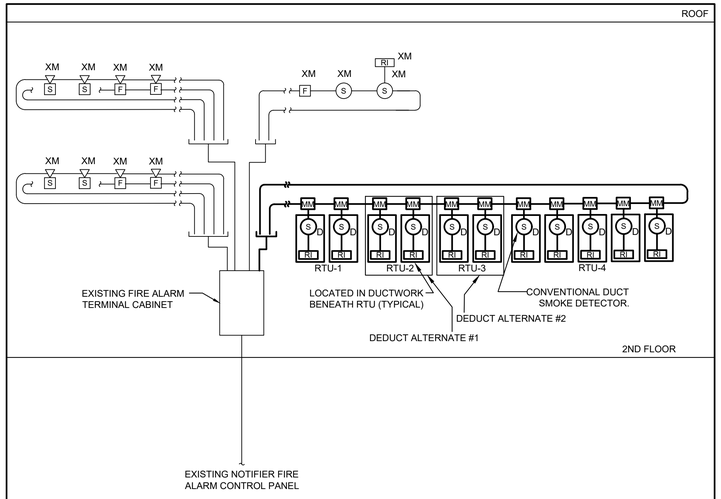
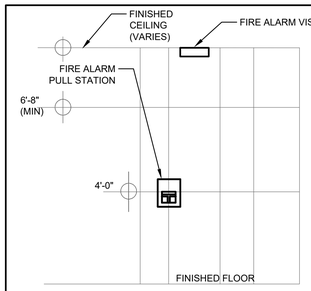


NOTES:

1. REFER TO FLOOR PLANS FOR EXACT LOCATION AND QUANITITES OF ALL FIRE ALARM DEVICES.
2. ELECTRICAL CONTRACTOR SHALL MATCH EXISTING BUILDING STANDARD FIRE ALARM WIRING REQUIREMENTS.
3. MODIFICATIONS TO THE EXISTING FIRE ALARM SYSTEM SHALL BE COORDINATED WITH THE FIRM WHO HOLDS THE EXISTING SYSTEM MAINTENANCE CONTRACT. THE FIRM WHO HOLDS THE EXISTING SYSTEM MAINTENANCE CONTRACT SHALL MAKE ALL FINAL CONNECTIONS, AND PERFORM ALL PROGRAMMING AND TESTING. ALL COSTS ASSOCIATED WITH FINAL CONNECTIONS, PROGRAMMING AND TESTING SHALL BE INCLUDED UNDER THIS CONTRACT AND SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
4. THE ELECTRICAL CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH DISABLING THE CONNECTIONS TO THE EXISTING MUNICIPAL LOOP DURING FINAL CONNECTIONS AND TESTING AND SHALL CARRY COSTS FOR RECONNECTION OF LOOP.
5. THE EXISTING PANEL DETECTION SLC CIRCUIT DOES NOT HAVE ADEQUATE CAPACITY TO ACCEPT NEW DEVICES, USE SECOND SLC LINE (MODULE LINE) TO PROVIDE ADDITIONAL CAPACITY. PROVIDE MONITOR MODULES TO SUPPORT NEW CONVENTIONAL DUCT SMOKE DETECTORS.

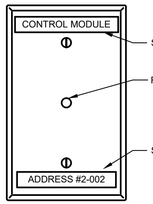
FIRE ALARM RISER — NTS



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS AND FIRE ALARM VISUAL DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.

1 TYPICAL MOUNTING HEIGHTS — NTS



[J] COVER PLATE, JUNCTION BOX, ETC.

NOTES:

1. AT A MINIMUM, ELECTRICAL CONTRACTOR SHALL PROVIDE TYPED LABELS WITH PTOUCH MACHINE TO INDICATE FIRE ALARM DEVICE AND ADDRESS OR ZONE NUMBER. COORDINATE EXACT NAMING WITH FACILITY'S PERSONNEL. IF FACILITY STANDARD IS ENGRAVED COVERPLATES, THE ELECTRICAL CONTRACTOR SHALL PROVIDE ENGRAVED COVERPLATES TO MATCH FACILITY REQUIREMENTS.

2 TYPICAL FIRE ALARM LABELING — NTS

PROJECT GENERAL NOTES

1. THE CONTRACTOR SHALL FURNISH LABOR, MATERIALS, TOOLS AND OTHER EQUIPMENT REQUIRED TO INSTALL THE WORK SHOWN AND SPECIFIED. THE CONTRACTOR SHALL FURNISH AND INSTALL ITEMS NECESSARY FOR A COMPLETE ELECTRICAL SYSTEM. MATERIALS SHALL BE NEW AND SHALL BEAR THE REGISTERED UL MARK. WORK SHALL CONFORM WITH THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 70 (NEC), THE NATIONAL ELECTRICAL CODE (NEC), AND APPLICABLE FEDERAL, STATE AND LOCAL CODES. CONTRACTOR SHALL SECURE PERMITS AND PAY THE FEES REQUIRED TO CARRY OUT HIS WORK. THE CONTRACTOR SHALL FURNISH COPIES OF CERTIFICATES AND PERMITS TO THE ARCHITECT.
2. THE DRAWINGS AND SPECIFICATIONS INDICATE THE INTENT OF THE DESIGN AND SHALL BE CONSIDERED AS DIAGRAMMATIC ONLY. EXACT LOCATIONS FOR OUTLETS AND EQUIPMENT SHALL BE DETERMINED AT THE SITE, AS WORK PROGRESSES DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE. FINAL WORK SHALL BE DOCUMENTED ON AS BUILT RECORD DRAWINGS.
3. PIPING, CONDUITS AND EQUIPMENT OF ALL TRADES SHALL BE PROPERLY COORDINATED AND SET TO MAINTAIN THE CLEARANCES REQUIRED BY APPLICABLE FEDERAL, STATE AND LOCAL CODES.
4. CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION DEFLECTION TYPE FITTINGS, AS REQUIRED VERIFY EXISTING JOINTS BY FIELD MEASUREMENTS.
5. RACEWAYS AND CABLE SHALL BE RUN CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED.
6. EQUIPMENT SHALL BE PROVIDED WITH DEDICATED WORK SPACE. THE HEIGHT OF THE WORK SPACE SHALL EXTEND FROM THE FLOOR TO A HEIGHT OF 6'-6" OR TO THE HEIGHT OF THE EQUIPMENT, WHICHEVER IS GREATER. THE WIDTH OF THE WORKING SPACE SHALL BE THE WIDTH OF THE ELECTRICAL EQUIPMENT OR 30", WHICHEVER IS GREATER. IN ALL CASES, WORK SPACE SHALL ALLOW AT LEAST A 90 DEGREE OPENING OF EQUIPMENT DOORS OR HINGED PANELS.
7. ALL EQUIPMENT SHALL BE LOCATED IN DEDICATED SPACES AND PROTECTED FROM DAMAGE. THE DEDICATED ELECTRICAL SPACE SHALL BE EQUAL TO THE WIDTH AND DEPTH OF THE EQUIPMENT AND EXTENDING FROM THE FLOOR TO A HEIGHT OF 6'-0" ABOVE THE EQUIPMENT OR TO THE STRUCTURAL CEILING, WHICHEVER IS LOWER. NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH SUCH SPACE.
8. DEVICES SHALL BE MOUNTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE ACCESSIBILITY CODE.
9. PULL STATIONS, HORN/STROBES, SMOKE DETECTORS, ETC INDICATE QUANTITY, EXACT LOCATIONS OF DEVICES SHALL BE DETERMINED IN THE FIELD AND COORDINATED WITH ARCHITECTURAL DRAWINGS.
10. THIS IS A STANDARD SYMBOL LIST. ALL DEVICE SYMBOLS AND ABBREVIATIONS MAY NOT NECESSARILY APPEAR ON THE FLOOR PLANS OR DETAIL SHEET. ONLY THOSE SYMBOLS INDICATED ON THE FLOORS PLANS ARE USED AND OTHERS SHOULD BE DISREGARDED.
11. MOUNTING HEIGHTS SHALL BE AS INDICATED ON ARCHITECTURAL DRAWINGS. THE MOUNTING HEIGHT DETAIL SHALL BE USED AS A GUIDE IN THE ABSENCE OF THE ARCHITECTURAL DRAWINGS.
12. MODIFICATIONS TO THE EXISTING FIRE ALARM SYSTEM SHALL BE COORDINATED WITH THE FIRM WHO HOLDS THE EXISTING SYSTEM MAINTENANCE CONTRACT. THE FIRM WHO HOLDS THE EXISTING SYSTEM MAINTENANCE CONTRACT SHALL MAKE ALL FINAL CONNECTIONS, AND PERFORM ALL PROGRAMMING AND TESTING. ALL COSTS ASSOCIATED WITH FINAL CONNECTIONS, PROGRAMMING AND TESTING SHALL BE INCLUDED UNDER THIS CONTRACT AND SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
13. THE ELECTRICAL CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH DISABLING THE CONNECTIONS TO THE EXISTING MUNICIPAL LOOP DURING FINAL CONNECTIONS AND TESTING AND SHALL CARRY COSTS FOR RECONNECTION OF LOOP.
14. WHEN AVAILABLE FROM THE MANUFACTURER, ALL FIRE ALARM STROBES SHALL BE FIELD ADJUSTABLE AND THE POWER SUPPLY SHALL BE SIZED BASED ON ALL THE STROBES' HIGHEST SETTING.

FIRE ALARM SYSTEM LEGEND

- [F] MANUAL PULL STATION
- [FACP] FIRE ALARM CONTROL PANEL
- [FATC] FIRE ALARM TERMINAL CABINET
- [FAA] FIRE ALARM REMOTE ANNUNCIATOR
- (S) SMOKE DETECTOR
  SMOKE DETECTOR NOTES:
  "E" - INDICATES FOR ELEVATOR RECALL
  "D" - INDICATES DUCT MOUNTED SMOKE DETECTOR WITH HOUSING AND SAMPLING TUBE:
- [F] WALL MOUNTED FIRE ALARM SPEAKER/STROBE COMBINATION UNIT, RATED 90db OUTPUT AND 75cd UNLESS OTHERWISE NOTED
- [S] WALL MOUNTED FIRE ALARM STROBE ONLY DEVICE, UNIT RATED OUTPUT 75cd UNLESS OTHERWISE NOTED
- [XM] ADDRESSABLE MONITOR MODULE.
- [CM] ADDRESSABLE CONTROL MODULE.
- [RI] REMOTE ALARM INDICATOR

DEMOLITION GENERAL NOTES

1. THE REFER TO THE ARCHITECTURAL DRAWINGS FOR THE FULL EXTENT OF THE SCOPE OF DEMOLITION. DISCONNECT AND MAKE SAFE ALL ELECTRICAL EQUIPMENT IDENTIFIED FOR REMOVAL ON THE ARCHITECTURAL, HVAC, PLUMBING AND FIRE PROTECTION PLANS. THE ELECTRICAL SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH THE VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.
2. THE ELECTRICAL DEMOLITION PLANS INDICATED GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL COMPONENTS AND ITEMS TO BE REMOVED OR RETAINED. THE ELCTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMISSION OF THEIR BID TO BECOME FAMILIAR WITH THE ACTUAL WORKING CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS DESIGNATED TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE ELECTRICAL CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNERS REPRESENTATIVE AND ARCHITECT OF ANY UNANTICIPATED OR HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE, BUT NOT BE LIMITED TO, THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
4. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS WITHIN OR ASSOCIATED WITH THE DEMOLITION SCOPE, PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS, LOAD CENTERS, MOTOR CONTROL CENTERS, AND SWITCHBOARDS IDENTIFIED FOR REMOVAL, SHALL BE TRACED AND FIELD LABELLED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
5. IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADES WORK, THE ELECTRICAL CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADES WORK IN THAT AREA.
6. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF THE SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT WRITTEN APPROVAL FROM THE OWNERS REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT CONDITION.
7. THE ELECTRICAL CONTRACTOR SHALL TAKE INVENTORY OF ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE REMOVED FROM THE SITE AND DIPOSED OF LEGALLY.
8. SPECIFIED OR SHOWN TO BE PAINTED, THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL ELECTRICAL ITEMS AS REQUIRED, INCLUDING BUT NOT LIMITED TO, LIGHTING FIXTURES, DEVICE PLATES, DEVICES, ETC THE CONTRACTOR SHALL BE RESPONSIBLE FOR STRONG THE REMOVED DEVICES IN A SAFE AND SECURE PLACE THE ELECTRICAL CONTRACTOR SHALL REINSTALL THE SAME DEVICES AFTER COMPLETION OF PAINTING. ANY ITEM NOT REMOVED AND PAINTED OVER SHALL BE SUITABLY CLEANED OR REPLACED WITH A NEW ITEM BY THE ELECTRICAL CONTRACTOR.
9. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS WITHIN THE AREA OF DEMOLITION SCOPE TO THEIR POINT OF ORIGIN. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SJALL BE DE-ENERGIZED AND RE-LABELLED AS "SPARE". NEW TYPED UPDATED CIRCUIT DIRECTORIES SHALL ALSO BE PROVIDED.
10. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CELINGS, PARTITIONS, ETC). CONTRACTOR SHALL TEMPORARILY SUPPORT ITEMS AND SHALL PROVIDE PERMANENT SUPPORTS WHEN FINALIZED STRUCTURES ARE IN PLACE.
11. ALL EXISTING ELECTRICAL EQUIPMENT THAT ARE TO BE RELOCATED SHALL BE STORED IN A SAFE MANNER UNTIL SUCH TIME AS TO BE REINSTALLED. ANY DAMAGE INCURRED TO EQUIPMENT SHALL BE RECTIFIED BY THE ELECTRICAL CONTRACTOR.
12. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS, PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
13. THE WORK ON THIS PROJECT MAY BE PERFORMED IN PHASES. THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND SCHEDULE HIS WORK AND ALLOW SUFFICIENT TIME AND COSTS TO ACCOMMODATE THE PHASING OF WORK. ANY ADDITIONAL COSTS INCURRED DUE TO LACK OF PROPER COORDINATION AND COMMUNICATION BY THE ELECTRICAL CONTRACTOR, WITH THE GENERAL CONTRACTOR, OTHER TRADES OR OWNER'S REPRESENTATIVE, SHALL BE ASSUMED BY THE ELECTRICAL CONTRACTOR WITHOUT ANY COSTS TO THE OWNER. REFER TO THE ARCHITECTURAL PHASING PLANS FOR ADDITIONAL INFORMATION.
14. THE EXISTING FIRE ALARM SYSTEM SHALL REMAIN FULLY FUNCTIONAL DURING THE ENTIRE DEMOLITION AND CONSTRUCTION PERIOD. REUSE OF EXISTING FIRE ALARM 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.
15. THE ELECTRICAL CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH DISABLING THE CONNECTIONS TO THE EXISTING FIRE ALARM DURING ALL PHASES OF CONSTRUCTION AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND SHALL CARRY ALL COSTS FOR RECONNECTION OF LOOP. NOTE THAT THERE MAY BE A REQUIREMENT FOR MULTIPLE DISCONNECTIONS AND RECONNECTIONS, BASED ON THE AUTHORITY HAVING JURISDICTION.
16. ALL DEMOLITION SCOPE ASSOCIATED WITH FIRE ALARM SYSTEMS, INCLUDING BUT NOT LIMITED TO, FIRE ALAM AND ASSOCIATED TELEPHONE, DATA, SECURITY, PAGING, CCTV, ETC. CONNECTIONS SHALL BE INCLUDED IN THIS CONTRACT.

FIRE ALARM SYSTEM WIRING METHODS

REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

FIRE ALARM SYSTEM RISER WIRING	CIC TYPE NPLFR AND FPLR CONDUCTORS IN EMT
FIRE ALARM SYSTEM CIRCUIT WIRING CONCEALED SPACES	NTYPE NPLF AND FPL CONDUCTORS IN EMT OR MC CABLE
FIRE ALARM SYSTEM CIRCUIT WIRING IN EXPOSED SPACES VISIBLE TO PUBLIC	TYPE NPLF AND FPL CONDUCTORS IN SURFACE MOUNTED RACEWAY - WIREMOLD V500 OR APPROVED EQUAL
FIRE ALARM SYSTEM CIRCUIT WIRING IN UTILITY ROOMS OR EXTERIOR	TYPE NPLF AND FPL CONDUCTORS IN EMT

LINE TYPE LEGEND

- EXISTING DEVICE, EQUIPMENT OR WIRING TO BE REMOVED
- EXISTING DEVICE, EQUIPMENT OR WIRING TO REMAIN
- NEW DEVICE, EQUIPMENT OR WIRING

	SYSTEM OUTPUTS																		
		CONTROL UNIT ANNUNCIATOR							NOTIFICATION						SAFETY/SUPPLEMENTARY CONTROLS				
	SYSTEM INPUTS	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE SIGNAL AT PANEL AND ANNUNCIATOR	ACTUATE ORIGIN AND DESCRIPTION OF SIGNAL ON LCD DISPLAY	ACTIVATE ALL HORN/STROBE DEVICES	TRANSMIT ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION	SHUT DOWN ASSOCIATED AIR HANDLER	RECALL ELEVATOR TO PRIMARY FLOOR	RECALL ELEVATOR TO ALTERNATE FLOOR	ACTIVATE ELEVATOR CAB FIRE HAT LIGHT	ACTIVATE SECURITY LOCK AND GARAGE DOOR RELAYS	ACTIVATE RELAYS TO CONTROL FIRE SMOKE DAMPERS	ACTIVATE RELAY FOR SOUND SYSTEM SHUTDOWN	ACTIVATE RELAYS FOR TRASH CHUTE DAMPERS	RELEASE MAGNETIC DOOR HOLDERS & ACCESS CONTROL
1	MANUAL PULL STATION	●			●	●	●	●								●	●	●	●	●
2	SMOKE DETECTORS - VERIFIED ALARM*	●			●	●	●	●								●	●	●	●	●
3	HEAT DETECTORS	●			●	●	●	●								●	●	●	●	●
4	SMOKE DETECTORS IN LOBBIES - VERIFIED ALARM*	●			●	●	●	●				●				●	●	●	●	●
5	CO DETECTORS			●					●											
6	NOT USED	●			●	●	●	●				●		●		●	●	●	●	●
7	SPRINKLER WATERFLOW SWITCHES	●			●	●	●	●								●	●	●	●	●
8	DRY SPRINKLER SYSTEM PRESSURE SWITCH	●			●	●	●	●								●	●	●	●	●
9	SPRINKLER CONTROL VALVES		●		●	●			●											
10	DRY SPRINKLER SYSTEM HIGH/LOW PRESSURE SWITCH		●		●	●			●											
11	FIRE PUMP RUNNING		●		●	●			●											
12	FIRE PUMP POWER FAILURE/PHASE REVERSAL		●		●	●			●											
13	FIRE PUMP TROUBLE		●		●	●			●											
14	OPEN CIRCUIT			●	●	●				●										
15	SHORT CIRCUIT			●	●	●				●										
16	GROUND FAULT			●	●	●				●										
17	LOW SYSTEM BATTERY			●	●	●				●										

2

DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE No.1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**
2. **DEDUCT ALTERNATE No.2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**

EXISTING CONDITIONS DESIGNATIONS

- X EXISTING DEVICE SHALL BE REMOVED INCLUDING ALL ASSOCIATED RACEWAYS AND CIRCUITRY BACK TO ITS SOURCE
- XM EXISTING DEVICE SHALL REMAIN AND SHALL BE MAINTAINED
- XR EXISTING DEVICE SHALL BE RELOCATED
- XL NEW LOCATION OF EXISTING TO BE RELOCATED DEVICE. EXTEND AND MODIFY EXISTING WIRING AS REQUIRED TO NEW DEVICE LOCATION. MATCH EXISTING WIRING.
- XN EXISTING DEVICE TO BE REMOVED AND REPLACED WITH NEW MAINTAIN EXISTING CIRCUITRY FOR CONNECTION OF NEW DEVICE

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

PROJECT

TOWN OF HOPKINTON

83 WOOD STREET
HOPKINTON, MA 01748

CLIENT

R. W. Sullivan Engineering
MEP / FP Engineering . Code . Commissioning
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Phone: (617) 523-8227
Fax: (617) 523-8016
www.rwsullivan.com
RWS JOB # 200170.00

FIRM

KEY PLAN

REMARKS

No.	Description	Date
2	REBID-3 DOCUMENTS	MAR 27, 2024
	BID DOCUMENTS	FEB 01, 2023

REVISIONS

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SEAL / ORIENTATION

Date: MARCH 27, 2024
Proj. No.: 2019023.01
Scale: 1/8" = 1'-0"
Drawn By: WMD
Checked By: ARH
File Name:

DATA

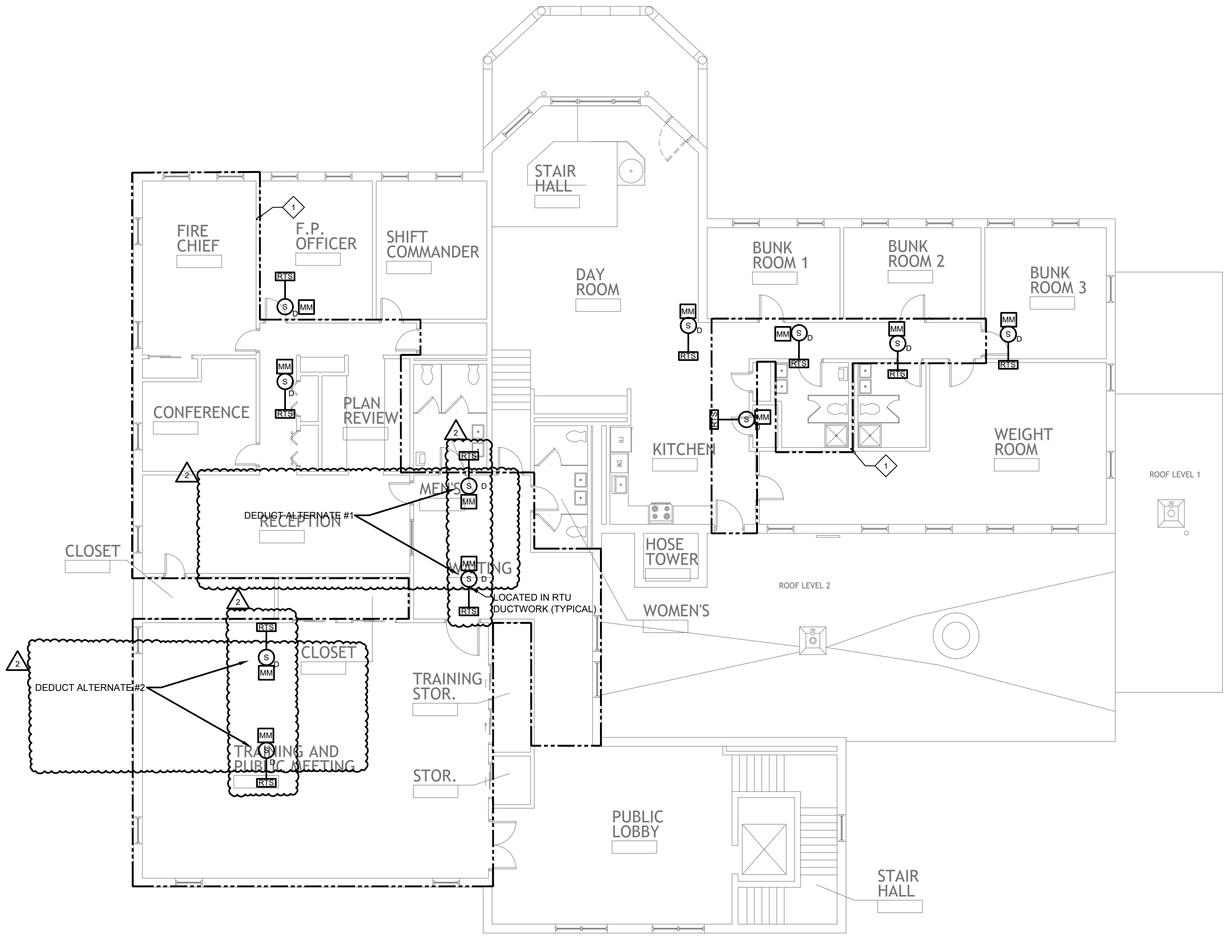
FIRE ALARM LEGEND AND GENERAL NOTES

TITLE

FA0.0

SHEET

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



POWER PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING FA.0. FOR ADDITIONAL REQUIREMENTS.
2. REFER TO DRAWING FA0.0 FOR LEGEND AND GENERAL NOTES.
3. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH HVAC, PLUMBING AND FIRE PROTECTION DRAWINGS.

PLAN KEYED NOTES:

1 REINSTALL EXISTING CEILING MOUNTED FIRE ALARM DEVICES, THAT WERE REMOVED DURING DEMOLITION, IN NEW CEILING.

DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE No.1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**
2. **DEDUCT ALTERNATE No.2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT
HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT
TOWN OF HOPKINTON

83 WOOD STREET
HOPKINTON, MA 01748

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R. W. Sullivan Engineering
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RWS JOB # 2000170.00

KEY PLAN

REMARKS

REVISIONS

No.	Description	Date
1	REBID-3 DOCUMENTS	MAR 27, 2024
	BID DOCUMENTS	FEB 01, 2023

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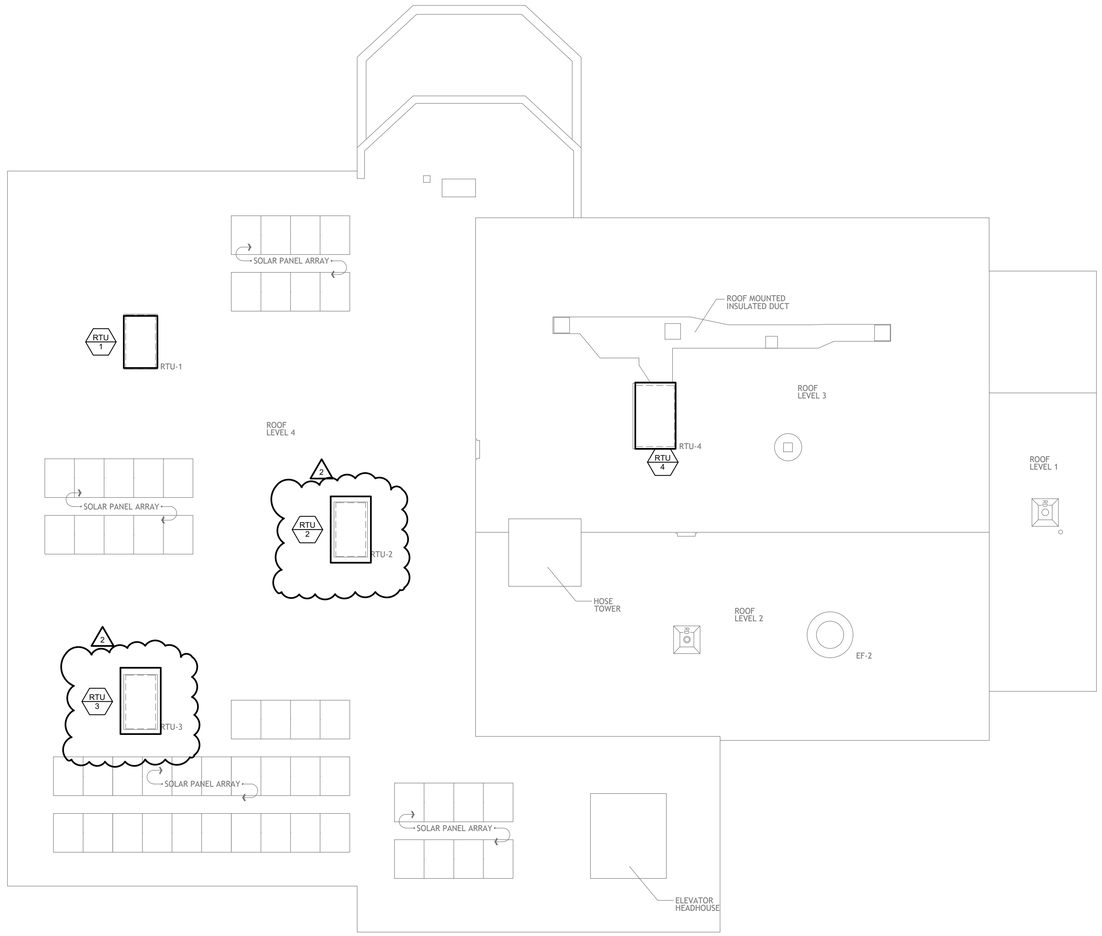
DATA

Date:	MARCH 27, 2024
Proj. No.:	2019023.01
Scale:	1/8" = 1'-0"
Drawn By:	WMD
Checked By:	ARH
File Name:	

TITLE
FIRE ALARM SECOND FLOOR PLAN

SHEET
FA1.2

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



PLAN KEYED NOTES:

1. PROVIDE HEATED ENCLOSURE FOR DUCT SMOKE DETECTORS MOUNTED IN UNHEATED SPACE AT ROOF AS REQUIRED. INTENT IS TO MOUNT THE NEW DUCT SMOKE DETECTORS BELOW THE ROOF IN CEILING SPACE OF FLOOR BELOW. TYPICAL FOR ALL RTU UNITS.

DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE No.1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**
2. **DEDUCT ALTERNATE No.2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

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File Name:	

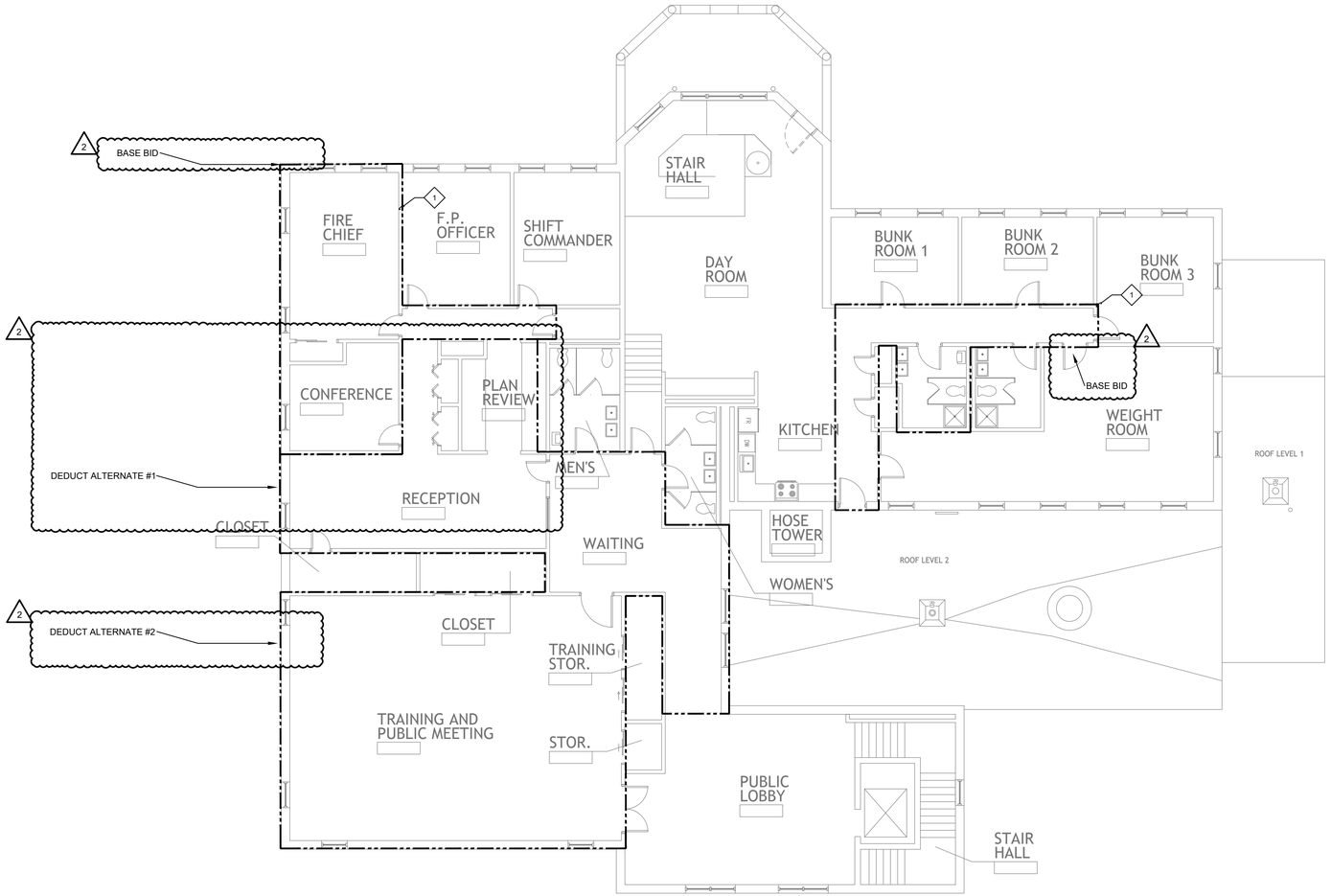
TITLE

FIRE ALARM ROOF PLAN

SHEET

FA1.3

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



DEMOLITION PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING FA0.0 FOR ADDITIONAL REQUIREMENTS.
2. WORK MAY BE REQUIRED OUTSIDE OF THE PROJECT'S AREA OF RENOVATION. CONTRACTOR SHALL NOT ASSUME THAT AREA OF RENOVATION IS CONSIDERED THE SCOPE OF WORK AREA.

DEMOLITION PLAN KEYED NOTES:

1 CEILING IN THIS AREA TO BE DISTURBED. REMOVE ALL EXISTING FIRE ALARM DEVICES FROM CEILING AND TEMPORARILY SECURE ABOVE CEILING GRID. MAINTAIN ALL DEVICES, WIRING, AND CONNECTIONS FOR FUTURE REINSTALLATION IN NEW CEILING.

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

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TITLE

FIRE ALARM
DEMOLITION
SECOND FLOOR PLAN

SHEET

FAD1.2

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

GENERAL ABBREVIATIONS

ABREV	DESCRIPTION
AC	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
ACD	AUTOMATIC CONTROL DAMPER
AD	ACCESS DOOR
AHU	AIR HANDLING UNIT
AFF	ABOVE FINISHED FLOOR
AFR	ABOVE FINISHED ROOF
AP	ACCESS PANEL
APD	AIR PRESSURE DROP (INCHES OF WATER)
ATC	AUTOMATIC TEMPERATURE CONTROL
AV	AIR VENT (AUTOMATIC)
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSE POWER
BTUH	BRITISH THERMAL UNITS PER HOUR
CC	COOLING COIL
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE

CO	CLEAN OUT
COND	CONDENSATE
CP	CONDENSATE PUMP
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CW	CITY WATER
D	DRAIN
DBT	DRY BULB TEMP °F
DIA	DIAMETER
DOV	DRAIN OFF VALVE
DX	DIRECT EXPANSION
E	EXISTING (BEFORE SYMBOL)
EA	EXHAUST AIR
EHC	ELECTRIC HEATING COIL
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ETBR	EXISTING TO BE REMOVED
ETR	EXISTING TO REMAIN

EWT	ENTERING WATER TEMPERATURE
EXP	EXPANSION
FA	FRESH AIR
FD	FIRE DAMPER
FF	FINAL FILTER
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
GA	GAUGE
GAL	GALLONS
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HG	HOT GAS
HP	HORSE POWER OR HEAT PUMP
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
ID	INSIDE DIAMETER

KW	KILOWATT
KWH	KILOWATT-HOUR(S)
LAT	LEAVING AIR TEMPREATURE
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1,000 BTU/HOUR
MD	MOTORIZED DAMPER
MFG'R	MANUFACTURER
MIN	MINIMUM
MTD	MOUNTED
MUA	MAKE UP AIR
MV	AIR VENT (MANUAL)
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR

OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
PD	PRESSURE DROP (FEET OF WATER)
PF	PRE FILTER
PS	PRESSURE SWITCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RAF	RETURN AIR FAN
RHC	REHEAT COIL
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
S	SUPPLY AIR DEVICE
SA	SUPPLY AIR
SD	SMOKE DETECTOR

SF	SUPPLY AIR FAN
SP	STATIC PRESSURE (INCHES OF WATER)
SPC	STATIC PRESSURE CONTROLLER
SS	STAINLESS STEEL
TA	TRANSFER AIR
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TW	THERMOMETER WELL
TYP	TYPICAL
UH	UNIT HEATER
V	VOLTS
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENTED THROUGH ROOF
W	WATTS
WBT	WET BULB TEMPERATURE °F
WMS	WIRE MESH SCREEN
WPD	WATER PRESSURE DROP (FEET)

SHEETMETAL SYMBOLS

DOUBLE LINE / SINGLE LINE

- SUPPLY AIR DUCT TURN 90° UP
- SUPPLY AIR DUCT TURN 90° DOWN
- RETURN AIR DUCT TURN 90° UP
- RETURN AIR DUCT TURN 90° DOWN
- EXHAUST AIR DUCT TURN 90° UP
- EXHUAST AIR DUCT TURN 90° DOWN
- SUPPLY AIR DUCT UP & PENETRATING FLOOR ABOVE
- SUPPLY AIR DUCT DOWN & PENETRATING FLOOR ABOVE
- RETURN AIR DUCT UP & PENETRATING FLOOR ABOVE
- RETURN AIR DUCT DOWN & PENETRATING FLOOR BELOW
- EXHAUST AIR DUCT UP & PENETRATING FLOOR ABOVE
- EXHAUST AIR DUCT DOWN & PENETRATING FLOOR BELOW
- ROUND DUCT TURN 90° UP
- ROUND DUCT TURN 90° DOWN
- ROUND DUCT UP & PENETRATING FLOOR ABOVE
- VOLUME DAMPER (VD)
- COMBINATION FIRE AND SMOKE DAMPER (FSD)
- BACKDRAFT DAMPER (BDD)
- FIRE DAMPER (FD)
- SMOKE DAMPER (SD)
- AUTOMATIC CONTROL DAMPER (ELECTRIC OR PNEUMATIC) (ACD)
- MOTORIZED DAMPER (MD)
- DUCT MOUNTED HUMIDIFIER
- FLEXIBLE DUCT
- FLEXIBLE CONNECTION
- (RECT.) BREAK &/OR CONTINUATION (ROUND)
- EXISTING DUCTWORK AND EQUIPMENT TO REMAIN
- EXISTING DUCTWORK AND/OR EQUIP. TO BE REMOVED
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- RECTANGULAR TO ROUND TRANSITION
- DUCT W/ 1" ACOUSTICAL LINER
- (RECT.) VERTICAL OFFSET UP OR DOWN (ARROW INDICATES DIRECTION OF FLOW)
- (ROUND)
- DUCT REMOVED AND HOLE CAPPED/BLANKED OFF
- HORIZONTAL OFFSET
- SMOOTH RADIUS ELBOW
- ELBOW W/ TURNING VANES (WHERE SMOOTH RADIUS ELBOWS CANNOT BE INSTALLED)
- TRUNK TEE
- SQUARE BULLHEAD TEE W/TURNING VANES
- 90° BRANCH TAKE-OFF
- 90° BRANCH TAKE-OFF (RECT. TO ROUND)
- 90° BRANCH TAKE-OFF (BELLMOUTH)
- 45° BRANCH TAKE-OFF (RECTANGULAR)
- 45° BRANCH TAKE-OFF (ROUND)
- LINEAR SIDEWALL DIFFUSER (W/SHEET METAL CONNECTION PLENUM W/1" LINING & BRANCH FOR EVERY 4' OF LINEAR.)
- LINEAR SIDEWALL DIFFUSER (W/SHEET METAL CONNECTION PLENUM W/1" LINING & BRANCH FOR EVERY 4' OF LINEAR.) — BOOT BY LD MFG'R
- SIDEWALL DUCT MTD. REG./GRILLE

PIPING SYMBOLS

- SUPPLY PIPING (TYP.)
- RETURN PIPING (TYP.)
- BALL VALVE
- BALL VALVE W/HOSE BIBB END, BRONZE CAP AND CHAIN
- GLOBE VALVE
- BALANCING VALVE
- PRESSURE REDUCING VALVE
- HORIZONTAL CHECK VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- BUTTERFLY VALVE
- "Y" STRAINER W/ BLOW DOWN
- GATE VALVE
- GATE VALVE W/ HOSE BIBB END, BRONZE CAP & CHAIN
- PRESSURE REDUCING VALVE
- DIRT LEG
- PITCH UP/DOWN IN DIRECTION OF ARROW
- PIPE GUIDE
- PIPE ANCHOR
- DIRECTION OF FLOW
- PIPE DROP
- PIPE RISE/DROP
- PIPE RISE/DROP PENETRATION
- BRANCH CONNECTION
- BOTTOM CONNECTION 45° OR 90°
- CAPPED PIPE
- GRAPHIC BREAK &/OR CONTINUATION
- UNION
- FLEX PIPE CONNECTOR
- AIR VENT (AUTOMATIC)
- AIR VENT (MANUAL)
- FLOW SWITCH
- PRESSURE SWITCH
- THERMOMETER
- THERMOMETER WELL
- PRESS./ TEMP. TAP(PETE'S PLUG)
- PRESSURE GAUGE
- PRESSURE GAUGE W/ COIL SYPHON
- PRESSURE GAUGE W/ DAMPENER
- FLANGES

GENERAL SYMBOLS

- REVISION NUMBER
- THERMOSTAT
- SMOKE DETECTOR
- DUCT SMOKE DETECTOR
- BIPOLAR IONIZATION GENERATOR
- CONNECT TO EXISTING
- EXTENT OF REMOVAL
- SUPPLY AIR ARROW
- RETURN/EXHAUST AIR ARROW
- UNDERCUT DOOR
- DOOR LOUVER
- DENOTES EQUIPMENT NOT REQUIRING ELECTRICAL INPUT
- DENOTES EQUIPMENT REQUIRING ELECTRICAL INPUT
- DENOTES EQUIPMENT REQUIRING ELECTRICAL INPUT
- DENOTES HVAC DUCTWORK RISER
- DENOTES CONTROL DEVICES

AIR DISTRIBUTION DEVICE
- NECK SIZE
- FLOW RATE (CFM)
- (QUANTITY) TYPE

DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE NO 1

a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO1 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-2 SYSTEM & COMPONENTS TO REMAIN.**

2. DEDUCT ALTERNATE NO 2

a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO2 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-3 SYSTEM & COMPONENTS TO REMAIN.**

GENERAL NOTES

1. THE HEATING, VENTILATING AND AIR CONDITIONING (HVAC) CONTRACTOR SHALL VISIT THE SITE TO DETERMINE ALL PRE-EXISTING CONDITIONS AND WORK NECESSARY PRIOR TO SUBMISSION OF BID PRICE.
2. THE HVAC CONTRACTOR SHALL BE FAMILIAR WITH ALL CONTRACT DOCUMENTS FOR ALL TRADES AND COORDINATE WITH OTHER CONTRACTORS.
3. DRAWINGS ARE DIAGRAMMATIC ONLY, FINAL ROUTING OF DUCTWORK, PIPING AND EQUIPMENT LOCATIONS SHALL BE DETERMINED IN THE FIELD. ADDITIONAL OFFSETS, ELBOWS, ETC., SHALL BE PROVIDED AND INSTALLED WITHOUT ADDITIONAL COST TO THE OWNER.
4. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS.
5. SUPPLY AND RETURN DUCT MAINS FROM AIR HANDLING EQUIPMENT SHALL BE INTERNALLY LINED AS PER SPECIFICATIONS A MINIMUM OF 15'-0" FROM THE UNIT UNLESS OTHERWISE NOTED. ALL DUCTWORK DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS.
6. VOLUME DAMPERS SHALL BE INSTALLED AT ALL BRANCHES, SPLITS, AND TAKE-OFFS.
7. INSTALL SMOKE DETECTORS IN DUCT SYSTEMS IN ACCORDANCE WITH NFPA.
8. THE HVAC CONTRACTOR SHALL COORDINATE ALL ELECTRICAL AND PLUMBING REQUIREMENTS WITH THE ELECTRICAL AND PLUMBING CONTRACTORS.
9. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF DIFFUSERS, REGISTER, GRILLES, THERMOSTATS, ETC.
10. THE HVAC CONTRACTOR SHALL FURNISH AND INSTALL ALL INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE HVAC WORK COMPLETE AND READY FOR OPERATION.
11. ALL HVAC WORK SHALL BE IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
12. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
13. SHUTOFF VALVES SHALL BE INSTALLED IN THE SUPPLY AND RETURN PIPING TO ALL EQUIPMENT TO ALLOW FOR SERVICING. UNIONS OR FLANGES SHALL BE ARRANGED SUCH THAT EQUIPMENT CAN BE SERVICED WITHOUT CUTTING, AND WITH MINIMAL DISRUPTION OF PIPING SERVING THE EQUIPMENT.
14. THE HVAC CONTRACTOR SHALL FURNISH TO THE GENERAL CONTRACTOR ALL INFORMATION REQUIRED FOR SETTING OF WALL, ROOF AND PARTITION OPENINGS FOR HVAC WORK. THIS INFORMATION SHALL BE FURNISHED IN A TIMELY MANNER SUCH THAT CONSTRUCTION SCHEDULE IS NOT JEOPARDIZED.
15. THE HVAC CONTRACTOR SHALL INFORM AND COORDINATE WITH THE OWNER ALL NECESSARY INTERRUPTIONS TO EXISTING BUILDING SYSTEMS AND SERVICE THAT MAY AFFECT THE NORMAL OPERATION OF OCCUPIED PORTIONS OF THE BUILDING. THE OWNER SHALL BE INFORMED OF ANY INTERRUPTIONS AT LEAST TWO (2) WEEKS IN ADVANCE.
16. THE HVAC CONTRACTOR SHALL COORDINATE ANY PREMIUM WORK REQUIRED FOR THIS PROJECT WITH THE GENERAL CONTRACTOR.
17. THE HVAC CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR PHASING REQUIREMENTS OF THE PROJECT.
18. THE AUTOMATIC TEMPERATURE CONTROL (ATC) CONTRACTOR SHALL COORDINATE THERMOSTAT LOCATIONS WITH ARCHITECTURAL PLANS. THERMOSTATS SHALL BE INSTALLED 54" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.
19. EXISTING FIBROUS DUCT LINERS WHICH ARE CUT DURING RENOVATION SHALL BE RE-SEALED SO THAT NO FIBROUS LINER MEDIA IS EXPOSED TO THE AIRSTREAM.
20. ALL ROOF MOUNTED HVAC EQUIPMENT, DUCTWORK, PIPING, CURBING AND SUPPORTS SHALL BE INSTALLED TO MEET THE MASS WIND CODE VELOCITY REQUIREMENTS AS PER 780 CMR-1604.11.
21. ALL EXTERIOR ELECTRICAL DISCONNECTS,VFD'S, ELECTRICAL PANELS & CONTROL PANELS SHALL BE NEMA-3R RATED FOR EXTERIOR SERVICE

DEMOLITION NOTES

1. REFER TO THE MECHANICAL DRAWINGS FOR THE FULL EXTENT OF THE SCOPE OF DEMOLITION. DISCONNECT AND MAKE SAFE ALL MECHANICAL EQUIPMENT IDENTIFIED FOR REMOVAL ON THE MECHANICAL DEMOLITION PLANS. THE MECHANICAL SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THESE WORK SCOPE LIMITS TO FULLY COMPLY WITH THE VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.
2. THE HVAC DEMOLITION PLANS INDICATE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL COMPONENTS AND ITEMS TO BE REMOVED OR RETAINED. THE HVAC, ATC & TAB CONTRACTORS SHALL VISIT THE SITE PRIOR TO SUBMISSION OF THEIR BIDS TO BECOME FAMILIAR WITH THE ACTUAL WORKING CONDITIONS AND EXTENT OF WORK. EQUIPMENT & CONTROLS DESIGNATED TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE HVAC, ATC & TAB CONTRACTORS SHALL IMMEDIATELY NOTIFY THE GENERAL CONTRACTOR, AND THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED OR HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
3. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED BY HIM AS A RESULT OF CONSTRUCTION DURING EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE, BUT NOT BE LIMITED TO, THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
4. THE MECHANICAL CONTRACTOR SHALL SYSTEM TRACE AND LABEL ALL EXISTING BRANCH SYSTEMS AND MAINS WITHIN OR ASSOCIATED WITH THE DEMOLITION SCOPE, PRIOR TO DEMOLITION AND DISCONNECTION. ALL SYSTEMS IDENTIFIED FOR REMOVAL, SHALL BE TRACED AND FIELD LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
5. IN ANY AREA REQUIRING THE PERFORMANCE OF ANY OTHER TRADE'S WORK, THE MECHANICAL CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL MECHANICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADES WORK IN THAT AREA.
6. THE MECHANICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH SYSTEM COMPONENTS WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT WRITTEN APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT CONDITION.
7. THE MECHANICAL CONTRACTOR SHALL TAKE INVENTORY OF MECHANICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER'S REPRESENTATIVE FOR HIS SELECTION OF ITEMS TO BE RETAINED. ALL ROOF-TOP ITEMS REJECTED BY THE REPRESENTATIVE SHALL BECOME THE PROPEERTY OF THE MECHANICAL CONTRACTOR, AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY BY THE MECHANICAL CONTRACTOR. DEMOLITION OF MECHANICAL ITEMS FROM THE INTERIOR SHALL BE DISCONNECTED AND LOWERED TO THE FLOOR BY THE MECHANICAL CONTRACTOR AND REMOVED AND DISPOSED OF BY THE GENERAL CONTRACTOR.
8. THE MECHANICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CEILINGS, PARTITIONS, ETC). CONTRACTOR SHALL TEMPORARILY SUPPORT ITEMS AND SHALL PROVIDE PERMANENT SUPPORTS WHEN FINALIZED STRUCTURES ARE IN PLACE.
9. ALL EXISTING MECHANICAL EQUIPMENT THAT IS TO BE RELOCATED SHALL BE STORED IN A SAFE MANNER UNTIL SUCH TIME AS TO BE REINSTALLED. ANY DAMAGE INCURRED TO EQUIPMENT SHALL BE RECTIFIED BY THE MECHANICAL CONTRACTOR.
10. ALL REMOVED ITEMS FROM THE ROOF-TOP SHALL BE LEGALLY DISPOSED OF BY THE MECHANICAL CONTRACTOR UNLESS IDENTIFIED FOR REUSE. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS, PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE MECHANICAL CONTRACTOR.
11. MECHANICAL CONTRACTOR WORK SCOPE SHALL INCLUDE AND NOT BE LIMITED TO THE FOLLOWING ADDITIONAL ITEMS AS PER ALL LANDLORD STANDARDS AND PROCEDURES AND WITH PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE.
    - 11.1. AFTER INSTALLATION OF NEW WORK, PROVIDE TESTING OF ALL SYSTEMS ACCORDING TO THE SPECIFICATIONS.
    - 11.2. CUTTING, CAPPING & REMOVAL OF EXISTING DUCTWORK & INSULATION SYSTEMS.
    - 11.3. PROTECT ALL EXISTING EQUIPMENT FROM DAMAGE IN AND AROUND EACH INDIVIDUAL WORK SITE.
12. THE MECHANICAL CONTRACTOR WILL PROVIDE ALL NECESSARY EQUIPMENT TO PERFORM DEMOLITION AND NEW WORK SCOPE OF MECHANICAL EQUIPMENT AND COMPONENTS.
13. PROVIDE ALL THE NECESSARY EQUIPMENT, MANPOWER, TOOLS, MISCELLANEOUS SUPPORTS, MISCELLANEOUS EQUIPMENT & SUPPLIES TO PROPERLY EXECUTE THE SCOPE OF DEMOLITION & NEW WORK.
14. PROVIDE ALL PERMITS & COMPLY WITH ALL OSHA SAFETY REGULATIONS. TAKE DUE DILIGENCE IN THE PROTECTION OF ALL WORK PERSONNEL & THE GENERAL POPULATION IN AND AROUND THE WORK SITE. PROVIDE ISOLATION BARRIERS BETWEEN ACTIVE WORK AREAS AND DEMOLITION ZONES. KEEP THE WORK SITE CLEAN, SAFE AND SECURE THROUGHOUT ALL PHASES OF THE WORK ORDER.
15. PROVIDE ALL NECESSARY NEW DAMPERS, DUCT FLANGES & END-CAPS, DUCT SUPPORTS & MISCELLANEOUS STEEL REQUIRED TO ISOLATE EXISTING DUCT SYSTEMS TO REMAIN WHEN OTHER SYSTEMS ARE REMOVED & WHEN DEEMED NECESSARY.
16. NOTIFY "THE OWNER'S" PROJECT MANAGER THROUGH THE GENERAL CONTRACTOR ONE WEEK IN ADVANCE OF ANY INTENDED SHUTDOWNS OF EXISTING SYSTEMS OF ANY SORT. NOTIFY "THE OWNER'S" PROJECT MANAGER THROUGH THE GENERAL CONTRACTOR TWO WEEKS IN ADVANCE OF REQUIRED ACCESS TO ADJACENT SPACES WHERE WORK IS TO BE PERFORMED. "THE OWNER'S" PROJECT MANAGER WILL CONFIRM WITH THE "USERS GROUP" THE TIME & DURATION OF THE REQUIRED SHUT-DOWNS & ACCESS REQUIREMENTS AND INFORM CONTRACTOR IN WRITING OF THE APPROVAL.
17. ALL REMAINING EQUIPMENT WITHIN THE SCOPE OF WORK SHALL BE INSPECTED, TESTED, AND REPAIRED TO GOOD WORKING CONDITION. PROVIDE ALL REQUIRED MOTORS, BELTS, SHEAVES, FLEXIBLE DUCT CONNECTIONS, SUPPORTS, THERMOSTATS, CONTROLS, WIRING, VALVES, PIPE, INSULATION, DRAINAGE AND DUCTS NEEDED TO BRING THE SYSTEM INTO GOOD OPERATING CONDITION. REPLACE ALL DAMAGED OR NON-FUNCTIONING EQUIPMENT WITH LIKE-KIND COMPONENTS.
18. ALL EXISTING DUCTWORK TO REMAIN TO BE PROTECTED BY CONSTRUCTION FILTERS DURING CONSTRUCTION.
19. ALL EQUIPMENT IN WORKSCOPE AREA TO REMAIN AND BE REUSED SHALL BE INSPECTED, TESTED, REPAIRED & REFURBISHED TO GOOD WORKING ORDER.
20. ALL EXISTING REFRIGERANT FLUIDS TO BE DEMOLISHED SHALL BE RECLAIMED AS PER EPA REGULATIONS (40CFR-PART82-SUBPART-F) UNDER SECTION 608 OF THE CLEAN AIR ACT.
21. PROVIDE TEMPORARY ELECTRICAL HEAT IN AREAS WHERE HEAT IS REMOVED AS NEEDED FOR PHASED WINTER CONSTRUCTION AND TEMPORARY COOLING IN AREAS WHERE COOLING IS REMOVED FOR PHASED SUMMER CONSTRUCTION.

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

TOWN OF HOPKINTON

83 WOOD STREET
HOPKINTON, MA 01748

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KEY PLAN

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

REMARKS / REVISIONS

No.	Description	Date
3	REBID-3 DOCUMENTS	MAR 27, 2024
2	REBID-2 DOCUMENTS	FEB 1, 2023

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SEAL / ORIENTATION

DATA

Date:	MARCH 27, 2024
Proj. No.:	2019023.01
Scale:	NTS
Drawn By:	NVZ
Checked By:	ACA
File Name:	

TITLE

HVAC LEGEND AND GENERAL NOTES

SHEET

H-000

6 DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE NO 1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO1 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-2 SYSTEM & COMPONENTS TO REMAIN.**
2. **DEDUCT ALTERNATE NO 2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO2 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-3 SYSTEM & COMPONENTS TO REMAIN.**

AIR DISTRIBUTION DEVICE SCHEDULE

ITEM	SERVICE	TYPE	AIR PATTERN	FACE / NECK SIZE	MATERIAL	MANUFACTURER / MODEL NUMBER	REMARKS
A	SUPPLY	CEILING DIFFUSER	4-WAY	SEE PLANS	STEEL	PRICE / MODEL SPD	1,2,3,4

NOTES:
1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR MOUNTING TYPE.
2. PROVIDE WITH WHITE POWDER COAT FINISH. ALL COLORS AND FINISHES TO BE APPROVED BY ARCHITECT.
3. DEVICES IN GRID CEILINGS SHALL BE LAY-IN TYPE UNLESS NOTED OTHERWISE.
4. DEVICES IN SHEETROCK AND PLASTER CEILINGS SHALL BE SURFACED MOUNTED.

BI-POLAR IONIZATION GENERATOR

ITEM	LOCATION	QTY	SERVICE	CFM	V	PH	HZ	A	MANUFACTURER / MODEL NUMBER	REMARKS
BPI-1A & 1B	INDOOR S/A & R/A DUCTWORK	2	RTU-1	1280	120	1	60	0.1	NU-CALGON / iWAVE-C	1-5
BPI-2A & 2B	INDOOR S/A & R/A DUCTWORK	2	RTU-2	2400	120	1	60	0.1	NU-CALGON / iWAVE-C	1-5
BPI-3A & 3B	INDOOR S/A & R/A DUCTWORK	2	RTU-3	2400	120	1	60	0.1	NU-CALGON / iWAVE-C	1-5
BPI-4A & 4B	OUTDOOR S/A & INDOOR R/A DUCTWORK	2	RTU-4	3230	120	1	60	0.1	NU-CALGON / iWAVE-C	1-5

DEDUCT ALTERNATE No.1 → BPI-2A & 2B
DEDUCT ALTERNATE No.2 → BPI-3A & 3B

NOTES:
1. PROVIDE ALARM TO NEW BMS.
2. PROVIDE ALL FIELD MOUNTING HARDWARE AND WIRING
3. PROVIDE SELF-CLEANING TYPE.
4. PROVIDE NEMA-4X WATERTIGHT RATING
5. PROVIDE BPI GENERATOR MODULES IN BOTH SUPPLY & RETURN DUCTWORK JUST BELOW ROOF

GLYCOL HOT WATER DUCT COIL SCHEDULE

ITEM	SERVICE	AIRFLOW (CFM)	SIZE (IN.)	COIL DATA									MANUFACTURER / MODEL NUMBER	REMARKS
				AIR SIDE				WATER SIDE						
				MBH	EAT (°F)	LAT (°F)	MAX. AIR Δ PRESSURE IN. H_2O	FLUID	EWT (°F)	LWT (°F)	GPM	MAX. Δ PRESSURE FT H_2O		
HWC-1-1	RTU-1	350	12x12	20.1	45	98.0	0.16	30%PG	180	160	2.1	2.1	GREENHECK / HW	1,2,3
HWC-1-2	RTU-1	380	12x12	21.8	45	98.1	0.13	30%PG	180	160	2.3	2.6	GREENHECK / HW	1,2,3
HWC-1-3	RTU-1	540	16x13.5	31.5	45	98.8	0.17	30%PG	180	160	3.3	5.9	GREENHECK / HW	1,2,3
HWC-2-1	RTU-2	1200	24x21	75.6	40	9801	0.16	30%PG	180	160	7.9	9.7	GREENHECK / HW	1,2,3
HWC-2-2	RTU-2	1200	24x21	75.6	40	9801	0.16	30%PG	180	160	7.9	9.7	GREENHECK / HW	1,2,3
HWC-3-1	RTU-3	2400	34x30	144.4	45	100.6	0.16	30%PG	180	160	15.2	5.8	GREENHECK / HW	1,2,3
HWC-4-1	RTU-4	3230	52x18	182.7	45	97.2	0.16	30%PG	180	160	19.2	3.8	GREENHECK / HW	1,2,3

DEDUCT ALTERNATE No.1
DEDUCT ALTERNATE No.2

1. REFER TO FLOOR PLANS FOR COIL ORIENTATION. PROVIDE ALL REQUIRED VALVING, PIPING, FITTINGS, SUPPORTS, FLANGE GASKETS & ATTACHMENTS
2. PROVIDE WITH NEW STAINLESS STEEL FLEXIBLE HOSES, ISOLATION VALVES, AUTOMATIC AIR VENT, DRAIN VALVE, AND PRESSURE INDEPENDENT BALANCING VALVE.
3. PROVIDE WITH NEW DDC 3-WAY CONTROL VALVE AND ATC CONTROLS.

SPLIT SYSTEM HEAT PUMP SCHEDULE

INDOOR UNIT													OUTDOOR UNIT											REMARKS
TAG	LOCATION	TYPE	NOMINAL TONS	COOLING @ 95F AMBIENT MBH	HEATING @ 5F AMBIENT MBH	TOTAL CFM	ELECTRICAL DATA					MANUFACTURER / MODEL NUMBER	TAG	LOCATION	REFRIGERANT TYPE	SEER	ELECTRICAL DATA					OPERATING WEIGHT (LBS)	MANUFACTURER / MODEL NUMBER	
							V	Ø	HZ	MCA	MOCP						V	Ø	HZ	MCA	MOCP			
AC-1	DISPATCH	CASSETTE	3.0	36.0	38.0	730	POWERED BY OUTDOOR UNIT					MITSUBISHI / PLA-A36EA7	HP-1	ROOF	R410A	17.0	208	1	60	28	40	265	MITSUBISHI / PUZ-HA36NHA5	1-9
AC-2	OFFICE	WALL MOUNT	1.0	12.0	13.6	398	POWERED BY OUTDOOR UNIT					MITSUBISHI / MSZ-FH12NA	HP-2	ROOF	R410A	26.1	208	1	60	11	15	83	MITSUBISHI / MUZ-FH12NA	1-9

NOTES:
1. COMPRESSOR SHORT-CYCLE PROTECTION.
2. MOUNT HEAT PUMP IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
3. MATCHING REMOTE THERMOSTAT.
4. INDOOR UNIT/ CONDENSING UNIT INTERLOCK.
5. REFRIGERANT PIPING KIT.
6. INDOOR UNIT POWER SUPPLIED THROUGH OUTDOOR UNIT.
7. PROVIDE MATCHING INTEGRAL BLUE DIAMOND MINI-CONDENSATE PUMP W/ RESERVOIR & SENSOR.
8. MOUNT OUTDOOR UNIT ON 18" TALL QUICK SLING STANDARD.
9. PROVIDE WITH BACNET CONTROLLER FOR COMPLETE INTEGRATION WITH NEW BMS.

VARIABLE FREQUENCY DRIVE SCHEDULE

TAG	LOCATION	SERVICE	HP	ELECTRICAL DATA			EMERGENCY POWER	AIC RATINGS	MANUAL BY-PASS	MANUFACTURER / MODEL NUMBER	REMARKS (PROVIDE THE FOLLOWING)
				V	Ø	HZ					
VFD-RTU-1	ROOF	RTU-1	1	208	3	60	N	100K	Y	ABB / ACH550	1,2,3,4,5,6
VFD-RTU-2	ROOF	RTU-2	3	208	3	60	N	100K	Y	ABB / ACH550	1,2,3,4,5,6
VFD-RTU-3	ROOF	RTU-3	3	208	3	60	N	100K	Y	ABB / ACH550	1,2,3,4,5,6
VFD-RTU-4	ROOF	RTU-4	3	208	3	60	N	100K	Y	ABB / ACH550	1,2,3,4,5,6
VFD-EF2	ROOF	EF-2	2	208	3	60	N	100K	Y	ABB / ACH550	1,2,3,4,5,6

DEDUCT ALTERNATE No.1 → VFD-RTU-2
DEDUCT ALTERNATE No.2 → VFD-RTU-3

NOTES:
1. ALL REQUIRED ELECTRICAL AND CONTROL WIRING INTERFACES, INTERCONNECT ALL ATC CONTROLS WITH VFD CONTROL SYSTEM
2. NEMA-3R RATED, ELECTRICAL DISCONNECT SWITCH, ROOF UNISTRUT SUPPORTS.
3. STARTUP & COMMISSIONING.
4. VFD PROVIDED WITH HVAC MANUFACTURER'S EQUIPMENT.
5. PROVIDE HARMONIC CALCULATIONS FOR RECORD
6. PROVIDE 5% MTE LINE REACTOR FILTER .

FAN SCHEDULE

ITEM	LOCATION	SERVICE	TYPE	CFM	E.S.P. (IN.)	FAN RPM	DRIVE	MOTOR (HP)	V	PH	HZ	MANUFACTURER / MODEL NUMBER	REMARKS
EF-2	ROOF	APPARATUS	UPBLAST	6700	0.33	810	VFD	2	208	3	60	GREENHECK / CUE-240-C-VGD	1-6
EF-10	ROOF	TRAINING	UPBLAST	775	0.33	1536	ECM	1/6	115	1	60	GREENHECK / CUE-095-VG	1-6
EF-12	ROOF	TOILETS	UPBLAST	420	0.33	1273	ECM	1/10	115	1	60	GREENHECK / CUE-090-VG	1-6

NOTES:
1. PROVIDE MATCHING 18" INSULATED ROOF CURB. SUPPORT ASSEMBLY SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11.
2. PROVIDE WITH FACTORY MOUNTED AND WIRED DISCONNECT SWITCH.
3. PROVIDE ECM OR FACTORY MOUNTED AND WIRED VARIABLE FREQUENCY DRIVE.
4. PROVIDE WITH SPEED DIAL FOR SYSTEM BALANCING.
5. RATED FOR OUTDOOR INSTALLATION INCLUDING MOTOR WEATHER GUARD. PROVIDE NEMA 3R DISCONNECT SWITCH.
6. FAN TO BE MONITORED AND CONTROLLED BY NEW BMS.

ROOFTOP AIR HANDLING UNIT - ELECTRIC HEAT, PACKAGED DX (RTU) SCHEDULE

ITEM	LOCATION	SUPPLY FAN							POWERED EXHAUST	PACKAGED DX COOLING COIL								COND FAN (FLA)	HOT GAS REHEAT COIL			ELECTRIC HEAT			FILTER	ELECTRICAL						WEIGHT (LB)	MANUFACTURER / MODEL NUMBER	REMARKS
		# OF FANS	HP	FAN TYPE	MAX CFM	DESIGN CFM	MIN OA CFM	EXTERNAL S.P. (IN. WG.)		NOMINAL TONS	ENT. AIR DB/WB (°F)	UNIT LAT DB/WB (°F)	NET TOTAL MBH	NET SENSIBLE MBH	# OF COMPRESSORS	COMPRESSOR TYPE	EER	IEER/SEER		CAPACITY (MBH)	LAT DB (°F)	REHEAT MOISTURE REMOVAL (GPH)	KW	OUTPUT MBH	TEMP RISE (F°)		V	PH	HZ	VFD	MCA	MOCP			
RTU-1	ROOF	1	1	CENTRIFUGAL DOWNFLOW	1280	1200	400	1.25	YES	4.0	80 / 67	58.3 / 55.4	46.04	30.61	1	SINGLE STAGE	11.6	15.0	0.40	27.43	76.40	1.70	6	20.49	14.74	MERV-13	208	3	60	YES	24.6	35.0	1.002	TRANE / THC048E3RBA**00D3 A1B1A0C4010	1-18
RTU-2	ROOF	1	3	CENTRIFUGAL DOWNFLOW	3000	2400	850	1.25	YES	7.5	80 / 67	58.9 / 57.4	90.97	69.5	2	DUAL STAGE	11.20	14.80	3.30	60.46	72.76	3.74	18	61.47	18.87	MERV-13	208	3	60	YES	67	70	1,213.7	TRANE / TSJ090A3S0G**H0D1 A1B1AOC4010	1-18
RTU-3	ROOF	1	3	CENTRIFUGAL DOWNFLOW	3000	2400	750	1.25	YES	6.0	80 / 67	58.8 / 57.1	73.88	55.79	2	DUAL STAGE	11.20	14.80	3.30	49.98	72.75	3.07	18	61.47	23.59	MERV-13	208	3	60	YES	67	70	1,209.7	TRANE / TSJ072A3S0G**H0D1 A1B1A0C4010	1-18
RTU-4	ROOF	1	3	CENTRIFUGAL DOWNFLOW	4000	3230	1100	1.5	YES	10.0	80 / 67	59.6 / 57.6	118.89	90.56	2	DUAL STAGE	11.20	14.80	2.80	61.49	70.04	4.40	18	61.47	14.15	MERV-13	208	3	60	YES	67	80	1,239.7	TRANE / TSJ120A3S0G**H0D1 A1B1A0C4010	1-18

DEDUCT ALTERNATE No.1 → RTU-2
DEDUCT ALTERNATE No.2 → RTU-3

NOTES:
1. PROVIDE WITH 100% ENTHALPY BASED ECONOMIZER W/ RELIATEL CONTROLS WITH POWERED EXHAUST RELIEF FAN.
2. PROVIDE SCROLL COMPRESSORS AND FULLY CHARGED R-410A REFRIGERANT SYSTEM.
3. PROVIDE RTU-1,2&3 WITH INSULATED ADAPTER CURBS. PROVIDE RTU-4 WITH NEW 21" TALL CAMBRIDGEPORT ROOF CURB, W/ ACOUSTIC LINING, SPRING VIBRATION ISOLATION WITH 2.0 INCH MINIMUM STATIC DEFLECTION SPRINGS, ACCESS PANELS, INSULATION , FLASHING & COUNTERFLASHING SEALED WATERTIGHT.
4. PROVIDE SINGLE POINT POWER CONNECTION WITH FACTORY INSTALLED NON-FUSED DISCONNECT.
5. PROVIDE FACTORY INSTALLED AND WIRED 120V, 15 AMP GFI DUPLEX OUTLET W/COVER.
6. PROVIDE WITH FACTORY MOUNTED AND WIRED NEMA-3R VFD & NON-FUSED ELECTRICAL DISCONNECT SWITCH.
7. PROVIDE WITH MERV-13 FILTERS, CLOGGED FILTER DPI SWITCH AND MAGNEHELIC GAUGE.
8. PROVIDE WITH BACNET MS/TP COMPATIBLE FACTORY PACKAGED "RBCI" RELIATEL INTERFACE CONTROLS. UNIT TO BE MONITORED AND CONTROLLED BY REMOTE BAS/BMS.
9. PROVIDE WITH STAINLESS STEEL DRAIN PAN WITH CONDENSATE OVERFLOW SWITCH.
10. PROVIDE DUCT SMOKE DETECTORS MOUNTED IN SUPPLY AND RETURN DUCTWORK (SYSTEMS >2,000CFM)
11. PROVIDE WITH WEATHER INTAKE HOOD WITH STAINLESS STEEL BIRDSCREEN.
12. PROVIDE WITH GAS VENT STAINLESS STEEL EXTENSION FLUE KIT. (BY OTHERS)
13. PROVIDE FIELD INSTALLED 120V POWER EXHAUST KIT W/CONTROLS. (MCA & MOCP TO BE CONFIRMED BY INSTALLING CONTRACTOR)
14. PROVIDE ACOUSTICAL COMPRESSOR BLANKETS (BY OTHERS).
15. PROVIDE GAS HEAT W/ STAINLESS STEEL HEAT EXCHANGER.
16. PROVIDE "COMPLETE-COAT" CONDENSER COIL W/ HAIL GUARD.
17. PROVIDE MODULATING HOT GAS REHEAT DEHUMIDIFICATION COIL W/ CONTROLS.
18. PROVIDE 120V "NU-CALGON" I-WAVE-C BIPOLAR IONIZATION GENERATOR MODULES FIELD MOUNTED AND WIRED INSIDE RTU.(BY OTHERS) IF NO SPACE AVAILABLE, MOUNT IN SUPPLY & RETURN DUCTWORK.

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

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Bid # 24-05-002IFB

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KEY PLAN

REVISIONS

No.	Description	Date
3	REBID-3 DOCUMENTS	MAR 27, 2024
2	REBID-2-ADDENDUM No1	MAR 1, 2023
1	REBID-2 DOCUMENTS	FEB 1, 2023

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DATA
Date: MARCH 27, 2024
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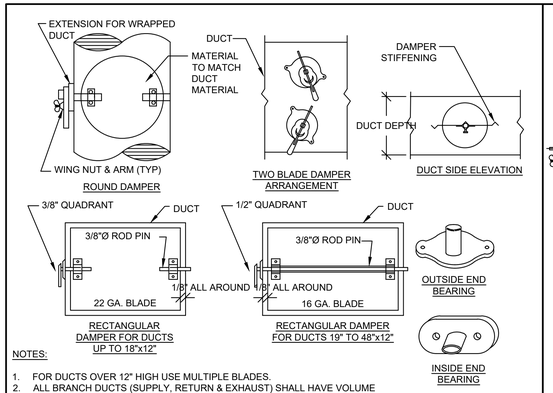
TITLE
HVAC SCHEDULES

SHEET
H-001

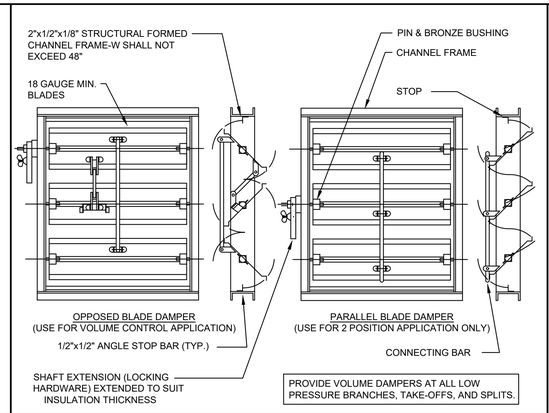
2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



NOTES:

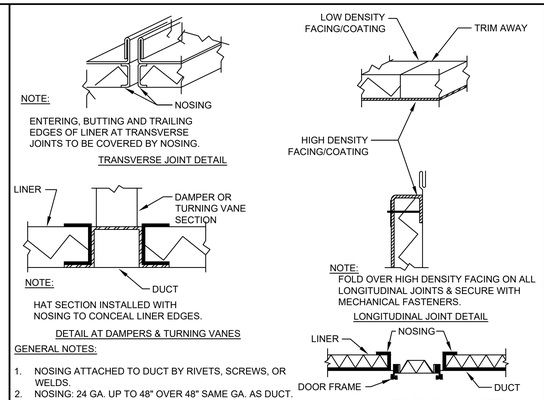
1. FOR DUCTS OVER 12" HIGH USE MULTIPLE BLADES.
2. ALL BRANCH DUCTS (SUPPLY, RETURN & EXHAUST) SHALL HAVE VOLUME DAMPERS, INCLUDING RUNOUTS TO DIFFUSERS (MANDATORY).

1 VOLUME DAMPER (SINGLE BLADE) NTS



PROVIDE VOLUME DAMPERS AT ALL LOW PRESSURE BRANCHES, TAKE-OFFS, AND SPLITS.

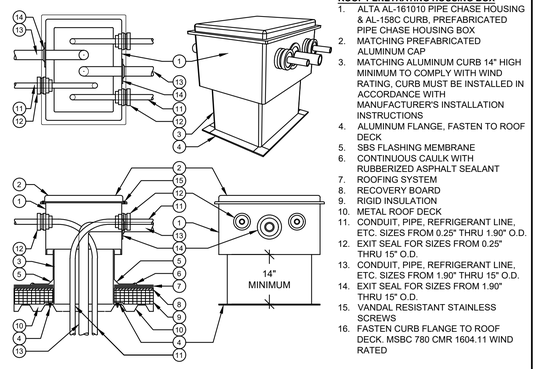
2 VOLUME DAMPER (MULTI-BLADE) NTS



GENERAL NOTES:

1. NOSING ATTACHED TO DUCT BY RIVETS, SCREWS, OR WELDS.
2. NOSING: 24 GA. UP TO 48" OVER 48" SAME GA. AS DUCT.

3 DUCT LINING NOSING NTS

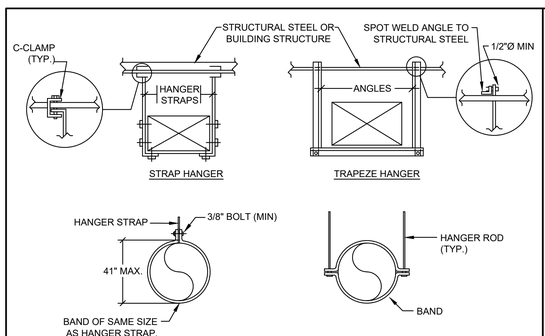


ROOF PENETRATING HOUSING BOX

1. ALTA AL-161010 PIPE CHASE HOUSING & AL-158C CURB, PREFABRICATED PIPE CHASE HOUSING BOX
2. MATCHING PREFABRICATED ALUMINUM CAP
3. MATCHING ALUMINUM CURB 14" HIGH MINIMUM TO COMPLY WITH WIND RATING, CURB MUST BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS
4. ALUMINUM FLANGE, FASTEN TO ROOF DECK
5. SBS FLASHING MEMBRANE
6. CONTINUOUS CAULK WITH RUBBERIZED ASPHALT SEALANT
7. ROOFING SYSTEM
8. RECOVERY BOARD
9. RIGID INSULATION
10. METAL ROOF DECK
11. CONDUIT, PIPE, REFRIGERANT LINE, ETC. SIZES FROM 0.25" THRU 1.90" O.D.
12. EXIT SEAL FOR SIZES FROM 0.25" THRU 15" O.D.
13. CONDUIT, PIPE, REFRIGERANT LINE, ETC. SIZES FROM 1.90" THRU 15" O.D.
14. EXIT SEAL FOR SIZES FROM 1.90" THRU 15" O.D.
15. VANDAL RESISTANT STAINLESS SCREWS
16. FASTEN CURB FLANGE TO ROOF DECK. MSBC 780 CMR 1604.11 WIND RATED

NOTE: UNIT & CURB SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

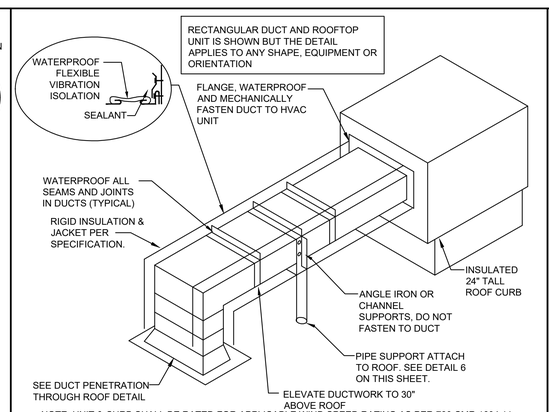
4 PIPING ROOF PENETRATING HOUSING BOX DETAIL NTS



NOTES:

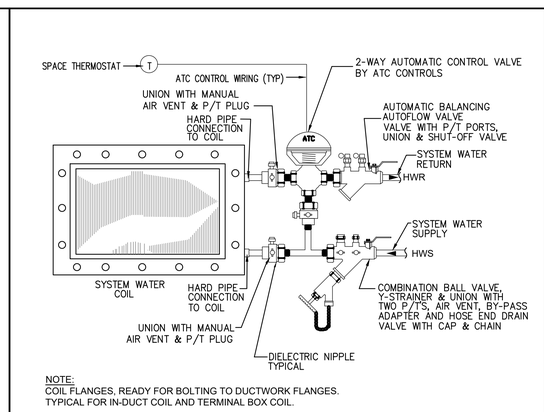
1. FOR STRAP AND TRAPEZE HANGER SIZE, REFER TO SMACNA DUCT STANDARDS.
2. NO POP RIVETS ALLOWED; USE SELF-TAPPING SHEET METAL SCREWS ONLY.
3. COORDINATE WITH STRUCTURAL.
4. REVIEW SEISMIC SECTION OF SPECS FOR ATTACHMENT.

5 RECTANGULAR & ROUND DUCT HANGER DETAIL (LOW VELOCITY) NTS



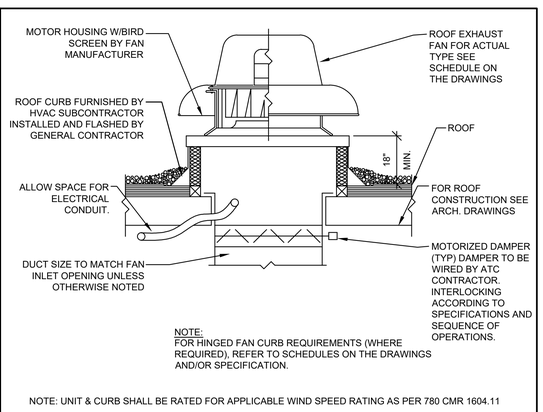
NOTE: UNIT & CURB SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

6 ROOFTOP DUCT INSULATION DETAIL NTS



NOTE:
COIL FLANGES, READY FOR BOLTING TO DUCTWORK FLANGES.
TYPICAL FOR IN-DUCT COIL AND TERMINAL BOX COIL.

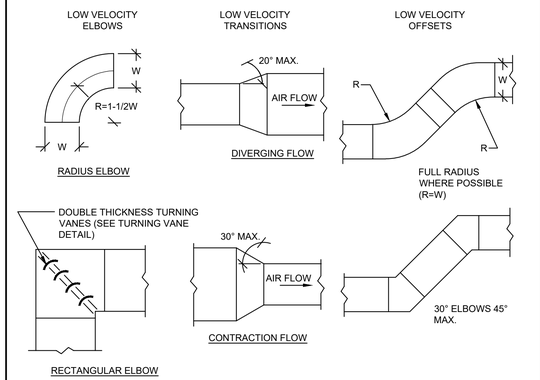
7 TYPICAL DUCT-MOUNTED HOT WATER HEATING COIL W/ 3-WAY TCV PIPING DETAIL NTS



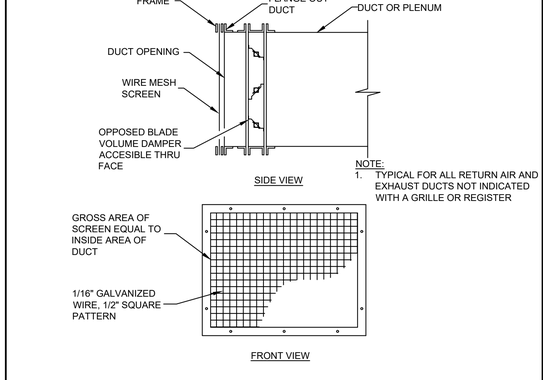
NOTE:
FOR HINGED FAN CURB REQUIREMENTS (WHERE REQUIRED), REFER TO SCHEDULES ON THE DRAWINGS AND/OR SPECIFICATION.

NOTE: UNIT & CURB SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

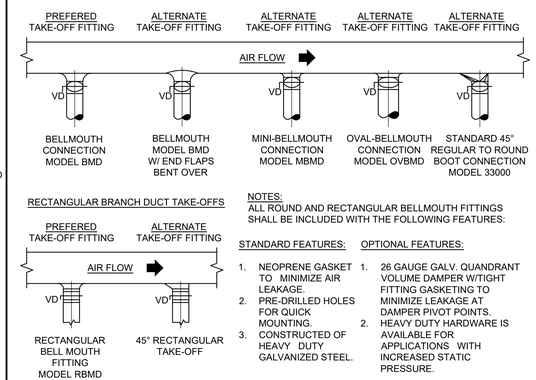
8 ROOF EXHAUST FAN NTS



9 LOW VELOCITY TRANSITION TAKEOFFS & ELBOWS NTS



10 WIRE MESH SCREEN DETAIL NTS



NOTES:
ALL ROUND AND RECTANGULAR BELLMOUTH FITTINGS SHALL BE INCLUDED WITH THE FOLLOWING FEATURES:

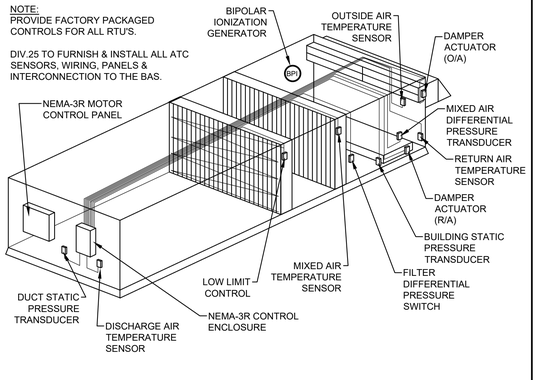
STANDARD FEATURES:

1. NEOPRENE GASKET TO MINIMIZE AIR LEAKAGE.
2. PRE-DRILLED HOLES FOR QUICK MOUNTING.
3. CONSTRUCTED OF HEAVY DUTY GALVANIZED STEEL.

OPTIONAL FEATURES:

1. 26 GAUGE GALV. QUANDRANT VOLUME DAMPER W/TIGHT FITTING GASKETING TO MINIMIZE LEAKAGE AT DAMPER PIVOT POINTS.
2. HEAVY DUTY HARDWARE IS AVAILABLE FOR APPLICATIONS WITH INCREASED STATIC PRESSURE.

11 DUCT CONNECTION DETAILS (BELLMOUTH) NTS



12 ROOFTOP UNIT CONTROL SENSOR DIAGRAM NTS

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

PROJECT

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

TOWN OF HOPKINTON

FIRM

83 WOOD STREET
HOPKINTON, MA 01748

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RWS JOB # 200170.00

KEY PLAN

REMARKS

REVISIONS

5	REBID-3 DOCUMENTS	MAR 27, 2024
4	REBID-2 DOCUMENTS	FEB 1, 2023

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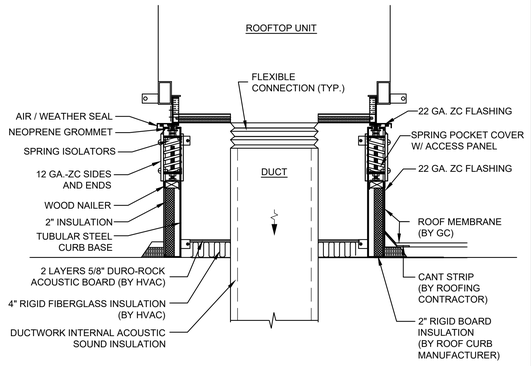
TITLE

HVAC
DETAILS SHEET No. 1

SHEET

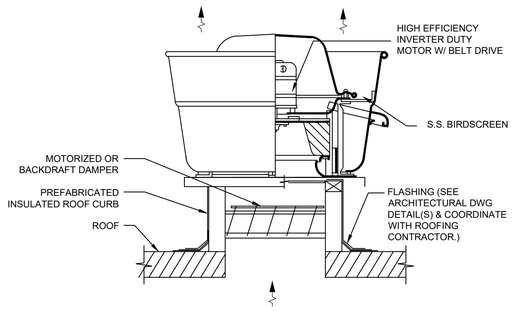
H-002

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



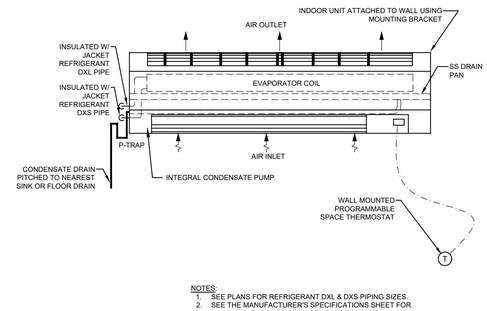
NOTE: UNIT & CURB SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

13 ROOFTOP UNIT CURB DETAIL NTS



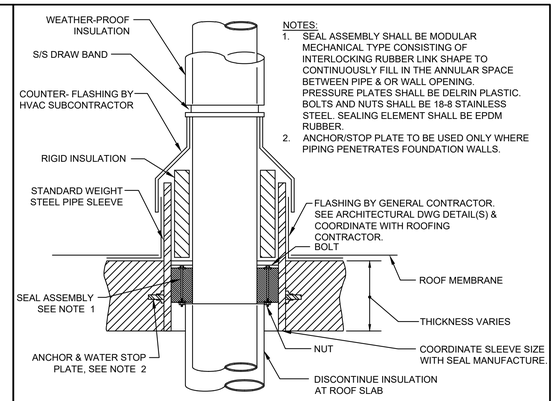
NOTE: FAN & CURB SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

14 ROOF UPBLAST EXHAUST FAN NTS



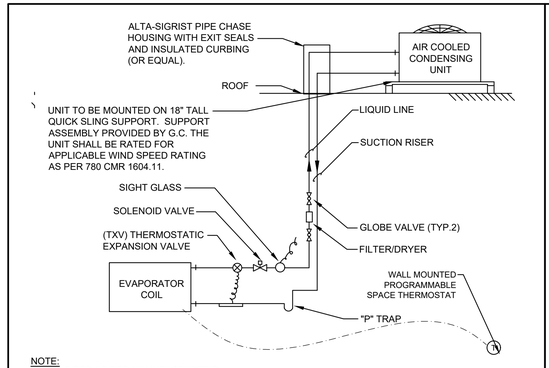
NOTES:
1. SEE PLANS FOR REFRIGERANT DXL & DXS PIPING SIZES.
2. SEE THE MANUFACTURER'S SPECIFICATIONS SHEET FOR MINIMAL CLEARANCE REQUIREMENTS PRIOR TO INSTALLATION.
3. FOR LEFT REAR PIPING, USE THE MANUFACTURER'S L-CONNECTOR PIPE ACCESSORY.

15 DUCTLESS ACU SPLIT SYSTEM INSTALLATION NTS



NOTES:
1. SEAL ASSEMBLY SHALL BE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING RUBBER LINK SHAPE TO CONTINUOUSLY FILL IN THE ANNULAR SPACE BETWEEN PIPE & OR WALL OPENING. PRESSURE PLATES SHALL BE DELRIN PLASTIC. BOLTS AND NUTS SHALL BE 18-8 STAINLESS STEEL. SEALING ELEMENT SHALL BE EPDM RUBBER.
2. ANCHOR/STOP PLATE TO BE USED ONLY WHERE PIPING PENETRATES FOUNDATION WALLS.

16 INSULATED PIPE THROUGH ROOF NTS

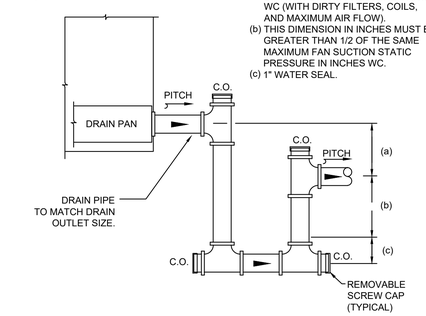


NOTE:
PIPING SIZED AS PER MANUFACTURER'S RECOMMENDATIONS WITH CONSIDERATIONS FOR DISTANCE OF PIPING AND HEIGHT OF RISERS.

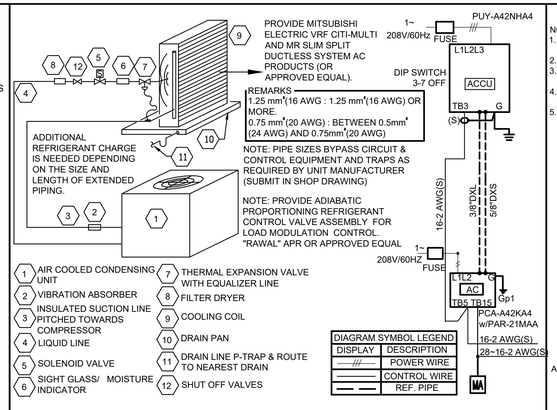
17 SPLIT SYSTEM PIPING ACCU AT ROOF NTS

NOTES:
1. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP.
2. PITCH DRAIN FOR PROPER RUNOFF.
3. MANUALLY PRIME FILL TRAP BEFORE START-UP TO FORM INITIAL DRAIN SEAL.
4. SUPPORT LENGTHY DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW.

(a) THIS DIMENSION IN INCHES MUST BE GREATER THAN THE MAXIMUM FAN SUCTION STATIC PRESSURE IN INCHES WC (WITH DIRTY FILTERS, COILS, AND MAXIMUM AIR FLOW).
(b) THIS DIMENSION IN INCHES MUST BE GREATER THAN 1/2 OF THE SAME MAXIMUM FAN SUCTION STATIC PRESSURE IN INCHES WC.
(c) 1" WATER SEAL.



18 RTU COOLING COIL CONDENSATE P-TRAP DETAIL NTS

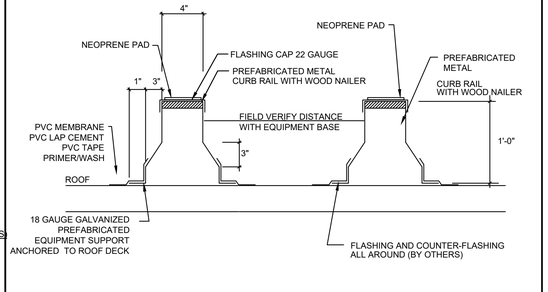


1 AIR COOLED CONDENSING UNIT
2 VIBRATION ABSORBER
3 INSULATED SUCTION LINE PITCHED TOWARDS COMPRESSOR
4 LIQUID LINE
5 SOLENOID VALVE
6 SIGHT GLASS/ MOISTURE INDICATOR
7 THERMAL EXPANSION VALVE WITH EQUALIZER LINE
8 FILTER DRYER
9 COOLING COIL
10 DRAIN PAN
11 DRAIN LINE P-TRAP & ROUTE TO NEAREST DRAIN
12 SHUT OFF VALVES

DIAGRAM SYMBOL LEGEND	
DISPLAY	DESCRIPTION
///	POWER WIRE
	CONTROL WIRE
	REF. PIPE

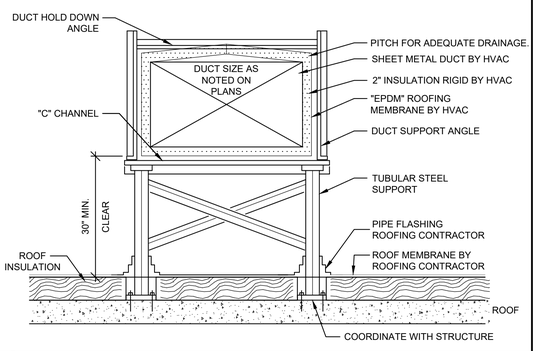
19 SPLIT SYSTEM DX REFRIGERANT VALVE ARRANGEMENT NTS

NOTES:
1. ALL ROOFING WORK SHALL BE DONE IN ACCORDANCE WITH ROOFING MANUFACTURER'S SPECIFICATIONS AND DETAILS TO MAINTAIN WARRANTIES.
2. SEE ARCHITECTURAL DETAILS FOR FLASHING AND SEALING DETAILS FOR ALL ROOF PENETRATIONS.
3. EQUIPMENT RAILS FURNISHED & INSTALLED BY HVAC - FLASHING, COUNTERFLASHING, & SEALING BY ROOFING CONTRACTOR.
4. SIMILAR TO BUCKLEY EQUIPMENT SUPPORT ES-200 5. PROVIDE NEOPRENE GASKET AND FLASHING CAP 22 GAUGE OPTIONS 6. CONTINUOUS WELDED SEAMS.
5. MSBC 780 CMR 1604.11 WIND VELOCITY RATED ASSEMBLY

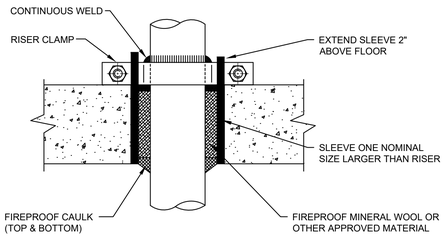


20 EQUIPMENT SUPPORT RAIL DETAIL NTS

NOTES:
1. DUCT SUPPORTS SHALL BE PROVIDED BY THE HVAC CONTRACTOR.
2. PROVIDE CROSS BRACING AS REQUIRED FOR DUCT SUPPORTS HIGHER ABOVE ROOF.
3. DUCT SUPPORTS SHALL BE RATED FOR APPLICABLE WIND SPEED RATING PER IBC

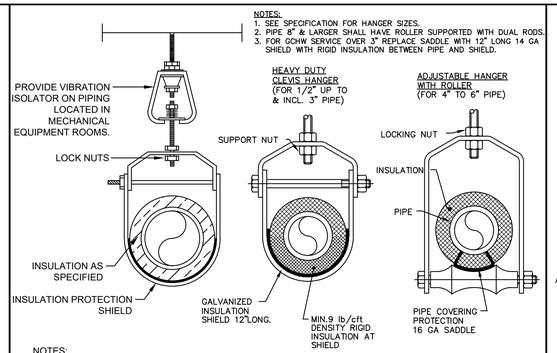


21 ROOF-MOUNTED DUCT SUPPORT NTS



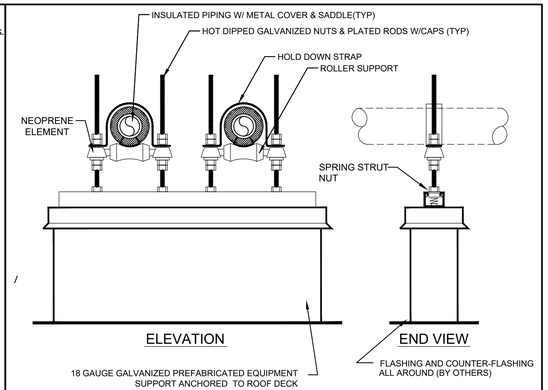
22 PIPE RISER FLOOR PENETRATION & SUPPORT DETAIL NTS

NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES.
2. PIPE 8" & LARGER SHALL HAVE ROLLER SUPPORTED WITH DUAL RODS.
3. FOR GCHW SERVICE OVER 3" REPLACE SADDLE WITH 12" LONG 14 GA SHIELD WITH RIGID INSULATION BETWEEN PIPE AND SHIELD.



NOTES:
1. FOR TYPE OF HANGER AND INSULATION REQUIREMENTS REFER TO SPECIFICATIONS.
2. SERVICE PIPING AS INDICATED IN SPECIFICATIONS SHALL BE INSTALLED ON ROLLER HANGERS.
3. COORDINATE WITH STRUCTURAL.

23 PIPE HANGER AND PIPE ROLLER DETAILS NTS



NOTE: PIPE & RAIL SYSTEM SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

24 ROOF RAIL PIPE SUPPORT DETAILS NTS

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT
HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT
TOWN OF HOPKINTON

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KEY PLAN

REMARKS

REVISIONS

No.	Description	Date
5	REBID-3 DOCUMENTS	MAR 27, 2024
4	REBID-2 DOCUMENTS	FEB 1, 2023

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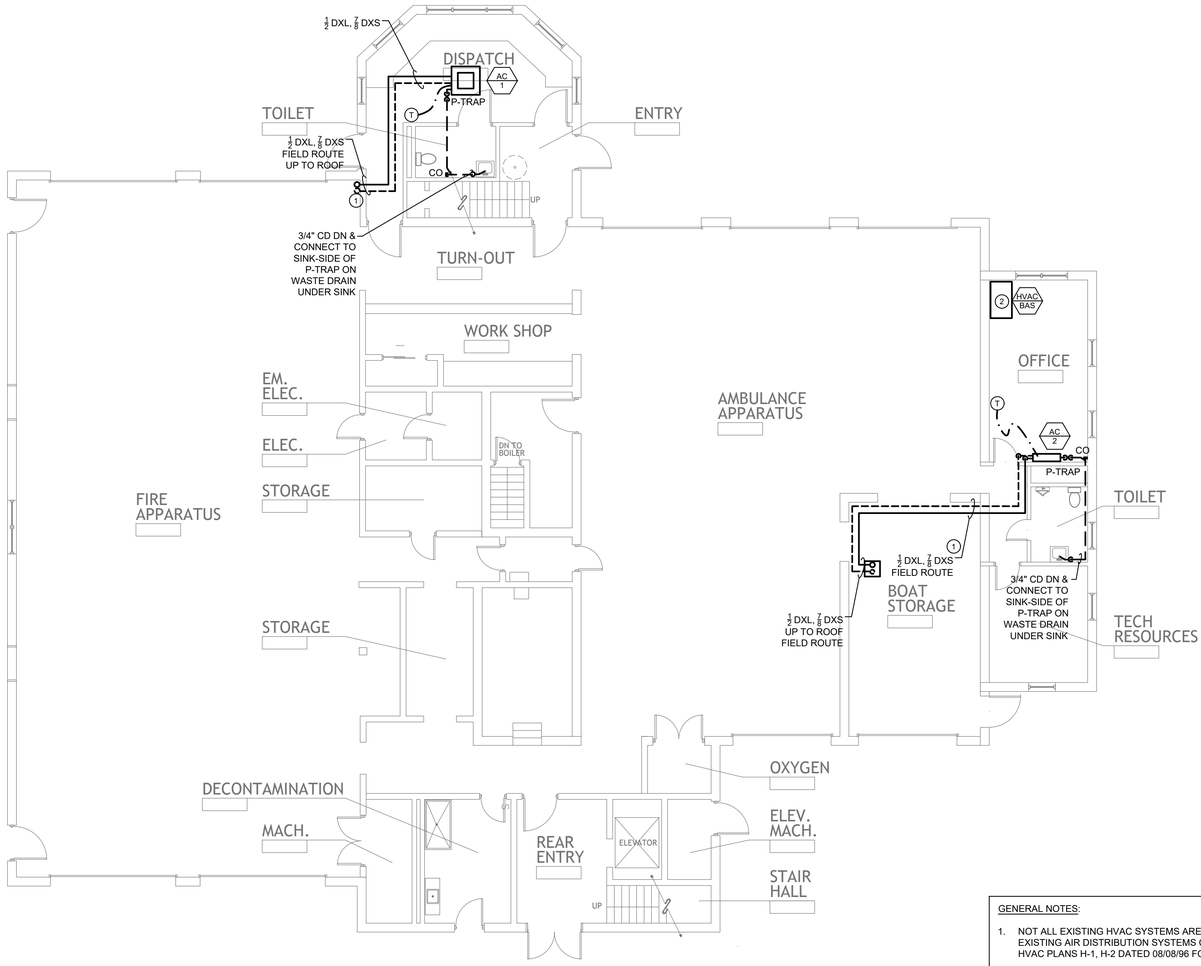
TITLE
HVAC
DETAILS SHEET No. 2

SHEET
H-003

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



GENERAL NOTES:

1. NOT ALL EXISTING HVAC SYSTEMS ARE SHOWN ON PLANS. CONTRACTOR SHALL RE-BALANCE ALL EXISTING AIR DISTRIBUTION SYSTEMS CONNECTED TO NEW RTU'S AND NEW EXHAUST FANS. SEE EXISTING HVAC PLANS H-1, H-2 DATED 08/08/96 FOR CFM'S FOR BALANCING.
2. EXISTING HVAC SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN DUCTWORK TO BE PROTECTED BY FILTERS DURING CONSTRUCTION.

(1) PROVIDE REFRIGERANT PIPING UP TO ROOF. SIZING AND ROUTE SHALL BE PER MANUFACTURE REQUIREMENTS, FIELD ROUTE. COORDINATE WITH ARCHITECT FOR PIPE CHASE

(2) COORDINATE FINAL LOCATION OF THE HVAC BAS CONTROL SYSTEM STATION WITH ARCHITECT & HFD

ADDITIONAL SCOPE:

1. PROVIDE NEW INSULATION AT ETR SUPPLY AND RETURN DUCTWORK CONNECTED TO NEW RTU'S.

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

TOWN OF HOPKINTON

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KEY PLAN

REMARKS

REVISIONS

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3	REBID-3 DOCUMENTS	MAR 27, 2024
2	REBID-2 DOCUMENTS	FEB 1, 2023
1	ADDENDUM No.3	MAR 5, 2021

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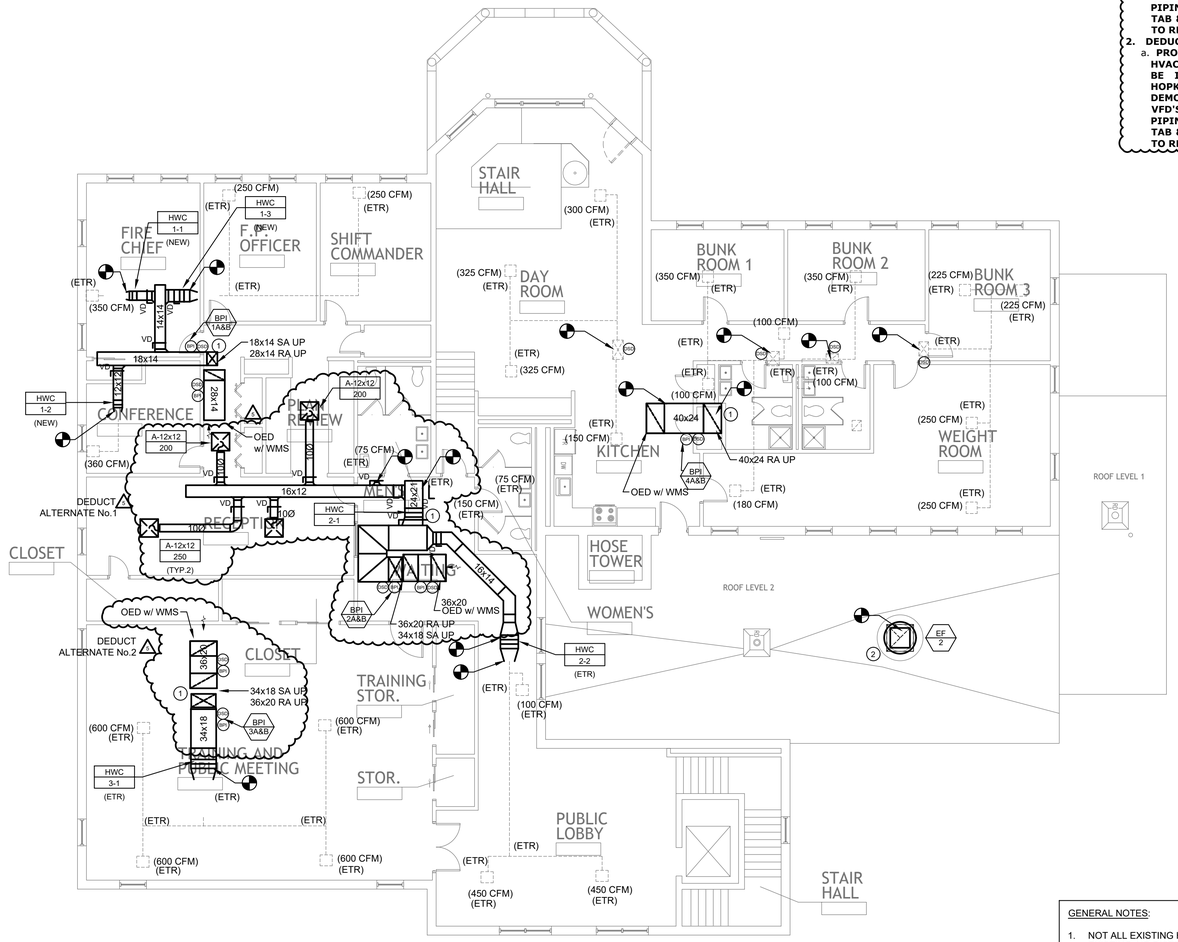
TITLE

HVAC
FIRST FLOOR PLAN

SHEET

H-101

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE NO 1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO1 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-2 SYSTEM & COMPONENTS TO REMAIN.**
2. **DEDUCT ALTERNATE NO 2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO2 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-3 SYSTEM & COMPONENTS TO REMAIN.**

GENERAL NOTES:

1. NOT ALL EXISTING HVAC SYSTEMS ARE SHOWN ON PLANS. CONTRACTOR SHALL RE-BALANCE ALL EXISTING AIR DISTRIBUTION SYSTEMS CONNECTED TO NEW RTU'S AND NEW EXHAUST FANS. SEE EXISTING HVAC PLANS H-1, H-2 DATED 08/08/96 FOR CFM'S FOR BALANCING. REUSE ALL EXISTING S/A & R/A DIFFUSERS.
2. EXISTING HVAC SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN DUCTWORK TO BE PROTECTED BY FILTERS DURING CONSTRUCTION.

KEYED NOTES:

(1) NEW SUPPLY AND RETURN DUCT FROM RTU SHALL BE INTERNALLY LINED AS PER SPECIFICATIONS A MINIMUM OF 15'-0" FROM THE UNIT UNLESS OTHERWISE NOTED. ALL DUCTWORK DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS.

(2) CONNECT TO EXISTING EXHAUST DISTRIBUTION BELOW.

HVAC ADDITIONAL SCOPE:

1. CONTRACTOR TO INSPECT ETR DUCT SYSTEMS & PROVIDE NEW INSULATION AT LEAK DAMAGED ETR SUPPLY AND RETURN DUCTWORK THROUGHOUT SECOND FLOOR.
2. CLEAN ALL ETR SUPPLY, & RETURN DUCTWORK SYSTEM IF WARRANTED BY INSPECTION.

GRLA 24 x 36 -V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT
HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

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KEY PLAN

REMARKS

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2	REBID-2 DOCUMENTS	FEB 1, 2023
1	ADDENDUM No.3	MAR 5, 2021

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File Name:	

TITLE
HVAC
SECOND FLOOR
DUCTWORK PLAN

SHEET
H-102

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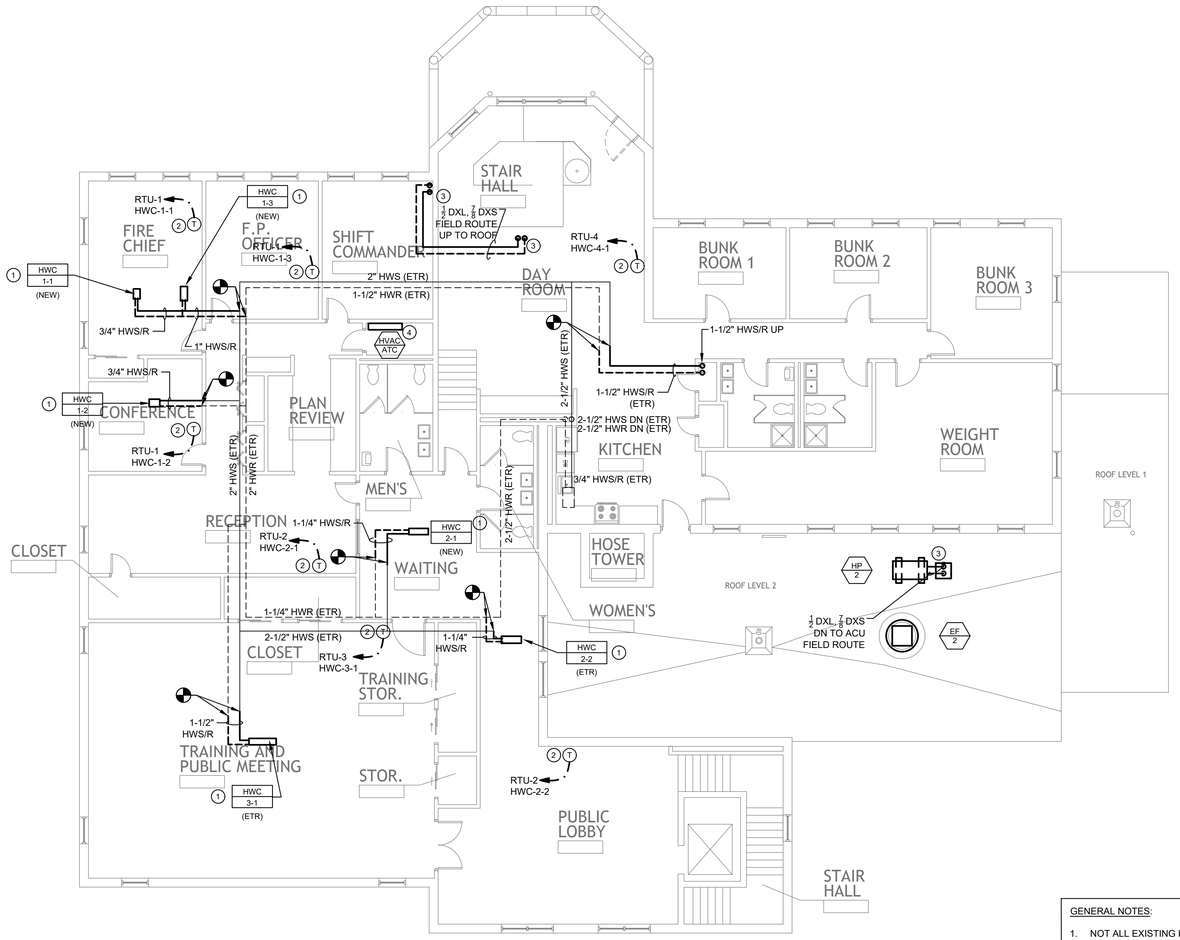

GENERAL NOTES:

1. NOT ALL EXISTING HVAC SYSTEMS ARE SHOWN ON PLANS. CONTRACTOR SHALL BALANCE ALL NEW & EXISTING PIPING SYSTEMS CONNECTED TO NEW RHC'S. SEE EXISTING HVAC PLANS H-1, H-2 DATED 08/08/96 FOR GPM'S FOR EXISTING COILS TO REMAIN.
2. EXISTING HVAC PIPING SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN PIPING TO BE INSPECTED FOR PIPE LEAKS, CORROSION AND PIPE INSULATION TEARS. REPAIR & REFURBISH IF NECESSARY. PROVIDE ALL REQUIRED TIE-IN INTERCONNECTIONS BETWEEN NEW PIPING AND EXISTING PIPING. AFTER RECONNECTING NEW PIPING RE-INSULATE PIPING AS PER SPECIFICATIONS. PROVIDE SHUTOFF BALL VALVES FOR ALL NEW BRANCH PIPING SYSTEMS.

KEYED NOTES:

(1) NEW HOT WATER COIL. PROVIDE NEW DDC 3-WAY CONTROL VALVE, ISOLATION VALVES, BALANCING VALVE, VENT, DRAIN, AND P/T TAPS.

(2) PROVIDE NEW DDC THERMOSTAT CONTROLS, CONTROL PANELS AND CONTROL SEQUENCING.

(3) PROVIDE REFRIGERANT PIPING UP TO ROOF. ALL FITTINGS, VALVES, INSTRUMENTATION, PIPE SIZING AND PIPE ROUTING SHALL BE AS PER MANUFACTURE'S RECOMMENDATIONS AND REQUIREMENTS.

(4) PROVIDE HVAC ATC CONTROL PANELS AS REQUIRED FOR A COMPLETE SYSTEM (120V BY DIV26)

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

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83 WOOD STREET
HOPKINTON, MA 01748

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KEY PLAN

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

REMARKS

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2	REBID-2 DOCUMENTS	FEB 1, 2023
1	ADDENDUM No.3	MARCH 5, 2021

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File Name:	

TITLE

HVAC
SECOND FLOOR
PIPING PLAN

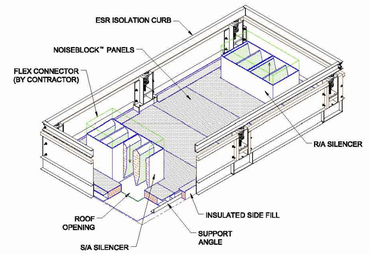
SHEET

H-102P

GENERAL NOTES:

1. NOT ALL EXISTING HVAC SYSTEMS ARE SHOWN ON PLANS. CONTRACTOR SHALL RE-BALANCE ALL EXISTING AIR DISTRIBUTION SYSTEMS CONNECTED TO NEW RTU'S AND NEW EXHAUST FANS. (SEE EXISTING HVAC PLANS H-1, H-2 DATED 08/08/96 FOR CFM'S FOR BALANCING).
2. EXISTING HVAC SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN DUCTWORK TO BE PROTECTED BY FILTERS DURING CONSTRUCTION.

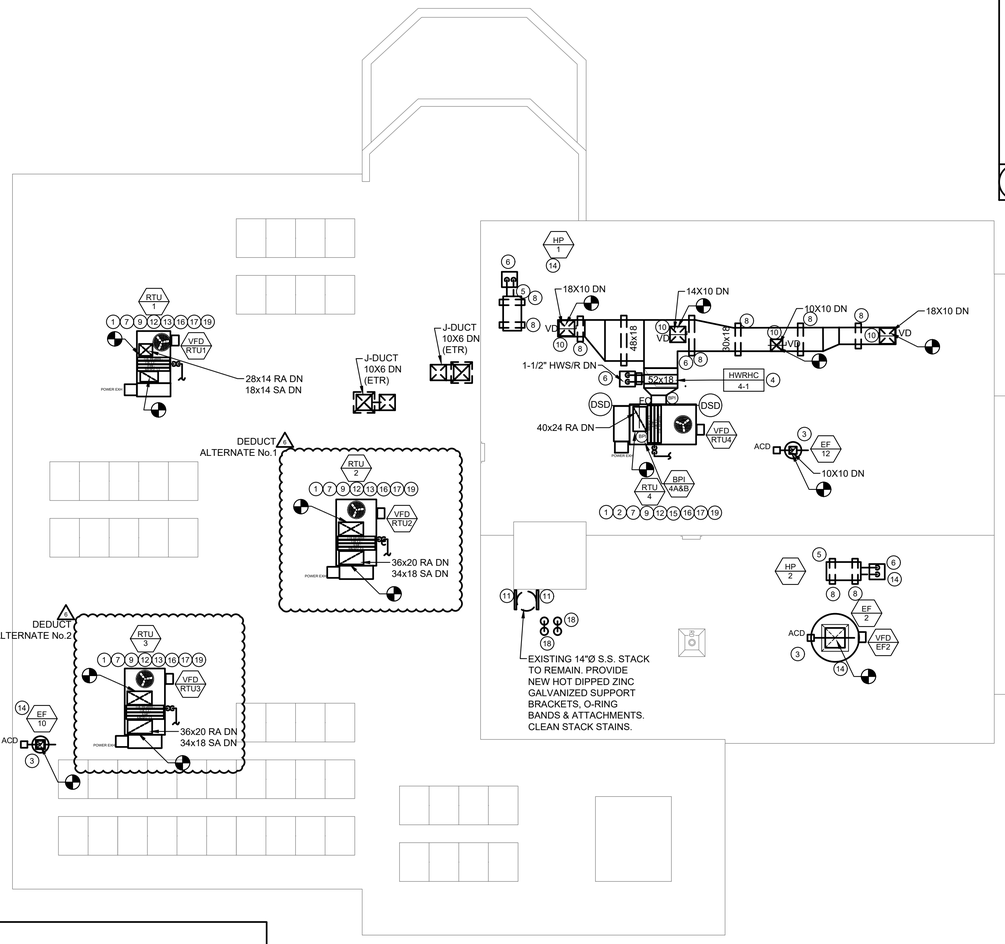
Straight 'VRS' Silencer with NOISEBLOCK™ Floor



KINETICS SOUND & VIBRATION ISOLATION CURB

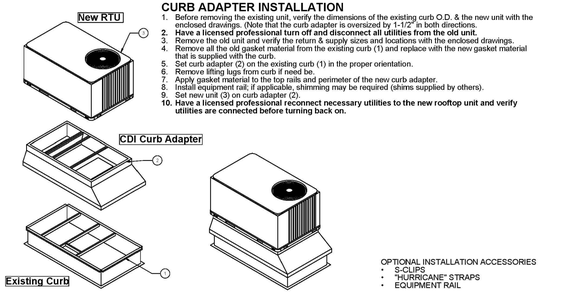
NOTE: NEW CURB SYSTEM SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

A	RTU-4 KINETICS MODEL ESSR SVI CURB INSTALLATION NOTES	NTS



CONSTRUCTION KEYNOTES:

1. NEW SUPPLY AND RETURN DUCT FROM RTU'S SHALL BE INTERNALLY LINED AS PER THE SPECIFICATIONS A MINIMUM OF 15'-0" FROM THE UNIT UNLESS OTHERWISE NOTED. ALL DUCTWORK DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS.
2. RTU-4 SHALL BE MOUNTED ON 14" TALL SPRING ISOLATED & INSULATED ROOF CURB INCLUDING FLANGES, GASKETS, DUCT TRANSITIONS, HOT DIPPED GALVANIZED ATTACHMENTS, FLASHING AND COUNTER-FLASHING SEALED WATERTIGHT.
3. CONNECT TO EXISTING EXHAUST DISTRIBUTION BELOW. PROVIDE NEW ACD DAMPERS AND CONTROLS.
4. PROVIDE NEW AUTOMATIC TEMPERATURE CONTROL VALVE SIZED FOR NEW HOT WATER COIL. LOCATE ATC CONTROL VALVE UNDER THE ROOF.
5. ALL DX REFRIGERANT PIPING TO BE SIZED AS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE FULLY CHARGED R410A REFRIGERANT SYSTEMS.
6. PROVIDE SMALL SIZE "ALTA-SIGRIST" PIPE PENETRATION HOUSING BOXES WITH EXIT SEALS.
7. PROVIDE 120V BIPOLAR IONIZATION GENERATOR MODULES FIELD FURNISHED & INSTALLED INSIDE BOTH THE S/A & R/A DUCTWORK IN CEILING PLENUM BELOW ROOF.)
8. PROVIDE EQUIPMENT RAIL ROOF SUPPORTS W/ FLASHING AND COUNTER-FLASHING SEALED WATERTIGHT. ANCHOR ALL EQUIPMENT TO MEET STATE WIND CODE REQUIREMENTS.
9. PROVIDE MERV-13 FILTERS, POWER EXHAUST, DX COOLING COIL WITH HOT GAS REHEAT COIL, ELECTRIC HEATING COIL AND BIPOLAR IONIZATION GENERATORS FOR EACH RTU.
10. PROVIDE NEW ROOF CURBS FOR DUCTWORK ROOF PENETRATIONS SEALED WATERTIGHT. CONTRACTOR TO FIELD VERIFY AND CONFIRM EXISTING DUCT CONNECTION CONDITIONS. HOW THE DUCT CONNECTIONS ARE BUILT IS PART OF SCOPE. CONTRACTOR OWNS CONNECTIONS TO EXISTING DUCTWORK BELOW ON 2ND FLOOR EVEN WITH LIMITED ACCESS. PROVIDE APPROPRIATE DETAILS AS PART OF BASE BID.
11. PROVIDE UNDER G.C. MISC. METALS, HOT DIPPED GALVANIZED STEEL OR STAINLESS STEEL FOR ALL VERTICAL STACK SUPPORTS, O-RING BANDS AND ATTACHMENTS. FIELD VERIFY QUANTITIES. CLEAN STACK STAINS.
12. PROVIDE MINIMUM 1" CD DRAIN WITH P-TRAP ROUTED TO CLOSEST ROOF DRAIN.
13. PROVIDE RTU-1, RTU-2 & RTU-3 WITH NEW ROOF CURB ADAPTERS CONNECTED TO THE EXISTING ROOF CURBS INCLUDING FLANGES, GASKETS, DUCT TRANSITIONS, HOT DIPPED GALVANIZED ATTACHMENTS, FLASHING AND COUNTER-FLASHING SEALED WATERTIGHT.
14. GC TO PROVIDE OSHA SAFETY RAIL SYSTEMS FOR ALL HVAC EQUIPMENT WITHIN 10'-0" OF ROOF EDGE
15. PROVIDE RTU-4 WITH A NEW "KINETICS" MODEL ESSR SOUND & VIBRATION ISOLATION CURB
16. LOCATE DUCT SMOKE DETECTORS UNDER ROOF.
17. LOCATE DUCT BIPOLAR IONIZATION GENERATORS UNDER ROOF.
18. PLUMBING VENT PIPES TO BE EXTENDED 48"AFR. PROVIDE WATER-TIGHT ROOF PENETRATION SEALS.
19. RTU-1, RTU-2, RTU-3 & RTU-4 SHALL BE PROVIDED WITH FACTORY PACKAGED ATC CONTROL DAMPERS FOR O/A, R/A & E/A.



CURB ADAPTER INSTALLATION

1. Before removing the existing unit, verify the dimensions of the existing curb O.D. & the new unit with the enclosed drawings. (Note that the curb adapter is oversized by 1-1/2" in both directions.
2. **Have a licensed professional turn off and disconnect all utilities from the old unit.**
3. Remove the old unit and verify the return & supply sizes and locations with the enclosed drawings.
4. Remove all the old gasket material from the existing curb (1) and replace with the new gasket material that is supplied with the curb.
5. Set curb adapter (2) on the existing curb (1) in the proper orientation.
6. Remove lifting lugs from curb if need be.
7. Apply gasket material to the top rails and perimeter of the new curb adapter.
8. Install equipment rail; if applicable, shimming may be required (shims supplied by others).
9. Set new unit (3) on curb adapter (2).
10. **Have a licensed professional reconnect necessary utilities to the new rooftop unit and verify utilities are connected before turning back on.**

OPTIONAL INSTALLATION ACCESSORIES
- S-CLIPS
- "HURRICANE" STRAPS
- EQUIPMENT RAIL

NOTE: ADAPTER CURB SYSTEM SHALL BE RATED FOR APPLICABLE WIND SPEED RATING AS PER 780 CMR 1604.11

B	RTU-1, RTU-2 & RTU-3 ADAPTER CURB INSTALLATION NOTES	NTS

DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE NO 1
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO1 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-2 SYSTEM & COMPONENTS TO REMAIN.**

2. DEDUCT ALTERNATE NO 2
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO2 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-3 SYSTEM & COMPONENTS TO REMAIN.**

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT
HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT
TOWN OF HOPKINTON

83 WOOD STREET
HOPKINTON, MA 01748

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KEY PLAN

REMARKS

No.	Description	Date
4	REBID-3 DOCUMENTS	MAR 27, 2024
3	REBID-2-ADDENDUM No1	MAR 1, 2023
2	REBID-2 DOCUMENTS	FEB 1, 2023
1	ADDENDUM No.3	MAR 5, 2021

REVISIONS

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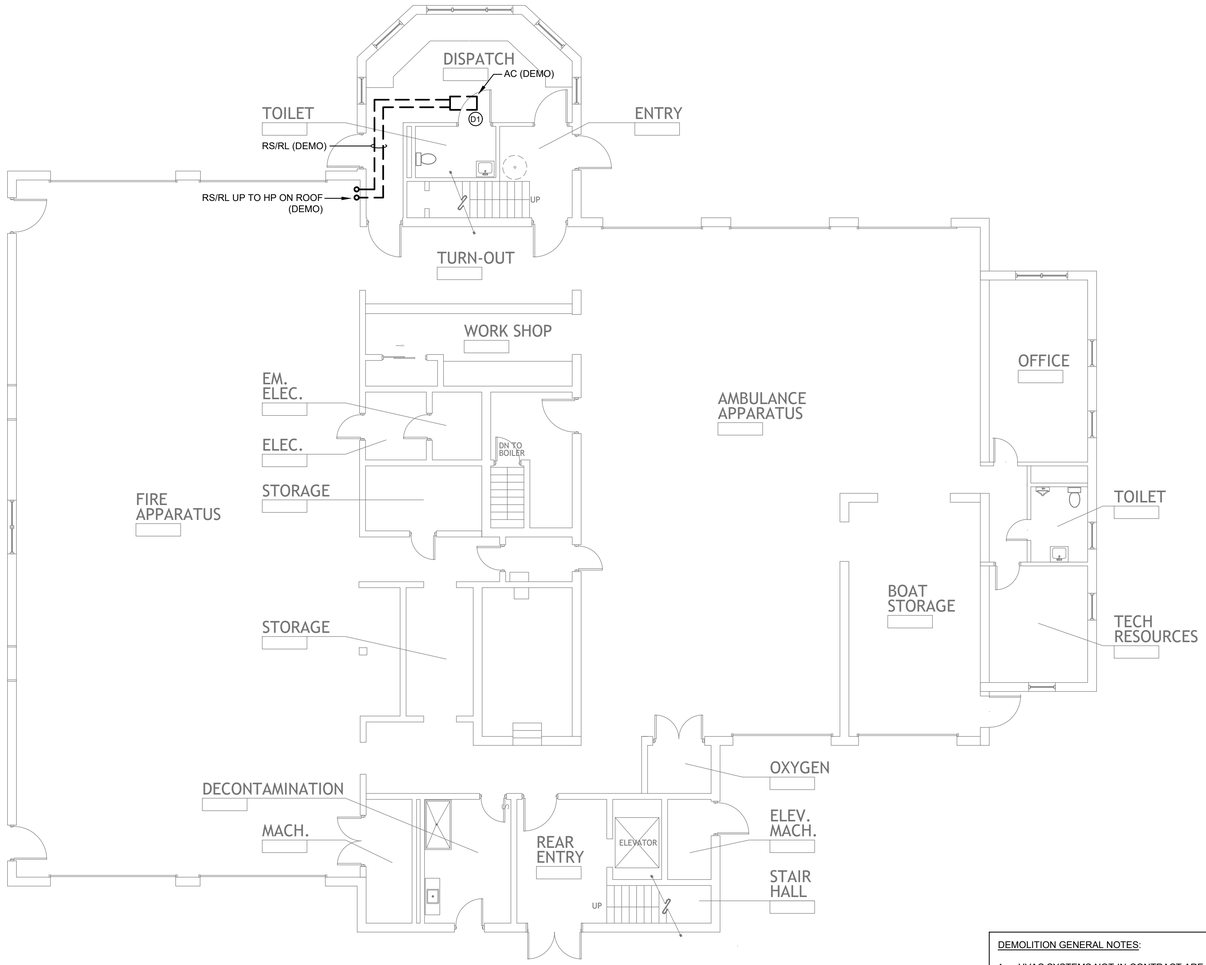
DATA

HVAC
ROOF PLAN

TITLE

SHEET
H-103

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



DEMOLITION GENERAL NOTES:

1. HVAC SYSTEMS NOT-IN-CONTRACT ARE SHOWN ON PLANS. SEE EXISTING HVAC PLANS H-1, H-2 DATED 08/08/96 FOR REFERENCE.
2. EXISTING HVAC SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN DUCTWORK TO BE PROTECTED BY FILTERS DURING CONSTRUCTION.

DEMOLITION KEYED NOTES:

(D1) EXISTING INDOOR FAN COIL TO BE REMOVED. REMOVE PIPING, WIRING, CONTROLS, SUPPORTS, AND ACCESSORIES.

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

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2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE -RE- BID SET - MARCH 27, 2024

REMARKS

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No.	Description	Date
3	REBID-3 DOCUMENTS	MAR 27, 2024
2	REBID-2 DOCUMENTS	FEB 1, 2023

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TITLE

HVAC
DEMOLITION
FIRST FLOOR PLAN

SHEET

HD-101

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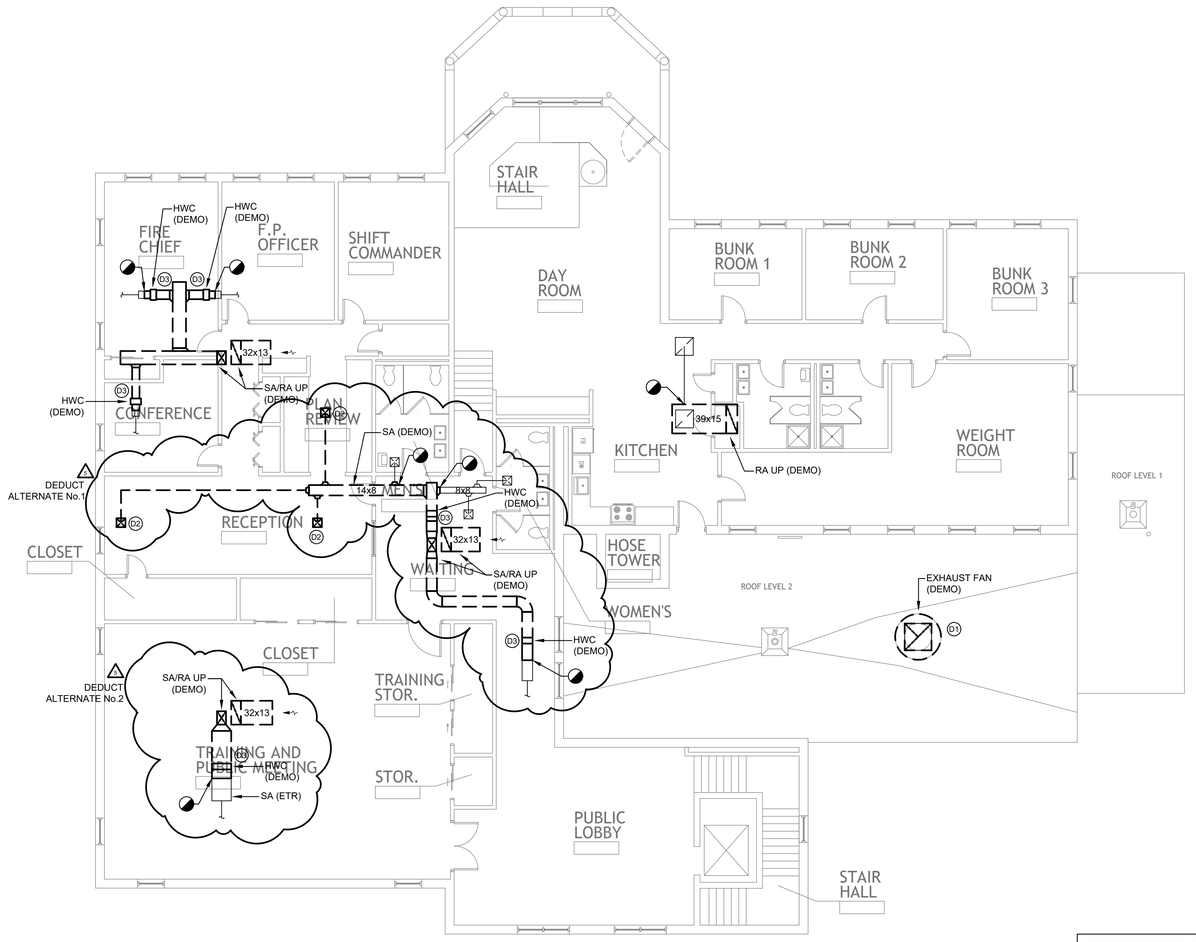

DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE NO 1
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO1 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-2 SYSTEM & COMPONENTS TO REMAIN.**

2. DEDUCT ALTERNATE NO 2
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO2 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-3 SYSTEM & COMPONENTS TO REMAIN.**

DEMOLITION GENERAL NOTES:

1. HVAC SYSTEMS NOT-IN-CONTRACT ARE SHOWN ON PLANS. SEE EXISTING HVAC PLANS H-1, H-2 DATED 08/08/96 FOR REFERENCE.
2. EXISTING HVAC SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN DUCTWORK TO BE PROTECTED BY FILTERS DURING CONSTRUCTION.

DEMOLITION KEYED NOTES:

(D1) EXISTING EXHAUST FAN TO BE REMOVED. REMOVE ROOF CURB, WIRING, CONTROLS, SUPPORTS, AND ACCESSORIES. DISCONNECT FROM EXHAUST DUCTWORK. EXHAUST DISTRIBUTION DUCTWORK SHALL REMAIN.

(D2) EXISTING SUPPLY DIFFUSER TO BE REMOVED.

(D3) EXISTING HOT WATER COIL TO BE REMOVED. DISCONNECT FROM EXISTING HWS/R PIPING MAINS. REMOVE ASSOCIATED VALVES, CONTROL VALVE, THERMOSTAT, WIRING, SUPPORTS, AND ACCESSORIES.

PROJECT
HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

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1	REBID-3 DOCUMENTS	MAR 27, 2024
2	REBID-2 DOCUMENTS	FEB 1, 2023

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File Name:	

TITLE
HVAC DEMOLITION SECOND FLOOR DUCTWORK PLAN

SHEET
HD-102

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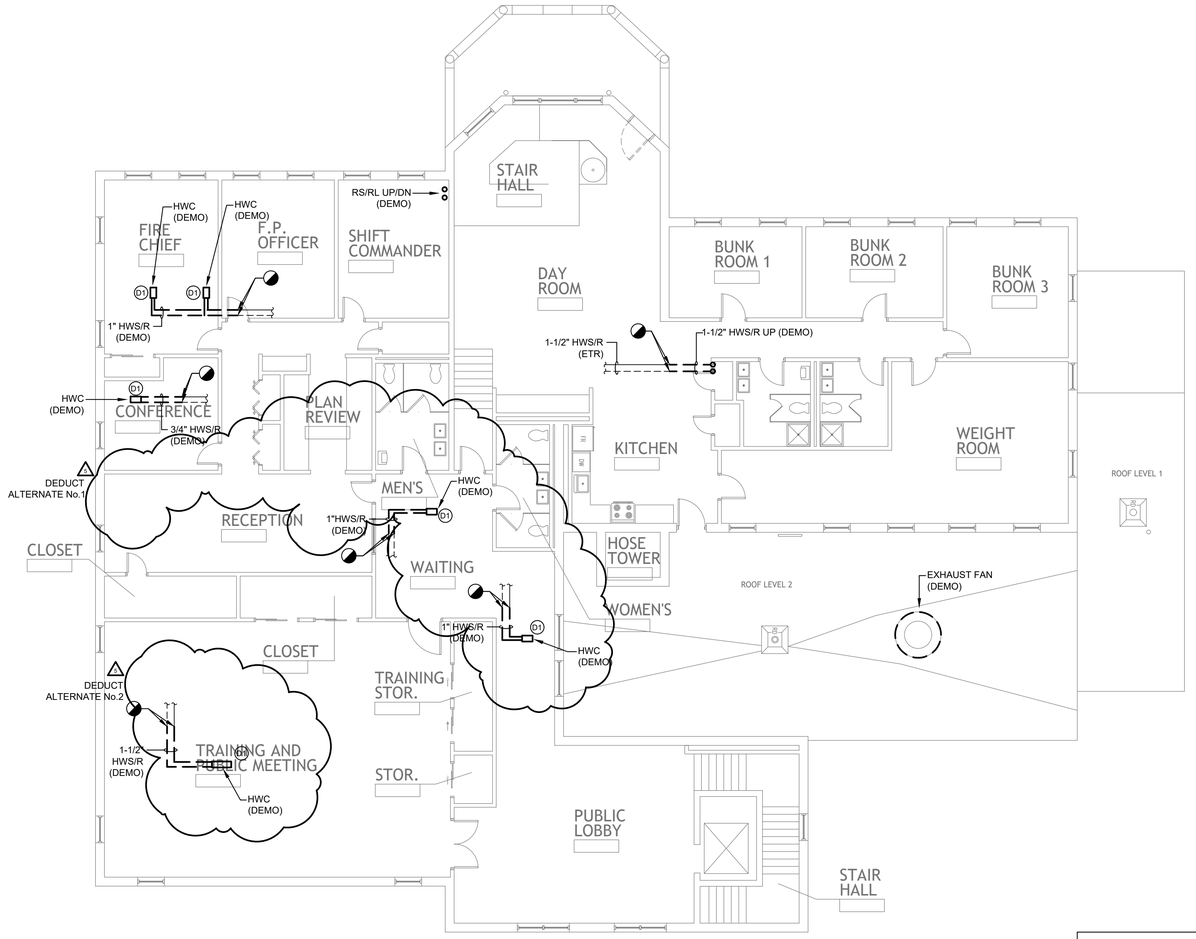

DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE NO 1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO1 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-2 SYSTEM & COMPONENTS TO REMAIN.**
2. **DEDUCT ALTERNATE NO 2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO2 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-3 SYSTEM & COMPONENTS TO REMAIN.**

DEMOLITION GENERAL NOTES:

1. HVAC SYSTEMS NOT-IN-CONTRACT ARE SHOWN ON PLANS. SEE EXISTING HVAC PLANS H-1, H-2 DATED 08/08/96 FOR REFERENCE.
2. EXISTING HVAC SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN DUCTWORK TO BE PROTECTED BY FILTERS DURING CONSTRUCTION.

DEMOLITION KEYED NOTES:

(D1) EXISTING HOT WATER COIL TO BE REMOVED. DISCONNECT FROM EXISTING HWS/R PIPING MAINS. REMOVE ASSOCIATED VALVES, CONTROL VALVE, THERMOSTAT, WIRING, SUPPORTS, AND ACCESSORIES.

PROJECT
HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

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KEY PLAN

REMARKS

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No.	Description	Date
2	REBID-3 DOCUMENTS	MAR 27, 2024
1	REBID-2 DOCUMENTS	FEB 1, 2023

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File Name:	

TITLE
HVAC DEMOLITION SECOND FLOOR PIPING PLAN

SHEET
HD-102P

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

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DEMOLITION GENERAL NOTES:

1. HVAC SYSTEMS NOT-IN-CONTRACT ARE SHOWN ON PLANS. SEE EXISTING HVAC PLANS H-2 DATED 08/08/96 FOR REFERENCE.
2. EXISTING HVAC SYSTEMS SHOWN FOR REFERENCE ONLY - ACTUAL LOCATIONS AND SIZES SHALL BE FIELD VERIFIED.
3. ALL EXISTING TO REMAIN DUCTWORK TO BE PROTECTED BY FILTERS DURING CONSTRUCTION.

DEMOLITION KEY NOTES:

(D1) EXISTING RTU'S TO BE REMOVED IN THEIR ENTIRETY. REMOVE ELECTRIC POWER WIRING, ATC CONTROLS, DUCT SUPPORTS, AND ALL APPURTENANCES & ACCESSORIES. RETAIN ALL SUPPLY & RETURN DUCTWORK. ABOVE ROOF LEVEL. ALL REFRIGERANT SHALL BE RECLAIMED AND STORED FOR THE TOWN OF HOPKINTON. ALL ELECTRICAL POWER WIRING AND LOW VOLTAGE CONTROL WIRING SHALL BE MADE SAFE, ALL THE WAY BACK TO THE CIRCUIT PANELS AND TAGS REMOVED.

(D2) EXISTING SPLIT SYSTEM ACCU TO BE REMOVED IN ITS ENTIRETY. REMOVE ALL ASSOCIATED DX PIPING, CURBS & SUPPORTS, POWER WIRING, ATC CONTROLS, AND ACCESSORIES. ALL DX REFRIGERANT SHALL BE RECLAIMED AND STORED FOR THE TOWN OF HOPKINTON. ALL ELECTRICAL POWER WIRING AND LOW VOLTAGE CONTROL WIRING SHALL BE MADE SAFE, ALL THE WAY BACK TO THE CIRCUIT PANELS AND TAGS REMOVED

(D3) EXISTING EXHAUST FANS TO BE REMOVED IN THEIR ENTIRETY. REMOVE ROOF CURBS, WIRING, CONTROLS, SUPPORTS, AND ACCESSORIES. REMOVE EXHAUST DUCTWORK DOWN TO BELOW ROOF LEVEL.

(D4) EXISTING HOT WATER HEATING COIL TO BE REMOVED. DISCONNECT FROM EXISTING HWS/R PIPING MAINS. REMOVE ASSOCIATED VALVES, CONTROLS, PIPE INSULATION, SUPPORTS, AND ACCESSORIES.

(D5) EXISTING RELIEF VENTS TO BE REMOVED IN THEIR ENTIRETY. REMOVE ROOF CURBS, DAMPERS, SUPPORTS, AND ACCESSORIES. REMOVE DUCTWORK DOWN TO BELOW ROOF LEVEL

(D6) EXISTING S.S. BOILER EXHAUST FLUE STACK & ROOF CURB SHALL REMAIN. REMOVE ALL ANGLE IRON SUPPORT BRACING, O-RING BANDS & ATTACHMENTS & REPLACE WITH NEW LIKE-KIND HOT DIPPED ZINC COATED GALVANIZED SUPPORT BRACING & COMPONENTS. CLEAN & REMOVE STACK STAINS. PROVIDE TEMP SUPPORTS AS NEEDED.

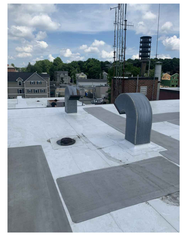
(D7) REMOVE DUCT BRANCHES, VD'S, ROOF DUCT CURBS, DUCT & PIPE SUPPORTS, DUCT & PIPE INSULATION SYSTEMS, SMOKE DAMPERS AND SMOKE DETECTORS, REMOVE ALL ASSOCIATED ATC CONTROLS, HW & CD PIPING AND HW CONTROL VALVES.

(D8) PLUMBING VENT PIPES TO BE EXTENDED 48"AFR. PROVIDE WATER-TIGHT ROOF PENETRATION SEALS.

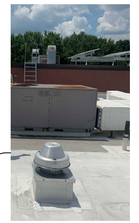
EXISTING RTU-1 TO BE REMOVED, EQUIPMENT CURB TO REMAIN

EXISTING ACCU-1 & WOOD EQUIPMENT RAILS TO BE REMOVED

EXISTING RTU-4, EQUIPMENT CURB, DUCTWORK & PIPING TO BE REMOVED & REPLACED



(2) EXISTING RELIEF J-VENTS TO REMAIN



EXISTING EF-12 & CURB TO BE REMOVED & REPLACED

EXISTING RTU-2 TO BE REMOVED, EQUIPMENT CURB TO REMAIN

EXISTING EF-2 & CURB TO BE REMOVED & REPLACED

EXISTING EF-10 & CURB TO BE REMOVED & REPLACED

EXISTING RTU-3 TO BE REMOVED, EQUIPMENT CURB TO REMAIN

SIX EXISTING RUSTED STACK SUPPORT BRACKETS, THREE O-RING BANDS ALONG WITH ASSOCIATED ATTACHMENTS TO BE REMOVED & REPLACED W/ NEW HOT DIPPED ZINC COATED GALVANIZED SUPPORT BRACKETS, O-RING BANDS AND ATTACHMENTS

EXISTING FLUE STACK ROOF CURB TO REMAIN. TWO EXISTING PLUMBING VENT PIPES TO BE EXTENDED 48" AFR. ROOF PENETRATIONS SEALED WATER-TIGHT.

DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE NO 1
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO1 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-2 SYSTEM & COMPONENTS TO REMAIN.**

2. DEDUCT ALTERNATE NO 2
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE NO2 TO INCLUDE DEMOLITION, NEW DUCTWORK, RHC'S, PIPING, VALVES SUPPORTS, VFD'S, ROOF ADAPTER CURBS, BIPOLAR GENERATOR, HWS/R & CD PIPING SYSTEMS, INSULATION SYSTEMS, POWER, ATC CONTROLS, TAB & COMMISSIONING. EXISTING RTU-3 SYSTEM & COMPONENTS TO REMAIN.**

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PROJECT
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Bid # 24-05-002IFB

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KEY PLAN

REMARKS

REVISIONS

3	REBID-3 DOCUMENTS	MAR 27, 2024
2	REBID-2-ADDENDUM No1	MAR 1, 2023
1	REBID-2 DOCUMENTS	FEB 1, 2023

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Drawn By:	NVZ
Checked By:	ACA
File Name:	

TITLE
HVAC DEMOLITION ROOF PLAN

SHEET
HD-103

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

POWER DEVICES LEGEND

- DUPLEX RECEPTACLE - "2" INDICATES CIRCUIT NUMBER
- QUAD RECEPTACLE
- GFCI RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE

RECEPTACLE NOTES:

DUPLEX RECEPTACLE WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTOR

"C"	- INDICATES DEVICE TO BE MOUNTED ABOVE COUNTER SURFACE
"E"	- INDICATES DEVICE FED FROM AN EMERGENCY POWER SOURCE
"EWC"	- INDICATES RECEPTACLE FOR ELECTRIC WATER COOLER
"R"	- INDICATES RANGE RECEPTACLE
"T"	- INDICATES RECEPTACLE WITH INTEGRAL TRANSIENT VOLTAGE SURGE SUPPRESSER
"TV"	- INDICATES DEVICE FOR TV COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT.

- J — JUNCTION BOX, 4 11/16" SQUARE (UNLESS OTHERWISE NOTED)
- P — JUNCTION BOX FOR OFFICE POWER
- T/D — JUNCTION BOX FOR OFFICE TEL/DATA

LIGHTING CONTROL LEGEND

- OC — DUAL TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR (LINE VOLTAGE CONTROL).

WIRING DEVICE LEGEND

- SP — CEILING MOUNTED SPEAKER

LINE TYPE LEGEND

- EXISTING DEVICE, EQUIPMENT OR WIRING TO BE REMOVED
- XM — EXISTING DEVICE, EQUIPMENT OR WIRING TO REMAIN
- NEW DEVICE, EQUIPMENT OR WIRING

2 DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE No.1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**
2. **DEDUCT ALTERNATE No.2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**

POWER DISTRIBUTION EQUIPMENT LEGEND

- LPN32A — 120/208V,3Ø,4W SURFACE MOUNTED PANEL, "UDP251" INDICATES PANEL DESIGNATION
- HPN32 — 277/480V, 3Ø,4W SURFACE MOUNTED PANEL, "UDP251" INDICATES PANEL DESIGNATION
- STP — MANUAL MOTOR STARTER W/THERMAL OVERLOAD PROTECTION & PILOT LIGHT
- 30AS 30AF — DISCONNECT SWITCH (FUSED), "AS" INDICATES AMPERE SWITCH RATING, "AF" INDICATES AMPERE FUSE RATING.
- 75KVA T5 — DRY TYPE TRANSFORMER, "T5" INDICATES SIZE AS PER TRANSFORMER SCHEDULE. REFER TO 'DRY TYPE TRANSFORMER SCHEDULE' FOR FEEDER AND CIRCUIT BREAKER SIZES
- LR5A-2 — HOME RUN, 3/4"C. WITH 2#12 AND 1#12 GND. CONNECTED TO A 20A-1P CIRCUIT BREAKER. "LR5A" REPRESENTS PANEL NAME AND "2" INDICATES CIRCUIT NUMBER IN PANEL. WHEN MULTIPLE CIRCUITS ARE SHOWN, HASH MARKS INDICATE NUMBER OF PHASE AND NEUTRAL CONDUCTORS (GROUND CONDUCTOR IS NOT INDICATED IN HASH MARKS).
- LR5A-2,4,6 30A-3P+ — HOME RUN, 3/4"C. WITH 4#10 AND 1#10 GND. CONNECTED TO A 30A-3P CIRCUIT BREAKER-REFER TO THE BRANCH CIRCUIT SCHEDULE FOR CONDUCTOR SIZES AND QUANTITIES. "LR5A" REPRESENTS PANEL NAME AND "2,4,6" INDICATES CIRCUIT NUMBERS IN PANEL.
- J — JUNCTION BOX, 4 11/16" SQUARE (UNLESS OTHERWISE NOTED)
- EWC — FLEXIBLE POWER CONNECTION TO EQUIPMENT AS NOTED

FLEXIBLE POWER CONNECTION NOTES:

"EWC"	- INDICATES CONNECTION TO ELECTRIC WATER COOLER
"DW"	- INDICATES CONNECTION TO DISHWASHER
"GD"	- INDICATES CONNECTION TO GARBAGE DISPOSAL
"FURN"	- INDICATES CONNECTION TO FURNITURE
"ATC"	- INDICATES CONNECTION TO AUTOMATIC TEMPERATURE CONTROL SYSTEM
"PS"	- INDICATES CONNECTION TO CEILING MOUNTED PROJECTION SCREEN

MECHANICAL EQUIPMENT IDENTIFIER LEGEND

- EF 1 — MECHANICAL EQUIPMENT TAG "EF" INDICATES EQUIPMENT TYPE (EXHAUST FAN) "1" INDICATES EQUIPMENT NUMBER

NOTES:

1. REFER TO MECHANICAL AND PLUMBING PLANS AND SCHEDULES FOR ACTUAL EQUIPMENT NAME AND ASSOCIATED DESCRIPTION.

EXISTING CONDITIONS DESIGNATIONS

X	EXISTING DEVICE SHALL BE REMOVED INCLUDING ALL ASSOCIATED RACEWAYS AND CIRCUITRY BACK TO ITS SOURCE
XM	EXISTING DEVICE SHALL REMAIN AND SHALL BE MAINTAINED
XR	EXISTING DEVICE SHALL BE RELOCATED
XL	NEW LOCATION OF EXISTING TO BE RELOCATED DEVICE
XN	EXISTING DEVICE TO BE REMOVED AND REPLACED WITH NEW MAINTAIN EXISTING CIRCUITRY FOR CONNECTION OF NEW DEVICE

DRAWING NOTES AND DESIGNATIONS

- 1 / E-004 — DETAIL IDENTIFIER "1" INDICATES DETAIL NUMBER "E-004" INDICATES SHEET NUMBER
- 2 — DRAWING REVISION MARKER
- DRAWING REVISION CLOUD

PROJECT GENERAL NOTES

1. THE CONTRACTOR SHALL FURNISH LABOR, MATERIALS, TOOLS AND OTHER EQUIPMENT REQUIRED TO INSTALL THE WORK SHOWN AND SPECIFIED. THE CONTRACTOR SHALL FURNISH AND INSTALL ITEMS NECESSARY FOR A COMPLETE ELECTRICAL SYSTEM. MATERIALS SHALL BE NEW AND SHALL BEAR THE REGISTERED UL MARK. WORK SHALL CONFORM WITH THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 70 (NEC), THE NATIONAL ELECTRICAL CODE (NEC), AND APPLICABLE FEDERAL, STATE AND LOCAL CODES. CONTRACTOR SHALL SECURE PERMITS AND PAY THE FEES REQUIRED TO CARRY OUT HIS WORK. THE CONTRACTOR SHALL FURNISH COPIES OF CERTIFICATES AND PERMITS TO THE ARCHITECT.
2. THE DRAWINGS AND SPECIFICATIONS INDICATE THE INTENT OF THE DESIGN AND SHALL BE CONSIDERED AS DIAGRAMMATIC ONLY. EXACT LOCATIONS FOR OUTLETS AND EQUIPMENT SHALL BE DETERMINED AT THE SITE, AS WORK PROGRESSES DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THE SITE. FINAL WORK SHALL BE DOCUMENTED ON AS BUILT RECORD DRAWINGS.
3. PIPING, CONDUITS AND EQUIPMENT OF ALL TRADES SHALL BE PROPERLY COORDINATED AND SET TO MAINTAIN THE CLEARANCES REQUIRED BY APPLICABLE FEDERAL, STATE AND LOCAL CODES.
4. CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION DEFLECTION TYPE FITTINGS, AS REQUIRED VERIFY EXISTING JOINTS BY FIELD MEASUREMENTS.
5. RACEWAYS AND CABLE SHALL BE RUN CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED.
6. WIRING DEVICES SHALL BE MOUNTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE ARCHITECTURAL BARRIERS BOARD.
7. EXIT SIGNS AND EMERGENCY BATTERY UNITS AND LIGHTING FIXTURES DESIGNATED AS NIGHT LIGHTS SHALL BE UNSWITCHED.
8. ALL BRANCH CIRCUITS, (LIGHTING AND POWER) SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR. COMMON OR SHARING OF NEUTRALS WILL NOT BE ALLOWED. NO MORE THAN (3) CIRCUITS (SIX CURRENT CARRYING CONDUCTORS) SHALL BE RUN IN A SINGLE CONDUIT.
9. RECEPTACLES, SWITCHES, LIGHTING FIXTURES, SMOKE DETECTORS, ETC INDICATE QUANTITY, EXACT LOCATIONS OF DEVICES SHALL BE DETERMINED IN THE FIELD AND COORDINATED WITH ARCHITECTURAL DRAWINGS.
10. THIS IS A STANDARD SYMBOL LIST. ALL DEVICE SYMBOLS AND ABBREVIATIONS MAY NOT NECESSARILY APPEAR ON THE FLOOR PLANS OR DETAIL SHEET. ONLY THOSE SYMBOLS INDICATED ON THE FLOORS PLANS ARE USED AND OTHERS SHOULD BE DISREGARDED.
11. MOUNTING HEIGHTS SHALL BE AS INDICATED ON ARCHITECTURAL DRAWINGS. THE MOUNTING HEIGHT DETAIL SHALL BE USED AS A GUIDE IN THE ABSENCE OF THE ARCHITECTURAL DRAWINGS.
12. CONTRACTOR SHALL VERIFY ALL DOORS SWINGS BEFORE INSTALLING SWITCH BOXES.
13. FOR EXACT LOCATION OF LIGHTING FIXTURES, SEE REFLECTED CEILING PLAN DRAWINGS. FOR MOUNTING HEIGHT OF UNDERCABINET LIGHTING FIXTURES AND OTHER TASK LIGHTING, REFER TO ARCHITECTURAL ELEVATION DRAWINGS.
14. ELECTRICAL CONTRACTOR IS TO COORDINATE THE EXACT LOCATION OF LIGHTING FIXTURES IN MECHANICAL AND STORAGE AREAS WITH OTHER TRADES.
15. CURRENT CARRYING MATERIAL USED SHALL BE COPPER, INCLUDING PANELBOARD BUS MATERIALS AND TRANSFORMER WINDINGS.
16. FURNISH GROUNDING/ BONDING BUSHINGS ONTO ALL CONDUIT ENTERING/ LEAVING BOXES.
17. ALL GROUND CONDUCTORS SHALL BE GREEN, ISOLATED GROUND CONDUCTORS SHALL BE GREEN/ YELLOW STRIPPED, AND NEUTRAL CONDUCTORS SHALL BE WHITE.
18. MODIFICATIONS TO THE EXISTING FIRE ALARM SYSTEM SHALL BE COORDINATED WITH THE FIRM WHO HOLDS THE EXISTING SYSTEM MAINTENANCE CONTRACT. THE FIRM WHO HOLDS THE EXISTING SYSTEM MAINTENANCE CONTRACT SHALL MAKE ALL FINAL CONNECTIONS, AND PERFORM ALL PROGRAMMING AND TESTING. ALL COSTS ASSOCIATED WITH FINAL CONNECTIONS, PROGRAMMING AND TESTING SHALL BE INCLUDED UNDER THIS CONTRACT AND SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
19. WHEN AVAILABLE FROM THE MANUFACTURER, ALL FIRE ALARM STROBES SHALL BE FIELD ADJUSTABLE AND THE POWER SUPPLY SHALL BE SIZED BASED ON ALL THE STROBES' HIGHEST SETTING.

ELECTRICAL DRAWING LIST

DRAWING No	DESCRIPTION
E0-0	ELECTRICAL LEGEND AND GENERAL NOTES
ED1-1	ELECTRICAL 1ST FLOOR POWER DEMO PLAN
ED1-2	ELECTRICAL 2ND FLOOR POWER DEMO PLAN
ED1-3	ELECTRICAL ROOF POWER DEMO PLAN
E1-1	ELECTRICAL 1ST FLOOR POWER PLAN
E1-2	ELECTRICAL 2ND FLOOR POWER PLAN
E1-3	ELECTRICAL ROOF POWER PLAN
E3-0	ELECTRICAL RISER AND SCHEDULES

DEMOLITION GENERAL NOTES

1. THE REFER TO THE ARCHITECTURAL DRAWINGS FOR THE FULL EXTENT OF THE SCOPE OF DEMOLITION. DISCONNECT AND MAKE SAFE ALL ELECTRICAL EQUIPMENT IDENTIFIED FOR REMOVAL ON THE ARCHITECTURAL, HVAC, PLUMBING AND FIRE PROTECTION PLANS. THE ELECTRICAL SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH THE VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.
2. THE ELECTRICAL DEMOLITION PLANS INDICATED GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL COMPONENTS AND ITEMS TO BE REMOVED OR RETAINED. THE ELCTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMISSION OF THEIR BID TO BECOME FAMILIAR WITH THE ACTUAL WORKING CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR CEILINGS DESIGNATED TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE ELECTRICAL CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNERS REPRESENTATIVE AND ARCHITECT OF ANY UNANTICIPATED OR HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING EXECUTION OF THE WORK. DAMAGE SHALL INCLUDE, BUT NOT BE LIMITED TO, THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
4. THE ELECTRICAL CONTRACTOR SHALL CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS WITHIN OR ASSOCIATED WITH THE DEMOLITION SCOPE, PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS, LOAD CENTERS, MOTOR CONTROL CENTERS, AND SWITCHBOARDS IDENTIFIED FOR REMOVAL, SHALL BE TRACED AND FIELD LABELLED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
5. IN ANY AREA REQUIRING THE PERFORMANCE OF ANY TRADES WORK, THE ELECTRICAL CONTRACTOR SHALL CAREFULLY REMOVE AND STORE ANY OR ALL ELECTRICAL ITEMS IN PATH OF WORK, REINSTALLING AND RECONNECTING SAME AS REQUIRED, IN ACCORDANCE WITH THE PLANS AND/OR AS DIRECTED AFTER COMPLETION OF OTHER TRADES WORK IN THAT AREA.
6. THE ELECTRICAL CONTRACTOR SHALL IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF THE SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT WRITTEN APPROVAL FROM THE OWNERS REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE COMPLIANT CONDITION.
7. THE ELECTRICAL CONTRACTOR SHALL TAKE INVENTORY OF ELECTRICAL ITEMS THAT ARE REMOVED AND PROVIDE A LIST TO THE OWNER FOR THEIR SELECTION OF ITEMS TO BE RETAINED. ALL ITEMS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE REMOVED FROM THE SITE AND DIPOSED OF LEGALLY.
8. SPECIFIED OR SHOWN TO BE PAINTED, THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL ELECTRICAL ITEMS AS REQUIRED, INCLUDING BUT NOT LIMITED TO, LIGHTING FIXTURES, DEVICE PLATES, DEVICES, ETC THE CONTRACTOR SHALL BE RESPONSIBLE FOR STRONG THE REMOVED DEVICES IN A SAFE AND SECURE PLACE THE ELECTRICAL CONTRACTOR SHALL REINSTALL THE SAME DEVICES AFTER COMPLETION OF PAINTING. ANY ITEM NOT REMOVED AND PAINTED OVER SHALL BE SUITABLY CLEANED OR REPLACED WITH A NEW ITEM BY THE ELECTRICAL CONTRACTOR.
9. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS WITHIN THE AREA OF DEMOLITION SCOPE TO THEIR POINT OF ORIGIN. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SJALL BE DE-ENERGIZED AND RE-LABELLED AS "SPARE". NEW TYPED UPDATED CIRCUIT DIRECTORIES SHALL ALSO BE PROVIDED.
10. THE ELECTRICAL CONTRACTOR SHALL TEMPORARILY SUPPORT ALL ITEMS TO REMAIN THAT ARE AFFECTED BY THE DEMOLITION OF BUILDING STRUCTURAL COMPONENTS (WALLS, CELINGS, PARTITIONS, ETC). CONTRACTOR SHALL TEMPORARILY SUPPORT ITEMS AND SHALL PROVIDE PERMANENT SUPPORTS WHEN FINALIZED STRUCTURES ARE IN PLACE.
11. ALL EXISTING ELECTRICAL EQUIPMENT THAT ARE TO BE RELOCATED SHALL BE STORED IN A SAFE MANNER UNTIL SUCH TIME AS TO BE REINSTALLED. ANY DAMAGE INCURRED TO EQUIPMENT SHALL BE RECTIFIED BY THE ELECTRICAL CONTRACTOR.
12. ALL REMOVED ITEMS SHALL BE LEGALLY DISPOSED OF UNLESS IDENTIFIED FOR REUSE. THE OWNER'S REPRESENTATIVE SHALL INSPECT ALL RETAINED ITEMS, PRIOR TO PLACEMENT IN THE IDENTIFIED STORAGE LOCATION BY THE ELECTRICAL CONTRACTOR.
13. THE WORK ON THIS PROJECT MAY BE PERFORMED IN PHASES. THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND SCHEDULE HIS WORK AND ALLOW SUFFICIENT TIME AND COSTS TO ACCOMMODATE THE PHASING OF WORK. ANY ADDITIONAL COSTS INCURRED DUE TO LACK OF PROPER COORDINATION AND COMMUNICATION BY THE ELECTRICAL CONTRACTOR, WITH THE GENERAL CONTRACTOR, OTHER TRADES OR OWNER'S REPRESENTATIVE, SHALL BE ASSUMED BY THE ELECTRICAL CONTRACTOR WITHOUT ANY COSTS TO THE OWNER. REFER TO THE ARCHITECTURAL PHASING PLANS FOR ADDITIONAL INFORMATION.
14. THE EXISTING FIRE ALARM SYSTEM SHALL REMAIN FULLY FUNCTIONAL DURING THE ENTIRE DEMOLITION AND CONSTRUCTION PERIOD. REUSE OF EXISTING FIRE ALARM 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.
15. THE ELECTRICAL CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH DISABLING THE CONNECTIONS TO THE EXISTING LOOP DURING ALL PHASES OF CONSTRUCTION AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND SHALL CARRY ALL COSTS FOR RECONNECTION OF LOOP. NOTE THAT THERE MAY BE A REQUIREMENT FOR MULTIPLE DISCONNECTIONS AND RECONNECTIONS, BASED ON THE AUTHORITY HAVING JURISDICTION.

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

PROJECT

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

TOWN OF HOPKINTON

83 WOOD STREET
HOPKINTON, MA 01748

FIRM

R. W. Sullivan Engineering
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RWS JOB # 2000170.00

KEY PLAN

REMARKS

REVISIONS

No.	Description	Date
	REBID-3 DOCUMENTS	MAR 27, 2024
1	ADDENDUM #1	
	BID DOCUMENTS	FEB 01, 2023

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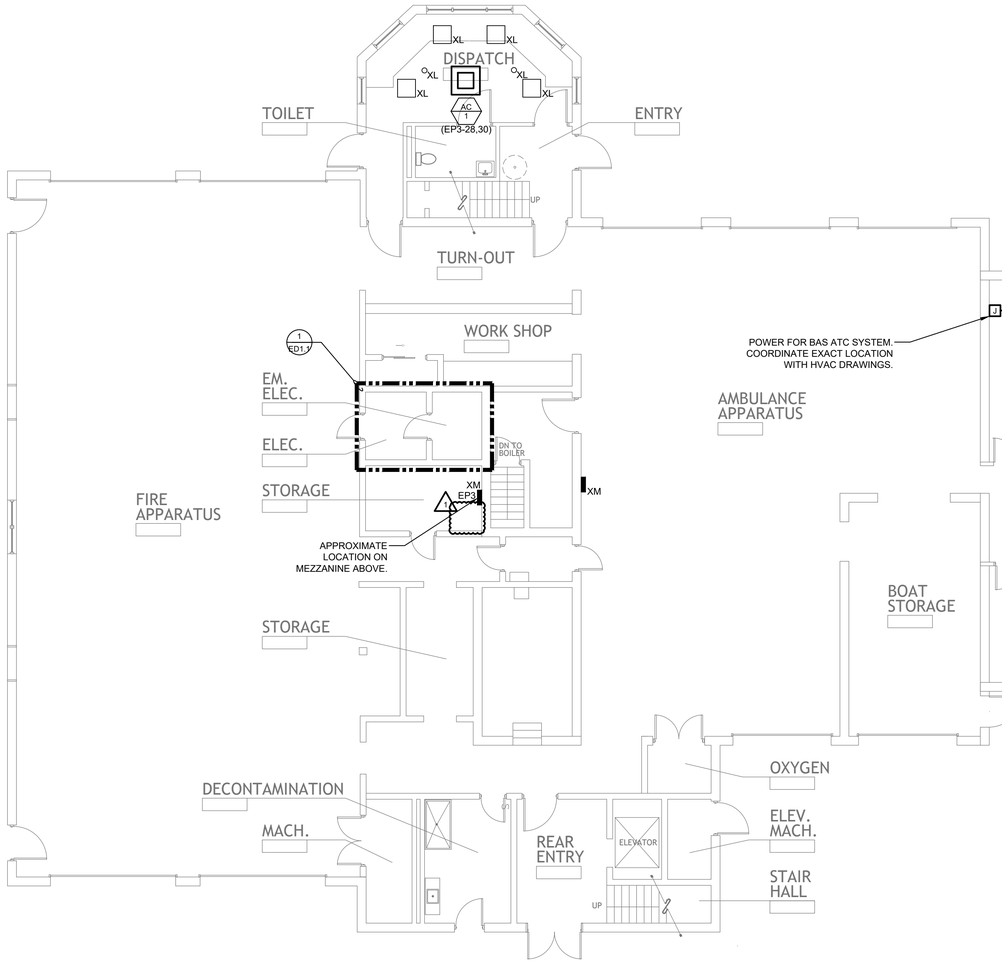
TITLE

ELECTRICAL LEGEND AND GENERAL NOTES

SHEET

E0.0

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



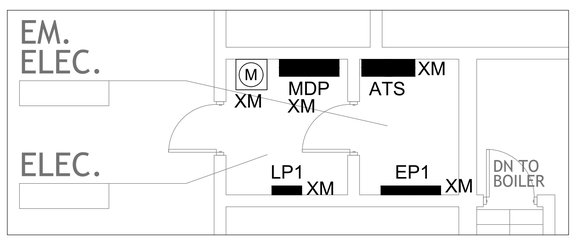
POWER PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING E.0. FOR ADDITIONAL REQUIREMENTS.
2. REFER TO DRAWING E0.0 FOR LEGEND AND GENERAL NOTES.
3. CIRCUIT NUMBERS ARE SHOWN FOR DESCRIPTIVE PURPOSES ONLY. EXACT NUMBERS SHALL BE DETERMINED IN FIELD AND SHALL BE NOTED ON THE CONTRACTORS' AS-BUILT DRAWINGS.
4. BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED AND INSTALLED FOR A MAXIMUM VOLTAGE DROP OF 3%. CONTRACTOR SHALL PROVIDE #10AWG CONDUCTORS FOR ALL 120V CIRCUITS GREATER THAN 60 FEET IN LENGTH AND #10AWG CONDUCTORS FOR ALL 277V CIRCUITS GREATER THAN 140 FEET IN LENGTH. CONTRACTOR SHALL PROVIDE #8AWG CONDUCTORS FOR ALL 120V CIRCUITS GREATER THAN 100 FEET IN LENGTH, BUT LESS THAN 160 FEET IN LENGTH AND #8AWG CONDUCTORS FOR ALL 277V CIRCUITS GREATER THAN 225 FEET, BUT LESS THAN 350 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND OPTIONS.
5. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH HVAC, PLUMBING AND FIRE PROTECTION DRAWINGS.

2 DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE No.1
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**

2. DEDUCT ALTERNATE No.2
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**



1 1ST FLOOR ELECTRIC ROOMS
1/4" = 1' - 0"

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

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KEY PLAN

REMARKS

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ELECTRICAL FIRST FLOOR PLAN

SHEET

E1.1

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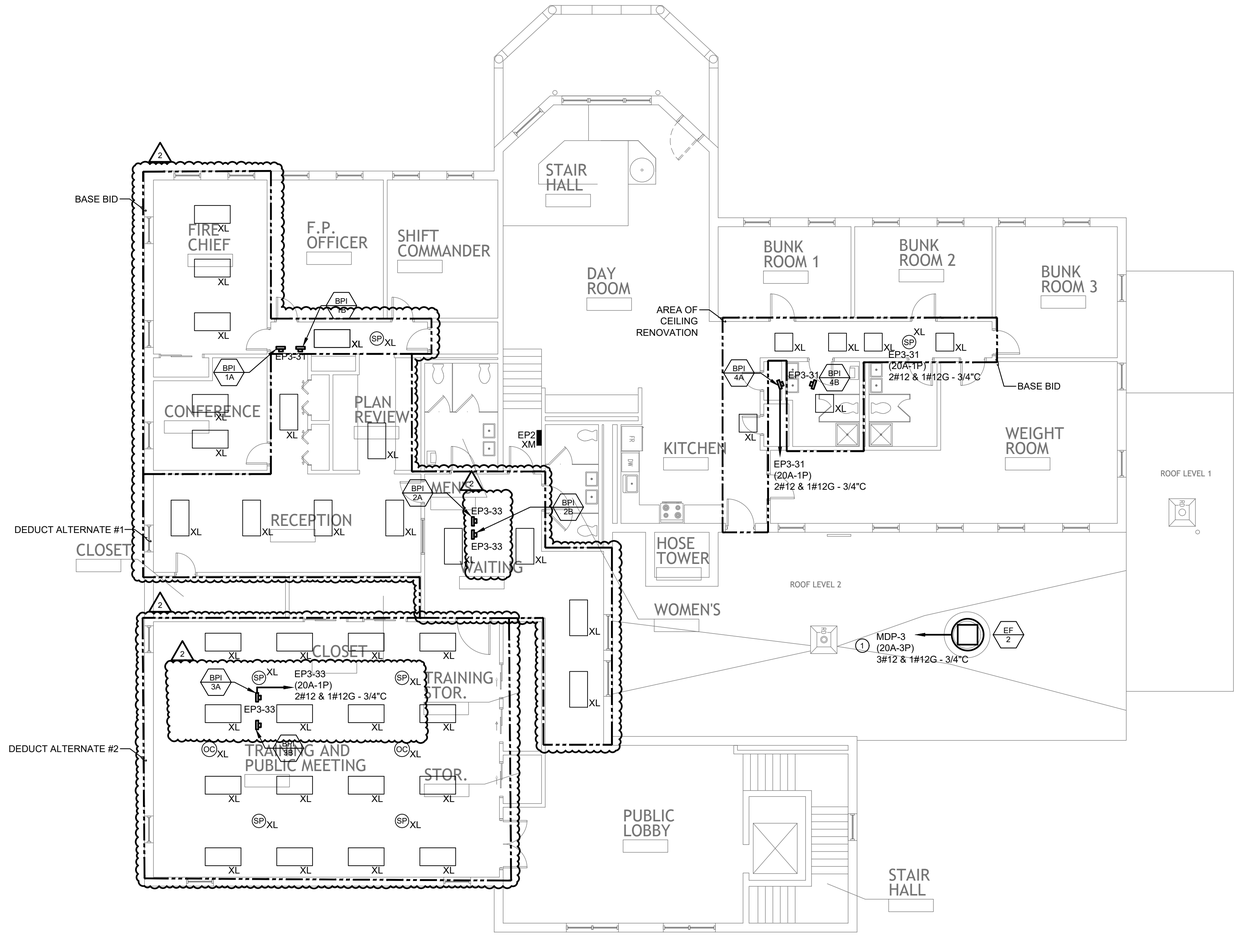

POWER PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING E.0. FOR ADDITIONAL REQUIREMENTS.
2. REFER TO DRAWING E0.0 FOR LEGEND AND GENERAL NOTES.
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4. BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED AND INSTALLED FOR A MAXIMUM VOLTAGE DROP OF 3%. CONTRACTOR SHALL PROVIDE #10AWG CONDUCTORS FOR ALL 120V CIRCUITS GREATER THAN 60 FEET IN LENGTH AND #10AWG CONDUCTORS FOR ALL 277V CIRCUITS GREATER THAN 140 FEET IN LENGTH. CONTRACTOR SHALL PROVIDE #8AWG CONDUCTORS FOR ALL 120V CIRCUITS GREATER THAN 100 FEET IN LENGTH, BUT LESS THAN 160 FEET IN LENGTH AND #8AWG CONDUCTORS FOR ALL 277V CIRCUITS GREATER THAN 225 FEET, BUT LESS THAN 350 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND OPTIONS.
5. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH HVAC, PLUMBING AND FIRE PROTECTION DRAWINGS.

DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE No.1

a. PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.

2. DEDUCT ALTERNATE No.2

a. PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

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HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

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KEY PLAN

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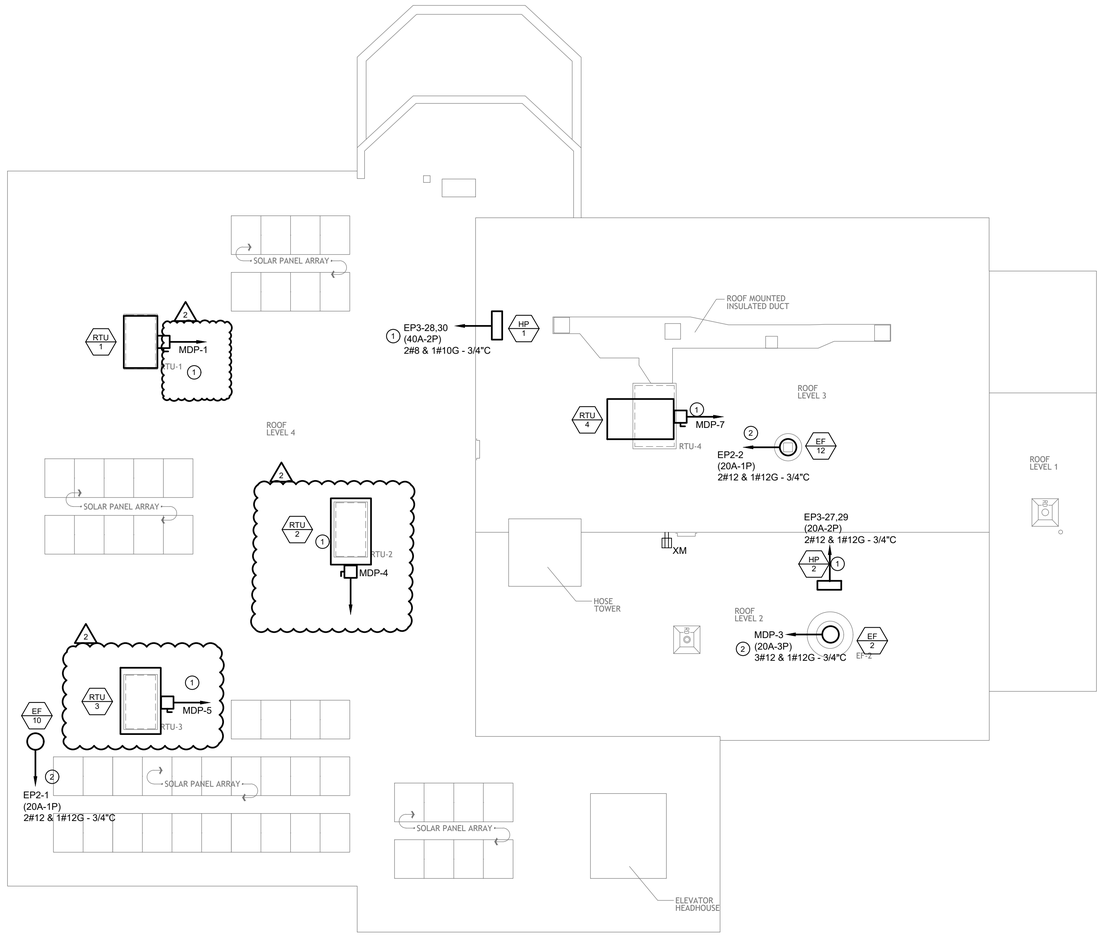
TITLE
ELECTRICAL SECOND FLOOR PLAN

SHEET
E1.2

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



POWER PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING E.0. FOR ADDITIONAL REQUIREMENTS.
2. REFER TO DRAWING E0.0 FOR LEGEND AND GENERAL NOTES.
3. CIRCUIT NUMBERS ARE SHOWN FOR DESCRIPTIVE PURPOSES ONLY. EXACT NUMBERS SHALL BE DETERMINED IN FIELD AND SHALL BE NOTED ON THE CONTRACTORS' AS-BUILT DRAWINGS.
4. BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED AND INSTALLED FOR A MAXIMUM VOLTAGE DROP OF 3%. CONTRACTOR SHALL PROVIDE #10AWG CONDUCTORS FOR ALL 120V CIRCUITS GREATER THAN 60 FEET IN LENGTH AND #10AWG CONDUCTORS FOR ALL 277V CIRCUITS GREATER THAN 140 FEET IN LENGTH. CONTRACTOR SHALL PROVIDE #8AWG CONDUCTORS FOR ALL 120V CIRCUITS GREATER THAN 100 FEET IN LENGTH, BUT LESS THAN 160 FEET IN LENGTH AND #8AWG CONDUCTORS FOR ALL 277V CIRCUITS GREATER THAN 225 FEET, BUT LESS THAN 350 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND OPTIONS.
5. COORDINATE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT WITH HVAC, PLUMBING AND FIRE PROTECTION DRAWINGS.

POWERPLAN KEYED NOTES:

1. REPLACE EXISTING SPARE BREAKER (MADE SPARE DURING DEMOLITION PHASE) WITH NEW (SIZE AS INDICATED). NEW BREAKER SHALL MATCH THE EXISTING PANEL'S MANUFACTURER, MODEL AND A.I.C. RATING. RE-WORK EXISTING PANEL BREAKER LAYOUT TO ALLOW FOR LOCATION OF NEW BREAKERS AS INDICATED
2. UTILIZE EXISTING SPARE BREAKER (MADE SPARE DURING DEMOLITION PHASE) PROVIDE NEW BRANCH CIRCUITRY AS INDICATED.

2 DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE No.1
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**

2. DEDUCT ALTERNATE No.2
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

TOWN OF HOPKINTON

83 WOOD STREET
HOPKINTON, MA 01748

FIRM

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RWS JOB # 2001170.00

KEY PLAN

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

REMARKS

REVISIONS

No.	Description	Date
2	REBID-3 DOCUMENTS	MAR 27, 2024
1	ADDENDUM #1	
	BID DOCUMENTS	FEB 01, 2023

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DATA

Date:	MARCH 27, 2024
Proj. No.:	2019023.01
Scale:	1/8" = 1'-0"
Drawn By:	WMD
Checked By:	ARH
File Name:	

TITLE

ELECTRICAL
ROOF PLAN

SHEET

E1.3

MECHANICAL EQUIPMENT SCHEDULE

(THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CIRCUIT BREAKERS, FEEDERS, BRANCH CIRCUITS, AND ELECTRICAL DEVICES INDICATED ON THIS SCHEDULE)

SYMBOL	LOCATION	DESCRIPTION	HP / MCA / KW	PANEL - CKT NO.	VOLTS (V)	PHASE (Ø)	CIRCUIT BREAKER	FEEDER	CONNECTION $^{TP}	VFD	⊠	□¹	◪¹	~	J	WP	REMARKS
RTU 1	SEE FLOOR PLANS	ROOFTOP UNIT	26.2 AMPS	MDP-1	208	3	35A-3P	4#10 & 1#10G - 3/4"C		●		●		●	●	●	
RTU 2	SEE FLOOR PLANS	ROOFTOP UNIT	76.2 AMPS	MDP-4	208	3	80A-3P	4#2 & 1#8G - 1-1/2"C.		●		●		●	●	●	1. UNFUSED DISC SWITCH & GFCI RECEPTACLE PROVIDED WITH HVAC UNIT. 2. EC TO INSTALL 120V, 1P POWER EXHAUST UNIT PROVIDED LOOSE WITH HVAC UNIT. 3. NOTES 1 & 2 ABOVE ARE TYPICAL FOR UNITS RTU-1, RTU-2, RTU-3 & RTU-4.
RTU 3	SEE FLOOR PLANS	ROOFTOP UNIT	69.2 AMPS	MDP-5	208	3	80A-3P	4#2 & 1#8G - 1-1/2"C.		●		●		●	●	●	
RTU 4	SEE FLOOR PLANS	ROOFTOP UNIT	69.2 AMPS	MDP-7	208	3	80A-3P	4#2 & 1#8G - 1-1/2"C.		●		●		●	●	●	
BPI 1A	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	
BPI 1B	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	
BPI 2A	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	DEDUCT ALTERNATE #1
BPI 2B	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	DEDUCT ALTERNATE #1
BPI 3A	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	DEDUCT ALTERNATE #2
BPI 3B	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	DEDUCT ALTERNATE #2
BPI 4A	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	
BPI 4B	SEE FLOOR PLANS	BI-POLAR IONIZATION GENERATOR	1 A	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	
HP 1	SEE FLOOR PLANS	SPLIT SYSTEM OUTDOOR UNIT	28A	SEE FLOOR PLANS	208	1	40A-2P	2#8 & 1#10G - 3/4"C					●	●	●	●	INDOOR UNIT POWERED VIA OUTDOOR UNIT PROVIDE INTERCONNECTION WIRING BETWEEN INDOOR UNIT AND OUTDOOR UNIT. PROVIDED WITH INTEGRAL CONDENSATE PUMP. PROVIDE ALL WIRING AND INTERFACES AS REQUIRED
AC 1	SEE FLOOR PLANS	SPLIT SYSTEM INDOOR UNIT	1A	FED FROM ACCU-1								●		●	●		
HP 2	SEE FLOOR PLANS	SPLIT SYSTEM OUTDOOR UNIT	11A	SEE FLOOR PLANS	208	1	15A-2P	2#12 & 1#12G - 3/4"C					●	●	●	●	INDOOR UNIT POWERED VIA OUTDOOR UNIT PROVIDE INTERCONNECTION WIRING BETWEEN INDOOR UNIT AND OUTDOOR UNIT. PROVIDED WITH INTEGRAL CONDENSATE PUMP. PROVIDE ALL WIRING AND INTERFACES AS REQUIRED
AC 2	SEE FLOOR PLANS	SPLIT SYSTEM INDOOR UNIT	1A	FED FROM ACCU-2								●		●	●		
EF 2	ROOF	EXHAUST FAN	2 HP	MDP-3	208	3	20A-3P	3#12 & 1#12G - 3/4"C		●		●		●	●	●	
EF 10	ROOF	EXHAUST FAN	1/6 HP	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	
EF 12	ROOF	EXHAUST FAN	1/10 HP	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	
CP 1	SEE FLOOR PLANS	CONDENSATE PUMP	1/30 HP	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	
CP 2	SEE FLOOR PLANS	CONDENSATE PUMP	1/30 HP	SEE FLOOR PLANS	120	1	20A-1P	2#12 & 1#12G - 3/4"C	●					●	●	●	

MEP/FP COORDINATION SCHEDULE NOTES

1. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING POWER TO ALL EQUIPMENT ON THIS SHEET.
2. PROVIDE ALL NECESSARY MATERIALS, WIRING AND CONNECTIONS REQUIRED FOR COMPLETE INSTALLATION TO BE FULLY OPERATIONAL.
3. DISCONNECT SWITCHES, RECEPTACLES AND MOTOR STARTERS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.
4. FEEDER VALUES BASED ON COPPER CONDUCTORS UNLESS OTHERWISE NOTED .

FEEDERS:

A. UPGRADE WIRE TO MAINTAIN MAXIMUM OF 2% VOLTAGE DROP.
B. NUMBER OF WIRES SHALL BE DETERMINED WITH EQUIPMENT ELECTRICAL NAMEPLATE CHARACTERISTICS.
C. WHERE NEUTRALS ARE REQUIRED, IT SHALL MATCH FEEDER CONDUCTOR SIZE.
D. WHERE CONDUCTORS SERVE ROOF TOP EQUIPMENT SHALL BE XHHW-2 TYPE.

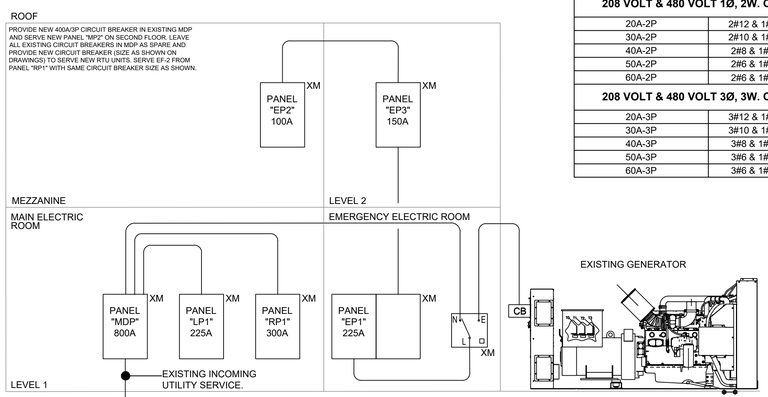
5. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 1" CONDUIT AND WIRING BETWEEN INDOOR UNIT "AC-*" AND OUTDOOR UNIT "HP-*" PER MANUFACTURERS REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS PRIOR TO INSTALLATION. PROVIDED WEATHERPROOF FUSED DISCONNECT ON OUTDOOR UNIT.
6. POWER TO INDOOR UNIT "AC-*" IS PROVIDED FROM OUTDOOR UNIT "ACC-*". PROVIDE NON-FUSED DISCONNECT ON INDOOR UNIT. PROVIDED GFCI DUPLEX RECEPTACLE FOR CONDENSATE PUMP, TIE INTO ROOM RECEPTACLE BRANCH CIRCUIT. FEEDER VALUES BASED ON COPPER CONDUCTORS UNLESS OTHERWISE NOTED .
7. FACTORY DISCONNECTS SHIPPED LOOSE SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR.
8. PROVIDE FUSES FOR DISCONNECT SWITCHES TO MATCH EQUIPMENT MOCP.
9. ELECTRICAL CONTRACTOR TO PROVIDE THE WIRING BETWEEN THE FACTORY SUPPLIED VFD'S AND THE HVAC EQUIPMENT AS REQUIRED. VFD'S TO BE LOCATED AS DIRECTED BY ARCHITECT.

BRANCH CIRCUIT SCHEDULE

CIRCUIT BREAKERS	CONDUCTORS
120 VOLT & 277 VOLT 1Ø, 2W. CIRCUITS	
30A-1P	2#10 & 1#10G - 3/4"C.
40A-1P	2#8 & 1#10G - 3/4"C.
50A-1P	2#6 & 1#10G - 3/4"C.
60A-1P	2#6 & 1#10G - 3/4"C.
208 VOLT & 480 VOLT 1Ø, 2W. CIRCUITS	
20A-2P	2#12 & 1#12G - 3/4"C.
30A-2P	2#10 & 1#10G - 3/4"C.
40A-2P	2#8 & 1#10G - 3/4"C.
50A-2P	2#6 & 1#10G - 3/4"C.
60A-2P	2#6 & 1#10G - 3/4"C.
208 VOLT & 480 VOLT 3Ø, 3W. CIRCUITS	
20A-3P	3#12 & 1#12G - 3/4"C.
30A-3P	3#10 & 1#10G - 3/4"C.
40A-3P	3#8 & 1#10G - 3/4"C.
50A-3P	3#6 & 1#10G - 3/4"C.
60A-3P	3#6 & 1#10G - 3/4"C.

DEDUCT ALTERNATE NOTES

1. **DEDUCT ALTERNATE No.1**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**
2. **DEDUCT ALTERNATE No.2**
   a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**



1 POWER RISER DIAGERAM
N.T.S

PROJECT: **PROJECT #:** **ENGINEER:**

VOLTAGE:	208	PHASE:	3	WIRE:	4							TOTAL VA, L1		29,796	PANEL NO.	MDP							
MAIN BUS:	800	AMPS										TOTAL VA, L2		29,796									
MAIN BREAKER:	800	A FRAME		800	A TRIP							TOTAL VA, L3		29,796	LOC.	MAIN ELECTRIC ROOM							
MOUNTING:	SURFACE			AIC: 22000								TOTAL VA		89,388	FED								
		VA LOAD					L1 Y	L2 Y	L3 Y				VA LOAD										
	DIRECTORY	L1	L2	L3	CKT.	AMPS				AMPS	CKT.	L1	L2	L3	DIRECTORY								
E		3,144														E							
E	NEW RTU-1		3,144		1	35A				50A	2				EXISTING SOLAR	E							
E				3,144												E							
E		900										9,144			DEDUCT	E							
E	EF-2		900		3	20A				80A	4		9,144		NEW RTU-2	E							
E				900										9,144	ALTERNATE #1	E							
E	DEDUCT	8,304														E							
E	NEW RTU-3		8,304		5	80A				35A	6				EXISTING WATER HEATER	E							
E	ALTERNATE #2			8,304												E							
E		8,304														M							
E	NEW RTU-4		8,304		7	80A				40A	8				EXISTING AIR COMPRESSOR	M							
E				8,304												M							
																E							
L	EXISTING PANEL "LP1"				9	225A				100A	10				EXISTING ELEVATOR	E							
L																E							
E																E							
E	EXISTING				11	250A				225A	12				EXISTING PANEL "EP1"	E							
E																E							
SUBTOTAL		20,652	20,652	20,652								9,144	9,144	9,144	SUBTOTAL								

VOLTAGE:	208	PHASE:	1	WIRE:	3							TOTAL VA, L1		1,650	PANEL NO.	EP2							
MAIN BUS:	100	AMPS										TOTAL VA, L2		0									
MAIN BREAKER:	MLO	A FRAME		MLO	A TRIP							TOTAL VA, L3		0	LOC.	2nd Floor							
MOUNTING:	Surface			AIC: 14,000								CONNECTED VA		1,650	Fed from EP3								
		VA LOAD					L1 Y	L2 Y	L3 Y				VA LOAD										
	DIRECTORY	L1	L2	L3	CKT.	AMPS				AMPS	CKT.	L1	L2	L3	DIRECTORY								
E	EF10	900			1	20A				20A	2	750			EF-12	R							
E	SPARE				3	20A				20A	4				SPARE	L							
E	SPARE				5	20A				20A	6				SPARE	E							
	EXISTING KITCHEN REC				7	20A				20A	8				EXISTING LIGHTING	K							
	EXISTING RECEPTION				9	20A				20A	10				EXISTING LIGHTING								
	EXISTING RECEPTION				11	20A				20A	12				EXISTING LIGHTING								
	EXISTING OFFICE REC				13	20A				20A	14				EXISTING LIGHTING								
	EXISTING OFFICE REC				15	20A				20A	16				SPARE								
	EXISTING KITCHEN REC				17	20A				20A	18				EXISTING LIGHTING								
	EXISTING LIGHTING				19	20A				20A	20				EXISTING LIGHTING								
	EXISTING LIGHTING				21	20A				30A	22				EXISTING DRYER								
	EXISTING OFFICE REC				23	20A					24												
	EXISTING OFFICE REC				25	20A				20A	26				EXISTING DAYROOM								
	EXISTING LIGHTING				27	20A				50A	28				EXISTING RANGE								
	EXISTING RECEPTION				29	20A					30												
SUBTOTAL		900	0	0								750	0	0	SUBTOTAL								

VOLTAGE:	208	PHASE:	1	WIRE:	3							TOTAL VA, L1		1,700	PANEL NO.	EP3							
MAIN BUS:	160	AMPS										TOTAL VA, L2		4,464									
MAIN BREAKER:	MLO	A FRAME		MLO	A TRIP							TOTAL VA, L3		4,264	LOC.	2nd Floor							
MOUNTING:	Surface			AIC: 14,000								CONNECTED VA		10,428	Fed from LP1								
		VA LOAD					L1 Y	L2 Y	L3 Y				VA LOAD										
	DIRECTORY	L1	L2	L3	CKT.	AMPS				AMPS	CKT.	L1	L2	L3	DIRECTORY								
	EXISTING OUTLETS				1	20A				20A	2				EXISTING OUTLETS								
	EXISTING OUTLETS				3	20A				20A	4				EXISTING OUTLETS								
	EXISTING OUTLETS				5	20A				20A	6				EXISTING OUTLETS								
	EXISTING OUTLETS				7	20A				20A	8				EXISTING OUTLETS								
	EXISTING OUTLETS				9	20A				20A	10				EXISTING OUTLETS								
	EXISTING OUTLETS				11	20A				20A	12				EXISTING OUTLETS								
	EXISTING OUTLETS				13	20A				20A	14				EXISTING OUTLETS								
	EXISTING OUTLETS				15	20A				20A	16				EXISTING OUTLETS								
	EXISTING OUTLETS				17	20A				20A	18				EXISTING OUTLETS								
	EXISTING OUTLETS				19	20A				20A	20				EXISTING OUTLETS								
	EXISTING OUTLETS				21	20A				20A	22				EXISTING OUTLETS								
	EXISTING OUTLETS				23	20A				20A	24				EXISTING OUTLETS								
	EXISTING REFRIG				25	20A				20A	26				EXISTING SECURITY								
A	HP/AC-2		1,248		27	20A				40A	28		3,016		HP-AC-1	A							
A				1,248	29						30			3,016		A							
E	BPI-1A & 1B, BPI-4A & 4B	200			31	20A				20A	32	1,500			BAS ATC SYSTEM	E							
	BPI-2A & 2B, BPI-3A & 3B		200		33	20A				20A	34												
					35	20A				20A	36												
					37	20A					38												
					39	20A				100A	40				PANEL EP2								
					41	20A					42												
SUBTOTAL		200	1,448	1,248								1,500	3,016	3,016	SUBTOTAL								

PANEL SCHEDULE KEYED NOTES:

1. REPLACE EXISTING SPARE BREAKER (MADE SPARE DURING DEMOLITION PHASE) WITH NEW (SIZE AS INDICATED). NEW BREAKER SHALL MATCH THE EXISTING PANEL'S MANUFACTURER, MODEL AND A.I.C. RATING. RTU LOADS SHOWN INCLUDE POWER EXHAUST UNIT.
2. UTILIZE EXISTING SPARE BREAKER (MADE SPARE DURING DEMOLITION PHASE) PROVIDE NEW BRANCH CIRCUITRY AS INDICATED.

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

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RWS JOB # 2001170.00

KEY PLAN

REMARKS

No.	Description	Date
2	REBID-3 DOCUMENTS	MAR 27, 2024
1	ADDENDUM #1	
	BID DOCUMENTS	FEB 01, 2023

REVISIONS

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SCALE / ORIENTATION

DATA

Date:	MARCH 27, 2024
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Drawn By:	WMD
Checked By:	ARH
File Name:	

TITLE

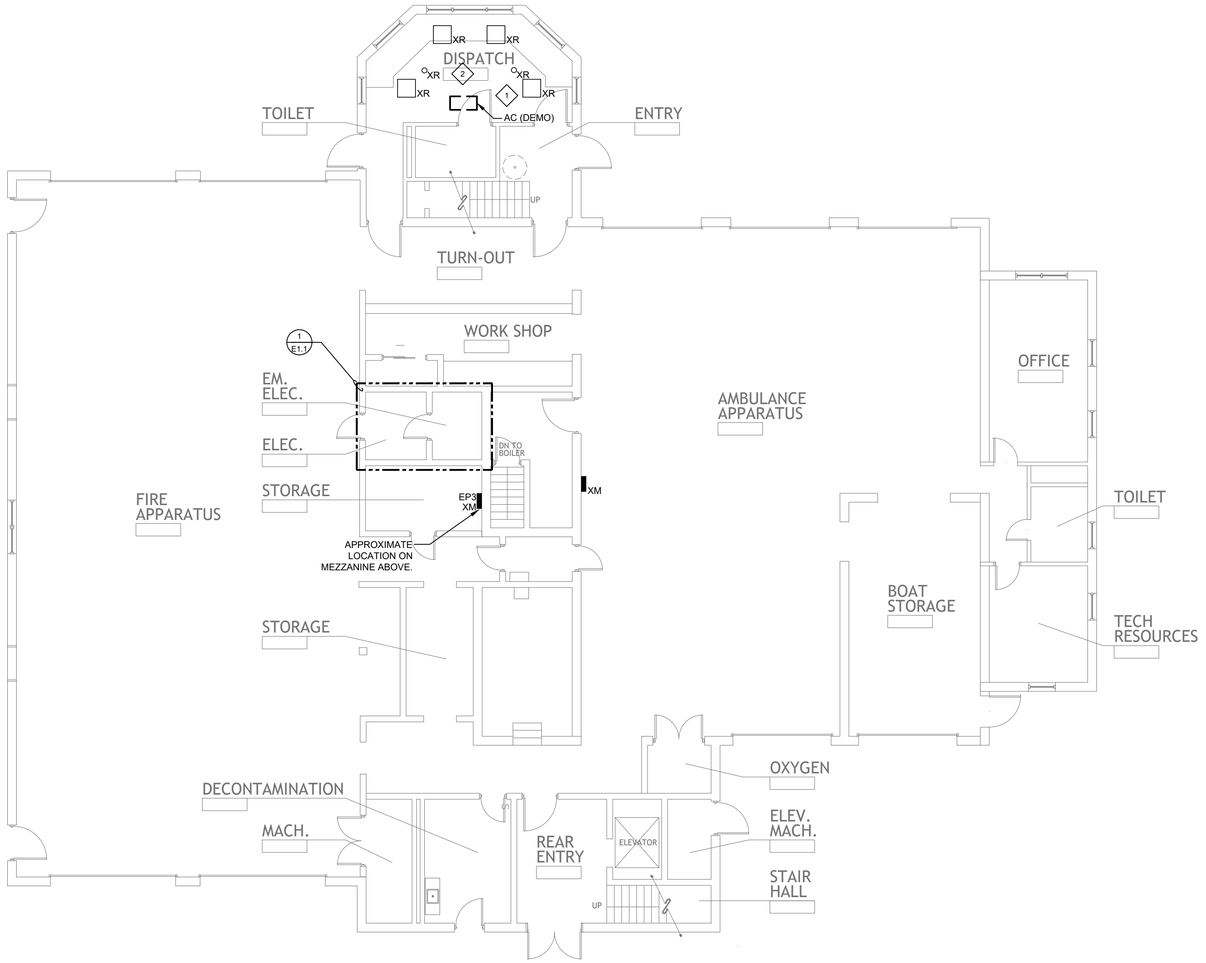
ELECTRICAL
RISER AND SCHEDULES

SHEET

E3.0

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

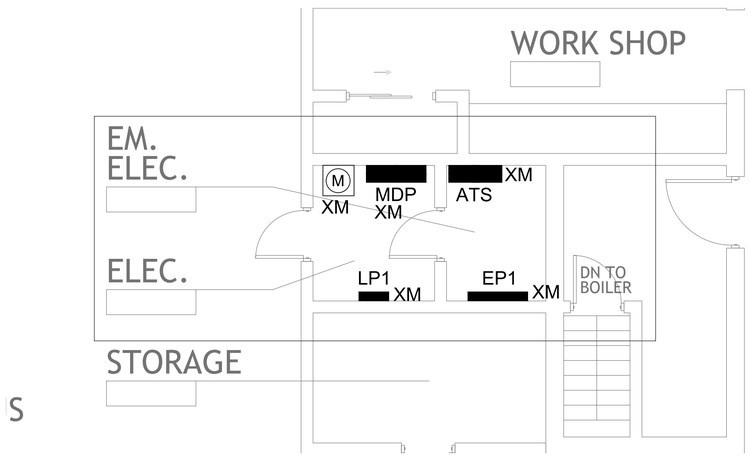


DEMOLITION PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING E0.0 FOR ADDITIONAL REQUIREMENTS.
2. WORK MAY BE REQUIRED OUTSIDE OF THE PROJECT'S AREA OF RENOVATION. CONTRACTOR SHALL NOT ASSUME THAT AREA OF RENOVATION IS CONSIDERED THE SCOPE OF WORK AREA.

DEMOLITION PLAN KEYED NOTES:

1. EXISTING EQUIPMENT TO BE REMOVED, ASSOCIATED EQUIPMENT AND WIRING SHALL BE REMOVED IN THEIR ENTIRETY. MAINTAIN EXISTING BREAKER FOR RE-USE IN THIS PROJECT
2. CEILING GRID IN THIS AREA TO BE REPLACED. REMOVE EXISTING LIGHT FIXTURES AND STORE ON SITE FOR REPLACEMENT IN NEW CEILING GRID. MAINTAIN ALL WIRING FOR FUTURE RECONNECTION.



1 1ST FLOOR EXISTING ELECTRIC ROOMS
1/4" = 1' - 0"

S

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

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KEY PLAN

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1	REBID-3 DOCUMENTS	MAR 27, 2024
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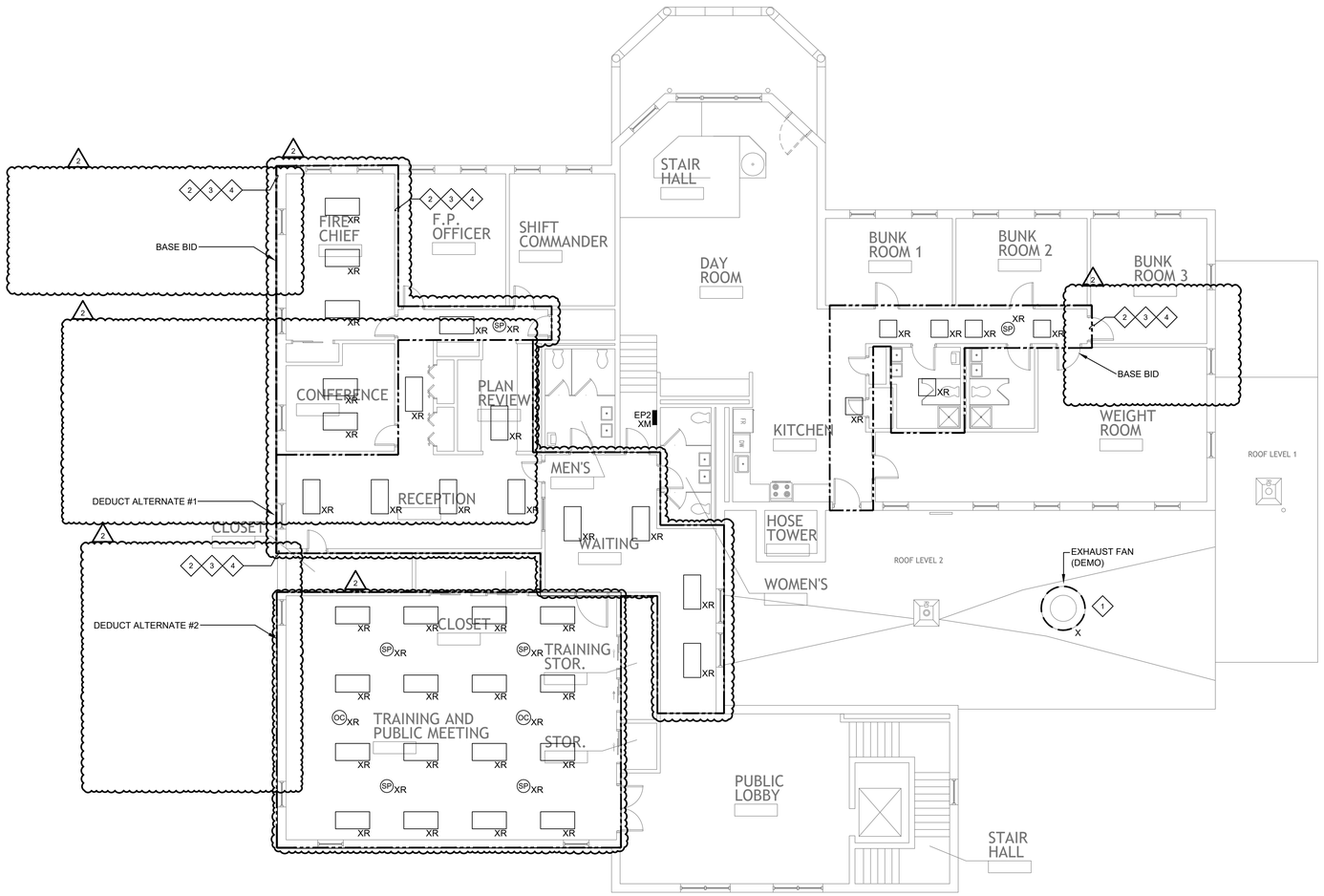
Proj. No.:	2019023.01
Scale:	1/8" = 1'-0"
Drawn By:	WMD
Checked By:	ARH
File Name:	

TITLE
ELECTRICAL
DEMOLITION
FIRST FLOOR PLAN

SHEET
ED1.1

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024



DEMOLITION PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING E0.0 FOR ADDITIONAL REQUIREMENTS.
2. WORK MAY BE REQUIRED OUTSIDE OF THE PROJECT'S AREA OF RENOVATION. CONTRACTOR SHALL NOT ASSUME THAT AREA OF RENOVATION IS CONSIDERED THE SCOPE OF WORK AREA.

DEMOLITION PLAN KEYED NOTES:

1. EXISTING EQUIPMENT TO BE REMOVED, ASSOCIATED EQUIPMENT AND WIRING SHALL BE REMOVED IN THEIR ENTIRETY. MAINTAIN EXISTING BREAKER FOR RE-USE IN THIS PROJECT, WIRING TO BE REMOVED.
2. CEILING IN THIS AREA TO BE DISTURBED. REMOVE EXISTING LIGHT FIXTURES, OCCUPANCY SENSORS AND SPEAKERS WHERE REQUIRED AND STORE ON SITE FOR REPLACEMENT IN NEW CEILING. MAINTAIN ALL WIRING AND CONTROLS FOR FUTURE RECONNECTION. ALL LIGHT FIXTURES, OCCUPANCY SENSORS AND SPEAKERS SHALL BE REMOVED AND STORED IN A DRY, HEATED AND SECURE LOCATION. COORDINATE WITH OWNER. LIGHTING BRANCH CIRCUITS SHALL BE RE-CONNECTED TO RE-INSTALLED LIGHT FIXTURES.
3. ALL EXISTING LOW VOLTAGE WIRING AND SYSTEMS SHALL NOT BE CUT OR DISTURBED AS THE SYSTEMS ARE VERY OLD AND DELICATE - COORDINATE WITH OWNER.
4. LIGHT FIXTURES AND OTHER CEILING MOUNTED DEVICES MAY BE HUNG FROM CHAIN IN LIEU OF REMOVAL AND RE-INSTALLATION IF IT IS DETERMINED IN THE FIELD THAT HANGING THEM WILL NOT INTERFERE WITH OTHER TRADES OR DAMAGE THE FIXTURES OR DEVICES.

DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE No.1
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**

2. DEDUCT ALTERNATE No.2
a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15

PROJECT
HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT
TOWN OF HOPKINTON

83 WOOD STREET
HOPKINTON, MA 01748

FIRM
R. W. Sullivan Engineering
MEP / FP Engineering . Code . Commissioning
The Schrafft Center
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Boston, Massachusetts 02129-1107
Phone: (617) 523-8227
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www.rwsullivan.com
RWS JOB # 2000170.00

KEY PLAN

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

REMARKS

REVISIONS

No.	Description	Date
2	REBID-3 DOCUMENTS	MAR 27, 2024
1	ADDENDUM #1	
	BID DOCUMENTS	FEB 01, 2023

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SCALE / ORIENTATION

DATA

Date:	MARCH 27, 2024
Proj. No.:	2019023.01
Scale:	1/8" = 1'-0"
Drawn By:	WMD
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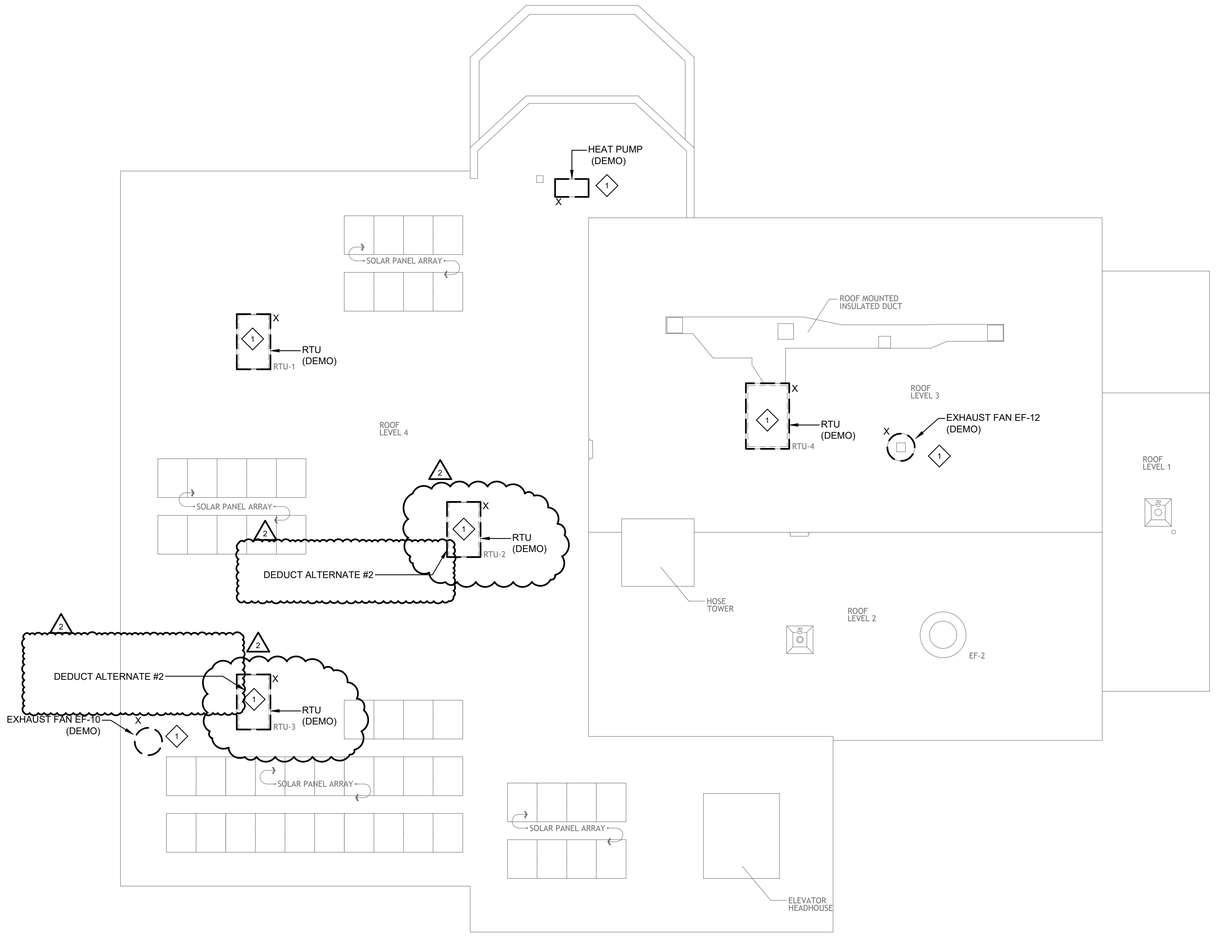
File Name:	

TITLE
ELECTRICAL DEMOLITION SECOND FLOOR PLAN

SHEET
ED1.2



DEMOLITION PLAN NOTES:

1. REFER TO GENERAL DEMOLITION NOTES ON DRAWING E0.0 FOR ADDITIONAL REQUIREMENTS.
2. WORK MAY BE REQUIRED OUTSIDE OF THE PROJECT'S AREA OF RENOVATION. CONTRACTOR SHALL NOT ASSUME THAT AREA OF RENOVATION IS CONSIDERED THE SCOPE OF WORK AREA.

DEMOLITION PLAN KEYED NOTES:

1 EXISTING EQUIPMENT TO BE REMOVED, ASSOCIATED EQUIPMENT AND WIRING SHALL BE REMOVED IN THEIR ENTIRETY. NO EQUIPMENT OR WIRING SHALL BE ABANDONED IN PLACE, MAINTAIN EXISTING BREAKER FOR RE-USE IN THIS PROJECT.

2 DEDUCT ALTERNATE NOTES

1. DEDUCT ALTERNATE No.1
- a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-2 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-2 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.1 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING & CONTROLS. THE EXISTING RTU-2 SYSTEM & APPURTENANCES TO REMAIN.**

2. DEDUCT ALTERNATE No.2
- a. **PROVIDE A DEDUCT ALTERNATE BID PRICE TO REMOVE THE NEW HVAC RTU-3 SYSTEM COSTS FROM THE CURRENT SCOPE. RTU-3 TO BE INSTALLED LATER AS DETERMINED BY THE "TOWN OF HOPKINTON, MA". DEDUCT ALTERNATE No.2 TO INCLUDE DEMOLITION, NEW ELECTRICAL POWER WIRING AND CONTROLS. THE EXISTING RTU-3 SYSTEM & APPURTENANCES TO REMAIN.**

PROJECT

HOPKINTON FIRE STATION HVAC UPGRADE RE-BID
Bid # 24-05-002IFB

73 MAIN STREET HOPKINTON, MA 01748

CLIENT

TOWN OF HOPKINTON

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KEY PLAN

REMARKS

REVISIONS

No.	Description	Date
2	REBID-3 DOCUMENTS	MAR 27, 2024
	BID DOCUMENTS	FEB 01, 2023

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SEAL / ORIENTATION

DATA

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Scale:	1/8" = 1'-0"
Drawn By:	WMD
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File Name:	

TITLE

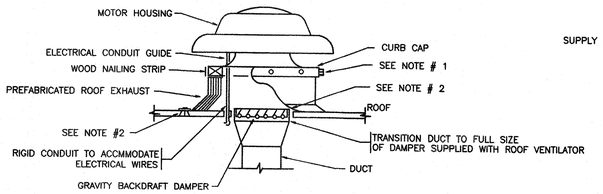
ELECTRICAL
DEMOLITION
ROOF PLAN

SHEET

ED1.3

2019023.01 - TOWN OF HOPKINTON - HOPKINTON FIRE STATION HVAC UPGRADE - RE-BID SET - MARCH 27, 2024

GRLA 24 x 36-V FORMAT SHEET TEMPLATE | REV.2020.02.15



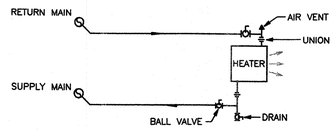
TYPICAL POWER TYPE ROOF VENTILATOR

NOTES:
1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 3/8" CADIUM PLATED LAG BOLTS NOT OVER 12" ON CENTER.
2. SECURE ROOF CURB DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK OR WOOD ROOF.)
3. SIZE OF DUCT THROUGH ROOF SHALL NOT BE LARGER THAN CURB SUPPLIED WITH ROOF VENTILATOR.
4. RUN ELECTRIC LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER THAN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

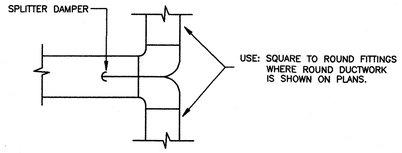
PLAN OR SIDE VIEW

DUCT TRANSITION

NO SCALE



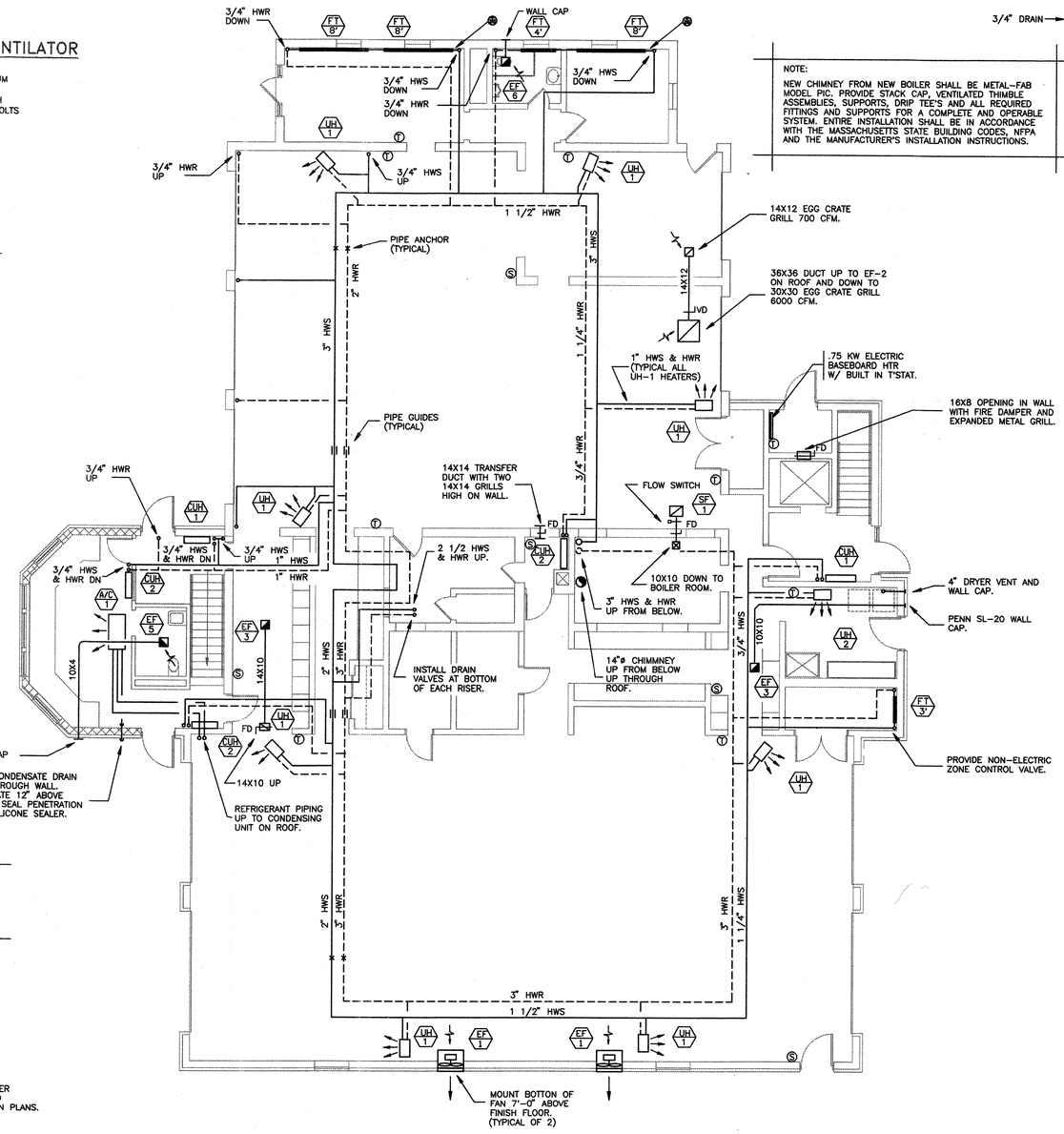
HOT WATER UNIT HEATER PIPING SCHEMATIC



TYPICAL TEE

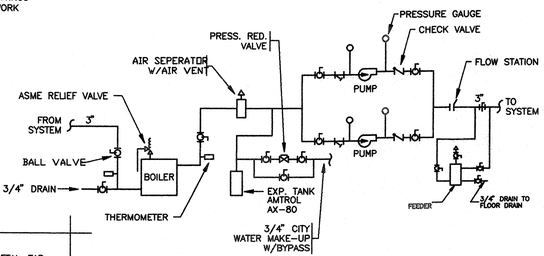
(RECTANGULAR TO RECTANGULAR)
NO SCALE

NO SCALE



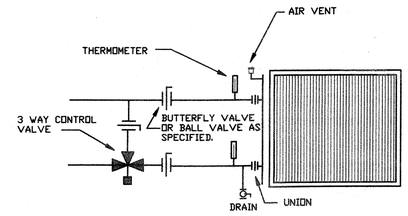
FIRST FLOOR PLAN

NOTE:
NEW CHIMNEY FROM NEW BOILER SHALL BE METAL-FAB MODEL PIC. PROVIDE STACK CAP, VENTILATED THIMBLE ASSEMBLIES, SUPPORTS, DRIP TEE'S AND ALL REQUIRED FITTINGS AND SUPPORTS FOR A COMPLETE AND OPERABLE SYSTEM. ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MASSACHUSETTS STATE BUILDING CODES, NFPA AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.



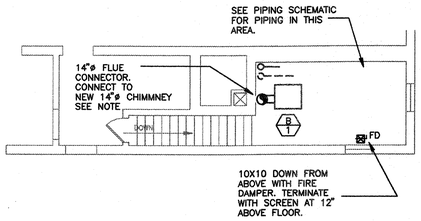
BOILER PIPING SCHEMATIC

NO SCALE

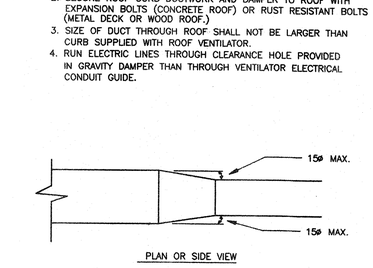


HOT OR CHILLED WATER COIL PIPING SCHEMATIC

NO SCALE



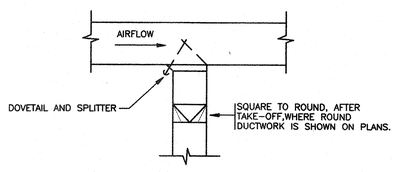
BASEMENT PLAN



FIN TUBE RADIATION DETAIL (DOWN FEED)

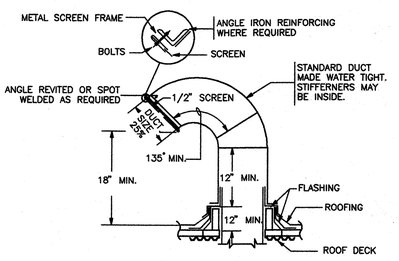
NO SCALE

NOTE:
HVAC CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL THE EXISTING HEATING AND VENTILATING EQUIPMENT, PIPING CONTROLS, AND DUCTWORK UNDER HIS CONTRACT.



TYPICAL TAKE-OFF

NO SCALE



RECTANGULAR GOOSENECK

(NO SCALE)

the carell group

161 harvard avenue
allston, massachusetts

REGISTERED ARCHITECT — GREGORY J. CARELL — No. 5022 — BOSTON, MA — COMMONWEALTH OF MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS — LOUISBURY CURTIS — H.V.A.C. — No. 31530 — REGISTERED PROFESSIONAL ENGINEER

8/6/96

HOPKINTON FIRE HEADQUARTERS

HOPKINTON, MASSACHUSETTS

FIRST FLOOR HVAC PLAN AND BASEMENT

scale	1/8" = 1'-0"
date	8/6/96
drawn by	LTC
job no	601
sheet	H-1

ROOF TOP UNIT SCHEDULE

SYMBOL	BTU/HR HEATING	BTU/HR COOLING	NOMINAL TONS	TOTAL CFM	O.A. CFM	S.P.	H.P.	VOLTAGE	WEIGHT	MFG	MODEL
RT-1	———	37,800	3	1200	160	0.66"	1	208/3/60	575#	CARRIER	50HJ004
RT-2	———	48,900	4	1650	140	0.52"	↓	↓	600#	↓	50HJ005
RT-3	———	78,900	6	2400	750	0.55"	2	↓	660#	↓	50HJ007
RT-4	———	92,900	7.5	3230	300	0.57"	3	↓	900#	↓	50HJ008

HOT WATER COIL SCHEDULE

MARK	AREA FT²	VEL. FT/MIN	ROWS	FPF	CFM	EAT	LAT	AIR Δ P	EWT	LWT	MBH	GPM	FIN. TYPE	COIL TYPE	MFG	SERVES	COIL SIZE
HWC-1-1	1	330	2	80	330	58	115	0.10	180	160	20.5	2.2	SF	T	TRANE	RT-1	12X12
HWC-1-2	↓	360	↓	110	360	↓	↓	0.13	↓	↓	25.9	2.8	↓	↓	↓	↓	↓
HWC-1-3	↓	500	↓	150	500	↓	↓	0.20	↓	↓	34.3	3.7	PF	↓	↓	↓	↓
HWC-2-1	1.5	400	↓	80	600	63	↓	0.14	↓	↓	34.5	↓	SF	↓	↓	RT-2	12X18
HWC-2-2	2	500	↓	110	1000	↓	↓	0.15	↓	↓	57.9	6.2	PF	↓	↓	↓	12X24
HWC-3-1	5.25	457	↓	94	2400	47	↓	0.17	↓	↓	177.0	19.0	↓	W	↓	RT-3	18X42
HWC-4-1	6	500	↓	120	3000	62	↓	0.16	↓	↓	172.4	18.5	↓	↓	↓	RT-4	18X48

UNIT HEATER SCHEDULE

SYMBOL	BTU/HR	EWT	LWT	GPM	CFM	HP	VOLTAGE	MFG	MODEL
UH-1	101,700	180	150	6.7	2600	1/4	115/1/60	STERLING	HS-156
UH-2	8030	↓	160	0.8	245	9 WATTS	↓	↓	HS-108A

CABINET HEATER SCHEDULE

SYMBOL	BTU/HR	EWT	LWT	GPM	CFM	HP	VOLTAGE	MFG	MODEL
CUH-1	22,800	180	160	2.32	335	1/15	115/1/60	STERLING	WI-1110-03
CUH-2	16,400	↓	↓	1.68	230	↓	↓	↓	WI-1110-02

PUMPS

SYMBOL	GPM	HD. IN FEET	HP	RPM	VOLTAGE	% EEF	SERVICE	MFG	MODEL	REMARKS
P-1	80	55	3	1760	208/3/60	52	HEATING SYSTEM	TACO	VL2508	———
P-2	↓	↓	↓	↓	↓	↓	↓	↓	↓	———

EXHAUST FAN SCHEDULE

MARK	CFM	S.P.	RPM	ELECTRICAL VOLT	Ø	HZ	HP	TYPE	SERVICE	MFG	MODEL
EF-1	11,900	.125"	400	208	3	60	1	PROP.	NEW APPARATUS	PENN	BBK 42
EF-2	6,700	.250"	307	↓	↓	↓	1/2	UP-BLAST	EXISTING APPARATUS		FUMEX 36B
EF-3	825	.136	1050	115	1	↓	1/8	IN-LINE	TURNOUT		Z12STDA
EF-4	500	.156	↓	↓	↓	↓	1/20	CEILING	↓		Z10ISTDA
EF-5	110	.331	1550	↓	↓	↓	79 WATTS	↓	TOILET ROOM		Z5H
EF-6	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
EF-7	210	.386	1050	↓	↓	↓	1/25	↓	↓	↓	Z8IS
EF-8	225	.298	↓	↓	↓	↓	1/12	↓	↓	↓	Z8S
EF-9	350	.250	1456	↓	↓	↓	↓	↓	KITCHEN	↓	Z8HL
EF-10	775	.268	1140	↓	↓	↓	↓	ROOF	TRAINING	↓	AT20
EF-11	715	.255	1550	↓	↓	↓	1/7	PROP.	HOSE TOWER	↓	P12R
EF-12	420	.262	1750	↓	↓	↓	1/12	ROOF	TOILET ROOMS	↓	XQ82
EF-13	365	.326	1550	↓	↓	↓	↓	CEILING	LOCKER ROOM	↓	Z8H
SF-1	485	.184	1050	↓	↓	↓	1/20	IN-LINE	COMBUSTION AIR	↓	Z10ISTDA

FIN TUBE RADIATION SCHEDULE

SYMBOL	TUBE SIZE-MTL.	BTU HR-FT	EWT	LWT	GPM	MFG	MODEL
FT	3/4" COPPER	810	180	160	———	STERLING	C3/4-35

FIN TUBE RADIATION COVER SHALL BE STYLE "S" SLOPE TOP/LOW PROFILE.

VAV BOX SCHEDULE

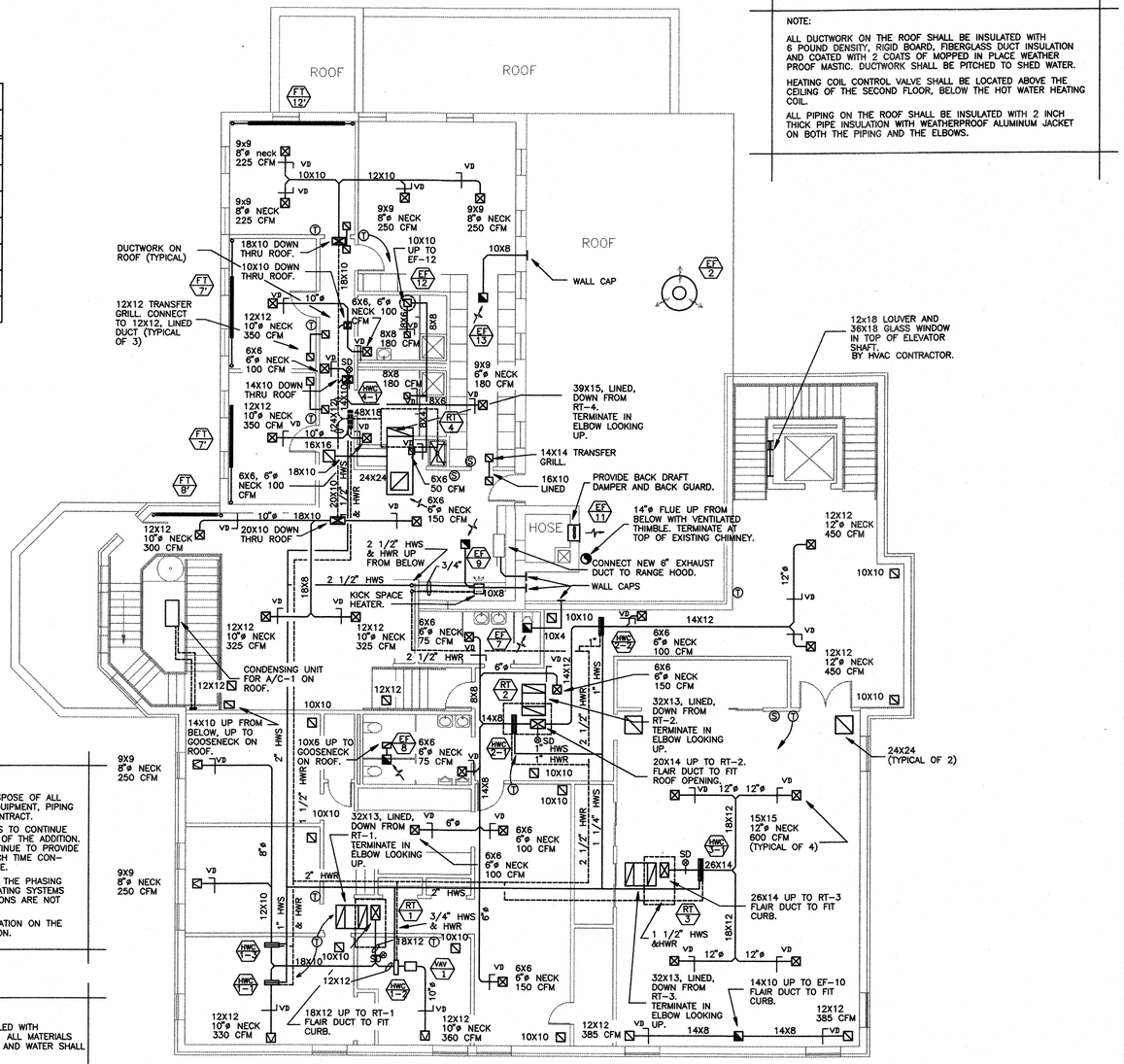
MARK	CFM	SIZE	VELOCITY FPM	Δ P	MODEL	MFG
VAV-1	360 / 60	7"ø	1385	0.055"	AESV3000	TITUS

NOTE:

ALL DUCTWORK ON THE ROOF SHALL BE INSULATED WITH 6 POUND DENSITY, RIGID BOARD, FIBERGLASS DUCT INSULATION AND COATED WITH 2 COATS OF MOPPED IN PLACE WEATHER PROOF MASTIC. DUCTWORK SHALL BE PITCHED TO SHED WATER.

HEATING COIL CONTROL VALVE SHALL BE LOCATED ABOVE THE CEILING OF THE SECOND FLOOR, BELOW THE HOT WATER HEATING COIL.

ALL PIPING ON THE ROOF SHALL BE INSULATED WITH 2 INCH THICK PIPE INSULATION WITH WEATHERPROOF ALUMINUM JACKET ON BOTH THE PIPING AND THE ELBOWS.



NOTE:

HVAC CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL THE EXISTING HEATING AND VENTILATING EQUIPMENT, PIPING CONTROLS, AND DUCTWORK UNDER HIS CONTRACT.

THE EXISTING PORTION OF THE BUILDING IS TO CONTINUE IN OPERATION DURING THE CONSTRUCTION OF THE ADDITION. THE EXISTING HEATING SYSTEM IS TO CONTINUE TO PROVIDE HEAT TO THE EXISTING SPACES UNTIL WHICH TIME CON-VERSION TO THE NEW SYSTEM TAKES PLACE.

THE HVAC CONTRACTOR IS TO COORDINATE THE PHASING OF THE OLD TO NEW HEATING AND VENTILATING SYSTEMS SO THAT HEATING AND VENTILATING FUNCTIONS ARE NOT INTERRUPTED.

SEE SPECIFICATIONS FOR FURTHER INFORMATION ON THE TEMPORARY HEAT NEEDED FOR THE ADDITION.

NOTE:

HOT WATER HEATING SYSTEM SHALL BE FILLED WITH 30% PROPYLENE GLYCOL AND 70% WATER. ALL MATERIALS IN CONTACT WITH THE MIXTURE OF GLYCOL AND WATER SHALL BE SUITABLE FOR USE WITH THE MIXTURE.

SECOND FLOOR PLAN

BOILER SCHEDULE (GAS FIRED)

SYMBOL	INPUT MBH	OUTPUT MBH	MFG	MODEL
B-1	992	794	BURNHAM	V-907WG

BOILER SHALL BE PROVIDED WITH TWO TANKLESS HEATERS WITH A TOTAL RATING OF 15 GPM.

AIR CONDITIONING UNITS

SYMBOL	TOTAL BTU/HR	SENSIBLE BTU/HR	CFM OA	CFM TOTAL	SP	HP	RPM	CURRENT V	CURRENT PH	CURRENT HTZ	MODEL	MFG
AC-1	31,000	———	———	900	———	———	———	115	1	60	PC30EK	MITSUBISHI

UNIT SHALL BE PROVIDED WITH MATCHING, ROOF MOUNTED CONDENSING UNIT. CONDENSING UNIT SHALL BE 208/1/60.

the carell group

161 harvard avenue
allston, massachusetts

REGISTERED ARCHITECT — GREGORY J. CARELL — No. 5022 — BOSTON, MA — ALTHOUGH NOT REQUIRED

COMMONWEALTH OF MASSACHUSETTS — LOUCKS & CRAVEN, INC. — REG. NO. 6330 — REGISTERED PROFESSIONAL ENGINEER — 8/6/96

HOPKINTON FIRE HEADQUARTERS

HOPKINTON, MASSACHUSETTS

SECOND FLOOR HVAC PLAN

scale	1/8" = 1'-0"
date	8/6/96
drawn by	LTC
job no	601
sheet	H-2