

MORSE INSTITUTE LIBRARY

HVAC AND CONTROLS UPGRADE

14 EAST CENTRAL STREET
NATICK, MA

ISSUE FOR BID - 03/08/2022

PREPARED FOR:



Town of Natick
13 East Central Street
Natick, MA 01760

PREPARED BY:

MECHANICAL CONSULTANTS:



B2Q Associates
100 Burrill Road, Suite 212
Andover, MA 01870
P: (978) 208-0609

ELECTRICAL CONSULTANTS:

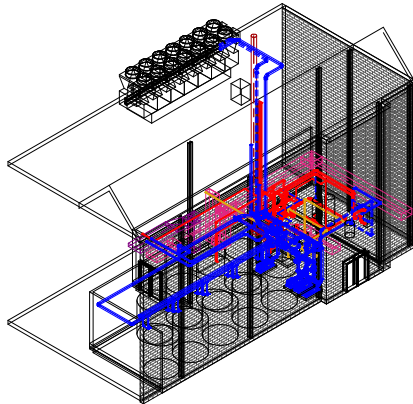


Johnson Engineering and Design, Inc.
5 Elm Street UNIT 14
Danvers, MA 01923
P: (978) 646-9001

STRUCTURAL CONSULTANTS:



BMC Engineering, LLC
50 S Audubon Road
Wakefield, MA 01880
P: (978) 774-1884



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ED001 POWER DEMOLITION PART PLANS

STRUCTURAL DRAWINGS

ST101 ROOF DUNNAGE FRAMING PLAN & DETAILS

 B2Q Associates 100 South Ridge Suite 212 Andover, MA 01810 www.b2qassociates.com									
 JEDI Johnson Engineering and Design, Inc. 5 Elm Street Unit 14 Danvers, MA 01923									
 BMC ENGINEERING, LLC BMC Engineering, LLC 55 S Audubon Road Weymouth, MA 01980									
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KEY PLAN 									
REV	DESCRIPTION								
B	06/09/22 ISSUE FOR BID								
A	06/09/22 ISSUE FOR CLIENT REVIEW								
CND BY:	DATE								
COWNER  Town of Hattis 13 E. Central Street Hattis, MA 01780									
PROJECT MORSE INSTITUTE LIBRARY HVAC AND CONTROLS UPGRADE									
SHEET TITLE MECHANICAL LEGEND									
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">PROJECT NO: 21006</td> <td style="width: 50%;">ISSUE ID:</td> </tr> <tr> <td>DRAWN BY: BRM</td> <td>DATE: 9/20/22</td> </tr> <tr> <td>CHECKED BY: JAB</td> <td>DATE: 3/8/2023</td> </tr> <tr> <td>SCALE: 1" = 1'-0"</td> <td>SHEET SIZE: B1</td> </tr> </table>		PROJECT NO: 21006	ISSUE ID:	DRAWN BY: BRM	DATE: 9/20/22	CHECKED BY: JAB	DATE: 3/8/2023	SCALE: 1" = 1'-0"	SHEET SIZE: B1
PROJECT NO: 21006	ISSUE ID:								
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MG001									

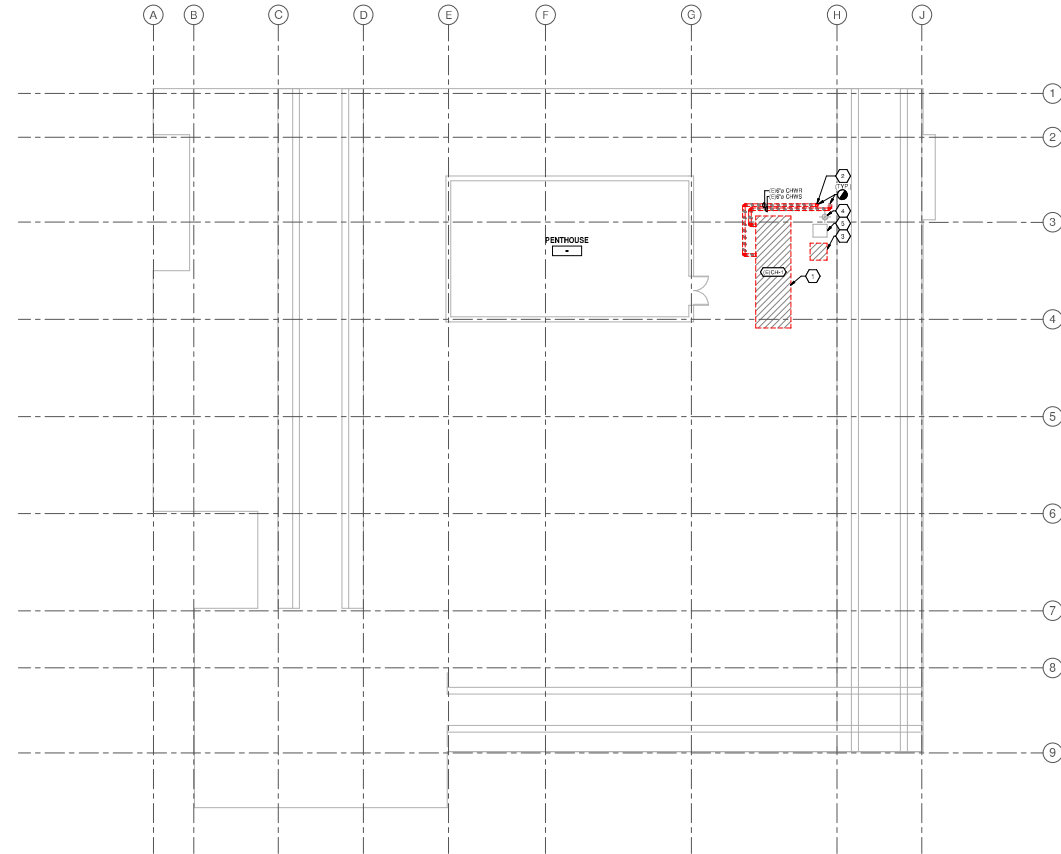


① LOWER
1/4" = 1'-0"



MD100

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1 ROOF MECHANICAL DEMOLITION PLAN
1/8" = 1'-0"

- GENERAL DRAWING NOTES**
1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, AND CEILING HEIGHTS PRIOR TO ORDERING NEW EQUIPMENT.
 2. ALL EXISTING EQUIPMENT, PIPING, ELECTRICAL, AND STRUCTURAL COMPONENTS ARE NOT ILLUSTRATED ON DRAWINGS. FIELD VERIFY ADDITIONAL MECHANICAL COORDINATION FOR REMOVAL OR RELOCATION NECESSARY TO COMPLETE THE INSTALLATION CREW WORK.
 3. COORDINATE ALL EQUIPMENT SHUTDOWNS WITH OWNER.
 4. CONTRACTOR SHALL FIELD VERIFY THE STRUCTURAL INTEGRITY OF ALL EXISTING DUCTWORK AND PIPING TO BE REMOVED. REPORT ANY OBSERVED DEFICIENCIES TO ENGINEER AND OWNER FOR REVIEW.

- KEYNOTE LEGEND**
1. EXISTING CHILLER TO BE REMOVED. LEGALLY EVACUATE, CAPTURE AND DISPOSE OF EXISTING R-32 REFRIGERANT. COORDINATE WITH OWNER FOR ANY SALVAGEABLE PARTS TO BE TURNED OVER TO THE OWNER PRIOR TO DISPOSAL.
 2. DEMO AND CAP EXISTING CHILLED WATER SUPPLY AND RETURN PIPING TO VERTICAL AFTER RIG OF PIPING. INSPECT THICKNESS OF EXISTING TO REMAIN PIPING TO DISCOVER IF THEY ARE SUITABLE FOR REUSE.
 3. DEMO EXISTING CONDENSING UNIT. CUT CAP AND MAKE GAFF EXISTING REFRIGERANT PIPING TO AND FROM UNIT.
 4. EXISTING ROOF FLEET TO REMAIN.
 5. EXISTING CONDENSING UNIT TO REMAIN.



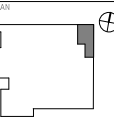
Johnson Engineering and Design, Inc.
5 Elm Street UNIT 14
Danvers, MA 01923



BMC Engineering, LLC
50 S. Audubon Road
Wakefield, MA 01880

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B	05/09/22	ISSUE FOR BID
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REV	DATE	DESCRIPTION



PROJECT

MORSE INSTITUTE
LIBRARY HVAC AND
CONTROLS UPGRADE

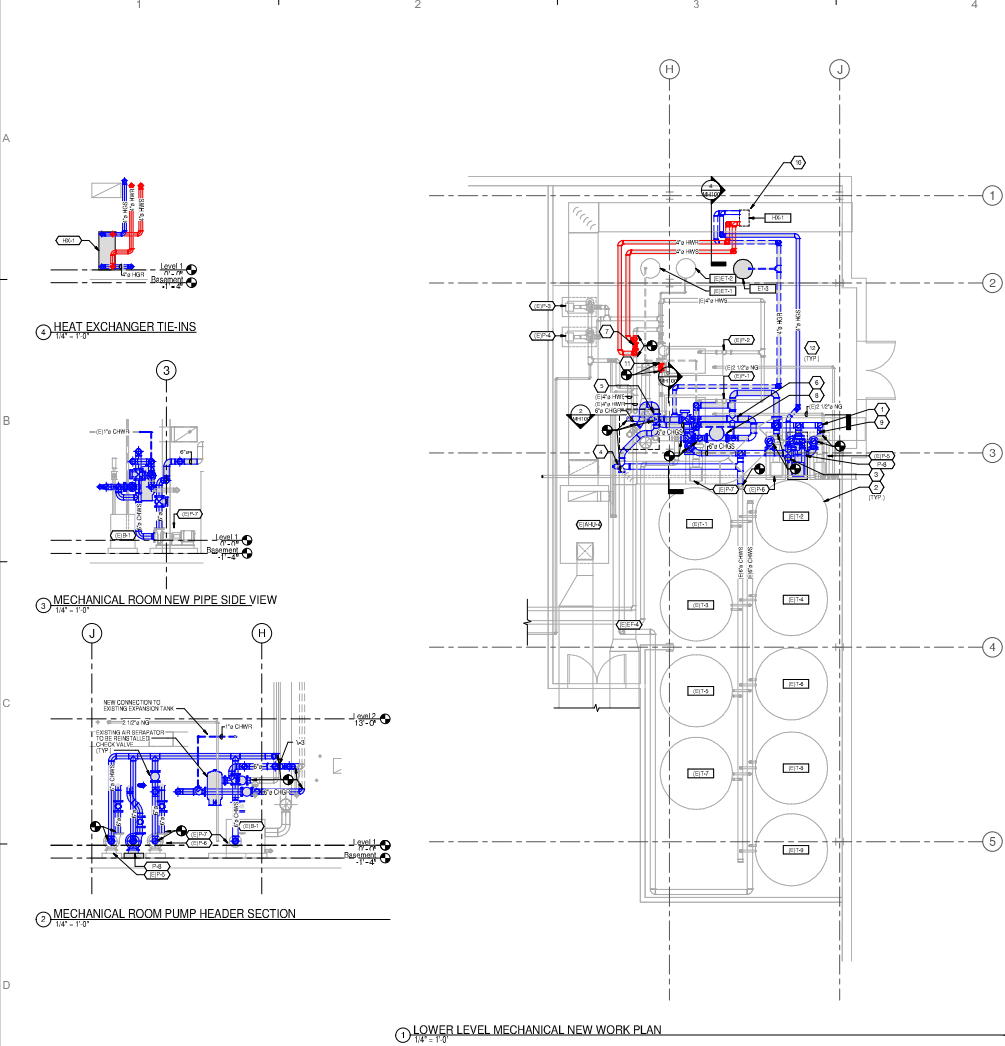
SHEET TITLE

ROOF MECHANICAL
DEMOLITION PLAN

PROJECT NO. 210091	ISSUE: BID
DRAWN BY: RRM	DATE: 3/8/2022
CHKD BY: JAB	DATE: 3/8/2022
SCALE: 1/8" = 1'-0"	SHEET SIZE: E1

MD101

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- GENERAL DRAWING NOTES**
 1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CEILING HEIGHTS PRIOR TO ORDERING NEW EQUIPMENT.
 2. ALL EXISTING EQUIPMENT, PIPING, ELECTRICAL, AND STRUCTURAL COMPONENTS ARE NOT ILLUSTRATED ON DRAWINGS. FIELD VERIFY ALL EXISTING CONDITIONS AND COORDINATE WITH OWNER FOR REMOVAL OR RELOCATION NECESSARY TO COMPLETE THE INSTALLATION AND NEW WORK.
 3. COORDINATE ALL EQUIPMENT SHUTDOWNS WITH OWNER.
 4. CONTRACTOR SHALL FIELD VERIFY THE STRUCTURAL INTEGRITY OF ALL EXISTING DUCTWORK AND PIPING TO BE REUSED. REPORT ANY OBSERVED DEFICIENCIES TO ENGINEER AND OWNER FOR REVIEW.
- KEYNOTE LEGEND**
 1. AFTER CONSTRUCTION, RECHARGE THE CHILLED WATER PIPING WITH A 30% PROPYLENE GLYCOL MIXTURE. REBALANCE PUMPS TO NEW R.O.W. REQUIREMENTS.
 2. FLUSH ALL AIR AND ALL OTHER CONTAMINANTS FROM THE EXISTING (2) TANKS. INSTALL HEADER RETROFIT KIT FOR THE TANK THAT IS LEAKING.
 3. PROVIDE THREE WAY TWO POSITION ACTUATING CONTROL VALVE V-1.
 4. PROVIDE THREE WAY MODULATING ACTUATING CONTROL VALVE V-2.
 5. PROVIDE THREE WAY TWO POSITION ACTUATING CONTROL VALVE V-3.
 6. PROVIDE THREE WAY TWO POSITION ACTUATING CONTROL VALVE V-4.
 7. PROVIDE TWO WAY ACTUATING CONTROL VALVE V-5.
 8. REINSTALL EXISTING AIR SEPARATOR AND NEW PIPING TO EXISTING EXPANSION TANK.
 9. REFER TO THE PROCESS AND INSTRUMENTATION DIAGRAM ON MH101 AND THE SECTIONS ON MH300 FOR LOCATIONS OF HYDRONIC ACCESSORIES.
 10. REFER TO DETAIL FOR PIPING SPECIALTIES REQUIRED AT HEAT EXCHANGER.
 11. PROVIDE TWO WAY MODULATING ACTUATING CONTROL VALVE V-6.
 12. BECAUSE OF THE LOW OPERATING TEMPERATURE, IT IS CRITICAL THAT ALL GLYCOL LOOP PIPING INCLUDING VALVES AND OTHER ACCESSORIES BE WELL INSULATED WITH 2" OF INSULATION. CONTINUOUS VAPOR BARRIER, EXISTING TO REMAIN INSULATION MUST BE CHECKED BY THE CONTRACTOR AND ANY DEFICIENCIES SHALL BE REPORTED TO OWNER.

B2Q Association
100 Rust Road, Suite 212
Andover, MA 01810
www.b2qassociates.com

Johnson Engineering and Design, Inc.
5 Elm Street, Unit 14
Danvers, MA 01923

BMC
ENGINEERING, LLC

BMC Engineering, LLC
50 S. Audubon Road
Waltham, MA 01880

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KEY PLAN

B	05/08/22	ISSUE FOR BID
A	05/09/22	ISSUE FOR CLIENT REVIEW
REV	DATE	DESCRIPTION

OWNER

Town of Natick
13 E. Central Street
Natick, MA 01760

PROJECT

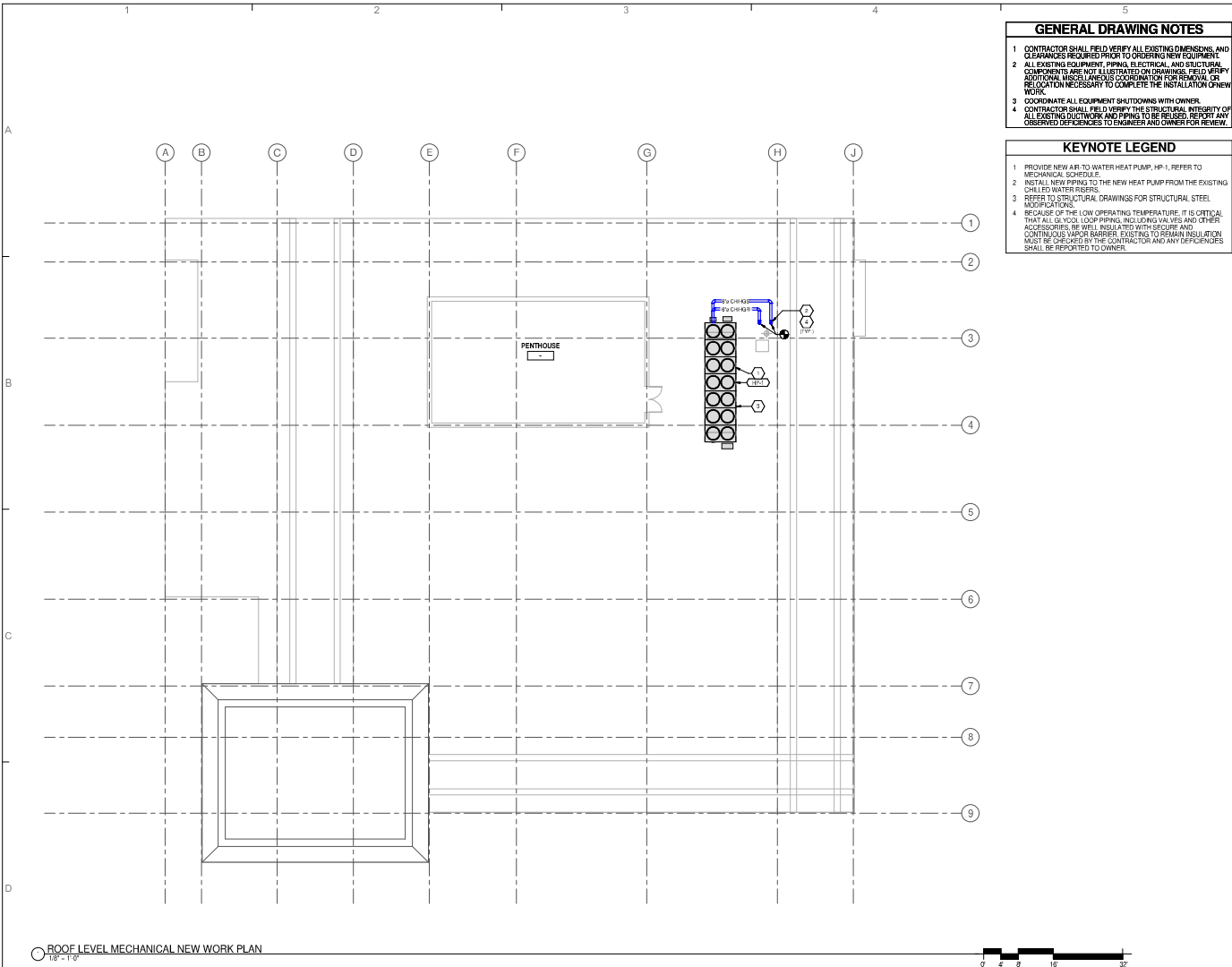
MORSE INSTITUTE
LIBRARY HVAC AND
CONTROLS UPGRADE

SHEET TITLE

LOWER LEVEL
MECHANICAL NEW
WORK PLAN

PROJECT NO. 210091 ISSUE BID
DRAWN BY: RRM DATE: 3/8/2022
CHKD BY: JAB DATE: 3/8/2022
SCALE: 1/4" = 1'-0" SHEET SIZE: E1

MH100



GENERAL DRAWING NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CLEARANCES REQUIRED PRIOR TO ORDERING NEW EQUIPMENT.
2. ALL EXISTING EQUIPMENT, PIPING, ELECTRICAL, AND STRUCTURAL COMPONENTS ARE NOT ILLUSTRATED ON DRAWINGS. FIELD VERIFY ADDITIONAL MECHANICAL COORDINATION FOR REMOVAL OR RELOCATION NECESSARY TO COMPLETE THE INSTALLATION CREW WORK.
3. COORDINATE ALL EQUIPMENT SHUTDOWNS WITH OWNER.
4. CONTRACTOR SHALL FIELD VERIFY THE STRUCTURAL INTEGRITY OF ALL EXISTING DUCTWORK AND PIPING TO BE REUSED. REPORT ANY OBSERVED DEFICIENCIES TO ENGINEER AND OWNER FOR REVIEW.

KEYNOTE LEGEND

1. PROVIDE NEW AIR TO WATER HEAT PUMP, HP-1, REFER TO MECHANICAL SCHEDULE.
2. INSTALL NEW PIPING TO THE NEW HEAT PUMP FROM THE EXISTING CHILLED WATER RISERS.
3. REFER TO STRUCTURAL DRAWINGS FOR STRUCTURAL STEEL MODIFICATIONS.
4. BECAUSE OF THE LOW OPERATING TEMPERATURE, IT IS CRITICAL THAT ALL GLYCOL LOOP PIPING, INCLUDING VALVES AND OTHER ACCESSORIES, BE WELL INSULATED WITH GEOWEAP AND CONTINUOUS VAPOR BARRIER, EXISTING TO REMAIN INSULATION MUST BE CHECKED BY THE CONTRACTOR AND ANY DEFICIENCIES SHALL BE REPORTED TO OWNER.



B2Q Association
100 Rust Road, Suite 212
Andover, MA 01810
www.b2qassociates.com



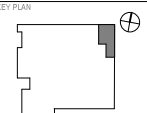
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Danvers, MA 01923



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50 S. Audubon Road
Wakefield, MA 01880

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PROJECT
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SHEET TITLE

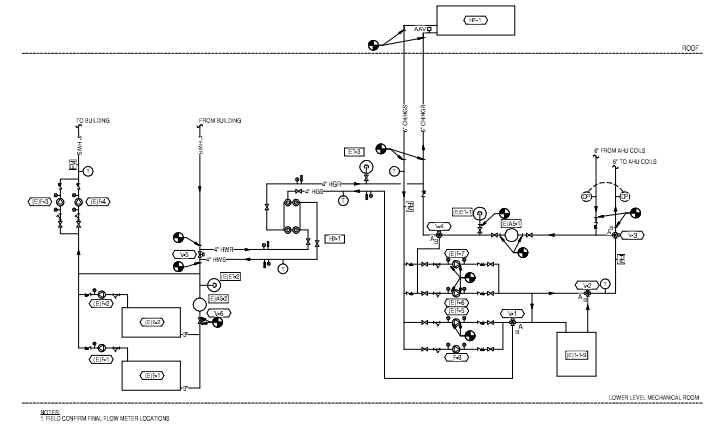
ROOF MECHANICAL NEW WORK PLAN

PROJECT NO. 210091 ISSUE: BID
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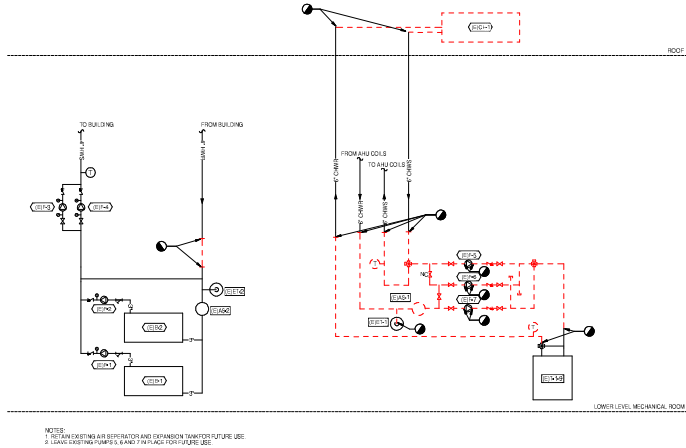
MH101

A
B
C
D

VALVE ARRANGEMENT		
MODE	WV#	OPERATION
ICE MAKING	V-1	A
	V-2	B
	V-3	A
	V-4	A
	V-5	OPEN
	V-6	OPEN
	V-7	B
	V-8	A
SPACE COOLING	V-1	B
	V-2	A
	V-3	B
	V-4	A
	V-5	OPEN
	V-6	OPEN
	V-7	B
	V-8	MODULATING
ICE MELTING	V-1	B
	V-2	MODULATING
	V-3	B
	V-4	A
	V-5	MODULATING
	V-6	MODULATING
	V-7	B
	V-8	MODULATING
HEATING	V-1	B
	V-2	B
	V-3	B
	V-4	B
	V-5	CLOSED
	V-6	MODULATING



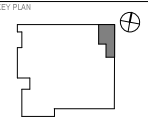
1 NEW PROCESS AND INSTRUMENTATION DIAGRAM
NTS



1 EXISTING PROCESS AND INSTRUMENTATION DIAGRAM
NTS

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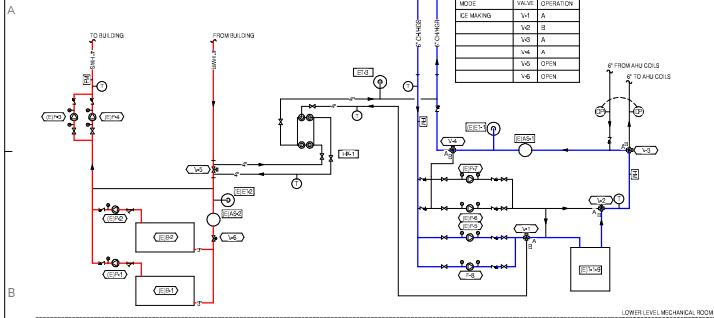


PROJECT
**MORSE INSTITUTE
LIBRARY HVAC AND
CONTROLS UPGRADE**

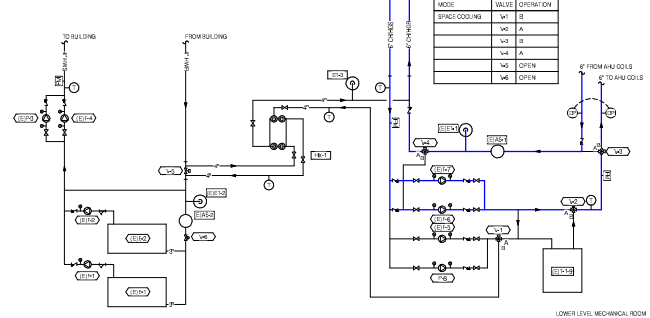
SHEET TITLE
**HYDRONIC FLOW
DIAGRAMS**

PROJECT NO. 210091	ISSUE: BID
DRAWN BY: FRM	DATE: 3/8/2022
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SCALE: 1/4" = 1'-0"	SHEET SIZE: E1

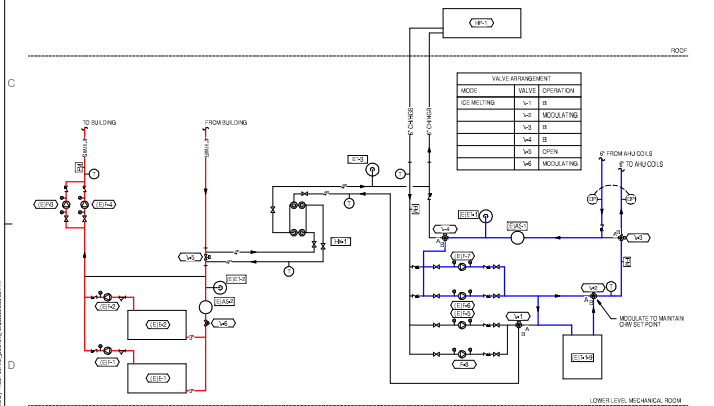
MH300



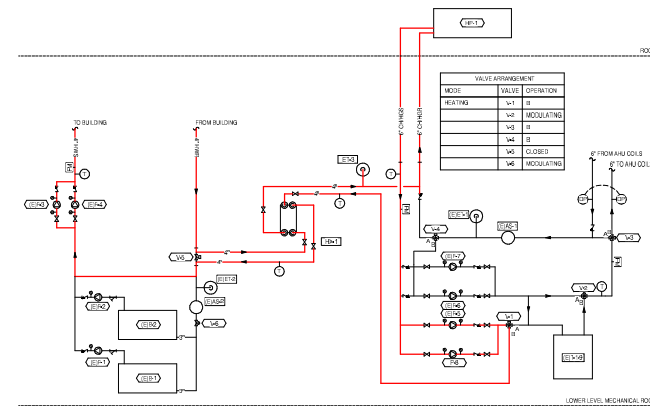
1 ICE MAKING FLOW DIAGRAM



2 SPACE COOLING FLOW DIAGRAM



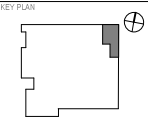
3 ICE MELTING FLOW DIAGRAM



4 HEATING FLOW DIAGRAM

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PROJECT
**MORSE INSTITUTE
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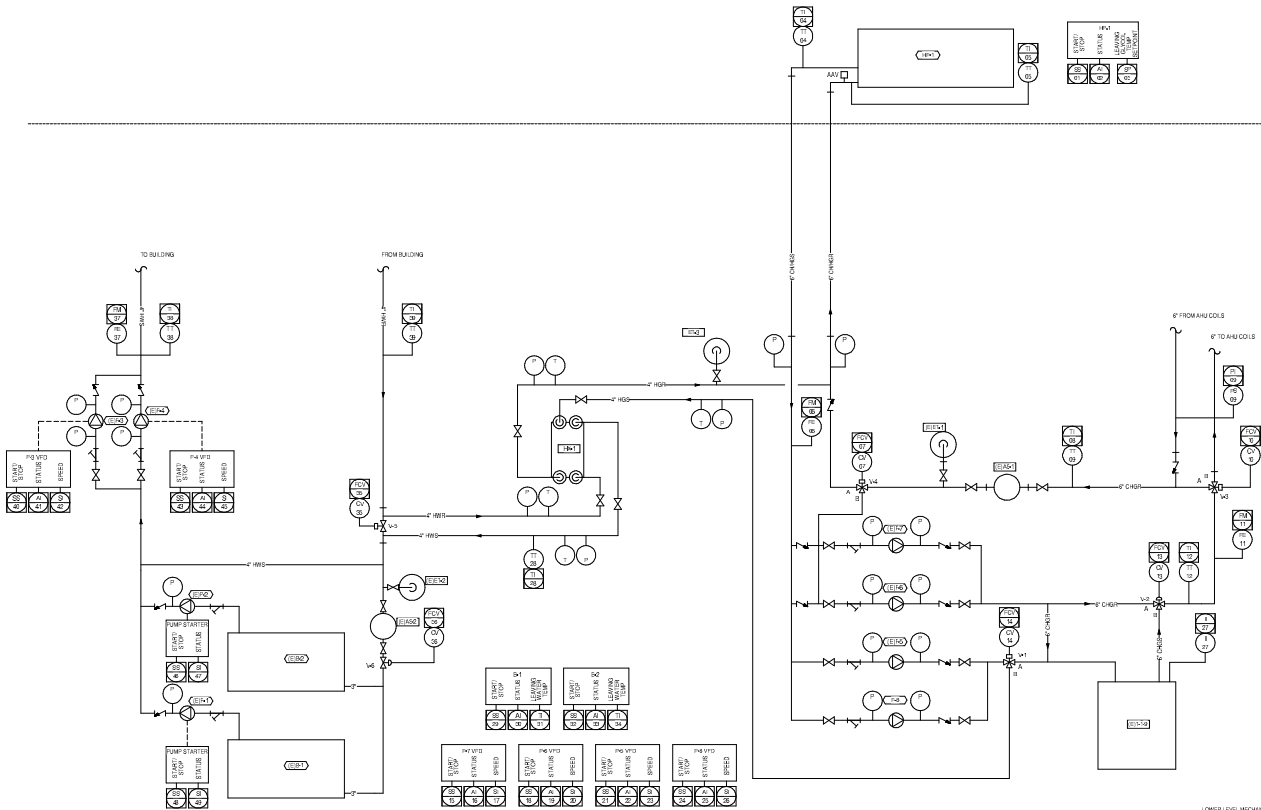
SHEET TITLE
**HYDRONIC FLOW
CONFIGURATIONS**

PROJECT NO. 210091 ISSUE: BID
DRAWN BY: RRM DATE: 3/8/2022
CHKD BY: JAB DATE: 3/8/2022
SCALE: 1/4" = 1'-0" SHEET SIZE: E1

MH301

A
B
C
D

1 2 3 4 5



NOTES:
FURNISH AND INSTALL ALL NEW SENSORS AND VALVES PER MANUFACTURER'S RECOMMENDATION

① PROCESS AND INSTRUMENTATION DIAGRAM
THIS



B2Q Association
100 Ruff Road, Suite 212
Andover, MA 01810
www.b2qassociates.com



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5 Elm Street UNIT 1A
Danvers, MA 01923

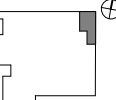


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Wakefield, MA 01880

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KEY PLAN



B	05/09/22	ISSUE FOR BID
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CITY



Town of Natick
13 E. Central Street
Natick, MA 01780

PROJECT

MORSE INSTITUTE
LIBRARY HVAC AND
CONTROLS UPGRADE

SHEET TITLE

HYDRONIC PROCESS
& INSTRUMENTATION
DIAGRAM

PROJECT NO. 210091	ISSUE: BID
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MH400

