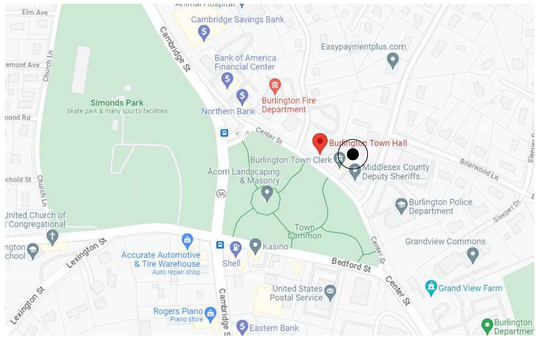
BURLINGTON TOWN HALL & ANNEX

HVAC, ROOF, AND CHILLER REPLACEMENT

29 / 25 CENTER STREET, BURLINGTON, MA, 01803



LOCATION PLAN



DRAWING LIST

Sheet Number	Sheet Title
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C0.0	COVER SHEET
ARCHITECTURAL	
A0.01	ARCHITECTURAL BUILDING CODE ANALYSIS
AD1.00	ROOF DEMOLITION PLAN TOWN HALL
AD2.00	ROOF DEMOLITION PLAN TOWN HALL ANNEX
A1.00	ROOF PLAN - TOWN HALL
A2.00	ROOF PLAN - TOWN HALL ANNEX
A3.00	EXISTING ROOF TEST CUTS
A4.00	ROOF DETAILS - TOWN HALL
A5.00	ROOF DETAILS - TOWN HALL ANNEX
A6.00	ROOF DETAILS - TOWN HALL ANNEX
A7.00	EXISTING PHOTOS / EXISTING CUPOLA - TOWN HALL
A8.00	EXISTING PHOTOS - TOWN HALL ANNEX
PLUMBING	
P1.0	TOWN HALL & ANNEX PLUMBING ATTIC DEMO AND NEW WORK PLAN
HVAC	
M0.0	TOWN HALL & ANNEX MECHANICAL LEGENDS, NOTES AND ABBREVIATIONS
MD1.0	TOWN HALL MECHANICAL BASEMENT FLOOR DEMOLITION PLAN
MD1.1	TOWN HALL MECHANICAL FIRST FLOOR DEMOLITION PLAN
MD1.2	TOWN HALL MECHANICAL SECOND FLOOR DEMOLITION PLAN
MD1.3	TOWN HALL MECHANICAL ATTIC DEMOLITION PLAN
MD1.4	TOWN HALL MECHANICAL ROOF DEMOLITION PLAN
MD2.0	ANNEX MECHANICAL BASEMENT FLOOR DEMOLITION PLAN
MD2.1	ANNEX MECHANICAL FIRST FLOOR DEMOLITION PLAN
MD2.2	ANNEX MECHANICAL SECOND FLOOR DEMOLITION PLAN
MD2.3	ANNEX MECHANICAL ATTIC DEMOLITION PLAN
MD2.4	ANNEX MECHANICAL ROOF DEMOLITION PLAN
M1.0	TOWN HALL MECHANICAL BASEMENT FLOOR NEW WORK PLAN
M1.1	TOWN HALL MECHANICAL FIRST FLOOR NEW WORK PLAN
M1.2	TOWN HALL MECHANICAL SECOND FLOOR NEW WORK PLAN
M1.3	TOWN HALL MECHANICAL ATTIC NEW WORK PLAN
M1.4	TOWN HALL MECHANICAL ROOF NEW WORK PLAN
M2.0	ANNEX MECHANICAL BASEMENT FLOOR NEW WORK PLAN
M2.1	ANNEX MECHANICAL FIRST FLOOR NEW WORK PLAN
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M2.3	ANNEX MECHANICAL ATTIC NEW WORK PLAN
M2.4	ANNEX MECHANICAL ROOF NEW WORK PLAN
M5.0	TOWN HALL & ANNEX MECHANICAL CHILLED WATER RISERS
M6.0	TOWN HALL & ANNEX MECHANICAL CONTROLS
M6.1	TOWN HALL & ANNEX MECHANICAL CONTROLS
M7.0	TOWN HALL & ANNEX MECHANICAL DETAILS
M7.1	TOWN HALL & ANNEX MECHANICAL DETAILS
M8.0	TOWN HALL & ANNEX MECHANICAL SCHEDULES
ELECTRICAL	
E0.0	TOWN HALL & ANNEX ELECTRICAL LEGEND, NOTES AND ABBREVIATIONS
ED1.0	TOWN HALL ELECTRICAL BASEMENT FLOOR DEMOLITION PLAN
ED1.1	TOWN HALL ELECTRICAL FIRST FLOOR DEMOLITION PLAN
ED1.3	TOWN HALL ELECTRICAL ATTIC DEMOLITION PLAN
ED1.4	TOWN HALL ELECTRICAL ROOF DEMOLITION PLAN
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E2.4	ANNEX ELECTRICAL ROOF NEW WORK PLAN
E3.0	TOWN HALL AND ANNEX ELECTRICAL SCHEDULES
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FIRE ALARM	
FA0.0	TOWN HALL & ANNEX FIRE ALARM LEGEND, NOTES AND ABBREVIATIONS & RISER DIAGRAM
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S-001	GENERAL NOTES AND ABBREVIATIONS
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S-200	ANNEX BUILDING TRUSS PROFILE
S-201	TOWN HALL BUILDING TRUSS PROFILE #1
S-202	TOWN HALL BUILDING TRUSS PROFILE #2
S-203	TOWN HALL BUILDING TRUSS PROFILE #3

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SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY

CHECKED BY

SCALE
NTS

COVER SHEET

C0.0

\\BURLINGTON\Projects\0220195\Burlington Town Hall Annex HVAC Roof\CAD\Drawings\A001 Cover Sheet.dwg, 4/12/2024 4:53:34 PM, Adobe PDF

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MEMORANDUM

Date: August 2, 2022

From: Ernie Vazquez, AIA, LEED AP

To: Town of Burlington

Subject: Building Code Review

Reference: Burlington Town Hall – Annex
HVAC Roof

BUILDING CODE ANALYSIS

Introduction:

The intent of the following study is to review the major building code requirements for proposed renovations to the Burlington Town Hall and Annex. The current and relevant building codes used in this review include the following:

- 780 CMR, the Massachusetts State Building Code, 9th Edition
- 2015 International Existing Building Code (IEBC)
- 2015 International Building Code (IBC)
- 2018 International Energy Conservation Code (IECC)
- 521 CMR, Architectural Access Board
- Massachusetts General Law c. 148 s. 26G

Relevant portions of these codes have been partially reproduced here for reference. Massachusetts Amendments to the IBC have been incorporated into this report. Comments pertaining to the current design are noted here in blue text.

Scope of Work:

Proposed Renovations	Classification of Work
New roofing	Alteration - Level 1

2015 International Building Code

Section 302 Classification

302.1 General. Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed below.

Section 303 Assembly Group A

303.1.2 Small assembly spaces. A room used for assembly that is less than 750 s.f. shall be classified as a Group B occupancy.

- The meeting spaces in both buildings are less than 750 s.f. and are therefore classified as Group B.

Section 304 Business Group B

304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include Civic Administration.

- The remainder of the two buildings are classified as Group B, except for the storage.

311.1 Storage Group S. Storage Group S occupancy includes, among others, the use of a building or structure, or a portion thereof, for storage that is not classified as a hazardous category.

- The storage in both buildings is classified as Group S.

Chapter 15: Roof Assemblies and Rooftop Structures.

Section 1503 Weather Protection

Section 1503.1: General. Roof decks shall be covered with approved roof coverings designed and installed in accordance with this code and approved manufacturers' instructions such that the roof covering shall serve to protect the building.

Section 1504 Performance Requirements

Section 1504.1: Wind resistance of roofs. Roof coverings shall be designed for the wind load, edge securement, physical properties, and impact resistance requirements of this code.

Section 1505 Fire Classification

Section 1505.1: General. Roof assemblies shall conform to the fire classification requirements of this code.

Section 1506 Materials

Section 1506.1: Scope. Roof coverings shall be of materials compatible to each other and with the building as a whole and shall conform to the applicable standards of Chapter 15.

Section 1507 Requirements for Roof Coverings

Section 1507.1: Scope. Roof coverings shall be applied in accordance with the applicable provisions of Section 1507 and the manufacturer's installation instructions.

Section 1508 Roof Insulation

Section 1508.1: General. The use of above-deck insulation shall be permitted provided such insulation is covered with an approved roof covering and complies with Section 1508.

Section 1511 Reroofing

Section 1511: Reroofing. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15, except that reroofing shall not be required to meet the minimum design slope requirement of 1/4:12 for roofs that provide positive drainage. Replacing an existing roof covering shall not be required

to meet the requirement for emergency overflow drains or scuppers for roofs that provide for positive drainage.

Section 1511.3: Roof Replacement. Roof replacement shall include the removal of all existing layers down to the deck. Existing adhered membranes shall be allowed to remain.

Chapter 34: Existing Structures

3401.1 Replace as follows:

3401.1 Scope. Chapter 34 of the International Building Code 2015 (IBC 2015) is deleted in its entirety. The alteration, repair, addition, and change of occupancy of existing buildings shall be controlled by the provisions of the International Existing Building Code 2015 (IEBC 2015) and its appendices, and as modified with Massachusetts Amendments, as summarized in the section below.

2015 International Existing Building Code

Chapter 1: Scope and Administration

Section 101 General

Section 101.2: Scope. Provisions of the International Existing Building Code shall apply to existing buildings subject to repair, alteration, change of occupancy, addition and relocation.

Chapter 3: Provisions for all Compliance Methods

Section 301 Administration

Section 301.1: General. The Code stipulates three acceptable compliance methods for any work being proposed on an existing building, i.e. Prescriptive Compliance Method, Work Area Compliance Method and Performance Compliance Method. A particular compliance method can be selected by the Designer that will best suit the project requirements and becomes the basis for assessing its compliance with the Code.

Subject to the approval of the code official, alterations complying with the Code in effect when the affected building was originally built shall be considered in compliance with the provisions of this Code. Exception will be alterations beyond the limited structural alteration as defined in the Code.

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08/17/2023

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TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY

CHECKED BY

SCALE

ARCHITECTURAL BUILDIN
CODE ANALYSIS

A0.01

- For this project, the Work Area Compliance Method of the Code has been selected. Provisions for this compliance method are contained in Chapters 5 through 13 of the 2015 IEBC and summarized in this report.

Section 302 General Provisions

Section 302.3: Existing Materials. Materials already in use in a building in compliance with requirements at the time of their erection shall be permitted to remain in use unless determined by the building official to be unsafe.

Section 302.4: New and Replacement Materials. Materials permitted for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no unsafe condition is created.

Chapter 5: Classification of Work

Section 501 General

Section 501.1: Scope
The provisions of this chapter shall be used in conjunction with Chapters 6 through 13.

Section 501.2: Work Area
The work area shall be identified on the construction documents.

Section 502 Repairs

Section 502.1: Scope
Repairs include patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.

Section 503 Alteration - Level 1

Section 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.

- Roof replacement is considered a Level 1 Alteration.

Chapter 7: Alterations – Level 1

Section 701 General

Section 701.1: Scope
Level 1 alterations shall comply with the requirements of chapter 7.

Section 701.2: Conformance
An existing building shall not be altered such that the building becomes less safe than its existing condition.

Section 703 Fire Protection

Section 703.1: General
Alterations shall be done in a manner that maintains the level of fire protection provided.

Section 704 Means of Egress

Section 704.1: General
Alterations shall be done in a manner that maintains the level of protection provided for the means of egress.

Section 705 Accessibility

Section 705.1: General
This section is deleted per 780 CMR Massachusetts Amendments and replaced with 521 CMR, The Architectural Access Board.

Section 706 Reroofing:

Section 706.1: General
Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the IBC except reroofing shall not be required to meet the minimum design slope requirement.

Section 706.2: Structural and Construction Loads
Structural roof components shall be capable of supporting the roof covering system and the material and equipment loads that will be encountered during installation of the system.

- Please see review by structural engineer.

Section 707 Structural:

Section 707.1: General
Where alteration work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.

Section 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 IBC, except where the additional dead load does not increase the force in the element by more than 5 percent.

- Please see review by structural engineer.

Section 707.3.2: Roof diaphragms resisting wind loads in high-wind regions.
Where roofing materials are removed from more than 50 percent of the roof diaphragm and where the wind speed is greater than 115 mph, roof diaphragms, connections of the roof diaphragm to the roof framing members, and roof to wall connections shall be evaluated for the wind loads, including wind uplift.

- Please see review by structural engineer.

Section 708 Energy Conservation:

Section 708.1: Minimum requirements
Level 1 alterations to existing buildings are permitted without requiring the entire building to comply with the energy requirements of the International Energy Conservation Code (IEBC).

2018 International Energy Conservation Code

Chapter 5: Existing Buildings.

Section C501.2: Existing buildings. Except as specified in this chapter, this code shall not be used to require removal, nor prevent the continued use of, an existing building or building system lawfully in existence at the time of adoption of this code.

Section C503.3.1: Roof replacement. Roof replacements shall comply with Table C402.1.3 or C402.1.4 where the existing roof assembly is part of the building thermal envelope and contains insulation entirely above the roof deck.

- The Town Hall and Annex have insulation at the ceiling level and not entirely above the roof. Therefore, the IECC does not require the insulation to be upgraded. The new insulation will match the existing.

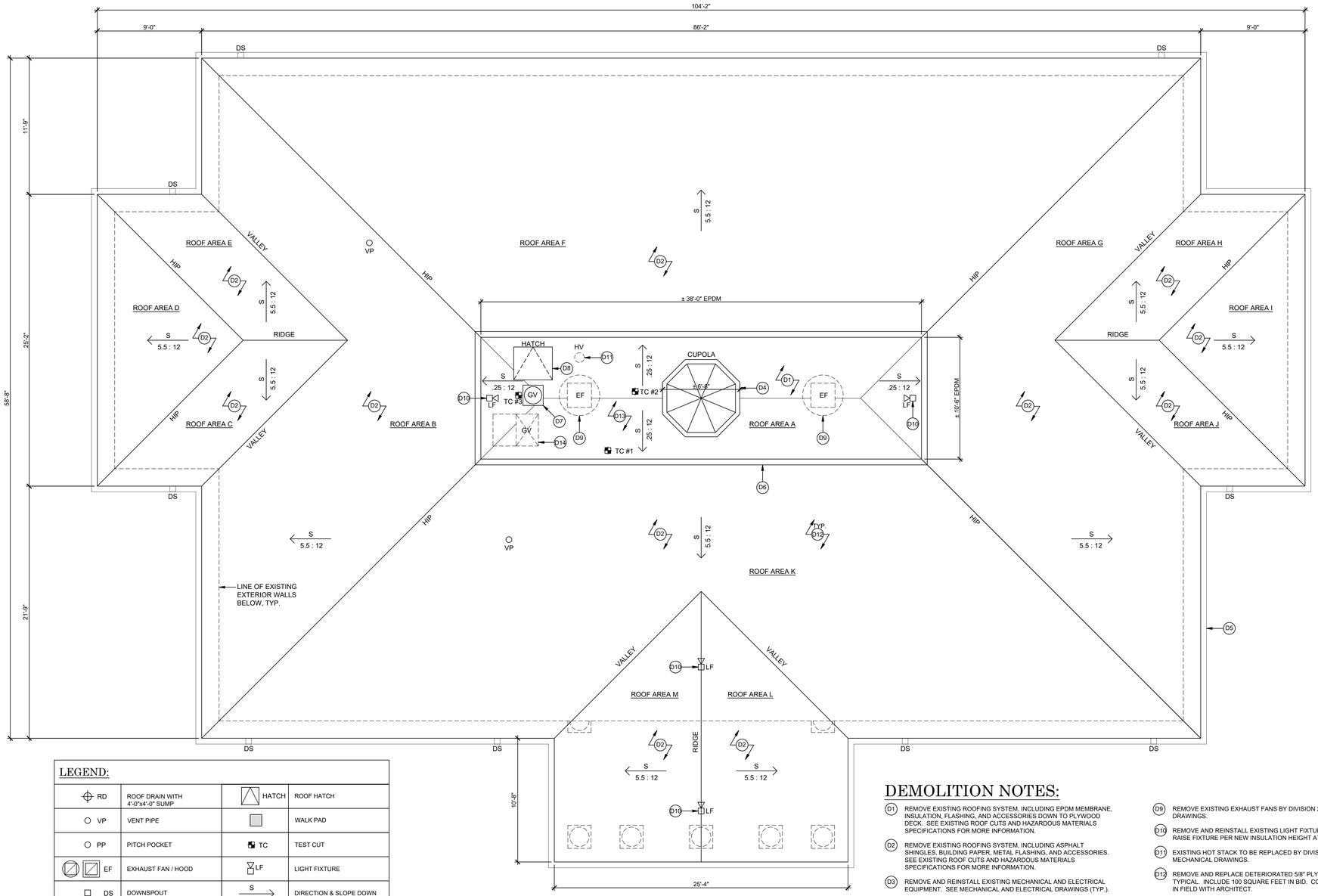
521 CMR Architectural Access Board

For 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 otherwise provided in the building) shall also be provided in accordance with 521 CMR. (3.3.1)

For existing buildings, if the work being performed amounts to 30% or more of the full and fair cash value of the building, the entire building is required to comply with 521 CMR. (3.3.2)

- Once a cost estimate has been established, both buildings should be reviewed for accessibility.

Building	Assessed Value	DOR Assessment Ratio	Full and Fair Cash Value	AAB 30% Threshold	Cost Estimate
Town Hall	$ 2,507,500	.86	$ 2,915,698	$ 874,709	TBD
Town Hall Annex	$ 2,351,700	.86	$ 2,734,535	$ 820,361	TBD



LEGEND:			
RD	ROOF DRAIN WITH 4'-0"x4'-0" SUMP	HATCH	ROOF HATCH
VP	VENT PIPE		WALK PAD
PP	PITCH POCKET	TC	TEST CUT
EF	EXHAUST FAN / HOOD	LF	LIGHT FIXTURE
DS	DOWNSPOUT	S	DIRECTION & SLOPE DOWN
GV	GRAVITY VENT	1 / A-12	DETAIL SYMBOL
HV	HOT VENT	R19	NOTES SYMBOL
RTU	ROOFTOP UNIT	P1	PHOTO SYMBOL

ROOF PLAN - DEMOLITION

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

DEMOLITION NOTES:

D1 REMOVE EXISTING ROOFING SYSTEM, INCLUDING EPDM MEMBRANE, INSULATION, FLASHING, AND ACCESSORIES DOWN TO PLYWOOD DECK. SEE EXISTING ROOF CUTS AND HAZARDOUS MATERIALS SPECIFICATIONS FOR MORE INFORMATION.

D2 REMOVE EXISTING ROOFING SYSTEM, INCLUDING ASPHALT SHINGLES, BUILDING PAPER, METAL FLASHING, AND ACCESSORIES. SEE EXISTING ROOF CUTS AND HAZARDOUS MATERIALS SPECIFICATIONS FOR MORE INFORMATION.

D3 REMOVE AND REINSTALL EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT. SEE MECHANICAL AND ELECTRICAL DRAWINGS (TYP.).

D4 REMOVE AND SALVAGE CUPOLA. RESTORE EXISTING. SEE MECHANICAL DRAWINGS AND SHEET A-6.

D5 REMOVE EXISTING ALUMINUM GUTTERS AND DOWNSPOUTS.

D6 REMOVE EXISTING METAL FLASHING AT INTERSECTION OF EPDM AND ASPHALT SHINGLES.

D7 REMOVE AND REINSTALL EXISTING GRAVITY VENTS BY DIVISION 23 FOR MEMBRANE INSTALLATION, TYP. SEE MECHANICAL DRAWINGS.

D8 REMOVE EXISTING ROOF HATCH.

D9 REMOVE EXISTING EXHAUST FANS BY DIVISION 23. SEE MECHANICAL DRAWINGS.

D10 REMOVE AND REINSTALL EXISTING LIGHT FIXTURES BY DIVISION 26. RAISE FIXTURE PER NEW INSULATION HEIGHT AT EPDM ROOFING.

D11 EXISTING HOT STACK TO BE REPLACED BY DIVISION 23. SEE MECHANICAL DRAWINGS.

D12 REMOVE AND REPLACE DETERIORATED 5/8" PLYWOOD DECK, TYPICAL. INCLUDE 100 SQUARE FEET IN BID. COORDINATE LOCATION IN FIELD WITH ARCHITECT.

D13 REMOVE AND REPLACE PORTION OF 5/8" PLYWOOD AND WOOD TRUSSES BY G.C. TO ACCOMMODATE REMOVAL AND INSTALLATION OF MECHANICAL EQUIPMENT BY DIVISION 23 AND 26. SEE MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS. G.C. TO INSTALL NEW PLYWOOD.

D14 REMOVE EXISTING GOOSENECK. SEE MECHANICAL DRAWINGS.

D15 EXISTING SELF-ADHERED MEMBRANE FLASHING TO REMAIN AT ROOF EDGE, VALLEYS, AND HIPS.

ALL WORK SHOWN HERE IS PART OF THE ROOFING AND FLASHING FILED SUB-BID, UNLESS OTHERWISE NOTED.

1/4" = 1' - 0"

0 4' 8'

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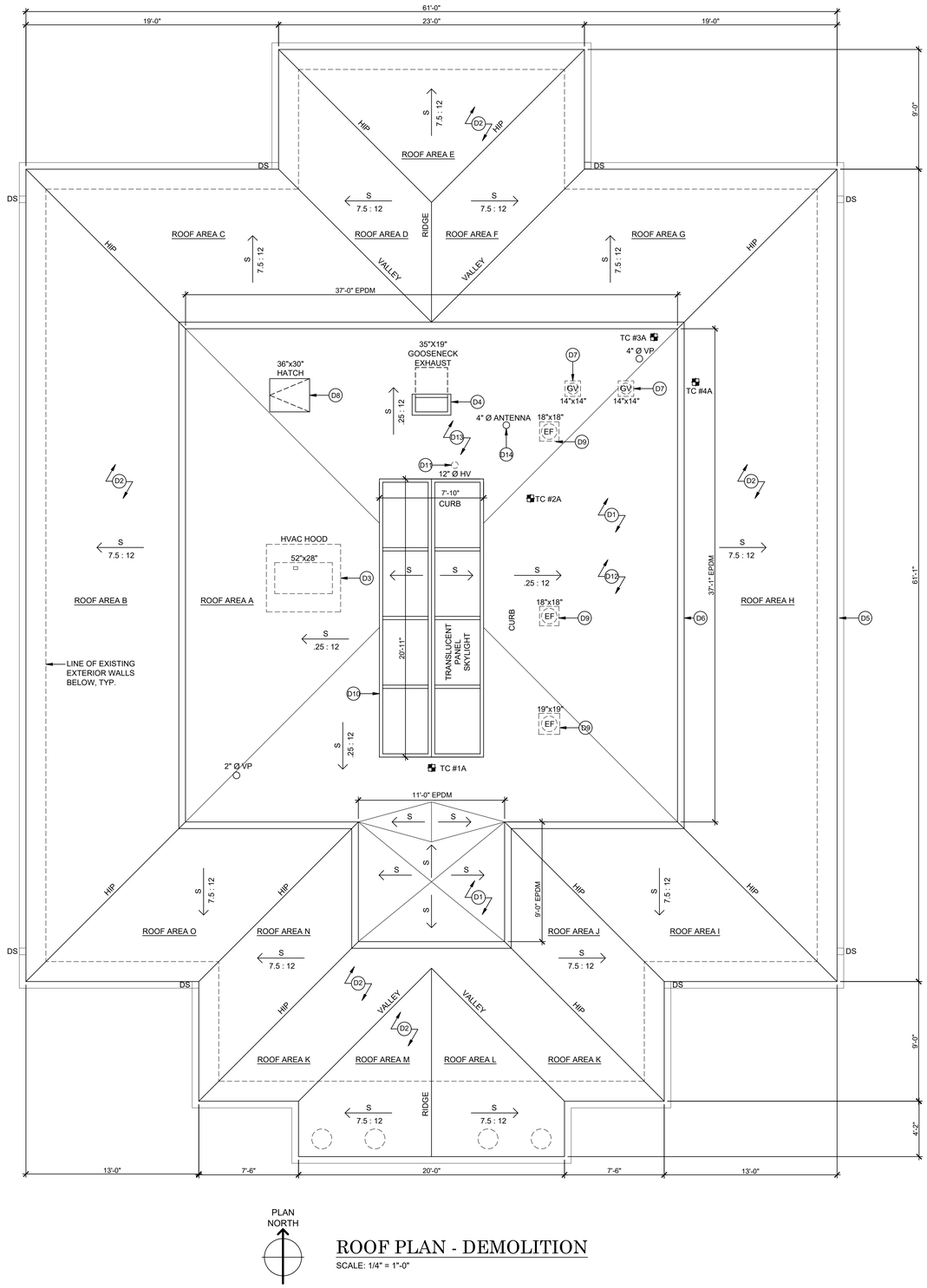
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SCALE
1/4" = 1'-0"

ROOF DEMOLITION PLAN
TOWN HALL

AD1.00



PLAN NORTH

ROOF PLAN - DEMOLITION

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

LEGEND:			
RD	ROOF DRAIN WITH 4'-0"x4'-0" SUMP	HATCH	ROOF HATCH
VP	VENT PIPE		WALK PAD
PP	PITCH POCKET	TC	TEST CUT
EF	EXHAUST FAN	LF	LIGHT FIXTURE
DS	DOWNSPOUT	S	DIRECTION & SLOPE DOWN
GV	GRAVITY VENT	1 / A-12	DETAIL SYMBOL
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RTU	ROOFTOP UNIT	P1	PHOTO SYMBOL

DEMOLITION NOTES:

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D2 REMOVE EXISTING ROOFING SYSTEM, INCLUDING ASPHALT SHINGLES, BUILDING PAPER, METAL FLASHING, AND ACCESSORIES. SEE EXISTING ROOF CUTS AND HAZARDOUS MATERIALS SPECIFICATIONS FOR MORE INFORMATION.

D3 REMOVE AND REINSTALL EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT BY DIVISION 23 AND 26. SEE MECHANICAL AND ELECTRICAL DRAWINGS.

D4 REMOVE AND REINSTALL ELEVATOR VENT.

D5 REMOVE EXISTING ALUMINUM GUTTERS AND DOWNSPOUTS.

D6 REMOVE EXISTING METAL FLASHING AT INTERSECTION OF EPDM AND ASPHALT SHINGLES.

D7 REMOVE EXISTING GRAVITY VENTS BY DIVISION 23. SEE MECHANICAL DRAWINGS.

D8 REMOVE EXISTING ROOF HATCH.

D9 REMOVE EXISTING EXHAUST FANS BY DIVISION 23 AND 26. SEE MECHANICAL AND ELECTRICAL DRAWINGS.

D10 REMOVE EXISTING SKYLIGHT.

D11 EXISTING HOT STACK TO BE REPLACED BY DIVISION 23. SEE MECHANICAL DRAWINGS.

D12 REMOVE AND REPLACE DETERIORATED PLYWOOD DECK, TYPICAL. INCLUDE 100 SQUARE FEET IN BID. COORDINATE LOCATION IN FIELD WITH ARCHITECT.

D13 REMOVE AND REPLACE PORTION OF 5/8" PLYWOOD AND WOOD TRUSSES BY G.C. TO ACCOMMODATE REMOVAL AND INSTALLATION OF MECHANICAL EQUIPMENT BY DIVISION 23 AND 26. SEE MECHANICAL, ELECTRICAL, AND STRUCTURAL DRAWINGS.

D14 EXISTING ANTENNA TO REMAIN.

D15 EXISTING SELF-ADHERED MEMBRANE FLASHING TO REMAIN AT ROOF EDGE, VALLEYS, AND HIPS.

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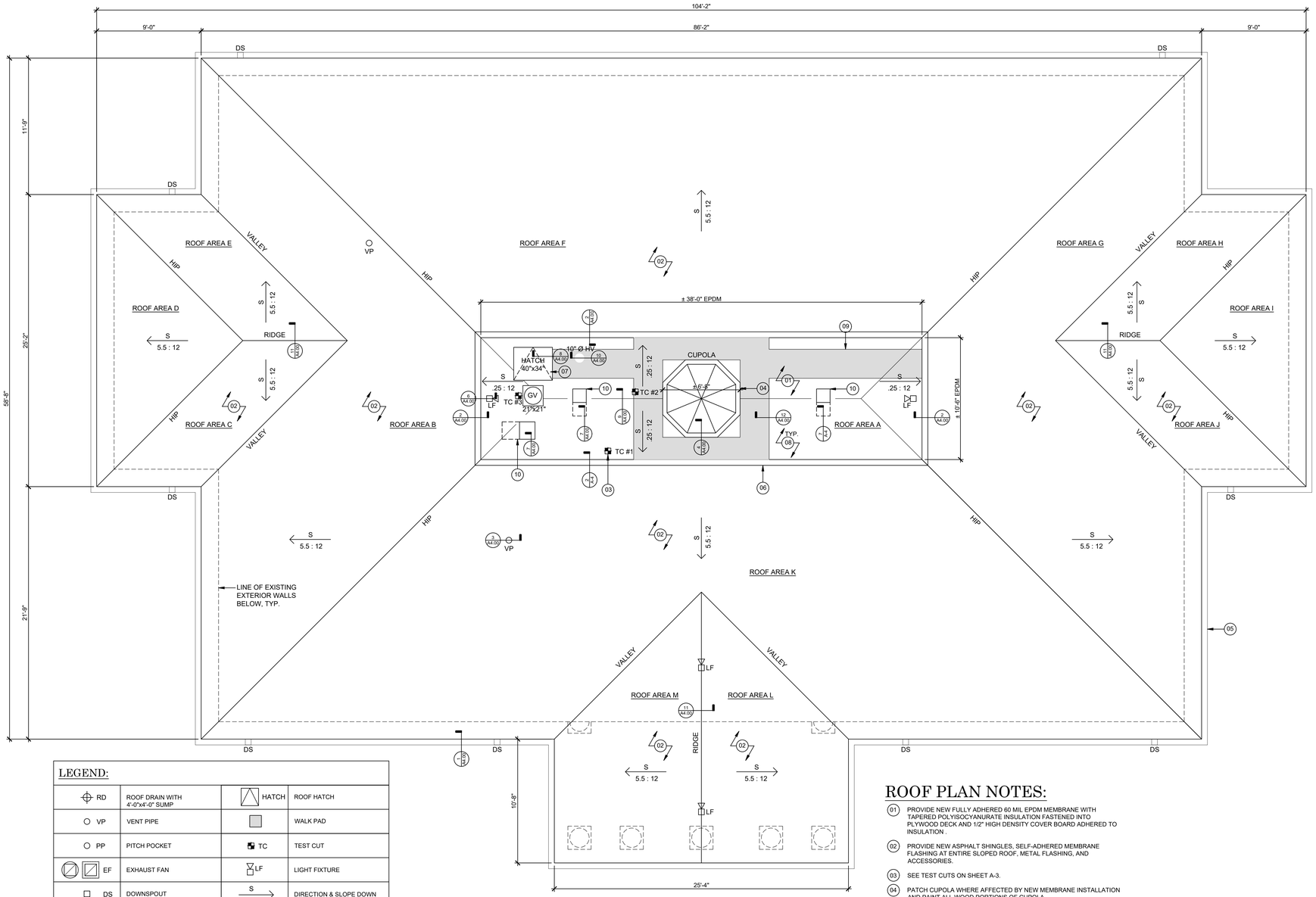
DRAWN BY

CHECKED BY

SCALE
1/4" = 1'-0"

ROOF DEMOLITION PLAN
TOWN HALL ANNEX

AD2.00



LEGEND:			
RD	ROOF DRAIN WITH 4'-0"x4'-0" SUMP	HATCH	ROOF HATCH
VP	VENT PIPE		WALK PAD
PP	PITCH POCKET	TC	TEST CUT
EF	EXHAUST FAN	LF	LIGHT FIXTURE
DS	DOWNSPOUT	S	DIRECTION & SLOPE DOWN
GV	GRAVITY VENT	1 / A-12	DETAIL SYMBOL
HV	HOT VENT	R19	NOTES SYMBOL
RTU	ROOFTOP UNIT	P1	PHOTO SYMBOL

PLAN NORTH

ROOF PLAN - PROPOSED

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

ROOF PLAN NOTES:

01. PROVIDE NEW FULLY ADHERED 60 MIL EPDM MEMBRANE WITH TAPERED POLYISOCYANURATE INSULATION FASTENED INTO PLYWOOD DECK AND 1/2" HIGH DENSITY COVER BOARD ADHERED TO INSULATION .
02. PROVIDE NEW ASPHALT SHINGLES, SELF-ADHERED MEMBRANE FLASHING AT ENTIRE SLOPED ROOF, METAL FLASHING, AND ACCESSORIES.
03. SEE TEST CUTS ON SHEET A-3.
04. PATCH CUPOLA WHERE AFFECTED BY NEW MEMBRANE INSTALLATION AND PAINT ALL WOOD PORTIONS OF CUPOLA.
05. PROVIDE NEW ALUMINUM GUTTERS AND DOWNSPOUTS.
06. PROVIDE NEW METAL FLASHING AT INTERSECTION OF EPDM AND ASPHALT SHINGLES.
07. PROVIDE NEW ROOF HATCH.
08. SEE STRUCTURAL DRAWINGS FOR INFILLING AND OPENING FOR NEW PENETRATIONS, TYP.
09. PROVIDE NEW WALKWAY PADS.
10. NEW GOOSENECK DUCT PER DIVISION 23. SEE MECHANICAL DRAWINGS.

ALL WORK SHOWN HERE IS PART OF THE ROOFING AND FLASHING FILED SUB-BID, UNLESS OTHERWISE NOTED.

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

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SEAL

PROJECT

NUMBER
0220195

DATE
08/17/2023

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

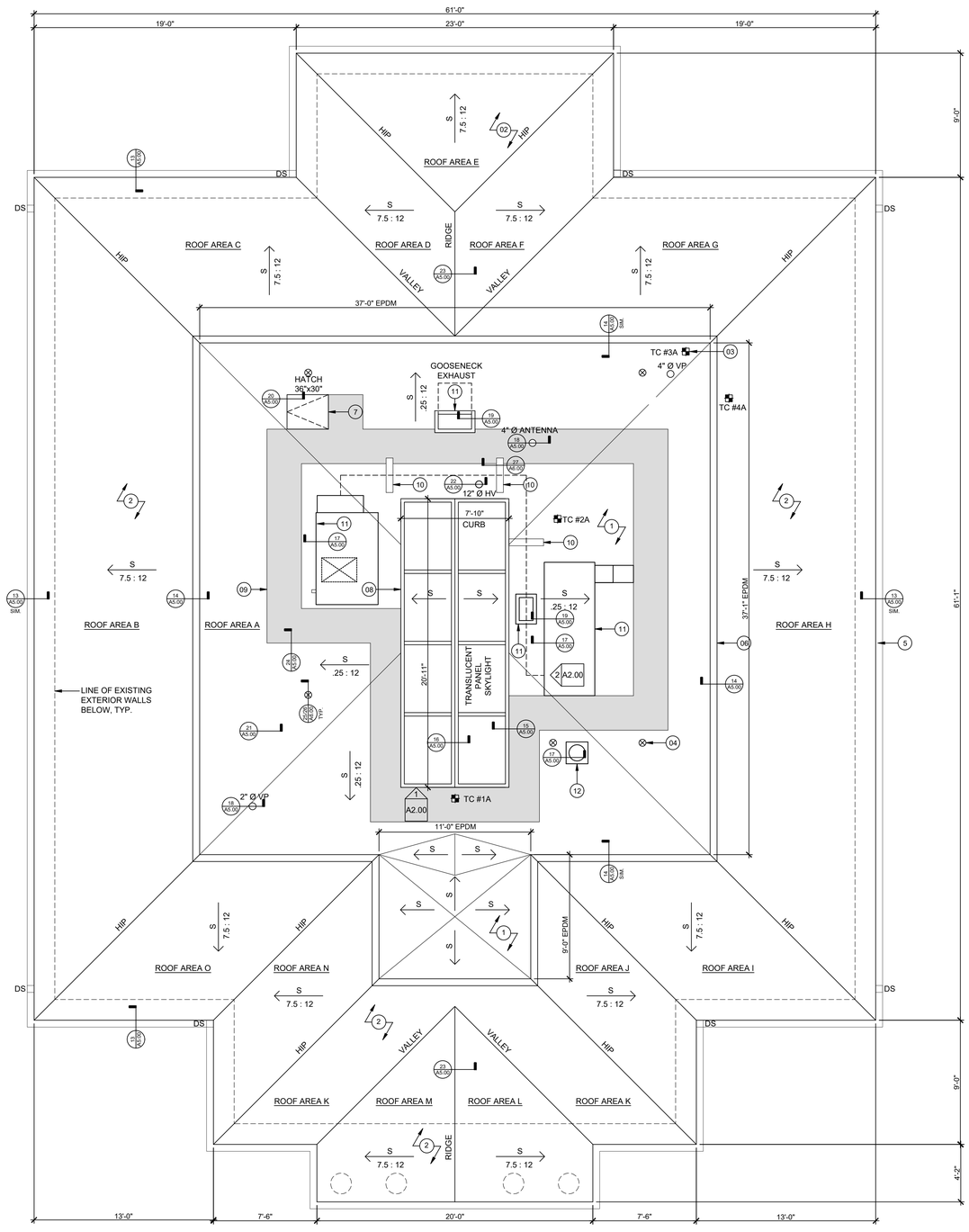
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CHECKED BY

SCALE
1/4" = 1'-0"

ROOF PLAN -
TOWN HALL

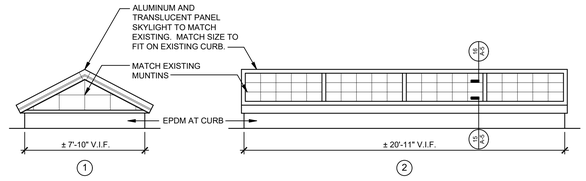
A1.00



PLAN NORTH

ROOF PLAN - PROPOSED

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



SKYLIGHT ELEVATIONS

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

LEGEND:

RD	ROOF DRAIN WITH 4'-0"x4'-0" SUMP	HATCH	ROOF HATCH
VP	VENT PIPE		WALK PAD
PP	PITCH POCKET	TC	TEST CUT
EF	EXHAUST FAN	LF	LIGHT FIXTURE
DS	DOWNSPOUT	S	DIRECTION & SLOPE DOWN
GV	GRAVITY VENT	1 A-12	DETAIL SYMBOL
HV	HOT VENT	R19	NOTES SYMBOL
	ROOF DAVIT	A-5 5	ELEVATION SYMBOL

ROOF PLAN NOTES:

01 PROVIDE NEW FULLY ADHERED 60 MIL EPDM MEMBRANE WITH TAPERED POLYISOCYANURATE INSULATION FASTENED INTO PLYWOOD DECK AND 1/2" HIGH DENSITY COVER BOARD ADHERED TO INSULATION .

02 PROVIDE NEW ASPHALT SHINGLES, SELF-ADHERED MEMBRANE FLASHING AT ENTIRE SLOPED ROOF, METAL FLASHING, AND ACCESSORIES.

03 SEE TEST CUTS ON SHEET A-3.

04 PROVIDE NEW ROOF DAVITS. SEE STRUCTURAL DRAWINGS FOR FURTHER INFORMATION. COORDINATE LOCATION WITH EXISTING TRUSSES IN FIELD.

05 PROVIDE NEW ALUMINUM GUTTERS AND DOWNSPOUTS.

06 PROVIDE NEW METAL FLASHING AT INTERSECTION OF EPDM AND ASPHALT SHINGLES.

07 PROVIDE NEW ROOF HATCH.

08 PROVIDE NEW TRANSLUCENT PANEL SKYLIGHT TO MATCH EXISTING.

09 PROVIDE NEW WALKWAY PADS.

10 ROOF RAILS BY MECHANICAL CONTRACTOR TO SUPPORT DUCTWORK BY DIVISION 23. SEE MECHANICAL DRAWINGS. PROVIDE ROOFING BY DIVISION 7 TO MAKE WATER TIGHT.

11 NEW CURB BY MECHANICAL CONTRACTOR TO SUPPORT EQUIPMENT BY DIVISION 23. SEE MECHANICAL DRAWINGS. PROVIDE ROOFING BY DIVISION 7 TO MAKE WATER TIGHT.

12 NEW MECHANICAL EQUIPMENT BY MECHANICAL CONTRACTOR (DIVISION 23). SEE MECHANICAL DRAWINGS. PROVIDE ROOFING BY DIVISION 7 TO MAKE WATER TIGHT.

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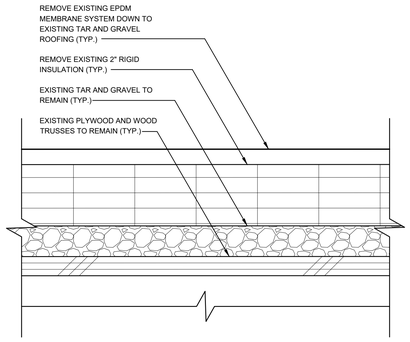
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SCALE
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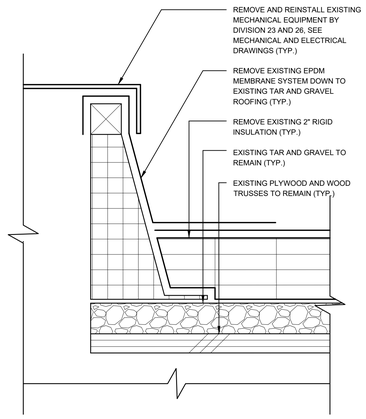
ROOF PLAN -
TOWN HALL ANNEX

A2.00



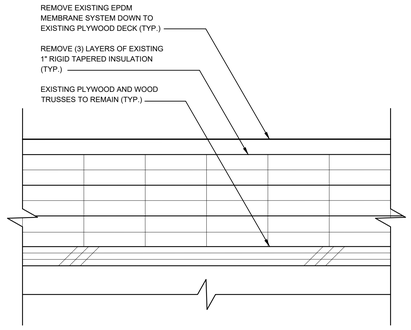
1 TEST CUT #1 - TOWN HALL

SCALE: 6" = 1'-0"



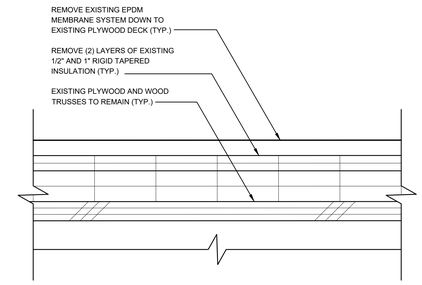
3 TEST CUT #3 - TOWN HALL

SCALE: 6" = 1'-0"



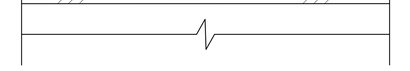
1A TEST CUT #1A - TOWN HALL ANNEX

SCALE: 6" = 1'-0"



3A TEST CUT #3A - TOWN HALL ANNEX

SCALE: 6" = 1'-0"

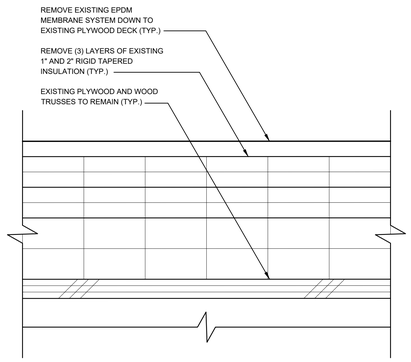


2 TEST CUT #2 - TOWN HALL

SCALE: 6" = 1'-0"

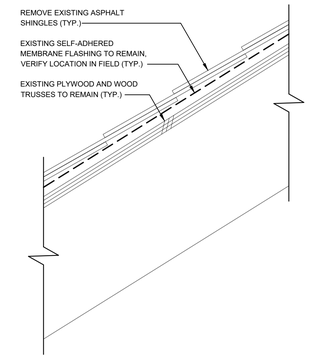
4 TEST CUT #4 - TOWN HALL

SCALE: 6" = 1'-0"



2A TEST CUT #2A - TOWN HALL ANNEX

SCALE: 6" = 1'-0"



4A TEST CUT #4A - TOWN HALL ANNEX

SCALE: 3" = 1'-0"

TOWN HALL TEST CUTS

TOWN HALL ANNEX TEST CUTS

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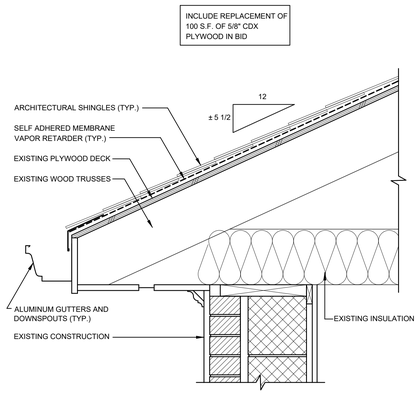
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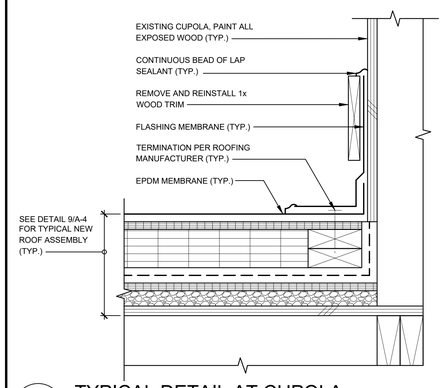
EXISTING ROOF
TEST CUTS

A3.00



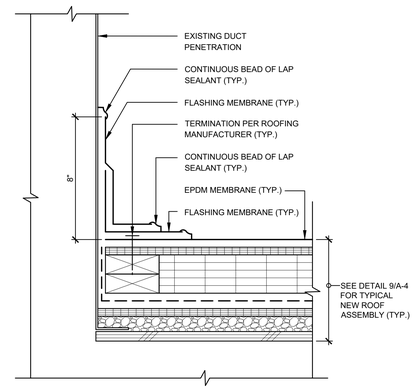
1 TYPICAL DETAIL AT EAVE

SCALE: 1 1/2" = 1'-0"



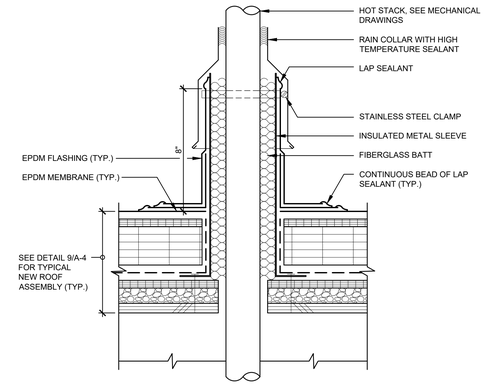
4 TYPICAL DETAIL AT CUPOLA

SCALE: 3" = 1'-0"



7 TYPICAL DETAIL AT GOOSENECK

SCALE: 3" = 1'-0"



10 TYPICAL HOT STACK

SCALE: 3" = 1'-0"

2 TYPICAL DETAIL AT ROOF EDGE

SCALE: 1 1/2" = 1'-0"

5 TYPICAL DETAIL AT EQUIPMENT CURB

SCALE: 3" = 1'-0"

8 TYPICAL DETAIL AT ROOF HATCH

SCALE: 3" = 1'-0"

11 TYPICAL DETAIL AT RIDGE VENT

SCALE: 1 1/2" = 1'-0"

3 TYPICAL DETAIL AT VENT PIPE

SCALE: 3" = 1'-0"

6 TYPICAL DETAIL AT PENETRATION

SCALE: 3" = 1'-0"

9 TYPICAL EPDM DETAIL

SCALE: 3" = 1'-0"

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12 TYPICAL DETAIL AT WALK PADS

SCALE: 3" = 1'-0"

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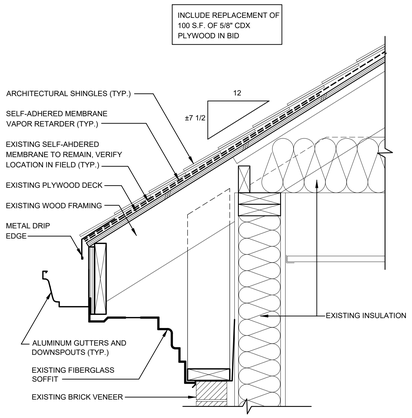
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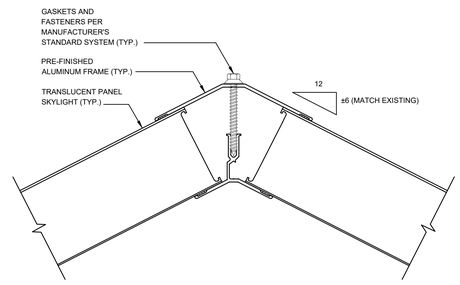
ROOF DETAILS -
TOWN HALL

A4.00



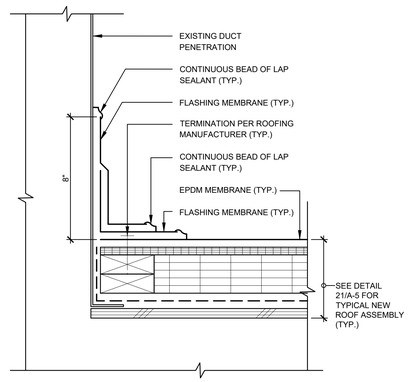
13 TYPICAL DETAIL AT EAVE

SCALE: 1 1/2" = 1'-0"



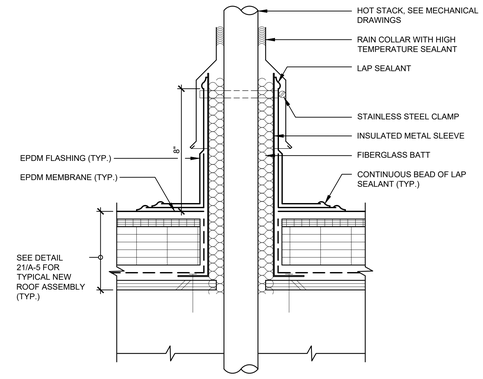
16 TYPICAL DETAIL AT SKYLIGHT RIDGE

SCALE: 6" = 1'-0"



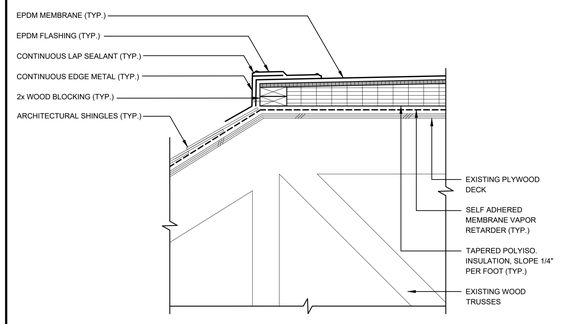
19 TYPICAL DETAIL AT GOOSENECK

SCALE: 3" = 1'-0"



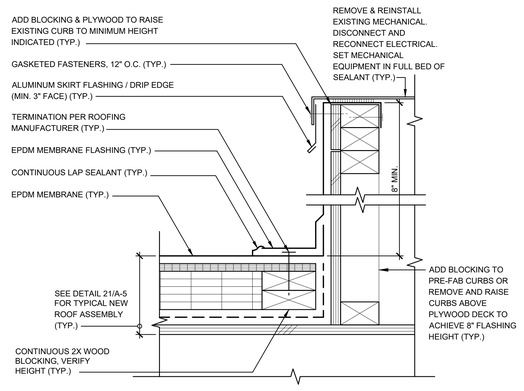
22 TYPICAL HOT STACK

SCALE: 3" = 1'-0"



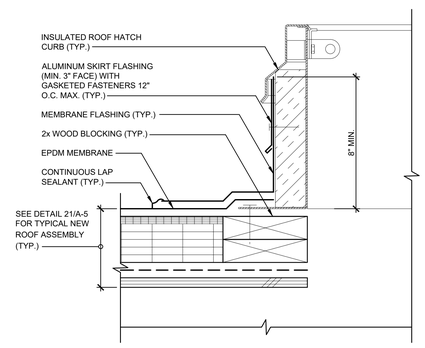
14 TYPICAL DETAIL AT ROOF EDGE

SCALE: 1 1/2" = 1'-0"



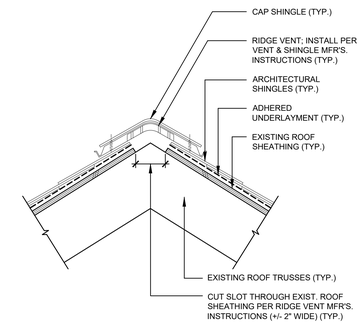
17 TYPICAL DETAIL AT EQUIPMENT CURB

SCALE: 3" = 1'-0"



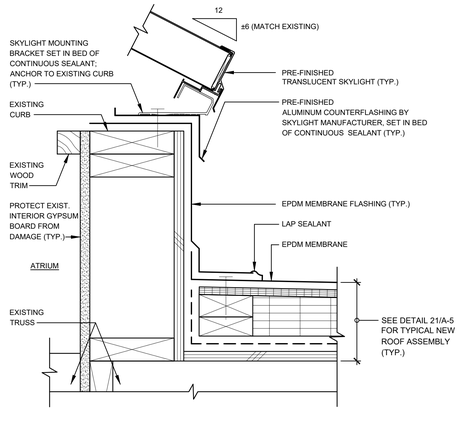
20 TYPICAL DETAIL AT ROOF HATCH

SCALE: 3" = 1'-0"



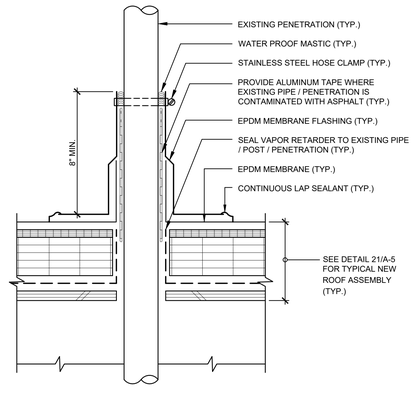
23 TYPICAL DETAIL AT RIDGE VENT

SCALE: 1 1/2" = 1'-0"



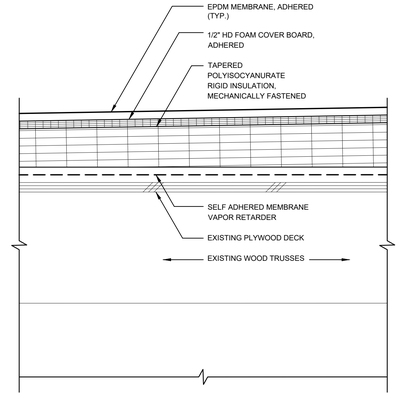
15 TYPICAL DETAIL AT SKYLIGHT CURB

SCALE: 3" = 1'-0"



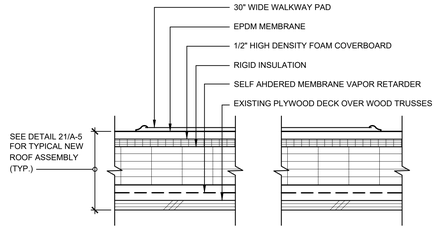
18 TYPICAL DETAIL AT PENETRATION

SCALE: 3" = 1'-0"



21 TYPICAL EPDM DETAIL

SCALE: 3" = 1'-0"



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24 TYPICAL DETAIL AT WALK PADS

SCALE: 3" = 1'-0"

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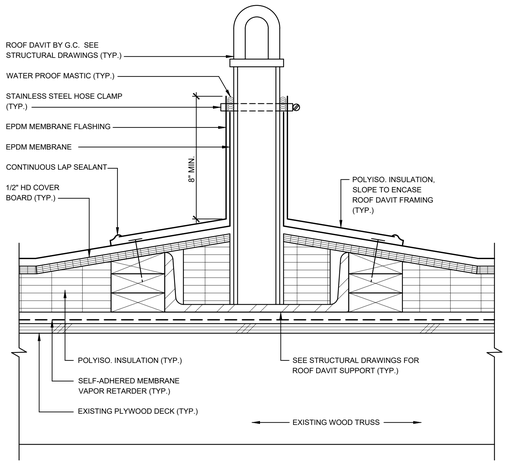
DRAWN BY

CHECKED BY

SCALE
AS NOTED

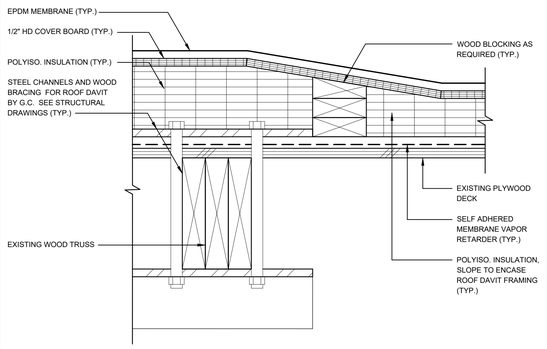
ROOF DETAILS -
TOWN HALL ANNEX

A5.00



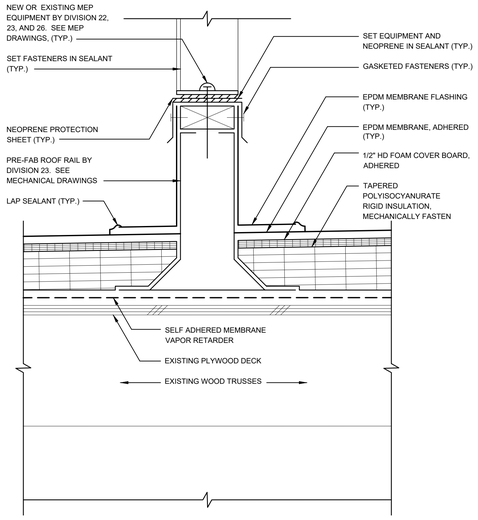
25 TYPICAL DETAIL AT ROOF DAVIT

SCALE: 3" = 1'-0"



26 TYPICAL DETAIL AT ROOF DAVIT BRACING

SCALE: 3" = 1'-0"



27 TYPICAL DETAIL AT ROOF RAILS

SCALE: 3" = 1'-0"

NTS

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REVISIONS

	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
08/17/2023

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY

CHECKED BY

SCALE
AS NOTED

ROOF DETAILS -
TOWN HALL ANNEX

A6.00



1 - FRONT ELEVATION



2 - FRONT ELEVATION



3 - RIGHT SIDE ELEVATION



4 - REAR ELEVATION



5 - LEFT SIDE ELEVATION



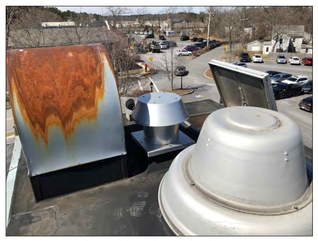
6 - FRONT ELEVATION



7 - TYPICAL GUTTER



8 - TYPICAL SHINGLES



9 - TYPICAL PENETRATIONS



10 - TYPICAL EPDM ROOFING



11 - CUPOLA

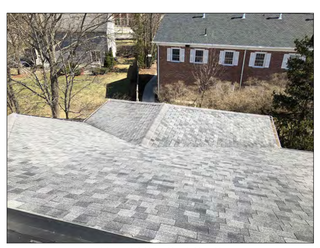
REMOVE EXISTING PLYWOOD, WOOD TRIM, AND WOOD STUDS TO ALLOW FOR NEW EPDM ROOFING AND TO ALLOW FOR NEW MECHANICAL WORK. SEE MECHANICAL DRAWINGS. CLEAN INTERIOR OF CUPOLA, INCLUDING BIRD DROPPINGS, AND RECONSTRUCT AREAS AFFECTED BY DEMOLITION. PAINT ENTIRE CUPOLA.



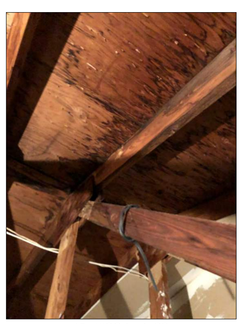
12 - CUPOLA



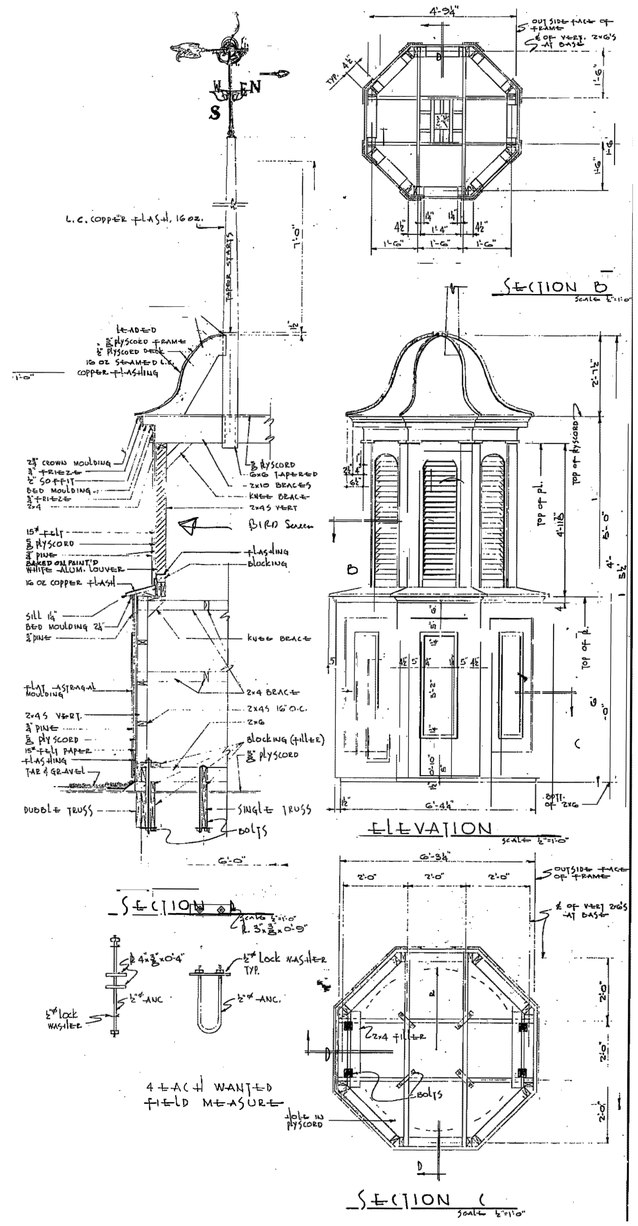
13 - TYPICAL EXHAUST FAN



14 - TYPICAL SHINGLES



15 - WOOD TRUSS



EXISTING CUPOLA

1. DRAWING FOR REFERENCE ONLY. INFORMATION TAKEN FROM ORIGINAL CONSTRUCTION DRAWINGS CREATED BY JOHN CARR ASSOCIATES, CIRCA 1967.
2. REMOVE EXISTING PLYWOOD, WOOD TRIM, AND WOOD STUDS TO ALLOW FOR NEW EPDM ROOFING AND TO ALLOW FOR NEW MECHANICAL WORK. SEE MECHANICAL DRAWINGS. CLEAN INTERIOR OF CUPOLA, INCLUDING BIRD DROPPINGS, AND RECONSTRUCT AREAS AFFECTED BY DEMOLITION. PAINT ENTIRE CUPOLA.

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY

CHECKED BY

SCALE
AS NOTED

EXISTING PHOTOS /
EXISTING CUPOLA -
TOWN HALL

A7.00


1 - FRONT ELEVATION


2 - RIGHT SIDE ELEVATION

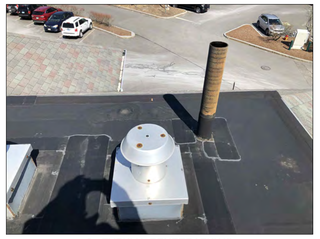

3 - REAR ELEVATION


4 - REAR ELEVATION


5 - LEFT SIDE ELEVATION


6 - FRONT ELEVATION


7 - TYPICAL SHINGLES

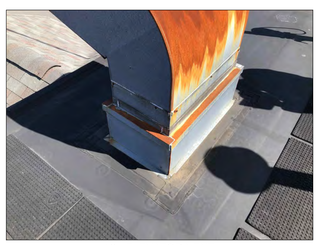

8 - TYPICAL PENETRATIONS

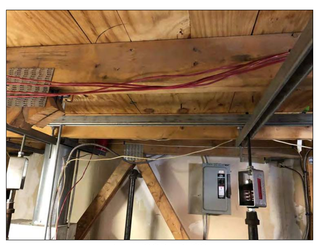

9 - TYPICAL SHINGLES

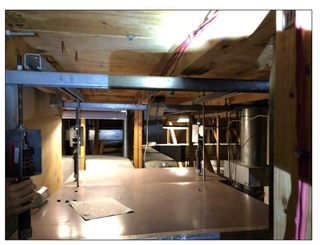

10 - TYPICAL EPDM ROOFING


11 - SKYLIGHT


12 - SKYLIGHT


13 - ELEVATOR VENT


14 - WOOD TRUSS


15 - MECHANICAL EQUIPMENT IN ATTIC

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DRAWING

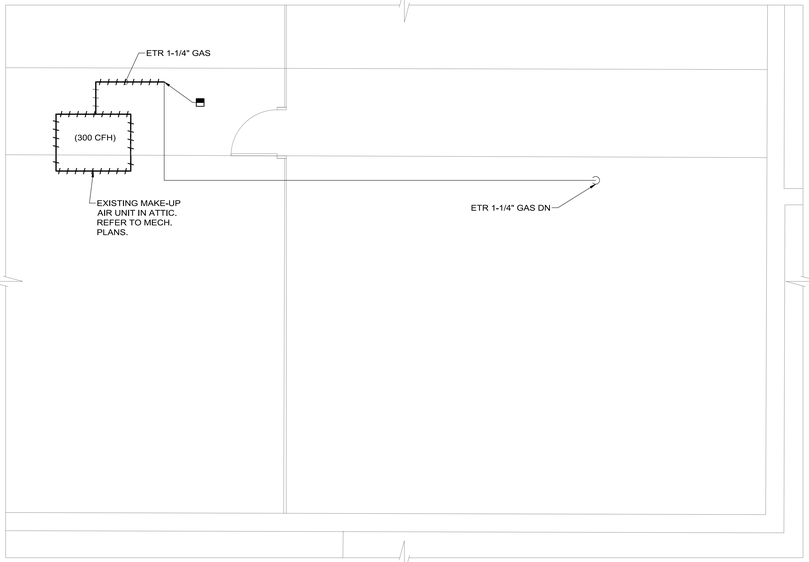
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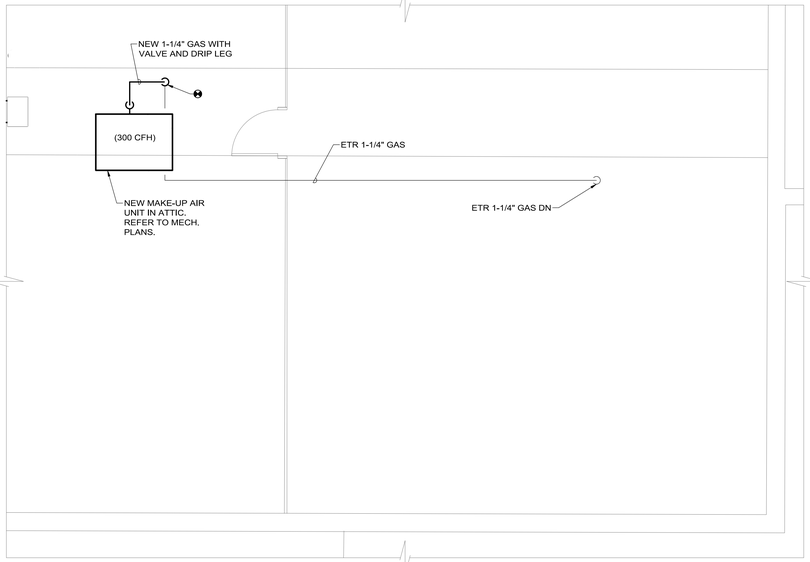
SCALE
NTS

EXISTING PHOTOS -
TOWN HALL ANNEX

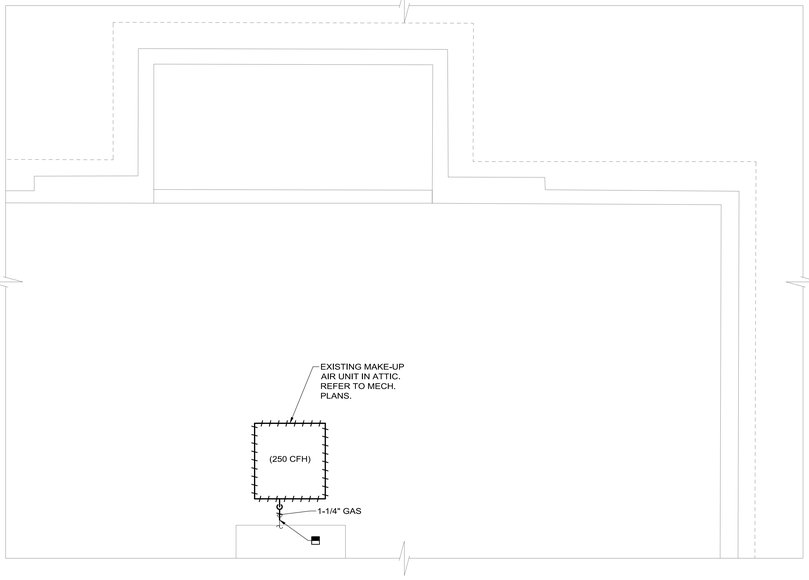
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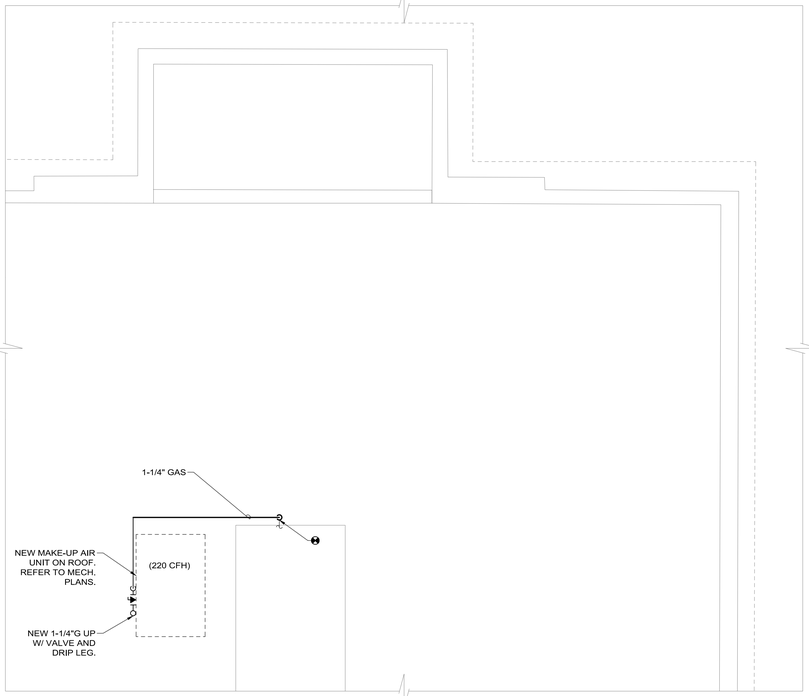
PLUMBING TOWN HALL
ATTIC DEMOLITION WORK PLAN
SCALE: 1/4"=1'-0"



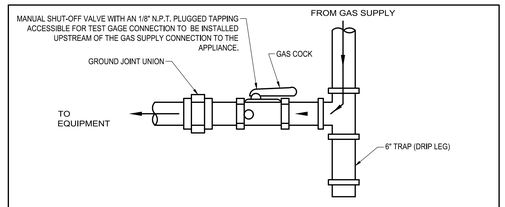
PLUMBING TOWN HALL
ATTIC NEW WORK PLAN
SCALE: 1/4"=1'-0"



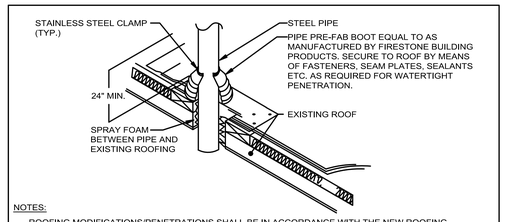
PLUMBING ANNEX
ATTIC DEMOLITION WORK PLAN
SCALE: 1/4"=1'-0"



PLUMBING ANNEX
ATTIC NEW WORK PLAN
SCALE: 1/4"=1'-0"



N|V|5 TYPICAL GAS SEDIMENT TRAP DETAIL P621A



NOTES:
ROOFING MODIFICATIONS/PENETRATIONS SHALL BE IN ACCORDANCE WITH THE NEW ROOFING MANUFACTURER'S SPECIFICATIONS AND DETAILS TO MAINTAIN THE ROOFING SYSTEM WARRANTY.

N|V|5 DETAIL OF PIPE THRU ROOF P621A

VALVE LEGEND

—▷◁—	GAS VALVE

PIPING LEGEND

—G— G	NATURAL GAS PIPING

ABBREVIATIONS

CFH	CUBIC FEET PER HOUR
DN	DOWN
DWG	DRAWING
ETR	EXISTING TO REMAIN

GENERAL

—○		ELBOW UP OR RISE
—○	DN/DP	ELBOW DOWN OR DROP
●	CTE	CONNECT TO EXISTING
———	ETR	EXISTING TO REMAIN
- - - - -	ETBR	EXISTING TO BE REMOVED
—⊠—		LIMIT OF WORK

GENERAL NOTES

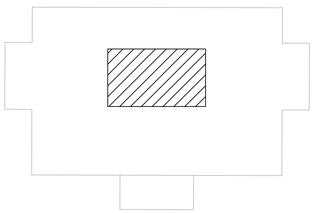
1. PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE PLUMBING AND GAS CODE INCLUDING ALL LOCAL AMENDMENTS.
2. OBTAIN ALL PERMITS AND PAY ALL FEES ASSOCIATED WITH THIS WORK PRIOR TO COMMENCEMENT.
3. PIPING AND EQUIPMENT IS SHOWN DIAGRAMMATICALLY. THE ACTUAL ROUTING OF PIPING AND EXACT LOCATION OF EQUIPMENT SHALL BE DETERMINED IN THE FIELD.
4. IN ADDITION TO REVIEWING AND COORDINATING WITH THE OTHER TRADES (CIVIL, STRUCTURAL, ARCHITECTURAL, FIRE PROTECTION, HVAC, AND ELECTRICAL) THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH DETAILS OF CONSTRUCTION.
5. FURNISH AND INSTALL ALL NECESSARY PIPING, EQUIPMENT SUPPORTS AND ANY EQUIPMENT NOT SHOWN ON DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS BUT NECESSARY TO PROVIDE A COMPLETE AND WORKABLE SYSTEM.
6. PROVIDE DRIP LEGS FOR ALL GAS RISERS.
7. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.

DEMOLITION NOTES

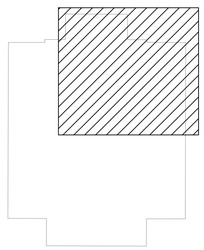
1. TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
2. PROMPTLY REPAIR ANY DAMAGE CAUSED DURING/BY THE EXECUTION OF WORK.
3. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
4. PRIOR TO DEMOLITION, MAKE SAFE ALL SERVICE PIPE TERMINATIONS TO THE AREA. PROVIDE VALVE AND CAPS ON PRESSURE SERVICES TO THE AREA THAT ARE TO REMAIN IN SERVICE.

PLUMBING NEW WORK NOTES

1. PLUMBING WORK NOTES SHALL APPLY TO ALL NEW MECHANICAL DRAWINGS.
2. PLUMBING WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE MASSACHUSETTS PLUMBING AND FUEL GAS CODE INCLUDING ALL LOCAL AMENDMENTS.
3. DO NOT SUPPORT GAS PIPING FROM DRIP LEGS.
4. PROVIDE IDENTIFICATION FOR ALL NEW GAS PIPING AND VALVES. LABELS SHALL INDICATE DIRECTION OF FLOW.
5. PROVIDE ALL SERVICE CLEARANCES RECOMMENDED OR REQUIRED BY THE MANUFACTURERS AT ALL EQUIPMENT.



TOWN HALL KEY PLAN



ANNEX KEY PLAN

1/4" = 1' - 0"

0 4" 8"

P1.0

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REVISIONS

	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

TOWN HALL & ANNEX
PLUMBING ATTIC
DEMO AND NEW
WORK PLAN

M:\BOS\Projects\2022\0220195 - Burlington Town Hall Annex HVAC-Roof-ESS Design\054 HVAC\Rvt Pro\0220195 P1.0 PLUMBING DEMO AND NEW WORK Plan_Rvt_2024 - 4:53:44 PM by Nolan Gray

ABBREVIATIONS

GENERAL

A	COMPRESSED AIR
AD	ACCESS DOOR
ADD'L	ADDITIONAL
AF	AIR FOIL
AFF	ABOVE FINISHED FLOOR
AFR	ABOVE FINISHED ROOF
ALT	ALTITUDE OR ALTERNATE
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARCH	ARCHITECT
AS	AIR STREAM
ATC	AUTOMATIC TEMPERATURE CONTROL
ATM	ATMOSPHERE
AVE	AVERAGE
BHP	BRAKE HORSEPOWER
BI	BACKWARDS INCLINED
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
C TO C	CENTER TO CENTER
CENT	CENTRIFUGAL
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CLG	CEILING OR COOLING
CO	CARBON MONOXIDE
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONTR	CONTRACTOR
D	DRAIN OR DEPTH
DB	DRY BULB TEMPERATURE
DEG	DEGREE
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DP	DIFFERENTIAL PRESSURE
EA	EACH OR EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ELEC	ELECTRICAL
ELEV	ELEVATION
EMER	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
ENT	ENTER
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST	EXISTING
EXT	EXTERNAL
F	FAHRENHEIT
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FLRDR	FLOOR DRAIN
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOW SWITCH
FT	FEET
G	GAS
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFU	GLYCOL FEED UNIT
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRD	GRADE
GWB	GYPSUM WALL BOARD
HB	HOSE BIBB CONN.
HD	HEAD
HGT	HEIGHT
HP	HORSEPOWER OR HIGH POINT
HR	HOUR
HTG	HEATING
HZ	HERTZ (FREQUENCY, CYCLES PER SECOND)
ID	INSIDE DIAMETER
IN	INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LF	LINEAR FEET
LP	LOW POINT
LRA	LOCKED ROTOR AMPS
LUVR	LOUVER
LVDR	LOUVERED DOOR
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MU	MAKE-UP WATER
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED OR NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
No	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODP	OPEN DRIP PROOF
OV	OUTLET VELOCITY
PCF	POUNDS PER CUBIC FOOT
PD	PRESSURE DROP
PH	PHASE
PBG	PLUMBING
POS	PROVIDED BY OTHER SECTION
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSID	POUNDS PER SQUARE INCH DIFFERENTIAL
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
R	RADIUS
RA	RETURN AIR
RET	RETURN
REQ'D	REQUIRED
RH	RELATIVE HUMIDITY
RLA	RUNNING LOAD AMPS
RLF	RELIEF
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SCH	SCHEDULE
SCR	SCREEN
SCT	SATURATED CONDENSING TEMPERATURE
SDET	SMOKE DETECTOR
SEN	SENSIBLE
SHC	SENSIBLE HEAT CAPACITY
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SF	SQUARE FEET
SS	STAINLESS STEEL
STL	STEEL
SUP	SUPPLY
T	TEMPERATURE
TA	THROWAWAY
TEL	TELEPHONE
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TON	12,000 BTUH COOLING CAPACITY
TOT	TOTAL
TYP	TYPICAL
UC	UNDERCUT DOOR
V	VOLTS (ELECTRICAL)
VEL	VELOCITY
VIF	VERIFY IN FIELD
W	WIDTH OR WATT
W/	WITH
WB	WET BULB TEMPERATURE
WC	WATER COLUMN
WG	WATER GAUGE
W/O	WITHOUT
WPD	WATER PRESSURE DROP
WTD	WATER TEMPERATURE DIFFERENCE

CHILLED WATER

CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY

DUCT

ACD	AUTOMATIC CONTROL DAMPER
AFMS	AIR FLOW MEASURING STATION
AL	ACOUSTICAL DUCT LINER
BDD	BACKDRAFT DAMPER
BOD	BOTTOM OF DUCT
CD	CEILING DIFFUSER
CV	CONSTANT VOLUME SUPPLY AIR TERMINAL
CVE	CONSTANT VOLUME EXHAUST AIR TERMINAL
DD	DUAL DUCT SUPPLY AIR TERMINAL
DIFF	DIFFUSER
EA	EXHAUST AIR
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
FBD	FLAT BOTTOM DUCT
FD	FIRE DAMPER (W/ ACCESS DOOR)
LD	LINEAR DIFFUSER
MD	MOTOR OPERATED DAMPER
MUA	MAKE-UP AIR
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
OED	OPEN END DUCT
PAD	PRIMARY AIR DAMPER
RA	RETURN AIR
RG	RETURN GRILLE
RR	RETURN REGISTER
SA	SUPPLY AIR
SD	SMOKE DAMPER
SE	SMOKE EXHAUST
SFD	COMBINATION AUTOMATIC SMOKE/FIRE DAMPER WITH ACCESS DOOR
SG	SUPPLY GRILLE
SGD	SLIDE GATE DAMPER
SR	SUPPLY REGISTER
TA	THROW AWAY OR TRANSFER AIR
TG	TRANSFER GRILLE
TOD	TOP OF DUCT
TR	TRANSFER
TSP	TOTAL STATIC PRESSURE (IN. WG)
TV	TURNING VANES
VD	VOLUME DAMPER
VAV	VARIABLE AIR VOLUME SUPPLY AIR TERMINAL
VVE	VARIABLE AIR VOLUME EXHAUST AIR TERMINAL
WMS	WIRE MESH SCREEN

EQUIPMENT

AC	AIR CONDITIONING OR AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AF	AIR FILTER OR AIR FOIL
AHU	AIR HANDLING UNIT
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CC	COOLING COIL
CP	CONDENSATE DRAIN PUMP
CUH	CABINET UNIT HEATER
DDC	DIRECT DIGITAL CONTROL
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL
DH	DEHUMIDIFIER
DX	DIRECT EXPANSION
EF	EXHAUST FAN
EUH	ELECTRIC UNIT HEATER
F	FAN
FCU	FAN COIL UNIT
FTR	FINNED TUBE RADIATION
H	HUMIDIFIER
HC	HEATING COIL
HP	HEAT PUMP
MUA	MAKE-UP AIR UNIT
RF	RETURN FAN
SF	SUPPLY FAN
TF	TRANSFER FAN
TD	TRANSFER DUCT
UH	UNIT HEATER

HOT WATER

HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY

PIPING

AAV	AUTOMATIC AIR VENT
ACV	AUTOMATIC CONTROL VALVE
AS	AIR SEPARATOR
ATV	ATMOSPHERIC VENT
BOP	BOTTOM OF PIPE
CO	CLEAN-OUT
DOV	DRAIN-OFF VALVE
FOB	FLAT ON BOTTOM REDUCER
FOT	FLAT ON TOP REDUCER
FCV	FLOW CONTROL VALVE
MAV	MANUAL AIR VENT
MU	MAKE-UP WATER
TOP	TOP OF PIPE
V	VENT

REFRIGERATION

DX	DIRECT EXPANSION
HGB	REFRIGERANT HOT GAS BYPASS
RD	REFRIGERANT DISCHARGE (HOT GAS)
RG	REFRIGERANT GAS
RHGB	REFRIGERANT HOT GAS BYPASS
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION

PIPING SYMBOLS

- GATE VALVE (OUTSIDE SCREW & YOKE UNLESS SPECIFIED OTHERWISE)
- GLOBE VALVE (OUTSIDE SCREW & YOKE UNLESS SPECIFIED OTHERWISE)
- BALL VALVE
- BUTTERFLY VALVE
- HOSE END BALL VALVE WITH CAP AND CHAIN
- PRESSURE REDUCING VALVE
- CHECK VALVE (SILENT CHECK TYPE ON PUMP DISCHARGE)
- STRAINER WITH HOSE END BLOWOFF VALVE, CAP AND CHAIN
- SUCTION DIFFUSER/STRAINER (NON-REDUCING) WITH BLOWOFF
- 2-WAY MODULATING PRESSURE INDEPENDENT ACV
- 2-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 2-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- 3-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 3-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- FLOW SWITCH
- UNION
- BLIND FLANGE
- PIPE - CAPPED
- PRESSURE GAUGE (W/ BALL VALVE(S), SNUBBER, AND FOR STEAM, SIPHON)
- PRESSURE SWITCH
- THERMOMETER
- PRESSURE/THERMOMETER WELL
- AIR VENT - AUTOMATIC
- AIR VENT - MANUAL
- THERMOSTATIC AIR VENT (STEAM ONLY)
- DIRECTION OF FLOW
- FLEXIBLE CONNECTOR
- PIPE CONNECTION - TOP
- PIPE CONNECTION - BOTTOM
- PIPE - DOWN
- PIPE - UP
- PITCH OF PIPE - (R) RISE OR (D) DROP
- REDUCER - CONCENTRIC
- RISE (DOUBLE LINE - PLAN VIEW)
- DROP (DOUBLE LINE - PLAN VIEW)
- PIPE BREAK (DOUBLE LINE)
- PIPE BREAK (SINGLE LINE)

PIPING ABBREVIATIONS

- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- D — DRAIN
- HWR — HOT WATER RETURN
- HWS — HOT WATER SUPPLY
- (NAME) — REMOVE EXISTING PIPING

HVAC GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL DRAWINGS.
2. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, ARE DEEMED TO BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. ABSOLUTELY NO CLAIMS FOR EXTRA COMPENSATION WILL BE CONSIDERED FOR EXISTING CONDITIONS VISIBLE OR REASONABLY INFERABLE FROM A CAREFUL EXAMINATION OF THE EXISTING BUILDING.
3. THIS CONTRACTOR SHALL INSPECT THE EXISTING FIELD CONDITIONS AT THE SITE AND THE "AS-BUILT" BASE BUILDING CONTRACT DOCUMENTS PRIOR TO THE START OF ANY WORK TO DETERMINE WHAT EFFECT THE EXISTING CONDITIONS WILL HAVE ON HIS WORK. POTENTIAL PROBLEM AREAS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER IMMEDIATELY.
4. THIS CONTRACTOR SHALL CONNECT HIS WORK TO VARIOUS EXISTING PIPING, DUCTWORK, AND CONTROL SYSTEMS IN THE BASE BUILDING. THE NEW WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEMS. LOCATION OF EQUIPMENT OR THE ROUTING OF THE VARIOUS SYSTEMS AS WELL AS OPENINGS IN FLOOR SLABS OR WALLS SHALL BE GOVERNED BY THE EXISTING CONDITIONS AS THEY APPEAR IN THE FIELD OR ON THE "AS-BUILT" DRAWINGS.
5. CARE SHALL BE TAKEN DURING THE INSTALLATION TO NOT DAMAGE OR INTERRUPT BUILDING SYSTEMS AND SERVICES THAT ARE ALREADY INSTALLED. DAMAGE TO SUCH SYSTEMS OR EQUIPMENT CAUSED BY THIS CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.
6.
7. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION TO EXISTING SERVICES SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND BUILDING OWNER. THIS CONTRACTOR SHALL SUBMIT REQUESTS, WHERE THEY AFFECT THE OPERATION OF THE BUILDING SYSTEMS, AT LEAST ONE WEEK IN ADVANCE OF ANY REQUIRED SHUTDOWN. THE ACTUAL SHUTDOWN PERIOD SHALL BE AS SHORT AS POSSIBLE AND AT A TIME MUTUALLY AGREEABLE TO THE BUILDING OWNER AND THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
8. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
9. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
10. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND/OR PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
11. ALL MATERIALS AND EQUIPMENT UNLESS SPECIFICALLY INDICATED AS REUSED, SHALL BE NEW.
12. DUCTWORK SHALL NOT RUN ALONG FULL HEIGHT PARTITIONS.
13. EXISTING ROOM THERMOSTATS AND SENSORS SHALL BE PROTECTED DURING CONSTRUCTION AND RELOCATED AS INDICATED ON THE DRAWINGS. INSTALL NEW AND RELOCATED ROOM THERMOSTATS AND SENSORS 4 FEET AFF OR AS DIRECTED OTHERWISE BY ARCHITECT.
14. WHEN SECTION OF DUCTWORK IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED DUCT SHALL PREVAIL. SIZE OF DUCT RUN-OUTS TO DIFFUSER SHALL EQUAL DIFFUSER NECK SIZE.
15. CONTRACTOR SHALL PROVIDE THE FOLLOWING SERVICES, AS APPLICABLE, ON ALL EXISTING HVAC EQUIPMENT INDICATED TO BE REUSED: 1) FILTER CHANGES, 2) BALANCING, 3) LUBRICATION. CONTRACTOR SHALL REPORT ANY EQUIPMENT DEFICIENCIES FOUND TO THE ARCHITECT AND/OR ENGINEER.
16. THE FIRE PROOFING OF THE BUILDING STRUCTURE IS NOT TO BE REMOVED FOR THE INSTALLATION OF HANGERS, SUPPORTS, DUCTWORK, ETC. IF FIRE PROOFING IS DAMAGED, IT SHALL BE REPAIRED AT THE EXPENSE OF THE TRADE.
17. CONTRACTOR SHALL TEST AND CALIBRATE ALL CONTROLS AND VERIFY ALL ARE FULLY FUNCTIONAL AND SUBMIT DOCUMENTATION. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
18. CONTRACTOR SHALL PROVIDE AND SUBMIT DOCUMENTATION FOR TESTING AND BALANCING OF ALL AIR AND WATER SYSTEMS, DUCT AND PIPING PRESSURE AND LEAKAGE TESTS, OPERATING AND MAINTENANCE MANUALS, AND AS BUILT DRAWINGS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
19. REFER TO THE PROJECT SPECIFICATIONS FOR FURTHER REQUIREMENTS. SPECIAL ATTENTION IS DIRECTED TO THE PART 1 PROJECT SCOPE IN REGARDS TO THE DIV. 23 CONTRACTOR PROVIDING A "MAXIMUM SPACE SOUND PRESSURE LEVEL REPORT" AND COORDINATING THIS INFORMATION WITH ALL IMPACTED SUB-CONTRACTORS AND EQUIPMENT MANUFACTURERS PRIOR TO SUBMITTING SHOP DRAWINGS.
20. MANY EQUIPMENT SCHEDULES DO NOT LIST QUANTITIES. CONTRACTOR SHALL REFER TO ALL DRAWINGS AND PROVIDE THE REQUIRED QUANTITIES FOR ALL COMPONENTS.

DUCTWORK

SINGLE LINE		DOUBLE LINE
WxD	RECTANGULAR DUCT W=WIDTH, D=DEPTH (INCHES UNLESS NOTED OTHERWISE) AS VIEWED	W D 10x6
DIA"Ø	ROUND DUCT (DIA=INSIDE DIAMETER)	DIA 10"Ø
	ROUND SUPPLY DUCT UP	
	ROUND SUPPLY DUCT DOWN	
	SUPPLY DUCT UP	
	SUPPLY DUCT DOWN	
	ROUND RETURN DUCT UP	
	ROUND RETURN DUCT DOWN	
	RETURN DUCT UP	
	RETURN DUCT DOWN	
	ROUND EXHAUST DUCT UP	
	EXHAUST DUCT UP	
	EXHAUST DUCT DOWN	
	ROUND EXHAUST DUCT DOWN	
10x6 6"Ø	RECTANGULAR DUCT TO ROUND SUPPLY/RETURN/ EXHAUST	6"Ø 10x6
10x6 6"Ø		
A/D	CEILING DUCT MOUNTED DIFFUSER/GRILLE	VD
A/D	TAKE-OFF TO DIFFUSER/GRILLE	HARD ELBOW VD
VD	CEILING DUCT MOUNTED DIFFUSER/GRILLE	VD
	ACOUSTICALLY LINED DUCT	
	FLEXIBLE DUCT	
	STANDARD RADIUS ELBOW (R = W) SUPPLY/RETURN/EXHAUST	R W
	FULL LENGTH SPLITTER VANES (R < W) SUPPLY/RETURN/ EXHAUST	R W

SINGLE LINE		DOUBLE LINE
	SPLIT TAKE-OFF	
	RECTANGULAR WYE SUPPLY	
	HORIZONTAL OFFSET SUPPLY/RETURN/EXHAUST	
R/D	CHANGE OF ELEVATION (R)RISE OR (D)DROP SUPPLY/RETURN/ EXHAUST	R/D
	45° TAP TAKE-OFF	
	90° TAP TAKE-OFF 45° TAKEOFF	
	90° TAP TAKE-OFF SQUARE TO ROUND CONNECTION	
	90° TAP TAKE-OFF 45° TAKE-OFF TRANSITION TO ROUND	
	90° TAP TAKE-OFF BELLMOUTH CONNECTION	
	CONVERGE RETURN/EXHAUST W/45° TAKE-OFFS	
	SIDEWALL DUCT MOUNTED REGISTER/GRILLE	
VD VD	SUPPLY SIDEWALL LINEAR DIFFUSER (W/ SHEETMETAL PLENUM, LINING & BRANCH CONN. FOR EVERY 4' OF LINEAR.)	VD VD
VD VD	SUPPLY CEILING LINEAR DIFFUSER (W/SHEETMETAL PLENUM, LINING & BRANCH CONN. FOR EVERY 4' OF LINEAR.)	VD VD PLENUM BY LD MFR
	OPEN END DUCT W/ 1/2"x1/2" WMS	

- ACD — AUTOMATIC CONTROL DAMPER W/ ACCESS DOOR
- VD — MANUAL VOLUME DAMPER
- FD — SELF-CLOSING FIRE DAMPER W/ ACCESS DOOR
- SD — AUTOMATIC SMOKE DAMPER W/ ACCESS DOOR
- SFD — COMBINATION SMOKE/FIRE DAMPER W/ ACCESS DOOR
- SDET — DUCT MOUNTED SMOKE DETECTOR
- BDD — BACKDRAFT DAMPER
- STANDARD 4-WAY BLOW SUPPLY DIFFUSER
- RETURN/EXHAUST GRILLE OR REGISTER
- LINEAR DIFFUSER
- ROOF EXHAUST FAN SHOWN ON ROOF
- ROOF EXHAUST FAN SHOWN ON FLOORPLAN
- RETURN OR EXHAUST AIR FLOW
- SUPPLY AIR FLOW

HVAC DEMOLITION NOTES

1. REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED.
2. THE LOCATIONS OF EXISTING EQUIPMENT INCLUDING PIPING, DUCTWORK, EQUIPMENT, CONDUITS, ETC ARE SHOWN IN AN APPROXIMATE WAY ONLY. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS AND COMMENCEMENT OF WORK TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
3. TRACE AND LABEL ALL EXISTING SYSTEMS WITHIN THE DEMOLITION AREA AND BEYOND PRIOR TO DISCONNECTION AND REMOVAL TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION AREA IS AFFECTED. REVIEW IN DETAIL WITH THE GENERAL CONTRACTOR AND OWNER WHAT IS TO BE REMOVED AND REMAIN PRIOR TO WORK COMMENCING THE DEMOLITION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
4. COORDINATE EQUIPMENT REMOVAL WITH ALL PARTIES TO PROVIDE DISCONNECTION. REMOVE EQUIPMENT BY UNFASTENING AT THE SUPPORTS OR ATTACHMENTS. ALSO REMOVE THE ATTACHMENTS FROM THE BUILDING, LEAVING NO COMPONENT OF THE ORIGINAL INSTALLATION.
5. EXERCISE CARE WITH EQUIPMENT THAT IS TO BE RELOCATED OR TURNED OVER TO THE OWNER. EXAMINE THE EQUIPMENT BEFORE REMOVAL IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE TO DETERMINE ITS CONDITION, DELIVER OWNER-RETAINED EQUIPMENT TO AN ON-SITE LOCATION DESIGNATED BY THE OWNER AND OBTAIN ACKNOWLEDGMENT OF RECEIPT IN ORIGINAL CONDITION.
6. PROMPTLY REPAIR ANY DAMAGE CAUSED DURING/BY THE EXECUTION OF WORK. DAMAGE INCLUDES BUT IS NOT LIMITED TO DESTRUCTION OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.
7. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
8. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
9. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
10. DO NOT USE CUTTING TORCHES UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS PIPE INTERIORS OR SHAFTS, VERIFY CONDITION AND CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS. MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS. MAINTAIN ADEQUATE VENTILATION WHEN USING CUTTING TORCHES.
11. DRAIN, PURGE, OR OTHERWISE REMOVE, COLLECT, AND PROPERLY DISPOSE OF CHEMICALS, LIQUIDS, GASES, EXPLOSIVES, ACIDS, FLAMMABLES, OR OTHER DANGEROUS MATERIALS BEFORE PROCEEDING WITH DEMOLITION OPERATIONS.
12. PROPERLY LABEL ALL UNLABLED PIPES THAT REMAIN WITH COLOR PIPE MARKERS AND VALVE TAGS. MOUNT A VALVE AND SERVICE CHART IN THE AREA OF DEMOLITION THAT IDENTIFIES ALL LABELED SERVICES. TURN ONE COPY OF SAME OVER TO THE OWNER.
13. ALL DEMOLITION SCOPE ASSOCIATED WITH LOW VOLTAGE WIRING FOR CONTROLS AND ASSOCIATED INTERLOCKS SHALL BE INCLUDED IN THIS CONTRACT.
14. ALL WORK SHALL BE COORDINATED WITH SPECIFICATION SECTION 020800 ABSESTOS REMOVAL AND SECTION 020900 LEAD PAINT HAZARD CONTROL.

DIAGRAM EQUIPMENT SYMBOLS

- FILTER BANK
- HEATING COIL (H / C)
- COOLING COIL (C / C)
- VARIABLE FREQUENCY DRIVE (S/S, ALM, VFD, VFDS, VFDSC)
- STARTER (STARTER, S/S, CT)
- AIR COOLED CHILLER
- CENTRIFUGAL FAN
- ROOF FAN
- OPPOSED BLADE DAMPER W/ TWO POSITION ACTUATOR
- OPPOSED BLADE DAMPER W/ MODULATING ACTUATOR
- PARALLEL BLADE DAMPER W/ TWO POSITION ACTUATOR
- PARALLEL BLADE DAMPER W/ MODULATING ACTUATOR
- BACKDRAFT DAMPER
- 2-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 2-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)
- 3-WAY AUTOMATIC CONTROL VALVE (MODULATING)
- 3-WAY AUTOMATIC CONTROL VALVE (TWO POSITION)

CALLOUT SYMBOLS

- CONNECT NEW TO EXISTING
- LIMIT OF DEMOLITION
- A / H2.0 — SECTION DESIGNATION / SHEET NUMBER
- 1 — REVISION NUMBER
- T — TEMPERATURE SENSOR OR THERMOSTAT
- H — HUMIDITY SENSOR OR HUMIDISTAT
- REMOVE EXISTING ITEM
- SA(100) — S = SUPPLY A = SCHEDULED DIFFUSER (100) = CFM TO BALANCE TO
- RA(100) — R = RETURN A = SCHEDULED GRILLE (100) = CFM TO BALANCED TO
- EA(100) — E = EXHAUST A = SCHEDULED REGISTER/GRILLE (100) = CFM TO BALANCED TO

EQUIPMENT REQUIRING ELECTRICAL SERVICE,
SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS:

SCHEDULED EQUIPMENT UNIT NUMBER

TAG 3.1 XX

FIRST DIGIT(S) = LEVEL WHERE UNIT IS LOCATED:
B = BASEMENT
G = GROUND FLOOR
1 = FIRST FLOOR
2 = SECOND FLOOR, ETC
A = ATTIC
R = ROOF
SECOND DIGIT(S):
1 = FIRST UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
2 = SECOND UNIT OF THIS EQUIPMENT TYPE ON THIS LEVEL.
ETC. (DUE TO EDITING NOT ALL NUMBERS MAY BE USED)

EQUIPMENT REUSE

EQUIPMENT NOT REQUIRING ELECTRICAL SERVICE,
SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS:

TAG 3.1 XX — REFER TO EQUIPMENT REQUIRING ELECTRICAL SERVICE SYMBOL ABOVE FOR TAG AND DATA INFORMATION.

HVAC NEW WORK NOTES

1. MECHANICAL NEW WORK NOTES SHALL APPLY TO ALL MECHANICAL NEW WORK DRAWINGS.
2. EXISTING DUCT AND PIPE SIZES INDICATED ARE APPROXIMATE. FIELD VERIFY EXISTING DUCT AND PIPE SIZES AFTER INSULATION IS REMOVED. PROVIDE TRANSITIONS FROM EXISTING DUCT AND PIPING TO NEW DUCT AND PIPING AS REQUIRED.
3. PROVIDE ALL SERVICE CLEARANCES RECOMMENDED OR REQUIRED BY THE MANUFACTURERS AT ALL EQUIPMENT.
4. WHEN THE INSTALLATION IS COMPLETE, THE NEW AND EXISTING PIPING SHALL BE DRAINED TO WASTE UNTIL THE RETURN IS CLEAR AND FREE OF ALL DEBRIS AND RUST. PROVIDE ALL LABOR AND MATERIAL TO REFILL THE ENTIRE CHILLED WATER SYSTEM.
5. 1" FILTER MEDIA SHALL BE TEMPORARILY INSTALLED OVER ALL SUPPLY AIR DIFFUSERS AND REGISTERS PRIOR TO STARTING UP THE NEW AIR HANDLING EQUIPMENT. AFTER THE NEW AIR HANDLING EQUIPMENT HAS RUN FOR A SHORT PERIOD OF TIME, THE CONTRACTOR SHALL REMOVE THE FILTER MEDIA. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED LADDERS AND BATTERY OPERATED LIFTS.
6. BALANCE DIFFUSERS, REGISTERS, GRILLES, AND EQUIPMENT TO FLOWS INDICATED.
7. PROVIDE ALL REQUIRED CUTTING AND PATCHING FOR WORK INDICATED. PATCHING SHALL BE PROVIDED FOR FLOORS, WALLS, CEILINGS, AND ROOFS. PATCHING SHALL BE MADE WITH SIMILAR MATERIALS TO MATCH EXISTING CONDITIONS AND PAINTED TO MATCH ADJACENT SURFACES.
8. PROVIDE FIRE STOPPING FOR ALL PIPING AND CONDUIT PENETRATIONS THROUGH WALLS.
9. THE CONTRACTOR SHALL FIELD VERIFY INSTALLATION AND WORKING CONDITION OF EXISTING MANUAL VOLUME DAMPERS. CONTRACTOR SHALL PROVIDE NEW MANUAL VOLUME DAMPERS WHERE EXISTING DAMPERS ARE MISSING OR NOT FUNCTIONING PROPERLY.
10. THE CONTRACTOR SHALL PROVIDE MINIMUM OF 20 LINEAR FEET OF 1" DUCT LINING FROM NEW AIR HANDING UNITS WHERE POSSIBLE.
11. FIELD VERIFY RIGGING REQUIREMENTS PRIOR TO SUBMITTING A PROPOSAL. COORDINATE ALL RIGGING WITH EXISTING CONDITIONS (INCLUDING ON STREET CONDITIONS AND PARKING). COORDINATE ALL RIGGING WITH THE OWNER. PAY FOR ALL POLICE DETAILS (IF CRANE IS LOCATED ON TOWN PROPERTY OR STREETS).
12. PROVIDE LOW-VOLTAGE WIRING FROM ELECTRICAL SOURCE TO MISCELLANEOUS ATC DEVICES. REFER TO AND COORDINATE WITH DIVISION 26.

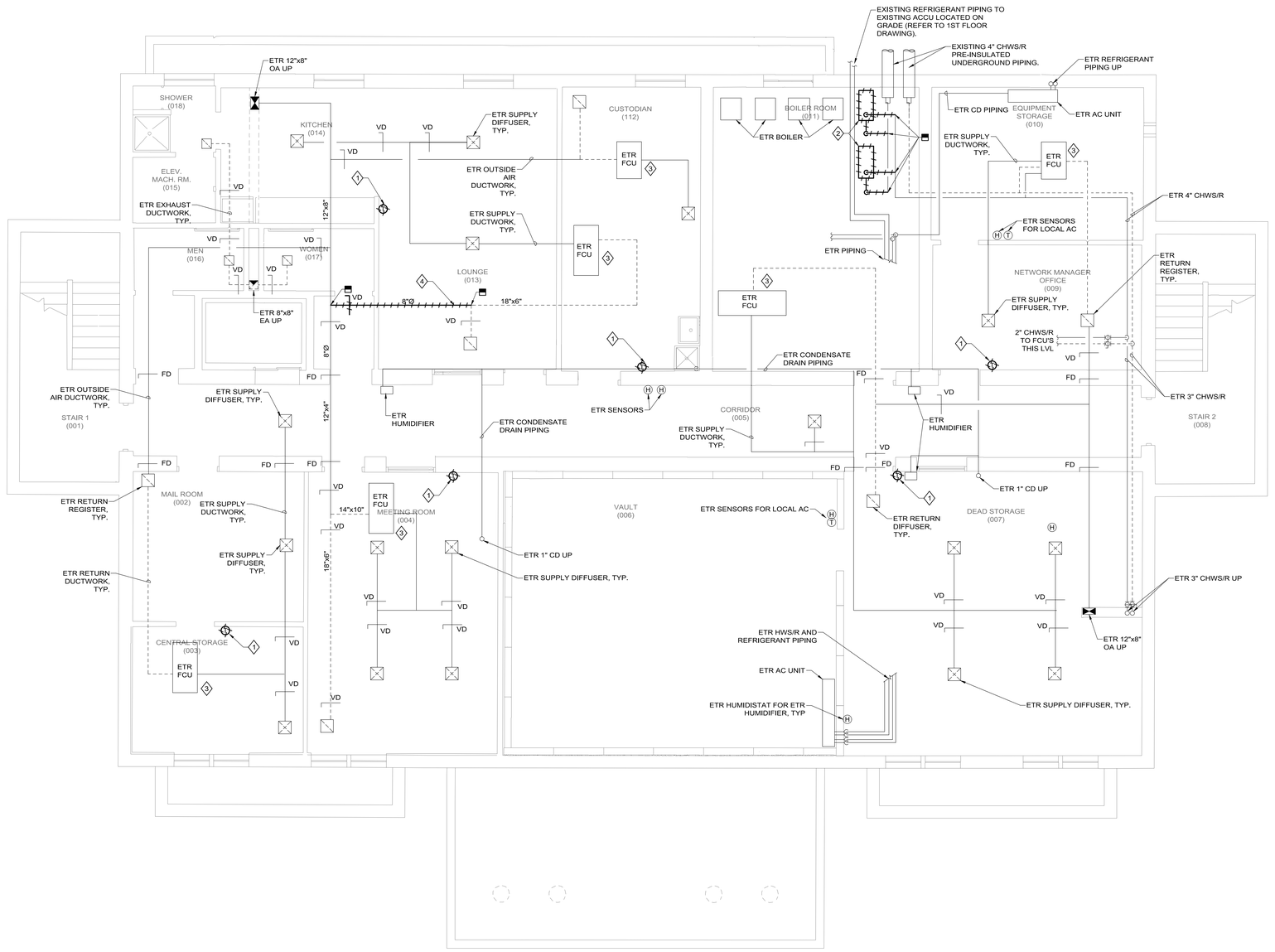
ROOF WORK NOTE

1. ROOF WORK NOTES SHALL APPLY TO ALL MECHANICAL NEW WORK DRAWINGS.
2. PROVIDE ADEQUATE WEATHER PROTECTION AGAINST WIND, RAIN, SNOW, ETC. FOR ALL ROOF OPENINGS DURING CONSTRUCTION.

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At the request of [IDENTIFY PARTY], this [NAME OF DELIVERABLE (REPORT, DRAWINGS, ETC.)] has been expedited to [Client] Hence, [client] is hereby notified that NV5 did not have an opportunity to conduct its industry standard quality control procedures. Accordingly, Client agrees that the [NAME OF DELIVERABLE



MECHANICAL BASEMENT
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING IN THE BASEMENT IS NOT SHOWN FOR CLARITY.

KEYNOTES

1	REMOVE THE EXISTING THERMOSTATS IN THEIR ENTIRETY INCLUDING ANY LOW VOLTAGE CONTROL WIRING.
2	REMOVE THE EXISTING BASE MOUNTED CHILLED WATER PUMPS IN THEIR ENTIRETY. REMOVE THE 4" PIPING FROM THE PUMP BACK TO THE CEILING IN PREPARATION FOR THE NEW WORK.
3	MEASURE THE EXISTING CHILLED WATER FLOW AT THE FAN COIL UNIT. REMOVE THE EXISTING 3-WAY CHILLED WATER VALVE SERVING THE FCU IN ITS ENTIRETY. CAP THE CHILLED WATER BYPASS PIPE IN PREPARATION FOR NEW WORK. THE 3-WAY HEATING HOT WATER VALVE TO IS REMAIN AND BE REUSED. TYPICAL FOR ALL FCU'S. REFER TO THE "EXISTING FCU PIPING MODIFICATIONS" DETAIL.
4	REMOVE A SECTION OF THE OUTDOOR AIR DUCTWORK AS SHOWN.

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

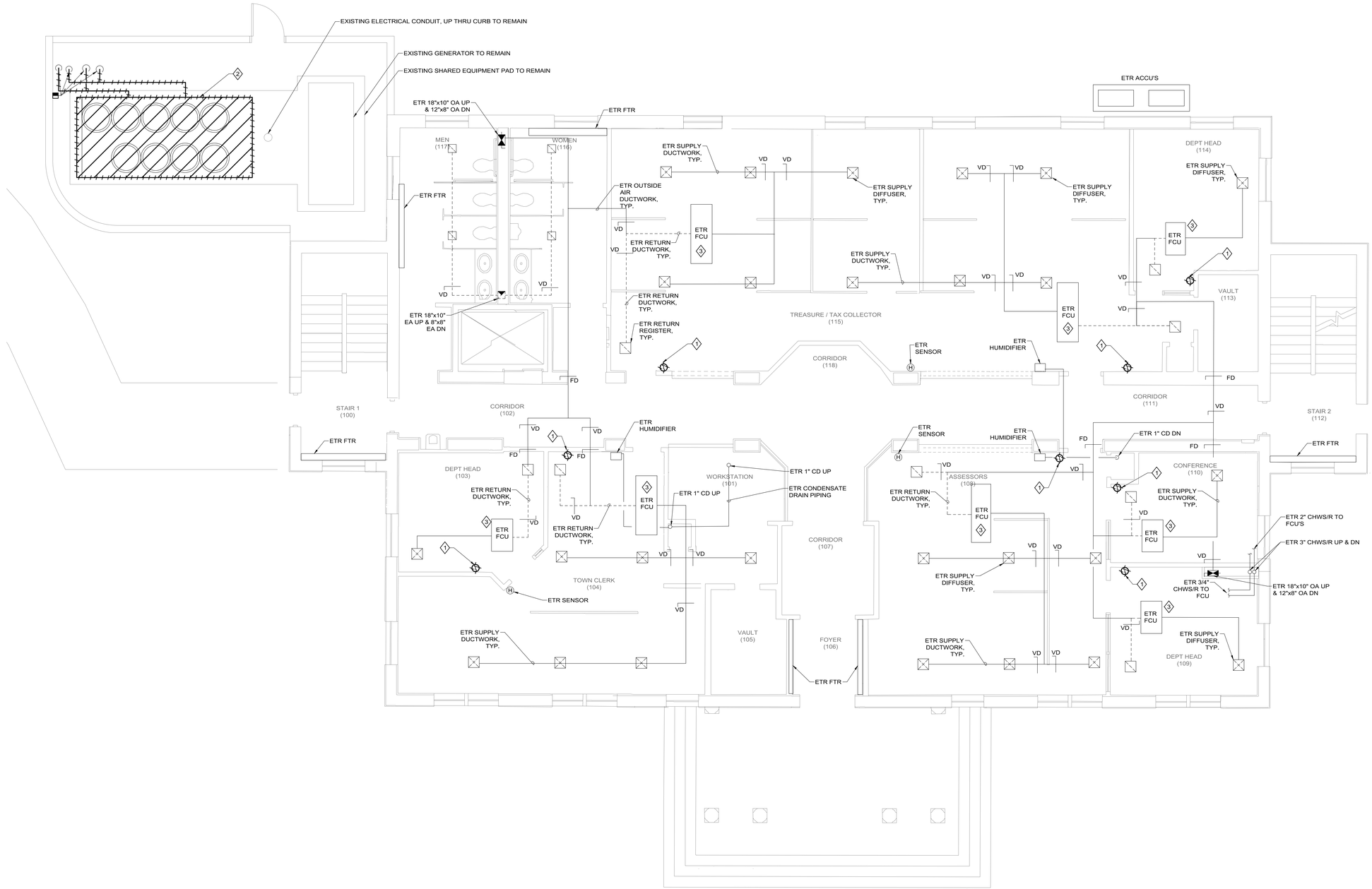
SCALE
1/4" = 1'-0"

TOWN HALL
MECHANICAL
BASEMENT FLOOR
DEMOLITION PLAN

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

MD1.0

M:\0220195\Projects\0220195.rvt Plotted: Tue, Jun 18, 2024 - 3:45pm Plotted By: Nicole Grieco



MECHANICAL FIRST FLOOR
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON THE FIRST FLOOR IS NOT SHOWN FOR CLARITY.

KEYNOTES

1	REMOVE THE EXISTING THERMOSTATS IN THEIR ENTIRETY INCLUDING ANY LOW VOLTAGE CONTROL WIRING.
2	REMOVE THE EXISTING AIR COOLED CHILLER. REMOVE THE PIPING BACK TO THE POINTS SHOWN IN PREPARATION FOR NEW WORK. DRAIN THE EXISTING CHILLED WATER SYSTEM AS NECESSARY. DISPOSE OR RECYCLE THE PROPYLENE GLYCOL WATER AS NECESSARY. DO NOT DRAIN TO STORM OR WASTE.
3	MEASURE THE EXISTING CHILLED WATER FLOW AT THE FAN COIL UNIT. REMOVE THE EXISTING 3-WAY CHILLED WATER VALVE SERVING THE FCU IN ITS ENTIRETY. CAP THE CHILLED WATER BYPASS PIPE IN PREPARATION FOR NEW WORK. THE 3-WAY HEATING HOT WATER VALVE TO IS REMAIN AND BE REUSED. TYPICAL FOR ALL FCU'S. REFER TO THE "EXISTING FCU PIPING MODIFICATIONS" DETAIL.



PHOTOGRAPH NO. 1 - EXISTING AIR COOLED CHILLER TO BE REMOVED IN ITS ENTIRETY.



PHOTOGRAPH NO. 2 - EXISTING CHILLED WATER PIPING TO BE REMOVED BACK TO THE POINTS SHOWN.

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

TOWN HALL
MECHANICAL
FIRST FLOOR
DEMOLITION PLAN

1/4" = 1' - 0"

0 4" 8"

MD1.1

M:\BOS\Projects\0220195 - Burlington Town Hall Annex HVAC, Roof, and Chiller\Dwg\MEP\Revit Files\0220195_MD1.1_HVAC TOWN HALL FIRST FLOOR PLAN - DEMO.rvt [Temp] April 08, 2024 - 1:45pm - Nolan Cyrus



MECHANICAL SECOND FLOOR
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON THE SECOND FLOOR IS NOT SHOWN FOR CLARITY.
2. THE EXISTING DUCTWORK FEEDING THE EXISTING DIFFUSERS ON LVL 2 IS SHOWN ON THE ATTIC LEVEL, DRAWING MD1.3.

KEYNOTES

1	REMOVE THE EXISTING THERMOSTATS IN THEIR ENTIRETY INCLUDING ANY LOW VOLTAGE CONTROL WIRING.

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SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

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NG

CHECKED BY
JS

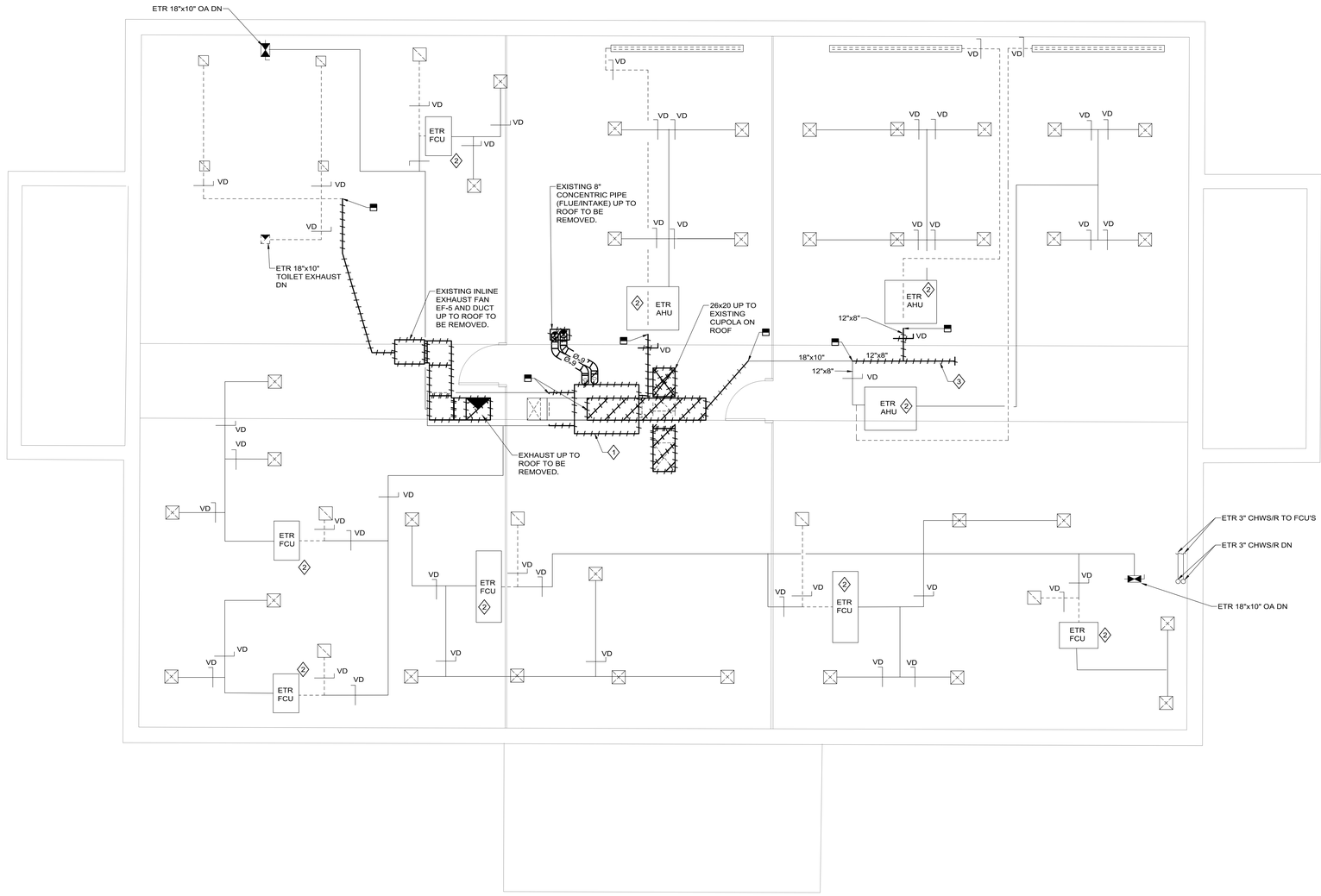
SCALE
1/4" = 1'-0"

TOWN HALL
MECHANICAL
SECOND FLOOR
DEMOLITION PLAN

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

MD1.2

M:\BOS\Projects\0220195.000\Design\504 HVAC\Revit Files\0220195 MD1.2 HVAC TOWN HALL SECOND FLOOR PLAN - REMOVE.rvt [Revit] Jun 18, 2024 - 3:45pm - Nova Cruz



MECHANICAL ATTIC
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTE	
1.	A MAJORITY OF THE HWS/R AND CHWS/R PIPING IN THE ATTIC IS NOT SHOWN FOR CLARITY.

KEYNOTES	
1	REMOVE THE EXISTING MAKE-UP AIR UNIT IN ITS ENTIRETY. REMOVE ANY HANGERS. REMOVE THE INTAKES/FLUES IN THEIR ENTIRETY. REMOVE THE DUCT AS SHOWN. REMOVE ANY LOW VOLTAGE CONTROLS IN THEIR ENTIRETY.
2	MEASURE THE EXISTING CHILLED WATER FLOW AT THE FAN COIL UNIT. REMOVE THE EXISTING 3-WAY CHILLED WATER VALVE SERVING THE FCU IN ITS ENTIRETY. CAP THE CHILLED WATER BYPASS PIPE IN PREPARATION FOR NEW WORK. THE 3-WAY HEATING HOT WATER VALVE TO IS REMAIN AND BE REUSED. TYPICAL FOR ALL FCU'S. REFER TO THE "EXISTING FCU PIPING MODIFICATIONS" DETAIL.
3	REMOVE A SECTION OF THE OUTDOOR AIR DUCTWORK AS SHOWN.

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REVISIONS

	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

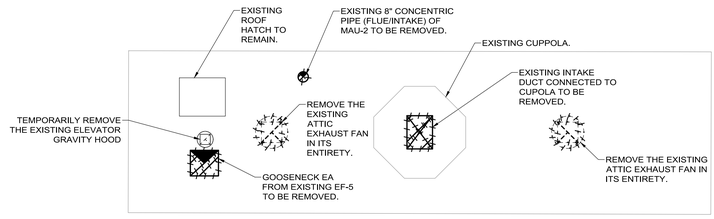
TOWN HALL
MECHANICAL
ATTIC
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

MD1.3

#:\BURLINGTON\Projects\0220195\0220195 - Burlington Town Hall and Annex HVAC Re-roof\2 Drawings\CAD Files\0220195 MD1.3 HVAC TOWN HALL ATTIC - DEMO.dwg, Plot=1 April 09, 2024 - 3:45pm, Nicholas Grube



MECHANICAL ROOF
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

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SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

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CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

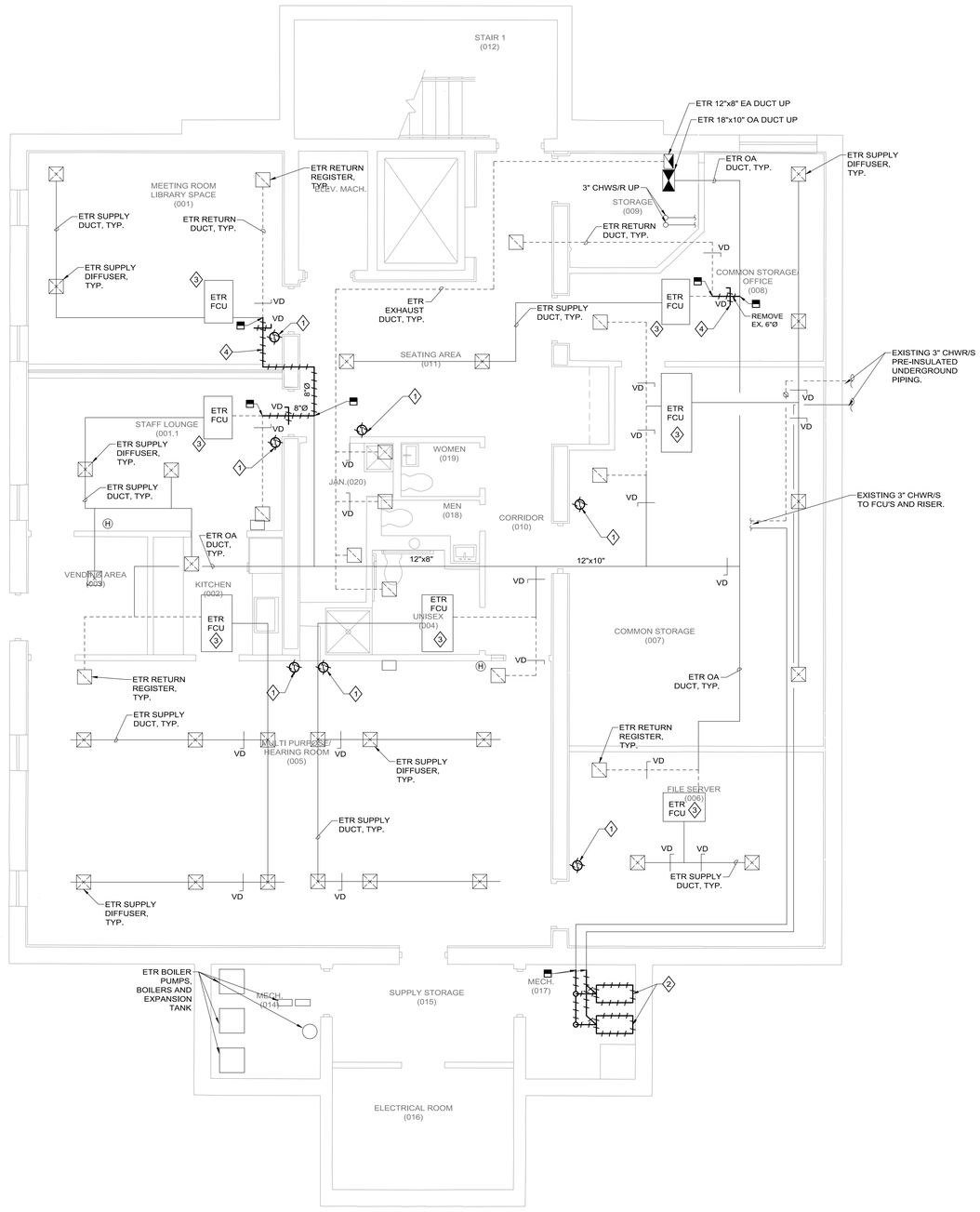
TOWN HALL
MECHANICAL
ROOF
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

MD1.4

#:\BURLINGTON\Projects\0220195 - Burlington Town Hall Annex HVAC Roof\CAD\Drawings\Arch\HVAC Plan\0220195 MD1.4 HVAC TBMH_HALL ROOF - ROOF.dwg, Plot: 1:1, Jun 18, 2024 - 3:45pm, Nicole Grieco



MECHANICAL BASEMENT DEMOLITION PLAN

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

MECHANICAL GENERAL NOTES
1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING IN BASEMENT IS NOT SHOWN FOR CLARITY.

KEYNOTES	
1	REMOVE THE EXISTING THERMOSTATS IN THEIR ENTIRETY INCLUDING ANY LOW VOLTAGE CONTROL WIRING.
2	REMOVE THE EXISTING BASE MOUNTED CHILLED WATER PUMPS IN THEIR ENTIRETY. REMOVE THE PIPING FROM THE PUMP BACK TO THE CEILING IN PREPARATION FOR THE NEW WORK.
3	MEASURE THE EXISTING CHILLED WATER FLOW AT THE FAN COIL UNIT. REMOVE THE EXISTING 3-WAY CHILLED WATER VALVE SERVING THE FCU IN ITS ENTIRETY. CAP THE CHILLED WATER BYPASS PIPE IN PREPARATION FOR NEW WORK. THE 3-WAY HEATING HOT WATER VALVE TO IS REMAIN AND BE REUSED. TYPICAL FOR ALL FCU'S. REFER TO THE "EXISTING FCU PIPING MODIFICATIONS" DETAIL.
4	REMOVE A SECTION OF THE OUTDOOR AIR DUCTWORK AS SHOWN.

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SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

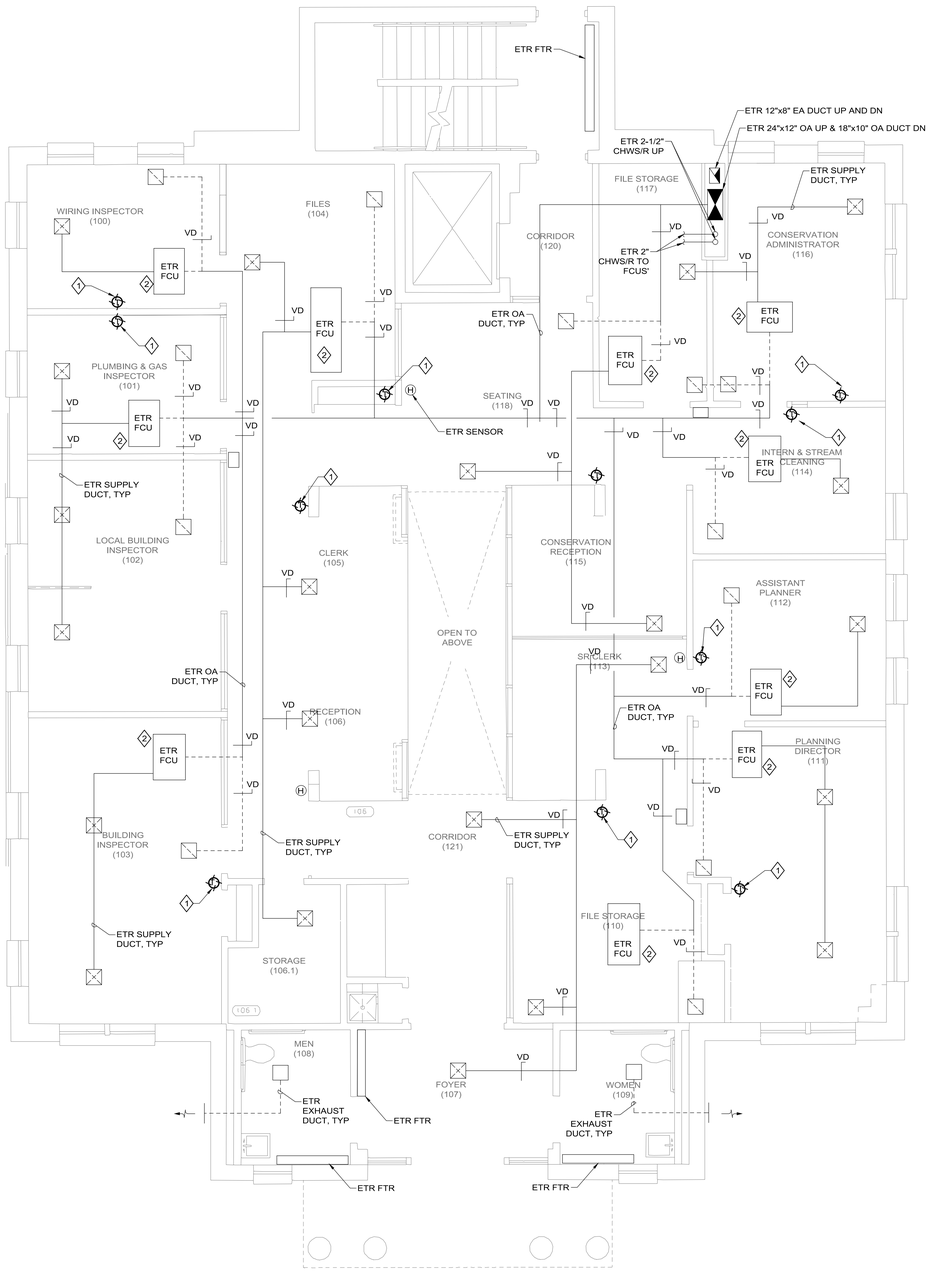
ANNEX
MECHANICAL
BASEMENT FLOOR
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

MD2.0

#:\BLDG\Projects\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\BIM Projects\2024 HVAC\Rvt Files\0220195 MD2.0 HVAC ANNEX BASEMENT PLAN - DEMO.rvt [Revit] April 08, 2024 - 7:45pm Nolan Cyrus



MECHANICAL FIRST FLOOR
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES
1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON THE FIRST FLOOR ARE NOT SHOWN FOR CLARITY.

KEYNOTES	
1	REMOVE THE EXISTING THERMOSTATS IN THEIR ENTIRETY INCLUDING ANY LOW VOLTAGE CONTROL WIRING.
2	MEASURE THE EXISTING CHILLED WATER FLOW AT THE FAN COIL UNIT. REMOVE THE EXISTING 3-WAY CHILLED WATER VALVE SERVING THE FCU IN ITS ENTIRETY. CAP THE CHILLED WATER BYPASS PIPE IN PREPARATION FOR NEW WORK. THE 3-WAY HEATING HOT WATER VALVE TO IS REMAIN AND BE REUSED. TYPICAL FOR ALL FCU'S. REFER TO THE "EXISTING FCU PIPING MODIFICATIONS" DETAIL.

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	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
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HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

ANNEX
MECHANICAL
FIRST FLOOR
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

MD2.1

M:\BOS\Projects\0220195\220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\500 Work\Civil Files\220195 MD2.1 HVAC ANNEX FIRST FLOOR PLAN - DEMO.dwg, [Plot] April 09, 2024 - 3:45pm, Nolan Gurka



MECHANICAL SECOND FLOOR DEMOLITION PLAN

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

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON THE SECOND FLOOR ARE NOT SHOWN FOR CLARITY.
2. THE EXISTING DUCTWORK FEEDING THE EXISTING DIFFUSERS ON LVL 2 ARE SHOWN ON THE ATTIC LEVEL, DRAWING MD2.3.

KEYNOTES

1	REMOVE THE EXISTING THERMOSTATS IN THEIR ENTIRETY INCLUDING ANY LOW VOLTAGE CONTROL WIRING.
2	DISCONNECT THE EXISTING DUCTWORK AND REMOVE THE EXISTING CEILING EXHAUST FAN, TYPICAL FOR 2.

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SEAL

PROJECT

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0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

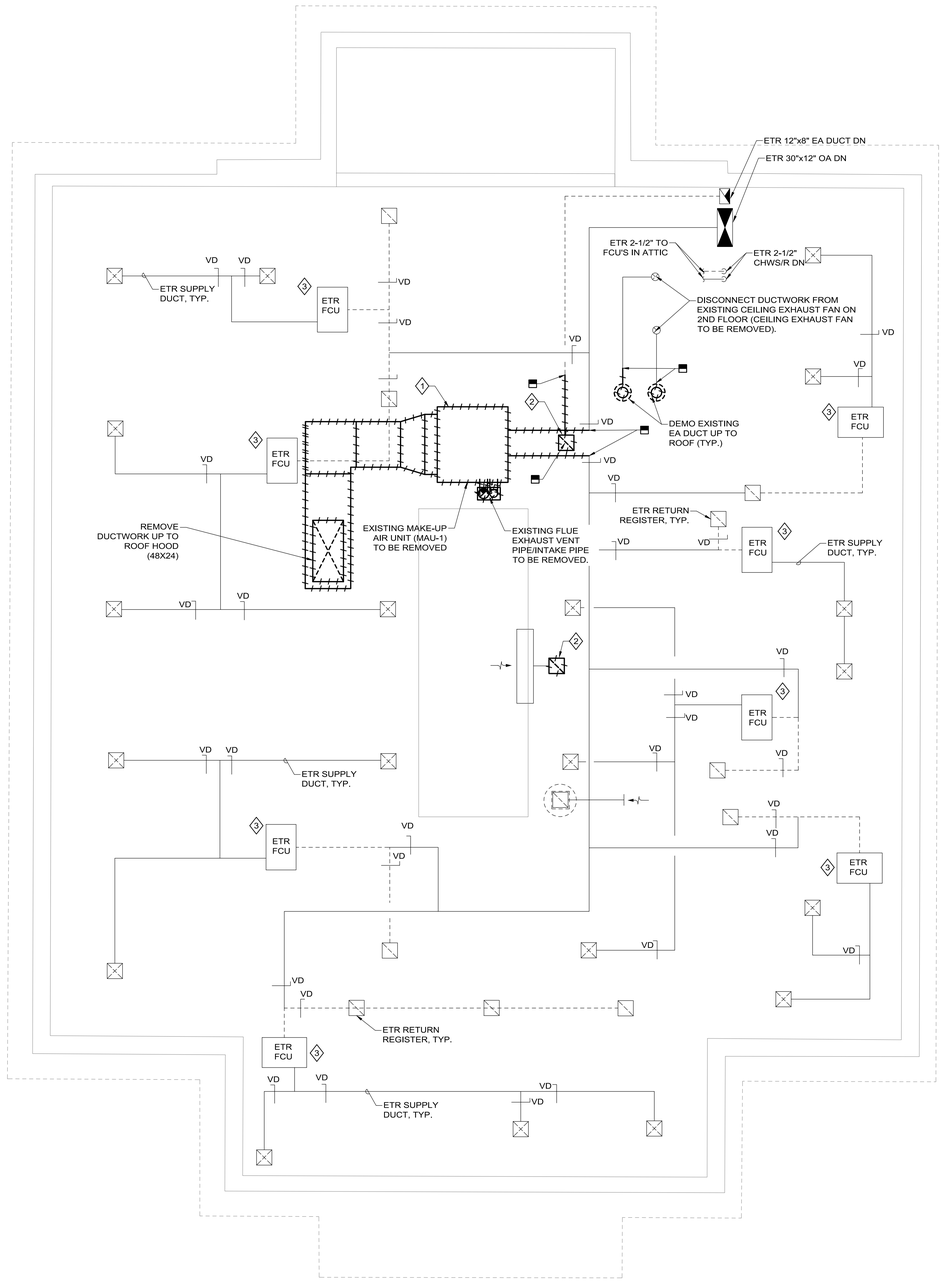
ANNEX
MECHANICAL
SECOND FLOOR
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

MD2.2

#0220195 Drawings\0220195.rvt Burlington Town Hall Annex HVAC Roof\MD Drawings\Sht HVAC Rev Plot\220195 MD2.2 HVAC ANNEX SECOND FLOOR PLAN - DEMO.dwg [Plot] Apr 08, 2024 - 3:56pm Nanci Gore



MECHANICAL ATTIC
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTE
1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING IN THE ATTIC IS NOT SHOWN FOR CLARITY.

KEYNOTES	
1	REMOVE THE EXISTING MAKE-UP AIR UNIT IN ITS ENTIRETY. REMOVE ANY HANGERS. REMOVE THE INTAKES/FLUES IN THEIR ENTIRETY. REMOVE THE DUCT AS SHOWN. REMOVE ANY LOW VOLTAGE CONTROLS IN THEIR ENTIRETY.
2	REMOVE THE EXISTING 12"x8" EXHAUST DUCTWORK UP TO THE ROOF TOP FAN IN ITS ENTIRETY INCLUDING ANY HANGERS. TYPICAL FOR 2.
3	MEASURE THE EXISTING CHILLED WATER FLOW AT THE FAN COIL UNIT. REMOVE THE EXISTING 3-WAY CHILLED WATER VALVE SERVING THE FCU IN ITS ENTIRETY. CAP THE CHILLED WATER BYPASS PIPE IN PREPARATION FOR NEW WORK. THE 3-WAY HEATING HOT WATER VALVE TO IS REMAIN AND BE REUSED. TYPICAL FOR ALL FCU'S. REFER TO THE "EXISTING FCU PIPING MODIFICATIONS" DETAIL.

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▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

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NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

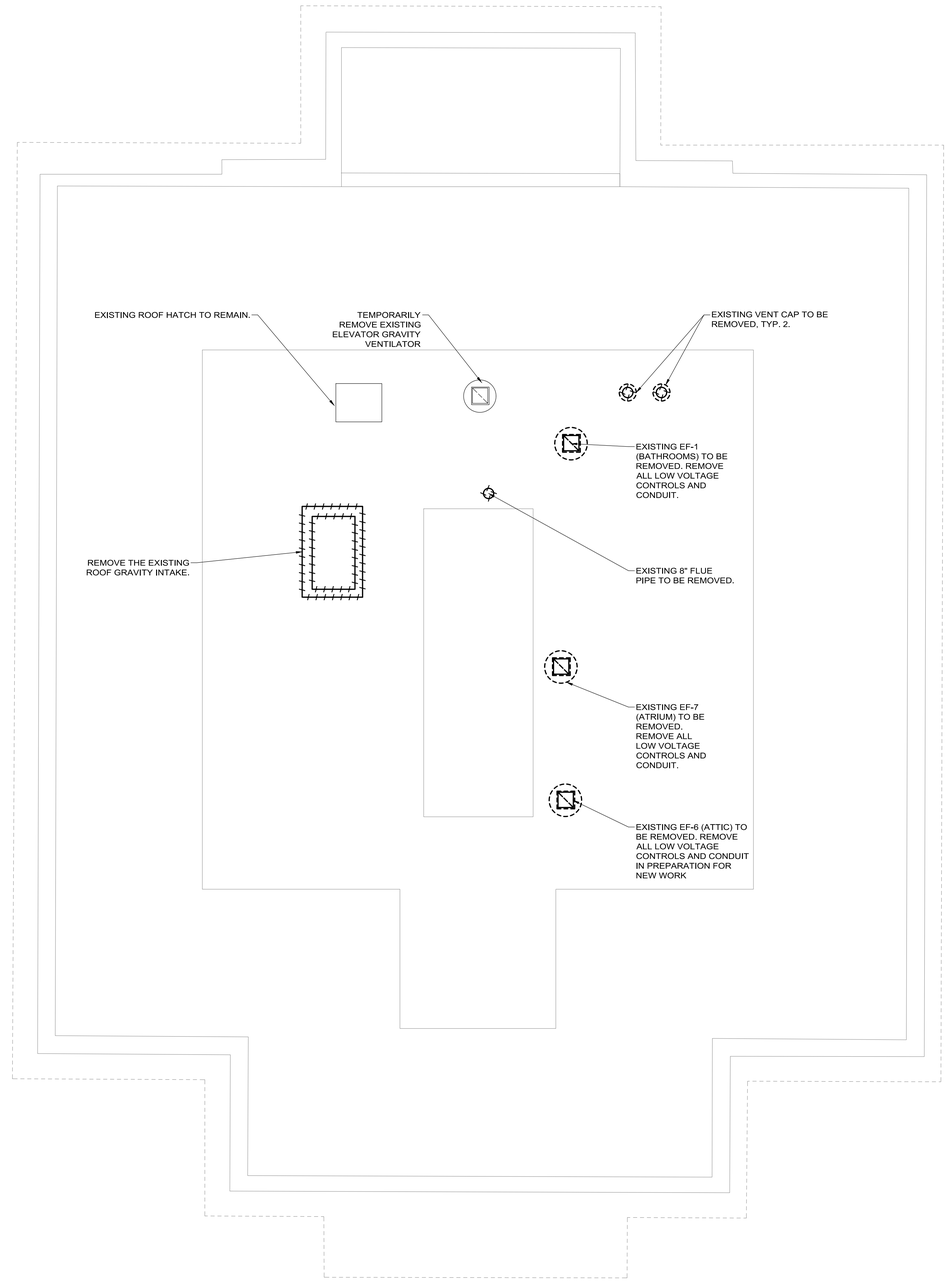
ANNEX
MECHANICAL
ATTIC
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

MD2.3

N:\PROJECTS\2022\0220195 - Burlington Town Hall Annex HVAC Roof\CAD\Drawings\24 x 36\CPlot Files\220195 MD2.3 HVAC ANNEX ATTIC - DEMO.dwg [Plan1] Apr 09, 2024 - 3:55pm - Nicole Cyr



MECHANICAL ROOF
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

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0220195

DATE
04/12/2024

BURLINGTON
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HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

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JS

SCALE
1/4" = 1'-0"

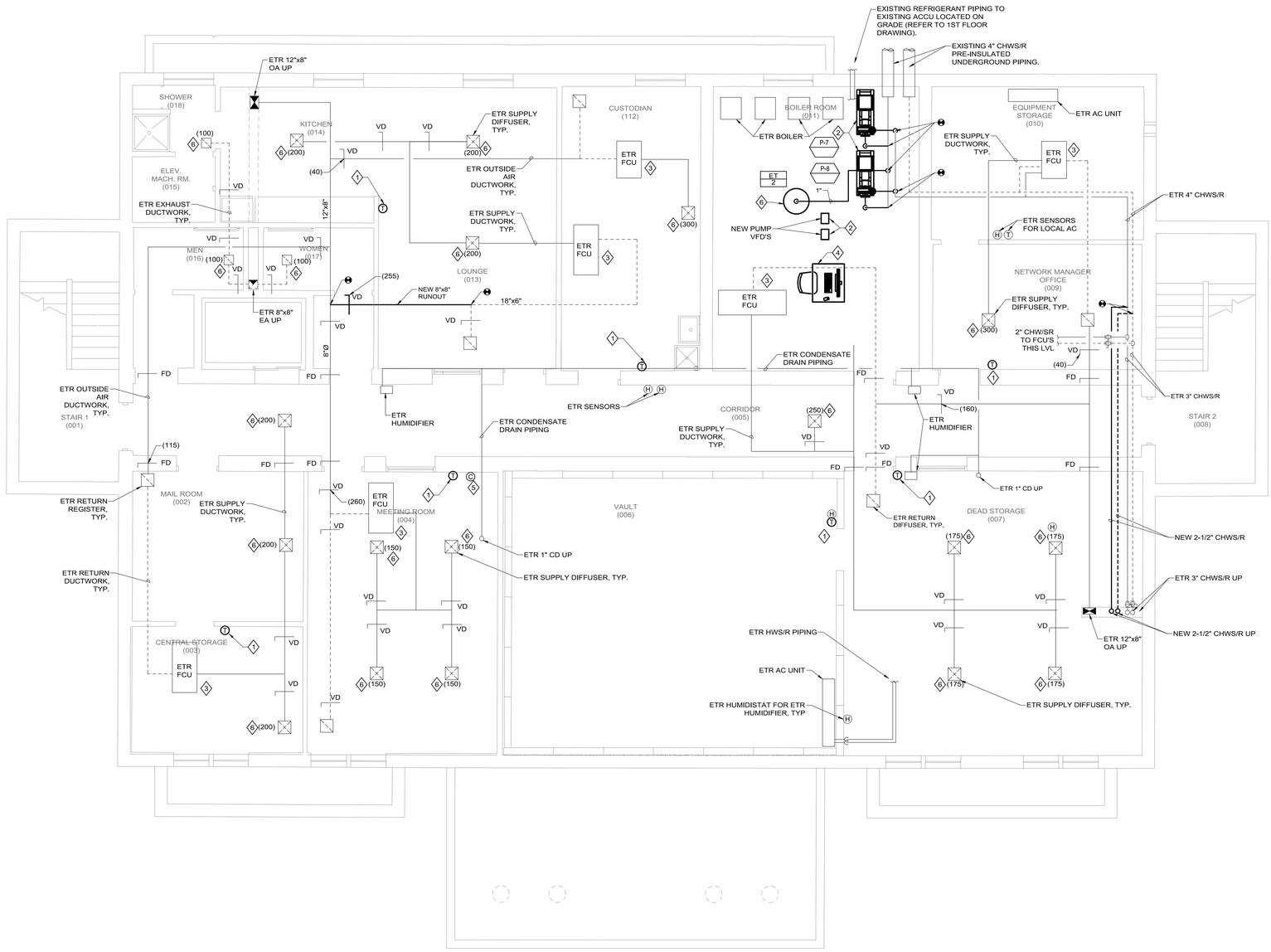
ANNEX
MECHANICAL
ROOF
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

MD2.4

J:\0220\Revit\0220120220195_Burlington Town Hall Annex HVAC Roof\00 Drawings\04 Arch\Rvt Files\20220195 MD2.4 HVAC ANNEX ROOF PLAN - ROOF.rvt, [New] April 09, 2024 - 3:54pm, Nicholas Gorski



MECHANICAL BASEMENT
NEW WORK PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING IN THE BASEMENT IS NOT SHOWN FOR CLARITY.
2. BALANCE ALL OUTDOOR AIR TO CFM INDICATED ON DRAWING.

KEYNOTES

1	PROVIDE NEW DDC THERMOSTAT AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS.
2	PROVIDE A NEW SPLIT COUPLED BASE MOUNTED CHILLED WATER PUMP. PROVIDE NEW 4" CHWS DROP FROM THE EXISTING MAIN. PROVIDE THE ASSOCIATED APPURTENANCES AS INDICATED ON SCHEDULES, DETAILS AND SPECIFICATIONS. PROVIDE NEW MINIMUM FLOW BYPASS AND CONTROL VALVE. FURNISH VFD'S FOR INSTALLATION BY DIV. 26. FINAL LOCATION OF VFD'S DETERMINED BY IN-FIELD CONDITIONS. TYPICAL FOR 2.
3	PROVIDE A NEW DDC CONTROLLER FOR THE EXISTING FAN COIL UNIT. PROVIDE A NEW 2-WAY PRESSURE INDEPENDENT MODULATING CHILLED WATER VALVE AND BALANCE TO THE EXISTING FLOW. THE NEW DDC CONTROLLER SHALL CONTROL THE EXISTING FAN, EXISTING 3-WAY HEATING VALVE, THE NEW CHILLED WATER VALVE AND ANY EXISTING SENSORS. WIRE THE NEW CONTROLLER BACK TO THE NEW BAS. ADDITIONALLY, BALANCE THE OUTDOOR AIR TO THE FCU TO THE VALUE SHOWN. TYPICAL FOR ALL FCU'S.
4	PROVIDE NEW BAS OPERATOR WORK STATION WITH KEYBOARD, PC, MONITOR, MOUSE, PRINTER, DESK AND CHAIR. FINAL LOCATION BY OWNER. IF SPACE IS LIMITED, IN LIEU OF A DESK AND CHAIR, PROVIDE WALL MOUNTED EQUIPMENT FOR STANDING OPERATION.
5	PROVIDE NEW DDC CO2 SENSOR AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS. REFER TO CONTROLS DRAWINGS FOR FUNCTION.
6	NEW EXPANSION TANK. FINAL LOCATION TO BE DETERMINED WITH IN-FIELD CONDITIONS.

KEYNOTES

6	BALANCE EXISTING DIFFUSER, REGISTER, GRILLE, OR DUCT TO THE CFM SHOWN IN PARENTHESIS.

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

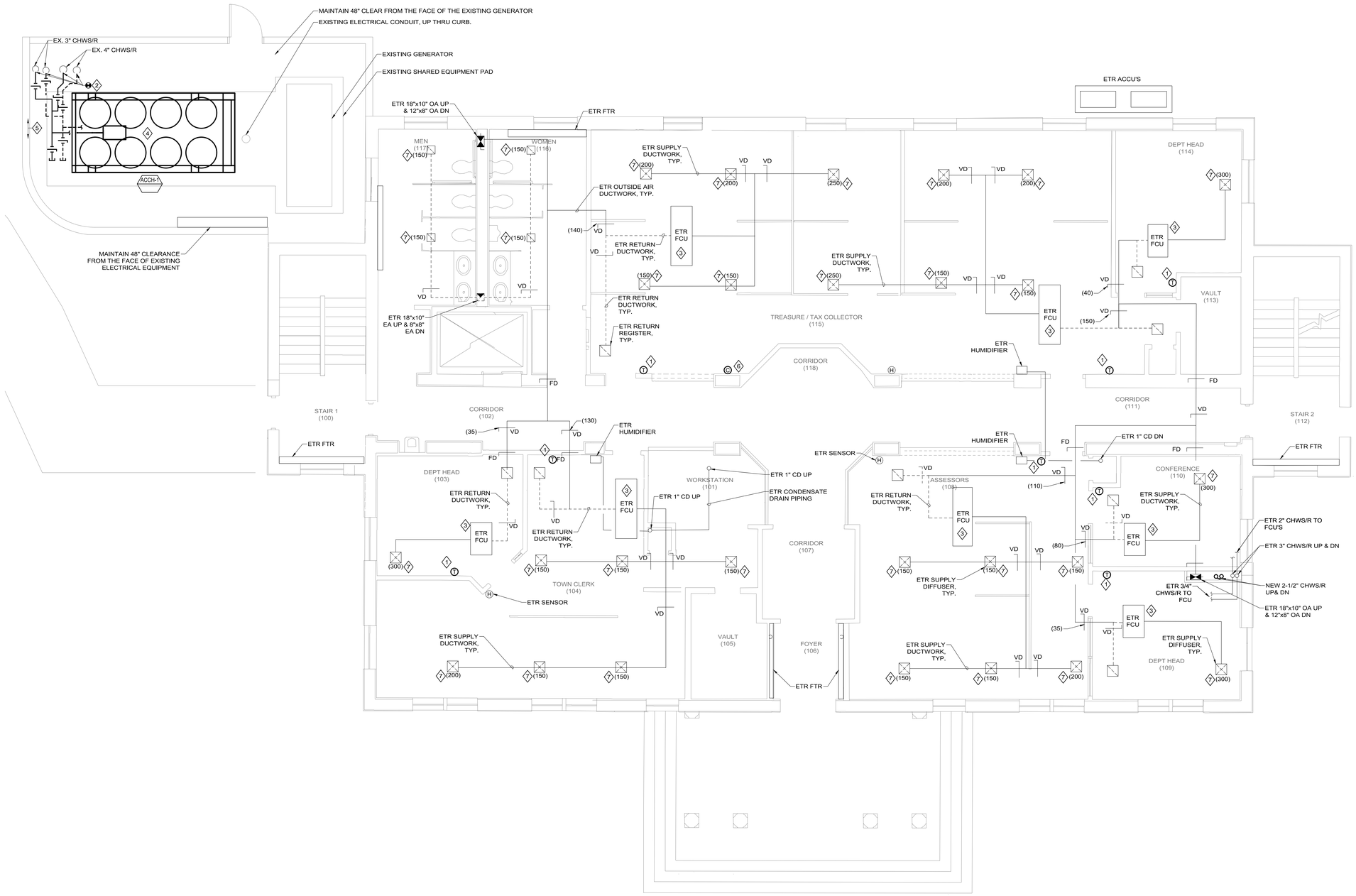
SCALE
1/4" = 1'-0"

TOWN HALL
MECHANICAL
BASEMENT FLOOR
NEW WORK PLAN

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

M1.0

#:\0220195\Project\0220195-000195 - Burlington Town Hall Annex HVAC Roof\Drawings\Revit Models\0220195_HVAC Roof_Rev1.rvt 4/12/2024 8:41:8 AM Tiffany Hicks Autodesk Docs://0220195_HVAC Roof_Rev1.rvt Apr 08, 2024 - 3:43pm Tiffany Hicks



MECHANICAL FIRST FLOOR
NEW WORK PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES
1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON THE FIRST FLOOR IS NOT SHOWN FOR CLARITY.
2. BALANCE ALL OUTDOOR AIR TO CFM INDICATED IN PLANS.

KEYNOTES	
1	PROVIDE NEW DDC THERMOSTAT AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS.
2	PROVIDE NEW 6" MAIN AND 3" & 4" RUN OUTS TO RESPECTIVE BUILDINGS. REFER TO PIPING DIAGRAM DETAIL, RISER DIAGRAM AND CONTROLS DRAWINGS FOR PIPING INFORMATION.
3	PROVIDE A NEW DDC CONTROLLER FOR THE EXISTING FAN COIL UNIT. PROVIDE A NEW 2-WAY PRESSURE INDEPENDENT MODULATING CHILLED WATER VALVE AND BALANCE TO THE EXISTING FLOW. THE NEW DDC CONTROLLER SHALL CONTROL THE EXISTING FAN, EXISTING 3-WAY HEATING VALVE, THE NEW CHILLED WATER VALVE AND ANY EXISTING SENSORS. WIRE THE NEW CONTROLLER BACK TO THE NEW BAS. ADDITIONALLY, BALANCE THE OUTDOOR AIR TO THE FCU TO THE VALUE SHOWN. TYPICAL FOR ALL FCU'S.
4	PROVIDE NEW AIR COOLED CHILLER. PROVIDE NEW LOW VOLTAGE BACNET CONNECTION TO NEW BAS. SHIFT THE CHILLER PLAN NORTH FROM THE ORIGINAL LOCATION TO PROVIDE 48" ELECTRICAL CLEARANCE FOR THE PLAN SOUTH ELECTRICAL PANELS INDICATED. SHIFT THE CHILLER PLAN EAST TO MAXIMIZE THE SPACE BETWEEN THE CHILLER AND PLAN WEST WALL, WHILE MAINTAINING ELECTRICAL CLEARANCE FROM THE GENERATOR (48" MIN.). PROVIDE THE CHEMICAL TREATMENT, WATER, APPROPRIATE GLYCOL (PG 35% - CONFIRM WITH OWNER), AND LABOR TO REFILL THE CHILLED WATER SYSTEM. PROVIDE NEW ISOLATION VALVES FOR EACH BUILDING. PROVIDE AN ADDITIONAL SET OF ISOLATION VALVES FOR THE FUTURE CONNECTION OF A TEMPORARY CHILLER (REFER TO PIPING DETAIL).
5	THE EXISTING CHILLER YARD WALL IMPEDES THE FULL SERVICEABILITY OF THE NEW CHILLER. DEMOLITION OF THE EXISTING CHILLER YARD WALL WILL BE REQUIRED FOR ANY FUTURE COIL PULL SERVICE.
6	PROVIDE NEW DDC CO2 SENSOR AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS. REFER TO CONTROLS DRAWINGS FOR FUNCTION.

KEYNOTES	
7	BALANCE EXISTING DIFFUSER, REGISTER, GRILLE, OR DUCT TO THE CFM SHOWN IN PARENTHESIS.

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0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

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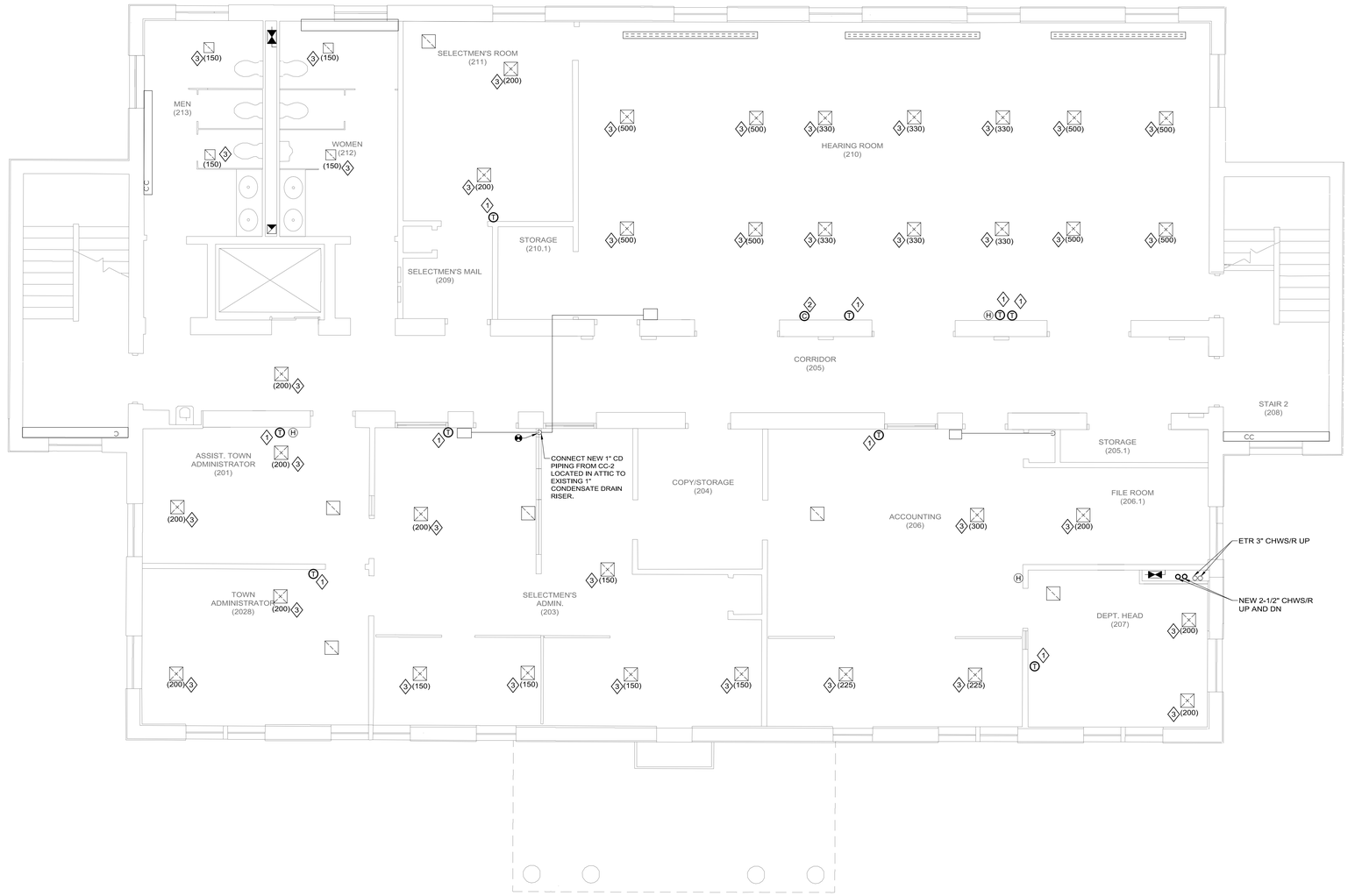
SCALE
1/4" = 1'-0"

TOWN HALL
MECHANICAL
FIRST FLOOR
NEW WORK PLAN

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

M1.1

N:\BOS\Projects\0220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\CAD_Work\Plot Files\0220195 M1.1 HVAC TOWN HALL FIRST FLOOR PLAN.dwg [Plot] Jun 28, 2024 - 8:53am Nolan Cyrus



MECHANICAL SECOND FLOOR
NEW WORK PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON THE SECOND FLOOR IS NOT SHOWN FOR CLARITY.
2. THE EXISTING DUCTWORK FEEDING THE EXISTING DIFFUSERS ON LVL 2 ARE SHOWN ON THE ATTIC LEVEL, DRAWING M1.3.

KEYNOTES

1	PROVIDE NEW DDC THERMOSTAT AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS.
2	PROVIDE NEW DDC CO2 SENSOR AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS. REFER TO CONTROLS DRAWINGS FOR FUNCTION.
3	BALANCE EXISTING DIFFUSER, REGISTER, GRILLE, OR DUCT TO THE CFM SHOWN IN PARENTHESIS.

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29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

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CHECKED BY
JS

SCALE
1/4" = 1'-0"

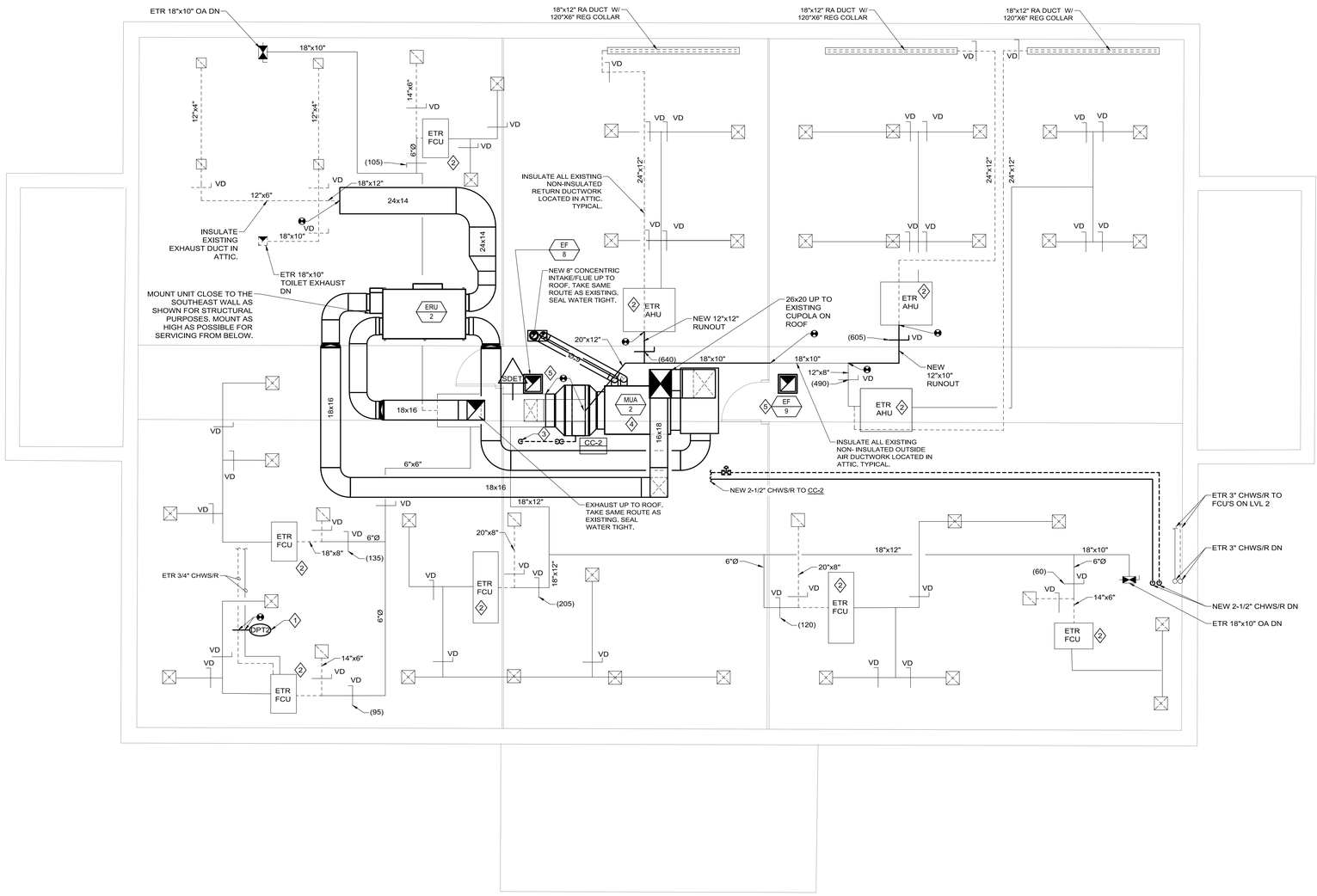
TOWN HALL
MECHANICAL
SECOND FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4" 8"

M1.2

M:\BOS\Projects\0220\0220195 - Burlington Town Hall Annex HVAC, Roof, and CC\Design\04 Working Drawings\04 Working Drawings [Revit] April 08, 2024 - 3:53pm Kevin Cyrus



MECHANICAL ATTIC
NEW WORK PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING IN THE ATTIC IS NOT SHOWN FOR CLARITY.
2. BALANCE ALL OUTDOOR AIR TO THE CFM SHOWN.
3. MUA-2, CC-2, AND ERU-2 SHALL BE RIGGED DURING ROOF REPLACEMENT. COORDINATE WITH ROOFER.

KEYNOTES

1	PROVIDE NEW DPT SENSOR ON THE CHILLED WATER PIPING SERVING THE EXISTING FAN COIL UNIT. REFER TO CHILLER CONTROLS DIAGRAM FOR ADDITIONAL INFORMATION. THE BALANCING CONTRACTOR SHALL DETERMINE THE REQUIRED DIFFERENTIAL PRESSURE FOR THE FCU FLOW (EXISTING 2.5 GPM)
2	PROVIDE A NEW DDC CONTROLLER FOR THE EXISTING FAN COIL UNIT. PROVIDE A NEW 2-WAY PRESSURE INDEPENDENT MODULATING CHILLED WATER VALVE AND BALANCE TO THE EXISTING FLOW. THE NEW DDC CONTROLLER SHALL CONTROL THE EXISTING FAN, EXISTING 3-WAY HEATING VALVE AND THE NEW CHILLED WATER VALVE. WIRE THE NEW CONTROLLER BACK TO THE NEW BAS. ADDITIONALLY, BALANCE THE OUTDOOR AIR TO THE FCU TO THE VALUE SHOWN. TYPICAL FOR ALL FCU'S.
3	CONNECT NEW 1" CD PIPING TO CONDENSATE DRAIN RISER LOCATED ON THE SECOND FLOOR. PROVIDE CLEANOUTS
4	PROVIDE NEW MAKE UP AIR UNIT AND NEW DUCTWORK. PROVIDE WITH FLEXIBLE DUCT CONNECTIONS AND SPRING ISOLATORS. PROVIDE WITH A DUCT MOUNTED COOLING COIL, COIL CABINET TO BE FIELD FABRICATED AND PROVIDED WITH DRIP PAN. PROVIDE NEW CONDENSATE PIPING WITH OVERFLOW SENSOR. COORDINATE WITH DIV. 22 DRAWINGS FOR GAS CONNECTION. PROVIDE NEW INTAKE AND FLUE. FURNISH SDET AND INSTALL IN DUCTWORK (WIRED BY DIV. 26).
5	PROVIDE NEW INLINE EXHAUST FAN IN THE VERTICAL POSITION. FAN TO BE OPEN-ENDED WITH INLET GUARD. PROVIDE 14"x14" EXHAUST DUCT UP THRU THE ROOF TO GOOSENECK. TYPICAL FOR EF-8 AND EF-9.

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0220195

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

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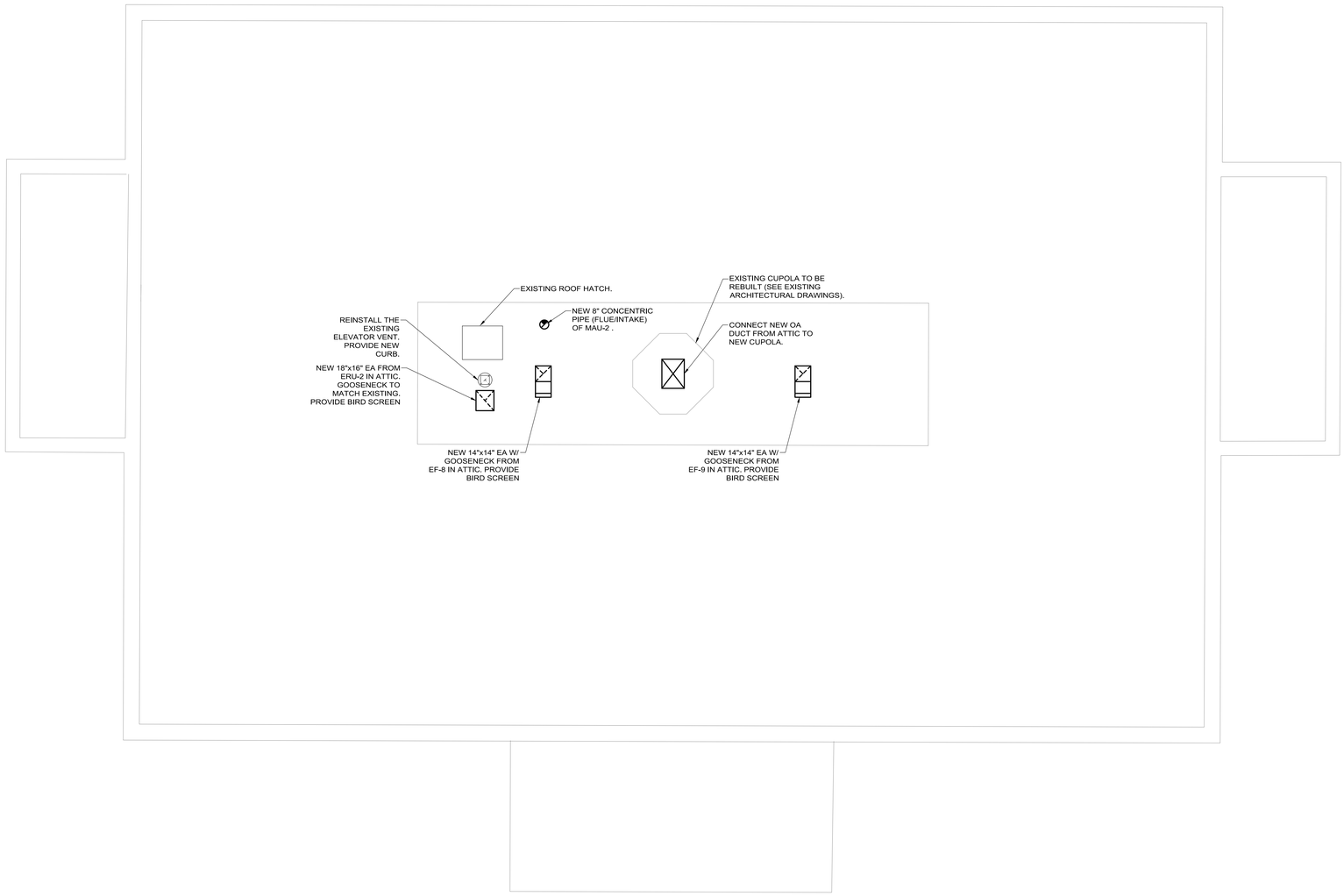
SCALE
1/4" = 1'-0"

TOWN HALL
MECHANICAL
ATTIC
NEW WORK PLAN

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

M1.3

R:\PROJECTS\2022\0220195 - Burlington Town Hall Annex HVAC Roof\CAD\Drawings\Arch Files\0220195 M1.3 HVAC TOWN HALL ATTIC.dwg, [Page1] April 08, 2024 - 3:53pm, Nancy Gove



MECHANICAL ROOF
NEW WORK PLAN
SCALE: 1/4"=1'-0"

ROOF WORK NOTE

1. ROOF WORK NOTES SHALL APPLY TO ALL MECHANICAL NEW WORK DRAWINGS.
2. PROVIDE ADEQUATE WEATHER PROTECTION AGAINST WIND, RAIN, SNOW, ETC. FOR ALL ROOF OPENINGS DURING CONSTRUCTION.
3. MISCELLANEOUS ROOF WORK SHALL BE COORDINATED THROUGH THE MANUFACTURER OF THE EXISTING ROOF AND BUILDING OWNER TO ENSURE THE ROOF WARRANTY REMAINS INTACT. THE CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH THE ROOF WORK IN HIS/HER CONTRACT PROPOSAL.
4. EXISTING ROOF SHALL BE THOROUGHLY PROTECTED TO PREVENT DAMAGE FROM CONSTRUCTION AND/OR RIGGING. ANY ROOF DAMAGE SHALL BE REPAIRED TO THE SATISFACTION OF THE BUILDING OWNER WITHOUT ANY ADDITIONAL COST TO THE CONTRACT.
5. FIELD VERIFY RIGGING REQUIREMENTS PRIOR TO SUBMITTING A PROPOSAL. COORDINATE ALL RIGGING WITH EXISTING CONDITIONS, INCLUDING PARKING. COORDINATE ALL RIGGING WITH BUILDING OWNER.
6. PROVIDE 72 HOURS ADVANCE NOTICE TO BUILDING OWNER PRIOR TO ANY RIGGING ACTIVITIES.

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0220195

DATE
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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

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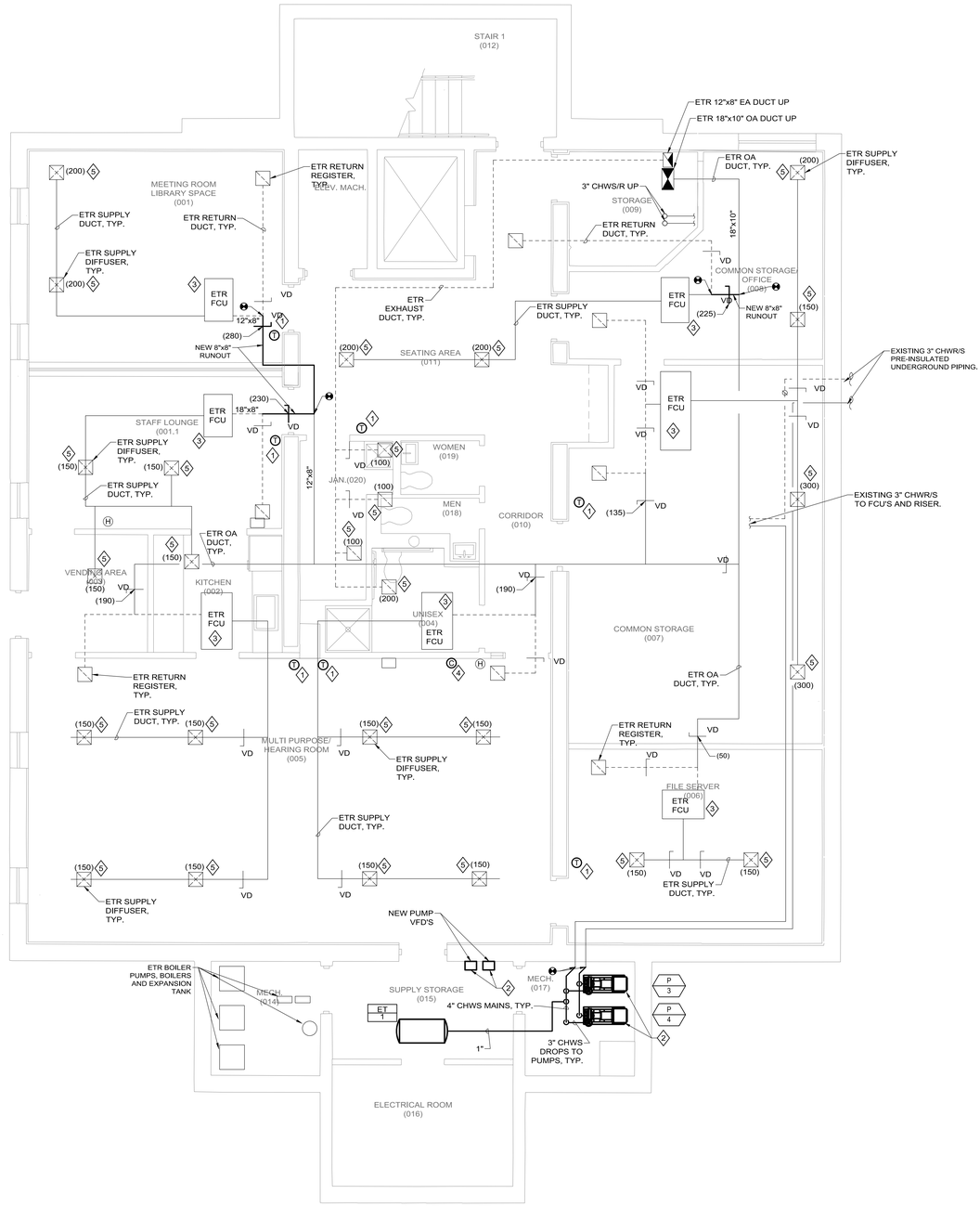
SCALE
1/4" = 1'-0"

TOWN HALL
MECHANICAL
ROOF
NEW WORK PLAN

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

M1.4

#:\0220195\Revit\V2022\0220195 - Burlington Town Hall Annex HVAC Roof\000 Drawings\0220195 HVAC Roof Plan_R22@195 MV 4 HVAC TOWN HALL ROOF.rvt Fri, April 26, 2024 - 3:43pm Nicholas Cote



MECHANICAL BASEMENT
NEW WORK PLAN

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

MECHANICAL GENERAL NOTES
1. A MAJOIRTY OF THE HWS/R AND CHWS/R PIPING IN THE BASEMENT IS NOT SHOWN FOR CLARITY.
2. BALANCE ALL OUTDOOR AIR TO CFM INDICATED ON DRAWING.

KEYNOTES	
1	PROVIDE NEW DDC THERMOSTAT AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS.
2	PROVIDE A NEW SPLIT COUPLED BASE MOUNTED CHILLED WATER PUMP. PROVIDE NEW 3" CHWS DROP FROM THE EXISTING MAIN. PROVIDE THE ASSOCIATED APPURTENANCES AS INDICATED ON SCHEDULES, DETAILS AND SPECIFICATIONS. PROVIDE MINIMUM FLOW BYPASS AND CONTROL VALVE. FURNISH VFD'S FOR INSTALLATION BY DIV.26. FINAL LOCATION OF VFD'S DETERMINED BY IN-FIELD CONDITIONS, TYPICAL FOR 2.
3	PROVIDE A NEW DDC CONTROLLER FOR THE EXISTING FAN COIL UNIT. PROVIDE A NEW 2-WAY PRESSURE INDEPENDENT MODULATING CHILLED WATER VALVE AND BALANCE TO THE EXISTING FLOW. THE NEW DDC CONTROLLER SHALL CONTROL THE EXISTING FAN, EXISTING 3-WAY HEATING VALVE AND THE NEW CHILLED WATER VALVE. WIRE THE NEW CONTROLLER BACK TO THE NEW BAS. ADDITIONALLY, BALANCE THE OUTDOOR AIR TO THE FCU TO THE VALUE SHOWN. TYPICAL FOR ALL FCU'S.
4	PROVIDE NEW DDC CO2 SENSOR AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS. REFER TO CONTROLS DRAWINGS FOR FUNCTION.
5	BALANCE EXISTING DIFFUSER, REGISTER, GRILLE, OR DUCT TO THE CFM SHOWN IN PARENTHESIS.
6	NEW CEILING HUNG EXPANSION TANK. FINAL LOCATION TO BE DETERMINED WITH IN FIELD

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BURLINGTON
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BURLINGTON, MA 01803

DRAWING

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NG

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JS

SCALE
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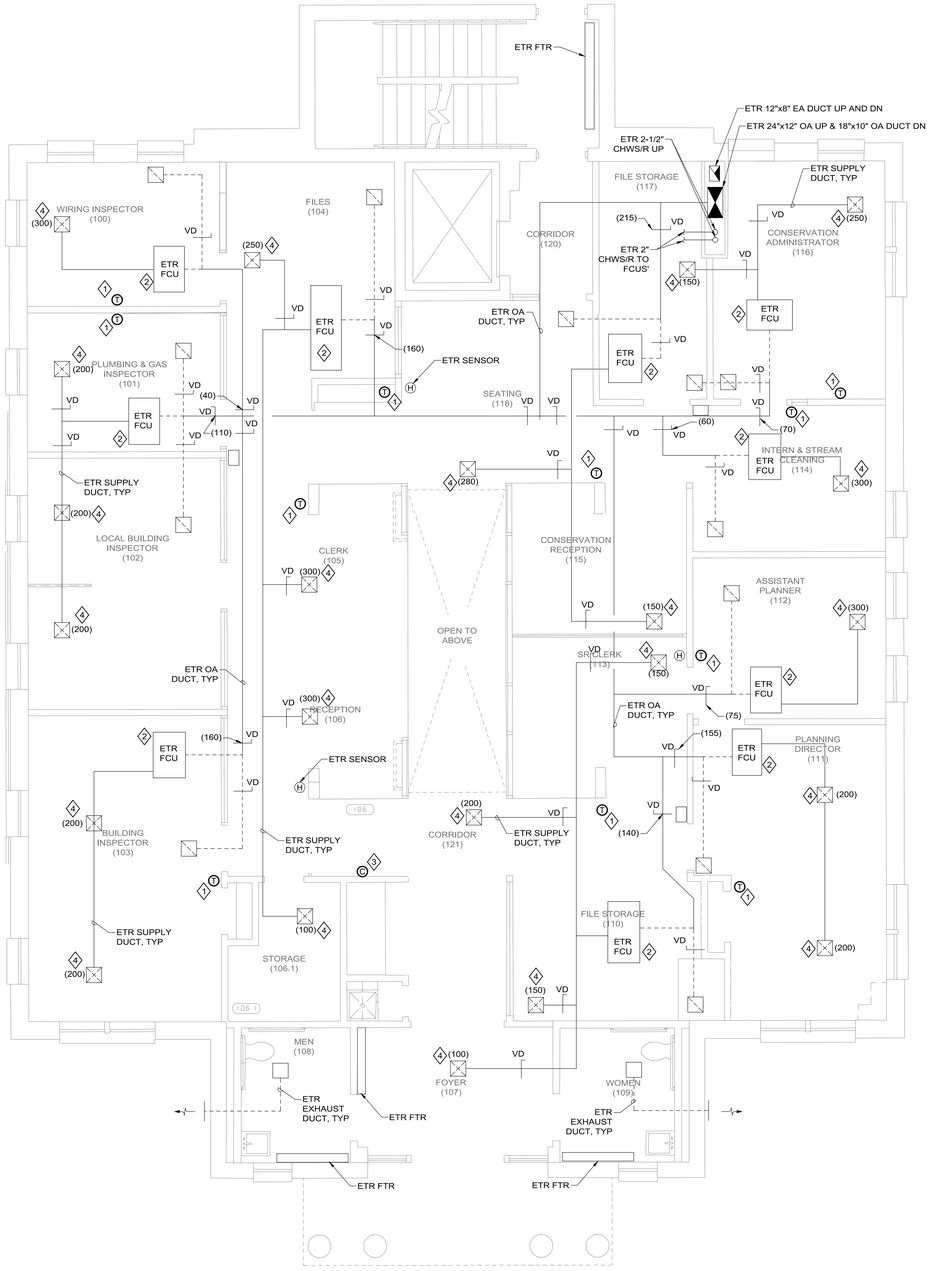
ANNEX
MECHANICAL
BASEMENT FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

M2.0

M:\BOS\Projects\0220195\0220195 - Burlington Town Hall Annex HVAC, Roof, CHILLER\Design\CAD\ HVAC\Dwg Files\0220195 M2.0 HVAC ANNEX BASEMENT PLAN.dwg, [New], Apr 08, 2024 - 3:45pm, Nancy Gurule



MECHANICAL FIRST FLOOR
NEW WORK PLAN

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

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON FIRST FLOOR IS NOT SHOWN FOR CLARITY.
2. BALANCE ALL OUTDOOR AIR TO CFM INDICATED ON DRAWING.

KEYNOTES

1	PROVIDE NEW DDC THERMOSTAT AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS.
2	PROVIDE A NEW DDC CONTROLLER FOR THE EXISTING FAN COIL UNIT. PROVIDE A NEW 2-WAY PRESSURE INDEPENDENT MODULATING CHILLED WATER VALVE AND BALANCE TO THE EXISTING FLOW. THE NEW DDC CONTROLLER SHALL CONTROL THE EXISTING FAN, EXISTING 3-WAY HEATING VALVE AND THE NEW CHILLED WATER VALVE. WIRE THE NEW CONTROLLER BACK TO THE NEW BAS. ADDITIONALLY, BALANCE THE OUTDOOR AIR TO THE FCU TO THE VALUE SHOWN. TYPICAL FOR ALL FCU'S.
3	PROVIDE NEW DDC CO2 SENSOR AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS. REFER TO CONTROLS DRAWINGS FOR FUNCTION.
4	BALANCE EXISTING DIFFUSER, REGISTER, GRILLE, OR DUCT TO THE CFM SHOWN IN PARENTHESIS.

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DRAWING

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NG

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JS

SCALE
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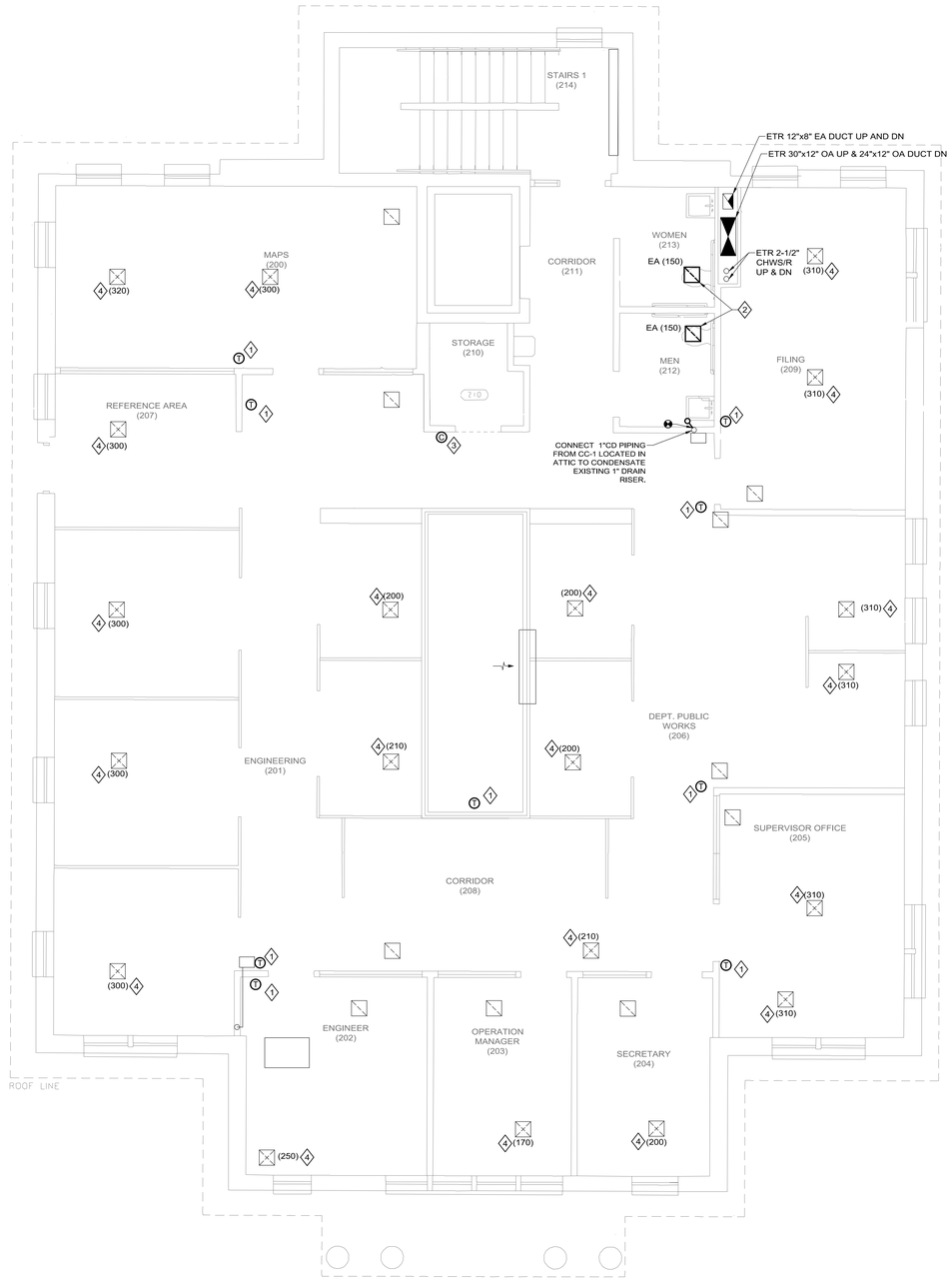
ANNEX
MECHANICAL
FIRST FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

M2.1

N:\BOS\Projects\2020\0220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\504 Mech\Revit Files\0220195 M2.1 HVAC ANNEX FIRST FLOOR PLAN.rvt [Revit] Apr 08, 2024 - 8:55am Nolan Cyrus



MECHANICAL SECOND FLOOR
NEW WORK PLAN

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

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING ON FIRST FLOOR IS NOT SHOWN FOR CLARITY.
2. THE EXISTING DUCTWORK FEEDING THE EXISTING DIFFUSERS ON LVL 2 ARE SHOWN ON THE ATTIC LEVEL, DRAWING M2.3.

KEYNOTES

1	PROVIDE NEW DDC THERMOSTAT AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS.
2	PROVIDE NEW EXHAUST GRILLES AND CONNECT THEM TO EXISTING DUCTWORK (TYP. 2). BALANCE TO THE CFM SHOWN. NEW GRILLE SHOULD EXCEED THE EXHAUST FAN DIMENSIONS.
3	PROVIDE NEW DDC CO2 SENSOR AND LOW VOLTAGE WIRING. WIRE SENSOR BACK TO NEW BAS. REFER TO CONTROLS DRAWINGS FOR FUNCTION.
4	BALANCE EXISTING DIFFUSER, REGISTER, GRILLE, OR DUCT TO THE CFM SHOWN IN PARENTHESIS.

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NG

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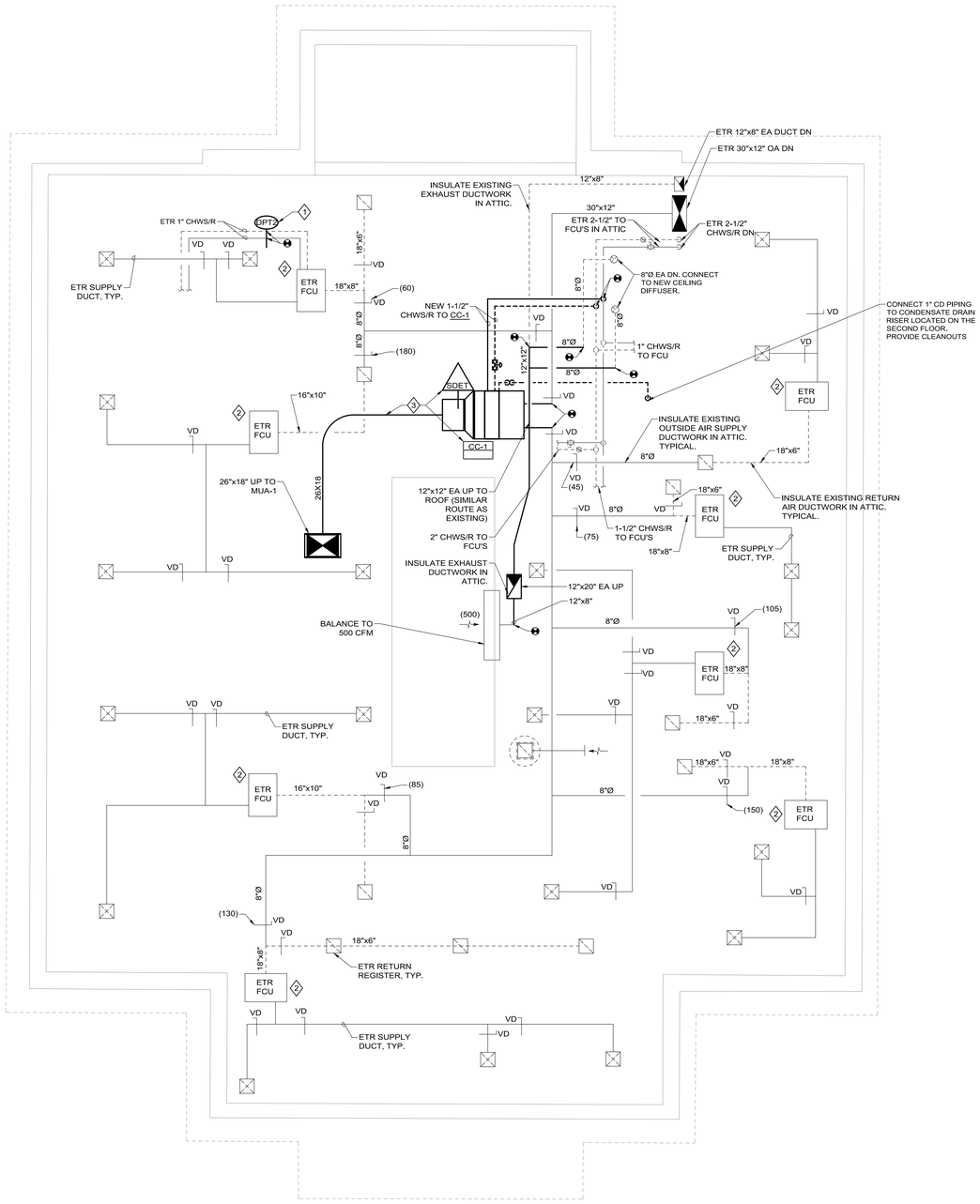
ANNEX
MECHANICAL
SECOND FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

M2.2

M:\BOS\Projects\0220\0220195 - Burlington Town Hall Annex HVAC Roof\CAD Drawings\CSA HVAC Rev Files\0220195_M2.2 ANNEX MECH SECOND FLOOR PLAN.rvt [Temp] April 08, 2024 - 7:54pm Nolan Cava



MECHANICAL ATTIC
NEW WORK PLAN
SCALE: 1/4"=1'-0"

MECHANICAL GENERAL NOTES

1. A MAJORITY OF THE HWS/R AND CHWS/R PIPING IN THE ATTIC IS NOT SHOWN FOR CLARITY.
2. BALANCE ALL OUTDOOR AIR TO CFM INDICATED ON DRAWING.
3. MUA-1, CC-1, AND ERU-1 SHALL BE RIGGED DURING ROOF REPLACEMENT. COORDINATE WITH ROOFER.

KEYNOTES

1	PROVIDE NEW DPT SENSOR ON THE CHILLED WATER PIPING SERVING THE EXISTING FAN COIL UNIT. REFER TO CHILLER CONTROLS DIAGRAM FOR ADDITIONAL INFORMATION. THE BALANCING CONTRACTOR SHALL DETERMINE THE REQUIRED DIFFERENTIAL PRESSURE FOR THE FCU FLOW (EXISTING 5.3 GPM)
2	PROVIDE A NEW DDC CONTROLLER FOR THE EXISTING FAN COIL UNIT. PROVIDE A NEW 2-WAY PRESSURE INDEPENDENT MODULATING CHILLED WATER VALVE AND BALANCE TO THE EXISTING FLOW. THE NEW DDC CONTROLLER SHALL CONTROL THE EXISTING FAN, EXISTING 3-WAY HEATING VALVE AND THE NEW CHILLED WATER VALVE. WIRE THE NEW CONTROLLER BACK TO THE NEW BAS. ADDITIONALLY, BALANCE THE OUTDOOR AIR TO THE FCU TO THE VALUE SHOWN. TYPICAL FOR ALL FCU'S.
3	NEW DUCTWORK FROM NEW MUA-1. PROVIDE A DUCT MOUNTED COOLING COIL (CC-1). COIL CABINET TO BE FIELD FABRICATED AND PROVIDED WITH DRIP PAN. PROVIDE NEW CONDENSATE PIPING WITH OVERFLOW SENSOR. FURNISH SDET AND INSTALL IN DUCTWORK (WIRED BY DIV. 26).

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
1/4" = 1'-0"

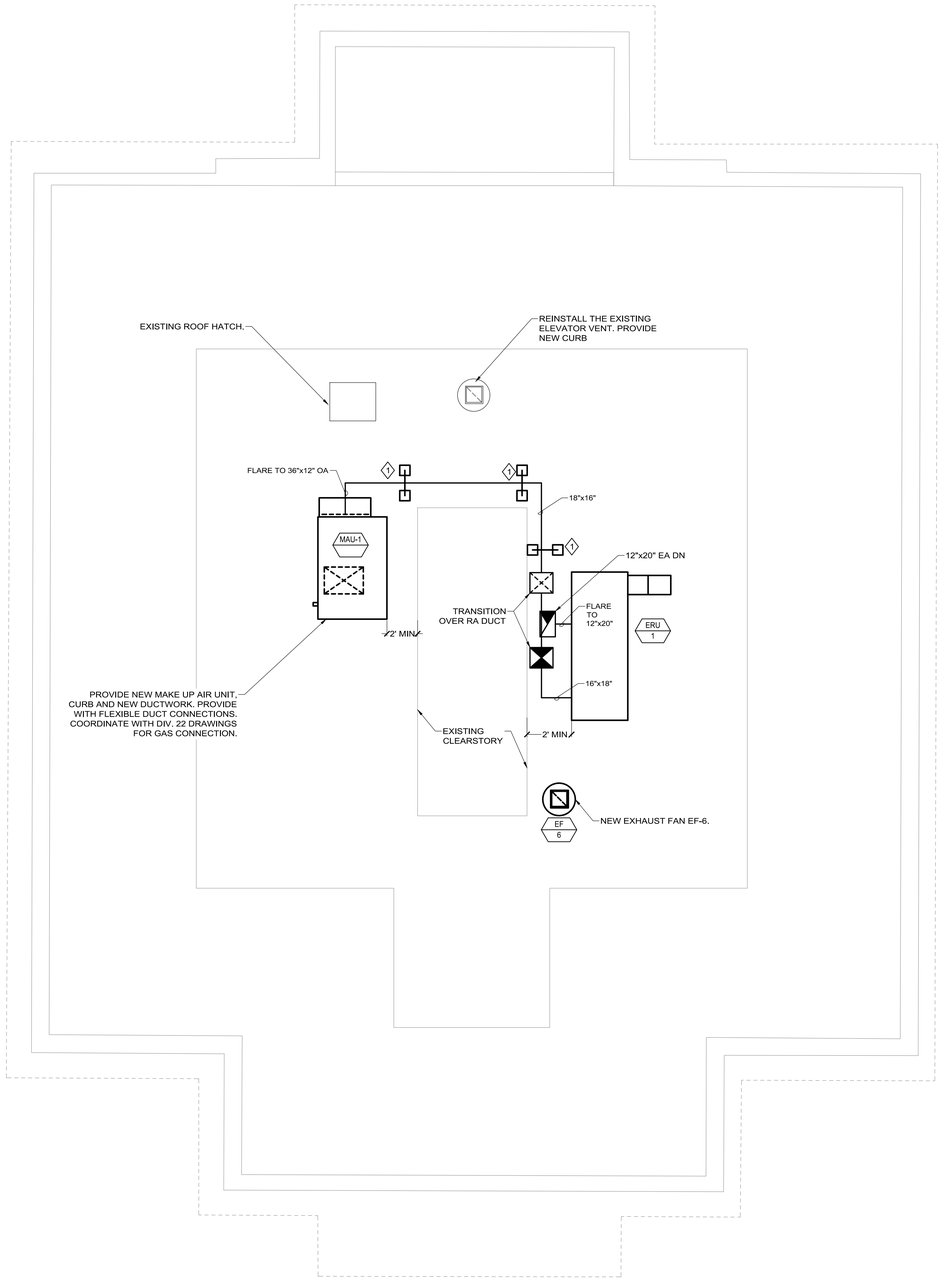
ANNEX
MECHANICAL
ATTIC
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

M2.3

#:\0220195\Revit\0220195_Burlington Town Hall Annex HVAC Roof ERU CC Chiller_v24.4_central2.rvt Plot: 4/25/2024 10:31 AM by AMOY_KTEC.org Fri, Apr 26, 2024 - 3:43pm



MECHANICAL ROOF
NEW WORK PLAN
SCALE: 1/4"=1'-0"

KEYNOTES	
1	PROVIDE NEW ROOF MOUNTED DUCT SUPPORTS

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REVISIONS

	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
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HVAC, ROOF, AND
CHILLER REPLACEMENT
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BURLINGTON, MA 01803

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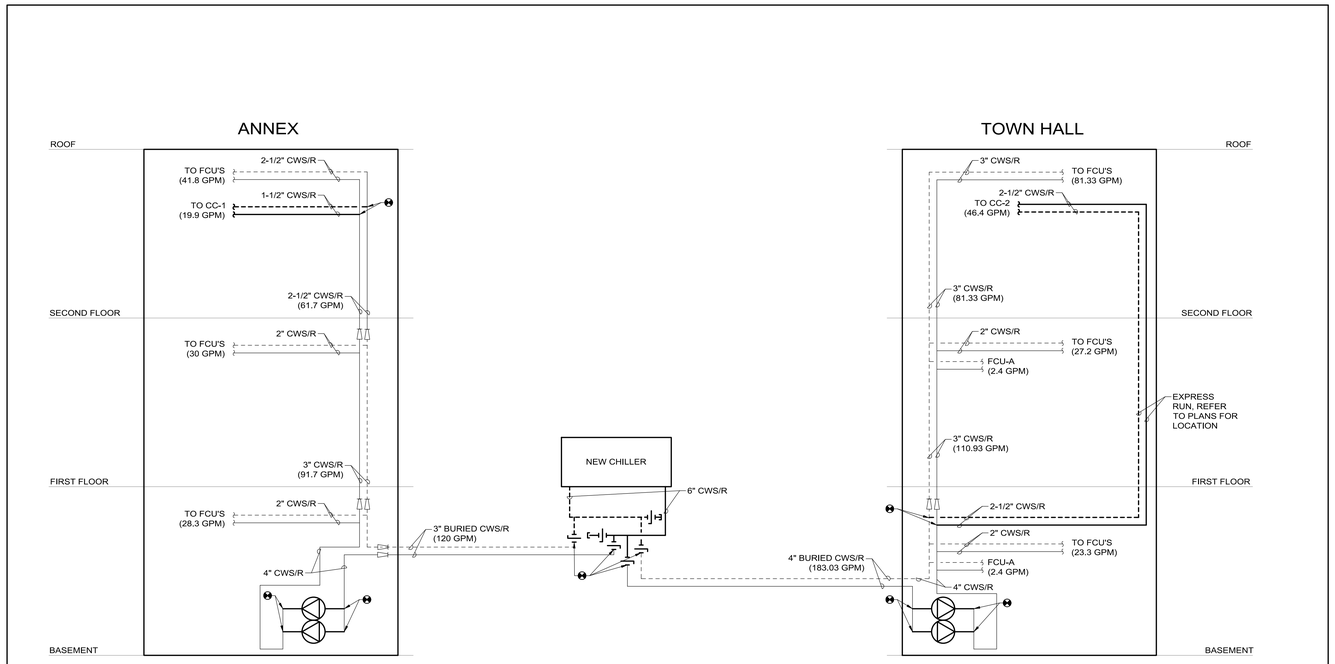
SCALE
1/4" = 1'-0"

ANNEX
MECHANICAL
ROOF
NEW WORK PLAN

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

M2.4

N:\NV5\Projects\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\CAD\Drawings\Dwg\M2.4 ANNEX ROOF PLAN.dwg [Plan] Apr 08, 2024 - 3:43pm - Nicholas Gorka



NV5 NEW CHILLER FLOW AND PIPING DIAGRAM -

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

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TOWN HALL & ANNEX
MECHANICAL
CHILLED WATER
RISERS

M5.0

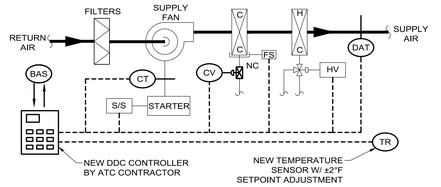
M:\0220\Projects\0220195\Revit Area_HVAC Build\525 Burlington Town Hall Annex_HVAC_Build_Central_V24_HVAC Rev Files\0220195_M5.0_HVAC PIPERISER.rvt, [Rev1] April 09, 2024 - 3:42pm, Nicholas Gee

CONTROL POINT DESCRIPTOR LEGEND

TAG	ATC CONTRACTOR PROVIDED DDC POINT AND HARDWARE
TAG ELEC PLBG	CONTROL DEVICE FURNISHED BY ELECTRICAL OR PLUMBING CONTRACTOR BUT INTERFACED TO DDC SYSTEM BY ATC CONTRACTOR
TAG	ATC CONTRACTOR INTERFACE TO EQUIPMENT MANUFACTURER'S HARDWARE
TAG	ATC CONTRACTOR PROVIDED LOCAL CONTROL POINT

CONTROL ABBREVIATIONS

ACD	AUTOMATIC CONTROL DAMPER
ACV	AUTOMATIC CONTROL VALVE
AFMS	AIR FLOW MEASURING STATION
ALM	ALARM
ATC	AUTOMATIC TEMPERATURE CONTROL
BCV	BASEBOARD CONTROL VALVE
BDD	BACKDRAFT DAMPER (ADJUSTABLE COUNTERWEIGHT)
BIBO	BAG-IN BAG-OUT
BV	BYPASS VALVE
C	CARBON DIOXIDE SENSOR
CAP	CAPACITY CONTROL
%@AP	PERCENT OF FULL LOAD CAPACITY
CCLT	COOLING COIL LEAVING AIR TEMPERATURE SENSOR
CHRT	CHILLED WATER RETURN TEMPERATURE SENSOR
CHST	CHILLED WATER SUPPLY TEMPERATURE SENSOR
CHWRT	CHILLED WATER RESET TEMPERATURE
CO	CARBON MONOXIDE SENSOR
CRT	CONDENSER WATER RETURN TEMPERATURE SENSOR
CST	CONDENSER WATER SUPPLY TEMPERATURE SENSOR
CT	CURRENT TRANSFORMER (STATUS FEEDBACK)
CV	COOLING COIL CONTROL VALVE
DAH	DISCHARGE AIR HUMIDITY SENSOR
DAT	DISCHARGE AIR TEMPERATURE SENSOR
DDC	DIRECT DIGITAL CONTROL
DDCFP	DIRECT DIGITAL CONTROL FIELD PANEL
DL	DEMAND LIMIT
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
DPV	DIFFERENTIAL PRESSURE BYPASS VALVE
DSP	DISCHARGE STATIC PRESSURE SENSOR
DWDI	DOUBLE WIDTH DOUBLE INLET
EAD	EXHAUST AIR DAMPER
EHRET	EXHAUST HEAT RECOVERY COIL ENTERING AIR TEMPERATURE SENSOR
EHRLT	EXHAUST HEAT RECOVERY COIL LEAVING AIR TEMPERATURE SENSOR
EHRV	EXHAUST HEAT RECOVERY COIL CONTROL VALVE
ES	END SWITCH
FA	FAULT ALARM
FID	FAN ISOLATION DAMPER
FMT	FLOW METER/TRANSMITTER
FS	FLOW SWITCH
FZ	FREEZESTAT
H	HUMIDITY SENSOR
HALM	HOOD ALARM
HCLT	HEATING COIL LEAVING AIR TEMPERATURE SENSOR
HEGA	HIGH EFFICIENCY GAS ABSORBER FILTER
HEPA	HIGH EFFICIENCY PARTICULATE AIR FILTER
HGB	HOT GAS BYPASS
HHL	HIGH HUMIDITY LIMIT SENSOR
HIV	HUMIDIFIER ISOLATION VALVE
HLH	HIGH/LOW HUMIDITY LIMIT SENSOR
HOA	HANDS-OFF AUTOMATIC SWITCH
HR	HUMIDITY SENSOR (ROOM)
HRET	HEAT RECOVERY COIL ENTERING AIR TEMPERATURE SENSOR
HRLT	HEAT RECOVERY COIL LEAVING AIR TEMPERATURE SENSOR
HRT	HEAT RECOVERY LOOP TEMPERATURE SENSOR
HRCV	HEAT RECOVERY COIL CONTROL VALVE
HRV	HEAT RECOVERY LOOP CONTROL VALVE
HS	HAND SWITCH
HSPS	HIGH STATIC PRESSURE SWITCH
HSS	HOOD SASH SWITCH
HUV	HUMIDIFIER CONTROL VALVE
HV	HEATING COIL CONTROL VALVE
HWRT	HOT WATER RETURN TEMPERATURE SENSOR
HWST	HOT WATER SUPPLY TEMPERATURE SENSOR
IFBD	INTEGRAL FACE & BYPASS DAMPER
IGV	INLET GUIDE VANES
LAT	LEAVING AIR TEMPERATURE SENSOR
LSPS	LOW STATIC PRESSURE SWITCH
LS	LEVEL SENSOR OR LIGHT SWITCH INTERFACE
LSHA	LEVEL SENSOR HIGH ALARM
LSHS	LEVEL SENSOR HIGH SWITCH
LSLA	LEVEL SENSOR LOW ALARM
LSLS	LEVEL SENSOR LOW SWITCH
MAT	MIXED AIR TEMPERATURE SENSOR
MUWV	MAKE-UP WATER VALVE
MD	MOTION DETECTOR
NC	NORMALLY CLOSED (ON LOSS OF POWER)
NO	NORMALLY OPEN (ON LOSS OF POWER)
OAD	OUTSIDE AIR DAMPER
OAH	OUTSIDE AIR HUMIDITY SENSOR (FOR WET BULB READING)
OAT	OUTSIDE AIR TEMPERATURE SENSOR (DRY BULB)
PAD	PRIMARY AIR DAMPER
PCHRT	PRIMARY CHILLED WATER RETURN TEMPERATURE SENSOR
PCHST	PRIMARY CHILLED WATER SUPPLY TEMPERATURE SENSOR
PR	PRESSURE SENSOR (ROOM)
RAD	RETURN AIR DAMPER
RAH	RETURN AIR HUMIDITY SENSOR
RAT	RETURN AIR TEMPERATURE SENSOR
RV	REHEAT CONTROL VALVE
RH	RELATIVE HUMIDITY
RI	RUN INDICATOR
RSID	RETURN SMOKE ISOLATION DAMPER
S	SWITCH
SAD	SUPPLY AIR DAMPER
SCHRT	SECONDARY CHILLED WATER RETURN TEMPERATURE
SCHST	SECONDARY CHILLED WATER SUPPLY TEMPERATURE
SCLAT	STEAM COIL LEAVING AIR TEMPERATURE SENSOR
SCV	STEAM COIL VALVE
SD	SMOKE DAMPER
SDET	SMOKE DETECTOR
SFD	SMOKE/FIRE DETECTOR
SP	STATIC PRESSURE SENSOR
SPD	SPEED CONTROL
S/S	START/STOP
S/S_H	START/STOP HIGH SPEED/CAPACITY
S/S_L	START/STOP LOW SPEED/CAPACITY
SSID	SUPPLY SMOKE ISOLATION DAMPER
SSP	SUCTION STATIC PRESSURE SENSOR
T	TEMPERATURE SENSOR/THERMOSTAT
TR	TEMPERATURE SENSOR/THERMOSTAT (ROOM)
VFDS	VARIABLE FREQUENCY DRIVE SPEED
VFDO	VARIABLE FREQUENCY DRIVE SPEED OUTPUT (FEEDBACK)
VS	VIBRATION SWITCH
WC	WATER COLUMN
X	~~REMOVE EXISTING ITEM~~



FAN COIL UNIT CONTROLS

GENERAL

1. THE EXISTING FAN COIL UNIT SHALL BE CONTROLLED VIA A NEW DDC CONTROLLER THAT TIES INTO THE NEW BUILDING BAS. ALL SETPOINTS SHALL BE ADJUSTABLE.
2. THE BAS CONTRACTOR SHALL CLOSE CV AND SOUND ALARM WHEN FLOAT SWITCH IS ACTIVATED.
3. COORDINATE WITH THE BUILDING OWNER FOR HOLIDAY AND UNOCCUPIED SCHEDULES.

FAN CONTROL

1. WHILE IN THE OCCUPIED MODE, THE SUPPLY FAN SHALL BE SET TO AUTO ON.
2. WHILE IN THE UNOCCUPIED MODE, THE SUPPLY FAN SHALL BE OFF AND THE TWO WAY HEATING AND COOLING CONTROL VALVES (HV AND CV) SHALL BE CLOSED.

OCCUPIED HEATING CONTROL

1. UPON A CALL FOR HEATING FROM THE SPACE TEMPERATURE SENSOR (TR) WITH 70°F (ADJ.) HEATING SETPOINT, THE EXISTING THREE WAY HEATING CONTROL VALVE (HV) SHALL DIRECT FULL FLOW TO THE HEATING COIL. THE REVERSE SHALL OCCUR UPON A RISE IN ROOM TEMPERATURE (HV RETURN TO BYPASS MODE). THE DISCHARGE AIR TEMPERATURE SHALL BE DISPLAYED ON THE BAS FRONT END. THE COOLING COIL CONTROL VALVE SHALL REMAIN CLOSED.

UNOCCUPIED HEATING CONTROL

1. THE SUPPLY FAN SHALL BE OFF AND THE HEATING THREE WAY CONTROL VALVE SHALL BE SET TO BYPASS. THE COOLING COIL CONTROL VALVE SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE SENSOR (TR) DROPS BELOW 55°F (ADJ.), THE SUPPLY FAN SHALL BE ENERGIZED AND THE THREE WAY HEATING CONTROL VALVE (HV) SHALL OPEN FULLY. 10 SECONDS AFTER THE SPACE TEMPERATURE SENSOR (TR) RISES ABOVE 60°F (ADJ.) THE CONTROL VALVE SHALL RETURN TO BYPASS MODE AND THE SUPPLY FAN SHALL BE DE-ENERGIZED.

OCCUPIED COOLING CONTROL

1. UPON A CALL FOR COOLING FROM THE SPACE TEMPERATURE SENSOR (TR) SET AT 75°F (ADJ.) FOR COOLING, THE NEW TWO WAY COOLING CONTROL VALVE (CV) SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN A DISCHARGE TEMPERATURE OF 57°F (ADJ.) AS SENSED BY THE DAT. THE HEATING VALVE SHALL REMAIN IN BYPASS MODE.
2. THE REVERSE SHALL OCCUR UPON A DROP IN ROOM TEMPERATURE.

UNOCCUPIED COOLING CONTROL

1. THE SUPPLY FAN SHALL BE OFF AND THE HEATING THREE WAY CONTROL VALVE SHALL BE SET TO BYPASS. THE COOLING COIL CONTROL VALVE SHALL BE CLOSED. WHEN THE SPACE TEMPERATURE SENSOR SENSES 80°F (ADJ.), THE SUPPLY FAN SHALL BE ENERGIZED AND THE TWO WAY COOLING CONTROL VALVE SHALL MODULATE OPEN AS NEEDED. 10 SECONDS AFTER THE SPACE TEMPERATURE SENSOR DROPS BELOW 78°F (ADJ.) THE CONTROL VALVE SHALL RETURN TO A CLOSED POSITION AND THE SUPPLY FAN SHALL BE DE-ENERGIZED.

SAFETIES

1. UNIT MOUNTED DISCHARGE AIR TEMPERATURE SENSOR (DAT) SHALL LIMIT THE HEATING DISCHARGE AIR TEMPERATURE TO A MAXIMUM OF 95°F (ADJ). COOLING DISCHARGE AIR TEMPERATURE SHALL BE NO LOWER THAN 55°F (ADJ).

ALARMS

1. IF ANY SAFETY IS TRIPPED, THE AUTOMATIC TEMPERATURE CONTROL SYSTEM SHALL GIVE A DETAILED ALARM SIGNAL TO THE EXISTING FRONT END.

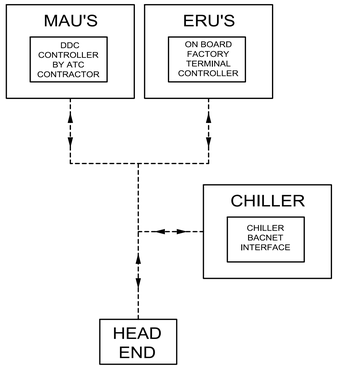
TEMPERATURE OVERRIDE DURING OCCUPIED MODE

1. THE SPACE TEMPERATURE SENSOR (TR) SHALL PROVIDE A ±2°F OVERRIDE OF THE SETPOINT FOR 6 HOURS (ADJ) AND THEN RETURN TO THE DEFAULT SETTINGS LISTED ABOVE.

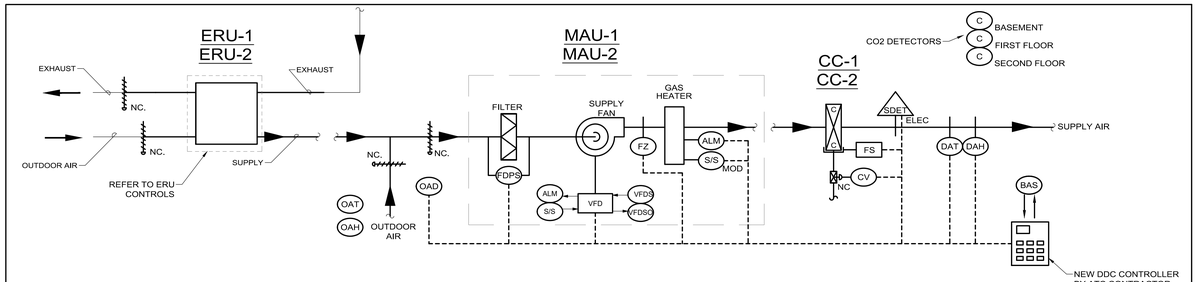
NV5 | EX. FAN COIL UNIT MODIFICATIONS AND SEQUENCE OF OPERATIONS | HC401M

GENERAL ATC NOTES

1. PROVIDE NEW DDC AUTOMATIC TEMPERATURE CONTROL SYSTEM INCLUDING OPERATOR WORKSTATION, CONTROL SOFTWARE TO ALLOW GRAPHIC REPRESENTATION OF THE HVAC SYSTEM WITH "POINT AND CLICK" SELECTION OF ALL EQUIPMENT. ALL TEMPERATURE SETPOINT CHANGES, SCHEDULING, ETC. SHALL BE ADJUSTABLE THROUGH THE USE OF A MOUSE. PROVIDE GRAPHIC REPRESENTATION OF ALL FLOOR PLANS SHOWING HVAC EQUIPMENT, VALVES, DAMPERS, TEMPERATURE SENSORS, HUMIDITY SENSORS, ETC.
2. OPERATOR WORKSTATION SHALL CONSIST OF A TOWER BASED PC WITH MONITOR, MOUSE, AND KEYBOARD. REFER TO ATC SPECIFICATIONS FOR FURTHER DETAILS.
3. THE NEW DDC CONTROL SYSTEM SHALL BE CONNECTED TO AND CONTROL THE NEW AIR COOLED CHILLER, NEW ENERGY RECOVERY UNITS, NEW MAKE-UP AIR UNITS, NEW PUMPS/VFDS, NEW COOLING COILS, NEW FANS, ETC. THE NEW CONTROLS SYSTEM SHALL ALSO CONTROL THE EXISTING FAN COIL UNITS VIA NEW DDC CONTROLLERS, NEW DDC SENSORS SHALL BE ADDED PER PLANS.
4. SCOPE OF THIS CONTRACTOR SHALL INCLUDE THE DEMOLITION OF THE EXITING WIRELESS FRONT END INCLUDING THE ASSOCIATED REMOTE SENSORS. EXAMINE THE EXISTING SYSTEM PRIOR TO DEMOLITION TO ENSURE ALL EXISTING SYSTEMS SHALL BE ACCOUNTED FOR UNDER THE NEW WORK. NOTIFY ENGINEER IF OTHERWISE.
5. OPERATOR WORKSTATION TO BE INSTALLED IN THE TOWN HALL BOILER ROOM. FINAL LOCATION TO BE DETERMINED BY THE OWNER.
6. ALL ATC CONTROLS SHALL BE HARDWIRED. NO WIRELESS TECHNOLOGY SHALL BE ALLOWED. ALL EXPOSED WIRING SHALL BE INSTALLED IN MINIMUM 1/2 INCH GALVANIZED EMT CONDUIT. CONTRACTOR SHALL INSTALL ALL NEW CONTROL WIRING IN THE WALL WHERE POSSIBLE. WHERE NOT POSSIBLE, PROVIDE WIREMOLD THAT MATCHES ADJACENT SURFACE.
7. THE CONTRACTOR SHALL CARRY 8 HOURS OF ADDITIONAL ON-SITE PROGRAMMING (ABOVE BASE CONTRACT) TO ALLOW FOR FIELD MODIFICATIONS THAT MAY BE NEEDED TO OPTIMIZE THE VARIOUS SYSTEMS TO FULLY CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS, SEQUENCE OF CONTROLS AND WORK WITH THE ACTUAL OPERATING CONDITIONS AS INSTALLED. THIS WORK SHALL BE DONE AT NO ADDITIONAL COST.
8. ON-SITE TRAINING SHALL ALSO INCLUDE A MINIMUM OF 8 HOURS OF HANDS ON INSTRUCTION GEARED TOWARD OPERATION AND MAINTENANCE OF THE SYSTEMS, PRIOR TO TRAINING, THE NECESSARY LESSON PLANS, TRAINING DOCUMENTS, HANDOUTS, ETC. SHALL BE PROVIDED WITH THE CURRICULUM OUTLINE, WHICH SHALL INCLUDE AS A MINIMUM.
9. PROVIDE WIRING FROM ELECTRICAL SOURCE TO MISCELLANEOUS ATC DEVICES. REFER TO HVAC PLANS, HVAC MECHANICAL ROOM PLANS, AND ELECTRICAL PLANS FOR LOCATION OF POWER SOURCES FOR ATC SYSTEM.
10. PROVIDE DEMOLITION OF EXISTING CONTROL COMPONENTS WHICH ARE BEING REPLACED BY THE NEW ATC CONTROL SYSTEM.
11. ALL MOTOR RATED RELAYS FOR FANS, ETC. SHALL BE FURNISHED BY DIVISION 250000 AND TURNED OVER TO DIVISION 260000 FOR INSTALLATION.
12. THE HVAC SYSTEM SHALL BE INDEXED TO HEATING WHEN HOT WATER IS AVAILABLE (GENERALLY BETWEEN THE MONTHS OF OCTOBER AND APRIL). THE HVAC SYSTEM SHALL BE INDEXED TO COOLING WHEN CHILLED WATER IS AVAILABLE (GENERALLY BETWEEN THE MONTHS OF MAY AND SEPTEMBER).
13. LOCATION OF ALL NEW DDC CONTROL PANELS AND OPERATOR WORK STATIONS SHALL BE FIELD VERIFIED WITH THE EXISTING CONDITIONS BY THE CONTRACTOR.



NV5 | BMS ARCHITECTURE | -



GENERAL

1. THE MUA UNIT SHALL BE CONTROLLED BY A DEDICATED FIELD PROVIDED PROGRAMMABLE CONTROLLER TO PROVIDE ENERGY RECOVERY, COOLING, HEATING, AND DEHUMIDIFICATION CONTROL. PROVIDE APPROPRIATE ANTI-SHORT CYCLING TIMERS, AND FAILURE ALARMS. BAS CONTRACTOR SHALL INSTALL REMOTE SENSORS AND COORDINATE / INTERFACE WITH ALL CONTROLLERS TO PROVIDE GRAPHICS (WITH ALL DATA) AND ALARMS AT THE OPERATORS WORKSTATION.
2. REFER TO THE ERU CONTROLS ON THIS SHEET FOR ERU SEQUENCES.
3. ALL TEMPERATURES LISTED ARE FAHRENHEIT. SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE. ALL ACTUATORS SHALL BE ELECTRONIC.
4. ALL TEMPERATURE SENSORS IN THE UNITS AND DUCTWORK SHALL BE AVERAGING TYPE EXCEPT FOR FREEZESTAT WHICH SHALL BE LOW POINT READING TYPE. SEE BAS SPECIFICATION FOR MORE INFO.

START-UP AND SHUTDOWN CONTROL:

1. ERUs SHALL NORMALLY OPERATE CONTINUOUSLY.
2. MAUs SHALL NORMALLY OPERATE CONTINUOUSLY.
3. WHILE IN UNOCCUPIED MODE (OR OFF ON SAFETY OR MANUAL DISCONNECT), ERU SHALL BE OFF. MAU SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) CLOSED. THE GAS FIRED FURNACE SHALL BE OFF.
4. WHEN STARTED IN OCCUPIED MODE, THE ERU UNIT SHALL START (CONSTANT VOLUME). OAD SHALL THEN OPEN TO THE MINIMUM OUTDOOR AIR POSITION AND THE MAU SUPPLY FAN SHALL START.

OCCUPIED HEATING CONTROL

1. DURING THE HEATING SEASON, THE MAKE-UP AIR UNIT SHALL MONITOR THE DISCHARGE AIR TEMPERATURE VIA THE DAT SENSOR. THE DAT SENSOR SHALL LIMIT THE DAT TO 85°F DURING THE HEATING SEASON.
2. IF HEATING IS REQUIRED, THE GAS HEATER SHALL MODULATE BETWEEN 50-100% TO PROVIDE THE REQUIRED CAPACITY TO MAINTAIN THE HEATING DAT OF 85°F. THE REVERSE SHALL OCCUR ON A RISE IN DAT.

OCCUPIED COOLING CONTROL:

1. DURING THE COOLING MONTHS, THE COOLING SET POINT AT DAT SHALL BE 55°F. TO MAINTAIN SET POINT, DAT SENSOR SHALL RESET DAT BETWEEN 55 AND 75°F AS REQUIRED.
2. IF COOLING IS REQUIRED, THE CHILLED WATER COOLING COIL SHALL MODULATE TO PROVIDE THE REQUIRED CAPACITY TO MAINTAIN THE COOLING SET POINT.

OCCUPIED DEHUMIDIFICATION CONTROL:

1. IF THE DISCHARGE AIR DEW-POINT (USING SIGNALS FROM DAT AND DAH) RISES ABOVE 59°F FOR 5 MINUTES, DEHUMIDIFICATION CONTROL SHALL BE ACTIVATED.
2. WHEN ACTIVATED, DX COIL SHALL BE CONTROLLED TO REDUCE TEMPERATURE AT DAT DOWN TO 55°F .
3. WHEN DEW-POINT DROPS BELOW 57°F FOR 10 MINUTES, DEHUMIDIFICATION SHALL END.

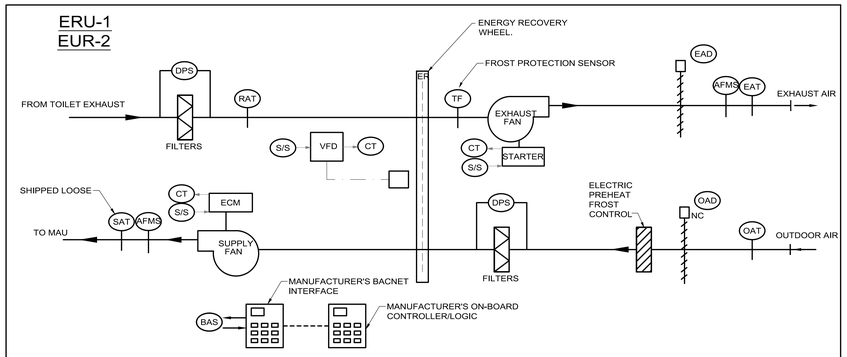
OCCUPIED CARBON DIOXIDE CONTROL:

THE OUTDOOR AIRFLOW SHALL VARY BETWEEN THE MINIMUM OUTDOOR AIRFLOW AND 100% OF THE SCHEDULED OUTDOOR AIR VOLUME. IF ANY OCCUPANCY SPACE CO2 SENSORS SERVED BY THE UNIT RISES ABOVE THE LIMIT OF 1200 PPM FOR 5 MINUTES, THE SUPPLY FAN VFD SHALL INCREASE SPEED AS REQUIRED REDUCE THE PPM BELOW 1000.

SAFETIES AND MONITORING:

1. IF THE AIR TEMPERATURE LEAVING THE GAS FURNACE DROPS BELOW 35°F, THE ERU, MAU, AND GAS FURNACE SHALL BE SHUTDOWN, AN ALARM SHALL BE SENT TO THE BAS.
2. IF ANY DUCT SMOKE DETECTOR TRIPS, THE ERU, MAU, AND GAS FURNACE SHALL BE SHUTDOWN AND AN ALARM SHALL BE SENT TO THE BAS. THE DETECTOR MUST BE MANUALLY RESET TO RESUME NORMAL OPERATIONS.
3. VFD ALARM CONTACT PROVIDES INDICATION OF SUPPLY FAN OPERATION. UPON LOSS OF SIGNAL, AN ALARM SHALL BE SENT TO THE BAS CENTRAL WORKSTATION.
4. THE GAS FIRED SECTION OF THE FURNACE SHALL INCLUDE A DIFFERENTIAL PRESSURE SENSOR TO VERIFY VENT FLOW PRIOR TO FIRING. CONTROL OF THE VENT SWITCH SHALL BE INTEGRAL TO THE MUA UNIT.

NV5 | GAS FIRED MAKE UP AIR UNIT / DUCT MOUNTED DX COIL SEQUENCE OF OPERATION (< 15,000 CFM) | -



GENERAL

1. ATC CONTRACTOR SHALL PROVIDE DEDICATED FULLY PROGRAMMABLE DDC CONTROLLER TO CONTROL THE ERU TO PROVIDE ENERGY RECOVERY CONTROL. THE UNIT SHALL NORMALLY OPERATE CONTINUOUSLY.
2. ALL TEMPERATURES LISTED ARE FAHRENHEIT. SET POINTS AND TIME DELAYS SHALL BE ADJUSTABLE WITHOUT PROGRAM CHANGES. ALL ACTUATORS SHALL BE ELECTRONIC.
3. ALL TEMPERATURE SENSORS IN THE ERU AND DUCTWORK SHALL BE AVERAGING TYPE EXCEPT FOR FREEZESTATS WHICH SHALL BE LOW POINT READING TYPE.

FAN CONTROL:

1. UNIT SHALL NORMALLY OPERATE CONTINUOUSLY. WHEN OFF, INCLUDING ON SAFETY AND MANUAL DISCONNECT, ERU FANS SHALL BE OFF WITH THE OUTSIDE AIR DAMPER (OAD) AND EXHAUST AIR DAMPER (EAD) CLOSED.
2. WHEN UNIT IS TO BE STARTED, THE OAD AND EAD SHALL OPEN. THEN THE ERU SUPPLY AND EXHAUST FANS SHALL START (WITH EXHAUST STARTING FIRST BY 5 SECONDS). THE ERU SUPPLY FAN ONLY STARTS IF THE ASSOCIATED MAU UNIT IS ON.

FROST CONTROL:

1. IF THE FROST PROTECTION TEMPERATURE SENSOR TF, LOCATED IN THE LEAVING EXHAUST AIR AFTER THE ENTHALPY WHEEL FALLS TO BELOW SETPOINT OF 15°F (CONTRACTOR SHALL VERIFY LOCATION AND SETPOINT WITH MANUFACTURER),THE ELECTRIC PREHEAT COIL SHALL POWER ON TO RAISE THE OUTDOOR AIR TEMPERATURE TO MINIMUM SETPOINT

ALARMS:

1. UPON LOSS OF SIGNAL WHEN ASSOCIATED MOTOR SHOULD BE ON, AN ALARM SHALL BE SENT TO THE OPERATOR'S WORKSTATION. IF THE FAILURE WAS A FAN, THE ERU SHALL BE SHUT-DOWN AS OUTLINED UNDER FAN CONTROL.
2. DIFFERENTIAL PRESSURE SWITCHES (DPS) PROVIDE MONITORING OF FILTER PRESSURE DROPS. ALARM SHALL BE SENT TO THE OPERATOR'S WORKSTATION WHEN EITHER FILTER'S SET POINT (INITIALLY 0.6") IS EXCEEDED FOR MORE THAN 10 MINUTES.
3. WHEN ERU GOES INTO OR OUT OF FROST CONTROL A NOTICE SHALL BE SENT TO THE OPERATOR'S WORKSTATION. OAT SHALL BE TRENDED WHEN FROST CONTROL IS USED.

NV5 | ENERGY RECOVERY UNIT SEQUENCE OF OPERATION | -

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER 0220195

DATE 04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY NG

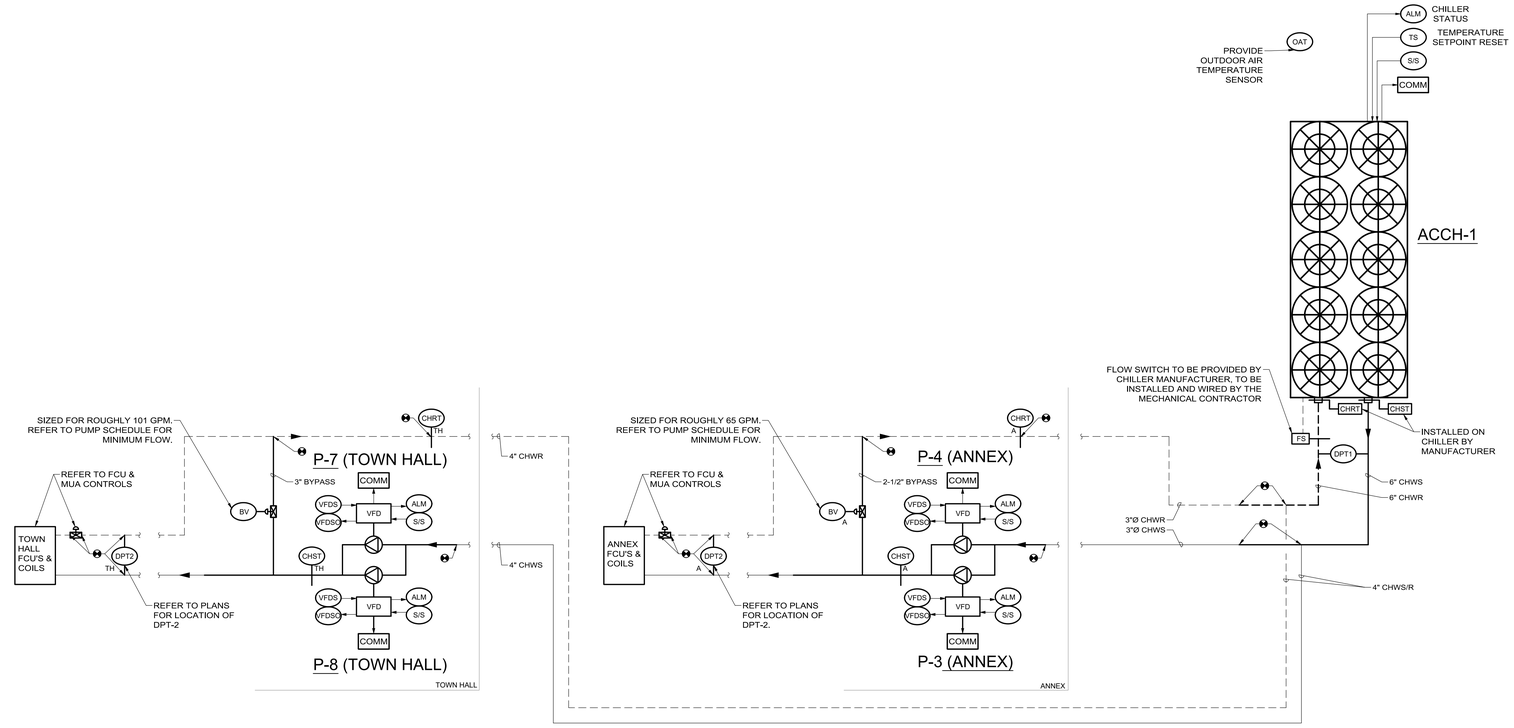
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SCALE NTS

TOWN HALL & ANNEX
MECHANICAL CONTROLS

M6.0

#:\BURLINGTON\Archive\20220195\20220195 - Burlington Town Hall Annex HVAC Roof\CAD Drawings\HC401 HVAC Plan Files\20220195 MEP HVAC CONTROLS.dwg, [Plot] Jun 28, 2024 - 3:45pm, Nolan Cohen



CHILLED WATER SYSTEM CONTROLS:

GENERAL

1. THE CHILLER AND PUMPS SHALL BE AUTOMATICALLY STARTED AND STOPPED BY THE NEW BAS.
2. THE CONTROL SYSTEM SHALL AUTOMATICALLY ENERGIZE THE CHILLER ALONG WITH THE CHILLED WATER PUMPS, WHENEVER THE OUTDOOR AIR TEMPERATURE RISES ABOVE 59 DEGREES FOR 15 MINUTES. THE CONTROL SYSTEM SHALL AUTOMATICALLY DE-ENERGIZE THE CHILLER ALONG WITH THE CHILLED WATER PUMPS, WHENEVER THE OUTDOOR AIR TEMPERATURE FALLS BELOW 57 DEGREES FOR 15 MINUTES. MONTHS, HOURS AND DAYS OF OPERATION SHALL BE ADJUSTABLE THROUGH THE CONTROLS SYSTEM.
3. ALL SET POINTS AND TIME DELAYS SHALL BE ADJUSTABLE THROUGH THE DDC SYSTEM WITHOUT ANY PROGRAM CHANGES.
4. ALL TEMPERATURES SHOWN ARE IN DEGREES FAHRENHEIT.
5. THE PUMP VFDS AND THE CHILLER CONTROL PANEL SHALL ACT AS LOCAL HAND-OFF-AUTOMATIC SWITCHES (H-O-A) AND SHALL OVERRIDE DDC START/STOP (S/S) COMMANDS. ALL HARDWIRED SAFETIES SHALL REMAIN ACTIVE.
6. CHILLED WATER SUPPLY TEMPERATURE SENSOR (TO CONTROL CHILLER CAPACITY) SHALL BE MOUNTED ON THE CHILLER SUPPLY WATER FLANGE BY THE CHILLER MANUFACTURER. FLOW SWITCH (TO VERIFY CHILLED WATER FLOW) SHALL BE FURNISHED BY THE CHILLER MANUFACTURER AND WIRED TO THE CHILLER CONTROL PANEL.
7. PROVIDE DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER (DPT1) FOR THE EVAPORATOR OF THE CHILLER. THE DPT SENSOR SHALL BE USED TO MONITOR CHILLED WATER FLOW BASED ON DP SIGNAL AND CHILLER MANUFACTURER'S FLOW CURVES (ADJUSTED FOR GLYCOL).
8. PROVIDE SENSORS SHOWN AND COORDINATE ALL SENSOR INSTALLATION LOCATIONS WITH THE MECHANICAL CONTRACTOR.
9. ALL CHILLER OPERATING CONTROLS AND RECYCLE TIME DELAYS AND SAFETIES FOR THE CHILLER COMPRESSORS SHALL BE BY THE CHILLER MANUFACTURER.
10. PROVIDE REMOTE DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER (DPT2) TO CONTROL THE SPEED OF THE CHILLED WATER PUMP VFD'S.
11. PROVIDE SLOW ACTING, MODULATING, PRESSURE INDEPENDENT, MINIMUM FLOW BYPASS VALVE SIZED FOR THE MINIMUM REQUIRED CHILLER FLOW (WITH 30-35% PROPYLENE GLYCOL). BYPASS STROKE SHALL BE LESS THAN 30S.

CHILLER OPERATION

1. ACCH-1 SHALL MAINTAIN THE CHILLED WATER SUPPLY TEMPERATURE AT MINIMUM OF 42°F (ADJ.) BY STAGING AND MODULATING THE UNIT'S COMPRESSORS WITH ITS INTERNAL PACKAGED CONTROLS (PROVIDED BY THE CHILLER MANUFACTURER).
2. THE BAS SHALL PROVIDE CHW SUPPLY TEMPERATURE RESET. CHWST SHALL BE RESET (ADJ.) LINEARLY BASED ON OAT AS FOLLOWS:

OAT	CHST
ABOVE 75°F	42°F
70°F	44°F
BELOW 65°F	46°F

3. THE CHILLER'S DPT1 TRANSMITTER (FLOW INDICATOR) SHALL SLOWLY MODULATE THE MINIMUM FLOW BYPASS VALVE (BV) OPEN AS NEEDED TO MAINTAIN THE MINIMUM CHILLER FLOW PLUS 5% (COORDINATE MINIMUM FLOW WITH CHILLER MANUFACTURER) LESS ANY EXISTING BYPASSES (COUPON RACKS OR OTHER).
4. ACCH-1 PACKAGED CONTROLS SHALL MONITOR THE CHILLED WATER FLOW AND IF A LOW FLOW CONDITION IS SENSED, THE CHILLER AND PUMP SHALL BE DE-ENERGIZED. PROVIDE REQUIRED WIRING BETWEEN ACCH-1 CONTROL PANEL AND FLOW SWITCH.
5. DURING THE UNOCCUPIED MODE, ACCH-1 SHALL BE OFF.

VARIABLE SPEED PRIMARY CHILLED WATER PUMP CONTROL (FOR EACH BUILDING)

1. THE LEAD PUMP SHALL BE ROTATED WEEKLY (ADJ.) WITH THE SPARE PUMP. UNLESS DISABLED BY THE OPERATOR, THE LEAD PUMP SHALL OPERATE CONTINUOUSLY WHEN COOLING IS NEEDED.
2. WHEN A PRIMARY CHILLED WATER PUMP IS STARTED, THE BV SHALL INITIALLY BE OPEN AND THE PUMP SHALL BE STARTED AT LOW SPEED (SEE PUMP SCHEDULE). THE REMOTE DIFFERENTIAL PRESSURE TRANSMITTER (DPT2) SHALL CONTROL THE OPERATING PUMP VARIABLE FREQUENCY DRIVE (VFD) AND SLOWLY INCREASE PUMP SPEED AS REQUIRED TO THE MINIMUM SPEED THAT MAINTAINS THE SET POINT OF THE REMOTE DPT SENSOR. BV SHALL MODULATE CLOSED WHEN MINIMUM FLOW AT CHILLER IS EXCEEDED. INITIAL SET POINT OF DPT2 SHALL BE COORDINATED WITH BALANCER TO THE MINIMUM REQUIRED TO ALLOW FULL FLOW THROUGH THE MOST REMOTE COILS.

EQUIPMENT FAILURE MODES

1. FAILURE OF A PRIMARY CHILLED WATER PUMP OR ASSOCIATED VFD.
   - A. IF ANY PUMP OR VFD FAILS, THE CONTROL SYSTEM SHALL ALARM AND THE CHILLER FLOW SWITCH SHALL DE-ENERGIZE THE CHILLER. THE CONTROL SYSTEM SHALL DISABLE THE LEAD PUMP AND ENABLE THE STANDBY PUMP. AFTER THE STANDBY PUMP IS STARTED AND FLOW IS PROVEN THE CHILLER SHALL BE ENABLED. TIME DELAYS TO ALLOW THE CHILLER COMPRESSORS TO BE ENERGIZED SHALL BE PROVIDED BY THE CHILLER MANUFACTURER.
   - B. WHEN THE FAILED COMPONENT IS BACK ON-LINE, THE OPERATOR SHALL INPUT INTO CONTROL SYSTEM THAT THE PUMP IS NOW AVAILABLE.
2. FAILURE OF A CHILLER MODULE
   - A. IF ANY CHILLER MODULE FAILS, THE CONTROL SYSTEM SHALL ALARM AND THE CONTROL SYSTEM SHALL LOCK OUT THE LEAD CHILLER MODULE AND ENABLE THE STANDBY CHILLER MODULE.
   - B. WHEN THE CHILLER IS BACK ON-LINE, THE OPERATOR SHALL INPUT INTO THE CONTROL SYSTEM THAT THE CHILLER MODULE IS NOW AVAILABLE.

USER INTERFACE

1. PROVIDE PROGRAMMING TO PROVIDE A MENU ALLOWING THE OPERATOR TO EASILY OPEN ALL CONTROL VALVES CONNECTED TO THE CHILLERS FOR USE DURING CLEANING/FLUSHING, AND TESTING AND BALANCING WORK.

FREEZE PROTECTION

1. THE CHILLED WATER SYSTEM SHALL BE PROTECTED FROM FREEZING BY GLYCOL.
2. THE CHILLER SHALL BE PROVIDED BY AN ELECTRIC EVAPORATOR HEATER. THE EVAPORATOR HEATER SHALL BE CONTROLLED BY THE CHILLER'S ONBOARD CONTROLS.

REPORTING FUNCTIONS

1. HISTORIES
   - A. THE CONTROL SYSTEM SHALL DISPLAY ANY TEMPERATURE, FLOW OR DATA FROM ANY SENSOR OR DEFINED VARIABLE ON REQUEST OF OPERATOR.
   - B. THE CONTROL SYSTEM SHALL BE PROGRAMMED TO RECORD HISTORIES OF ALL TEMPERATURES (CHILLED WATER SUPPLY AND RETURN TEMPERATURE, ETC.), FLOW RATES, HOUR OF DAY, HOURS OF OPERATION ASSOCIATED WITH EACH PIECE OF EQUIPMENT, TON HOURS OF MECHANICAL COOLING, MINIMUM, PEAK AND AVERAGE LOADS AND FLOWS. IN ADDITION, RECORD HISTORIES OF ANY OTHER ITEM OVER ANY TIME PERIOD REQUESTED BY OPERATOR. COORDINATE WITH OWNER FOR INITIAL LIST OF HISTORY ITEMS.
   - C. THE CONTROL SYSTEM SHALL DISPLAY ALL CHANGES IN EQUIPMENT STATUS AS THEY OCCUR.
2. ALARMS
   - A. IN ADDITION TO THE ALARMS PREVIOUSLY LISTED, ALL SENSORS AND VARIABLES SHALL BE CAPABLE OF HIGH/LOW ALARM POINTS. AS A MINIMUM, THE FOLLOWING SHALL BE ALARMED AFTER APPROPRIATE TIME DELAYS:
     - a. IF ANY PIECE OF EQUIPMENT IS INDICATED AS OFF WHEN IT SHOULD BE ON (IGNORE IF CHILLER IS CYCLED OFF TEMPORARILY DUE TO LOW LOAD CONDITIONS).
     - b. IF CHILLER CHWS TEMPERATURE EXCEEDS 2 DEGREES ABOVE SET POINT FOR 5 MINUTES.
     - c. IF ANY PIECE OF EQUIPMENT IS ON THAT IS INDICATED AS OFF.
   - B. ALARM MESSAGES SHALL BE DISPLAYED AT THE LOCAL CONTROL PANEL AND AT THE BAS.

N|V|5 AIR COOLED CHILLER WITH VFD PUMPS CONTROL SEQUENCE OF OPERATION HC203

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DRAWING

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NG

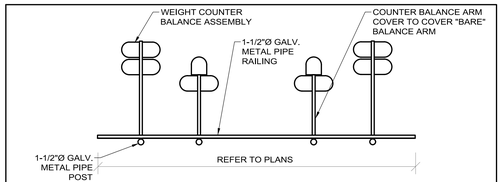
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TOWN HALL & ANNEX
MECHANICAL CONTROLS

M6.1

N|V|5

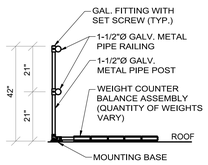


RAIL SYSTEM - PLAN VIEW (REFER TO PLAN FOR QUANTITY)

NOT TO SCALE

GUARD RAIL SYSTEM NOTES :

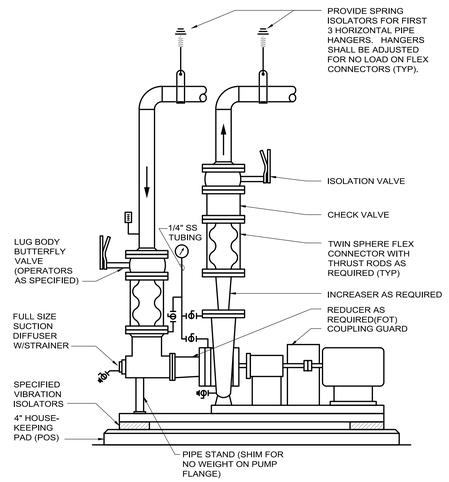
1. NEW ENGINEERED COUNTERBALANCE GALVANIZED METAL RAILINGS/GUARD RAIL SYSTEMS SHALL INCLUDE ALL RAILINGS (TOP AND MIDPOINT), POSTS, FASTENERS, BRACKETS, COUNTERBALANCE WEIGHTS, ETC. FOR A COMPLETE INSTALLATION. COUNTERBALANCE WEIGHTS AND LOCATION SHALL BE SELECTED AND PROVIDED BY THE GUARDRAIL SYSTEM MANUFACTURER.
2. ALL MOUNTING BASES AND COUNTERWEIGHTS SHALL BE PROVIDED WITH RUBBER PADS PLACED UNDER THE PLATES AND WEIGHTS AT THE JOB SITE.
3. ALL NEW GUARDRAIL ASSEMBLIES SHALL RECEIVE FIELD APPLIED ONE PRIME AND TWO FINISH COATS OF ENAMEL BY THIS CONTRACTOR. COLOR SHALL BE SAFETY YELLOW.
4. FURNISH COMPLETE SHOP DRAWINGS AND SCHEDULES SHOWING MATERIALS, DETAILS, DIMENSIONS, ASSEMBLY AND FINISHES, IN ACCORDANCE WITH THE GENERAL CONDITIONS.
5. HANDRAIL AND GUARDRAIL ASSEMBLIES AND ATTACHMENTS SHALL WITHSTAND A MINIMUM CONCENTRATED LOAD OF 200 POUNDS IN ANY DIRECTION. GUARDRAIL SYSTEM SHALL BE OSHA COMPLIANT.



RAIL SYSTEM ELEVATION

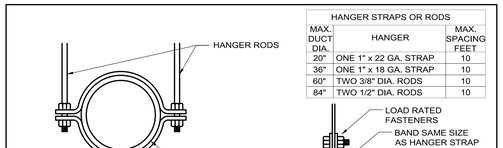
NOT TO SCALE

N|V|5 ROOF EDGE GUARD RAIL SYSTEM -



NOTE:
1. PROVIDE ABRASIVE SEPARATORS FOR MECHANICAL SEALS (NOT SHOWN FOR CLARITY).

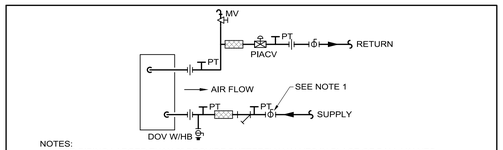
N|V|5 LARGE END SUCTION PUMP WITH SUCTION DIFFUSER H1204



HANGER STRAPS OR RODS		
MAX. DUCT DIA.	HANGER	MAX. SPACING FEET
20"	ONE 1" x 22 GA. STRAP	10
36"	ONE 1" x 18 GA. STRAP	10
60"	TWO 3/8" DIA. RODS	10
84"	TWO 1/2" DIA. RODS	10

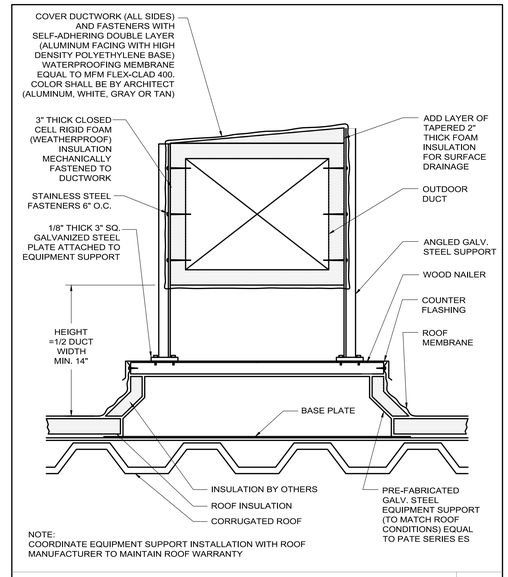
NOTES:
1. ALL SUPPORTS SHALL BE GALVANIZED STEEL FOR STEEL DUCT, STAINLESS STEEL FOR STAINLESS STEEL DUCT, OR ALUMINUM FOR ALUMINUM DUCT.
2. HANGERS MUST NOT DEFORM DUCT SHAPE.
3. ATTACHMENTS TO STRUCTURE SHALL BE PER SMACNA.

N|V|5 ROUND METAL DUCT HANGERS H008



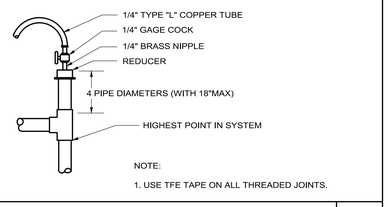
NOTES:
1. FOR PIPING LARGER THAN 2" PROVIDE BUTTERFLY VALVES IN PLACE OF BALL VALVES.
2. PROVIDE CONDENSATE DRAIN PAN AND DRAIN WITH TRAP FOR COOLING COILS. PROVIDE HIGH LEVEL SWITCH WIRED TO CLOSE THE COOLING CONTROL VALVE AND ALARM AT THE BAS.
3. TWO FOOT LONG STAINLESS STEEL BRAIDED FIRE RETARDANT HOSE KITS MAY BE USED (PRE-PIPED WITH ALL COMPONENTS AS SHOWN) PROVIDING ALL COMPONENTS MEET THEIR INDIVIDUAL SPECIFICATION REQUIREMENTS.
4. PROVIDE REDUCERS AS REQUIRED.
5. FOR MULTIPLE ROW COILS, PIPE COIL COUNTER FLOW TO THE AIR FLOW (WARMEST WATER LOCATED ON THE SIDE WITH WARMEST AIR)

N|V|5 SINGLE WATER COIL WITH 2-WAY MODULATING PI AUTOMATIC CONTROL VALVE H223



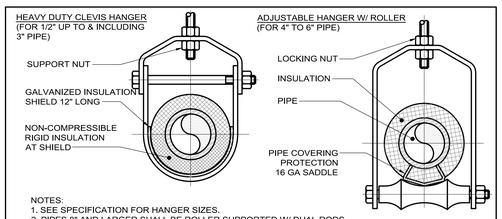
NOTE:
COORDINATE EQUIPMENT SUPPORT INSTALLATION WITH ROOF MANUFACTURER TO MAINTAIN ROOF WARRANTY

N|V|5 ROOF MOUNTED DUCTWORK H009



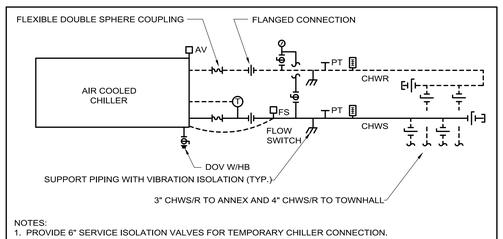
NOTE:
1. USE TFE TAPE ON ALL THREADED JOINTS.

N|V|5 MANUAL AIR VENT ASSEMBLY H1108



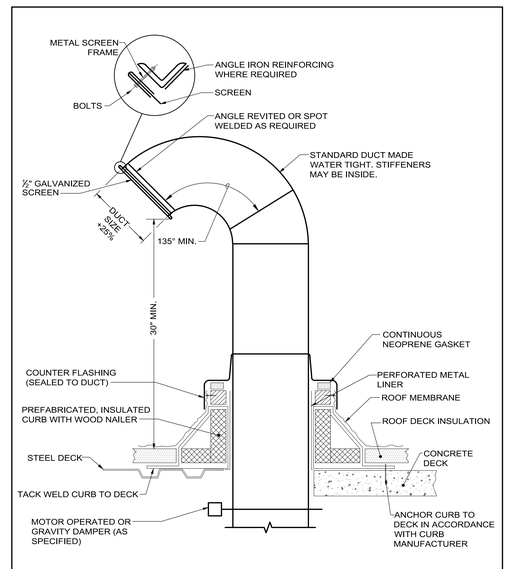
NOTES:
1. SEE SPECIFICATION FOR HANGER SIZES.
2. PIPES 8" AND LARGER SHALL BE ROLLER SUPPORTED W/ DUAL RODS.
3. FOR CHW SERVICE OVER 3", REPLACE SADDLE W/ 12" LONG, 14 GAUGE SHIELD W/ RIGID INSULATION BETWEEN THE PIPE AND SHIELD. PROTECT WITH CONTINUOUS VAPOR BARRIER.

N|V|5 PIPE HANGER SUPPORT H001

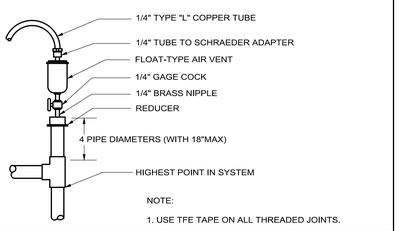


NOTES:
1. PROVIDE 6" SERVICE ISOLATION VALVES FOR TEMPORARY CHILLER CONNECTION.
2. LAST RETURNED BUILDING SHALL BE FIRST SUPPLIED FOR EQUILIZATION PURPOSES.

N|V|5 AIR COOLED CHILLER PIPING H1301

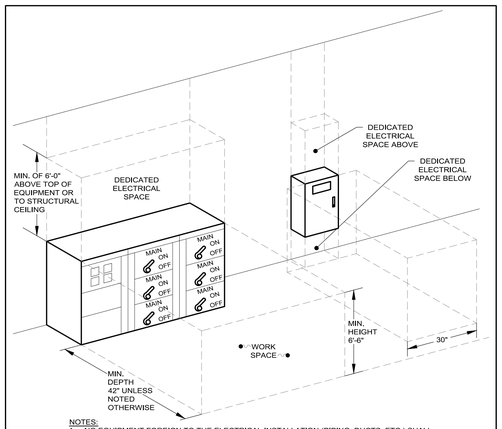


N|V|5 GOOSENECK DETAIL H1523



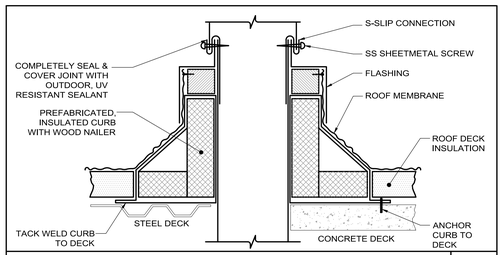
NOTE:
1. USE TFE TAPE ON ALL THREADED JOINTS.

N|V|5 AUTOMATIC AIR VENT ASSEMBLY H1107

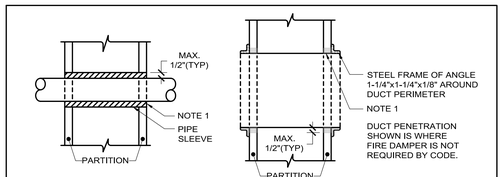


NOTES:
1. NO EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION (PIPING, DUCTS, ETC.) SHALL ENTER THE DEDICATED SPACE ABOVE OR BELOW ELECTRICAL POWER EQUIPMENT INCLUDING SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, & MOTOR CONTROL CENTERS.
2. PIPING SYSTEMS INSTALLED ABOVE THE DEDICATED ELECTRICAL SPACE SHALL BE ALLOWED WHERE DRIP PANS ARE INSTALLED TO CAPTURE LEAKS, RUPTURES OR CONDENSATION DRIPS. THE PIPING AND DRIP PANS SHALL BOTH BE OUTSIDE THE DEDICATED SPACE ENVELOPE.
3. WORK SPACE SHALL BE PROVIDED AT ALL EQUIPMENT UNDER 600V REQUIRING ACCESS INCLUDING BUT NOT LIMITED TO PANELS, DISCONNECTS, STARTERS, CONTROL PANELS INTEGRATED INTO HVAC/PLUMBING/FP EQUIPMENT, ETC.
4. NO EQUIPMENT SHALL PROTRUDE INTO THE WORK SPACE.
5. WORK SPACE DEPTH BASED UPON NEC TABLE 110.26(A)(1) CONDITION 2 150V TO GROUND.

N|V|5 ELECTRICAL WORK AND DEDICATED SPACE H101

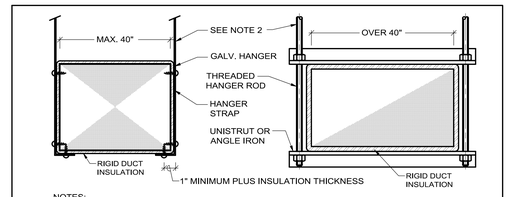


N|V|5 DUCT PENETRATION THRU ROOF H905



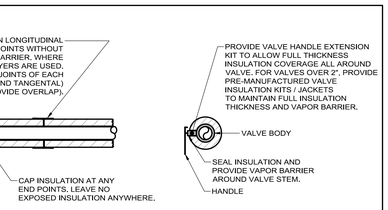
NOTES:
1. AT FIRE RATED PARTITIONS ADD ADDITIONAL LAYER OF FIRE SAFING INSULATION AROUND PENETRATIONS SO AS TO FILL CAVITY.
2. DUCT AND PIPE PENETRATIONS THROUGH CORRIDOR WALLS ABOVE THE CEILING ARE TO BE FIRE STOPPED AROUND THE PENETRATION.

N|V|5 DUCT & PIPE PENETRATIONS H901



NOTES:
1. CUTTING AND PATCHING SHALL BE LIMITED TO A MINIMUM AS REQUIRED FOR PROPER INSTALLATION.
2. SUPPORTS SHALL BE SPACED AND SIZED AS PER SMACNA.

N|V|5 DUCT HANGER SUPPORT H1508



N|V|5 TYPICAL PIPE INSULATION & VALVE HANDLE EXTENSION H1106

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REVISIONS

	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER 0220195

DATE 04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

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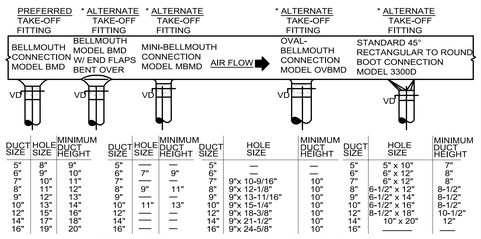
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SCALE NTS

TOWN HALL & ANNEX
MECHANICAL DETAILS

M7.0

\\BURLINGTON\Projects\0220195 - Burlington Town Hall Annex HVAC Roof\300 Drawings\M7.0 HVAC Misc Details.dwg [Plot] April 08, 2024 - 3:45pm Nancy Gross



DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	8"	9"
6"	9"	10"
7"	10"	11"
8"	11"	12"
9"	12"	13"
10"	13"	14"
12"	15"	16"
14"	17"	18"
16"	19"	20"

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	—	—
6"	7"	9"
7"	—	—
8"	9"	11"
9"	—	—
10"	11"	13"
12"	—	—
14"	—	—
16"	—	—

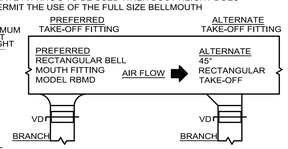
DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	—	—
6"	—	—
7"	9"x 10-9/16"	10"
8"	9"x 12-1/8"	10"
9"	9"x 13-11/16"	10"
10"	9"x 15-1/4"	10"
12"	9"x 18-3/8"	10"
14"	9"x 21-1/2"	10"
16"	9"x 24-5/8"	10"

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
5"	5" x 10"	7"
6"	6" x 12"	8"
7"	6" x 12"	8"
8"	6-1/2" x 12"	8-1/2"
9"	6-1/2" x 14"	8-1/2"
10"	6-1/2" x 16"	8-1/2"
12"	8-1/2" x 18"	10-1/2"
14"	10" x 20"	12"
16"	—	—

ALTERNATE ROUND BRANCH DUCT TAKE-OFFS

* ALTERNATE FITTING'S TO BE USED WHEN DUCT HEIGHT DOES NOT PERMIT THE USE OF THE FULL SIZE BELLMOUTH

DUCT SIZE	HOLE SIZE	MINIMUM DUCT HEIGHT
6 x 4	7.5 x 5.5	7.5
10 x 4	11.5 x 5.5	7.5
16 x 4	17.5 x 5.5	7.5
24 x 4	25.5 x 5.5	7.5
6 x 5	7.5 x 6.5	8.5
10 x 5	11.5 x 6.5	8.5
16 x 5	17.5 x 6.5	8.5
24 x 5	25.5 x 6.5	8.5
6 x 6	7.5 x 7.5	9.5
10 x 6	11.5 x 7.5	9.5
16 x 6	17.5 x 7.5	9.5
24 x 6	25.5 x 7.5	9.5
8 x 8	9.5 x 9.5	11.5
16 x 8	17.5 x 9.5	11.5
24 x 8	25.5 x 9.5	11.5
10 x 10	11.5 x 11.5	13.5
16 x 10	17.5 x 11.5	13.5
24 x 10	25.5 x 11.5	13.5

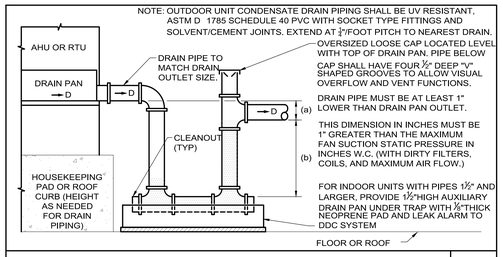


ALTERNATE RECTANGULAR BRANCH DUCT TAKE-OFF

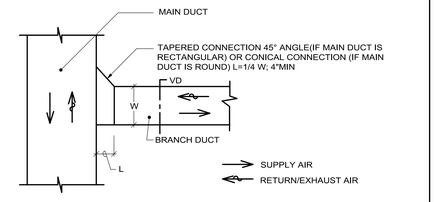
NOTES:
ALL ROUND AND RECTANGULAR BELLMOUTH FITTINGS SHALL BE INCLUDED WITH THE FOLLOWING STANDARD FEATURES:

1. NEOPRENE GASKET TO MINIMIZE AIR LEAKAGE.
2. PRE-DRILLED HOLES FOR QUICK MOUNTING.
3. CONSTRUCTED OF HEAVY GALVANIZED STEEL.
4. 26 GAUGE GALV. QUADRANT VOLUME DAMPER W/ TIGHT FITTING GASKETING TO MINIMIZE LEAKAGE AT DAMPER PIVOT POINTS. (FOR LOW PRESSURE DUCTWORK)

N|V|5 TYPICAL DUCT TAKE-OFF H1521

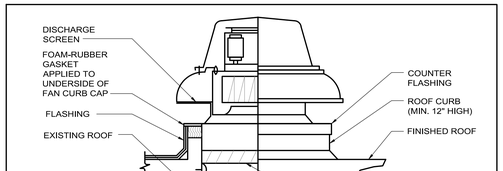


N|V|5 BLOW THRU UNIT CONDENSATE TRAP H1109



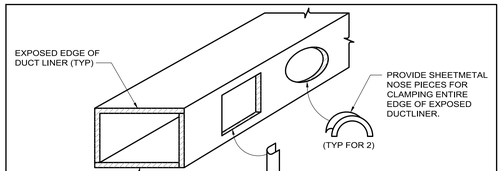
DUCT TAKE-OFF

N|V|5 BRANCH TAKE-OFFS H1501

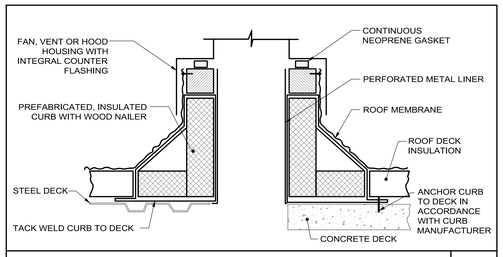


NOTE:
COORDINATE ROOF CURB INSTALLATION WITH ROOF MANUFACTURER TO MAINTAIN ROOF WARRANTY.

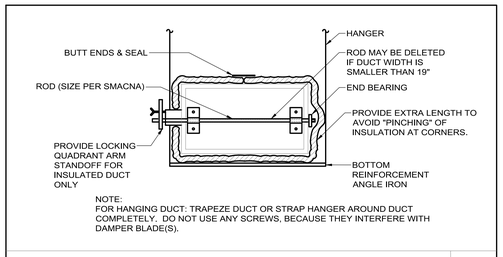
N|V|5 ROOF MOUNTED EXHAUST FAN H401



N|V|5 SEALING & SECURING EXPOSED DUCTLINER H1503

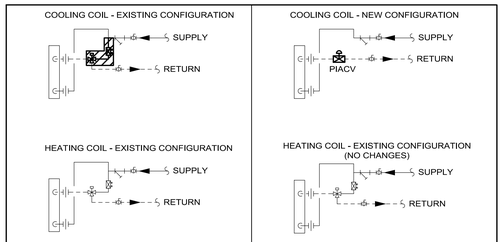


N|V|5 ROOF CURB H906

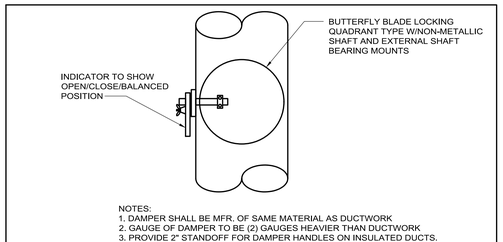


NOTE:
FOR HANGING DUCT: TRAPEZE DUCT OR STRAP HANGER AROUND DUCT COMPLETELY. DO NOT USE ANY SCREWS, BECAUSE THEY INTERFERE WITH DAMPER BLADE(S).

N|V|5 TYPICAL DUCT INSTALLATION & SUPPORT NEAR VOLUME DAMPERS H1509



N|V|5 EXISTING FCU PIPING MODIFICATIONS -



NOTES:
1. DAMPER SHALL BE MFR. OF SAME MATERIAL AS DUCTWORK
2. GAUGE OF DAMPER TO BE (2) GAUGES HEAVIER THAN DUCTWORK
3. PROVIDE 2" STANDOFF FOR DAMPER HANDLES ON INSULATED DUCTS.

N|V|5 ROUND VOLUME DAMPER UP TO 14"Ø - LOW PRESSURE H1514

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T.978-296-6200
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HVAC, ROOF, AND
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BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

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JS

SCALE
NTS

TOWN HALL & ANNEX
MECHANICAL DETAILS

M7.1

M:\BOS\Projects\0220195\195 - Burlington Town Hall Annex HVAC Study\500 Drawings\504 Mech\Dwg Files\0220195 M7.1 HVAC DETAILS.dwg [Plot] Apr 26, 2024 - 3:55pm Nolan Cyrus

ENERGY RECOVERY UNIT SCHEDULE

TAG	SERVICE	LOCATION	CFM		SUPPLY FAN DATA						HEATER	RETURN FAN DATA							WINTER PERFORMANCE								SUMMER PERFORMANCE								ELECTRICAL DATA				WEIGHT (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
																			OUTDOOR AIR		SUPPLY AIR		RETURN AIR		EXHAUST AIR		EFFECTIVENESS (%)	OUTDOOR AIR		SUPPLY AIR		RETURN AIR		EXHAUST AIR		EFFECTIVENESS (%)	V	PH	MCA	MOP			
			TOTAL	MIN. OA	AIRFLOW (CFM)	HP	KW	DRIVE	ESP (IN. WG)	TSP (IN. WG)	FILTER	KW	AIRFLOW (CFM)	HP	KW	DRIVE	ESP (IN. WG)	TSP (IN. WG)	FILTER	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)		DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)	DB (°F)	WB (°F)							
ERU-1	ANNEX	ON ROOF	1,300	1,300	1,300	2		DIRECT	1.4	-	MERV 13	5.3	1300	1	-	DIRECT	1	-	MERV 8	7	5	31.6	25.45	70	50	37.37	30.38	49.9	91	73	84.36	68.97	75	62	83.13	67.67	47.7	208	3	42	45	881	AAON - RQ-002-8-H	SEE NOTES
ERU-2	TOWN HALL	IN ATTIC	1,500	1,500	1,500	-	0.91	DIRECT	0.8	-	MERV 13	3.69	1500	-	0.93	DIRECT	0.8	-	MERV 9	6.8	4.73	52.2	46.79	71.6	59.76	27.6	27.18	68.5	91	73	78.1	66.28	71.6	59.76	84.6	67.73	55.6	208	3	33.4	55	564	SYSTEMAIR - TOPVEX FR1600	SEE NOTES

NOTES:

FOR ALL UNITS
1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2 PROVIDE UNITS WITH WHEEL EXCHANGER, FILTERS ON RETURN AND OUTDOOR AIR, ELECTRIC PREHEATER FOR FROST CONTROL, BACNET CONTROLLERS/INTERFACES AND PRE-INSULATED LOW LEAKAGE OUTSIDE AIR AND EXHAUST MOTORIZED DAMPERS.
FOR ERU-1
3 PROVIDE OUTDOOR UNIT WITH HORIZONTAL SUPPLY AND RETURN
FOR ERU-2
4 PROVIDE INDOOR UNIT WITH HORIZONTAL SUPPLY AND RETURN.

AIR-COOLED WATER CHILLER SCHEDULE

TAG	LOCATION	REFRIGERANT		REFRIGERATION CAPACITY (TONS)	EVAPORATOR								COMPRESSOR(S)				AMBIENT °F		CONDENSER FAN			ELECTRIC SERVICE						EFFICIENCY		MANUFACTURER AND MODEL NUMBER (AS STANDARD)	WEIGHT (LBS.)	REMARKS
		TYPE	CHARGE (LBS/CIR)		GPM			% GLYCOL (PG)	EWT (°F)	LWT (°F)	PRESSURE DROP (PSI)			QTY.	KW TOTAL	TYPE	NO. STAGES	MAX	MIN	QTY.	FLA EA.	RPM	MAX kW	SERVICE 1				MIN. AIC RATING	RATED EFF. AT AHRI				
					MIN.	MAX.	DESIGN				MIN.	MAX.	DESIGN											V	PH	MCA (AMP)	MOCP (AMP)		IPLV - EER	COP			
ACCH-1	ON GRADE	R-513A	217	90	157	528	232.4	35	52	42	2.6	25.8	5	2	-	SCREW	VFD	91	40	8	2.6	-	-	480	3	287	400	65	19.47	10.06	DAIKIN AWV008B	11433	SEE NOTES

NOTES:

1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2. PROVIDE CHILLER WITH CONTROL PANEL, CONTROL POWER TRANSFORMER, INTEGRAL STARTER, DISCONNECT SWITCH WITH LOCKABLE EXTERNAL HANDLE, CHW FLOW SWITCHES, CHWS TEMPERATURE SENSOR, AND Y-INLET STRAINER. PROVIDE WITH EVAPORATOR BARREL HEATER.
3. PROVIDE WITH FACTORY INSTALLED ACOUSTICAL TREATMENT FOR COMPRESSORS, BOLTED FLANGED CONNECTIONS AND REFRIGERANT SERVICE ISOLATION VALVES.
4. PROVIDE WITH HERMETIC, DIRECT DRIVE VARIABLE SPEED SCREW COMPRESSORS, FILTER DRIER, ELECTRONIC EXPANSION VALVE, LIQUID LINE, DISCHARGE SERVICE VALVES, AND CONTROLS.
5. PROVIDE WITH DIRECT DRIVE ECM VERTICAL DISCHARGE CONDENSER FANS FOR ALL FANS.
6. PROVIDE WITH BACNET INTERFACE.
7. ALL BUFFER TANKS, EXPANSION TANKS, MAKEUP WATER SYSTEMS, GLYCOL SYSTEMS, & AIR/DIRT SEPARATORS ARE TO REMAIN AND BE REUSED.
8. PROVIDE STARTUP AND TRAINING BY CHILLER MANUFACTURER, ENTIRE CHILLER SHALL BE WARRANTIED FOR 1 YEAR (PARTS AND LABOR). CHILLER COMPRESSORS SHALL BE WARRANTIED FOR FIVE YEARS (PARTS AND LABOR). CONTRACTOR TO COORDINATE ARRANGEMENT OF EVAPORATOR AND CONDENSER WATER PIPING CONNECTIONS WITH THE DRAWINGS PRIOR TO ORDERING CHILLER.
9. THE CHILLER SHALL BE LEAK CHECKED WITH NITROGEN AND FULLY CHARGED WITH THE RECOMMENDED REFRIGERANT FROM FACTORY. RIGGING OF THE CHILLER SHALL BE PROVIDED BY THE CONTRACTOR.
10. SYSTEM SELECTED AROUND 115°F AMBIENT DUE TO THE EXISTING CHILLER YARD DESIGN.
11. PROVIDE 4 YEAR PARTS AND LABOR WARRANTY FOR COMPRESSOR.

MAKE-UP AIR UNIT SCHEDULE

TAG	SERVICE	LOCATION	CFM		SUPPLY FAN DATA						SUMMER PERFORMANCE (SEE COIL SCH)		INDIRECT GAS-FIRED HEATER DATA (WINTER)						ELECTRIC SERVICE					WEIGHT UNIT + CURB (LBS)	FILTER DATA	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
			TOTAL	MIN. O.A.	CFM	BHP	HP	STATIC PRESS. (IN. WC)		FAN DRIVE	AIR DATA		CAPACITY (MBH)			AIR DATA		GAS PRESS REQ. (IN.)	GAS VALVE STEPS	FLA	V	PH	MCA	MOCP				
								EXTERNAL	TOTAL		EAT DB (°F)	LAT WB (°F)	INPUT	OUTPUT	MIN. EFF. (%)	EAT (°F)	LAT (°F)										
MAU-1	ANNEX	ATTIC ANNEX	3300	1300	3300	3.14	5	2.24	-	DIRECT	87.2	71	220	178.2	80	16.7	66.7	7-14	6:1	-	208	3	21.3	35	1493+104	2" - PLEATED	RUPP RARTU2-I.250-18	SEE NOTES
MAU-2	TOWN HALL	ATTIC TOWN H	4050	1500	4050	2.99	5	1.75	1.99	BELT	86.9	70.8	300	240	80	20	70	-	50%-100%	26.08	208	3	32.6	50	507	2" - PLEATED	REZNOR -SCE-300	SEE NOTES

NOTES:

1. REFER TO SPECIFICATIONS, DETAILS, AND CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
2. PROVIDE WITH THE FOLLOWING OPTIONS : INDIRECT GAS FIRED HEATER WITH BURNER, STAINLESS STEEL HEAT EXCHANGER, BURNER DRIP PAN, ELECTRONIC MODULATING GAS VALVE, OPEN STYLE BLOWER MOTOR, LOW LEAK 100 % OUTDOOR AIR DAMPER WITH DAMPER MOTOR ON / OFF AND SPRING RETURN CLOSED ELECTRICALLY INTERLOCKED WITH SUPPLY FAN CONTACTOR, 2" DISPOSABLE PLEATED FILTERS, 24V RELAY , VERTICAL CONCENTRIC VENT TERMINAL ASSEMBLY (MUA-2).
3. FURNISH VFD FOR INSTALLATION BY DIV. 26.
4. FOR MUA-2, PROVIDE WITH SPRING ISOLATORS. MUA TO BE HUNG FROM SURROUND STRUCTURE, SIMILAR TO EXISTING EQUIPMENT.
5. GAS PIPING BY DIV. 22. DISCONNECT BY DIV. 26.
6. PROVIDE FLEXIBLE DUCT CONNECTIONS ON THE SUPPLY AND RETURN CONNECTIONS.
7. FOR MUA-2, PROVIDE CONCENTRIC FLUE/INTAKE KIT. PROVIDE 6" FLUE/INTAKE INTO TO CONCENTRIC KIT.
8. PROVIDE EACH SYSTEM WITH VENT FLOW CONFIRMATION SENSOR, FREEZE STAT AND FILTER RACK ACCESSORY.
9. FOR MUA-1, PROVIDE SNOWHOOD AND MANUFACTURER'S CURB.

EXHAUST FAN SCHEDULE

TAG	SERVICE	CONTROL	TYPE	LOCATION	CFM	FAN TYPE	E.S.P. (IN.WG)	WHEEL		OUTLET VELOCITY (FPM)	MOTOR					MANUFACTURER AND MODEL NUMBER (AS STANDARD)	WEIGHT (LBS)	REMARKS
								DRIVE	RPM		RPM	BHP	HP	V	PH			
EF-6	ATTIC	HUMIDISTAT	UPBLAST	ANNEX ROOF	1200	CENT.	.25	BELT	1131	1290	1725	.16	1/4	115	1	GREENHECK GB-120	58	1 THRU 5
EF-8	ATTIC	HUMIDISTAT	INLINE	TOWNHALL ROOF	1325	CENT.	.3	DIRECT	1725	1011	1725	0.24	1/4	115	1	GREENHECK SQ-100	62	1 THRU 4, 6
EF-9	ATTIC	THERMOSTAT	INLINE	TOWNHALL ROOF	1325	CENT.	.3	DIRECT	1725	1011	1725	0.24	1/4	115	1	GREENHECK SQ-100	62	1 THRU 4, 6

NOTES:

1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2 PROVIDE ALL FRACTIONAL HP MOTORS WITH INTEGRAL DISCONNECT PREWIRED TO THE UNIT. DISCONNECTING MEANS SHALL BE NEMA RATED AND SUITABLE FOR LOCKING IN THE OFF POSITION
3 PROVIDE ALL FRACTIONAL HP MOTORS WITH INTEGRAL RESETTABLE THERMAL OVERLOAD AND STARTER.
4 PROVIDE THE CONTROL TYPE INDICATED. HUMIDISTAT, TIMER OR THERMOSTAT SHALL BE LOCATED IN THE EXISTING LOCATION. PROVIDE ANY MOTOR RATED RELAYS AS NECESSARY. SETPOINTS ADJ. AT CONTROLLER
5 PROVIDE WITH 24" TALL ROOF CURB, BIRD SCREEN AND BDD CURB DAMPER.
6 FOR EF-8 AND EF-9, PROVIDE INLET GUARD.

DUCT MOUNTED CHILLED WATER COIL SCHEDULE

TAG	SERVICE	LOCATION	CFM	OUTPUT (MBH)		SIZE (IN.)		FACE VELOCITY (FPM)	ROWS	FINS PER FOOT	AIR DATA					WATER DATA				COIL CONN. (IN.)	WEIGHT WET (LBS)	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
				TOT.	SENS.	W	H				EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	P.D. (IN.WG)	GPM	EWT (°F)	LWT (°F)	P.D. (FT.)				
CC-1	ANNEX	ATTIC - DUCT MOUNT	3300	183	120	34	36	388	10	10	87.2	71	53.9	53.7	0.83	19.9	42	61.6	12	1-1/2"	430	DAIKIN 5WH1010B	SEE NOTES
CC-2	TOWN HALL	ATTIC - DUCT MOUNT	4050	220	144	42	36	385.7	6	10	86.9	70.8	54.4	53.9	0.52	46.4	42	52.1	12.6	2-1/2"	327	DAIKIN 5WL1006B	SEE NOTES

NOTES:

1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2 PROVIDE DUCT SECTION WITH FLANGE RAILS FOR MOUNTING COIL. PROVIDE ANY NECESSARY SAFING TO REDUCE COIL BYPASS. PROVIDE FIELD INSTALLED CONDENSATE DRIP PAN.
3 FOR CC-1, THE COIL FLOW HAS BEEN LIMITED TO THE SCHEDULED VALUE DUE TO THE LIMITATIONS OF THE PIPING SERVING THE BUILDING.
4 COIL SELECTIONS BASED ON 35% PG WATER CONTENT.
5 CONFIRM HANDING WITH IN FIELD CONDITIONS PRIOR TO ORDERING. CONFIRM COIL DIMENSIONS FOR FIELD FABRICATED ENCLOSURE.

DUCTWORK PRESSURE CLASS AND SEAL CLASS

PRESSURE CLASS	STATIC PRESSURE CLASS	SMACNA SEAL CLASS	SMACNA LEAKAGE CLASS		DESIGN VELOCITY LIMITS
			RECTANGULAR	ROUND	
2"	2" POS. OR NEG.	A	6	3	2000 FPM OR LESS

NOTES:
1. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

MINIMUM DUCT INSULATION R-VALUES (IECC - 2018 AND ASHRAE 90.1-2016 COMPLIANCE)

LOCATION	SUPPLY	RETURN	RAW OUTDOOR AIR	EXHAUST	
				WITH ENERGY RECOVERY	WITHOUT ENERGY RECOVERY
ATTIC TYPE SPACE (EXPOSED ROOF ABOVE)	R-12	R-12	R-6	R-12	R-12*
OUTDOORS	R-12	R-12	-0-	R-12	R-12*

* R-VALUE SHOWN IS ONLY IF AREA OF BUILDING BEING EXHAUSTED IS HUMIDIFIED. IF NOT HUMIDIFIED, NO INSULATION (-0-), UNLESS FIRE WRAP OR LINING IS NEEDED.

DUCT LINING SCOPE: ACOUSTIC DUCT LINING OF THE TYPE AND THICKNESS SPECIFIED SHALL BE INSTALLED ON ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK WITHIN 20 FEET OF ALL TYPES OF AIR HANDLING UNITS (INCLUDING RTU, ERU, FCU, MUA, ETC., AND ALL BRANCHES WITHIN 20') ALL FANS (INCLUDING BRANCHES), ALL LOW PRESSURE DUCTWORK DOWNSTREAM OF ALL TYPES OF SUPPLY VOLUME BOXES (CV, VAV, FPVAV, ETC.), AND WHERE DETAILED OR SHOWN ON DRAWINGS. LINING SHALL NOT BE USED ON DUCTWORK SERVING SURGICAL SUITES, DELIVERY ROOMS, INTENSIVE CARE UNITS AND ISOLATION AREAS OF HOSPITALS AND MEDICAL FACILITIES OR ON KITCHEN AND FUME HOOD EXHAUST AND WET/HUMID EXHAUST SUCH AS DISHWASHER, CLOTHES DRYER, AND SHOWER SYSTEMS.

NOTES: (SEE SPECIFICATIONS FOR R-VALUES OF VARIOUS DUCT INSULATION AND LINERS).

1. R-VALUES SHOWN MAY BE OBTAINED BY ADDING THE R-VALUES OF BOTH THE LINING (WHERE SHOWN OR USED) AND EXTERNAL DUCT INSULATION.
2. R-VALUES SHOWN ARE AS INSTALLED. USE R-VALUES FOR 25% COMPRESSION FOR NON-RIGID INSULATION.
3. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

PUMP SCHEDULE

TAG	SERVICE	LOCATION	FLUID		GPM	NPSHR (FT.)	HEAD (FT.)	SHUT-OFF HEAD (FT.)	IMPELLER SIZE (IN.)	MAX. WORKING PRESS. (PSIG)	MOTOR					MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
			TYPE	TEMP (°F)							RPM	BHP	HP	V	PH		
P-3	COOLING	ANNEX	30-35% PG	42	65-100	6.02	80	87.2	8.75	-	1723	3.58	5	208	3	B&G E-1510 - 1.5BC	SEE NOTES
P-4	COOLING	ANNEX	30-35% PG	42	65-100	6.02	80	87.2	8.75	-	1723	3.58	5	208	3	B&G E-1510 - 1.5BC	SEE NOTES
P-7	COOLING	TOWN HALL	30-35% PG	42	101.2-155.7	6.16	98.3	105	10.375	-	1672	5.97	10	208	3	B&G E-1510 - 2EB	SEE NOTES
P-8	COOLING	TOWN HALL	30-35% PG	42	101.2-155.7	6.16	98.3	105	10.375	-	1672	5.97	10	208	3	B&G E-1510 - 2EB	SEE NOTES

NOTES:

1 REFER TO SPECIFICATIONS, DETAILS, AND CONTROL DRAWINGS FOR ADDITIONAL INFORMATION.
2 FURNISH VFD TO BE INSTALLED BY DIV. 26. EACH BUILDING VFD TO TURN DOWN TO MAINTAIN MINIMUM CHILLER FLOW.
3 PROVIDE PUMP WITH SUCTION DIFFUSER (SHIPPED LOOSE).
4 ONE PUMP FOR EACH BUILDING SHALL BE INSTALLED AS STAND-BY, ROTATIONAL PUMP.

PIPE INSULATION (IECC - 2015-2021 AND ASHRAE 90.1 -2013-2019 COMPLIANCE)

PIPING SYSTEM TYPES	FLUID TEMP. RANGE (°F)	MINIMUM INSULATION THICKNESS IN INCHES FOR INDOOR PIPE SIZES (SEE NOTES BELOW)						K-FACTOR (BTU-INCH/°F-HR-SF) AT AVE. TEMP. (°F)
		< 1"	1" & 1¼"	½" - 3"	4" - 6"	8" & UP		
LOW TEMPERATURE HEATING	141 - 200	1.5	1.5	2	2	2		0.25-0.29 @ 125°F
FULLY CONDENSING BOILERS	105 - 140	1	1	1.5	1.5	1.5		0.22-0.28 @ 100°F
CHILLED WATER OR REFRIGERANT OR COOLING COIL CONDENSATE DRAIN	≤ 60	0.5	1	1	1	1.5		0.20-0.27 @ 75°F

NOTES:

1. FOR MINIMUM THICKNESS OF ALTERNATIVE INSULATION TYPES OUTSIDE THE STATED CONDUCTIVITY RANGE, SEE TEST METHOD FOR STEADY STATE HEAT TRANSFER PROPERTIES OF HORIZONTAL PIPE INSULATIONS, ASTM C 335-95, AND THE STATE ENERGY CODE.

2. FOR OUTDOOR CHILLED WATER, GLYCOL, AND BRINE PIPING, ADD MINIMUM 50% TO THICKNESS LISTED. FOR OUTDOOR AND UNDERGROUND STEAM, HEATING WATER, AND STEAM CONDENSATE PIPING, ADD MINIMUM 50% TO THICKNESS LISTED. AN EXCEPTION TO THE 50% INCREASE IN THICKNESS IS ALLOWED FOR PIPING WITHIN RTU/AHU PIPE ENCLOSURES AND VESTIBULES.

3. REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.

DIFFUSER, GRILLE & REGISTER SCHEDULE

TAG	SELECTION RANGE (CFM)	NECK SIZE (IN.)	OVERALL SIZE (IN.)	SERVICE	MOUNTING	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	MAX PRESSURE DROP (INCHES WG)	MAX NC	REMARKS
EA	0-150	12"x12"	14"x14"	EXHAUST	CEILING	TITUS - 350 FL - ALUMINUM	0.01	25	SEE NOTES

NOTES:

1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2 PROVIDE WITH FACTORY WHITE COAT FINISH AND OPPOSED BLADE DAMPER.
3 CONTRACTOR SHALL VERIFY QUANTITY OF DIFFUSERS, GRILLES, REGISTERS, ETC... REQUIRED. REFER TO PLANS.
4 PROVIDE INSULATED TRANSITION TO ROUND DUCT WHERE NECESSARY.

EXPANSION TANK SCHEDULE

TAG	SERVICE	LOCATION	FLUID	SYSTEM TEMP (°F)		SYSTEM PRESSURE (PSIG) AT TANK		VOLUME (GALLONS)		DIMENSIONS		INITIAL TANK AIR CHARGE (PSIG)	WEIGHT (LBS)		MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS
				MIN	MAX	MIN	MAX	TANK	ACCEPTANCE	DIAMETER	HEIGHT		EMPTY	FLOODED		
ET-1	CHW	ANNEX BASEMENT	35%PG	40	100	24	31.9	45	36	20"	38"	24	148	523	BELL AND GOSSETT D-80	SEE NOTES
ET-2	CHW	TOWNHALL BASEMENT	35%PG	40	100	24	32	44	44	24"	34"	24	150	517	BELL AND GOSSETT B-165	SEE NOTES

NOTES:

1 REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
2 ANNEX TANK SHALL BE HORIZONTAL, CEILING HUNG STYLE.
3 X

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
NG

CHECKED BY
JS

SCALE
NTS

TOWN HALL & ANNEX
MECHANICAL
SCHEDULES

M8.0

R:\BLDG\Projects\2022\0220195 - Burlington Town Hall Annex HVAC Roof\CAD\Revit Project\0220195 MEP Central File_R25_2024_135cm Town Center_Project_Jan 08, 2024 - 135cm Town Center

ELECTRICAL DEMOLITION NOTES

1. REFER TO THE MECHANICAL DRAWINGS FOR THE EXTENT OF THE DEMOLITION SCOPE OF WORK AND AREA. THE DEMOLITION PLANS INDICATE THE GENERAL INTENT AND ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL SCOPE MAY EXTEND BEYOND THE AREA DEFINED BY THE ARCHITECTURAL DEMOLITION LIMITS TO FULLY COMPLY WITH VARIOUS REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. THE ELECTRICAL DEMOLITION PLANS ARE NOT INTENDED TO SHOW ALL ITEMS TO BE REMOVED OR RETAINED. NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY UNANTICIPATED HIDDEN CONDITIONS ENCOUNTERED DURING THE DEMOLITION.
3. PERFORM ELECTRICAL DEMOLITION WORK AS SHOWN ON THE DRAWINGS AND AS SPECIFIED IN COOPERATION WITH THE OTHER TRADES AND AS SCHEDULED AND APPROVED BY THE OWNER'S REPRESENTATIVE. DISCONNECT AND MAKE SAFE ALL ELECTRICAL EQUIPMENT IDENTIFIED FOR REMOVAL ON THE ELECTRICAL AND HVAC, PLANS.
4. THE LOCATIONS OF EXISTING EQUIPMENT INCLUDING PIPING, DUCTWORK, EQUIPMENT, CONDUITS, ETC ARE SHOWN IN AN APPROXIMATE WAY ONLY. VISIT THE SITE PRIOR TO SUBMISSION OF THE BIDS AND COMMENCEMENT OF WORK TO BECOME FAMILIAR WITH THE ACTUAL CONDITIONS AND EXTENT OF THE WORK.
5. POWER OUTAGES CAUSED BY DEMOLITION THAT AFFECT OTHER AREAS SHALL BE HELD TO A MINIMUM. SHUTDOWNS SHALL BE COORDINATED WITH USERS AND THE OWNER. NIGHT, WEEKEND, AND/OR HOLIDAY TIME REQUIRED TO PERFORM ELECTRICAL DEMOLITION WORK OR NEW ELECTRICAL WORK SHALL BE CARRIED AS PART OF THE CONTRACT COST.
6. CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS WITHIN THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. THERE SHALL BE NO INTERRUPTION OF SERVICES OUTSIDE THE DEMOLITION AREA WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE.
7. DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINTS OF ORIGIN WITHIN THE AREA OF DEMOLITION SCOPE. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SCOPE SHALL BE DE-ENERGIZED AND LABELED SPARE.
8. PROMPTLY REPAIR ANY DAMAGE CAUSED DURING/BY THE EXECUTION OF WORK. DAMAGE INCLUDES BUT IS NOT LIMITED TO DESTRUCTION OF ITEMS INTENDED TO REMAIN OR TO BE SALVAGED.
9. EXERCISE CARE WITH EQUIPMENT THAT IS TO BE TURNED OVER TO THE OWNER. EXAMINE THE EQUIPMENT BEFORE REMOVAL IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE TO DETERMINE ITS CONDITION. DELIVER OWNER-RETAINED EQUIPMENT TO AN ON-SITE LOCATION DESIGNATED BY THE OWNER AND OBTAIN ACKNOWLEDGMENT OF RECEIPT IN ORIGINAL CONDITION.
10. ALL ITEMS REMOVED SHALL BE OFFERED TO THE OWNER FOR SALVAGE. IF THE OWNER DOES NOT TAKE POSSESSION, DISPOSE OF THE ITEMS IN A SAFE AND LEGAL MANNER. ALL ITEMS CLASSIFIED AS HAZARDOUS SHALL BE DISPOSED AS HAZARDOUS WASTES AND A UNIFORM HAZARDOUS WASTE MANIFEST SHALL BE PROVIDED TO THE OWNER.
11. ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
12. THE EXISTING FIRE ALARM SYSTEM SHALL REMAIN FULLY FUNCTIONAL DURING THE ENTIRE DEMOLITION AND CONSTRUCTION PERIOD. REUSE OF EXISTING FIRE ALARM SYSTEM RACEWAYS SHALL NOT BE ALLOWED. ALL REQUIRED SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE AND THE AUTHORITY HAVING JURISDICTION. DEMOLITION OF THE EXISTING SYSTEM SHALL NOT COMMENCE UNTIL THE NEW SYSTEM HAS BEEN COMPLETELY INSTALLED, TESTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION.
13. CREATE AND SUBMIT IMPAIRMENT PLANS TO THE OWNER AND AHJ IF ANY PORTION OF THE EXISTING FIRE ALARM SYSTEM IS TAKEN OUT OF SERVICE DURING THE EXECUTION OF THE PROJECT.

SITE LEGEND

—UE—	UNDERGROUND ELECTRIC

TELECOMMUNICATIONS LEGEND

▽	COMBINATION TELEPHONE/DATA OUTLET

WIRING DEVICE LEGEND

5 GFI	DUPLEX RECEPTACLE, GROUNDING TYPE, RATED 20A, 125V "5"- INDICATES CIRCUIT NUMBER "GFI"- INDICATES INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER "WP" - INDICATES WEATHERPROOF
J	JUNCTION BOX
PB	PULLBOX

BRANCH CIRCUIT & FEEDER LEGEND

	BRANCH CIRCUIT OR FEEDER CONCEALED IN FINISHED AREAS
	BRANCH CIRCUIT OR FEEDER, CONCEALED IN OR UNDER FLOOR SLAB
	BRANCH CIRCUIT OR FEEDER TURNING UP TOWARDS OBSERVER
	BRANCH CIRCUIT OR FEEDER TURNING DOWN AWAY FROM OBSERVER
	CONDUIT STUBBED ABOVE CEILING
R22A-1,3,5	BRANCH CIRCUIT HOME RUN TICKS INDICATE QUANTITY OF CONDUCTORS, GROUND CONDUCTORS ARE NOT INDICATED. NO TICKS INDICATES 2#12 & 1#12G IN 3/4"C MINIMUM. R22A-1,3,5 INDICATES PANEL AND CIRCUIT DESIGNATION FROM WHICH HOMERUN SHALL ORIGINATE. EACH CIRCUIT SHALL BE 20A-1P (20AMP SINGLE POLE) UNLESS NOTED OTHERWISE.
H42B-1 100A-3P	FEEDER HOMERUN. REFER TO LEGEND OF FEEDER SIZES FOR CONDUCTOR AND RACEWAY REQUIREMENTS DESIGNATED INSIDE TAG. H42B-1 INDICATES PANEL AND CIRCUIT NUMBER DESIGNATION FROM WHICH HOME RUN SHALL ORIGINATE, 100A-3P INDICATES 100 AMPERE, 3 POLE CIRCUIT BREAKER.
6	
	FLEXIBLE CONNECTION TO EQUIPMENT. RACEWAY AND CONDUCTOR RATING TO MATCH ASSOCIATED BRANCH CIRCUIT OR FEEDER
—E—	BRANCH CIRCUIT FOR EMERGENCY BATTERY DC CIRCUIT, MINIMUM 2#10 IN 3/4"C. UNLESS OTHERWISE NOTED

POWER DISTRIBUTION

	208Y/120 VOLT PANELBOARD, SURFACE MOUNTED REFER TO PANELBOARD SCHEDULE
M	UTILITY METER AND SOCKET

MOTOR & CONTROLS LEGEND

—HT—	HEAT TRACE
S_M	MANUAL MOTOR STARTING SWITCH WITH THERMAL OVERLOAD PROTECTION
⊠	MAGNETIC MOTOR STARTER, REFER TO MAGNETIC MOTOR STARTER & VFD SCHEDULE FOR TYPE, SIZE AND ENCLOSURE
60AS 50AF	COMBINATION FUSED DISCONNECT MAGNETIC MOTOR STARTER. REFER TO MAGNETIC MOTOR STARTER AND VFD SCHEDULE FOR TYPE, SIZE AND ENCLOSURE
CP	EQUIPMENT CONTROL PANEL
VFD	VARIABLE SPEED DRIVE
ATS	AUTOMATIC TRANSFER SWITCH
2	MOTOR, NUMERAL INDICATES HORSEPOWER "2" - INDICATES HORSEPOWER RATING
30AS	DISCONNECT SWITCH RATED 30AMP, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "3R" - INDICATES NEMA TYPE 3R ENCLOSURE "2P" - INDICATES 2 POLE SINGLE PHASE DISCONNECT "60AS" - INDICATES 60A SWITCH
60AS 60AF	FUSED DISCONNECT SWITCH, 3-POLE, IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED. "3R" - INDICATES NEMA TYPE 3R ENCLOSURE "60AS" - INDICATES 60AMP SWITCH "50AF" - INDICATES 50AMP FUSES
100AF 90AT CB	ENCLOSED CIRCUIT BREAKER IN NEMA TYPE 1 ENCLOSURE, UNLESS OTHERWISE NOTED "100AF" - INDICATES 100AMP, 3-POLE FRAME CIRCUIT BREAKER "90AT" - INDICATES 90AMP TRIP
P3-4 7.9KW	EQUIPMENT TAG, TOP ALPHANUMERIC CORRESPONDS TO EQUIPMENT ID LOWER INDICATES LOAD (KW, HP, ETC.)

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
XR	EXISTING EQUIPMENT TO BE RELOCATED
XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
NR	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

LIGHTING FIXTURE LEGEND

HW2 2.a	LIGHTING FIXTURE WALL MOUNTED

SWITCH LEGEND

S WP	SINGLE POLE SWITCH, WEATHERPROOF

ABBREVIATIONS

A/AMP	AMPERE	KWH	KILOWATT HOURS
AC	ALTERNATING CURRENT	LTG	LIGHTING
ADA	AMERICAN WITH DISABILITIES ACT	MCB	MAIN CIRCUIT BREAKER
AF	AMPERE FRAME	MEC	MASSACHUSETTS ELECTRICAL CODE
AFF	ABOVE FINISHED FLOOR	M/G	MOTOR/GENERATOR SET
AFG	ABOVE FINISHED GRADE	MH	MANHOLE
AIC	AMPERE INTERRUPTING CAPACITY	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MTD	MOUNTED
AT	AMPERE TRIP	MTG	MOUNTING
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED CONTACT
AWG	AMERICAN WIRE GAUGE	NEC	NATIONAL ELECTRICAL CODE
B	BURIED	NO	NORMALLY OPEN CONTACT
C	CONDUIT	NTS	NOT TO SCALE
CA	CABLE	#	NUMBER
CATV	CABLE TELEVISION	OPD	OVER CURRENT PROTECTION DEVICE
CCTV	CLOSED CIRCUIT TELEVISION SYSTEM	POS	PROVIDED UNDER OTHER SECTIONS
CB	CIRCUIT BREAKER	PVC	POLYVINYL CHLORIDE
CKT	CIRCUITS	PWR	POWER
CPU	CENTRAL PROCESSING UNIT	RGS	RIGID GALVANIZED STEEL
℄	CENTERLINE	RMS	ROOT MEAN SQUARE VALUE
dB	DECIBEL	RPM	REVOLUTIONS PER MINUTE
DC	DIRECT CURRENT	SPD	SURGE PROTECTIVE DEVICE
DWG	DRAWING	SN	SOLID NEUTRAL
EC	ELECTRICAL CONTRACTOR	SWBD	SWITCHBOARD
EMT	ELECTRIC METALLIC TUBING	TB	TERMINAL BLOCK
FDR	FEEDER	TEL	TELEPHONE
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	TERMN	TERMINAL
FREQ	FREQUENCY	TSP	TWISTED SHIELDED-PAIR
GEC	GROUNDING ELECTRODE CONDUCTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
GFI	GROUND FAULT INTERRUPTING	TYP	TYPICAL
GND	GROUND	UG	UNDERGROUND
HH	HANDHOLE	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	UTP	UNSHIELDED TWISTED-PAIR
HZ	HERTZ	V	VOLTS
IG	ISOLATED GROUND	VA	VOLT-AMPERE
JB	JUNCTION BOX	VSD	VARIABLE SPEED DRIVE
KVA	KILOVOLT-AMPERE	W	WATTS
KW	KILOWATT	WP	WEATHERPROOF

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	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

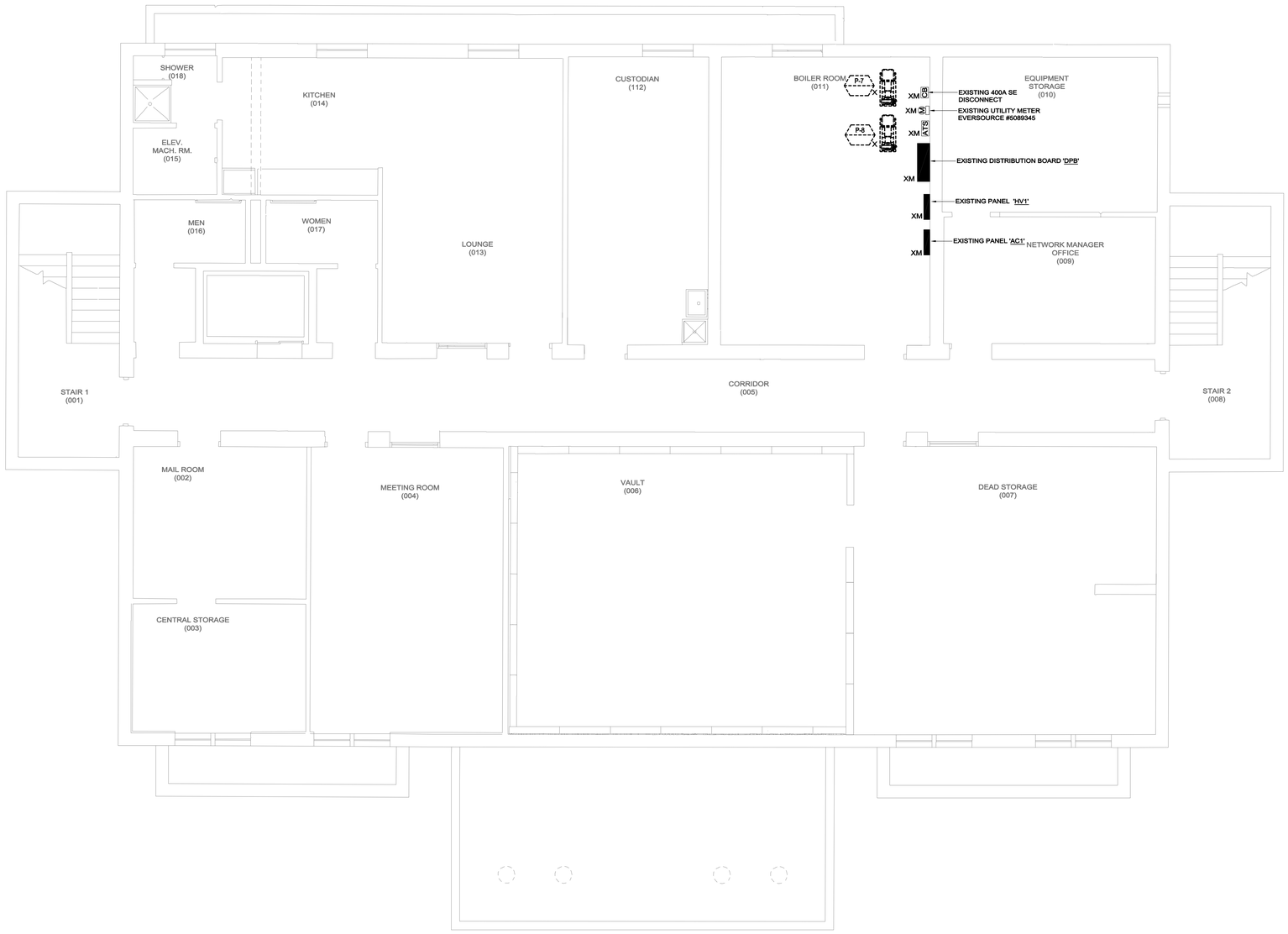
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SCALE
1/4" = 1'-0"

TOWN HALL & ANNEX
ELECTRICAL
LEGEND, NOTES AND
ABBREVIATIONS

E0.0

M:\BOS\Projects\0220195195 - Burlington Town Hall Annex HVAC Roof\400 Design\405 Electrical\Rvt Files\0220195195 ELE DEMPLAN - DEMO.rvg [Revit] April 09, 2024 - 9:14am Nick.McDonnell



ELECTRICAL BASEMENT
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND DEMOLITION NOTES.

2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALLEQUIPMENT.

3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

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HVAC, ROOF, AND
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29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

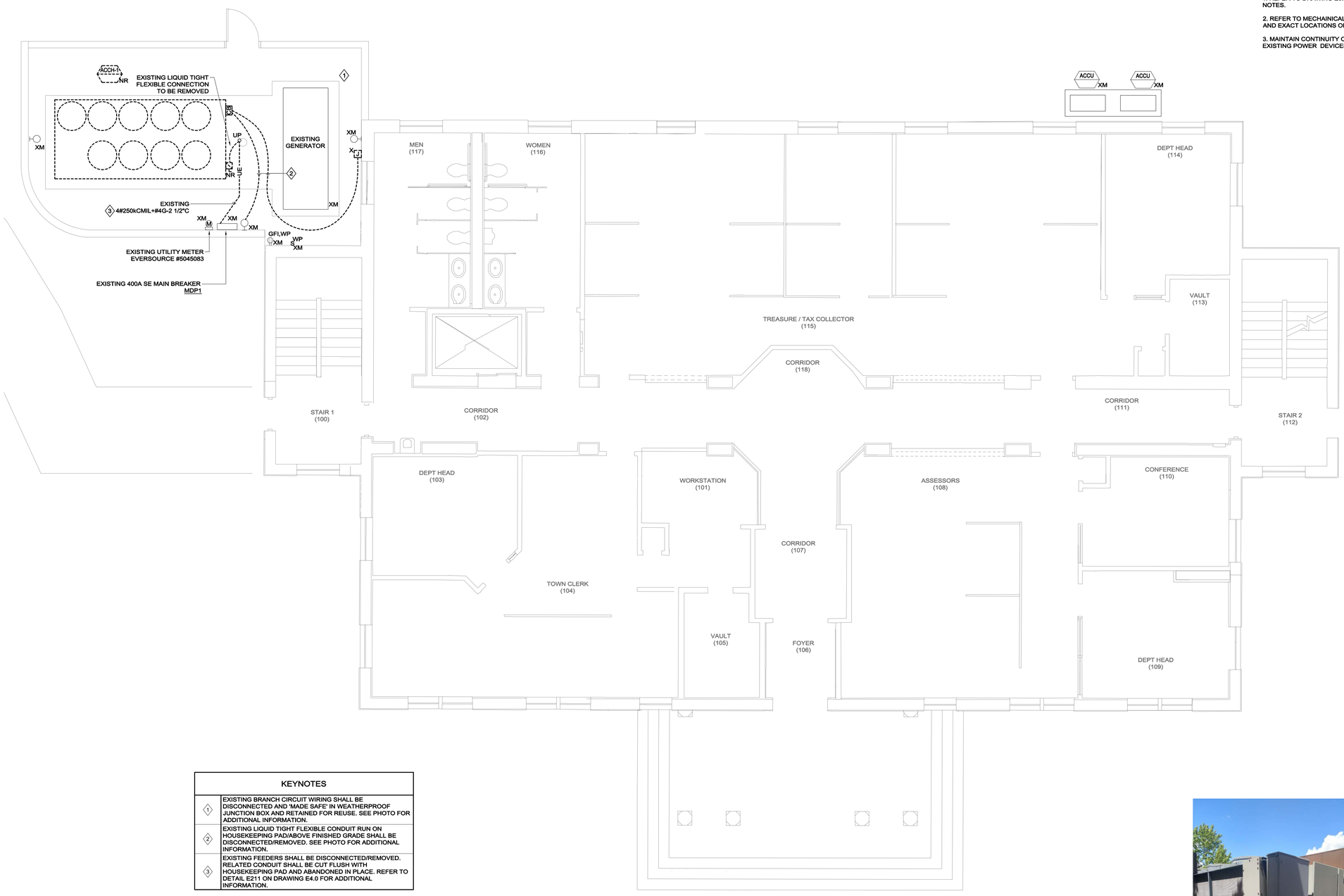
TOWN HALL
ELECTRICAL
BASEMENT FLOOR
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

ED1.0

#:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\ED\Drawings\ED1.0 ELECTRICAL TOWN HALL BASEMENT FLOOR PLAN.dwg [Proj] April 09, 2024 - 9:37am Marc.McDermott



KEYNOTES	
1	EXISTING BRANCH CIRCUIT WIRING SHALL BE DISCONNECTED AND 'MADE SAFE' IN WEATHERPROOF JUNCTION BOX AND RETAINED FOR REUSE. SEE PHOTO FOR ADDITIONAL INFORMATION.
2	EXISTING LIQUID TIGHT FLEXIBLE CONDUIT RUN ON HOUSEKEEPING PAD/ABOVE FINISHED GRADE SHALL BE DISCONNECTED/REMOVED. SEE PHOTO FOR ADDITIONAL INFORMATION.
3	EXISTING FEEDERS SHALL BE DISCONNECTED/REMOVED. RELATED CONDUIT SHALL BE CUT FLUSH WITH HOUSEKEEPING PAD AND ABANDONED IN PLACE. REFER TO DETAIL E211 ON DRAWING E4.0 FOR ADDITIONAL INFORMATION.

ELECTRICAL FIRST FLOOR
DEMOLITION PLAN
SCALE: 1/4"=1'-0"



EXISTING CHILLER PHOTO
N.T.S

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND DEMOLITION NOTES.
2. REFER TO MECHAINICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.
3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

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04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

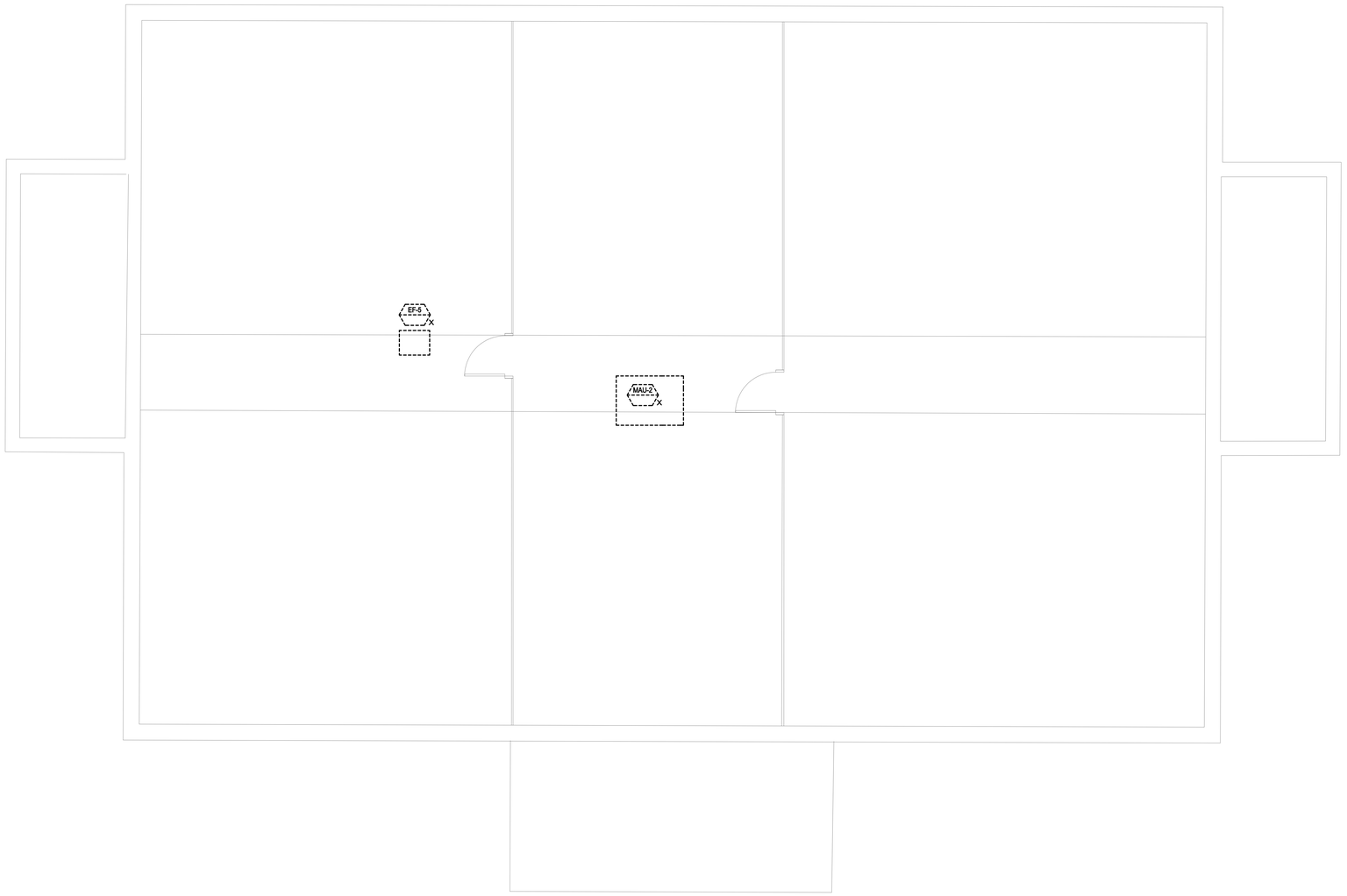
SCALE
1/4" = 1'-0"

TOWN HALL
ELECTRICAL
FIRST FLOOR
DEMOLITION PLAN

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

ED1.1

N:\PROJECTS\2022\0220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\CAD\E Electrical\Plan Files\0220195 ED1.1 ELECTRICAL TOWN HALL FIRST FLOOR PLAN-DEMO.dwg [Tanya] Apr 09, 2024 - 4:19pm Mark McDonnell



ELECTRICAL ATTIC
DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

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REVISIONS

	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

TOWN HALL
ELECTRICAL
ATTIC
DEMOLITION

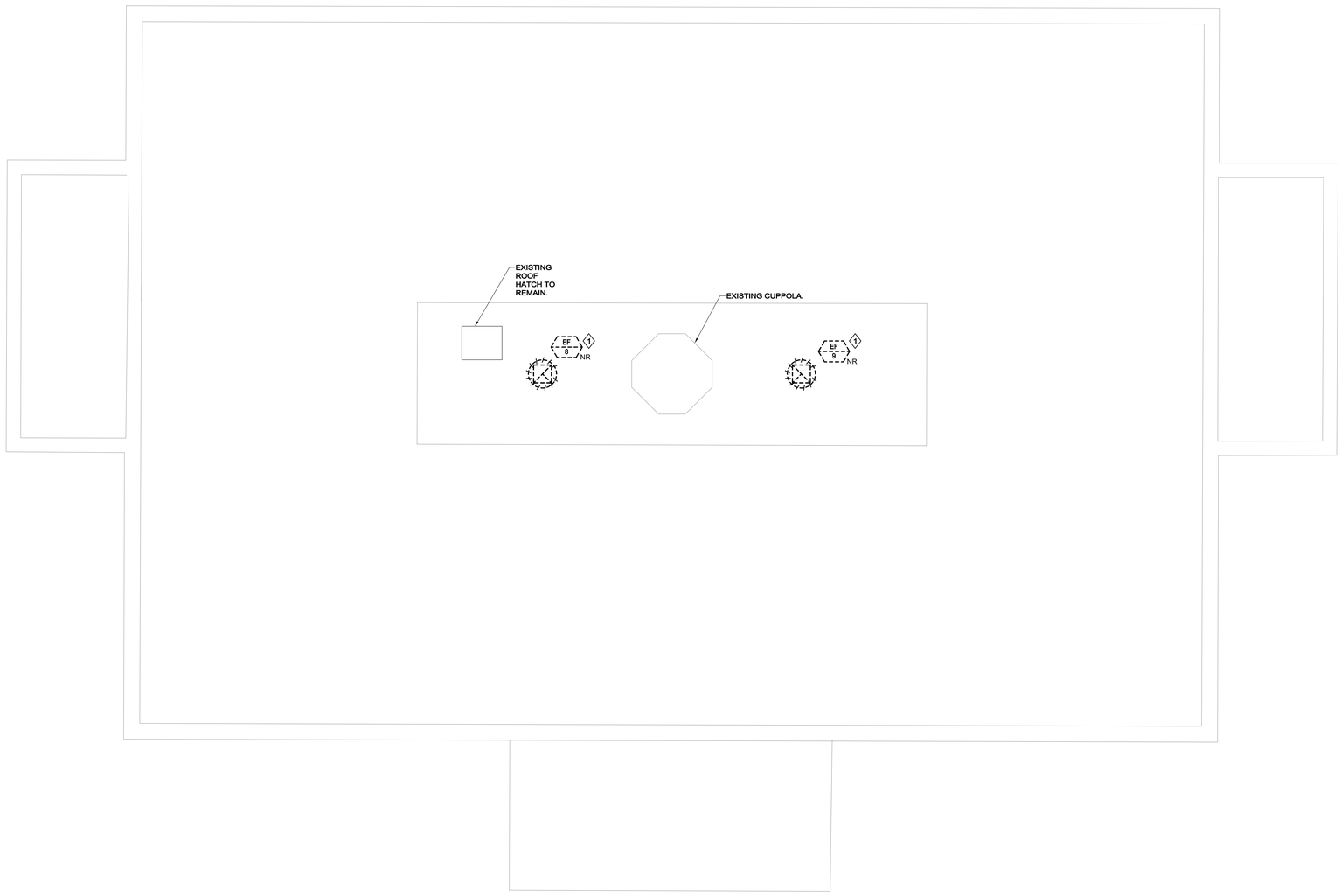
1/4" = 1' - 0"

0 4' 8'

ED1.3

#:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\300 Drawings\300 Electrical\Revit Files\0220195 ED1.3 ELECTRICAL - Town Hall - ATTIC - ROOF.rvt, [Tue] April 09, 2024 - 9:48pm, Marvin McDonnell

KEYNOTES	
1	EXISTING MECHANICAL EQUIPMENT SHALL BE DISCONNECTED/REMOVED. RELATED BRANCH CIRCUIT WIRING/CONDUIT SHALL BE 'MADE SAFE' IN WEATHERPROOF JUNCTION BOX AND RETAINED FOR REUSE.



ELECTRICAL ROOF
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
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CHECKED BY
MVM

SCALE
1/4" = 1'-0"

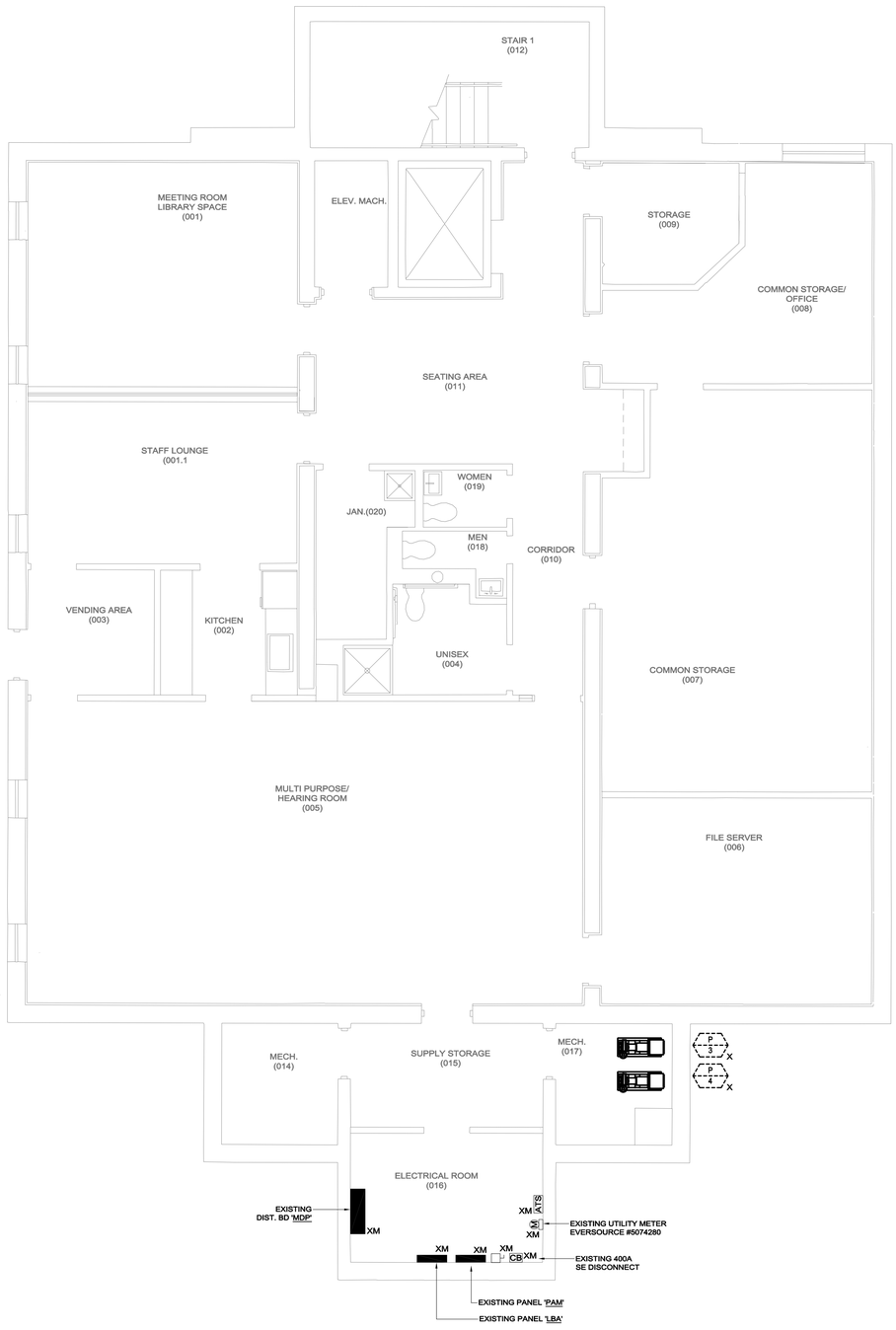
TOWN HALL
ELECTRICAL
ROOF
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

ED1.4

#:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\ED\Drawings\ED1.4 ELECTRICAL Town Hall ROOF - ROOF.dwg, [Tab=1] Jun 19, 2024 - 9:19am, Mark McDonnell



ELECTRICAL BASEMENT
DEMOLITION PLAN

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

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND DEMOLITION NOTES.

2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.

3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

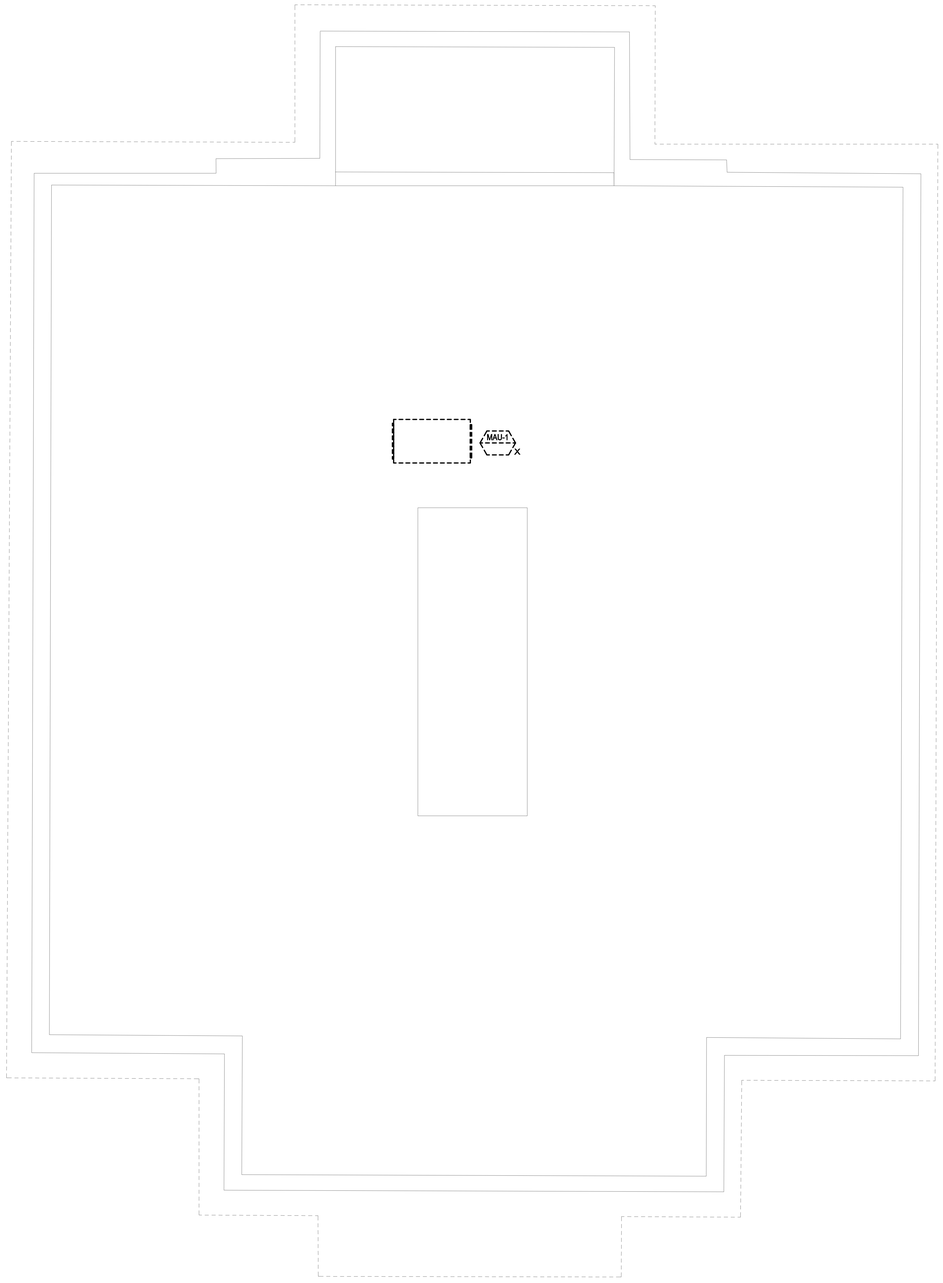
ANNEX
ELECTRICAL
BASEMENT FLOOR
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

ED2.0

X:\PROJECTS\2022\0220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\ACAD\ Electrical\Plan Files\0220195 ED2.0 ELECTRICAL ANNEX BASEMENT PLAN - DEMO.dwg [Base] Apr 09, 2024 - 4:19pm - Mark McDonnell



ELECTRICAL ATTIC
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND DEMOLITION NOTES.
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3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

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CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

ANNEX
ELECTRICAL
ATTIC
DEMOLITION PLAN

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

ED2.3

N:\0220195\Design\0220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\CAD\E Electrical\Plan Files\0220195 ED2.3 ELECTRICAL ANNEX ATTIC - DEMOLITION.dwg, Plot:1 Jun 20, 2024 - 9:19pm, Marc McDonald

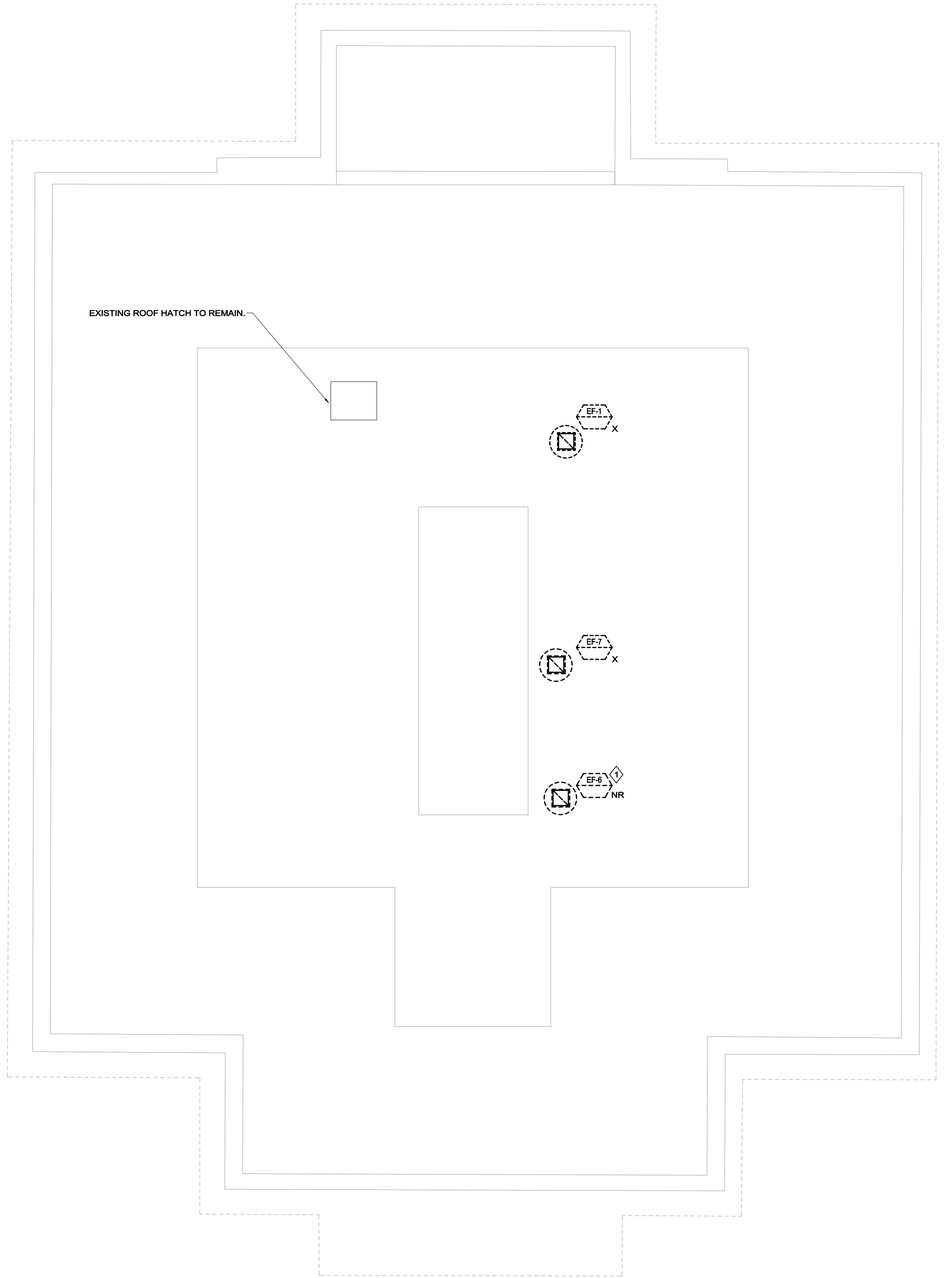
NOTES:

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2. REFER TO MECHAINICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.

3. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

KEYNOTES	
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ELECTRICAL ROOF
DEMOLITION PLAN
SCALE: 1/4"=1'-0"

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04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
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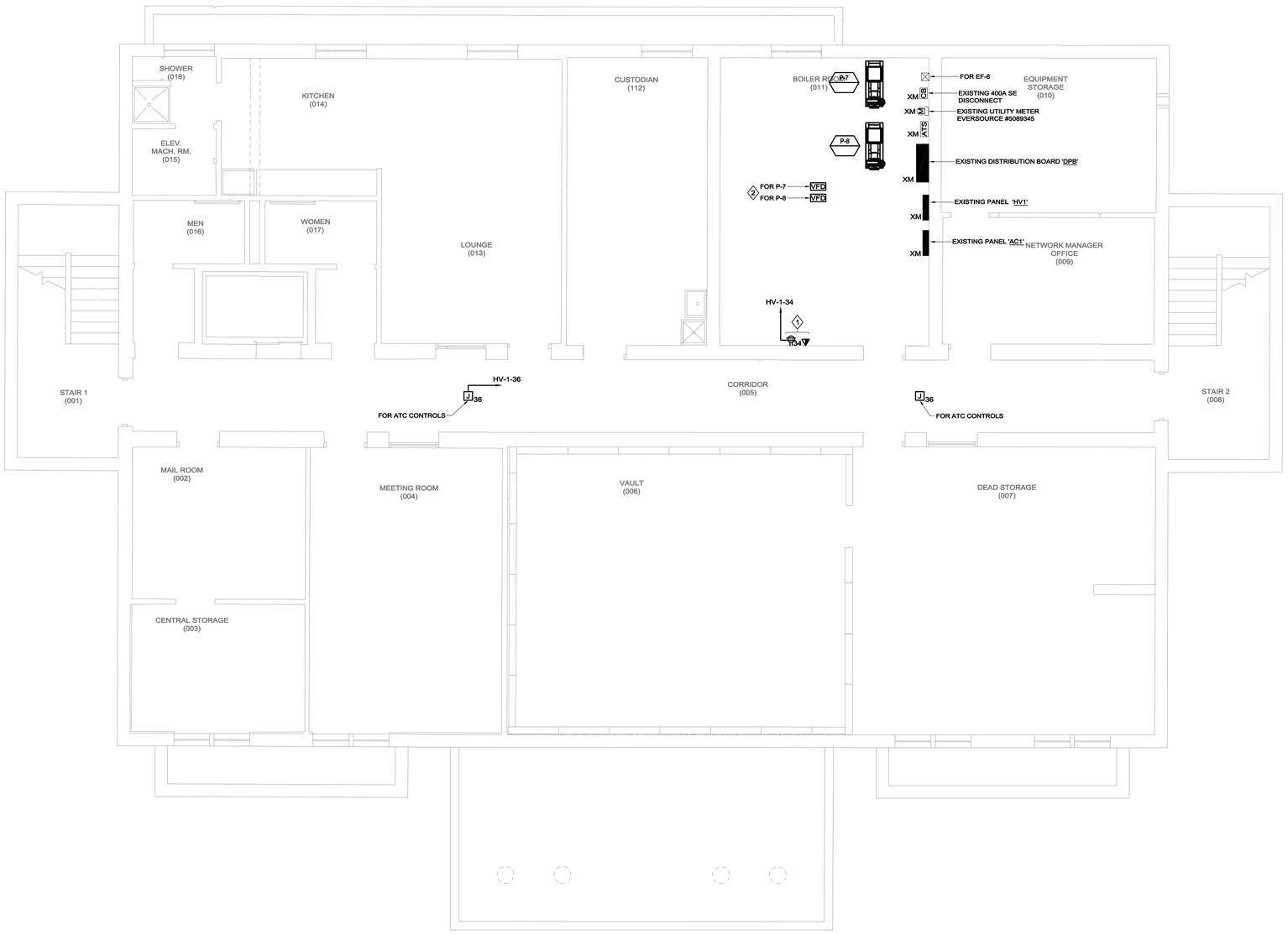
ANNEX
ELECTRICAL
ROOF
DEMOLITION PLAN

1/4" = 1' - 0"

0 4' 8'

ED2.4

R:\BIM\Projects\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\ACAD Drawings\ACAD Drawings\Plan Files\0220195 ED2.4 ELECTRICAL ANNEX ROOF PLAN - ROOF.dwg [Plan] Jun 19, 2024 - 8:19pm Mark McDonnell



ELECTRICAL BASEMENT
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALLEQUIPMENT.

3. CIRCUIT NUMBERS DENOTE CIRCUITING INTENT. EXACT NUMBER DESIGNATIONS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON THE AS BUILT DRAWINGS. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.

4. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED ON EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO A 2% DROP.

5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN EMT CONDUIT.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

KEYNOTES

1	PROVIDE QUAD RECEPTACLE AND TELE/DATA OUTLET FOR COMPUTER. COORDINATE FINAL LOCATION WITH OWNER.
2	VFD SHALL BE MOUNTED ON UNISTRUT SUPPORT SYSTEM. SEE DETAIL E208 ON DRAWING E4.0 FOR ADDITIONAL INFORMATION. EXACT LOCATION SHALL BE FIELD COORDINATED TO PROVIDE PROPER WORKSPACE CLEARANCE AS ILLUSTRATED IN DETAIL E213 ON DRAWING E4.0.

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

TOWN HALL
ELECTRICAL
BASEMENT FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

E1.0

#:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\CAD Drawings\ARCH Drawings\Plan Files\0220195 E1.0 ELECTRICAL TOWN HALL BASEMENT FLOOR PLAN NEW WORK.dwg [Plan] Jun 19, 2024 - 9:14am Mark.McDonnell

KEYNOTES	
1	SAWCUT EXISTING HOUSEKEEPING PAD TO ENABLE INSTALLATION OF NEW FEEDER. PATCH TO MATCH EXISTING ADJACENT CONDITIONS. TRANSITION TO LIQUID TIGHT FLEXIBLE CONNECTION WITHIN 18" OF CHILLER POWER CONNECTION POINT.
2	SEE BURIED CONDUIT DETAIL E513 ON DRAWING E4.0 FOR ADDITIONAL INFORMATION. TRANSITION TO RIGID STEEL SWEEPS AT CONNECTION TO EXISTING MDP1.

POWER NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

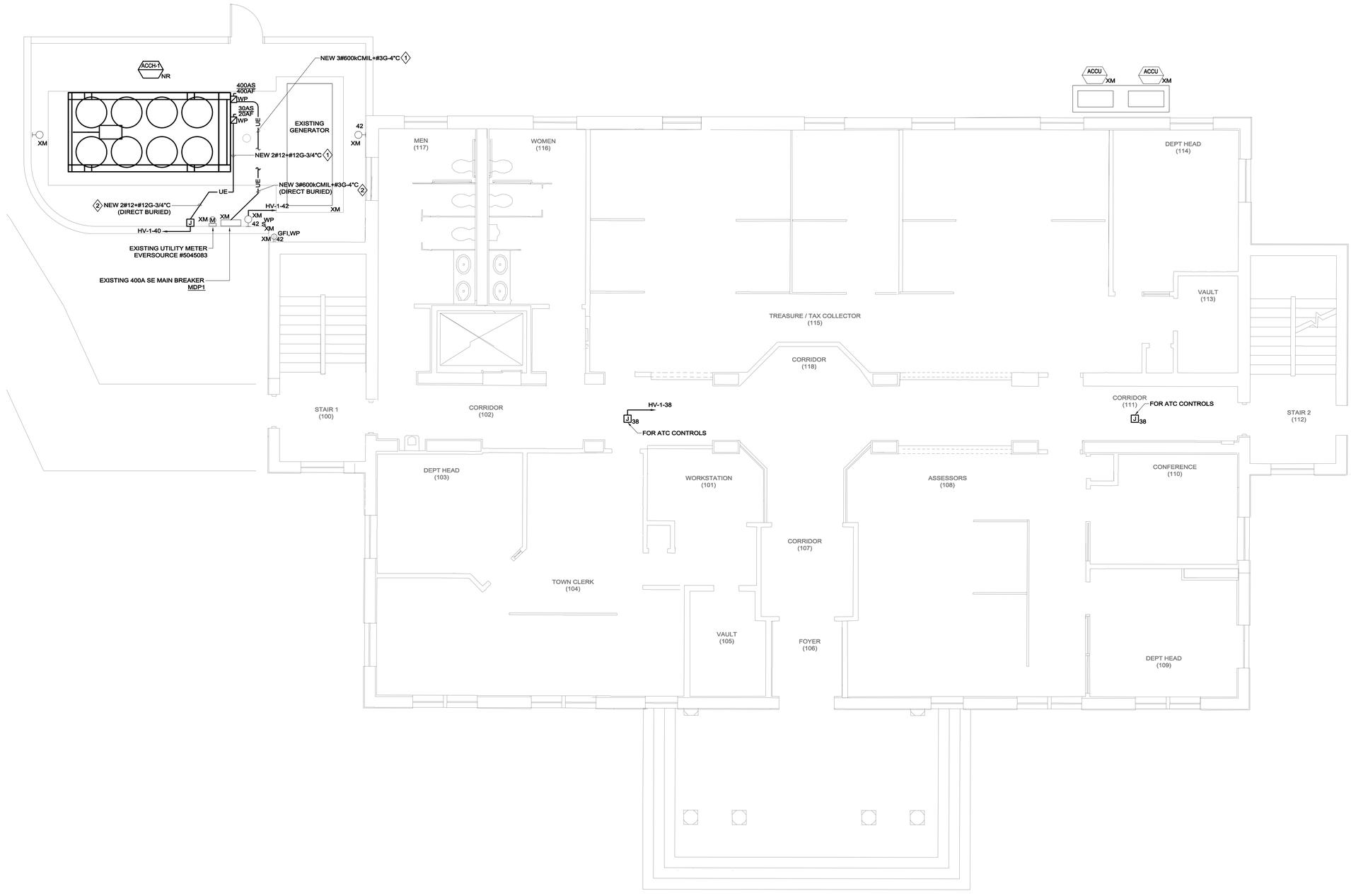
2. REFER TO MECHAINICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.

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4. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED ON EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO A 2% DROP.

5. POWER BRANCH CIRCUITRY IN EXTERIOR LOCATIONS SHALL BE INSTALLED IN RIGID STEEL (RGS)WITH FLEXIBLE CONNECTIONS TO ALL MECHANICAL EQUIPMENT UTILIZING LIQUID TIGHT FLEXIBLE METAL CONDUIT NOT TO EXCEED 18". ALL PENETRATIONS OF WEATHER TIGHT BOXES SHALL UTILIZE WEATHERPROOF HUBS. ALL CONDUIT SUPPORTS SHALL BE HOT DIPPED GALVANIZED. EXPOSED HORIZONTAL RUNS SHALL BE MINIMIZED. CONDUIT FOR EXTERIOR LOCATIONS. EMT SHALL BE PERMITTED FOR INTERIOR LOCATIONS.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.



ELECTRICAL FIRST FLOOR
NEW WORK PLAN
SCALE: 1/4"=1'-0"

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SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

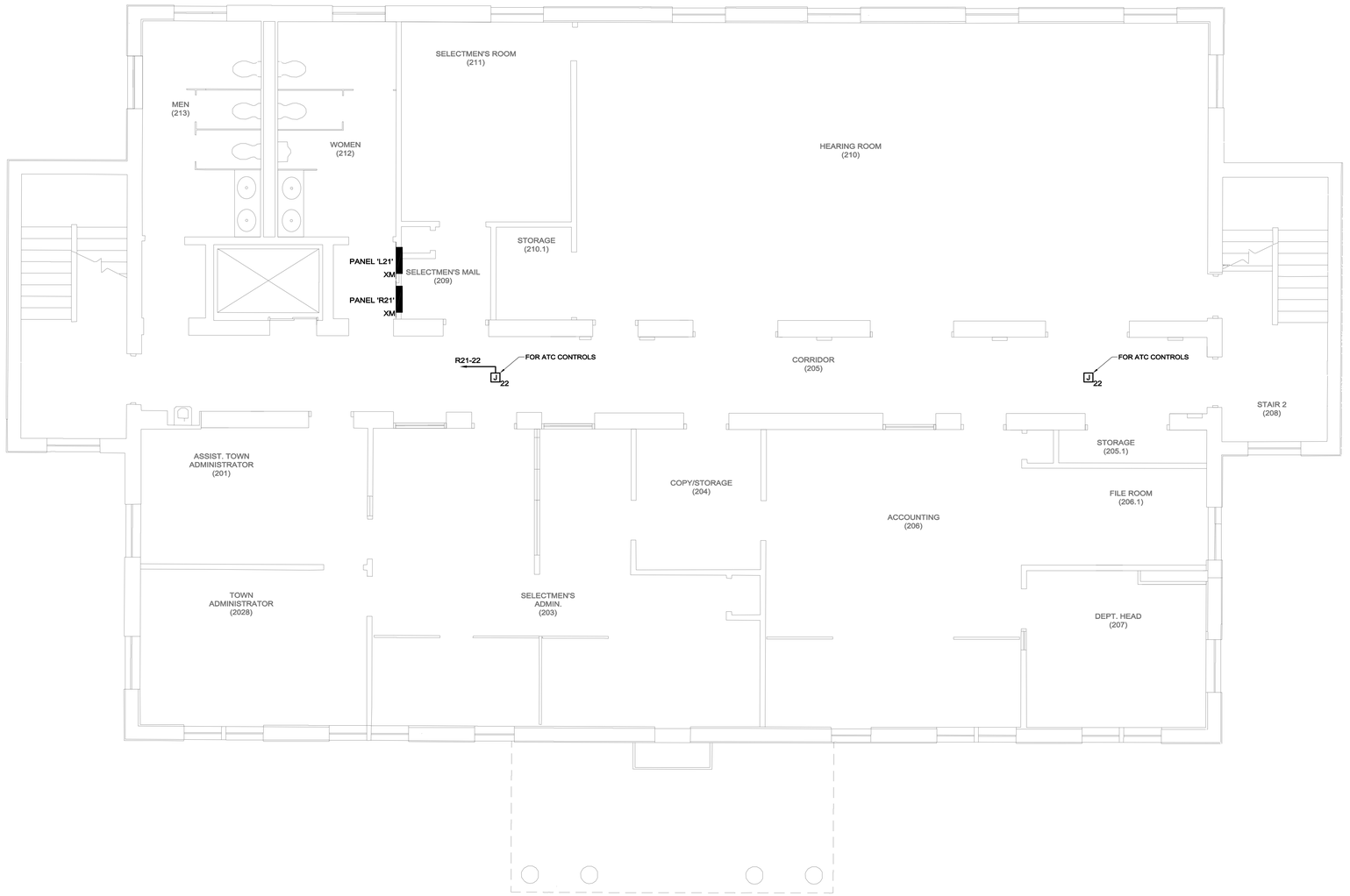
TOWN HALL
ELECTRICAL
FIRST FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

E1.1

#:\0220195\Revit\0220195_Burlington Town Hall Annex HVAC Roof_R24.0_Central.rvt File\0220195 E1.1 ELECTRICAL TOWN HALL FIRST FLOOR PLAN NEW WORK.dwg [Base] Apr 29, 2024 - 8:14am Mark McDonnell



ELECTRICAL SECOND FLOOR
NEW WORK PLAN
SCALE: 1/4"=1'-0"

POWER NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

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6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

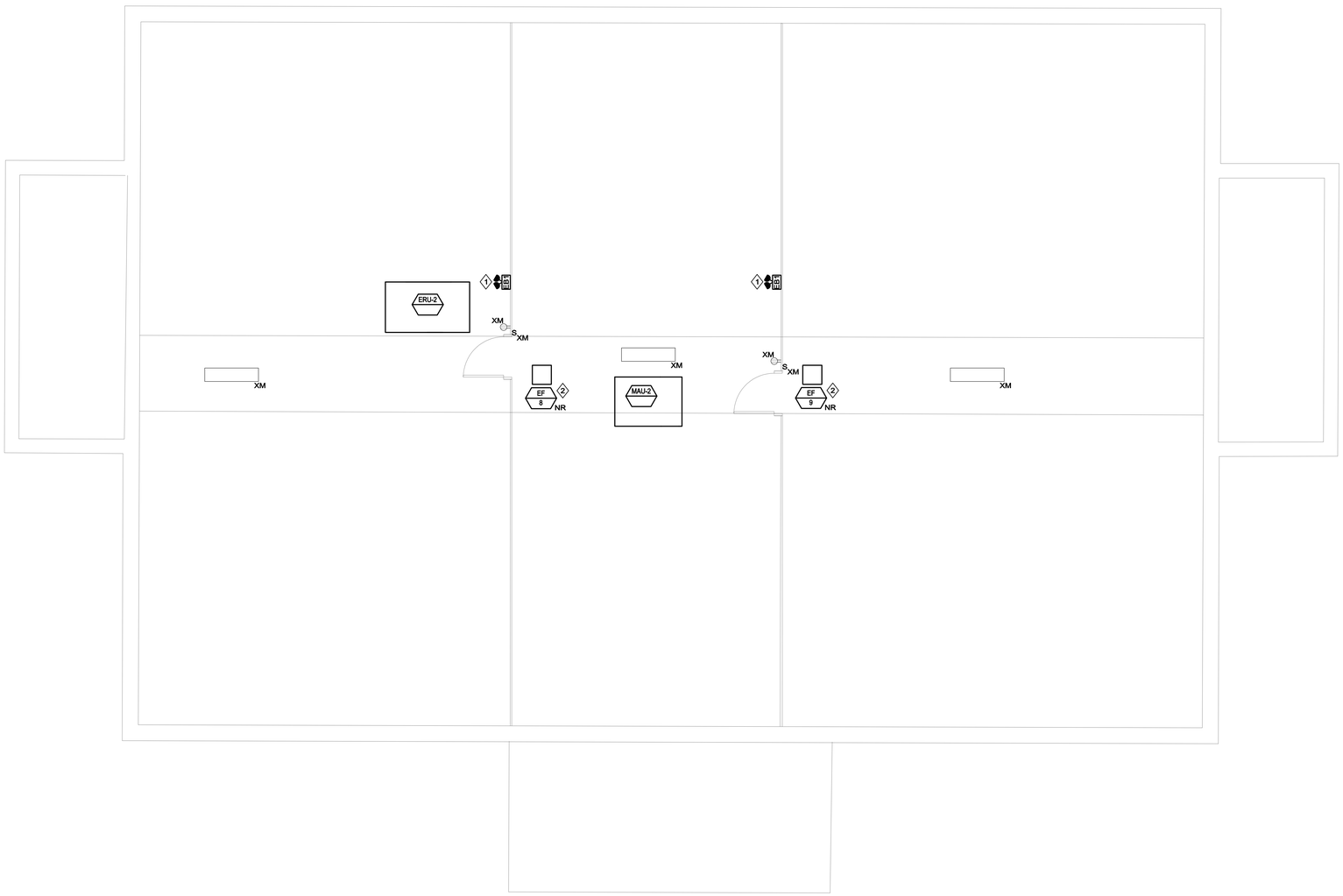
SCALE
1/4" = 1'-0"

TOWN HALL
ELECTRICAL
SECOND FLOOR
NEW WORK PLAN

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

E1.2

#:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\CAD Drawings\ACAD Electrical\Plan Files\0220195 E1.2 ELECTRICAL TOWN HALL SECOND FLOOR PLAN.dwg [Plan2] Jun 19, 2024 - 9:14am Mark.McDowell



ELECTRICAL ATTIC
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

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5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

KEYNOTES	
1	CONNECT TO EXISTING 120V LIGHTING CIRCUIT CURRENTLY SERVING THIS AREA WITH 2#12+#12G-3/4"C
2	RECONNECT/EXTEND EXISTING BRANCH CIRCUIT WIRING/CONDUIT TO NEW EQUIPMENT AS REQUIRED.

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REVISIONS

	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

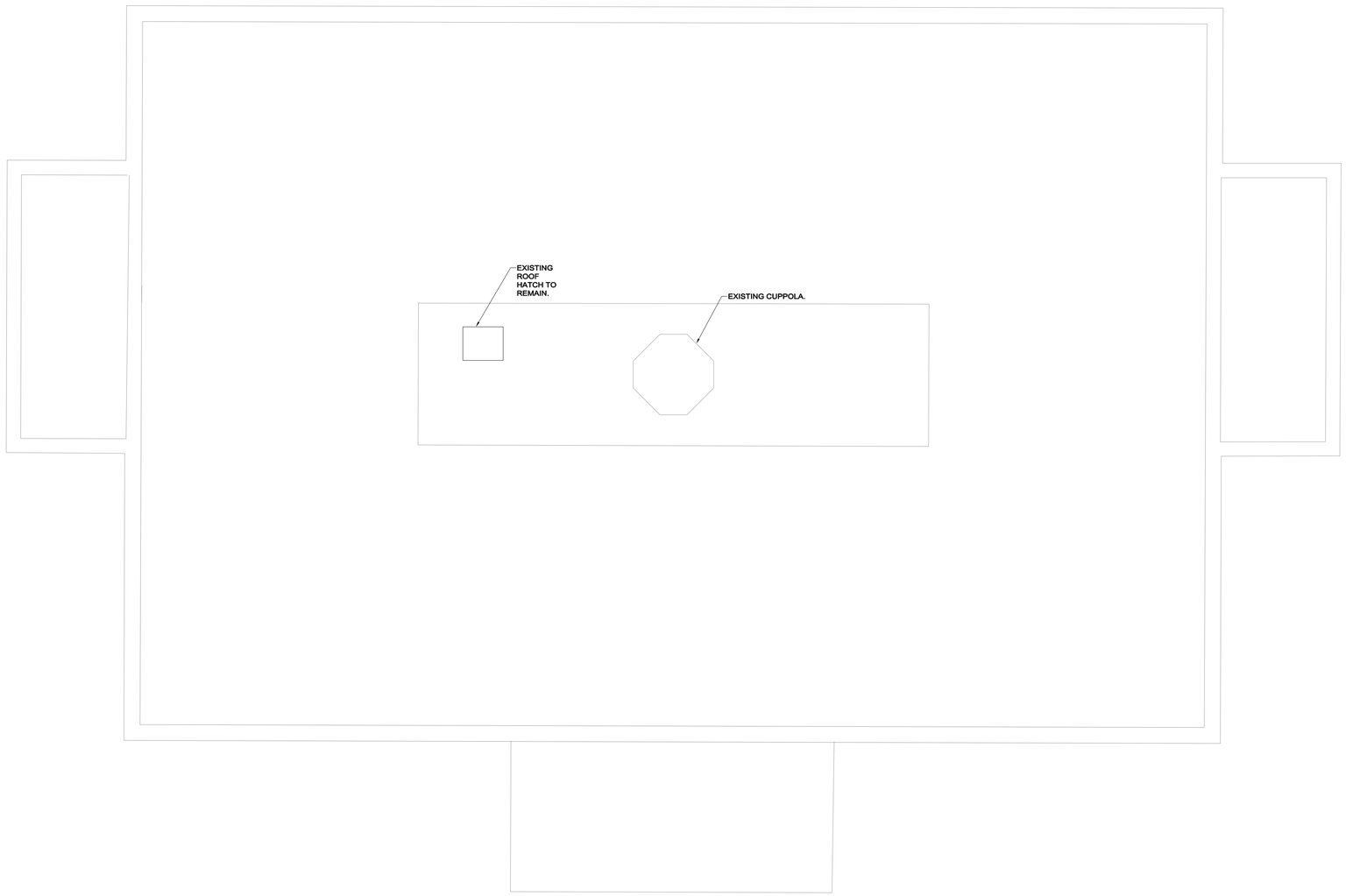
SCALE
1/4" = 1'-0"

TOWN HALL
ELECTRICAL
ATTIC
NEW WORK PLAN

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

E1.3

N:\PROJECTS\2022\0220195 - Burlington Town Hall Annex HVAC Roof\CAD Drawings\ARCH Drawings\Plan Files\0220195 E1.3 ELECTRICAL TOWN HALL ATTIC NEW WORK.dwg [Plan] Apr 09, 2024 - 8:54am Marc McDonnell



ELECTRICAL ROOF
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT

3. CIRCUIT NUMBERS DENOTE CIRCUITING INTENT. EXACT NUMBER DESIGNATIONS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON THE AS BUILT DRAWINGS. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.

4. VOLTAGE DROP HAS BEEN CONSIDERED IN THE DESIGN OF ALL BRANCH CIRCUITRY AND FEEDER SIZES BASED ON EQUIPMENT LAYOUTS AND SHORTEST CONDUCTOR/RACEWAY ROUTING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS TAKEN THAT WILL INCREASE CONDUCTOR/RACEWAY LENGTHS. BRANCH CIRCUITS LONGER THAN 75' FOR 120V FROM PANEL TO LAST OUTLET SHALL BE INCREASED A MINIMUM OF ONE SIZE ABOVE THAT SPECIFIED TO LIMIT VOLTAGE DROP TO LESS THAN 3%. FEEDERS SHALL FOLLOW SIMILAR GUIDELINES AND BE LIMITED TO A 2% DROP.

5. ALL EXPOSED BRANCH CIRCUITRY ON THE ROOF SHALL BE INSTALLED IN RIGID METAL CONDUIT WITH FLEXIBLE CONNECITONS TO ALL MECHANICAL EQUIPMENT UTILIZING LIQUID TIGHT FLEXIBLE METAL CONDUIT NOT TO EXCEED 18". ALL PENETRATIONS OF WEATHER TIGHT BOXES SHALL UTILIZE WEATHERPROOF HUBS. ALL CONDUIT SUPPORTS SHALLB E HOT DIPPED GALVANIZED. EXPOSED HORIZONTAL RUNS SHALL BE MINIMIZED.

6. ALL FASTENERS, MISCELLANEOUS SUPPORTS (UNISTRUT OR EQUAL) AND HARDWARE UTILIZED FOR THE ELECTRICAL INSTALLATION SHALL BE STAINLESS STEEL.

7. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

NV5

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Andover, MA 01810-1488

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At the request of [IDENTIFY PARTY], this [NAME OF DELIVERABLE (REPORT, DRAWINGS, ETC.)] has been expedited to [Client] Hence, [client], is hereby notified that NV5 did not have an opportunity to conduct its industry standard quality control procedures. Accordingly, Client agrees that the [NAME OF DELIVERABLE] is subject to revision, including but not limited to contractor change orders or owner claims, in connection with [NAME OF DELIVERABLE].

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
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BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

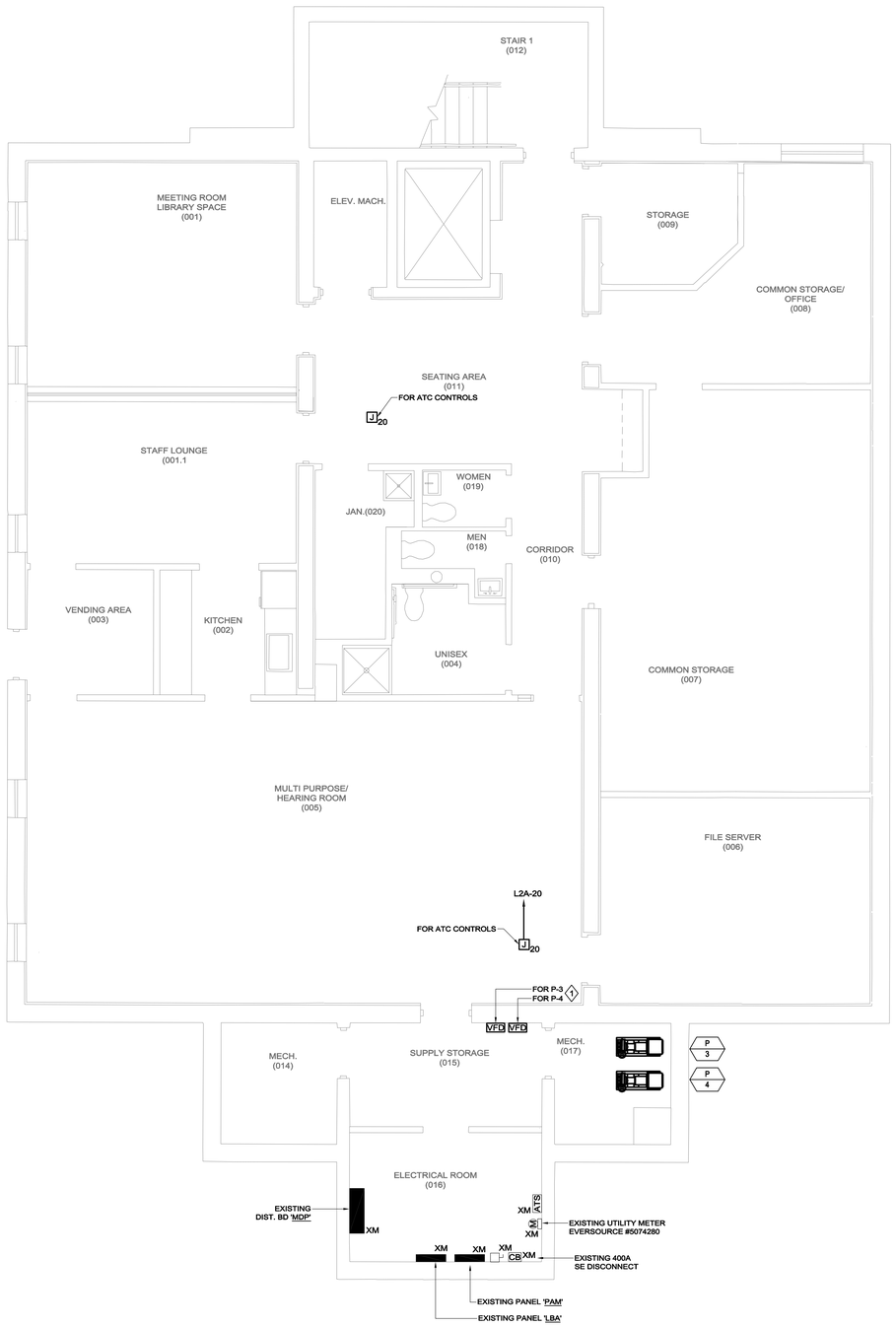
SCALE
1/4" = 1'-0"

TOWN HALL
ELECTRICAL
ROOF
NEW WORK PLAN

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

E1.4

R:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\300 Drawings\300 Electrical\Plot Files\0220195 E1.4 ELECTRICAL TOWN HALL ROOF - NEW WORK.dwg Plotted: Jun 20, 2024 - 9:19pm Marvin McDonald



ELECTRICAL BASEMENT
NEW WORK PLAN

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

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.

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5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN EMT CONDUIT.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

KEYNOTES	
1	EXACT LOCATION SHALL BE FIELD COORDINATED TO PROVIDE PROPER WORKSPACE CLEARANCE AS ILLUSTRATED IN DETAIL E213 ON DRAWING E4.0.

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PROJECT

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0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

ANNEX
ELECTRICAL
BASEMENT FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

E2.0

M:\BOS\Projects\0220\0220195 - Burlington Town Hall Annex HVAC Roof\CAD\E Drawings\E05 Electrical\Rvt Files\0220195 E2.0 ELECTRICAL BASEMENT FLOOR PLAN NEW WORK.rvt, [Rev2] Jun 26, 2024 - 9:16pm, Marvin.McDaniel



ELECTRICAL FIRST FLOOR
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

2. REFER TO MECHANICAL DRAWINGS FOR ASSOCIATED NOTES, DETAILS, AND EXACT LOCATIONS OF ALL EQUIPMENT.

3. CIRCUIT NUMBERS DENOTE CIRCUITING INTENT. EXACT NUMBER DESIGNATIONS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON THE AS BUILT DRAWINGS. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN UNLESS NOTED OTHERWISE.

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5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN EMT CONDUIT.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

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PROJECT

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

ANNEX
ELECTRICAL
FIRST FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

E2.1

N:\PROJECTS\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\CAD Drawings\ACAD Electrical\Plan Files\0220195 E2.1 ELECTRICAL ANNEX FIRST FLOOR PLAN.dwg [Plan] Apr 09, 2024 - 9:43am Marc McDonald



ELECTRICAL SECOND FLOOR
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

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5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN EMT CONDUIT.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

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NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

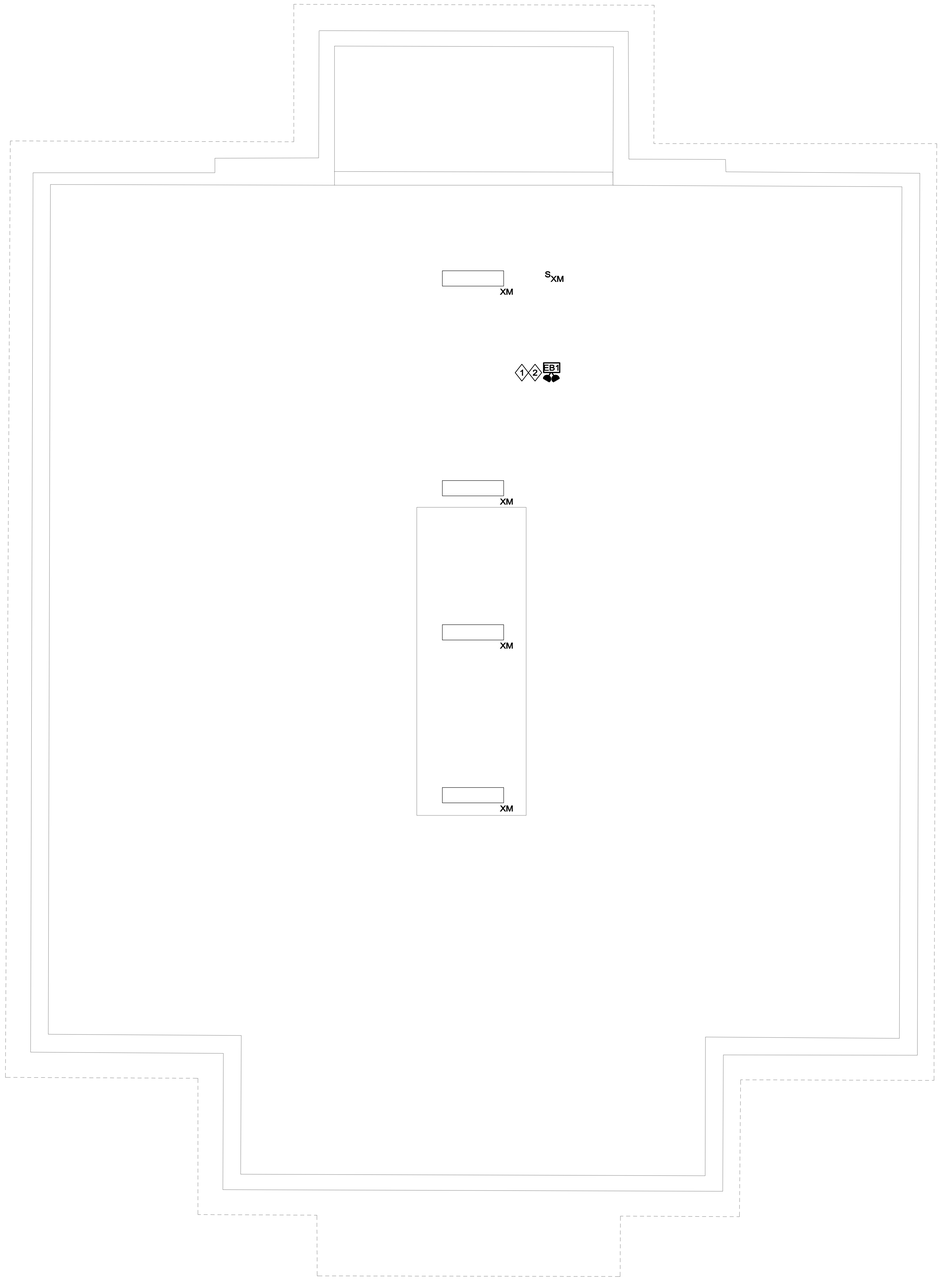
ANNEX
ELECTRICAL
SECOND FLOOR
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

E2.2

#:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\E00 Drawings\E00 Drawings Files\0220195 E2.2 ELECTRICAL ANNEX SECOND FLOOR PLAN.dwg [Tim] Apr 19, 2024 - 9:15pm Mark McDowell



ELECTRICAL ATTIC
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING E0.00 FOR LEGEND, SYMBOLS AND GENERAL NOTES.

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5. POWER BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT FROM THE PANEL TO THE FIRST DEVICE AND/OR WHERE EXPOSED. POWER BRANCH CIRCUITRY MAY BE TYPE MC CABLE WHERE CONCEALED ABOVE SUSPENDED CEILINGS AND IN METAL STUD WALLS.

6. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

KEYNOTES	
1	EMERGENCY BATTERY UNIT SHALL BE LOCATED ADJACENT TO HATCH ACCESS TO ATTIC SPACE. EXACT LOCATION SHALL BE COORDINATED IN THE FIELD.
2	CONNECT TO EXISTING 120V LIGHTING CIRCUIT CURRENTLY SERVING THIS AREA WITH 2#12+#12G-3/4"C.

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

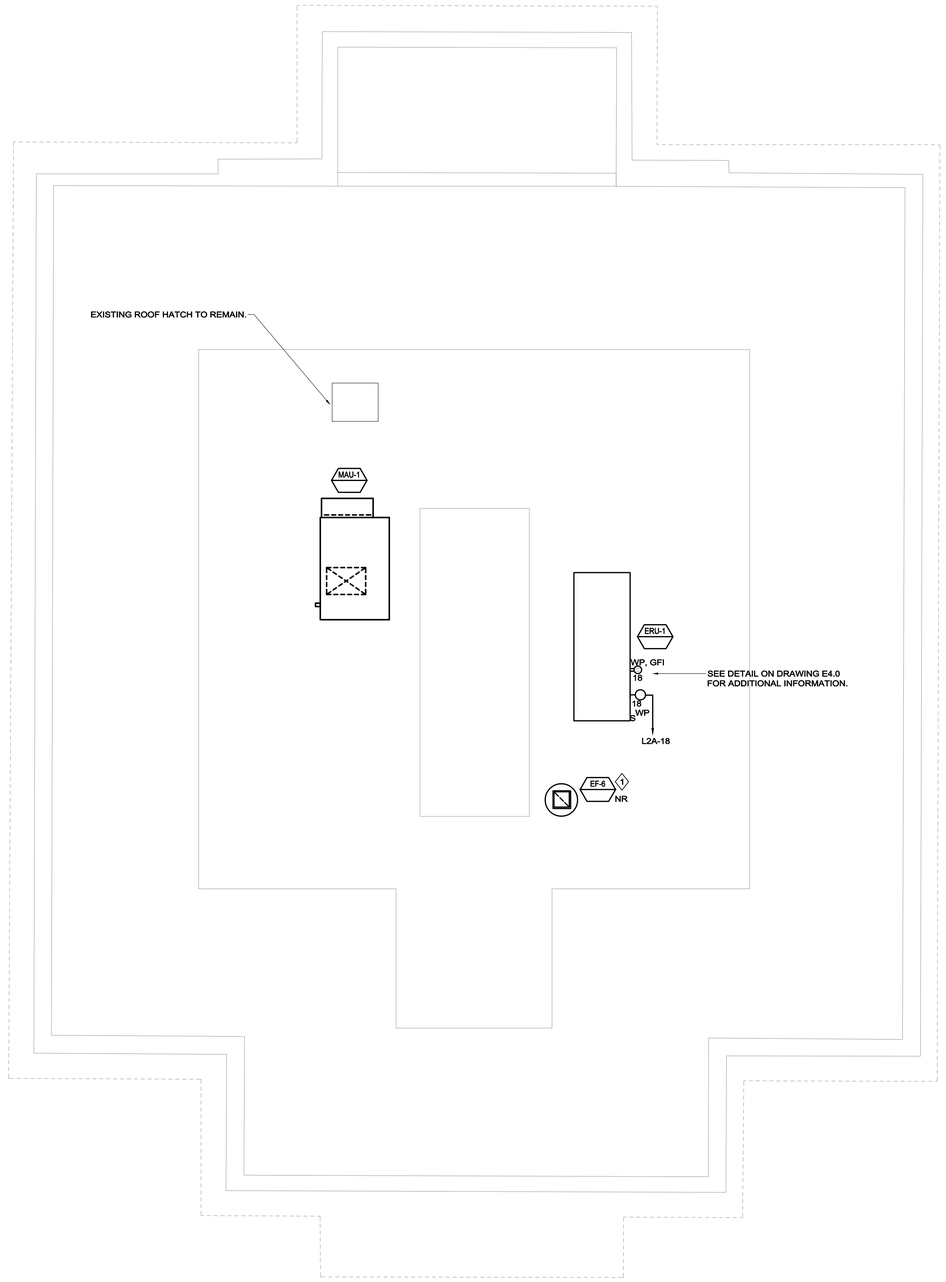
SCALE
1/4" = 1'-0"

ANNEX
ELECTRICAL
ATTIC
NEW WORK PLAN

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

E2.3

R:\PROJECTS\2022\0220195 - Burlington Town Hall Annex HVAC Roof\CAD Drawings\ARCH Drawings\Plan Files\0220195 E2.3 ELECTRICAL ANNEX ATTIC - NEW WORK.dwg [Plan] Apr 09, 2024 - 11:43am Marc.McDonald



ELECTRICAL ROOF
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

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6. ALL FASTENERS, MISCELLANEOUS SUPPORTS (UNISTRUT OR EQUAL) AND HARDWARE UTILIZED FOR THE ELECTRICAL INSTALLATION SHALL BE STAINLESS STEEL.

7. ALL ROOF PENETRATIONS SHALL BE IN ACCORDANCE WITH THE ROOFING MANUFACTURER'S INSTRUCTIONS TO MAINTAIN THE INTEGRITY AND ANY REMAINING WARRANTEE ON THE ROOFING SYSTEM.

8. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING POWER DEVICES TO REMAIN.

KEYNOTES

1	RECONNECT/EXTEND EXISTING BRANCH CIRCUIT WIRING/CONDUIT TO NEW EQUIPMENT AS REQUIRED.

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BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

ANNEX
ELECTRICAL
ROOF
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

E2.4

01_SD_Revised\0220195_Burlington Town Hall Annex HVAC Roof\SD_Drawings\Rev Files\0220195_E2.4 ELECTRICAL ANNEX ROOF PLAN - NEW WORK Only [Rev] Jun 05, 2024 - 9:16am Kevin McDonnell

EXISTING DISTRIBUTION PANEL SCHEDULE - ANNEX

PANEL: MDP | VOLT: 208Y/120V | 3 PHASE | 4 WIRE
BUS: 400A AMPS | MAIN: 400A MLO AMPS | AIC: 65,000 AMPS SYM

CIRCUIT NUMBER	LOAD DESIGNATION	OVERCURRENT DEVICE FRAME	OVERCURRENT DEVICE TRIP	OVERCURRENT DEVICE POLE	LOAD KVA	LOAD HP	REMARKS
	FACP	20	20	1			
1	R1A & R2A	150	150	3			
4	L1A	125	125	3			
5	L2A	125	125	3	27.6		NOTE 2
8	LBA	125	125	3			
9	ELEVATOR	125	125	3			
12	PAM	100	100	3			
13	CBA	100	100	3			
16	ERU-1	50	50	3	12.1		NOTE 1
17	SPACE						

NOTES:

1. PROVIDE NEW CIRCUIT BREAKER AS ILLUSTRATED. CIRCUIT BREAKER TYPE AND AIC RATING SHALL MATCH EXISTING BREAKERS. PROVIDE NEW ENGRAVED NAMEPLATE AND RE-BALANCE LOADS TO WITHIN 10% PHASE TO PHASE UPON COMPLETION OF WORK.
2. PEAK DEMAND BASED ON 2022 UTILITY METERING PROVIDED BY EVERSOURCE.

EXISTING DISTRIBUTION PANEL SCHEDULE - TOWN HALL

PANEL: DPB | VOLT: 208Y/120V | 3 PHASE | 4 WIRE
BUS: 600A AMPS | MAIN: 600A AMPS | AIC: 65,000 AMPS SYM

CIRCUIT NUMBER	LOAD DESIGNATION	OVERCURRENT DEVICE FRAME	OVERCURRENT DEVICE TRIP	OVERCURRENT DEVICE POLE	LOAD KVA	LOAD HP	REMARKS
	FACP	20	20	1			
1	PC1	100	100	3			
4	LB1	125	125	3			
5	L11	125	125	3			NOTE 3
8	L21	125	125	3	46		
9	R21	100	100	3			
12	HV1	100	100	3			
13	ELEVATOR DISCONNECT	100	100	3			
16	AC-1	150	150	3			NOTE 2,3
17	R11	100	100	3			NOTE 2,3
18	ERU-2	60	60	3	9.6		NOTE 1

NOTES:

1. PROVIDE NEW CIRCUIT BREAKER AS ILLUSTRATED. CIRCUIT BREAKER TYPE AND AIC RATING SHALL MATCH EXISTING BREAKERS. PROVIDE NEW ENGRAVED NAMEPLATE AND RE-BALANCE LOADS TO WITHIN 10% PHASE TO PHASE UPON COMPLETION OF WORK.
2. PROVIDE NEW ENGRAVED NAMEPLATE.
3. PEAK DEMAND BASED ON 2022 UTILITY METERING PROVIDED BY EVERSOURCE.

KEYNOTES

1	PROVIDE NEW CIRCUIT BREAKER IN EXISTING PANEL AS ILLUSTRATED. CIRCUIT BREAKER TYPE AN AIC RATING SHALL MATCH EXISTING BREAKERS. RE-BALANCE LOADS TO WITHIN 10% PHASE TO PHASE AND PROVIDE TYPEWRITTEN UPDATED PANEL DIRECTORY UPON COMPLETION OF WORK.
2	EXISTING LOADS ARE BASED ON EXISTING MECHANICAL DRAWINGS. WHERE NO LOAD INFORMATION EXISTS, 80% BREAKER CAPACITY HAS BEEN UTILIZED.
3	UTILIZE EXISTING BREAKER. PROVIDE TYPEWRITTEN UPDATED PANEL DIRECTORY AND RE-BALANCE LOADS TO WITHIN 10% PHASE TO PHASE UPON COMPLETION OF WORK.

MECHANICAL EQUIPMENT SCHEDULE

LOAD TAG	STARTER LOCATION	LOAD HP	LOAD FLA	LOAD KVA	LOAD VOLT	LOAD PH	STARTER NEMA SIZE	STARTER TYPE	STARTER OVERCURRENT CB	STARTER OVERCURRENT RK1 FUSE	STARTER OVERCURRENT MCP	STARTER PB	STARTER HOA	STARTER INDICATING LIGHTS R	STARTER INDICATING LIGHTS G	STARTER INDICATING LIGHTS A	STARTER AUXILIARY CPT	STARTER AUXILIARY CONTACTS NO	STARTER AUXILIARY CONTACTS NC	POWER SOURCE PANEL	POWER SOURCE C/B	CONNECTION FLEX	CONNECTION JB	CONNECTION REC	CONNECTION DISC AS	CONNECTION DISC AF	CONNECTION DISC NEMA	BRANCH CIRCUIT	REMARKS
P-3	AT UNIT	5	16.7	6	208	3	-	VFD	-	-	-	-	-	-	-	-	-	-	-	PAM-23	30A/3P	X			30	30	1	3#10+#10G-3/4"C	NOTE 11
P-4	AT UNIT	5	16.7	6	208	3	-	VFD	-	-	-	-	-	-	-	-	-	-	-	PAM-29	30A/3P	X			30	30	1	3#10+#10G-3/4"C	NOTE 11
P-7	AT UNIT	10	30.8	11.1	208	3	-	VFD	-	-	-	-	-	-	-	-	-	-	-	AC-1-1	40A/3P	X			60	40	1	3#8+#10G-3/4"C	NOTE 11
P-8	AT UNIT	10	30.8	11.1	208	3	-	VFD	-	-	-	-	-	-	-	-	-	-	-	AC-1-6	40A/3P	X			60	40	1	3#8+#10G-3/4"C	NOTE 11
MAU-1	NOTE 8	5	17.04	6.13	208	3	-	-	-	-	-	-	-	-	-	-	-	-	-	L2A-13	35A/3P	X			60	35	1	3#8+#10G-1"C	NOTE 11
MAU-2	NOTE 8	5	26.08	9.38	208	3	-	-	-	-	-	-	-	-	-	-	-	-	-	HV-1-1	50A/3P	X			60	50	1	3#6+#10G-1"C	NOTE 11
ACCH-1	NOTE 8		230	65	480	3	-	-	-	-	-	-	-	-	-	-	-	-	-	MDP1	400A/3P	X			400	400	3R	3#600kCMIL+#3G-4"C	NOTES 11, 12
ACCH-1			16	1.8	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-	HV-1-40	20A/1P	X			30	20	3R	2#12+#12G-3/4"C	FOR CONTROLS
ERU-1	NOTE 8		33.6	12.1	208	3	-	-	-	-	-	-	-	-	-	-	-	-	-	MDP-16	50A/3P	X			60	50	3R	3#6+#10G-1"C	NOTE 11
ERU-2	NOTE 8		26.72	9.62	208	3	-	-	-	-	-	-	-	-	-	-	-	-	-	DPB-19	60A/3P	X			60	60	1	3#6+#10G-1"C	NOTE 11
EF-6	NOTE 8	1/4	5.6	0.67	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-	PAM-8	20A/1P	X			30	20	1	EXISTING 2#12+#12G-3/4"C	NOTE 7
EF-8	NOTE 8	1/4	5.6	0.67	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-	R21-14	20A/1P	X			30	20	1	EXISTING 2#12+#12G-3/4"C	NOTE 7
EF-9	NOTE 8	1/4	5.6	0.67	120	1	-	-	-	-	-	-	-	-	-	-	-	-	-			X			30	20	1		NOTE 7

NOTES:

1. NOTES 2-6 APPLY TO ALL APPLICABLE LOADS.
2. PROVIDE THERMAL OVERLOAD UNITS FOR ALL STARTERS SIZED TO MATCH LOAD NAMEPLATE AND NEC REQUIREMENTS.
3. BRANCH CIRCUIT WIRING METHODS SHALL BE AS NOTED ON THE DRAWINGS AND/OR SPECIFICATIONS FOR THE APPLICABLE LOCATION. THE FINAL THREE FEET (MAXIMUM) SHALL BE FLEXIBLE METAL OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT.
4. COPPER BRANCH CIRCUIT CONDUCTOR SIZING BASED UPON NEC TABLE 310.15(B)(16). MAKE ADJUSTMENTS TO CONDUCTORS FOR TEMPERATURE OR VOLTAGE DROP THAT EXCEED NEC AND SPECIFICATION CRITERIA.
5. RACEWAY SIZES ARE BASED UPON GRSC AND LFMC WITH THWN CONDUCTORS.
6. VFD SHALL BE CONTROLLED VIA REMOTE 4-20mA OR 0-5V SIGNAL PROVIDED BY THE HVAC ATC CONTRACTOR.
7. REQUIRED DISCONNECT IS PROVIDED INTEGRAL/PREWIRED TO MECHANICAL EQUIPMENT.
8. REQUIRED STARTER IS PROVIDED INTEGRAL/PREWIRED TO MECHANICAL EQUIPMENT.
9. DISCONNECT FOR 2S1W AND 2S2W MOTORS SHALL BE SIX POLE.
10. PROVIDE NEUTRAL FROM SOURCE TO STARTER ONLY FOR 120V CONTROL POWER OF 208V 3PH UNITS.
11. FUSES FOR DISCONNECT SWITCHES SHALL BE CLASS RK5.
12. UTILIZE EXISTING BREAKER.

KEY

FVNR FULL VOLTAGE NON-REVERSING
FVR FULL VOLTAGE REVERSING
2S1W TWO SPEED SINGLE WINDING
2S2W TWO SPEED TWO WINDING
RVAT REDUCED VOLTAGE AUTOTRANSFORMER
RVPW REDUCED VOLTAGE PART WINDING
RVYDOT REDUCED VOLTAGE WYE DELTA OPEN TRANSITION
RVYDCT REDUCED VOLTAGE WYE DELTA CLOSED TRANSITION
MMS MANUAL MOTOR STARTER
CB CIRCUIT BREAKER
MCP MOTOR CIRCUIT PROTECTOR
PB START AND STOP PUSH BUTTON
HOA HAND-OFF-AUTOMATIC SELECTOR SWITCH
CPT CONTROL POWER TRANSFORMER
VFD VARIABLE FREQUENCY DRIVE W/O BYPASS
VFD/B VARIABLE FREQUENCY DRIVE W/ BYPASS
CNTCR CONTACTOR - NO THERMAL OVERLOAD

EXISTING PANELBOARD SCHEDULE

PANEL: PAM | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 100 | AIC: 65,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: ANNEX | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	15/1	FAN COIL UNIT BAS.	1.00	2.80			1.80	ELEV. LIGHTS & PUMP	20/1	2
3	15/1	FAN COIL UNIT BAS.	1.00		2.00		1.00	FAN COIL UNIT BAS.	15/1	4
5	15/1	FAN COIL UNIT 1ST FLOOR	1.44			2.44	1.00	FAN COIL UNIT BAS.	15/1	6
7	15/1	FAN COIL UNIT 2ND FLOOR	1.15	2.95			1.80	EF-6, EF-7, ROOF/SUB PUMP	20/1	8
9	15/1	FAN COIL UNIT 2ND FLOOR	1.15		2.95		1.80	BOILER FEEDS	15/1	10
11	20/1	OUTLETS AND E	1.80			2.95	1.15	FAN COIL UNITS 2ND FLOOR	15/1	12
13	20/1	SPARE (ON)		1.15			1.15	FAN COIL UNITS 2ND FLOOR	15/1	14
15	20/1	HUMIDIFIER	0.80		1.60		0.80	HUMIDIFIERS	20/1	16
17	20/1	H-5 FIRST FLOOR	0.80			2.40	1.60	H-3, H4 1ST FLOOR	20/1	18
19	30/2	HOT WATER HEATER	2.50	4.10			1.60	HUMIDIFIERS H1-H2	20/1	20
21			2.50		4.30		1.80	BASEMENT	20/1	22
23	40/3	PUMP P-3 PRIMARY (5HP)	2.00			2.00		MAU-1 ATTIC	20/3	24
25			2.00	2.00						26
27			2.00		2.00					28
29	40/3	PUMP P-4 STANDBY (5HP)				0.30	0.30	PUMP P-1 PRIMARY (1/2HP)	40/3	30
31				0.30			0.30			32
33					0.30		0.30			34
35	15/1	EXISTING LOAD	1.80			1.80		PUMP P-2 STANDBY (1/2HP)	40/3	36
37	20/1	BOILER CONDENSOR GFI	0.18	0.18						38
39	20/1	BOILER CONTROL PANEL	1.00		1.00					40
41		SPACE				0.00		SPACE		42
		CONNECTED kVA BY PHASE -		13.48	14.15	11.69		TOTAL CONNECTED KVA-	39.52	
								DEMAND FACTOR	0.80	
								TOTAL DEMAND KVA-	31.62	
								TOTAL DEMAND AMPERES-	87.76	

EXISTING PANELBOARD SCHEDULE

PANEL: R21 | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 100 | AIC: 10,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: TOWN HALL | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	EXISTING LOAD	1.92	3.00			1.08	PLUGS RM. 203 & 206	20/1	2
3	20/1	PLUGS ROOM 202	1.08		2.16		1.08	PLUGS ROOM 204	20/1	4
5	20/1	PLUGS ROOM 207	1.08			2.16	1.08	PLUGS ROOM 210.	20/1	6
7	20/1	EXISTING LOAD	1.92	3.00			1.08	PLUGS ROOM 210.	20/1	8
9	20/1	PLUGS ROOM 201	1.08		1.33		0.25	ATTIC LIGHTS	20/1	10
11	20/1	PLUGS ROOM 202	1.08			2.16	1.08	ATTIC PLUGS	20/1	12
13	20/1	EXISTING LOAD	1.92	3.84			1.92	EXHAUST FANS ATTIC EF-8/EF-9	20/1	14
15	20/1	PLUGS ROOM 211	1.08		3.00		1.92	EXISTING LOAD	20/1	16
17	20/1	PLUGS IN A/V ROOM	1.08			2.16	1.08	PLUGS IN RM. 205	20/1	18
19		SPACE						SPACE		20
21		SPACE						SPACE		22
23		SPACE						SPACE		24
25		SPACE						SPACE		26
27		SPACE						SPACE		28
29		SPACE						SPACE		30
31		SPACE						SPACE		32
33		SPACE						SPACE		34
35		SPACE						SPACE		36
37		SPACE						SPACE		38
39		SPACE						SPACE		40
41		SPACE						SPACE		42
		CONNECTED kVA BY PHASE -		9.84	6.49	6.48		TOTAL CONNECTED KVA-	22.81	
								DEMAND FACTOR	1.00	
								TOTAL DEMAND KVA-	22.81	
								TOTAL DEMAND AMPERES-	63.32	

EXISTING PANELBOARD SCHEDULE - NEW WORK

PANEL: PAM | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 100 | AIC: 65,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: ANNEX | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.	
1	15/1	FAN COIL UNIT BAS.	1.00	2.80			1.80	ELEV. LIGHTS & PUMP	20/1	2	
3	15/1	FAN COIL UNIT BAS.	1.00		2.00		1.00	FAN COIL UNIT BAS.	15/1	4	
5	15/1	FAN COIL UNIT 1ST FLOOR	1.44			2.44	1.00	FAN COIL UNIT BAS.	15/1	6	
7	15/1	FAN COIL UNIT 2ND FLOOR	1.15	2.15			1.00	**EF-6/SUB PUMP**	20/1	8	
9	15/1	FAN COIL UNIT 2ND FLOOR	1.15		2.95		1.80	BOILER FEEDS	15/1	10	
11	20/1	OUTLETS AND E	1.80			2.95	1.15	FAN COIL UNITS 2ND FLOOR	15/1	12	
13	20/1	SPARE (ON)		1.15			1.15	FAN COIL UNITS 2ND FLOOR	15/1	14	
15	20/1	HUMIDIFIER	0.80		1.60		0.80	HUMIDIFIERS	20/1	16	
17	20/1	H-5 FIRST FLOOR	0.80			2.40	1.60	H-3, H4 1ST FLOOR	20/1	18	
19	30/2	HOT WATER HEATER	2.50	4.10			1.60	HUMIDIFIERS H1-H2	20/1	20	
21			2.50		4.30		1.80	BASEMENT	20/1	22	
23			2.00			2.00				24	
25	**30/3**	**PUMP P-3 PRIMARY (5HP)**	2.00	2.00				**SPARE**	20/3	26	
27			2.00		2.00					28	
29						0.30	0.30	PUMP P-1 PRIMARY (1/2HP)	40/3	30	
31	**30/3**	**PUMP P-4 STANDBY (5HP)**		0.30			0.30			32	
33					0.30		0.30			34	
35	15/1	EXISTING LOAD	1.80			1.80		PUMP P-2 STANDBY (1/2HP)	40/3	36	
37	20/1	BOILER CONDENSOR GFI	0.18	0.18						38	
39	20/1	BOILER CONTROL PANEL	1.00		1.00					40	
41		SPACE				0.00		SPACE		42	
		CONNECTED kVA BY PHASE -		12.68	14.15	11.89		TOTAL CONNECTED KVA-	38.72		2
								DEMAND FACTOR	0.70		
								TOTAL DEMAND KVA-	27.10		
								TOTAL DEMAND AMPERES-	75.24		

EXISTING PANELBOARD SCHEDULE - NEW WORK

PANEL: R21 | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 100 | AIC: 10,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: TOWN HALL | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.	
1	20/1	EXISTING LOAD	1.92	3.00			1.08	PLUGS RM. 203 & 206	20/1	2	
3	20/1	PLUGS ROOM 202	1.08		2.16		1.08	PLUGS ROOM 204	20/1	4	
5	20/1	PLUGS ROOM 207	1.08			2.16	1.08	PLUGS ROOM 210.	20/1	6	
7	20/1	EXISTING LOAD	1.92	3.00			1.08	PLUGS ROOM 210.	20/1	8	
9	20/1	PLUGS ROOM 201	1.08		1.33		0.25	ATTIC LIGHTS	20/1	10	
11	20/1	PLUGS ROOM 202	1.08			2.16	1.08	ATTIC PLUGS	20/1	12	
13	20/1	EXISTING LOAD	1.92	3.32			1.40	**EXHAUST FANS ATTIC EF-8/EF-9**	**20/1**	14	3
15	20/1	PLUGS ROOM 211	1.08		3.00		1.92	EXISTING LOAD	20/1	16	
17	20/1	PLUGS IN A/V ROOM	1.08			2.16	1.08	PLUGS IN RM. 205	20/1	18	
19		SPACE		0.36			0.36	**JBOX - ATC CONTROLS**	**20/1**	20	1
21		SPACE			0.00			SPACE		22	
23		SPACE				0.00		SPACE		24	
25		SPACE		0.00				SPACE		26	
27		SPACE			0.00			SPACE		28	
29		SPACE				0.00		SPACE		30	
31		SPACE		0.00				SPACE		32	
33		SPACE			0.00			SPACE		34	
35		SPACE				0.00		SPACE		36	
37		SPACE		0.00				SPACE		38	
39		SPACE			0.00			SPACE		40	
41		SPACE				0.00		SPACE		42	
		CONNECTED kVA BY PHASE -		9.68	6.49	6.48		TOTAL CONNECTED KVA-	22.65		2
								DEMAND FACTOR	1.00		
								TOTAL DEMAND KVA-	22.65		
								TOTAL DEMAND AMPERES-	62.87		

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At the request of [IDENTIFY PARTY], this [NAME OF DELIVERABLE (REPORT, DRAWINGS, ETC.)] has been expedited to [Client] Hence, [client], is hereby notified that NV5 did not have an opportunity to conduct its industry standard quality control procedures. Accordingly, Client agrees that the [NAME OF DELIVERABLE] is subject to revision, including but not limited to contractor change orders or owner claims, in connection with [NAME OF DELIVERABLE].

REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER 0220195

DATE 04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY JHW

CHECKED BY MVM

SCALE NONE

TOWN HALL & ANNEX
ELECTRICAL
SCHEDULES

E3.0

M:\BOS\Projects\2022\0220195 - Burlington Town Hall Annex HVAC Roof\300 Drawings\300 Electrical\Revit Files\0220195 E3.0 ELECTRICAL SCHEDULES.dwg [Revit] April 09, 2024 - 9:19pm Kevin McDonnell

EXISTING PANELBOARD SCHEDULE

PANEL: AC-1 | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 225 | AIC: 65,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: TOWN HALL | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1		COOLING PUMPS P7+P8 (7 1/2HP)	3.00	4.25			1.25	A/C BLOWER	15/2	2
3	50/3		3.00		4.25		1.25			4
5			3.00			3.00		SPARE	20/1	6
7	40/2	A/C IN VAULT RM #007	3.33	3.33				SPARE	25/2	8
9			3.33		3.33					10
11		HEAT PUMP	1.92			2.52	0.60	HEATING PUMPS P5+P6 (1HP)	20/3	12
13	20/3		1.92	2.52			0.60			14
15			1.92		2.52		0.60			16
17	20/1	GAS BOILERS	1.92			3.58	1.66	HOT WATER HEATER RM. #011	20/2	18
19	20/1	FAN COIL #2	1.92	3.58			1.66			20
21	20/1	FAN COIL #1	1.92		2.17		0.25	PARKING LOT LIGHTING	20/1	22
23	20/1	FAN COIL #3	1.92			2.10	0.18	REC POLE LIGHTING	20/1	24
25	15/1	FAN COIL #4	1.44	2.88			1.44	AIR COMPRESSOR	15/1	26
27	30/2	A/C CONDENSOR COMP. RM	2.50		2.75		0.25	TIME SWITCH OUTSIDE LIGHT	20/1	28
29			2.50			4.42	1.92	CIRCULATING PUMP	20/1	30
31	40/2	A/C CONDENSOR UNIT	3.33	3.51			0.18	PANEL OUTLET	20/1	32
33			3.33		3.51		0.18	NORTH REC. FRONT	20/1	34
35	20/2	HUMIDIFIER HALL #1	0.60			0.78	0.18	SOUTH REC.	20/1	36
37			0.60	2.40			1.80	A/C CONDENSOR	30/2	38
39	20/2	HUMIDIFIER ARCHIVES	0.60		2.40		1.80			40
41			0.60			2.40	1.80	BOILER CONTROLLER	20/1	42
		CONNECTED kVA BY PHASE -		22.47	20.93	18.80		TOTAL CONNECTED KVA-	62.20	
								DEMAND FACTOR	0.80	
								TOTAL DEMAND KVA-	49.76	
								TOTAL DEMAND AMPERES-	138.12	

EXISTING PANELBOARD SCHEDULE - NEW WORK

PANEL: AC-1 | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 225 | AIC: 65,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: TOWN HALL | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1		**NEW BOILER RM 011 P-7 (10HP - PRIMARY)**	3.70	4.95			1.25	A/C BLOWER	15/2	2
3	**40/3**		3.70		4.95		1.25			4
5			3.70			3.70		**NEW BOILER RM 011 P8 (10HP - STANDBY)**	**40/3**	6
7	40/2	A/C IN VAULT RM #007	3.33	3.33						8
9			3.33		3.33					10
11		HEAT PUMP	1.92			2.52	0.60	HEATING PUMPS P5+P6 (1HP)	20/3	12
13	20/3		1.92	2.52			0.60			14
15			1.92		2.52		0.60			16
17	20/1	GAS BOILERS	1.00			2.66	1.66	HOT WATER HEATER RM. #011	20/2	18
19	20/1	FAN COIL #2	1.00	2.66			1.66			20
21	20/1	FAN COIL #1	1.00		1.25		0.25	PARKING LOT LIGHTING	20/1	22
23	20/1	FAN COIL #3	1.00			1.18	0.18	REC POLE LIGHTING	20/1	24
25	15/1	FAN COIL #4	0.50	1.70			1.20	AIR COMPRESSOR	15/1	26
27	30/2	A/C CONDENSOR COMP. RM	2.50		2.75		0.25	TIME SWITCH OUTSIDE LIGHT	20/1	28
29			2.50			4.42	1.92	CIRCULATING PUMP	20/1	30
31	40/2	A/C CONDENSOR UNIT	3.33	3.51			0.18	PANEL OUTLET	20/1	32
33			3.33		3.51		0.18	NORTH REC. FRONT	20/1	34
35	20/2	HUMIDIFIER HALL #1	0.60			0.78	0.18	SOUTH REC.	20/1	36
37			0.60	2.40			1.80	A/C CONDENSOR	30/2	38
39	20/2	HUMIDIFIER ARCHIVES	0.60		2.40		1.80			40
41			0.60			2.40	1.80	BOILER CONTROLLER	20/1	42
		CONNECTED kVA BY PHASE -		21.07	20.71	17.66		TOTAL CONNECTED KVA-	59.44	
								DEMAND FACTOR	0.70	
								TOTAL DEMAND KVA-	41.61	
								TOTAL DEMAND AMPERES-	115.50	

EXISTING PANELBOARD SCHEDULE

PANEL: L2A | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 225A | AIC: 10,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: ANNEX | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	ATTIC LTS. & PUMP	1.00	2.00			1.00	LTS. RM. 202, 203, 204	20/1	2
3	20/1	LTS. RMS. 200 & CORR. 211	1.00		1.00			SPARE	20/1	4
5	20/1	LTS. RMS 200 & 209	1.00			2.00	1.00	LTS. RMS. 200, 208, 206	20/1	6
7	20/1	LTS. BATH LTS. & FAN	1.00	2.00			1.00	LTS. RMS. 200, 208, 206, 210	20/1	8
9	20/1	SPARE			0.18		0.18	GEN. PURPOSE CORRIDOR REC	20/1	10
11	20/1	BC	1.80			2.80	1.00	EF-2	20/1	12
13		SPARE		0.00				SPARE	20/1	14
15		SPARE			0.00			SPARE	20/1	16
17		SPARE				0.00		SPARE	20/1	18
19		SPARE		0.00				SPARE	20/1	20
21		SPARE			0.00			SPARE	20/1	22
23		SPARE				0.00		SPARE	20/1	24
25		SPARE		0.00				SPARE	20/1	26
27		SPARE			0.00			SPARE	20/1	28
29		SPARE				0.00		SPARE	20/1	30
31		SPACE		0.00				SPACE		32
33		SPACE			0.00			SPACE		34
35		SPACE				0.00		SPACE		36
37		SPACE		0.00				SPACE		38
39		SPACE			0.00			SPACE		40
41		SPACE				0.00		SPACE		42
		CONNECTED kVA BY PHASE -		4.00	1.18	4.80		TOTAL CONNECTED KVA-	9.98	
								DEMAND FACTOR	1.00	
								TOTAL DEMAND KVA-	9.98	
								TOTAL DEMAND AMPERES-	27.70	

EXISTING PANELBOARD SCHEDULE - NEW WORK

PANEL: L2A | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 225A | AIC: 10,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: ANNEX | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1	20/1	ATTIC LTS. & PUMP	1.00	2.00			1.00	LTS. RM. 202, 203, 204	20/1	2
3	20/1	LTS. RMS. 200 & CORR. 211	1.00		1.00			SPARE	20/1	4
5	20/1	LTS. RMS 200 & 209	1.00			2.00	1.00	LTS. RMS. 200, 208, 206	20/1	6
7	20/1	LTS. BATH LTS. & FAN	1.00	2.00			1.00	LTS. RMS. 200, 208, 206, 210	20/1	8
9	20/1	SPARE			0.18		0.18	GEN. PURPOSE CORRIDOR REC.	20/1	10
11	20/1	BC	1.80			2.80	1.00	EF-2	20/1	12
13			2.04	2.04				SPARE	20/1	14
15	**35/3**	**MAU-1**	2.04		2.04			SPARE	20/1	16
17			2.04			3.04	1.00	**ROOFTOP REC & LTS**	20/1	18
19		SPARE		0.36			0.36	**JBOX - ATC CONTROLS**	20/1	20
21		SPARE			0.36		0.36	**JBOX - ATC CONTROLS**	20/1	22
23		SPARE				0.36	0.36	**JBOX - ATC CONTROLS**	20/1	24
25		SPARE		0.00				SPARE	20/1	26
27		SPARE			0.00			SPARE	20/1	28
29		SPARE				0.00		SPARE	20/1	30
31		SPACE		0.00				SPACE		32
33		SPACE			0.00			SPACE		34
35		SPACE				0.00		SPACE		36
37		SPACE		0.00				SPACE		38
39		SPACE			0.00			SPACE		40
41		SPACE				0.00		SPACE		42
		CONNECTED kVA BY PHASE -		6.40	3.58	8.20		TOTAL CONNECTED KVA-	18.18	
								DEMAND FACTOR	1.00	
								TOTAL DEMAND KVA-	18.18	
								TOTAL DEMAND AMPERES-	50.46	

EXISTING PANELBOARD SCHEDULE

PANEL: HV-1 | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MCB | AMPS: 225 | AIC: 65,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: TOWN HALL | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1		ATTIC FAN COIL #21	1.92	3.58			1.66	TAX/BIG PRINTER	20/2	2
3	20/3		1.92		3.58		1.66			4
5			1.92			3.36	1.44	FAN COIL #7	15/1	6
7	15/1	EXISTING LOAD	1.44	2.88			1.44	FAN COIL #6	15/1	8
9		ATTIC FAN COIL #18	1.44		2.88		1.44	ATTIC FAN COIL #19	15/3	10
11	15/3		1.44			2.88	1.44			12
13			1.44	2.88			1.44			14
15		ATTIC FAN COIL #20	1.44		2.88		1.44	FAN COIL #4	15/1	16
17	15/3		1.44			2.88	1.44	FAN COIL #10	15/1	18
19			1.44	2.88			1.44	FAN COIL #9	15/1	20
21	15/2	HUMIFIFER #8 FIRST FLOOR	1.44		2.88		1.44	FAN COIL #11	15/1	22
23			1.44			2.88	1.44	FAN COIL #12	15/1	24
25	15/2	FIRST FLOOR RM 104 RECORDS	1.44	2.88			1.44	FAN COIL #15	15/1	26
27			1.44		2.88		1.44	FAN COIL #16	15/1	28
29	15/2	EXISTING LOAD	1.44			1.62	0.18	1 OUTLET ROOM 201	15/1	30
31			1.44	2.88			1.44	SUBPUMP + FPW 003	15/1	32
33	15/2	EXISTING LOAD	1.44		1.44			SPACE		34
35			1.44			1.44		SPACE		36
37		SPACE	3.70	3.70				SPACE		38
39		SPACE	3.70		3.70			SPACE		40
41		SPACE	3.70			3.70		SPACE		42
		CONNECTED kVA BY PHASE -		21.68	20.24	18.76		TOTAL CONNECTED KVA-	60.68	
								DEMAND FACTOR	1.00	
								TOTAL DEMAND KVA-	60.68	
								TOTAL DEMAND AMPERES-	168.44	

EXISTING PANELBOARD SCHEDULE - NEW WORK

PANEL: HV-1 | VOLTS: 208Y/120 | MOUNT: SURFACE | GROUND BUS: Y
MAIN: MLO | AMPS: 225 | AIC: 65,000 | ISOLATED GROUND BUS: N
PH/WIRE: 3/4 | LOC.: TOWN HALL | 200% NEUTRAL: N

CIR.	AMPS/ POLES	DESCRIPTION OF LOAD	LOAD kVA	LOAD BY PHASE, kVA A	B	C	LOAD kVA	DESCRIPTION OF LOAD	AMPS/ POLES	CIR.
1		**NEW MAU-2**	3.10	4.76			1.66	TAX/BIG PRINTER	20/2	2
3	**60/3**		3.10		4.76		1.66			4
5			3.10			4.54	1.44	FAN COIL #7	15/1	6
7	15/1	EXISTING LOAD	1.44	2.88			1.44	FAN COIL #6	15/1	8
9		ATTIC FAN COIL #18 (AH-2) (1HP)	0.60		1.20		0.60	ATTIC FAN COIL #19 (AH-1) (1HP)	15/3	10
11	15/3		0.60			1.20	0.60			12
13			0.60	1.20			0.60			14
15		ATTIC FAN COIL #20 (AH-3) (1HP)	0.60		2.04		1.44	FAN COIL #4	15/1	16
17	15/3		0.60			2.04	1.44	FAN COIL #10	15/1	18
19			0.60	2.04			1.44	FAN COIL #9	15/1	20
21	15/2	HUMIDIFIER #8 FIRST FLOOR	0.60		2.04		1.44	FAN COIL #11	15/1	22
23			0.60			2.04	1.44	FAN COIL #12	15/1	24
25	15/2	FIRST FLOOR RM 104 RECORDS	0.60	2.04			1.44	FAN COIL #15	15/1	26
27			0.60		2.04		1.44	FAN COIL #16	15/1	28
29	15/2	SPARE				0.18	0.18	1 OUTLET ROOM 201	15/1	30
31				1.44			1.44	SUBPUMP + FPW 003	15/1	32
33	15/2	SPARE			0.36		0.36	**REC - BOILER RM 011 QUAD**	**20/1**	34
35						1.00	1.00	**JBOX - ATC CONTROLS**	**20/1**	36
37		SPACE		1.00			1.00	**JBOX - ATC CONTROLS**	**20/1**	38
39					1.80		1.80	**ACOH-1 CONTROLS**	**20/1**	40
41						0.20	0.20	**EXTERIOR LT/GFI REC**	**20/1**	42
		CONNECTED kVA BY PHASE -		15.36	14.24	11.20		TOTAL CONNECTED KVA-	40.80	
								DEMAND FACTOR	0.70	
								TOTAL DEMAND KVA-	28.56	
								TOTAL DEMAND AMPERES-	79.28	

KEYNOTES

1. PROVIDE NEW CIRCUIT BREAKER IN EXISTING PANEL AS ILLUSTRATED. CIRCUIT BREAKER TYPE AN AIC RATING SHALL MATCH EXISTING BREAKERS. RE-BALANCE LOADS TO WITHIN 10% PHASE TO PHASE AND PROVIDE TYPEWRITTEN UPDATED PANEL DIRECTORY UPON COMPLETION OF WORK.
2. EXISTING LOADS ARE BASED ON EXISTING MECHANICAL DRAWINGS. WHERE NO LOAD INFORMATION EXISTS, 80% BREAKER CAPACITY HAS BEEN UTILIZED.
3. UTILIZE EXISTING BREAKER. PROVIDE TYPEWRITTEN UPDATED PANEL DIRECTORY AND RE-BALANCE LOADS TO WITHIN 10% PHASE TO PHASE UPON COMPLETION OF WORK.

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At the request of [IDENTIFY PARTY], this [NAME OF DELIVERABLE (REPORT, DRAWINGS, ETC.)] has been expedited to [Client] Hence, [client] is hereby notified that NV5 did not have an opportunity to conduct its industry standard quality control procedures. Accordingly, Client agrees that the [NAME OF DELIVERABLE] is subject to revision, including but not limited to contractor change orders or owner claims, in connection with [NAME OF DELIVERABLE].

REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER
0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

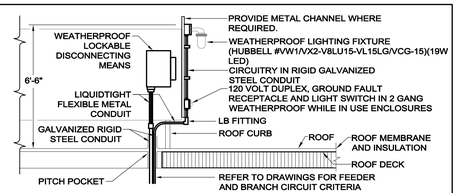
CHECKED BY
MVM

SCALE
1/4" = 1'-0"

TOWN HALL & ANNEX
ELECTRICAL
SCHEDULES

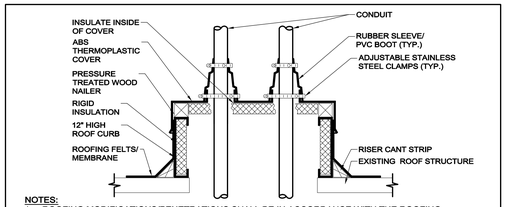
E3.1

M:\BOS\Projects\0220\0220195 - Burlington Town Hall Annex HVAC, Roof, ESS\2 Design\05 Electrical\Rvt Files\0220195_E3.1_ELECTRICAL SCHEDULES.rvt, [Tab=3] Jun 05, 2024 - 9:17pm, Marvin McDaniel



NOTES:
1. LOCATION OF RECEPTACLE AND DISCONNECT SWITCH IS REPRESENTATIVE AND SHALL BE INSTALLED PER MECHANICAL EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
2. MAINTAIN WORK SPACE IN ACCORDANCE WITH NEC 110.26.
3. REFER TO POWER PLAN FOR EXACT RACEWAY AND MOUNTING MATERIAL REQUIREMENTS.

NV5 ROOF TOP MECHANICAL EQUIPMENT LIGHTING & RECEPTACLE DETAIL — E204



NOTES:
1. ROOFING MODIFICATIONS/PENETRATIONS SHALL BE IN ACCORDANCE WITH THE ROOFING MANUFACTURER'S SPECIFICATIONS AND DETAILS TO MAINTAIN THE ROOFING SYSTEM WARRANTEE. COORDINATE ALL ROOFING WORK WITH THE OWNER AND/OR ASSOCIATED CONTRACTOR.
2. WHERE POSSIBLE UTILIZE EXISTING ROOF PENETRATIONS.

NV5 CONDUIT THRU ROOF DECK — E210

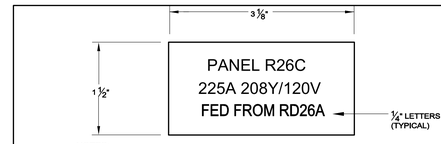


NOTES:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.

2. PROVIDE ON ALL IN-LINE METER SOCKETS, SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS AND MOTOR CONTROL CENTERS IN ACCORDANCE WITH NEC 110.16.

NV5 TYPICAL FLASH PROTECTION WARNING LABEL — E305



NOTES:
1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.

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

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

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

NV5 TYPICAL ENGRAVED PLASTIC NAMEPLATE DETAIL — E303

NOTES:

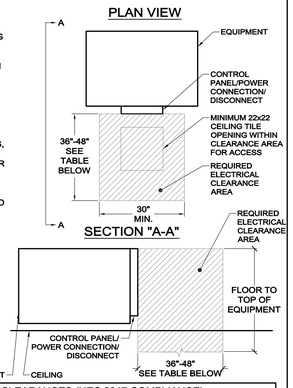
1. DETAIL APPLIES TO ALL MECHANICAL EQUIPMENT LOCATED ABOVE A CEILING THAT REQUIRES POWER, INCLUDING CONTROL POWER. EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, FAN POWERED BOXES, VAV BOXES, FANS, FAN COIL UNITS, HEAT PUMPS, CRAC UNITS, DX SPLIT SYSTEMS, DUCT HEATERS, ETC.

2. ELECTRICAL CLEARANCE AREA (INCLUDING WITHIN CEILING) MUST BE FREE FROM LIGHTS, SPRINKLER HEADS, FIRE ALARM DEVICES, SPEAKERS, PIPING, DUCTWORK, BEAMS AND OTHER OBSTRUCTIONS.

3. THE HEIGHT OF THE ELECTRICAL CLEARANCE SHALL BE AS REQUIRED TO INSTALL AND PERFORM MAINTENANCE ON THE EQUIPMENT. MINIMUM HEIGHT SHALL BE FROM FLOOR TO TOP OF EQUIPMENT.

4. REFER TO SPECIFIC MANUFACTURER PRODUCT DATA FOR ADDITIONAL ACCESS AND CLEARANCE REQUIREMENTS FOR FANS, COMPRESSORS, VALVES, DAMPERS, FILTERS, ETC. COORDINATE CEILING MOUNTED DEVICE LOCATIONS AS REQUIRED

5. COORDINATE WITH ALL TRADES TO PROVIDE THESE MINIMUM REQUIRED CLEARANCES.



MINIMUM ELECTRICAL CLEARANCES (NEC 2017 COMPLIANCE)

VOLTAGE TO GROUND (SINGLE PHASE VOLTAGE)	CONDITION 1	CONDITION 2	CONDITION 3
0-150	36"	36"	36"
151-600	36"	42"	48"

CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.
CONDITION 2 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED
CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE
NOTE: CLEARANCE WIDTH SHALL BE 30" OR THE WIDTH OF THE CONTROL PANEL/POWER CONNECTION, WHICHEVER IS GREATER

NV5 ELECTRICAL CLEARANCE MECHANICAL EQUIPMENT ATC CEILING — E216

NOTES:

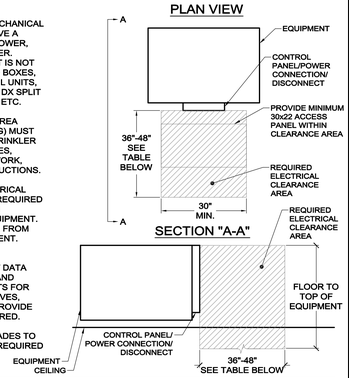
1. DETAIL APPLIES TO ALL MECHANICAL EQUIPMENT LOCATED ABOVE A CEILING THAT REQUIRES POWER, INCLUDING CONTROL POWER. EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, FAN POWERED BOXES, VAV BOXES, FANS, FAN COIL UNITS, HEAT PUMPS, CRAC UNITS, DX SPLIT SYSTEMS, DUCT HEATERS, ETC.

2. ELECTRICAL CLEARANCE AREA (INCLUDING WITHIN CEILING) MUST BE FREE FROM LIGHTS, SPRINKLER HEADS, FIRE ALARM DEVICES, SPEAKERS, PIPING, DUCTWORK, BEAMS AND OTHER OBSTRUCTIONS.

3. THE HEIGHT OF THE ELECTRICAL CLEARANCE SHALL BE AS REQUIRED TO INSTALL AND PERFORM MAINTENANCE ON THE EQUIPMENT. MINIMUM HEIGHT SHALL BE FROM FLOOR TO TOP OF EQUIPMENT.

4. REFER TO SPECIFIC MANUFACTURER PRODUCT DATA FOR ADDITIONAL ACCESS AND CLEARANCE REQUIREMENTS FOR FANS, COMPRESSORS, VALVES, DAMPERS, FILTERS, ETC. PROVIDE ACCESS PANELS AS REQUIRED.

5. COORDINATE WITH ALL TRADES TO PROVIDE THESE MINIMUM REQUIRED CLEARANCES.

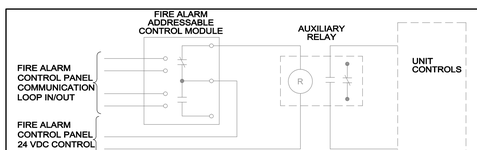


MINIMUM ELECTRICAL CLEARANCES (NEC 2017 COMPLIANCE)

VOLTAGE TO GROUND (SINGLE PHASE VOLTAGE)	CONDITION 1	CONDITION 2	CONDITION 3
0-150	36"	36"	36"
151-600	36"	42"	48"

CONDITION 1 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.
CONDITION 2 - EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED
CONDITION 3 - EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE
NOTE: CLEARANCE WIDTH SHALL BE 30" OR THE WIDTH OF THE CONTROL PANEL/POWER CONNECTION, WHICHEVER IS GREATER

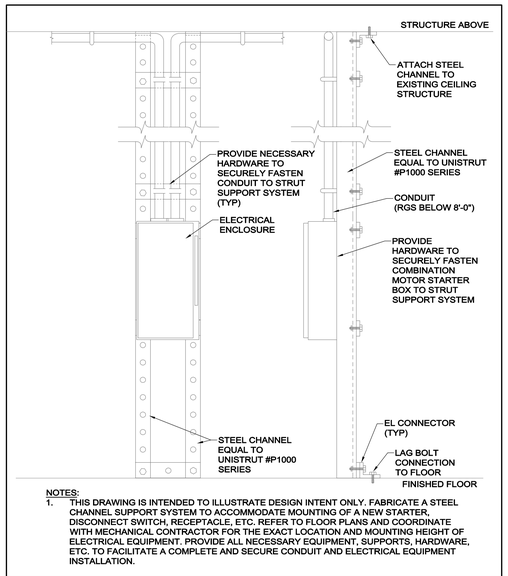
NV5 ELECTRICAL CLEARANCE MECHANICAL EQUIPMENT GWB CEILING — E215



NOTES:

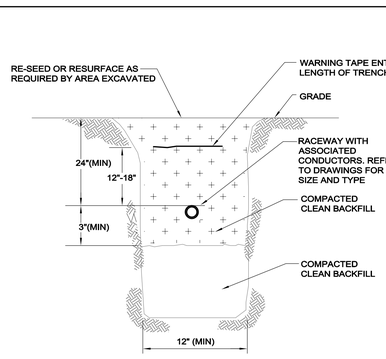
1. PROVIDE AUXILIARY RELAY AT ALL EQUIPMENT THAT REQUIRES A SHUTDOWN CONTACT. PROVIDE RELAY WITH A NEMA 1 ENCLOSURE.
2. THE 24 VDC SOURCE SHALL BE SUPERVISED FROM THE FIRE ALARM CONTROL PANEL OR A DATA GATHERING PANEL.
3. MOUNT THE INTELLIGENT CONTROL POINT (ADDRESSABLE CONTROL MODULE) AND THE RELAY WITHIN 3'-0" OF THE UNIT CONTROLS.
4. AUXILIARY RELAY SHALL BE A HEAVY DUTY POWER RELAY EQUAL TO SQUARE-D 8501 TYPE "X". RELAY SHALL BE NEMA 1 ENCLOSED.

NV5 INTERFACE CONTROL DETAIL FOR EQUIPMENT SHUTDOWN — E802



NOTES:
1. THIS DRAWING IS INTENDED TO ILLUSTRATE DESIGN INTENT ONLY. FABRICATE A STEEL CHANNEL SUPPORT SYSTEM TO ACCOMMODATE MOUNTING OF A NEW STARTER, DISCONNECT SWITCH, RECEPTACLE, ETC. REFER TO FLOOR PLANS AND COORDINATE WITH MECHANICAL CONTRACTOR FOR THE EXACT LOCATION AND MOUNTING HEIGHT OF ELECTRICAL EQUIPMENT. PROVIDE ALL NECESSARY EQUIPMENT, SUPPORTS, HARDWARE, ETC. TO FACILITATE A COMPLETE AND SECURE CONDUIT AND ELECTRICAL EQUIPMENT INSTALLATION.

NV5 TYPICAL ELECTRICAL EQUIPMENT SUPPORT DETAIL — E208



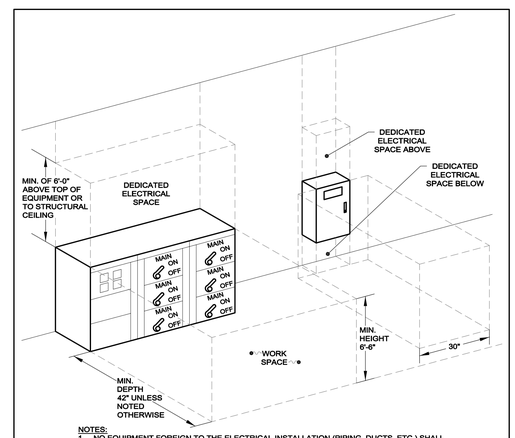
NOTES:
1. THIS DETAIL IS INTENDED TO ILLUSTRATE REQUIREMENTS WHICH EXCEED THOSE REQUIRED BY NEC TABLE 300-5.

2. WARNING TAPE SHALL BE DETECTABLE TYPE FOIL BACKED 4MIL POLYETHYLENE WITH FADE RESISTANT "BURIED ELECTRIC LINE BELOW" A MINIMUM OF 18 INCHES ABOVE THE BURIED SERVICE. TAPE SHALL BE EQUAL TO T&B NAF-0708.

3. ALL ROADWAY CROSSING SHALL BE ENCASED WITH A MINIMUM OF 2 INCHES OF CONCRETE (TOP BOTTOM AND SIDES) EXTENDING A MINIMUM OF 2 FEET BEYOND EACH SIDE OF CROSSING.

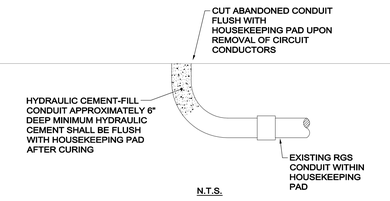
4. ALL CONDUIT RISERS SHALL UTILIZE LONG RADIUS GALVANIZED RIGID STEEL SWEEPS.

NV5 BURIED CONDUIT DETAIL — E513



NOTES:
1. NO EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION (PIPING, DUCTS, ETC.) SHALL ENTER THE DEDICATED SPACE ABOVE OR BELOW ELECTRICAL POWER EQUIPMENT INCLUDING SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, & MOTOR CONTROL CENTERS.
2. PIPING SYSTEMS INSTALLED ABOVE THE DEDICATED ELECTRICAL SPACE SHALL BE ALLOWED WHERE DRIP PANS ARE INSTALLED TO CAPTURE LEAKS, RUPTURES OR CONDENSATION DRIPS. THE PIPING AND DRIP PANS SHALL BOTH BE OUTSIDE THE DEDICATED SPACE ENVELOPE.
3. WORK SPACE SHALL BE PROVIDED AT ALL EQUIPMENT UNDER 600V REQUIRING ACCESS INCLUDING BUT NOT LIMITED TO PANELS, DISCONNECTS, STARTERS, CONTROL PANELS INTEGRATED INTO HVAC/PLUMBING/FP EQUIPMENT, ETC.
4. NO EQUIPMENT SHALL PROTRUDE INTO THE WORK SPACE.
5. WORK SPACE DEPTH BASED UPON NEC TABLE 110.26(A)(1) CONDITION 2 150V TO GROUND.

NV5 ELECTRICAL WORK AND DEDICATED SPACE — E213



N.T.S.

NV5 DEMOLITION DETAIL ABANDONED CONDUIT WITHIN HOUSEKEEPING PAD — E211

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REVISIONS

▲	DATE	CHK	DESCRIPTION

SEAL

PROJECT

NUMBER 0220195

DATE 04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY JHW

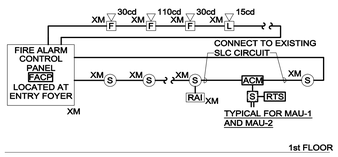
CHECKED BY MVM

SCALE N.T.S

TOWN HALL & ANNEX
ELECTRICAL
DETAILS

E4.0

#:\BURLINGTON\Projects\0220195 - Burlington Town Hall Annex HVAC, Roof, and Chiller\Drawings\Revit Files\Electrical\Plan Files\0220195 - E4.0 ELECTRICAL DETAILS.dwg, [Plan-1], April 26, 2024 - 9:17pm, Marvin McDonald



NOTES:

1. 1THIS DRAWING IS INTENDED TO ILLUSTRATE MAJOR EQUIPMENT AND THE INTENDED INTERCONNECTIONS. REFER TO THE FLOOR PLANS FOR EXACT LOCATIONS AND QUANTITIES OF DEVICES. REFER TO THE MANUFACTURER'S WIRING DIAGRAMS FOR INTERCONNECTION REQUIREMENTS. INTERCONNECTION DETAILS SHALL BE INCLUDED IN THE SHOP DRAWINGS WITH COMPONENT CUT SHEETS FOR REVIEW AND APPROVAL.
2. ALL FINAL CONNECTIONS INTO THE EXISTING FIRE ALARM SYSTEM SHALL BE PERFORMED BY THE OWNER'S FIRE ALARM MAINTENANCE CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL CARRY ALL ASSOCIATED COSTS FOR FINAL CONNECTION AND ASSOCIATED TESTING.
3. ALL NEW FIRE ALARM DEVICES SHALL MATCH EXISTING MANUFACTURER AND BE CROSSED LISTED FOR CONNECTION TO THE EXISTING SYSTEM.
4. EXISTING SMOKE DETECTORS, PULL STATIONS, AUDIO/VISUAL DEVICES, HEAT DETECTORS, ETC. WITHIN THE BUILDING SHALL BE MAINTAINED, UNLESS OTHERWISE NOTED. DEVICES IDENTIFIED FOR REMOVAL SHALL BE RETAINED UNTIL NEW SYSTEM OPERATIONAL AND APPROVED. PROVIDE CONTROL MODULES, WIRING, PROGRAMMING OF SYSTEM AS REQUIRED TO MAINTAIN SYSTEM OPERATION OF EXISTING DEVICES. REPROGRAM SYSTEM AND MODIFY EXISTING ANNUNCIATOR(S) TO ACCOMMODATE THE NEW DEVICES AND FUNCTIONS.
5. FIRE ALARM SYSTEM MODIFICATION SHALL BE IN CONFORMANCE WITH THE LATEST FIRE DEPARTMENT RULES AND REGULATIONS.

NV5 | TYPICAL FIRE ALARM RISER WITH A/V POWER BOOSTER | E801

FIRE ALARM LEGEND

FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
S ||	DUCT MOUNTED SMOKE DETECTOR
RTS	REMOTE TEST STATION
ACM	INDIVIDUAL ADDRESSABLE CONTROL MODULE
ZMM	ZONE MONITORING MODULE
SER	FIRE ALARM SMOKE DETECTOR, PHOTO ELECTRIC UNLESS NOTED OTHERWISE "ER" INDICATES ELEVATOR RECALL "SC" INDICATES SELF-CONTAINED, SINGLE STATION TYPE

FIRE ALARM PERMIT SUBMISSION NOTES

1. REFERENCE TO NFPA 72 ARE TO THE 2013 EDITION IN ACCORDANCE WITH 780 CMR.
2. THIS DRAWING CONSTITUTES THE TIER ONE FLOOR PLAN SUBMISSION IN ACCORDANCE WITH THE MA STATE BUILDING CODE 780CMR 901.2.1.1. THESE REQUIREMENTS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   a. FLOOR PLAN ILLUSTRATING ALL ROOM USES.
   b. LOCATION OF ALL INITIATING DEVICES.
   c. LOCATION OF ALL FIRE ALARM CONTROL PANELS AND ANNUNCIATORS.
3. THE INSTALLING CONTRACTOR IS RESPONSIBLE FOR THE DEVELOPMENT AND SUBMISSION OF THE REQUIRED TIER TWO SHOP DRAWINGS IN ACCORDANCE WITH 780CMR 907.1.2. TIER TWO SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND BE OF SUFFICIENT QUALITY TO BE APPROVED PRIOR TO THE CONTRACTORS SUBMISSION TO THE AHJ FOR PERMIT.
4. NFPA 72 AND 780CMR 907.1.2 TIER TWO SHOP DRAWING REQUIREMENTS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   a. NAME, LICENSE NUMBER AND LICENSE EXPIRATION DATE OF THE INSTALLING CONTRACTOR.
   b. RISER DIAGRAM WITH ALL DEVICES, INTERCONNECTING WIRING AND CIRCUITING INTENT.
   c. MANUFACTURER'S CUT SHEETS FOR ALL DEVICES AND MATERIALS.
   d. THE ACTUAL BUILDING FA SEQUENCE OF OPERATIONS OBTAINED FROM THE OWNER'S FA MAINTENANCE CONTRACTOR
   e. FLOOR PLANS DERIVED FROM THE TIER ONE SUBMISSION PLANS WITH THE FOLLOWING INFORMATION MODIFIED/ADDED:
   i. ACAD PLANS WILL BE MADE AVAILABLE FOR THE CONTRACTORS USE INCLUDING ALL TIER ONE INFORMATION IN ACCORDANCE WITH THE CONTRACTUAL REQUIREMENTS. THE DOCUMENT SHALL CLEARLY INDICATE THE CONTRACTOR'S OWNERSHIP OF ILLUSTRATED INFORMATION.
   ii. CONDUIT ROUTING AND CONDUCTOR TYPE AND COUNT BETWEEN ALL DEVICES ILLUSTRATING INSTALLATION INTENT. WHERE REQUIRED BY THE RISER AND/OR SPECIFICATIONS, CLEARLY ILLUSTRATE CLASS A SEPARATIONS.
   iii. INITIATING DEVICE ADDRESSES WHERE MANUFACTURER CAN APPLY THEM PRIOR TO INSTALLATION ON THE SLC.
5. NFPA 72 AND 780CMR 907.1.2.1.3 72 TIER THREE RECORD DRAWINGS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   a. AS-BUILT PLANS DERIVED FROM THE TIER TWO FLOOR PLANS ILLUSTRATING INSTALLED CONDITIONS, DEVICE ADDRESSES, FINAL TAP SETTINGS AND AUDIBLE AMBIENT AND TEST DB READINGS THROUGHOUT THE SPACE.
   b. WRITTEN VERSION OF SEQUENCE OF OPERATION SHALL BE INCLUDED.
   c. O&M MANUAL PER NFPA 72 REQUIREMENTS.
   d. SYSTEM RECORD OF COMPLETION FORM PER NFPA 72 FIGURES 7.8.2(a) THRU (f) SECTIONS AS APPLICABLE TO THE PROJECT SCOPE.
   e. SYSTEM RECORD OF INSPECTION AND TESTING FORM PER NFPA 72 FIGURE 7.8.2(g) THRU (i) SECTIONS AS APPLICABLE TO THE PROJECT SCOPE.
   f. CONFIRMATION THAT A RECORD COPY OF THE SITE SPECIFIC SOFTWARE HAS BEEN DELIVERED TO THE OWNER'S REPRESENTATIVE.

ABBREVIATIONS

A/AMP	AMPERE	KWH	KILOWATT HOURS
AC	ALTERNATING CURRENT	LTG	LIGHTING
ADA	AMERICAN WITH DISABILITIES ACT	MCB	MAIN CIRCUIT BREAKER
AF	AMPERE FRAME	MEC	MASSACHUSETTS ELECTRICAL CODE
AFF	ABOVE FINISHED FLOOR	M/G	MOTOR/GENERATOR SET
AFG	ABOVE FINISHED GRADE	MH	MANHOLE
AIC	AMPERE INTERRUPTING CAPACITY	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MTD	MOUNTED
AT	AMPERE TRIP	MTG	MOUNTING
ATS	AUTOMATIC TRANSFER SWITCH	NC	NORMALLY CLOSED CONTACT
AWG	AMERICAN WIRE GAUGE	NEC	NATIONAL ELECTRICAL CODE
B	BURIED	NO	NORMALLY OPEN CONTACT
C	CONDUIT	NTS	NOT TO SCALE
CA	CABLE	#	NUMBER
CATV	CABLE TELEVISION	OPD	OVER CURRENT PROTECTION DEVICE
CCTV	CLOSED CIRCUIT TELEVISION SYSTEM	POS	PROVIDED UNDER OTHER SECTIONS
CB	CIRCUIT BREAKER	PVC	POLYVINYL CHLORIDE
CKT	CIRCUITS	PWR	POWER
CPU	CENTRAL PROCESSING UNIT	RGS	RIGID GALVANIZED STEEL
℄	CENTERLINE	RMS	ROOT MEAN SQUARE VALUE
dB	DECIBEL	RPM	REVOLUTIONS PER MINUTE
DC	DIRECT CURRENT	SPD	SURGE PROTECTIVE DEVICE
DWG	DRAWING	SN	SOLID NEUTRAL
EC	ELECTRICAL CONTRACTOR	SWBD	SWITCHBOARD
EMT	ELECTRIC METALLIC TUBING	TB	TERMINAL BLOCK
FDR	FEEDER	TEL	TELEPHONE
FLMT	FLEXIBLE LIQUID TIGHT METALLIC TUBING	TERMN	TERMINAL
FREQ	FREQUENCY	TSP	TWISTED SHIELDED-PAIR
GEC	GROUNDING ELECTRODE CONDUCTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
GFI	GROUND FAULT INTERRUPTING	TYP	TYPICAL
GND	GROUND	UG	UNDERGROUND
HH	HANDHOLE	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	UTP	UNSHIELDED TWISTED-PAIR
HZ	HERTZ	V	VOLTS
IG	ISOLATED GROUND	VA	VOLT-AMPERE
JB	JUNCTION BOX	VSD	VARIABLE SPEED DRIVE
KVA	KILOVOLT-AMPERE	W	WATTS
KW	KILOWATT	WP	WEATHERPROOF

EXISTING EQUIPMENT LEGEND

XM	EXISTING EQUIPMENT TO REMAIN
X	EXISTING EQUIPMENT TO BE REMOVED
XR	EXISTING EQUIPMENT TO BE RELOCATED
XN	NEW LOCATION OF EXISTING RELOCATED EQUIPMENT
NR	EXISTING EQUIPMENT TO BE REMOVED AND NEW EQUIPMENT TO BE INSTALLED ON EXISTING BRANCH/FEEDER
	EXISTING EQUIPMENT FOR INFORMATION ONLY- INDICATED BY SYMBOL WITH LIGHT AND OUT OF FUNCTION LINE TYPE
	EXISTING EQUIPMENT TO BE REWORKED- INDICATED BY SYMBOL WITH DASHED AND IN FUNCTION LINE TYPE

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PROJECT

NUMBER 0220195

DATE 04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY JHW

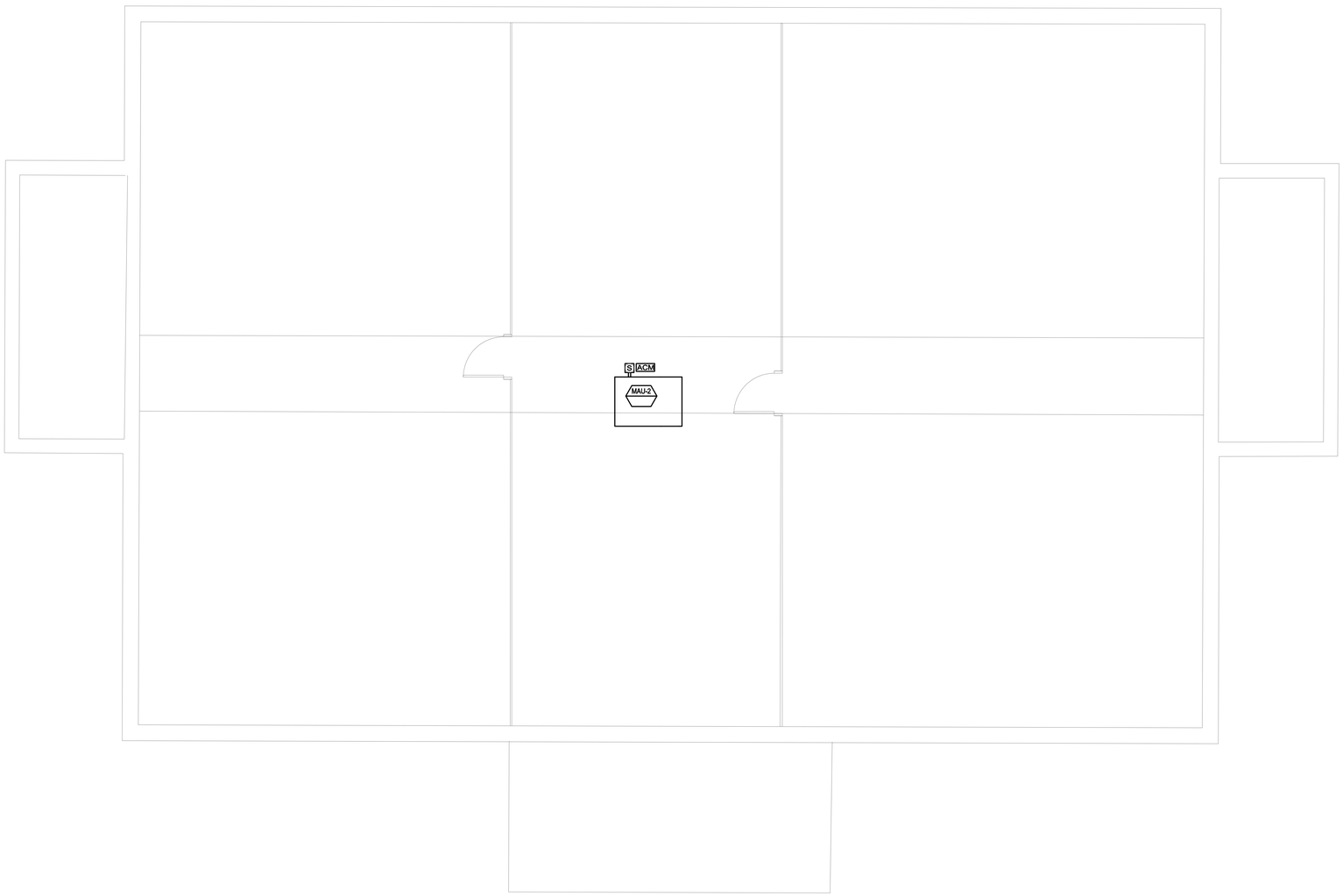
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SCALE 1/4" = 1'-0"

TOWN HALL & ANNEX
FIRE ALARM
LEGEND, NOTES AND
ABBREVIATIONS &
RISER DIAGRAM

FA0.0

C:\Users\jwilliams\Documents\0220195 - Burlington Town Hall Annex HVAC Roof\0220195_FA0.0 FIRE ALARM LEGEND & RISER DIAGRAM.dwg, Dec 7, Jun 20, 2024 - 9:19pm, Marvin McDonald



FIRE ALARM ATTIC
NEW WORK PLAN
SCALE: 1/4"=1'-0"

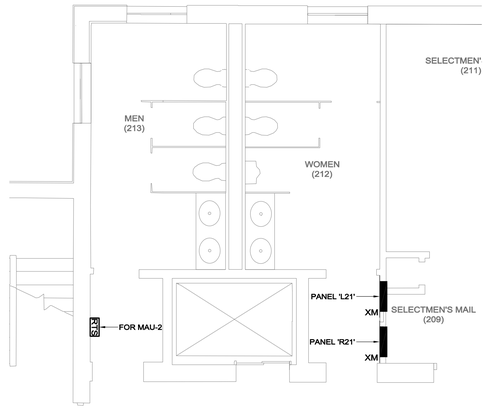
NOTES:

1. REFER TO DRAWING FA0.00 FOR LEGEND, SYMBOLS, AND GENERAL NOTES.

2. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT.

3. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.

4. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.



SECOND FLOOR TOWN HALL
PART PLAN
SCALE: 1/4"=1'-0"

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0220195

DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

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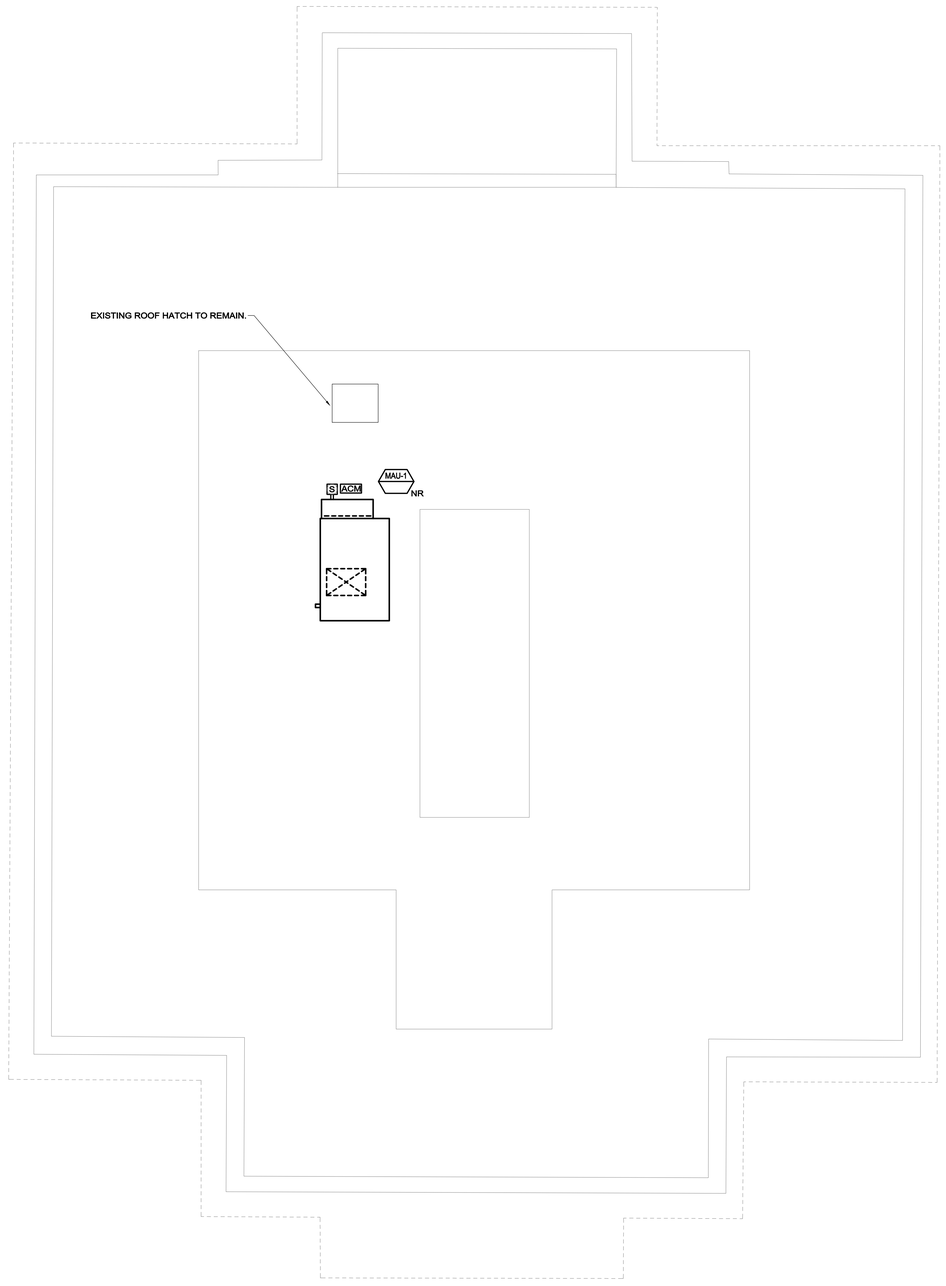
SCALE
1/4" = 1'-0"

TOWN HALL
FIRE ALARM
ATTIC
NEW WORK PLAN

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

FA1.3

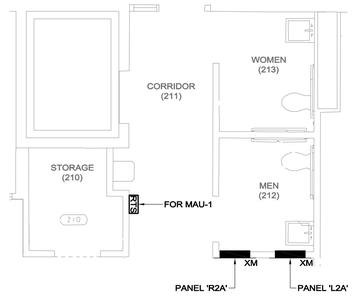
\\BURDFS\Projects\0220\0220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\500 Electrical\Revit Files\0220195 FA1.3 FIRE ALARM TOWN HALL ATTIC NEW WORK.rvt [Print] April 09, 2024 - 8:06am Marvin McDonnell



ELECTRICAL ROOF
NEW WORK PLAN
SCALE: 1/4"=1'-0"

NOTES:

1. REFER TO DRAWING FA0.00 FOR LEGEND, SYMBOLS, AND GENERAL NOTES.
2. FIRE ALARM BRANCH CIRCUITRY SHALL BE INSTALLED IN CONDUIT.
3. JUNCTION BOX COVERS AND CONDUIT COUPLINGS FOR ALL FIRE ALARM WIRING RACEWAYS SHALL BE PAINTED RED PRIOR TO INSTALLATION.
4. MAINTAIN CONTINUITY OF BRANCH CIRCUITRY ASSOCIATED WITH ALL EXISTING FIRE ALARM DEVICES TO REMAIN.



SECOND FLOOR ANNEX
PART PLAN
SCALE: 1/4"=1'-0"

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DATE
04/12/2024

BURLINGTON
TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

DRAWN BY
JHW

CHECKED BY
MVM

SCALE
1/4" = 1'-0"

ANNEX
FIRE ALARM
ROOF
NEW WORK PLAN

1/4" = 1' - 0"

0 4' 8'

FA2.4

#:\BURLINGTON\0220195\0220195 - Burlington Town Hall Annex HVAC Roof\500 Drawings\500 Electrical\Dwg Files\0220195 FA2.4 FIRE ALARM ANNEX ROOF PLAN - NEW WORK.dwg [Tom] Jun 05, 2024 - 8:35pm Mark McDonnell

GENERAL

G1 STRUCTURAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE, NINTH EDITION.

G2 CONTRACTOR SHALL EXAMINE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR VERIFICATION OF LOCATION AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, WASHES, DRIPS, REVEALS, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.

G3. IN THE CONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS), WHERE THERE IS A CONFLICT BETWEEN A GENERAL REQUIREMENT (GENERAL NOTES, TYPICAL DETAILS, ETC.) AND A SPECIFIC REQUIREMENT (PLAN, SECTION, ETC.). THE SPECIFIC REQUIREMENT SHALL BE APPLICABLE. WHERE, IN A SPECIFIC CASE, DIFFERENT SPECIFIC REQUIREMENTS INDICATE INCONSISTENT MATERIALS, METHODS OF CONSTRUCTION OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE SHALL GOVERN.

G4 CONTRACTOR SHALL VERIFY DIMENSIONS OF EXISTING STRUCTURE PRIOR TO FABRICATION AND CONSTRUCTION.

G5 OPENINGS IN SLABS AND WALLS LESS THAN 12 INCHES IN DIAMETER ARE GENERALLY NOT SHOWN. OPENINGS SHOWN ON STRUCTURAL DRAWINGS SHALL NOT BE REVISED WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.

G6 OPENINGS IN SLABS, WALLS AND ROOF DECK IN ADDITION TO THOSE SHOWN ON STRUCTURAL DRAWINGS SHALL BE INCORPORATED IN THE WORK AS REQUIRED BY THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING CONTRACT DOCUMENTS.

G7 FOR INSERTS AND DETAILS FOR ELEVATOR EQUIPMENT REFER TO ARCHITECTURAL AND ELEVATOR MANUFACTURER'S DRAWINGS.

G8 DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR THE MOST NEARLY SIMILAR SITUATION AS DETERMINED BY THE ENGINEER.

G9 UNLESS SHOWN, NOTED OR REQUIRED ELSEWHERE IN CONTRACT DOCUMENTS, REQUIREMENTS NOTED BELOW SHALL APPLY. UNLESS ADDRESSES ARE CALLED OUT SPECIFICALLY, THE FOLLOWING REQUIREMENTS SHALL APPLY TO BOTH BUILDINGS.

EXISTING AND TEMPORARY CONDITIONS

EC1 NOTIFY ENGINEER WHEN IN COURSE OF CONSTRUCTION OR DEMOLITION UNANTICIPATED OR OTHERWISE QUESTIONABLE CONDITIONS ARE UNCOVERED.

EC2 INFORMATION REGARDING EXISTING CONSTRUCTION OR CONDITIONS ARE BASED ON AVAILABLE INFORMATION WHICH MAY OR MAY NOT TRULY REFLECT EXISTING CONDITIONS. SUCH INFORMATION IS INCLUDED ON ASSUMPTION THAT IT MAY BE USEFUL TO THE CONTRACTOR, BUT ENGINEER ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY OR COMPLETENESS.

EC3 VERIFY ALL DIMENSIONS AND CONDITIONS AT PROJECT SITE. DISCREPANCIES SHALL BE BROUGHT IMMEDIATELY TO ATTENTION OF ENGINEER BEFORE PROCEEDING WITH AFFECTED WORK.

EC4 WHERE NEW WORK WILL BE ADJACENT TO EXISTING CONSTRUCTION, VERIFY AND/OR FIELD MEASURE DIMENSIONS OF EXISTING CONSTRUCTION PRIOR TO FABRICATION OF NEW MEMBERS.

EC5 UNDERPINNING, TEMPORARY SHORING OR BRACING WHERE REQUIRED SHALL BE DESIGNED, ERECTED, SUPPORTED, BRACED AND MAINTAINED BY CONTRACTOR TO SAFELY SUPPORT ALL LOADS PRESENTLY CARRIED BY EXISTING STRUCTURAL WORK BEING MODIFIED OR REMOVED PLUS ANY CONSTRUCTION LIVE LOADS.

EC6 IN AREAS WHERE ALL STRUCTURAL ELEMENTS IN THE LOAD PATH HAVE BEEN COMPLETED TO THE FINAL CONDITION REQUIRED BY CONTRACT DOCUMENTS, CONSTRUCTION LOADS SHALL BE LIMITED TO THE DESIGN LIVE LOADS. IN INCOMPLETE AREAS, OR UN-RENOVATED AREAS OF EXISTING CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE STRUCTURAL MEMBER SIZES, AND RETAIN A LICENSED PROFESSIONAL ENGINEER TO EVALUATE THE CONSTRUCTION LOAD CARRYING CAPACITY OF THE EXISTING STRUCTURE.

EC7 PROVIDE ALL LABOR AND MATERIAL FOR ANY FRAMING REQUIRED TO CONNECT NEW FRAMING TO EXISTING CONSTRUCTION. WHEREVER IT IS NECESSARY TO REMOVE EXISTING CONSTRUCTION IN ORDER TO CONSTRUCT NEW WORK, THE AFFECTED AREA SHALL BE PATCHED AND REBUILT TO MATCH EXISTING ADJACENT WORK TO THE SATISFACTION OF THE ARCHITECT AND/OR ENGINEER.

EC8 ALTERATIONS OR MODIFICATIONS NOT INDICATED ON THE DRAWINGS SHALL BE APPROVED BY THE ENGINEER IN WRITING BEFORE SUCH WORK IS INITIATED. THE ENGINEER SHALL INSPECT ALL STRUCTURAL ELEMENTS TO ASSURE COMPLIANCE WITH THE CONTRACT DOCUMENTS AND THE STRUCTURAL INTEGRITY OF THE BUILDING BEFORE SUCH ELEMENTS ARE ENCLOSED. EXISTING STRUCTURAL DEFICIENCIES NOT INDICATED ON THE DRAWINGS OR EXPOSED DURING CONSTRUCTION SHALL BE CORRECTED AS DIRECTED BY THE ARCHITECT AND/OR ENGINEER.

EC9 NOTIFY ENGINEER OF ANY CONTEMPLATED STRUCTURAL ALTERATION IN REASONABLE TIME TO RENDER AND DOCUMENT HIS DECISION.

EC10 IN AREAS NOTED TO BE OPEN FOR OBSERVATION BY THE ENGINEER, THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL FINISHES AND COVERINGS AS NECESSARY TO EXPOSE THE STRUCTURE FOR VIEW. THE CONTRACTOR SHALL LEAVE THE ENGINEER ADEQUATE TIME TO OBSERVE THE EXPOSED STRUCTURE AND ISSUE DIRECTION ON REMEDIAL WORK. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING AND REINSTALLING REMOVED FINISHES AFTER OBSERVATION AND REMEDIAL WORK IS COMPLETED.

EC11 STRUCTURAL COMPONENTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED.

EC12 EXISTING CONCRETE AND MASONRY STRUCTURE IN A DAMAGED CONDITION (AS DETERMINED BY THE ENGINEER) MUST BE REPLACED.

STRUCTURAL WOOD

W1 WOOD CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" AND ITS SUPPLEMENT BY AMERICAN WOOD COUNCIL.

W2 STRUCTURAL WOOD SHALL BE IDENTIFIED BY THE GRADE MARK OF, OR CERTIFICATE OF INSPECTION ISSUED BY, A GRADING OR INSPECTION BUREAU OR AGENCY RECOGNIZED AS BEING COMPETENT.

W3 STRUCTURAL WOOD SHALL BE VISUALLY STRESS-GRADED IN ACCORDANCE WITH ASTM D245, "METHODS FOR ESTABLISHING STRUCTURAL GRADES AND RELATED ALLOWABLE PROPERTIES FOR VISUALLY GRADED LUMBER."

W4 MATERIALS SHALL BE HANDLED AND COVERED TO PREVENT DAMAGE AND MOISTURE ABSORPTION FROM SNOW OR RAIN.

W5 STRUCTURAL LUMBER SHALL BE KILN DRIED AND HAVE MOISTURE CONTENT OF MINIMUM 7% AND MAXIMUM 19%. SEE SPECIFICATIONS FOR DETAIL REQUIREMENTS ON PRODUCTS.

W6 ALL WOOD FRAMING EXPOSED TO WEATHER SHALL BE PRESERVATIVE PRESSURE TREATED SOUTHERN PINE NO.2 OR BETTER.

W7 ALL STRUCTURAL WOOD SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES AND SHALL HAVE MATERIAL CERTIFICATES & GRADE STAMPS ATTESTING THEREOF (UNITS IN PSI UNLESS OTHERWISE NOTED):

LOCATION OF USE	Fb	Ft	Fv	Fc PAR.	Fc PERP.	E KSI
CONVENTIONAL WOOD JOISTS/RAFTERS/ LINTELS (SPF #1)	875	450	135	1150	425	1400
TRUSS CHORD/WEB RENFORCEMENT (SPF #1)	875	450	135	1150	425	1400
WALL TOP AND BOTTOM PLATES (SYP #1)	1500	1000	175	1650	565	1600

W8 ALL LUMBER AND PLYWOOD NOTED ON THE CONTRACT DOCUMENTS AS FIRE RETARDANT TREATED (F.R.T.) SHALL BE TREATED IN ACCORDANCE WITH THE "AMERICAN WOOD PRESERVES ASSOCIATION, STANDARDS C20 AND C27" AND EACH PIECE SHALL BEAR A U.L. LABEL INDICATING SUCH TREATMENT. FIRE RETARDANT TREATED LUMBER SHALL BE DESIGNED WITH THE FOLLOWING REDUCTION FACTORS:

A.	MODULUS OF ELASTICITY (E)	0.96
B.	FLEXURAL STRESS (Fb)	0.89
C.	COMPRESSION PERPENDICULAR (Fe)	0.88
D.	TENSION PARALLEL (Ft)	0.86
E.	SHEAR PARALLEL (Fv)	0.90

W9 ALL WOOD FRAMING SHALL BE FASTENED IN ACCORDANCE WITH THE FASTENING SCHEDULE IN TABLE 2304.10.1. OF THE IBC OR AS INDICATED IN CONTRACT DRAWINGS, THE MORE STRINGENT SHALL APPLY. WALL AND DIAPHRAGM ASSEMBLIES SHALL BE FASTENED IN ACCORDANCE WITH NOTES ON CONTRACT DRAWINGS. NAILS FASTENING SHEATHING TO SUPPORTING MEMBERS SHALL BE DRIVEN SO THAT THE NAIL HEAD IS FLUSH WITH THE SHEATHING SURFACE.

W10 CUTTING, NOTCHING AND BORING SHALL BE AVOIDED WHEREVER POSSIBLE. WHEN ABSOLUTELY NECESSARY, CUTTING, NOTCHING AND BORING OF STRUCTURAL FRAMING AND LOAD BEARING ASSEMBLIES SHALL BE LIMITED BY THE PROVISION OF SECTION 2308 OF IBC, 2015:

A.	FLOOR FRAMING	2308.8.4.2.4 AND 2308.4.3
B.	WALL FRAMING	2308.5.9 AND 2308.5.10
C.	ROOF/CEILING FRAMING	2308.7.4

DESIGN LOADS (FOR NEW CONSTRUCTION):

1. ROOF LOADS
   - A. SNOW: MASSACHUSETTS STATE BUILDING CODE, 9th EDITION
     SNOW LOAD: Pg=55 PSF, Pf=35 PSF + DRIFT
   - B. MECHANICAL UNITS: AS INDICATED
   - C. ROOFING AND INSULATION: 5 PSF
   - D. PV PANELS: AS PROVIDED BY PV DESIGNER, SEE TRUSS DESIGN NOTES
   - E. SERVICES & CEILING: 10 PSF
   - STRUCTURE: ACTUAL WEIGHTS OF MATERIALS

2. FLOOR LOADS:
   - A. LIVE LOADS:
     - ATTIC LEVEL: 20 PSF
     - PUBLIC AREA: 100 PSF
     - STAIRS AND CORRIDORS: 100 PSF
     - DWELLING UNITS: 40 PSF
     - ROOF DECK: 100 PSF
   - B. PARTITIONS: 5 PSF
   - C. UTILITIES: 5 PSF
   - D. CEILINGS: 5 PSF (10 SPF AT PARKING)
   - E. PONDING: 7 PSF (15 PSF EXTERIOR)
   - F. STRUCTURE: ACTUAL WEIGHTS OF MATERIALS

3. WIND LOADS
   MASSACHUSETTS STATE BUILDING CODE, 9th EDITION, ASCE 7-10
   BASIC WIND SPEED, V_{ULT}=125 MPH FOR RISK CATEGORY II
   EXPOSURE CATEGORY: B

WIND LOADS - COMPONENTS & CLADDING (PSF) (ULTIMATE LOADS, MULTIPLY BY 0.6 TO OBTAIN ALLOWABLE LOADS)							
HEIGHT(FT)	LOAD CASE	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5
ROOF	1 2	-44.2 +16.0	-66.4 +16.0	-90.5 +16.0	-28.9 +28.9	-53.0 +28.9

NOTES:
1. COMPONENTS AND CLADDING WIND LOADS ARE PROVIDED FOR REFERENCE ONLY. ONLY A REGISTERED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR DESIGNING COMPONENTS AND CLADDING IN ACCORDANCE WITH THE WIND LOADS FROM APPLICABLE BUILDING CODES
2. LOAD AND ZONE DEFINITION ARE BASED ON ASCE 7-10, CHAPTER 30 PART 4.
3. PRESSURES ARE SHOWN FOR AN EFFECTIVE WIND AREA OF 10 SF.
4. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY.

STRUCTURAL TESTING AND INSPECTION:

1. STRUCTURAL TESTING AND INSPECTION SHALL BE PERFORMED ACCORDING TO THE PROGRAM OF STRUCTURAL TESTS AND INSPECTIONS AS REQUIRED BY THE CHAPTER 17 OF THE MASSACHUSETTS STATE BUILDING CODE.

2. THE STRUCTURAL TESTING AND INSPECTION SHALL BE PERFORMED BY A TESTING AGENCY EMPLOYED BY THE OWNER. THE TESTING AGENCY SHALL BE LICENSED IN THE STATE OF MASSACHUSETTS. THE TESTING AND INSPECTION WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE OF MASSACHUSETTS.

3. THE OWNER SHALL ENSURE THAT TESTING AGENCY IS PROVIDED WITH THE LATEST CONTRACT DOCUMENTS.

4. THE CONTRACTOR SHALL COORDINATE THE SCHEDULING OF TESTING AND INSPECTION WITH THE OWNER AND THE SER PRIOR TO COMMENCEMENT OF CONSTRUCTION.

5. THE CONTRACTOR IS OBLIGATED TO MAKE CORRECTIONS ON THE NONCOMPLIANT MATERIAL AND/OR CONSTRUCTION ONCE THEY ARE DISCOVERED, EVEN IF THE SCHEDULED TESTS AND INSPECTIONS FAILED TO DETECT THEM.

6. THE CONTRACTOR SHALL NOTIFY THE SER MINIMUM THREE DAYS PRIOR TO COVERING THE STRUCTURAL COMPONENTS AND CONNECTIONS, INCLUDING, BUT ARE NOT LIMITED TO: WOOD BEARING WALL ASSEMBLIES, STRUCTURAL STEEL FRAMING, METAL DECK, CONCRETE SLAB AND CONCRETE FOUNDATION (FRAMED CONCRETE SLAB, GRADE BEAMS AND PILE CAPS) REINFORCEMENT.

ABBREVIATION	FULL WORD
ADDL	ADDITIONAL
ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ARCH	ARCHITECT or ARCHITECURAL
AWS	AMERICAN WELDING SOCIETY
AB	ANCHOR BOLT
@	AT
BM	BEAM
BRG	BEARING
BETWN	BETWEEN
BOT	BOTTOM
BEW	BOTTOM EACH WAY
B.F.	BRACED FRAME
BS	BOTH SIDES
C	CAMBER
CANT'L	CANTILEVER
CL	CENTER LINE
CO	CLEAN OUT
CLR	CLEAR
COL	COLUMN
CS	COLUMN STARTS
CT	COLUMN TERMINATES
COMP	COMPOSITE
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONN	CONNECTION
CONST	CONSTRUCTION
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS
CJ	CONTROL JOINT
C.P.	CENTER POINT
DET	DETAIL
DIA	DIAMETER
DWG	DRAWING
EA	EACH
F	EACH FACE
ES	EACH SIDE
EW	EACH WAY
EL	ELEVATION
ELEV	ELEVATOR
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
(Ex)	EXISTING
EXP BLT	EXPANSION BOLT
EXP JT	EXPANSION JOINT
FIN	FINISH
FIN FL	FINISH FLOOR
FL	FLOOR
FTG	FOOTING
FDN	FOUNDATION
FF	FAR FACE
FRT	FIRE RETARDANT TREATED
GALV	GALVANIZED
GA	GAGE
GEN	GENERAL
GR	GRADE
GB	GRADE BEAM
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HP	HIGH POINT
HEF	HORIZONTAL EACH FACE
INV	INVERT
JT	JOINT
K	KIP (1,000 POUNDS)
LG	LONG
LWC	LIGHT WEIGHT CONCRETE
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LW	LONG WAY
LP	LOW POINT
MANUF	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
M.F.	MOMENT FRAME
MIN	MINIMUM
MISC	MISCELLANEOUS
NF	NEAR FACE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
NO or #	NUMBER
OC	ON CENTER
OH	OPPOSITE HAND
OPNG	OPENING
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
SCHED	SCHEDULE
SER	STRUCTURAL ENGINEER OF RECORD
SC	SHEAR CONNECTOR
SIM	SIMILAR
SOG	SLAB ON GRADE
SPECS	SPECIFICATIONS
STD	STANDARD
STL	STEEL
SF	STEP FOOTING
STIFF	STIFFENER
STRUCT	STRUCTURAL
SW	SHORT WAY
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VEF	VERTICAL EACH FACE
VIF	VERTICAL INSIDE FACE
VOF	VERTICAL OUTSIDE FACE
W/	WITH
W/O	WITHOUT
W BEAM	WIDE FLANGE (STEEL) BEAM
WWF	WELDED WIRE FABRIC

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TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

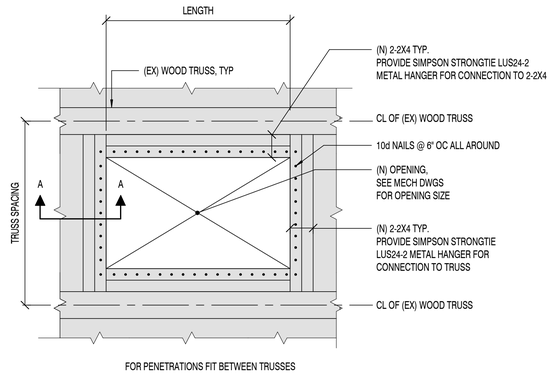
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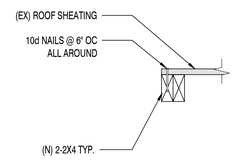
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GENERAL NOTES AND ABBREVIATIONS

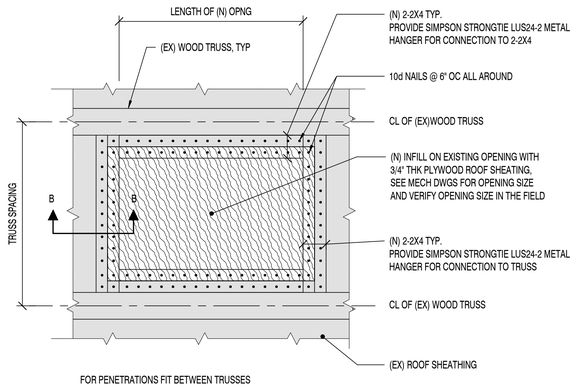
S-001

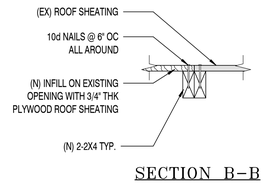




SECTION A–A

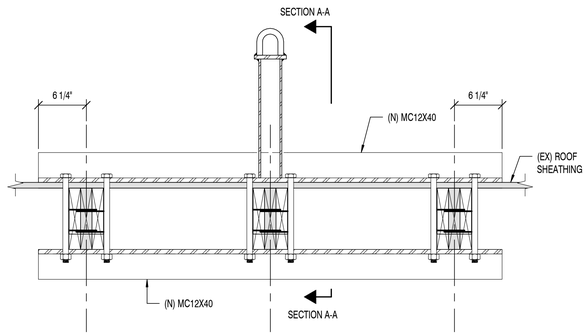
1 ROOF FRAMING AT NEW ROOF OPENINGS





SECTION B–B

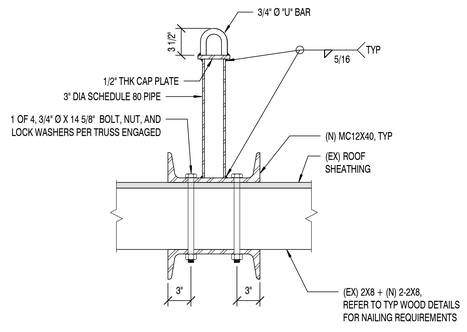
2 ROOF FRAMING AT EXISTING ROOF SHEATHING INFILL



NOTES:

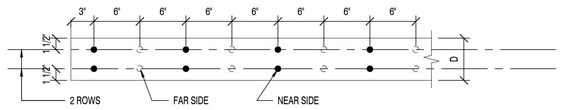
1) MC CHANNELS SHALL ENGAGE A MINIMUM OF 3 TRUSSES TOP CHORDS

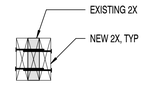
2) COORDINATE LOCATION OF ROOF DAVIT WITH ARCHITECTURAL DRAWINGS



SECTION A–A

4 ROOF DAVIT DETAIL

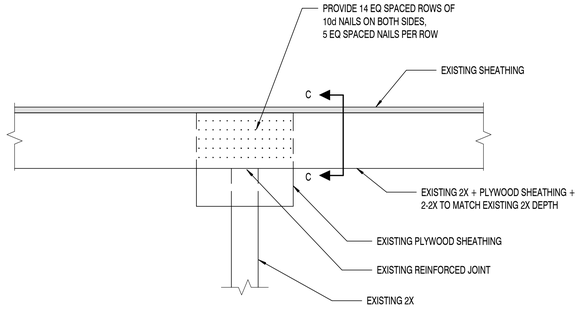


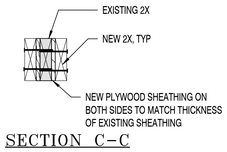


3 PLY

NOTES:
1. PROVIDE ALTERNATE NAILING FROM NEAR & FAR SIDE AS SHOWN
2. USE 16d NAILS.

3 REINFORCEMENT OF EXISTING DIMENSIONAL LUMBER





SECTION C–C

5 ADDITIONAL REINFORCEMENT OF EXISTING REINFORCED JOINTS IN TOWN HALL TRUSSES

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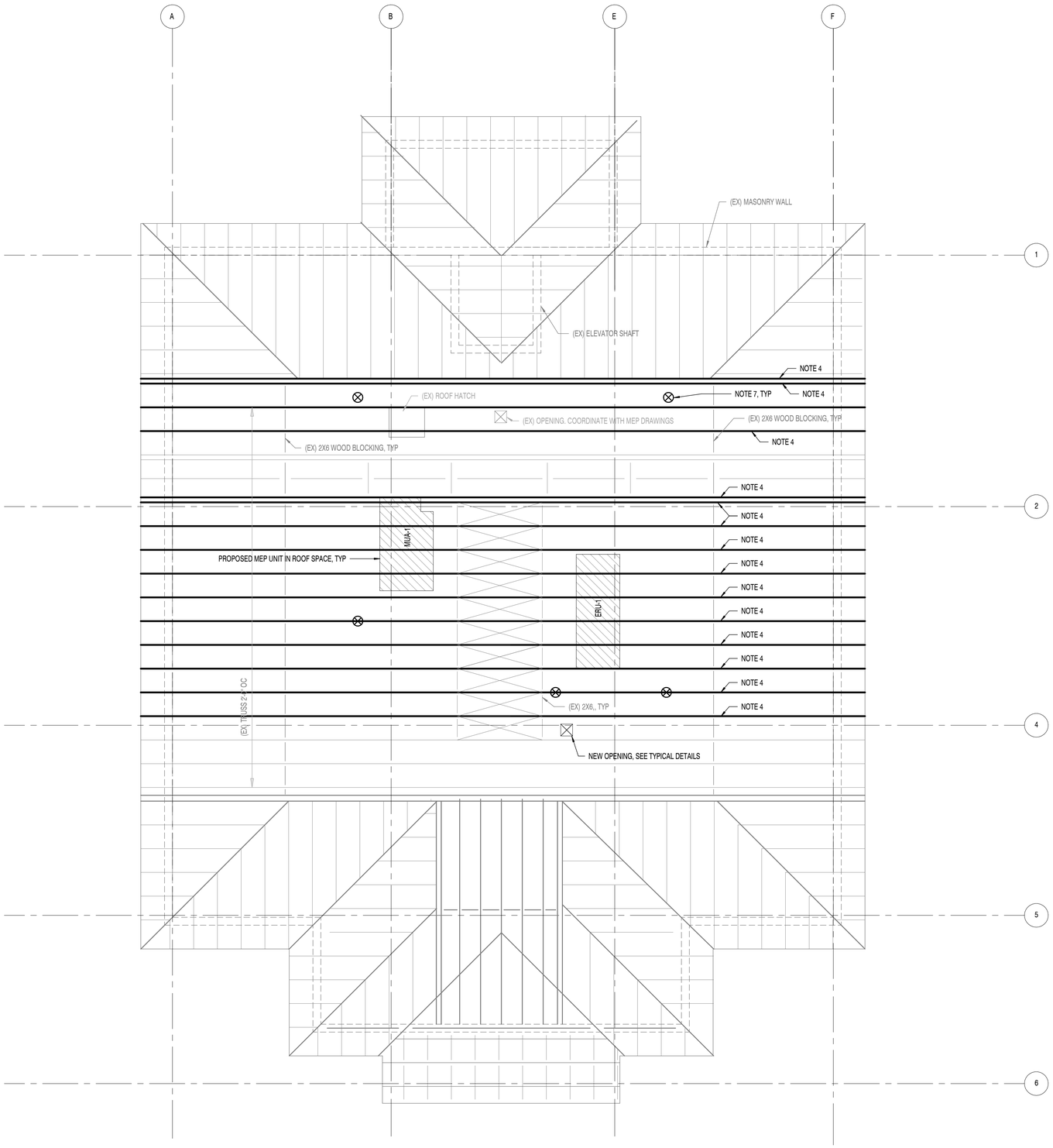
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TYPICAL WOOD DETAILS

S-002



1 ANNEX ROOF PLAN
1/4" = 1'-0"

NOTES:

1) FOR GENERAL NOTES AND ABBREVIATIONS SEE DRAWINGS S-001.
FOR TYPICAL DETAILS SEE DRAWINGS S-002

2) ALL DIMENSIONS SHOWN IN PLAN AND ELEVATIONS SHOULD BE VERIFIED IN FIELD.

3) PROVIDE CONTINUOUS CURB PERPENDICULAR TO ROOF JOISTS FOR ALL ROOF TOP EQUIPMENT.
POST SUPPORTED DUNNAGE FRAME IS NOT PERMITTED.
COORDINATE FINAL LOCATION, WEIGHT AND LAYOUT OF EQUIPMENT WITH MEP DWGS.

4) REINFORCE EXISTING TRUSS. SEE SHEET S-200 FOR NEW WORK ON TRUSSES.

5) MUA-1 AND ERU-1 INDICATE ROOF TOP UNITS. COORDINATE SIZE AND LOCATION WITH MEP DWGS.
MUA-1 HAS AN OPERATING UNIT WEIGHT OF 390 LBS
ERU-1 HAS AN OPERATING UNIT WEIGHT OF 890 LBS

6) SEE TYPICAL WOOD DETAILS FOR ADDITIONAL ON NEW OPENINGS OR EXISTING OPENING INFILLS ON ROOF LEVEL.

7) ⊗ DENOTES ROOF ANCHORS. COORDINATE LOCATION WITH MEP DRAWINGS. SEE DETAIL 4/S-002.

8) NOTE ON EQUIPMENT SUPPORT: STRUCTURAL SUPPORTS ARE PROVIDED FOR THE SPECIFIC EQUIPMENT WITH OPERATING WEIGHT NOTED IN THIS DRAWING. NOTIFY ENGINEER IF EQUIPMENT SELECTIONS OR WEIGHTS HAVE CHANGED PRIOR TO SUBMISSION OF SHOP DRAWINGS. COORDINATE EXACT LOCATION AND SUPPORT DIMENSIONS WITH SELECTED EQUIPMENT PROVIDER.

9) WHERE EXISTING BRIDGING MEMBERS ARE IN CONFLICT WITH NEW WORK RELOCATE EXISTING MEMBERS ACCORDINGLY.

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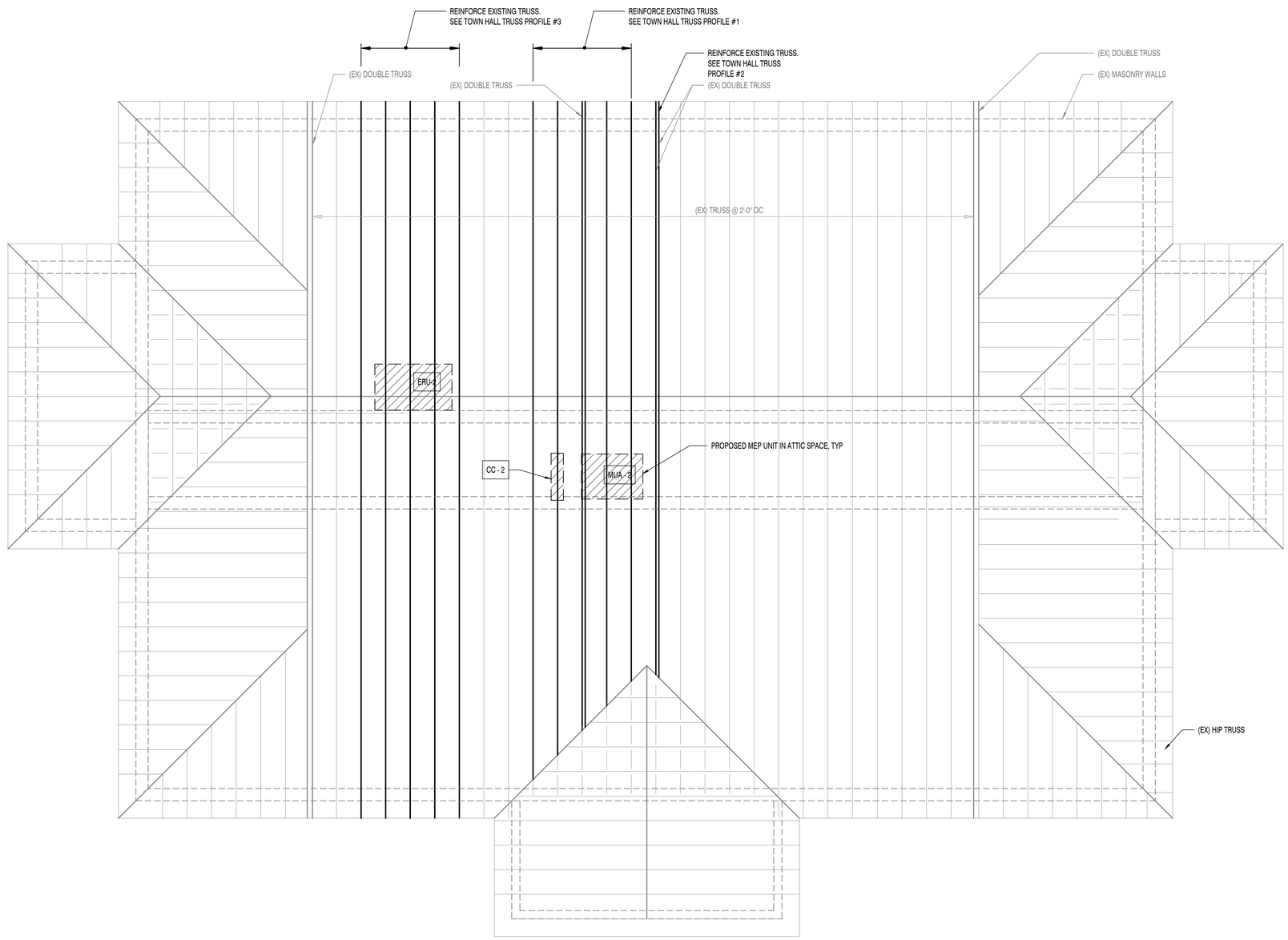
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ANNEX ROOF FRAMING PLAN

S-100A



1 TOWN HALL ROOF PLAN
1/4" = 1'-0"

NOTES:

1) FOR GENERAL NOTES AND ABBREVIATIONS SEE DRAWINGS S-001.
FOR TYPICAL DETAILS SEE DRAWINGS S-002

2) ALL DIMENSIONS SHOWN IN PLAN AND ELEVATIONS SHOULD BE VERIFIED IN FIELD.

3) SEE TYPICAL WOOD DETAILS FOR ADDITIONAL ON NEW OPENINGS OR EXISTING OPENING INFILLS ON ROOF LEVEL.

4) CC-2, ERU-2, & MUA-2 INDICATE MEP UNITS AT ATTIC. COORDINATE SIZE AND LOCATION WITH MEP DWGS.
CC-2 HAS AN OPERATING UNIT WEIGHT OF 335 LBS
ERU-2 HAS AN OPERATING UNIT WEIGHT OF 565 LBS
MUA-2 HAS AN OPERATING UNIT WEIGHT OF 490 LBS

5) NOTE ON EQUIPMENT SUPPORT: STRUCTURAL SUPPORTS ARE PROVIDED FOR THE SPECIFIC EQUIPMENT WITH OPERATING WEIGHT NOTED IN THIS DRAWING. NOTIFY ENGINEER IF EQUIPMENT SELECTIONS OR WEIGHTS HAVE CHANGED PRIOR TO SUBMISSION OF SHOP DRAWINGS. COORDINATE EXACT LOCATION AND SUPPORT DIMENSIONS WITH SELECTED EQUIPMENT PROVIDER.

9) WHERE EXISTING BRIDGING MEMBERS ARE IN CONFLICT WITH NEW WORK RELOCATE EXISTING MEMBERS ACCORDINGLY

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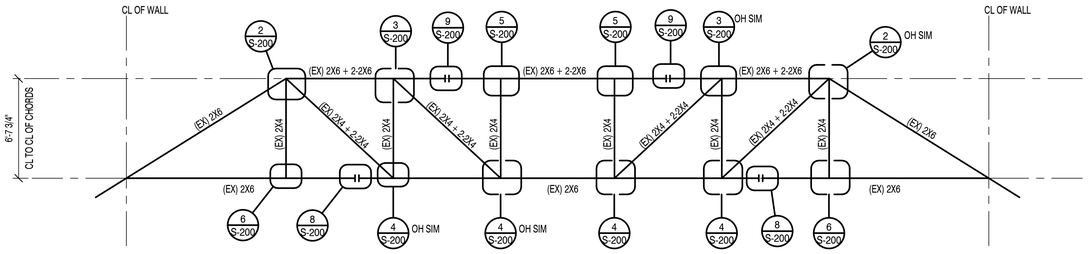
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TOWN HALL ROOF PLAN

S-100TH



1 ANNEX BUILDING TRUSS PROFILE

NOTES:

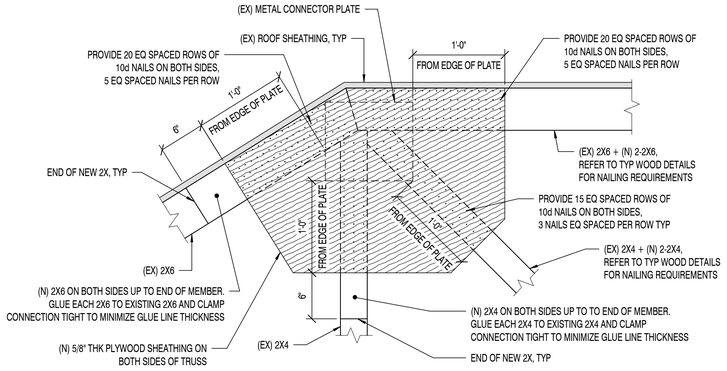
1) FOR GENERAL NOTES AND ABBREVIATIONS SEE DRAWINGS S-001.

2) REMOVE ANY LOOSE OR DAMAGED TRUSS PLATES WHERE APPLICABLE

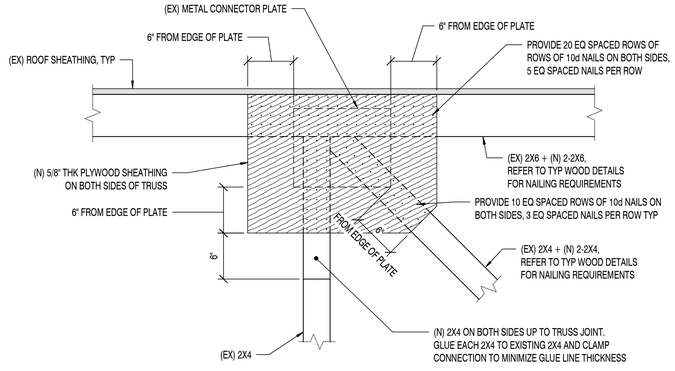
3) REMOVE ANY EXISTING 2X BLOCKING ALONG RIDGE WHERE TRUSS REINFORCEMENT IS BEING PERFORMED. DO NOT REMOVE ENTIRE LINE OF BLOCKING, ONLY REMOVE TWO SIDES AT A TIME. REPLACE IN KIND ANY EXISTING 2X BLOCKING THAT WAS REMOVED AFTER OSB SHEATHING HAS BEEN FULLY INSTALLED ON EACH SIDE.

4) COMPLETELY COAT OSB/TRUSS INTERFACE WITH CONSTRUCTION ADHESIVE WITH A MINIMUM SHEAR STRENGTH OF 500 PSI (BASED ON LIQUID NAILS EXTREME HEAVY DUTY, OR APPROVED EQUAL). CLAMP CONNECTION TIGHT ONCE BOTH SHEETS OF OSB HAVE BEEN INSTALLED TO MINIMIZE GLUE LINE THICKNESS.

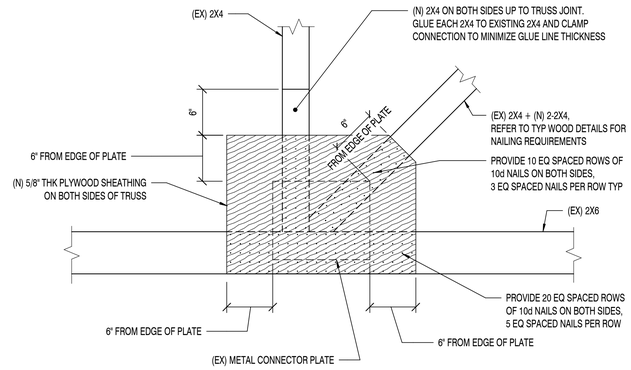
5) IMMEDIATELY AFTER APPLYING ADHESIVE AND OSB, INSTALL NAILS CALLED OUT ON APPLICABLE DETAIL.



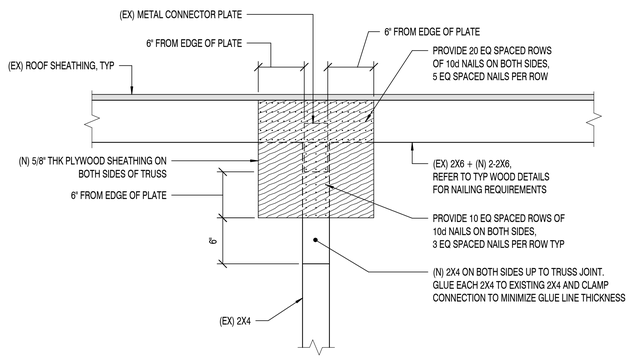
2 DETAIL



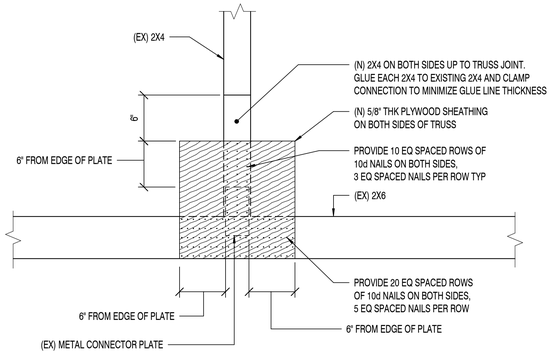
3 DETAIL



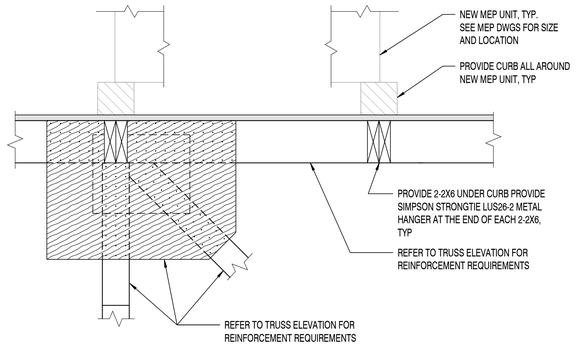
4 DETAIL



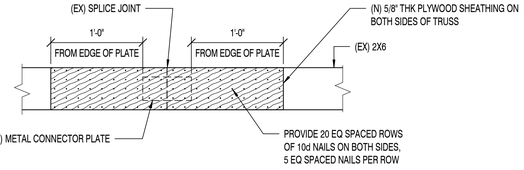
5 DETAIL



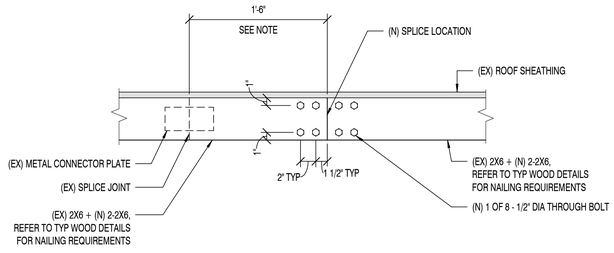
6 DETAIL



7 DETAIL



8 DETAIL



NOTE: NEW SPLICE POINT MAY OCCUR ON OPPOSITE SIDE ("LEFT SIDE") OF EXISTING SPLICE IN CASE THERE ARE ANY OBSTRUCTIONS AT SPECIFIED LOCATION

9 DETAIL

0 1' 2' 4'

NV5

200 Brickstone Square
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PROJECT

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TOWN HALL & ANNEX
HVAC, ROOF, AND
CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

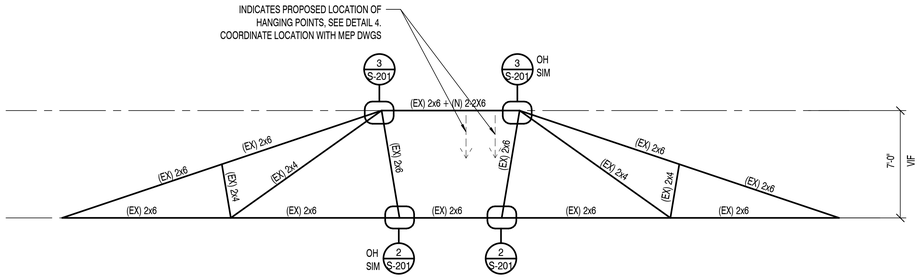
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CHECKED BY
PPG

SCALE
AS NOTED

ANNEX BUILDING TRUSS PROFILE

S-200



1 TOWN HALL TRUSS PROFILE #1

NOTES:

1) FOR GENERAL NOTES AND ABBREVIATIONS SEE DRAWINGS S-001.
FOR TYPICAL DETAILS SEE S-002.

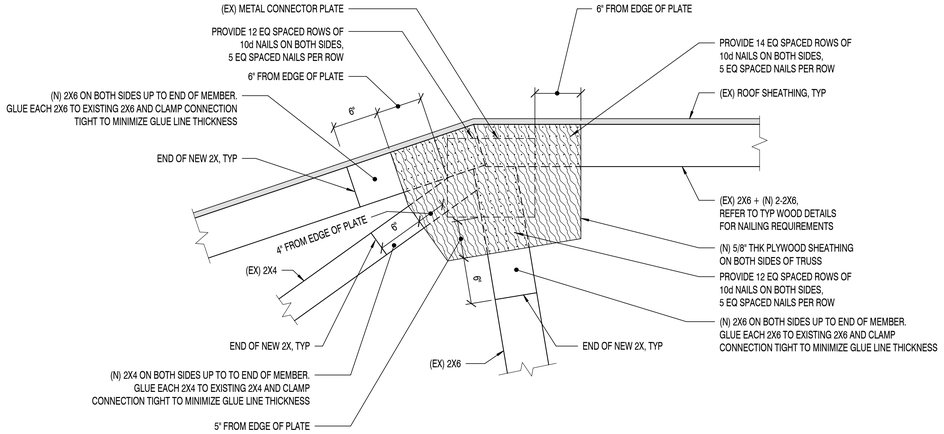
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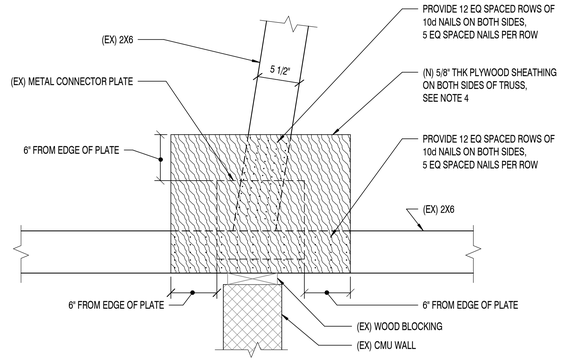
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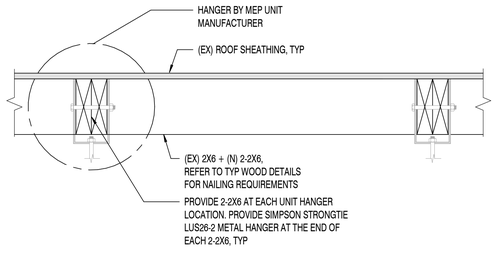
6) SEE TYPICAL WOOD DETAIL 5/S-002 IN THE CONDITION THAT EXISTING JOINTS HAVE BEEN PREVIOUSLY REINFORCED.



3 DETAIL



2 DETAIL



TYPICAL DETAIL AT HANGER LOCATION WHEN
HANGER DOES NOT ATTACH TRUSS TOP CHORD

4 DETAIL

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TOWN HALL & ANNEX
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CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

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FB

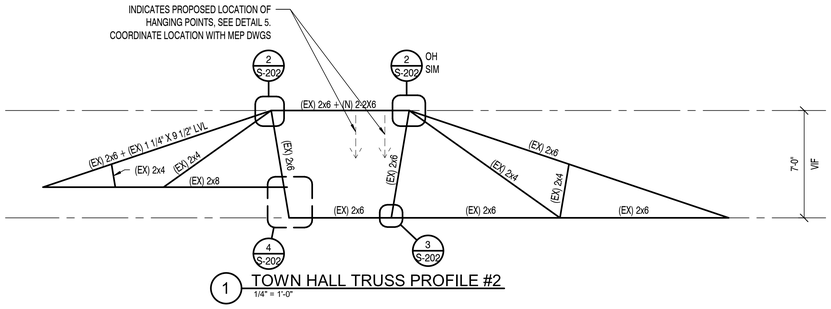
CHECKED BY
PPG

SCALE
AS NOTED

TOWN HALL BUILDING
TRUSS PROFILE #1

S-201

0 1' 2' 4'



1 TOWN HALL TRUSS PROFILE #2

1/4" = 1'-0"

NOTES:

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FOR TYPICAL DETAILS SEE S-002.

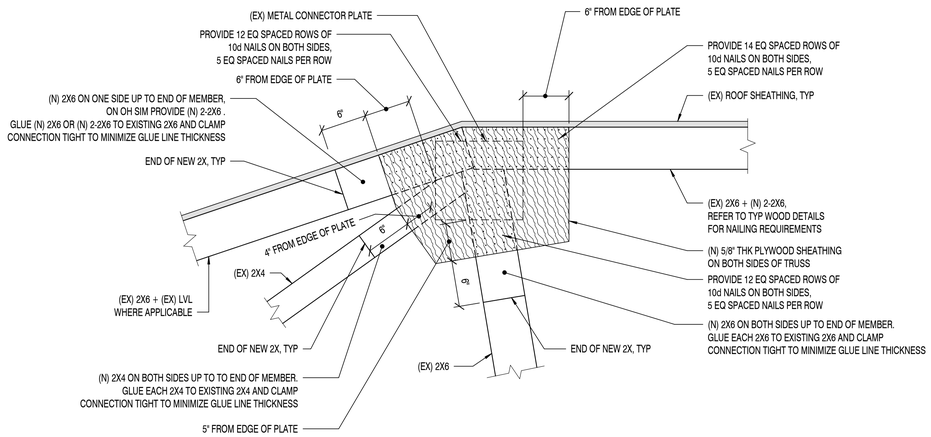
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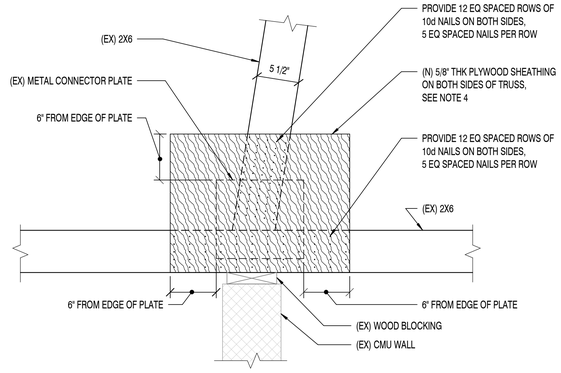
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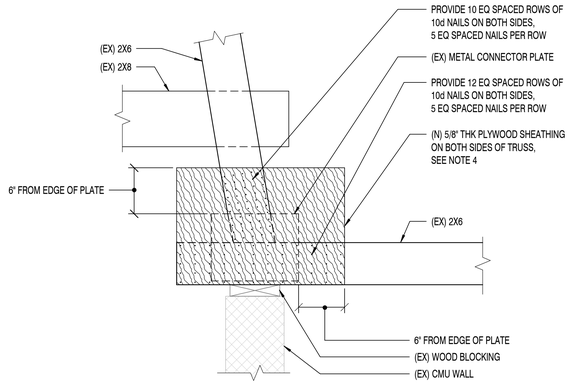
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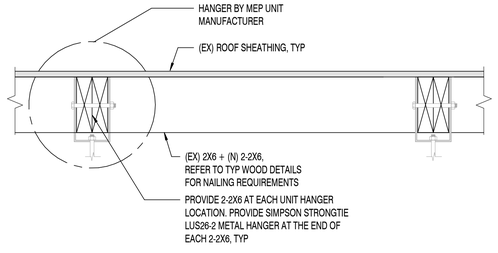
2 DETAIL



3 DETAIL



4 DETAIL



TYPICAL DETAIL AT HANGER LOCATION WHEN HANGER DOES NOT ATTACH TRUSS TOP CHORD

5 DETAIL

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CHILLER REPLACEMENT
29/25 CENTER STREET
BURLINGTON, MA 01803

DRAWING

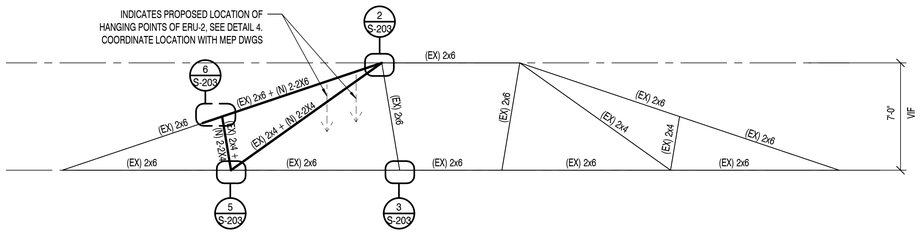
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PPG

SCALE
AS NOTED

TOWN HALL BUILDING
TRUSS PROFILE #2

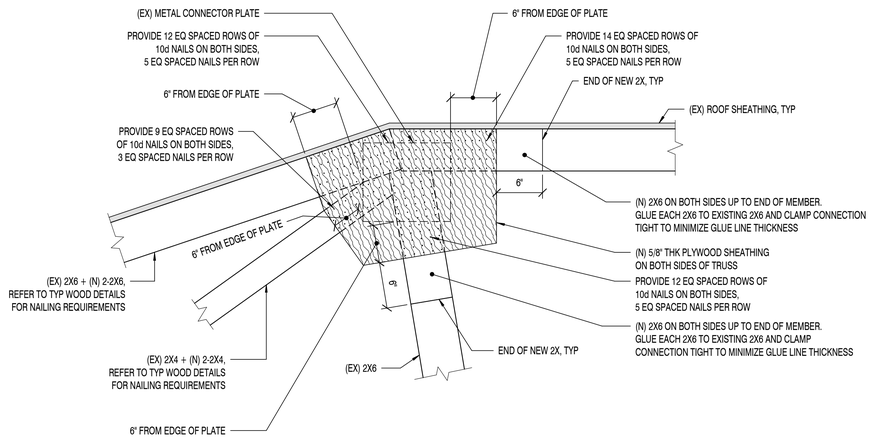
S-202



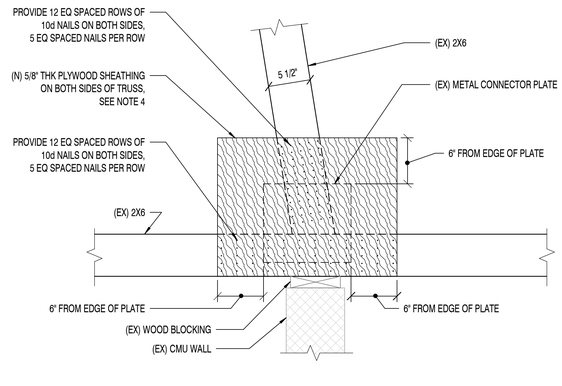
1 TOWN HALL TRUSS PROFILE #3
1/4" = 1'-0"

NOTES:

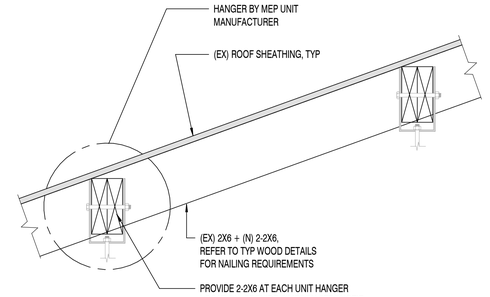
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2 DETAIL
1 1/2" = 1'-0"

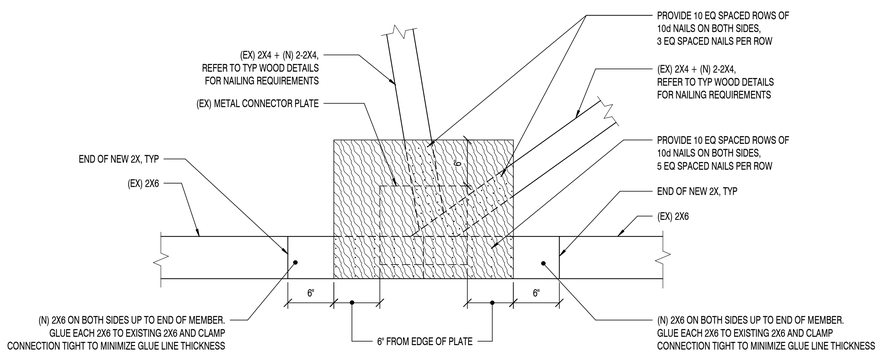


3 DETAIL
1 1/2" = 1'-0"

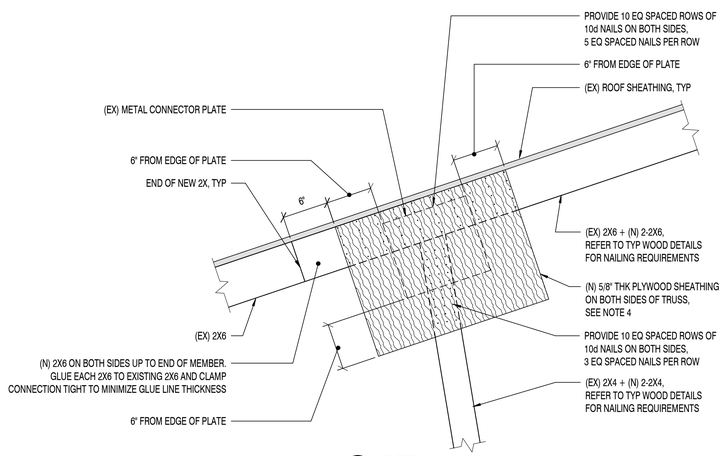


TYPICAL DETAIL AT HANGER LOCATION OF ERU-2

4 DETAIL
1 1/2" = 1'-0"



5 DETAIL
1 1/2" = 1'-0"



6 DETAIL
1 1/2" = 1'-0"

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TOWN HALL BUILDING
TRUSS PROFILE #3

S-203