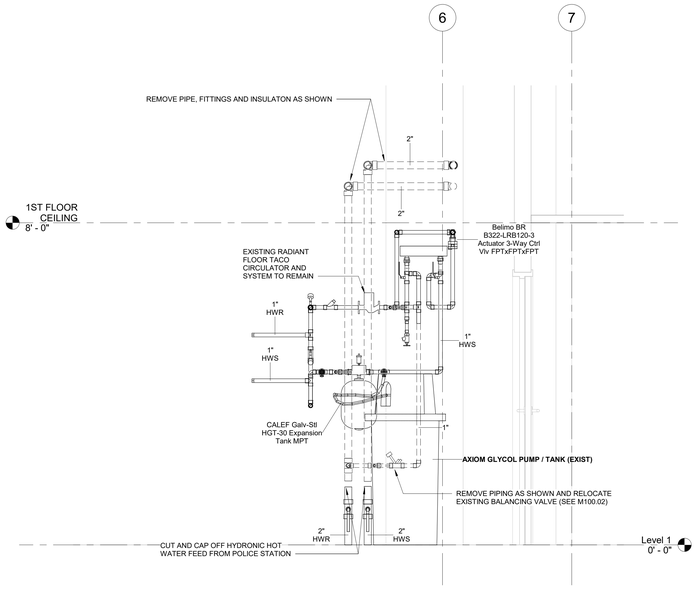
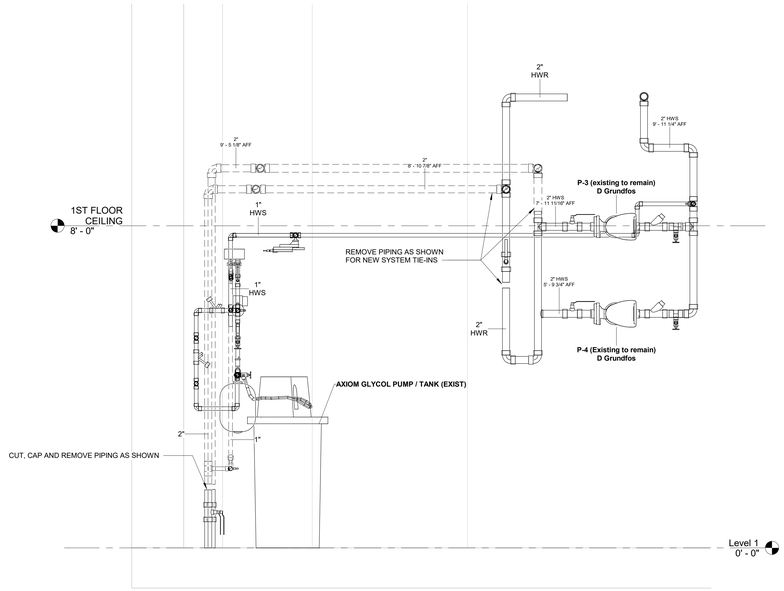
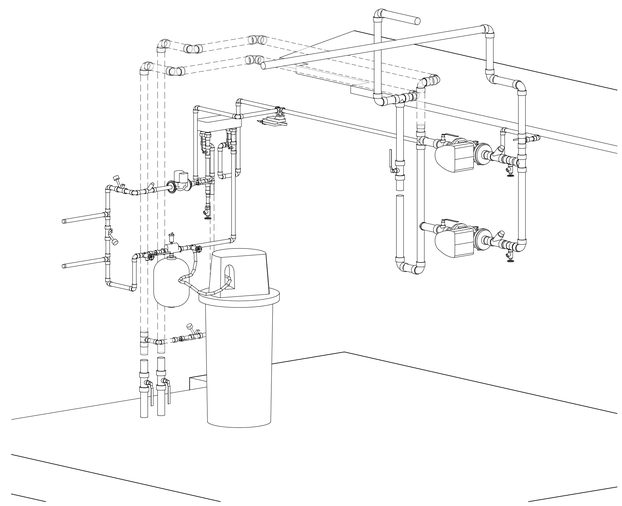


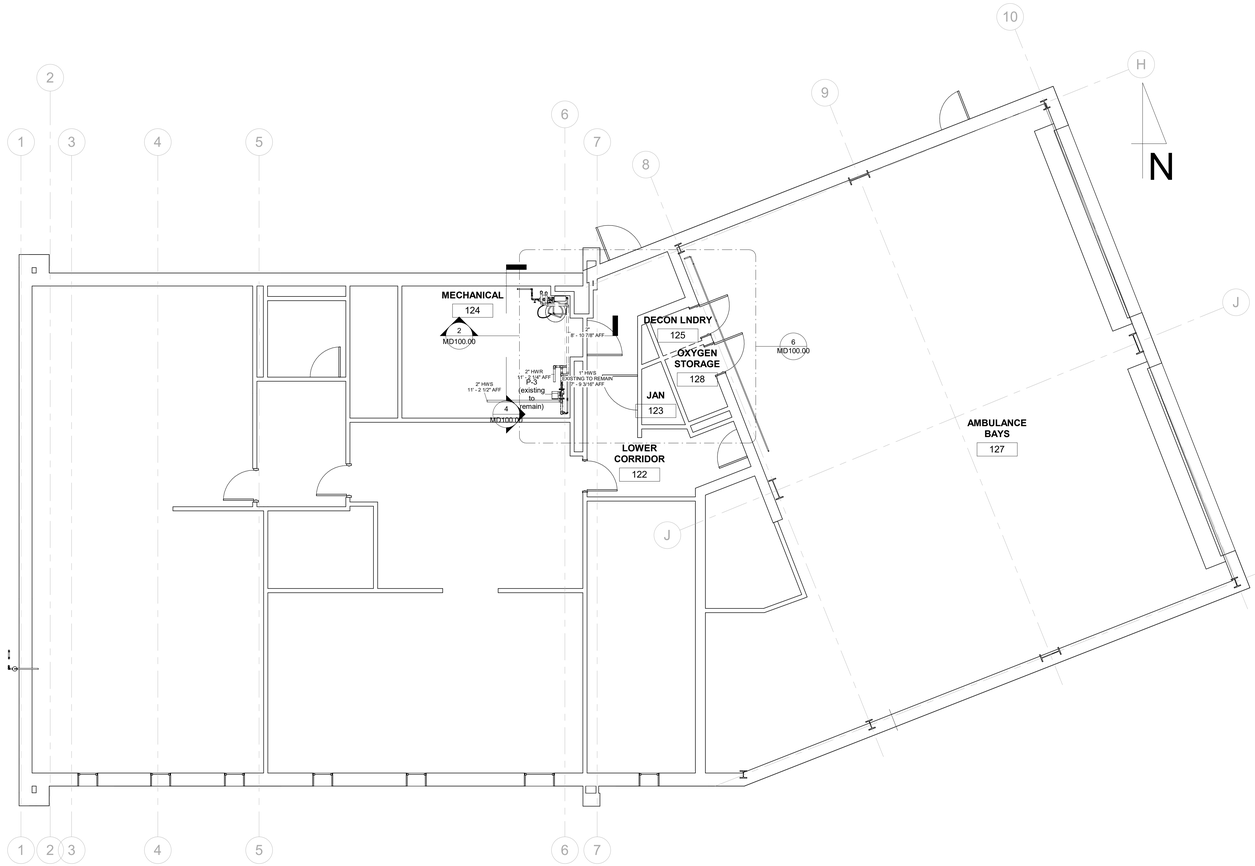
2 EXISTING MECH ROOM NORTH
3/4" = 1'-0"



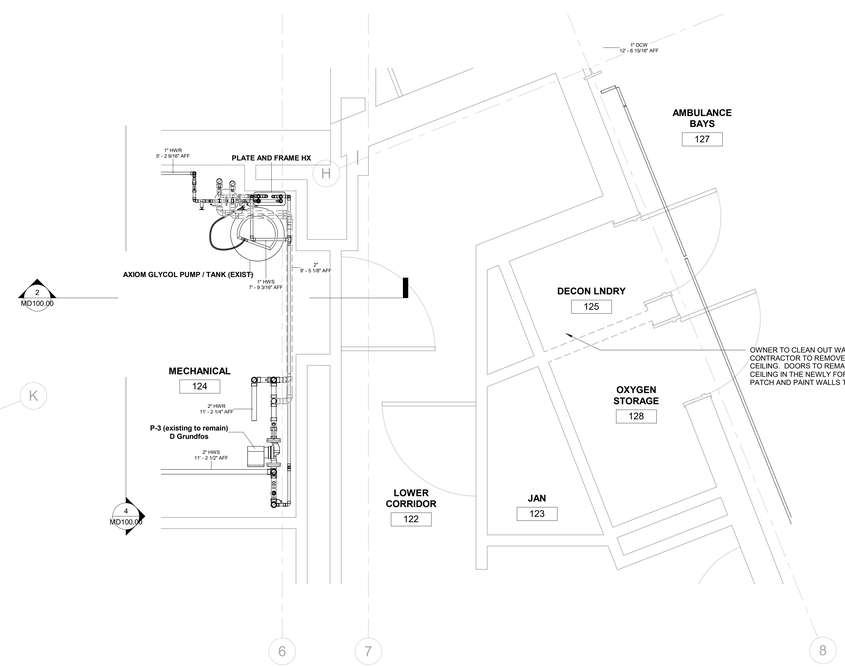
4 EXISTING MECH ROOM EAST
3/4" = 1'-0"



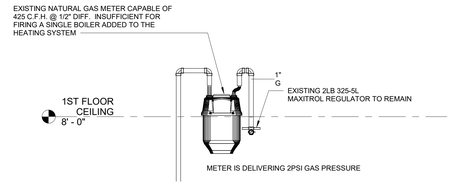
5 EXISTING 3D



1 FIRST FLOOR MECHANICAL Existing
3/16" = 1'-0"



6 FIRST FLOOR MECHANICAL Existing - Callout 1
1/2" = 1'-0"



3 EXISTING GAS METER
3/4" = 1'-0"

EASTERN MECHANICAL SERVICES
3 Starr Street, Danbury, CT 06810
Ph. 203.792.7668
www.emsinc.us

NOTES:

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No.	Description	Date
1	SHOP DRAWING FOR REVIEW	5/24/2022

TOWN OF NEW CANAAN

EMS BUILDING BOILER PLAN

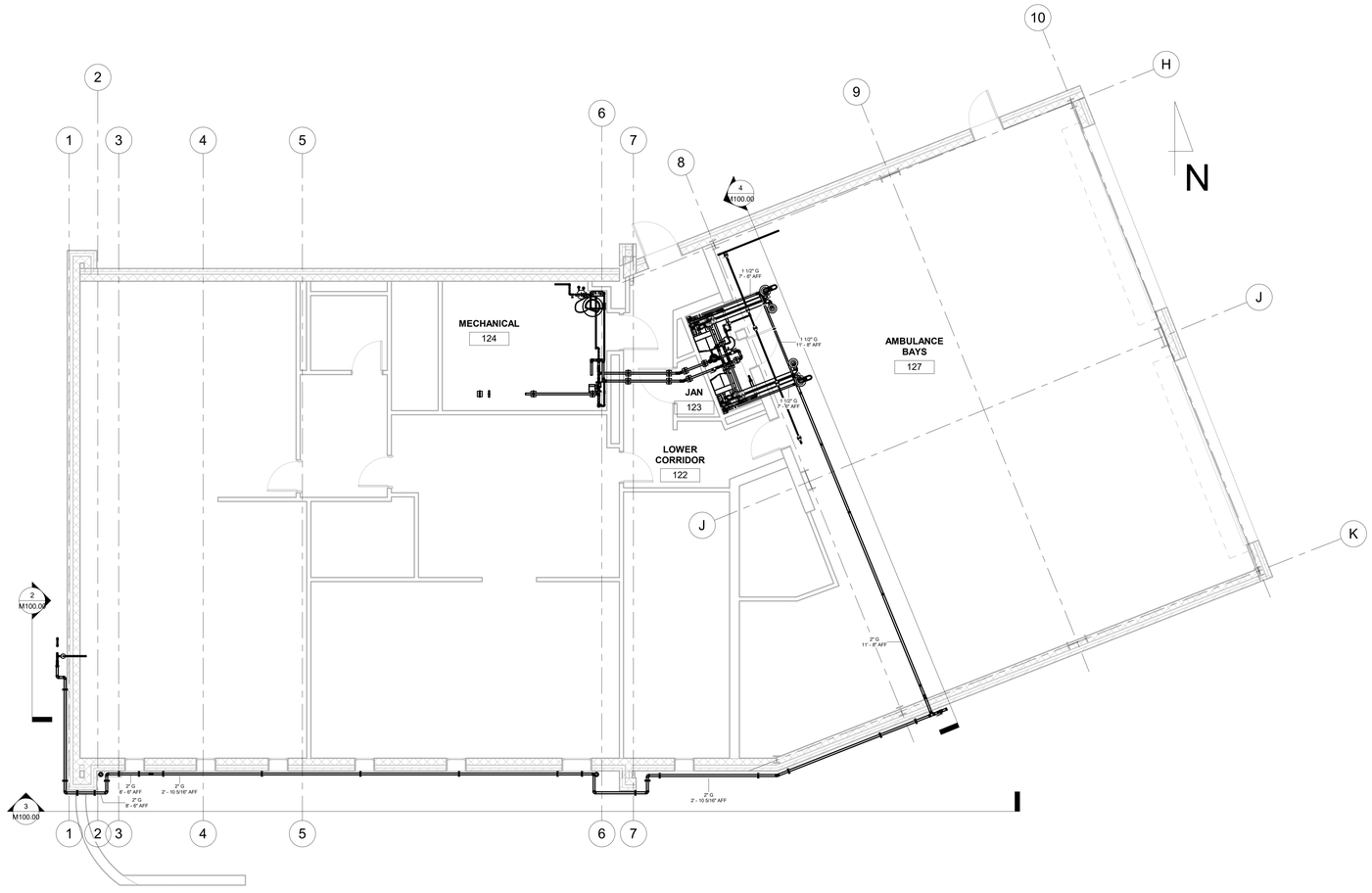
182 SOUTH AVE
NEW CANAAN, CT 06840

EXISTING DEMO PLAN

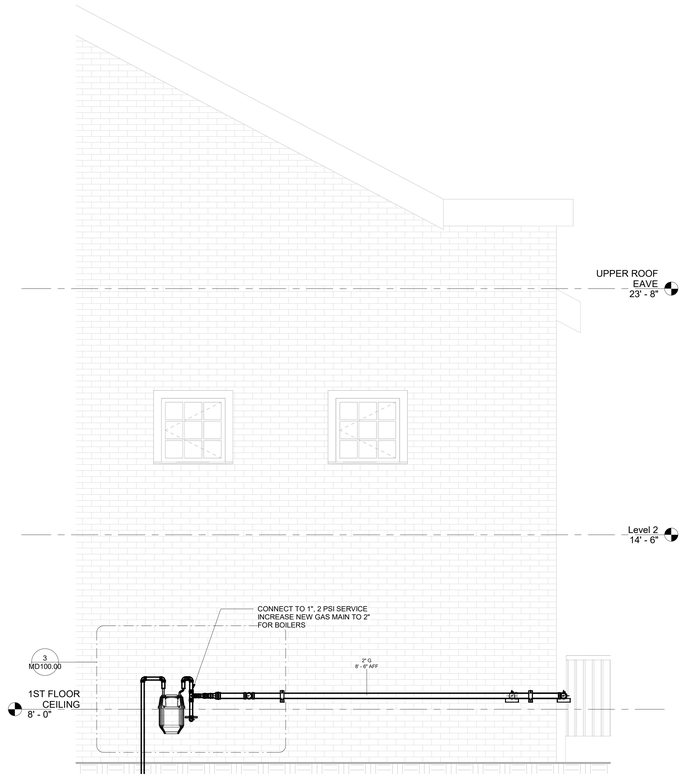
Project Number	5257
Date	5/12/2022
Drawn By	T.H.
Checked By	T.H.

MD100.00

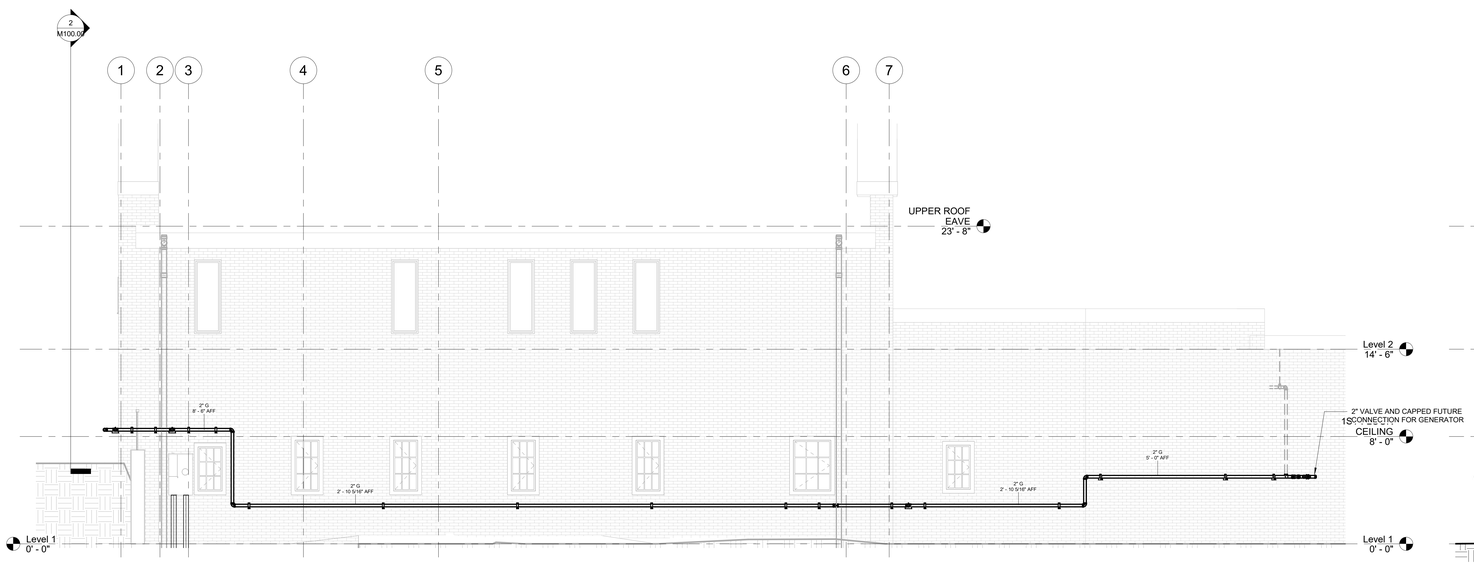
05/17/2022 12:07:57 PM



1 FIRST FLOOR MECHANICAL GAS PLAN
3/16" = 1'-0"



2 Section 7
1/2" = 1'-0"



3 Section 1
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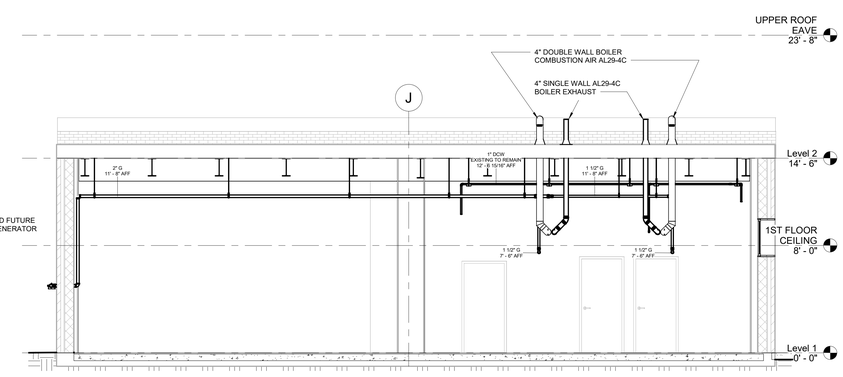

4 NATURAL GAS
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TOWN OF NEW CANAAN

EMS BUILDING BOILER PLAN

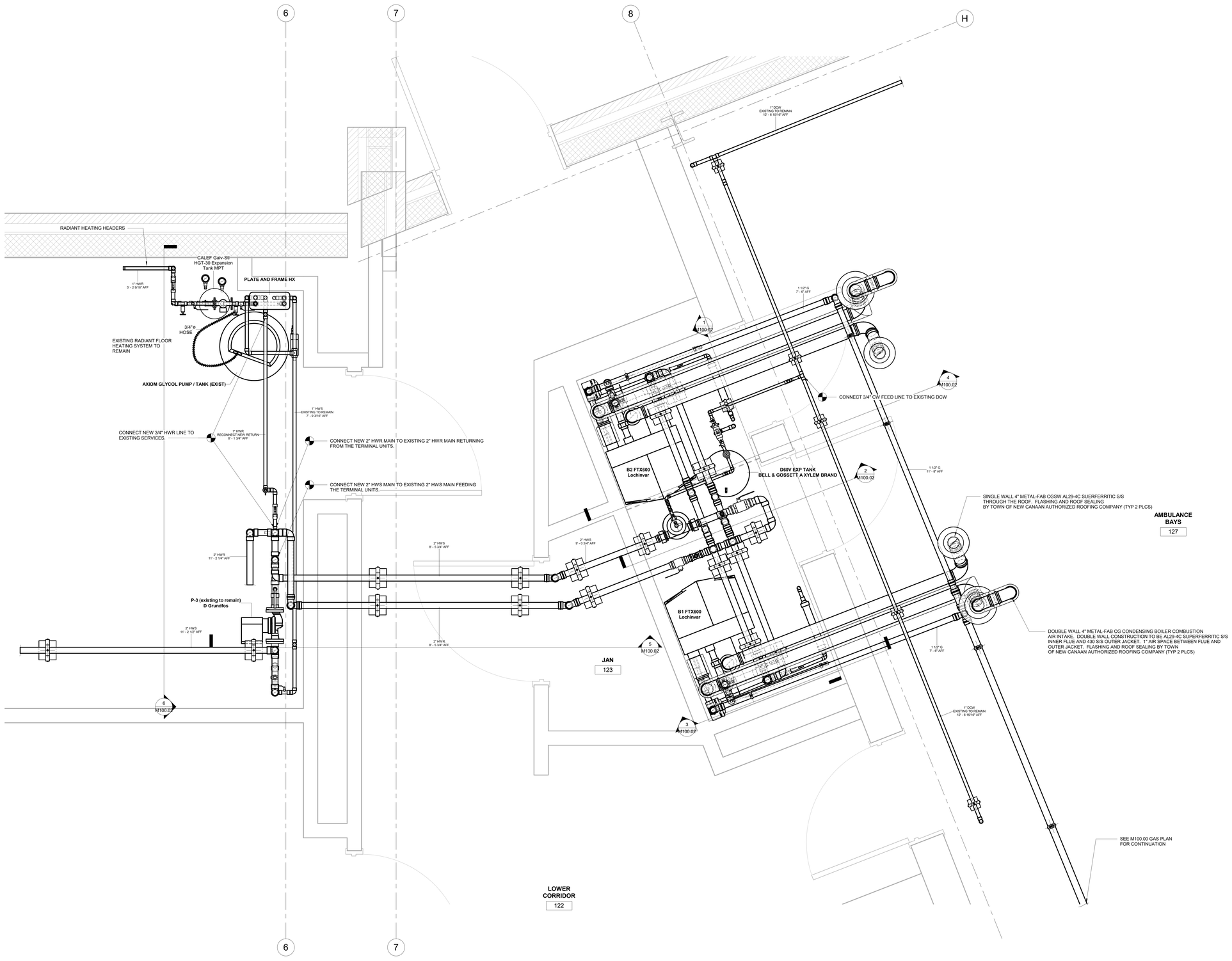
182 SOUTH AVE
NEW CANAAN, CT 06840

GAS PLAN

Project Number	5257
Date	5/12/2022
Drawn By	T.H.
Checked By	T.H.

M100.00

05/17/2022 12:07:36 PM



1 FIRST FLOOR MECHANICAL BOILER PLAN
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TOWN OF NEW CANAAN

EMS BUILDING BOILER PLAN

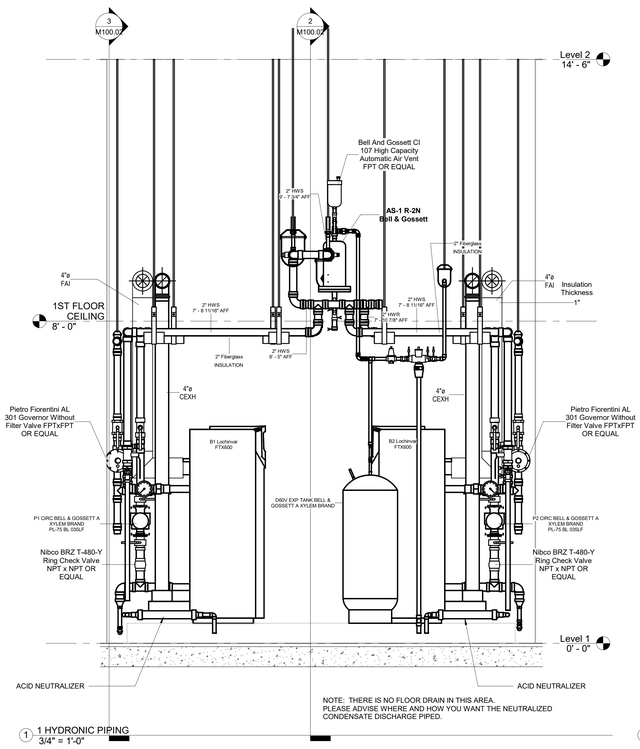
182 SOUTH AVE
NEW CANAAN, CT 06840

BOILER PLAN

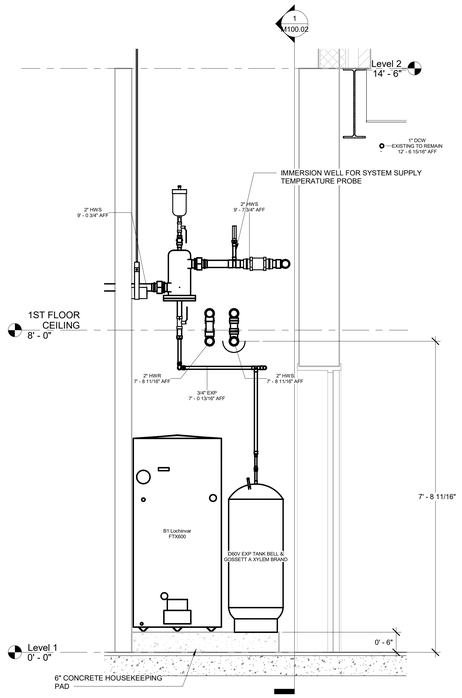
Project Number	5257
Date	5/12/2022
Drawn By	T.H.
Checked By	T.H.

M100.01

05/17/2022 12:07:47 PM



1 1 HYDRONIC PIPING
3/4" = 1'-0"



2 3 HYDRONIC PIPING
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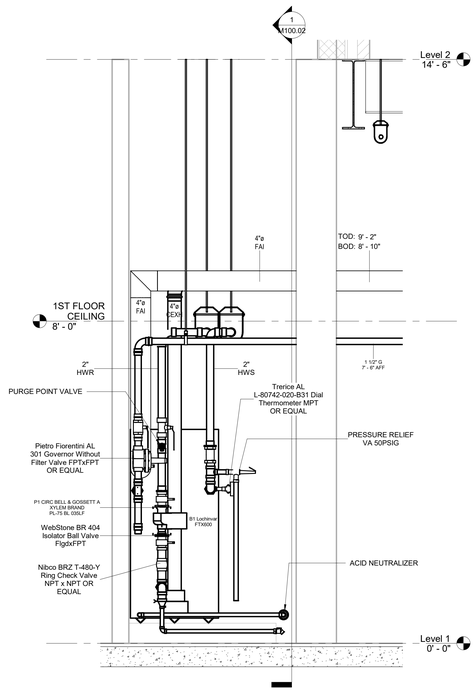

3 4 HYDRONIC PIPING
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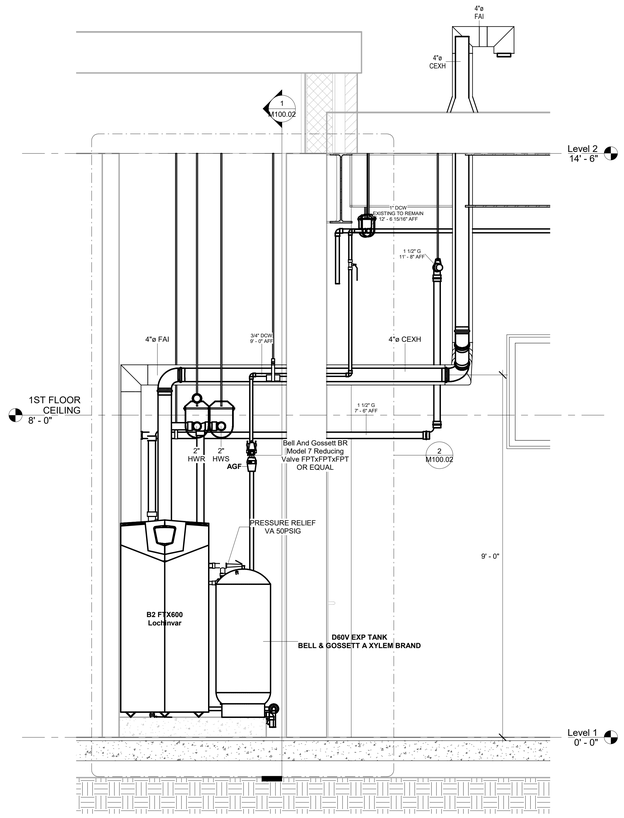

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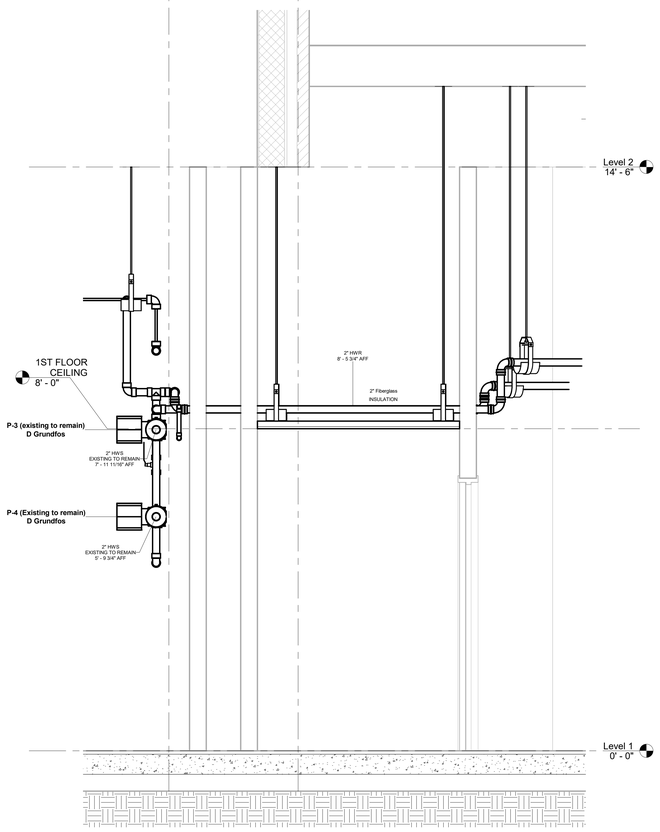

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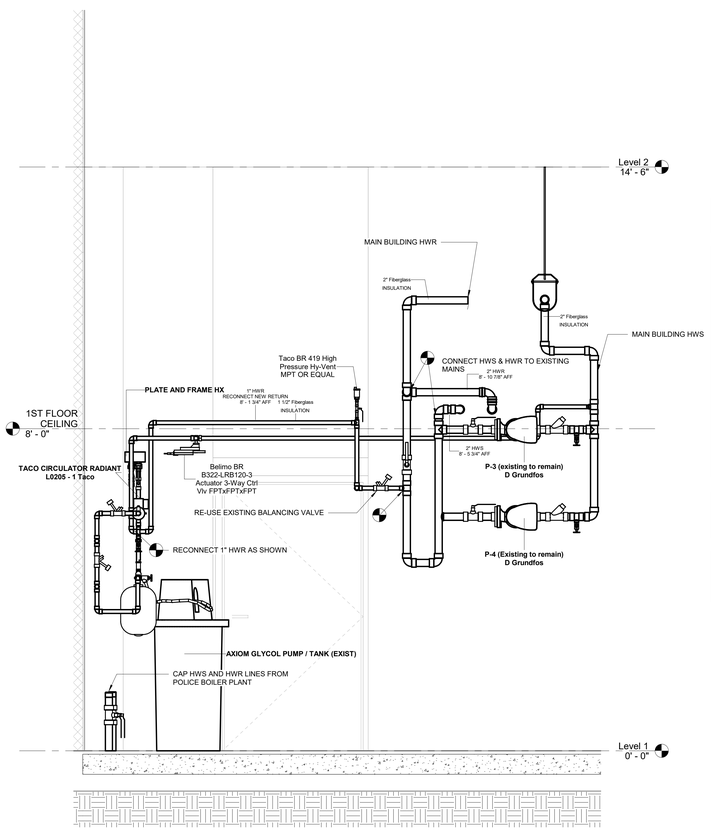

6 6 HYDRONIC PIPING
3/4" = 1'-0"

MECHANICAL EQUIPMENT SCHEDULE

Mark	Manufacturer	Family and Type	Rated flow	Voltage	RatedPower
B1	Lochinvar	FTXL Boiler FTX400-850: FTX600			
P1 CIRC	BELL & GOSSETT A XYLEM BRAND	B&G PL-75 BL 035LF CIRC: B&G PL-75 BL 035LF CIRC	30 GPM @ 11 FT	115 V / 1 Phase / 60 Hz	241.5 watts
D60V EXP TANK	BELL & GOSSETT A XYLEM BRAND	BELL AND GOSSETT D-60V EXP TANK: ASME D60V EXP TANK PRESS			
B2	Lochinvar	FTXL Boiler FTX400-850: FTX600			
P2 CIRC	BELL & GOSSETT A XYLEM BRAND	B&G PL-75 BL 035LF CIRC: B&G PL-75 BL 035LF CIRC	30 GPM @ 11 FT	115 V / 1 Phase / 60 Hz	241.5 watts
P-3 (existing to remain)	Grundfos	GRUNDFOS MAGNA3: Grundfos Magna3 Pump	45.7 GPM @ 32 FT	1 x 115 Volt 1 Phase 60 Hz	18.5 to 643 Watts
P-4 (Existing to remain)	Grundfos	GRUNDFOS MAGNA3: Grundfos Magna3 Pump	45.7 GPM @ 32 FT	1 x 115 Volt 1 Phase 60 Hz	18.5 to 643 Watts
PLATE AND FRAME HX		Brazed_Plate_Heat_Exchanger_20309: Brazed_Plate_Heat_Exchanger_20309			
TACO CIRCULATOR RADIANT	Taco	Pump-Circulator-Taco-LoadMatch-Flanged: L0205 - 1_0.025 HP_3250			
AGF		EMS AGF PARA: WATTS BFP AGF			
AXIOM GLYCOL PUMP / TANK (EXIST)		AXIOM SF100 GYLCOL FEED TANK: AXIOM SF100			
AS-1	Bell & Gossett	BG_Rolairtrol Air Separator NPT With Strainer_R-N: 140 GPM_2in_R-2N	140 GPM		

NATURAL GAS PIPE SCHEDULE

Size	System Abbreviation	Length	Family and Type
1 1/2"ø	G	39' - 8 5/8"	Pipe Types: VIEGA MEGA PRESS CS GALV
1 1/4"ø	G	0' - 4 1/4"	Pipe Types: VIEGA MEGA PRESS CS GALV
1"ø	G	0' - 2 15/16"	Pipe Types: VIEGA MEGA PRESS CS GALV
2"ø	G	156' - 10 5/16"	Pipe Types: VIEGA MEGA PRESS CS GALV
		197' - 2 1/8"	

NATURAL GAS PIPE FITTING SCHEDULE

Count	Size	System Abbreviation	Description
2	1 1/2"ø	G	CAPS
7	1 1/2"ø-1 1/2"ø	G	5 - 90 ELL / 2- UNIONS
2	1 1/2"ø-1 1/2"ø-1 1/2"ø	G	TEES
1	1 1/4"ø-1"ø	G	REDUCERS
1	1"ø-1"ø-1"ø	G	TEES
1	2"ø	G	CAPS
1	2"ø-1 1/2"ø	G	REDUCERS
1	2"ø-1 1/4"ø	G	REDUCERS
15	2"ø-2"ø	G	90 ELL
1	2"ø-2"ø-1 1/2"ø	G	TEES
1	2"ø-2"ø-2"ø	G	TEES
33			

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TOWN OF NEW CANAAN

EMS BUILDING BOILER PLAN

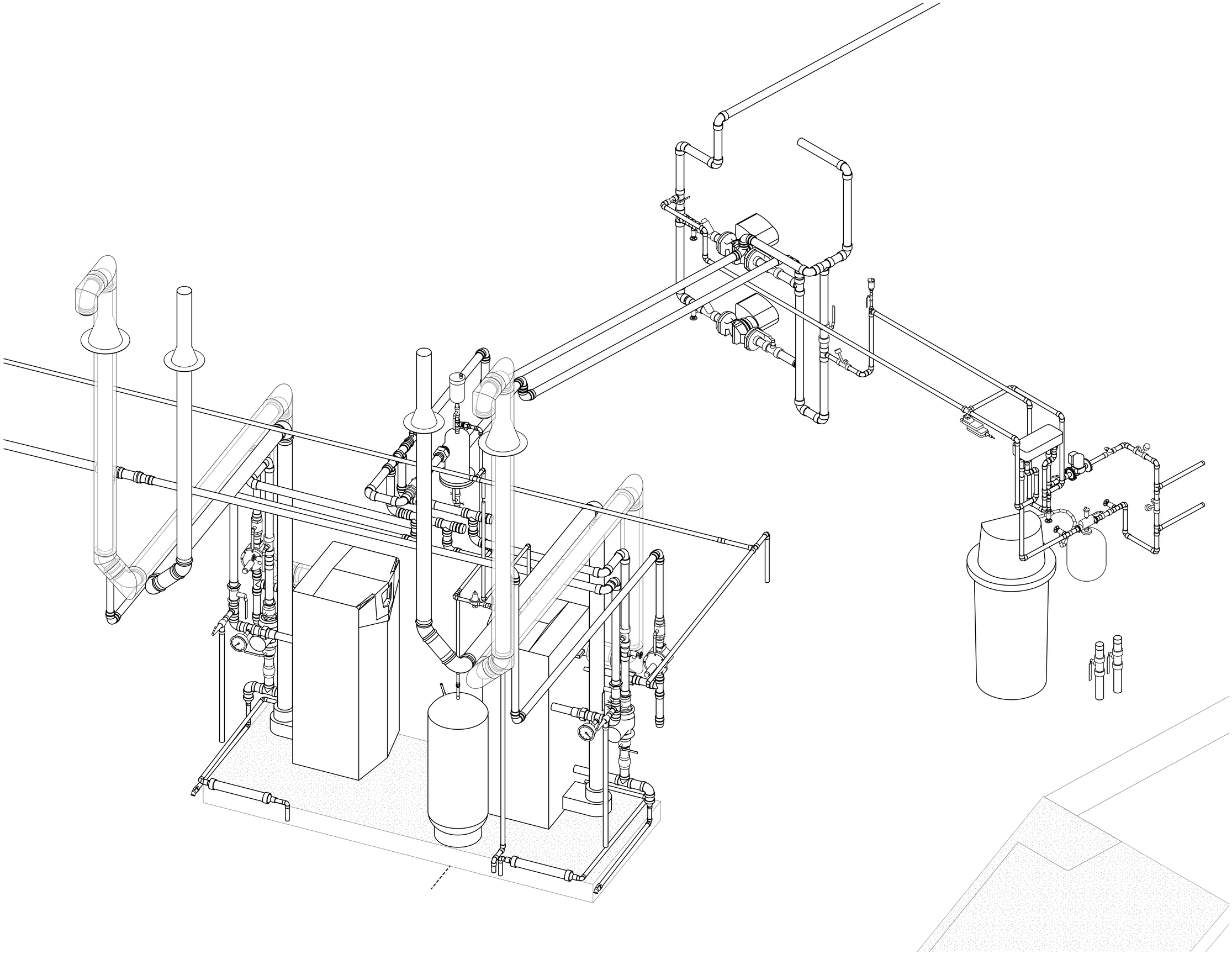
182 SOUTH AVE
NEW CANAAN, CT 06840

BOILER SECTIONS AND DETAILS

Project Number	5257
Date	5/12/2022
Drawn By	T.H.
Checked By	T.H.

M100.02

05/17/2022 12:07:49 PM



1 3D BOILER PIPING

EASTERN MECHANICAL SERVICES

3 Starr Street, Danbury, CT 06810

Ph. 203.792.7668

www.emsinc.us

NOTES:

1) INSTALLING MOTORIZED VALVES ON EACH BOILER WILL VOID THE LOCHINVAR WARRANTY. EMS WILL NOT INSTALL SAID VALVES. THE CHECK VALVE PROVIDED WILL STOP UNECESSARY STANDBY FLOWS CAUSED BY THE OTHER BOILER IN OPERATION DURING A CALL.

2) A FLOW SWITCH WAS ERRONEOUSLY SUBMITTED IT WILL NOT BE USED IN THIS INSTALLATION, THE MANUFACTURER'S REP. HAS INDICATED IT BECOMES AN OPERATIONAL PROBLEM AND IS NOT NECESSARY FOR STAGING BOILERS.

3) BOILERS ARE ARE ALTERNATING, NOT LEAD/LAG ONE BOILER WILL CARRY THE BUILDING LOAD BASED ON THE EXISTING PRIMARY PUMP GPM DELIVERY. EACH BOILER WILL MODULATE THE FIRING RATE BASED ON OUTDOOR TEMPERATURE AND SYSTEM WATER TEMPERATURE ALGORITHM.

4) THE PRIMARY PUMP(S) IN THE POLICE STATION ARE BELL AND GOSSETT MODEL 80. RATED CAPACITY FOR EACH IS 46 GPM AT 28 FT. THE EXISTING GRUNDFOS MAGNA3 50-150 F PUMPS ARE SUFFICIENT IN SIZE TO CARRY THE EMT BUILDING LOAD WITHOUT CHANGE. SEE SCHEDULE ON DRAWING M100.02

5) THE MAXIMUM FLOW PER BOILER IS 40 GPM AT A 30 DEGREE DELTA T. THIS WILL PRODUCE 600 MBH AS NEEDED. A 3" MAIN AND AIR SEPARATOR IS A MISMATCH TO THE EXISTING HYDRONIC DISTRIBUTION SYSTEM WHICH IS CURRENTLY 2". A 3" MAIN WILL NOT ALLOW SUFFICIENT VELOCITY TO MOVE ENTRAINED AIR FOR REMOVAL AT THE SEPARATOR THE FLOW RATE AT 40 GPM IS ONLY 1.6 FT/MIN. PROPER AIR REMOVAL VELOCITY SHOULD BE 3 - 4 FT/MIN. THEREFORE, WE HAVE MODELED A 2" HYDRONIC MAIN AS THIS ARRANGEMENT, AT 40 GPM, HAS A FLOW OF 3.8 FT/MIN. SUFFICIENT FOR GOOD SYSTEM AIR REMOVAL.

6) SINCE BID DOCUMENTS M-001 AND M-002 ARE AMBIGUOUS WITH RESPECT TO THE MANUFACTURER OF THE AIR SEPARATOR INDICATING SPIRO VENT AND TACO, EMS CONCLUDES AN EQUAL IS AN ACCEPTABLE OPTION. THEREFORE, EMS IS SUBMITTING THE BELL & GOSSETT ITEM AS SCHEDULED ON M100.02.

7) NOTHING HAS BEEN INDICATED WITH RESPECT TO CONDENSATE REMOVAL DISCHARGE. EMS RECOMMENDS THE DISCHARGE BE PIPED TO THE LOCAL MOP SINK VIA A CONDENSATE PUMP SELECTED BY MARCHETTI CONSULTING ENGINEERS FOR THIS APPLICATION.

8) EMS RESERVES THE RIGHT TO USE PRO-PRESS FITTINGS ON THE HYDRONIC COPPER PIPING AS WELL AS SOLDERED FITTINGS. THE EXISTING HYDRONIC SYSTEM FEATURES PRO-PRESS JOINTS ALREADY.

9) EMS IS INSTALLING GALVANIZED SCH 40 WHEATLAND OR EQUAL MANUFACTURER'S ERW A53 PIPING OUTSIDE WITH GALVANIZED MEGA-PRESS FITTINGS.

10) THE GAS METER IS INSUFFICIENTLY SIZED FOR THE BOILER LOAD ADDED TO THE BUILDING'S CURRENT GAS SUPPLY. METER TO BE UPSIZED TO HANDLE THE ADDED LOAD FOR THE BOILERS AND FOR THE FUTURE GENERATOR. EMS IS PROVIDING A 2" VALVED AND CAPPED CONNECTION NEAR THE PENETRATION INTO THE EMT GARAGE UNLESS DIRECTED OTHERWISE.

11) THE COMBUSTION AIR AND COMBUSTION EXHAUST PIPING HAS BEEN ROUTED TO THE ROOF IN ACCORDANCE WITH OWNER REQUEST / COMMENTS DURING WALK-THROUGH.

No.	Description	Date
1	SHOP DRAWING FOR REVIEW	5/24/2022

TOWN OF NEW CANAAN

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BOILER PLAN ISO

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