Rhvac - ight Commercial HVAC Loads — Elite Software Development, Inc. Tappan Fd - Washington Street

System 2 Room Load Summary

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
4	Ready Room / Kitchen	473	16,458	214	0-0	0	9,745	3,128	443	1.19	527	443
	Ventilation		7,220				1,724	2,290				
	System 2 total	473	23,678	214			11,469	5,418	443		527	443

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.41	68% / 32%	11,469	5,418	16,888
Recommended:	1.81	75% / 25%	16,255	5,418	21,673

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
5	Corridor	340	9,963	129	0-0	0	4,422	846	201	1.00	201	201
8	Men Bathroom	71	52	1	0-0	0	171	0	8	1.00	8	8
9	Women Bathroom	71	78	1	0-0	0	171	0	8	1.00	8	8
	Ventilation		5,525				1,319	1,753				
	System 3 total	482	15,618	131			6,083	2,599	217		217	217

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.72	70% / 30%	6,083	2,599	8,682
Recommended:	0.87	75% / 25%	7,796	2,599	10,395

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
6	Office 1	109	4,889	64	0-0	0	3,729	442	170	1.00	170	170
7	Office 2	132	3,813	50	0-0	0	3,611	442	164	1.25	205	164
	Ventilation		2,210				528	701				
	System 4 total	241	10,912	113			7,868	1,585	334		375	334

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.79	83% / 17%	7,868	1,585	9,453
Recommended:	0.87	75% / 25%	7,868	2,623	10,490

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
10	Chiefs Office	167	6,351	83	0-0	0	3,832	1,212	174	1.00	174	174
	Ventilation		2,799				669	888				
	System 5 total	167	9,150	83			4,500	2,100	174		174	174

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.55	68% / 32%	4,500	2,100	6,600
Recommended:	0.70	75% / 25%	6,300	2,100	8,400

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
12	Radio Room	169	7,450	97	0-0	0	9,003	756	409	1.00	409	409
	Ventilation		1,842				440	584				
	System 6 total	169	9,292	97			9,442	1,340	409		409	409

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.90	88% / 12%	9,442	1,340	10,783
Recommended:	1.05	75% / 25%	9,442	3,147	12,590

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
13	Stair To 2nd Fl	117	3,509	140	0-0	0	855	456	113	1.00	39	113
16	2nd Fl Corridor	189	2,924	117	0-0	0	1,112	331	147	1.00	51	147
17	2nd Fl Men	59	1,432	57	0-0	0	423	103	56	1.00	19	56
18	2nd Fl Women	59	1,432	57	0-0	0	423	103	56	1.00	19	56
	System 7 total	424	9,297	371			2,811	993	371		128	371

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.32	74% / 26%	2,811	993	3,804
Recommended:	0.33	75% / 25%	2,979	993	3,972

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
14	Stair To Meeting Room	86	6,648	86	0-0	0	2,287	383	104	1.18	123	104
15	Meeting Room	793	20,270	263	0-0	0	17,094	5,940	777	1.25	972	777
	Ventilation		27,258				6,509	8,647				
	System 8 total	879	54,176	350			25,890	14,970	881		1,094	881

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	3.41	63% / 37%	25,890	14,970	40,860
Recommended:	4.99	75% / 25%	44,910	14,970	59,881

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
19	Office Or File Storage	122	2,124	28	0-0	0	2,162	443	98	1.00	98	98
	Ventilation		1,105				264	351				
	System 9 total	122	3,229	28			2,426	794	98		98	98

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.27	75% / 25%	2,426	794	3,219
Recommended:	0.27	75% / 25%	2,426	809	3,235

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
20	Secretary/Treas	161	6,087	79	0-0	0	4,542	873	207	1.00	207	207
21	Sec Files	75	692	9	0-0	0	367	0	17	1.00	17	17
	Ventilation		1,842				440	584				
	System 10 total	236	8,621	88			5,348	1,457	223		223	223

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	0.57	79% / 21%	5,348	1,457	6,806
Recommended:	0.59	75% / 25%	5,348	1,783	7,131

No	Room Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM
---Zone 1---												
22	Bofc	256	8,215	107	0-0	0	8,979	1,369	408	1.00	408	408
	Ventilation		3,242				774	1,028				
	System 11 total	256	11,457	107			9,753	2,397	408		408	408

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.01	80% / 20%	9,753	2,397	12,150
Recommended:	1.08	75% / 25%	9,753	3,251	13,003

DRAWING LIST:

M-1	HEAT GAIN AND LOSS CALCULATIONS
M-2	FIRST FLOOR MECHANICAL PLAN
M-3	SECOND FLOOR / ROOF MECHANICAL PLAN
M-4	FIRST FLOOR PIPING PLAN
M-5	SECOND FLOOR MECHANICAL PIPING PLAN
M-6	MECHANICAL FAN COIL SCHEDULES
M-7	MECHANICAL SCHEDULES & RISER DIAGRAM
M-8	MECHANICAL EQUIPMENT SCHEDULES CON'TD.
M-9	MECHANICAL DETAILS
M-10	MECHANICAL NOTES.

SCOPE OF WORK:

THE FOLLOWING ITEMS DESCRIBED ARE IN COMPLIANCE WITH THE 2020 NYSECCC, 2020 IBC AND THE 2020 IMC.
IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO OBTAIN ALL FILINGS, APPROVALS, PERMITS AND SIGNOFFS FOR THIS PROJECT.

THE MECHANICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL OF THE FOLLOWING AND ALL SYSTEMS WITHIN THE DRAWINGS AND SPECIFICATIONS:

- (1) MULTI SPLIT SYSTEM WITH SIMULTANEOUS HEATING AND COOLING CAPABILITIES AS SPECIFIED. THIS INCLUDES ALL PIPING AND CONTROL WIRING FOR THE ENTIRE SYSTEM.
- (1) MINI SPLIT SYSTEM COMPOSED OF (1) HEATPUMP AND (1) FAN COIL FOR UNIFORM STORAGE
- ONE ENERGY RECOVERY SYSTEM WITH ALL REQUIRED DUCTWORK AND CONTROLS AS SPECIFIED.
- ALL EQUIPMENT AS INDICTED WHICH INCLUDES BUT NOT LIMITED TO APPARATUS BAY EXHAUST, UNIT HEATERS, VENTING, ALL ITEMS WITHIN THE PLANS ALONG WITH ALL SPECIFIED OPTIONS AND ACCESSORIES, REFRIGERANT PIPING, PIPING INSULATION, CONDENSATE PIPING, DUCTWORK, DUCT INSULATION, DUCT SUPPORTS, HANGERS, DIFFUSERS, GRILLES, DAMPERS, PENETRATIONS, ACCESS DOORS, CONTROL WIRING AND CONTROLS FOR ALL SYSTEMS.
-

ENERGY COMPLIANCE PATH: 2020 NYSECCC PRESCRIPTIVE PATH

ADDITIONAL EFFICIENCY PACKAGE: REDUCED LIGHTING POWER (C406.3) - SEE ELECTRICAL PLANS FOR COMPLIANCE

ADD/ALT:

THE FOLLOWING ITEMS DESCRIBED ARE REQUESTED AS AN ADDITION TO THE CONTRACT DESIGN.

A SNOW MELT SYSTEM CONSISTING OF A 50'x50' CONCRETE APRON IN FRONT OF THE APPARATUS BAYS. THIS SHALL INCLUDE THE UNDER SLAB R-10 INSULATION, EDGE INSULATION.

PROVIDE ALL SLAB PIPING TO MANIFOLDS, ALL PIPING FROM THE TWO MANIFOLDS TO THE ADD/ALT BOILER.

PROVIDE THE BOILER, INCLUDE ALL VENTING AND A GLYCOL SYSTEM, A HYDRONIC PUMP AND EXPANSION TANK.

PROVIDE SLAB SENSOR O/A SENSOR, ALL CONTROL WIRING AND FULL AUTOMATIC CONTROL OF SYSTEM.

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WALDEN, NY 12586
(845) 275-8859

TAPPAN FIRE DISTRICT
123 WASHINGTON STREET
TAPPAN NY, 10983

HEAT GAIN AND LOSS CALCULATIONS

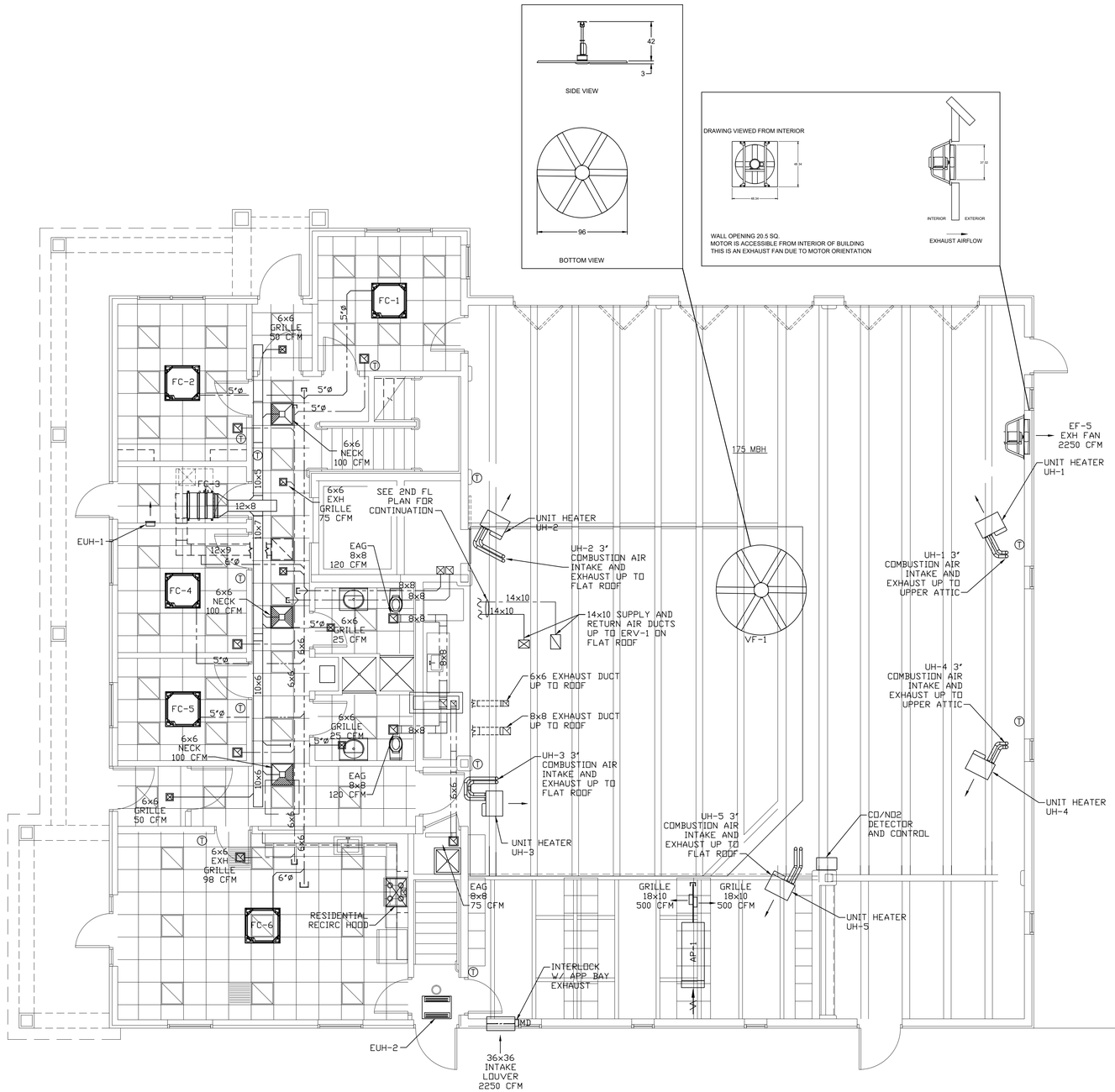
PROJECT #: 21-08

DRAWN BY:

CAD FILE: 21-08/P:/BID

DRAWING#:

M-1



SYMBOL LEGEND

SUPPLY AIR DUCT	
RETURN AIR DUCT	
EXHAUST AIR DUCT	
SUPPLY AIR GRILLE	SAG
SUPPLY AIR DIFFUSER	SAD
RETURN AIR GRILLE	RAG
FIRE/SMOKE DAMPER W/ ACCESS DOOR	FSD
BALANCING DAMPER	BD
THERMOSTAT	T

PLAN NOTES:
1. ALL BRANCH DUCTWORK TO DIFFUSERS AND GRILLES SHALL HAVE BALANCING DAMPERS INSTALLED AT TAKEOFF'S.
2. ALL SUPPLY, RETURN AND EXHAUST AIR DUCTS AND PLENUMS LOCATED IN UNCONDITIONED SPACES SHALL BE FULLY INSULATED AND EXTERNALLY WRAPPED WITH A MINIMUM OF R-6 FOIL BACK INSULATION. INCLUDE MASTIC SEALING OF ALL JOINTS AND SEAMS.
3. PROVIDE ALUMINUM DIFFUSERS/GRILLES FOR ALL DUCTWORK TERMINATIONS.
4. ALL DUCTWORK HAS BEEN SIZED IN ACCORDANCE WITH THE ASHRAE HANDBOOK OF FUNDAMENTALS.
5. ALL AIRSIDE SYSTEMS SHALL BE BALANCED AND A CERTIFIED REPORT PROVIDED.
6. PROVIDE BALANCING DAMPERS AT ALL BRANCH MAINS. TYPICAL OF ALL.
7. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. TAPES AND MASTICS USED TO SEAL METALLIC AND FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181 B-FX" FOR PRESSURE-SENSITIVE TAPE OR "181 B-M" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181 B-C." CLOSURE SYSTEMS USED TO SEAL ALL DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
8. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. FLEXIBLE AND OTHER FACTORY-MADE DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
9. THE PRESSURE CLASSIFICATION OF DUCTS SHALL EQUAL OR EXCEED THE DESIGN PRESSURE OF THE AIR DISTRIBUTION IN WHICH THE DUCTS ARE UTILIZED.
10. VERIFY LOCATIONS OF ALL THERMOSTATS AND SENSORS WITH ARCHITECT PRIOR TO INSTALLATION.
11. PROVIDE LOW VOLTAGE CONTROLS, CONTROL WIRING AND DAMPERS FOR EACH SYSTEM. ALL CONTROL WIRING SHALL BE IN METAL CONDUIT.
12. PROVIDE ½" INTERNAL ACOUSTICAL LINING FOR THE FIRST 15' OF ALL SUPPLY DUCTWORK.
13. ROUND BRANCH DUCTS SHALL BE GALVANIZED METAL.
14. PROVIDE ACCESS DOORS FOR ALL DAMPERS WITHIN INACCESSIBLE CEILINGS.
15. EXTERNAL DUCT INSULATION, EXCEPT SPRAY POLYURETHANE FOAM, AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES.
16. ALL DUCT DIMENSIONS NOTED ARE CLEAR INSIDE DIMENSIONS.
17. ALL BRANCH DUCTS SHALL HAVE BALANCING DAMPERS.
18. MATERIALS USED AS INTERNAL INSULATION AND EXPOSED TO THE AIRSTREAM IN DUCTS SHALL BE SHOWN TO BE DURABLE WHEN TESTED IN ACCORDANCE WITH UL 181. EXPOSED INTERNAL INSULATION THAT IS NOT IMPERMEABLE TO WATER SHALL NOT BE USED TO LINE DUCTS OR PLENUMS FROM THE EXIT OF A COOLING COIL TO THE DOWNSTREAM END OF THE DRAIN PAN.
19. ALL CASSETTE STYLE/CONCEALED DUCTED FAN COIL UNITS SHALL BE FULLY INSULATED ABOVE THE CEILING.
20. PROVIDE EMERGENCY CONDENSATE DRAIN PAN WITH WET SWITCH INTERLOCK FOR ALL FAN COIL UNITS ABOVE THE CEILING.
21. PROVIDE INSULATED REFRIGERANT LINESETS FROM HEAT PUMP TO ALL FAN COIL UNITS. CONNECT AS PER MANUFACTURER'S INSTALLATION MANUAL.
22. PIPING INSULATION EXPOSED TO THE WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. ADHESIVE TAPE SHALL NOT BE PERMITTED.
23. ALL ROOFTOP DUCTWORK, REFRIGERANT PIPING SHALL BE SUPPORTED OFF THE ROOF. PROVIDE PATE ROOF CURBS OR APPROVED EQUAL
24. ALL ROOFTOP EQUIPMENT SHALL BE LOCATED A MINIMUM OF 24" ABOVE ROOF.
25. PROVIDE ROOF CURBS AND EQUIPMENT RAILS.

FIRST FLOOR MECHANICAL PLAN

SCALE: 3/16" = 1'-0"

DATE: ISSUE
7.18.22 FOR BID

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WALDEN, NY 12586
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TAPPAN FIRE DISTRICT
123 WASHINGTON STREET
TAPPAN NY, 10983

FIRST FLOOR MECHANICAL PLAN

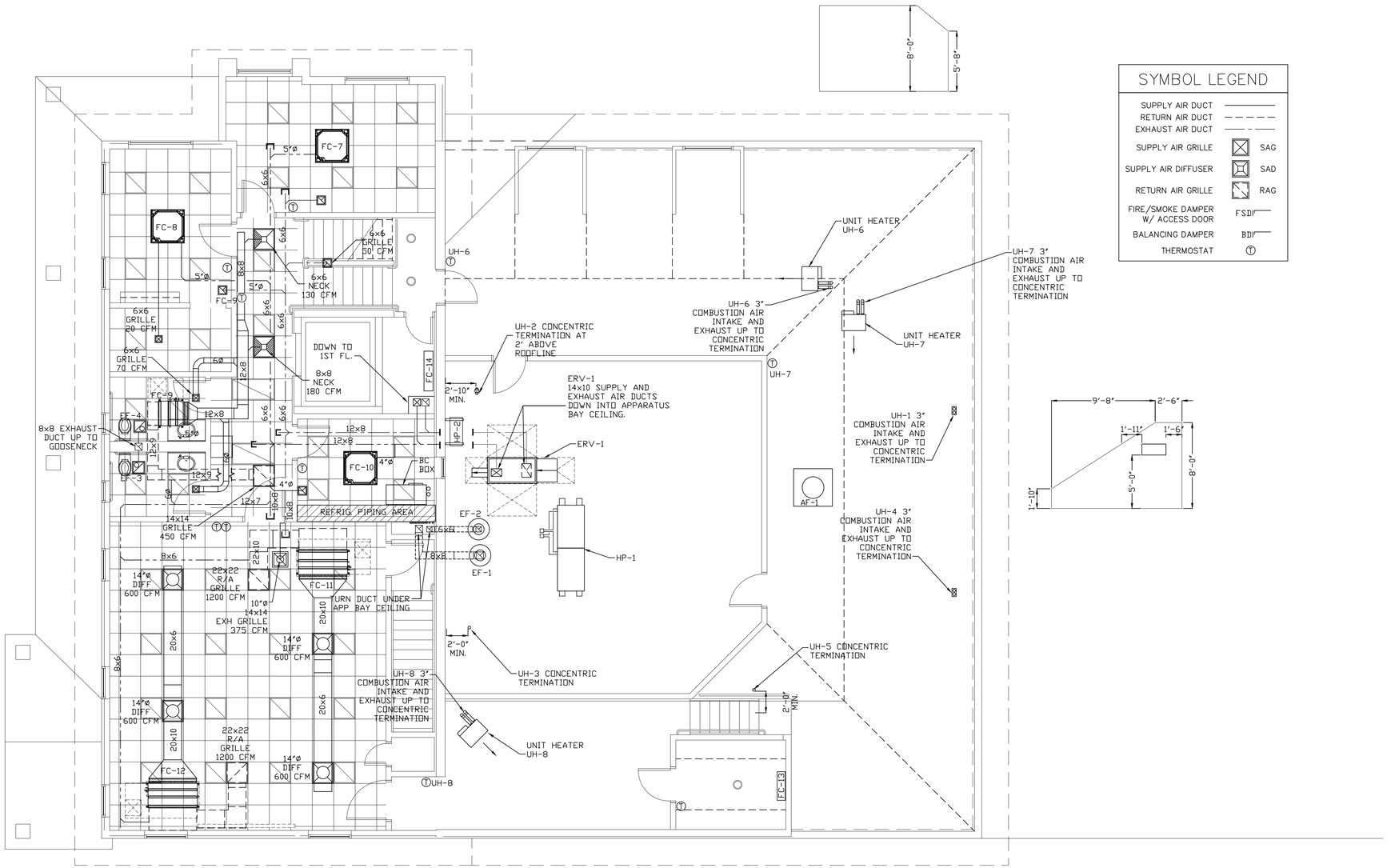
PROJECT #: 21-08

DRAWN BY:

CAD FILE: 21-08/P:/BID

DRAWING#:

M-2



SECOND FLOOR MECHANICAL PLAN

SCALE: 3/16" = 1'-0"

SYMBOL LEGEND

SUPPLY AIR DUCT	
RETURN AIR DUCT	
EXHAUST AIR DUCT	
SUPPLY AIR GRILLE	SAG
SUPPLY AIR DIFFUSER	SAD
RETURN AIR GRILLE	RAG
FIRE/SMOKE DAMPER W/ ACCESS DOOR	FSD
BALANCING DAMPER	BD
THERMOSTAT	T

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SECOND FLOOR MECHANICAL PLAN

PROJECT #: 21-08

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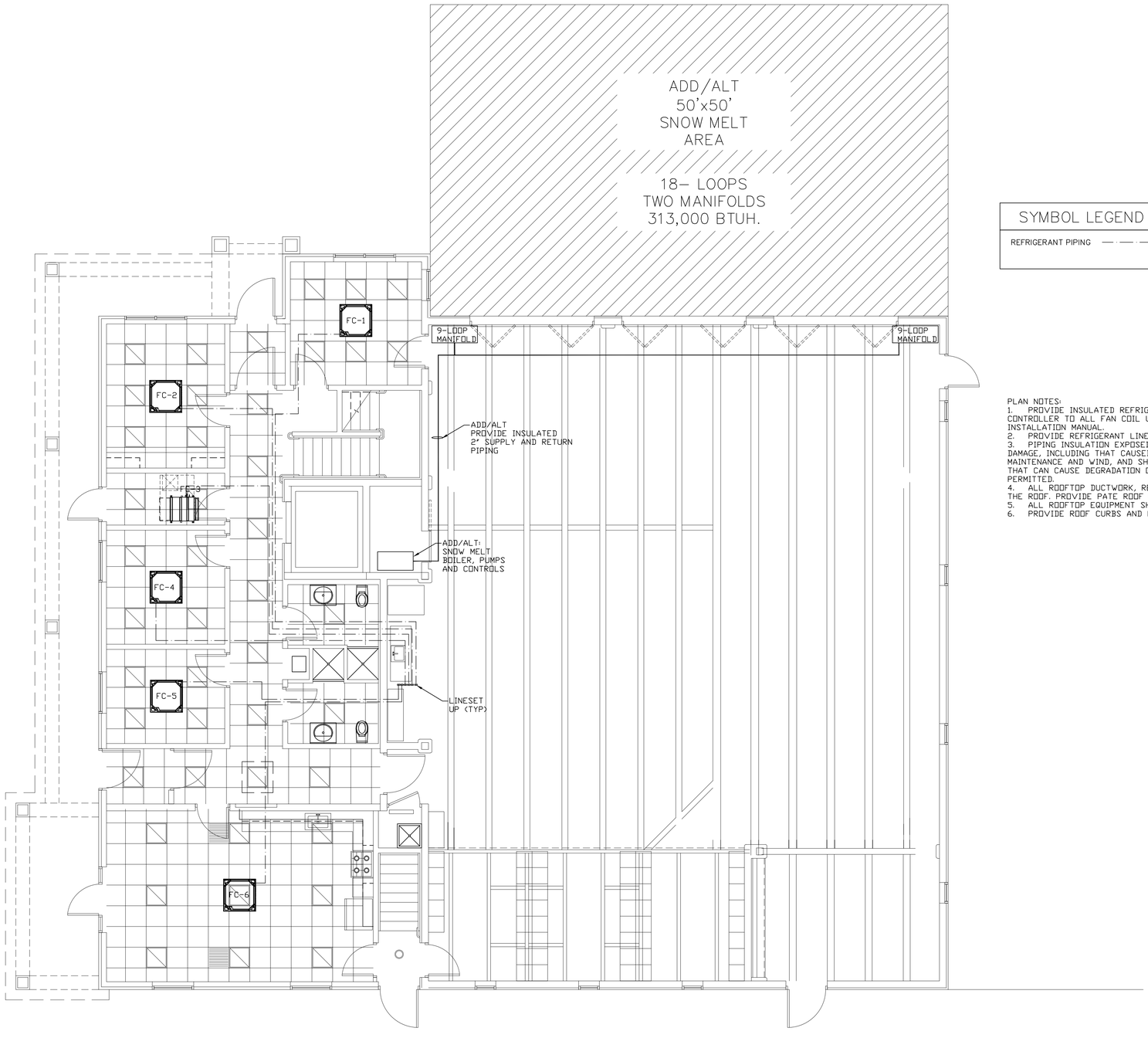
CAD FILE: 21-08/P:/BID

DRAWING#:

M-3



SYMBOL LEGEND	
REFRIGERANT PIPING	— · — · —

PLAN NOTES:
1. PROVIDE INSULATED REFRIGERANT LINESETS FROM HEAT PUMP BC CONTROLLER TO ALL FAN COIL UNITS. CONNECT AS PER MANUFACTURER'S INSTALLATION MANUAL.
2. PROVIDE REFRIGERANT LINESET FROM BC CONTROL TO OUTDOOR HEATPUMP.
3. PIPING INSULATION EXPOSED TO THE WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. ADHESIVE TAPE SHALL NOT BE PERMITTED.
4. ALL ROOFTOP DUCTWORK, REFRIGERANT PIPING SHALL BE SUPPORTED OFF THE ROOF. PROVIDE PATE ROOF CURBS OR APPROVED EQUAL
5. ALL ROOFTOP EQUIPMENT SHALL BE LOCATED A MINIMUM OF 24" ABOVE ROOF.
6. PROVIDE ROOF CURBS AND EQUIPMENT RAILS.

FIRST FLOOR REFRIGERANT PIPING PLAN

SCALE: 3/16" = 1'–0"

DATE: ISSUE
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TAPPAN FIRE DISTRICT
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TAPPAN NY, 10983

FIRST FLOOR
REFRIGERANT PIPING PLAN &
ADD/ALT SNOW MELT PIPING

PROJECT #: 21–08

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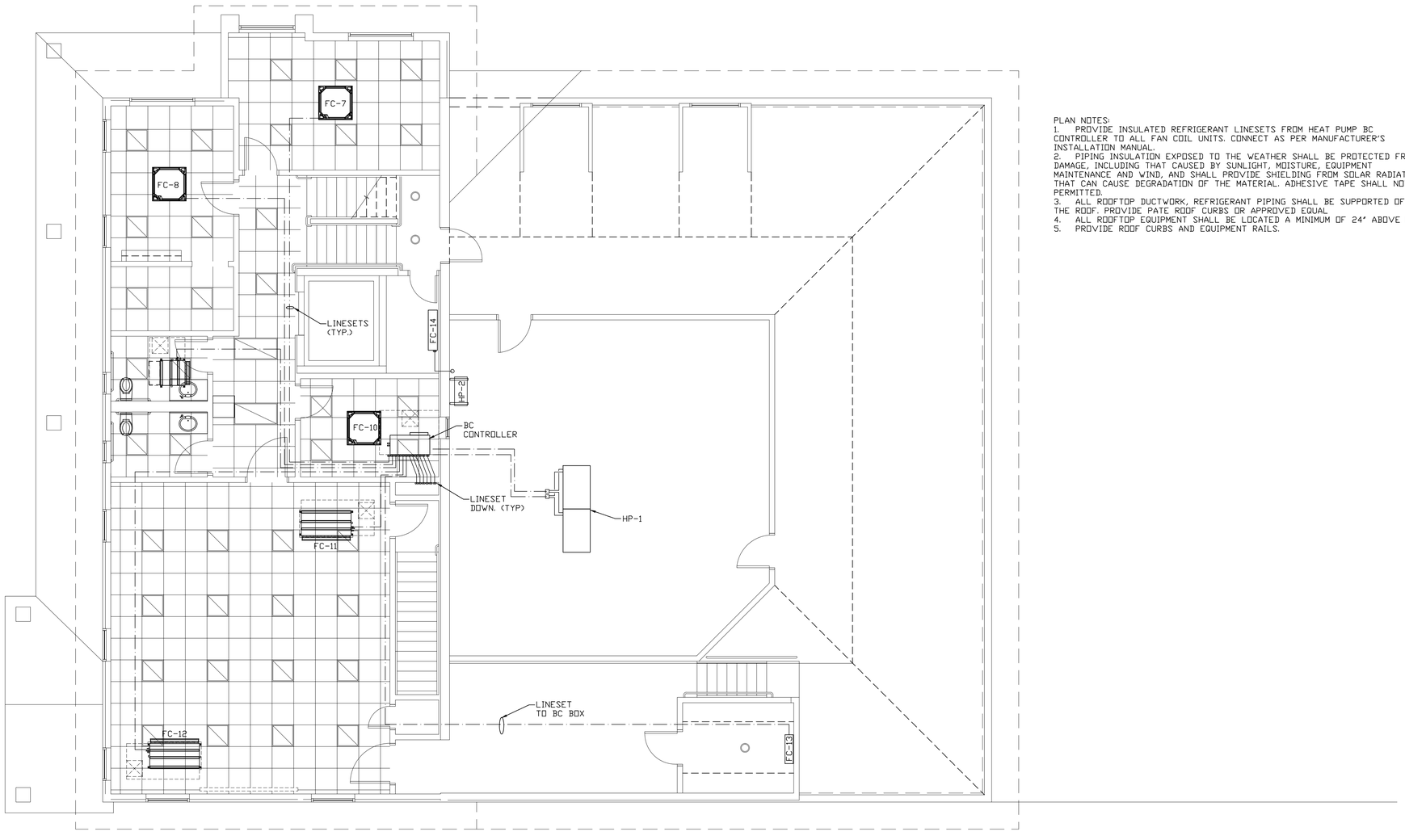
CAD FILE: 21–08/P: /BID

DRAWING#:

M–4

SYMBOL LEGEND

REFRIGERANT PIPING —·—·—



PLAN NOTES:
1. PROVIDE INSULATED REFRIGERANT LINESETS FROM HEAT PUMP BC CONTROLLER TO ALL FAN COIL UNITS. CONNECT AS PER MANUFACTURER'S INSTALLATION MANUAL.
2. PIPING INSULATION EXPOSED TO THE WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. ADHESIVE TAPE SHALL NOT BE PERMITTED.
3. ALL ROOFTOP DUCTWORK, REFRIGERANT PIPING SHALL BE SUPPORTED OFF THE ROOF. PROVIDE PATE ROOF CURBS OR APPROVED EQUAL.
4. ALL ROOFTOP EQUIPMENT SHALL BE LOCATED A MINIMUM OF 24" ABOVE ROOF.
5. PROVIDE ROOF CURBS AND EQUIPMENT RAILS.

SECOND FLOOR REFRIGERANT PIPING PLAN

SCALE: 3/16" = 1'-0"

DATE: ISSUE
7.18.22 FOR BID

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SECOND FLOOR
REFRIGERANT PIPING PLAN

PROJECT #: 21-08

DRAWN BY:

CAD FILE: 21-08/P: /BID

DRAWING#:

M-5

MITSUBISHI ELECTRIC TRANE HVAC US: CITY MULTI VRF OUTDOOR UNIT SCHEDULE

	System Tag	System 1	System 2
	Tag Reference		IT ROOM
Nominal Data	M-NET Address	51, 52	
	Model Number	PURY-EP192TSNU-A	MUZ-GL12NA-U2
	Modules	P96, P96	
	Nominal Cooling Capacity (BTU/h)	192,000.0	12,000.0
	Nominal Heating Capacity (BTU/h)	215,000.0	14,400.0
	Cooling Efficiency IEER/EER [SEER]	28.55 / 13.4	13 [23.1]
	Heating COP @ 47°F [HSPF]	3.825	3.84 [12.5]
	Nom System Connected Capacity (% of NOM)	117.2%	100.0%
Design Conditions	Design Cooling Outdoor Temp DB (°F)	90.0	90.0
	Design Heating Outdoor Temp WB (°F)	2.0	2.0
	Max Pipe Length from BC or 1st Joint (feet)	74.8	0.0
	Refrig Pipe Dim High/Low Pressure (inch) (See Note 4)	7/8 / 1 1/8	1/4 / 3/8
Performance Data	Corrected Cooling Total Capacity (BTU/h)	192,780.1	11,120.8
	Corrected Heating Capacity (BTU/h)	169,800.3	9,006.6
	Sound Pressure (dBA)	61.5/63	49/51
Compressor Data	Compressor Type	SCROLL	
	Compressor Quantity	2	
	Preliminary Added Field Charge (See Note 5)	41.9	0.0
Electrical Data	Voltage / Phase	208/230V / 3-phase 3-wire	208/230V / 1-phase
	MCA 208/230 or [460V]	31/29, 31/29	9
	Recommended Fuse Size (RFS)	45/45, 45/45	15
	MOCP	45/45, 45/45	15
Notes / Options	Applicable System Notes - See Notes Below	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	1, 2, 3, 4, 5, 6, 7, 8, 9

Notes & Options:

1 Nominal cooling capacities are based on indoor coil EAT of 80/67°F (DB/WB), outdoor of 95°F (DB)
2 Nominal heating capacities are based on indoor coil EAT of 70°F (DB), outdoor of 43°F (WB)
3 Efficiency values for EER, IEER, COP are based on AHRI 1230 test method for mixture of ducted & non-ductec
4 For systems with multiple modules, refrigerant pipe dimensions indicate total system combined piping downstre
5 Added field charge listed is in addition to factory charge, this must be updated based upon final as-built piping l
6 Factory representatives shall review the project prior to and throughout the installation of CITY MULTI equipme
7 Factory representatives shall startup and commission CITY MULTI equipment upon completion of equipment in
8 Factory representatives shall provide on-site assistance for the BMS integration of the CITY MULTI equipment
9 Factory representatives shall provide end-user training on the CITY MULTI equipment upon completion of the ir
10 Provide 24" Super Stand Kit

Qty	Model	Description	Tag
1	stock controller	Wireless remote controller	
12	PAR-40MAAU	MA remote controller	CTR1-DISPATCH,CTR1-CHIEFS,CTR1-1ST FL CORR,CTR1-OFFICERS,CTR1-ASSOC,CTR1-READY RM,CTR1-BOFC,CTR1-SEC/TREAS,CTR1-2nd FL CORR,CTR1-STORAGE,CTR1-MTG RM 1,CTR1-MTG RM 2
1	PURY-EP192TSNU-A	R410A R2 Series Outdoor Unit	
1	MUZ-GL12NA-U2	R410A MandS Series Outdoor Unit	IT ROOM
1	CMB-P1016NU-JA1	BC Controller Main	
3	PLFY-EP15NEMU-ER1	Ceiling-Cassette (Four-Way) Indoor Unit	DISPATCH,BOFC,SEC/TREAS
1	PLFY-EP12NEMU-E	Ceiling-Cassette (Four-Way) Indoor Unit	CHIEFS
2	PEFY-P15NMAU-E4	Ceiling-Concealed (Ducted) Indoor Unit	1ST FL CORR,2nd FL CORR
2	PLFY-EP08NEMU-ER1	Ceiling-Cassette (Four-Way) Indoor Unit	OFFICERS,ASSOC
1	PLFY-EP30NEMU-ER1	Ceiling-Cassette (Four-Way) Indoor Unit	READY RM
1	PLFY-P08NFMU-E	Ceiling-Cassette (Four-Way) Indoor Unit	STORAGE
2	PEFY-P36NMAU-E4	Ceiling-Concealed (Ducted) Indoor Unit	MTG RM 1,MTG RM 2
1	PKFY-P12NLMU-E.TH	Wall -Mounted Indoor Unit	UNIFORM
1	MSZ-GL12NA-U1	Wall -Mounted Indoor Unit	IT ROOM
1	CMY-R200NCBK	Twinning Kit	TWK1
1	AE-200A	System Remote Controller	CTR1
1	QSSB48M-24	Super Stand w/ 48in rails, 24in Tall	
1	QSSX48M-24	Super Stand Ext w/ 48in Rails, 24in Tall	
1	SWDN-1	Side Wind Deflector	
1	WDN-2	Front/Rear Wind Deflector	
7	PLP-41EAEU	Grille with 3D i-see Sensor™	DISPATCH,CHIEFS,OFFICERS,ASSOC,READY RM,BOFC,SEC/TREAS
1	SLP-18FAU	Decoration Panel	STORAGE
16	BV38BBSI	Ball Valve 3/8"	
16	BV58BBSI	Ball Valve 5/8"	
1	CMY-R302S-G1	Reducer	
1	MAC-334IF-E	Control Interface	IT ROOM

MITSUBISHI ELECTRIC TRANE HVAC US: CITY MULTI VRF INDOOR UNI SCHEDULE

	System Tag	System 1	System 1	System 1	System 1	System 1	System 1	System 1	System 1	System 1	System 1	System 1	System 1	System 1	System 2
	Tag Reference	DISPATCH	CHIEFS	1ST FL CORR	OFFICERS	ASSOC	READY RM	BOFC	SEC/TREAS	2nd FL CORR	STORAGE	MTG RM 1	MTG RM 2	UNIFORM	IT ROOM
Nominal Data	Room Name														
	M-NET Address	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Model	PLFY-EP15NEMU-ER1	PLFY-EP12NEMU-E	PEFY-P15NMAU-E4	PLFY-EP08NEMU-ER1	PLFY-EP08NEMU-ER1	PLFY-EP30NEMU-ER1	PLFY-EP15NEMU-ER1	PLFY-EP15NEMU-ER1	PEFY-P15NMAU-E4	PLFY-P08NFMU-E	PEFY-P36NMAU-E4	PEFY-P36NMAU-E4	PKFY-P12NLMU-E.TH	MSZ-GL12NA-U1
	Type	Ceiling-Cassette (Four-Way)	Ceiling-Cassette (Four-Way)	Ceiling-Concealed (Ducted)	Ceiling-Cassette (Four-Way)	Ceiling-Cassette (Four-Way)	Ceiling-Cassette (Four-Way)	Ceiling-Cassette (Four-Way)	Ceiling-Cassette (Four-Way)	Ceiling-Concealed (Ducted)	Ceiling-Cassette (Four-Way)	Ceiling-Concealed (Ducted)	Ceiling-Concealed (Ducted)	Wall -Mounted	Wall -Mounted
	Nominal Cooling Capacity (BTU/h)	15,000.0	12,000.0	15,000.0	8,000.0	8,000.0	30,000.0	15,000.0	15,000.0	15,000.0	8,000.0	36,000.0	36,000.0	12,000.0	12,000.0
	Nominal Heating Capacity (BTU/h)	17,000.0	13,500.0	17,000.0	9,000.0	9,000.0	34,000.0	17,000.0	17,000.0	17,000.0	9,000.0	40,000.0	40,000.0	13,500.0	14,400.0
Design Conditions	Cooling Design Entering Temp DB/WB (°F) / [Water in temp]	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1	72.0/60.1
	Heating Design Entering Temp DB/WB (°F) / [Water in temp]	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
	Cooling Diversity Full/Partial (See Note 5, 6)	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND
	Heating Diversity Full/Partial (See Note 5, 6)	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND	FULL DEMAND
	Refrig Pipe Dim Liquid/Suction (inch)	1/4 / 1/2	1/4 / 1/2	1/4 / 1/2	1/4 / 1/2	1/4 / 1/2	3/8 / 5/8	1/4 / 1/2	1/4 / 1/2	1/4 / 1/2	1/4 / 1/2	3/8 / 5/8	3/8 / 5/8	1/4 / 1/2	3/8 / 1/4
Performance Data	Cooling Total Capacity (BTU/h)	12,852.0	10,281.6	12,852.0	6,854.4	6,854.4	25,704.0	12,852.0	12,852.0	12,852.0	6,854.4	30,844.8	30,844.8	10,281.6	11,120.8
	Cooling Sensible Capacity (BTU/h)	10,817.3	9,242.3	10,822.8	6,134.1	6,134.1	20,172.0	10,817.3	10,817.3	10,822.8	5,918.4	27,014.2	27,014.2	7,725.5	8,856.4
	Heating Capacity (BTU/h)	11,409.5	9,060.5	11,409.5	6,040.3	6,040.3	22,819.0	11,409.5	11,409.5	11,409.5	6,040.3	26,845.9	26,845.9	9,060.5	9,006.6
	Estimated Cooling Coil LAT (°F) / [LWT]	55.2	57.7	51.6	62.5	62.5	48.9	55.2	55.2	51.6	54.5	52.2	52.2	47.8	51.7
	Estimated Heating Coil LAT (°F) / [LWT]	89.7	86.1	93.5	81.4	81.4	98.1	89.7	89.7	93.5	89.8	91.7	91.7	100.4	92.6
Fan / Water Flow Data	Fan Speed Setting	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
	Peak Fan Airflow (cfm) / [Design gpm]	600	600	494	600	600	812	600	600	494	315	1271	1271	297	406
	Max Fan ESP Setting 208V/230V (IN WG)			0.6/0.6						0.6/0.6		0.6/0.6	0.6/0.6		
	Sound Pressure Per Fan Speed 208V/230V (dBA)	28-29-30-31	27-29-30-31	27-31-34	27-29-30-31	27-29-30-31	28-31-33-35	28-29-30-31	28-29-30-31	27-31-34	26-30-33	35-39-43	35-39-43	24-31-37-41	19-22-30-37-45/19-22-30-37-43
Electrical Data	Voltage / Phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase	208/230V/1-phase
	Power Cooling 208V/230V (kW)	0.03	0.03	0.062	0.03	0.03	0.04	0.03	0.03	0.062	0.02	0.222	0.222	0.04	
	Power Heating 208V/230V (kW)	0.02	0.02	0.06	0.02	0.02	0.04	0.02	0.02	0.06	0.02	0.22	0.22	0.03	
	Electrical MCA/MFS	0.39/0.39/15	0.39/0.39/15	2.88/15	0.39/0.39/15	0.39/0.39/15	0.57/0.57/15	0.39/0.39/15	0.39/0.39/15	2.88/15	0.28/0.28/15	4.25/15	4.25/15	0.24/0.24/15	Powered by Outdoor
	Condensate Removal Rate (gal/hr)	0.42	0.26	0.46	0.19	0.19	1.09	0.42	0.42	0.46	0.25	0.92	0.92	0.59	0.34
	Actual Port Assignments														
Notes / Options	Applicable System Notes - See Notes Below	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6

Notes & Options:

DATE: ISSUE
7.18.22 FOR BID

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215 ROANOKE AVENUE
RIVERHEAD, NY 11901
(631) 727-5352
9 SELENA COURT
WALDEN, NY 12586
(845) 275-8859

TAPPAN FIRE DISTRICT
123 WASHINGTON STREET
TAPPAN NY, 10983

MECHANICAL EQUIPMENT SCHEDULES

PROJECT #: 21-08

DRAWN BY:

CAD FILE: 21-08/P:/BID

DRAWING#:

M-6

Centralized System - 1 : System 1

Piping Diagram Image (Design View)

Centralized System - 1 : Syster

Piping Diagram Image (Design View)

ECV-10H-VG-PM

Unit Performance

Design Conditions					
Elevation (ft)	Summer		Winter DB (F)	Outdoor Air (CFM)	Exhaust Air (CFM)
	DB (F)	WB (F)			
23	91.0	77.0	5.0	710	710

Unit Specifications			
Qty	Weight (lb)	Unit Installation	Unit ETL Listing
1	494 (+/- 5%)	Outdoor	UL 1812

Configuration			
Outdoor Air		Exhaust Air	
Intake	Discharge	Intake	Discharge
End	Bottom	Bottom	End

Energy Recovery Performance									
Design Condition	Temperature (F)								Capacity Reduction (BTU/h)
	Outdoor Air		Supply Air		Return Air		Exhaust Air		
	DB	WB	DB	WB	DB	WB/RH	DB	WB	
Summer	91.0	77.0	80.1	69.6	75.0	62.5/50	85.9	71.1	21,726.0
Winter	5.0	3.1	50.7	40.7	72.0	55.8/35	26.3	26.3	35,335.0

Air Performance						
Type	Total Volume (CFM)	External SP (in. wg)	Total SP (in. wg)	FRPM	Fan	
					Qty	Type / Drive-Type
Supply	710	0.5	0.669	1048	1	Forward Curve / Direct
Exhaust	710	0.5	0.613	1394	1	Forward Curve / Direct

Motor Specifications						
Motor	Qty	Operating Power (hp)	Size (hp)	Enclosure	Efficiency	RPM
Supply	1	N/A	3/4	ODP	N/A	1750
Exhaust	1	N/A	3/4	ODP	N/A	1750

Electrical Specifications				
Power Supply	Rating (V/C/P)	MCA (A)	MOP (A)	Fan Power (W/CFM)*
Unit	208/60/1	26.1	30.0	1.575

*Fan Power (W/CFM) = (Supply BHP + Exhaust BHP) / Supply CFM

Unit	
UL-1812	Std
Unit Installation - Outdoor	Std
Outdoor Air Filters - 2" MERV 8, 2-20x25	Std
Exhaust Air Filters - 2" MERV 8, 2-20x25	Std
Energy Recovery Device - Polymer Membrane Energy Recovery Core	Std
Unit Construction - Double Wall	X
Insulation - 1 inch R4 Fiberglass	Std
Corrosion Resistant Fasteners	Std
Access - Hinged	X
Factory Wired Non-Fused Disconnect Switch	Std
Unit Finish - Permatector, Concrete Gray (RAL 7023)	X
Single Point Power	Std
Supply Weatherhood: Downturn	Std
Exhaust Weatherhood: Downturn	Std
Two Direct Drive Forward Curved Blowers and VariGreen EC Motors	Std
Controls	
Unit Controls - Microprocessor	X
Sensors - OAI, OAD	Std
Unit On/Off Control - Microprocessor	X
Sensor Monitoring Package	
Heating Enable - None	
Cooling Enable - None	
Supply Fan Control - Network Control	X
Exhaust Fan Control - Network Control	X
Network Protocol - To Be Selected	
Exhaust Only Operation	
Economizer Control - Bypass Damper - Temperature	X
Control Accessories	
Remote Display	
CO2 Sensor	
Dirty Filter Sensor(s) - Both	X
Airflow Monitoring - Supply and Exhaust	X

Accessories	
Frost Control - 2.1 kW Electric Preheater	X
Spare Filters	
Shipped Loose Smoke Detectors	
Duct Flange	
Outdoor Air Damper - Low Leakage	X
Return Air Damper	
Service Outlet - 120 VAC GFCI Service Outlet, Shipped Loose	X
Damper End Switch	X
Roof Curb - GKD - 26.4/52.28-G14	X
Warranty Options	
Unit Warranty - 1 Yr (Standard)	Std
Energy Core Warranty - 5 Yrs	Std

Standard Option	Std
Not Included	
Included	X

Notes
Outdoor Air Damper supplied is low leakage, motorized VCD-23 (leakage rate of 3 CFM / ft^2 @ 1 in. wg), Class 1A

UNIT HEATER SCHEDULE (ELECTRIC)

APPROVALS: UL LISTED

MARK	MANUFACTURER TYPE & MODEL	COILS	WATTS	ENTERING AIR (°F)	BTU/HR.	ELECTRICAL DATA					REMARKS	LOCATION(S)
						CFM	HP	VOLTS	PHASE	AMPS		
EUH-1	QMARK CWH3180F	1	1,800	40	6,138	100	-	120	1	15.0	WALL MNT.	DELIVERY RM.
EUH-2	QMARK CDF500	1	3,000	40	10,200	300	-	208	3	9.6	CLG. MNT.	SOUTH LOBBY

PROVIDE: DISCONNECT, OPTIONAL BMS RELAYS, WALL MOUNTED THERMOSTAT, RECESS CEILING KIT.

CEILING HVLS CIRCULATING FAN SCHEDULE

APPROVALS: UL

DESIGNATION	MAKE	MODEL	POWER SUPPLY			MOCP	H.P	RPM	#AIRFOILS	WEIGHT	LISTINGS
			VOLTAGE	PHASE	AMPS						
VF-1	MACROAIR	8'	208	3	10.8	15	1.0	142	6	171 LBS.	UL

PROVIDE: CONTROLLER 30, CONTROL WIRING, MOUNTING, FIRE ALARM CONNECTION, SAFETY CABLE, BLADE RETAINER LINKS.

AIR PURIFIER SCHEDULE

DESIGNATION	MAKE	MODEL	POWER SUPPLY			QTY	H.P	LISTINGS
			VOLTAGE	PHASE	AMPS			
AP-1	MAGNEGRIP	AIRHAWK 1000 XL	230	1	9	1	1.0	UL507/ETL

PROVIDE: PROGRAMMABLE TIMECLOCK AND ALL CONTROL WIRING BY MECHANICAL CONTRACTOR.

DEHUMIDIFIER SCHEDULE

DESIGNATION	POWER SUPPLY				MOISTURE REMOVAL	REFRIG.	CFM	MAKE	MODEL	LOCATION	NOTES
	VOLTAGE	PHASE	MCA	MAX FUSE							
DH-1	120	1	8.42	15	70 PINTS	R-410A	120	LENNOX	HCWHD3-070	ATTIC AREAS	
DH-2	120	1	8.42	15	70 PINTS	R-410A	120	LENNOX	HCWHD3-070	ATTIC AREAS	

PROVIDE: DISCONNECT SWITCH, CONDENSATE PUMP & DRAIN, BACKFLOW DAMPER, 40VA TRANSFORMER, 10" DAMPERS, OUTDOOR TEMP SENSOR, DRAIN PAN.

UNIT HEATER SCHEDULE (GAS FIRED)

MARK	MANUFACTURER TYPE & MODEL	HEATING / BTU		TEMP. RISE	F.L.A.	MOTOR DATA					WEIGHT	LOCATION(S)
		INPUT	OUTPUT			CFM	HP	VOLTS	PHASE	AMPS		
UH-1	MODINE HDS-45	45,000	36,900	46°	3.75	720	1/15	120	1	3.8	60	NEW APPARATUS BAY
UH-2	MODINE HDS-45	45,000	36,900	46°	3.75	720	1/15	120	1	3.8	60	NEW APPARATUS BAY
UH-3	MODINE HDS-45	45,000	36,900	46°	3.75	720	1/15	120	1	3.8	60	NEW APPARATUS BAY
UH-4	MODINE HDS-45	45,000	36,900	46°	3.75	720	1/15	120	1	3.8	60	NEW APPARATUS BAY
UH-5	MODINE HDS-30	30,000	24,600	44°	3.75	505	1/15	120	1	3.8	55	GEAR AREA
UH-6	MODINE HDS-30	30,000	24,600	44°	3.75	505	1/15	120	1	3.8	55	UPPER ATTIC
UH-7	MODINE HDS-30	30,000	24,600	44°	3.75	505	1/15	120	1	3.8	55	UPPER ATTIC
UH-8	MODINE HDS-30	30,000	24,600	44°	3.75	505	1/15	120	1	3.8	55	UPPER ATTIC

1. PROVIDE AND INSTALL WALL MOUNTED LOW VOLTAGE THERMOSTAT WITH SUB-BASE.
2. PROVIDE AND INSTALL INTAKE AND EXHAUST PIPING, CONCENTRIC ROOF TERMINATION KIT WITH FLASHING.
3. PROVIDE LOCKING THERMOSTAT GUARD.
4. PROVIDE 24V TRANSFORMER.

EXHAUST FAN SCHEDULE

APPROVALS: UL

TAG	SERVICE	TYPE	FAN DATA						DAMPER SIZE	ROOF OPENING	WEIGHT	GREENHECK MODEL NO	NOTES
			CFM	S.P	AMPS	VOLT	PH	H.P.	RPM					
EF-1	1ST FL RESTROOMS	ROOF	240	0.5	1.38	115	1	1/10	1,554	10x10	12.5x12.5	28	G-080-VG	-
EF-2	JAN. CLOSET	ROOF	70	0.35	1.3	115	1	0.02	1,578	10x10	10.5x10.5	21	G-60-VG	-
EF-3	2ND FL MENS RESTROOM	CLG	75	0.3	0.1	115	1	-	884	6"ø	-	12	SP-80-VG	-
EF-4	2ND FL WOMENS RESTROOM	CLG	75	0.3	0.1	115	1	-	884	6"ø	-	12	SP-80-VG	-

PROVIDE: ROOF CURBS, FLASHING, MOUNTING, HANGING/SPRING VIBRATION ISOLATION, FLEXIBLE CONNECTORS, BACKDRAFT DAMPERS, DISCONNECTS,

Sidewall Direct Drive Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	EF-5	SE1-18-424-VG	2,250	0.35	1,330	0.31	54	0.75	115/60/1	DP	1725	1	13.8

NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2017. Actual motor FLA may vary for sizing thermal overload, consult factory

APP BAY EXH : SELECTED OPTIONS AND ACCESSORIES
UL Listing
Airflow Direction: Exhaust
Motor Access: From Int. of Bldg.
Switch, NEMA-1, Toggle, Shipped with Unit
Aluminum Damper Guard

DATE: ISSUE
7.18.22 FOR BID

SEAL:

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TAPPAN FIRE DISTRICT
123 WASHINGTON STREET
TAPPAN NY, 10983

MECHANICAL EQUIPMENT SCHEDULES & REFRIGERANT RISER DIAGRAM

PROJECT #: 21-08

DRAWN BY:

CAD FILE: 21-08/P:/BID

DRAWING#:

M-7

ADD/ALT EQUIPMENT SCHEDULE

BOILER SCHEDULE

APPROVALS: AHRI, ASME, CSA

UNIT NO.	SERVICE	GAS			COMB. EFF. %	MAX GPM	FLUE OUTLET SIZE (IN)	FUEL	TYPE	MAX WORK. PRESS.	DESIGN PRESS. PSIG	WEIGHT OPER. (LBS)	WATER TEMP °F		MANUF.	MODEL NO.
		INPUT MBH	OUTPUT MBH	MIN. OPER GAS PRESS (W.C.)									ENT.	LVG.		
B-1	HEATING	399	333	-	96.5	-	4"	NAT. GAS	HOT WATER	-	-	260	155	180	WEIL McLAIN	EVG-399

BOILER TO INCLUDE THE FOLLOWING: MANIFOLDS, O/A RESET, TEMP/PRESSURE GAUGES, MULTI PURPOSE & ISOLATION VALVES, LOW WATER CUT OFF, ANTI-SIPHON, HI AND LOW LIMIT CONTROLS, AQUA STAT, CSD-1 SAFETY, DURAVENT AL29-4C FASNSEAL VENTING, CIRCULATOR, NEUTRALIZATION KIT, VORTECH AIR/DIRT SEPARATOR, ROOF VENT TERMINATION KIT, 6" CONCRETE EQUIPMENT PAD

PUMP SCHEDULE

APPROVALS: UL

DESIGNATION	MANUF.	MODEL#	HEAD (FT.)	GPM	HP	ELECTRICAL REQ.			CONNECTION		REMARKS
						Volts	Ph	AMP	Inlet	Outlet	
P-1	TACO	VR15	33.5	14.3	0.68	208	1	5.6	1.5"	1.5"	NEW ADDITION

PUMPS TO INCLUDE THE FOLLOWING: HOA DISCONNECT, PUMP CONTROLLER AND RELAYS, ISOLATION VALVES, MULTI PURPOSE VALVES, TEMPERATURE/PRESSURE GAUGES, VIBRATION ISOLATION.

EXPANSION TANK SCHEDULE

APPROVALS: ISO 9001, ASME

DESIGNATION	MANUF.	MODEL#	TANK VOL.	ACCEPT. VOL.	HEIGHT	DIAMETER	SYS. CONN.	SHIPPING WEIGHT	REMARKS
EXP-1	TACO	CX-42	11	5	27.5"	14"	1"	51	B-1

ATTIC FAN SCHEDULE

APPROVALS: UL

TAG	SERVICE	TYPE	FAN DATA							DAMPER SIZE	ROOF OPENING	WEIGHT	BROAN MODEL NO.
			CFM	S.P	HP	VOLT	PH	AMPS	FRPM				
AF-1	ATTIC VENTILATOR	ROOF EXHAUST	1600	0.03	-	120	1	8.0	1500	22sq/in	-	-	356BK

PROVIDE: ROOF FLASHING, DISCONNECT AND BUILT IN ADJUSTABLE THERMOSTAT, BACKDRAFT DAMPER

EXHAUST HOOD SCHEDULE

APPROVALS: UL

DESIGNATION	SONES		CFM			POWER SUPPLY			MAKE/MODEL
	NORMAL	HIGH	NORMAL	HIGH (0.25 IN. W.G.)	HIGH (0.1 IN. W.G.)	VOLTAGE	PHASE	AMPS	
H-1	2.5	10.5	200	488	500	120	1	3.05	BROAN/EW58

INCLUDE: DISCONNECT.

CARBON MONOXIDE CONTROLLER

DESIGNATION	MANUF.	MODEL#	ELEC	AMPS	RELAY RATING	SENSORS	SHIPPING WEIGHT	REMARKS
CO/NO-1	MACURCO	CX-12	120/1	1.0	5 AMPS	CSI02A	15 lbs	APP/WET BAYS

INCLUDE, HORN STROBE, CALIBRATION KIT, CONTROL PANEL FAN RELAYS.

This drawing is schematic in nature. Final routing of piping & wiring shall be determined by the installing contractor and/or designer of record

Additional refrigerant charge is needed depending on the size and length of extended piping. Please refer the amount of pre-charge and the formula of calculation which is mentioned on the data book.

1.25mm²(16 AWG) : 1.25mm²(16 AWG) or more. 0.75mm²(20 AWG) : between 0.5mm²(24 AWG) and 0.75mm²(20 AWG).

Coded Notes:
NOTE 1: Install twinning Y's within 15 degrees of level and with 20 inches of straight pipe on converging connection - reference installation manual for additional details including but not limited to special trapping requirements when twinning, and pipe slope requirements

CITY MULTI

SYSTEM SCHEMATIC DWG.

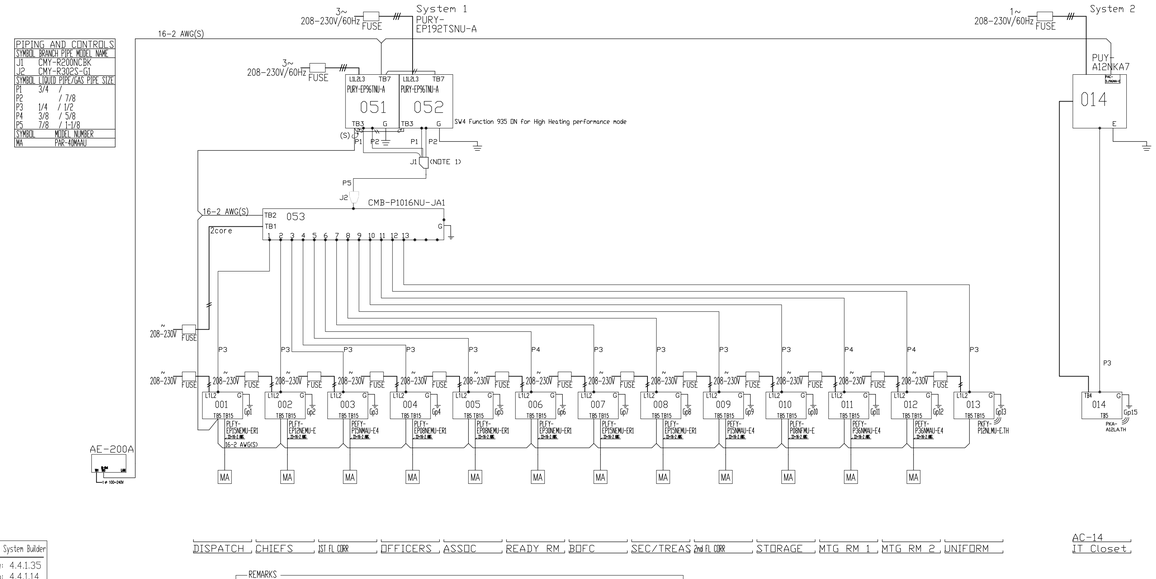
DIAGRAM SYMBOL LEGEND		CONT.No	PAGE
DISPLAY	DESCRIPTION		
~~	POWER WIRE		
———	CONTROL WIRE		
———	REF. PIPE		

PIPING AND CONTROLS

SYMBOL	BRANCH PIPE MODEL NAME
J1	CMY-R2020NZ-BK
J2	CMY-R3083-G1

SYMBOL	LIQUID PIPE/GAS PIPE SIZE
P1	3/4 /
P2	/ 7/8
P3	1/4 / 1/2
P4	3/8 / 5/8
P5	7/8 / 1-1/8

SYMBOL	MODEL NUMBER
MA	PAC-IDMA1U



Diamond System Builder
sw: 4.4.1.35
ulo: 4.4.1.14
7/19/2022
10:23 AM

REMARKS
Comments:

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MECHANICAL EQUIPMENT
SCHEDULES & CONTROL RISER
DIAGRAM

PROJECT #: 21-08

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CAD FILE: 21-08/P: /BID

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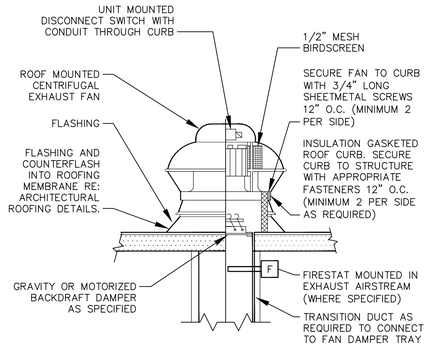
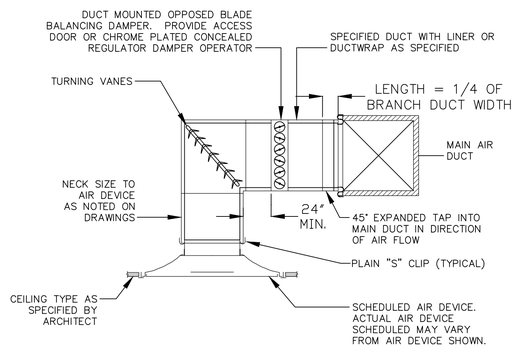
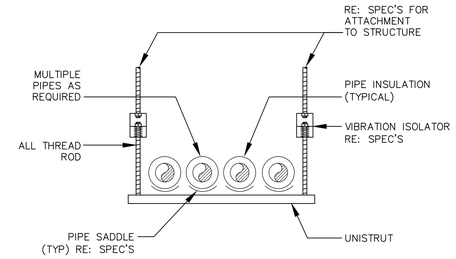


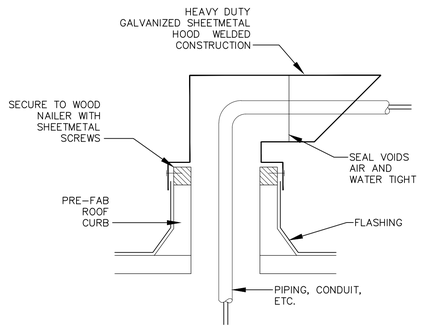
1 TYPICAL ROOF EXHAUST FAN
NOT TO SCALE



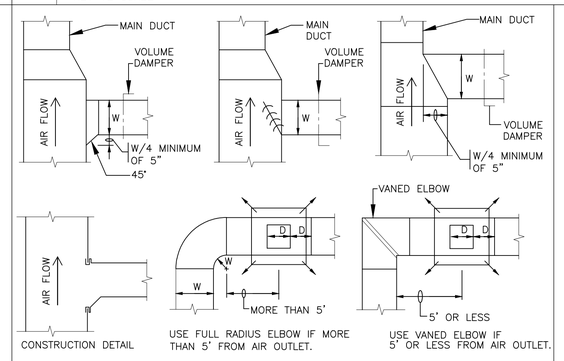
2 AIR-DEVICE IN NON-ACCESSIBLE CEILING
NOT TO SCALE



3 TYPICAL MULTIPLE PIPE HANGER
NOT TO SCALE

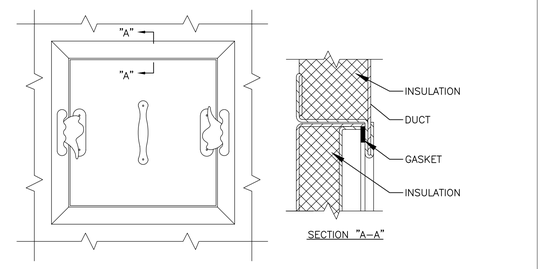


4 PIPE PENETRATION
NOT TO SCALE



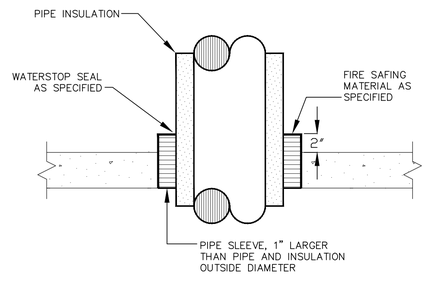
NOTE: DETAILS REFLECT CONNECTIONS FOR LOW PRESSURE DUCTWORK.

5 BRANCH DUCT CONNECTIONS
NOT TO SCALE

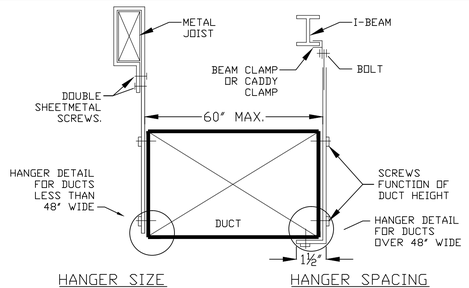


6 ACCESS PANEL
NOT TO SCALE

FIRE SEAL SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S U.L. LISTED INSTALLATION INSTRUCTIONS.



7 TYPICAL PIPE SLEEVE
NOT TO SCALE



HANGER SIZE

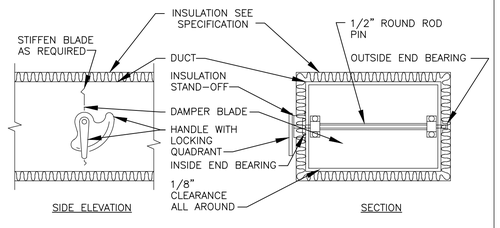
DUCT SIZE	HANGER SIZE
UP TO 2 SQ. FT.	1" X 1/16"
2 TO 8 SQ. FT.	1" X 1/8"
OVER 8 SQ. FT.	1" X 1/8"

HANGER SPACING

DUCT SIZE	MAX SPACING
UP TO 4 SQ. FT.	8'-0"
4 TO 10 SQ. FT.	6'-0"
OVER 10 SQ. FT.	4'-0"

NOTES:
1. ALL SUPPLEMENTARY STEEL OR ANGLE TO BE EITHER GALVANIZED OR BLACK.
2. DUCTS OVER 60" TO TRAPEZE WITH ROD AND ANGLE AS PER SMACNA.

8 TYPICAL DUCT HANGING
NOT TO SCALE

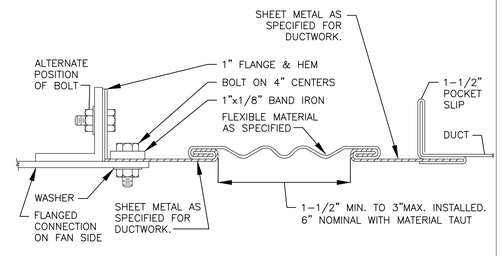


NOTES:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.

1. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

9 VOLUME DAMPER
NOT TO SCALE



10 FLEXIBLE DUCT CONNECTIONS
NOT TO SCALE

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TAPPAN FIRE DISTRICT
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MECHANICAL DETAILS

PROJECT #: 21-08

DRAWN BY:

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M-9

2020 MECHANICAL CODE AND BUILDING CODE OF NEW YORK STATE:

1. Heating, ventilating and air–conditioning systems of all structures shall be designed and installed for efficient utilization of energy in accordance with the International Energy Conservation Code of New York State.

2. The approval and installation of fuel gas distribution piping and equipment, fuel gas–fired appliance venting systems shall be in accordance with the International Fuel Gas Code. As per Section 301.6 Fuel gas appliances and equipment.

3. All appliances regulated by this code shall be listed and labeled for the application in which they are installed and used, unless otherwise approved in accordance with section 105. As per section 301.7 of the 2020 International Mechanical Code of New York State. Exception: Listing and labeling of equipment and appliances used for refrigeration shall be in accordance with section 1101.2.

4. The building or structure shall not be weakened by the installation of mechanical systems. Where floors, walls, ceilings or any other portion of the building or structure are required to be altered or replaced in the process of installing or repairing any system, the building or structure shall be left in a safe structural condition in accordance with the 2020 International Building Code of New York State.

5. Penetrations of floor/ceiling assemblies and assemblies required to have a fire–resistance rating shall be protected in accordance with Chapter 7 of the 2020 International Building Code of New York State.

6. Where sleeves are used, they shall be securely fastened to the assembly penetrated. The space between the item contained in the sleeve and the sleeve itself and any space between the sleeve and the assembly penetrated shall be protected in accordance with this section. Insulation and coverings on or in the penetrating item shall not penetrate the assembly unless the specific material used has been tested as part of the assembly in accordance with this section. As per Section 714.3 Installation details of the 2020 International Building Code of New York State.

7. Penetrations into or through fire walls, fire barriers, smoke barrier walls, and fire partitions shall comply with Sections 714.4.1–714.4.3 of the International Building Code (IBC). Penetrations in smoke barrier walls shall also comply with Section 714.5.4 of the 2020 IBCNYS.

8. Through penetrations of fire–resistance–rated walls shall comply with Section 714.4.1.1 or 714.4.1.2 of the 2020 IBCNYS.
Exceptions: Where the penetrating items are steel, ferrous or copper pipes, tubes or conduits, the annular space between the penetrating item and the fire–resistance–rated wall shall be permitted to be protected by either of the following measures:
1. In concrete or masonry walls where the penetrating item is a maximum 6–inch (152 mm) nominal diameter and the opening is a maximum 144 square inches (0.0929 m2), concrete, grout or mortar shall be permitted where installed the full thickness of the wall or the thickness required to maintain the fire–resistance rating.
2. The material used to fill the annular space shall prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 or UL 263 time–temperature fire conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the fire–resistance rating of the construction penetrated. As per Section 714.4.1 Through penetrations of the 2020 IBCNYS.

9. Through penetrations shall be protected using systems installed as tested in the approved fire–resistance–rated assembly. As per Section 714.4.1.1 Fire–resistance–rated assemblies of the 2020 IBCNYS.

10. Through penetrations shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E814 or UL 1479, with a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water and shall have an F rating of not less than the required fire–resistance rating of the wall penetrated. As per Section 714.4.1.2 Through–penetration firestop system of the 2020 IBCNYS.

11. Penetrations of fire–resistance–rated walls by ducts that are not protected with dampers shall comply with this Sections 714.3–714.4.3 of the IBC. Penetrations of horizontal assemblies not protected with a shaft and not required to be protected with fire dampers by other sections of this code, shall comply with Sections 714.5–714.6.2 of the 2020 IBCNYS. Ducts and air transfer openings that are protected with dampers shall comply with Section 717. As per Section 714.1.1 Ducts and air transfer openings of the 2020 IBCNYS.

12. Noncombustible penetrating items shall not connect combustible items beyond the point of firestopping unless it can be demonstrated that the fire–resistance integrity of the wall is maintained. As per Section 714.4.3 Dissimilar materials of the 2020 IBCNYS.

13. Penetrations of a fire–resistance–rated floor, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly not required to be enclosed in a shaft by Section 712.1 shall be protected in accordance with Sections 714.5.1 through 714.5.4. of the 2020 IBCNYS.

14. Through penetrations of fire–resistance–rated horizontal assemblies shall comply with Section 714.5.1.1 or 714.5.1.2 of the 2020 IBCNYS.
Exceptions:
1. Penetrations by steel, ferrous or copper conduits, pipes, tubes or vents or concrete or masonry items through a single fire–resistance–rated floor assembly where the annular space is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste when subjected to ASTM E119 or UL 263 time–temperature fire conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the fire–resistance rating of the construction penetrated. Penetrating items with a maximum 6–inch (152 mm) nominal diameter shall not be limited to the penetration of a single fire–resistance–rated floor assembly, provided that the aggregate area of the openings through the assembly does not exceed 144 square inches (92 900 mm2) in any 100 square feet (9.3 m2) of floor area.
2. Penetrations in a single concrete floor by steel, ferrous or copper conduits, pipes, tubes or vents with a maximum 6–inch (152 mm) nominal diameter, provided that the concrete, grout or mortar is installed the full thickness of the floor or the thickness required to maintain the fire–resistance rating. The penetrating items shall not be limited to the penetration of a single concrete floor, provided that the area of the opening through each floor does not exceed 144 square inches (92 900 mm2).
3. Penetrations by listed electrical boxes of any material, provided that such boxes have been tested for use in fire–resistance–rated assemblies and installed in accordance with the instructions included in the listing.
As per Section 714.5.1 Through penetration of the 2020 IBCNYS.

15. Through penetrations shall be protected using systems installed as tested in the approved fire–resistance–rated assembly. As per Section 714.5.1.1 of the 2020 IBCNYS.

16. Through penetrations shall be protected by an approved through–penetration firestop system installed and tested in accordance with ASTM E814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water (2.49 Pa). The system shall have an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.
Exceptions:
1. Floor penetrations contained and located within the cavity of a wall above the floor or below the floor do not require a T rating..
2. Floor penetrations by floor drains, tub drains or shower drains contained and located within the concealed space of a horizontal assembly do not require a T rating.
3. Floor penetrations of maximum 4–inch (102 mm) nominal diameter metal conduit or tubing penetrating directly into metal–enclosed electrical power switchgear do not require a T rating.
As per Section 714.5.1.2 Through–penetration firestop system of the 2020 IBCNYS.

17. Penetrations of horizontal assemblies without a required fire–resistance rating shall meet the requirements of Section 707 of the 2020 IBCNYS or shall comply with Sections 302.2.3.2.1 through 302.2.3.2.2. As per Section 302.2.3.2 Nonfire–resistance–rated assemblies.

2020 MECHANICAL CODE AND BUILDING CODE OF NEW YORK STATE:

18. Noncombustible penetrating items that connect not more than five stories are permitted, provided that the annular space is filled to resist the free passage of flame and the products of combustion with an approved noncombustible material or with a fill, void or cavity material that is tested and classified for use in through–penetration firestop systems. As per Section 714.6.1 Noncombustible penetrating items of the 2020 IBCNYS.

19. Penetrating items that connect not more than two stories are permitted, provided that the annular space is filled with an approved material to resist the free passage of flame and the products of combustion. As per Section 714.6.2 Penetrating items of the 2020 IBCNYS.

20. Hangers and anchors shall be attached to the building construction in an approved manner. As per Section 305.3 Structural attachment.

21. Piping shall be supported at distances not exceeding the spacing specified in Table 305.4, or in accordance with ANSI/MSS SP–69. As per Section 305.4 Interval of support.

22. Truss members and components shall not be cut, drilled, notched, spliced or otherwise altered in any way without written concurrence and approval of a registered design professional. Alterations resulting in the addition of loads to any member, such as HVAC equipment and water heaters, shall not be permitted without verification that the truss is capable of supporting such additional loading. As per Section 302.4 of the 2020 IMCNYS Alteration to trusses.

23. The cutting, notching and boring of steel framing members shall comply with Sections 302.5.1 through 302.5.3. As per Section 302.5 of the 2020 IMCNYS Cutting, notching and boring in steel framing.

24. The cutting, notching and boring of holes in structural steel framing members shall be as prescribed by the registered design professional. As per Section 302.5.1 of the 2020 IMCNYS Cutting, notching and boring holes in structural steel framing.

25. Flanges and lips of load–bearing cold–formed steel framing members shall not be cut or notched. Holes in webs of load–bearing cold–formed steel framing members shall be permitted along the centerline of the web of the framing member and shall not exceed the dimensional limitations, penetration spacing or minimum hole edge distance as prescribed by the registered design professional. Cutting, notching and boring holes of steel floor/roof decking shall be as prescribed by the registered design professional. As per Section 302.5.2 of the 2020 IMCNYS Cutting, notching and boring holes in cold–formed steel framing.

26. Flanges and lips of nonstructural cold–formed steel wall studs shall not be cut or notched. Holes in webs of nonstructural cold–formed steel wall studs shall be permitted along the centerline of the web of the framing member, shall not exceed 1–1/2 inches (38 mm) in width or 4 inches (102 mm) in length, and shall not be spaced less than 24 inches (610 mm) center to center from another hole or less than 10 inches (254 mm) from the bearing end. As per Section 302.5.3 of the 2020 IMCNYS Cutting, notching and boring holes in non–structural cold–formed steel wall framing.

TABLE 305.4 – PIPING SUPPORT SPACING (a)

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)
ABS PIPE	4	10 (c)
ALUMINUM PIPE AND TUBING	10	15
CAST–IRON PIPE (b)	5	15
COPPER OR COPPER–ALLOY PIPE	12	10
COPPER OR COPPER–ALLOY TUBING	8	10
CPVC PIPE OR TUBING, 1 INCH AND SMALLER	3	10 (c)
CPVC PIPE OR TUBING, 1¼ INCHES AND LARGER	4	10 (c)
LEAD PIPE	CONTINUOUS	4
PB PIPE OR TUBING	2⅔ (32 INCHES)	4
PE–RT 1 INCH AND SMALLER	2⅔ (32 INCHES)	10 (c)
PE–RT 1¼ INCHES AND LARGER	4	10 (c)
PEX TUBING 1 INCH AND SMALLER	2⅔ (32 INCHES)	10 (c)
PEX TUBING 1¼ INCHES AND LARGER	4	10 (c)
POLYPROPYLENE (PP) PIPE OR TUBING, 1 INCH AND SMALLER	2⅔ (32 INCHES)	10 (c)
POLYPROPYLENE (PP) PIPE OR TUBING, 1¼ INCHES AND LARGER	4	10 (c)
PVC PIPE	4	10 (c)
STEEL TUBING	8	10
STEEL PIPE	12	15

a. See Section 301.18.
b. The maximum horizontal spacing of cast–iron pipe hangers shall be increased to 10 feet where 10–foot lengths of pipe are installed.
c. Mid–story guide.

29. Liquid combustion by–products of condensing appliances shall be collected and discharged to an approved plumbing fixture or disposal area in accordance with the manufacturer's installation instructions. Condensate piping shall be of approved corrosion–resistant material and shall not be smaller than the drain connection on the appliance. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one–eighth unit vertical in 12 units horizontal (1–percent slope). As per Section 307.1 of the 2020 IMCNYS Fuel–burning appliances.

30. Heating and cooling system design loads for the purpose of sizing systems, appliances and equipment shall be determined in accordance with the procedures described in the ASHRAE/ACCA Standard 183. Alternatively, design loads shall be determined by an approved equivalent computation procedure, using the design parameters specified in Chapter 3 [CE] of the Energy Conservation Construction Code of New York State. As per Section 312.1 of the 2020 IMCNYS Load Calculations.

31. Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with Table 403.3.1.1 based on the occupancy of the space and the occupant load or other parameter as stated therein. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3.1.1. Ventilation rates for occupancies not represented in Table 403.3.1.1 shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.
Exception: The occupant load is not required to be determined based on the estimated maximum occupant load rate indicated in Table 403.3.1.1 where approved statistical data document the accuracy of an alternate anticipated occupant density. As per Section 403.3.1.1 of the 2020 IMCNYS Ventilation rate.

2020 MECHANICAL CODE AND BUILDING CODE OF NEW YORK STATE:

32. Ducts and air transfer openings that penetrate fire barriers shall be protected with listed fire dampers installed in accordance with their listing. Ducts and air transfer openings shall not penetrate enclosures for interior exit stairways and ramps and exit passageways except as permitted by Sections 1023.5 and 1024.6, respectively, of the 2020 International Building Code of NYS.
Exception: Fire dampers are not required at penetrations of fire barriers where any of the following apply:
1. Penetrations are tested in accordance with ASTM E 119 or UL 263 as part of the fire–resistancerated assembly.
2. Ducts are used as part of an approved smoke control system in accordance with Section 513 and where the fire damper would interfere with the operation of the smoke control system.
3. Such walls are penetrated by ducted HVAC systems, have a requiredfire–resistance rating of 1 hour or less, are in areas of other then Group H and are in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.1.1 or 903.1.2 of the 2020 International Building Code of NYS. For the purposes of this exception, a ducted HVAC system shall be a duct system for the structure's HVAC system. Such a duct system shall be constructed of sheet steel not less than 26 gage [0.017 inch (0.55mm)] thickness and shall be continuous from the air–handling appliance or equipment to the air outlet and inlet terminals.

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MECHANICAL NOTES

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