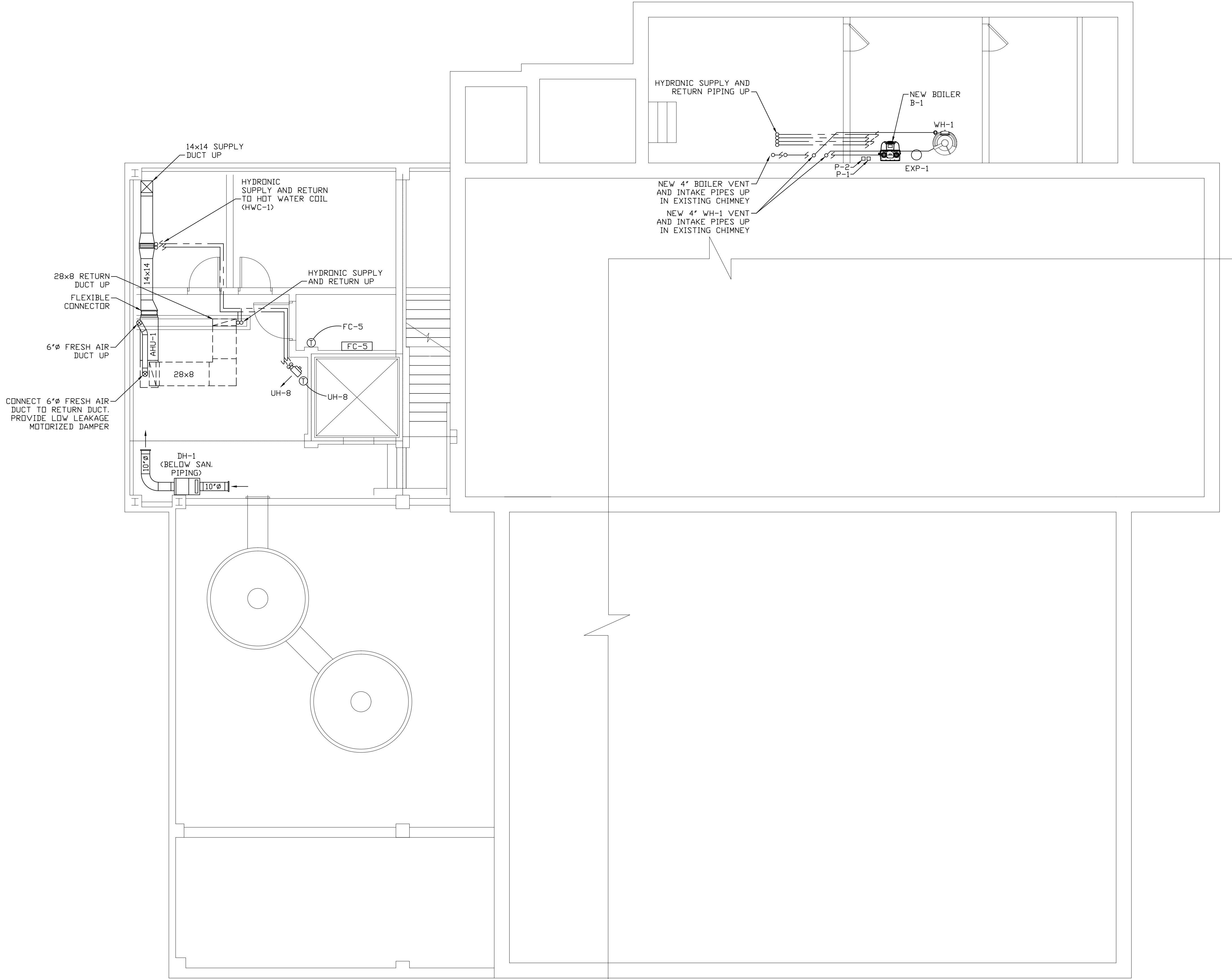
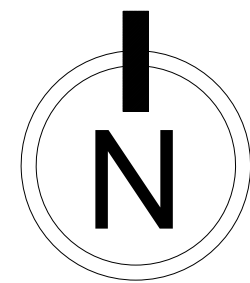










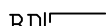


Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd		
System 9 Room Load Summary															
Room No Name	Area SF	Htg Sens Btuh	Htg Nom CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Clg Nom CFM	Zone Adj Fact	Clg Adj CFM	Air Sys CFM				
---Zone 1---															
34 Existing Ready Room	1,907	26,593	351	0-0	0	52,916	26,453	2,444	1.05	2,566	2,444				
Ventilation		51,901				10,380	16,087								
System 9 total	1,907	78,494	351			63,296	42,540	2,444		2,566	2,444				
Cooling System Summary															
		Cooling Tons				Sensible/Latent Split		Sensible Btuh		Latent Btuh		Total Btuh			
Net Required:		8.82				60% / 40%		63,296		42,540		105,836			
Recommended:		14.18				75% / 25%		127,620		42,540		170,160			
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd		
System 10 Room Load Summary															
Room No 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---															
35 Corridor	618	1,953	26	0-0	0	3,218	0	149	1.00	149	149				
36 Corridor Storage	53	381	5	0-0	0	301	0	14	1.00	14	14				
38 Fitness	312	992	13	0-0	0	3,418	1,380	158	1.00	158	158				
39 Ball Out Training	56	4,650	61	0-0	0	1,240	658	57	1.00	57	57				
40 Officers	203	5,564	73	0-0	0	7,978	1,348	368	1.25	461	368				
41 Admin	131	2,697	36	0-0	0	5,076	765	234	1.00	234	234				
42 Benevolent	131	2,697	36	0-0	0	5,076	765	234	1.00	234	234				
43 Sec/treas	196	5,631	74	0-0	0	7,785	1,348	360	1.25	449	360				
44 Jan Cl	39	82	1	0-0	0	185	0	9	1.00	9	9				
45 Womens	163	342	5	0-0	0	546	0	25	1.00	25	25				
46 Mens	163	342	5	0-0	0	546	0	25	1.00	25	25				
54 Existing App Bay Stair To 2nd Fl (south)	116	14,982	198	0-0	0	2,734	587	126	1.00	126	126				
Ventilation		22,410				4,482	6,946								
System 10 total	2,181	62,723	532			42,585	13,797	1,760		1,942	1,760				
Cooling System Summary															
		Cooling Tons				Sensible/Latent Split		Sensible Btuh		Latent Btuh		Total Btuh			
Net Required:		4.70				76% / 24%		42,585		13,797		56,383			
Recommended:		4.73				75% / 25%		42,585		14,195		56,781			
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd		
System 11 Room Load Summary															
Room No 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---															
37 Lt. Room	77	0	0	0-0	0	12,401	128	573	1.00	573	573				
System 11 total	77	0	0			12,401	128	573		573	573				
Cooling System Summary															
		Cooling Tons				Sensible/Latent Split		Sensible Btuh		Latent Btuh		Total Btuh			
Net Required:		1.04				99% / 1%		12,401		128		12,529			
Recommended:		1.38				75% / 25%		12,401		4,134		16,534			
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd		
System 12 Room Load Summary															
Room No 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---															
47 2nd Fl Quiet Room	379	8,728	115	0-0	0	5,297	2,688	245	1.00	245	245				
48 Bunk 217	162	3,852	51	0-0	0	2,649	778	122	1.25	153	122				
49 Bunk Corr	55	115	2	0-0	0	240	0	11	1.00	11	11				
50 Bunk Bath	80	366	5	0-0	0	280	0	13	1.00	13	13				
51 Bunk 216	228	3,723	49	0-0	0	3,636	1,238	168	1.25	210	168				
Ventilation		9,419				1,884	2,919								
System 12 total	884	26,203	221			13,984	7,623	559		631	559				
Cooling System Summary															
		Cooling Tons				Sensible/Latent Split		Sensible Btuh		Latent Btuh		Total Btuh			
Net Required:		1.80				65% / 35%		13,984		7,623		21,607			
Recommended:		2.54				75% / 25%		22,870		7,623		30,494			
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd		
System 13 Room Load Summary															
Room No 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---															
52 Existing North Stair (tower)	136	17,568	232	0-0	0	1,421	0	66	1.00	66	232				
System 13 total	136	17,568	232			1,421	0	66		66	232				
Cooling System Summary															
		Cooling Tons				Sensible/Latent Split		Sensible Btuh		Latent Btuh		Total Btuh			
Net Required:		0.12				100% / 0%		1,421		0		1,421			
Recommended:		0.16				75% / 25%		1,421		474		1,895			
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd		
System 14 Room Load Summary															
Room No 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---															
53 Existing Northeast Stair	288	34,244	452	0-0	0	5,441	1,256	251	1.00	251	452				
System 14 total	288	34,244	452			5,441	1,256	251		251	452				
Cooling System Summary															
		Cooling Tons				Sensible/Latent Split		Sensible Btuh		Latent Btuh		Total Btuh			
Net Required:		0.56				81% / 19%		5,441		1,256		6,697			
Recommended:		0.60				75% / 25%		5,441		1,814		7,255			

Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd			
System 4 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---																
11	Chiefs Office	190	6,429	85	0-0	0	6,911	1,134	0	319	1.25	399	319			
12	Chiefs Bathroom	75	885	12	0-0	0	281	0	13	1.00	13	13				
Ventilation		2,144				429		664								
System 4 total		265	9,458	97			7,620	1,798	332			412	332			
Cooling System Summary																
		Cooling Tons		Sensible/Latent Split		Sensible Btuh		Latent Btuh				Total Btuh				
Net Required:		0.78		81% / 19%		7,620		1,798				9,419				
Recommended:		0.85		75% / 25%		7,620		2,540				10,160				
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd			
System 5 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---																
13	ExistingNorth App Bay	1,788	68,485	904	0-0	0	32,159	5,040	1,485	1.05	1,559	1,485				
14	Paid Gear	209	1,956	26	0-0	0	713	0	33	1.00	33	33				
15	Gear (18 Lockers)	209	1,956	26	0-0	0	713	0	33	1.00	33	33				
16	Gear (8 Shower)	132	1,236	16	0-0	0	450	0	21	1.00	21	21				
17	Gear Shocker	72	674	9	0-0	0	246	0	11	1.00	11	11				
18	Wash Rm	209	11,038	146	0-0	0	2,657	775	123	1.00	123	123				
System 5 total		2,619	85,345	1,126			36,937	5,815	1,706			1,780	1,706			
Cooling System Summary																
		Cooling Tons		Sensible/Latent Split		Sensible Btuh		Latent Btuh				Total Btuh				
Net Required:		3.56		86% / 14%		36,937		5,815				42,752				
Recommended:		4.10		75% / 25%		36,937		12,312				49,250				
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd			
System 6 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---																
19	Alarm Room	240	7,682	101	0-0	0	6,035	1,275	279	1.00	279	279				
Ventilation		2,403				481		745								
System 6 total		240	10,085	101			6,516	2,020	279			279	279			
Cooling System Summary																
		Cooling Tons		Sensible/Latent Split		Sensible Btuh		Latent Btuh				Total Btuh				
Net Required:		0.71		76% / 24%		6,516		2,020				8,536				
Recommended:		0.72		75% / 25%		6,516		2,172				8,688				
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd			
System 7 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---																
20	Mezz TV/Lounge Area	585	3,878	51	0-0	0	6,743	1,571	311	1.00	311	311				
21	Mezz TV/Lounge Bath	100	0	0	0-0	0	341	0	16	1.00	16	16				
22	Mezz TV/Lounge Bath 2	90	0	0	0-0	0	307	0	14	1.00	14	14				
23	Mezz Quiet Room	195	0	0	0-0	0	665	0	31	1.00	31	31				
24	Mezz Bunk M7.5	94	3,451	46	0-0	0	1,323	651	61	1.00	61	61				
25	Mezz Bunk M7.4	94	2,844	38	0-0	0	1,919	545	89	1.25	111	89				
26	Mezz Bunk M7.3	96	2,544	34	0-0	0	1,884	545	87	1.25	109	87				
27	Mezz Bunk M7.2	96	2,544	34	0-0	0	1,884	545	87	1.25	109	87				
28	Mezz Bunk M7.1	94	2,677	35	0-0	0	1,896	545	88	1.25	109	88				
29	Mezz Quiet Rm Storage	32	0	0	0-0	0	109	0	5	1.00	5	5				
Ventilation		15,070				3,014		4,671								
System 7 total		1,476	33,008	237			20,084	9,073	788			876	788			
Cooling System Summary																
		Cooling Tons		Sensible/Latent Split		Sensible Btuh		Latent Btuh				Total Btuh				
Net Required:		2.43		69% / 31%		20,084		9,073				29,157				
Recommended:		3.02		75% / 25%		27,219		9,073				36,292				
Rhvac - Light Commercial HVAC Loads													Elite Software Development, Inc. Harrison Fd			
System 8 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---																
30	Existing Meeting Room	2,096	30,118	397	0-0	0	56,156	30,029	2,594	1.05	2,723	2,594				
31	Existing Meeting Room Storage	160	509	7	0-0	0	851	0	39	1.00	39	39				
33	Existing Kitchen	426	6,994	92	0-0	0	3,304	718	153	1.00	153	153				
Ventilation		57,292				11,458		17,758								
System 8 total		2,682	94,913	496			71,769	48,505	2,785			2,915	2,785			
Cooling System Summary																
		Cooling Tons		Sensible/Latent Split		Sensible Btuh		Latent Btuh				Total Btuh				
Net Required:		10.02		60% / 40%		71,769		48,505				120,274				
Recommended:		16.17		75% / 25%		145,515		48,505				194,020				
System 15 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---																
32	Conference Room	287	5,387	71	0-0	0	6,315	2,878	292	1.00	292	292				
Ventilation		5,456				1,091		1,691								
System 15 total		287	10,843	71			7,406	4,569	292			292	292			
Cooling System Summary																
		Cooling Tons		Sensible/Latent Split		Sensible Btuh		Latent Btuh				Total Btuh				
Net Required:		1.00		62% / 38%		7,406		4,569				11,975				
Recommended:		1.52		75% / 25%		13,708		4,569				18,276				



1 BASEMENT FLOOR MECHANICAL PLAN
M-2 3/16" = 1'-0"

5' 0 5 10
3/16"=1'-0"

SYMBOL LEGEND					
SUPPLY AIR DUCT		—————	FRESH AIR DUCT		—————
RETURN AIR DUCT		- - - - -	HYDRONIC SUPPLY PIPE		—————
EXHAUST AIR DUCT		- · - · -	HYDRONIC RETURN PIPE		- - - - -
SUPPLY AIR DIFFUSER		SAD	RETURN AIR GRILLE		RAG
SUPPLY AIR GRILLE		SAG	EXHAUST AIR GRILLE		EAG
TRANSFER AIR GRILLE		TAG	THERMOSTAT		
FIRE DAMPER		FD	CARBON DIOXIDE (CO ² SENSOR)		
BALANCING DAMPER		BD	TEMPERATURE SENSOR		
MOTORIZED DAMPER		MD			

- PLAN NOTES:
1. ALL BRANCH DUCTWORK TO DIFFUSERS AND GRILLES SHALL HAVE BALANCING DAMPERS INSTALLED AT TAKEOFF'S.
 2. ALL SUPPLY AND RETURN 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 AND WATERSIDE 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. 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. HEATING AND AIR-CONDITIONING SYSTEMS SHALL BE PROVIDED WITH APPROVED AIR FILTERS. FILTERS SHALL BE INSTALLED SUCH THAT ALL RETURN AIR, OUTDOOR AIR AND MAKEUP AIR IS FILTERED UPSTREAM FROM ANY HEAT EXCHANGER OR COIL. FILTERS SHALL BE INSTALLED IN AN APPROVED CONVENIENT LOCATION. LIQUID ADHESIVE COATINGS USED ON FILTERS SHALL HAVE A FLASH POINT NOT LOWER THAN 325°F.
 10. THE PRESSURE CLASSIFICATION OF DUCTS SHALL EQUAL OR EXCEED THE DESIGN PRESSURE OF THE AIR DISTRIBUTION IN WHICH THE DUCTS ARE UTILIZED.
 11. VERIFY LOCATIONS OF ALL THERMOSTATS AND SENSORS WITH ARCHITECT PRIOR TO INSTALLATION.
 12. PROVIDE LOW VOLTAGE CONTROLS, CONTROL WIRING AND DAMPERS FOR EACH SYSTEM. ALL CONTROL WIRING SHALL BE IN METAL CONDUIT.
 13. PROVIDE 1/2" INTERNAL ACOUSTICAL LINING FOR THE FIRST 15' OF ALL SUPPLY DUCTWORK.
 14. ALL DUCT DIMENSIONS NOTED ARE CLEAR INSIDE DIMENSIONS.
 15. ALL DUCTWORK IN AREAS WITH NO CEILING SHALL BE RIGID METAL DUCT.
 16. THE COMMISSIONING REPORT DESCRIBING THE ACTIVITIES AND MEASUREMENTS COMPLETED IN ACCORDANCE WITH SECTION C408 OF THE 2020 NYSECC SHALL BE PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT AND MADE AVAILABLE TO THE CODE OFFICIAL UPON REQUEST IN ACCORDANCE WITH SECTIONS C408.2.4 AND C408.2.5.
 17. ALL EQUIPMENT SHALL BE SUSPENDED AND HAVE SPRING VIBRATION ISOLATION.
 18. PROVIDE ACCESS DOORS FOR ALL DAMPERS WITHIN INACCESSIBLE CEILINGS.
 19. 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.
 20. 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.
 21. A COMMISSIONING PLAN SHALL BE DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY AND SHALL INCLUDE THE FOLLOWING ITEMS:
 - 21.1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
 - 21.2. A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
 - 21.3. FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMIZER CONTROLS.
 - 21.4. CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - 21.5. MEASURABLE CRITERIA FOR PERFORMANCE.

DATE: ISSUE

04-21-21
ISSUED FOR BIDDING

SEAL:

SENDEWSKI ARCHITECTS PC
ARCHITECTS - PLANNERS

215 ROANOKE AVENUE
RIVERHEAD, NY 11901
(631) 727-5352

9 SELENA COURT
WALDEN, NY 12586
(845) 275-8859

HARRISON FIRE DEPT.

PROPOSED ADDITION

206 HARRISON AVE
HARRISON, NY 10528

BASEMENT FLOOR

MECHANICAL PLAN

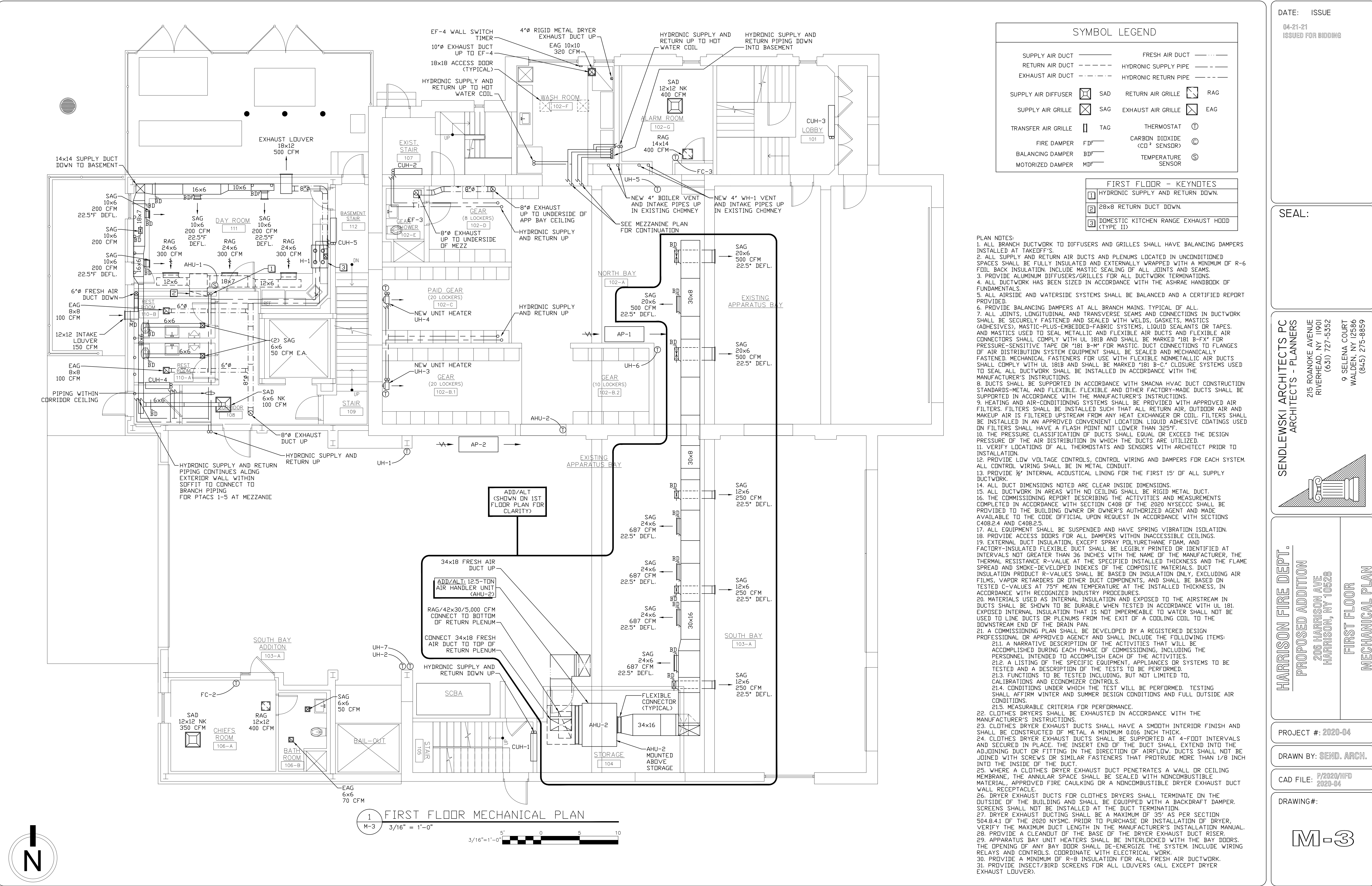
PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD
2020-04

DRAWING#:

M-2



SYMBOL LEGEND			
SUPPLY AIR DUCT	---	FRESH AIR DUCT	---
RETURN AIR DUCT	---	HYDRONIC SUPPLY PIPE	---
EXHAUST AIR DUCT	---	HYDRONIC RETURN PIPE	---
SUPPLY AIR DIFFUSER	⊠	RETURN AIR GRILLE	⊠
SUPPLY AIR GRILLE	⊠	EXHAUST AIR GRILLE	⊠
TRANSFER AIR GRILLE	⊠	THERMOSTAT	⊕
FIRE DAMPER	FD	CARBON DIOXIDE (CO ₂ SENSOR)	⊕
BALANCING DAMPER	BD	TEMPERATURE SENSOR	⊕
MOTORIZED DAMPER	MD		

FIRST FLOOR - KEYNOTES	
1	HYDRONIC SUPPLY AND RETURN DOWN.
2	28x8 RETURN DUCT DOWN.
3	DOMESTIC KITCHEN RANGE EXHAUST HOOD (TYPE 1D)

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 5. ALL AIRSIDE AND WATERSIDE 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. 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. HEATING AND AIR-CONDITIONING SYSTEMS SHALL BE PROVIDED WITH APPROVED AIR FILTERS. FILTERS SHALL BE INSTALLED SUCH THAT ALL RETURN AIR, OUTDOOR AIR AND MAKEUP AIR IS FILTERED UPSTREAM FROM ANY HEAT EXCHANGER OR COIL. FILTERS SHALL BE INSTALLED IN AN APPROVED CONVENIENT LOCATION. LIQUID ADHESIVE COATINGS USED ON FILTERS SHALL HAVE A FLASH POINT NOT LOWER THAN 325°F.
 10. THE PRESSURE CLASSIFICATION OF DUCTS SHALL EQUAL OR EXCEED THE DESIGN PRESSURE OF THE AIR DISTRIBUTION IN WHICH THE DUCTS ARE UTILIZED.
 11. VERIFY LOCATIONS OF ALL THERMOSTATS AND SENSORS WITH ARCHITECT PRIOR TO INSTALLATION.
 12. PROVIDE LOW VOLTAGE CONTROLS, CONTROL WIRING AND DAMPERS FOR EACH SYSTEM. ALL CONTROL WIRING SHALL BE IN METAL CONDUIT.
 13. PROVIDE 1/2" INTERNAL ACOUSTICAL LINING FOR THE FIRST 15' OF ALL SUPPLY DUCTWORK.
 14. ALL DUCT DIMENSIONS NOTED ARE CLEAR INSIDE DIMENSIONS.
 15. ALL DUCTWORK IN AREAS WITH NO CEILING SHALL BE RIGID METAL DUCT.
 16. THE COMMISSIONING REPORT DESCRIBING THE ACTIVITIES AND MEASUREMENTS COMPLETED IN ACCORDANCE WITH SECTION C408 OF THE 2020 NYSDEC SHALL BE PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT AND MADE AVAILABLE TO THE CODE OFFICIAL UPON REQUEST IN ACCORDANCE WITH SECTIONS C408.2.4 AND C408.2.5.
 17. ALL EQUIPMENT SHALL BE SUSPENDED AND HAVE SPRING VIBRATION ISOLATION.
 18. PROVIDE ACCESS DOORS FOR ALL DAMPERS WITHIN INACCESSIBLE CEILINGS.
 19. 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.
 20. 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.
 21. A COMMISSIONING PLAN SHALL BE DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY AND SHALL INCLUDE THE FOLLOWING ITEMS:
 - 21.1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
 - 21.2. A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
 - 21.3. FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMICIZER CONTROLS.
 - 21.4. CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - 21.5. MEASURABLE CRITERIA FOR PERFORMANCE.
 22. CLOTHES DRYERS SHALL BE EXHAUSTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
 23. CLOTHES DRYER EXHAUST DUCTS SHALL HAVE A SMOOTH INTERIOR FINISH AND SHALL BE CONSTRUCTED OF METAL A MINIMUM 0.016 INCH THICK.
 24. CLOTHES DRYER EXHAUST DUCTS SHALL BE SUPPORTED AT 4-FOOT INTERVALS AND SECURED IN PLACE. THE INSERT END OF THE DUCT SHALL EXTEND INTO THE ADJOINING DUCT OR FITTING IN THE DIRECTION OF AIRFLOW. DUCTS SHALL NOT BE JOINED WITH SCREWS OR SIMILAR FASTENERS THAT PROTRUDE MORE THAN 1/8 INCH INTO THE INSIDE OF THE DUCT.
 25. WHERE A CLOTHES DRYER EXHAUST DUCT PENETRATES A WALL OR CEILING MEMBRANE, THE ANNULAR SPACE SHALL BE SEALED WITH NONCOMBUSTIBLE MATERIAL, APPROVED FIRE CAULKING OR A NONCOMBUSTIBLE DRYER EXHAUST DUCT WALL RECEPTACLE.
 26. DRYER EXHAUST DUCTS FOR CLOTHES DRYERS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING AND SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION.
 27. DRYER EXHAUST DUCTING SHALL BE A MAXIMUM OF 35' AS PER SECTION 504.8.4.1 OF THE 2020 NYSMC. PRIOR TO PURCHASE OR INSTALLATION OF DRYER, VERIFY THE MAXIMUM DUCT LENGTH IN THE MANUFACTURER'S INSTALLATION MANUAL.
 28. PROVIDE A CLEANOUT OF THE BASE OF THE DRYER EXHAUST DUCT RISER.
 29. APPARATUS BAY UNIT HEATERS SHALL BE INTERLOCKED WITH THE BAY DOORS. THE OPENING OF ANY BAY DOOR SHALL DE-ENERGIZE THE SYSTEM. INCLUDE WIRING RELAYS AND CONTROLS. COORDINATE WITH ELECTRICAL WORK.
 30. PROVIDE A MINIMUM OF R-8 INSULATION FOR ALL FRESH AIR DUCTWORK.
 31. PROVIDE INSECT/BIRD SCREENS FOR ALL LOUVERS (ALL EXCEPT DRYER EXHAUST LOUVER).

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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528
FIRST FLOOR
MECHANICAL PLAN

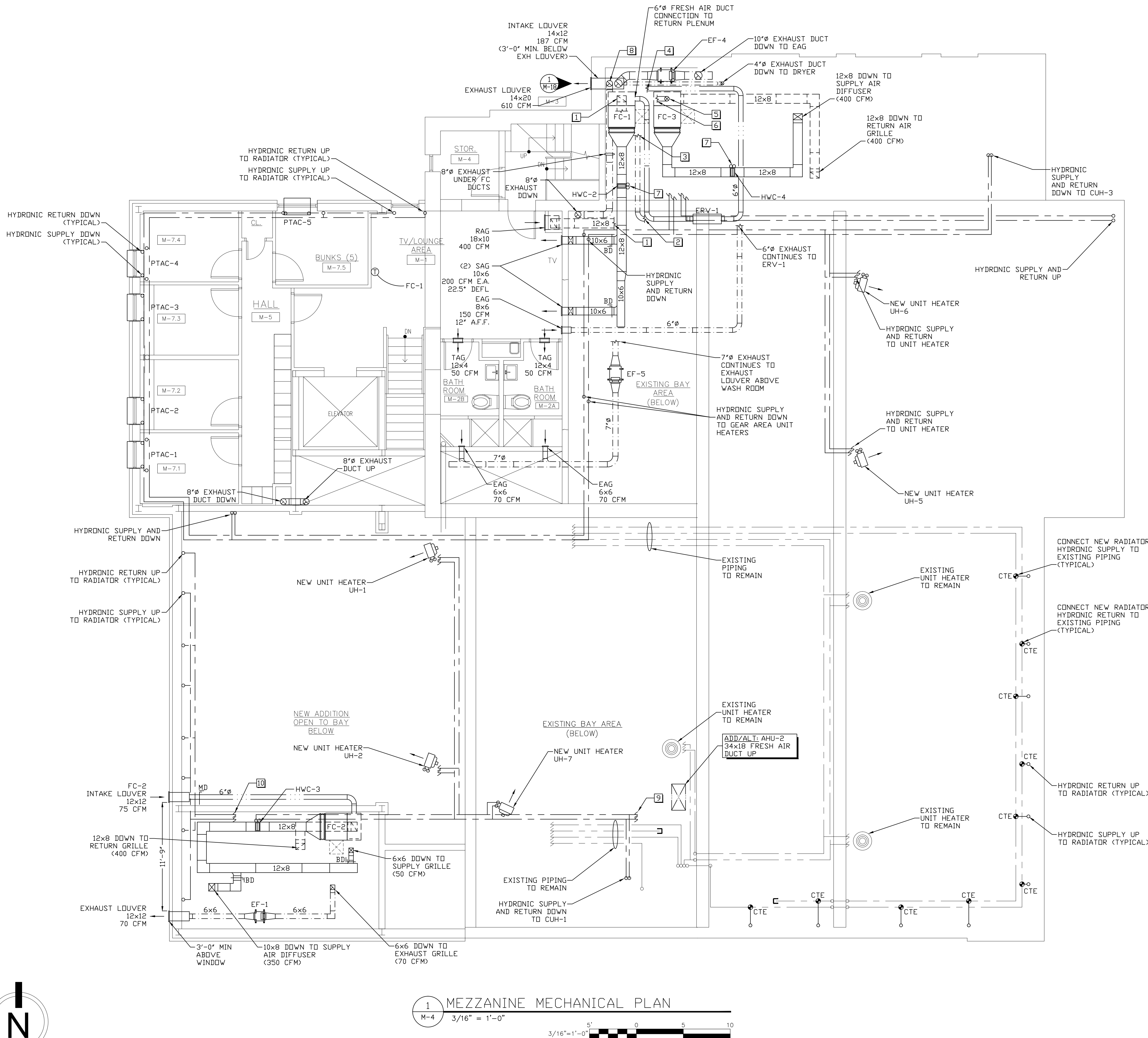
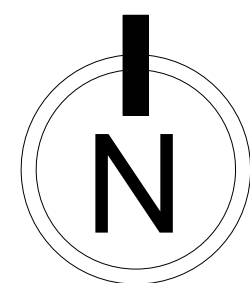
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CAD FILE: P/2020/HFD
2020-04

DRAWING#:

M-3



SYMBOL LEGEND						
SUPPLY AIR DUCT		_____	FRESH AIR DUCT		_____	
RETURN AIR DUCT		-----	HYDRONIC SUPPLY PIPE		_____	
EXHAUST AIR DUCT		- . - . - .	HYDRONIC RETURN PIPE		_____	
SUPPLY AIR DIFFUSER			SAD	RETURN AIR GRILLE		RAG
SUPPLY AIR GRILLE			SAG	EXHAUST AIR GRILLE		EAG
TRANSFER AIR GRILLE			TAG	THERMOSTAT		
FIRE DAMPER			CARBON DIOXIDE (CO ²) SENSOR			
BALANCING DAMPER			TEMPERATURE			
MOTORIZED DAMPER			SENSOR			

MEZZANINE - KEYNOTES	
1	12x8 RETURN DUCT CONTINUES UNDERNEATH SUPPLY TO CONNECT TO FC-3 RETURN PLENUM
2	6" EXHAUST DUCT CONTINUES TO ERV-1.
3	ERV-1 6" EXHAUST DUCT CONTINUES TO 14x14 EXHAUST LOUVER.
4	ERV-1 6" FRESH AIR DUCT CONTINUES TO INTAKE LOUVER ABOVE WASH ROOM.
5	FC-3 6" FRESH AIR DUCT CONNECTION TO TOP OF RETURN PLENUM.
6	FC-3 6" FRESH AIR DUCT CONTINUES TO INTAKE LOUVER ABOVE WASH ROOM.
7	HYDRONIC PIPING DOWN (SEE FIRST FLOOR PLAN)
8	CONNECT 8" EXHAUST DUCT FROM EF-2 TO UNDERSIDE OF EXHAUST LOUVER
9	CONNECT NEW HYDRONIC SUPPLY AND RETURN PIPING TO EXISTING SOUTH BAY ZONE PIPING WITHIN EXISTING SOUTH BAY
10	HYDRONIC SUPPLY AND RETURN PIPING CONTINUES TO P-7 WITHIN SECOND FLOOR BOILER ROOM. SEE HYDRONIC RISER.

PLAN NOTES:

- ALL BRANCH DUCTWORK TO DIFFUSERS AND GRILLES SHALL HAVE BALANCING DAMPERS INSTALLED AT TAKEOFF'S.
- ALL SUPPLY AND RETURN 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.
- PROVIDE ALUMINUM DIFFUSERS/GRILLES FOR ALL DUCTWORK TERMINATIONS.
- ALL DUCTWORK HAS BEEN SIZED IN ACCORDANCE WITH THE ASHRAE HANDBOOK OF FUNDAMENTALS.
- ALL AIRSIDE AND WATERSIDE SYSTEMS SHALL BE BALANCED AND A CERTIFIED REPORT PROVIDED.
- PROVIDE BALANCING DAMPERS AT ALL BRANCH MAINS. TYPICAL OF ALL.
- 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. 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.
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- THE PRESSURE CLASSIFICATION OF DUCTS SHALL EQUAL OR EXCEED THE DESIGN PRESSURE OF THE AIR DISTRIBUTION IN WHICH THE DUCTS ARE UTILIZED.
- VERIFY LOCATIONS OF ALL THERMOSTATS AND SENSORS WITH ARCHITECT PRIOR TO INSTALLATION.
- PROVIDE LOW VOLTAGE CONTROLS, CONTROL WIRING AND DAMPERS FOR EACH SYSTEM. ALL CONTROL WIRING SHALL BE IN METAL CONDUIT.
- PROVIDE 1/2" INTERNAL ACOUSTICAL LINING FOR THE FIRST 15' OF ALL SUPPLY DUCTWORK.
- ALL DUCT DIMENSIONS NOTED ARE CLEAR INSIDE DIMENSIONS.
- ALL DUCTWORK IN AREAS WITH NO CEILING SHALL BE RIGID METAL DUCT.
- THE COMMISSIONING REPORT DESCRIBING THE ACTIVITIES AND MEASUREMENTS COMPLETED IN ACCORDANCE WITH SECTION C408 OF THE 2020 NYSECC SHALL BE PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT AND MADE AVAILABLE TO THE CODE OFFICIAL UPON REQUEST IN ACCORDANCE WITH SECTIONS C408.2.4 AND C408.2.5.
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- 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.
- 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.
- A COMMISSIONING PLAN SHALL BE DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY AND SHALL INCLUDE THE FOLLOWING ITEMS:
 - A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
 - A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
 - FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMICIZER CONTROLS.
 - CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - MEASURABLE CRITERIA FOR PERFORMANCE.

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HARRISON FIRE DEPT.

PROPOSED ADDITION

206 HARRISON AVE
HARRISON, NY 10528

MEZZANINE
MECHANICAL PLAN

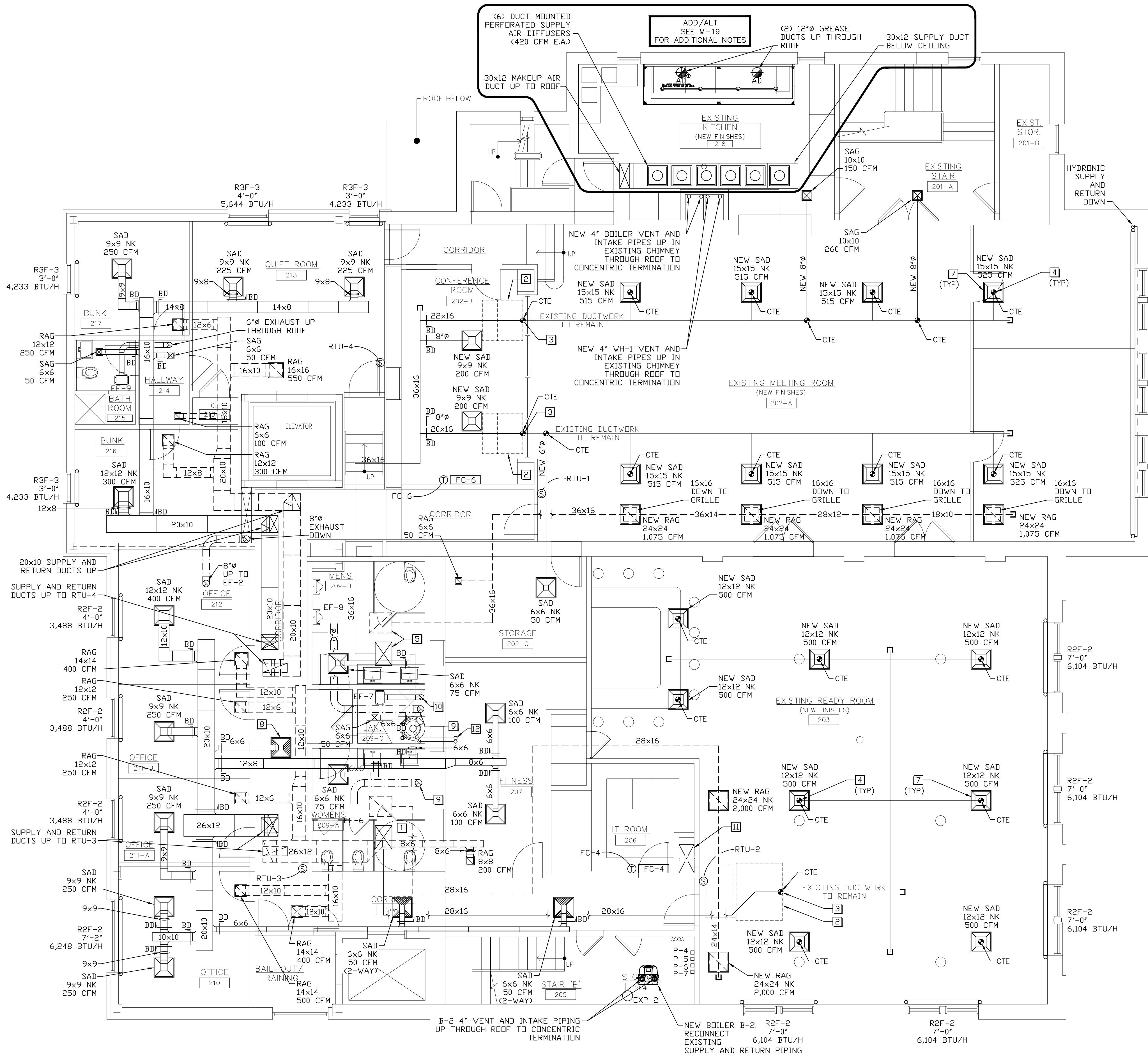
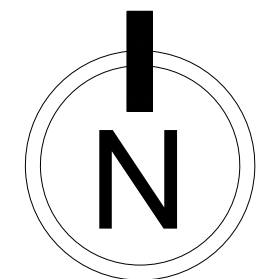
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2020-04

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M-4



1 SECOND FLOOR MECHANICAL PLAN
M-5 3/16" = 1'-0"

SYMBOL LEGEND			
SUPPLY AIR DUCT	---	FRESH AIR DUCT	---
RETURN AIR DUCT	---	HYDRONIC SUPPLY PIPE	---
EXHAUST AIR DUCT	---	HYDRONIC RETURN PIPE	---
SUPPLY AIR DIFFUSER	□	RETURN AIR GRILLE	□
SUPPLY AIR GRILLE	□	EXHAUST AIR GRILLE	□
TRANSFER AIR GRILLE	□	THERMOSTAT	⊙
FIRE DAMPER	FD	CARBON DIOXIDE (CO ₂ SENSOR)	⊙
BALANCING DAMPER	BD	TEMPERATURE SENSOR	⊙
MOTORIZED DAMPER	MD		

SECOND FLOOR - KEYNOTES	
1	SUPPLY AND RETURN DUCTWORK UP TO RTU-2.
2	DEM'D EXISTING AIR HANDLER AND RETURN DUCTWORK. ALL EXISTING SUPPLY DUCTWORK FOR THIS SYSTEM IS TO REMAIN.
3	CONNECT NEW SUPPLY DUCTWORK TO EXISTING SUPPLY DUCTWORK. PROVIDE TRANSITION AS NECESSARY TO MAKE CONNECTION.
4	REPLACE EXISTING SUPPLY AIR DIFFUSER AS SPECIFIED. RECONNECT EXISTING BRANCH DUCT TO NEW DIFFUSER. (TYPICAL OF ALL EXISTING SUPPLY AIR DIFFUSERS WITHIN READY ROOM & MEETING ROOM)
5	SUPPLY AND RETURN DUCTWORK UP TO RTU-1.
6	THERMOSTATS FOR ALL PACKAGED ROOFTOP EQUIPMENT SHALL BE LOCATED WITHIN I.T. ROOM. VERIFY LOCATION WITHIN ROOM WITH ARCHITECT
7	PROVIDE OPPOSED BLADE DAMPERS IN ALL SUPPLY AIR DIFFUSER NECKS WITHIN MEETING ROOM AND READY ROOM.
8	SAD / 6x6 NK / 100 CFM / (2-WAY)
9	8" EXHAUST DUCT UP THROUGH ROOF.
10	6" EXHAUST DUCT UP THROUGH ROOF.
11	34x18 FRESH AIR DUCT UP THROUGH ROOF TO GOOSENECK (ADD/ALT AHU-2)
12	WH-2 4" VENT & INTAKE PIPING UP THROUGH ROOF TO CONCENTRIC TERMINATION

PLAN NOTES:

- ALL BRANCH DUCTWORK TO DIFFUSERS AND GRILLES SHALL HAVE BALANCING DAMPERS INSTALLED AT TAKEOFFS.
- ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS LOCATED IN UNCONDITIONED SPACES SHALL BE INSULATED AND EXTERNALLY WRAPPED WITH A MINIMUM OF R-6 FOIL BACK INSULATION. INCLUDE MASTIC SEALING OF ALL JOINTS AND SEAMS.
- PROVIDE ALUMINUM DIFFUSERS/GRILLES FOR ALL DUCTWORK TERMINATIONS.
- ALL DUCTWORK HAS BEEN SIZED IN ACCORDANCE WITH THE ASHRAE HANDBOOK OF FUNDAMENTALS.
- ALL AIRSIDE AND WATERSIDE SYSTEMS SHALL BE BALANCED AND A CERTIFIED REPORT PROVIDED.
- PROVIDE BALANCING DAMPERS AT ALL BRANCH MAINS. TYPICAL OF ALL.
- 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. 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-F" 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.
- 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.
- HEATING AND AIR-CONDITIONING SYSTEMS SHALL BE PROVIDED WITH APPROVED AIR FILTERS. FILTERS SHALL BE INSTALLED SUCH THAT ALL RETURN AIR, OUTDOOR AIR AND MAKEUP AIR IS FILTERED. IF ANY HEAT EXCHANGER OR COIL FILTERS SHALL BE INSTALLED IN AN APPROVED CONVENIENT LOCATION. LIQUID ADHESIVE COATINGS USED ON FILTERS SHALL HAVE A FLASH POINT NOT LOWER THAN 325°F.
- THE PRESSURE CLASSIFICATION OF DUCTS SHALL EQUAL OR EXCEED THE DESIGN PRESSURE OF THE AIR DISTRIBUTION IN WHICH THE DUCTS ARE UTILIZED.
- VERIFY LOCATIONS OF ALL THERMOSTATS AND SENSORS WITH ARCHITECT PRIOR TO INSTALLATION.
- PROVIDE LOW VOLTAGE CONTROLS, CONTROL WIRING AND DAMPERS FOR EACH SYSTEM. ALL CONTROL WIRING SHALL BE IN METAL CONDUIT.
- PROVIDE 1/2" INTERNAL ACUSTICAL LINING FOR THE FIRST 15' OF ALL SUPPLY DUCTWORK.
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 - FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND FLOWMETER CONTROLS.
 - CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - MEASURABLE CRITERIA FOR PERFORMANCE.

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SECOND FLOOR
MECHANICAL PLAN

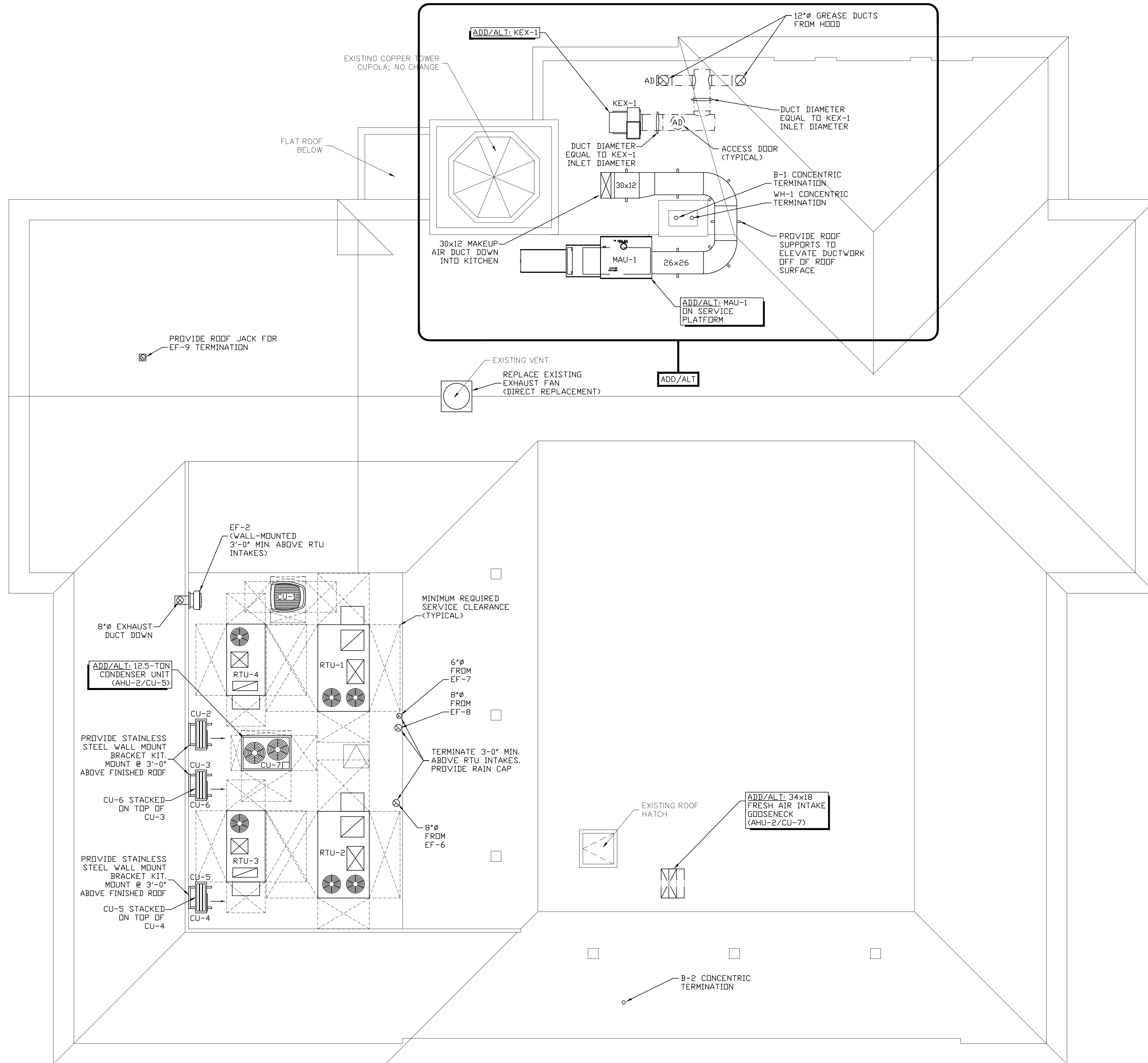
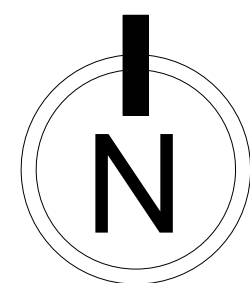
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DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD
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M-5



1 ROOF MECHANICAL PLAN
M-6 3/16" = 1'-0"
3/16" = 1'-0" 5' 0 5 10

- PLAN NOTES:
1. INTAKE OPENINGS SHALL BE LOCATED NOT LESS THAN 10 FEET FROM LOT LINES OR BUILDINGS ON THE SAME LOT.
 2. MECHANICAL AND GRAVITY OUTDOOR AIR INTAKE OPENINGS SHALL BE LOCATED NOT LESS THAN 10 FEET HORIZONTALLY FROM ANY HAZARDOUS OR NOXIOUS CONTAMINANT SOURCE, SUCH AS VENTS, STREETS, ALLEYS, PARKING LOTS AND LOADING DOCKS.
 3. INTAKE OPENINGS SHALL BE LOCATED NOT LESS THAN 3 FEET BELOW CONTAMINANT SOURCES WHERE SUCH SOURCES ARE LOCATED WITHIN 10 FEET OF THE OPENING.
 4. PROVIDE GRAVITY BACKDRAFT DAMPERS FOR ALL EXHAUST AIR OUTLETS.
 5. AIR INTAKE OPENINGS THAT TERMINATE OUTDOORS SHALL BE PROTECTED WITH CORROSION-RESISTANT SCREENS, LOUVERS OR GRILLES. OPENINGS IN LOUVERS, GRILLES AND SCREENS SHALL BE SIZED IN ACCORDANCE WITH TABLE 401.5, AND SHALL BE PROTECTED AGAINST LOCAL WEATHER CONDITIONS.
 6. ENVIRONMENTAL EXHAUST AIR OUTLETS SHALL TERMINATE 3 FEET FROM PROPERTY LINES; 3 FEET FROM OPERABLE OPENINGS INTO THE BUILDING AND 10 FEET FROM MECHANICAL AIR INTAKES.
 7. PROVIDE RAIN CAPS FOR EF-6, 7 AND 8 TERMINATIONS THROUGH THE ROOF.
 8. PROVIDE ROOF PENETRATIONS AND FLASHING OF ALL EQUIPMENT TERMINATIONS THROUGH THE ROOF/WALL.
 9. HEATING AND AIR-CONDITIONING SYSTEMS SHALL BE PROVIDED WITH APPROVED AIR FILTERS. FILTERS SHALL BE INSTALLED SUCH THAT ALL RETURN AIR, OUTDOOR AIR AND MAKEUP AIR IS FILTERED UPSTREAM FROM ANY HEAT EXCHANGER OR COIL. FILTERS SHALL BE INSTALLED IN AN APPROVED CONVENIENT LOCATION. LIQUID ADHESIVE COATINGS USED ON FILTERS SHALL HAVE A FLASH POINT NOT LOWER THAN 325°F.
 10. UNIT CONTROLS SHALL HAVE THE MECHANICAL COOLING CAPACITY CONTROL INTERLOCKED WITH THE AIR ECONOMIZER CONTROLS SUCH THAT THE OUTDOOR AIR DAMPER IS AT THE 100-PERCENT OPEN POSITION WHEN MECHANICAL COOLING IS ON AND THE OUTDOOR AIR DAMPER DOES NOT BEGIN TO CLOSE TO PREVENT COIL FREEZING DUE TO MINIMUM COMPRESSOR RUN TIME UNTIL THE LEAVING AIR TEMPERATURE IS LESS THAN 45°F.
 11. DIRECT EXPANSION (DX) UNITS THAT CONTROL 75,000 BTU/H OR GREATER OF RATED CAPACITY OF THE CAPACITY OF THE MECHANICAL COOLING DIRECTLY BASED ON OCCUPIED SPACE TEMPERATURE SHALL HAVE NOT FEWER THAN TWO STAGES OF MECHANICAL COOLING CAPACITY.
 12. AIR ECONOMIZER SYSTEMS SHALL BE CAPABLE OF MODULATING OUTDOOR AIR AND RETURN AIR DAMPERS TO PROVIDE UP TO 100 PERCENT OF THE DESIGN SUPPLY AIR QUANTITY AS OUTDOOR AIR FOR COOLING.
 13. ECONOMIZER DAMPERS SHALL BE CAPABLE OF BEING SEQUENCED WITH THE MECHANICAL COOLING EQUIPMENT CONTROLLED BY MIXED-AIR TEMPERATURE.
 14. PIPING INSULATION EXPOSED TO THE WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT DUE TO 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.
 15. ECONOMIZER SHALL TURN OFF WHEN THE TOTAL OUTDOOR AIR TEMPERATURE EXCEEDS 65°F.
 16. SYSTEMS SHALL BE CAPABLE OF RELIEVING EXCESS OUTDOOR AIR DURING AIR ECONOMIZER OPERATION TO PREVENT OVER PRESSURIZING THE BUILDING. THE RELIEF AIR OUTLET SHALL BE LOCATED TO AVOID RECIRCULATION INTO THE BUILDING.
 17. ECONOMIZERS SHALL BE EQUIPPED WITH A FAULT DETECTION AND DIAGNOSTICS SYSTEM COMPLYING WITH THE FOLLOWING:
 - 17.1 THE FOLLOWING TEMPERATURE SENSORS SHALL BE PERMANENTLY INSTALLED TO MONITOR SYSTEM OPERATION:
 - 17.1.1 OUTSIDE AIR
 - 17.1.2 SUPPLY AIR
 - 17.1.3 RETURN AIR
 - 17.2 TEMPERATURE SENSORS SHALL HAVE AN ACCURACY OF ±2°F OVER THE RANGE OF 40°F TO 80°F.
 - 17.3 REFRIGERANT PRESSURE SENSORS, WHERE USED, SHALL HAVE AN ACCURACY OF ±3 PERCENT OF FULL SCALE.
 - 17.4 THE UNIT CONTROLLER SHALL BE CAPABLE OF PROVIDING SYSTEM STATUS BY INDICATING THE FOLLOWING:
 - 17.4.1 FREE COOLING AVAILABLE.
 - 17.4.2 ECONOMIZER ENABLED.
 - 17.4.3 COMPRESSOR ENABLED.
 - 17.4.4 HEATING ENABLED.
 - 17.4.5 MIXED AIR LOW LIMIT CYCLE ACTIVE.
 - 17.4.6 THE CURRENT VALUE OF EACH SENSOR.
 - 17.5 THE UNIT CONTROLLER SHALL BE CAPABLE OF MANUALLY INITIATING EACH OPERATING MODE SO THAT THE OPERATION OF COMPRESSORS, ECONOMIZERS, FANS AND THE HEATING SYSTEM CAN BE INDEPENDENTLY TESTED AND VERIFIED.
 - 17.6 THE UNIT SHALL BE CAPABLE OF REPORTING FAULTS TO A FAULT MANAGEMENT APPLICATION ACCESSIBLE BY DAYTO-DAY OPERATING OR SERVICE PERSONNEL, OR ANNUNCIATED LOCALLY ON ZONE THERMOSTATS.
 - 17.7 THE FDD SYSTEM SHALL BE CAPABLE OF DETECTING THE FOLLOWING FAULTS:
 - 17.7.1 AIR TEMPERATURE SENSOR FAILURE/FAULT.
 - 17.7.2 NOT ECONOMIZING WHEN THE UNIT SHOULD BE ECONOMIZING.
 - 17.7.3 ECONOMIZING WHEN THE UNIT SHOULD NOT BE ECONOMIZING.
 - 17.7.4 DAMPER NOT MODULATING.
 - 17.7.5 EXCESS OUTDOOR AIR.

DATE: ISSUE
04-21-21
ISSUED FOR BIDDING

SEAL:

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ARCHITECTS - PLANNERS
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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528
ROOF
MECHANICAL PLAN

PROJECT #: 2020-04

DRAWN BY: SEND, ARCH.

CAD FILE: P/2020/HFD
2020-04

DRAWING#:

M-6

PACKAGED ROOFTOP UNIT SCHEDULE																									
DESIGNATION	RATING (TONS)	NO. OF COMP.	REFRIG. CHARGE	SUPPLY FAN				QSA CFM	TOTAL COOLING CAPACITY (BTU/H)		HEATING CAPACITY (GAS)		POWER SUPPLY				WEIGHT LBS.	EER	SEER	IEER	MANUFACTURER	MODEL NO.	SERVICE	OPTIONS/ACCESSORIES	
				CFM	HP	ESP	BHP		NET	GROSS	INPUT BTU/H	OUTPUT BTU/H	VOLTAGE	PHASE	MCA	MAX FUSE									
RTU-1	12.5	2	R-410A	5,000	3.75	1.5	-	882	138,000	144,000	180,000	144,000	208/230V	3	58	70	1,363	11.0	-	20.0	LENNDX	LGM150U4EMIY	MEETING ROOM	1,2,3,4,5,6,7,8,9,10,11,13,14,15	
RTU-2	10.0	2	R-410A	4,000	3.75	1.25	-	799	114,000	121,000	130,000	104,000	208/230V	3	51	60	1,361	12.0	-	21.0	LENNDX	LGM120U4ESIY	READY ROOM	1,2,3,4,5,6,7,8,9,10,11,13,15	
RTU-3	5.0	1	R-410A	2,000	1.50	1.0	-	345	57,000	58,500	108,000	87,000	208/230V	3	27	40	973	13.0	20.0	-	LENNDX	LGM060U4EQIY	OFFICES	1,2,3,4,5,6,7,8,9,11,12,15	
RTU-4	4.0	1	R-410A	1,600	1.50	1.0	-	229	46,000	47,000	65,000	52,000	208/230V	3	26	40	949	14.0	21.0	-	LENNDX	LGM048U4EBIY	2ND FL BUNKS	1,2,3,4,5,6,7,8,9,12,15	
OPTIONS/ACCESSORIES: 1. 18" ROOF CURB 4. CONDENSATE DRAIN TRAP 7. BOTTOM GAS PIPING KIT 10. DUCT MOUNTED CO ² SENSOR 13. POWER EXHAUST 2. DISCONNECT 5. DRAIN PAN OVERFLOW SWITCH 8. SUPPLY AND RETURN SMOKE DETECTORS 11. ECONOMIZER 14. GFI SERVICE OUTLET 3. CS8500 THERMOSTAT 6. VERTICAL VENT EXTENSION 9. UVC LIGHT KIT 12. BAROMETRIC RELIEF DAMPERS 15. MERV 13 FILTERS																									

UNIT HEATER SCHEDULE (HOT WATER)														
APPROVALS: CSA														
MARK	MANUFACTURER TYPE & MODEL	COILS	ENTERING WATER (°F)	ENTERING AIR (°F)	MAX BTU/HR.	REQUIRED BTU/HR.	GPM	MOTOR DATA					LOCATION(S)	NOTES
								CFM	HP	VOLTS	PHASE	RPM		
UH-1	MODINE HC 47	1	180	50	30,900	23,000	3.2	730	1/12	115	1	1,550	NEW SOUTH BAY	MAX MOUNT HEIGHT = 13'-0"
UH-2	MODINE HC 47	1	180	50	30,900	23,000	3.2	730	1/12	115	1	1,550	NEW SOUTH BAY	MAX MOUNT HEIGHT = 13'-0"
UH-3	MODINE HC 18	1	180	50	12,600	2,000	0.5	340	1/60	115	1	1,550	GEAR AREA	MAX MOUNT HEIGHT = 9'-0"
UH-4	MODINE HC 18	1	180	50	12,600	2,000	0.5	340	1/60	115	1	1,550	GEAR AREA	MAX MOUNT HEIGHT = 9'-0"
UH-5	MODINE HC 63	1	180	50	45,600	35,000	4.7	1,120	1/12	115	1	1,550	NORTH APP BAY	MAX MOUNT HEIGHT = 15'-0"
UH-6	MODINE HC 63	1	180	50	45,600	35,000	4.7	1,120	1/12	115	1	1,550	NORTH APP BAY	MAX MOUNT HEIGHT = 15'-0"
UH-7	MODINE HC 47	1	180	50	30,900	5,000	3.2	730	1/12	115	1	1,550	EXG SOUTH BAY	MAX MOUNT HEIGHT = 13'-0"
UH-8	MODINE HC 24	1	180	50	16,200	14,000	1.7	970	1/25	115	1	1,550	NEW BASEMENT	MAX MOUNT HEIGHT = 10'-0"

PROVIDE: VIBRATION SPRING ISOLATORS, 3-WAY CONTROL VALVES, LOW VOLTAGE THERMOSTATS AND RELAY,

AIR HANDLER UNIT SCHEDULE												
APPROVALS: ETL												
DESIGNATION	POWER SUPPLY				HEATING MBH	COOLING MBH	CFM	MAKE	MODEL	SERVICE	LOCATION	OUTDOOR UNIT
	VOLTAGE	PHASE	MCA	MAX FUSE								
AHU-1	208	1	5	15	30.0	30.0	1,200	LENNDX	CBA38MV-036-230	DAY ROOM	BASEMENT	CU-1

PROVIDE: DISCONNECT SWITCH, CONDENSATE DRAIN PIPING, PUMP, REFRIG. PIPING, UVC LIGHT KIT, 7 DAY PROGRAMMABLE THERMOSTAT, HOT WATER HEAT KIT, 3 WAY CONTROL VALVE, AUTO AIR VENT AND FREEZE STAT PROTECTION, ICOMFORT S30 THERMOSTAT, EMERGENCY DRAIN PAN WITH WET SWITCH,

FAN COIL SCHEDULE														
APPROVALS: ETL LISTED.														
DESIGNATION	POWER SUPPLY				TONS	COOLING MBH	O/A CFM	CFM	MAKE	MODEL	LOCATION	SERVICE	OUTDOOR UNIT DESIGNATION	WEIGHT
	VOLTAGE	PHASE	MCA	MAX FUSE										
FC-1	208	1	POWERED BY OUTDOOR UNIT		1	12.0	150	400	mitsubishi	PEAD-A12AA7	NORTH APP BAY	MEZZ LOUNGE	CU-2	58 LBS.
FC-2	208	1	POWERED BY OUTDOOR UNIT		1	12.0	75	400	mitsubishi	PEAD-A12AA7	SOUTH APP BAY	CHIEF OFFICE	CU-2	58 LBS.
FC-3	208	1	POWERED BY OUTDOOR UNIT		1	12.0	37	400	mitsubishi	PEAD-A12AA7	NORTH APP BAY	ALARM ROOM	CU-3	58 LBS.
FC-4	208	1	POWERED BY OUTDOOR UNIT		1	12.0	-	400	mitsubishi	PKA-A12HA7	2ND FLOOR	I.T. ROOM	CU-4	29 LBS.
FC-5	208	1	POWERED BY OUTDOOR UNIT		1	12.0	-	400	mitsubishi	PKA-A12HA7	BASEMENT	ELEV. MACH. RM	CU-5	29 LBS.
FC-6	208	1	POWERED BY OUTDOOR UNIT		1	12.0	-	400	mitsubishi	PKA-A12HA7	BASEMENT	CONF. RM, SUPPLEMENTAL	CU-5	29 LBS.

PROVIDE: DISCONNECT SWITCH, FILTER BOX W/ MERV 13 FILTERS, CONDENSATE DRAIN PIPING, X87-721 CONDENSATE PUMP FOR WALL MOUNTED UNITS, REFRIG. PIPING & INSULATION, PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT, CONTROLS, CONTROL WIRING, EMERGENCY DRAIN PAN W/ WET SWITCH INTERLOCK, BACNET INTERFACE.

APPROVALS: AHRI 210/240, ETL					CONDENSER UNIT SCHEDULE								
DESIGNATION	RATING (TONS)	NO. OF COMPRS.	REFRIG CHARGE	COOLING CAPACITY (BTU's)	POWER SUPPLY				MAKE	MODEL	SEER/EER	LOCATION	INDOOR UNIT DESIGNATION
					VOLTAG	PHASE	MCA	MOC					
CU-1	3	1	R-410A	36,000	208	1	19.5	30	LENNDX	XC25-036-230	23.0/14.0	ROOF	AHU-1
CU-2	2	1	R-410A	24,000	208	1	19	26	MITSUBISHI	PUY-A24NHA7	19.6/11.7	ROOF	FC-1 & FC-2
CU-3	1	1	R-410A	12,000	208	1	11	28	MITSUBISHI	PUY-A12NKA7	21.1/13.0	ROOF	FC-3
CU-4	1	1	R-410A	12,000	208	1	11	28	MITSUBISHI	PUY-A12NKA7	20.8/12.0	ROOF	FC-4
CU-5	1	1	R-410A	12,000	208	1	11	28	MITSUBISHI	PUY-A12NKA7	20.8/12.0	ROOF	FC-5
CU-6	1	1	R-410A	12,000	208	1	11	28	MITSUBISHI	PUY-A12NKA7	20.8/12.0	ROOF	FC-6

INCLUDE: EQUIPMENT RAILS, REFRIGERANT LINE SETS, INSULATION, DISCONNECT.

APPROVALS: UL			EXHAUST HOOD SCHEDULE					
DESIGNATION	SONES		CFM			POWER SUPPLY		
	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

INCLUDE: DISCONNECT.

DIFFUSER, REGISTER, LOUVER SCHEDULE								
NO.	MAKE	MODEL	SIZE	MAX CFM	MAX N.C.	DAMPER	TYPE	REMARKS
A	TITUS	TDC-AA	SEE PLAN	SEE PLAN	20	-	SUPPLY	LAY-IN DIFFUSER
B	TITUS	300FL	SEE PLAN	SEE PLAN	20	-	SUPPLY	GRILLE
C	TITUS	350FL	SEE PLAN	SEE PLAN	20	-	RETURN/EXHAUST	GRILLE
D	GREEN HECK	ESJ-401	SEE PLAN	SEE PLAN	-	-	INTAKE/EXH LOUVER	INCLUDE INSECT & BIRD SCREENS

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

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

RADIATOR SCHEDULE						
DESIGNATION	TEMP.	OUTPUT	MAKE	MODEL	COLOR	LENGTH
R2F-2	160°	872 BTU/FT	RUNTAL	R2F-2	WHITE	SEE PLANS
R3F-3	160°	1,411 BTU/FT	RUNTAL	R3F-3	WHITE	SEE PLANS
RF-6	160°	1,087 BTU/FT	RUNTAL	RF-6	WHITE	SEE PLANS

INCLUDE: BALANCING AND ISOLATION VALVES, AUTO AIR VENTS & DRAINS, END AND SEAM CAPS/TRIM, SPLICE PLATES, MOUNTING BRACKETS, DANFOSS RA2000 THERMOSTATIC VALVE AND ACTUATOR, COLOR BY ARCHITECT

APPROVALS: UL		EXHAUST FAN SCHEDULE												
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	CHIEF'S OFFICE	INLINE	70	0.30	-	115	1	1/15	1,520	-	-	26	SQ-60-VG	-
EF-2	1ST FL PUBLIC RESTROOMS	ROOF	200	0.50	-	115	1	0.1	1,502	-	-	39	CUE-080-VG	-
EF-3	GEAR SHOWER	CEILING	140	0.50	0.46	115	1	-	900	-	-	24	SP-A200	-
EF-4	GEAR WASH	INLINE	320	0.30	-	115	1	1/10	1,272	-	-	59	SQ-90-VG	-
EF-5	MEZZANINE BATHROOM	INLINE	140	0.5	-	115	1	1/4	1,370	-	-	59	SQ-97-VG	-
EF-6	2ND FL WOMEN'S RM	CEILING	210	0.336	0.46	115	1	-	900	-	-	24	SP-A200	-
EF-7	2ND FL JAN CL	CEILING	70	0.35	0.17	115	1	-	900	-	-	12	SP-A90	-
EF-8	2ND FL MEN'S ROOM	CEILING	210	0.336	0.46	115	1	-	900	-	-	24	SP-A200	-
EF-9	2ND FL BUNK BATH	CEILING	70	0.35	0.17	115	1	-	900	-	-	12	SP-A90	-

PROVIDE: MOUNTING, HANGING/SPRING VIBRATION ISOLATION, FLASHING, FLEXIBLE CONNECTORS, BACKDRAFT DAMPERS, DISCONNECTS, GE IN-WALL DIGITAL COUNTDOWN TIMER MODEL #15318 FOR EF-4.

ADD/ALT AIR HANDLER UNIT SCHEDULE												
APPROVALS: ETL												
DESIGNATION	POWER SUPPLY				HEATING MBH	COOLING MBH	CFM	MAKE	MODEL	SERVICE	LOCATION	NOTES
	VOLTAGE	PHASE	MCA	MAX FUSE								
AHU-2	208	3	21	35	-	136.0	5,000	LENNOX	ELA150S4D-1Y	APP BAY	APP BAY	

PROVIDE: DISCONNECT SWITCH, CONDENSATE DRAIN PIPING, REFRIG. PIPING, UVC LIGHT KIT, 7 DAY PROGRAMMABLE THERMOSTAT, EMERGENCY DRAIN PAN WITH WET SWITCH,

ADD/ALT CONDENSER UNIT SCHEDULE													
APPROVALS: AHRI 340/360, ETL													
DESIGNATION	RATING (TONS)	NO. OF COMPRS.	REFRIG CHARGE	COOLING CAPACITY (BTU's)	POWER SUPPLY				MAKE	MODEL	EER/IEER	LOCATION	INDOOR UNIT DESIGNATION
					VOLTAGE	PHASE	MCA	MOCp					
CU-7	12.5	2	R-410A	150,000	208	3	50	60	LENNOX	ELS150S4DS1Y	11.0/12.4	ROOF	AHU-2

PROVIDE: EQUIPMENT RAILS, REFRIGERANT LINE SETS, INSULATION, DISCONNECT.

SEAL:

SENDELEWSKI ARCHITECTS PC
ARCHITECTS - PLANNERS

215 ROANOKE AVENUE
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(631) 727-5352

9 SELENA COURT
WALDEN, NY 12586
(845) 275-8859

MECHANICAL EQUIPMENT

DRAWING#:

M-7

AIR PURIFIER SCHEDULE								
DESIGNATION	MAKE	MODEL	POWER SUPPLY			QTY	H.P.	LISTINGS
			VOLTAGE	PHASE	AMPS			
AP-1	MAGNEGRIP	AIRHAWK 3000 XL	230	1	9	6	1.0	UL507/ETL
AP-2	MAGNEGRIP	AIRHAWK 3000 XL	230	1	9	6	1.0	UL507/ETL

PROVIDE: ALL CONTROLS AND ALL CONTROL WIRING BY MECHANICAL CONTRACTOR.

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
B-2	HEATING	299	243	-	95.0	-	4"	NAT. GAS	HOT WATER	-	-	260	155	180	WEIL McLAIN	EVG-299

BOILER TO INCLUDE THE FOLLOWING: MANIFOLDS, D/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, 8" DURAVENT AL29-4C FASNSEAL VENTING, CIRCULATOR, NEUTRALIZATION KIT, VORTECH AIR/DIRT SEPARATOR, RODD VENT TERMINATION KIT, 6" CONCRETE EQUIPMENT PAD

PTAC UNIT SCHEDULE															
DESIGNATION	REFRIG CHARGE	SUPPLY FAN				COOLING CAPACITY (BTU/H)		HEATING CAPACITY (HOT WATER BTU/H)	POWER SUPPLY				WEIGHT LBS.	MODEL NO. MCQUAY	LOCATION
		CFM	HP	ESP	EER	SENS.	TOTAL		VOLTAGE	PHASE	MCA	MAX FUSE			
PTAC-1	R-410A	290	-	-	9.4	5,500	7,300	15,500	208	1	4.9	15	-	PKEI1007CZ62N24AR14AI	MEZZ M7.1
PTAC-2	R-410A	290	-	-	9.4	5,500	7,300	15,500	208	1	4.9	15	-	PKEI1007CZ62N24AR14AI	MEZZ M7.2
PTAC-3	R-410A	290	-	-	9.4	5,500	7,300	15,500	208	1	4.9	15	-	PKEI1007CZ62N24AR14AI	MEZZ M7.3
PTAC-4	R-410A	290	-	-	9.4	5,500	7,300	15,500	208	1	4.9	15	-	PKEI1007CZ62N24AR14AI	MEZZ M7.4
PTAC-5	R-410A	290	-	-	9.4	5,500	7,300	15,500	208	1	4.9	15	-	PKEI1007CZ62N24AR14AI	MEZZ M7.5

PROVIDE: WALL SLEEVE, OUTDOOR AIR VENT, BUILT-IN THERMOSTAT, DRAIN KIT,

HOT WATER COIL SCHEDULE						
DESIGNATION	RATED CAPACITY (MBH)	REQUIRED CAPACITY (MBH)	GPM	MAKE	MODEL	AHU/FC
HWC-1	46.6	33.0	4.8	GREENHECK	HW58S01A11-18x14-RH	AHU-1
HWC-2	14.6	11.0	1.5	GREENHECK	HW58S01A09-12x12-LH	FC-1
HWC-3	14.6	11.0	1.5	GREENHECK	HW58S01A09-12x12-LH	FC-2
HWC-4	14.6	11.0	1.5	GREENHECK	HW58S01A09-12x12-LH	FC-3

NOTES: SEE SUBMITTAL DATA FOR ADDITIONAL INFORMATION

PUMP SCHEDULE											
APPROVALS: UL											
DESIGNATION	MANUF.	MODEL#	HEAD	GPM	HP	ELECTRICAL REQ.			CONNECTION		REMARKS
						Volts	Ph	AMP	Inlet	Outlet	
P-1	TACO	VR15	16.4	19.4	0.68	208	1	5.6	2"	2"	-
P-2	TACO	VR15	8.1	3.1	0.68	208	1	5.6	0.75'	0.75'	-
P-3	TACO	VR15	18.8	22.4	0.68	208	1	5.6	2"	2"	-
P-4	TACO	VR15	17.2	5.3	0.68	208	1	5.6	1'	1'	-
P-5	TACO	VR15	5.4	3.1	0.68	208	1	5.6	0.75'	0.75'	-
P-6	TACO	VR15	15.9	5.6	0.68	208	1	5.6	1'	1'	-
P-7	TACO	VR15	5.7	1.2	0.68	208	1	5.6	0.5"	0.5"	-
P-8	TACO	VR15	20.1	15.3	0.68	208	1	5.6	1.25"	1.25"	-

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	TACD	CX-84	23	10	37"	16"	1"	83	B-1
EXP-2	TACD	CX-84	23	10	37"	16"	1"	83	B-2

CABINET UNIT HEATER SCHEDULE (HOT WATER)														
MARK	MANUFACTURER TYPE & MODEL	COILS	ENTERING WATER (°F)	ENTERING AIR (°F)	MAX BTU/HR.	REQUIRED BTU/HR.	GPM	MOTOR DATA					REMARKS	LOCATIONS(S)
								CFM	HP	VOLTS	PHASE	RPM		
CUH-1	MODINE CW003	1	180	50	22,400	15,000	2.3	265	-	115	1	-	-	EXISTING SOUTH STAIR
CUH-2	MODINE CW003	1	180	50	22,400	18,000	2.3	265	-	115	1	-	-	EXISTING TOWER STAIR
CUH-3	MODINE CW006	1	180	50	32,800	32,800	4.7	370	-	115	1	-	LOW FAN SPEED	EXISTING LOBBY STAIR
CUH-4	MODINE CW002	1	180	50	12,400	4,000	1.3	200	-	115	1	-	-	1ST FL NEW VESTIBULE
CUH-5	MODINE CW002	1	180	50	12,400	4,000	1.3	200	-	115	1	-	-	1ST FL NEW BASEMENT STAIR

PROVIDE 3-WAY CONTROL VALVES, UNIT THERMOSTATS. RECESSED CABINET.

REQUIRED MINIMUM VENTILATION RATES AS PER SECTION 403 NYSC																
SYSTEM NAME	ROOM DESIGNATION	OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY (#/1,000 FT²)	Pz	Rp	Ra	Az	Vbz	Ez	Voz	Vpz (MAX)	Vpz (MIN)	Zp	Ev	EXHAUST CFM RATE	EXHAUST CFM SUPPLIED
AHU-1	NEW DAY ROOM	OFFICE	8	5		0.06	486	69.2	0.8	86.45			#####	#DIV/0!		
AHU-1	DAY ROOM CORR	CORRIDOR				0.06	230	13.8	0.8	17.25			#####	#DIV/0!		
EF-2	DAY RM BR							0	0.8	0			#####	#DIV/0!	70/FIXTURE	70
EF-2	DAY RM BR							0	0.8	0			#####	#DIV/0!	70/FIXTURE	70
FC-2	CHIEFS OFFICE	OFFICE	3	5		0.06	190	26.4	0.8	33			#####	#DIV/0!		
EF-1	CHIEFS BR							0	0.8	0			#####	#DIV/0!	70/FIXTURE	70
FC-3	ALARM RM	OFFICE	3	5		0.06	240	29.4	0.8	36.75			#####	#DIV/0!		
FC-2	MEZZ TV/LOUNGE	MEDIA CENTER	5	10		0.12	585	120	0.8	150.25			#####	#DIV/0!		
EF-5	MEZZ BR							0	0.8	0			#####	#DIV/0!	70/FIXTURE	70
EF-5	MEZZ BR							0	0.8	0			#####	#DIV/0!	70/FIXTURE	70
FC-2	MEZZ QUIET RM	CORRIDOR				0.06	195	11.7	0.8	14.625			#####	#DIV/0!		
PTAC-1	MEZZ BNK M7.1	DORM/SLEEPING AREA	1	5		0.06	94	10.6	0.8	13.3			#####	#DIV/0!		
PTAC-2	MEZZ BNK M7.2	DORM/SLEEPING AREA	1	5		0.06	96	10.8	0.8	13.45			#####	#DIV/0!		
PTAC-3	MEZZ BNK M7.3	DORM/SLEEPING AREA	1	5		0.06	96	10.8	0.8	13.45			#####	#DIV/0!		
PTAC-4	MEZZ BNK M7.4	DORM/SLEEPING AREA	1	5		0.06	94	10.6	0.8	13.3			#####	#DIV/0!		
PTAC-5	MEZZ BNK M7.5	DORM/SLEEPING AREA	1	5		0.06	94	10.6	0.8	13.3			#####	#DIV/0!		
RTU-1	EXISTING MEETING RM	CONFERENCE ROOM	116	5		0.06	2096	706	0.8	882.2			#####	#DIV/0!		
RTU-1	CONFERENCE ROOM	CONFERENCE ROOM	10	5		0.06	287	67.2	0.8	84.025			#####	#DIV/0!		
RTU-2	EXISTING READY ROOM	CONFERENCE ROOM	105	5		0.06	1907	639	0.8	799.28			#####	#DIV/0!		
RTU-3	2ND FL COR	CORRIDOR				0.06	618	37.1	0.8	46.35			#####	#DIV/0!		
RTU-3	FITNESS	HEALTH CLUB/WEIGHT RM	6	20		0.06	312	139	0.8	173.4			#####	#DIV/0!		
RTU-3	OFFICERS	OFFICE	3	5		0.06	218	28.1	0.8	35.1			#####	#DIV/0!		
RTU-3	ADMIN	OFFICE	2	5		0.06	218	23.1	0.8	28.85			#####	#DIV/0!		
RTU-3	BENEVOLENT	OFFICE	2	5		0.06	218	23.1	0.8	28.85			#####	#DIV/0!		
EF-7	JAN CL							0	0.8	0			#####	#DIV/0!	70/FIXTURE	70
EF-8	WOMENS							0	0.8	0			#####	#DIV/0!	70/FIXTURE	210
EF-6	MENS							0	0.8	0			#####	#DIV/0!	70/FIXTURE	210
RTU-4	2ND FL QUIET RM	OFFICE	8	5		0.06	379	62.7	0.8	78.425			#####	#DIV/0!		
RTU-4	BUNK CORR	CORRIDOR				0.06	55	3.3	0.8	4.125			#####	#DIV/0!		
EF-9	BUNK BATH							0	0.8	0			#####	#DIV/0!	70/FIXTURE	70
RTU-4	BUNK 216	DORM/SLEEPING AREA	4	5		0.06	228	33.7	0.8	42.1			#####	#DIV/0!		
RTU-4	BUNK 217	DORM/SLEEPING AREA	2	5		0.06	162	19.7	0.8	24.65			#####	#DIV/0!		
RTU-3	SECRETARY/TREASURY	OFFICE	3	5		0.06	189	26.3	0.8	32.925			#####	#DIV/0!		
								0	0.8	0			#####	#DIV/0!		
								0	0.8	0			#####	#DIV/0!		
								0	0.8	0			#####	#DIV/0!		
								0	0.8	0			#####	#DIV/0!		
								0	0.8	0			#####	#DIV/0!		
								0	0.8	0			#####	#DIV/0!		
								0	0.8	0			#####	#DIV/0!		

<u>Vou</u> =	2132.32
<u>Zp (MAX)</u> =	#DIV/0!
<u>Vot</u> =	2665.4
<u>Ev</u> =	0.8

Pz	- PEOPLE
Rp	- CFM/PERSON
Ra	- AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE CFM/FT ²
Az	- NET OCCUPIABLE ZONE FLOOR AREA
Vbz	- BREATHING ZONE OUTDOOR AIRFLOW
Ez	- ZONE AIR DISTRIBUTION EFFECTIVENESS
Voz	- ZONE OUTDOOR AIRFLOW
Vot	- SYSTEM OUTDOOR AIR INTAKE FLOW RATE
Vou	- UNCORRECTED OUTDOOR AIR INTAKE
Zp	- PRIMARY OUTDOOR AIR FRACTION
Ev	- SYSTEM VENTILATION EFFICIENCY

TOTAL EXHAUST = 910

DATE: ISSUE:

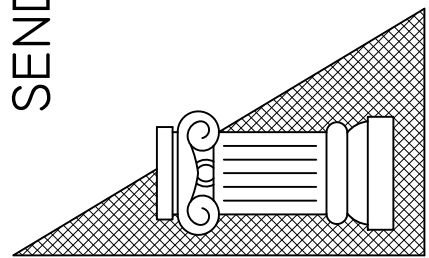
04-21-21
ISSUED FOR BIDDING

SEAL:

ARCHITECTS PC
ELECTS - PLANNERS

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



HARRISON FIRE DEPT.

PROPOSED ADDITION

206 HARRISON AVE
HARRISON, NY 10528

EQUIPMENT SCHEDULES (CONTINUED)

AND VENTILATION INDEX

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFC
2020-04

DRAWING#:

M-8

FOR QUESTIONS, CALL THE
Long Island Office
Tony Virga
PHONE: (516) 513-5398
EMAIL: reg43@econair.com

PATENT NUMBERS
EXHAUST HOODS ND-2/BD-2/SND-2 (CANADA) - CA PATENT 2520435 C.

HOOD INFORMATION - JOB#4790090

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)						HOOD CONSTRUCTION	HOOD CONFIG		
										WIDTH	LENG	HEIGHT	DIA	CFM	VEL		SP	END TO END	ROW
1		4812 ESX-2	ECON-AIR	15' 0"	600 DEG	I	HEAVY	210	3150			4"	12"	1575	2005	-1.046"	430 SS WHERE EXPOSED	ALONE	ALONE
												4"	12"	1575	2005	-1.046"			

HOOD INFORMATION

HOOD NO	TAG	FILTER(S)					LIGHT(S)				UTILITY CABINET(S)					FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
		TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	TYPE	SIZE	MODEL #	QUANTITY		
1		CAPRATE SOLID FILTER	11	16"	16"	85% SEE FILTER SPEC	4	RECESSED	NO	WALL MNT	12"x60"x24"	CAS ELECTRIC WET CHEMICAL	4.0/4.0/4.0	DCV-1111	1 LIGHT 1 FAN	YES	634 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		FIELD WRAPPER 12.00" HIGH FRONT, LEFT, RIGHT.
		BACKSPLASH 68.00" HIGH X 180.00" LONG 430 SS VERTICAL.
		RISER SENSOR INSTALL 3IN DBL.
		RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 68" HIGH INSULATED 430 SS.
		LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 68" HIGH INSULATED 430 SS.
		SENSOR-CV.
		DI-PSP 12" 425CFM.
		DI-PSP 12" 425CFM.
		DI-PSP 12" 425CFM.
		DI-PSP 12" 425CFM.
		DI-PSP 12" 425CFM.
		DI-PSP 12" 425CFM.
		DI-PSP 12" 425CFM.
		DI-PSP 12" 425CFM.

DIFFUSER SCHEDULE

TAG	MODEL	CEILING HEIGHT	NOMINAL FACE SIZE	RISER DIA	CFM	DUCT VELOCITY (FPM)	FACE DISCHARGE VELOCITY (FPM)	T50 AFF	SP	NOISE CRITERIA	LINKED FAN	LINKED HOOD
	DI-PSP-12-24X24	12'	24 X 24	12	425	541	126	7.02'	0.117"	36		4812ESX-2
	DI-PSP-12-24X24	12'	24 X 24	12	425	541	126	7.02'	0.117"	36		4812ESX-2
	DI-PSP-12-24X24	12'	24 X 24	12	425	541	126	7.02'	0.117"	36		4812ESX-2
	DI-PSP-12-24X24	12'	24 X 24	12	425	541	126	7.02'	0.117"	36		4812ESX-2
	DI-PSP-12-24X24	12'	24 X 24	12	425	541	126	7.02'	0.117"	36		4812ESX-2
	DI-PSP-12-24X24	12'	24 X 24	12	425	541	126	7.02'	0.117"	36		4812ESX-2
	DI-PSP-12-24X24	12'	24 X 24	12	425	541	126	7.02'	0.117"	36		4812ESX-2

WALL-MOUNT UTILITY CABINET

HOOD NO	LOCATION	SIZE	UTILITY CABINET(S)			WEIGHT
			FIRE SYSTEM	ELECTRICAL	SWITCHES	
1	WALL MNT	12"x60"x24"	CAS ELECTRIC WET CHEMICAL	4.0/4.0/4.0	DCV-1111 1 LIGHT 1 FAN	440.00 LBS

FIRE SYSTEM INFORMATION - JOB#4790090

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1		CAS ELECTRIC WET CHEMICAL	4.0/4.0/4.0	16	WALL UTILITY CABINET LEFT	N/A

GAS VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	2.000	DISTRIBUTOR

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1		0 - 0 - 100-BW 2X4 BLANK PLATE FOR J-BOX.	2	0
		0 - 0 - 12-F28021-005360 DUCT FIRE THERMOSTAT. NO, CLOSE ON TEMP RISE AT 360°F.	2	0
		0 - 0 - 59361-1/2 2X4 EXTENSION RING.	2	0
		0 - 0 - 60-9196984-000 VENT PLUG FOR FIRE SYSTEM DISTRIBUTION PIPING, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	3	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	6	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	1	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	9	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	3	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	3	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	1	0
		ADDITIONAL PARTS TO BE DETERMINED...		

SPECIFICATION: CAPRATE® GREASE-STOP® SOLID FILTER

THE CAPRATE GREASE-STOP SOLID FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

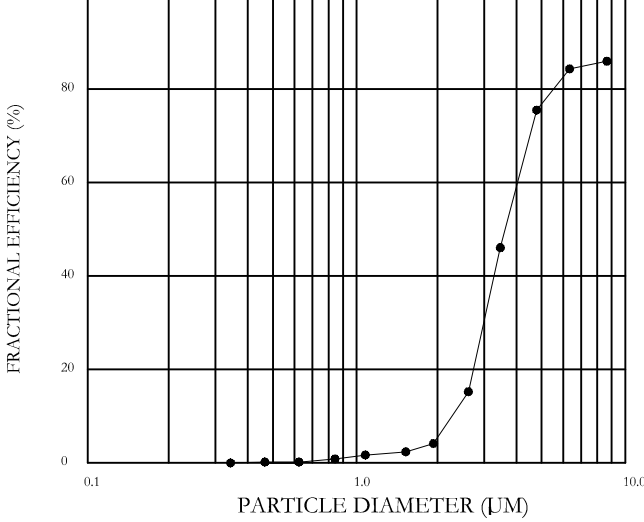
UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

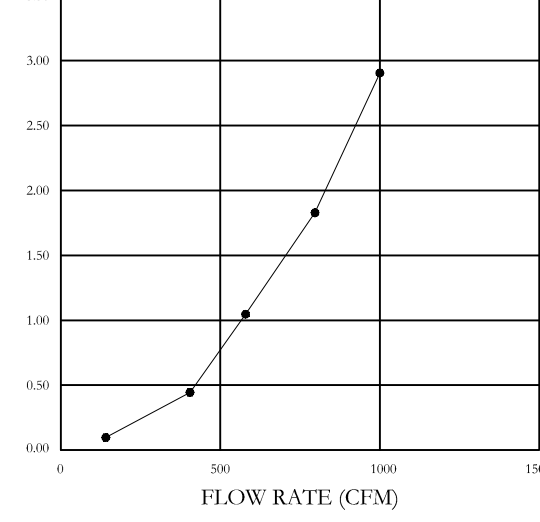
THE CAPRATE GREASE-STOP SOLID WAS TESTED TO ASTM STANDARD ASTM F2519-05.

MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.

EFFICIENCY VS. PARTICLE DIAMETER



PRESSURE DROP VS. FLOW RATE



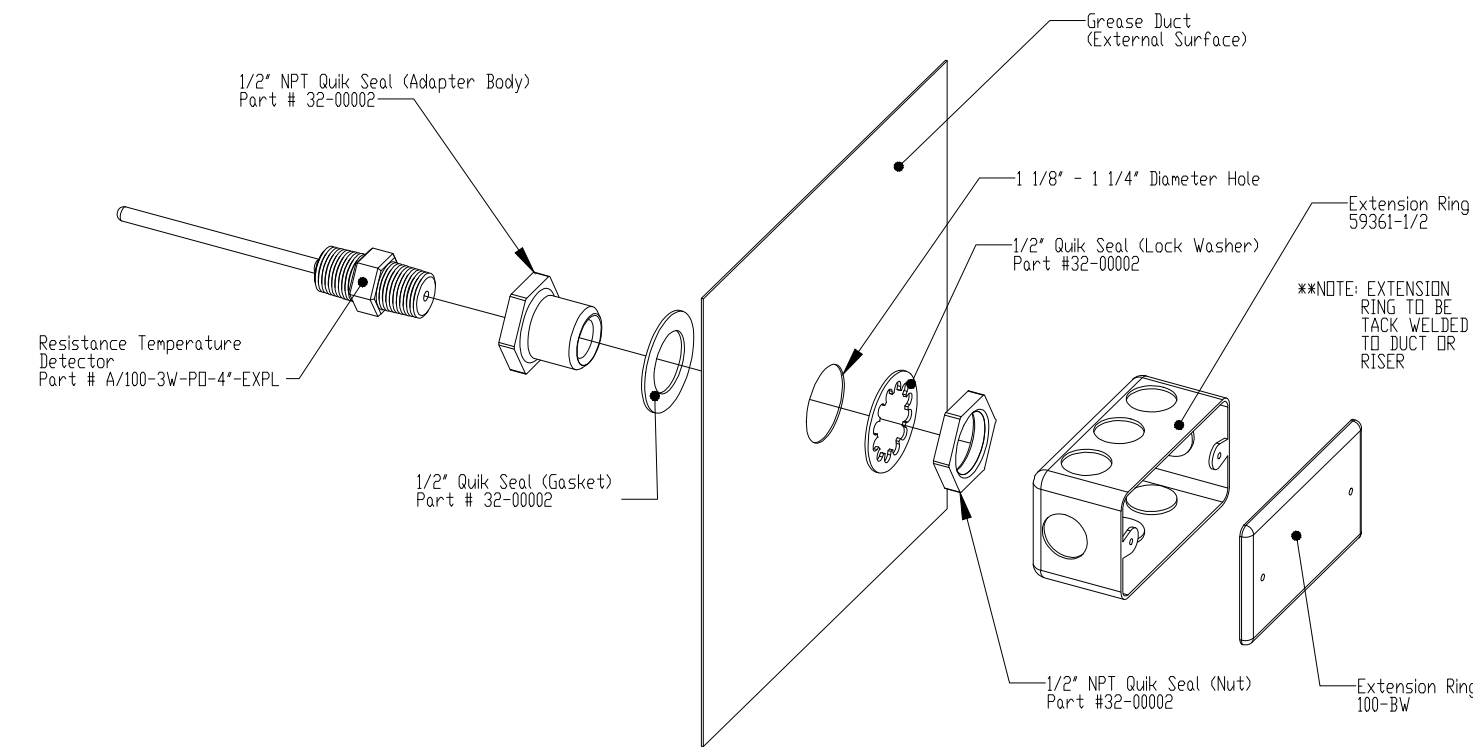
CAPRATE FILTERS ARE BUILT IN COMPLIANCE WITH:

NSF #96
NSF STANDARD #2
UL STANDARD #1046.
INT. MECH. CODE (IMC).
ULC-S649.



RTD SENSOR INSTALLATION (IF NOT FACTORY INSTALLED)

NOTES: One RTD per Exhaust Fan
: RTD has 3 wires that connect to control cabinet



GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO ECON-AIR MODEL "EDW"
ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "EDW"
IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING
CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "EDW"
DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER
THE MANUFACTURES INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER.
PER MANUFACTURES LISTING MODEL "EDW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE
SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12".
DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE
ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE
UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY
EQUAL TO ECON-AIR MODEL "EDW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430
STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

ECON-AIR RECOMMENDS THE USE OF LISTED,
PRE-FABRICATED ROUND GREASE EXHAUST DUCT
TO REDUCE STATIC PRESSURE IN THE SYSTEM,
MINIMIZE INSTALLATION AND INSPECTION TIMES,
AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE

HIGH VELOCITY DIFFUSERS OR HVAC RETURNS
SHOULD NOT BE PLACED WITHIN TEN (10) FEET
OF THE EXHAUST HOOD. PERFORATED
DIFFUSERS ARE RECOMMENDED.

REVISIONS	
DESCRIPTION	DATE



Harrison Fire Department
206 Harrison Ave,
Harrison, NY, 10528

DATE: 3/11/2021

DWG.#:
4790090

DRAWN BY:

SCALE:
3/4" = 1'-0"

MASTER DRAWING

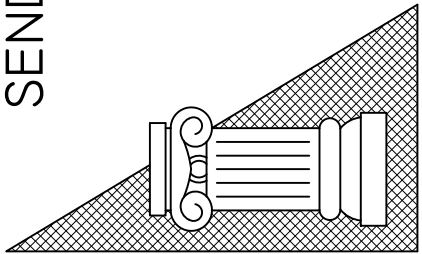
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RIVERHEAD, NY 11901
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9 SELENA COURT
WALDEN, NY 12586
(845) 275-8859



HARRISON FIRE DEPT.

PROPOSED ADDITION

206 HARRISON AVE
HARRISON, NY 10528

ADD/ALT KITCHEN HOOD SCHEDULES

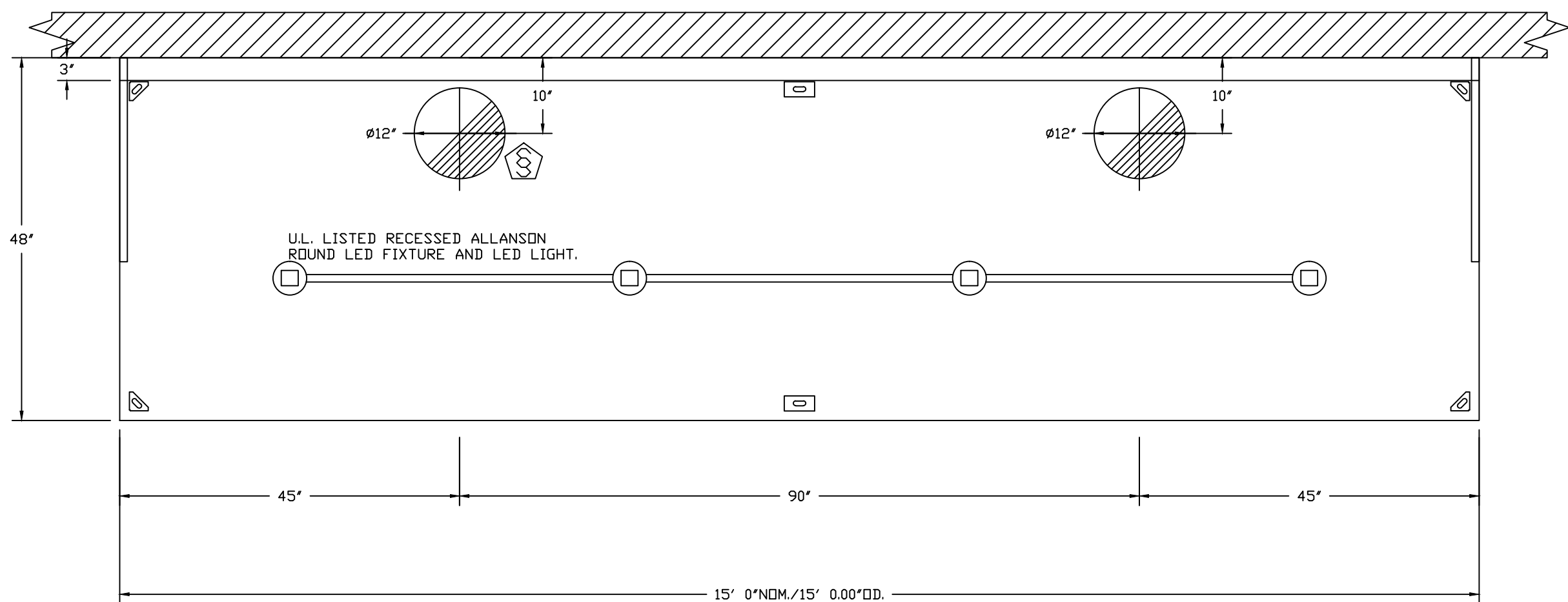
PROJECT #: 2020-04

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2020-04

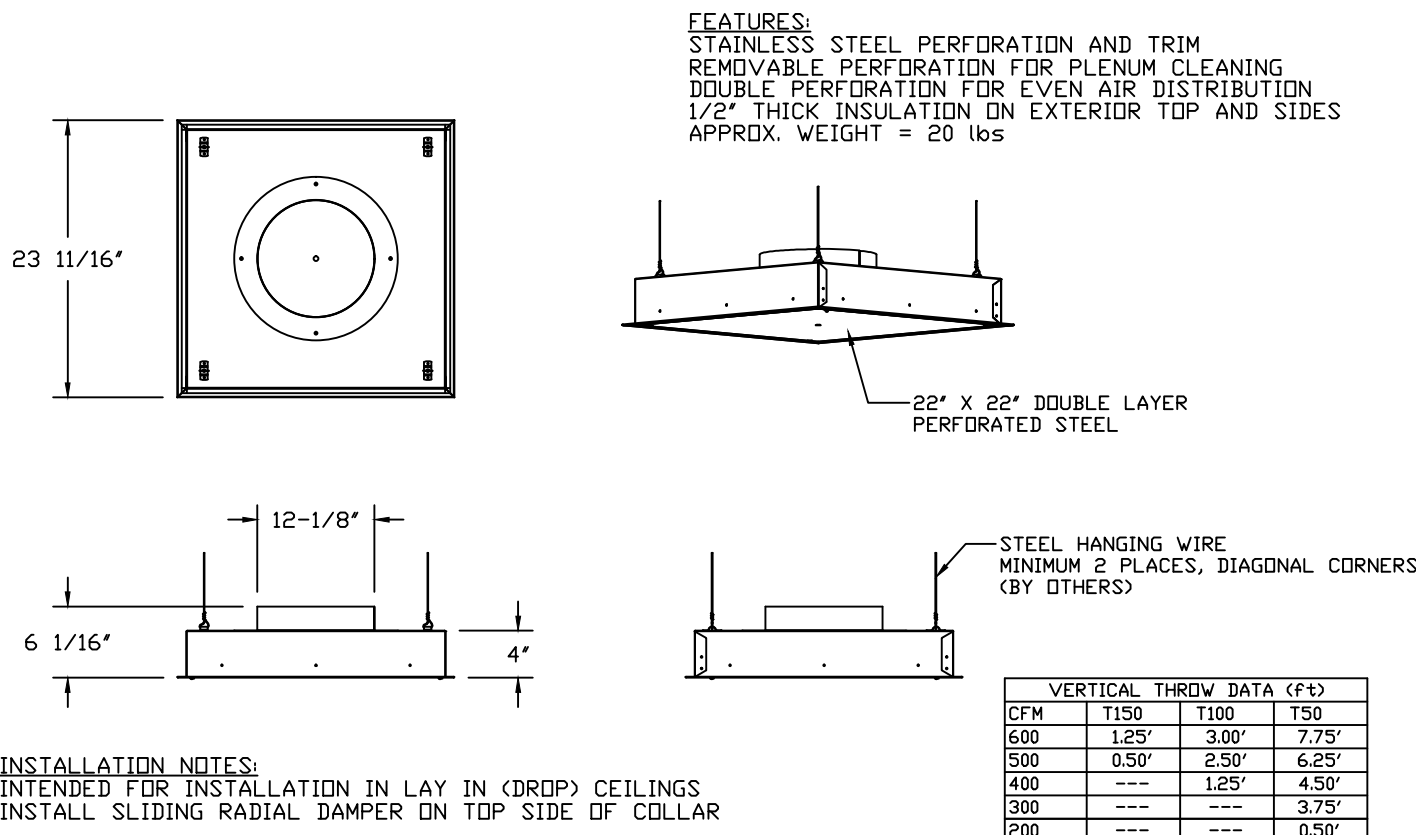
DRAWING#:

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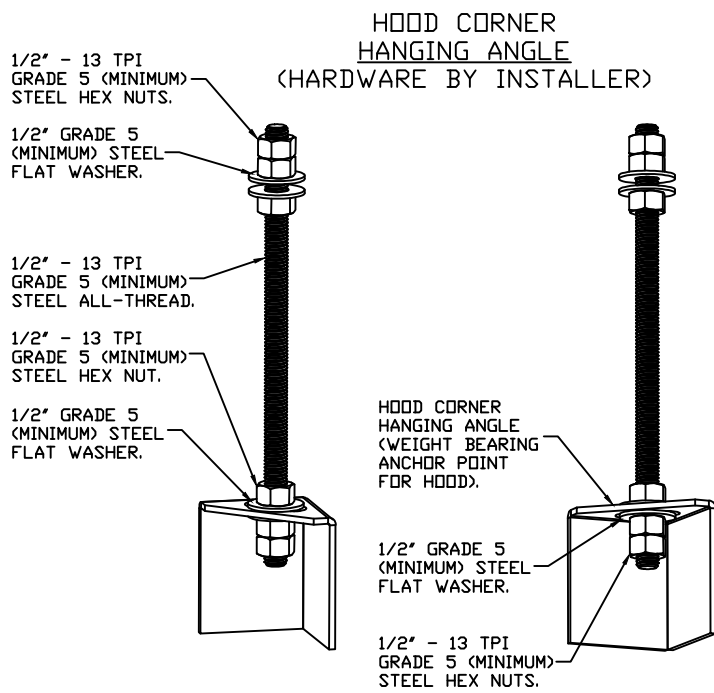


PLAN VIEW - HOOD #1
15' 0.00" LONG 4812ESX-2
NOTE: ADDITIONAL HANGING ANGLES PROVIDED FOR HOODS 12' AND LONGER.

QTY 6-DROP-IN PERFORATED SUPPLY PLENUM DIFFUSER
(DI-PSP)

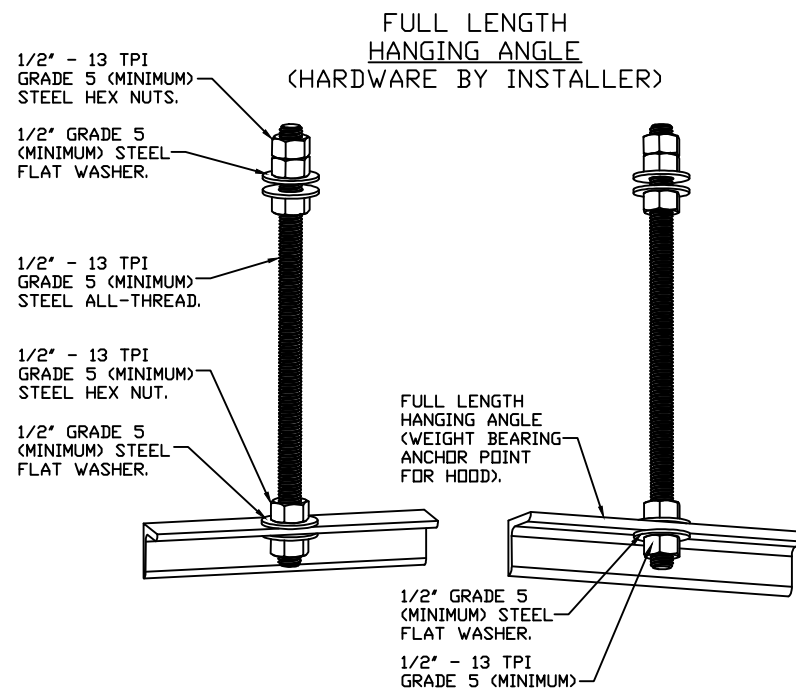


DIFFUSER SPECIFICATION



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

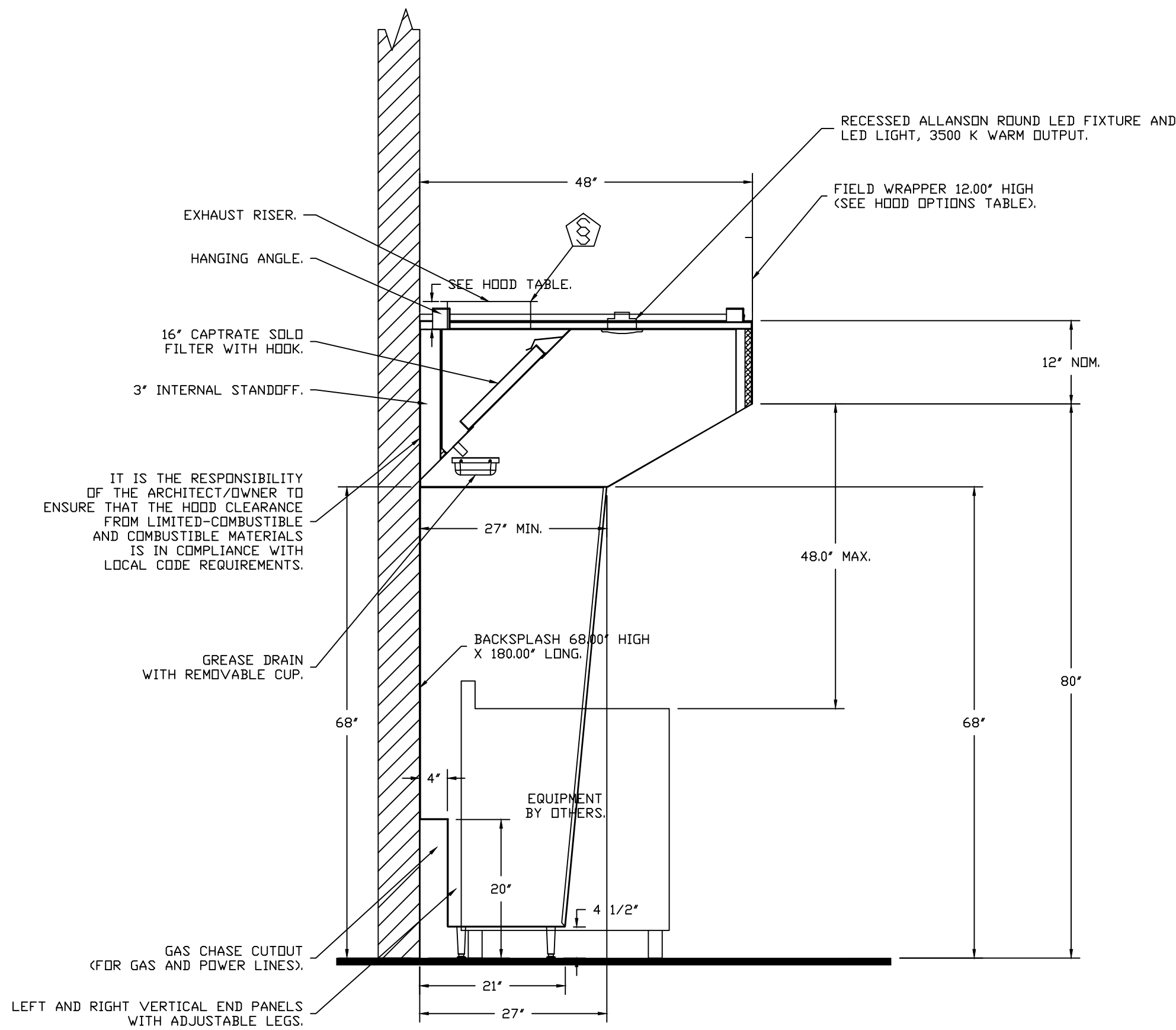
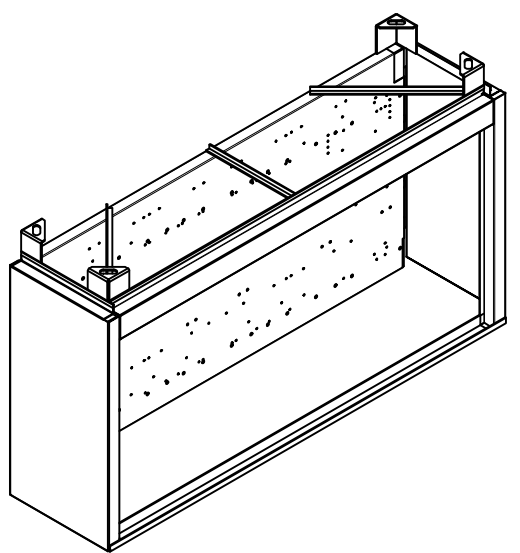
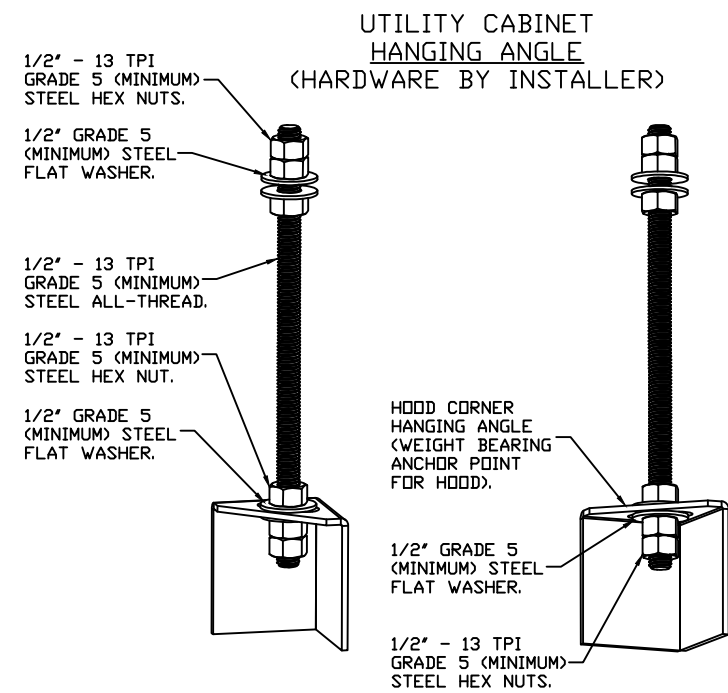


ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION ABOVE CEILING ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS ACCEPTABLE FOR FULL LENGTH HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

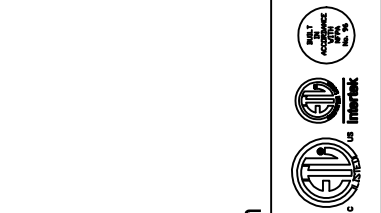
WALL-MOUNT UTILITY CABINET
ASSEMBLY INSTRUCTIONS

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SECTION VIEW - MODEL 4812ESX-2
HOOD - #1

REVISIONS	
DESCRIPTION	DATE



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www.econair.com
Long Island Office
625 Middle Country Rd., Suite 101B, Coram, NY, 11727 PHONE: (516) 513-5398 FAX: (919) 227-5967 EMAIL: reg43@econair.com

Harrison Fire Department
206 Harrison Ave,
Harrison, NY, 10528

DATE: 3/11/2021

DWG.#:
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DRAWN BY:

SCALE:
3/4" = 1'-0"

MASTER DRAWING

SHEET NO.
2

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SEAL:

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ARCHITECTS - PLANNERS
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(845) 275-8859

HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528

ADD/ALT KITCHEN HOOD DETAILS

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD
2020-04

DRAWING#:

M-8

EXHAUST FAN INFORMATION – JOB#4790090

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SDNES
1		1	EA-USB118DD-RM	ECDN-AIR	3150	1.500	1320	DDP,PREMIUM	2,000	1.3570	3	208	8.3	1615 FPM	400	19.4

MUA FAN INFORMATION – JOB#4790090

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MDCP	WEIGHT (LBS)	SDNES
2		1	EA2-1BT-300-20D	20MF-2-MOD	A2-1BT-300	1200	2520	0.500	1058	DDP,PREMIUM	2,000	0.7620	3	208	6.1	7.7A	15A	1128	8.4

GAS FIRED MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
2		239471	191577	63°F	7 IN. W.C. – 14 IN. W.C.	NATURAL	80

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1		1	UTILITY SET GREASE CUP.
		1	B118 – 24" DISCHARGE EXTENSION.
		1	B1 – DISCHARGE ORIENTATION VERTICAL UPPER LEFT – CW INLET SIDE.
		1	UTILITY SET – SPRING VIBRATION ISOLATORS – B118 / EQUIVALENT SIZED UTILITY SET – INDOOR/OUTDOOR USE.
		1	B118 – INLET RING USED TO CONNECT NON-FACTORY DUCT.
		1	2 YEAR PARTS WARRANTY.
2		1	STANDARD ELECTRICAL CONNECTION (MAIN AND CONTROL PANEL) FOR STANDING POWER – SINGLE MODULE. IF A NON-DCV PREWIRE IS USED ON THE 1BT HEATER, THE #28, #47, #15", #14", OR #2" OPTION PREWIRE MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE.
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-1 HOUSING. MEETS AMCA CLASS 1A RATING.
		1	INLET PRESSURE GAUGE, 0–35".
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE.
		1	1BT SIZE 1 & 2 SIDE DISCHARGE.
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK (SUPPLIED BY OTHERS).
		1	CLOGGED FILTER SWITCH WITH NOTIFICATION ON HMI.
		1	FREEZE/STAT.
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) – THREE PHASE ONLY.
		1	2 YEAR ENTIRE UNIT PARTS WARRANTY, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY.

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1		YES						
2					YES		YES	

CURB ASSEMBLIES

NO	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	50 LBS	RAIL	4,000"W X 48,000"L X 18,000"H COMES AS A SET OF 2.
2	# 2	96 LBS	RAIL	6,000"W X 31,000"L X 18,000"H.
2	# 2	96 LBS	CURB	31,000"W X 79,000"L X 18,000"H INSULATED.

SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

REVISIONS

DESCRIPTION	DATE:
Δ	
Δ	
Δ	
Δ	

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Long Island Office

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Harrison Fire Department

206 Harrison Ave,

Harrison, NY, 10528

DATE:

3/11/2021

DWG.#:

4790090

DRAWN BY:

SCALE:

3/4" = 1'-0"

MASTER DRAWING

SHEET NO.

3

DATE:

ISSUE

04-21-21

ISSUED FOR BIDDING

SEAL:

SENDLEWSKI ARCHITECTS PC

ARCHITECTS - PLANNERS

215 ROANOKE AVENUE

RIVERHEAD, NY 11901

(631) 727-5352

9 SELENA COURT

WALDEN, NY 12586

(845) 275-8859

HARRISON FIRE DEPT.

PROPOSED ADDITION

206 HARRISON AVE.

HARRISON, NY 10528

ADD/ALT KITCHEN EXHAUST SYSTEM SCHEDULES

PROJECT #:

2020-04

DRAWN BY:

SEND. ARCH.

CAD FILE:

P/2020/HFD

2020-04

DRAWING#:

M-11

Technical drawing of a rectangular structure, likely a component of a vehicle. The drawing shows a side view with a depth of 37 1/2" and a height of 35". A detail view on the right shows a depth of 26 1/4".

Technical drawing of a 1000-gallon vertical storage tank, showing front and side views with dimensions and labels.

Front View Dimensions:

- Overall Height: 42 1/8"
- Top Section Height: 24"
- Top Section Width: 35"
- Top Section Internal Width: 19 1/2"
- Bottom Section Height: 28 3/8"
- Bottom Section Width: 25"
- Bottom Section External Width: 26 1/4"
- Extension Label: EXTENSION.
- 1 1/8" SHAFT DIA. Label: 1 1/8" SHAFT DIA.

Side View Dimensions:

- Overall Height: 40 5/8"
- Top Section Height: 14 5/8"
- Top Section Width: 22"
- Bottom Section Height: 18 1/2"
- Bottom Section Width: 31 7/8"
- Bottom Section External Width: 37 1/2"
- Bottom Section Internal Width: 18 1/4"
- Bottom Section External Width: 12 3/4"
- Bottom Section Height: 7.25"
- Bottom Section External Height: 4.125"
- Drain Label: 2" DRAIN.
- Inlet Notes Label: *INLET NOTES.
- Outlet Notes Label: *OUTLET NOTES.

- ROOF MOUNTED FANS.
- UL705.
- UL762 AND ULC-S645 (RESTAURANT MODEL).
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C).
- HEAT SLINGER.
- NEMA 3R SAFETY DISCONNECT SWITCH.
- GREASE CLASSIFICATION TESTING.
- 2" DRAIN.
- MOTOR WEATHER COVER.
- FULLY SEALED SCROLL HOUSING.
- SCROLL ACCESS DOOR.
- FLANGE 1 1/4".

UTILITY SET GREASE CUP.
BI18 - 24" DISCHARGE EXTENSION.
BI - DISCHARGE ORIENTATION VERTICAL
UPPER LEFT - CW INLET SIDE.
UTILITY SET - SPRING VIBRATION
ISOLATORS - BI18 / EQUIVALENT SIZED
UTILITY SET - INDOOR/OUTDOOR USE.
BI18 - INLET RING USED TO CONNECT
NON-FACTORY DUCT.
2 YEAR PARTS WARRANTY.

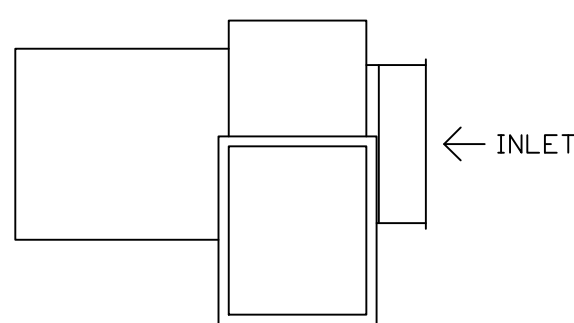
SUPPORT RAILS

NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY
WHILE EXHAUSTING AIR AT 350°F (176°C)
UNTIL ALL FAN PARTS HAVE REACHED
THERMAL EQUILIBRIUM, AND WITHOUT ANY
DETERIORATING EFFECTS TO THE FAN WHICH
WOULD CAUSE UNSAFE OPERATION.

88 LBS

72 LBS

100 LBS



140 LBS

[illegible]

Harrison Fire Department
206 Harrison Ave,
Harrison, NY, 10528

DATE: 3/11/2021

DWG.#:
4790090

DRAWN BY:

SCALE:
3/4" = 1'-0"

MASTER DRAWING

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WALDEN, NY 12586
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HARRISON FIRE DEPT.

PROPOSED ADDITION

206 HARRISON AVE.
HARRISON, NY 10528

ADD/ALT KITCHEN EXHAUST FAN
DETAILS

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD
2020-04

DRAWING#:

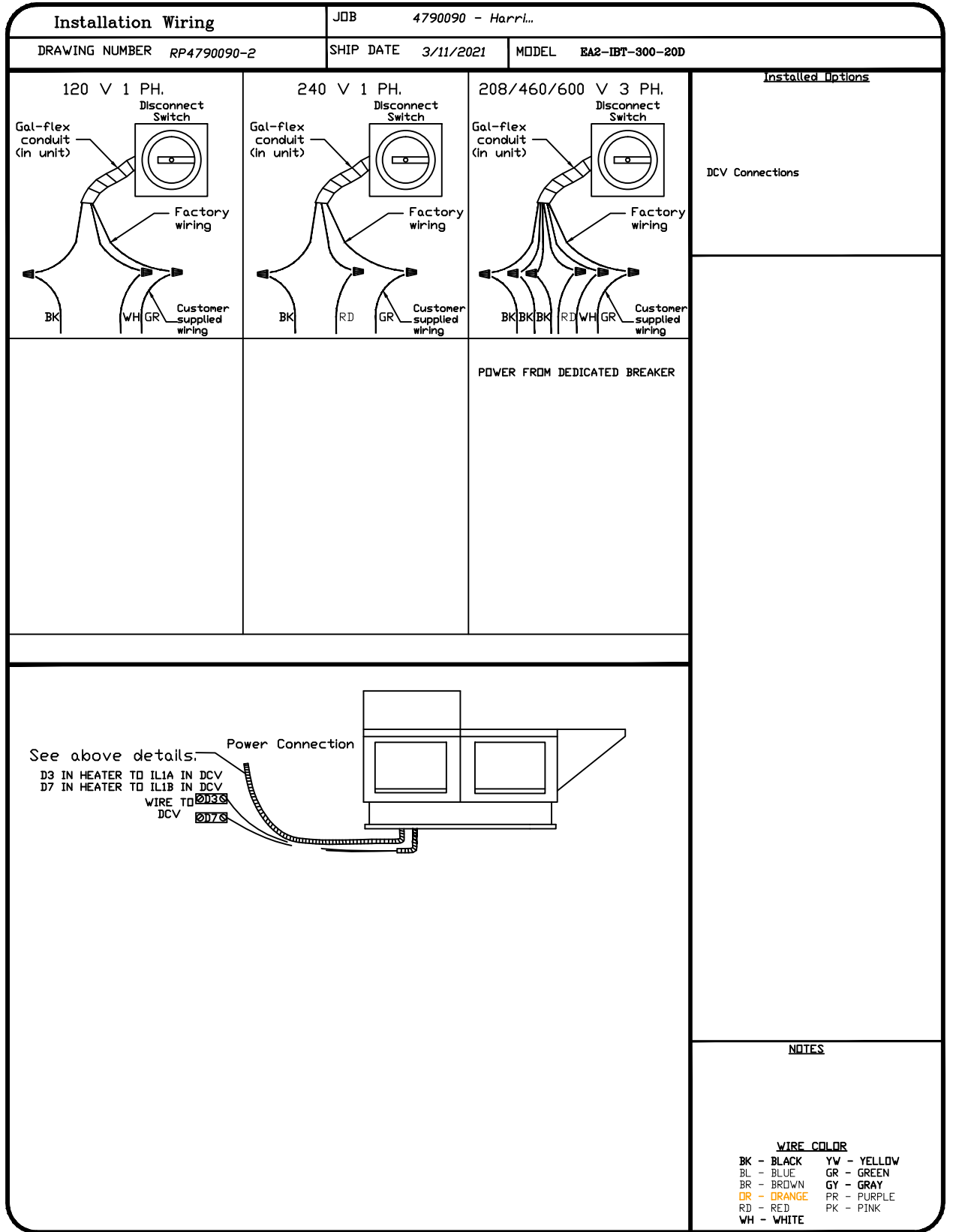
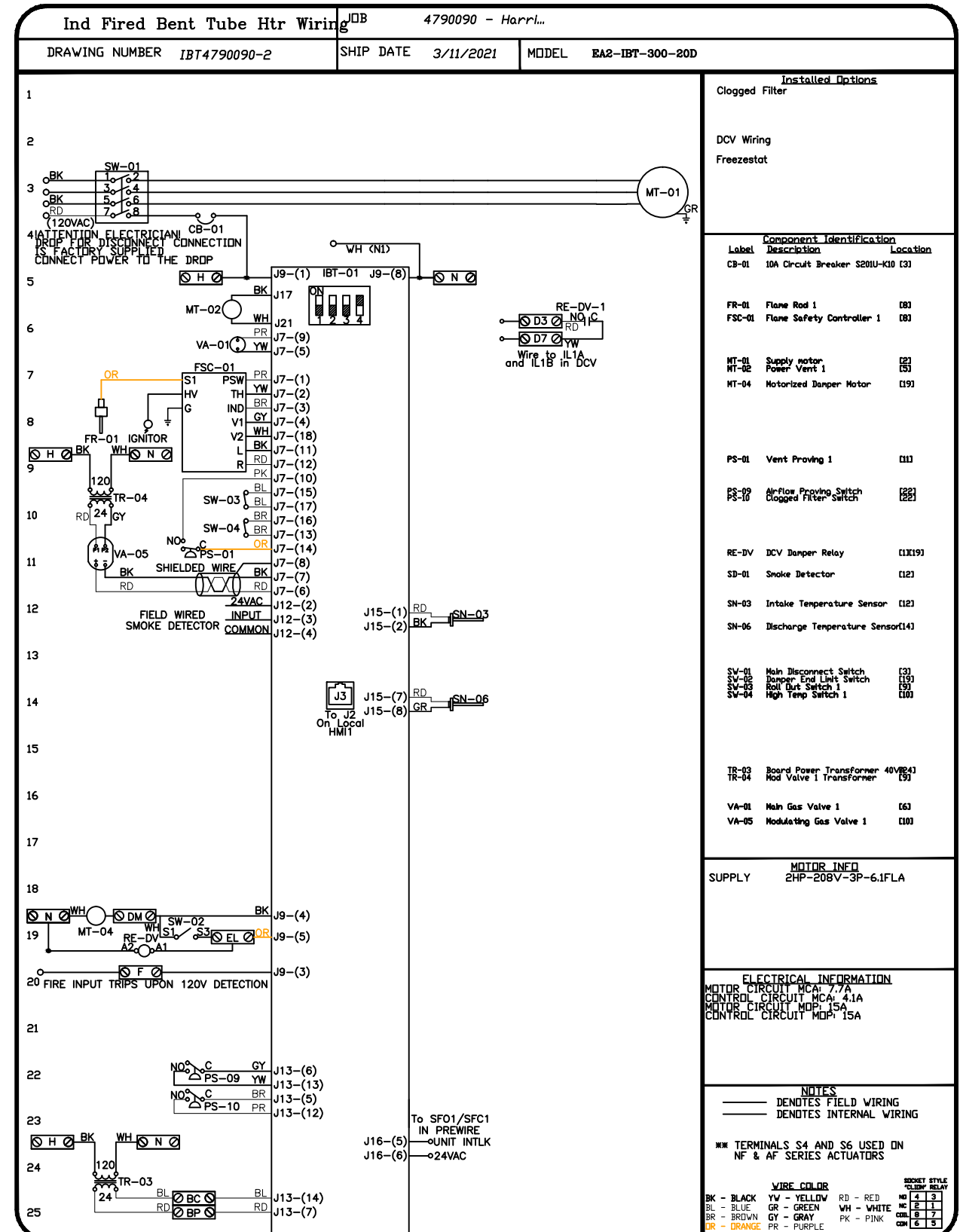
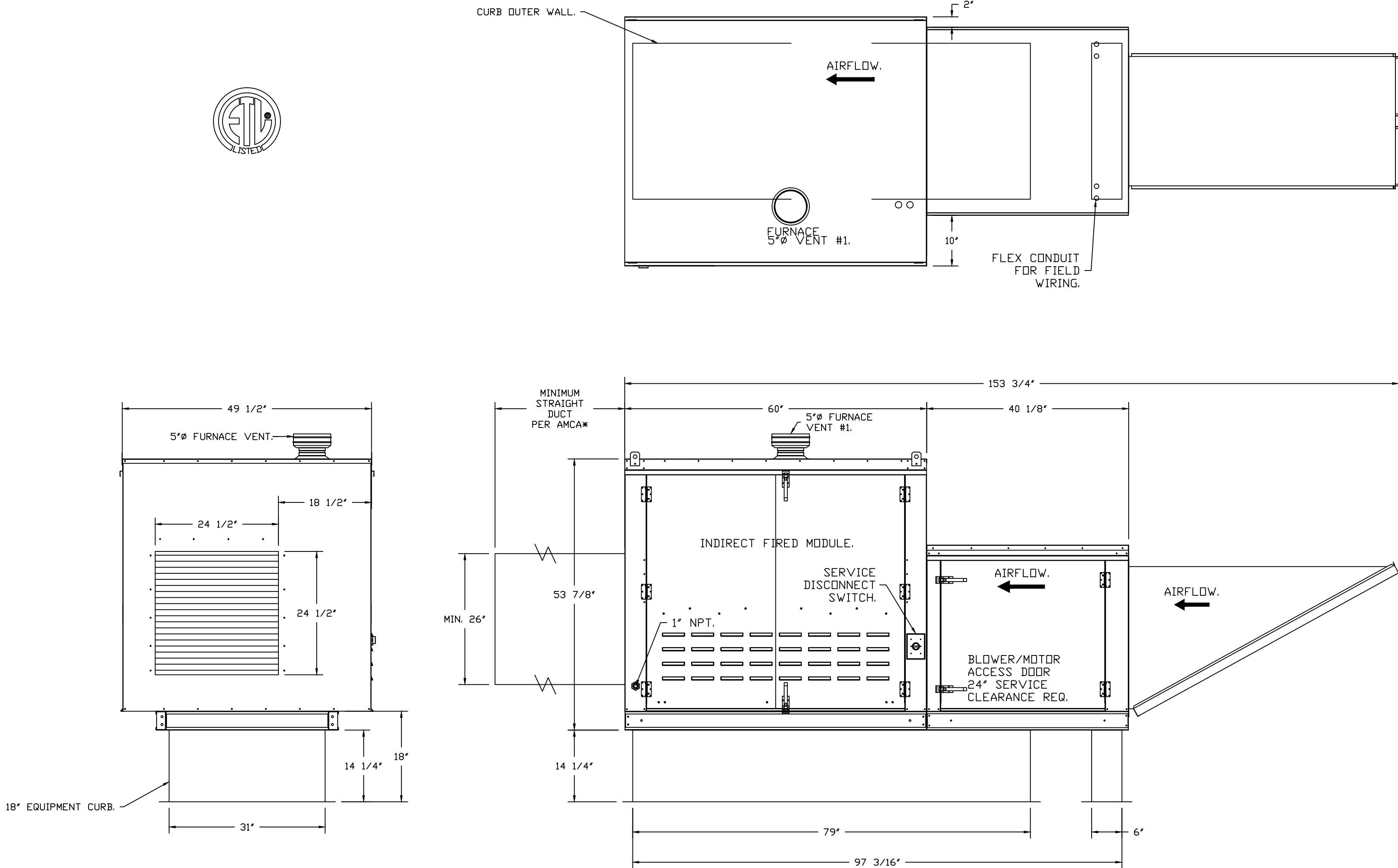
M-12

- FAN #2 EA2-IBT-300-20D - HEATER
1. INDIRECT BENT TUBE GAS FIRED HEATER WITH 20" MIXED FLOW DIRECT DRIVE FAN, 1 FURNACE, ELECTRONIC FULL MODULATION, CONSTANT 80% EFFICIENCY, AND 6:1 MAX TURNDOWN FOR NG, (5:1 MAX TURNDOWN FOR LP). STAINLESS STEEL BURNER AND HEAT EXCHANGER.
 2. INTAKE HOOD WITH EZ FILTERS.
 3. SIDE DISCHARGE - AIR FLOW RIGHT -> LEFT.
 4. SEPARATE 120V ELECTRICAL CONNECTION FOR ALL IBT HEATERS WITH 1 MODULE FOR STANDING POWER. 120V MUST BE RUN BY ELECTRICIAN FROM BUILDING PANEL TO MUA SWITCH.
 5. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED.
 6. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
 7. GAS PRESSURE GAUGE, 0 TO +10 INCHES WC, 2.5" DIAMETER, 1/8" THREAD SIZE, REAR THREAD.
 8. USED WITH SIZE 1 AND SIZE 2 SIDE DISCHARGE IBT MODULES.
 9. COMMERCIAL SMOKE DETECTOR INTERLOCK (DETECTOR BY OTHERS).
 10. CLOGGED FILTER SWITCH WITH NOTIFICATION ON HMI.
 11. FREEZE/STAT FACTORY SET AT 39°F AND 10 MINUTES.
 12. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
 13. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION).
 14. 2 YEAR ENTIRE UNIT PARTS WARRANTY, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY.
 - 1BT - US PATENT 8777119 B2

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 26" x 26".

SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 12°F. TEMP. RISE = 63°F.
BTUS CALCULATED OFF ACTUAL AIR DENSITY
OUTPUT BTUS AT ALTITUDE OF 0.0 FT. = 198264.
INPUT BTUS AT ALTITUDE OF 99 FT. = 240330.
OUTPUT BTUS AT ALTITUDE OF 99 FT. = 191577.
INPUT BTUS AT ALTITUDE OF 99 FT. = 239472.



REVISIONS

DESCRIPTION	DATE:
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SEAL:

DATE: 04-21-21
ISSUED FOR BIDDING

Harrison Fire Department
206 Harrison Ave,
Harrison, NY, 10528

DATE: 3/11/2021
DWG.#: 4790090

DRAWN BY:

SCALE:
3/4" = 1'-0"

MASTER DRAWING

SHEET NO.
5

HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528
ADD/ALT MAKEUP AIR UNIT DETAILS

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

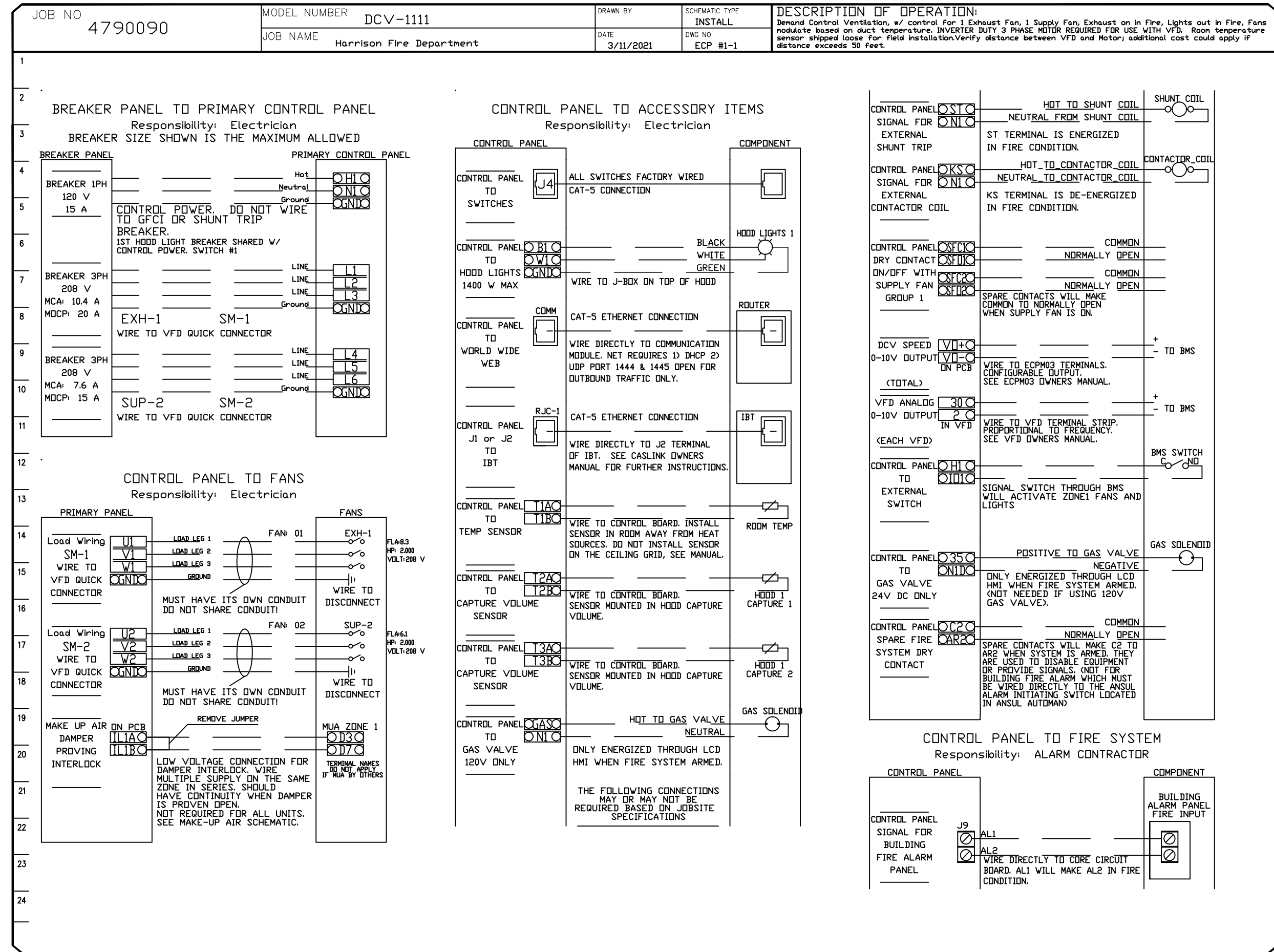
CAD FILE: P/2020/HFD
2020-04

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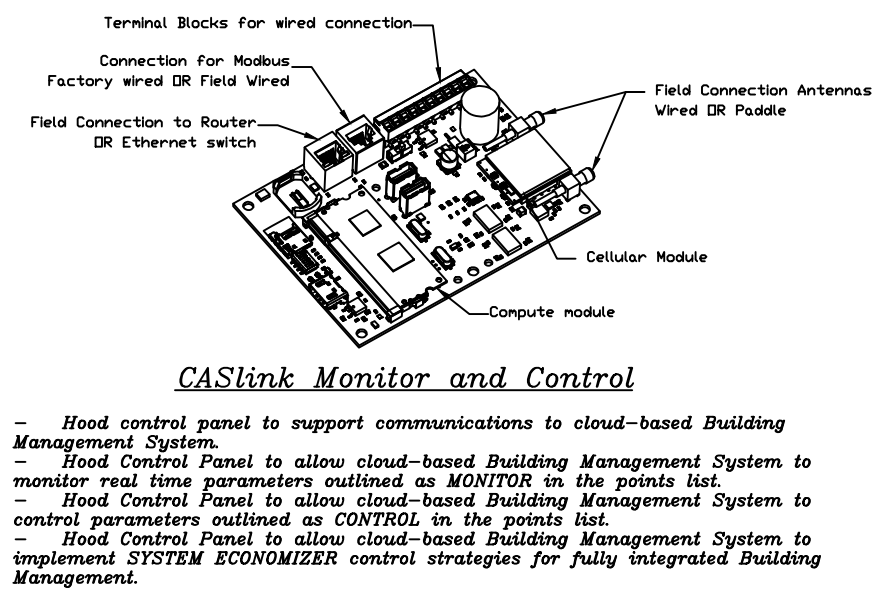
M-13

ELECTRICAL PACKAGE -- JOB#4790090

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED			
				LOCATION	QUANTITY		TYPE	HP	VOLT	FLA
1		DCV-1111	WALL UTILITY CABINET RIGHT	13 = WALL UTILITY CAB. ON RIGHT END HOOD # 1	1 LIGHT 1 FAN	SMART CONTROLS DCV	EXHAUST	3	2,000	208 8.3
							SUPPLY	3	2,000	208 6.1



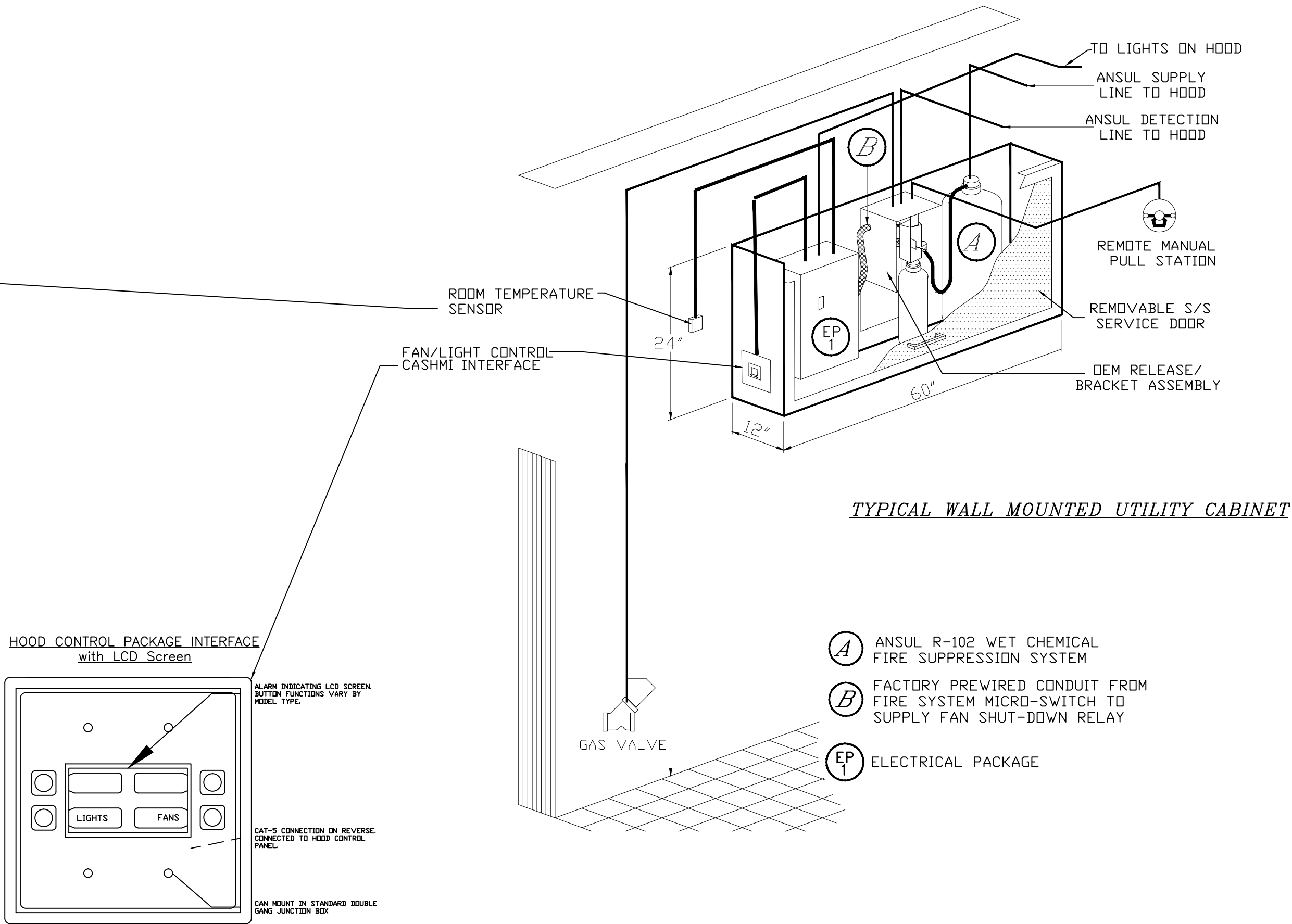
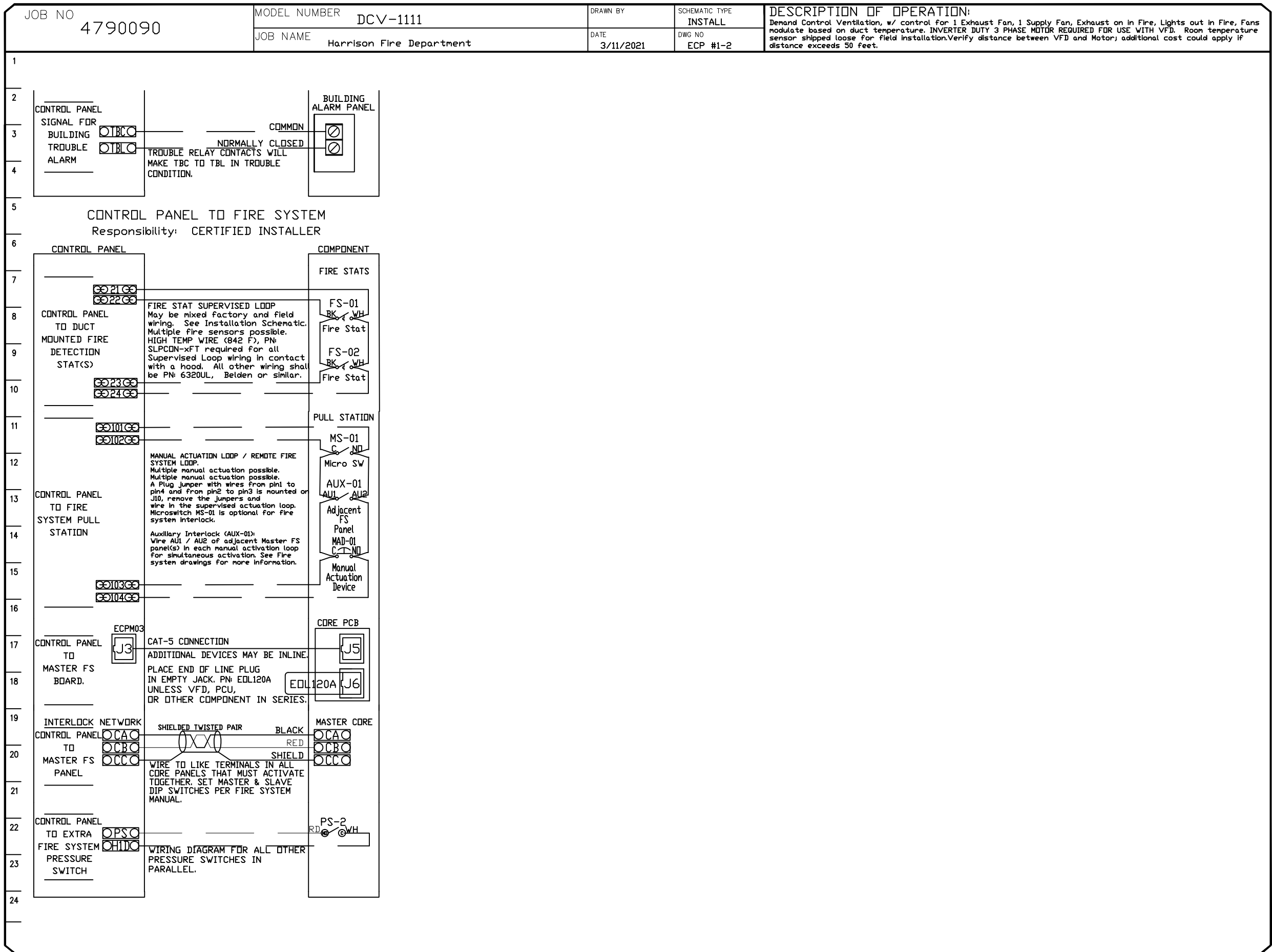
*****ATTENTION ELECTRICIAN*****
LOAD SIDE WIRING FOR EACH FAN MUST BE RUN
IN SEPERATE CONDUIT FROM EMS SYSTEM TO EACH
FAN ON ROOF.



MONITORING AND CONTROL POINTS LIST	
DCV Packages	Function
Room Temperature	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR
Fan Amperage	MONITOR
Fan Power	MONITOR
VFD Faults	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
COSE Fire System	MONITOR
Building Pressure	MONITOR
Prep Time Button	MONITOR & CONTROL
Fans Button	MONITOR & CONTROL
Lights Button	MONITOR & CONTROL
Flash Button	MONITOR & CONTROL

SC Packages	Function
Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
COSE Fire System	MONITOR
Building Pressure	MONITOR
Fans Button(s)	MONITOR & CONTROL
Lights Button(s)	MONITOR & CONTROL
Flash Button	MONITOR & CONTROL

Room Temperature Sensor
-Install on wall in a safe location,
free of influence from external
heat sources. Should be of
average kitchen temperature
away from appliances.
Operation
-If exhaust duct sensor detects a
temperature rise of 10 degrees
(adjustable) over the kitchen
space temp, the fans will
automatically turn on.
Automatic Mode
-Preferred method of operation
instead of manually activating
the FANS button



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DESCRIPTION	DATE

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Harrison Fire Department
206 Harrison Ave,
Harrison, NY, 10528

DATE: 3/11/2021
DWG.#:
4790090
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SCALE:
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6

DATE: ISSUE
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RIVERHEAD, NY 11901
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9 SELENA COURT
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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528
ADD/ALT KITCHEN HOOD WIRING
DIAGRAMS

PROJECT #: 2020-04
DRAWN BY: SEND. ARCH.
CAD FILE: P/2020/HFD
2020-04

DRAWING#:

M-14

JOB NO

47090090

MODEL NUMBER

DCV-1111

JOBSHEET

1

JOBSHEET

1

DATE

3/11/2021

SCHEMATIC TYPE

INSTALL

DRW NO

EDP #1-3

DESCRIPTION OF OPERATION:

Fire System #1 GAS Electric Wet Chemical - 40/40/40. Two-based Fire Protection System equipped with Electrical detection utilizing, CODE board as a Listed Rescue Receptor. Installed in wall Mountable Utility Cabinet with integral hood pre-purge panel.

WALL MOUNT UTILITY CABINET CAS ELECTRIC WET CHEMICAL

PROTECTION ELECTRICAL DETAIL

02/05/2018 Rev. 1

FS-1: MASTER

ELECTRICIAN

1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC

2. WIRE ALL FANS PER INCLUDED SCHEMATIC

3. WIRE SHUNT TRIP BREAKER (OPTIONAL)

4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)

5. WIRE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT

ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & NI	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & NI + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & NI	KTS & NI	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL)	AUL, AUR	SOLENOID	120 VAC	< 6 AMPS	120V TO AUL, AUR TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	3S & NID (OF 24 VIDE) GAS & NI (OF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, NID TO RED, 3S TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, NI TO RED, AND GREEN TO GROUND

SHUNT TRIP BREAKER (OPTIONAL)

2 WIRES, 120VAC

-ST TO A1 ON SHUNT BREAKER

-NEUTRAL TO A2 ON SHUNT TRIP BREAKER

POWER TO ELECTRIC APPLIANCE

EXHAUST HOOD

36 INCHES CLEARANCE REQUIRED IN FRONT OF ALL UTILITY CABINET DEERS

THE PANEL SHALL ALSO BE LOCATED IN AN ACCESSIBLE AREA WHERE THE AUDIBLE AND VISUAL ALARMS CAN BE HEARD AND SEEN

CONTROL PANEL POWER

2 WIRES & GROUND

-120 VAC, 15 AMP SERVICE

-WIRES TO H1 AND NI, GROUND

-POWER MUST NOT ORIGINATE FROM SHUNT TRIP BREAKER

GAS VALVE POWER

2 WIRES & GROUND

-24 VDC WIRE TO 3S & NID

-120 VAC WIRE TO GAS & NI

GAS VALVE

-STRAINER MUST BE INSTALLED UPSTREAM OF VALVE

ELECTRIC

GAS

COOKING APPLIANCE(S)

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO: 479090

MODEL NUMBER: DCV-1111

JOB NAME: Harrison Fire Department

DRAWN BY: [blank]

DATE: 3/11/2021

DESCRIPTIVE TITLE: INSTALL

ECR #1-4

DESCRIPTION OF OPERATION:
Fire System #1 GAS Electric Wet Chemical - 40/40/40. Tank-based fire Protection System equipped with Electronic Detection utilizing CO2 stored as a Listed Release Mechanism. Installed in wall Mounted Utility Cabinet with integral hood pressure panel.

02/05/2018 Rev. 1

FS-1: MASTER

WALL MOUNT UTILITY CABINET GAS ELECTRIC WET CHEMICAL PROTECTION LOW-VOLTAGE DETAIL

ALARM CONTRACTOR:
 1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
 2. COMPLETE FINAL WIRING OF SYSTEM
 3. VERIFY FINAL FIRE SYSTEM TEST

ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 10 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION ST1-65018
REMOTE FIRESTAT SENSOR(S)	21 AND 24 22 AND 23	BLACK AND WHITE	24 VDC	< 10 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRES BETWEEN HOOD PANEL TERMINALS 21 AND 24 HIGH TEMP (HPT) K10044273 (HPT) & K10044273 (HPT) OR SIMILAR ONLY IF IT RAN OVER TOP OF HOOD, OTHERWISE, BETWEEN K638010 (HPT) SIMILAR FLENUM RATED WIRE, SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FIRE BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	1LA, 1LB, 1LC	1LA, 1LB, 1LC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) 1LA, TO CORE SYSTEM (2) 1LA, CORE SYSTEM (1) 1LB, TO CORE SYSTEM (2) 1LB, CORE SYSTEM (1) 1LC, TO CORE SYSTEM (2) 1LC, USE BELDEN 88860 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TDC	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	< 10 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION

FIRE ALARM CONTACT
 2 WIRES WIRE TO NORMALLY OPEN CONTACTS (CLOSES) IN TROUBLE CONDITION
 CORE CONTROL PANEL AL1 AND AL2
 -SEE FIGURE 2

TROUBLE CONTACT
 2 WIRES TO NORMALLY OPEN CONTACTS CLOSE IN TROUBLE CONDITION
 CORE PANEL TERMINALS TBL AND TBC
 -SEE FIGURE 4

SUPERVISED LOOP
 4 WIRES, 24VDC, CONNECT BLACK WIRES BETWEEN 21 AND 24 IN PANEL, CONNECT WHITE OR RED WIRES BETWEEN 22 AND 23 IN PANEL
 -ADDITIONAL FIRESTATS, WIRED IN SUPERVISED LOOP
 -USE HIGH TEMP (HPT) K10044273 (HPT) OR SIMILAR FLENUM RATED WIRE ONLY IF IT RAN OVER TOP OF HOOD, OTHERWISE, BETWEEN K638010 (HPT) SIMILAR FLENUM RATED WIRE
 -SEE FIGURE 1

36 INCHES CLEARANCE REQUIRED IN FRONT OF ALL UTILITY CABINET BEHIND THE PANEL SHALL ALSO BE LOCATED IN AN ACCESSIBLE AREA WHERE THE AUDIBLE AND VISUAL ALARMS CAN BE HEARD AND SEEN

MANUAL ACTUATION DEVICE
 2 WIRES, 24VDC WIRE (TERMINAL 1) BETWEEN 102 AND 103
 WIRE (TERMINAL 2) BETWEEN 101 AND 104
 -ADDITIONAL PULL STATIONS WIRED IN SUPERVISED LOOP
 -USE BELDEN 88802 OR SIMILAR WIRE
 -SEE FIGURE 2

MANUAL ACTUATION DEVICE PART B5T-552431
 PROTECTIVE COVER MUST BE INSTALLED

42 TO 48 INCHES ABOVE FLOOR LEVEL TO CENTER OF PUSH STATION

COOKING APPLIANCE(S)

EXHAUST HOOD

MANUAL ACTUATION DEVICE
 10 TO 20 FEET FROM HOOD LOCATED NEAR POINT OF EGRESS FROM HOOD

ELECTRIC GAS

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

DESCRIPTION OF OPERATION:

02/05/2015 Rev. 16

FS-1: MASTER

WALL MOUNTED GAS ELECTRIC WET CHEMICAL PROTECTION LOW-VOLTAGE FIGURES

USE BELDEN #6320UL OR SIMILAR WIRE

WIRING CONNECTIONS FOR FIRESTAT LOOP FIGURE 1

WIRING CONNECTIONS FOR MANUAL ACTUATION LOOP FIGURE 1A

WIRING CONNECTIONS FOR FIRE ALARM CONTACT FIGURE 2

WIRING CONNECTIONS FOR CORE INTERLOCK FIGURE 3

WIRING CONNECTIONS FOR TROUBLE CONTACT FIGURE 4

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES



econ.air

Long Island Office

625 Middle Country Rd, Suite 101B, Coram, NY 11727 PHONE: (516) 513-5398 FAX: (919) 227-5967 EMAIL: regal3@econair.com

REVISIONS

#	DESCRIPTION	DATE:
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△		
△		
△		
△		





Harrison Fire Department
206 Harrison Ave,
Harrison, NY, 10528

DATE: 3/11/2021
DWG.#: 4790090
DRAWN BY:
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO.
7

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04-21-21
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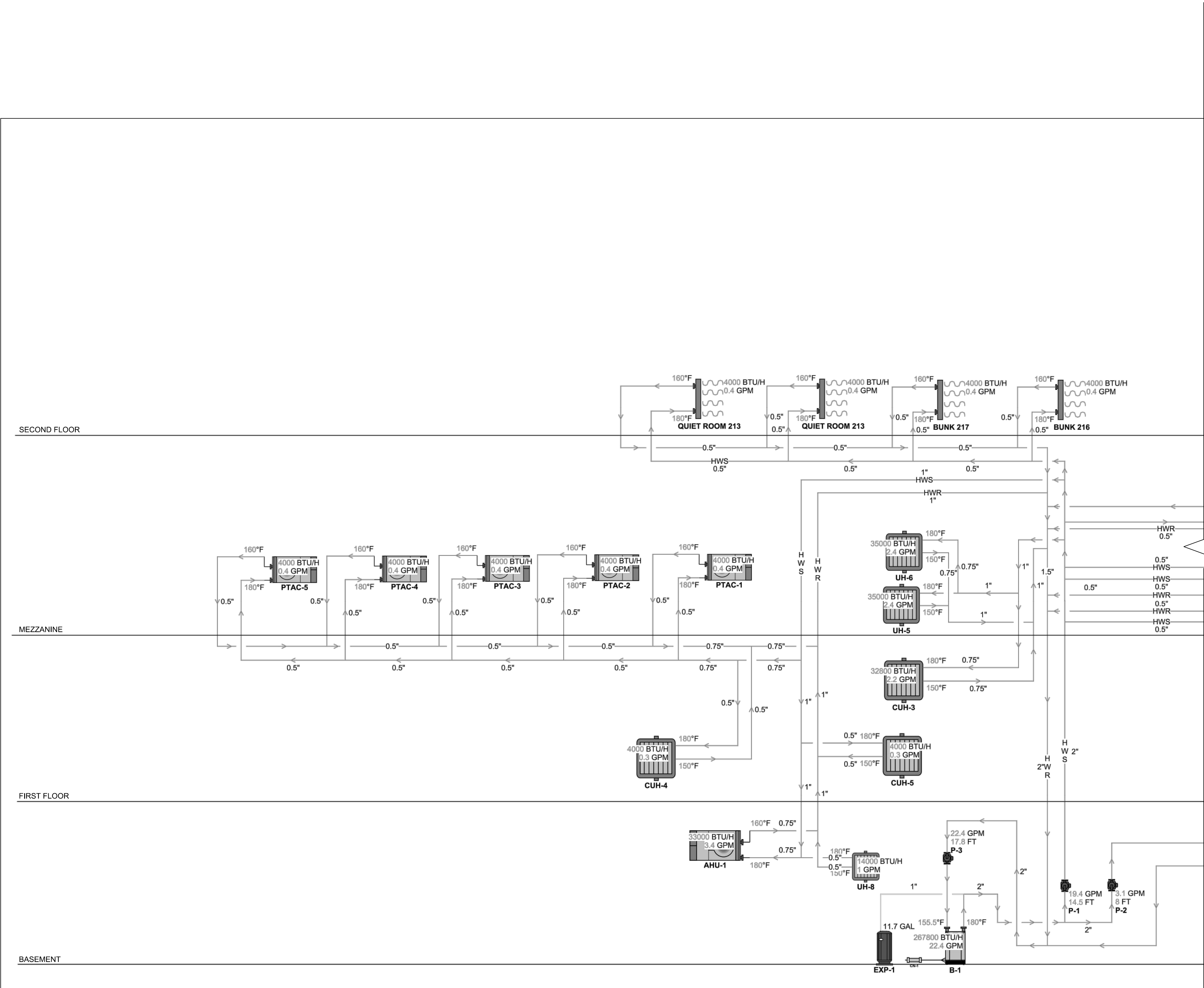
HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528
ADD/ALT KITCHEN HOOD WIRING
DIAGRAMS

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD
2020-04

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DATE: 04-21-21
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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528

HYDRONIC
RISER DIAGRAM

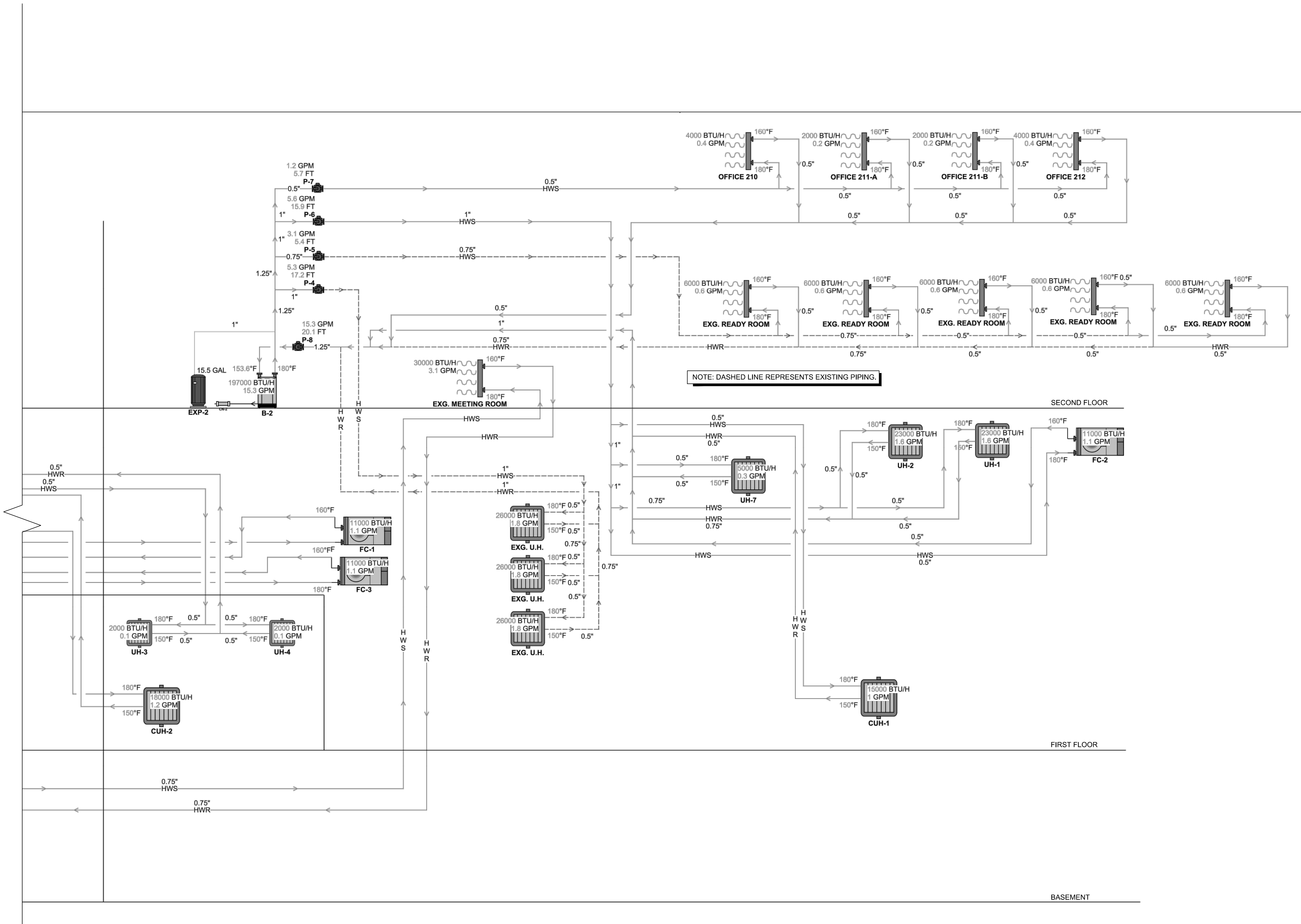
PROJECT #: 2020-04

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2020-04

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M-16

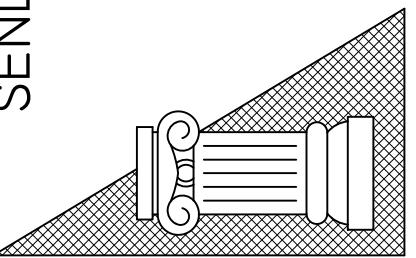


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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528

HYDRONIC
RISER DIAGRAM

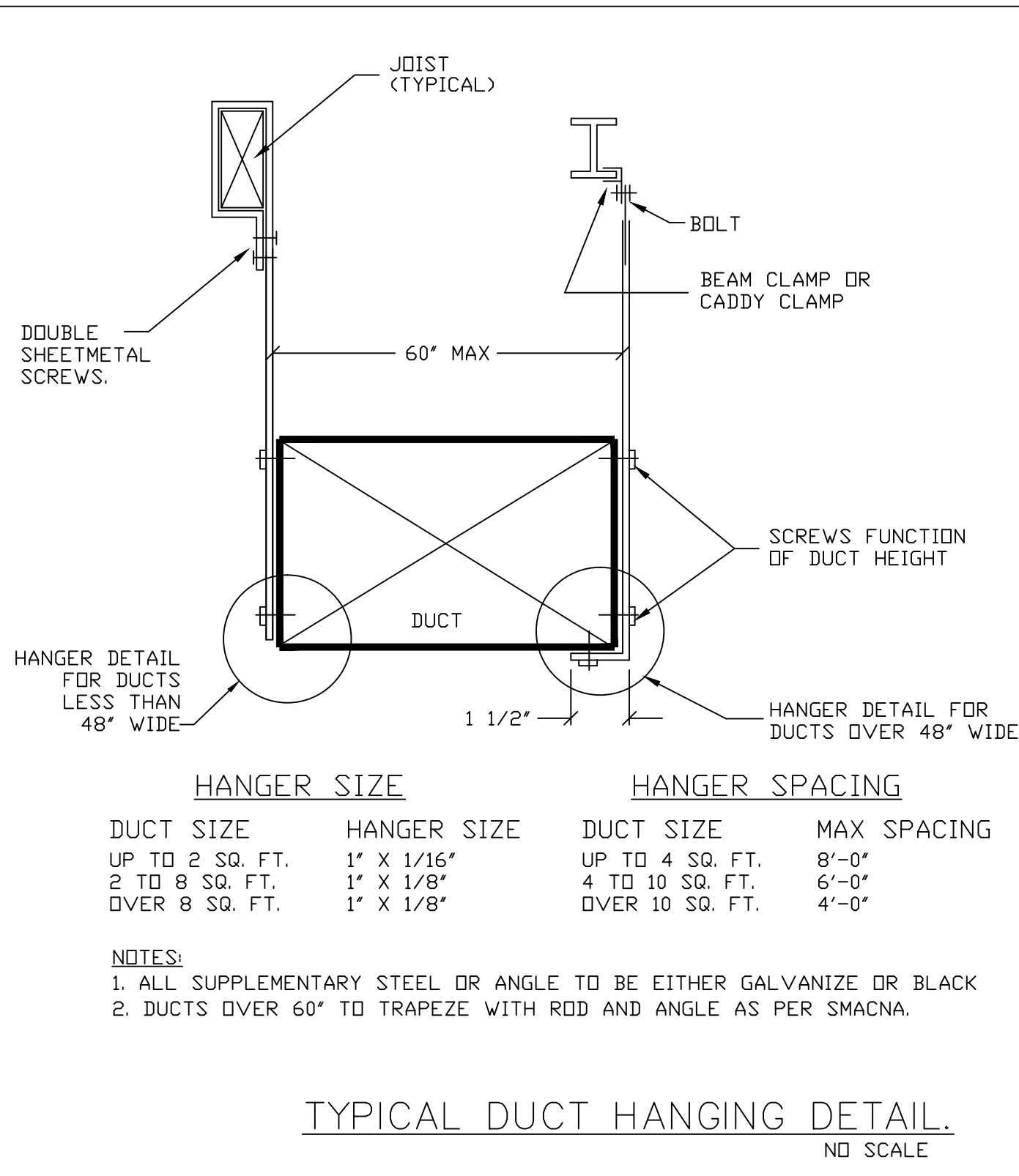
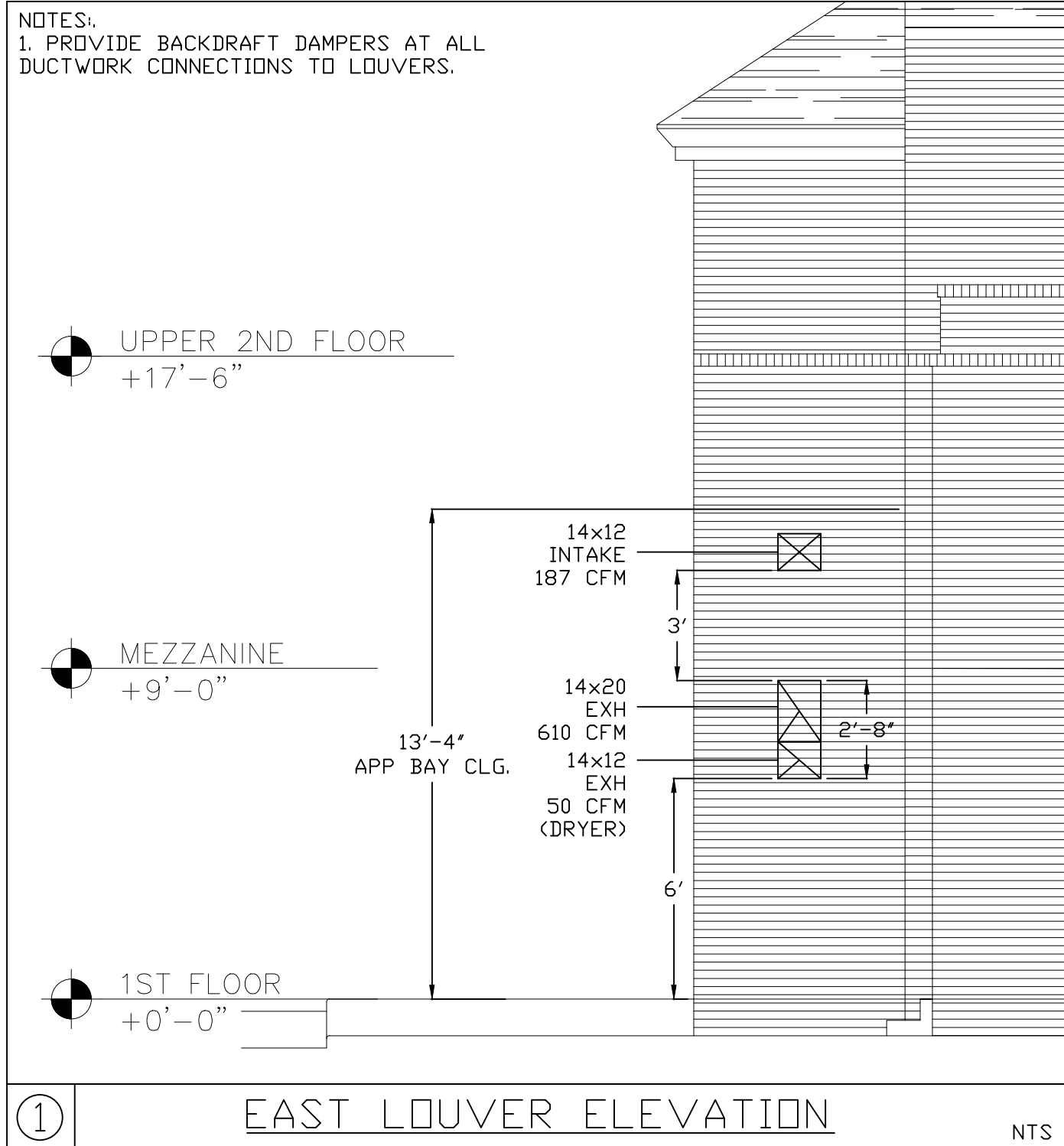
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M-17



Seismic Restraint of Piping:

All seismic restraint systems shall be installed in strict accordance with the manufacturer's seismic restraint guidelines manual and all certified submittal data.

Transverse piping restraints shall be at 40-foot maximum spacing for all pipe sizes, except where lesser spacing is required to limit anchorage loads.

Longitudinal restraints shall be at 80-foot maximum spacing for all pipe sizes, except where lesser spacing is required to limit anchorage loads.

Transverse restraint for one pipe section may also act as a longitudinal restraint for a pipe section of the same size connected perpendicular to it if the restraint is installed within 24-inches of the elbow or tee or combined stresses are within allowable limits at longer distances.

Hold down clamps must be used to attach pipe to all trapeze members before applying restraints.

Branch lines may not be used to restrain main lines.

Provide reinforced clevis bolts when required.

Piping crossing building seismic or expansion joints, passing from building to building, or supported from different portions of the building shall be installed to allow differential support displacements without damaging the pipe, equipment connections, or support connections. Pipe offsets, loops, anchors, and guides shall be installed as required to provide specified motion capability and limit motion of adjacent piping.

Do not brace a system to two independent structures such as ceiling and wall.

Provide appropriately sized openings in walls, floors, and ceilings for anticipated seismic movement. Provide fire seal systems in fire-rated walls.

Seismic Restraint of mechanical Services

All seismic restraint systems shall be installed in strict accordance with the manufacturer's seismic restraint guidelines manual and all certified submittal data.

Installation of seismic restraints shall not cause any change in position of equipment or piping, resulting in stresses or misalignment.

No rigid connections between equipment and the building structure shall be made that degrade the noise and vibration-isolation system specified.

Do not install any equipment, piping, duct, or conduit that makes rigid connections with the building unless isolation is not specified.

Prior to installation, bring to the architect's/engineer's attention any discrepancies between the specifications and the field conditions, or changes required due to specific equipment selection.

Bracing may occur from flanges of structural beams, upper truss cords of bar joists, cast in place inserts, or wedge-type concrete anchors. Consult structural engineer of record.

Overstressing of the building structure shall not occur from overhead support of equipment. Bracing attached to structural members may present additional stresses. The contractor shall submit loads to the structural engineer of record for approval in this event.

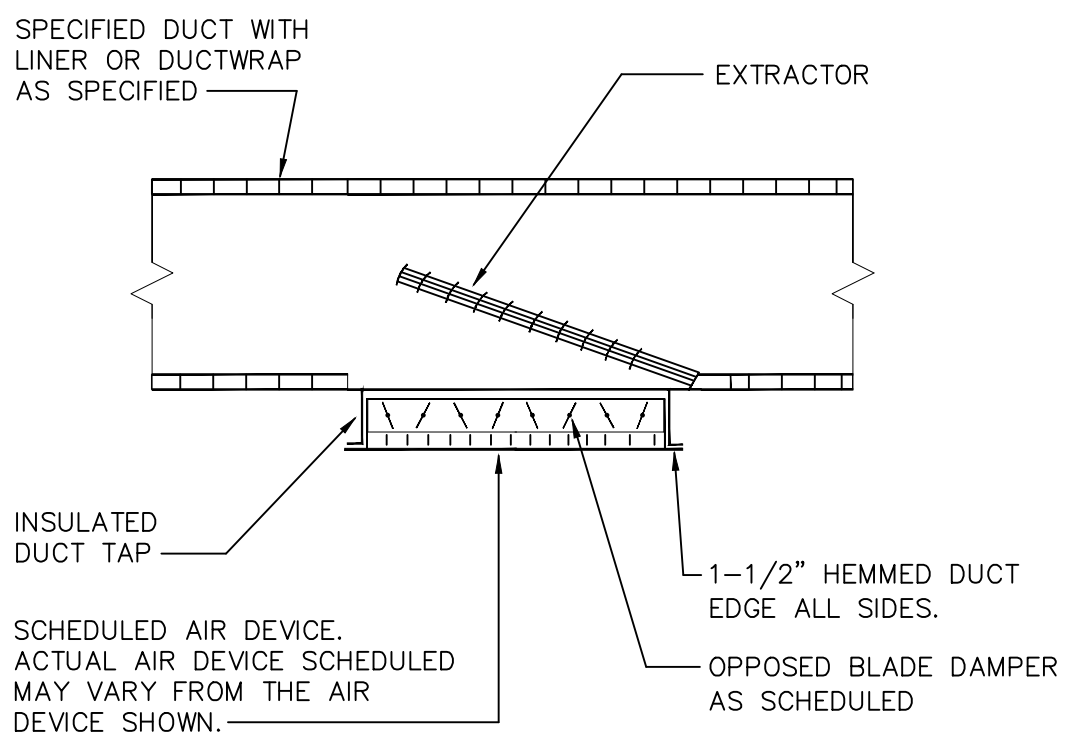
Brace support rods when necessary to accept compressive loads. Welding of compressive braces to the vertical support rods is not acceptable.

Provide reinforced clevis bolts where required.

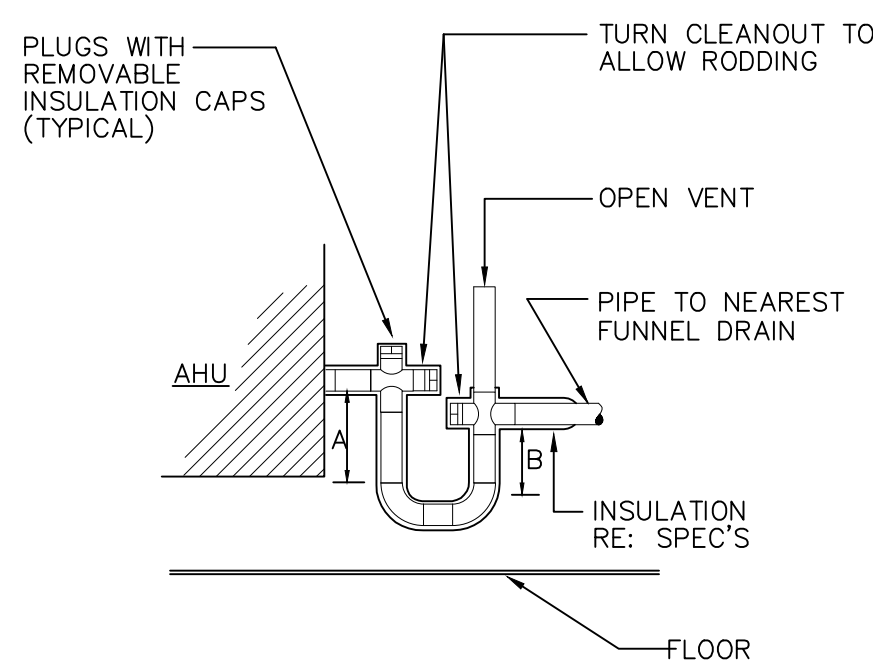
Seismic restraints shall be mechanically attached to the system. Looping restraints around the system is not acceptable.

11. Do not brace a system to two independent structures such as a ceiling and wall.

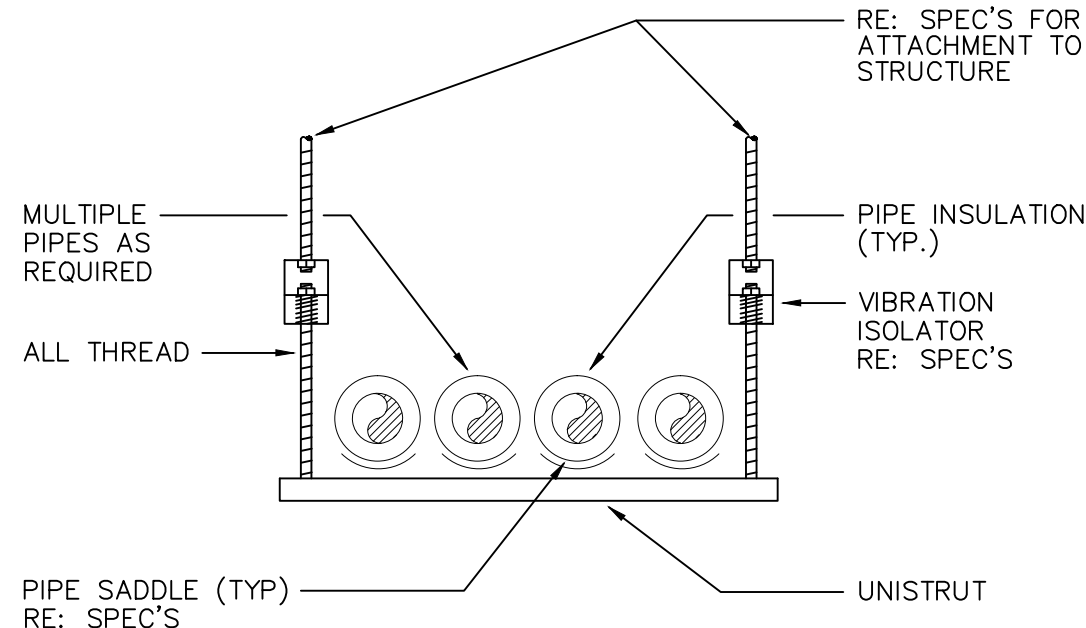
12. Provide appropriately sized openings in walls, floors, and ceilings for anticipated seismic movement. Provide fire seal systems in fire-rated walls.



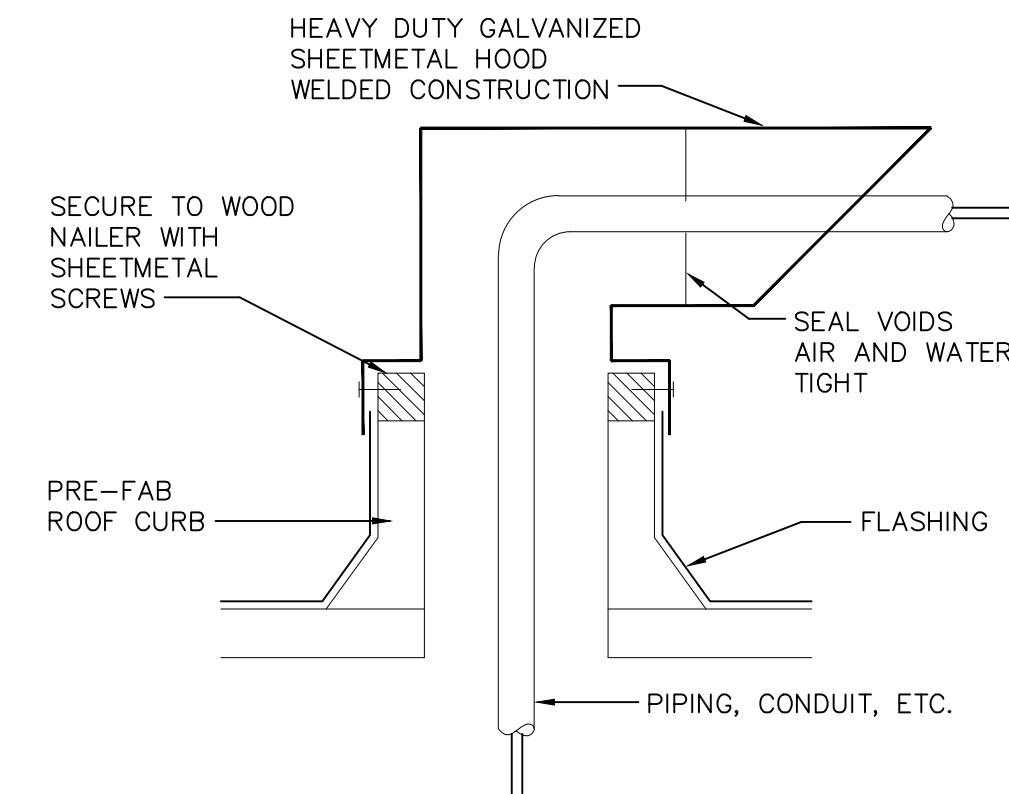
6 DUCT MOUNTED AIR DEVICE



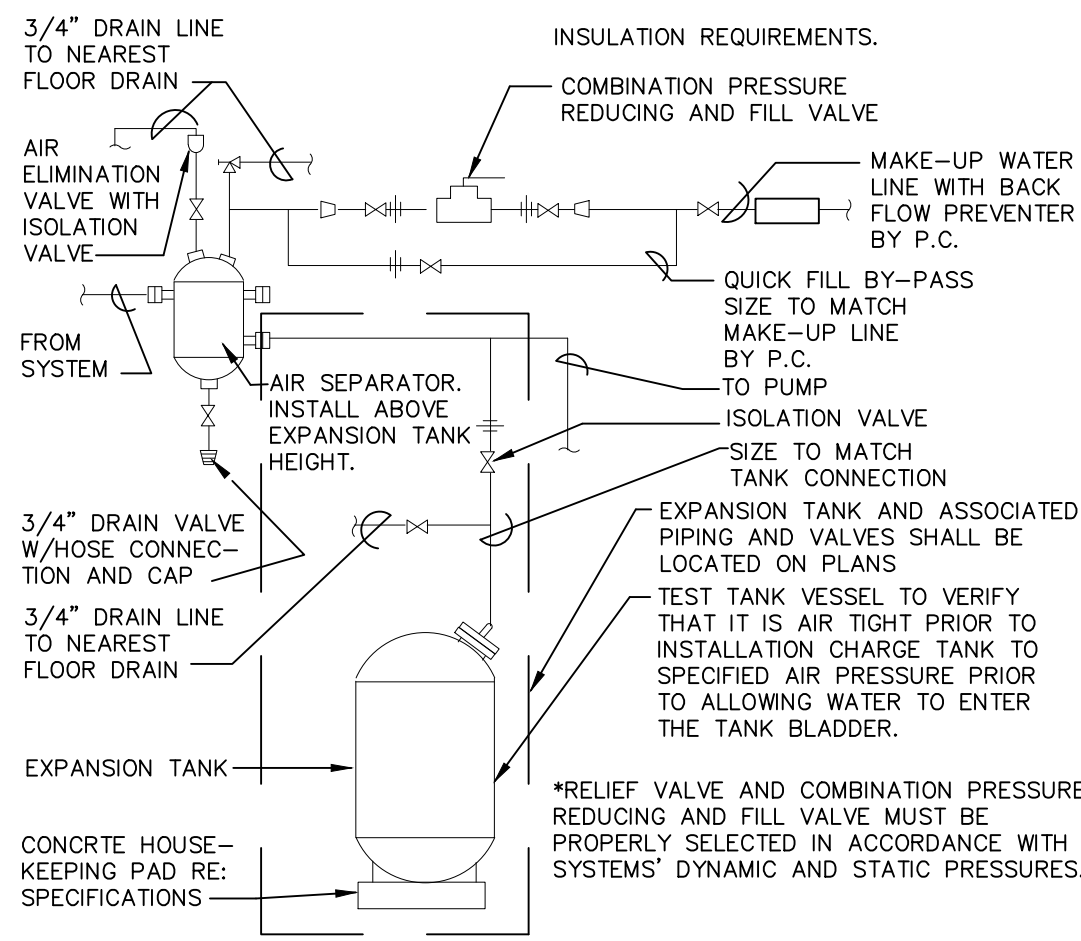
3 AHU CONDENSATE DRAIN PIPING



5 TYPICAL MULTIPLE PIPE HANGER

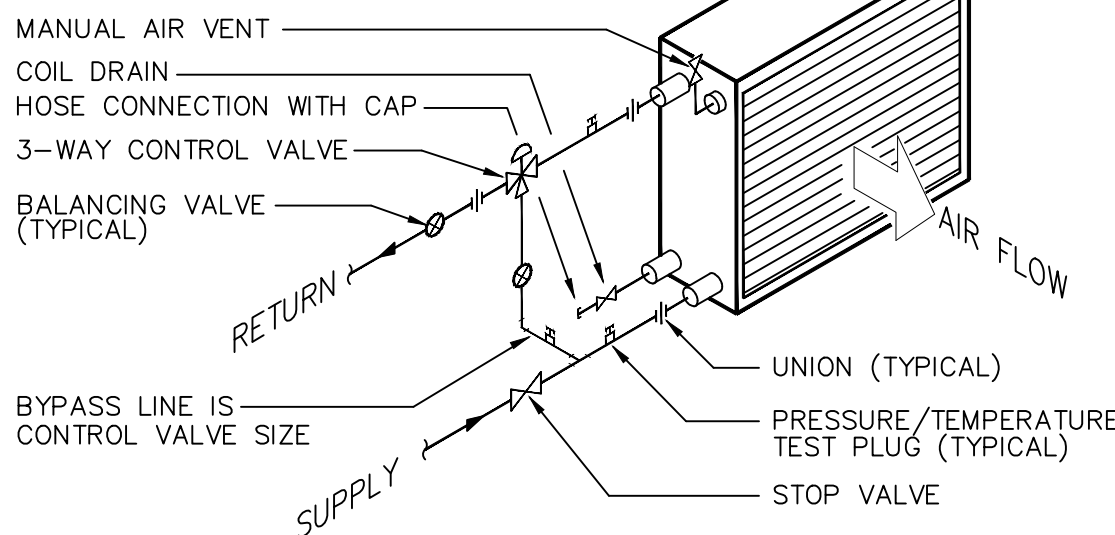


2 PIPE PENETRATION DETAIL

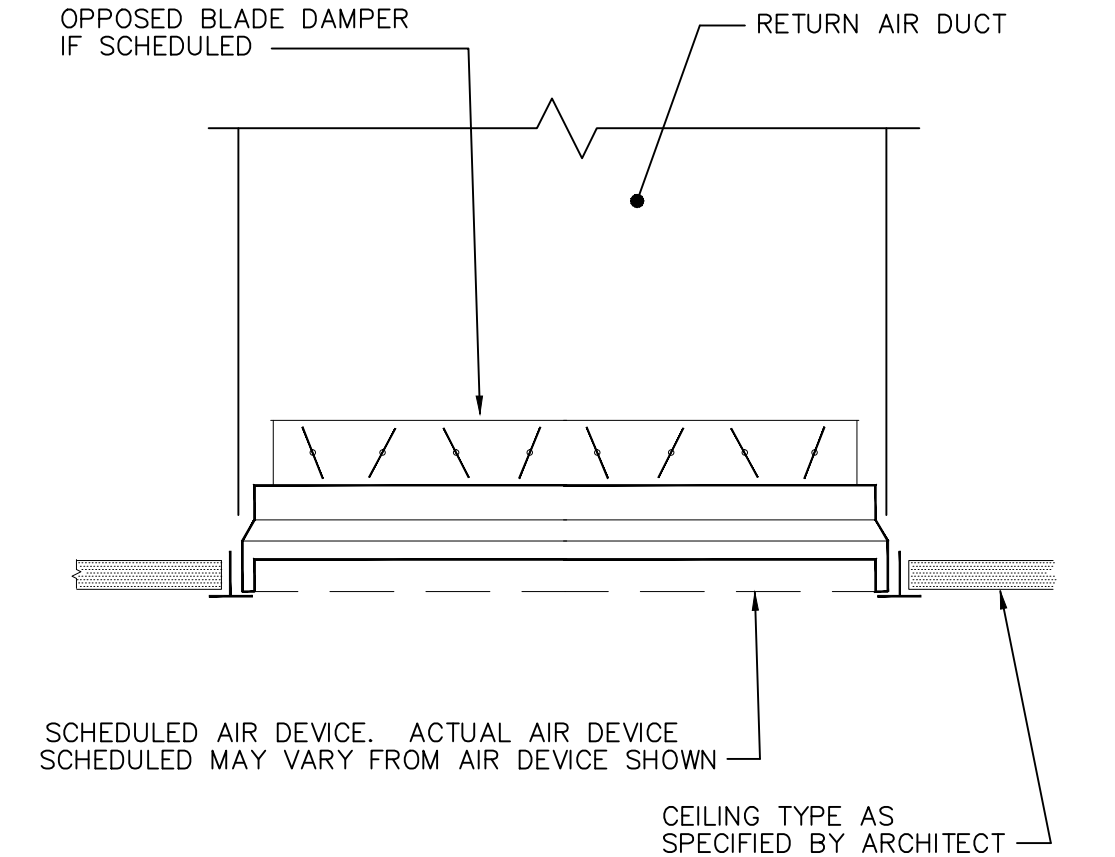


7 TYP CLOSED SYS EXPAN. TANK

- NOTES:
1. INSULATE ALL PIPING, VALVES, FITTINGS AND ACCESSORIES. RE: SPECIFICATIONS
 2. INSTALL TEST PLUGS IN EASILY ACCESSIBLE LOCATIONS WITH MINIMUM OF 12" CLEARANCE IN FRONT.



4 TYPICAL 3-WAY CONTROL VALVE

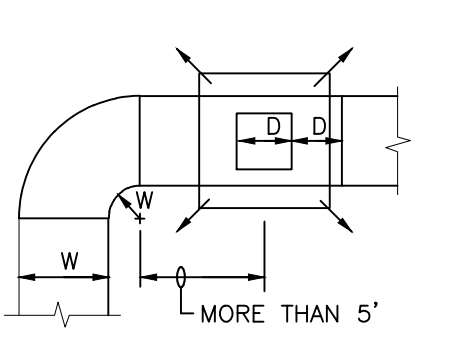
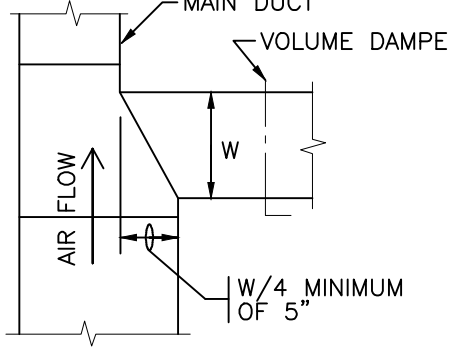
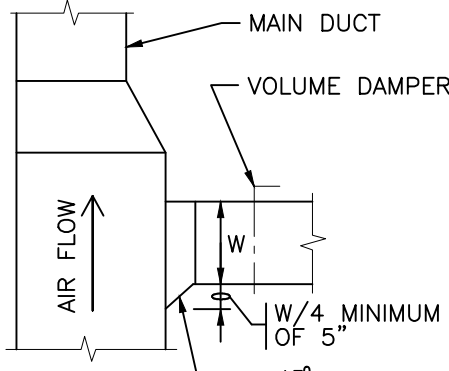


1 DUCTED RETURN AIR GRILLE

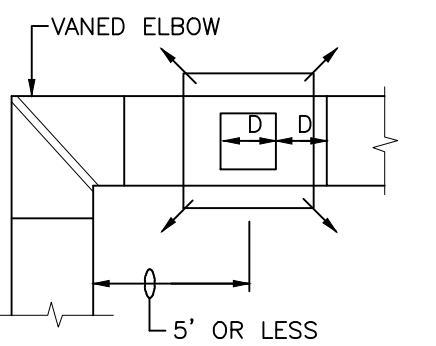
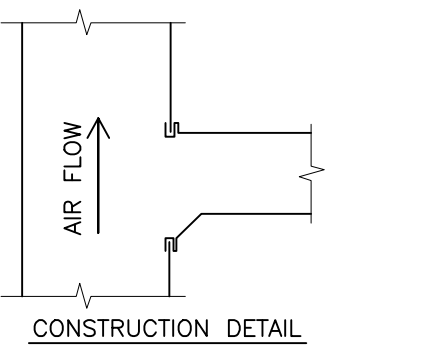
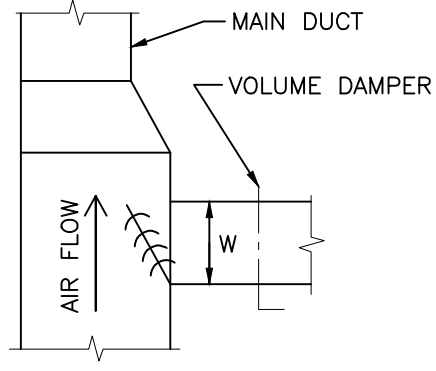
EXPANSION LOOP SIZES FOR COPPER TUBING

Expansion loop dimensions are for ASTM B-88 seamless copper tubing based on an allowable stress of 8000 psi, as stated in the copper development association handbook for copper tubing. Pressure shall not exceed 150 psig.

PIPE SIZE (IN)	AL (IN)	LOOP SIZE (FT)	
		H	W
3/4	0.00 - 2.09	4	2
	2.09 - 4.69	6	3
	4.69 - 8.35	8	4
	8.35 - 16.14	10	5
1	0.00 - 1.62	4	2
	1.62 - 3.65	6	3
	3.65 - 6.45	8	4
	6.45 - 10.14	10	5
1-1/4	0.00 - 1.32	4	2
	1.32 - 2.98	6	3
	2.98 - 5.31	8	4
	5.31 - 9.30	10	5
1-1/2	0.00 - 1.12	4	2
	1.12 - 2.53	6	3
	2.53 - 7.02	8	4
	7.02 - 10.11	10	5
2	0.00 - 0.86	4	2
	0.86 - 1.93	6	3
	1.93 - 3.44	8	4
	3.44 - 5.37	10	5
2-1/2	0.00 - 0.69	4	2
	0.69 - 1.56	6	3
	1.56 - 2.78	8	4
	2.78 - 4.35	10	5
3	0.00 - 0.58	4	2
	0.58 - 1.31	6	3
	1.31 - 2.33	8	4
	2.33 - 3.85	10	5
4	0.00 - 0.49	4	2
	0.49 - 1.17	6	3
	1.17 - 2.75	8	4
	2.75 - 3.98	10	5
5	0.00 - 0.40	4	2
	0.40 - 1.00	6	3
	1.00 - 1.42	8	4
	1.42 - 2.22	10	5
6	0.00 - 0.30	4	2
	0.30 - 0.80	6	3
	0.80 - 1.22	8	4
	1.22 - 2.22	10	5
8	0.00 - 0.20	4	2
	0.20 - 0.60	6	3
	0.60 - 1.19	8	4
	1.19 - 1.86	10	5
10	0.00 - 0.15	4	2
	0.15 - 0.45	6	3
	0.45 - 0.77	8	4
	0.77 - 1.03	10	5
12	0.00 - 0.10	4	2
	0.10 - 0.30	6	3



USE FULL RADIUS ELBOW IF MORE THAN 5" FROM AIR OUTLET.



USE VANED ELBOW IF 5" OR LESS FROM AIR OUTLET.

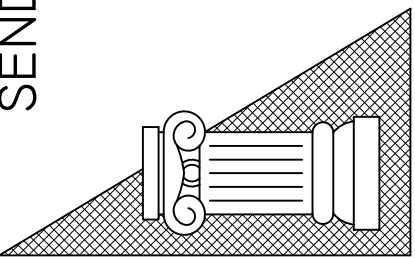
BRANCH DUCT CONNECTIONS FOR LOW PRESSURE DUCTWORK

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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528
MECHANICAL
DETAILS

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD
2020-04

DRAWING#:

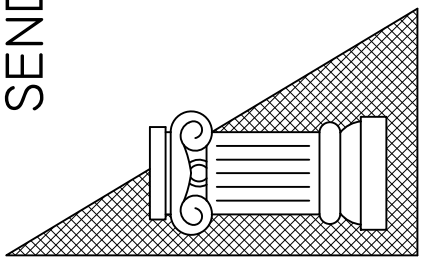
M-18

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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528
MECHANICAL
NOTES

PROJECT #: 2020-04

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2020-04

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M-19

2020 INTERNATIONAL 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 INTERNATIONAL 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 NYSMC 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 NYSMC 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 NYSMC 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 NYSMC 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 NYSMC 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 DR COPPER-ALLOY PIPE	12	10
COPPER DR COPPER-ALLOY TUBING	8	10
CPVC PIPE DR TUBING, 1 INCH AND SMALLER	3	10 (c)
CPVC PIPE DR TUBING, 1½ INCHES AND LARGER	4	10 (c)
LEAD PIPE	CONTINUOUS	4
PB PIPE DR TUBING	2½ (32 INCHES)	4
PE-RT 1 INCH AND SMALLER	2½ (32 INCHES)	10 (c)
PE-RT 1½ INCHES AND LARGER	4	10 (c)
PEX TUBING 1 INCH AND SMALLER	2½ (32 INCHES)	10 (c)
PEX TUBING 1½ INCHES AND LARGER	4	10 (c)
POLYPROPYLENE (PP) PIPE DR TUBING, 1 INCH AND SMALLER	2½ (32 INCHES)	10 (c)
POLYPROPYLENE (PP) PIPE DR TUBING, 1½ INCHES AND LARGER	4	10 (c)
PVC PIPE	4	10 (c)
STEEL TUBING	8	10
STEEL PIPE	12	15

a. See Section 301.8.
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 NYSMC 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 [C] of the Energy Conservation Construction Code of New York State. As per Section 312.1 of the 2020 NYSMC 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 alternate anticipated occupant density. As per Section 403.3.1.1 of the 2020 NYSMC Ventilation rate.

2020 INTERNATIONAL 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 than 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.

33. Piping for hydronic systems shall be sized for the demand of the system. As per Section 1201.2 Pipe sizing of the 2020 NYSMC.

34. Piping materials shall conform to the standards cited in this section.

Exception: Embedded piping regulated by Section 1209. As per Section 1202.1 Piping of the 2020 NYSMC.

35. Reused pipe, fittings, valves or other materials shall be clean and free of foreign materials and shall be approved by the building official for reuse. As per Section 1202.2 Used materials of the 2020 NYSMC.

36. Materials shall be rated for the operating temperature and pressure of the hydronic system. Materials shall be suitable for the type of fluid in the hydronic system. As per Section 1202.3 Material rating of the 2020 NYSMC.

37. Hydronic pipe shall conform to the standards listed in Table 1202.4. The exterior of the pipe shall be protected from corrosion and degradation. As per Section 1202.4 Piping materials standards of the 2020 NYSMC.

38. Hydronic pipe fittings shall be approved for installation with the piping materials to be installed, and shall conform to the respective pipe standards or to the standards listed in Table 1202.5. As per Section 1202.5 Pipe fittings of the 2020 NYSMC.

39. Valves shall be constructed of materials that are compatible with the type of piping material and fluids in the system. Valves shall be rated for the temperatures and pressures of the systems in which the valves are installed. As per Section 1202.6 Valves of the 2020 NYSMC.

40. Flexible connectors, expansion and vibration control devices and fittings shall be of an approved type. As per Section 1202.7 Flexible connectors, expansion and vibration compensators of the 2020 NYSMC.

41. Joints and connections shall be of an approved type. Joints and connections shall be tight for the pressure of the hydronic system. As per Section 1203.1 Approval of the 2020 NYSMC.

42. Joints between different piping materials shall be made with approved adapter fittings. Joints between different metallic piping materials shall be made with approved electric fittings or brass converter fittings. As per Section 1203.1.1 Joints between different piping materials of the 2020 NYSMC.

INSULATION

43. Pipe insulation installed in buildings shall conform to the requirements of the Energy Conservation Construction Code of New York State; shall be tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231; and shall have a maximum flame spread index of 25 and a smoke-developed index not exceeding 450. Insulation installed in an air plenum shall comply with Section 602.2.1.

Exception: The maximum flame spread index and smoke-developed index shall not apply to one-and two-family dwellings. As per Section 1204.1 Insulation Characteristics of the 2020 NYSMC.

44. Hydronic piping shall be insulated to the thickness required by the International Energy Conservation Code. As per Section 1204.2 Required thickness of the 2020 NYSMC.

VALVES

45. Shutoff valves shall be installed in hydronic piping systems in the locations indicated in Sections 1205.1.1 through 1205.1.6. As per Section 1205.1 Where required of the IBC.

46. Shutoff valves shall be installed on the supply and return side of a heat exchanger. Exception: Shutoff valves shall not be required when heat exchangers are integral with a boiler; or are a component of a manufacturer's boiler and heat exchanger packaged unit and are capable of being isolated from the hydronic system by the supply and return of a central utility system. As per Section 1205.1.1 Heat exchangers of the 2020 NYSMC.

47. Shutoff valves shall be installed on the building supply and return of a central utility system. As per Section 1205.1.2 Central systems of the 2020 NYSMC.

48. Shutoff valves shall be installed on the connection to any pressure vessel. As per Section 1205.1.3 Pressure vessels of the 2020 NYSMC.

49. Shutoff valves shall be installed on both sides of a pressure-reducing valve. As per Section 1205.1.4 Pressure-reducing valves of the 2020 NYSMC.

50.Shutoff valves shall be installed on connections to mechanical equipment and appliances. This requirement does not apply to components of a hydronic system such as pumps, air separators, metering devices and similar equipment. As per Section 1205.1.5 Equipment and appliances of the 2020 NYSMC.

51. Shutoff valves shall be installed at connections to nondiaphragm-type expansion tanks. As per Section 1205.1.6 Expansion tanks of the 2020 NYSMC.

52. A pressure relief valve shall be installed on the low-pressure side of a hydronic piping system that has been reduced in pressure. The relief valve shall be set at the maximum pressure of the system design. The valve shall be installed in accordance with Section 1006. As per Section 1205.2 Reduced pressure of the 2020 NYSMC.

PIPING INSTALLATION

53. Piping, valves, fittings and connections shall be installed in accordance with the conditions of approval. As per Section 1206.1 General of the 2020 NYSMC.

54. Fluid in the supply side of a hydronic system shall not enter a tee fitting through the branch opening. As per Section 1206.1.1 Prohibited tee applications of the 2020 NYSMC.

55. Hydronic piping systems shall be designed and installed to permit the system to be drained. Where the system drains to the plumbing drainage system, the installation shall conform to the requirements of the International Plumbing Code. As per Section 1206.2 System drain down of the 2020 NYSMC.

56. The potable water system shall be protected from backflow in accordance with the IPC. As per Section 1206.3 Protection of potable water of the 2020 NYSMC.

57. Openings for pipe penetrations in walls, floors or ceilings shall be larger than the penetrating pipe. Openings through concrete or masonry building elements shall be sleeved. The annular space surrounding pipe penetrations shall be protected in accordance with the International Building Code. As per Section 1206.4 Pipe penetrations of the 2020 NYSMC.

2020 INTERNATIONAL MECHANICAL CODE AND BUILDING CODE OF NEW YORK STATE:

58. A hydronic piping system shall not be in direct contact with building materials that cause the piping material to degrade or corrode, or that interfere with the operation of the system. As per Section 1206.6 Contact with building material of the IBC.

59. The flow velocity of the hydronic piping system shall be controlled to reduce the possibility of water hammer. Where a quick-closing valve creates water hammer, an approved water-hammer arrestor shall be installed. The arrestor shall be located within a range as specified by the manufacturer of the quick-closing valve. As per Section 1206.7 Water hammer of the 2020 NYSMC.

60. Piping shall be installed so as to prevent detrimental strains and stresses in the pipe. Provisions shall be made to protect piping from damage resulting from expansion, contraction and structural settlement. Piping shall be installed so as to avoid structural stresses or strains within building components. As per Section 1206.9 Strains and Stresses of the 2020 NYSMC.

61. Pipe shall be supported in accordance with Section 305. As per Section 1206.10 Pipe support of the 2020 NYSMC.

62. Provisions shall be made to prevent the formation of condensation on the exterior of piping. As per Section 1206.11 Condensation of the 2020 NYSMC.

TRANSFER FLUID

63. The flash point of transfer fluid in a hydronic piping system shall be a minimum of 50 degrees F above the maximum system operating temperature. As per Section 1207.1 Flash point of the 2020 NYSMC.

TESTS

64. Hydronic piping systems other than ground-source heat pump loop systems, shall be tested hydrostatically at one and one half times the maximum system design pressure, but not less than 100 psi. The duration of each test shall be not less than 15 minutes. Ground-source heat pump loop systems shall be tested in accordance with Section 1208.1. As per Section 1208.1 General of the 2020 NYSMC.

65. Before connection (header) trenches are backfilled, the assembled loop system shall be pressure tested with water at 100 psi for 30 minutes with no observed leaks. Flow and pressure loss testing shall be performed and the actual flow rates and pressure drops shall be compared to the calculated design values. If actual flowrate or pressure drop values differ from calculated design values by more than 10 percent, the problem shall be identified and corrected. As per Section 1208.1.1 Ground source heat pump loop systems of the 2020 NYSMC.

EMBEDDED PIPING

66. Piping for heating panels shall be standard-weight steel pipe, Type L copper tubing, or other approved plastic pipe or tubing rated at 100 psi at 180 degrees F. As per Section 1209.1 Materials of the 2020 NYSMC.

67. Piping to be embedded in concrete shall be pressure tested prior to pouring concrete. During pouring, the pipe shall be maintained at the proposed operating pressure. As per Section 1209.2 Pressurizing during installation of the 2020 NYSMC.

68. Joints of pipe or tubing that are embedded in a portion of the building, such as concrete or plaster, shall be in accordance with the requirements of Sections 1209.3.1 through 1209.3.2. As per Section 1209.3 Embedded joints of the 2020 NYSMC.

69. Steel pipe shall be welded by electrical arc or oxygen/acetylene method. As per Section 1209.3.1 Steel pipe joints of the 2020 NYSMC.

70. Copper tubing shall be joined by brazing with filler metals having a melting point of not less than 1,000 degrees F. As per Section 1209.3.2 Copper tubing joints of the 2020 NYSMC.

HYDRONIC PLAN NOTES:

1. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH SECTION 305.1 OF THE 2020 NYSMC.

2. ALL BASEBOARD HEATERS SHALL BE WALL MOUNTED AT FLOOR LEVEL.

3. ALL EQUIPMENT SHALL BE SUSPENDED AND HAVE SPRING VIBRATION ISOLATION.

4. ALL HYDRONIC PIPING TO BE FULLY INSULATED IN ACCORDANCE WITH TABLE 403.1.3 OF THE 2020 NYSECCC.

5. PROVIDE 3-WAY CONTROL VALVES IN ALL FAN FORCED HOT WATER COILS.

6. PROVIDE MANUAL AND AUTOMATIC AIR VENTS AT ALL HIGH POINTS WITHIN HYDRONIC SYSTEM. TYPICAL OF ALL.

7. PROVIDE FLOOR EXPANSION COMPENSATION ON HYDRONIC PIPING SYSTEM MAIN & BRANCH LOOPS.

8. DRAIN VALVES SHALL BE LOCATED AT ALL LOW POINTS WITHIN THE HYDRONIC SYSTEM.

9. HYDRONIC SYSTEM SHALL BE BALANCED AND A CERTIFIED REPORT PROVIDED.

10. SEE RISER DIAGRAM FOR HYDRONIC PIPE SIZING.

11. PROVIDE BALANCING AND ISOLATION VALVES AT ALL RADIANT HEAT EQUIPMENT.

12. ALL PIPING AND VALVES SHALL BE MARKED AND IDENTIFIED AS TO DIRECTION OF FLOW AND TYPE OF FLOW WITHIN PIPING IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI A13.1).

ADD/ALT PLAN NOTES:

1. PROVIDE RESIDUE TRAP AT THE BASE OF EVERY GREASE DUCT RISER AS PER SECTION 506.3.7.1 OF THE 2020 NYSMC. INCLUDE APPROVED ACCESS DOOR.

2. NEW KITCHEN HOOD GREASE DUCT TO BE INSTALLED AS PER SECTION 506 OF THE MECHANICAL CODE AND N.F.P.A. 96. DUCTS SHALL BE A MINIMUM OF 12GA. CARBON STEEL. PITCH HORIZONTAL RUNS BACK TOWARD HOOD. PROVIDE ACCESS PANELS AND DRAINS AS PER STANDARD. INSULATE ALL DUCTWORK WITH <FYREWAP> EZ WRAP 1.5. SUBJECT TO AHJ APPROVAL. INSTALL INSULATION AS PER MANUFACTURERS GUIDELINES.

3. ALL GREASE DUCT SHALL BE SUPPORTED AS PER THE MECHANICAL CODE SECTION 506.3.3

4. GREASE DUCT CLEANOUTS SHALL BE LOCATED AND INSTALLED AS PER SECTION 506.3.9 OF THE 2020 NYSMC.

5. INTERLOCK KITCHEN EXHAUST FAN OPERATION WITH MAU-1 UNIT AND KITCHEN EQUIPMENT LOCATED UNDER HOOD. KITCHEN EQUIPMENT SHALL ONLY BE OPERABLE AFTER MAU-1 AND EXHAUST FAN ARE ENERGIZED.

6. PROVIDE CONTROL PANEL AND INTERLOCKS REQUIRED FOR THE OPERATION OF THE KITCHEN EQUIPMENT WITH THE MAKEUP AIR UNIT AND EXHAUST FANS.

7. ALL GREASE DUCTING SHALL BE LEAK TESTED ACCORDING TO INDUSTRY-ACCEPTED TEST PROCEDURES AS PER SECTION 506.3.2.5 OF THE 2020 NYSMC.

8. PROVIDE AN APPROVED AUTOMATIC FIRE SUPPRESSION SYSTEM FOR THE KITCHEN TYPE I HOOD COMPLYING WITH SECTION 904 OF THE INTERNATIONAL FIRE CODE.

9. GREASE DUCT VELOCITY SHALL NOT BE UNDER 500 FEET PER MINUTE AS PER SECTION 506.3.4 OF THE 2014 NYCFC.