	MECHANICA	L SYMBOL	LIST		ABBREVIATIONS
	PIPING		DUCTWORK	AC	AIR CONDITIONER
— D —	DRAIN LINE			ACC	AIR COOLED CONDENSER
— cw —	COLD WATER MAKE UP LINE		DUCT SECTION UNDER POSITIVE PRESSURE	AD	ACCESS DOOR
— A —	AIR LINE		DUCT SECTION UNDER NEGATIVE PRESSURE	AFF	ABOVE FINISHED FLOOR
— v —	VENT LINE			AHU	AIR HANDLING UNIT
X	PIPE ANCHOR		SLOPING RISE IN DUCT IN DIRECTION OF ARROW	ATC	AUTOMATIC TEMPERATURE CONTROLS
	ARROW INDICATES DIRECTION OF FLOW				
	PIPE PITCHED DOWN PIPE GUIDE	 D	SLOPING DROP IN DUCT IN DIRECTION OF ARROW	BMS	
	UNION			BTU	BRITISH THERMAL UNIT
	ECCENTRIC REDUCER	<u>18 x 12</u> 18x12 (2000)	DUCT SIZE - FIRST SIZE INDICATES PLAN SIZE (XXXX) - INDICATES SUPPLY VOLUMETRIC FLOW RATE (CFM)	CG	CEILING GRILLE
		18x12 [2000]	[XXXX] - INDICATES EXHAUST/RETURN VOLUMETRIC FLOW RATE (CFM)	CR	CEILING REGISTER
	CONCENTRIC REDUCER	A.D.	ACCESS DOOR IN DUCT	COD	CORD OPERATED DAMPER
	RISER SUPPORT W/SPRING			CONT.	CONTINUOUS
<u>ب</u> ل			DUCT FLEXIBLE CONNECTION	CD	CEILING DIFFUSER
	DOUBLE LINE PIPE SYMBOL ARROW INDICATES DIRECTION OF FLOW		VOLUME DAMPER	CFM	CUBIC FEET PER MINUTE
	UNION			DPS	DIFFERENTIAL PRESSURE SENSOR
			MOTORIZED DAMPER WITH ACCESS DOOR IN DUCT	EAT	ENTERING AIR TEMPERATURE
	CAPPED PIPE		ELBOW WITH TURNING VANES	EF	EXHAUST FAN
				ESP	EXTERNAL STATIC PRESSURE
	"Y" TYPE STRAINER WITH CAPPED BLOWDOWN VALVE	- <u>t</u> +	LOUVER DOOR	FC	FLEXIBLE CONNECTION
			UNDERCUT DOOR	FD	FIRE DAMPER AND ACCESS DOOR
	ELBOW TURNED UP		FUSIBLE LINK FIRE DAMPER WITH ACCESS DOOR IN DUCT	FF	FINISHED FLOOR
+9	ELBOW TURNED DOWN	(XXX)	(XXX) - INDICATES VOLUMETRIC FLOW RATE INTO SPACE (CFM)	FPB	FAN POWERED BOX
		(xxx)	[XXX] - INDICATES VOLUMETRIC FLOW RATE OUT OF SPACE (CFM)	FSD	FIRE SMOKE DAMPER WITH ACCESS DOOR AND DETECTOR
¥ Electronic	TEE DOWN CONNECTION			GC	GENERAL CONSTRUCTION CONTRACTOR
P	TEE UP CONNECTION		COMBINATION SMOKE AND FIRE DAMPER WITH ACCESS DOOR IN DUCT AND SMOKE DETECTOR INSTALLED IN DUCT WITHIN 5'-0" of DAMPER	GPM	GALLONS PER MINUTE
				НС	HEATING COIL
	VALVES AND GAUGES		AIR FLOW MEASURING STATION WITH ACCESS DOOR IN DUCT.	HP	HORSE POWER
			SUPPLY AIR OUTLET, 4 WAY	LAT	LEAVING AIR TEMPERATURE
	GLOBE VALVE			LD	LINEAR DIFFUSER
	SHUT-OFF VALVE		RETURN AIR REGISTER	LR	LINEAR RETURN
	(REFER TO SPECIFICATIONS FOR TYPE)			LWT	LEAVING WATER TEMPERATURE
			TRANSFER DUCT	МВН	THOUSAND BTU'S PER HOUR
	CHECK VALVE			MAX	MAXIMUM
	AUTOMATIC TWO-WAY CONTROL VALVE		SUPPLY AIR OUTLET - 3, 2 & 1 WAY THROW		
	AUTOMATIC TWO-WAT CONTROL VALVE		STATIC PRESSURE SENSOR	MIN	
<u> </u>		• • • • • • • • • •		NIC	
	LUBRICATED PLUG OR BALL VALVE PER SPEC.	_ · _ · _	EXISTING DUCT/PIPING/EQUIPMENT TO REMAIN	NK	NECK (AS RELATED TO DUCT AND DIFFUSER)
	COMBINATION BALANCING AND SHUT-OFF VALVE		EXISTING DUCT/PIPING/EQUIPMENT TO BE REMOVED	NTS	NOT TO SCALE
	(CIRCUIT SETTER)		NEW WORK	OA	
<u>A</u>	RELIEF VALVE PER SPECIFICATIONS	V-X-#	MOTORIZED VALVE BOX (XXX) - INDICATES SUPPLY VOLUMETRIC FLOW RATE (CFM)	OAD	
_	THERMOMETER	(xxx)	(VVV) - INDIONIES SUFFLI VOLUMEIRIG FLOW RATE (UFM)	OAI	OUTSIDE AIR INTAKE
<u>-</u>	P/T PLUG FOR PRESSURE GAUGE&THERMOMETER CONNECTION		RECTANGULAR TO ROUND DUCTWORK TRANSITION	PSI	POUNDS PER SQUARE INCH
	MANUAL AIR VENT			RA	RETURN AIR
 	AUTOMATIC AIR VENT		CUT EXISTING DUCT/PIPING AND PATCH AIRTIGHT	RF	RETURN FAN
 	PRESSURE GAUGE; GAUGE COCK	- •	POINT OF DISCONNECTION	RHC	REHEAT COIL
_	THERMOSTAT	- •	POINT OF CONNECTION NEW WORK TO EXISTING	SA	SUPPLY AIR
$\widehat{\mathbf{T}}$		NOTE: ALL SYMBOLS AND	ABBREVIATIONS MAY NOT HAVE BEEN USED FOR THIS PROJECT.	SF	SPILL AIR FAN (AS RELATED TO EQUIPMENT TAGS)
(T) (SM)		1		S.F. / SF	SQUARE FEET (AS RELATED TO SIZES/AREAS)
63		-			
③ 一叉—	ELECTRIC CONTROL VALVE / SOLENOID VALVE	_		SP	STATIC PRESSURE
	ELECTRIC CONTROL VALVE / SOLENOID VALVE VENTURI FLOW METER			SP ST	STATIC PRESSURE SOUND TRAP / SOUND ATTENUATOR
③ 一叉—	ELECTRIC CONTROL VALVE / SOLENOID VALVE				
© → Fz	ELECTRIC CONTROL VALVE / SOLENOID VALVE VENTURI FLOW METER FREEZESTAT			ST	SOUND TRAP / SOUND ATTENUATOR
Image: Second secon	ELECTRIC CONTROL VALVE / SOLENOID VALVE VENTURI FLOW METER FREEZESTAT EXISTING PIPE TO REMAIN			ST TD	SOUND TRAP / SOUND ATTENUATOR TRANSFER DUCT

GENERAL NOTES

- 1. MECHANICAL WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST CONSTRUCTION CODE AND LOCAL CODE'S RULES AND REGULATIONS. IT SHOULD ALSO CONFORM TO THE OWNER'S STANDARDS FOR DESIGN, ALTERATION, AND CONSTRUCTION.
- 2. PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENTS, AND SERVICES NECESSARY TO FURNISH AND SAFELY INSTALL THE COMPLETE AND PROPERLY OPERATING MECHANICAL SYSTEMS AS SPECIFIED IN THE CONTRACT DOCUMENTS OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL, WHETHER INDICATED ON THE CONTRACT DOCUMENT OR NOT.
- 3. CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING THE BID AND BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.
- 4. CONTRACTOR SHALL CHECK AND CORRECT ANY AND ALL DEFICIENCIES IN EXISTING DUCTS AND ASSOCIATED INSULATION. ALL NEW DUCTWORK SHALL COMPLY WITH THE LATEST SMACNA GUIDELINES AND CONFORM WITH REQUIREMENTS OF THE LATEST ASHRAE HANDBOOKS. ALL NEW DUCT INSULATION SHALL MEET OR EXCEED REQUIREMENTS OF THE LATEST ADOPTED ENERGY CODE.
- 5. DESIGN DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC. OFFSETS MAY BE REQUIRED TO AVOID EXISTING SERVICES, OTHER TRADES, ETC. COORDINATE WORK WITH ALL TRADES AND FIELD CONDITIONS.
- 6. LOCATIONS OF NEW UTILITIES, INCLUDING PIPE RISERS, ARE GENERALLY SCHEMATIC. CONTRACTOR SHALL COORDINATE ALL NEW UTILITIES, SERVICES, ETC., WITH EXISTING STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONTRACTOR SHALL PROVIDE ALL OFFSETS AS REQUIRED.
- 7. PROVIDE FIRE STOPPING FOR ALL NEW AND EXISTING DUCT, PIPE, AND CONDUIT PENETRATIONS THROUGH FIRE RATED WALLS, PARTITIONS, AND SLABS.
- 8. WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED, THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
- 9. COORDINATE SCHEDULE FOR HOOK-UPS TO EXISTING SYSTEMS AND EQUIPMENTS. ALSO COORDINATE SCHEDULE FOR REMOVAL OR RELOCATIONS WITH THE OWNER AND PERFORM THIS WORK AT SUCH TIMES TO ENSURE THAT PERIODS OF SHUTDOWN WILL BE ACCEPTABLE TO THE OWNER. ALL SYSTEM SHUTDOWNS SHALL BE KEPT TO A MINIMUM.
- 10. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AND RESTORING THE CONTINUITY OF ALL EXISTING SYSTEMS AFFECTED, INCLUDING BUT NOT LIMITED TO: INSULATION, VAPOR BARRIER, VALVES, CAPS, ETC.
- 11. CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK, INCLUDING ITS COMPLETION AND FINAL ACCEPTANCE. THE CONTRACTOR SHALL REPLACE ANY OF SAME WHICH MAY BE DAMAGED, LOST OR STOLEN WITHOUT ADDITIONAL COST TO OWNER.
- 12. PRIOR TO COMMENCEMENT OF ANY WORK, EXISTING SYSTEMS ASSOCIATED WITH THIS WORK SHALL BE TESTED IN THE PRESENCE OF BUILDING PERSONNEL. PRE-CONSTRUCTION/DEMOLITION BALANCING REPORTS SHALL BE SUBMITTED TO ENGINEER AND BUILDING MANAGEMENT FOR REVIEW.
- 13. DIFFUSERS, REGISTERS, AND GRILLES SHALL HAVE HARD DUCT CONNECTIONS.
- 14. ALL NEW DUCTWORK AND PIPING SHALL BE PRESSURE TESTED PER BUILDING, SMACNA, ASME, ANSI, AND ASHRAE STANDARDS AND SPECIFICATIONS.
- 15. ALL SYSTEMS AND SERVICES THAT SERVE ADJACENT SPACES SHALL BE MAINTAINED THROUGHOUT WORK.
- 16. SUBMIT SHOP DRAWINGS OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES OR ITEMS ARE ORDERED.
- 17. ALL DUCTWORK SHALL BE KEPT AS HIGH AS POSSIBLE TO MAINTAIN CEILING HEIGHTS SHOWN ON ARCHITECTURAL DRAWINGS. COORDINATE ALL DUCT AND PIPING SYSTEM ELEVATIONS WITH ALL OTHER TRADES AND PROVIDE NECESSARY OFFSETS TO AVOID CONFLICTS.
- 18. FOR EXACT LOCATIONS OF DIFFUSERS, REGISTERS, GRILLES, AND LINEAR DIFFUSERS REFER TO ARCHITECTURAL DRAWINGS AND COORDINATE FINAL LOCATIONS.
- 19. COORDINATE ALL EQUIPMENT REQUIREMENTS WITH APPROPRIATE TRADES (I.E. CONDENSATE PUMPS COORDINATED WITH ELECTRICAL, PLUMBING, ATC, ETC.)
- 20. VERIFY AND COORDINATE ALL EQUIPMENT ACCESS AND CLEARANCES WITH THE ARCHITECT, GENERAL CONTRACTOR AND/OR CONSTRUCTION MANAGER.
- 21. ALL DUCTWORK AND PIPING SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE. DO NOT SUPPORT DUCT FROM PIPE SUPPORT AND VICE VERSA.
- 22. PROVIDE 6" WIDE 45 DEGREE BRANCH TAKEOFF FOR ALL NEW DUCTS.
- 23. ALL DUCT BRANCHES, TAKE-OFFS, AND DIFFUSERS SHALL BE EQUIPPED WITH VOLUME DAMPERS.
- 24. LOCATE ALL DUCT VOLUME DAMPERS ABOVE ACCESSIBLE CEILINGS. PROVIDE REMOTE CABLE OPERATED VOLUME DAMPERS WITH THE OPERATOR ACCESSIBLE VIA THE AIR OUTLET WHEN BRANCH DUCTWORK IS LOCATED WITHIN AN INACCESSIBLE CEILING.
- 25. ALL CONNECTIONS FROM RETURN, EXHAUST, AND SUPPLY DUCTS, CEILING DIFFUSERS, AND REGISTERS SHALL BE AIR TIGHT AND SEALED WITH WATER BASED APPROVED SEALANT.
- 26. ALL DUCTWORK INSIDE BUILDING INCLUDING SUPPLY AND RETURN AIR DUCTS, PLENUMS SHALL BE PROVIDED WITH 2" THICK INSULATION UNLESS OTHERWISE NOTED. DUCTWORK INSULATION SHALL HAVE A MINIMUM AS INSTALLED RATING OF R-6. INTERNAL LINING SHALL NOT BE PERMITTED ON THE PROJECT.
- 27. THE MECHANICAL CONTRACTOR SHALL PROVIDE CONTROL WIRING AND TRANSFORMERS FOR ALL THERMOSTATS, ACTUATORS AND CONTROLLERS. TRANSFORMERS SHALL BE ADEQUATELY SIZED TO SUPPORT THE EQUIPMENT SERVED. COORDINATE WITH ELECTRICAL CONTRACTOR FOR LOCATIONS OF DISCONNECT, JUNCTION BOX/SOURCE AND EXTEND WIRING TO DEVICES.
- 28. ALL THERMOSTATS SHALL BE PER THE BUILDING AND OWNER STANDARD.
- 29. PROVIDE TEMPORARY WORK, DUCT WITH DAMPERS, CAPS, EQUIPMENT, VALVES, CAPPED PIPE CONNECTIONS, SUPPORTS, AND ACCESSORIES TO KEEP EXISTING BUILDING, SYSTEM IN OPERATION AND MAINTAIN SERVICES, HEATING, AIR CONDITIONING, VENTILATION IN OPERATION AT ALL TIMES.
- 30. PROVIDE SUPPLEMENTAL STEEL TO SUPPORT EQUIPMENT, DUCTS, AND PIPING FROM BUILDING STRUCTURE.
- 31. PROTECT ALL EXISTING AND NEW WORK FROM DUST, DIRT, DEBRIS. SEAL AND PROTECT ALL OPEN ENDS OF WORK, DUCT, PIPES FROM DUST, AND DIRT DURING DEMOLITION AND INSTALLATIONS.
- 32. CONTRACTOR SHALL PERFORM ALL WORK IN SAFE MANNER. PROTECT WORK, PROPERTY, PERSONNEL AND SURROUNDINGS FROM DAMAGE, INJURY.
- 33. GUARANTEE ALL WORK AGAINST FAULTY AND IMPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FORM THE DATE OF FINAL ACCEPTANCE BY THE OWNER, EXCEPT THAT WHERE GUARANTEES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED HEREIN, SUCH LONGER TERM SHALL APPLY. AT NO ADDITIONAL COST TO OWNER, WITHIN 24 HOURS AFTER NOTIFICATION, CORRECT ANY DEFICIENCIES WHICH OCCUR DURING THE GUARANTEE PERIOD, ALL TO THE SATISFACTION OF THE OWNER AND ARCHITECT. - PROVIDE 5 YEAR EQUIPMENT MANUFACTURERS WARRANTY FOR COMPRESSOR FROM DATE OF
- SHIPMENT.
 34. ANY ACTIVITIES, DEMOLITION, CONSTRUCTION WORK THAT GENERATES NOISE, FUME, ODOR SHALL BE PREFORMED DURING AFTER NORMAL WORK HOURS PRIOR APPROVAL BY OWNER DURING TIME PERIOD ALLOWED BY OWNER. PROVIDE ALL RELATED PREPARATIONS, WORK TO MINIMIZE INCONVENIENCE TO OCCUPANTS AND ANY DISRUPTION OF SPACE AND ADJACENT OCCUPANTS. PROVIDE FIRE WATCH AS REQUIRED BY BUILDING MANAGEMENT/OWNER, AND INCLUDE ALL RELATED WORK, EQUIPMENT, AND LABOR IN BID PRICE.
- 35. INTERIOR AND EXTERIOR MECHANICAL EQUIPMENT AND SYSTEMS SHALL COMPLY WITH THE PROVISION OF NOISE CONTROL REQUIREMENTS PER CODES, LOCAL RULES, AND REGULATIONS.
- 36. PROVIDE VOLUME DAMPERS IN ALL LOW-PRESSURE DUCTWORK BRANCH TAKE-OFFS. REFER TO HVAC DETAILS FOR REQUIREMENTS. VOLUME DAMPERS SHALL BE INSTALLED AS CLOSE TO DUCT TAKE OFF AS POSSIBLE UPSTREAM OF DIFFUSER/REGISTER.
- 37. ADEQUATELY BRACE AND PROTECT ALL WORK DURING CONSTRUCTION AGAINST DAMAGE. BREAKAGE, COLLAPSE, DISTORTIONS, AND ALL ALIGNMENTS ACCORDING TO CODES AND STANDARDS OF GOOD PRACTICE.

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	SHEET LIST
-001.00	SYMBOLS, ABBREVIATIONS, AND NOTES
-002.00	MECHANICAL NOTES
-003.00	MECHANICAL SPECIFICATIONS SHEET 1
-004.00	MECHANICAL SPECIFICATIONS SHEET 2
-005.00	MECHANICAL SPECIFICATIONS SHEET 3
-101.00	MECHANICAL REMOVAL PLAN
-201.00	MECHANICAL FLOOR PLAN
-301.00	MECHANICAL SCHEDULES SHEET No.1
-302.00	MECHANICAL SCHEDULES SHEET No.2
-401.00	MECHANICAL CONTROLS
-501.00	MECHANICAL DETAILS SHEET No.1

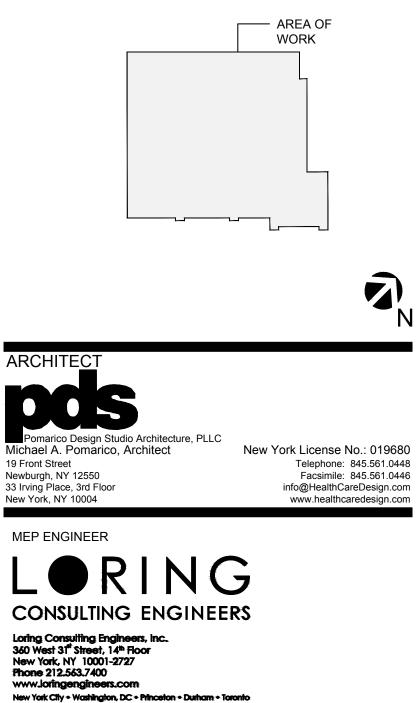
Montefiore

MONTEFIORE NYACK HOSPITAL 160 NORTH MIDLAND AVENUE NYACK, NY 10960

OUTPATIENT DIAGNOSTIC & TREATMENT FACILITY ALTERATIONS - LEVEL 3

18 NORTH HIGHLAND AVENUE NYACK, NY 10960

KEY PLAN: NOT TO SCALE



STRUCTURAL ENGINEER

ISSUE	D DOCUM	ENTS:
No:	Date:	Description:
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SEAL		

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING ARCHITECT SHALL AFFIX HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE

DATE OF SUCH ALTERATION, AND A SPECIFIC



DRAWING TITLE:

DESCRIPTION OF THE ALTERATION.

MECHANICAL SYMBOLS, ABBREVIATIONS, AND NOTES

CON #

SCALE

N.T.S.

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PROJECT NUMBER 14404 DATE

11/19/2024 DRAWING NUMBER

/-001.00

DEMOLITION NOTES:

- 1. THE DEMOLITION DRAWINGS AND SPECIFICATION SHALL BE CONSIDERED ONLY AS A GUIDE AND IS NOT INTENDED TO SHOW EVERY SINGLE ITEM OF WORK. ACTUAL FIELD CONDITIONS WILL DETERMINE THE PRECISE WORK TO BE DONE. SHOULD ANY QUESTION ARISE AS TO WHETHER OR NOT ANY PIPING, EQUIPMENT OR OTHER ITEM SHOULD BE REMOVED, OR REMAIN AS PRESENTLY INSTALLED, THIS CONTRACTOR SHALL REQUEST, IN WRITING, CLARIFICATION FROM THE ARCHITECT. BECAUSE THE MECHANICAL DRAWINGS INDICATE THE INTENT OF THE SCOPE OF WORK, NO EXTRA CHARGES WILL BE ALLOWED FOR ANY REMOVALS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS PROJECT.
- 2. REMOVAL SHALL INCLUDE TAKING FROM THE PREMISES AND DISPOSAL OF REMOVED ITEMS UNLESS OTHERWISE NOTED.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.
- 4. BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR AREAS IN USE, THE CONTRACTOR SHALL REQUEST FROM THE OCCUPANT PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR SHALL PERFORM HIS WORK ONLY AT THE TIME OR TIMES DESIGNATED BY THE OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
- 5. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE FAILURE OF ANY DUCTWORK SYSTEM OR EQUIPMENT WITHIN THE AREA OF WORK TO FUNCTION PROPERLY UPON COMPLETION OF WORK.
- 6. DEMOLITION AND OTHER WORK WHICH CREATES DIRT AND/OR DISTURBING NOISE, MUST BE PERFORMED AFTER NORMAL WORKING HOURS OR ON WEEKENDS. THE DELIVERY, HANDLING, AND INSTALLING OF MATERIALS. EQUIPMENT AND DEBRIS MUST BE ARRANGED TO AVOID ANY INCONVENIENCE AND ANNOYANCE TO OTHER TENANTS. CLEANING MUST BE CONTROLLED TO PREVENT DIRT AND DUST FROM INFILTRATING INTO ADJACENT TENANT OR MECHANICAL AREAS. WELDING OR BURNING MUST BE PERFORMED ONLY DURING TIMES SPECIFICALLY APPROVED BY THE BUILDING MANAGER. INCLUDE COST OF OVERTIME, ALL SUCH WORK IN BID PRICE.
- 7. PROVIDE MEDIA FILTER AT ALL POINTS OF AIR RETURN TO ADEQUATELY PROTECT ALL MECHANICAL SYSTEMS FROM DUST AND DEBRIS.
- 8. NOTIFY THE OWNER, IN WRITING, AT LEAST THREE (3) BUSINESS DAYS IN ADVANCE OF ALL REQUIRED SHUTDOWNS OF AC SYSTEM, WATER, FIRE, GAS, ELECTRICAL SERVICE, OR OTHER UTILITIES. UPON RECEIPT OF APPROVAL FROM OWNER/BUILDING MANAGEMENT, SHUTDOWNS SHALL BE PERFORMED DURING THE HOURS AS DIRECTED BY THE OWNER/BUILDING MANAGEMENT AND SHALL BE ACCOMPLISHED AT NO ADDITIONAL CONTRACT COST. AT THE END OF EACH SHUTDOWN ALL SERVICES SHALL BE RESTORED SO THAT NORMAL USE OF THE UTILITIES CAN CONTINUE.
- 9. WHEN WORKING IN AND AROUND THE EXISTING BUILDING, EXTREME CARE SHALL BE EXERCISED WITH REGARD TO PROTECTION OF THE EXISTING STRUCTURE AND MECHANICAL AND ELECTRICAL SERVICES WHICH WILL REMAIN. REPAIR. REPLACE, OR RESTORE TO THE SATISFACTION OF THE ENGINEER ALL EXISTING WORK DAMAGED IN THE PERFORMANCE OF DEMOLITION AND/OR NEW WORK.
- 10. ALL EXISTING PIPING, EQUIPMENT, DUCTWORK, AND MATERIALS NOT REQUIRED FOR REUSE OR REINSTALLATION (SHOWN OR OTHERWISE) SHALL BE REMOVED. ALL EXISTING MATERIALS AND EQUIPMENT WHICH ARE REMOVED AND ARE DESIRED BY THE OWNER, OR ARE INDICATED TO REMAIN THE PROPERTY OF THE OWNER, SHALL BE DELIVERED TO HIM ON THE PREMISES BY THE CONTRACTOR WHERE DIRECTED BY THE ENGINEER. ALL OTHER MATERIALS AND EQUIPMENT WHICH ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY THE CONTRACTOR FROM THE PREMISES.
- 11. EXISTING CONDITIONS, I.E. PRESENCE AND LOCATION OF DUCTWORK, PIPING, EQUIPMENT, AND MATERIALS INDICATED ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORD DRAWINGS AND FIELD SURVEYS AND ARE NOT WARRANTED TO BE COMPLETE OR CORRECT. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL DUCTWORK, PIPING, EQUIPMENT, AND MATERIALS IN THE FIELD BEFORE BEGINNING WORK.
- 12. EXISTING DUCT, PIPE, AND EQUIPMENT SIZES NOTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND ARE NOT WARRANTED TO BE CORRECT. CONTRACTOR SHALL VERIFY ALL SIZES IN THE FIELD IF THEY AFFECT HIS WORK.
- 13. WHEN EXISTING MECHANICAL AND ELECTRICAL WORK IS REMOVED, ALL RELATED, ASSOCIATED PIPES, VALVES, DUCTS, SUPPORTS, CONTROLS, WIRING, AND MATERIALS SHALL BE REMOVED IN ITS ENTIRETY INCLUDING SUPPORTS, CONDUITS UNLESS NOTED OR DIRECTED OTHERWISE. PROTECT ALL OPENINGS THROUGHOUT. PATCH ALL UNUSED OPENINGS.
- 14. EXISTING PIPING NO LONGER REQUIRED TO REMAIN IN SERVICE (SHOWN OR OTHERWISE) SHALL BE NNECTED AND REMOVED BACK TO SERVICE MAINS UNLESS OTHERWISE INDICATED OR NOTED ON THE PLANS. REMOVE EXISTING PIPE HANGERS, SUPPORTS, VALVES, ETC. EXISTING PIPING INDICATED OR REQUESTED TO REMAIN IN SERVICE OR IN PLACE SHALL BE CAPPED, PLUGGED, OR OTHERWISE SEALED. NO EXISTING PIPING SHALL BE LEFT OPEN ENDED.
- 15. EXISTING DUCTWORK INDICATED TO BE DISCONNECTED AND REMOVED SHALL INCLUDE ALL RELATED AIR DEVICES, HANGERS, SUPPORTS, ETC., UNLESS OTHERWISE OR INDICATED NOTED ON THE PLANS. EXISTING DUCTWORK WHERE INDICATED TO BE CAPPED OR REQUIRED TO REMAIN IN SERVICE SHALL BE CAPPED WITH 18 GAUGE SHEET METAL. SECURE CAP WITH SHEET METAL SCREWS AND SEAL PERIMETER OF OPENING AIRTIGHT WITH DUCT SEALER. NO EXISTING DUCTWORK SHALL BE LEFT OPEN FOR ANY EXTENDED PERIOD OF TIME. CAP EXISTING DUCTWORK IMMEDIATELY AS REQUIRED OR DIRECTED BY THE ENGINEER. CONTRACTOR SHALL RETURN ALL DEVICES TO OWNER.
- 16. EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT, PIPING, DUCTWORK AND MATERIALS AFFECTED BY THE DEMOLITION OR NEW WORK INSTALLATION AND REQUIRED TO REMAIN IN SERVICE SHALL BE REINSTALLED OR SUPPORTED AS REQUIRED IN ACCORDANCE WITH NEW WORK SPECIFICATION. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE ENGINEER AND AT NO ADDITIONAL CONTRACT COST.
- 17. PATCH, FINISH, PAINT, AND SEAL ALL UNUSED OPENINGS IN CONSTRUCTION. TO MATCH EXISTING AND TO MAINTAIN RATING OF CONSTRUCTION. ALL NEW AND EXISTING OPENINGS IN WALLS, CEILINGS, ROOF, AND FLOOR SURFACES DAMAGED OR CREATED BY DEMOLITION OR INSTALLATION OF WORK SHALL BE PATCHED THROUGHOUT AND SHALL MATCH EXISTING ADJACENT SURFACES AS TO THICKNESS, TEXTURE, MATERIALS, AND COLOR. ALL PATCHING SHALL BE PERFORMED TO THE SATISFACTION OF THE ENGINEER AND AT NO ADDITIONAL CONTRACT COST. ALL OPENINGS IN ROOF, EXTERIOR OF BUILDING, MECHANICAL ROOMS SHALL BE PATCHED AND SEALED WATERTIGHT.
- 18. PERFORM REMOVAL, DEMOLITION CAREFULLY. EXISTING WORK AND DEVICES TO REMAIN/ BE REINSTALLED SHALL NOT BE DAMAGED. ALL DEVICES, EQUIPMENT TO BE RELOCATED, REINSTALLED SHALL BE STORED IN A SAFE MANNER, SHALL BE PROTECTED FOR REINSTALLATION.

GENERAL HVAC SYSTEM CLEANING REQUIREMENTS

- 1. COMPONENT CLEANING: CLEANING METHODS SHALL BE EMPLOYED SUCH THAT ALL HVAC SYSTEM COMPONENTS MUST BE VISIBLY CLEAN AS DEFINED IN APPLICABLE STANDARDS (SEE NATIONAL AIR DUCT CLEANING ASSOCIATION (NADCA) STANDARDS), UPON COMPLETION, ALL COMPONENTS MUST BE RETURNED TO THOSE SETTINGS RECORDED JUST PRIOR TO CLEANING OPERATIONS.
- 2. CONTAINMENT: DEBRIS REMOVED DURING CLEANING SHALL BE COLLECTED AND PRECAUTIONS MUST BE TAKEN TO ENSURE THAT DEBRIS IS NOT OTHERWISE DISPERSED OUTSIDE THE HVAC SYSTEM DURING THE CLEANING PROCESS.
- 3. AIR-VOLUME CONTROL DEVICES: DAMPERS ANY AIR-DIRECTIONAL MECHANICAL DEVICES INSIDE THE HVAC SYSTEM MUST HAVE THEIR POSITION MARKED PRIOR TO CLEANING AND, UPON COMPLETION, MUST BE RESTORED TO THEIR MARKED POSITION.
- 4. SERVICE OPENINGS: UTILIZE SERVICE OPENINGS, AS REQUIRED FOR PROPER CLEANING, AT VARIOUS POINTS OF THE HVAC SYSTEM FOR PHYSICAL AND MECHANICAL ENTRY, AND INSPECTION.
- A. UTILIZE THE EXISTING SERVICE OPENINGS ALREADY INSTALLED IN THE HVAC SYSTEM WHERE POSSIBLE.
- B. OTHER OPENINGS SHALL BE CREATED WHERE NEEDED AND THEY MUST BE CREATED SO THEY CAN BE SEALED IN ACCORDANCE WITH INDUSTRY CODES AND STANDARDS.
- C. CLOSURES MUST NOT SIGNIFICANTLY HINDER, RESTRICT, OR ALTER THE AIRFLOW WITHIN THE SYSTEM.
- D. OPENINGS MUST NOT COMPROMISE THE STRUCTURAL INTEGRITY OF THE SYSTEM. E. CONSTRUCTION TECHNIQUES USED IN THE CREATION OF OPENINGS SHOULD CONFORM TO REQUIREMENTS OF APPLICABLE BUILDING AND FIRE CODES, AND APPLICABLE NFPA, SMACNA AND
- NADCA STANDARDS. F. CUTTING SERVICE OPENINGS INTO FLEXIBLE DUCT IS NOT PERMITTED. FLEXIBLE DUCT SHALL BE DISCONNECTED AT THE ENDS AS NEEDED FOR PROPER CLEANING AND INSPECTION.
- G. ALL SERVICE OPENINGS CAPABLE OF BEING RE-OPENED FOR FUTURE INSPECTION OR REMEDIATION SHALL BE CLEARLY MARKED AND SHALL HAVE THEIR LOCATION REPORTED TO THE OWNER AND INDICATED IN AS-BUILT DOCUMENTS.

			2018 FG	GI COMPLIA	ANCE TAB	SLE (ASHF	RAE 170-	·2017)						
					FGI REQUIRE	MENTS				FGI ACT	UAL			
ROOM NAME	ROOM NUMBER	AREA (S.F.)	ROOM TYPE	PRESSURE RELATIONSHIP TO ADJACENT SPACES	OUTSIDE AIR CHANGES PER HOUR (ACH)	TOTAL AIR CHANGES PER HOUR (ACH)	EXHAUST TO OUTSIDE	CFM	PRESSURE TO ADJACENT SPACES	OUTSIDE AIR CHANGES PER HOUR (ACH)	TOTAL AIR CHANGES PER HOUR (ACH)	DESIGN RH (%)	DESIGN TEMP. (°F)	COMPLY (YES/NO)
STAFF LOUNGE	116	123	OFFICE (SMALL)	N/R				250	OUT	4.16	15.25	NR	75	Yes
SPECIAL PURPOSE EXAM ROOM #2	114	156	SPECIAL EXAMINATION ROOM	N/R	2	6		200	OUT	2.62	9.62	MAX 60	70	Yes
EXAM ROOM #5	111	108	GENERAL EXAM ROOM	N/R	2	4		200	OUT	3.79	13.89	MAX 60	70	Yes
OFFICE	110	133	OFFICE (SMALL)	N/R				160	OUT	2.46	9.03	NR	75	Yes
OFFICE	118	120	OFFICE (SMALL)	N/R				160	OUT	2.73	10	NR	75	Yes
ELEC./IT	115	47	IDF / SERVER	N/R				0	OUT	0.66	2.4	MAX 60	72	Yes
WEST CORRIDOE	C03	350	PUBLIC CORRIDOR	N/R				150	OUT	0.88	3.22	NR	75	Yes
EXAM ROOM # 4	109	112	GENERAL EXAM ROOM	N/R	2	4		180	OUT	3.29	12.06	MAX 60	70	Yes
SOILED HOLDING	119	35	SOILED WORKROOM/HOLDING	IN	2		10	0	IN	8.76	32.15	NR	75	Yes
STAFF TOILET	120	46	PUBLIC TOILET	N/R			10	0	IN	3.34	12.23	NR	75	Yes
EVS	122	12	JANITOR CL	IN			10	0	IN	12.78	46.88	NR	75	Yes
SPECIAL PURPOSE EXAM ROOM #1	113	135	SPECIAL EXAMINATION ROOM	N/R	2	6		180	OUT	2.73	10	MAX 60	70	Yes
PROVIDER STATION	105	426	OFFICE WAITING/RECEPTION	N/R				300	OUT	1.44	5.29	NR	75	Yes
EXAM ROOM #3	108	121	GENERAL EXAM ROOM	N/R	2	4		160	OUT	2.71	9.92	MAX 60	70	Yes
MEDICATION ROOM	121	57	GENERAL EXAM ROOM	N/R	2	4		75	OUT	2.69	9.87	MAX 60	70	Yes
CLEAN SUPPLY	102	53	CLEAN WORKROOM OR CLEAN HOLDING	OUT	2	4		75	OUT	2.9	10.62	NR	72	Yes
EXAM ROOM #6	112	117	GENERAL EXAM ROOM	N/R	2	4		150	OUT	2.62	9.62	MAX 60	70	Yes
RECEPTION	103	207	OFFICE WAITING/RECEPTION	N/R				150	OUT	1.49	5.44	NR	75	Yes
PATIENT TOILET	104	54	TOILET ROOM	IN			10	0	IN	2.84	10.42	NR	75	Yes
EXAM ROOM #2	107	117	GENERAL EXAM ROOM	N/R	2	4		160	OUT	2.8	10.26	MAX 60	70	Yes
EXAM ROOM #1	106	138	GENERAL EXAM ROOM	N/R	2	4		200	OUT	2.97	10.87	MAX 60	70	Yes
PUBLIC TOILET	102	52	TOILET ROOM	IN			10	0	IN	2.95	10.82	NR	75	Yes
WAITING AREA	101	510	OFFICE WAITING/RECEPTION	N/R				750	OUT	3.01	11.03	NR	75	Yes
VESTIBULE	100	226	PUBLIC CORRIDOR	N/R				200	OUT	1.81	6.64	NR	75	Yes

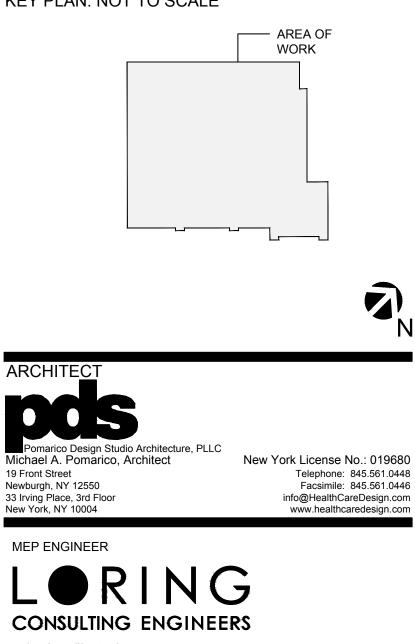
Montefiore

MONTEFIORE NYACK HOSPITAL 160 NORTH MIDLAND AVENUE NYACK, NY 10960

OUTPATIENT DIAGNOSTIC & TREATMENT FACILITY **ALTERATIONS - LEVEL 3**

18 NORTH HIGHLAND AVENUE NYACK, NY 10960

KEY PLAN: NOT TO SCALE





No:	Date:	Description:
1	12.06.2024	ISSUED FOR PERMIT

SEAL

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING ARCHITECT SHALI AFFIX HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.



DRAWING NUMBER

DRAWING TITLE:

MECHANICAL NOTES

PROJECT NUMBER CON # 14404 -DATE SCALE N.T.S. 11/19/2024

HVAC SPECIFICATIONS

1. GENERAL

- A. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH
- VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR B. INVESTIGATE EACH SPACE THROUGH WITH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM BUILDING OWNER AT WHAT TIMES OF DAY EQUIPMENT
- MAY BE MOVED THROUGH ALL AREAS C. DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH
- THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED D. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.
- E. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- F. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL A PLAN INDICATING THE SIZE (MINIMUM 18 INCH X 18 INCH) AND LOCATION OF ALL ACCESS DOORS REQUIRED FOR OPERATION AND MAINTENANCE OF ALL CONCEALED EQUIPMENT, DEVICES, VALVES, DAMPERS AND CONTROLS. CONTRACTOR SHALL ARRANGE FOR FURNISHING AND INSTALLATION OF ALL ACCESS DOORS IN FINISHED CONSTRUCTION AND INCLUDE COSTS IN THE BID. G. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS
- CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL. H. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO ENSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING
- FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO
- ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT. J. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW
- SYSTEM. K. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE
- MATERIAL ... PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE
- INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED M. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR
- WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR. N. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO
- DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID. O. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT
- ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING DUCTWORK, PIPING (SIZES, CLEARANCES, ETC.) AND CONDITIONS.
- P. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER
- Q. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL. R. GUARANTEE:
- 1) ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME AT WHICH THE MECHANICAL WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER, AND IS UNDER CARE CUSTODY, AND CONTROL OF THE OWNER. ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP AND OPERATION OF ALL SYSTEMS INSTALLED. INSTRUCT THE OWNERS PERSONNEL IN THE PROPER OPERATION AND SERVICING OF THE SYSTEM.
- 2) THE CONTRACTOR SHALL GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN THE GUARANTEE PERIOD. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL INCLUDE RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THIS CONTRACTOR.
- 3) THIS CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF ALL SYSTEMS UNTIL THE FINAL ACCEPTANCE OF THE WORK. 4) ALL AIR CONDITIONING UNIT COMPRESSORS AND REFRIGERATION COMPONENTS SHALL HAVE A 5-YEAR WARRANTY
- s. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

T. DEFINITIONS:

- 1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
- 2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
- 3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
- 4) "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
- 5) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.
- 6) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
- 7) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

2. SCOPE OF WORK

- A. THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER. B. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR
- ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
- C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR. THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.
- D. PERMITS AND FEES
- 1) THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TEST OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY
- APPLY TO THIS WORK. 2) THIS CONTRACTOR SHALL PREPARE OR HIRE THE NECESSARY CONSULTANTS TO PREPARE AND FILE ALL PLANS, CALCULATION, FORMS, ETC. REQUIRED FOR FILING WITH ALL AGENCIES REQUIRED FOR THIS WORK INCLUDING BUT NOT LIMITED TO THE DEP (DEPARTMENT OF ENVIRONMENTAL PROTECTION), DEC (DEPARTMENT OF ENVIRONMENTAL CONSERVATION), BUREAU OF AIR RESOURCES, EPA (ENVIRONMENTAL PROTECTION AGENCY), FDNY, ETC...
- E. SPECIAL INSPECTION- NYS
- 1) SPECIAL INSPECTION SHALL BE PROVIDED BY THE OWNER WHO SHALL HIRE A LICENSED PROFESSIONAL ENGINEER.
- F. INSPECTIONS / TESTING
- 1) INDEPENDENT TESTING AND INSPECTIONS SHALL BE PROVIDED BY THE OWNER WHO SHALL HIRE THE INSPECTOR OR TESTING AGENCY G. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT PROVIDE COMPLETE SET OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, DUCTWORK, PIPING AND CONTROL SYSTEMS INDICATING CAPACITY DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.
- H. WITHIN 15 DAYS AFTER AWARD OF CONTRACT, SUBMIT FOR REVIEW, A LIST OF ALL MATERIAL AND EQUIPMENT MANUFACTURER'S PRODUCTS THAT ARE PROPOSED, AS WELL AS NAMES OF ALL SUBCONTRACTORS WHOM THIS TRADE PROPOSES TO UTILIZE ON THIS PROJECT.
- SHOP DRAWINGS
- A. INDICATE ON EACH SUBMISSION: PROJECT NAME AND LOCATION, ARCHITECT AND ENGINEER, ITEM IDENTIFICATION AND APPROVAL STAMP OF PRIME CONTRACTOR, SUBCONTRACTOR NAMES AND PHONE NUMBERS, REFERENCE TO THE APPLICABLE DESIGN DRAWING OR SPECIFICATION ARTICLE, DATE AND
- SCALE. B. THE WORK DESCRIBED IN ALL SHOP DRAWING SUBMISSION SHALL BE CAREFULLY CHECKED FOR ALL CLEARANCES (INCLUDING THOSE REQUIRED FOR MAINTENANCE AND SERVICING), FIELD CONDITIONS, MAINTENANCE OF ARCHITECTURAL CONDITIONS AND PROPER COORDINATION WITH ALL TRADES ON THE JOB.
- C. EACH SUBMITTED SHOP DRAWING IS TO INCLUDE A CERTIFICATION THAT ALL RELATED JOB CONDITIONS HAVE BEEN CHECKED AND VERIFIED AND THAT THERE ARE NO CONFLICTS.
- D. ALL SHOP DRAWINGS ARE TO BE SUBMITTED TO ALLOW AMPLE TIME FOR CHECKING IN ADVANCE OF FIELD REQUIREMENTS. ALL SUBMITTALS TO BE COMPLETE AND CONTAIN ALL REQUIRED AND DETAILED INFORMATION. SHOP DRAWINGS WITH MULTIPLE PARTS SHALL BE SUBMITTED AS A PACKAGE. E. IF SUBMITTALS DIFFER FROM THE CONTRACT DOCUMENT REQUIREMENTS, MAKE SPECIFIC MENTION OF SUCH DIFFERENCES IN A LETTER OF TRANSMITTAL, WITH
- REQUEST FOR SUBSTITUTION, TOGETHER WITH REASONS FOR SAME. F. ELECTRONIC COPIES OF DESIGN DRAWINGS CAN BE FORWARDED ONLY UPON RECEIPT OF SIGNED ACCEPTANCE OF TERMS FORM. THESE FILES ARE BEING ISSUED FOR THE CONVENIENCE OF THE CONTRACTOR AND THE CONTRACTOR REMAINS RESPONSIBLE FOR ALL CONTRACT REQUIREMENTS RELATED TO THE NORMAL SHOP DRAWING PREPARATION PROCESS
- G. SUBMISSIONS:
- 1) PROVIDE ALL COORDINATION DRAWINGS, DUCTWORK AND PIPING SHOP DRAWINGS IN AUTOCAD FORMAT, VERSION COMPATIBLE WITH OWNER. ALL CATALOG CUTS AND SUBMITTALS TO BE PROVIDED IN ELECTRONIC "PDF" FORMAT THE ARCHITECT WILL FORWARD ALL SUBMISSIONS TO THE ENGINEER. 2) IF PAPER SUBMISSIONS ARE TO BE PROVIDED THE FOLLOWING SHALL BE ADHERED TO.
- A. SUBMISSIONS 11 INCH X 17 INCH OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND ONE COPY. OTHERWISE, THEY SHALL SUBMIT TWO COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
- B. SUBMISSIONS LARGER THAN 11 INCH X 17 INCH: SUBMIT TWO COPIES TO THE ARCHITECT. THE ARCHITECT WILL FORWARD TO THE ENGINEER.

B. 26 GAUGE DUCTWORK. 2) TRANSVERSE JOINTS: SELECT JOINT TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE "TRANSVERSE (GIRTH) JOINTS", FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT-SUPPORT INTERVALS. AND OTHER PROVISIONS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE." FITTINGS AND/OR JOINTS OF TWO DIFFERENT GAUGES, CONNECTED JOINT RATING SHALL MEET MORE STRINGENT CONDITIONS. 3) USE THE SMACNA TRANSVERSE (GIRTH) JOINTS.

- FRAME.

- Q. LEAKAGE TESTING:
- AIR OUTLETS A. GENERAL:

8.

1) MARGIN TYPES, COLORS, FINISH AND METHODS OF ATTACHMENT FOR ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE COORDINATED WITH ARCHITECTURAL CEILING AND WALL DETAILS AND SPECIFICATIONS. FINISH SHALL MATCH COLOR SAMPLE AS APPROVED: FRAME TYPE SUITABLE FOR MOUNTING IN CEILING OR WALL CONSTRUCTION AS INDICATED ON ARCHITECTURAL PLANS. 3) EXACT LOCATION OF ALL AIR OUTLETS AS PER ARCHITECTURAL PLANS.

- SHEET METAL WORK
- 7. INDICATED.

GOVERN: A. LOW PRESSURE: ALL SUPPLY AIR MAIN BRANCHES FROM TRUNK, EACH SPLIT, AND ALL SUB-BRANCHES FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS

B. LOW PRESSURE: ALL EXHAUST AND RETURN BRANCHES FROM TRUNK, EACH SPLIT AND ALL SUB-BRANCHES FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS

F. FLEXIBLE DUCTWORK SHALL NOT BE USED ON THIS PROJECT. G. ACCESS DOORS: INSULATED OR UNINSULATED, SAME AS DUCT

1) PROVIDE MINIMUM 20 INCH X 14 INCH ON MAIN DUCTS, AND 12 INCH X 6 INCH ON BRANCH DUCTS, UNLESS OTHERWISE APPROVED, AT FIRE DAMPERS, AND AT ALL DUCT ACCESSORIES SUCH AS HUMIDIFIERS, DUCT SMOKE DETECTORS, MOTORIZED DAMPERS, AND LOUVERS. 2) ALL ACCESS DOORS TO BE HINGED, WITH LATCH SIMILAR TO VENTLOCK NO. 100.

H. FLEXIBLE CONNECTIONS: NEOPRENE-COATED GLASS FABRIC, 30 OZ PER SQUARE YD WITH SEWED AND CEMENTED SEAMS, SIMILAR TO VENT FABRICS. PROVIDE WITH METAL COLLARS. ALLOW MINIMUM MOVEMENT OF 1 INCH.

H. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

DUCTWORK LAYOUT AND SHEET METAL DESIGNS.

A. SHEETMETAL SHOP STANDARDS SHALL BE COMPILED DIRECTLY FROM THE "SMACNA DUCT CONSTRUCTION STANDARDS- METAL AND FLEXIBLE" MANUAL. MODIFICATIONS FOR A SPECIFIC PROJECT, IF ANY, SHALL BE INDICATED DIRECTLY ON THE SMACNA TEMPLATES. MODIFIED SHOP STANDARDS NOT TAKEN DIRECTLY FROM THE SMACNA TEMPLATES WILL NOT BE ACCEPTED. ANY DEVIATIONS FROM SMACNA SHALL BE NOTED DUCTWORK AND ACCESSORIES.

2) AIR OUTLETS.

3) AIR BALANCE REPORT.

 SPLIT SYSTEM AC UNITS, FURNACE AND FANS. 5) PIPING MATERIALS, ACCESSORIES PIPING SHOP STANDARDS

6) VALVES

7) INSULATION FOR DUCTWORK, PIPING, EQUIPMENT. 8) SUPPORTS, HANGERS, SUPPLEMENTAL STEEL, VIBRATION ISOLATION..

9) VIBRATION ISOLATION.

10) DAMPER AND VALVE ACTUATORS.

11) AUTOMATIC CONTROL SYSTEMS AND DEVICES. 12) SEQUENCE OF OPERATIONS

COORDINATION DRAWINGS: PLANS, DRAWN TO SCALE INDICATING COORDINATION BETWEEN THE TRADES USING INPUT FROM INSTALLERS OF THE ITEMS INVOLVED:

1) DUCT AND PIPING INSTALLATION INDICATING COORDINATION WITH GENERAL CONSTRUCTION, BUILDING COMPONENTS, AND OTHER BUILDING SERVICES. INDICATE LOCATIONS AND SIZES OF ALL OPENINGS IN FLOOR, WALLS AND ROOF THAT MAY BE REQUIRED. 2) COORDINATION WITH SUSPENDED CEILING COMPONENTS, STRUCTURAL MEMBERS TO WHICH DUCT WILL BE ATTACHED, SIZE AND LOCATION OF INITIAL ACCESS MODULES FOR ACOUSTICAL TILE, PENETRATIONS OF SMOKE BARRIERS AND FIRE-RATED CONSTRUCTION, LIGHTING FIXTURES, AIR OUTLETS AND

INLETS, SPEAKERS, SPRINKLERS, ACCESS PANELS, PERIMETER MOLDINGS SHALL BE PERFORMED. 4. AS-BUILTS AND EQUIPMENT OPERATION INSTRUCTIONS

A. CONTRACTOR SHALL PREPARE AND PROVIDE ALL COORDINATION DRAWINGS, DUCTWORK AND PIPING SHOP DRAWINGS IN AUTOCAD FORMAT, VERSION COMPATIBLE WITH OWNER. ALL CATALOG CUTS AND SUBMITTALS TO BE PROVIDED IN ELECTRONIC "PDF" FORMAT THE ARCHITECT WILL FORWARD ALL SUBMISSIONS TO THE ENGINEER

B. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS, EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT. C. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 INCH X 11 IN FORMAT. THE CONTRACTOR SHALL GIVE ONE COPY OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

D. THE INSTRUCTIONS SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS. E. FINAL "AS-BUILT" DRAWINGS INDICATING AS INSTALLED CONDITIONS SHALL BE PROVIDED TO THE ARCHITECT AND ENGINEER AFTER COMPLETION OF THE

INSTALLATION. SUBSTITUTIONS

NO SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, ELECTRICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM THE SUBSTITUTION. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL OF THE SUBSTITUTION. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION WHY A SUBSTITUTION IS BEING UTILIZED. IF THE SUBSTITUTED ITEM DEVIATES FROM THE SPECIFIED ITEM, THOSE DEVIATIONS ARE TO BE IDENTIFIED ON A LINE BY LINE BASIS. IF THE SUBSTITUTE IS BEING UTILIZED FOR FINANCIAL REASONS, THE ASSOCIATED CREDIT MUST BE SIMULTANEOUSLY SUBMITTED

B. ALL SUBSTITUTED EQUIPMENT SHALL CONFORM TO SPACE REQUIREMENTS AND PERFORMANCE REQUIREMENTS SHOWN ON CONTRACT DOCUMENTS. CONTRACTOR SHALL REPLACE ANY EQUIPMENT THAT DOES NOT MEET THESE REQUIREMENTS AT HIS OWN EXPENSE. ANY MODIFICATIONS TO ASSOCIATED SYSTEMS OR ADDITIONAL COSTS ATTRIBUTED TO THIS SUBSTITUTION SHALL BE AT THIS CONTRACTOR'S EXPENSE

CONTRACTOR SHALL SUBMIT BID BASED ON SPECIFIED ITEMS AND SHALL SUPPLY AS AN ALTERNATE PRICE ANY SUBSTITUTIONS.

ACCESS DOORS IN GENERAL CONSTRUCTION

A. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL A PLAN INDICATING THE SIZE (MINIMUM 18 INCH X 18 INCH) AND LOCATION OF ALL ACCESS DOORS REQUIRED FOR OPERATION AND MAINTENANCE OF ALL CONCEALED EQUIPMENT, DEVICES, VALVES, DAMPERS AND CONTROLS. CONTRACTOR SHALL ARRANGE FOR FURNISHING AND INSTALLATION OF ALL ACCESS DOORS IN FINISHED CONSTRUCTION AND INCLUDE COSTS IN THE BID.

A. DUCT CONSTRUCTION, INCLUDING SHEET METAL THICKNESSES, SEAM AND JOINT CONSTRUCTION, REINFORCEMENTS, HANGERS AND SUPPORTS, SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, LATEST EDITION" AND PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA

B. EXCEPT AS OTHERWISE SHOWN OR NOTED, ALL DUCTWORK AND OTHER SHEET METAL WORK SHALL BE GALVANIZED SHEET STEEL

C. DESCRIPTION OF DUCTWORK PRESSURE CLASS AND EQUIPMENT:

1) 4 INCH AND GREATER DUCT CLASS: ALL SUPPLY DUCTWORK FROM DISCHARGE OF FANS, AIR HANDLING UNITS OR AC UNITS TO INLETS OF TERMINAL BOXES, AIR CONTROL VALVES, MOTORIZED DAMPERS ON FLOOR, ALL OUTDOOR DUCTWORK AND ALL DUCTWORK RUNNING THROUGH UNCONDITIONED SPACES. SEAL CLASS "A", LEAKAGE CLASS 6 (RECTANGULAR METAL) OR CLASS 3 (ROUND).

2) 2 INCH DUCT CLASS AND LESS: ALL OTHER LOW PRESSURE DUCTWORK. SEAL CLASS "C", LEAKAGE CLASS 24 (RECTANGULAR) OR CLASS 12 (ROUND). D. GENERAL FABRICATION REQUIREMENTS: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE", LATEST EDITION, BASED ON INDICATED STATIC-PRESSURE CLASS UNLESS OTHERWISE INDICATED.

1) THE FOLLOWING FITTING CONNECTIONS AND DUCT CONSTRUCTION GAUGES ARE NOT ACCEPTABLE

A. DRIVE SLIP [T-1, T-2] FITTING CONNECTIONS

E. VOLUME DAMPERS: GALVANIZED STEEL, PER SMACNA "LOW VELOCITY MANUAL," EXCEPT PROVIDE BEARING AT ONE END OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW AT OTHER END. FOR INSULATED DUCTS, QUADRANTS MOUNTED ON COLLAR TO CLEAR INSULATION. INSTALL WITH LEVERS ACCESSIBLE 1) PROVIDE MANUAL VOLUME DAMPERS TO PROPERLY PROVIDE MANUAL BALANCING VOLUME DAMPERS AS REQUIRED TO PROPERLY BALANCE THE AIR DISTRIBUTION SYSTEM. IF THE LOCATION OF BALANCING DAMPERS ARE NOT DEFINED ON THE DRAWINGS, THE FOLLOWING MINIMUM STANDARDS SHALL

C. AS NOTED ON PLANS

I. TURNING VANES: GALVANIZED STEEL SMALL DOUBLE-THICKNESS VANES WITH 2 INCH INSIDE RADIUS.

FIRE DAMPERS: DYNAMIC; RATED AND LABELED ACCORDING TO UL 555 BY AN NRTL GALVANIZED STEEL CONSTRUCTION, CURTAIN TYPE WITH BLADES OUT OF THE AIRSTREAM (TYPE B), SPRING LOADED, EQUIPPED WITH FUSIBLE LINK, CONFORMING TO NFPA STANDARD 90A AND APPROVED BY NEW YORK CITY, SIMILAR TO POTOROFF OR RUSKIN, RATED AS REQUIRED. PROVIDE FIRE DAMPERS AS NOTED ON THE PLANS AND IN DUCTS AND OPENINGS IN SHAFTS, FLOORS, FIRE WALLS, FIRE-RESISTANCE PARTITIONS, FIRE RATED CEILINGS, EXIT CORRIDOR WALLS. PROVIDE ACCESS DOOR IN DUCT ADJACENT TO EACH FIRE DAMPER. SEE INSTALLATION ON DRAWING.

L. ALL DUCT DIMENSIONS INDICATED ON PLANS ARE INSIDE CLEAR DIMENSIONS.

M. AUTOMATIC DAMPERS: COMPLETE WITH LINKAGE AND ELECTRIC OPERATOR. OPPOSED BLADE DAMPER OR GALVANIZED STEEL MIN. 4 INCH, MAX. 8 INCH WIDE WITH COMPRESSIBLE EDGE SEALS TO PREVENT LEAKAGE. FACTORY-ASSEMBLE STEEL LINKAGE AND SHAFT WITH NYLON OR OIL-IMPREGNATED BRONZE BEARINGS. MOTOR WITH SUFFICIENT POWER TO LIMIT LEAKAGE TO 10 CFM PER SQUARE FEET. LINKAGE TO WITHSTAND LOAD EQUAL TO TWICE MAXIMUM OPERATING FORCE WITHOUT DEFLECTION. DAMPER MOUNTED IN WELDED STEEL CHANNEL FRAME.

N. EXTERIOR LOUVERS: 4 INCH WIDE STATIONARY LOUVER, EXTRUDED ALUMINUM, 0.081 INCH WALL THICKNESS, 6063T5 ALLOY BLADES AND FRAME WITH STAINLESS STEEL OR ALUMINUM FASTENERS. LOUVER TO INCORPORATE STRUCTURAL SUPPORT TO WITHSTAND WIND LOAD OF 20 LBS PER SQUARE FEET. PROVIDE REMOVABLE 3/4 INCH X 3/4 INCH ALUMINUM BIRDSCREEN IN AN ALUMINUM FRAME. AIR PERFORMANCE AND WATER PENETRATION LESS THAN OR EQUAL TO RUSKIN. COORDINATE ALL REQUIREMENTS WITH THE BUILDING MANAGEMENT AND ARCHITECT. LOUVER TO COMPLY WITH BASE BUILDING STANDARDS. O. WIRE MESH SCREEN (WMS): NO. 16 USSG, 3/4 SQUARE MESH, IN 1 INCH WIDE GALVANIZED STEEL ENCLOSING FRAME. FLANGED DUCT OPENING TO RECEIVE

P. EXPOSED DUCTWORK:

1) WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS, INCLUDING PITTINGS, SEAM MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS. PROVIDE FINISHES WHICH WILL ALLOW PAINTING. PROVIDE FLAT TYPE SEAMS AND JOINTS FOR ALL EXPOSED DUCT CONSTRUCTION.

1) ALL DUCTWORK GREATER THAN 2 INCH CLASS TO BE TESTED. ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE ENGINEER OR OWNER'S REPRESENTATIVE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL COLLARS, CAPS, ELECTRIC POWER, ETC. NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR SCHEDULING THE TEST NO LESS THAN THREE (3) BUSINESS DAYS PRIOR TO ITS INTENDED OCCURRENCE. LOW PRESSURE DUCTWORK (2 INCH CLASS) SHALL BE TESTED ON AN AS NEEDED BASIS AT THE ENGINEER'S DIRECTION. LEAKAGE TEST PROCEDURE SHALL FOLLOW THE OUTLINES AND CLASSIFICATIONS IN THE SMACNA HVAC DUCT LEAKAGE TEST MANUAL. IF SPECIMEN FAILS TO MEET ALLOTTED LEAKAGE LEVEL, THE CONTRACTOR SHALL MODIFY TO BRING IT INTO COMPLIANCE AND SHALL RETEST IT UNTIL ACCEPTABLE LEAKAGE IS DEMONSTRATED. TESTS AND NECESSARY REPAIR SHALL BE COMPLETED PRIOR TO CONCEALMENT OF DUCTS.

4) PROVIDE MOUNTING AND BLOCKING

- THAN NOTED CAPACITY FOR VARIABLE VOLUME SYSTEMS.
- COMFORT SPACE CONDITIONS WITHOUT DRAFTS THROUGHOUT OPERATING RANGE.
- FACE OF AIR OUTLETS.

- A. ANEMOSTAT PRODUCTS;
- B. TITUS. C. PRICE INDUSTRIES
- C. REGISTERS AND GRILLES:
- 1) RETURN AND EXHAUST REGISTERS: STEEL CONSTRUCTION WITH VOLUME DAMPER.
- DEFLECTOR WHERE REGISTER COLLAR DUCT IS LESS THAN 2 FEET LONG.
- 3) TRANSFER GRILLES: STEEL CONSTRUCTION WITHOUT VOLUME DAMPER 9. NOISE CONTROL
- A. ALL ROOM NC LEVELS SHALL BE 35 OR LESS.
- B. SOUNDLINING IN DUCTWORK IS NOT PERMITTED.
- 10. TESTING AND BALANCING

 - MUST BE DONE IN THE PRESENCE OF A BUILDING ENGINEER.
 - SHALL BE DONE TO PERMIT THE LEAST NOISE GENERATION IN THE TERMINAL AREAS AND UTILIZE MINIMUM FAN ENERGY.
- DISTRIBUTION SYSTEM AFFECTED BY THE RENOVATION AND ALSO BALANCE ALL NEW WORK.
- SHALL VISIT THE JOBSITE FOR FIELD VERIFICATION OF THE REPORT.
- G. BALANCING REPORT SHALL BE PROVIDED ON NEBB OR AABC-TYPE FORMS.
- H. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY A CERTIFIED NEBB OR AABC TECHNICIAN.
- 1) ALL CITY TESTING & BALANCING.
- 2) INTERNATIONAL TESTING AND BALANCING
- 3) INDEPENDENT TESTING & BALANCING
- AFTER SUBMISSION OF THE FIELD VERIFIED BALANCING REPORT, THE AIR BALANCING COMPANY SHALL RETURN TO THE JOB SITE TO PERFORM TWO (2) OCCUPAN COMFORT BALANCES AS DIRECTED BY THE OWNER OR ENGINEER
- M. THE FINAL REPORT AFTER THE COMFORT BALANCE IS TO BE INCLUDED IN PROJECT OPERATING AND MAINTENANCE MANUAL THE TESTING AND BALANCING AGENCY SHALL INCLUDE AS PART OF THEIR WORK AN EXTENDED WARRANTY OF 90 DAYS AFTER COMPLETION OF TEST AND BALANCE WORK. THE ENGINEER AT HIS DISCRETION DURING THE WARRANTY PERIOD MAY REQUEST A RECHECK, OR RESETTING OF ANY EQUIPMENT. THE MECHANICAL CONTRACTOR AND THE BALANCING CONTRACTOR SHALL PROVIDE THE NECESSARY TECHNICIANS TO FACILITATE THIS WORK.
- O. BALANCING AGENCY SHALL PERMANENTLY MARK ALL ADJUSTMENT DEVICES (VALVES, DAMPERS, ETC.) TO ENABLE THE SETTING TO BE RESTORED.
- P. AIR BALANCING
- COMPLETION OF TEST.
- SET OF FILTERS BEFORE TESTING IS COMMENCED.
- WITHIN PLUS OR MINUS 5 PERCENT. 4) TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
- B. TEMPERATURE OF AIR LEAVING OUTLETS AT TWO (2) TYPICAL AIR OUTLETS.
- C. QUANTITY OF AIR AT EACH AIR INLET AND OUTLET AFTER BALANCING. D. PROVIDE FOR ALL FANS, FAN MOTOR HP, AMPS, VOLTS, FAN RPM, CFM, INLET AND DISCHARGE STATIC PRESSURE, SHEAVE POSITION.
- E. PROVIDE FOR ALL AIR CONDITIONING UNITS, SUPPLY CFM, OUTSIDE AIR CFM, RETURN AIR CFM, MIXED AIR CFM. PROVIDE OUTSIDE AIR, MIXED AIR AND SUPPLY AIR TEMPERATURES (DRY BULB - COOLING AND HEATING, WET-BULB-COOLING.) INDICATE UNIT OPERATING MODE DURING TEST.
- F. CALIBRATE ALL NEW TERMINAL BOXES (VAV) AS REQUIRED TO MEET SPECIFIED MINIMUM/MAXIMUM CFM.
- G. LISTING OF DESIGN AND ACTUAL READINGS AS WELL AS ALL MANUFACTURER'S DATA FOR EQUIPMENT.
- 11. VIBRATION ANALYSIS
- A. PROVIDE VIBRATION ANALYSIS WITH A FULL REPORT OF THE FINDINGS SUBMITTED FOR APPROVAL FOR ALL EQUIPMENT.
- B. THE VIBRATION READINGS SHOULD BE TAKEN IN BOTH ACCELERATION AND VELOCITY IN THE VERTICAL, HORIZONTAL AND AXIAL DIRECTION ON EACH BEARING. C. PROVIDE CRITICAL FREQUENCY LOCKOUTS FOR VARIABLE FREQUENCY DRIVES SYSTEMS. CRITICAL FREQUENCIES ARE TO BE ANALYZED AND PROGRAMMED OUT OF THE DRIVE WITH A FINALIZED REPORT OF THE CRITICAL SPEED'S REMOVED.
- 1) THE TEST FOR EQUIPMENT CONNECTED AND DRIVEN BY A VARIABLE FREQUENCY DRIVE SHALL INCLUDE NATURAL CRITICAL SPEED TESTING. 2) MEASUREMENTS SHALL BE TAKEN THROUGHOUT THE OPERATING RANGE OF THE EQUIPMENT STARTING FROM A COMPLETE STOP, RAMPING SLOWLY UP TO MAXIMUM SPEED AND PAUSING BRIEFLY AT ELECTRICAL AND MECHANICAL NATURAL FREQUENCIES OF THE EQUIPMENT/VFD FROM 0 TO 60 HZ.
- 3) PROGRAM CRITICAL FREQUENCIES INTO THE VFD ONSITE AND PROVIDE A DETAILED REPORT OF THE CRITICAL SPEED DATA.

CEILINGS OR OPENING ACCESS PANELS.

FOIL-SKRIM-KRAFT FACING SIMILAR TO MANVILLE MICROLITE.

ALL

ALL

INSULATION SCHEDULE - DUCTWORK:

814 SPIN-GLAS AP.

INSULATION SCHEDULE - PIPING

12. INSULATION - GENERAL REQUIREMENTS

C. DEFINITIONS:

13. DUCTWORK INSULATION

SERVICE

RETURN

RETURN

EXHAUST

SUPPLY/ RETURN

OUTSIDE AIR INTAKE

C. MATERIAL:

D. INSTALLATION:

14. PIPING INSULATION

REFRIGERANT LIQUID

& SUCTION LINES

COLD WATER MAKEUP,

DRAINS BELOW 60 DEG F

COLD CONDENSATE, EQUIPMENT

SERVICE

SUPPLY/ RETURN

5) SUITABLE FOR OPERATION AT 20% EXCESS AND 20% LESS THAN NOTED CAPACITY FOR CONSTANT VOLUME SYSTEMS AND AT 20% EXCESS AND 60% LESS 6) MANUFACTURER RESPONSIBLE FOR EXAMINING APPLICATION OF EACH OUTLET AND GUARANTEE THAT EACH WILL PROVIDE REQUIRED NC LEVELS AND

7) ALL REGISTERS AND DIFFUSERS SHALL BE PROVIDED WITH OPPOSED BLADE VOLUME DAMPERS. DAMPER OPERATING LEVERS SHALL BE ACCESSIBLE AT THE 8) ONLY FOUR (4) WAY DIFFUSERS SHALL BE PROVIDED. PROVIDE SHEETMETAL BLANK OFF AS REQUIRED FOR 1 WAY, 2 WAY OR 3 WAY DIFFUSERS.

9) PROVIDE BLANKING FOR PROPER COVERAGE AND BLOW WITHOUT PRODUCING OBJECTIONABLE NOISE OR AIR MOTION AT OCCUPIED LEVEL. 10) MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

B. SQUARE DIFFUSERS: DIFFUSERS SHALL BE STEEL CONSTRUCTION PAINTED WHITE SUITABLE FOR THE TYPE OF CEILING.

2) SUPPLY REGISTERS: STEELCONSTRUCTION ADJUSTABLE DOUBLE DEFLECTION STEEL AIRFOIL LOUVERS, WITH VOLUME DAMPER. . PROVIDE AIR EQUALIZING

A. ALL AIR BALANCING SHALL BE BY AN INDEPENDENT CONTRACTOR NOT AFFILIATED WITH THE MECHANICAL CONTRACTOR AND IN ACCORDANCE WITH LOCAL STANDARDS. CONTRACTOR SHALL UTILIZE BASE BUILDING BALANCING CONTRACTOR OR APPROVED EQUAL, CONTACT BUILDING MANAGEMENT. B. CONTRACTOR TO BALANCE ENTIRE SYSTEM TO AIR QUANTITIES AS SHOWN ON ALL RELATED DRAWINGS FOR THIS JOB, AND AS DESCRIBED HEREIN. BALANCING

C. AIR BALANCING SHALL BE ACCOMPLISHED BY ADJUSTMENT OF FANS AND BRANCH DAMPERS FOR MAJOR ADJUSTMENTS. AIR SUPPLY OUTLETS TO BE BALANCED TO A UNIFORM SUPPLY ACROSS ENTIRE FACE. ADJUSTMENT OF TERMINAL DAMPERS AND DEVICES SHALL BE FOR TRIM OR MINOR ADJUSTMENT ONLY. THIS

D. UPON COMPLETION OF THE INSTALLATION, THE CONTRACTOR SHALL REBALANCE ANY EXISTING PORTIONS OF AIR DISTRIBUTION SYSTEM AND WATER

E. IF DISCREPANCIES EXIST IN THE REPORT THAT REQUIRE FIELD VERIFICATION, THE TESTING AND BALANCING COMPANY IN THE PRESENCE OF THE ENGINEER

F. THE CONTRACTOR SHALL PROVIDE ALL LABOR, PRESSURE GAUGES, FLOW METERS, SHEAVES, AND BELTS REQUIRED TO BALANCE SYSTEMS.

I. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY ONE OF THE FOLLOWING INDEPENDENT FIRMS SPECIALIZING IN TESTING AND BALANCING:

K. THE PERFORMANCE AND CAPACITY OF ALL SYSTEMS AND EQUIPMENT TO BE DEMONSTRATED BY THE CONTRACTOR.

1) PRE-CONSTRUCTION AIR TESTING: MEASURE PRESSURE, TEMPERATURE, AND VOLUME OF AIR FROM EXISTING BASE BUILDING SYSTEM BEFORE STARTING WORK. TRAVERSE MAIN SUPPLY AND RETURN DUCTS BEFORE WORK TO OBTAIN TOTAL FLOW. SUBMIT REPORT TO ENGINEER IMMEDIATELY AFTER

2) HVAC CONTRACTOR SHALL ENSURE THAT A FIRST SET OF AIR FILTERS ARE IN PLACE, WHENEVER FANS ARE RUNNING AND REPLACED WITH A NEW CLEAN

3) TEST, ADJUST, REPLACE SHEAVES, AND BALANCE ALL EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE AIR QUANTITIES INDICATED ON PLANS

A. FLOW, LEAKAGE CLASS, TEMPERATURE, STATIC PRESSURE OF AIR AT ALL TRUNK DUCTS SERVING AREAS OF WORK.

Q. BALANCE EACH AIR OUTLET WITHIN 10 PERCENT OF DESIGN AIR CFM. BALANCE EACH FAN WITHIN 10 PERCENT OF DESIGN AIR CFM.

- A. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY
- UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723 (ASTM E-84), (ASA A2.5-1963). FLAMESPREAD: MAXIMUM 25. FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION FROM MOISTURE OR HUMIDITY ARE NOT ACCEPTABLE
- B. PRODUCTS SHALL NOT CONTAIN ASBESTOS, LEAD, MERCURY, OR MERCURY COMPOUNDS.

1) EXPOSED: INDOOR DUCTS, PIPING OR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING

2) CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED. 3) OUTDOOR: DUCTS, PIPING OR EQUIPMENT WHICH IS EXPOSED TO THE WEATHER.

A. INSULATE ALL DUCTWORK IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.

LOCATION	THICKNESS	MATERIAL	FINISH
CONCEALED	2 INCH	D-1	VAPORSEAL
CONCEALED IN			
		5.4	
UN-CONDITIONED SPACE	2 INCH	D-1	VAPORSEAL
ALL	2 INCH	D-3	VAPORSEAL
EXPOSED	3 INCH	D-1	VAPORSEAL
EXPOSED IN UN-CONDITIONE	D SPACE 2 INCH	D-2	VAPORSEAL
MER EXPOSED	2 INCH	D-3	VAPORSEAL

1) TYPE D-1: MINIMUM 1-LB DENSITY FIBERGLASS BLANKET, MAXIMUM 0.28 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIED

2) TYPE D-2: 3 LB. FIBERGLASS BOARD. THE MAXIMUM K FACTOR SHALL BE 0.23 AT 75 DEG F MEAN TEMPERATURE WITH A MINIMUM DENSITY OF 3 LB. THE INSULATION SHALL BE PROVIDED WITH A FACTORY-APPLIED ALL PURPOSE OR ALL SERVICE FACING. THE INSULATION SHALL BE EQUAL TO MANVILLE TYPE

3) TYPE D-3: MINIMUM 6 LB FIBERGLASS BOARD. MAXIMUM 0.22 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY APPLIED ALL PURPOSE OR ALL SERVICE FACING. SIMILAR TO MANVILLE 817 SPIN-GLAS AP.

1) FIBERGLASS BLANKET: 2 INCH LAP STRIPS AT ALL SEAMS. SECURE BOTTOM OF ALL DUCTS OVER 24 INCH WIDE WITH MIN. 2 ROWS OF WELD PINS 12 INCH ON CENTER. SECURE ALL SEAMS WITH FOIL VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE. 2) FIBERGLASS BOARD: SEAL JOINTS AND BREAKS IN FACING WITH 3 INCH WIDE TAPE TO MATCH FACING AND ADHERE WITH VAPOR SEAL ADHESIVE. APPLY 5 INCH WIDE TAPE AT CORNERS, WELD PINS ON TOP, SIDES AND BOTTOM.

A. INSULATE ALL PIPING IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.

THICKNESS	MATERIAL
1 INCH	P-6
1 INCH	P-1

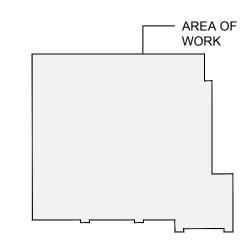
Montefiore

MONTEFIORE NYACK HOSPITAL **160 NORTH MIDLAND AVENUE** NYACK, NY 10960

OUTPATIENT DIAGNOSTIC & TREATMENT FACILITY **ALTERATIONS - LEVEL 3**

18 NORTH HIGHLAND AVENUE NYACK, NY 10960

KEY PLAN: NOT TO SCALE



ARCHITEC

narico Design Studio Architecture, PLLC Michael A. Pomarico, Architect 19 Front Street Newburgh, NY 12550 33 Irving Place, 3rd Floor New York, NY 10004

info@HealthCareDesign.com

New York License No.: 019680

Telephone: 845.561.0448

Facsimile: 845.561.0446

www.healthcaredesign.com



STRUCTURAL ENGINEER

ISSUED DOCUMENTS: No: Date: Description ISSUED FOR PERMIT 12.06.2024

SEAL

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING ARCHITECT SHALL AFFIX HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.



DRAWING TITLE:

SPECIFICATIONS SHEET No.

PROJECT NUMBER 14404	CON # CAD
^{DATE}	^{scale}
11/19/2024	N.T.S.

DRAWING NUMBER

- B. MATERIAL
- 1) TYPE P-1: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.23 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIED
- FIRE-RETARDANT FOIL-SKRIM-KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO OWENS-CORNING 650 ASJ. 2) TYPE P-6: MINIMUM 6 LB MOLDED FOAMED PLASTIC. MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE. MAXIMUM 0.17 PERMEANCE. SIMILAR TO ARMSTRONG ARMAFLEX II.

C. FINISH:

- 1) INTERIOR SPACE TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON. 2) EXTERIOR SPACE - TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 INCH WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.
- D. OUTDOOR PIPING:
- 1) FOR ALL PIPING, FITTINGS AND VALVES LOCATED OUTDOORS, INCREASE SCHEDULED INSULATION THICKNESS BY A MINIMUM OF 1 INCH AND PROVIDE F-4
- PROVIDE VAPORSEAL ON ALL OUTDOOR PIPES, VALVES AND FITTINGS SUBJECT TO CONDENSATION 2) COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL HEAT TRACING REQUIREMENTS AND PIPING LENGTH REQUIREMENTS. ELECTRICAL TO PROVIDE CABLING AND THERMOSTAT
- F. INSTALLATION:
- BEFORE APPLYING INSULATION ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED
- 2) ALL INSULATION SHALL BE BUTTED FIRMLY TOGETHER. PROVIDE 2 INCH LAMP STRIPS AT ALL SEAMS SECURED WITH ADHESIVE. USE VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE WHERE REQUIRED. STAPLES NOT PERMITTED. REFRIGERANT PIPING INSULATION SHALL HAVE MITERED FITTINGS.
- 3) ALL INSULATION AND VAPOR BARRIERS SHALL BE CONTINUOUS PASSING THROUGH SLEEVES, HANGERS, ETC., OR OTHER OPENINGS. PROVIDE SADDLES OR SHIELDS FOR PROTECTION
- 4) INSULATION FOR STRAINERS OR OTHER FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.
- 17. VIBRATION ISOLATION
- A. FURNISH AND INSTALL ALL NECESSARY VIBRATION ISOLATORS, VIBRATION HANGERS, MOUNTING PADS, RAILS, ETC., TO ISOLATE VIBRATION AND SOUND FROM BEING TRANSMITTED TO THE BUILDING STRUCTURE. ALL VIBRATION PRODUCTS SHALL BE SPECIFICALLY DESIGNED FOR THEIR INTENDED USE. PROVIDE ISOLATION FOR EQUIPMENT, PIPING AND DUCTWORK. ETC.
- B. MANUFACTURER OF THE VIBRATION ISOLATION EQUIPMENT SHALL HAVE THE FOLLOWING RESPONSIBILITIES
- 1) SUBMIT TYPE, SIZE, DEFLECTION, LOCATION AND DETAILS INCLUDING FREE HEIGHT FOR EACH ISOLATOR PROPOSED FOR ITEMS IN THE SPECIFICATION AND ON THE DRAWINGS. 2) SUBMIT DETAILS OF ALL STEEL FRAMES AND CONCRETE INERTIA BASES TO BE USED IN CONJUNCTION WITH THE ISOLATION IN THIS SPECIFICATION AND IN THE DRAWINGS
- 3) CLEARLY OUTLINE THE PROCEDURES FOR INSTALLING AND ADJUSTING THE ISOLATORS OR HANGERS.
- 4) GUARANTEE THE SPECIFIED ISOLATION SYSTEMS DEFLECTION AND THAT A MINIMUM OF 90% EFFICIENCY WILL BE OBTAINED.
- THE FOLLOWING ARE APPROVED MANUFACTURERS, PROVIDED THEIR SYSTEMS STRICTLY COMPLY WITH THE DESIGN INTENT FOR PERFORMANCE, DEFLECTION AND STRUCTURAL CAPACITY OF THIS SPECIFICATION.
- 1) MASON INDUSTRIES, INC., HAUPPAUGE, NY 2) VIBRATION MOUNTINGS & CONTROLS, INC., BLOOMINGDALE, NJ
- AMBER BOOTH, HOUSTON, TX
- KINETICS NOISE CONTROL, INC
- D. PROVIDE INSTALLATION INSTRUCTIONS, DRAWINGS AND FIELD SUPERVISION TO ASSURE PROPER INSTALLATION AND PERFORMANCE
- E. ISOLATION SYSTEMS SHALL BE MANUFACTURED BY MASON INDUSTRIES, VIBRATION ELIMINATOR COMPANY, AMBER BOOTH, VIBRATION MOUNTINGS AND CONTROLS
- F. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS INCLUDING THE LOAD AND SPRING STATIC DEFLECTION FOR EACH FLOOR OR CEILING HUNG ISOLATOR.
- G. PROVIDE LEVELING DEVICES AND APPROVED RESILIENT DEVICES AS REQUIRED TO LIMIT EQUIPMENT AND PIPING MOTION IN EXCESS OF 1/4 INCH ISOLATORS SHALL HAVE CAPABILITY OF SUPPORTING EQUIPMENT AND PIPING AT A FIXED ELEVATION DURING INSTALLATION AND AT A SPECIFIED HEIGHT AFTER ADJUSTMENT.
- H. ALL SPRINGS SHALL HAVE AT LEAST 50% ADDITIONAL LOAD CAPACITY ABOVE DESIGN LOAD. I. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE EQUIPMENT CANNOT SUPPORT POINT LOADS.
- J. PROVIDE CORROSION PROTECTION FOR EQUIPMENT MOUNTED OUTDOORS.
- K. SPRING CORROSION RESISTANCE SHALL BE POWDER COATING OF THE SPRING WITH THE STEEL HOUSING HOT DIPPED GALVANIZED. ALL HARDWARE TO BE
- CADMIUM PLATED L. FLOOR MOUNTING OF PACKAGED AIR CONDITIONING UNIT WITH INTERNAL ISOLATION FOR COMPRESSORS - NEOPRENE IN SHEAR - TYPE SUPER W- BRIDGE
- BFARING.
- M. 50 PSI MAXIMUM LOADING. PROVIDE STEEL BEARING PLATE TO DISTRIBUTE LOAD WHERE REQUIRED. N. MOUNTING OF BOILERS - TYPE SLR WITH VERTICAL LIMIT STOPS
- COORDINATE REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
- O. ROOFTOP AC UNITS DUNNAGE STEEL WITH TYPE SLR WITH VERTICAL LIMIT STOPS.
- P. SUPPORT OF PIPING IN EQUIPMENT ROOMS AND WHERE EXPOSED ON ROOF
- 1) ALL WATER PIPING OUTSIDE OF SHAFTS WITHIN 50 FEET OF CONNECTED ROTATING EQUIPMENT TO BE SUPPLIED WITH ISOLATORS
- 2) HANGER ROD ISOLATORS (TYPE 30N) MOUNTINGS.
- 3) INDOOR SUPPORTED PIPING ISOLATORS (TYPE SLR).
- 4) VERTICAL RISER PIPING ANCHOR AND GUIDES (TYPE ADA). Q. FLOOR AND ROOF MOUNTING OF FACTORY ASSEMBLED AIR HANDLING UNITS, AIR CONDITIONING UNITS, HEAT EXCHANGERS AND CONDENSING UNITS, - SPRING ISOLATORS (ROOF MOUNTED EQUIPMENT TYPE SLR), OR (INDOOR EQUIPMENT TYPE SLF).
- 18. PIPING GENERAL REQUIREMENTS
- A. COMPLETE WITH: PIPE, FITTINGS, VALVES, STRAINERS, MOTORIZED VALVE OPERATORS, STRAINERS, HANGERS, SUPPORTS, GUIDE, SLEEVES, AND ACCESSORIES. B. ALL ITEMS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS:
- 1) AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).
- 2) AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM). 3) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).
- MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY (MSS).
- GASKETS: ONE PIECE RING TYPE 1/16 INCH MINIMUM THICKNESS KLINGER C4400 ONLY (OR APPROVED EQUAL, SUBMIT FOR APPROVAL BEFORE USE).
- D. COOLING COIL CONDENSATE DRAIN PIPING SHALL BE COPPER. JOINTS SHALL BE 95-5 SOLDERED.
- E. COPPER TUBE BRAZING
- 1) ALL BRAZING SHALL BE DONE IN ACCORDANCE WITH ALL CODES APPLICABLE TO THE PARTICULAR SERVICE. BRAZING FILLER METALS: AWS A5.8,
- BCUP SERIES, COPPER-PHOSPHORUS ALLOYS FOR JOINING COPPER WITH COPPER; OR BAG-1, SILVER ALLOY FOR JOINING COPPER WITH BRONZE OR STEEL. 2) QUALIFY PROCESS AND OPERATORS IN ACCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE, SECTION IX, "WELDING AND BRAZING
- QUALIFICATIONS' 3) BRAZERS SHALL BE QUALIFIED FOR ALL REQUIRED TUBE SIZES, MATERIAL, WALL THICKNESS, AND POSITION IN ACCORDANCE WITH THE AMERICAN SOCIETY OF MECHANICAL ENGINEERING (ASME), SECTION IX, BOILER AND PRESSURE VESSEL CODE.
- B. COPIES OF THE CERTIFIED BRAZER QUALIFICATION REPORTS SHALL BE MAINTAINED BY THE RESPONSIBLE BRAZING AGENCY AND THE COMPANY
- PERFORMING THE BRAZING, AND SHALL BE SUBMITTED TO THE OWNER AND/OR ENGINEER UPON REQUEST. C. ALL DEFECTIVE BRAZEMENTS SHALL BE CHIPPED OUT AND REPAIRED AT NO COST TO THE OWNER, BASED ON PROCEDURE TO BE SPECIFIED AT THE
- F. GASKETS 1) PIPE-FLANGE GASKET MATERIALS: SUITABLE FOR CHEMICAL AND THERMAL CONDITIONS OF PIPING SYSTEM CONTENTS. ASME B16.21, NONMETALLIC, FLAT, ASBESTOS-FREE, 1/8-INCH MAXIMUM THICKNESS UNLESS THICKNESS OR SPECIFIC MATERIAL IS INDICATED.

ALL PRESSURIZED PIPING TO BE TESTED HYDROSTATICALLY TO 150 PSI OR 150% OF OPERATING PRESSURE, WHICHEVER IS GREATER, BUT NEVER EXCEED TEST PRESSURE ANSI B16.1 BASIS. TEST DURATION TO BE 2 HOURS WITH NO PRESSURE CHANGE CORRECTED FOR TEMPERATURE CHANGE. REPAIR OR REPLACE LEAKS OR DEFECTS WITHOUT ADDITIONAL COST.

- 1) REFRIGERANT PIPING
- A. TEST REFRIGERANT PIPING FOR TIGHTNESS AND LEAKS UNDER PRESSURE OR VACUUM. THE DURATION OF EACH TEST SHALL BE TWENTY-FOUR (24)
- B. TEST JOINTS IN ACCORDANCE WITH ASHRAE 15-LATEST EDITION. THERE SHALL BE NO OBSERVABLE LEAKS OR CHANGES IN PRESSURE. IF EITHER IS OBSERVED, SEAL LEAKS, AND REPEAT TEST PROCEDURES
- H. SYSTEM FILLING:

1) SYSTEMS OR PORTIONS OF SYSTEMS TO BE TESTED SHALL HAVE PROVISIONS FOR FILLING, VENTING (AIR REMOVAL), DRAINAGE AND TEST PRESSURE CONNECTION.

- 2) LIQUID USED FOR TESTING SHALL BE CLEAN CITY WATER MIXED WITH CHEMICALS SPECIFIED BY THE BASE BUILDING WATER TREATMENT CONTRACTOR. THE
- HVAC CONTRACTOR SHALL HIRE THE SERVICES OF THE BUILDING WATER TREATMENT CONTRACTOR AND PROVIDE ALL REQUIRED LABOR. PROVIDE TEMPORARY METERING AND MIXING DEVICES AS REQUIRED. THE HVAC CONTRACTOR SHALL OBTAIN ALL REQUIREMENTS FROM THE BUILDING MANAGEMENT. I. FLUSHING AND CLEANING AND TREATMENT:
- 1) AFTER COMPLETION OF HYDROSTATIC TESTS AND EMPTYING, PROVIDE LABOR FOR INITIAL FLUSHING, CLEANING, AND PASSIVATING IN ACCORDANCE WITH THE OWNER'S WATER TREATMENT SPECIFICATION. THE HVAC CONTRACTOR SHALL HIRE THE SERVICES OF THE BASE BUILDING WATER TREATMENT CONTRACTOR AND PROVIDE ALL LABOR. COORDINATE WITH THE OWNER'S WATER TREATMENT COMPANY AND PROVIDE ALL SPECIFICATION REQUIREMENTS AND REQUIRED LABOR. COORDINATE ALL REQUIREMENTS WITH BASE BUILDING MANAGEMENT FOR BASE BUILDING VENDOR.
- A. PROVIDE ONE YEAR'S SUPPLY OF NECESSARY WATER TREATMENT CHEMICALS FOR NEW SYSTEM TO THE OWNER OR TENANT INCLUDING THE FOLLOWING:
- B. CLOSED SYSTEM TREATMENT FOR HOT WATER: PROVIDE AGENTS TO REDUCE SCALE DEPOSITS, TO ADJUST PH AND TO INHIBIT CORROSION. TREATMENT SHALL NOT CONTAIN ANY CHROMATE'S OR OTHER TOXIC SUBSTANCES. USE PROPER CHEMISTRY TO PROVIDE BACTERIA COUNTS BELOW 10³ COLONIES PER MILLILITER (AEROBIC & NON AEROBIC). PH LEVELS TO BE BETWEEN 7.0 AND 9.0. CORROSION RATE TO BE LESS THAN 1/2 MILS/YEAR STEEL, 1/10 MILS/YEAR COPPER.
- J. PROVIDE DIELECTRIC FITTINGS WHERE DISSIMILAR METALS ARE TO BE JOINED.
- K. ALL INSTRUMENTATION (PRESSURE GAUGES AND THERMOMETERS) SHALL BE RATED FOR THE SAME PRESSURE AND TEMPERATURE AS PIPING SYSTEM AND RATED SPECIFICALLY FOR THE SAME SERVICE AS THE PIPING. PRESSURE GAUGES ARE TO BE LIQUID FILLED WITH 1% ACCURACY. SELECT GAUGES AND THERMOMETERS SO THAT THE MID-POINT IS AT THE WORKING PRESSURE AND TEMPERATURE. INSTRUMENTS TO BE MANUFACTURED BY WEISS INSTRUMENT, MILJOCO CORPORATION OR APPROVED EQUAL.

1) PROVIDE THERMOMETERS IN PIPING AS INDICATED ON THE DRAWINGS AND AT THE INLET AND OUTLET OF EACH HYDRONIC COIL, HEAT EXCHANGER AND PIECE OF EQUIPMENT THAT INVOLVES A DIFFERENTIAL TEMPERATURE. THERMOMETERS TO BE ORGANIC LIQUID FILLED. 2) PROVIDE PRESSURE GAUGES IN PIPING AS INDICATED ON THE DRAWINGS AND AT SUCTION AND DISCHARGE OF EACH PUMP AND AT INLETS AND OUTLETS OF EACH HYDRONIC COIL, HEAT EXCHANGER AND PIECE OF EQUIPMENT THAT INVOLVES A DIFFERENTIAL PRESSURE. L. PIPE SUPPORTS

1) PROVIDE ADEQUATE SUPPORT FOR PIPE AND CONTENTS TO PREVENT SAGGING, VIBRATION, OR SWAYING AND ALLOW FOR EXPANSION AND CONTRACTION. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE STRUCTURE CANNOT SUPPORT POINT LOADS. 2) HORIZONTAL PIPING TO BE SUPPORTED BY FORGED STEEL ADJUSTABLE CLEVIS TYPE HANGER. MAXIMUM SPACING AS FOLLOWS:

A. COPPER 1 INCH AND SMALLER: 5 FEET.

B. COPPER 1-1/2 IN TO 2-1/2 INCH: 8 FEET

C. COPPER 3 INCH: 10 FEET.

D. PROVIDE ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION, BRANCH PIPING AND RUNOUTS OVER 5 FEET AND CONCENTRATE LOADS DUE TO VALVES, STRAINERS AND OTHER SIMILAR ITEMS.

3) ROD SIZE

A. PIPE 4 TO 8 IN: 3/4 IN B. PIPE 10 IN TO 12 IN: 7/8 IN

20. REFRIGERANT SYSTEMS

A. PROVIDE ALL REFRIGERANT PIPING REQUIRED FOR A COMPLETE REFRIGERATION SYSTEM, WITH ALL VALVES, FITTINGS AND SPECIALTIES NECESSARY FOR SATISFACTORY OPERATION IN ACCORDANCE WITH ASHRAE STANDARD 15-LATEST EDITION AND ALL AUTHORITIES HAVING JURISDICTION. REFRIGERATION SYSTEM SHALL INCLUDE ALL REQUIRED ITEMS FOR CHARGING, DRAINING AND PURGING THE SYSTEM.

B. REFRIGERANT PIPING SHALL BE HARD COOPER, ACR, ASTM B88 OR ASTM B 280, BRAZED.

C. JOINTS IN REFRIGERATION PIPING SHALL BE BRAZED.

D. REFRIGERANT PIPING SHALL BE OF THE SIZE AND NUMBER OF PIPES RECOMMENDED BY THE MANUFACTURER AND AS APPROVED BY THE ENGINEER. HORIZONTAL PIPING OF THE COMPRESSOR SUCTION AND DISCHARGE LINES AND THE CONDENSER DISCHARGE LINES SHALL BE PITCHED A MINIMUM OF ½ INCH IN 10 FEET, IN THE DIRECTION OF REFRIGERANT FLOW. EACH SUCTION GAS VERTICAL RISER SHALL BE TRAPPED AT ITS EVAPORATOR WITH A TRAP AS

RECOMMENDED BY THE COMPRESSOR MANUFACTURER. F. INSTALL REFRIGERANT PIPING TO PREVENT EXCESSIVE OIL FROM BEING TRAPPED IN THE SYSTEM. ANY ADDITIONAL RISERS OR EQUALIZER LINES REQUIRED BY THE MANUFACTURER OF EQUIPMENT FOR THE PROPER SYSTEM OPERATION SHALL BE INSTALLED AS PART OF THIS CONTRACT. PROVIDE A FULLY PIPED OIL

SEPARATOR FOR EACH REFRIGERANT SYSTEM AS PER MANUFACTURER'S RECOMMENDATIONS. G. VALVES SHALL BE DESIGNED FOR REFRIGERANT SERVICE. SHUTOFF VALVES SHALL BE BRASS PACKLESS TYPE. UNIONS, FLANGED VALVES OR FITTINGS SHALL BE PROVIDED FOR DISCONNECTING EQUIPMENT, CONTROLS, ETC. FOR MAKING REPAIRS. PIPING SHALL BE RUN IN A SINGLE LAYER, WITH EACH LINE ISOLATED FROM ANOTHER TO PREVENT RUBBING. PROVISION SHALL BE MADE FOR EXPANSION AND CONTRACTION OF PIPING. ALL PIPING PASSING THROUGH WALLS, PARTITIONS, ETC., SHALL BE FURNISHED WITH SLEEVES AS REQUIRED.

H. REFRIGERANT PIPING PASSING THROUGH RATED FLOORS OR DEMISING WALLS SHALL BE ENCLOSED IN A RIGID AND GAS-TIGHT CONTINUOUS FIRE-RESISTING PIPE DUCT OR SHAFT VENTED TO THE OUTSIDE, IN ACCORDANCE WITH ASHRAE STANDARD 15-LATEST EDITION. PIPE CONDUIT SHALL BE COPPER TUBE TYPE L WITH SOLDERED FITTINGS

21. ELECTRICAL WORK A. GENERAL:

> 1) ELECTRICAL POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACT. CONTROL WIRING SHALL BE PROVIDED BY THE HVAC CONTRACT. CONTROL WIRING SHALL BE DEFINED AS ANY WIRING 120V AND BELOW INSTALLED FOR PURPOSES OTHER THAN PROVIDING PRIMARY ELECTRICAL POWER TO FOUIPMENT

2) MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES (VFD) SHALL BE FURNISHED BY THE HVAC CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. REFER TO EQUIPMENT SECTION FOR VARIABLE FREQUENCY DRIVE SPECIFICATIONS.

3) DUCT MOUNTED SMOKE DETECTORS, WHERE REQUIRED, SHALL BE PROVIDED BY AND WIRED BY THE ELECTRICAL CONTRACTOR, AND MOUNTED BY THE HVAC CONTRACTOR.

F. THIS CONTRACTOR SHALL INSTALL THE SMOKE DETECTOR SAMPLING TUBES IN THE DUCT AS COORDINATED IN THE FIELD.

G. THIS CONTRACTOR SHALL ASSIST THE ELECTRICAL CONTRACTOR IN TESTING THE DUCT-MOUNTED SMOKE DETECTION SYSTEM. 4) ALL ELECTRICAL CONTROL WIRING SHALL COMPLY WITH LOCAL ELECTRICAL CODE, ALL AUTHORITIES HAVING JURISDICTION AND THE PROJECT ELECTRICAL SPECIFICATIONS

5) MECHANICAL CONTRACTOR TO OBTAIN QUANTITY OF CONTROLLERS REQUIRED AND COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL OPERATING REQUIREMENTS, INTERLOCKS AND CONNECTIONS FOR STARTERS.

6) THE MECHANICAL CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL POINT TO POINT, COMPLETELY COORDINATED WIRING DIAGRAMS AND INDICATE ALL SOURCE POWER REQUIREMENTS AND ALL FIELD WIRING TO BE PERFORMED BY THE ELECTRICAL CONTRACTOR. 7) WHERE EXISTING STARTERS ARE TO BE REUSED, THIS CONTRACTOR SHALL MAINTAIN ALL EXISTING CONTROL CONNECTIONS. WHERE NEW STARTERS ARE TO BE PROVIDED TO REPLACE EXISTING, THIS CONTRACTOR SHALL SURVEY THE EXISTING CONTROL CONNECTIONS AND PREPARE AN EXISTING CONTROL WIRING DIAGRAM PRIOR TO DEMOLITION FOR SUBMITTAL TO THE ENGINEER. THE NEW STARTERS SHALL BE PROVIDED WITH THE NECESSARY CONTACTS AND RELAYS REQUIRED TO RECONNECT THE EXISTING CONTROLS. PROVIDE ALL REQUIRED CONTACTS FOR START/STOP AND FIRE ALARM.

A. MOTORS SHALL HAVE THE ELECTRICAL CHARACTERISTICS AS LISTED ON THE DRAWINGS. COORDINATE ALL REQUIREMENTS WITH ELECTRICAL CONTRACTOR. ALL MOTORS SHALL COMPLY WITH NEMA MG-1 STANDARD AND SHALL BE OF THE HIGH EFFICIENCY TYPE AND MEET THE 1992 EPA ENERGY EFFICIENCY ACT AND UTILITY COMPANY REBATE REQUIREMENTS.

B. MOTORS FOR VARIABLE FREQUENCY DRIVES (VFD) SHALL BE SUITABLE FOR USE WITH VARIABLE FREQUENCY DRIVES AND COMPLY WITH NEMA MG-1 PART 31.40.4.2. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS OF THE MOTOR AND VFD MANUFACTURER. C. IF CONTRACTOR ELECTS TO SUBSTITUTE OR INCREASE MOTOR HORSEPOWER OVER THAT SPECIFIED, THE COST OF MOTOR AND ELECTRICAL CHANGES SHALL BE BORNE BY THIS CONTRACTOR.

D. MOTORS (UNDER HVAC WORK): IN ACCORDANCE WITH NEMA, IEEE AND ANSI C50 STANDARDS:

1) STANDARD EFFICIENCY UNLESS OTHERWISE NOTED. 2) 1.15 SERVICE FACTOR INCLUDING MOTORS SERVED FROM A VFD

3) SQUIRREL CAGE INDUCTION, OPEN DRIPPROOF TYPE, 1750 RPM, NEMA TYPE B INSULATION CLASS, CONTINUOUS DUTY, EXCEPT AS NOTED.

23. MOTOR CONTROLLERS

22. MOTORS:

A. SUPPLIED BY HVAC CONTRACTOR AND INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.

B. ENCLOSURES:

1) PROVIDE ENCLOSURES FOR STARTERS AND VFD'S SUITABLE FOR OPERATING ENVIRONMENT. ENCLOSURE'S SHALL BE NEMA 1 VENTILATED SHEETMETAL FOR INDOOR APPLICATION, NEMA 3R WITH ADDITIONAL GASKETING WEATHER-PROOF RAINTIGHT ENCLOSURE FOR EXPOSED OUTDOOR SERVICE OR INDOOR SERVICE EXPOSED TO MOISTURE. PROVIDE DISCONNECT SWITCH ON ENCLOSURE AS REQUIRED FOR SERVICE

C. WITH SOLID-STATE (ELECTRONIC) OVERLOAD PROTECTION. COORDINATE ALL MOTOR CONTROLLER TYPES AND SIZES WITH MOTOR TYPES AND SIZES.

D. 1/3 HP AND SMALLER: PROVIDE MANUAL STARTER EXCEPT USE MAGNETIC TYPE WHERE AUTOMATICALLY CONTROLLED.

1) MANUAL TYPE: 2-POLE TOGGLE SWITCH WITH OVERLOAD PROTECTION AND PILOT LIGHT.

E. 1/2 HP AND LARGER: PROVIDE MAGNETIC STARTER:

1) COMBINATION UNFUSED DISCONNECT SWITCH AND MAGNETIC STARTER EXCEPT AS NOTED. 2) SOLID-STATE (ELECTRONIC) OVERLOAD PROTECTION IN EACH PHASE LEG WITH RESET IN ENCLOSURE.

3) HOA SELECTOR SWITCH FOR AUTOMATICALLY OPERATED MOTORS. SAFETY CONTROLS COMMON TO BOTH CONTROLS.

4) RED, GREEN AND AMBER PILOT LIGHTS.

SWITCHES: HORSE-POWER-RATED, EXTERNAL PADLOCKING TYPE.

HOLDING COILS: 10 WATT, 120 VOLT. 7) CONTACTS: MAIN LINE AND MINIMUM (2) - NORMALLY OPEN, (2) - NORMALLY CLOSED 10 AMP AUXILIARIES, IN ADDITION TO CONTACTS

 REQUIRED FOR CONTROLS SPECIFIED. 9) CONTROL TRANSFORMER: FOR MOTORS OVER 120 VOLTS, TO STEP DOWN CONTROL VOLTAGE TO 120 VOLTS; OF THE REQUIRED CAPACITY WITH FUSE AND GROUND CONNECTION ON VOLTAGE SIDE.

10) FUSES: SIMILAR TO BUSSMAN.

11) RELAYS: TO SUPPLEMENT AUXILIARY CONTACTS IN CONTROLLER. MINIMUM 10 WATT COIL AND TWO 10 AMP CONTACTS.

12) TERMINALS: SUITABLE FOR CONDUCTORS NOTED AND AS APPROVED.

F. STARTERS FOR MOTORS 75 HP AND ABOVE SHALL BE SOLID STATE ELECTRONIC SOFT START TYPE STARTERS.

G. DISCONNECT SWITCHES ARE PROVIDED BY THE ELECTRICAL CONTRACTOR IF NOT INTEGRAL WITH EQUIPMENT.

H. ACCEPTABLE MANUFACTURERS:

1) EATON/ CUTLER HAMMER.

2) SQUARE D 3) ALLEN BRADLEY

4) ABB

24. EQUIPMENT

A. PROVIDE ALL EQUIPMENT AND ACCESSORIES OF THE SIZES AND CAPACITIES AS SCHEDULED AND AS INDICATED ON THE DRAWINGS.

B. INSTALL EQUIPMENT IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, MANUFACTURERS INSTRUCTIONS AND ALL CODES AND REGULATIONS WHICH APPLY. C. PROVIDE EQUIPMENT SUPPORTS AND/OR MOUNTINGS AS INDICATED ON THE DRAWING, IN VIBRATION SPECIFICATION AND AS FOLLOWS: 1) FLOOR MOUNTED EQUIPMENT - PROVIDE DIMENSIONS FOR A 4 INCH CONCRETE HOUSEKEEPING PAD WITH ALL REQUIRED WATERPROOFING TO THE

CONSTRUCTION MANAGER. 2) EQUIPMENT ON FLOOR STANDS - PROVIDE FLOOR STAND OF STRUCTURAL STEEL OR STEEL PIPES AND FITTINGS ATTACHED TO FLOOR.

3) ROOF MOUNTED EQUIPMENT - PROVIDE PREFABRICATED ISOLATED ROOF CURB WITH INTEGRAL VIBRATION ISOLATORS. 4) CEILING MOUNTED EQUIPMENT - PROVIDE SUPPORTS WITH APPROVED SUITABLE ANCHORS SUSPENDED DIRECTLY FROM BUILDING STEEL STRUCTURE. 5) PROVIDE SUPPLEMENTAL STEEL AS REQUIRED TO ADEQUATELY SUPPORT THE EQUIPMENT LOAD.

6) EQUIPMENT SHALL BE INSTALLED WITH VIBRATION ISOLATION, REFER TO VIBRATION ISOLATION SECTION

D. UP FRONT PURCHASE OF EQUIPMENT: 1) THE CONTRACTOR SHALL SUBMIT A LIST OF LONG LEAD TIME ITEMS THAT WILL AFFECT THE SCHEDULE OF THE PROJECT IF NOT PURCHASED IMMEDIATELY UF FRONT AT THE START OF THE PROJECT. THE MECHANICAL CONTRACTOR SHALL SUBMIT PROPOSED MANUFACTURER AND LEAD TIMES FOR ALL PROJECT EQUIPMENT AT TIME OF PROJECT AWARD.

E. RIGGING

- THF WORK
- IS THE RESPONSIBILITY OF THIS CONTRACTOR. EQUIPMENT.
- F. VARIABLE AIR VOLUME (VAV) TERMINAL UNITS:
- TRANSFORMERS, DAMPERS AND ACTUATORS AS REQUIRED. 2) SUBMIT DISCHARGE AND RADIATED SOUND POWER LEVELS. LEVELS NOT TO EXCEED SPECIFIED SPACE NC LEVELS.
- MINIMUM/MAXIMUM SETTING SHALL BE USER ADJUSTABLE

G. FANS:

- GENERAL (APPLIES TO ALL FAN TYPES EXCEPT AS NOTED);
- 1.4 TIMES RATED MOTOR HP. PULLEYS SHALL BE CAST IRON. REPLACEMENT FIXED PITCHED SHEAVES WHERE NEEDED TO BALANCE SYSTEM.
- C. PROVIDE REMOVABLE FLANGED SCREENS AT INLETS OR OUTLETS WHERE NO CONNECTING DUCTWORK IS INDICATED.
- RATING.

25. AUTOMATIC CONTROLS - GENERAL REQUIREMENTS

- A. WORK INCLUDED
 - MECHANICAL CONTRACTOR:
- 4) COORDINATE INSTALLATION SCHEDULE WITH THE MECHANICAL CONTRACTOR AND GENERAL CONTRACTOR

VOLTAGE, UNLESS OTHERWISE STATED.

B. SUBMITTALS

- COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.
- B. WIRING DIAGRAMS: POWER, SIGNAL, AND CONTROL WIRING.

C. DETAILS OF CONTROL PANEL FACES, INCLUDING CONTROLS, INSTRUMENTS, AND LABELING. C. QUALITY ASSURANCE

1) INSTALLER QUALIFICATIONS: A QUALIFIED INSTALLER WHO IS AN AUTHORIZED REPRESENTATIVE OF THE AUTOMATIC CONTROL SYSTEM MANUFACTURER FOR BOTH INSTALLATION AND MAINTENANCE OF UNITS REQUIRED FOR THIS PROJECT.

- REQUIREMENTS.

26. SYSTEM CONTROLLER (ALTERNATE PRICE).

1.0 BUILDING AUTOMATION SYSTEM

A. PROVIDE A NEW BUILDING AUTOMATION SYSTEM (BAS) TO INTEGRATE AND CONTROL ALL MECHANICAL EQUIPMENT ASSOCIATED WITH THIS PROJECT. THE BUILDING AUTOMATION SYSTEM SHALL BE AS INDICATED ON THE DRAWINGS AND DESCRIBED IN THESE SPECIFICATIONS. SYSTEM MUST BE FULLY INTEGRATED AND 1. COORDINATED WITH MECHANICAL EQUIPMENT DDC CONTROLLERS FURNISHED AND INSTALLED IN THE EQUIPMENT MANUFACTURER'S FACTORY AS SPECIFIED IN THOSE SECTIONS. THE INTENT OF THE BAS IS TO INTEGRATE ALL MECHANICAL EQUIPMENT INTO ONE SYSTEM FOR GLOBAL MONITORING. CONTROL. AND ALARMING ASSOCIATED WITH THE BUILDING IT IS THE BAS MANUFACTURER'S RESPONSIBILITY TO PROVIDE ALL THE DESIGN, ENGINEERING, AND FIELD COORDINATION REQUIRED TO ENSURE ALL EQUIPMENT SEQUENCE OF OPERATIONS ARE MET AS SPECIFIED AND THE DESIGNATED BAS OPERATORS HAVE THE CAPABILITY OF MANAGING THE BUILDING MECHANICAL SYSTEM TO ENSURE OCCUPANT

COMFORT WHILE MAINTAINING ENERGY EFFICIENCY. THE BAS SHALL MEET OPEN STANDARD PROTOCOL COMMUNICATION STANDARDS (AS DEFINED IN SYSTEM COMMUNICATIONS SECTION) TO ENSURE THE SYSTEM MAINTAINS "INTEROPERABILITY" TO AVOID PROPRIETARY ARRANGEMENTS THAT WILL MAKE IT DIFFICULT FOR THE OWNER TO CONSIDER OTHER BAS MANUFACTURERS IN FUTURE PROJECTS. DIRECT DIGITAL CONTROL (DDC) TECHNOLOGY SHALL BE USED TO PROVIDE THE FUNCTIONS NECESSARY FOR CONTROL OF MECHANICAL SYSTEMS AND TERMINAL DEVICES ON THIS

- PROJECT
- 4. THAT A SERVICE PROVIDER HAS ESTABLISHED AND IMPLEMENTED EFFECTIVE CONTROLS TO SECURE THEIR CLIENTS' DATA IN ACCORDANCE WITH THE TRUST SERVICES CRITERIA
 - (TSC)
 - IS COMMITTED TO PROTECTING THEIR DATA.
- CONTROLS, POLICIES, AND PROCEDURES.
- SYSTEM AND HAVE ACCESS TO ALL APPROPRIATE DATA.

A. APPROVED BAS MANUFACTURERS:

1.1 APPROVED CONTROL SYSTEM MANUFACTURERS

A. SYSTEM COMMUNICATIONS

ANSI®/ASHRAE® STANDARD 135-2012.

BACNET OVER IPV6, BACNET SC, BACNET OVER MS/TP).

B. FIELD BUS COMMUNICATIONS

CONTROLLERS WITHIN THE SYSTEM.

SCHNEIDER ELECTRIC

1.2 SYSTEM COMMUNICATION

1.

2.

1.

BACNET™

d. BACNET MS/TP

ALC

1) THIS CONTRACTOR SHALL PROVIDE ALL REQUIRED RIGGING, HOISTING AND BRACING TO INSTALL THE EQUIPMENT AS INDICATED ON THE PLANS. THIS WORK SHALL BE PERFORMED BY AN INSURED CERTIFIED LICENSED RIGGING COMPANY THAT IS EXPERIENCED IN RIGGING EQUIPMENT OF THE TYPE INDICATED FOR THE AREAS SHOWN ON THE CONSTRUCTION DOCUMENTS. THIS CONTRACTOR SHALL SUBMIT RIGGING PLANS FOR APPROVAL PRIOR TO PROCEEDING WITH

2) ALL PERMITS REQUIRED FROM THE AUTHORITIES AND AGENCIES INVOLVED TO PERFORM THE RIGGING ARE THE RESPONSIBILITIES OF THIS CONTRACTOR. ALL STRUCTURAL SUPPORTS, MODIFICATIONS OR ADDITIONS ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO PROCEEDING WITH THE WORK. ALL SUPPLEMENTAL STRUCTURAL SUPPORTS, ELEVATOR CHARGES /MODIFICATIONS, BRACING AND PROTECTION REQUIRED FOR THE RIG

4) THE RIGGING CONTRACTOR SHALL HIRE AND PAY FOR ALL CHARGES AND SERVICES OF THE BUILDING ELEVATOR CONTRACTOR FOR THE RIGGING OF THE

1) VAV BOXES SHALL BE SINGLE DUCT, PRESSURE INDEPENDENT, ELECTRONIC DDC BOXES, BOXES SHALL BE PROVIDED WITH ALL SENSORS, CONTROLS,

3) UNITS ARE TO HAVE NORMALLY OPEN DAMPERS (ON A NO-FLOW CONDITION) WITH A MINIMUM AIR QUANTITY SETTING OF 20% OF THE DESIGN AIR QUANTITY.

4) CONTROLLER, ACTUATOR SHALL BE SHIPPED TO TERMINAL UNIT MANUFACTURER FOR MOUNTING. ALL CONTROLS SHALL BE MOUNTED IN A SINGLE ENCLOSURE. DDC CONTROLS SHALL BE FIELD CALIBRATED BY ATC CONTRACTOR. SIMILAR TO ANEMOSTAT MODEL EZTS.

A. PROVIDE CENTRIFUGAL TYPE, NON-OVERLOADING DESIGN EXCEPT AS NOTED WITH MINIMUM CAPACITIES AS NOTED AND WITH CERTIFIED RATINGS B' AMCA. WHEEL SHALL BE FACTORY BALANCED STATICALLY AND DYNAMICALLY. BRAKE HORSEPOWER RATINGS SHALL NOT BE MORE THAN 5 PERCENT ABOVE WHAT IS NOTED ON DRAWINGS. DRIVES SHALL BE MATCHED, MULTIPLE V-BELT DRIVE UNLESS OTHERWISE NOTED WITH MINIMUM CAPACITY OF

B. MOTOR PULLEY SHALL BE VARIABLE PITCH DIAMETER EXCEPT FANS WITH VARIABLE FREQUENCY DRIVES SUPPLY AND INSTALL ONE FIXED PITCH PULLEY CHARGE AS REQUIRED PER FAN TO BALANCE SYSTEMS. COMPANION SHEAVES SHALL MAINTAIN BELTS PARALLEL. BELT GUARDS SHALL BE IN COMPLIANCE WITH OSHA REGULATIONS AND WITH TACHOMETER OPENING FOR FAN SPEED MEASUREMENTS. MANUFACTURER SHALL PROVIDE

D. BEARINGS BALL ROLLER OR TAPER. PROVIDE PRESSURE TYPE LUBRICATING FITTINGS WITH PRESSURE RELIEF FITTINGS EXTENDED TO ACCESSIBLE LOCATIONS. MINIMUM L-10 LIFE RATING; 50,000 HOURS PER AFBMA STANDARD B-10 OR 250,000 HOURS AVERAGE (B-50) LIFE AT MAXIMUM CATALOG

1) FURNISH AND INSTALL AS HEREIN SPECIFIED, A COMPLETE AUTOMATIC TEMPERATURE CONTROL SYSTEM. MANUFACTURER SHALL BE SUBMITTED WITH BID AND APPROVED BY ENGINEER BEFORE BID AWARD. THE ATC CONTRACTOR SHALL BE AN INDEPENDENT CONTRACTOR NOT AFFILIATED WITH THE

2) PROVIDE A SUBMITTAL THAT MEETS THE REQUIREMENTS BELOW FOR APPROVAL.

3) PROVIDE POWER FOR PANELS AND CONTROL DEVICES FROM A SOURCE DESIGNATED BY THE ELECTRICAL CONTRACTOR.

5) FURNISH, MOUNT, AND WIRE ALL ASSOCIATED PANELS AND DEVICES FOR THE SYSTEM TO BE COMPLETELY OPERATIONAL REGARDLESS OF FUNCTION OR

PRODUCT DATA: INCLUDE MANUFACTURER'S TECHNICAL LITERATURE FOR EACH CONTROL DEVICE INDICATED, LABELED WITH SETTING OR ADJUSTABLE RANGE OF CONTROL. INDICATE DIMENSIONS, CAPACITIES, PERFORMANCE CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, FINISHES FOR MATERIALS AND INSTALLATION AND STARTUP INSTRUCTIONS FOR EACH TYPE OF PRODUCT INDICATED.

2) SHOP DRAWINGS: DETAIL EQUIPMENT ASSEMBLIES AND INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, A. SCHEMATIC FLOW DIAGRAMS SHOWING FANS, COILS, DAMPERS, VALVES, AND CONTROL DEVICES.

2) COMPLY WITH ALL CURRENT GOVERNING CODES, ORDINANCES, AND REGULATIONS INCLUDING UL, NFPA, THE LOCAL BUILDING CODE, NEC, ETC. 3) MATERIALS AND EQUIPMENT SHALL BE THE CATALOGUED PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN PRODUCTION AND INSTALLATION OF AUTOMATIC TEMPERATURE CONTROL SYSTEMS AND SHALL BE MANUFACTURER'S LATEST STANDARD DESIGN THAT COMPLIES WITH THE SPECIFICATION

APPROVED VENDORS, PRODUCTS AND WEB SERVICES SHALL COMPLY WITH SOC2 TYPE I AS DEFINED BY THE AICPA. SOC2 TYPE 1 COMPLIANCE IS A CERTIFICATION THAT CONFIRMS

a. SOC2 TYPE 1 COMPLIANCE PROVIDES ASSURANCE TO CUSTOMERS THAT THE SERVICE PROVIDER HAS ESTABLISHED AND IMPLEMENTED EFFECTIVE SECURITY CONTROLS AND

b. TO ACHIEVE SOC2 TYPE 1 COMPLIANCE, THE MANUFACTURER SHALL HAVE COMPLETED AN INDEPENDENT AUDIT TO ASSESS DESIGN AND IMPLEMENTATION OF THEIR

THE BAS SHALL ACCOMMODATE SIMULTANEOUS MULTIPLE USER OPERATION. ACCESS TO THE CONTROL SYSTEM DATA SHOULD BE LIMITED ONLY BY THE SECURITY PERMISSIONS OF THE OPERATOR ROLE. MULTIPLE USERS SHALL HAVE ACCESS TO ALL VALID SYSTEM DATA. AN OPERATOR SHALL BE ABLE TO LOG ONTO ANY WORKSTATION ON THE CONTROL

EACH WORKSTATION, BUILDING CONTROLLER, AND EQUIPMENT/PLANT CONTROLLER COMMUNICATION INTERFACE SHALL UTILIZE THE BACNET™ PROTOCOL WITH AN ETHERNET (IEEE 802.3) OR RS485 (EIA-485) PHYSICAL INTERFACE AND AN APPROPRIATE DATA LINK TECHNOLOGY AS DEFINED IN ANSI®/ASHRAE® STANDARD 135-2012. (E.G. BACNET OVER IP,

ALL SYSTEM CONTROLLERS SHALL BE BTL LISTED AS A BACNET BUILDING CONTROLLER (B-BC) AS DEFINED IN ANSI®/ASHRAE® STANDARD 135-2012. ALL DOCUMENTED STATUS AND CONTROL POINTS, SCHEDULE, ALARM, AND DATA-LOG SERVICES OR OBJECTS SHALL BE AVAILABLE AS STANDARD OBJECT TYPES AS DEFINED IN

EACH SYSTEM CONTROLLER SHALL COMMUNICATE WITH A NETWORK OF CUSTOM APPLICATION AND APPLICATION SPECIFIC CONTROLLERS UTILIZING ONE OR MORE OF THE INTERFACES DOCUMENTED WITHIN FIELD BUS COMMUNICATIONS BELOW

ALL OPERATOR WORKSTATIONS (B-OWS, B-AWS) AND BUILDING CONTROLLERS (B-BC) SHALL SUPPORT BACNET SECURE CONNECT (BACNET SC), A SECURE AND ENCRYPTED DATALINK LAYER SPECIFICALLY DESIGNED FOR THOSE NETWORKS.

a. ALL EQUIPMENT AND PLANT CONTROLLERS SHALL BE BTL LISTED AS A BACNET APPLICATION SPECIFIC CONTROLLER (B-ASC) OR A BACNET ADVANCED APPLICATION CONTROLLER (B-AAC) AS DEFINED IN ANSI®/ASHRAE® STANDARD 135-2012. b. ALL COMMUNICATION SHALL CONFORM TO ANSI®/ASHRAE® STANDARD 135-2012.

c. SYSTEM CONTROLLER SHALL FUNCTION AS A BACNET ROUTER TO EACH UNIT CONTROLLER PROVIDING A GLOBALLY UNIQUE BACNET DEVICE ID FOR ALL BACNET

1) COMMUNICATION BETWEEN SYSTEM CONTROLLER AND EQUIPMENT/PLANT CONTROLLERS SHALL UTILIZE BACNET MS/TP AS DEFINED IN ANSI®/ASHRAE® STANDARD 135-2012.

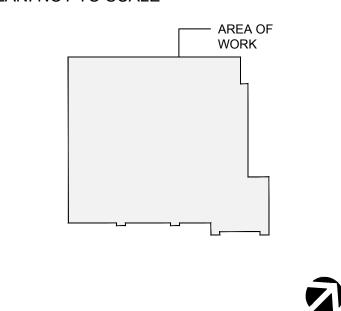
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OUTPATIENT DIAGNOSTIC & TREATMENT FACILITY **ALTERATIONS - LEVEL 3**

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KEY PLAN: NOT TO SCALE



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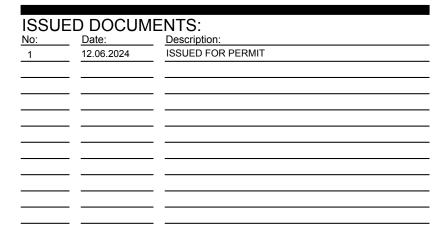
narico Design Studio Architecture, PLLC Michael A. Pomarico, Architect 19 Front Street Newburgh, NY 12550 33 Irving Place, 3rd Floor New York, NY 10004

New York License No.: 019680 Telephone: 845.561.0448 Facsimile: 845.561.0446 info@HealthCareDesign.com www.healthcaredesign.com



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DRAWING TITLE:

SPECIFICATIONS SHEET No.2

PROJECT NUMBER	CON # CAD
DATE 11/19/2024	scale N.T.S.
	11.1.0.

1.3 OPERATOR INTERFACE

- A. PROVIDE BUILDING OPERATOR WEB INTERFACE
- MANUFACTURER SHALL PROVIDE A USER INTERFACE WITH TIME-OF-DAY SCHEDULES, DATA COLLECTION, DASHBOARDS, REPORTS AND BUILDING SUMMARY, SYSTEM APPLICATIONS, AND SELF-EXPIRING TIMED OVERRIDES. MANUFACTURER SHALL PROVIDE A PUBLISHED USER AND APPLICATIONS GUIDE(S) THAT DETAIL THE SYSTEM APPLICATION OPERATION, CONFIGURATION, SETUP AND TROUBLESHOOTING.
- THE BUILDING OPERATOR WEB INTERFACE SHALL BE ACCESSIBLE VIA A WEB BROWSER WITHOUT REQUIRING ANY "PLUG-INS" (I.E. JAVA RUNTIME ENVIRONMENT (JRE), ADOBE FLASH).
- 3. USER ROLES
 - a. THE SYSTEM SHALL INCLUDE PRE-DEFINED "ROLES" THAT ALLOW A SYSTEM ADMINISTRATOR TO QUICKLY ASSIGN PERMISSIONS TO A USER.
 - b. USER LOGON/LOGOFF ATTEMPTS SHALL BE RECORDED.
 - c. THE SYSTEM SHALL PROTECT ITSELF FROM UNAUTHORIZED USE BY AUTOMATICALLY LOGGING OFF FOLLOWING THE LAST KEYSTROKE. THE DELAY TIME SHALL BE USER DEFINABLE.
- 4. ON-LINE HELP AND TRAINING
- a. PROVIDE A CONTEXT SENSITIVE, ON LINE HELP SYSTEM TO ASSIST THE OPERATOR IN OPERATION AND CONFIGURATION OF THE SYSTEM.
- b. ON-LINE HELP SHALL BE AVAILABLE FOR ALL SYSTEM FUNCTIONS AND SHALL PROVIDE THE RELEVANT DATA FOR EACH PARTICULAR SCREEN.
- EQUIPMENT AND APPLICATION PAGES
- a. THE BUILDING OPERATOR WEB INTERFACE SHALL INCLUDE STANDARD PAGES FOR ALL EQUIPMENT AND APPLICATIONS. THESE PAGES SHALL ALLOW AN OPERATOR TO OBTAIN INFORMATION RELEVANT TO THE OPERATION OF THE EQUIPMENT AND/OR APPLICATION, INCLUDING:
- 1) ANIMATED EQUIPMENT GRAPHICS FOR EACH MAJOR PIECE OF EQUIPMENT AND FLOOR PLAN IN THE SYSTEM. THIS INCLUDES:
- a) VAV TERMINAL, FAN COIL, PUMPS. THESE GRAPHICS SHALL SHOW ALL POINTS DYNAMICALLY AS SPECIFIED IN THE POINTS LIST.
- ANIMATION CAPABILITIES SHALL INCLUDE THE ABILITY TO SHOW A SEQUENCE OF IMAGES REFLECTING THE POSITION OF ANALOG OUTPUTS, SUCH AS VALVE OR DAMPER POSITIONS. GRAPHICS SHALL BE CAPABLE OF LAUNCHING OTHER WEB PAGES.
- 2) ALARMS RELEVANT TO THE EQUIPMENT OR APPLICATION WITHOUT REQUIRING A USER TO NAVIGATE TO AN ALARM PAGE AND PERFORM A FILTER.
- 3) HISTORICAL DATA (AS DEFINED IN TREND LOGS SECTION OF CONTROLLER SOFTWARE) FOR THE EQUIPMENT OR APPLICATION WITHOUT REQUIRING A USER TO NAVIGATE TO A DATA LOG PAGE AND PERFORM A FILTER.

SYSTEM GRAPHICS. BUILDING OPERATOR WEB INTERFACE SHALL BE GRAPHICALLY BASED AND SHALL INCLUDE AT LEAST ONE GRAPHIC PER PIECE OF EQUIPMENT OR OCCUPIED ZONE, GRAPHICS FOR EACH CHILLED WATER AND HOT WATER SYSTEM, AND GRAPHICS THAT SUMMARIZE CONDITIONS ON EACH FLOOR OF EACH BUILDING AREA INCLUDED IN THIS

- CONTRACT. INDICATE THERMAL COMFORT ON FLOOR PLAN SUMMARY GRAPHICS USING COLORS TO REPRESENT ZONE TEMPERATURE RELATIVE TO ZONE SET POINT. a. GRAPHIC IMAGERY - GRAPHICS SHALL USE 3D IMAGES FOR ALL STANDARD AND CUSTOM GRAPHICS. THE ONLY ALLOWABLE EXCEPTIONS WILL BE PHOTO IMAGES, MAPS,
- SCHEMATIC DRAWINGS, AND SELECTED FLOOR PLANS.
- b. ANIMATION. GRAPHICS SHALL BE ABLE TO ANIMATE BY DISPLAYING DIFFERENT IMAGE LIES FOR CHANGED OBJECT STATUS.
- c. ALARM INDICATION. INDICATE AREAS OR EQUIPMENT IN AN ALARM CONDITION USING COLOR OR OTHER VISUAL INDICATOR.
- GRAPHICS LIBRARY. FURNISH A LIBRARY OF STANDARD HVAC EQUIPMENT SUCH AS CHILLERS, AIR HANDLERS, TERMINALS, FAN COILS, UNIT VENTILATORS, ROOFTOP UNITS, AND VAV BOXES, IN 3-DIMENSIONAL GRAPHIC DEPICTIONS. THE LIBRARY SHALL BE FURNISHED IN A FILE FORMAT COMPATIBLE WITH THE GRAPHICS GENERATION PACKAGE PROGRAM.
- MANUAL CONTROL AND OVERRIDE
- a. POINT CONTROL. PROVIDE A METHOD FOR A USER TO VIEW, OVERRIDE, AND EDIT IF APPLICABLE, THE STATUS OF ANY OBJECT AND PROPERTY IN THE SYSTEM. THE POINT STATUS SHALL BE AVAILABLE BY MENU, ON GRAPHICS OR THROUGH CUSTOM PROGRAMS.
- b. TEMPORARY OVERRIDES. THE USER SHALL BE ABLE TO PERFORM A TEMPORARY OVERRIDE WHEREVER AN OVERRIDE IS ALLOWED, AUTOMATICALLY REMOVING THE OVERRIDE AFTER A SPECIFIED PERIOD OF TIME.
- c. OVERRIDE OWNERS. THE SYSTEM SHALL CONVEY TO THE USER THE OWNER OF EACH OVERRIDE FOR ALL PRIORITIES THAT AN OVERRIDE EXISTS.
- d. PROVIDE A SPECIFIC ICON TO SHOW TIMED OVERRIDE OR OPERATOR OVERRIDE, WHEN A POINT, UNIT CONTROLLER OR APPLICATION HAS BEEN OVERRIDDEN MANUALLY.
- SCHEDULING. THE SCHEDULING APPLICATION SHALL PROVIDE GRAPHICAL REPRESENTATION OF THE DAY, WEEK, MONTH AND EXCEPTION EVENTS.
- 10. ALARM/EVENT NOTIFICATION
 - a. ALARM/EVENT LOG. THE OPERATOR SHALL BE ABLE TO VIEW ALL LOGGED SYSTEM ALARMS/EVENTS FROM ANY BUILDING OPERATOR WEB INTERFACE.
 - 1) THE OPERATOR SHALL BE ABLE TO SORT AND FILTER ALARMS FROM EVENTS. ALARMS SHALL BE SORTED IN A MINIMUM OF 4 CATEGORIES BASED ON SEVERITY.
 - 2) THE OPERATOR SHALL BE ABLE TO ACKNOWLEDGE AND ADD COMMENTS TO ALARMS
 - 3) ALARM/EVENT MESSAGES SHALL USE FULL LANGUAGE, EASILY RECOGNIZED DESCRIPTORS.
 - b. ALARM SUPPRESSION. ALARMS SHALL BE ABLE TO BE SUPPRESSED BASED ON LOAD/SOURCE RELATIONSHIPS TO PRESENT THE LIKELY ROOT CAUSE TO THE BUILDING OPERATOR AS DESCRIBED IN ASHRAE GUIDELINE 36. LOAD/SOURCE RELATIONSHIPS SHALL BE CONFIGURABLE BY THE USER THROUGH A WEB INTERFACE.
- 11. REPORTS AND LOGS.
 - a. THE BUILDING OPERATOR WEB INTERFACE SHALL PROVIDE A REPORTING PACKAGE THAT ALLOWS THE OPERATOR TO SELECT REPORTS.
 - b. THE BUILDING OPERATOR WEB INTERFACE SHALL PROVIDE THE ABILITY TO SCHEDULE REPORTS TO RUN AT SPECIFIED INTERVALS OF TIME.
 - c. THE FOLLOWING STANDARD REPORTS SHALL BE AVAILABLE WITHOUT REQUIRING A USER TO MANUALLY CONFIGURE THE REPORT:
 - ALL POINTS IN ALARM REPORT: PROVIDE AN ON DEMAND REPORT SHOWING ALL CURRENT ALARMS.
 - 2) ALL POINTS IN OVERRIDE REPORT: PROVIDE AN ON DEMAND REPORT SHOWING ALL OVERRIDES IN EFFECT.
 - 3) COMMISSIONING REPORT: PROVIDE A ONE-TIME REPORT THAT LISTS ALL EQUIPMENT WITH THE UNIT CONFIGURATION AND PRESENT OPERATION.
 - 4) POINTS REPORT: PROVIDE A REPORT THAT LISTS THE CURRENT VALUE OF ALL POINTS
 - d. THE CONTROLS VENDOR SHALL PROVIDE A HARDENING REPORT THAT SUMMARIZES THE PORT CONFIGURATION DETAILS TO ENSURE SITES HAVE NOT BEEN EXPOSED TO THE INTERNET IN ALIGNMENT WITH CYBER SECURITY BEST PRACTICES.
 - B. PROVIDE MOBILE APP INTERFACE
- PROVIDE MOBILE (SMART PHONE OR TABLET) INTERFACES TO THE BUILDING AUTOMATION SYSTEM, COMPATIBLE WITH IOS AND ANDROID™ OPERATING SYSTEMS.
- CONTROLS MANUFACTURER SHALL PROVIDE A PHONE/TABLET INTERFACE WITH THE ABILITY TO VIEW/OVERRIDE STATUS AND SETPOINTS, VIEW/CHANGE SCHEDULES, VIEW/ACKNOWLEDGE/COMMENT ON ALARMS, AND VIEW GRAPHICS FOR ALL SPACES AND EQUIPMENT.
- THIS PHONE/TABLET INTERFACE SHALL RESIZE ITSELF APPROPRIATELY FOR THE SIZE OF THE INTERFACE (I.E. NO "PINCHING AND ZOOMING" REQUIRED).
- THIS PHONE/TABLET INTERFACE SHALL FUNCTION REMOTELY FROM THE FACILITY WHILE FOLLOWING IT SECURITY BEST PRACTICES (E.G. NO PORTS EXPOSED TO THE INTERNET). 5. THE OPERATOR INTERFACE SHALL SUPPORT SYSTEM ACCESS ON A MOBILE DEVICE VIA A MOBILE APP TO:
 - a. ALARM LOG
 - b. SYSTEM STATUS
 - c. EQUIPMENT STATUS
 - d. SPACE STATUS
 - e. STANDARD EQUIPMENT GRAPHICS
 - f. OVERRIDE SET POINTS
 - g. OVERRIDE OCCUPANCY
 - h. ACKNOWLEDGE ALARMS
 - i. ADD COMMENT(S) TO ALARMS
- 1.4 BUILDING / SYSTEM CONTROLLERS
 - A. THERE SHALL BE ONE OR MORE INDEPENDENT, STANDALONE MICROPROCESSOR BASED SYSTEM CONTROLLERS TO MANAGE THE GLOBAL STRATEGIES DESCRIBED IN CONTROLLER SOFTWARE SECTION.
- 1. THE CONTROLLER SHALL PROVIDE A USB COMMUNICATIONS PORT FOR CONNECTION TO A PC.
- 2. THE OPERATING SYSTEM OF THE CONTROLLER SHALL MANAGE THE INPUT AND OUTPUT COMMUNICATIONS SIGNALS TO ALLOW DISTRIBUTED CONTROLLERS TO SHARE REAL AND VIRTUAL POINT INFORMATION AND ALLOW CENTRAL MONITORING AND ALARMS.
- ALL SYSTEM CONTROLLERS SHALL HAVE A REAL TIME CLOCK AND SHALL BE ABLE TO ACCEPT A BACNET TIME SYNCHRONIZATION COMMAND FOR AUTOMATIC TIME SYNCHRONIZATION.
- DATA SHALL BE SHARED BETWEEN NETWORKED SYSTEM CONTROLLERS.
- 5. SERVICEABILITY THE SYSTEM CONTROLLER SHALL HAVE A DISPLAY ON THE MAIN BOARD THAT INDICATES THE CURRENT OPERATING MODE OF THE CONTROLLER.
- B. CONTROLS MANUFACTURER SHALL PROVIDE SECURE REMOTE ACCESS TO THE BUILDING AUTOMATION SYSTEM (BAS). SECURE REMOTE ACCESS SHALL NOT REQUIRE IP PORTS TO BE "EXPOSED" (I.E. PORT-FORWARDED OR EXTERNAL PUBLIC IP ADDRESSES) TO THE INTERNET. CONTROLS MANUFACTURER SHALL UPDATE SECURE REMOTE ACCESS SOFTWARE AS NECESSARY TO FOLLOW CYBER SECURITY BEST PRACTICES AND RESPOND TO CYBER SECURITY EVENTS. 1.5 BUILDING CONTROLLER SOFTWARE
 - A. MANUFACTURER SHALL PROVIDE STANDARD APPLICATIONS TO DELIVER HVAC SYSTEM CONTROL. STANDARD APPLICATIONS INCLUDE TIME OF DAY SCHEDULING WITH OPTIMAL START/STOP, VAV AIR SYSTEMS CONTROL, CHILLER PLANT CONTROL, HISTORICAL TREND LOGS AND TRIM AND RESPOND. MANUFACTURER SHALL PROVIDE SYSTEM OPTIMIZATION STRATEGIES FOR FUNCTIONS SUCH AS FAN PRESSURE OPTIMIZATION AND VENTILATION OPTIMIZATION.
 - B. FURNISH THE FOLLOWING APPLICATIONS SOFTWARE FOR BUILDING AND ENERGY MANAGEMENT. ALL SOFTWARE APPLICATIONS SHALL RESIDE AND RUN IN THE SYSTEM CONTROLLERS. EDITING OF APPLICATIONS SHALL OCCUR AT THE BUILDING OPERATOR INTERFACE.
- 1. TREND LOGS
 - a. THE SYSTEM SHALL HARVEST TREND LOGS FOR DEFINED KEY MEASUREMENTS FOR EACH CONTROLLED HVAC DEVICE AND HVAC APPLICATION. TREND LOGS SHALL BE CAPTURED FOR A MINIMUM OF 5 KEY OPERATING POINTS FOR EACH PIECE OF HVAC EQUIPMENT AND HVAC APPLICATION AND STORED FOR NO LESS THAN 1 YEAR AT 15-MINUTE INTERVALS. DATA LOGS SHALL BE CAPABLE OF BEING CONFIGURED ON AN INTERVAL OR CHANGE OF VALUE BASIS.
 - 1) GAS FURNACE WITH COOLING COIL

a) DISCHARGE AIR TEMPERATURE RETURN AIR TEMPERATURE SPACE TEMPERATURE ACTIVE d) SPACE TEMPERATURE SETPOINT ACTIVE

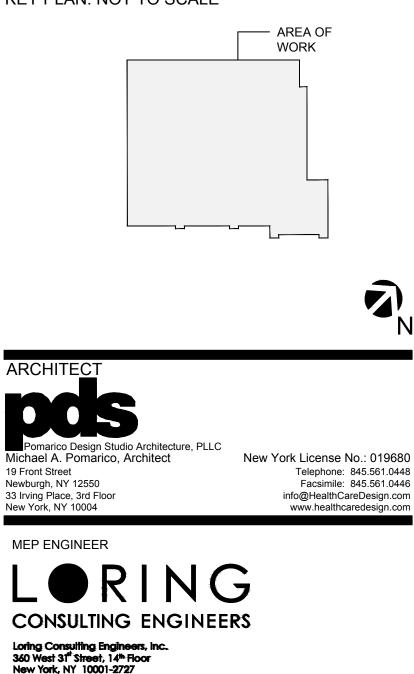
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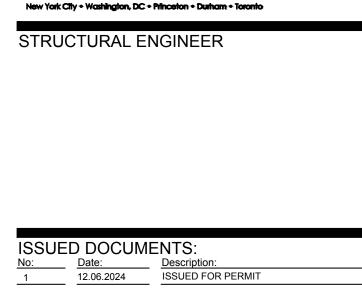
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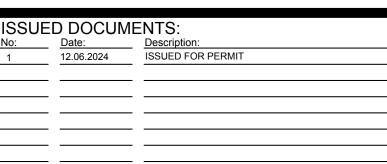
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SPECIFICATIONS

DRAWING TITLE:

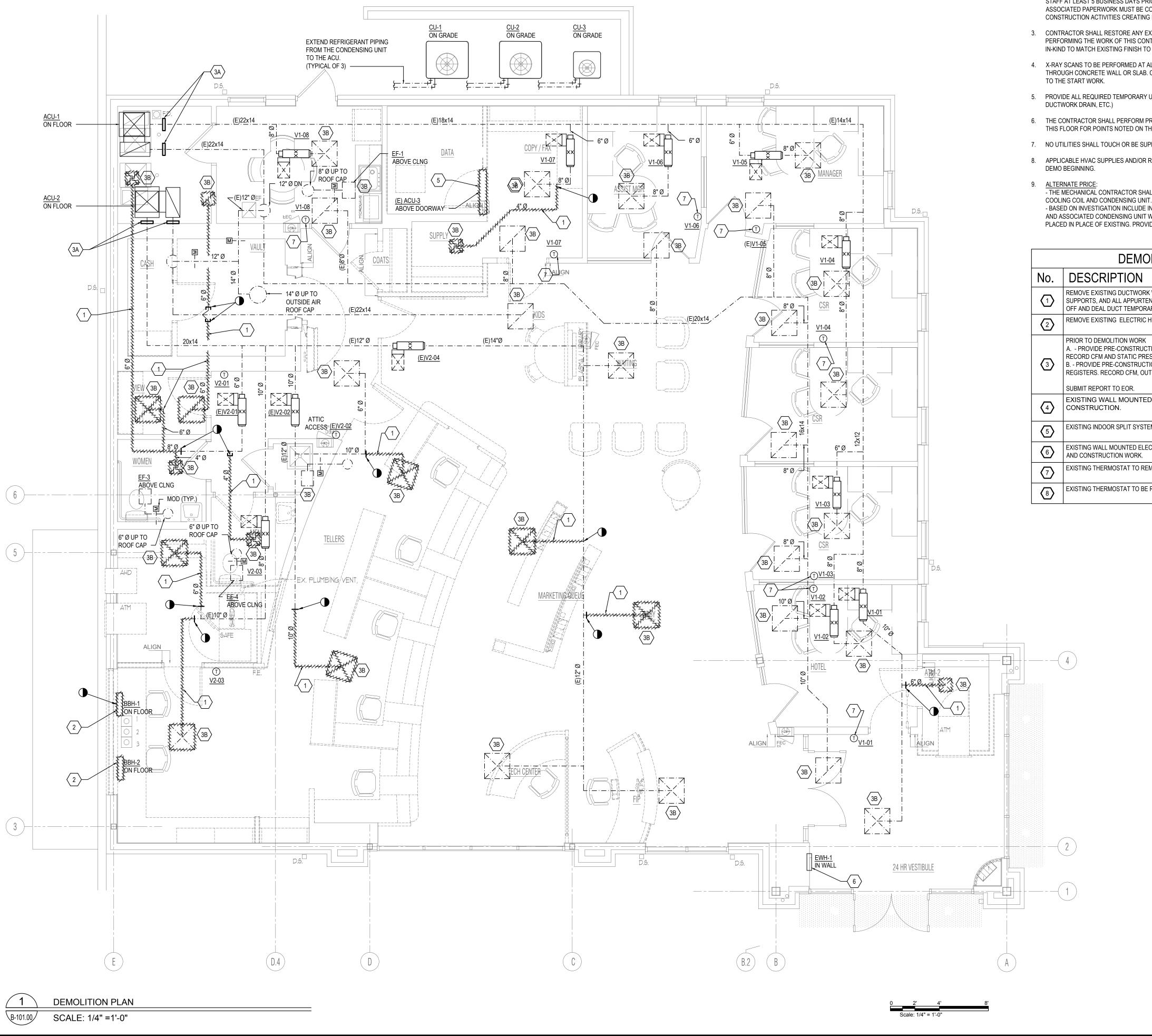
PROJECT NUMBER

14404

SHEET No.3



CON # CAD



DEMOLITION NOTES: TO DRAWING M-001.

1. FOR GENERAL NOTES, SYMBOL LIST AND ABBREVIATIONS, CONTRACTOR SHALL REFER

- 2. CONTRACTOR TO NOTIFY AUTHORIZED MONTEFIORE NYACK HOSPITAL ENGINEERING STAFF AT LEAST 5 BUSINESS DAYS PRIOR TO SHUT DOWN OF EXISTING SERVICES. ASSOCIATED PAPERWORK MUST BE COMPLETED FOR ANY SHUTDOWNS OR CONSTRUCTION ACTIVITIES CREATING NOISE, DUST, DEBRIS, VIBRATION, ETC.
- 3. CONTRACTOR SHALL RESTORE ANY EXISTING SURFACES DAMAGED AS A RESULT OF PERFORMING THE WORK OF THIS CONTRACT. AFFECTED AREAS SHALL BE RESTORED IN-KIND TO MATCH EXISTING FINISH TO THE SATISFACTION OF HOSPITAL.
- 4. X-RAY SCANS TO BE PERFORMED AT ALL LOCATIONS THAT REQUIRED PENETRATING THROUGH CONCRETE WALL OR SLAB. CONFIRM LOCATION OF ALL MEP UTILITIES PRIOR
- 5. PROVIDE ALL REQUIRED TEMPORARY UTILITIES (SUPPLY, RETURN EXHAUST
- 6. THE CONTRACTOR SHALL PERFORM PRELIMINARY AIR READINGS OF ALL DUCTS ON THIS FLOOR FOR POINTS NOTED ON THESE DRAWINGS PRIOR TO DEMOLITION.
- 7. NO UTILITIES SHALL TOUCH OR BE SUPPORTED BY THE SPRINKLER PIPING.
- 8. APPLICABLE HVAC SUPPLIES AND/OR RETURNS MUST BE CUT AND CAPPED PRIOR TO

- THE MECHANICAL CONTRACTOR SHALL EVALUATED EXISTING FURNACE WITH

- BASED ON INVESTIGATION INCLUDE IN BUILD PRICE REPLACEMENT OF FANS FURNACE AND ASSOCIATED CONDENSING UNIT WITH DX COIL. THE CONDENSING UNIT SHALL B PLACED IN PLACE OF EXISTING. PROVIDE NEW REFRIGERANT PIPING

DEMOLITION KEY NOTES DESCRIPTION REMOVE EXISTING DUCTWORK WITH ALL ASSOCIATED DAMPERS, AIR DEVICES, INSULATION, SUPPORTS, AND ALL APPURTENANCES IN ITS ENTIRETY TO POINT NOTED ON DRAWINGS. BLANK OFF AND DEAL DUCT TEMPORARILY. REMOVE EXISTING ELECTRIC HEATER WITH ALL ASSOCIATED WIRING, CONTROLS AND DEVICES.

PRIOR TO DEMOLITION WORK A. - PROVIDE PRE-CONSTRUCTION TRAVERSE READING OF EXISTING SUPPLY AND RETURN.

- RECORD CFM AND STATIC PRESSURE. B. - PROVIDE PRE-CONSTRUCTION AIR READING OF EXISTING SUPPLY, RETURN AND EXHAUST REGISTERS. RECORD CFM, OUTLET SIZE AND NECK.
- SUBMIT REPORT TO EOR.
- EXISTING WALL MOUNTED ELECTRIC HEATER TO REMAIN. PROTECT DURING
- EXISTING INDOOR SPLIT SYSTEM UNIT TO BE RELOCATED. PROTECT DURING DEMO WORK.
- EXISTING WALL MOUNTED ELECTRIC UNIT HEATER TO REMAIN. PROTECT DURING DEMOLITION
- AND CONSTRUCTION WORK. EXISTING THERMOSTAT TO REMAIN. PROTECT DURING DEMOLITION AND CONSTRUCTION WORK.
- EXISTING THERMOSTAT TO BE REMOVED.

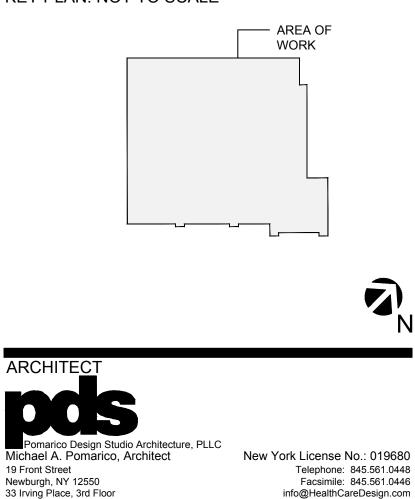
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OUTPATIENT DIAGNOSTIC & TREATMENT FACILITY **ALTERATIONS - LEVEL 3**

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KEY PLAN: NOT TO SCALE

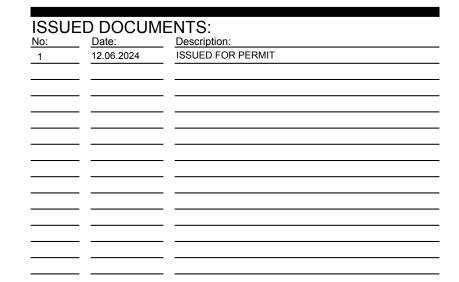


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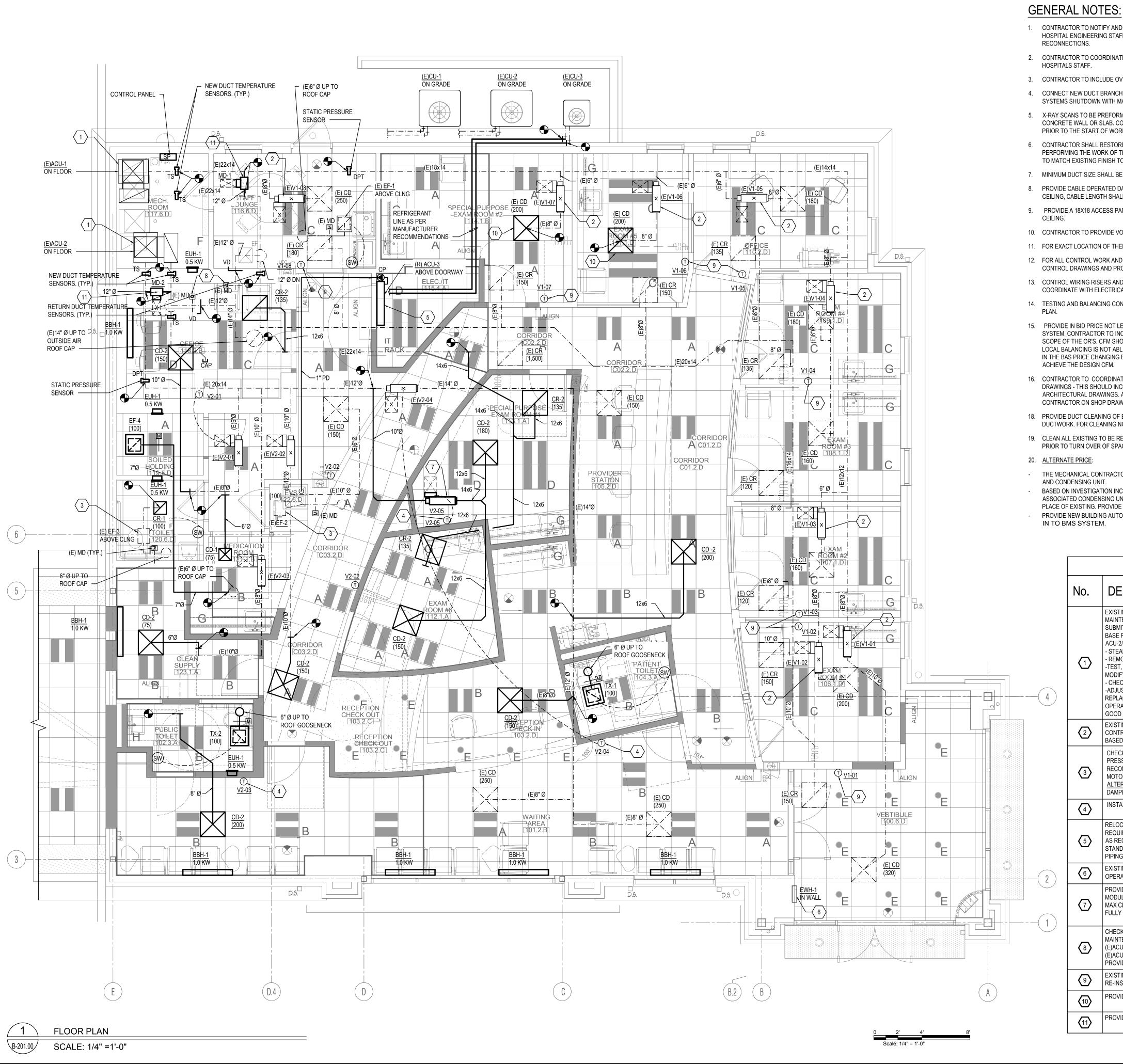
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DRAWING NUMBER

MECHANICAL REMOVAL PLAN

PROJECT NUMBER	CON #	
14404	CAD	
DATE	SCALE	
1/19/2024	AS NOTED	

M-101.00



1. CONTRACTOR TO NOTIFY AND COORDINATE WITH AUTHORIZED MONTERFIORE NYACK HOSPITAL ENGINEERING STAFF AT LEAST 5 BUSINESS DAYS PRIOR TO ANY SHUT-DOWNS AND

2. CONTRACTOR TO COORDINATE SHUT-DOWNS AND DRAIN-DOWNS OF AIR SYSTEMS WITH

3. CONTRACTOR TO INCLUDE OVERTIME RATE FOR DUCTWORK TIE-IN TO EXISTING MAINS.

4. CONNECT NEW DUCT BRANCHES TO EXISTING DUCTWORK IN OFF HOUR TIME. COORDINATE SYSTEMS SHUTDOWN WITH MAINTENANCE OPERATION.

5. X-RAY SCANS TO BE PREFORMED AT ALL LOCATIONS THAT REQUIRE PENETRATING THOUGH CONCRETE WALL OR SLAB. CONFIRM LOCATION OF ALL MEP RISERS OR IN SLAB CONDUITS PRIOR TO THE START OF WORK.

6. CONTRACTOR SHALL RESTORE ANY EXISTING SURFACES DAMAGED AS A RESULT OF PERFORMING THE WORK OF THIS CONTRACT. AFFECTED AREAS SHALL BE RESTORED IN-KIND TO MATCH EXISTING FINISH TO THE SATISFACTION OF THE HOSPITAL STAFF.

7. MINIMUM DUCT SIZE SHALL BE 12X6 UNLESS OTHERWISE NOTED.

8. PROVIDE CABLE OPERATED DAMPERS FOR ALL DUCTWORK LOCATED ABOVE INACCESSIBLE CEILING, CABLE LENGTH SHALL NOT EXCEED 3 FEET.

9. PROVIDE A 18X18 ACCESS PANEL IF REQUIRED TO EQUIPMENT LOCATED IN AN INACCESSIBLE

10. CONTRACTOR TO PROVIDE VOLUME DAMPERS FOR ALL AIR OUTLETS FOR BALANCING.

11. FOR EXACT LOCATION OF THERMOSTATS REFER TO ARCHITECTURAL DRAWINGS.

12. FOR ALL CONTROL WORK AND MECHANICAL WORK RELATED TO CONTROLS REFER TO CONTROL DRAWINGS AND PROVIDE ALL RELATED WORK FOR CONTROL SYSTEM INSTALLATION.

13. CONTROL WIRING RISERS AND OUTDOOR CONTROLS WIRING TO BE ENCLOSED IN CONDUITS, COORDINATE WITH ELECTRICAL CONTRACTOR.

14. TESTING AND BALANCING CONTRACTOR TO BALANCE CFM TO DESIGN NUMBERS INDICATED ON 15. PROVIDE IN BID PRICE NOT LESS THAN THREE (3) VISITS TO THE SITE FOR BALANCING OF THE

SYSTEM. CONTRACTOR TO INCLUDE BALANCING OF THE AIR HANDLING UNIT FEEDING THEE SCOPE OF THE OR'S. CFM SHOULD BE BALANCED TO NUMBERS SHOWN ON THIS DRAWING. IF LOCAL BALANCING IS NOT ABLE TO ACHIEVE THE DESIGN NUMBERS CONTRACTOR TO INCLUDE IN THE BAS PRICE CHANGING BELTS/SHEAVES/PULLEYS AT THE MAIN AIR HANDLING UNIT TO ACHIEVE THE DESIGN CFM.

16. CONTRACTOR TO COORDINATE WITH ALL CONSULTANTS TO PREPARE AS BUILT CEILING DRAWINGS - THIS SHOULD INCLUDE PRE FAB. CEILING VENDOR DRAWINGS, MEP DRAWINGS, ARCHITECTURAL DRAWINGS. ANY AND ALL CONFLICTS MUST BE FLAGGED BY THE CONTRACTOR ON SHOP DRAWINGS BEFORE INSTALLATION IN THE FIELD.

18. PROVIDE DUCT CLEANING OF ENTIRE EXISTING AND NEW SUPPLY, OUTSIDE AIR AND RETURN DUCTWORK. FOR CLEANING NOTES REFER TO M-002.

19. CLEAN ALL EXISTING TO BE REUSED SUPPLY, RETURN, EXHAUST AIR OUTLETS TO BE RE-USED PRIOR TO TURN OVER OF SPACE TO OWNER.

THE MECHANICAL CONTRACTOR SHALL EVALUATED EXISTING FURNACE WITH COOLING COIL

BASED ON INVESTIGATION INCLUDE IN BUILD PRICE REPLACEMENT OF FANS FURNACE AND ASSOCIATED CONDENSING UNIT WITH DX COIL. THE CONDENSING UNIT SHALL BE PLACED IN PLACE OF EXISTING. PROVIDE NEW REFRIGERANT PIPING.

PROVIDE NEW BUILDING AUTOMATION SYSTEM WITH ETHERNET PORT FOR FUTURE TIE

	KEY NOTES
No.	DESCRIPTION
1	EXISTING GAS FURNACE WITH COOLING COIL TO REMAIN. PROVIDE REQUIRED MAINTENANCE OF UNITS. STEAM CLEAN COOLING COIL. CHECK OPERATION OF FAN SUBMIT REPORT OF FINDINGS. BASE PROJECT SCOPE OF WORK FOR THE EXISTING SPLIT SYSTEM ACU-1/CU-1 ACU-2/CU-2 AND RELATED FURNACES: - STEAM CLEAN COILS AND INTERIOR OF UNITS - REMOVE AND REPLACE FILTERS WITH NEW. -TEST, VERIFY OPERATION OF UNITS, FURNACES, OVERALL SYSTEM AND ADJUST, MODIFY CONTROLS FOR PROPER OPERATIONS. - CHECK REFRIGERANT PRESSURES AND PROVIDE FULL CHARGE OF REFRIGERANT. -ADJUST, CALIBRATE FAN SPEEDS FOR RE-BALANCING OF SYSTEM. REMOVE AND REPLACE BELTS, PULLEY DRIVE, SERVICE FAN, MOTOR. TEST, VERIFY, ADJUST OPERATIONS OF THE MOTORIZED OUTSIDE AIR DAMPERS AND REPLACE IF NOT IN GOOD OPERATING CONDITIONS.
2	EXISTING (V) MOTORIZED DAMPER TO REMAIN. RE-BALANCE TO CFM INDICATED. CONTROL CONTRACTOR TO PROVIDE PROPORTIONAL OPERATION OF DAMPERS BASED IN TEMPERATURE SETTING.
3	CHECK OPERATION OF EXISTING EXHAUST FAN. RECORD CFM AND STATIC PRESSURE. EXISTING MOTORIZED DAMPER AND DUCTWORK TO REMAIN. RECONNECT TO NEW EXHAUST GRILLE. RE-BALANCE TO CFM INDICATED. MOTORIZED DAMPER SHALL BE INTERLOCKED WITH THE RESPECTIVE FAN. <u>ALTERNATE</u> : PROVIDE ALTERNATE PRICE FOR REPLACEMENT OF MOTORIZED DAMPER IF NOT OPERATIONAL.
4	INSTALL NEW THERMOSTAT ON NEW FINISHED WALL.
5	RELOCATE EXISTING WALL MOUNTED AC UNIT. EXTEND REFRIGERANT PIPING AS REQUIRED. PROVIDE PRESSURE TEST OF PIPING. RE - CHARGE REFRIGERANT 410A AS REQUIRED. RECOVER AND STORE EXISTING REFRIGERANT PER CODE AND EPA STANDARDS. CHECK OPERATION OF INDOOR AND OUTDOOR UNITS. PROVIDE DRAIN PIPING, PUMP AND TERMINATE PIPING TO SPILL INTO JANITOR CLOSER (EVS).
6	EXISTING WALL MOUINTED ELECTRIC HEATER TO REMAIN. CLEAN AND CHECK OPERATION OF UNIT.
7	PROVIDE ROUND CONTROL DAMPER 10"Ø MODEL VCDR-53 BY GREENHECK WITH MODULATING PROPORTIONAL ACTUATOR WITH AUXILIARY CONTACTS. MAX CLOSED POSITION 30% OF AIR FLOW AT 60°F FULLY OPEN POSITION AT 78°F AND ABOVE.
8	CHECK OPERATION OF EXISTING O.A. MOTORIZED DAMPER. PROVIDE REQUIRED MAINTENANCE. BALANCE EXISTING O.A. BRANCH AS: (E)ACU-1 - TO 400 CFM (E)ACU-2 - TO 450 CFM PROVIDE NEW VOLUME DAMPERS (VD) AS REQUIRED.
9	EXISTING THERMOSTAT TO REMAIN. PROTECT DURING CONSTRUCTION WORK. RE-INSTALL IN NEW FINISHED WALL.
(10)	PROVIDE NEW SUPPLY DIFFUSER WITH 8" NECK. EXTEND DUCTWORK AS REQUIRED.
(11)	PROVIDE 12" BY-PASS MOTORIZED DAMPER BETWEEN SUPPLY AND RETURN LINES.

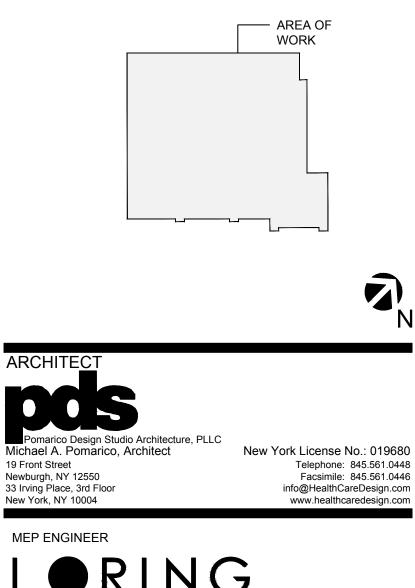
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OUTPATIENT DIAGNOSTIC & TREATMENT FACILITY **ALTERATIONS - LEVEL 3**

18 NORTH HIGHLAND AVENUE NYACK, NY 10960

KEY PLAN: NOT TO SCALE

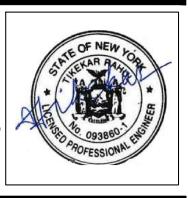


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ISSUED DOCUMENTS: Date: Description: 12.06.2024 ISSUED FOR PERMI

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DRAWING TITLE:

MECHANICAL FLOOR PLAN

CON # -CAD PROJECT NUMBER 14404

SCALE DATE AS NOTED 11/19/2024 DRAWING NUMBER M-201.00

EF - EXHAUST FAN TX-TOILET EXHAUST FAN GX- GENERAL EXHAUST FAN

STATIC MAX. OUTLET AREA OR SYSTEM UNIT FAN PRESS VELOCITY OR LOCATION CFM TYPE SERVED NO. TIP SPEED (FPM) (IN. WG) TX-1 GROUND FLOOR PATIENT TOILET 14.3.A CEILING 0.75 100 TX-2 **GROUND FLOOR** PATIENT TOILET 102.3.A CEILING 0.75 100 EF-1 GROUND FLOOR SOILED HOLDING ROOM 119.5.D CEILING 0.75 100

NOTES:

. PROVIDE ELECTRICAL DISCONNECT SWITCH.

2. PROVIDE PREMIUM EFFICIENCY MOTORS. 3. PROVIDE SPEED CONTROL AT UNIT FOR BALANCING.

4. PROVIDE CONTROLS AS REQUIRED. 5. PROVIDE CONTROL TRANSFORMERS, WIRING, RELAYS, CONTACTORS, ETC. AS REQUIRED. COORDINATE WITH ELECTRICAL CONTRACTOR AS NECESSARY

6. PROVIDE MOTORIZED DAMPER INTERLOCKED WITH FAN.

7. SUPPORT WITH VIBRATION ISOLATORS.

ввн	ELECTRIC BASEBOARD HEATER SCHEDULE BASIS OF DESIGN: Q-MARK									
NO.	LOCATION EQUIPMENT OR SYSTEM SERVED KW AMPS WEIGHT (LBS) LENGTH (FT) VOLTS (V) PHASE (PH)								MODEL NO.	REMARKS
BBH-1	SEE FLOOR PLAN SEE FLOOR PLAN 1.0 - 10.0 4'-0" 120 1					2514W	SEE NOTE 1			
2. PROVIDE EN	NOTES: I. PROVIDE WITH BUILT-IN THERMOSTAT. 2. PROVIDE END CAPS. PAINED ENCLOSURE OF COLOR FINISH SELECTED BY ARCHITECT. 3. PROVIDE LEGAL MEANS OF DISCONNECT.									

EUH	ELECTRIC CABINET UNIT HEATER SCHEDULE BASIS OF DESIGN: MARLEY											
			FAN AND MOTOR DATA	ELECTR								
UNIT NO.	LOCATION	AREA SERVED	AIRFLOW CFM	KW	V/PH/Hz	MODEL	REMARKS					
EUH-1	BATHROOM / AND/OR SOILED RM	SEE FLOOR PLAN	100	0.5	120/1/60	SRA1012DSAF	PROVIDE WALL RECESSED TYPE OF EUH.					

NOTES:

1. PAINTED ENCLOSURE OF COLOR , FINISH SELECTED BY ARCHITECT.

2. PROVIDE BUILT-IN THERMOSTAT WITH POSITIVE OFF. 3. PROVIDE MOUNTING FRAMES IF REQUIRED.

SEE PLAN				AIR O		D INLETS			BASIS OF DESIGN: ANEMOSTAT			
TYPE DESIGNATION	SERVICE	SPECIFICATION TYPE	MAX CFM	FACE SIZE (IN)	NECK SIZE (IN)	SLOT SIZE (IN)	MODEL NUMBER	USE	NOISE CRITERIA (NC) AT MAX CM	ASHRAE GROUP CLASSIFICATION	REMARKS	
	CEILING DIFFUSER	CD-1	50-100	12X12	6 DIA.	-	PARAGON PGF-11A	SEE PLANS	10	А	SEE NOTES 2, 3, 4, 5	
	CEILING DIFFUSER	CD-2	0-200	24X24	8 DIA.	-	PARAGON PGF-22	SEE PLANS	10	А	SEE NOTES 2, 3, 4, 5	
	CEILING DIFFUSER	CD-2	201-320	24X24	10 DIA.	-	PARAGON PGF-22	SEE PLANS	13	А	SEE NOTES 2, 3, 4, 5	
	CEILING DIFFUSER	CD-2	321-400	24X24	12 DIA.	-	PARAGON PGF-22	SEE PLANS	15	А	SEE NOTES 2, 3, 4, 5	
	EXHAUST REGISTER	ER-A	0-250	12X12	10X10	-	S30HD	SEE PLANS	20	А	SEE NOTES 2, 3, 4, 5, 6, 7	
	CEILING RETURN/EXHAUST REGISTER	CR-1	0-150	12X12	8" DIA.	-	PG-11	SEE PLANS	20	А	SEE NOTES 2, 3, 4, 5, 6, 7	
	CEILING RETURN/EXHAUST REGISTER	CR-2	0-500	24X24	15" DIA.	-	PG-22	SEE PLANS	21	А	SEE NOTES 2, 3, 4, 5, 6, 7	

NOTES:

REFER TO PLANS FOR ACTIVE AND INACTIVE LENGTHS, PROVIDE 16 GAUGE BLANK OFF PANEL FOR INACTIVE LENGTHS, PAINT BLACK AND BLANK-OFF FROM ABOVE CEILINGS. 2. ALL DIFFUSERS & REGISTERS: CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION. 3. PROVIDE REMOTE CORD OPERATED OPPOSED BLADE DAMPERS FOR ALL DIFFUSERS LOCATED IN INACCESSIBLE CEILINGS (TYPICAL ALL). PROVIDE DUCT TRANSITIONS TO CONNECT TO AIR OUTLETS.

4. COORDINATE CUSTOM COLOR/FINISH WITH ARCHITECT. 5. SUPPLY, RETURN AND EXHAUST AIR OUTLETS/INLETS IN WET AREAS SHALL BE ALUMINUM. (E.G. LOCKER ROOMS, SHOWER ETC.)

6. ALL SUPPLY AIR OUTLETS SHALL BE SUITABLE FOR CLEANING, SUPPLY AIR OUTLETS IN ACCORDANCE WITH ASHRAE STANDARD 170 TABLE 6.7.2 SHALL BE USED.

FAN SCHEDULE BASIS OF DESIGN: GREENHECK										
CFM	FAN			MOT	OR DATA		WEIGHT	MODEL		
	RPM	DRIVE	RPM	HP	FLA	V/PH	(LBS)	NO.	REMARKS	
100	1,050	DIRECT	1050	81 WATTS	0.83	115 / 1	24	SP-A290	-	
100	1,050	DIRECT	1050	81 WATTS	0.83	115 / 1	24	SP-A290	-	
100	1,050	DIRECT	1050	81 WATTS	0.83	115 / 1	24	SP-A290	-	

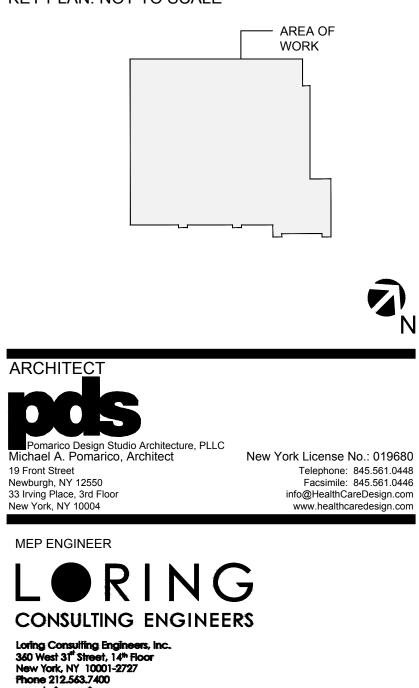
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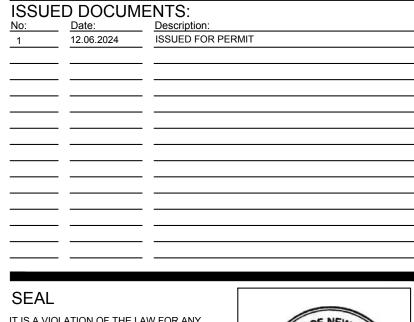
KEY PLAN: NOT TO SCALE



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DRAWING TITLE:

MECHANICAL SCHEDULES SHEET No.1

PROJECT NUMBER	CON #	
14404	CAD	
DATE	SCALE	
11/19/2024	N.T.S.	
DRAWING NUMBER		

M-301.00

ACU - F <i>F</i> COIL.	AS FURNACE WIT	H COOLING			GAS FI	URNACE	E (ALTE	ERNAT	E PRI	ICE)							CC	OLIN	G COIL		NATE	PRICE)				BASIS C	OF DESIGN: CARRIER
UNIT		AREA OR		TOTAL / EXTERNAL		HEATING (CAPACITY			МОТС	OR DATA		FILTER		EDB	EWB	LDB	LWB	CAI	PACITY	SIZE	ROWS	REFR.	WEIGHT	COIL	P.D.	TOTAL	
NO.	LOCATION	SYSTEM SERVED	MODEL	STATIC PRESS (IN. WG)	CFM	INPUT BTUH	OUTPUT BTUH	DRIVE	RPM	HP	FLA	V/PH	MERV	MODEL	°F	°F	°F	°F	TOTAL MBH	SENSIBLE MBH				LBS	DRY	WET	WEIGHT (LBS)	REMARKS
ACU-1	GROUND FLOOR MER	NORTH EXPOSURE BUILDING	10V2422	0.7 / 0.375	1,730	120,000	117,000	DIRECT	400-1,200	1.0	12.6	115 / 1	7	CAAMP6124AMA	80	67	55	54.2	47.9	41.53	6124	8	R-454B	95	0.252	0.325	500	-
ACU-2	GROUND FLOOR MER	SOUTH EXPOSURE BUILDING	10V2422	0.65 / 0.22	1,930	120,000	117,000	DIRECT	400-1,200	1.0	12.6	115 / 1	7	CAAMP6124AMA	80	67	55	54.2	47.9	41.53	6124	8	R-454B	95	0.307	0.387	500	-

NOTES:

1. PROVIDE ELECTRICAL DISCONNECT SWITCH.

2. PROVIDE VENT KIT.

3. MINIMUM/MAXIMUM GAS OPERATIONS IN. W.C. 4.5 - 13.6. 4. PROVIDE CONTROLS AS REQUIRED.

5. PROVIDE CONTROL TRANSFORMERS, WIRING, RELAYS, CONTACTORS, ETC. AS REQUIRED. COORDINATE WITH ELECTRICAL CONTRACTOR AS NECESSARY

6. PROVIDE OUTSIDE AIR MOTORIZED DAMPER INTERLOCKED WITH FAN.

7. SUPPORT WITH VIBRATION ISOLATORS PAD. 3. PROVIDE REFRIGERANT PIPING, REFRIGERANT ACCESSORIES, FULL CHARGE OF REFRIGERANT. PROVIDE INSULATED DRAIN PAN, DRAIN PIPING. CUT AND PATCH DUCTWORK TO INSTALL COOLING COIL, CAULK AND SEAL AIR TIGHT.

PROVIDE GAS PIPING, VALVES, FITTINGS, ACCESSORIES.

10. PROVIDE FLEX DUCT CONNECTIONS. 11. 2 STAGES CONTROL VALVE.

12. PROVIDE EXTERNAL FILTER RACK.

13. PROVIDE COIL ADAPTER KIT

ACU	AIR COOLED CONDENSING UNIT SCHEDULE (ALTERNATE PRICE) BASIS OF DESIGN: CARRIER											
UNIT NO.	LOCATION	COOLING CAPACITY			REF.	DIMENSIONS H x W x D	WEIGHT (LBS.)	REF.	SEER	MODEL	REMARKS	
		(BTU/h)	MCA	MAX FUSE	V/PHASE		(IN)		CHARGE	JEEN	NO.	
(E)ACU-1	GROUND	61,680	31.1	50	208 / 1	R-454B	$38 - \frac{7}{8} \times 31 - \frac{3}{16} \times 31 - \frac{3}{16}$	230	7.9	16	26SPA660W0003	SEE NOTES
(E)ACU-1	GROUND	61,680	31.1	50	208 / 1	R-454B	38- $\frac{7}{8}$ x 31- $\frac{3}{16}$ x 31- $\frac{3}{16}$	230	7.9	16	26SPA660W0003	SEE NOTES

NOTES:

1. PROVIDE CONDENSING UNITS WITH LOW AMBIENT BAFFLE KITS AND BASE PAN HEATERS FOR OPERATING OF UNIT 4. PROVIDE 5 YEARS EXTENDED COMPRESSOR WARRANTY. DOWN TO 0°F AMBIENT.

2. CONDENSING UNITS SHALL BE FREE OF DAMAGE. CONTRACTOR SHALL REPLACE ANY DAMAGED UNITS AT NO COST TO 6. RE-USE EXISTING CONCRETE PAD. PATCH AND REPAIR IF REQUIRED. THE OWNER.

3. PROVIDE DEFROST CYCLE/CONTROLS. 5. PROVIDE START-UP SERVICE FOR SPLIT SYSTEMS BY UNIT MANUFACTURER'S FACTORY SERVICE TECHNICIAN.

7. TRIANGULAR TYPE "A" COIL.

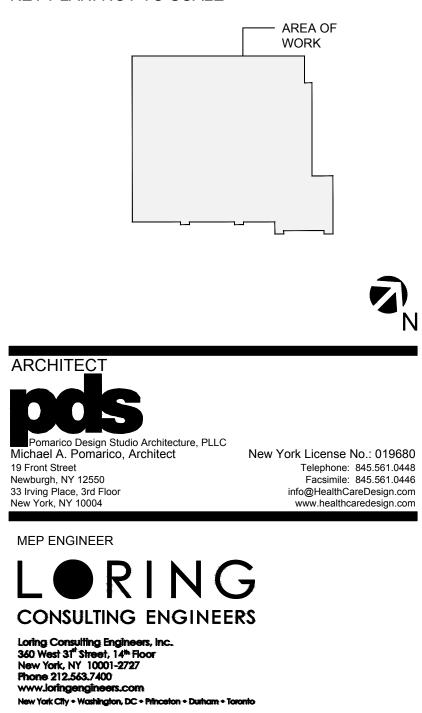
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KEY PLAN: NOT TO SCALE



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No.2

DRAWING TITLE:

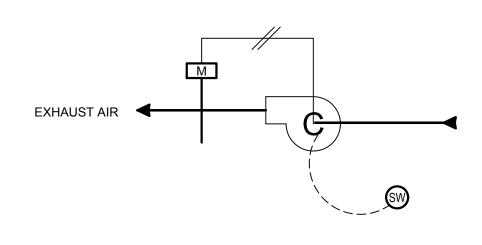
MECHANICAL

SCHEDULES SHEET	Ν

PROJECT NUMBER	CON #	
14404	CAD	
DATE	SCALE	
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11/19/2024	N.T.S.	

M-302.00

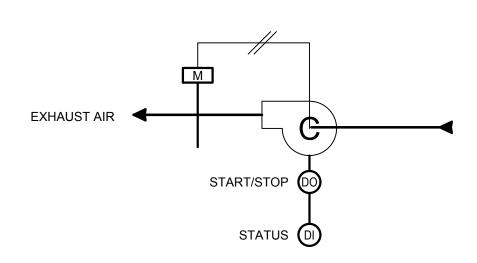
LEGEND	
ETHERNET CAT-6 IN EMT	
BACNET MS/TP IN EMT	
DIGITAL/BINARY INPUT	D
DIGITAL/BINARY OUTPUT	60
ANALOG INPUT	(Al)
ANALOG OUTPUT	AD
MOTORIZED ACTUATOR	Μ
ROOM TEMPERATURE SENSOR WITH CO2 DETECTION	CO2
ROOM TEMPERATURE SENSOR	()
OCCUPANCY SENSOR	000
TEMPERATURE SENSOR (GENERIC)	ТЕМР
TEMPERATURE SENSOR (SUPPLY AIR)	SAT
TEMPERATURE SENSOR (MIXED AIR)	MAT
TEMPERATURE SENSOR (RETURN AIR)	RAT
TEMPERATURE SENSOR (OUTSIDE AIR)	OAT
TEMPERATURE SENSOR (PREHEAT DISCHARGE AIR)	PHT
HUMIDITY SENSOR (SUPPLY AIR)	SA HUM
HUMIDITY SENSOR (RETURN AIR)	RAHUM
HUMIDITY SENSOR (OUTSIDE AIR)	OA
CO2 SENSOR (RETURN AIR)	RA CO2
VARIABLE FREQUENCY DRIVE (SUPPLY FAN)	SF VFD
VARIABLE FREQUENCY DRIVE (RETURN FAN)	RF VFD
SUPPLY AIR HIGH STATIC CUT-OFF	SA
SUPPLY AIR LOW SUCTION CUT-OFF	SA DPLO
RETURN AIR HIGH STATIC CUT-OFF	RA
RETURN AIR LOW SUCTION CUT-OFF	RA DPLO
DOWNSTREAM DIFFERENTIAL PRESSURE TRANSDUCER	
DIFFERENTIAL PRESSURE TRANSDUCER	DPT
ETHERNET SWITCH	ES



SEQUENCE OF OPERATION

- A. WHEN THE EXHAUST FAN IS OFF, ITS ASSOCIATED AIR DAMPER SHALL BE CLOSED. WHEN THE EXHAUST FAN IS ON, ITS ASSOCIATED DAMPERS SHALL OPEN.
- B. FAN SHALL BE INTERLOCKED WITH LIGHT SWITCH. WHEN SWITCH IS "ON" THE FAN SHALL START. AFTER SWITCH IS "OFF" THE RESPECTIVE FAN SHALL STOP IN 5 MIN. (TINE DELAY - ADJUSTABLE).

TOILET EXHAUST (TYPICAL) (NOT TO SCALE)

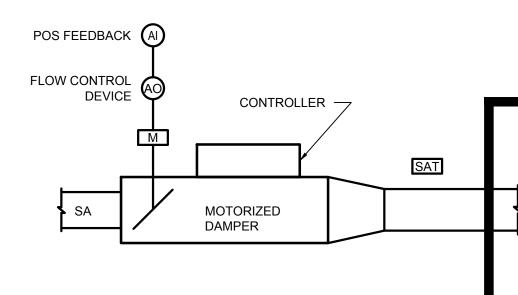


SEQUENCE OF OPERATION

- A. WHEN THE EXHAUST FAN IS OFF, ITS ASSOCIATED SPILL AIR DAMPER OR INTAKE DAMPER SHALL BE CLOSED. WHEN THE EXHAUST FAN IS ON, ITS ASSOCIATED DAMPERS SHALL OPEN.
- B. START/STOP PROGRAMMING OF ALL SUCH FANS SHALL BE PROGRAMMABLE FROM THE BAS.

GENERAL EXHAUST (TYPICAL)

(NOT TO SCALE)



SEQUENCE OF OPERATION

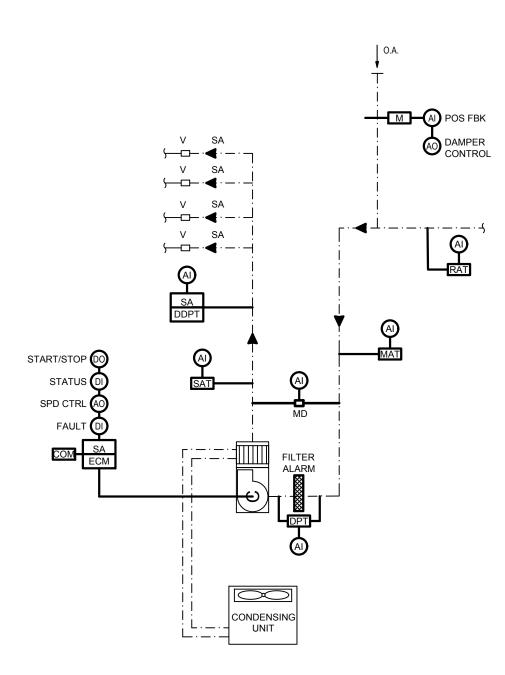
- THE VALVES CONTROLLER SHALL MONITOR THE SPACE TEMPERATURE SENSOR. THE CONTROLLER SHALL MODULATE THE SUPPLY AIR DAMPER BETWEEN ITS MINIMUM AND MAXIMUM SUPPLY AIR SETPOINT TO MAINTAIN THE DESIRED ROOM TEMPERATURE. - IN COOLING MODE IF THE SPACE TEMPERATURE IS BELOW ITS ADJUSTABLE 75F SETPOINT, THE PRIMARY AIR DAMPER SHALL MODULATE TO ITS MINIMUM POSITION. AS THE SPACE TEMPERATURE RISES ABOVE ITS SETPOINT, THE PRIMARY DAMPER SHALL MODULATE OPEN. - IN HEATING MODE IF THE SPACE TEMPERATURE IS BELOW ITS ADJUSTABLE 72°F SETPOINT, THE PRIMARY AIR DAMPER SHALL MODULATE TO ITS MAXIMUM POSITION. AS THE SPACE TEMPERATURE RISES ABOVE ITS SETPOINT, THE PRIMARY DAMPER SHALL MODULATE CLOSE.
- 2. THE SUPPLY AIR VOLUME WILL BE LIMITED BY ITS MINIMUM AND MAXIMUM SUPPLY AIR VOLUME SETTINGS. DAMPER ACTUATOR SHALL BE MODULATING PROPORTIONAL WITH AUXILIARY CONTACTS. MAX CLOSED POSITION 30% OF AIR FLOW AT 60°F FULLY OPEN POSITION AT 78°F AND ABOVE.
- MODE, THE PRIMARY AIR DAMPER SHALL BE FULLY OPEN. 4. THE DAMPER MOTOR AND CONTROLS SHALL BE FURNISHED BY THE ATC
- CONTRACTOR.

MOTORIZED VALVE SYSTEM (TYPICAL) (NOT TO SCALE)

CON	TROLS WIRING CONDUIT SCHEDULE
WIRING LOCATION	CONDUIT TYPE
ABOVE ACCESSIBLE CEILINGS	NO CONDUIT. UTILIZE PLENUM RATED CABLE.
IN WALLS FOR THERMOSTATS/ SPACE TEMPERATURE SENSORS	NO CONDUIT. UTILIZE PLENUM RATED CABLE.
IN WALLS FOR ALL OTHER CONTROLS	ELECTRIC METALLIC TUBING (EMT) THROUGHOUT. MAXIMUM 3'-0" OF FLEXIBLE METALLIC CONDUIT ALLOWED FOR FINAL CONNECTIONS.
EXPOSED FINISHED SPACES	ELECTRIC METALLIC TUBING (EMT) THROUGHOUT. MAXIMUM 3'-0" OF FLEXIBLE METALLIC CONDUIT ALLOWED FOR FINAL CONNECTIONS TO SENSORS WHERE EMT IS IMPRACTICAL.
MECHANICAL SPACES, SHAFTS, JANITOR CLOSETS, UN-OCCUPIED SPACES AND SIMILAR	ELECTRIC METALLIC TUBING (EMT) THROUGHOUT EXCEPT FOR CONDUIT LOCATED BELOW 10'-0" AFF WHICH SHALL BE GALVANIZED RIGID METALLIC CONDUIT (RMC). MAXIMUM 3'-0" OF LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC) ALLOWED FOR FINAL CONNECTIONS TO SENSORS WHERE EMT OR RMC IS IMPRACTICAL.

GENERAL NOTES:

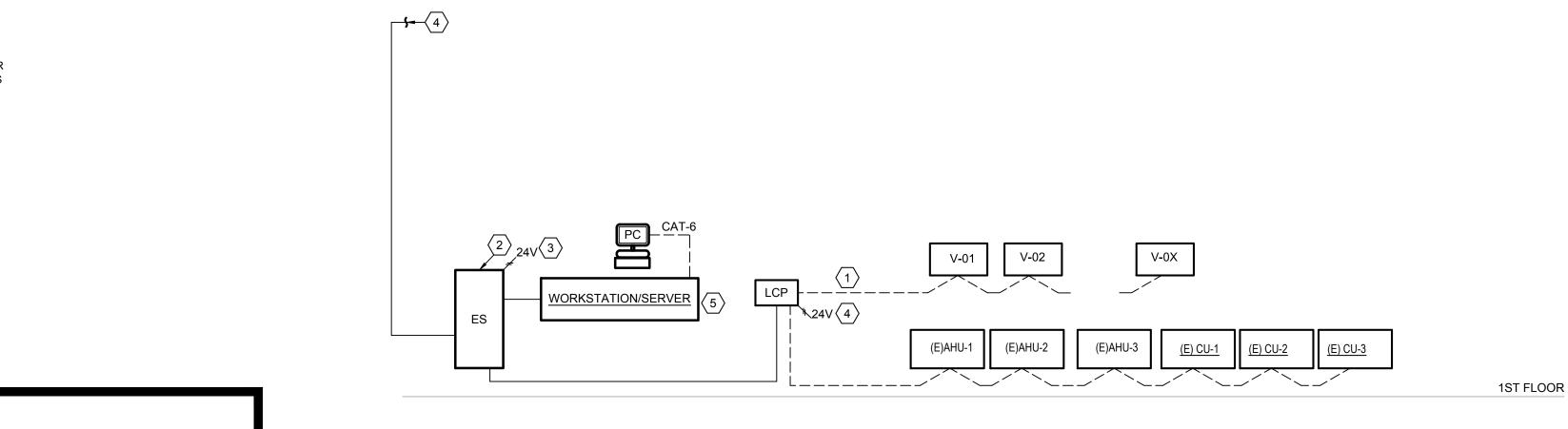
1. PROVIDE ALL REQUIRED SUPPORTS, FITTINGS, ADAPTERS, ELECTRICAL BOXES, ETC. REQUIRED FOR COMPLETE INSTALLATION. INSTALL ALL CONDUIT & WIRE IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS.



SEQUENCE

- A. THE UNIT SHALL RUN CONTINUOUSLY AS REQUIRED BY OPERATIONAL SCHEDULE . B. CONTROL PANES SHALL CAPABLE INDEXED FOR: 1. NIGHT SET BACK.
- 2. MORNING WARM UP. 3. MORNING COOL DOWN 4. SEASONAL HEATING MODE
- 5. SEASONAL COOLING MODE
- C. THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL. D. THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN
- ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME
- E. MOTORIZED OUTDOOR AIR DAMPER SHALL BE INTERLOCKED WITH RESPECTIVE AIR HANDLING F. THE CONTROLLER SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE
- PREHEATING COIL GAS VALVE TO MAINTAIN ITS SETPOINT. G. THE FURNACE FOR FREEZE PROTECTION WHENEVER: MIXED °F AIR TEMPERATURE DROPS
- BELOW 40°F (ADJ.). H. THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN
- FIXED SUPPLY AIR TEMPERATURE SETPOINTS OF 55 °F (ADJ.). THE PREHEATING SHALL BE ENABLED WHENEVER: OUTSIDE AIR TEMPERATURE IS LESS THAN 60°F FURNACE SHALL BE ACTIVATED FOR FREEZE PROTECTION WHENEVER: MIXED AIR TEMPERATURE DROPS BELOW 40 °F (ADJ.).
- J. THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN FIXED SUPPLY AIR TEMPERATURE SETPOINTS OF 55°F. K. THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER
- DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (AD.L) MINIMUM RUNTIME L. STATIC PRESSURE CONTROL: STATIC PRESSURE SENSOR, LOCATED DOWNSTREAM OF COOLING COIL ON SUPPLY LINE , SHALL MODULATE BY-PASS MOTORIZED VALVE TO MAINTAIN
- THE STATIC PRESSURE SETPOINT. MORNING WARM-UP AND COOL DOWN: 1. IN THE WARM-UP MODE, THE OUTDOOR AIR DAMPER SHALL BE CLOSED. THE AHU SHALL START. THE CONTROL DAMPERS SHALL BE COMMANDED TO FULL OPEN POSITION. 2. IN MORNING COOL-DOWN MODE, THE OUTDOOR AIR DAMPER SHALL BE CLOSED AND THE
- THE CONTROL DAMPERS SHALL BE COMMANDED TO FULL OPEN POSITION. CONDENSING UNIT SHALL START. THE COOLING TO MAINTAIN ITS COOLING SETPOINT. NIGHT SETBACK: 1. UNDER A WINTER NIGHT SETBACK MODE, SPACE SENSORS DAMPERS PERIMETER ZONE
- SHALL OPEN TO MAINTAIN SPACE SET-BACK TEMPERATURE. WHEN SPACE TEMPERATURE FALLS BELOW 55°F, THE AHU SHALL START AND CYCLE ON/OFF TO MAINTAIN MINIMUM SPACE TEMPERATURE AT ALL SENSORS WITH NO OUTDOOR AIR CAPABILITY, AND THE FURNACE SHALL OPERATE TO MAINTAIN SPACE TEMPERATURE SETPOINT.

GAS FURNACE HEATING/COOLING UNIT CONTROL DIAGRAM (NOT TO SCALE)



(ALTERNATE PRICE)

KEY NOTES

- $\langle 1 \rangle$ RUN COMMUNICATION LOOP TO AND FROM NEAREST HP CONTROLLERS.
- $\langle 2 \rangle$ PROVIDE AND INSTALL ETHERNET SWITCH IN MER/FBOILER ROOM.
- (3) 120V POWER IS PROVIDED BY ELECTRICIAN. BMS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL 24V POWER TO BMS DEVICES AND ACCESSORIES.
- 4 PROVIDE ETHERNET PORT FOR FUTURE TIE IN TO BMS SYSTEM. PROVIDE JUNCTION BOX AND COVER PLATE. RUN CONDUIT FROM WORKSTATION TO J-BOX ON EACH FLOOR.
- $\langle 5 \rangle$ COORDINATE LOCATION OF WORKSTATION AND PC WITH OWNER.

BUILDING AUTOMATION SYSTEM RISER DIAGRAM NTS

3. WHEN THE AIR HANDLING SYSTEM IS IN WARM-UP MODE OR COOL-DOWN

SPACE TEMP

ALTERNATE PRICE: ALARMS SHALL BE PROVIDED TO BMS AS FOLLOWS: 1. SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF. FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON. FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

FAN ECM FAULT. DAMPER FAILURE: COMMANDED OPEN, BUT THE STATUS IS CLOSED. DAMPER IN HAND: COMMANDED CLOSED, BUT THE STATUS IS OPEN. HIGH RETURN AIRFLOW: IF THE RETURN AIRFLOW IS AN ADJUSTABLE PERCENTAGE GREATER THAN SETPOINT. LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 5 °F (ADJ.) SETPOINT.

PREFILTER CHANGE REQUIRED: PREFILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.). 5. FINAL FILTER CHANGE REQUIRED: FINAL FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.). 6. HIGH MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90 °F (ADJ.). LOW MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 45 °F (ADJ.). HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90 °F (ADJ.)

9. LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F (ADJ.). 10. HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.). 11. LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45 °F (ADJ.).

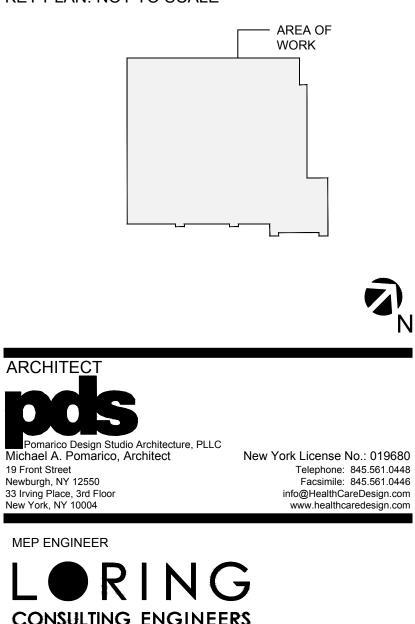
Montefiore

MONTEFIORE NYACK HOSPITAL 160 NORTH MIDLAND AVENUE NYACK, NY 10960

OUTPATIENT DIAGNOSTIC & TREATMENT FACILITY **ALTERATIONS - LEVEL 3**

18 NORTH HIGHLAND AVENUE NYACK, NY 10960

KEY PLAN: NOT TO SCALE



CONSULTING ENGINEERS Loring Consulting Engineers, Inc. 360 West 31st Street, 14th Floor New York, NY 10001-2727 Phone 212.563.7400 www.loringengineers.con New York City + Washington, DC + Princeton + Durham + Toronto

STRUCTURAL ENGINEER

ISSUED DOCUMENTS: No: Date: Description:

12.06.2024

ISSUED FOR PERMIT

SEAL

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING ARCHITECT SHALL AFFIX HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

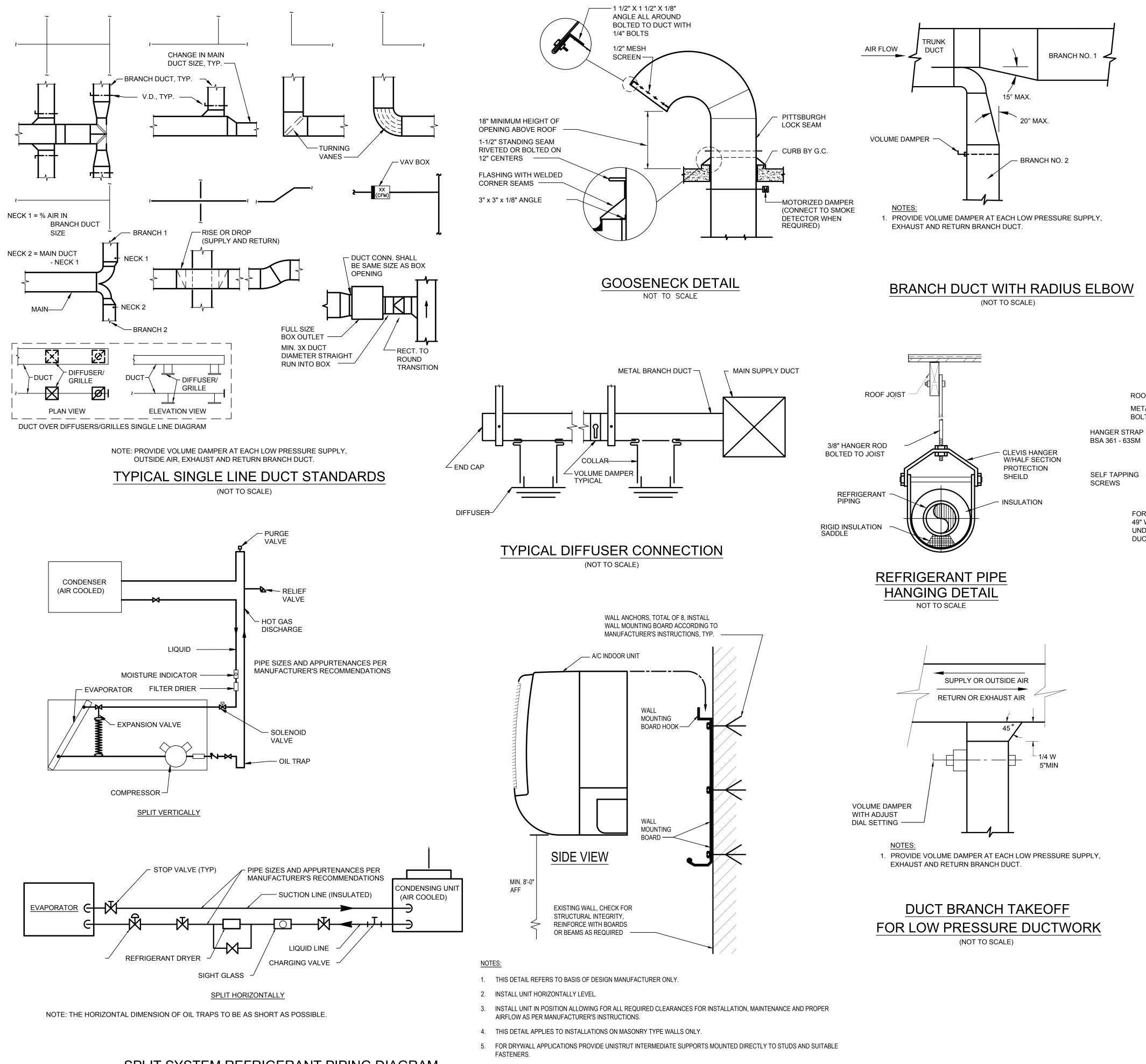


DRAWING TITLE:

MECHANICAL CONTROLS

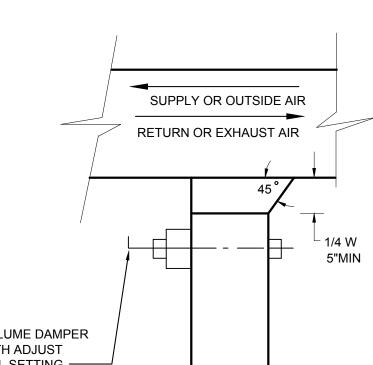
PROJECT NUMBER	CON # CAD	
date 11/19/2024	^{scale} N.T.S.	
DRAWING NUMBER		

M-401.00



SPLIT SYSTEM REFRIGERANT PIPING DIAGRAM NOT TO SCALE

WALL MOUNTED AC UNIT SUPPORT DETAIL NOT TO SCALE



SELF TAPPING SCREWS

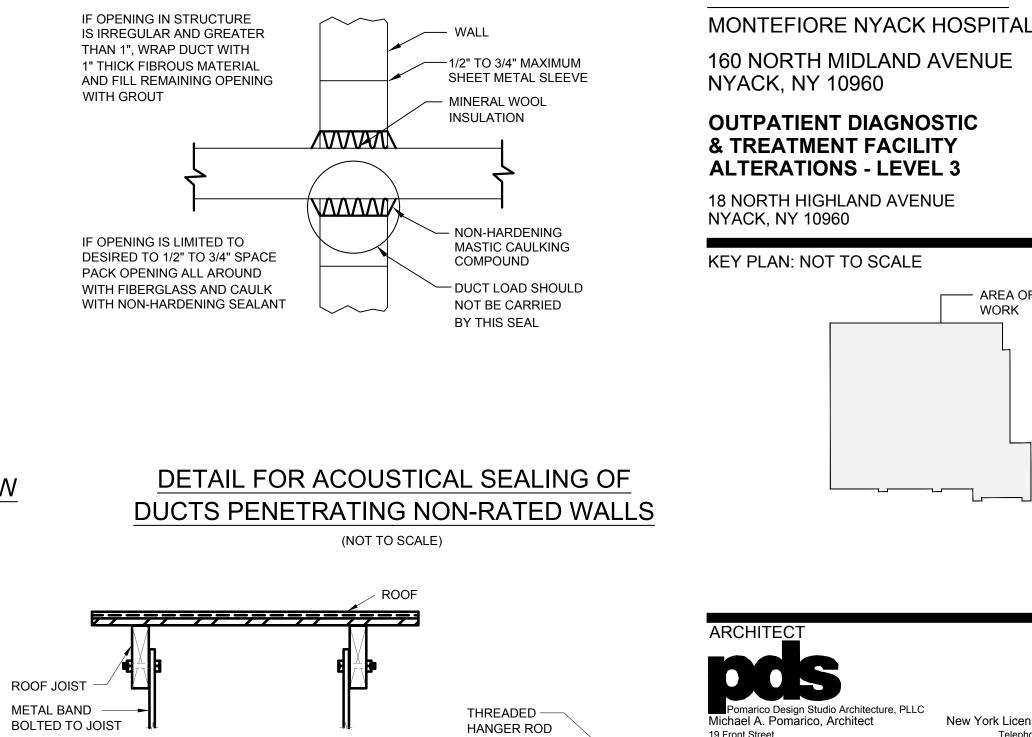
49" WIDE TURN

ROOF JOIST METAL BAND

FOR DUCTS OVER UNDER BOTTOM OF DUCT & FASTEN

<u>NOTES</u>

2



DUCT

TRAPEZE

HANGER

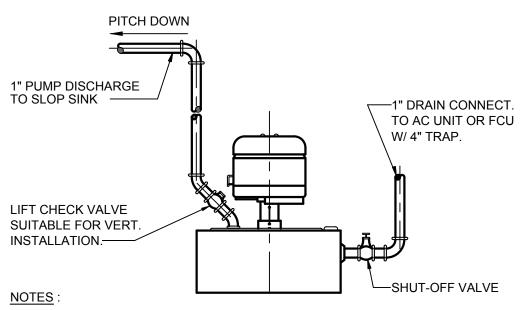


Montefiore

AREA OF

WORK

STRUCTURAL ENGINEER



PUMP SHALL BE LOW PROFILE, WITH BUILT-IN FLOAT SWITCH AND HIGH WATER CUT-OUT INTERLOCKED WITH AC UNIT OR FCU. SUPPORT FOR CEILING CONDENSATE PUMPS SHALL BE THE SAME AS SHOWN FOR FAN COIL UNITS.

CONDENSATE PUMP DETAIL

NOT TO SCALE

SEAL

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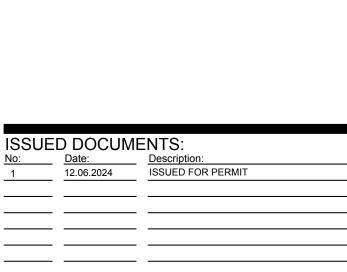


DRAWING TITLE:

MECHANICAL DETAILS SHEET No.1

PROJECT NUMBER	CON # CAD	
DATE	SCALE	
11/19/2024	N.T.S.	
DRAWING NUMBER		

M-501.00



MEDIUM PRESSURE

METHOD OF HANGING DUCTWORK

NOT TO SCALE

DUCT

LOW PRESSURE