

DEMOLITION NOTES	
1.	DEMOLITION NOTES, SYMBOL LIST AND DETAILS ARE APPLICABLE TO ALL HVAC/MECHANICAL DRAWINGS.
2.	ALL PIPING IN WALLS AND FLOORS NOT TO BE REUSED WILL BE PLUGGED OR CAPPED AND CUTTING AND PATCHING WILL BE PERFORMED TO RESTORE SURFACE TO ORIGINAL CONDITION BY THIS CONTRACTOR.
3.	AFTER REMOVING PIPING THROUGH FLOOR SLABS, PENETRATIONS SHALL BE PATCHED WITH APPROVED FIRE-RATED MATERIAL.
4.	THE CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL COSTS ASSOCIATED WITH REMOVALS AND RELOCATIONS OF HVAC WORK AS DESCRIBED ON THE DRAWINGS AND IN THE SPECIFICATIONS WITH ALLOWANCES FOR EXPECTED OR UNFORESEEN DIFFICULTIES WHEN CONCEALED WORK HAS BEEN OPENED. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN CERTAIN CASES CONSIDERED JUSTIFIABLE BY THE OWNER/ENGINEER.
5.	THE CONTRACTOR SHALL PERFORM DEMOLITION AND REMOVAL WORK WITH MINIMUM INTERFERENCE WITH FUNCTIONING HVAC SYSTEMS. ALL AFFECTED SYSTEMS SHALL BE RECONNECTED AND RESTORED.
6.	DEMOLITION AND REMOVAL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER. THE CONTRACTOR SHALL PATCH, REPAIR OR OTHERWISE RESTORE ANY DAMAGED INTERIOR OR EXTERIOR BUILDING SURFACE TO ITS ORIGINAL CONDITION.
7.	THE CONTRACTOR SHALL REMOVE ALL DUCT & PIPING SUPPORTS, ECT. FROM PARTITIONS THAT ARE TO BE REMOVED. WHERE THE REMOVAL OF THESE ITEMS DISRUPTS EXISTING PIPING THAT IS TO REMAIN, THE CONTRACTOR SHALL INSTALL AND PROVIDE BYPASS CONNECTIONS NECESSARY.
8.	ALL PIPING WHICH BECOMES EXPOSED DURING THE ALTERNATION WORK SHALL BE REROUTED CONCEALED BEHIND FINISHED SURFACES.
9.	PORTIONS OF PIPING & DUCTWORK TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ACTIVE, SHALL BE CUT AT CONVENIENT LOCATIONS, REROUTED AND RECONNECTED.
10.	THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND PHASING SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
11.	ALL EXISTING MATERIAL AND EQUIPMENT IN USABLE CONDITION, WHICH IS TO BE REMOVED UNDER THIS CONTRACTOR, SHALL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THE HVAC CONTRACTOR, AS DIRECTED BY THE OWNER.
12.	ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVER TIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
13.	THE SHUTDOWN OF EXISTING BUILDING HVAC SERVICES SHALL BE COORDINATED WITH THE OWNER. MAKE ARRANGEMENTS AT LEAST 5 BUSINESS DAYS PRIOR TO A SHUTDOWN.
14.	CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE & LOCAL REQUIREMENTS.

GENERAL NOTES	
1.	THESE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK AS WELL AS INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTWORK AND PIPING. THE CONTRACTOR SHALL ADHERE TO THESE DRAWINGS AS CLOSELY AS POSSIBLE. HOWEVER, THE RIGHT IS RESERVED TO VARY THE RUNS OF DUCTWORK AND PIPING AND TO MAKE OFFSETS, WHERE NECESSARY, TO ACCOMMODATE CONDITIONS ARISING AT THE JOB SITE. THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL. NO WORK SHALL BE PERFORMED PRIOR TO RECEIPT OF EQUIPMENT, DUCTWORK AND PIPING FABRICATION DRAWING APPROVAL.
2.	ANY MATERIAL, WORK OR INCIDENTAL ACCESSORIES OR MINOR DETAILS NOT SHOWN BUT NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SHOWN ON THE DRAWINGS, SHALL BE PROVIDED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
3.	DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS, WHERE ACOUSTICALLY LINED DUCT IS SPECIFIED. DUCT DIMENSIONS SHALL BE INCREASED TO ACCOMMODATE LINING.
4.	ALL LOW PRESSURE TERMINAL BRANCH DUCTWORK (SUPPLY AND RETURN) SHALL BE PROVIDED WITH VOLUME CONTROL DAMPERS. ALL BRANCH DUCT VOLUME DAMPERS SERVING DIFFUSERS IN GYPSUM BOARD CEILINGS (OTHERWISE INACCESSIBLE) SHALL BE REMOTELY (CORD OR CABLE) OPERABLE THROUGH THE FACE OF THE DIFFUSER.
5.	THERMOSTAT LOCATIONS SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, FINISHED PAINT COLOR TO BE SELECTED BY THE ARCHITECT. 48" ABOVE FINISHED FLOOR.
6.	WHERE PIPING CONNECTIONS FOR EQUIPMENT SUCH AS PUMPS, AC UNITS, COIL, ECT, DIFFER FROM THE LINE SIZE PIPING. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO FURNISH AND INSTALL THE NECESSARY REDUCER/EXPANDER FITTINGS TO ENABLE CONNECTION BETWEEN THE PIPING SYSTEM AND THE EQUIPMENT.
7.	PROVIDE ONE THERMOSTAT FOR EACH FAN COIL UNIT, ATTIC VENT AIR FAN UNIT, VAV, FPB, CABINET UNIT HEATER AND ELECTRIC BASEBOARD RADIATION. THERMOSTAT LOCATIONS SHALL BE AS SHOWN ON PLANS AND/OR WHERE DIRECTED AND APPROVED BY THE ARCHITECTS AND ENGINEERS.
8.	BORDER TYPES AND METHOD OF ATTACHMENT FOR ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE COORDINATED WITH THE ARCHITECTURAL CEILING DETAILS AND SPECIFICATIONS.
9.	REFER TO SPECIFICATIONS FOR ACOUSTIC LINING REQUIREMENTS NOT SHOWN ON THE DRAWINGS.
10.	ALL PIPING SHALL BE INSTALLED TIGHT TO THE BOTTOM OF STEEL AT ALL TIMES UNLESS OTHERWISE INDICATED OR REQUIRED BY FIELD CONDITIONS.
11.	ALL PIPING OF DISSIMILAR MATERIALS SHALL HAVE DIELECTRIC FITTINGS.
12.	ALL HVAC EQUIPMENT THAT CONTAINS A COILING COIL OR FUEL FIRED APPLIANCE WILL BE PROVIDED WITH A SECONDARY DRAIN PAN AND A MOISTURE SENSOR THAT WILL AUTOMATICALLY SHUT THE UNIT DOWN WHEN MOISTURE IS DETECTED.

MECHANICAL ABBREVIATIONS	
AC	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
ATC	AUTOMATIC TEMPERATURE CONTROL
CD-A	DIFFUSER TYPE - REFER TO SCHEDULE
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNITS
CFM	CUBIC FEET PER MINUTE
E	EXISTING
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ER	EXISTING TO REMAIN
ETR	EXISTING TO BE RELOCATED
EX	GENERAL EXHAUST
FC	FAN COIL
FD	FIRE DAMPER WITH ACCESS DOOR
FLA	FULL LOAD AMPS
HZ	HERTZ
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MD	MOTORIZED DAMPER
OED	OPEN ENDED DUCT
PH	PHASE
PSI	POUNDS PER SQUARE INCH
SHC	SENSIBLE COOLING (IN MBH)
SD	SMOKE DETECTOR
TC	TOTAL COOLING (IN MBH)
TYP	TYPICAL
V	VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WMS	WIRE MESH SCREEN

MECHANICAL DUCTWORK SYMBOL LIST	
	NEW SUPPLY DUCT
	EXISTING SUPPLY DUCT TO REMAIN
	EXISTING SUPPLY DUCT TO BE REMOVED
	NEW RETURN DUCT
	EXISTING RETURN DUCT TO REMAIN
	EXISTING RETURN DUCT TO BE REMOVED
	ACOUSTICALLY LINED DUCT
	NEW EQUIPMENT
	EXISTING EQUIPMENT TO BE REMOVED
	EXISTING EQUIPMENT TO REMAIN
	EXISTING EQUIPMENT TO BE RELOCATED
	DUCT SIZE (FIRST FIGURE INDICATES HORIZONTAL SIZE)
	ROUND DUCT DIAMETER
	TRANSITION FROM RECTANGULAR TO ROUND OR OVAL DUCT
	FLEXIBLE CONNECTION
	VOLUME DAMPER
	FIRE DAMPER W/ DUCT ACCESS DOOR
	SUPPLY REGISTER
	RETURN OR EXHAUST REGISTER OR GRILLE
	SUPPLY CEILING DIFFUSER
	RETURN CEILING GRILLE OR REGISTER
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RETURN OR EXHAUST DUCT UP
	RETURN OR EXHAUST DUCT DOWN
	ELBOW WITH TURNING VANES
	RADIUS ELBOW
	DUCT SPLIT OR BRANCH TAKEOFF
	DOOR UNDERCUT
	THERMOSTAT - WALL OR DUCT MOUNTED
	TEMPERATURE SENSOR - WALL OR DUCT MOUNTED
	DUCT MOUNTED SMOKE DETECTOR
	MECHANICAL PLAN NOTE TAG
	REVISION SYMBOL
	POINT OF NEW CONNECTION TO EXISTING WORK
	REMOVE AND SAFE OFF EXISTING WORK FOR RECONNECTION

MECHANICAL DRAWING INDEX	
DRAWING NO.	DRAWING TITLE
M001	MECHANICAL NOTES, LEGEND, AND DRAWING INDEX
M100	MECHANICAL DEMOLITION PLAN
M101	MECHANICAL ROOF DEMOLITION PLAN
M200	MECHANICAL FLOOR PLAN
M201	MECHANICAL ROOF PLAN
M300	MECHANICAL SCHEDULES
M301	MECHANICAL DETAILS
M400	MECHANICAL SPECIFICATIONS (1 OF 2)
M401	MECHANICAL SPECIFICATIONS (2 OF 2)

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MECHANICAL NOTES, LEGEND, AND INDEX

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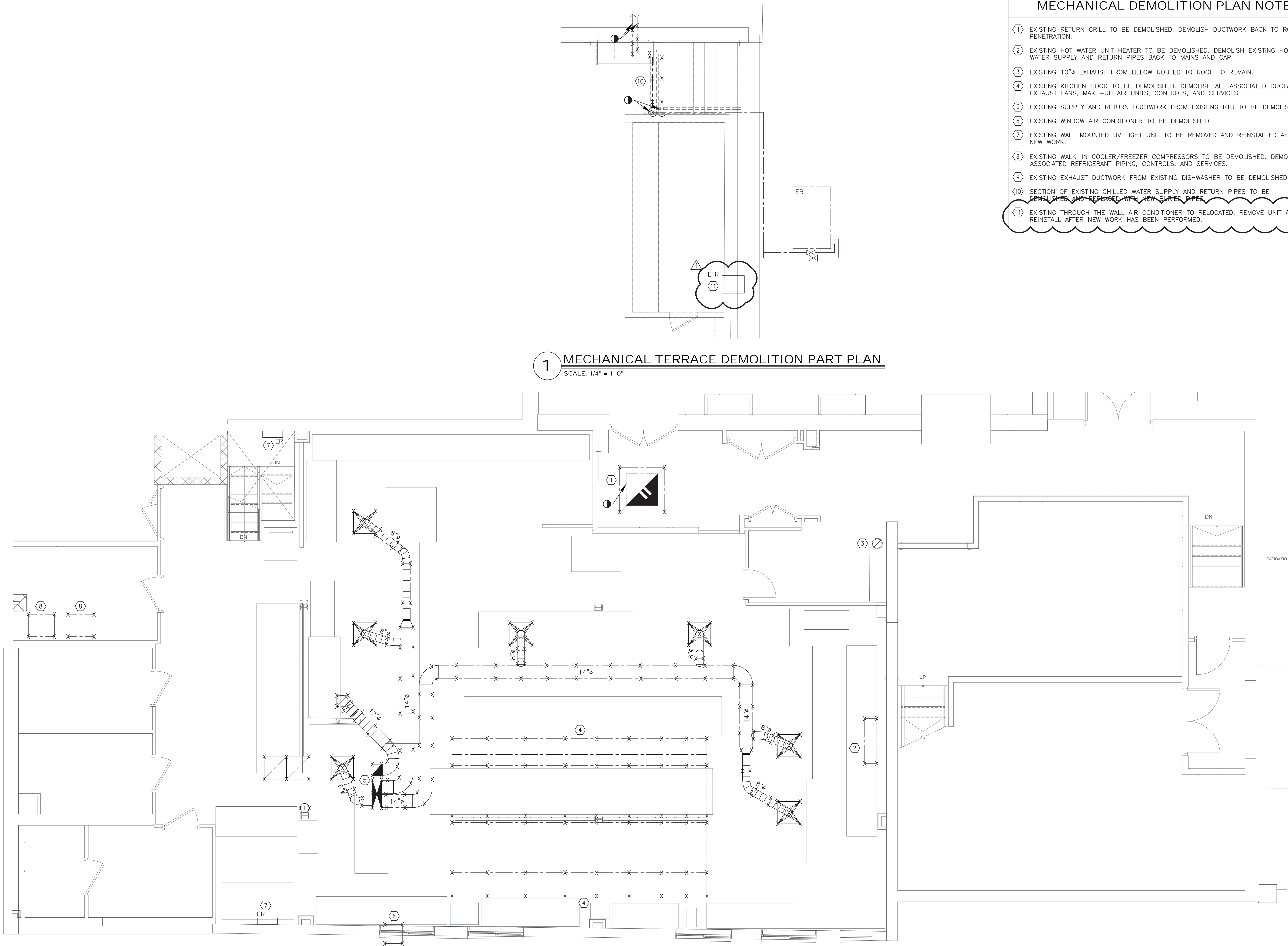
PROJECT NO.: 21-826

DRAWN BY: CH

CHECKED BY: TL

DRAWING NO: M001.00

CAD FILE NO: J:\Proj2016\694-BASIS



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

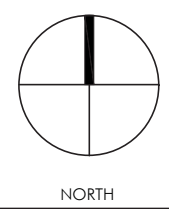
2 MECHANICAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

MECHANICAL DEMOLITION PLAN NOTES

- EXISTING RETURN GRILL TO BE DEMOLISHED. DEMOLISH DUCTWORK BACK TO ROOF PENETRATION.
- EXISTING HOT WATER UNIT HEATER TO BE DEMOLISHED. DEMOLISH EXISTING HOT WATER SUPPLY AND RETURN PIPES BACK TO MAINS AND CAP.
- EXISTING 10"Ø EXHAUST FROM BELOW ROUTED TO ROOF TO REMAIN.
- EXISTING KITCHEN HOOD TO BE DEMOLISHED. DEMOLISH ALL ASSOCIATED DUCTWORK, EXHAUST FANS, MAKE-UP AIR UNITS, CONTROLS, AND SERVICES.
- EXISTING SUPPLY AND RETURN DUCTWORK FROM EXISTING RTU TO BE DEMOLISHED.
- EXISTING WINDOW AIR CONDITIONER TO BE DEMOLISHED.
- EXISTING WALL MOUNTED UV LIGHT UNIT TO BE REMOVED AND REINSTALLED AFTER NEW WORK.
- EXISTING WALK-IN COOLER/FREEZER COMPRESSORS TO BE DEMOLISHED. DEMOLISH ASSOCIATED REFRIGERANT PIPING, CONTROLS, AND SERVICES.
- EXISTING EXHAUST DUCTWORK FROM EXISTING DISHWASHER TO BE DEMOLISHED.
- SECTION OF EXISTING CHILLED WATER SUPPLY AND RETURN PIPES TO BE DEMOLISHED AND REPLACED WITH NEW BURIED PIPES.
- EXISTING THROUGH THE WALL AIR CONDITIONER TO BE RELOCATED. REMOVE UNIT AND REINSTALL AFTER NEW WORK HAS BEEN PERFORMED.

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APPENDIX #1		DESCRIPTION	
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MECHANICAL DEMOLITION PLAN

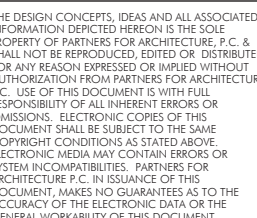
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- ① EXISTING 10" EXHAUST TO REMAIN.
- ② EXISTING RTU TO BE DEMOLISHED. DEMOLISH ASSOCIATED DUCTWORK AND CONTROLS. EXISTING ROOF CURB TO REMAIN AND BE REUSED.
- ③ EXISTING RETURN DUCTWORK ROOF PENETRATION TO BE CAPPED AND SEALED. EXISTING SUPPLY DUCTWORK ROOF PENETRATION TO REMAIN AND BE REUSED.
- ④ EXISTING WALK-IN COOLER/FREEZER COMPRESSOR TO BE DEMOLISHED. DEMOLISH ASSOCIATED REFRIGERANT PIPING, CONTROLS, AND SERVICES.
- ⑤ EXISTING EXHAUST FAN SERVING KITCHEN HOODS TO BE DEMOLISHED. DEMOLISH ASSOCIATED DUCTWORK, CONTROLS, AND SERVICES. EXISTING ROOF PENETRATION TO BE CAPPED AND SEALED.
- ⑥ EXISTING MAKE-UP AIR UNIT SERVING KITCHEN HOODS TO BE DEMOLISHED. DEMOLISH ASSOCIATED DUCTWORK, CONTROLS, AND SERVICES. EXISTING ROOF PENETRATION TO REMAIN AND BE REUSED.
- ⑦ EXISTING EXHAUST FAN SERVING DISHWASHER TO BE DEMOLISHED. DEMOLISH ASSOCIATED DUCTWORK, CONTROLS, AND SERVICES. ROOF PENETRATION TO BE CAPPED AND SEALED.

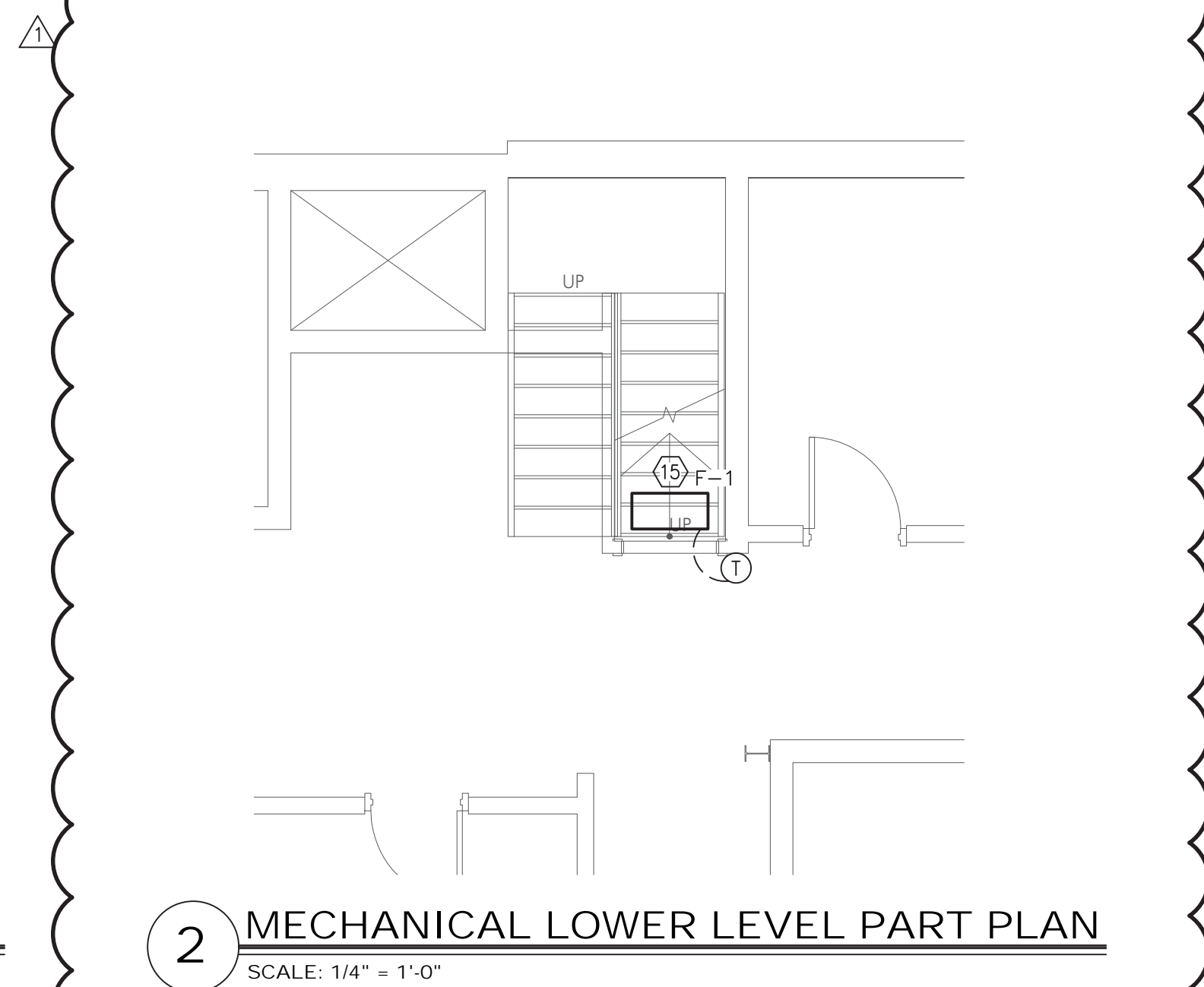
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1 MECHANICAL ROOF DEMOLITION PLAN

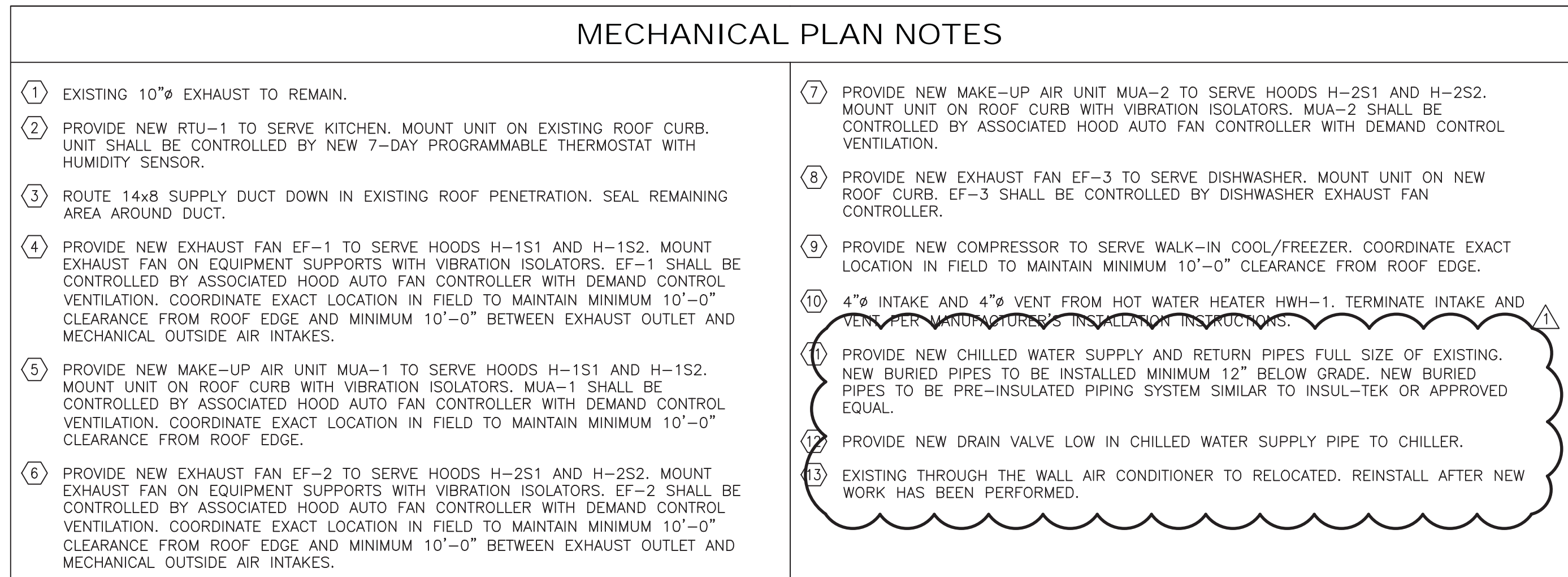
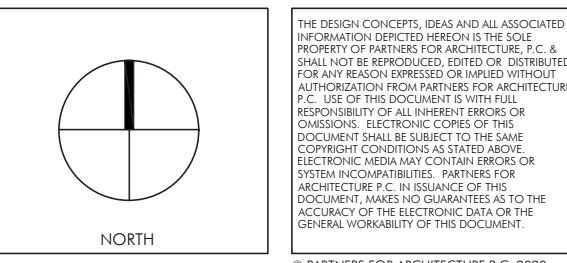


- (1) PROVIDE NEW RETURN DUCTWORK TO EXISTING SIDEWALL RETURN GRILL. VERIFY IN FIELD EXACT CONNECTION SIZE OF EXISTING SIDEWALL RETURN GRILL.
- (2) EXISTING WALL MOUNTED UV LIGHT UNITS TO BE REINSTALLED. COORDINATE EXACT LOCATIONS IN FIELD.
- (3) SUPPLY DUCTWORK FROM NEW RTU-1. ROUTE DUCTWORK BETWEEN JOISTS TO CLEAR BEAM CROSSOVERS.
- (4) PROVIDE NEW WALL MOUNTED 7-DAY PROGRAMMABLE THERMOSTAT WITH HUMIDITY SENSOR TO SERVE NEW RTU-1.
- (5) 24x24 EXHAUST DUCT FROM EF-1 ON ROOF TO SERVE KITCHEN HOOD. ALL EXHAUST DUCTWORK SHALL BE BLACK IRON FOR GREASE DUCT APPLICATION. PROVIDE FIRE WRAP AROUND DUCTWORK FOR 0" CLEARANCE TO COMBUSTIBLE MATERIAL. BALANCE EXHAUST TO EACH HOOD SECTION PER HOOD SCHEDULE. EF-1 SHALL BE CONTROLLED BY HOOD AUTO FAN CONTROLLER WITH DEMAND CONTROL VENTILATION.
- (6) 30x18 SUPPLY DUCT FROM MUA-1 ON ROOF TO SERVE KITCHEN HOOD. BALANCE SUPPLY TO EACH SUPPLY PLENUM PER HOOD SCHEDULE. MUA-1 SHALL BE CONTROLLED BY HOOD AUTO FAN CONTROLLER WITH DEMAND CONTROL VENTILATION.
- (7) PROVIDE NEW REMOTE ANSUL R-102 FIRE SUPPRESSION SYSTEM TO SERVE HOODS H-1S1 AND H-1S2. MOUNT CABINET HIGH ON WALL.
- (8) PROVIDE REMOTE AUTO FAN CONTROLLER WITH DEMAND CONTROL VENTILATION TO SERVE HOODS H-1S1 AND H-1S2. CONTROLLER SHALL CONTROL EF-1 AND MUA-1.
- (9) 22x22 EXHAUST DUCT FROM EF-2 ON ROOF TO SERVE KITCHEN HOOD. ALL EXHAUST DUCTWORK SHALL BE BLACK IRON FOR GREASE DUCT APPLICATION. PROVIDE FIRE WRAP AROUND DUCTWORK FOR 0" CLEARANCE TO COMBUSTIBLE MATERIAL. BALANCE EXHAUST TO EACH HOOD SECTION PER HOOD SCHEDULE. EF-2 SHALL BE CONTROLLED BY HOOD AUTO FAN CONTROLLER WITH DEMAND CONTROL VENTILATION.
- (10) 22x16 SUPPLY DUCT FROM MUA-2 ON ROOF TO SERVE KITCHEN HOOD. BALANCE SUPPLY TO EACH SUPPLY PLENUM PER HOOD SCHEDULE. MUA-2 SHALL BE CONTROLLED BY HOOD AUTO FAN CONTROLLER WITH DEMAND CONTROL VENTILATION.
- (11) PROVIDE NEW REMOTE ANSUL R-102 FIRE SUPPRESSION SYSTEM TO SERVE HOODS H-2S1 AND H-2S2. MOUNT CABINET HIGH ON WALL.

- (12) PROVIDE REMOTE AUTO FAN CONTROLLER WITH DEMAND CONTROL VENTILATION TO SERVE HOODS H-2S1 AND H-2S2. CONTROLLER SHALL CONTROL EF-2 AND MUA-2.
- (13) 10x10 EXHAUST DUCT FROM EF-3 ON ROOF TO SERVE DISH WASHER. CONNECT EXHAUST DUCTWORK TO EXHAUST COLLARS ON DISHWASHER. BALANCE EXHAUST TO 175 CFM ON ENTRANCE END AND 375 CFM ON DISCHARGE END OF DISHWASHER. EF-3 SHALL BE CONTROLLED BY DISHWASHER EXHAUST FAN CONTROLLER.
- (14) EXISTING 10" EXHAUST FROM EXISTING BOILER AND HOT WATER HEATER ROUTED TO ROOF TO REMAIN.
- (15) PROVIDE NEW AIR CURTAIN F-1 WITH ELECTRIC HEAT AT STAIRWELL ENTRANCE. PROVIDE WITH MANUFACTURER'S CONTROL SWITCH TO CONTROL FAN AND HEAT SEPARATELY. PROVIDE WALL MOUNTED THERMOSTAT FOR HEAT CONTROL. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- (16) NOT USED.
- (17) PROVIDE NEW 4" INTAKE AND 4" VENT TO SERVE NEW HOT WATER HEATER UNIT-1. ROUTE INTAKE AND VENT UP TO ROOF NEXT TO EXISTING 10" VENT. AT ROOF TERMINATE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- (18) NEW 4" INTAKE AND 4" VENT FROM NEW HOT WATER HEATER ON FLOOR BELOW. ROUTE INTAKE AND VENT TO ROOF AND TERMINATE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.



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MECHANICAL
ROOF PLAN

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	DRAWN BY: CH	
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MAKE-UP AIR UNIT SCHEDULE																						
UNIT TAG	SUPPLY FAN				COOLING				ELECTRICAL				HEATING			MIN EER	MANUFACTURER	MODEL	REFRIGERANT	OPERATING WEIGHT (LBS)	QTY	REMARKS
	TOTAL CFM	ESP	HP	DRIVE	NOM. CAPACITY TOTAL (MBH)	SENS. (MBH)	AMBIENT (°F)	STAGES (MIN)		MCA	VOLTS	PHASE	INPUT MBH	OUTPUT MBH	STAGES							
MUA-1	4800	0.5	3.0	DIRECT	140.9	78.8	95	–	UNIT SUPPLY FAN	48.2	208	3	360	330	–	13.4	LARKIN	XDGX-P116-H22-MF-10	R-410A	2652	1	NOTES 1-14
MUA-2	3488	0.5	2.0	DIRECT	102.4	55.8	95	–	UNIT SUPPLY FAN	38.6	208	3	235	215	–	12.9	LARKIN	XDGX-P115-H12-MF-8	R-410A	1910	1	NOTES 1-13, 15
NOTES:																						
1. SUPPLY FAN SHALL BE PROVIDED POWER THROUGH VFD IN AUTOMATIC FAN CONTROLLER SERVING ASSOCIATED HOOD.																						
2. UNIT SHALL BE CONTROLLED BY AUTOMATIC FAN CONTROLLER SERVING ASSOCIATED HOOD. UNIT SHALL PROVIDE CONSTANT DISCHARGE AIR TEMPERATURE.																						
3. PROVIDE WITH MANUFACTURER SUPPLIED UNIT MOUNTED DISCONNECT SWITCH, AND CONVENIENCE OUTLET.																						
4. PROVIDE VARIABLE AIR VOLUME SYSTEM.																						
5. PROVIDE FIELD INSTALLED SUPPLY AIR SMOKE DETECTOR IN DUCTWORK.																						
6. PROVIDE DOUBLE WALL CONSTRUCTION AND 1" FIBERGLASS INSULATION IN COOLING SECTION.																						
7. PROVIDE HINGED ACCESS PANELS.																						
8. PROVIDE SUPPLY FAN AND MOTOR NEOPRENE VIBRATION ISOLATORS.																						
9. PROVIDE DIRTY FILTER SWITCH, HEATING INLET AIR SENSOR, COOLING INLET AIR SENSOR, FREEZE PROTECTION, AND AUXILIARY SUPPLY STARTER CONTACT.																						
10. PROVIDE LOW LEAK OUTDOOR AIR INLET DAMPER.																						
11. PROVIDE ALUMINUM MESH FILTERED WEATHERHOOD.																						
12. PROVIDE FLAME ROD FOR FLAME SENSING AND FM COMPLIANT HEATING SECTION.																						
13. MOUNT UNIT ON NEW ROOF CURB.																						
14. PROVIDE WITH HORIZONTAL SUPPLY DISCHARGE.																						
15. PROVIDE WITH BOTTOM SUPPLY DISCHARGE.																						

EXHAUST FAN SCHEDULE

FAN TAG	SERVICE LOCATION	QTY.	CFM	E.S.P.	FAN TYPE	FAN RPM	DRIVE	WEIGHT	MOTOR DATA				MANUFACTURER MODEL	REMARKS
									HP	VOLTS	PH	FLA		
EF-1	KITCHEN HOOD H-1 ROOF	1	6000	1.5	CENTRIFUGAL	973	BELT	525	3.0	208	3	10.6	LARKIN XUEF-24-3-B1-00-01-01	NOTE 1
EF-2	KITCHEN HOOD H-2 ROOF	1	4360	1.5	CENTRIFUGAL	983	BELT	404	2.0	208	3	7.5	GREENHECK XUEF-22-3-B1-00-01-01	NOTE 1
EF-3	BATHROOMS/JC ROOF	1	550	0.75	CENTRIFUGAL	1695	DIRECT	50	1/8	115	1	2.2	GREENHECK CUE-095-VG	NOTE 2

NOTES:

EXHAUST FAN SHALL BE CONTROLLED BY AUTOMATIC FAN CONTROL PACKAGE FOR ASSOCIATED HOOD.

EXHAUST FAN SHALL BE CONTROLLED BY DISHWASHER EXHAUST FAN CONTROLLER.

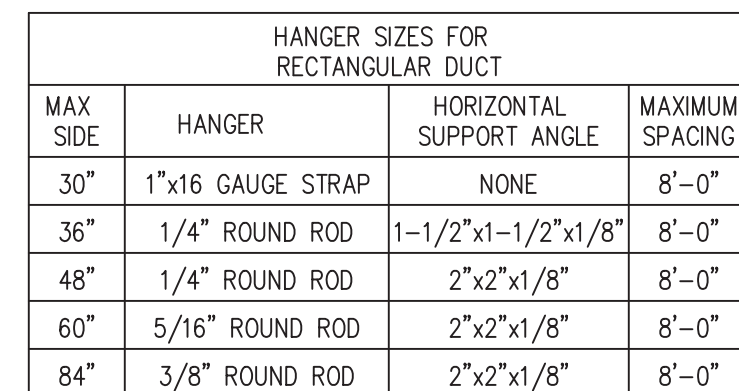
DIFFUSERS, REGISTERS, GRILLES

UNIT TAG	SERVICE	MATERIAL FINISH	MANUFACTURER MODEL	REMARKS	UNIT TAG	SERVICE	MATERIAL FINISH	MANUFACTURER MODEL	REMARKS
A	SUPPLY	STEEL WHITE	PRICE SPD	NOTE 1	B	RETURN	STEEL WHITE	PRICE 530	NOTE 1
C	SUPPLY	STEEL WHITE	PRICE 90	NOTE 1	D	-	-	-	-

NOTES:

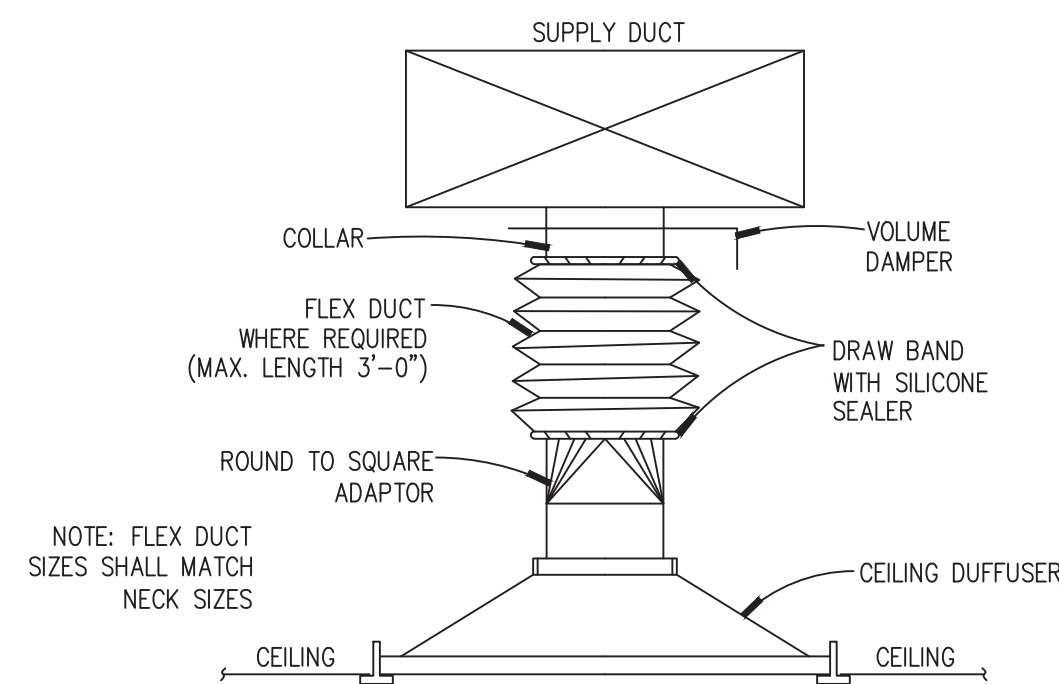
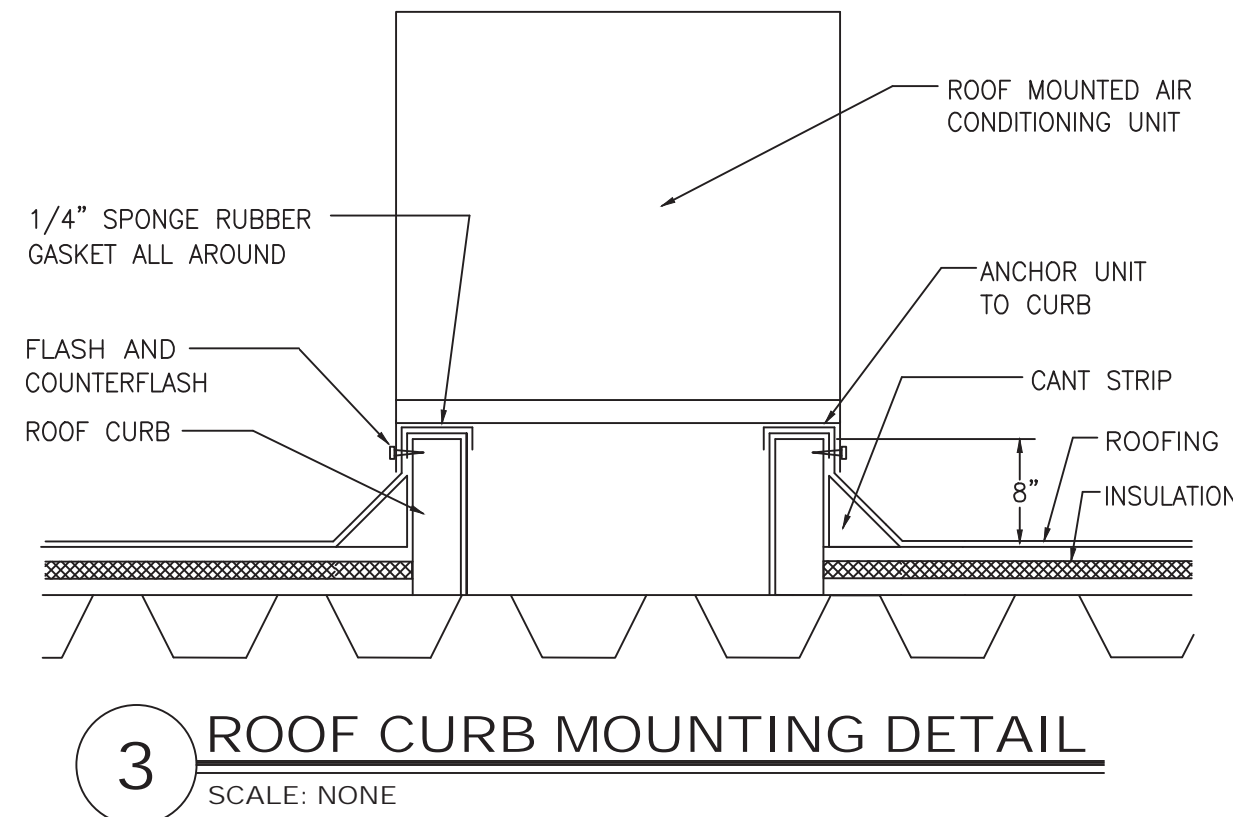
SIZE PER MECHANICAL PLAN DRAWINGS.

[illegible]

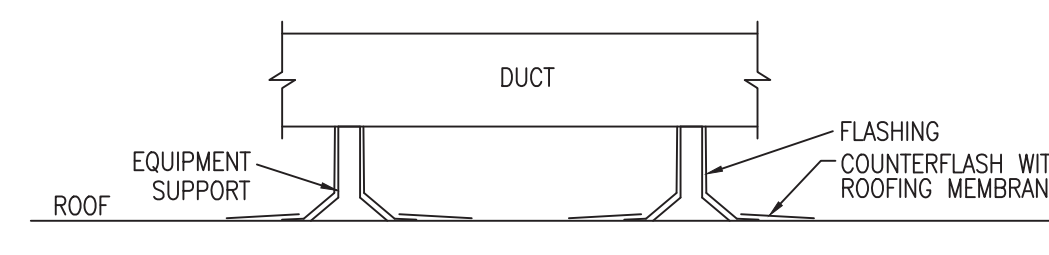


2 DUCT HANGER DETAIL

SCALE: NONE

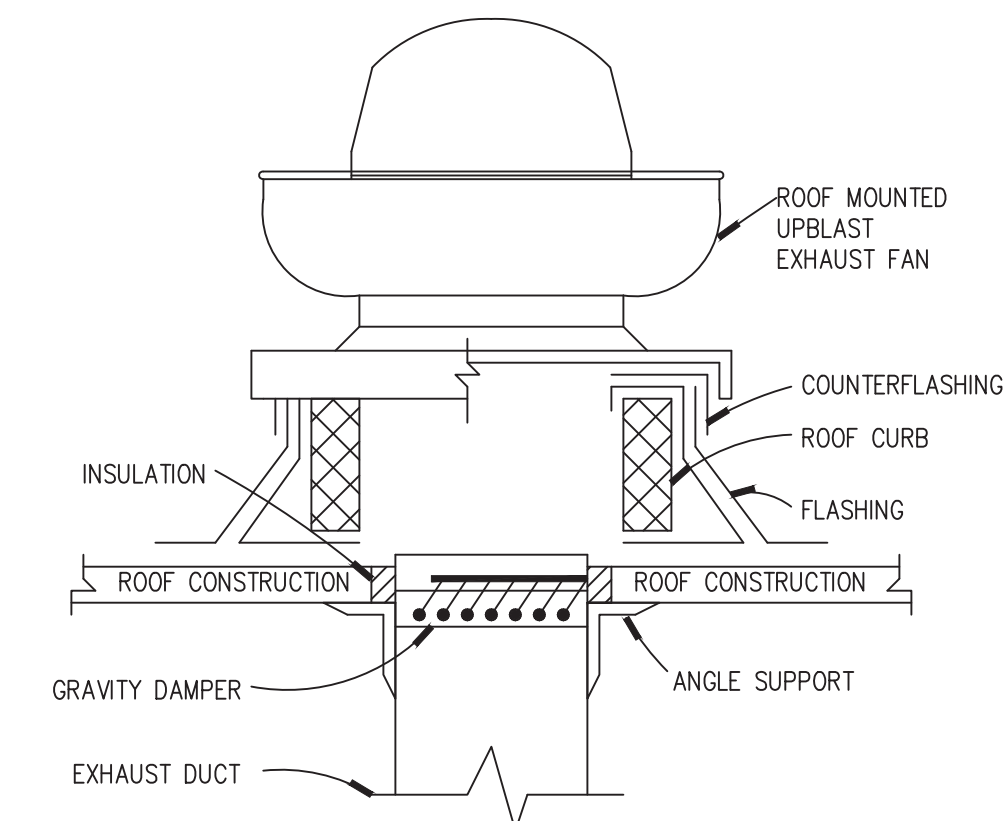


4 TYPICAL DIFFUSER CONNECTION



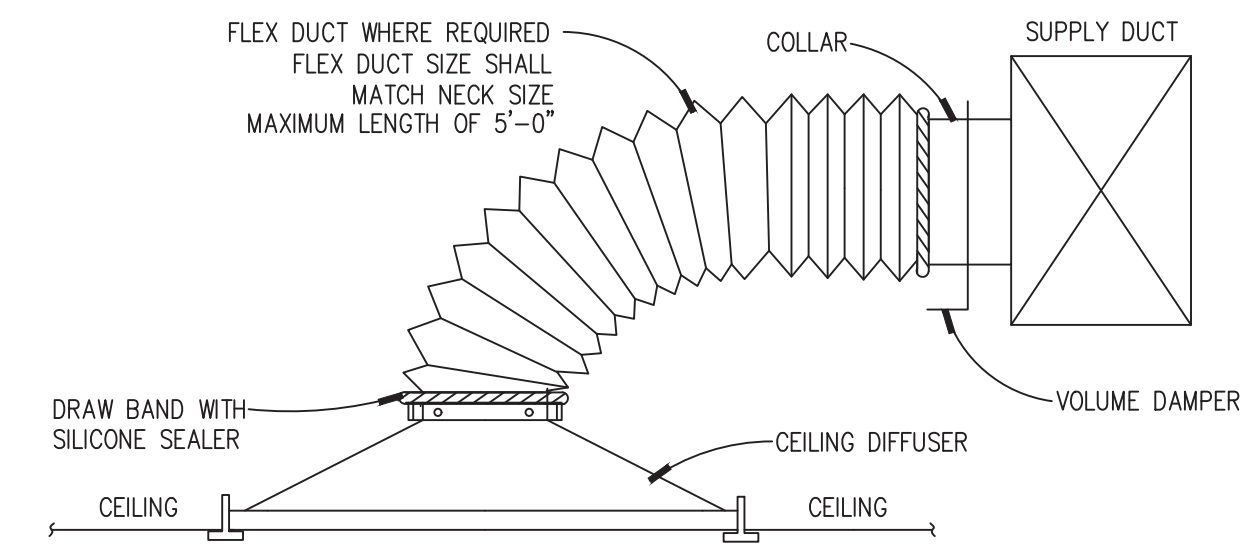
5 ROOFTOP DUCT SUPPORT DETAIL

SCALE: NONE

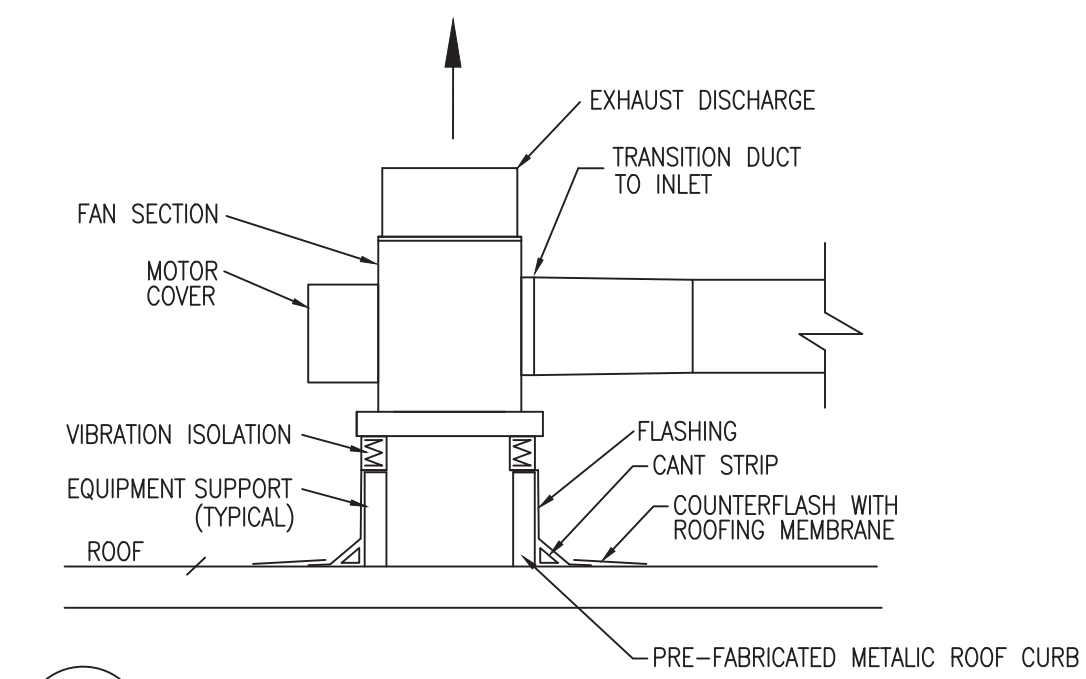


6 ROOF EXHAUST FAN DETAIL

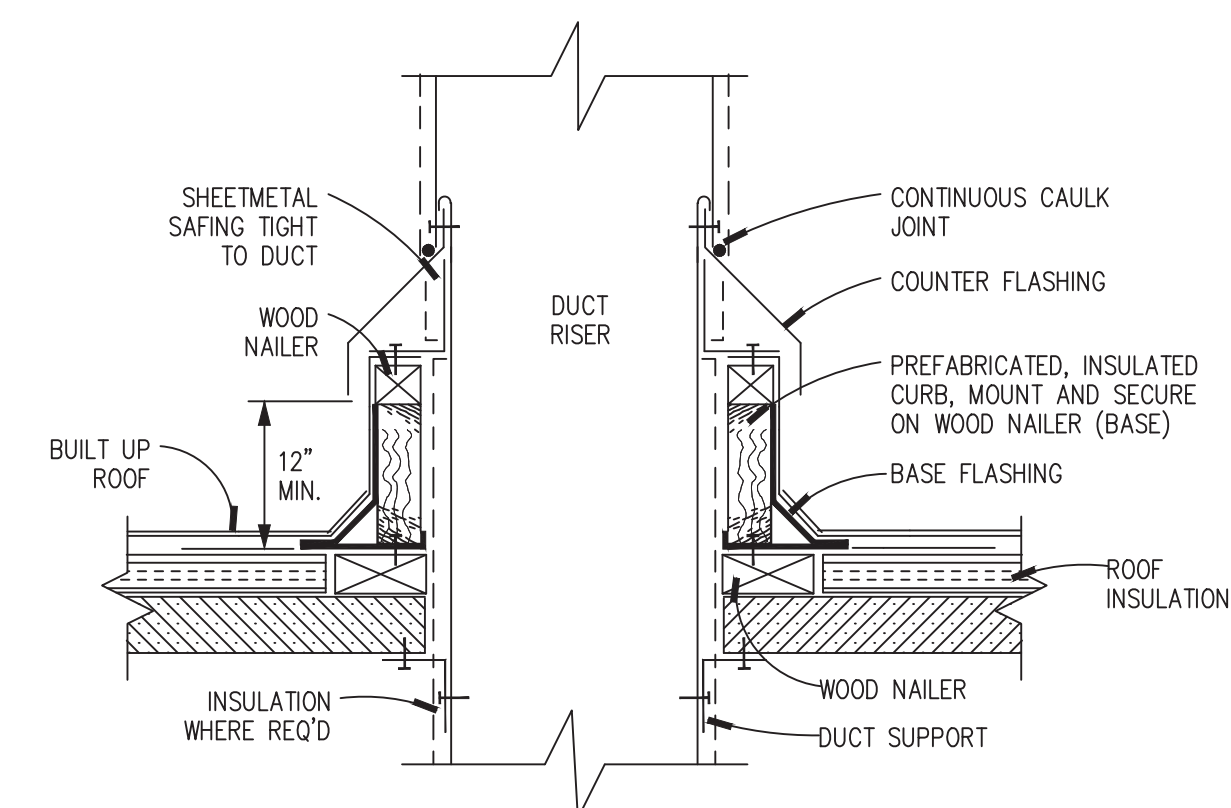
SCALE: NONE



7 TYPICAL SIDE DIFFUSER CONNECTION



8 UTILITY SET EXHAUST FAN
SCALE: NONE



9 DUCT PENETRATION THROUGH ROOF
SCALE: NONE

5. OUTDOOR PIPING

- A) INSULATION THICKNESS FOR OUTDOOR PIPING: INSULATION ON OUTDOOR PIPING SHALL BE TWICE THE THICKNESS LISTED FOR INDOOR PIPE BUT NOT MORE THAN 4". HEAT TRACED IF USED IN WINTER OR NOT DRAINED.
- B) PROVIDE JACKETS MADE OF 0.016" ALUMINUM HELD WITH A FRICTION TYPE, Z–LOCK AND ALUMINUM BANDS. PROVIDE A MOISTURE BARRIER LINING.

2.04 ELECTRICAL WORK

A. GENERAL

- ELECTRICAL POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACT. CONTROL WIRING SHALL BE BY THE HVAC CONTRACT. CONTROL WIRING SHALL BE DEFINED AS ANY 12V, 24V, OR 120V WIRING INSTALLED FOR PURPOSES OTHER THAN PROVIDING PRIMARY ELECTRICAL POWER TO EQUIPMENT.
- MOTOR STARTERS AND VARIABLE FREQUENCY DRIVES (VFD) SHALL BE FURNISHED BY THE HVAC CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. REFER TO THE EQUIPMENT SECTION FOR VARIABLE FREQUENCY DRIVE SPECIFICATIONS.
- DUCT MOUNTED SMOKE DETECTORS, WHERE REQUIRED, SHALL BE PROVIDED BY AD WIRED BY THE ELECTRICAL CONTRACTOR, AND MOUNTED BY THE HVAC CONTRACTOR.
- ALL ELECTRICAL CONTROL WIRING SHALL COMPLY WITH LOCAL ELECTRICAL CODE, ALL AUTHORITIES HAVING JURISDICTION AND THE PROJECT ELECTRICAL SPECIFICATIONS.
- MECHANICAL CONTRACTOR TO OBTAIN QUANTITY OF CONTROLLERS REQUIRED AND COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR ALL OPERATING REQUIREMENTS, INTERLOCKS AND CONNECTIONS FOR STARTERS.
- 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.
- 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 UNIT START/STOP AND FIRE ALARM.

2.05 TESTING AND BALANCING

A. GENERAL:

- TESTING AND BALANCING WORK SHALL BE PERFORMED BY AN INDEPENDENT COMPANY (NOT ASSOCIATED WITH THE HVAC CONTRACTOR), AABC CERTIFIED OR AS APPROVED BY THE ENGINEER BEFORE COMMENCEMENT OF WORK. APPROVED COMPANIES INCLUDE MERENDINO ASSOCIATES, R.H. MCDERMOTT, INTERNATIONAL TESTING AND BALANCING OR AS APPROVED BY THE ENGINEER AND BUILDING MANAGEMENT.
- AFTER ALL PROJECT HVAC WORK IS COMPLETE, TESTED, AND IN FULL WORKING ORDER, THE AGENCY SHALL PERFORM THE BALANCING AND TESTING OF THE PROJECT HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS.
- UPON THE COMPLETION OF THE AIR CONDITIONING SYSTEM, THE BALANCING AGENCY SHALL PERFORM TESTING AND BALANCING AND COMPILE ALL TEST DATA IN A CERTIFIED REPORT AND SUBMIT FOUR (4) COPIES FOR REVIEW AND APPROVAL TO THE ENGINEER.
- THE REPORT SHALL INCLUDE DESIGN AND ACTUAL READINGS FOR ALL EQUIPMENT AND LOCATION PLAN INDICATING WHERE ALL WORK HAS BEEN PERFORMED, AND METHODS OF BALANCING AND DETAILS OF INSTRUMENTS USED.
- IF DISCREPANCIES EXIST IN THE REPORT THAT REQUIRE FIELD VERIFICATION, THE TESTING AND BALANCING COMPANY IN THE PRESENCE OF THE ENGINEER SHALL VISIT THE JOBSITE FOR FIELD VERIFICATION OF THE REPORT.
- AFTER SUBMISSION OF THE FIELD VERIFIED BALANCING REPORT, THE AIR BALANCING COMPANY SHALL RETURN TO THE JOB SITE TO PERFORM TWO (2) OCCUPANT COMFORT BALANCES AS DIRECTED BY THE OWNER OR ENGINEER.
- 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 RESETING OF ANY EQUIPMENT. THE MECHANICAL CONTRACTOR AND THE BALANCING CONTRACTOR SHALL PROVIDE THE NECESSARY TECHNICIANS TO FACILITATE THIS WORK.
- THE BALANCING AGENCY SHALL PERMANENTLY MARK ALL ADJUSTMENT DEVICES (VALVES, DAMPERS, ETC.) TO ENABLE THE SETTING TO BE RESTORED.

B. AIR BALANCING

- HVAC CONTRACTOR SHALL ENSURE THAT A FIRST SET OF AIR FILTERS ARE IN PLACE, WHENEVER FANS ARE RUNNING AND REPLACED WITH A NEW CLEAN SET OF FILTERS BEFORE TESTING IS COMMENCED.
- TEST, ADJUST, REPLACE SHEAVES, AND BALANCE ALL EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE AIR QUANTITIES INDICATED ON PLANS WITHIN PLUS OR MINUS 10 PERCENT.
- TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
 - FLOW, LEAKAGE CLASS, TEMPERATURE, STATIC PRESSURE OF AIR AT ALL TRUNK DUCTS SERVING AREAS OF WORK.
 - TEMPERATURE OF AIR LEAVING OUTLETS AT TWO (2) TYPICAL AIR OUTLETS.
 - QUANTITY OF AIR AT EACH AIR INLET AND OUTLET AFTER BALANCING.
 - PROVIDE FOR ALL FANS, FAN MOTOR HP, AMPS, VOLTS, FAN RPM, CFM, INLET AND DISCHARGE STATIC PRESSURE, SHEAVE POSITION.
 - 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.
 - CALIBRATE ALL NEW AND EXISTING TO BE REUSED TERMINAL BOXES (VAV, FAN POWERED OR DUAL DUCT)AS REQUIRED TO MEET SPECIFIED MINIMUM/MAXIMUM CFM.
 - LISTING OF DESIGN AND ACTUAL READINGS AS WELL AS ALL MANUFACTURER'S DATA FOR EQUIPMENT.

2.06 EQUIPMENT

- PROVIDE ALL EQUIPMENT AND ACCESSORIES OF THE SIZES AND CAPACITIES AS SCHEDULED AND AS INDICATED ON THE DRAWINGS.
- INSTALL EQUIPMENT IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND ALL AUTHORITIES HAVING JURISDICTION.
- PROVIDE EQUIPMENT SUPPORTS AND/OR MOUNTINGS AS INDICATED ON THE DRAWING, IN VIBRATION SPECIFICATION AND AS FOLLOWS:
 - CEILING MOUNTED EQUIPMENT–PROVIDE SUPPORTS WITH APPROVED SUITABLE ANCHORS SUSPENDED DIRECTLY FROM BUILDING STEEL STRUCTURE.
- EQUIPMENT SHALL BE INSTALLED WITH VIBRATION ISOLATION
- RE–USE OF EXISTING EQUIPMENT:
 - EXISTING SYSTEM SURVEY

- PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL PERFORM EXISTING CONDITIONS SURVEY OF SYSTEMS TO BE RE–USED AND PREPARE COMPLETE REPORT INDICATING PHYSICAL CONDITION OF UNITS AND ACCESSORIES AND NOTE ANY REPAIRS REQUIRED. BEYOND ITEMS INCLUDED IN DESIGN DOCUMENTS TO RESTORE EQUIPMENT TO A FULLY OPERATIONAL CONDITION. REPORT TO BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ANY CORRECTIVE ACTION. COORDINATE THIS WORK WITH ANY NEW OR REFURBISHMENT WORK LISTED IN THE SPECIFICATIONS OR PLANS.

- B) PROVIDE A UNIT PRICE LIST TO BE SUBMITTED WITH YOUR BID FOR THE REPAIR OF ALL INTERNAL COMPONENTS OF ALL EQUIPMENT TO BE RE–USED AS WELL AS ALL ACCESSORIES.

- C) UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL WARRANTY ALL RE–USED EQUIPMENT FOR ONE (1) YEAR.

- D) COORDINATE ALL WORK WITH THE GENERAL CONTRACTOR AND REFER TO THE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION, LENGTHS AND FOR FRAMING AND MITERING ARRANGEMENTS THAT MAY DIFFER FROM THOSE SHOWN ON HVAC DRAWINGS. PROVIDE ALL REQUIRED GENERAL CONSTRUCTION, FRAMING, BLOCKING, PLASTERING AND SUPPORTS TO MATCH CEILING, SOFFIT OR WALL CONSTRUCTION AS PART OF THE PROJECT.

- E) INLETS AND OUTLETS SHALL HANDLE AIR QUANTITIES INDICATED AT OPERATING VELOCITIES WITH SOUND PRESSURE LEVEL NOT TO EXCEED NC–30, UNLESS NOTED OTHERWISE.

- F) DIFFUSERS, GRILLES AND REGISTERS SHALL BE INSTALLED WITH FACES SET LEVEL AND PLUM AND MOUNTED TIGHTLY AGAINST MOUNTING SERVICE.

- G) ALL AIR INLETS AND OUTLETS TO BE STEEL OR ALUMINUM IF EXPOSED TO MOISTURE UNLESS OTHERWISE INDICATED. FINISHES TO BE SELECTED BY THE ARCHITECT.

- H) DIFFUSERS, GRILLES AND REGISTERS SHALL BE MANUFACTURED BY TITUS, ANEMOSTAT OR APPROVED EQUAL.

- I) SUBMIT FOR APPROVAL A COMPLETE SCHEDULE OF ALL AIR INLETS AND OUTLETS TO BE USED ON PROJECT INCLUDING MANUFACTURER'S MODELS, SIZES, PERFORMANCES, ACCESSORIES, ACOUSTIC INFORMATION, FINISHES, ETC., BEFORE RELEASE FOR FABRICATION. NOTE ANY DEVIATIONS FROM SPECIFICATIONS AND SCHEDULES SHALL BE INDICATED ON SUBMITTAL.

2. AIR INLET AND OUTLET DEVICES:

- A) PROVIDE DIFFUSERS, GRILLES AND REGISTERS FOR SUPPLY, RETURN AND EXHAUST INLETS AND OUTLETS, OF THE SIZE, TYPE AND DESIGN INDICATED ON DRAWINGS.

- B) ALL SUPPLY RETURN AND EXHAUST AIR INLETS AND OUTLETS SHALL BE PROVIDED WITH AN OPPOSED BLADE DAMPER AND GRID (ADJUSTABLE THROUGH THE FACE) FOR TRIM BALANCING.

- D) SUPPLY REGISTERS SHALL HAVE TWO SETS OF DIRECTIONAL CONTROL BLADES.

- E) ONLY 4–WAY DIFFUSERS SHALL BE USED. PROVIDE BLANK–OFF SHEETMETAL BAFFLE FOR ALL 1–WAY, 2–WAY AND 3–WAY DIFFUSERS.

2.07 AUTOMATIC TEMPERATURE CONTROLS

A. GENERAL:

- FURNISH AND INSTALL AS HEREIN SPECIFIED, A COMPLETE AUTOMATIC TEMPERATURE CONTROL SYSTEM COMPATIBLE WITH EXISTING BUILDING MANAGEMENT CONTROL SYSTEM. MANUFACTURER SHALL BE APPROVED BY BUILDING OWNER AND ENGINEER BEFORE COMMENCING WORK.

- ALL TEMPERATURE CONTROL SYSTEMS AND COMPONENTS UNDER THIS SUBCONTRACT ARE TO BE FULLY MODULATING TYPE, EXCEPT WHERE NOTED OTHERWISE. THE SYSTEM SHALL BE COMPLETE IN ALL RESPECTS INCLUDING ALL ASSOCIATED CONTROL EQUIPMENT, THERMOSTATS, CONTROL VALVES, VALVE ACTUATORS, DAMPER OPERATORS, RELAYS, PILOT POSITIONERS, CONTROL WIRING, CONTROL AIR PIPING, SWITCHES, INTERLOCK WIRING, ELECTRICAL OR PNEUMATIC CONTROL COMPONENTS AND ASSOCIATED PIPING OR WIRING, APPURTENANCES, ETC., TO PROVIDE THE FUNCTIONS DESCRIBED IN THESE SPECIFICATIONS AND PLANS, REGARDLESS OF WHETHER OR NOT SAID DEVICE RELAY, ETC. IS SPECIFICALLY MENTIONED HEREFTER.

- THE SYSTEM SHALL BE SUPERVISED AND CHECKED OUT COMPLETELY IN ALL RESPECTS BY COMPETENT MECHANICS, REGULARLY EMPLOYED BY THE MANUFACTURER.

- ALL CONTROLS MUST BE THE PRODUCT OF ONE MANUFACTURER. ALL AUTOMATIC CONTROL VALVES, SENSORS AND DAMPER OPERATORS SHALL BE MANUFACTURED BY THE TEMPERATURE CONTROL MANUFACTURER.

- CONNECTION TO EXISTING SYSTEM:

- IF NEW WORK IS TO CONNECT TO AN EXISTING SYSTEM, THE PROPOSED NEW SYSTEM TO BE INSTALLED SHALL BE FULLY COMPATIBLE WITH THE EXISTING SYSTEM. THE MANUFACTURER OF THE PROPOSED NEW SYSTEM SHALL PROVIDE ALL REQUIRED INTERFACES OR "GATEWAYS" TO ENSURE THAT THEIR SYSTEM IS FULLY COMPATIBLE.

- THE CONTROL SYSTEMS SHALL BE IN ACCORDANCE WITH THE FOLLOWING DESCRIPTION OF SYSTEM OPERATIONS AND/OR DETAIL INFORMATION SHOWN ON THE PLANS AND AS DESCRIBED HEREIN.

- THE MANUFACTURER OF THE AUTOMATIC CONTROL EQUIPMENT SHALL SUBMIT THE FOLLOWING FOR APPROVAL: A SCHEMATIC DIAGRAM OF EACH CONTROL SYSTEM WHICH SHALL INDICATE THE PROPER SEQUENCE OF OPERATION AND RANGE OF THE CONTROLS FOR ALL CYCLES. A COMPLETE DESCRIPTION OF THE AUTOMATIC OPERATION OF EACH SYSTEM. THE DESCRIPTION SHOULD INCLUDE THE DUTY OF EACH THERMOSTAT, VALVE, SWITCH, ETC., INCORPORATED IN THE CONTROL SYSTEM WITH A SCHEDULE AND ILLUSTRATION OF ALL CONTROL INSTRUMENTS AND EQUIPMENT INCLUDING CONTROL PANELS AND DEVICES FOR EACH SYSTEM.

B. ELECTRIC WIRING:

- ALL ELECTRICAL WORK (EXCEPT FOR MOTOR FEEDERS, WIRING BETWEEN MOTORS, MOTOR CONTROLLERS, FEEDER PANELS, FUSES, CIRCUIT BREAKERS AND BUS BARS) REQUIRED FOR THE AUTOMATIC TEMPERATURE CONTROL SYSTEM SHALL BE PROVIDED BY THIS CONTRACTOR. WORK SHALL INCLUDE BUT NOT BE LIMITED TO TIME SWITCHES, DAMPER MOTORS, DAMPER SWITCHES, ELECTRIC THERMOSTATS, ELECTRIC RELAYS, E/P SWITCHES, INTERLOCKING WIRING, WIRE, CONDUIT, ETC.

- ALL 115 VOLT POWER REQUIRED FOR CONTROL PURPOSES SHALL BE PROVIDED BY THE CONTROL CONTRACTOR FROM A SOURCE ESTABLISHED BY THE ELECTRICAL CONTRACTOR.

- THE CONTROL MANUFACTURER SHALL INCLUDE WIRING DIAGRAMS IN HIS SHOP DRAWINGS SUBMITTALS FULLY COORDINATED WITH THE ELECTRICAL CONTRACTOR'S WORK. IT SHALL BE THE AUTOMATIC TEMPERATURE CONTROL CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL WIRING AND CONDUIT AS REQUIRED TO ACHIEVE THE FUNCTION CALLED FOR IN THESE SPECIFICATIONS, CONFORMING WITH LOCAL CODES FOR MATERIAL AND INSTALLATION. THE ELECTRICAL SPECIFICATION FOR THE PROJECT'S ELECTRICAL WORK IS TO BE FOLLOWED.

- FURNISH A CERTIFICATE INDICATING THE METHOD OF WIRING COMPLIANCE WITH LOCAL CODES AS PART OF THE FIRST SHOP DRAWING SUBMITTAL.

C. ROOM THERMOSTAT AND SWITCH LOCATIONS:

- ALL ROOM THERMOSTATS AND SWITCH LOCATIONS (WHETHER SHOWN ON PLANS OR NOT) SHALL BE SELECTED AND SUBMITTED BY THE TEMPERATURE CONTROL MANUFACTURER FOR APPROVAL BY THE ARCHITECT AND ENGINEER PRIOR TO ACTUAL INSTALLATION.

- THE CONTROL SYSTEMS SHALL BE IN ACCORDANCE WITH THE FOLLOWING DESCRIPTION OF SYSTEM OPERATIONS AND/OR DETAIL INFORMATION SHOWN ON THE PLANS AND AS DESCRIBED HEREIN.

- THE MANUFACTURER OF THE AUTOMATIC CONTROL EQUIPMENT SHALL SUBMIT THE FOLLOWING FOR APPROVAL: A SCHEMATIC DIAGRAM OF EACH CONTROL SYSTEM WHICH SHALL INDICATE THE PROPER SEQUENCE OF OPERATION AND RANGE OF THE CONTROLS FOR ALL CYCLES. A COMPLETE DESCRIPTION OF THE AUTOMATIC OPERATION OF EACH SYSTEM. THE DESCRIPTION SHOULD INCLUDE THE DUTY OF EACH THERMOSTAT, VALVE, SWITCH, ETC., INCORPORATED IN THE CONTROL SYSTEM WITH A SCHEDULE AND ILLUSTRATION OF ALL CONTROL INSTRUMENTS AND EQUIPMENT INCLUDING CONTROL PANELS AND DEVICES FOR EACH SYSTEM.

D. CONTROL PANELS:

- FURNISH AND INSTALL IN THE MECHANICAL ROOM, AS HEREIN SPECIFIED, CONTROL PANELS OF STEEL, WITH WELDED ANGLE IRON BRACKETS, FOR WALL OR FLOOR MOUNTING.

- THE BASIC BACKGROUND COLOR OF THE PANEL SHALL BE AS APPROVED BY THE ARCHITECT AND ENGINEER.

- PANELS SHOULD BE FULLY ENCLOSED WITH HINGED LOCKING FRONT DOOR FOR EACH PANEL. THE PANEL SHALL CONTAIN ALL CONTROLLERS, RELAYS, SWITCHES, ETC. PROVIDE ENGRAVED NAMEPLATES TO LABEL THE CONTROLLED EQUIPMENT AND FOR EACH PANEL MOUNTED CONTROL DEVICE. PLASTIC LAMINATED CONTROL SCHEMATIC DRAWINGS FOR THE SYSTEM SHALL BE HUNG AT EACH LOCAL CONTROL PANEL.

- DETAILS OF EACH OF THESE PANELS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION. LOCATIONS OF EACH PANEL ARE TO BE CONVENIENT FOR ADJUSTMENT AND SERVICE AND ALL SUCH LOCATIONS ARE TO BE APPROVED PRIOR TO INSTALLATION.

E. SEQUENCE OF OPERATIONS:

- ALL HVAC SYSTEMS SHALL BE CONTROLLED ACCORDING TO THE POINT LIST CONTAINED IN THE SECTION OF THE SPECIFICATIONS AND SHALL BE STAND–ALONE. ADDITIONAL POINTS OR SOFTWARE PROGRAMMING NOT LISTED IN THE POINT LIST BUT WHICH ARE REQUIRED TO MEET THE FOLLOWING SEQUENCES OF OPERATION SHALL BE PROVIDED.

2. ROOF TOP UNIT (RTU–1):

- UNIT SHALL BE CONTROLLED BY NEW 7–DAY PROGRAMMABLE THERMOSTAT WITH TEMPERATURE AND HUMIDITY SENSOR.

- OCCUPANCY SCHEDULE: UNITS SHALL BE ACTIVATED PER A TIME OF DAY OCCUPANCY CYCLE. WHEN THE UNIT IS IN THE OCCUPIED MODE THE SUPPLY FAN SHALL OPERATE CONTINUOUSLY AND THE OUTSIDE AIR DAMPERS SHALL MODULATE TO THE MINIMUM OPEN POSITION. THE INDOOR SPACE TEMPERATURE SHALL BE MAINTAINED AT SETPOINT WITHIN A RANGE OF +/- 1°F AND AT A RELATIVE HUMIDITY BETWEEN 30% AND 50%.

- UNIT SHUTDOWN: SUPPLY FAN AND DX–REFRIGIERANT COOL COOLING SHALL BE DENERGIZED, BURNER SHALL SHUTDOWN, OUTSIDE AIR DAMPERS SHALL BE FULLY CLOSED AND RETURN DAMPER SHALL BE FULLY OPEN.

- SMOKE DETECTOR: SUPPLY FAN SHALL BE DE–ENERGIZED, OUTSIDE AIR DAMPERS SHALL BE FULLY CLOSED AND RETURN DAMPER SHALL BE FULLY OPEN.

E) TEMPERATURE CONTROL

- ECONOMIZER CONTROL: DRY BULB TEMPERATURE OF RETURN AIR AND OUTSIDE AIR SHALL BE MONITORED. WHEN THE UNIT IS IN COOLING MODE AND THE DRY BULB TEMPERATURE OF THE OUTSIDE AIR IS LESS THAN THE RETURN AIR THE DAMPERS WILL CHANGE POSITION AND UTILIZE OUTSIDE AIR FOR "FREE COOLING". THE MIXED AIR TEMPERATURE OF THE UNIT SHALL BE CONTROLLED TO NOT DROP BELOW 55°F.

- HEATING MODE: WHEN THE SPACE TEMPERATURE DROPS BELOW SETPOINT THE FURNACE SHALL FIRE. WHEN TEMPERATURE REACHES SETPOINT THE FURNACE SHALL SHUTDOWN.

- COOLING MODE: WHEN THE SPACE RAISES ABOVE SETPOINT THE OUTDOOR CONDENSER WILL ENGAGE AND THE CONTROL VALVE ON THE INDOOR COIL WILL OPEN. WHEN TEMPERATURE REACHES SETPOINT THE CONDENSER SHALL SHUTDOWN AND THE COIL CONTROL VALVE WILL SHUT.

- HUMIDITY CONTROL: HUMIDITY WITHIN THE SPACE SHALL BE MONITORED BY THE WALL MOUNTED HUMIDITY SENSOR AND A SENSOR LOCATED WITHIN THE RETURN DUCT. WHEN SPACE HUMIDITY RISES ABOVE SETPOINT (45% RH) THE UNIT COMPRESSOR AND HOT GAS REHEAT COILS SHALL BE UTILIZED.

- SUPPLY AIR TEMPERATURE AT THE UNIT'S DISCHARGE SHALL BE MONITORED AND THE CONTROLS SHALL NOT ALLOW THE DISCHARGE TEMPERATURE TO RISE ABOVE 100 DEGREES F OR FALL BELOW 55 DEGREES F

3. KITCHEN HOOD 1 EXHAUST FAN AND MAKE–UP AIR UNIT (EF–1, MUA–1):

- UNITS SHALL BE CONTROLLED BY MANUFACTURER'S AUTO FAN CONTROL SYSTEM WITH DEMAND CONTROL VENTILATION. MAKE–UP AIR UNIT SHALL SUPPLY A CONSTANT DISCHARGE AIR TEMPERATURE.

4. KITCHEN HOOD 2 EXHAUST FAN AND MAKE–UP AIR UNIT (EF–2, MUA–2):

- UNITS SHALL BE CONTROLLED BY MANUFACTURER'S AUTO FAN CONTROL SYSTEM WITH DEMAND CONTROL VENTILATION. MAKE–UP AIR UNIT SHALL SUPPLY A CONSTANT DISCHARGE AIR TEMPERATURE.

5. DISHWASHER EXHAUST FAN (EF–3):

- EXHAUST FAN SHALL BE CONTROLLED BY DISHWASHER EXHAUST FAN CONTROLLER.

PART 3 – EXECUTION

3.01 DEMOLITION, REMOVAL AND RELOCATION

- REMOVAL, TEMPORARY CONNECTIONS AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE INSTALLATION OF THE NEW SYSTEMS. ALL EXISTING CONDITIONS ARE NOT TO BE COMPLETELY DETAILED ON THE DRAWINGS. THE CON–TRACTOR SHALL SURVEY THE SITE AND MAKE ALL NECESSARY CHANGES REQUIRED BASED ON EXISTING CONDITIONS FOR PROPER INSTALLATION OF NEW WORK.

- DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT, AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.

- EQUIPMENT REQUIRED TO BE TEMPORARILY DISCONNECTED AND RELOCATED SHALL BE CAREFULLY REMOVED, STORED, CLEANED, REINSTALLED, RECONNECTED, AND MADE OPERATIONAL.

- ALL EXISTING WORK NOT INDICATED FOR DEMOLITION SHALL BE PROTECTED FROM DAMAGE. WHERE EXISTING WORK TO REMAIN IS DAMAGED OR DISTURBED, THE CONTRACTOR SHALL REPAIR OR REPLACE TO OWNER'S AND BUILDING MANAGER'S SATISFACTION AT NO COST TO THE OWNER OR BUILDING MANAGEMENT.

- GENERAL CONTRACTOR REMOVE ALL CEILING IN AREAS WHERE NEW DUCTWORK OR PIPING IS TO BE INSTALLED OR EXISTING IS ALTERED, AS PER ARCHITECT'S INSTRUCTIONS.

- ALL NECESSARY CUTTING AND PATCHING TO ACCOMMODATE THE NEW HVAC WORK SHALL BE PERFORMED BY THIS CONTRACTOR AND COORDINATED WITH BUILDING MANAGEMENT SO AS TO MINIMIZE DISRUPTION OF EXISTING TENANTS AND SERVICES. RESTORE ALL ITEMS TO MATCH EXISTING CONDITIONS.

- ALL EXISTING MATERIAL AND EQUIPMENT TO BE REMOVED UNDER THIS CONTRACT WILL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE LEGALLY DISPOSED OF BY THIS CONTRACTOR AS DIRECTED BY THE ARCHITECT OR OWNER. REFRIGERATION CONTAINED IN EXISTING EQUIPMENT TO BE REMOVED SHALL BE RECLAIMED OR LEGALLY DISPOSED OF IN ACCORDANCE WITH EPA REQUIREMENTS AND ASHRAE.

- PROVIDE FOR LEGAL REMOVAL AND DISPOSAL OF ALL RUBBISH AND DEBRIS FROM THE BUILDING AND SITE. COORDINATE ALL DEMOLITION AND REMOVALS WITH BUILDING MANAGEMENT.

3.02 CONNECTION TO EXISTING WORK

- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING MANAGEMENT. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. INSTALL ISOLATION DAMPERS AT CONNECTION TO EXISTING DUCTWORK. PROVIDE TEMPORARY DUCTWORK AND PIPING CONNECTIONS AS REQUIRED TO MINIMIZE SHUTDOWN TIME.

- CONNECT NEW WORK TO EXISTING WORK IN A NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT AND BUILDING MANAGER.

- MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES.

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