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
- 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
- 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.

	ECHANICAL 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

IV	IECHANICAL 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
X-X 	EXISTING EQUIPMENT TO BE REMOVED
E	EXISTING EQUIPMENT TO REMAIN
ETR	EXISTING EQUIPMENT TO BE RELOCATED
18X12-	DUCT SIZE (FIRST FIGURE INDICATES HORIZONTAL SIZE)
180-	ROUND DUCT DIAMETER
	TRANSITION FROM RECTANGULAR TO ROUND OR OVAL DUCT
5-WW-5	FLEXIBLE CONNECTION
V.D.	VOLUME DAMPER
F.D.	FIRE DAMPER W/ DUCT ACCESS DOOR
₩ →	SUPPLY REGISTER
*	RETURN OR EXHAUST REGISTER OR GRILLE
\boxtimes	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
٦	RADIUS ELBOW
	DUCT SPLIT OR BRANCH TAKEOFF
U	DOOR UNDERCUT
(T)	THERMOSTAT — WALL OR DUCT MOUNTED
(\$)	TEMPERATURE SENSOR — WALL OR DUCT MOUNTED
(SD)	DUCT MOUNTED SMOKE DETECTOR

MECH	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)							

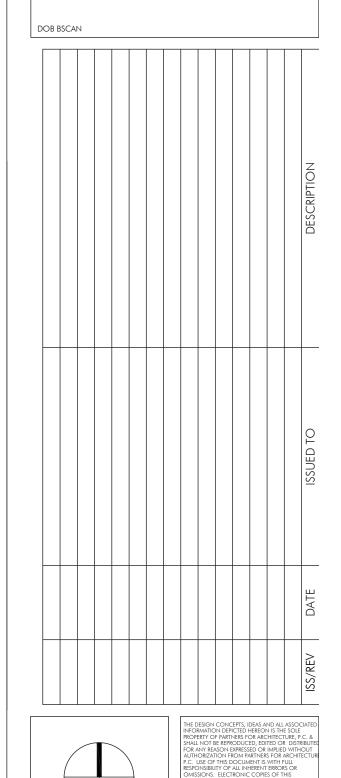
MECHANICAL PLAN NOTE TAG

POINT OF NEW CONNECTION TO EXISTING WORK

REMOVE AND SAFE OFF EXISTING WORK FOR RECONNECTION

REVISION SYMBOL





MECHANICAL NOTES, LEGEND, AND INDEX

OLD OAKS COUNTRY

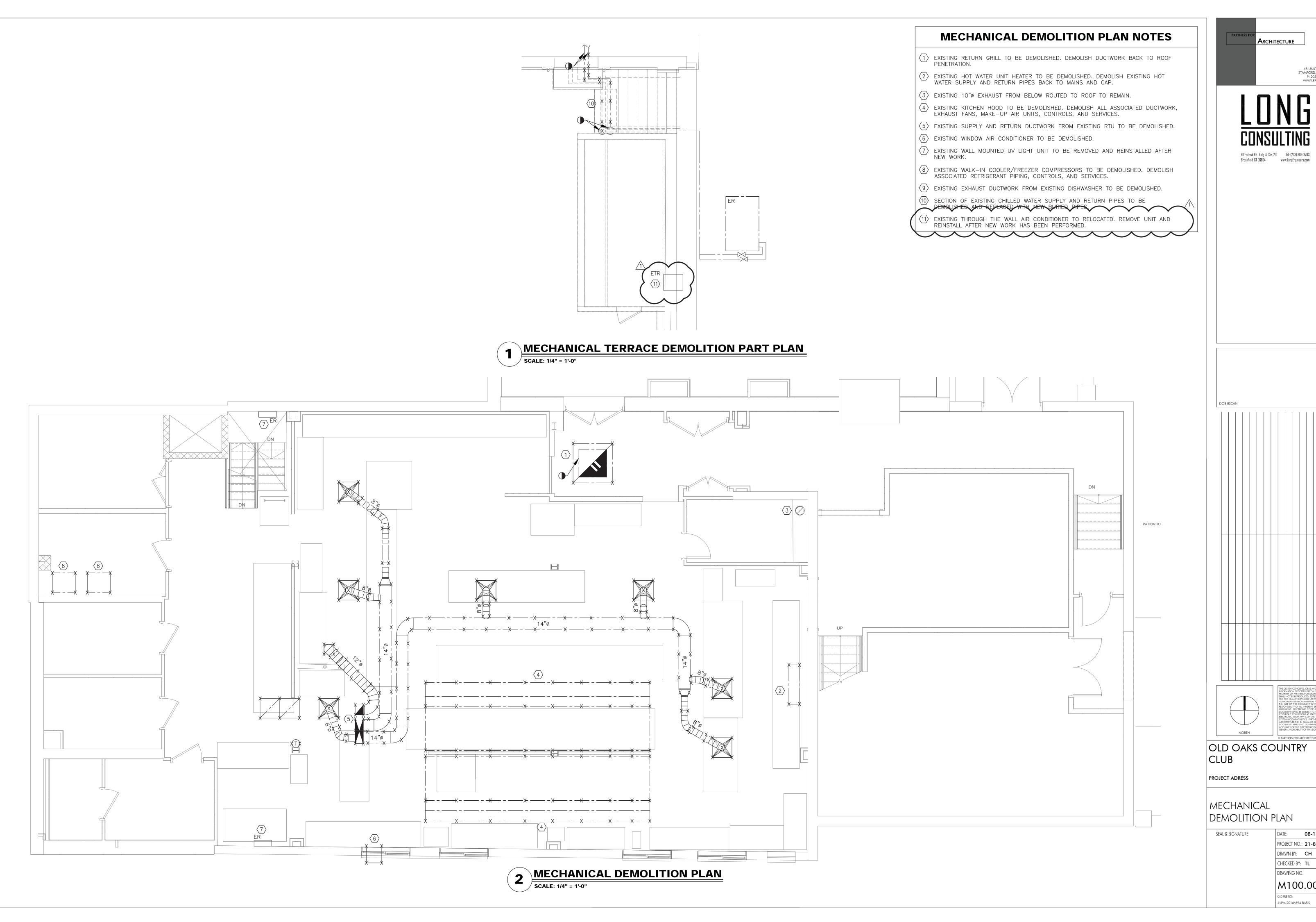
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DATE: 08-13-21
PROJECT NO.: 21-826
DRAWN BY: CH
CHECKED BY: TL
DRAWING NO:

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08-13-21 PROJECT NO.: **21-826**

M100.00

MECHANICAL DEMOLITION PLAN NOTES

1 EXISTING 10" EXHAUST TO REMAIN.

REMAIN AND BE REUSED.

- 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.
- EXISTING WALK—IN COOLER/FREEZER COMPRESSOR TO BE DEMOLISHED. DEMOLISH ASSOCIATED REFRIGERANT PIPING, CONTROLS, AND SERVICES.

 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
- (7) EXISTING EXHAUST FAN SERVING DISHWASHER TO BE DEMOLISHED. DEMOLISH ASSOCIATED DUCTWORK, CONTROLS, AND SERVICES. ROOF PENETRATION TO BE CAPPED AND SEALED.

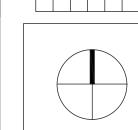
PARTNERS FOR ARCHITECTURE

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THE DESIGN CONCEPTS, IDEAS AND ALL ASSOCIATING PRICE PRIESON IS THE SOCIATING PRICE PRIESON IS THE SOCIATING PRICE PRICE



NORTH

OLD OAKS COUNTRY

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MECHANICAL ROOF DEMOLITION PLAN

SEAL & SIGNATURE

PROJECT NO.: 21-826

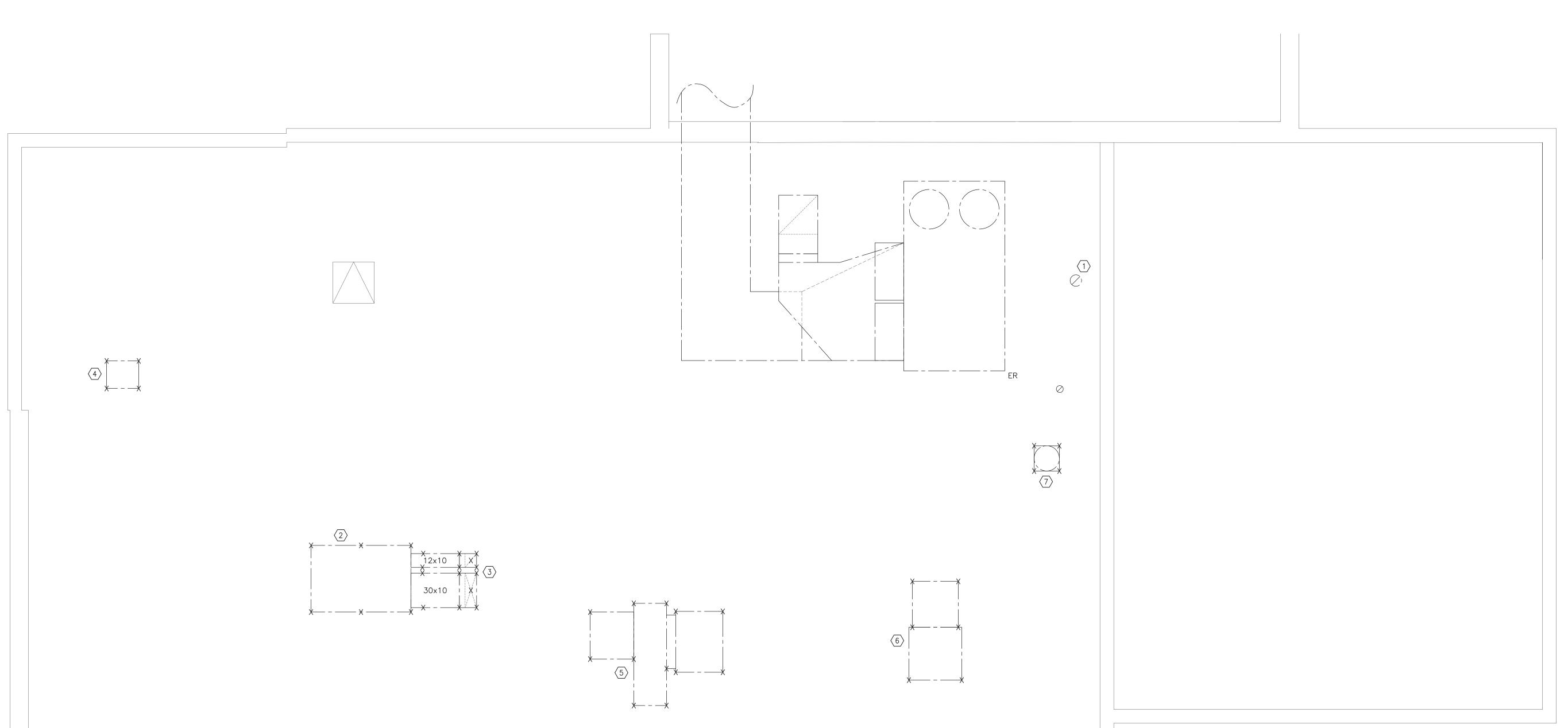
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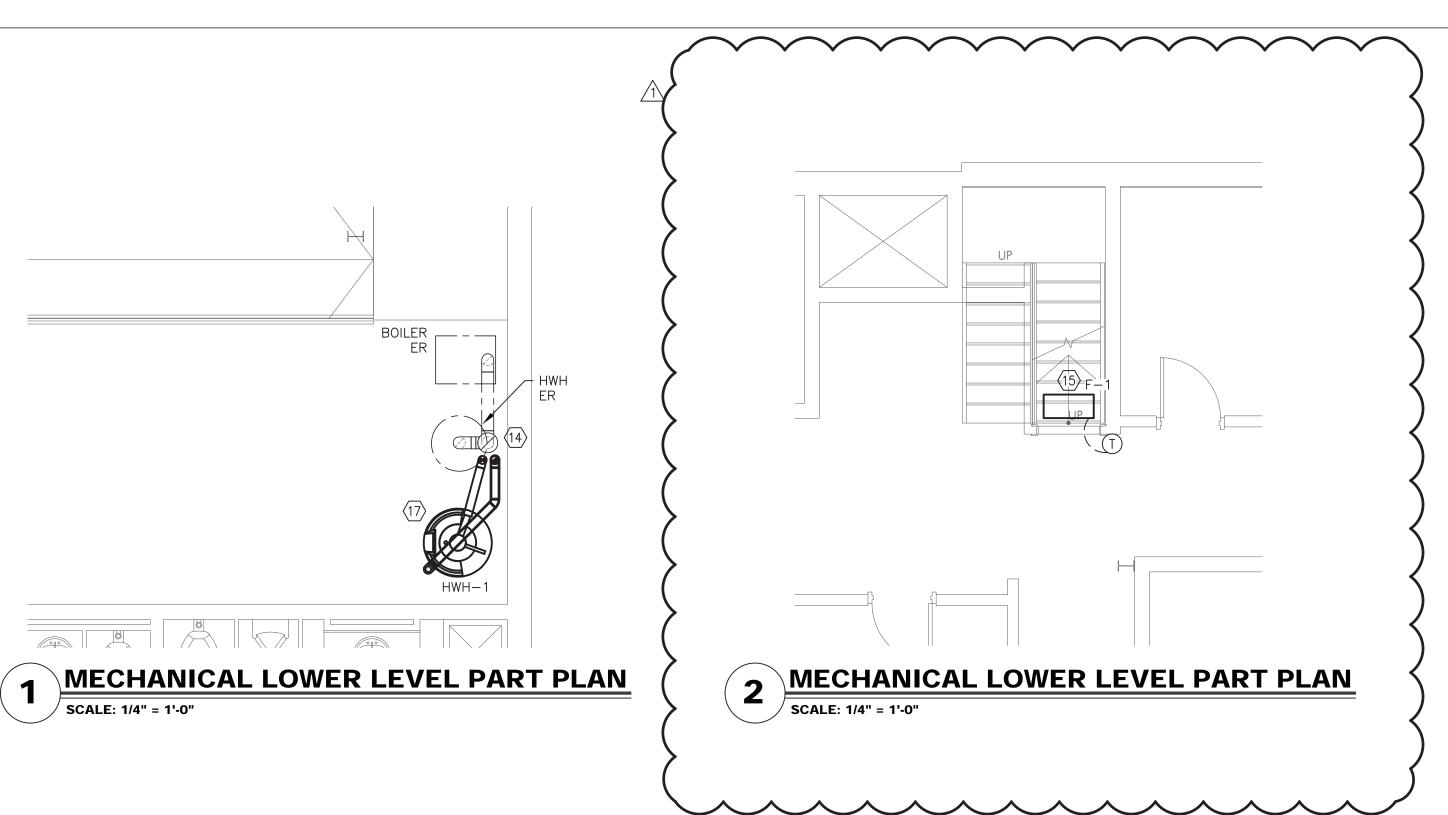
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08-13-21

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MECHANICAL PLAN NOTES

- PROVIDE NEW RETURN DUCTWORK TO EXISTING SIDEWALL RETURN GRILL. VERIFY IN FIELD EXACT CONNECTION SIZE OF EXISTING SIDEWALL RETURN GRILL.
- (2) EXISTING WALL MOUNTED LOCATIONS IN FIELD.
- 3 SUPPLY DUCTWORK FROM NEW RTU-1. ROUTE DUCTWORK BETWEEN JOISTS TO CLEAR
- PROVIDE NEW WALL MOUNTED 7-DAY PROGRAMMABLE THERMOSTAT WITH HUMIDITY SENSOR TO SERVE NEW RTU-1.
- 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 O" 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) 30×18 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.
- 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.
- 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 O" 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.
- 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.
- PROVIDE NEW REMOTE ANSUL R-102 FIRE SUPPRESSION SYSTEM TO SERVE HOODS H-2S1 AND H-2S2. MOUNT CABINET HIGH ON WALL.

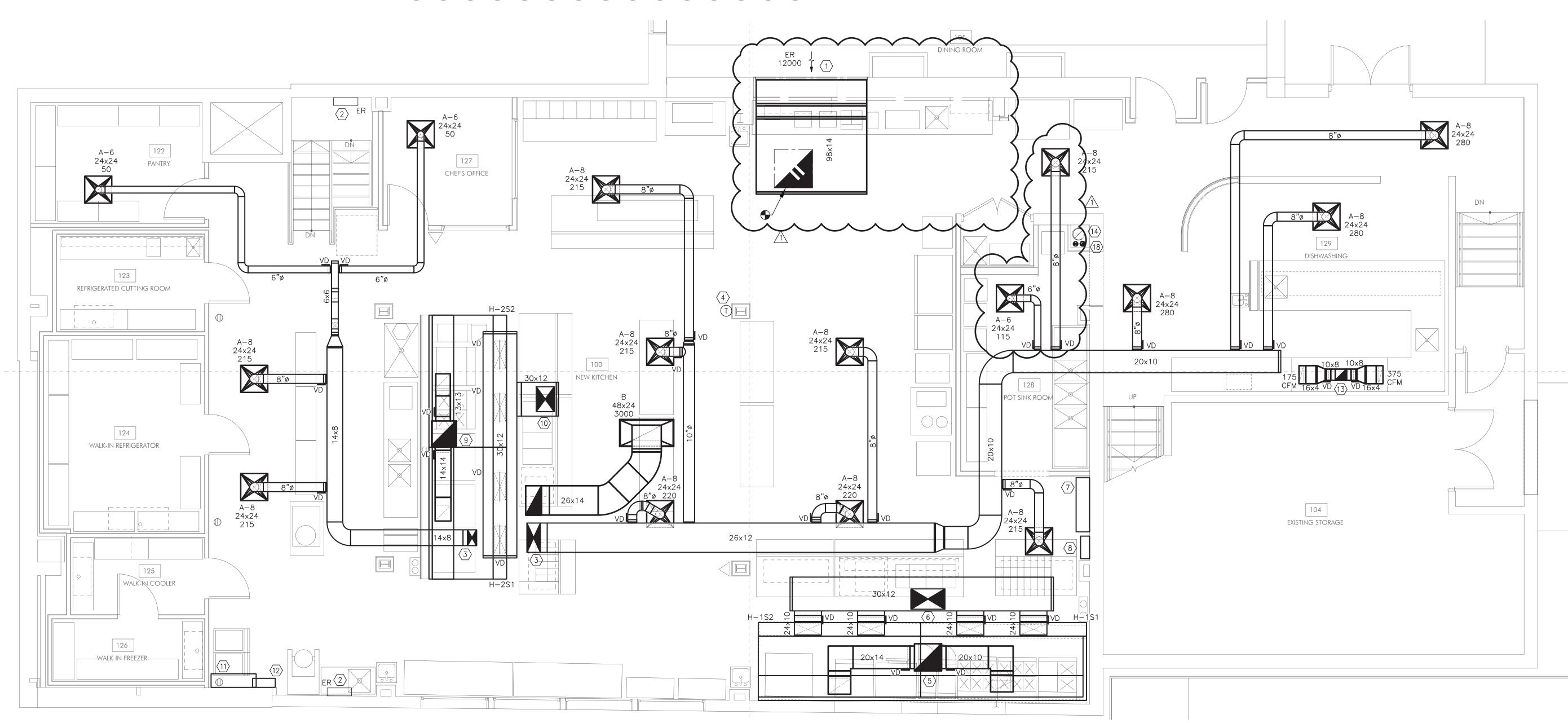
MECHANICAL PLAN NOTES

- 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.
- 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.
- EXISTING 100 EXHAUST FROM EXISTING BOILER AND HOT WATER HEATER ROUTED TO
- PROVIDE NEW AIR CURTAIN F-1 WITH ELECTRIC HEAT AT STAIRWELL ENTRANCE.
 PROVIDE WITH MANUFACTURER CONTROL SWITCH TO CONTROL FAN AND HEAT
 SEPARATELY. PROVIDE WALL MOUNTED THERMOSTAT FOR HEAT CONTROL. INSTALL PER
 MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- $\langle 16 \rangle$ NOT USED.
- PROVIDE NEW 4 WINTAKE AND 4" VENT TO SERVE NEW HOT WATER HEATER HW ROUTE INTAKE AND VENT UP TO ROOF NEXT TO EXISTING 100 VENT. AT ROOF TERMINATE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- (18) NEW 4"Ø INTAKE AND 4"Ø VENT FROM NEW HOT WATER HEATER ON FLOOR BELOW.
 ROUTE INTAKE AND VENT TO ROOF AND TERMINATE PER MANUFACTURER'S
 INSTALLATION INSTRUCTIONS.

ARCHITECTURE

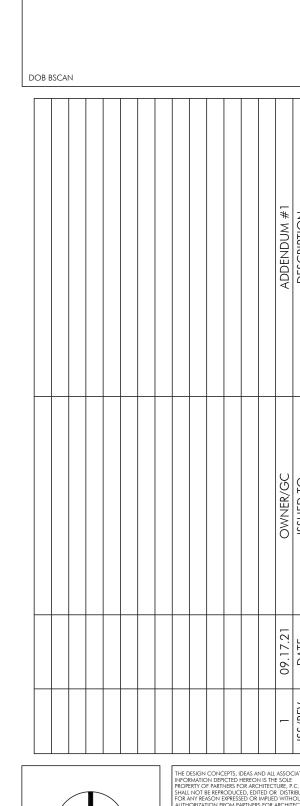
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MECHANICAL FLOOR PLAN

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



THE INFO

OLD OAKS COUNTRY CLUB

PROJECT ADRESS

MECHANICAL FLOOR PLAN

SEAL & SIGNATURE

DATE: 08-13-21

PROJECT NO.: 21-826

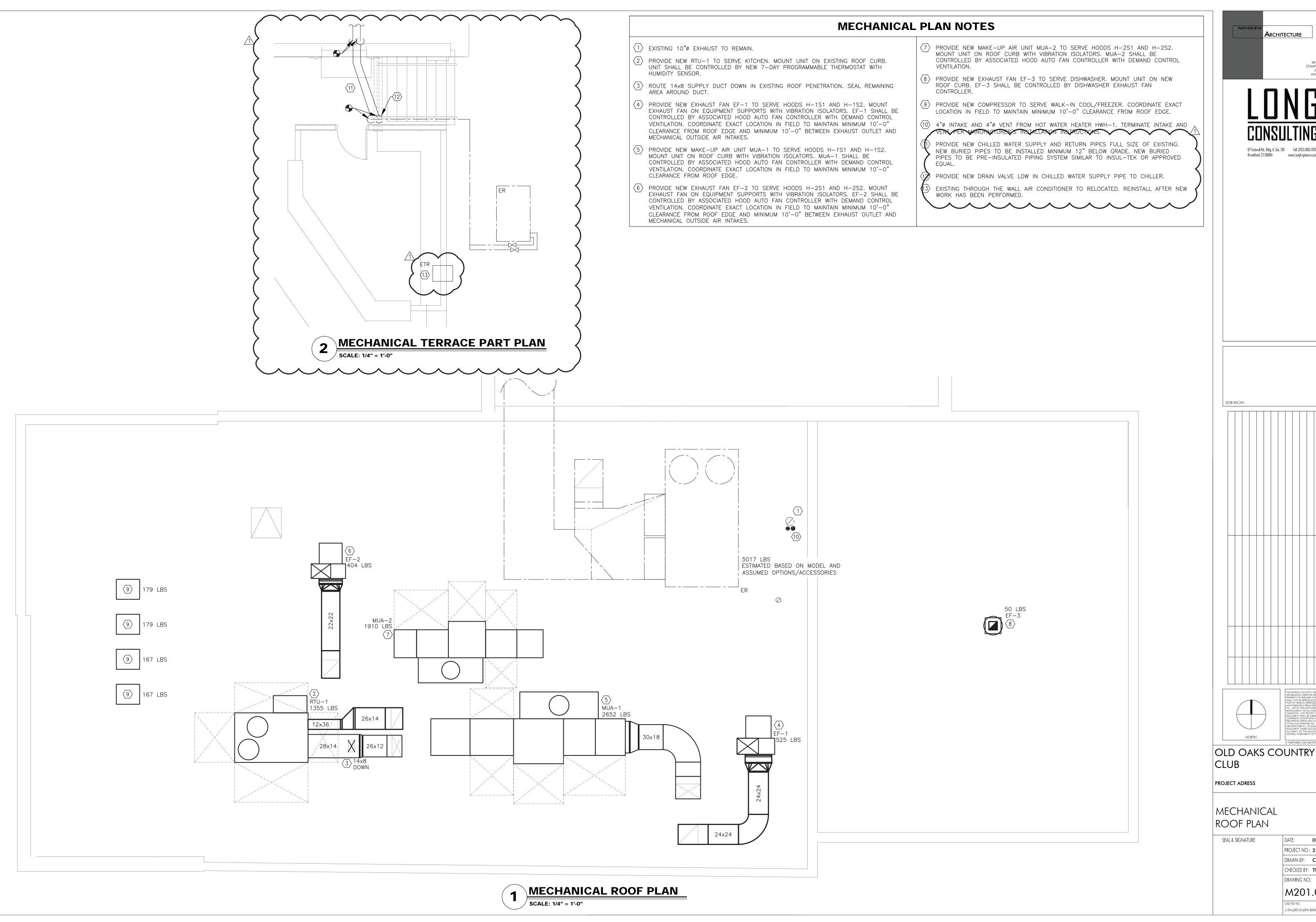
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DRAWING NO:
M200.00

CAD FILE NO:



ARCHITECTURE

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08-13-21 PROJECT NO.: **21-826** DRAWN BY: **CH** CHECKED BY: TL

> DRAWING NO: M201.00

	ROOFTOP UNIT SCHEDULE																							
UNIT TAG	TOTAL CFM	SUPPLY ESP	FAN HP	DRIVE	MIN OUTSIDE AIR (CFM)	NOM. C TOTAL (MBH)	APACITY SENS. (MBH)	COOLING EAT DB/WB	AMBIENT (°F)	STAGES (MIN)		ELECTRICAL VOLTS I		INPUT MBH	HEATING OUTPUT MBH	STAGES	MIN EER	FILTER	MANUFACTURER	MODEL	REFRIGERANT	OPERATING WEIGHT (LBS)	QTY	REMARKS
RTU-1	3000	1.0	_	BELT	90	91.7	54.5	80/67	95	_	47.0	208	3	125	103	1	11.0	MERV 8	CARRIER	48TCDE09C2A5	R-410A	1355	1	NOTES 1-13

NOTES:

- PROVIDE WITH SINGLE POINT POWER CONNECTION.
- 2. PROVIDE WITH MANUFACTURER SUPPLIED UNIT MOUNTED DISCONNECT SWITCH, AND CONVENIENCE OUTLET.
- 3. PROVIDE 2 SPEED FAN CONTROLLER. 1. PROVIDE WITH MANUFACTURER INSTALLED SUPPLY AIR SMOKE DETECTORS.
- 5. PROVIDE HINGED ACCESS PANELS.6. PROVIDE CLOGGED FILTER SWITCH.
- PROVIDE 100% ENTHALPY ECONOMIZER AND BAROMETRIC RELIEF DAMPER.
- PROVIDE FAULT DETECTION AND DIAGNOSTICS
- PROVIDE MOTORIZED OUTSIDE AIR INTAKE DAMPER.
- 10. MOUNT UNIT ON NEW TRANSITION CURB TO UTILIZE EXISTING ROOF CURB.

 11. PROVIDE LP AND HI ALTITUDE CONVERSION KIT.
- 12. PROVIDE MANUFACTURER HUMIDI-MIZER ADAPTIVE DEHUMIDIFICATION SYSTEM.
 13. UNIT SHALL BE CONTROLLED BY NEW 7-DAY PROGRAMMABLE THERMOSTAT.

	MAKE-UP AIR UNIT SCHEDULE																					
UNIT	SUPPLY FAN				COOLING NOM. CAPACITY AND STACES			ELECTRICAL		HEATING		MIN				OPERATING						
TAG	TOTAL CFM	ESP	HP	DRIVE		SENS. (MBH)	AMBIENT (°F)	STAGES (MIN)		MCA	VOLTS F	PHASE	INPUT MBH	OUTPUT MBH	STAGES	EER	MANUFACTURER	MODEL	REFRIGERANT	WEIGHT (LBS)	QTY	REMARKS
MUA-1	4800	0.5	3.0	DIRECT	140.9	78.8	95	_	UNIT SUPPLY FAN	48.2 13.3	208 208	3 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 9.4	208 208	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.
- PROVIDE HINGED ACCESS PANELS.
 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.

		KIT	ГСН	EN	НО	OD :	SCI	HEC	ULE	
UNIT TAG	L×W×H	WEIGHT (LBS)	E COLLAR	XHAUS ⁻ CFM	SP	COLLAR	SUPPLY CFM	SP	MANUFACTURER MODEL	REMARKS
H-1S1	12'0"x54"x24"	603	10"x20"	2400	0.375"	24"x10" 24"x10"	960 960	0.125" 0.125"		NOTES 1-13
H-1S2	12'0"x54"x24"	603	14"x20"	3600	0.5"	24"x10" 24"x10"	1440 1440	0.125" 0.125"	I I	NOTES 1-11
H-2S1	9'9"x54"x24"	511	14x14	2400	0.625"	24"x10" 24"x10"	960 960	0.15" 0.15"	LARKIN EO-FPSP	NOTES 1-11
H-2S2	9'9"x54"x24"	511	13x13	1960	0.625"	24"x10" 24"x10"	784 784	0.125" 0.125"	I I	NOTES 1-11

NOTES:

- . PROVIDE WITH PREWIRED INCANDESCENT LIGHTS.
- PROVIDE WITH ALUMINUM BAFFLE FILTERS.

 B. PROVIDE 12" DEEP FRONT PERFORATED SUPPLY PLENUM.
- 4. PROVIDE 3" BACK STAND—OFF MOUNT.
- PROVIDE 78" TALL S/S BACK WALL SPLASH PANEL.
 PROVIDE ANSUL PIPING IN HOOD AND ANSUL R-102 FIRE SUPPRESSION SYSTEM.
 PROVIDE REMOTE ANSUL AUTOMAN CABINET.
- 7. PROVIDE AUTOMATIC GAS VALVE SERVING EQUIPMENT UNDER HOOD. VALVE SHALL BE INCORPORATED INTO FIRE SUPPRESSION SYSTEM CONTROLS AND CLOSE UPON
- ACTIVATION OF FIRE SUPPRESSION SYSTEM.

 PROVIDE HEAT SENSOR MOUNTED IN HOOD.
- 9. PROVIDE SEISMIC WALL ANCHOR.
- 10. PROVIDE 7" S/S CEILING ENCLOSURE.
- 11. PROVIDE AUTOMATIC FAN CONTROLLER WITH DEMAND CONTROL VENTILATION. PROVIDE ONE CONTROLLER TO SERVE H-1S1 AND H-1S2 AND ONE CONTROLLER TO SERVE H-2S1 AND H-2S2. PROVIDE EACH CONTROLLER WITH OPTIONAL SHUNT TRIP
- BREAKER.

 12. PROVIDE 3" LEFT END STAND-OFF MOUNT.
- 13. PROVIDE 78" TALL S/S LEFT END WALL SPLASH PANEL.

	EXHAUST FAN SCHEDULE													
FAN	SERVICE	QTY.	CFM	E.S.P.	FAN	FAN DDIVE		WEIGHT		MOTOR	DATA		MANUFACTUR <u>E</u> R	REMARKS
TAG	LOCATION	QII.	CFM	E.S.P.	TYPE	RPM	DRIVE	WEIGHT	HP	VOLTS	PH	FLA	MODEL	KEMAKKS
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	1/6	115	1	2.2	GREENHECK CUE-095-VG	NOTE 2
NOTE	NOTEC													

NOTES:

1. SIZE PER MECHANICAL PLAN DRAWINGS.

1. EXHAUST FAN SHALL BE CONTROLLED BY AUTOMATIC FAN CONTROL PACKAGE FOR ASSOCIATED HOOD.
2. 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			
А	SUPPLY	STEEL WHITE	PRICE SPD	NOTE 1	В	RETURN	STEEL WHITE	PRICE 530	NOTE 1			
С	SUPPLY	STEEL WHITE	PRICE 90	NOTE 1	D	_	_ _		_			

AIR CURTAIN SCHEDULE

FAN SERVICE TAG LOCATION CFM NOZZLE NUM. WEIGHT KW MOTOR DATA MANUFACTURER REMARKS

F-1 STAIRWELL 625 25 IN. 1 25 6.1 1/6 208 1 31.2 MARS AIR LPV225-1EBC-0B NOTES 1-3

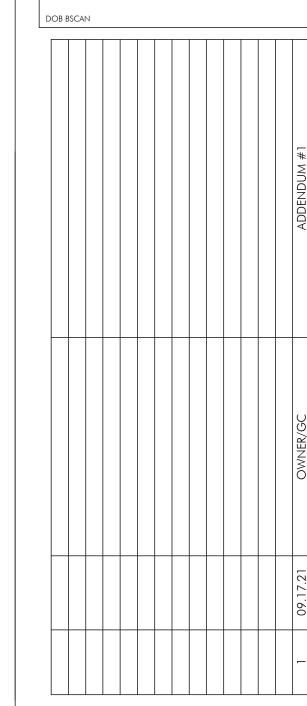
PROVIDE WITH NEMA-1 TOGGLE DISCONNECT SWITCH.
 PROVIDE WITH MANUFACTURER CONTROL SWITCH TO CONTROL FAN AND HEAT SEPARATELY.
 PROVIDE WALL MOUNTED THERMOSTAT TO CONTROL UNIT.

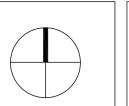
ARCHITECTURE

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OLD OAKS COUNTRY

PROJECT ADRESS

MECHANICAL SCHEDULES

SEAL & SIGNATURE

DATE: 08-13-21

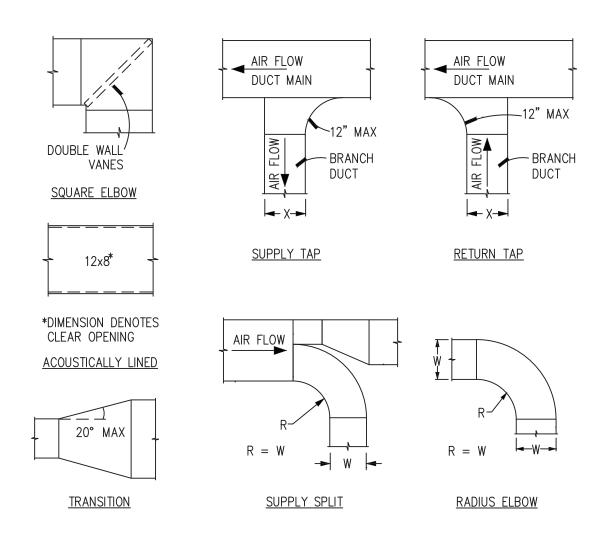
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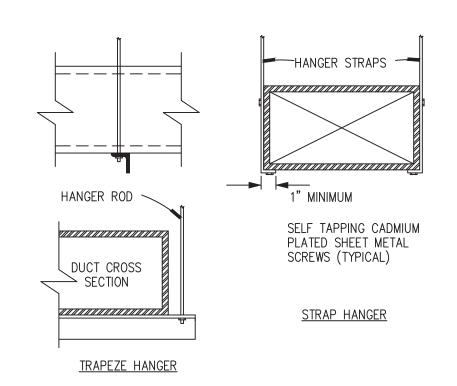
CHECKED BY: TL

DRAWING NO:

M300.00

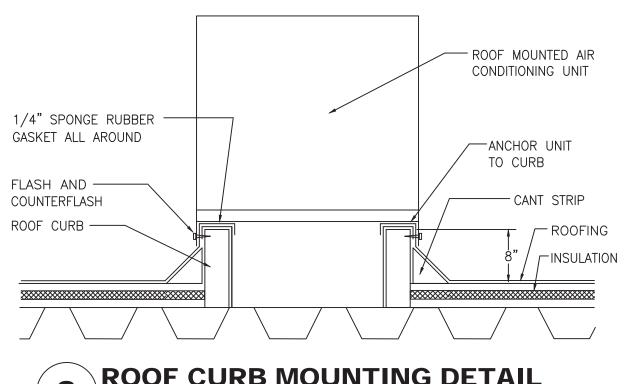




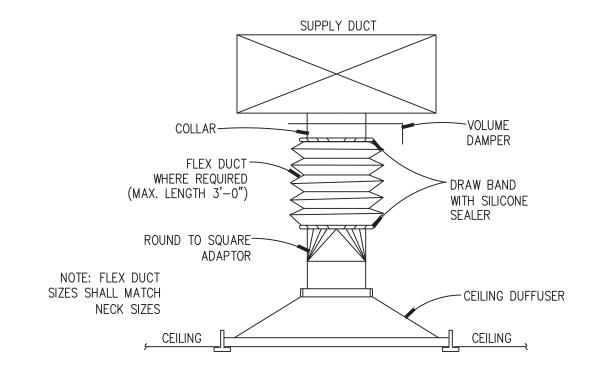


	HANGER SIZES FOR RECTANGULAR DUCT										
MAX SIDE	HANGER	HORIZONTAL SUPPORT ANGLE	MAXIMUM SPACING								
30"	1"x16 GAUGE STRAP	NONE	8'-0"								
36"	1/4" ROUND ROD	1-1/2"x1-1/2"x1/8"	8'-0"								
48"	1/4" ROUND ROD	2"x2"x1/8"	8'-0"								
60"	5/16" ROUND ROD	2"x2"x1/8"	8'-0"								
84"	3/8" ROUND ROD	2"x2"x1/8"	8'-0"								

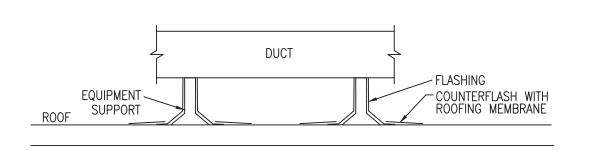




ROOF CURB MOUNTING DETAIL SCALE: NONE

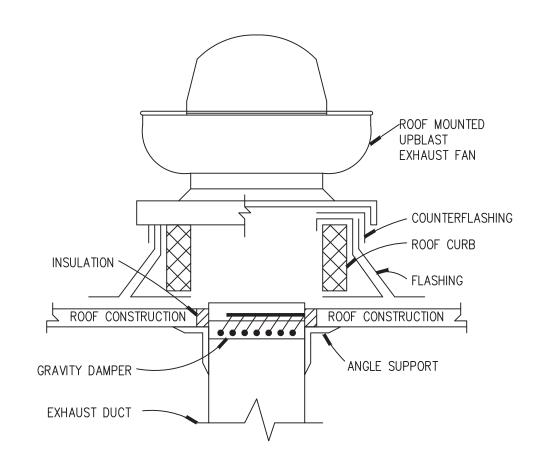


TYPICAL DIFFUSER CONNECTION SCALE: NONE

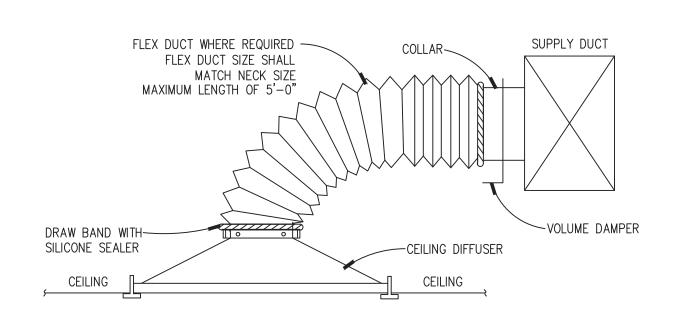


ROOFTOP DUCT SUPPORT DETAIL

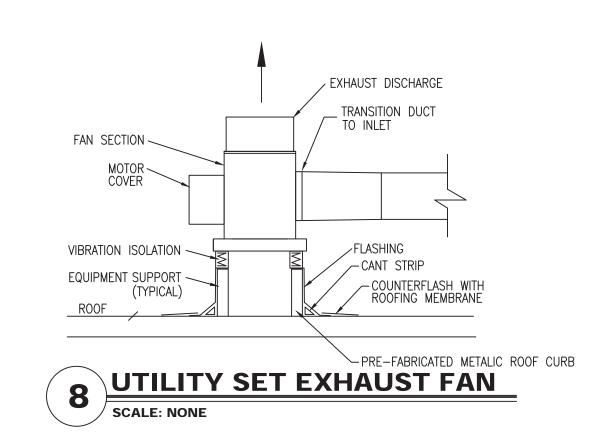
SCALE: NONE

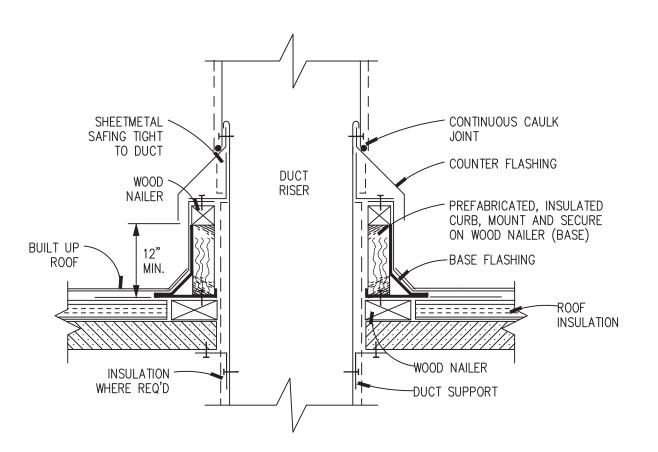


ROOF EXHAUST FAN DETAIL 6 SCALE: NONE



TYPICAL SIDE DIFFUSER CONNECTION SCALE: NONE

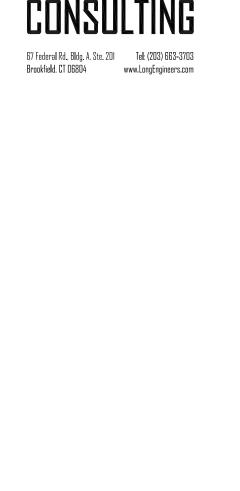


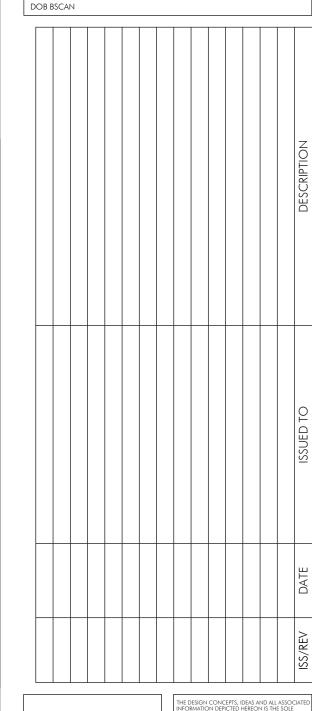


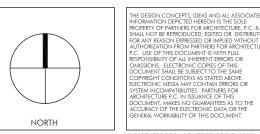
DUCT PENETRATION THROUGH ROOF SCALE: NONE



ARCHITECTURE









MECHANICAL DETAILS

PROJECT ADRESS

SEAL & SIGNATURE	DATE:	08-13-21
	PROJECT NO.:	21-826
	DRAWN BY:	СН
	CHECKED BY:	TL
	DRAWING NO:	
	M301	.00

J:\Proj2016\694 BASIS

MECHANICAL SPECIFICATIONS

<u>PART 1 – GENERAL</u>

1.01 GENERAL REQUIREMENTS

A. INSTALL ALL NEW WORK IN A NEAT WORKMANLIKE MANNER READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR.

B. CODES, PERMITS AND INSPECTIONS:

- 1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF NEW YORK STATE BUILDING CODE, PURCHASE BUILDING DEPARTMENT, BUILDING MANAGEMENT, AND ALL AUTHORITIES HAVING JURISDICTION AND APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS. CONTRACTOR IS TO INFORM ENGINEER OF ANY EXISTING WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE BY THIS CONTRACTOR AND AT NO EXPENSE TO THE OWNER.
- 2. THIS CONTRACTOR SHALL OBTAIN ALL EQUIPMENT APPROVALS AS REQUIRED BY STATE AND LOCAL AUTHORITIES. PERMITS SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

C. SITE VERIFICATION:

1. PRIOR TO SUBMISSION OF THE BID, THIS CONTRACTOR SHALL VISIT THE JOB SITE TO ASCERTAIN THE ACTUAL FIELD CONDITIONS AS THEY RELATE TO THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN. DISCREPANCIES, IF ANY, SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO SUBMISSION OF THE BID, AND IF NOT RESOLVED TO SATISFACTION, SHALL BE SUBMITTED AS A WRITTEN QUALIFICATION OF THE BID. SUBMISSION OF A BID SHALL BE EVIDENCE THAT SITE VERIFICATION HAS BEEN PERFORMED AS DESCRIBED ABOVE.

D. CONTRACT DOCUMENTS:

- 1. PRIOR TO SUBMISSION OF A FORMAL BID, THIS CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THE ENTIRE PROJECT INCLUDING GENERAL CONSTRUCTION, DEMOLITION, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND SPRINKLER AND SHALL INCLUDE ANY WORK REQUIRED IN THE BID WHICH IS INDICATED OR IMPLIED TO BE PERFORMED BY THIS TRADE IN OTHER SECTIONS OF THE WORK.
- 2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK AND APPROXIMATE LOCATION OF EQUIPMENT. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND COORDINATE FINAL LOCATIONS OF DIFFUSERS, GRILLES, REGISTERS, THERMOSTATS, SENSORS, SWITCHES AND ANY WALL MOUNTED DEVICES. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT.
- 3. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS, THE MORE STRINGENT SITUATION SHALL APPLY.

E. 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 OWNER'S 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.
- F. THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AIA DOCUMENT A201, LATEST EDITION, OR AS REQUIRED BY THE ARCHITECT'S DOCUMENTS, AND/OR THE STRUCTURAL ENGINEER'S DOCUMENTS, AS APPLICABLE, ARE PART OF THIS CONTRACT.

G. DEFINITIONS:

- 1. MECHANICAL CONTRACTOR, "THIS CONTRACTOR" THE PARTY OR PARTIES HAVE BEEN DULY AWARDED THE CONTRACT FOR AND ARE THEREBY MADE RESPONSIBLE FOR THE MECHANICAL WORK AS DESCRIBED HEREIN.
- 2. "THIS CONTRACT", "THE CONTRACT" THE AGREEMENT COVERING THE WORK TO BE PERFORMED BY THIS CONTRACTOR.
- 3. "APPROVED", "EQUAL", "SATISFACTORY", "ACCEPTED", "ACCEPTABLE", "EQUIVALENT" SUITABLE FOR USE ON THE PROJECT, AS DETERMINED BY THE ENGINEER BASED ON DOCUMENTS PRESENTED FOR SUCH DETERMINATION.
- 4. "THESE SPECIFICATIONS", "THIS SECTION, PART, DIVISION" (OF THE SPECIFICATION) THE DOCUMENT SPECIFYING THE WORK TO BE PERFORMED BY "THIS CONTRACTOR".
- 5. "THE MECHANICAL WORK", "THIS WORK" ALL LABOR MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES, AND OTHER ITEMS REQUIRED FOR A PROPER AND COMPLETE INSTALLATION BY THE MECHANICAL CONTRACTOR.
- 6. "ARCHITECT", "ENGINEER", "OWNER'S REPRESENTATIVE" THE PARTY OR PARTIES RESPONSIBLE FOR INTERPRETING, ACCEPTING AND OTHERWISE RULING ON THE PERFORMANCE UNDER THIS CONTRACT.
- 7. "FURNISH" PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT, ALL AS PART OF THE MECHANICAL WORK.
- 8. "INSTALL" UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING INSTALLATION AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT, ALL AS PART OF THE MECHANICAL WORK.
- 9. "PROVIDE" "FURNISH" AND "INSTALL"
- 10. "NEW" MANUFACTURED WITHIN THE PAST TWO YEARS AND NEVER BEFORE USED.
- 11. "RELOCATE" MOVE EXISTING EQUIPMENT AND ALL ACCESSORIES AS REQUIRED.
- 12. "REMOVE" DISMANTLE AND CART AWAY FROM SITE INCLUDING ALL RELATED ACCESSORIES. ALL ITEMS SHALL BE LEGALLY DISPOSED OF. ALL OTHER EQUIPMENT AND OPERATIONS IN ANY WAY AFFECTED BY THE REMOVAL IS TO REMAIN IN FULL OPERATION. PROVIDE ALL NECESSARY COMPONENTS TO MAINTAIN SUCH OPERATION.

1.02 <u>SCOPE OF WORK</u>

- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND CONTRACTOR'S SERVICES NECESSARY FOR COMPLETE, SAFE INSTALLATION OF ALL MECHANICAL WORK. THE SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
- 1. DUCTWORK AND DUCTWORK ACCESSORIES.
- 2. INSULATION OF PIPING, EQUIPMENT AND DUCTWORK.
- 3. TESTING AND BALANCING.
- 4. CUTTING AND PATCHING.
- 5. SHOP DRAWINGS.
- 6. AS-BUILT DRAWINGS.
- 7. OPERATING AND MAINTENANCE MANUALS.
- 8. FULL COORDINATION WITH OTHER TRADES.
- 9. WARRANTY AND GUARANTY.
- 10. PHASING AS REQUIRED BY OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR BUILDING MANAGEMENT
- 11. PREMIUM TIME FOR WORK TO BE PERFORMED AFTER—HOURS AS REQUIRED BY BUILDING MANAGEMENT AND/OR OWNER.

- 12. FILING, PERMITS, CONTROLLED INSPECTIONS.
- 13. FULL TESTING AND STARTUP OF ALL SYSTEMS.
- B. SECURE CERTIFICATES, PAY ALL FEES AND CHARGES FOR ALL WORK INSTALLED, CERTIFYING COMPLIANCE WITH ALL AUTHORITIES. DELIVER CERTIFICATES TO OWNER FOR SIGNING BEFORE FILING

1.03 COORDINATION WITH BUILDING MANAGEMENT

- A. THIS CONTRACTOR IS TO OBTAIN A COPY OF THE BUILDING RULES AND REGULATIONS PRIOR TO BID SUBMISSION TO DETERMINE THE REQUIREMENTS AND THE EXTENT OF PREMIUM TIME WORK REQUIRED BY THE BUILDING.
- B. THIS CONTRACTOR IS RESPONSIBLE FOR ADHERING TO THE BUILDING OWNER'S RULES AND REGULATIONS. ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND THE BUILDING RULES AND REGULATIONS SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT/ENGINEER FOR REVIEW WITH BID SUBMISSION.
- C. COORDINATE WITH BUILDING OWNER FOR ANY SERVICE INTERRUPTION OF EXISTING SYSTEMS AND GIVE NOTICE AS REQUIRED BY BUILDING RULES AND REGULATIONS, OR CONTRACTOR TO PROVIDE A MINIMUM OF TWO (2) DAYS NOTICE PRIOR TO ANY WORK BEING PERFORMED, WHICHEVER IS THE MORE STRINGENT. CONTRACTOR IS TO PERFORM WORK ON PREMIUM TIME, IF SO DIRECTED BY BUILDING OWNER, SO AS NOT TO DISTURB EXISTING TENANTS ON OTHER FLOORS.

1.04 SHOP DRAWINGS

- A. SUBMIT SHOP DRAWINGS CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN COMPLETED. SUBMIT ALL CERTIFIED EQUIPMENT CUTS WITH CONSTRUCTION WIRING DIAGRAMS AND AUTOMATIC TEMPERATURE CONTROL REQUIREMENTS. SHOP DRAWINGS SUBMISSION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
- 1. DUCTWORK PROVIDE DUCT SHOP STANDARDS AND LEAKAGE TEST CERTIFICATION, AS REQUIRED, AND 1/4 SCALE DUCT LAYOUT.
- 2. INSULATION FOR DUCTWORK, PIPING AND EQUIPMENT.
- 3. EQUIPMENT CATALOG CUTS FOR ALL ITEMS TO BE UTILIZED ON PROJECT (FANS, PUMPS, AC UNITS, VARIABLE FREQUENCY DRIVES, VAV BOXES, ETC.).
- 4. AIR OUTLETS (DIFFUSERS, REGISTERS, GRILLES, ETC.).
- 5. AUTOMATIC TEMPERATURE CONTROL DIAGRAMS, DEVICES AND SEQUENCE OF OPERATION.
- 6. CERTIFIED AIR AND WATER BALANCING REPORT.
- 7. AS-BUILT DRAWINGS AT PROJECT COMPLETION OF THE INSTALLED CONDITION OF WORK.
- B. THE QUANTITY OF SHOP DRAWINGS SHALL AS A MINIMUM BE FOUR (4) COPIES OF 8-1/2" X 11" SUBMISSIONS AND FIVE (5) PRINTS OF ALL DRAWINGS. SPECIFIC JOB REQUIREMENTS MAY BE MORE STRINGENT AND CONTRACTOR IS RESPONSIBLE TO OBTAIN REQUIREMENTS FROM OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR ARCHITECT.

1.05 MAINTENANCE MANUALS

- A. SUBMIT FOUR (4) LOOSE-LEAF BOUND OPERATING AND MAINTENANCE MANUALS WITH INDEX AND INDEX TABS TO INCLUDE THE FOLLOWING:
- 1. OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL SYSTEMS.
- 2. MANUFACTURER'S CATALOG CUTS ON ALL EQUIPMENT.
- 3. AUTOMATIC TEMPERATURE CONTROL SYSTEMS WITH SEQUENCE OF OPERATIONS, CATALOG CUTS OF ALL DEVICES AND POINT—TO—POINT WIRING DIAGRAMS.
- 4. CERTIFIED FINAL AIR AND WATER BALANCING REPORT
- 5. DUCT AND PIPING AS-BUILT DRAWINGS WITH VALVE CHART AND KEY PLAN DRAWINGS INSERTED IN BINDER.
- 6. ALL ITEMS SUBMITTED FOR REVIEW IN SHOP DRAWING SECTION.

1.06 ACCESS DOORS IN GENERAL CONSTRUCTION

A. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL A PLAN INDICATING THE SIZE 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. ACCESS DOORS SHALL BE OF ADEQUATE SIZE TO PROVIDE ACCESS TO CONCEALED ITEMS FOR OPERATION AND MAINTENANCE. WITH A MINIMUM SIZE OF 18" X 18".

PART 2 - PRODUCTS/APPLICATIONS

2.01 <u>DUCTWORK AND ACCESSORIES</u>

- A. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE, LATEST EDITION, SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL, LATEST EDITION, NFPA 90A LATEST EDITION, AND NEW YORK STATE MECHANICAL CODE. THE MORE STRINGENT REQUIREMENT OF ANY CODES SHALL APPLY.
- B. PROVIDE ALL SUPPORTING AND HANGING DEVICES IN ACCORDANCE WITH CONNECTICUT BUILDING CODE AND SMACNA.
- C. DUCTWORK LAYOUT AND ROUTING IS SCHEMATIC AND THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL DUCT SIZE CHANGES AND RELOCATIONS TO ACCOMMODATE SPACE AND STRUCTURAL CONDITIONS. OFFSETS AND TRANSFORMATIONS SHALL PRESERVE THE FULL INSIDE CROSS—SECTIONAL AREA OF DUCTWORK SHOWN ON THE DRAWINGS.
- D. DUCTWORK (NEW AND EXISTING TO BE REUSED) SHALL HAVE PRESSURE CLASSIFICATION, SEALING REQUIREMENTS AND LEAKAGE TESTING IN ACCORDANCE WITH SMACNA AND AS LISTED BELOW UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS.

E. MATERIALS:

- 1. SHEETMETAL: UNLESS OTHERWISE SPECIFIED OR INDICATED, DUCTS SHALL BE CONSTRUCTED OF HOT-DIPPED GALVANIZED SHEETMETAL WITH 60 COMMERCIAL COATING ACCORDING TO ASTM 653 AND A924.
- 2. FLEXIBLE CONNECTIONS AT FANS SHALL BE NEOPRENE COATED, FLAME RETARDANT GLASS FABRIC (COMPLYING WITH NFPA 90 AND 96), 30 OZ./SQ. YD. WITH SOWN AND CEMENTED SEAMS.

F. FABRICATION:

1. CONFORM TO SMACNA REQUIREMENTS FOR METAL THICKNESS, REINFORCING, JOINTS, AND SEALING FOR MAXIMUM STATIC PRESSURES INVOLVED. ALL SEAMS AND JOINTS SHALL BE SEALED AND TAPED.

G. VOLUME DAMPERS:

- 1. GALVANIZED STEEL OR SAME AS DUCT CONSTRUCTION. CONFORM TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 1995 OR LATEST EDITION, OPPOSED BLADE TYPE. PROVIDE BEARING AT BOTH ENDS OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW, AT ONE END. INSTALL WITH LEVERS ACCESSIBLE THROUGH INSULATION. SPLITTER DAMPER OR AIR EXTRACTORS SHALL NOT BE USED ON THIS PROJECT.
- 2. 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 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
- C) MEDIUM PRESSURE: ALL BRANCHES AND TAKEOFFS DOWNSTREAM OF TERMINAL BOXES (VAV OR FAN POWERED) SHALL BE PROVIDED WITH BALANCING DAMPERS.
- D) AS NOTED ON PLANS.

FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS.

H. DUCT ACCESS DOORS:

1. CONFORM TO SMACNA WITH PIANO HINGES, TWO SASH LOCKS AND DOOR GASKETS. SCREWED ACCESS PANELS ARE NOT PERMITTED. PROVIDE REMOVABLE ACCESS DOORS WHERE DOOR SWING CANNOT BE ACCOMMODATED.

- 2. SIZE: MINIMUM 20"X14" EXCEPT DUCTS LESS THAN 16", ONE DIMENSION 20" AND THE OTHER DIMENSION, 2" LESS THAN THE DUCT WIDTH.
- 3. PROVIDE ACCESS DOORS: AT ENTERING AND LEAVING SIDES OF COILS IN DUCTS; AUTOMATIC DAMPERS ON LINKAGE SIDE, MANUAL VOLUME DAMPERS 2 SQ. FT. AND LARGER, FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, SMOKE DETECTION HEADS, FAN BEARINGS ENCLOSED IN DUCTS, SUCTION AND DISCHARGE SIDES OF CEILING MOUNTED FANS, FILTERS, REHEAT COILS, AT ALL EQUIPMENT REQUIRING ACCESS AND AS INDICATED ON DRAWINGS.
- K. SEAL OPENINGS AROUND DUCTS THROUGH WALLS WITH MINERAL WOOL OR OTHER NON—COMBUSTIBLE MATERIAL. SEAL ALL DUCT PENETRATIONS THROUGH WALLS AIRTIGHT.
- L. ALL DUCTS EXPOSE TO MOISTURE SHALL BE ALUMINUM, SLOPED AND DRAINED AND SHALL NOT BE INTERNALLY LINED.

2.02 PIPING AND ACCESSORIES

- A. PROVIDE ALL PIPING, FITTINGS, VALVES, SPECIALTIES, THERMOMETERS, AND PRESSURE GAUGES REQUIRED FOR THE OPERATING AND MAXIMUM PRESSURE AND TEMPERATURE OF THE PIPING SYSTEMS.
- B. ALL PIPING SHALL BE NEW, STANDARD SIZE, FREE FROM SCALE OR RUST WITH ENDS CAPPED FOR DELIVERY AND STORAGE. EACH LENGTH OF PIPING SHALL BE PROPERLY MARKED AT THE MILL FOR PROPER IDENTIFICATION WITH NAME OR SYMBOL OF MANUFACTURER.

C. PIPE APPLICATION SCHEDULE:

<u>SERVICE</u>	<u>SIZE</u>	<u>MATERIAL</u>	<u>WEIGHT</u>	<u>STANDARD</u>	JOINT TYPE
CONDENSER WATER	4"& BELOW	HARD COPPER	TYPE L	ASTM B88 SILVER SOLDER	BRAZE OR

- D. FITTING MATERIALS AND APPLICATION SCHEDULE:
- 1. ALL FITTING JOINT TYPE SHALL BE THE SAME AS THE PIPING JOINT TYPE REQUIRED FOR SERVICE, BASED ON THE PIPING APPLICATION SCHEDULE.
- 2. FITTING CLASS SHALL MEET THE PRESSURE AND TEMPERATURE REQUIREMENT OF THE PIPING SYSTEM BASED ON ITS MAXIMUM OPERATING PRESSURE AND TEMPERATURE OR TEST PRESSURE, WHICHEVER IF MORE STRINGENT. PRESSURE AND TEMPERATURE RATINGS OF A FITTING SHALL BE DETERMINED BY ITS CLASS AND THE CORRESPONDING ANSI STANDARD.

3. FITTING APPLICATION TABLE:

<u>PIPE MATERIAL</u>	PIPE SIZE (INCHES)	JOINT TYPE	FITTING MATERIAL	FITTINGS <u>CLASS</u>
COPPER TUBING HARD DRAWN	4" & SMALLER	SOLDER 95-5 TINANTIMONY ASTM B32 GR 95TA	WROUGHT COPPER OR CAST COPPER	300 PSIG AT 100F, 150 PSIG @ 250EF
		SILVER SOLDER ASTM B32 GR 95TS		
		BRAZING	WROUGHT COPPER	450 PSIG AT 100F TO 200F

PROVIDE DIELECTRIC FITTING AT ALL PIPING CONNECTIONS JOINING DISSIMILAR METALS, SUCH AS STEEL AND COPPER.

2.03 INSULATION

- A. ALL INSULATION SHALL MEET THE REQUIREMENTS OF ASTM, NFPA, 2009 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL AUTHORITIES HAVING JURISDICTION. ALL MECHANICAL INSULATION (JACKETING, COVERINGS, ADHESIVES, MASTICS, FACINGS, TAPES, ETC.), SHALL HAVE RATINGS NOT EXCEEDING A AFLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPED INDEX OF 50 OR LESS.
- B. BEFORE APPLYING INSULATION, ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED. FURNISH AND INSTALL AS PER MANUFACTURER'S REQUIREMENTS.
- C. INSULATION FOR FITTINGS Oar ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.
- D. DUCT INSULATION:

1. GENERAL

- A) INSULATION SHALL BE APPLIED WITH MASTICS, ADHESIVES, COATINGS, WITH COVERS, WEATHER—PROTECTION AND OTHER WORK AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS. DO NOT INSULATE SOUND LINED DUCTWORK. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND
- B) ALL SUPPLY AND RETURN DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES, A MINIMUM OF R-8 INSULATION SHALL BE INSTALLED WHEN LOCATED OUTSIDE OF THE BUILDING. WHEN A DUCT OR PLENUM IS LOCATED WITHIN THE BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPERATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED SPACES BY A MINIMUM OF R-8 INSULATION.

2. CONCEALED DUCTWORK

A) INSULATE SUPPLY AND FRESH AIR DUCTS AND PLENUMS IN CONCEALED SPACES AND RETURN DUCT NOT IN CEILING PLENUM WITH AT LEAST 1-1/2" THICK FIBROUS GLASS DUCT WRAP, WITH A MINIMUM R VALUE OF R-6 AND FOIL-KRAFT FLAME RESISTANT VAPOR BARRIER.

3. EXPOSED DUCTWORK

A) INSULATE EXPOSED SUPPLY, RETURN AND FRESH AIR DUCTS AND EXPOSED PLENUM WITH 2" THICK, SEMI—RIGID FIBROUS GLASS BOARDS WITH A MINIMUM R VALUE OF R—8 AND A FACTORY APPLIED FIRE RETARDANT FOIL REINFORCED KRAFT VAPOR BARRIER FACING. PROVIDE WELD PINS AND VAPOR SEAL ALL JOINTS WITH TAPE.

E. PIPE INSULATION:

- 1. FIBERGLASS PIPE INSULATION: ONE—PIECE MOLDED SECTIONAL FIBERGLASS INSULATION, CONFORMING TO ASTM C—547, CLASS 1, 2, 3 TO 850EF WITH 4 LB./CU. FT. DENSITY WITH A THERMAL CONDUCTIVITY OF NOT OVER 0.23 AT 75EF MEAN. PROVIDE WITH FACTORY—APPLIED ALL SERVICE JACKET AND DOUBLE ADHESIVE SELF—SEALING LAP. COLD WATER PIPE INSULATION JACKET SHALL BE OF THE CONTINUOUS VAPOR BARRIER TYPE. THE INSULATION SHALL BE SIMILAR TO OWENS—CORNING FIBERGLASS ASJ/SSL—II PIPE INSULATION.
- 2. CALCIUM SILICATE PIPE INSULATION: MOLDED CALCIUM SILICATE PIPE INSULATION, CONFORMING TO ASTM C-335, 1200EF MAXIMUM TEMPERATURE, ASBESTOS FREE, SHALL HAVE A NOMINAL 14 LB./CU. FT. DENSITY WITH A THERMAL CONDUCTIVITY OF NOT OVER 0.44 AT 300EF MAIN TEMPERATURE. WIRE ON PRE-MOLDED SECTION OF CALCIUM SILICATE AND APPLY SKIM COAT OF FINISHING CEMENT TO SMOOTH OUT SURFACE OF INSULATION. THE INSULATION SHALL BE SIMILAR TO OWENS-CORNING KAYLO.
- 3. INSULATION FOR FITTINGS, FLANGES, AND VALVES: PROVIDE INSULATION FOR FITTINGS, FLANGES, AND VALVES PREMOLDED, PRECUT, OR JOB FABRICATED OF THE SAME THICKNESS AND CONDUCTIVITY AS USED ON ADJACENT PIPING
- 4. PROVIDE INSULATION FOR PIPING, FITTINGS, FLANGES AND VALVES OF THE THICKNESS LISTED BELOW:

		INSULATION THICKNESS FOR PIPE SIZES (INCHES)					
			1"&	1-1/4"	2"	4"	8" OR
	<u>SERVICE</u>	MATERIAL	<u>LESS</u>	TO 1-1/2"	<u>TO 3"</u>	<u>TO 6"</u>	<u>LARGER</u>
&	CHILLED WATER SUPPLY RETURN	FIBERGLASS	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"

PARTNERS FOR ARCHITECTURE

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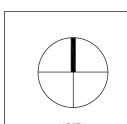
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MECHANICAL SPECIFICATIONS (1 OF 2)

SEAL & SIGNATURE

PROJECT ADRESS

DATE: 08-13-21

PROJECT NO.: 21-826

DRAWN BY: CH

CHECKED BY: TL

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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 <u>ELECTRICAL WORK</u>

A. GENERAL

- 1. 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.
- 2. 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.
- 3. DUCT MOUNTED SMOKE DETECTORS, WHERE REQUIRED, SHALL BE PROVIDED BY AD WIRED BY THE ELECTRICAL CONTRACTOR, AND MOUNTED BY THE HVAC CONTRACTOR.
- 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 THE 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 UNIT START/STOP AND FIRE ALARM.

2.05 <u>TESTING AND BALANCING</u>

A. GENERAL:

- 1. 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.
- 2. 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.
- 3. 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.
- 4. 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.
- 5. 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.
- 6. 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.
- 7. THE FINAL REPORT AFTER THE COMFORT BALANCE IS TO BE INCLUDED IN PROJECT OPERATING AND MAINTENANCE
- MANUAL.

 8. 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
- BALANCING CONTRACTOR SHALL PROVIDE THE NECESSARY TECHNICIANS TO FACILITATE THIS WORK.

 9. THE BALANCING AGENCY SHALL PERMANENTLY MARK ALL ADJUSTMENT DEVICES (VALVES, DAMPERS, ETC.) TO ENABLE THE SETTING TO BE RESTORED.

PERIOD MAY REQUEST A RECHECK OR RESETTING OF ANY EQUIPMENT. THE MECHANICAL CONTRACTOR AND THE

B. AIR BALANCING

- 1. 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.
- 2. 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.
- 3. TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
- A) FLOW, LEAKAGE CLASS, TEMPERATURE, STATIC PRESSURE OF AIR AT ALL TRUNK DUCTS SERVING AREAS OF WORK.
- 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 AND EXISTING TO BE REUSED TERMINAL BOXES (VAV, FAN POWERED OR DUAL DUCT)AS REQUIRED TO MEET SPECIFIED MINIMUM/MAXIMUM CFM.
- G) LISTING OF DESIGN AND ACTUAL READINGS AS WELL AS ALL MANUFACTURER'S DATA FOR EQUIPMENT.

2.06 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, MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND ALL AUTHORITIES HAVING JURISDICTION.
- C. PROVIDE EQUIPMENT SUPPORTS AND/OR MOUNTINGS AS INDICATED ON THE DRAWING, IN VIBRATION SPECIFICATION AND AS FOLLOWS:
- 1. CEILING MOUNTED EQUIPMENT-PROVIDE SUPPORTS WITH APPROVED SUITABLE ANCHORS SUSPENDED DIRECTLY FROM BUILDING STEEL STRUCTURE.
- D. EQUIPMENT SHALL BE INSTALLED WITH VIBRATION ISOLATION
- E. RE-USE OF EXISTING EQUIPMENT:
- RE-USE OF EXISTING EQUIPM
 EXISTING SYSTEM SURVEY
 - A) 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 <u>AUTOMATIC TEMPERATURE CONTROLS</u>

A. GENERAL:

- 1. 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.
- 2. 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 HEREAFTER.
- 3. THE SYSTEM SHALL BE SUPERVISED AND CHECKED OUT COMPLETELY IN ALL RESPECTS BY COMPETENT MECHANICS, REGULARLY EMPLOYED BY THE MANUFACTURER.
- 4. 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.
- 5. CONNECTION TO EXISTING SYSTEM:
- A) 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.
- 6. 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.
- A) 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:

- 1. 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.
- 2. ALL 115 VOLT POWER REQUIRED FOR CONTROL PURPOSES SHALL BE PROVIDED BY THE CONTROL CONTRACTOR FROM A SOURCE ESTABLISHED BY THE ELECTRICAL CONTRACTOR.
- 3. 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.
- 4. 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:

- 1. 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.
- 2. 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.
- A) 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:

- 1. FURNISH AND INSTALL IN THE MECHANICAL ROOM, AS HEREIN SPECIFIED, CONTROL PANELS OF STEEL, WITH WELDED ANGLE IRON BRACKETS, FOR WALL OR FLOOR MOUNTING.
- 2. THE BASIC BACKGROUND COLOR OF THE PANEL SHALL BE AS APPROVED BY THE ARCHITECT AND ENGINEER.
- 3. 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.
- 4. 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:

- 1. 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):
- A) UNIT SHALL BE CONTROLLED BY NEW 7-DAY PROGRAMMABLE THERMOSTAT WITH TEMPERATURE AND HUMIDITY SENSOR.
- B) 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 \pm 1°F AND AT A RELATIVE HUMIDITY BETWEEN 30% AND 50%.
- C) UNIT SHUTDOWN: SUPPLY FAN AND DX-REFRGIERANT COOL COOLING SHALL BE DENERGIZED, BURNER SHALL SHUTDOWN, OUTSIDE AIR DAMPERS SHALL BE FULLY CLOSED AND RETURN DAMPER SHALL BE FULLY OPEN.
- D) 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

- 1) 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.
- 2) HEATING MODE: WHEN THE SPACE TEMPERATURE DROPS BELOW SETPOINT THE FURNACE SHALL FIRE. WHEN TEMPERATURE REACHES SETPOINT THE FURNACE SHALL SHUTDOWN.
- 3) 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.
- 4) 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.
- 5) 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):
- A) 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):
- A) UNITS SHALL BE CONTROLLED BY MANUFACTURER'S AUTO FAN CONTROL SYSTEM WITH DEMAND CONTROL VENTILATION. MAKE—UP SIR UNIT SHALL SUPPLY A CONSTANT DISCHARGE AIR TEMPERATURE.
- 5. DISHWASHER EXHAUST FAN (EF-3):
- A) EXHAUST FAN SHALL BE CONTROLLED BY DISHWASHER EXHAUST FAN CONTROLLER.

PART 3 - EXECUTION

3.01 DEMOLITION, REMOVAL AND RELOCATION

- A. 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.
- B. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT, AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
- C. EQUIPMENT REQUIRED TO BE TEMPORARILY DISCONNECTED AND RELOCATED SHALL BE CAREFULLY REMOVED, STORED, CLEANED, REINSTALLED, RECONNECTED, AND MADE OPERATIONAL.
- D. 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.
- E. 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.
- F. 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.
- G. 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.
- H. 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 <u>CONNECTION TO EXISTING WORK</u>

- A. 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.
- B. 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.
- C. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES.



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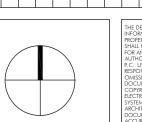
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OLD OAKS COUNTRY CLUB

MECHANICAL SPECIFICATIONS (2 OF 2)

SEAL & SIGNATURE

PROJECT ADRESS

DATE: 08-13-21

PROJECT NO.: 21-826

DRAWN BY: CH

CHECKED BY: TL

DRAWING NO: M401.00

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