

GENERAL NOTES	
GENERAL	
1.	GENERAL NOTES, SYMBOLS AND DETAILS ARE APPLICABLE TO ALL DRAWINGS WITHIN DIVISION 26.
2.	DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE CAPACITY, SIZE, APPROXIMATE LOCATION AND GENERAL ARRANGEMENT. DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3.	COORDINATE ROOF AND WALL PENETRATIONS WITH WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS. COORDINATE SLAB PENETRATIONS WITH WORK OF OTHER SECTIONS.
4.	RUN DUCTS AND PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE OR AS APPROVED BY THE ARCHITECT.
5.	INSTALL SENSORS (TEMPERATURE, HUMIDITY, CO ₂ , THERMOSTATS) AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY ARCHITECT. MOUNTING HEIGHT AFF SHALL COMPLY WITH ADA AND SHALL BE MOUNTED LEVEL WITH ADJACENT SWITCHES (IE LIGHT SWITCHES).
6.	COORDINATE WORK OF THIS SECTION WITH THAT OF OTHER SECTIONS AND WITH ALL TRADES INVOLVED. PROVIDE OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS.
7.	NOT ALL ACCESS DOORS HAVE BEEN SHOWN ON THE PLANS FOR CLARITY. PROVIDE ACCESS PANELS THROUGH BUILDING ASSEMBLIES TO SERVICE AND MAINTAIN EQUIPMENT UNLESS SUCH EQUIPMENT IS INSTALLED IN EXPOSED LOCATIONS OR ABOVE LAY-IN CEILINGS. COORDINATE THE LOCATION OF ACCESS DOORS AND PANELS AND VERIFY THE EXACT QUANTITY, SIZE, AND LOCATIONS AFTER THE SYSTEMS AND EQUIPMENT REQUIRING ACCESS HAVE BEEN INSTALLED AND PRIOR TO THE CLOSURE OF THE AFFECTED CEILINGS AND BUILDING ASSEMBLIES. OBTAIN APPROVAL FOR ALL PANEL LOCATIONS FROM ARCHITECT.
8.	AT SUBSTANTIAL COMPLETION, THE FOLLOWING ITEMS, NEW OR EXISTING, SHALL BE FULLY AND REASONABLY ACCESSIBLE: HVAC CONTROL BOXES, JUNCTION BOXES, VALVES, DDC CONTROL BOXES, ELECTRICAL PANELS, FILTERS, BELTS, WATER COILS, DISCONNECT SWITCHES AND ELEMENTS OF EQUIPMENT REQUIRING MAINTENANCE. "FULLY AND REASONABLY ACCESSIBLE" SHALL BE DEFINED AS NATIONAL ELECTRIC CODE REQUIRED CLEARANCE FOR POWERED EQUIPMENT AND CAPABLE OF BEING ACCESSED OR SERVICED WITHOUT REMOVING, MODIFYING OR DISTORTING OTHER COMPONENTS OF THE WORK. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCE FOR ALL EQUIPMENT.
9.	SUPPORT EQUIPMENT, PIPING AND DUCTWORK FROM BUILDING STRUCTURE OR WITH STEEL SUPPORTS AND PLATFORMS AS REQUIRED. PROVIDE VIBRATION ISOLATION FOR ROTATING EQUIPMENT, DUCTWORK AND PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.
10.	ROOF CURBS AND RAIL HEIGHTS INDICATED ARE THE DIMENSIONS BETWEEN THE ROOF SURFACE AND THE TOPS OF THE CURBS AND RAILS. WHERE THE ROOF IS PITCHED, CONSTRUCT CURBS AND RAILS SUCH THAT THE BOTTOM PITCHES WITH THE ROOF AND THE TOP IS LEVEL.
11.	CONTROL WIRING METHODS SHALL COMPLY WITH NEC, AND DIVISION 26 SPECIFICATIONS.
12.	VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S DRAWINGS. VERIFY AND PROVIDE FITTINGS TO TRANSITION TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.
13.	PERFORM PRESSURE AND LEAKAGE TESTS BEFORE INSULATING DUCTWORK AND PIPING.
AIR SYSTEM SPECIFIC NOTES:	
1.	REFER TO SPECIFICATIONS FOR DUCTWORK CONSTRUCTION CLASSES, SEAL, AND LEAKAGE CLASSES.
2.	INTERNAL AIR FLOW DIMENSIONS ARE SHOWN FOR DUCTS. CONTRACTOR SHALL INCREASE SHEETMETAL SIZE FOR LINER IF APPLICABLE.
3.	ELBOWS IN DUCT SYSTEMS SHALL BE FULL RADIUS (CENTERLINE RADIUS = 1.5 DUCT WIDTH WHERE SPACE PERMITS; WHERE LIMITED CLEARANCE OCCURS, PROVIDE SHORT RADIUS ELBOW WITH FULL LENGTH SPLITTER VANES PER SMACNA, OR MITERED ELBOW WITH TURNING VANES PER SMACNA.
4.	PROVIDE CLEANOUTS IN KITCHEN EXHAUST DUCTS AT CHANGES IN DIRECTION AND BASES OF RISERS, AND EVERY 10 FEET IN STRAIGHT RUNS.
5.	WHERE DUCTS PENETRATE WALLS WITH SOUND ISOLATION PERFORMANCE RATINGS, PROVIDE DUCT SLEEVE SIZED TO PROVIDE 1/4" GAP BETWEEN THE SLEEVE AND DUCT. FILL THE GAP WITH FIBEROUS MATERIAL AND SEAL AIRTIGHT WITH NON-HARDENING ACOUSTIC SEALANT.
6.	KITCHEN: COORDINATE REQUIREMENTS WITH KITCHEN EQUIPMENT. PROVIDE DUCTWORK AND ACCESSORIES FOR GREASE HOOD. GREASE DUCT EXHAUST SHALL PITCH BACK TO HOOD.
FIRESTOPPING NOTES:	
1.	PROVIDE FIRE STOPPING AND SMOKE BARRIER SEALING OF ALL PENETRATIONS THROUGH FIRE OR SMOKE WALLS, BARRIERS AND PARTITIONS AS REQUIRED TO MAINTAIN RATING. REFER TO ARCHITECTURAL FLOOR PLANS AND CODE SHEETS FOR WALL RATINGS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

DEMOLITION NOTES	
1.	SITE VISIT: THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. BEFORE SUBMITTING BID, VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVER.
2.	PREPARATORY WORK: BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT, VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK DONE UNDER OTHER SECTIONS OR CONTRACTS BY OWNER. REPORT CONDITIONS THAT MIGHT AFFECT WORK ADVERSELY IN WRITING TO ARCHITECT AND OWNER. DO NOT PROCEED WITH WORK UNTIL DEFECTS HAVE BEEN CORRECTED AND CONDITIONS ARE SATISFACTORY. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.
3.	PHASING: DEMOLITION WORK SHALL COMPLY WITH THE PHASING REQUIREMENTS OF THE PROJECT AND BE COORDINATED WITH THE OWNER, ARCHITECT, CM AND ENGINEER. NO REMOVALS SHALL BE IMPLEMENTED WITHOUT A THOROUGH UNDERSTANDING OF THE PHASING REQUIREMENTS.
4.	ABANDONING OF DUCTWORK, PIPING OR EQUIPMENT IN PLACE WITHIN SCOPE AREA IS PROHIBITED.
5.	PROVIDE 2 WEEKS NOTICE TO OWNER FOR SHUT DOWN OF ANY SERVICES AND/OR SYSTEMS.
6.	COORDINATE EXISTING EQUIPMENT AND MATERIALS THAT SHALL REMAIN THE PROPERTY OF THE OWNER. ITEMS OF VALUE WHICH ARE NOT DIRECTED TO BE RETURNED TO THE OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF, STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED.
7.	PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
8.	UTILITIES: MAINTAIN ALL UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING OCCUPIED AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE OWNER IN WRITING. PROVIDE TEMPORARY SERVICES AS REQUIRED.
9.	INFORMATION CONTAINED ON THESE DRAWINGS WAS OBTAINED FROM ARCHIVED DRAWINGS AND SITE VISITS. DRAWINGS ARE DIAGRAMMATIC ONLY AND REFLECT OVERALL SYSTEM REMOVAL. NOT EVERY ITEM OR COMPONENT OF A SYSTEM IS SHOWN. PROVIDE COMPLETE REMOVAL OF ASSOCIATED ANGLIARY PIPES, HANGERS, VALVES AND ACCESSORIES SERVING SYSTEM SHOWN.
10.	DEMOLITION WORK SHALL COMPLY WITH OSHA, EPA AND APPLICABLE STATE AND LOCAL CODES. COMPLY WITH HAULING AND DISPOSAL REGULATIONS.
11.	REFER TO SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS AND PROCEDURES.

CONTROLS LEGEND		
PLAN SYMBOL	DIAGRAM SYMBOL	DESCRIPTION
	AI	ANALOG INPUT
	AO	ANALOG OUTPUT
	DI	DIGITAL INPUT
	DO	DIGITAL OUTPUT
AFMS	FE	AIR FLOW MEASURING STATION
C	CO ₂	CARBON DIOXIDE SENSOR
CO	CO	CARBON MONOXIDE SENSOR
CS	CO	CARBON MONOXIDE SENSOR
	IT	CURRENT SENSING RELAY AND TRANSMITTER
	DPS	DIFFERENTIAL PRESSURE SWITCH
DP	DPT	DIFFERENTIAL PRESSURE SENSOR AND TRANSMITTER
	FSD	FIRE / SMOKE DAMPER
AFS	FS	FLOW SWITCH
H	HE	HUMIDITY SENSOR
HL	HS	HUMIDITY SWITCH - HIGH LIMIT
	ZS	POSITION SWITCH ASSOCIATED WITH VALVE OR DAMPER
	PE	PRESSURE SENSOR
	PSH	PRESSURE SWITCH - HIGH LIMIT
	PSL	PRESSURE SWITCH - LOW LIMIT
	SMD	SMOKE DAMPER
S	SD	SMOKE DETECTOR
T	TE	THERMOSTAT - STAND ALONE
T	TE	THERMOSTAT - DDC/BAS
	TSH	TEMPERATURE SWITCH - HIGH LIMIT
	TSL	TEMPERATURE SWITCH - LOW LIMIT
BMS		DDC CONTROL PANEL NETWORKED TO BMS
VFD		VARIABLE FREQUENCY DRIVE
BYP		VFD BYPASS
VRF		VRF CONTROL PANEL

ACTUATOR LEGEND	
SYMBOL	DESCRIPTION
	DAMPER OR VALVE WITH TWO POSITION ACTUATOR
	DAMPER OR VALVE WITH MODULATING ACTUATOR

GENERAL ABBREVIATIONS	
AD	ACCESS DOOR
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AHJ	AUTHORITY HAVING JURISDICTION
AP	ACCESS PANEL
CNV	CONVECTOR
APD	AIR PRESSURE DROP
AWT	AVERAGE WATER TEMPERATURE
BAS	BUILDING AUTOMATION SYSTEM
BF	BYPASS FEEDER
BHP	BREAK HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
BTUH	BTU / HOUR
BD	BOTTOM OF DECK
BDP	BOTTOM OF PIPE
CRD	CEILING RADIATION DAMPER
CAP	CAPACITY
CO	CLEAN OUT
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CFM	CUBIC FEET PER MINUTE
CFM2	CUBIC FEET PER MINUTE
CFM3	CUBIC FEET PER MINUTE
DB	DRY BULB TEMPERATURE
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DN	DOWN
DX	DIRECT EXPANSION
EAT	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE (DRY BULB)
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
ELEC	ELECTRICAL
ESP	EXISTING TO BE RELOCATED
EWB	EXTERNAL STATIC PRESSURE
EWT	EXISTING TO REMAIN
EWTR	ENTERING WET BULB
EWR	ENTERING WATER TEMPERATURE
F	DEGREES FAHRENHEIT
FD	FIRE DAMPER
FEET	FEET
FT WG	FEET WATER GAUGE
FLA	FULL LOAD AMPS
FLM	FEET PER MINUTE
FSD	COMBINATION FIRE SMOKE DAMPER
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPRD	GRILLE, REGISTER, DIFFUSER
HD	HEAD
HP	HORSEPOWER
HSPF	HEATING SEASON PERFORMANCE FACTOR
HZ	HERTZ
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
IN	INCHES
IN WG	INCHES WATER GAUGE
IN PLV	INTEGRATED PART LOAD VALUE
KW	KILOWATTS
L	LEAVE
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MECH	MECHANICAL
MBH	THOUSANDS OF BTU / HOUR
MCB	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
NC	NOT IN CONTRACT
NTS	NOT TO SCALE
OAT	OUTSIDE AIR TEMPERATURE
OD	OUTER DIAMETER
OED	OPEN ENDED DUCT
P	PUMP
PH	PHASE
PLUMB	PLUMBING
PRV	PRESSURE REDUCING VALVE
PSIG	POUNDS PER SQUARE INCH GAUGE
QTY	QUANTITY
RA	RETURN AIR
RRM	REDUCTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RV	RADON VENT
SA	SUPPLY AIR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SG	SIGHT GLASS
SP	STATIC PRESSURE
SFD	STATIC PRESSURE DROP
SS	STAINLESS STEEL
SST	SATURATED SUCTION PRESSURE
SQFT / SF	SQUARE FEET
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TYP	TYPICAL
UOI	UNLESS OTHERWISE INDICED
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THRU ROOF
W	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN
WG	WATER GAUGE
WMS	WIRE MESH SCREEN
WPD	WATER PRESSURE DROP
X	DEMOLISH

DUCTWORK LEGEND	
SYMBOL	DESCRIPTION
	RECTANGULAR DUCTWORK
	ROUND DUCTWORK
	OVAL DUCTWORK
	DUCTWORK SHOWN SINGLE LINE
	ACOUSTICALLY LINED DUCTWORK
	ACOUSTICALLY LINED DUCTWORK (SINGLE LINE)
	RECTANGULAR SUPPLY DUCTWORK TOWARDS (UP IN PLAN)
	ROUND SUPPLY DUCTWORK TOWARDS (UP IN PLAN)
	RECTANGULAR RETURN DUCTWORK AWAY (DOWN IN PLAN)
	ROUND SUPPLY DUCTWORK AWAY (DOWN IN PLAN)
	RECTANGULAR RETURN DUCTWORK TOWARDS (UP IN PLAN)
	ROUND RETURN DUCTWORK TOWARDS (UP IN PLAN)
	RECTANGULAR RETURN DUCTWORK AWAY (DOWN IN PLAN)
	ROUND RETURN DUCTWORK AWAY (DOWN IN PLAN)
	RECTANGULAR EXHAUST DUCTWORK TOWARDS (UP IN PLAN)
	ROUND EXHAUST DUCTWORK TOWARDS (UP IN PLAN)
	RECTANGULAR EXHAUST DUCTWORK AWAY (DOWN IN PLAN)
	ROUND EXHAUST DUCTWORK AWAY (DOWN IN PLAN)
	FLEXIBLE DUCT
	OPEN ENDED DUCT WITH WIRE MESH SCREEN
	CAPPED DUCT
	DUCT TRANSITION

AIR DEVICE LEGEND	
SYMBOL	DESCRIPTION
	SUPPLY DIFFUSER
	RETURN GRILLE OR REGISTER
	EXHAUST GRILLE OR REGISTER
	SIDEWALL SUPPLY GRILLE
	SIDEWALL RETURN OR EXHAUST GRILLE OR REGISTER
	SUPPLY DIFFUSER (BLOW INDICATED)
	AIR DEVICE TAG (TAG NO. (AIRFLOW))

DRAWING SYMBOLS	
SYMBOL	DESCRIPTION
	CALLOUT
	CENTERLINE
	CONNECT TO EXISTING
	DISCONNECT FROM EXISTING
	KEYNOTE TAG
	REVISION NUMBER
	EQUIPMENT TAG
	ELEVATION MARK
	LINE BREAK
	EXISTING LINETYPE
	NEW WORK LINETYPE
	FUTURE WORK LINETYPE
	DEMO WORK LINETYPE

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CES #2021535.00

TOWN OF SWAMPSCOTT

22 Monument Avenue
Swampscott MA 01907

REVISIONS		
NO.	DATE	DESCRIPTION

SWAMPSCOTT SENIOR CENTER - RANGE HOOD

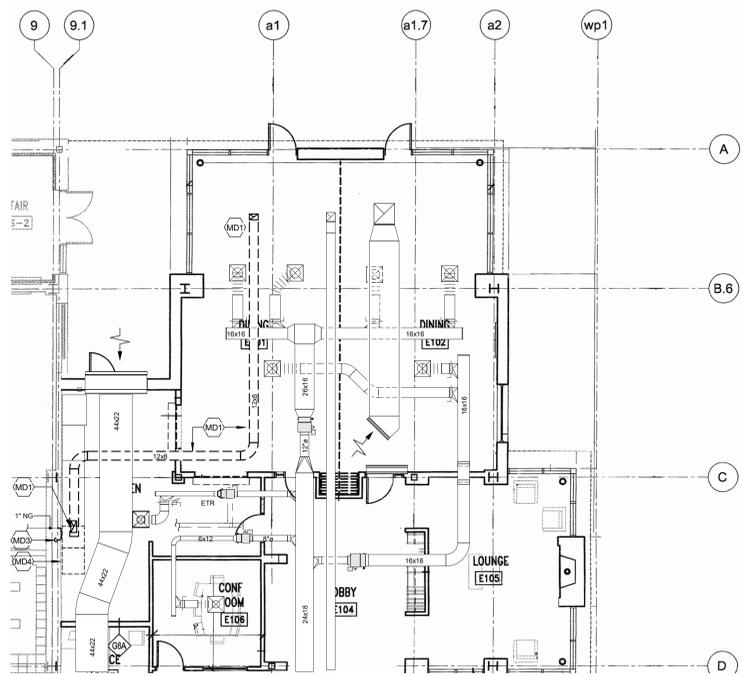
200R Essex St,
Swampscott, MA
01907

MECHANICAL ABBREVIATIONS, NOTES AND SYMBOLS

DATE:	6/16/2023
PROJECT NO:	2021535.00
DRAWN:	DJH
CHECKED:	EJR
ISSUED FOR:	BID DOCUMENTS
REVISIONS:	

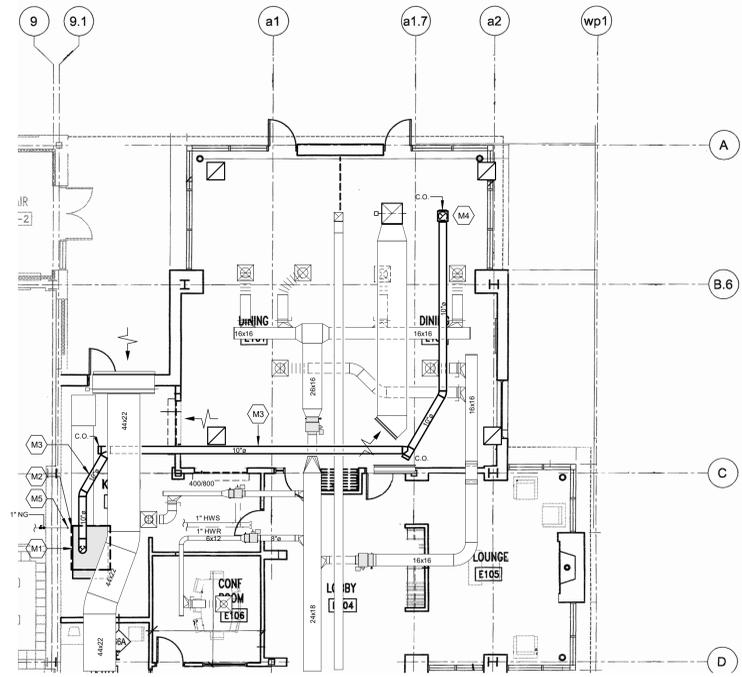
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M0.00



1 Mechanical Ductwork and Piping Demolition - Level 1
1/8" = 1'-0"

MECHANICAL DEMOLITION KEY NOTES	
MD1	REMOVE EXISTING CEILING EXHAUST AIR GRILLE & ASSOCIATED EXHAUST AIR DUCT UP TO EXHAUST FAN EE-28 ON ROOF; REMOVE ALL ASSOCIATED DAMPERS, FITTINGS, HANGERS & SUPPORTS.
MD2	REMOVE EXISTING ROOF MOUNTED EXHAUST FAN EE-28 & ASSOCIATED ROOF CURB; EXHAUST DUCT CONNECTIONS, POWER CONTROL WIRING, ROOF FLASHING & SUPPORTS; EXISTING ROOF OPENING SHALL BE PATCHED & SEALED BY OTHERS.
MD3	SHUT-OFF, CAP, AND DISCONNECT NATURAL GAS FROM STOVE. REMOVE EXISTING GAS RANGE AND DISPOSE OF PROPERLY.
MD4	REMOVE EXISTING 30" LOWER CABINET SECTION; REMOVE EXISTING 30" AND 30" UPPER CABINETS SECTIONS ABOVE RANGE AND COUNTER-TOP.



2 Mechanical Ductwork and Piping New Work - Level 1
1/8" = 1'-0"

MECHANICAL NEW WORK KEY NOTES	
M1	NEW ELECTRIC RANGE PROVIDED AND INSTALLED BY OWNER. DIV 23 CONTRACTOR TO FIELD COORDINATE EXACT PLACEMENT OF NEW RANGE WITH EXISTING CABINETRY.
M2	NEW RANGE HOOD: INSTALL PER MANUFACTURER'S INSTRUCTIONS & RECOMMENDATION; MODIFY EXISTING T-BAR CEILING AS REQUIRED TO PROVIDE A COMPLETE INSTALLATION WITH NO GAPS OR OPENINGS AROUND HOOD.
M3	FURNISH & INSTALL NEW RANGE HOOD EXHAUST DUCT UP THROUGH ROOF TO NEW EXHAUST FAN; MODIFY EXISTING ROOF PENETRATION TO ACCOMMODATE NEW ROOF CURB; EXHAUST DUCT SHALL BE NON-WELDED GREASE TYPE HT OR FIELD FABRICATED EQUIVALENT; PROVIDE ALL REQUIRED FITTINGS, CLEAN-OUTS, HANGERS & SUPPORTS; MANUFACTURED BY CAPTIVEAIRE OR APPROVED EQUAL.
M4	FURNISH & INSTALL NEW RANGE HOOD EXHAUST FAN ON ROOF KEE-1; FAN SHALL BE INSTALLED ON 4" H. HINGED ROOF CURB WITH GREASE TRAP & VENTILATED ROOF CURB; REFER TO MECHANICAL SCHEDULES FOR NEW EXHAUST FAN INFORMATION.
M5	SHUT-OFF AND CAP OPEN END OF NATURAL GAS PIPING.


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 200R Essex St,
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MECHANICAL DUCTWORK & PIPING DEMOLITION & NEW FLOOR PLAN

DATE: 6/16/2023
 PROJECT NO: 2021535.00
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SWAMPSCOTT
SENIOR CENTER -
RANGE HOOD

200R Essex St,
Swampscott, MA
01907

MECHANICAL
DUCTWORK
DEMOLITION AND
NEW ROOF PLAN

DATE: 6/16/2023
 PROJECT NO: 2021535.00
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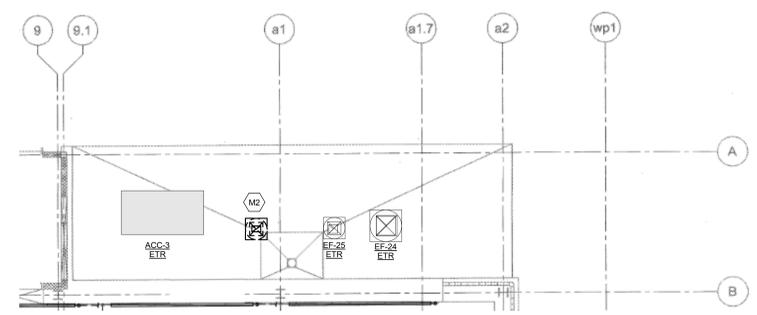
MECHANICAL DEMOLITION KEY NOTES

(MD1) REMOVE EXISTING CEILING EXHAUST AIR GRILLE & ASSOCIATED EXHAUST AIR DUCT UP TO EXHAUST FAN EF-22 ON ROOF. REMOVE ALL ASSOCIATED DAMPERS, FITTINGS, HANGERS & SUPPORTS.

(MD2) REMOVE EXISTING ROOF MOUNTED EXHAUST FAN EF-28 & ASSOCIATED ROOF CURB, EXHAUST DUCT CONNECTIONS, POWER CONTROL WIRING, ROOF FLASHING & SUPPORTS. EXISTING ROOF OPENING SHALL BE PATCHED & SEALED BY OTHERS.

(MD3) SHUT-OFF, CAP, AND DISCONNECT NATURAL GAS FROM STOVE. REMOVE EXISTING GAS RANGE AND DISPOSE OF PROPERLY.

(MD4) REMOVE EXISTING 36" LOWER CABINET SECTION. REMOVE EXISTING 30" AND 36" UPPER CABINETS SECTIONS ABOVE RANGE AND COUNTER-TOP.



2 MEP Demolition Roof
1/8" = 1'-0"

MECHANICAL NEW WORK KEY NOTES

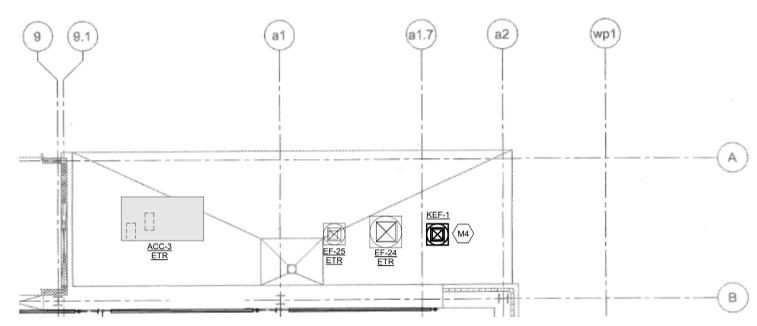
(M1) NEW ELECTRIC RANGE PROVIDED AND INSTALLED BY OWNER. DIV 23 CONTRACTOR TO FIELD COORDINATE EXACT PLACEMENT OF NEW RANGE WITH EXISTING CABINETRY.

(M2) NEW RANGE HOOD: INSTALL PER MANUFACTURER'S INSTRUCTIONS & RECOMMENDATION. MODIFY EXISTING T-BAR CEILING AS REQUIRED TO PROVIDE A COMPLETE INSTALLATION WITH NO GAPS OR OPENINGS AROUND HOOD.

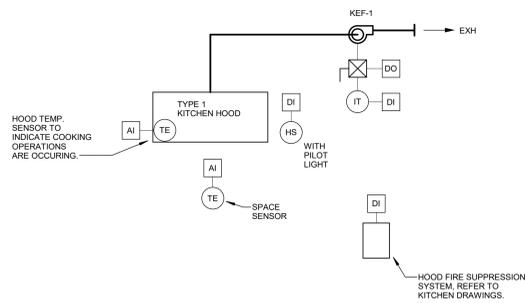
(M3) FURNISH & INSTALL NEW RANGE HOOD EXHAUST DUCT UP THROUGH ROOF TO NEW EXHAUST FAN. MODIFY EXISTING ROOF PENETRATION TO ACCOMMODATE NEW ROOF CURB. EXHAUST DUCT SHALL BE NON-WELDED GREASE TYPE HT OR FIELD FABRICATED EQUIVALENT. PROVIDE ALL REQUIRED FITTINGS, CLEAN-OUTS, HANGERS & SUPPORTS. MANUFACTURED BY CAPTIVEAIRE OR APPROVED EQUAL.

(M4) FURNISH & INSTALL NEW RANGE HOOD EXHAUST FAN ON ROOF KEE-1. FAN SHALL BE INSTALLED ON 42" HINGED ROOF CURB WITH GREASE TRAP & VENTILATED ROOF CURB. REFER TO MECHANICAL SCHEDULES FOR NEW EXHAUST FAN INFORMATION.

(M5) SHUT-OFF AND CAP OPEN END OF NATURAL GAS PIPING.



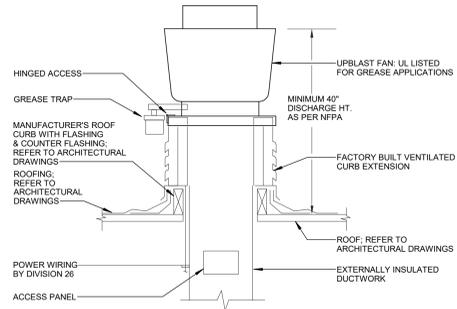
1 Mechanical Ductwork Roof
1/8" = 1'-0"



SEQUENCE OF OPERATION

- GENERAL**
1. PROVIDE ALL WIRING AND CONTROLS FOR A COMPLETE AND OPERABLE SYSTEM.
- SAFETIES AND ALARMS**
1. IF THE FAN IS COMMANDED ON AND IT DOES NOT ACTIVATE, AN ALARM SHALL BE GENERATED THROUGH THE BAS.
- OPERATION**
1. FAN SHALL START WHEN SWITCH IS ON.
 2. FAN SHALL START IF TEMPERATURE IN HOOD IS HIGHER THAN SETPOINT.

2 KITCHEN EXHAUST FAN CONTROLS
NTS



1 UPBLAST FAN DETAIL FOR KITCHEN EXHAUST
NTS

FAN SCHEDULE																		
GENERAL				PHYS.	PERFORMANCE					ELECTRICAL			REMARKS					
SYMBOL	MANUFACTURER	MODEL	LOCATION	SERVICE	WEIGHT (LBS)	CFM	SP (IN.WG)	BHP	SONES	PLUME HEIGHT (FT)	MOTOR RPM	HP	VOLTS	PHASE	TYPE	RATINGS	FEATURES	INSTALL
KEF-1	CAPTIVEAIRE	EADU8SH	DINING ROOM ROOF	HOOD EXHAUST	145	875	1.75	0.5160	15.3	N/A	1418	0.75	120	1	1	ALL	ALL	ALL
REMARKS - TYPE: 1. ROOF MOUNTED UPBLAST KITCHEN EXHAUSTER W/GREASE TRAP				REMARKS - RATINGS: 1. AMCA AIR & SOUND CERTIFIED 2. UL LISTED		REMARKS - FEATURES: 1. THREE YEAR WARRANTY			REMARKS - INSTALL: 1. PROVIDE ROOF CURB, BYPASS DAMPER, BYPASS AIR PLENUM, DISCONNECT SWITCH 2. PROVIDE WITH 42" HINGED ROOF CURB 3. FAN SHALL BE INTERLOCKED WITH KITCHEN HOOD.									

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MECHANICAL SCHEDULES, DETAILS, AND ATC

DATE: 6/16/2023
 PROJECT NO: 2021535.00
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HOOD INFORMATION - JOB#5741348

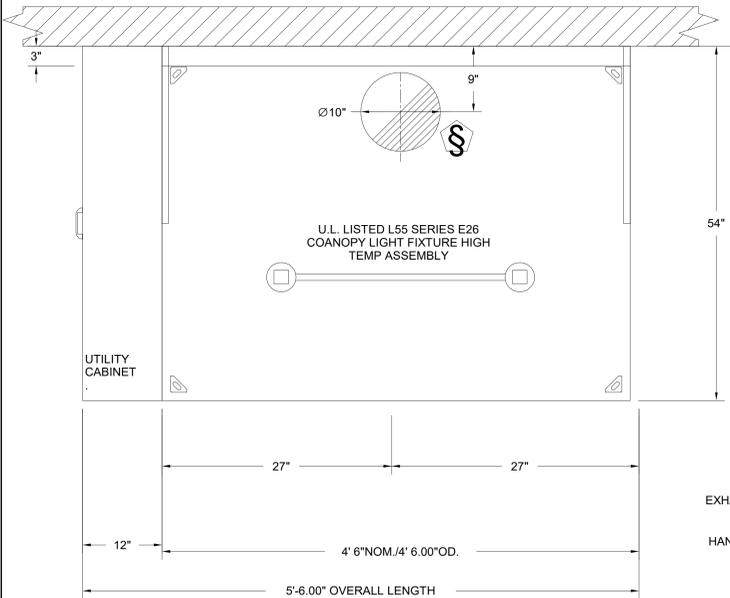
HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)					HOOD CONSTRUCTION	HOOD CONFIG			
										WIDTH	LENG	HEIGHT	DIA	CFM		VEL	SP	END TO END	ROW
1	KH-1	5424 EX-2	ECON-AIR	5' 6"	600 DEG	I	HEAVY	175	875			4"	10"	875	1604	-0.278"	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

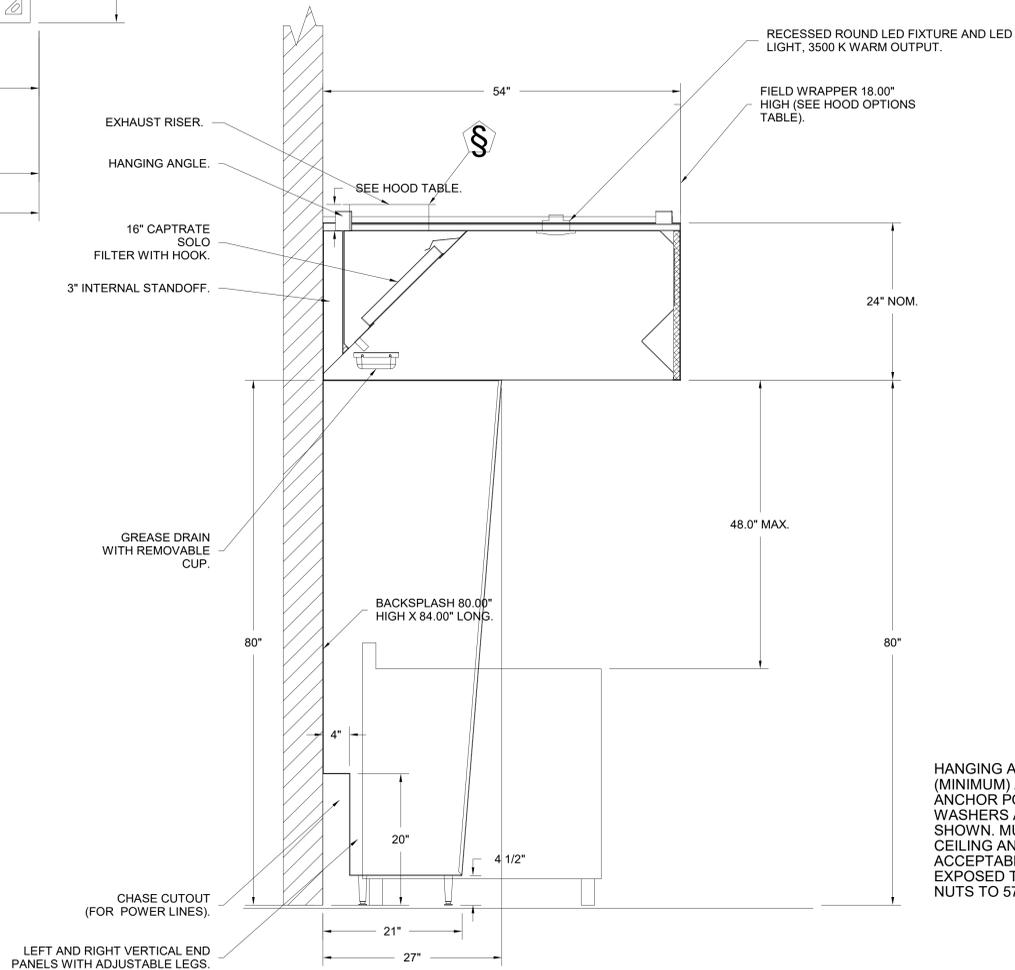
HOOD NO	TAG	FILTER(S)					LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WEIGHT	
		TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #			SWITCHES QUANTITY
1	KH-1	SS BAFFLE WITH HANDLES	3	16"	16"	30%	2	L55 SERIES E26	NO	LEFT	12"x54"x24"	TANK FS	4.0	SC-110110MA	1 LIGHT 1 FAN	YES	594 LBS

HOOD OPTIONS

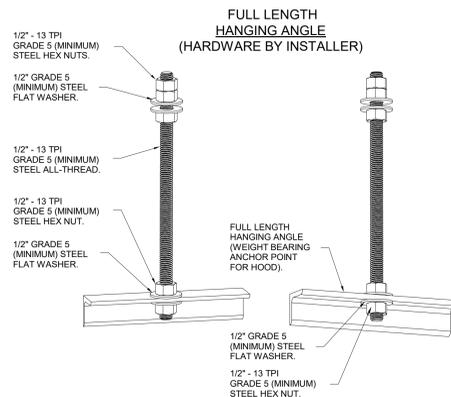
HOOD NO	TAG	OPTION
1	KH-1	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT. BACKSPLASH 80.00" HIGH X 84.00" LONG 430 SS VERTICAL. RISER SENSOR INSTALL 6IN PLEN. RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS. LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.



PLAN VIEW - HOOD #1 (KH-1)

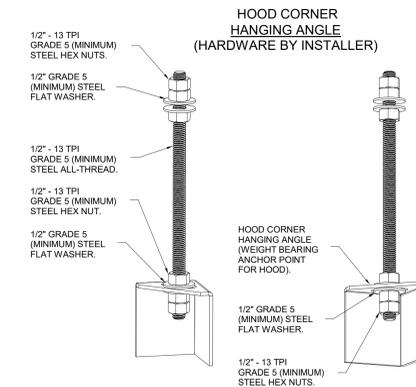


HOOD - #1(KH-1)
SECTION VIEW - MODEL
5424EX-2



ASSEMBLY INSTRUCTIONS

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



ASSEMBLY INSTRUCTIONS

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

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CES #2021535.00

TOWN OF SWAMPSCOTT
22 Monument Avenue
Swampscott MA 01907

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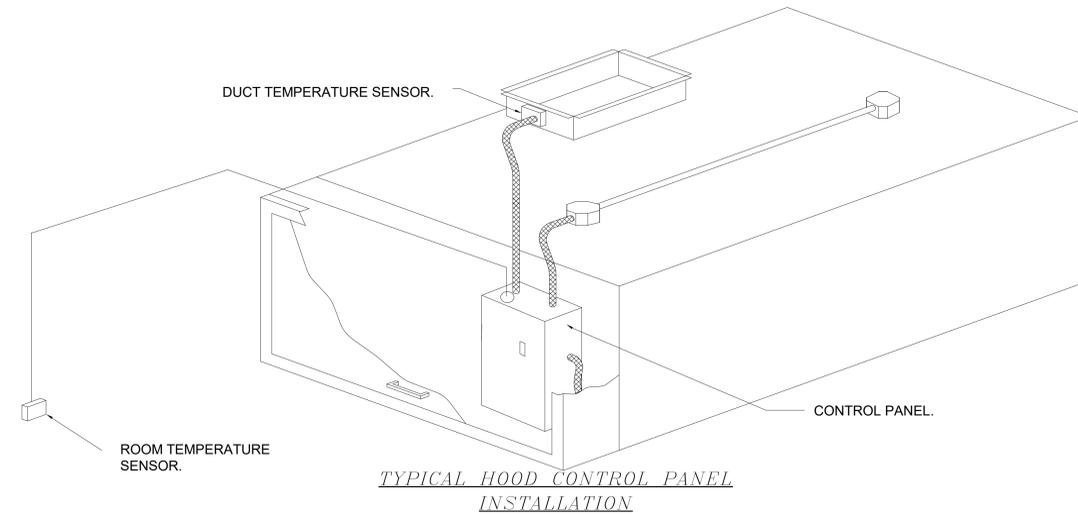
SWAMPSCOTT SENIOR CENTER - RANGE HOOD
200R Essex St, Swampscott, MA 01907

MECHANICAL SCHEDULES, AND DETAILS - RANGE HOOD

DATE:	6/16/2023
PROJECT NO:	2021535.00
DRAWN:	Author
CHECKED:	Checker
ISSUED FOR:	BID DOCUMENTS
REVISIONS:	

SHEET NO.
M5.01

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	φ	HP	VOLT	FLA
1	ECP-1	DCV-1011	UTILITY CABINET LEFT	03 - UTILITY CABINET LEFT	1 LIGHT	BASIC ON/OFF CONTROLS	KEF-1	EXHAUST	1	1.000	115	11.6
				HOOD # 1	1 FAN							



SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- **AUTOMATIC:** THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.2.8.
- **MANUAL:** THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- **SCHEDULE:** A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- **OTHER:** THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- **FIRE:** UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN.

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TOWN OF SWAMPSCOTT

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Swampscott MA 01907

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SWAMPSCOTT
SENIOR CENTER -
RANGE HOOD

200R Essex St,
Swampscott, MA
01907

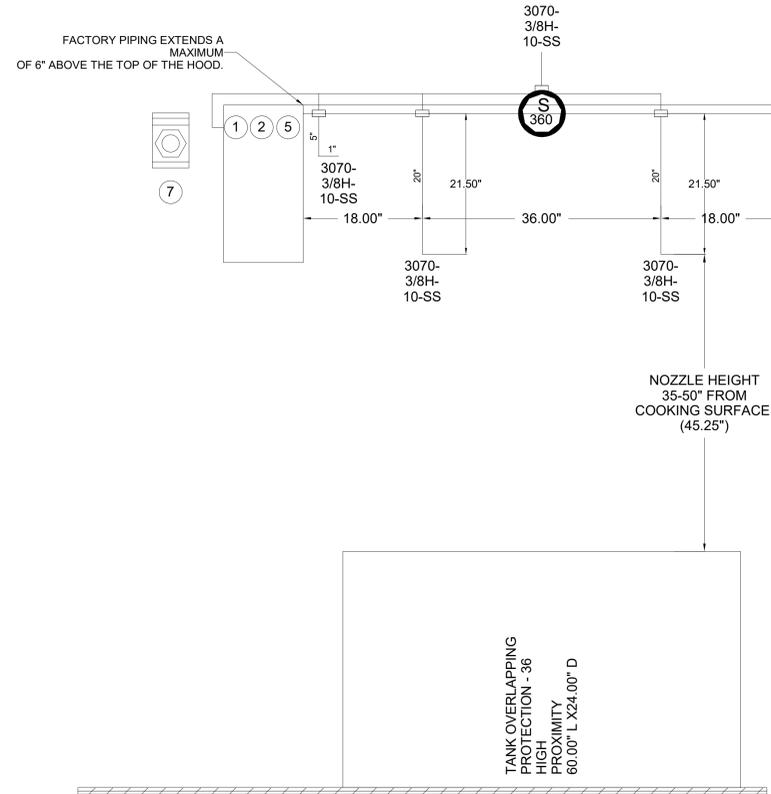
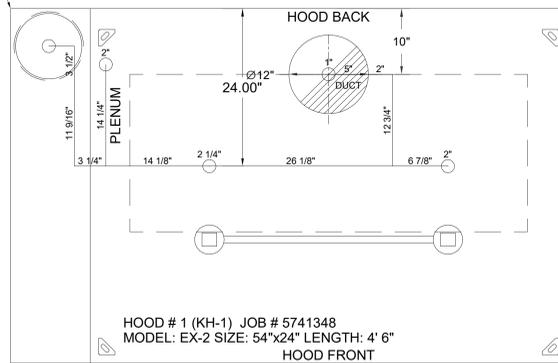
MECHANICAL
SCHEDULES, AND
DETAILS - RANGE
HOOD

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ISSUED FOR: BID DOCUMENTS
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SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 1.3 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS



- NOTES
- FIELD PIPE DROPS AS SHOWN
 - PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
 - RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELIVING, SALAMANDERS, ETC.
 - OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
 - IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
 - FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

JOB #: 5741348.
JOB NAME: SWAMPSCOTT SENIOR CENTER.

SYSTEM SIZE: TANK-SP-1 TOTAL FP REQUIRED: 16.
HOOD # 1 4' 6.00" LONG x 54" WIDE x 24" HIGH.
RISER # 1 SIZE: 10" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.

- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

LEGEND - FIRE CABINET TANK SYSTEM

- 4 GALLON TANK.
- PRIMARY ACTUATOR RELEASE.
- SECONDARY ACTUATOR RELEASE.
- PRESSURE SUPERVISION SWITCH.
- PRIMARY HOSE ASSEMBLY.
- SECONDARY HOSE ASSEMBLY.
- REMOTE MANUAL ACTUATION DEVICE.

FIRE SYSTEM INFORMATION - JOB#5278582

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0	16	FIRE CABINET LEFT	LEFT, HOOD 1

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1		0 - 0 - 12-F28021-32144-OT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F.	1	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300033-001 DIN CONNECTOR, CANFIELD PART #5J560-201-EU0A, TANK FIRE SUPPRESSION, SUBMINATURE SOLENOID CONNECTION (CED VENDOR 30377).	1	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	4	0
		0 - 0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	4	0
		0 - 0 - 9097200PC PRO PRESS PC611 1/2 PRESS TEE LD.	3	0
		0 - 0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	1	0
		0 - 0 - BI145 3/8" BLACK IRON 90 ELL.	2	0
		0 - 0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	3	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	1	0
		16 - 16 - 3070-3/8H-10-SS NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE)- 4 FLOW POINTS.	4	0
		16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	4	0
		26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL).	4	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	1	0

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MECHANICAL SCHEDULES, AND DETAILS - RANGE HOOD

DATE: 6/16/2023
PROJECT NO: 2021535.00
DRAWN: Author
CHECKED: Checker
ISSUED FOR: BID DOCUMENTS REVISIONS:

SHEET NO:

M5.03

23.09.00 - GENERAL

A. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS UNLESS NOTED OTHERWISE. REVIEW THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING DRAWINGS FOR NOTES, DIMENSIONS, ETC., AND COORDINATE WITH OTHER TRADES INVOLVED. THE WORK REQUIREMENTS DESCRIBED WITHIN DIVISIONS OF THIS SPECIFICATION SECTION "COMMON MECHANICAL / ELECTRICAL REQUIREMENTS" FORM COMPLEMENTARY REQUIREMENTS TO THE SCOPE OF WORK CONTAINED WITHIN DIVISION 23.

B. DISCRETIONARY

1. THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT SHALL PROCEED IN A MANNER THAT MINIMIZES ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.
2. SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING LIABILITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.

C. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT

1. FURNISH THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS"
2. INSTALL THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS"
3. PROVIDE THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
4. REMOVE THE TERM "REMOVE" MEANS TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
5. SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND/OR METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT."

D. DRAWINGS

1. DRAWINGS ARE DIAGRAMMATIC. THE FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. THOUGH SOME OFFSETS & TRANSITIONS MAY BE SHOWN IN PIPING & SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING & SHEET METAL OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE WORK AND PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.

E. CODES AND STANDARDS: WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING:

1. SHEET METAL SMACNA STANDARDS
2. INTERNATIONAL MECHANICAL CODE
3. INTERNATIONAL ENERGY CONSERVATION CODE
4. INTERNATIONAL EXISTING BUILDING CODE
5. ALL OTHER APPLICABLE STATE AND LOCAL CODES AND ORDINANCES/OWNER STANDARDS AND BASE BUILDING SPECIFICATIONS AND STANDARDS

F. PERMITS AND FEES:

1. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK, FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK
2. THIS PROJECT IS EXEMPT FROM ALL LOCAL PERMIT FEES. COORDINATE WITH SWAMPSCOTT BUILDING DEPARTMENT.

G. EXISTING SYSTEMS AND EQUIPMENT

1. EXISTING TO BE REUSED/RELOCATED EQUIPMENT: REPORT ANY EXISTING EQUIPMENT DEFICIENCIES TO THE OWNER AND THE ARCHITECT AND/OR ENGINEER.
2. CONNECT WORK TO VARIOUS EXISTING SYSTEMS AS INDICATED ON THE DRAWINGS. WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM CONDITIONS. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED AS WELL AS WITH EXISTING SYSTEMS, THE STRUCTURE, AND OTHER OBSTRUCTIONS.

H. SURVEY AND MEASUREMENTS

1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, SHALL BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS.
2. DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GVERN ALL DIMENSIONS.
3. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL ALL COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY INFORMATION TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
4. CONTRACTORS SHALL VERIFY, LAYOUT AND BE RESPONSIBLE FOR ALL MEASUREMENTS OF ALL EXISTING CONDITIONS BEFORE COMMENCING WORK AND SHALL NOTIFY ARCHITECT AND/OR ENGINEER IF A CONDITION EXISTS THAT PREVENTS THE CONTRACTOR FROM ACCOMPLISHING THE INTENT OF THE DRAWINGS.

I. SUBMITTALS AND SHOP DRAWINGS

1. SUBMIT FOR REVIEW, ELECTRONIC SHOP DRAWINGS IN SEARCHABLE PDF FORMAT FOR THE FOLLOWING:
 - a. SUBMITTAL DATA FOR ALL MATERIAL AND EQUIPMENT. CLEARLY IDENTIFY DEVIATIONS OF THE SUBMITTED PRODUCTS FROM THE DESIGN.
 - b. DUCTWORK AND PIPING SHOP DRAWINGS: DRAWN TO ACCURATE SCALE OF "1/4"=1'-0". HIGHLIGHT, ENIRCLE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.
 - c. CONTROLS SHOP DRAWINGS: INCLUDE EQUIPMENT AND SYSTEM CONTROL SCHEMATICS, SEQUENCES OF OPERATIONS, LOGIC DIAGRAMS AND SYSTEM COMPONENTS INCLUDING DETAILS OF TIE-IN TO EXISTING BUILDING CONTROL MANAGEMENT SYSTEM.
2. DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
3. DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SUBMITTALS.
4. SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW.

J. AS-BUILT DRAWINGS

1. MAINTAIN ONE SET OF PRINTS ON THE SITE AND NOTE ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN THEREON. AT THE COMPLETION OF THE PROJECT, INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR APPROVAL.

K. OPERATION AND MAINTENANCE

1. UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.
2. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION FRONTPAGES WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
3. OPERATION AND MAINTENANCE MANUAL SHALL INCLUDE THE FOLLOWING:
 - a. MANUFACTURER'S PRINTED OPERATING AND MAINTENANCE PROCEDURES.
 - b. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING.
 - c. COPIES OF WARRANTIES.
 - d. APPROVED SHOP DRAWINGS AND PRODUCT DATA.
 - e. BALANCE REPORTS.
 - f. INCLUDE IN THE MANUAL A TABULATED EQUIPMENT SCHEDULE FOR ALL EQUIPMENT. SCHEDULE SHALL INCLUDE PERTINENT DATA SUCH AS MAKE, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, NORMAL OPERATING CURRENT, BELT SIZE, FILTER QUANTITIES AND SIZES, BEARING NUMBER, ETC. SCHEDULE SHALL INCLUDE MAINTENANCE TO BE DONE AND FREQUENCY.
4. MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE OF PROJECT COMPLETION PERIOD.

L. CLEANING

1. ALL WORK AREAS SHALL BE LEFT AS CLEAN AS NEW. CLEAN INTERNALS OF ALL DUCTWORK AND AIR HANDLING UNITS AND REPLACE FILTERS AFTERWARDS.
2. DUCTWORK: DUCTS SHALL BE THOROUGHLY CLEANED SO THAT NO DIRT OR DUST SHALL BE DISCHARGED FROM DIFFUSERS, REGISTERS, OR GRILLES, WHEN SYSTEM IS OPERATED.
3. PIPING: AFTER CONDENSATE PIPING HAS BEEN PRESSURE TESTED AND APPROVED FOR TIGHTNESS, CLEAN AND FLUSH PIPING.
4. EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.
5. WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.

M. GUARANTEE

GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNERS SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.

O. MEANS AND METHODS ALL TRADES

1. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
3. MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STATING HAS BEEN ESTABLISHED.
4. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
5. SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES ANY EQUIPMENT AND APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
6. EXCAVATION AND BACKFILLING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SIZES, FITS AND REDDING REQUIREMENTS AND ANY OTHER EXCAVATION WORK REQUIRED UNDER THESE SPECIFICATIONS.
7. WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALLS AND FLOORS AND WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.
8. PROVIDE FIRESTOPPING AROUND ALL FIRE PROTECTION, PLUMBING, MECHANICAL AND ELECTRICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
9. PROVIDE ACCESS PANELS IN WALLS, FLOORS AND GYPSUM WALL BOARD CEILINGS TO ALLOW ACCESS TO DAMPERS, HEATERS, VALVES, VARIABLE AIR VOLUME BOXES, FAN BOXES AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. NOT ALL ACCESS PANELS ARE INDICATED ON THE PLANS. REVIEW ARCHITECTURAL AND MECHANICAL DRAWINGS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED, COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.

23.09.05 - DEMOLITION

A. REFER TO DRAWINGS FOR GENERAL DESCRIPTION OF AREAS REQUIRING DEMOLITION.

B. ANY DEMOLITION SHALL BE COORDINATED WITH OWNER, ARCHITECT, G. C. AND ENGINEER

C. REFER TO GENERAL CONTRACTOR'S/CONSTRUCTION MANAGER'S INSTRUCTIONS FOR EXISTING EQUIPMENT AND MATERIALS THAT SHALL REMAIN THE PROPERTY OF THE OWNER.

D. WHERE IT IS NOTED THAT ITEMS OF VALUE ARE NOT TO BE RETURNED TO THE OWNER, THE ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED. ITEMS SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF.

E. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING/SITE DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGE TO THE CONDITION BEFORE BEING DAMAGED TO THE SATISFACTION OF THE ARCHITECT AND OWNER. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOW DUST.

F. UTILITIES:

1. MAINTAIN UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING IN-USE AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE UTILITY COMPANY AND THE OWNER.
2. COORDINATE ALL INTERRUPTIONS OF SERVICES AND LIMITATIONS OF ACCESS WITH THE OWNER NO LESS THAN 5 DAYS PRIOR TO THE INTERRUPTION.
3. PROVIDE TEMPORARY SERVICES AS REQUIRED. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION OF NEW WORK SHALL BE COORDINATED IN ADVANCE WITH THE CONSTRUCTION MANAGER AND BUILDING OWNER.

G. DISCONNECT, DEMOLISH AND REMOVE HVAC SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED. PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP REMAINING PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.

1. PIPING TO BE ABANDONED IN PLACE: DRAIN PIPING AND CAP PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.
2. DUCTS TO BE REMOVED: REMOVE PORTION OF DUCTS INDICATED TO BE REMOVED AND CAP REMAINING DUCTS WITH SAME OR COMPATIBLE DUCTWORK MATERIAL.
3. DUCTS TO BE ABANDONED IN PLACE: CAP DUCTS WITH SAME OR COMPATIBLE DUCTWORK MATERIAL.
4. EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.
5. EQUIPMENT TO BE REMOVED AND REINSTALLED: DISCONNECT AND CAP SERVICES AND REMOVE, CLEAN, AND STORE EQUIPMENT, WHEN APPROPRIATE, REINSTALL, RECONNECT, AND MAKE EQUIPMENT OPERATIONAL.
6. EQUIPMENT TO BE REMOVED AND SALVAGED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT AND DELIVER TO OWNER.

H. IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL QUALITY AND MATERIAL QUALITY.

23.09.13 - MOTORS, STARTERS AND WIRING

A. PROVIDE MOTORS AND CONTROLS, AND FURNISH STARTERS FOR HVAC EQUIPMENT, EXCEPT LISTS SERVED BY MCC PROVIDED UNDER ELECTRICAL SECTION. PROVIDE CONTROL AND OTHER RELATED WIRING INCLUDING INTERLOCKS. ALL MOTORS SHALL TO BE PREMIUM EFFICIENCY. ALL THREE PHASE MOTORS SHALL BE RATED FOR INVERTER DUTY SERVICE.

B. STARTERS THAT REQUIRE INTERLOCKS OR REMOTE CONTROL, SHALL BE MAGNETIC WITH HAND-OFF-AUTOMATIC SWITCH, FAST-BLOW-OFF-AUTO FOR TWO SPEED MOTORS IN COVER. STARTERS SHALL BE BY SINGLE MANUFACTURER, CUTLER-HAMMER, CLARK, ARROW HART OR SQUARE D.

23.09.17 - SLEEVES AND PENETRATIONS

A. GENERAL REQUIREMENTS

1. LAY OUT PENETRATION AND SLEEVE OPENINGS IN ADVANCE. COORDINATE WORK CAREFULLY WITH ARCHITECTURAL AND STRUCTURAL WORK. PROVIDE CORE DRILLING OF EXISTING CONSTRUCTION WHERE REQUIRED. SUBMIT PROPOSED LOCATIONS FOR REVIEW PRIOR TO CORE DRILLING.
2. MAINTAIN FIRE RATINGS OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PENETRATIONS. SEAL PENETRATIONS WITH APPROVED FIRESTOP MATERIALS.
3. SLEEVES FOR INSULATED PIPE AND DUCT IN NON-FIRE RATED CONSTRUCTION SHALL ACCOMMODATE CONTINUOUS INSULATION WITHOUT COMPRESSION.

B. PIPE SLEEVES:

1. PROVIDE HOT-DIPPED GALVANIZED SCHEDULE 40 STEEL PIPE SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS AND CONCRETE FLOOR AND ROOF SLABS.
2. PROVIDE 3/8 GAUGE GALVANIZED STEEL SLEEVES THROUGH PARTITIONS AND NON-FIRE-RATED CONSTRUCTION.
3. PROVIDE MECHANICAL SLEEVE SEALS CONSISTING OF INTERLOCKING MODULES AT EXTERIOR PIPE PENETRATIONS.
4. PROVIDE ADJUSTABLE ESCUTCHEONS ON EXPOSED PIPING THAT PASSES THROUGH FINISHED FLOORS, WALLS AND CEILINGS. ESCUTCHEONS SHALL BE CHROMIUM-PLATED CAST BRASS, SIZED TO COVER SLEEVE OPENING AND TO ACCOMMODATE PIPE AND INSULATION.

C. DUCT SLEEVES AND OPENINGS:

1. PROVIDE GALVANIZED-STEEL SHEET DUCT SLEEVES FOR ROUND DUCTS 15 INCHES AND SMALLER. PROVIDE PREPARED, FRAMED OPENINGS FOR ROUND DUCTS LARGER THAN 15 INCHES AND FOR SQUARE, RECTANGULAR AND FLAT OVAL DUCTS, EXCEPT AS SPECIFIED OTHERWISE. SLEEVES SHALL MEET SMACNA REQUIREMENTS.
2. PROVIDE GALVANIZED-STEEL SHEET DUCT SLEEVES FOR SLEEVES THROUGH FIRE-RATED CONSTRUCTION AND THROUGH SMOKE PARTITIONS. SLEEVE AND SEAL MATERIALS, CONSTRUCTION AND CLEARANCES SHALL MEET REQUIREMENTS OF SMACNA FIRE DAMPER AND HEAT STOP GUIDE FOR AIR HANDLING SYSTEMS, WHERE FIRE DAMPERS ARE REQUIRED, INSTALL SLEEVE AND DAMPER ASSEMBLY IN ACCORDANCE WITH DAMPERS LISTING.

23.09.29 - HANGERS AND SUPPORTS

A. PROVIDE PIPE STANDS, SUPPORTS, HANGERS AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS. SPACING OF HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE BUILDING AND MECHANICAL CODES. STRUCTURAL STEEL SUPPORTS, HANGERS, ETC. SHALL BE ANGLE, I-RON, STEEL CHANNEL OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC. ALL SUPPORTS, HANGERS, BRACKETS, ETC., SHALL BE AS APPROVED BY THE ENGINEER.

B. ALL HANGERS SHALL BE GALVANIZED.

C. ATTACH HANGERS AND SUPPORTS DIRECTLY ONTO THE STRUCTURE BY FIRST REMOVING EXISTING FIRE PROOFING AND AFTER SECURING THE ATTACHMENT, REPAIRING THE FIRE PROOFING TO ITS ORIGINAL CONDITION, CONTINUOUSLY OVER THE ATTACHMENT.

D. FOR EXPANSION BOLTS/SHELDIS USE RED HEAD, H/LT OR W/LT SELF DRILLING OR STEEL SHEILD, LOAD RATED. DO NOT USE DRILLED ANCHORS IN POST TENSION SLABS WITHOUT APPROVAL OF OWNER. DO NOT CUT REINFORCING STEEL WITH DRILLED INSERTS.

E. SUPPORT ALL GALVANIZED DUCTWORK WITH GALVANIZED HANGERS AND MOUNTS AS REQUIRED BY SMACNA (@ FT SPACING). DO NOT SUPPORT RISERS FROM SLEEVES IN SLABS.

23.09.48 - VIBRATION CONTROLS FOR HVAC

A. PROVIDE VIBRATION ISOLATION FOR EACH PIECE OF ROTATING OR RECIPROCATING HVAC EQUIPMENT SHOWN ON THE DRAWINGS. ALL ISOLATION COMPONENTS SHALL BE SUPPLIED BY A SINGLE MANUFACTURER - MASON INDUSTRIES, KINETICS OR AMBER BOOTH. TYPES OF ISOLATORS, REQUIRED DEFLECTIONS, AND INSTALLATION PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE VIBRATION ISOLATION MANUFACTURER.

23.09.53 - PIPE AND DUCT IDENTIFICATION

A. DUCTWORK AND PIPING SHALL BE LABELLED WITH PREPRINTED SELF-ADHESIVE, PREMIUM GRADE VINYL, COLOR-CODED, WITH LETTERING INDICATING SERVICE, AND SHOWING FLOW DIRECTION.

B. VALVES SHALL BE TAGGED WITH STAMPED OR ENGRAVED BRASS VALVE TAGS. INSTALL TAGS ON VALVES AND CONTROL DEVICES IN PIPING SYSTEMS, EXCEPT CHECK VALVES, VALVES WITH FACTORY-FABRICATED EQUIPMENT UNITS, SHUT-OFF VALVES, FAUCETS, CONVENIENCE AND LAWN-WATERSHOES HOSE CONNECTIONS, AND HVAC TERMINAL DEVICES AND SIMILAR. ROUNDING-IN CONNECTIONS OF END-USE FIXTURES AND UNITS. LIST TAGGED VALVES IN A VALVE SCHEDULE.

C. MACHINERY SUCH AS RTUS, FANS, ETC., SHALL BE LABELLED WITH PLASTIC LABELS WITH ENGRAVED EQUIPMENT NUMBER CORRESPONDING TO DRAWING SCHEDULE NUMBERS.

23.09.99 - TESTING, ADJUSTING AND BALANCING

A. PROVIDE QUALIFIED PERSONNEL, EQUIPMENT, APPARATUS AND SERVICES FOR START-UP, TESTING AND BALANCING OF MECHANICAL SYSTEMS, TO PERFORMANCE DATA SHOWN IN SCHEDULES, AS SPECIFIED, AND AS REQUIRED BY CODES, STANDARDS, REGULATIONS AND OTHER AGENCIES HAVING JURISDICTION INCLUDING INSPECTION, OWNERS AND ARCHITECT.

B. PROVIDE THE SERVICES OF AN INDEPENDENT TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY TO PROVIDE TAB SERVICES FOR THE MECHANICAL SYSTEMS. THE TAB AGENCY SHALL BE CERTIFIED BY NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR THE ASSOCIATED AIR BALANCE COUNCIL (AABC) IN THOSE TESTING AND BALANCING AREAS REQUIRED FOR THIS PROJECT. THE TAB AGENCY SHALL HAVE AT LEAST ONE PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE SERVICES ARE TO BE PERFORMED AND CERTIFIED BY NEBB OR AABC AS A TEST AND BALANCE ENGINEER.

C. PRIOR TO TESTING, ADJUSTING, AND BALANCING, THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING AS SPECIFIED. APPROVED SHOP DRAWINGS, AS BUILT DRAWINGS, AND ALL OTHER DATA REQUIRED FOR EACH SYSTEM AND/OR COMPONENT TO BE TESTED SHALL BE MADE AVAILABLE AT THE JOB SITE DURING THE ENTIRE TAB REPORT. THE OWNER SHALL BE NOTIFIED IN WRITING OF ALL EQUIPMENT COMPONENTS, OR BALANCING DEVICES, THAT ARE DAMAGED, INCORRECTLY INSTALLED, OR MISSING, AS WELL AS ANY DESIGN DEFICIENCIES THAT WILL PREVENT PROPER TESTING, ADJUSTING, AND BALANCING. TESTING, ADJUSTING, AND BALANCING SHALL NOT COMMENCE UNTIL APPROVED BY THE OWNER.

D. PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM IDENTIFIED, IN ACCORDANCE WITH THE DETAILED PROCEDURES OUTLINED IN EITHER NEBB "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" OR AABC "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE." THE TAB AGENCY SHALL TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS:

1. ALL NEW SUPPLY AIR SYSTEMS
2. ALL NEW RETURN/EXHAUST AIR SYSTEMS
3. VERIFY OPERATION OF ALL NEW TEMPERATURE CONTROL SYSTEMS
4. TEST NEW SYSTEMS FOR PROPER SOUND AND VIBRATION LEVELS

A. SUBMIT TESTING, ADJUSTING, AND BALANCING REPORTS BEARING THE SEAL AND SIGNATURE OF THE TAB PROFESSIONAL ENGINEER. PREPARE A REPORT OF RECOMMENDATIONS FOR AABC "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE" WHEN A SYSTEM CANNOT BE SUCCESSFULLY BALANCED.

B. START UP ALL SYSTEMS, PRESSURE TEST DUCTWORK AND PIPING, AND BALANCE SYSTEMS INCLUDING, BUT NOT LIMITED TO, ALL NEW AND EXISTING REGISTERS, GRILLES, DIFFUSERS, TERMINAL UNITS, FANS, ETC. WITH THE AREA OF WORK TO PERFORMANCE DATA SHOWN ON PLANS, SCHEDULES, AND AS SPECIFIED.

C. DO NOT COVER OR CONCEAL WORK BEFORE TESTING AND INSPECTION AND OBTAINING APPROVAL.

D. LEAKS, DAMAGE AND DEFECTS DISCOVERED OR RESULTING FROM STARTUP, TESTING, AND BALANCING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TEST SHALL BE CONTINUED UNTIL SYSTEM OPERATES WITHOUT ADJUSTMENT OR REPAIR.

E. REPORT ON REPORTING FORMS, SUBMITTED TO ARCHITECT FOR APPROVAL IN ADVANCE.

F. SUBMIT PROCEDURES, RECORDING FORMS, AND TEST EQUIPMENT FOR REVIEW PRIOR TO BALANCING, AS DESCRIBED IN SPECIFICATIONS. SUBMIT ELECTRONIC COPY OF TESTING AND BALANCING REPORTS TO ARCHITECT FOR APPROVAL.

G. FURNISH ALL TEST MEDIUMS AND DISPOSE OF ALL TEST MEDIUMS AT AN APPROVED OFF-SITE LOCATION AFTER TESTING IS COMPLETE.

H. NOTE REQUIREMENT ABOVE FOR CFM AND STATIC PRESSURE READINGS PRIOR TO DEMOLITION.

I. THE BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DIRECTIONAL ADJUSTMENT OF ALL LINEAR DIFFUSERS AS INDICATED ON PLANS. IF NO DIRECTIONAL FLOW IS INDICATED, INTERIOR LINEAR DIFFUSERS SHALL BE DIRECTED HORIZONTALLY AND PERIMETER LINEAR DIFFUSERS SHALL BE DIRECTED VERTICALLY. IF PERIMETER LINEAR DIFFUSERS HAVE MULTIPLE SLOTS THE PERIMETER SLOT DIRECTED VERTICALLY, AND THE INTERIOR SLOT DIRECTED HORIZONTALLY TOWARDS THE INTERIOR SPACE.

23.07.13 - HVAC INSULATION

A. GENERAL REQUIREMENTS

1. INSULATION SHALL BE CERTAIN-TEED, KNAUF, MANVILLE, OR OWENS CORNING. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA. INSTALL INSULATION, MASTICS, ADHESIVES, COATINGS, COVERS, WEATHER PROTECTION AND OTHER WORK IN STRICT ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. ASTM E-84 FIRE HAZARD RATINGS SHALL BE 25 FLAME SPREAD, 50 SMOKE DEVELOPED.
2. INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS AROUND ENTIRE PERIMETER OF DUCTS. DUCTS SUPPORTED BY METAL STRAPS SHALL HAVE INSULATION ENCOMPASSING STRAPS, WHERE STRAPS PENETRATE AT TOP OF DUCT TIGHTLY SEAL AROUND STRAP WITH INSULATING TAPE. DUCTS SUPPORTED BY TRAPEZE TYPE HANGERS UNDER DUCTS SHALL HAVE 1 LB. DENSITY RIGID INSULATION PROVIDED BETWEEN DUCT AND HANGER. INSULATION SHALL BE SAME THICKNESS AND VAPOR BARRIER AS SPECIFIED FOR SPECIFIC DUCT TYPE. RIGID INSULATION SECTION SHALL BE FULL WIDTH OF DUCT AND MINIMUM 12" LONG. TAPE AND SEAL ALL SEAMS WHERE RIGID INSULATION MEETS OTHER INSULATION.
3. FITTINGS, VALVES AND FLANGES SHALL BE INSULATED WITH SAME MATERIAL AND TO SAME THICKNESS AS ADJOINING PIPE INSULATION, WITH PRESENT SECTIONS.

B. PRODUCTS AND APPLICATIONS

1. FIRE-RATED INSULATION SHALL BE FIRE-RATED BLANKET WITH FSK JACKET TESTED AND CERTIFIED TO PROVIDE A 1-OR-2-HOUR RATING AS REQUIRED BY ASSEMBLY. PROVIDE FIRE-RATED INSULATION FOR KITCHEN HOOD EXHAUST DUCTS AND AS INDICATED ON THE PLANS. INSTALL IN STRICT CONFORMANCE WITH MANUFACTURERS' REQUIREMENTS AND PER NFPA AND LOCAL CODE AND FIRE DEPT. ACCEPTABLE MANUFACTURERS, CERTAIN-TEED, FLAMECHECK, MANVILLE FIREMAST WRAP, UNIFRAX FRYEWRAP OR 3M FIRE BARRIER WRAP.

23.09.00 - INSTRUMENTATION AND CONTROLS

A. PROVIDE CONNECTIONS FOR NEW EQUIPMENT TO EXISTING AUTOMATIC TEMPERATURE CONTROLS (ATO) PER SHEET M6.00. CONTROL SYSTEM SHALL BE CAPABLE OF PERFORMING ALL SEQUENCES OF OPERATION SHOWN ON THE DRAWINGS OR DESCRIBED IN THESE SPECIFICATIONS. INDIVIDUAL CONTROL COMPONENTS MAY NOT BE SHOWN ON CONTRACT DOCUMENTS BUT THE CONTRACTOR SHALL SUPPLY AND CONTROL WIRING NECESSARY FOR A COMPLETE OPERABLE SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SYSTEM COMPONENTS, WHETHER THE ELECTRICAL OR OTHER WORK IS SUBCONTRACTED OR NOT.

B. ALL SAFETY SWITCHES AND CUT OUTS SHALL BE FIELD CALIBRATED AND SET PRIOR TO START-UP EQUIPMENT.

C. ALL CONTROL WIRING SHALL COMPLY WITH THE REQUIREMENTS OF THE ELECTRICAL SPECIFICATIONS.

D. SUBMIT TO ENGINEER A POINT-TO-POINT WIRING DIAGRAM SHOWING MANUFACTURERS AND MODEL NUMBERS OF ALL CONTROL COMPONENTS. INCLUDE WRITTEN DESCRIPTION OF SYSTEM OPERATION.

E. WIRING BETWEEN FIRE ALARM SYSTEM AND TEMPERATURE CONTROL SYSTEM, EXCEPT FOR DUCT MOUNTED SMOKE DETECTORS, SHALL BE BY MECHANICAL CONTRACTOR.

F. LOCAL CONTROLLERS, RELAYS, SWITCHES, AND OTHER CONTROL COMPONENTS SHALL BE MOUNTED ON ENCLOSED CONTROL PANELS WITH HINGE-LOCK DOOR. ALL CONTROLS NEXT TO SYSTEM CONTROLLED. TEMPERATURE SETTINGS, ADJUSTMENTS AND CALIBRATIONS SHALL BE MADE AT SYSTEM CONTROL PANEL. PANEL SHALL HAVE CANOPY LIGHT AND ON-OFF SWITCH.

23.31.00 - HVAC DUCTS

A. GENERAL REQUIREMENTS

1. FOR GALVANIZED DUCTWORK, SEAL AIR DUCT JOINTS AND JOINTS BETWEEN FITTINGS AND DUCTS WITH HARDCAST SEALANT OR APPROVED EQUAL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DUCTWORK SHALL BE FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATION.
3. DIFFUSER & REGISTER LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL REFLECTED CEILING PLANS.
4. DIFFUSER SIZES SHOWN ARE NECK SIZES; REGISTER AND GRILLE SIZES ARE NOMINAL.
5. ALL DUCTS PENETRATING RATED FIRE WALLS SHALL BE PROVIDED WITH FIRE DAMPERS AND ACCESS DOORS.
6. DUCTWORK SHALL NOT RUN ALONG FULL HEIGHT PARTITIONS.
7. PATCH AND SEAL ALL EXISTING OPENINGS IN DUCTWORK NOT UTILIZED FOR NEW LAYOUT.
8. THE INSIDE OF ALL UNLINED DUCTWORK VISIBLE THROUGH A GRILLE OR DIFFUSER SHALL BE PAINTED FLAT BLACK.
9. WHEN SECTION OF DUCTWORK IS NOT LABELED FOR SIZE, THE LARGER SIZE INDICATED ON THE CONNECTED DUCT SHALL PREVAIL. SIZE OF DUCT RUN-OUTS TO DIFFUSER SHALL EQUAL DIFFUSER NECK SIZE.
10. DUCT BRANCH CONNECTIONS AND TAKE OFFS SHALL BE MADE WITH 45° CONNECTION, BELLMOUTH OR CONICAL ONLY. SPIN IN COLLARS AND STRAIGHT TAPS SHALL NOT BE USED.
11. ELBOWS AND BENDS FOR RECTANGULAR DUCTS SHALL HAVE CENTER LINE RADII OF 1.5 TIMES DUCT WIDTH WHEREVER POSSIBLE. CENTER LINE RADII SHALL BE AT LEAST 1.5 TIMES DUCT WIDTH. ELBOWS SHALL BE RADII THROAT WITH RADII HEEL AND FULL-LENGTH SPLITTER VANES.
12. NO PIPE, CONDUIT, HANGER, ARCHITECTURAL ELEMENT NOR STRUCTURAL MEMBER SHALL PASS THROUGH DUCT WITHOUT ARCHITECT'S AND/OR ENGINEER'S WRITTEN APPROVAL.

B. DUCTWORK

1. KITCHEN HOOD EXHAUST DUCTS SHALL AS FOLLOWS:
 - a. FACTORY-BUILT DOUBLE WALL, GREASE DUCT FOR USE WITH TYPE 1 KITCHEN HOODS BY CAPTIVE/AIR OR SIMILAR.
 - b. CONSTRUCTION:
 - i. INNER DUCT SECTION WALL SHALL BE CONSTRUCTED OF 0.036" THICK 430 TYPE STAINLESS STEEL AND BE AVAILABLE IN DIAMETERS 5" THROUGH 36"
 - ii. OUTER DUCT SECTION WALL SHALL BE CONSTRUCTED OF 430 STAINLESS STEEL AT A MINIMUM OF 1/24" THICKNESS.
 - c. DUCT SHALL INCLUDE 2 LAYERS OF SUPER WOOL 607 PLUS OR INSULFRAX ELITE BLANKET BETWEEN THE INNER AND OUTER WALL INSULATION THROUGH THE INNER AND OUTER WALL.
 - d. DUCT SECTIONS SHALL BE HELD TOGETHER BY THE MEANS OF A FORMED V CLAMP. V CLAMPS SHALL BE OF THE HEX-HEAD TYPE WITH FLANGED STOPS AND TAPERED "LEAD IN" THREADS.
 - e. DUCT JOINTS SHALL BE SEALED WITH 3M FIRE BARRIER 2000+.
 - f. DUCT WALL ASSEMBLY SHALL BE TESTED AND LISTED AT 344" OR ZERO INCH CLEARANCE, ACCORDING TO CLASSIFICATIONS.



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TOWN OF SWAMPSCOTT

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REVISIONS		
NO.	DATE	DESCRIPTION

SWAMPSCOTT SENIOR CENTER - RANGE HOOD

200R Essex St,
Swampscott, MA
01907

MECHANICAL SPECIFICATIONS

DATE: 6/16/2023
PROJECT NO: 2021535.00
DRAWN: DJH
CHECKED: EJR
ISSUED FOR: BID DOCUMENTS
REVISIONS:

SHEET NO:

M6.00