AHU-#	Air Handler Unit
ASHP-#	Air Source Heat Pump
B-#	Boiler
BD	Backdraft Damper
DCW	Domestic Cold Water
DHW	Domestic Hot Water
DMW	Domestic Mixed Temp Water
DH-#	Dehumidifier
EF-#	Exhaust Fan
ERV-#	Energy Recovery Ventilator
EXP-#	Expansion Tank
H-#	Humidifier
HX-#	Heat Exchanger
LLH-#	Low Loss Header
MD	Motorized Zone Damper
MUA-#	Makeup Air
P-#	Circulating Pump
SF-#	System Feeder
TH-#	- Thermostat/Humidistat
TYP	Typical
VD	Volume Damper
WH-#	Water Heater
\overline{M}	2 way Matarizad Valva
	2 way Motorized Mixing Valvo
	3-way Motorized Diverting Valve
	Thermostatic Mixing Valve
⊮∆ ∿ব	Pressure Relief Valve
⊺∠ ⊾ā	
Δ	Manual Air Vont
ا ح	
, ,	Exhaust Register
	Return Register
	Supply Register
	Duct Drop
∠ # v #	Duct Dimensions (in)
#	Round Duct (in)
XX- ## CFM	CFM=Airflow (CFM)
AxB	A=Register Length (in) B=Register Width (in)
(REGISTE	ER SIZING BASED OŃ 50% FA)
FS	Floor Supply
WS	Wall Supply
	Eloor Return
WR	Wall Return
CR	Ceiling Return
FI	Floor Intake
	Ceiling Intake
RI	Roof Intake
FE	Floor Exhaust
	Wall Exhaust Ceiling Exhaust

RE Roof Exhaust

- 1. THE INSTALLING CONTRACTOR SHALL EXAMINE ALL SPECIFICATIONS, DRAWINGS, AND FEATURES OF BUILDING CONSTRUCTION WHICH MAY AFFECT HIS WORK AND BE GOVERNED BY THESE SPECIFICATIONS. INCLUDING THE GENERAL CONDITIONS AND PARTICULAR INSTRUCTIONS TO ALL CONTRACTORS AND SUPPLIERS.
- 2. ALL WORK SHALL BE EXECUTED AND INSPECTED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND/OR STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THIS PARTICULAR CLASS OF WORK, AND EACH CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL SERVICE CHARGES, FEES, PERMITS, ROYALTIES, TAXES, AND OTHER SIMILAR COSTS IN CONNECTION THEREWITH.
- 3. PRIOR TO FABRICATION OF DUCTWORK, CONTRACTOR SHALL EXAMINE AND VERIFY ALL CONDITIONS ABOVE AND BELOW THE CEILING WHICH MAY INTERFERE WITH THE WORK SHOWN AND NOTIFY THE ARCHITECTS OF ANY CONFLICT ENCOUNTERED. THE CONTRACTOR SHALL PROVIDE ALL OFFSETS, ETC. WHICH MAY BE REQUIRED. WITHOUT ADDITIONAL COST TO THE OWNER.
- 4. ALL SHEET METAL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS. FLEX DUCT SHALL BE LIMITED TO NO MORE THAN 6 FEET. ALL BRANCH RUN-OUTS SHALL BE EQUIPPED WITH VOLUME DAMPERS TO PROVIDE PROPER BALANCING OF THE SYSTEM.
- 5. ALL DUCTS/VENTS SHALL BE INSULATED TO MEET ALL FEDERAL, STATE, AND LOCAL ENERGY CODES. THE DUCTS/VENTS SHALL ALSO BE SUPPORTED WITH 1" WIDE, 16 GAUGE GALVANIZED STEEL BAND, OR AN APPROVED SUPPORT SYSTEM.
- 6. ALL MECHANICAL ROOM EQUIPMENT SHALL BE INSTALLED WITH PROPER EQUIPMENT LABELING. CLEANLY WRAPPED INSULATION. AND IN AN ORGANIZED CONFIGURATION.
- 7. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED WITH THE UTMOST CARE AND CONSIDERATION TO PREVENT ANY NOISE AND VIBRATION MIGRATION TO THE LIVING SPACE. THIS IS TO INCLUDE BUT NOT LIMITED TO ALL HEATING. COOLING AND VENTILATION EQUIPMENT AS WELL AS ASSOCIATED DUCT WORK. ALL MOVING/VIBRATING EQUIPMENT SHALL BE RESILIENTLY SUPPORTED, WHICH MAY INCLUDE ISOLATION DAMPERS.
- 8. ENSURE ALL REGISTER BOXES ARE PROPERLY SEALED DURING THE CONSTRUCTION PHASE TO PREVENT MATERIAL, DIRT AND DEBRIS FROM ENTERING INTO DUCTED SYSTEMS.
- 9. ALL INTAKE AND EXHAUST TERMINATIONS SHALL BE EXECUTED IN STRICT ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES, AND THE EQUIPMENT MANUFACTURER RECOMMENDATIONS.
- 10. ALL INTAKE AND EXHAUST TERMINATIONS SHALL BE INSTALLED MINIMUM 12 INCHES ABOVE PUBLISHED SNOW LINE.
- 11. ALL AIR TERMINATIONS TO INCLUDE BIRD / INSECT SCREEN WHERE ALLOWED BY CODE TO PREVENT INSECT AND CRITTER INTRUSION INTO THE BUILDING.
- 12. ERV AND BATH EXHAUST DUCTWORK TO BE GALVANIZED STEEL WITH FLEX DUCT ALLOWED FOR THE FIRST 6 FEET.
- 13. ALL SUPPLY REGISTERS SHALL BE BASED ON AIR VELOCITIES OF 500 FPM. ALL RETURN REGISTERS SHALL BE BASED ON AIR VELOCITIES OF 400 FPM. ADEQUATE FREE AREA AT THE REGISTER SHALL BE PROVIDED TO ENSURE THESE VELOCITIES ARE MET.
- 14. REGISTER SIZES SHOWN ON DRAWINGS ARE BASED ON A 50% FREE AREA UNLESS OTHERWISE NOTED. PLEASE REFER TO RGD LEGEND FOR SPECIFICS REGARDING AIRFLOW AND MANUFACTURER SELECTION. COORDINATE WITH OWNER ON FINAL REGISTER TYPE.
- 15. AIR TERMINATIONS AND LOUVERS SHALL BE SIZED AND INSTALLED TO PREVENT WATER (RAIN OR SNOW) AND INSECT INTRUSION INTO THE DUCTWORK/BUILDING. THE VELOCITY OF AIR THROUGH AN INTAKE OR EXHAUST LOUVER/TERMINATION SHALL BE KEPT AT 500 FPM OR LESS. THE MATERIAL OF THE TERMINATION SHALL BE SELECTED BY THE ARCHITECT (RECOMMEND STAINLESS STEEL OR ALUMINUM). MULTIPLE INTAKES OR EXHAUSTS CAN BE GROUPED TOGETHER WHERE ALLOWED BY CODE TO FORM A SINGLE TERMINATION FOR EACH.
- 16. ALL THERMOSTATS AND HUMIDISTATS SHALL BE MOUNTED IN ACCORDANCE WITH THE AMERICAN DISABILITY ACT (ADA). THE EXACT LOCATION SHALL BE VERIFIED BY THE ARCHITECT.
- 17. ALL CONDENSATE DRAINS SHALL BE PITCHED AT A MINIMUM SLOPE OF 1/4" PER LINEAR FOOT TO A WASTE WATER DRAIN. IF ACCESS TO A WASTE WATER DRAIN IS NOT AVAILABLE THEN A CONDENSATE PUMP SHALL BE PROVIDED BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COST TO THE OWNER.







TE 37 W 78 87	E2 EN4 72 UNI ESTW ww.te2 31-334 77-360	GINER VERS VOOD 2engin -8323 -4269	2 ERING SITY A , MA (phoi (phoi (fax)	3 VE.)2090 g.com ne)		
DESCRIPTION	0 SD MECHANICAL SET					
DATE	12.23.20					
					8 STATE ROAD	
		LEGEND, NOTES & CONTROL LOGIC		Scale: NONE		DWN: MW
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DATE	12.23.2					
					8 STATE ROAD	
		FIRST FLOOR ZONE PLAN		Scale: as noted		DWN: MW
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MECHANICAL CONCEPTUAL SCHEMATIC NOT ISSUED AS PART OF SD SET



TE 37 W 78 87	TE2 ENGINEERING 372 UNIVERSITY AVE. WESTWOOD, MA 02090 www.te2engineering.com 781-334-8323 (phone) 877-360-4269 (fax)						
DATE DESCRIPTION	12.23.20 SD MECHANICAL SET						
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			MECHANICAL CONCEPTUAL SCHEMATIC			DWN: MW	
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HEATING AND COOLING AIR SOURCE HEAT PUMP

BASIS OF DESIGN: MITSUBISHI MXZ-5C42NAHZ2

BASIS OF DESIGN: MITSUBISHI PUZ-HA30NHA5 ASHP-7

HEATING AND COOLING AIR SOURCE HEAT PUMP

BASIS OF DESIGN: MITSUBISHI PUZ-HA30NHA5

ASHP-6 HEATING AND COOLING AIR SOURCE HEAT PUMP

ASHP-5 HEATING AND COOLING AIR SOURCE HEAT PUMP BASIS OF DESIGN: MITSUBISHI PUZ-HA42NKA

ASHP-4 HEATING AND COOLING AIR SOURCE HEAT PUMP BASIS OF DESIGN: MITSUBISHI PUZ-HA42NKA

ASHP-3 HEATING AND COOLING AIR SOURCE HEAT PUMP BASIS OF DESIGN: MITSUBISHI PUZ-HA42NKA

ASHP-2 HEATING AND COOLING AIR SOURCE HEAT PUMP BASIS OF DESIGN: MITSUBISHI PUZ-HA42NKA

HEATING AND COOLING AIR SOURCE HEAT PUMP BASIS OF DESIGN: MITSUBISHI PUZ-HA42NKA

ASHP-1

ASHP-8

AHU-10: LOBBY - ZONE 10 HEATING AND COOLING AIR HANDLER UNIT BASIS OF DESIGN: MITSUBISHI MSZ-GL24NA

BASIS OF DESIGN: MITSUBISHI SLZ-KF12NATH

EDH-1 THRU EDH-5: ELECTRIC DUCT HEATER BASIS OF DESIGN: MITSUBISHI EH10-MPA-L(B)

EDH-6: ELECTRIC DUCT HEATER BASIS OF DESIGN: RENEWAIRE RHW8240-12

EDH-7: ELECTRIC DUCT HEATER BASIS OF DESIGN: RENEWAIRE RHW8240-12 ERV-5: CLASSROOM #130

ERV-6: LAB & ART ROOM

ERV-3: K1 CLASSROOM

BASIS OF DESIGN: RENEWAIRE EV 450

ERV-4: CLASSROOM #133

BASIS OF DESIGN: RENEWAIRE EV 450

BASIS OF DESIGN: RENEWAIRE EV 450

ERV-2: CLASSROOM #131

ERV-1: CLASSROOM #134 BASIS OF DESIGN: RENEWAIRE EV 450

BASIS OF DESIGN: QMARK CDF-552 CUH-5: COMMON AREA HEATING ELECTRIC CABINET UNIT HEATER

BASIS OF DESIGN: QMARK CDF-552 CUH-4: COMMON AREA HEATING ELECTRIC CABINET UNIT HEATER

BASIS OF DESIGN: QMARK CDF-552 CUH-3: COMMON AREA HEATING

CUH-2: COMMON AREA HEATING ELECTRIC CABINET UNIT HEATER

CUH-1: COMMON AREA HEATING ELECTRIC CABINET UNIT HEATER BASIS OF DESIGN: QMARK CDF-552

AHU-1: CLASSROOM #134 - ZONE 1 HEATING AND COOLING AIR HANDLER UNIT BASIS OF DESIGN: MITSUBISHI PVA-A42AA7

HEATING AND COOLING AIR HANDLER UNIT

BASIS OF DESIGN: MITSUBISHI PVA-A42AA7

HEATING AND COOLING AIR HANDLER UNIT

BASIS OF DESIGN: MITSUBISHI PVA-A42AA7

HEATING AND COOLING AIR HANDLER UNIT

BASIS OF DESIGN: MITSUBISHI PVA-A42AA7

HEATING AND COOLING AIR HANDLER UNIT

BASIS OF DESIGN: MITSUBISHI PVA-A42AA7

HEATING AND COOLING AIR HANDLER UNIT

BASIS OF DESIGN: MITSUBISHI PKA-A30KA7

HEATING AND COOLING AIR HANDLER UNIT

BASIS OF DESIGN: MITSUBISHI PKA-A30KA7

HEATING AND COOLING AIR HANDLER UNIT

HEATING AND COOLING AIR HANDLER UNIT

BASIS OF DESIGN: MITSUBISHI SLZ-KF12NATH

AHU-2: CLASSROOM #131 - ZONE 2

AHU-3: K1 CLASSROOM - ZONE 3

AHU-4: CLASSROOM #133 - ZONE 4

AHU-5: CLASSROOM #130 - ZONE 5

AHU-6: COMPUTER LAB - ZONE 6

AHU-7: ART ROOM - ZONE 7

AHU-8: PRINCIPAL - ZONE 8

AHU-9: RECEPTION - ZONE 9

TE 37 W 78 87	E2 EN 2 UNI ESTW ww.te2 1-334 7-360	GINER VERS /OOD 2engin -8323 -4269	2 ERINC SITY A , MA (phor (fax)	6 VE.)2090 g.com ne)		
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- ELECTRIC CABINET UNIT HEATER
- BASIS OF DESIGN: QMARK CDF-552
- BASIS OF DESIGN: RENEWAIRE EV 450
- BASIS OF DESIGN: RENEWAIRE HE1XINH ECM
- ERV-7: LOBBY COMMON AREAS
- BASIS OF DESIGN: RENEWAIRE HE1XINH ECM

MECHANICAL DETAILS NOT ISSUED AS PART OF SD SET



TE 37. WW 78 87	2 EN 2 UNI ESTW ww.te2 1-334 7-360	GINER VERS /OOD 2engin -8323 -4269	2 ERINC GITY A , MA (ceerins (phor (fax)	6 VE.)2090 g.com ne)		
DATE DESCRIPTION	12.23.20 SD MECHANICAL SET					
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