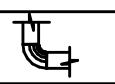
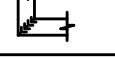
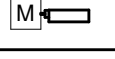
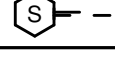
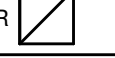
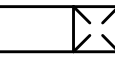
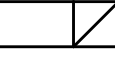
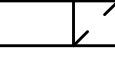
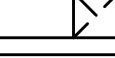
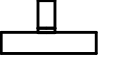


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MECHANICAL LEGEND	
SYMBOL	DESCRIPTION
TO BETTER COMMUNICATE SCOPE TO PERMIT AGENCIES AND CONTRACTORS, EACH DRAWING IN THIS DRAWING SET HAS BEEN CREATED IN BOTH "COLOR" AND "BLACK AND WHITE". THERE EXISTS A COLOR LAYER WITHIN EACH DRAWING WHERE VISIBILITY IS CONTROLLED THROUGH THE PDF LAYER MANAGER. THIS LAYER VISIBILITY CAN BE TOGGLED DISPLAYING EITHER "COLOR" OR "BLACK AND WHITE". TO MAINTAIN SCOPE BASED SHADING WHEN PRINTING TO PAPER, BLACK AND WHITE NEEDS TO BE VISIBLE FOR FURTHER INSTRUCTIONS. REFER TO CONTRACTOR RESOURCES ON OUR WEBSITE AND DOWNLOAD "DRAWING COLOR INSTRUCTIONS". WWW.KLHENGRS.COM - CONTRACTOR RESOURCES (RIGHT HAND SIDE OF PAGE).	
MECHANICAL STATS & SENSORS	
	CARBON DIOXIDE SENSOR
MECHANICAL DUCTWORK ACCESSORIES	
	ROUND ELBOW WITH TURNING VANES
	DUCT WITH MANUAL VOLUME DAMPER
	ELBOW WITH TURNING VANES
	MOTOR OPERATED DAMPER - LOW VOLTAGE
	DUCT MOUNTED SMOKE DETECTOR (HARD WIRE INTERLOCK TO FAN MOTOR BY E.C.) FURNISHED BY E.C., INSTALLED BY M.C.
MECHANICAL AIR DEVICES	
	SUPPLY REGISTER
	RETURN REGISTER
	EXHAUST REGISTER
	SUPPLY GRILLE
	RETURN GRILLE
	CEILING DIFFUSER
CD-10"0	2'x2' SQUARE CEILING DIFFUSER WITH 10" NECK
MECHANICAL DUCTWORK	
	SUPPLY DUCT WITH ELBOW TURNED UP
	SUPPLY DUCT WITH ELBOW TURNED DOWN
	RETURN DUCT WITH ELBOW TURNED UP
	RETURN DUCT WITH ELBOW TURNED DOWN
	EXHAUST DUCT WITH ELBOW TURNED UP
	EXHAUST DUCT WITH ELBOW TURNED DOWN
24X12 SA	SUPPLY DUCT
24X12 RA	RETURN DUCT
24X12 EA	EXHAUST DUCT
	FLEXIBLE DUCTWORK CONNECTION
	BRANCH TAKEOFF
24"112" RA	OVAl DUCT
	REDUCER, CONCENTRIC
	REDUCER, NONCONCENTRIC
	DUCT FLEX CONNECTOR

STANDARD HVAC ABBREVIATIONS			
AAV ACCESS AD AFF AMP AP APD ARI ASME BAS BD BHP BTU BTUH CD CFM CHWR CHWS CI CO CO2 COP CV CWR CWS DB DC DDC DEG DIA DIW DP DX EB EAT EER EG EMERG EWT EX F&T FA FD FLA FPM FPS FT FURN GA GAL GPM	AUTOMATIC AIR VENT ACCESSORIES ACCESS DOOR ABOVE FINISHED FLOOR AMPERE ACCESS PANEL AIR PRESSURE DROP AIR CONDITIONING AND REFRIGERATION INSTITUTE BRAKE HORSEPOWER BRITISH THERMAL UNIT BRITISH THERMAL UNIT PER HOUR CEILING DIFFUSER CUBIC FEET PER HOUR CUBIC FEET PER MINUTE CHILLED WATER RETURN CHILLED WATER SUPPLY CAST IRON COOLING CARBON MONOXIDE CARBON DIOXIDE COEFFICIENT OF PERFORMANCE CONSTANT VOLUME CONDENSER WATER RETURN CONDENSER WATER SUPPLY DECEBELS DRY-BULB TEMPERATURE DISCONNECT DIRECT DIGITAL CONTROLS DEGREE DELTA (CHANGE IN TEMPERATURE) DIAMETER DEIONIZED WATER DEW POINT TEMPERATURE DIRECT EXPANSION EXHAUST AIR ENTERING AIR TEMPERATURE ENERGY EFFICIENCY RATIO EXHAUST GRILLE EMERGENCY POWER EXTERNAL STATIC PRESSURE ENTERING WATER TEMPERATURE EXISTING FAHRENHEIT FLOAT AND THERMOSTATIC FREE AREA FIRE DAMPER FULL LOAD AMPERES FOOT PER MINUTE FOOT PER SECOND FEET FURNISHED RAT GAUGE GALLONS GALLONS PER MINUTE	HD HOA HP HPR HSTAT HTG HWR HWS HZ IO IAC IN HG IN WC IN WG IPV INST KW KWH LAT LBS/HR LF LPR LPS LWT MAX MBH MCA MERV MIN MOD MPR MPS MRI MVD NA NC NC NTS OA OCP PD PPM PRS PRV PSI PSIA PSIG RA RAT RH RL RLA	HEAD HAND OFF/AUTOMATIC REFRIGERANT SUCTION HIGH PRESSURE RETURN (STEAM CONDENSATE) HUMIDISTAT HEATING HEATING HOT WATER RETURN HEATING HOT WATER SUPPLY SMOKE DETECTOR SENS SP TAB TDH TDS TSP TSTAT UL VAV VFD VIB WET-BULB (TEMPERATURE) WATER GAGE WATER SIDE PRESSURE DROP WIRED REVERSE OSMOSIS REVOLUTIONS PER MINUTE REFRIGERANT SUCTION SUPPLY AIR SUPPLY AIR TEMPERATURE SHADING COEFFICIENT SMOKE CONTROL DAMPER SMOKE DETECTOR SENSIBLE HEAT STATIC PRESSURE TESTING, ADJUSTING, BALANCE TOTAL DYNAMIC HEAD TOTAL DISSOLVED SOLIDS TOTAL STATIC PRESSURE THERMOSTAT UNDERWRITERS LABORATORY VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE WET-BULB (TEMPERATURE) WATER GAGE WATER SIDE PRESSURE DROP WIRED

ELECTRICAL COORDINATION SCHEDULE																						
ABBREVIATIONS				CONTRACTOR TYPE								MOTOR CONTROL TYPE								CONTROL TYPE		
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	GC	COMBINATION STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
MC	MOTOR CONTROL (POWER)	EX	EXISTING	HC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
SD	DUCT SMOKE DETECTOR	PC	FIRE PROTECTION CONTRACTOR	MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
CN	CONTROLS	GC	GENERAL CONTRACTOR	MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
CB	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS	MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
MCA	MINIMUM CIRCUIT AMPACITY			MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	
CP	CORD AND PLUG CONNECTION			MC	MOTOR CONTROL STARTER	MG	LINE	MC	MOTOR CONTROL STARTER	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	TC	TIMECLOCK	

EQUIPMENT MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA	MCA	OCB	FED FROM	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	FA SHUTDOWN	AVAILABLE
AC1-A	Air Curtain w/No Heat	120 V	1									EC	EC	EC	MG	MFR	MFR	MFR	LINE	HC	EC	EC	NA	1044
BE1-A	HVAC Fan	120 V	1	0.25								EC	EC	EC	MG	MFR	MFR	MFR	MAN	EC	EC	EC	NA	2791
RTU1-A	Packaged Rooftop Unit, Gas Heat	208 V	3					16	124	150		--	--	--	EX	EX	EX	MFR	BAS	OR	OR	OR	NA	0
RTU2-A	Packaged Rooftop Unit, Gas Heat	208 V	3					16	124	150		--	--	--	EX	EX	EX	EX	BAS	OR	OR	OR	NA	0
WH1-A	Electric Unit Heater	120 V	1					1.5	12.5			EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	NA	0
WH2-A	Electric Unit Heater	120 V	1					1.5	12.5			EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	NA	2125

ROOFTOP UNITS SCHEDULE																			
Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.																			
EQUIPMENT MARK	DESCRIPTION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	MIN EER	CFM (cfm)	ESP (in WC)	BHP (hp)	OACFM (cfm)	CO2 CFM (cfm)	NOMINAL TONS	OA EAT WB (Deg F)	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT DB (Deg F)	LAT CLG WB (Deg F)
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	EXISTING	2500 lb	CARRIER	48TM0025	12.0	7205	0.5	6.5 hp(0)	1657	681 ft3/min	20	55 °F	83	69	240	176	55	55
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	EXISTING	2500 lb	CARRIER	48TM0025	12.0	6750	0.5	6.5 hp(0)	1505	688 ft3/min	20	55 °F	83	69	216	162	55	55

DOLLAR TREE HVAC VENTILATION SCHEDULE																
101A	NUMBER	NAME	AREA	PEOPLE RED	OA PER PERSON	OA PER SQ FT	REQ SUP	ACT SUP	REQ OA	ACT OA	ACT RET	ACT EXH	CRIT OA	PRESSURE	PCT OPERABLE	NATURAL VENTILATION
101B	SALES	5629 SF	85	7.5	0.12	4465	7200	7200	1632	1632	7200	0	20.8	Neutral	0	
102	SALES	4017 SF	61	7.5	0.12	3095	5500	5500	1226	1226	5500	0	20.8	Neutral	0	
102	OFFICE	80 SF	1	5	0.06	105	105	105	24	24	105	0	11.7	Neutral	0	
103	HALL	144 SF	0	0	0.06	55	60	60	13	13	60	0	18	Neutral	0	
104	TOILET	118 SF	0	0	0	40	50	50	11	11	0	100	0	Negative	0	
105	TOILET	103 SF	0	0	0	45	50	50	11	11	0	100	0	Negative	0	
106	PRE SALES	1804 SF	0	0	0.12	7155	1040	1040	232	232	1040	0	26	Neutral	0	
107	HALL	93 SF	0	0	0.06	35	50	50	11	11	50	0	13.9	Neutral	0	
TOTAL		11988 SF														

LOAD SCHEDULE																			
THE HEATING AND COOLING LOAD CALCULATIONS ARE BASED ON THE CLTD/CLF (COOLING LOAD TEMPERATURE DIFFERENCE/COOLING LOAD FACTOR) METHOD. ASSUMPTIONS AND EXECUTION OF THESE METHODS ARE PER ASHRAE 183-2007 STANDARD FOR PEAK COOLING AND HEATING LOAD CALCULATIONS IN BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS.																			
COOLING LOAD BREAKDOWN										HEATING LOAD BREAKDOWN									
CPROOF	SENSIBLE HEAT GAIN FROM ROOF	CSSENS	TOTAL SENSIBLE HEAT GAIN TO SPACE	CFAN	SENSIBLE HEAT GAIN FROM AIR HANDLER FAN	CHWALL	HEAT LOSS FROM EXTERIOR WALLS	CPART	HEAT LOSS FROM PARTITIONS	CHGLASS	HEAT LOSS FROM GLAZING	CSOLAR	SENSIBLE HEAT GAIN FROM SOLAR GAIN THROUGH GLAZING	CPLAT	LATENT HEAT GAIN FROM PEOPLE	CHSPRACE	HEAT LOSS FROM SLAB	CHSPACE	TOTAL HEAT LOSS FROM SPACE
CLIGHTS	SENSIBLE HEAT GAIN FROM INTERIOR LIGHTING	COAL	LATENT HEAT GAIN FROM OUTDOOR VENTILATION AIR	CTLAT	TOTAL LATENT HEAT GAIN	HOA	HEAT LOSS FROM OUTDOOR VENTILATION AIR	HTOT	TOTAL HEAT LOSS										
CEQUIP	SENSIBLE HEAT GAIN FROM PLUG LOADS, COMPUTERS, ETC	CTOT	TOTAL HEAT GAIN (SENSIBLE + LATENT)																
CSSENS	SENSIBLE HEAT GAIN FROM PEOPLE																		

EQUIPMENT MARK	CPROOF	CWALL	CPART	CGLASS	CSOLAR	CLIGHTS	CEQUIP	CSSENS	CSSENS	CFAN	COAS	CTSENS	CPLAT	COAL	CTLAT	CTOT	CHROOF	CHWALL	HPART	CHGLASS	HSPACE	HSLAB	HOA	HTOT
RTU-1	13.57	0.83	0.07	3.12	2.87	62.36	28.88	34.52	149.87	1.83	24.65	176.35	17.2	45.98	63.18	239.53	28.14	2.93	0.18	19.95	180.92	20.54	109.18	180.92
RTU-2	15.07	2.91	0.03	0	0	61.76	31.11	27.1	137.99	1.69	22.38	162.06	12.2	41.76	53.96	216.01	32.48	12.85	0.06	0	215.02	70.45	96.15	215.02

AIR CURTAINS SCHEDULE									
Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.									
EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs.)	MANUFACTURER	MODEL	CFM (cfm)	EMERGENCY	ELECTRIC CONNECTION SUMMARY
AC-1	AIR CURTAIN WIND HEAT	SALES 101A	NEW	130 lb	POWERED AIR	ETA-2-72	2932	NO	(AC-1) A - 120V/1PH, 16 MCA

FANS SCHEDULE									
Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.									
EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	MANUFACTURER	MODEL	CFM (cfm)	ESP (in WC)	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
EF-1	HVAC FAN	ROOF	NEW	JOHNSON CONTROLS	EVD008	200	0.5	(EF-1) A - 120V/1PH, 0.25 HP	2791

UNIT HEATERS SCHEDULE									
Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.									
EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	HTG MBH (mbh)	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
WH-1	ELECTRIC UNIT HEATER	TOILET 105	NEW	25 lb	MARKEL	E3055	0	(WH-1) A - 120V/1P, 1.5 KW HTG, 12.5 MCA	1331
WH-2	ELECTRIC UNIT HEATER	TOILET 104	NEW	25 lb	MARKEL	E3055	0	(WH-2) A - 120V/1P, 1.5 KW HTG, 12.5 MCA	2125

DOLLAR TREE HVAC DIFFUSERS AND REGISTERS SCHEDULE								
TAG	MANUFACTURER	MODEL	FACE	MOUNTING	MATERIAL	FINISH	DAMPER TYPE	BORDER STYLE
A	TITUS	S300FL	18"x6"	DUCT	ALUMINUM	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT
B	TITUS	TMS	12"x12"	CEILING	STEEL	STANDARD WHITE	BUTTERFLY	SURFACE MOUNT
C	TITUS	S300FL	14"x6"	DUCT	ALUMINUM	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT
E	TITUS	S30FL	8"x8"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT
TG-1	TITUS	S0 F	12"x24"	SIDEWALL	STEEL	STANDARD WHITE	(none)	SURFACE MOUNT

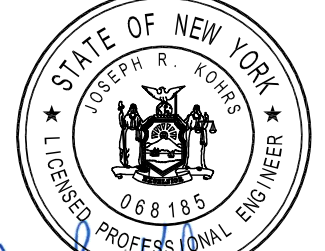
HVAC ACCESSORIES					
ACCESSORIES:	1. MOTOR DAMPER	5. INTAKE HOOD	9. ACCESS DOOR	13. FACE/BYPASS DAMPER	17. DUCT FLANGES
	2. ECONOMIZER	6. VIBRATION ISOLATION	10. FLEX CONNECTIONS	14. CONDENSATE PUMP	21. ECON POWERED EXHAUST
	3. ROOF CURB	7. FLAT FILTER	11. MOUNTING COLLAR	18. HUMIDIFIER	22. ECON BAROMETRIC RELIEF
	4. HAIL GUARDS	8. FILTER/MIXING BOX	12. HOT GAS BYPASS	15. MOTOR GUARD	23. HOT GAS REHEAT COIL
				16. GREASE TRAP	24. SHAFT GROUNDING BRUSHES

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description
by
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mark
revisions

06/15/2022
project
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KLH
CAF
JDB
date
project
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