INPUT/OUTPUT SUMMARY

SYSTEM, APPARATUS, OR AREA POINT DESCRIPTION	INPUTS: ANALOG: MEASURED: TEMPERATURE	PRESSURE	KW	AIR FLOW	WATER FLOW	CO2	RPM	VOLTZ	AMPS	KWHS	ENTHALPY	DEW POINT	EFFICIENCY	INPUTS: ANALOG: CALC.	INPUTS: BINARY: STATUS	FILTER	PROOF	FREEZE	AIR FLOW	METER	OVER-RIDE	OUTPUTS: DIGITAL: OFF-ON	OFF-HI-LO	OPEN-CLOSE	OUTPUTS: ANALOG: DMPR. POS.	VALVE POS.	VARIABLE SPD.	STEP CONTROL	SYSTEM FEATURES: ALARMS: HI ANALOG	LO ANALOG	HI BINARY	LO BINARY	PROOF	SYSTEM FEATURES: PROGRAMS: TIME SCHEDULING	DEMAND LIMITING	OPTIMUM START/STOP	START/STOP OPT.	ENTHALPY OPT.	CYCLE ONLY	TREND	ALARM INSTRUCT.	MAINT. MNG. ORG.	GENERAL: COLOR GRAPHIC	SUPPLEMENTAL NOTES
RTUS																																			X							X	
SUPPLY FAN															X							X								X												
VFD ON/OFF																						X																				VFD BY UNIT MFR
VFD SPEED				X																						X																VFD BY UNIT MFR
VFD STATUS															X															X												VFD BY UNIT MFR
RELIEF STATIC PRESSURE	X																																									
RELIEF FAN															X							X								X												
VFD ON/OFF																						X																				VFD BY UNIT MFR
VFD SPEED																										X																VFD BY UNIT MFR
VFD STATUS															X															X												VFD BY UNIT MFR
RELIEF STATIC PRESSURE		X																																							
RELIEF DAMPER				X																						X																DAMPER POSITION SWITCH
RETURN DAMPER				X																						X																DAMPER POSITION SWITCH
SUPPLY DAMPER				X																						X																DAMPER POSITION SWITCH
SUPPLY TEMP	X																																									
SUPPLY RH		X																																							
RETURN TEMP	X																																								
RETURN RH		X																																							
MIXED AIR TEMP	X																																								
OA DAMPER				X																						X																
SMOKE DETECTOR																X																											
FILTER STATUS															X																											
OVER-RIDE																					X																					
SPACE HUMIDITY		X																											X												
VAV FAN POWERED BOX																																			X							
PRIMARY AIR DPR. POSITION		X																				X																				
ENTERING AIR TEMP.	X																																									
LEAVING AIR TEMP.	X																																									
INDUCTION FAN															X							X								X												
ELECTRIC HEAT															X							X								X												
OVER-RIDE																					X																					
SETPOINT ADJUST																										X																
ZONE (SPACE) TEMP.	X																																									
DX SPLIT SYSTEM																																			X							
INDOOR AC UNIT															X							X								X												
OUTDOOR UNIT															X							X								X												
SPACE TEMP	X																																									
SUPPLY TEMP	X																																									
SETPOINT ADJUST																										X																
ALARMS																																	X									
FANS																																			X							
TOILET FANS																						X								X												
ELECTRICAL ROOM FANS																						X								X												
MECHANICAL ROOM FANS																						X								X												
VEHICLE BAY FANS																						X								X												
CRAC UNITS																																			X							
ICOM PANEL INTERFACE	X			X	X			X			X	X		X	X		X			X	X	X	X	X	X			X	X												
SPACE TEMP	X														X														X													
DISCH. TEMP	X																												X												
RETURN TEMP	X																												X												
SUPPLY FAN															X									X				X														
CHW VALVE																												X													
SMOKE DETECTOR																X													X													
FILTER STATUS															X																											
SPACE HUMIDITY		X																											X												
FIRESTAT ALARMS																													X												
MISC. POINTS																																										
OA TEMP	X								X																				X												
DEW POINT	X								X																																
POWER MONITORING SYSTEM																				X											X											
DOMESTIC WATER METER																								X																		
GAS METER																								X																		
FIRE ALARM STATUS															X																											FACP BY DIVISION 26
HYDROGEN ALARM																															X											BACHARACH--MGS--550
OA CO2					X																										X										
OA RH		X																																							
BUILDING PRESSURE SENSORS	X																																								
FIRE/SMOKE DAMPERS																											X															DAMPER POSITION SWITCH
WATER HEATER															X									X							X											RECIRC PUMPS
GENERATORS			X			X	X								X							X								X											TYP. OF 2
FIRE SUPPRESSION CLEAN AGENT															X																X										
INFRARED HEATERS															X																X										
UPS SYSTEM			X				X	X							X																X										TYP. OF 2
RAISED FLOOR LEAK DETECTION															X																											LEIBERT LP6000, THREE ZONES

GENERAL NOTE:
INPUT/OUTPUT SUMMARY IS A GENERAL LIST OF CONTROL POINTS REQUIRED FOR THE OPERATION OF THE MECHANICAL SYSTEM. IN ADDITION TO CONTROL POINTS INDICATED, THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADDITIONAL POINTS AS REQUIRED FOR OPERATION OF THE MECHANICAL SYSTEM AS SPECIFIED AND OUTLINED IN THE SEQUENCE OF OPERATION AND TO COMPLY WITH THE SPECIFICATIONS.

SEQUENCE OF OPERATION

A COMPLETE AND OPERATIONAL DDC CONTROL SYSTEM (BAS) SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS (SECTION 230900) AND AS INTENDED ON THESE PLANS. ALL CONTROL POINTS AND EQUIPMENT SEQUENCES OF OPERATION LISTED IN SPECIFICATION SECTION 230900 SHALL BE CONSIDERED IN ADDITION TO THOSE LISTED HERE. IN THE EVENT THAT THE VERBIAGE IS IN CONFLICT OR CONTRADICTS THE REQUIREMENTS LISTED HERE, THE QUESTION SHALL BE ASKED BEFORE BIDDING OR THE MORE STRINGENT SHALL APPLY AT THE ENGINEER'S DISCRETION. MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE CONTROLS VENDOR TO ENSURE THAT ALL EQUIPMENT IS PROVIDED WITH COMMUNICATION INTERFACE AS REQUIRED FOR FULL COMPLIANCE WITH THE SEQUENCE OF OPERATION AND THE SPECIFICATION.

RTU-1 & 2 (VAV SYSTEM)
UNIT SHALL BE STOPPED/STARTED ON A PROGRAMMED BASIS THROUGH THE BAS. SUPPLY FAN SHALL OPERATE CONTINUOUSLY WHEN THE UNIT IS IN THE OCCUPIED MODE. SUPPLY FAN SPEED SHALL BE CONTROLLED BY A VARIABLE FREQUENCY DRIVE AND DUCT MOUNTED STATIC PRESSURE SENSOR. THE STATIC PRESSURE SENSOR SETPOINT SHALL BE RESET USING A TRIM AND RESPOND ALGORITHM BASED ON ZONE AIR FLOW REQUIREMENTS FROM A LOW SETTING OF 0.75" (ADJ) TO A HIGH SETTING OF 1.50" (ADJ). ON A CALL FOR MORE AIRFLOW AT THE ZONE LEVEL AND THE SPACE TEMPERATURE ABOVE SETPOINT, THE SETPOINT SHALL BE RESET TO THE HIGHER VALUE. AS ZONE TEMPERATURE SETPOINT IS SATISFIED AND THE AIRFLOW DEMAND DECREASES, THE SETPOINT SHALL RESET TO THE LOWER VALUE. EXHAUST FAN SHALL BE STARTED AND MODULATED AS REQUIRED TO MAINTAIN BUILDING PRESSURIZATION AS OUTSIDE AIR DAMPERS ARE OPENED FOR ECONOMIZER OPERATION. POWER EXHAUST FAN SHALL BE CONTROLLED BY BUILDING PRESSURIZATION SENSOR LOCATED IN THE ZONE SERVED TO MAINTAIN A POSITIVE PRESSURE OF 0.05" (ADJ.)

A DISCHARGE AIR SENSOR SHALL CONTROL UNIT COOLING CYCLES TO MAINTAIN THE ROOFTOP UNIT SUPPLY AIR TEMPERATURE PER THE FOLLOWING SUPPLY AIR TEMPERATURE (SAT) RESET SCHEDULE:

SUPPLY AIR TEMPERATURE RESET:
57° SAT WITH AN O.A. TEMPERATURE OF 70 DEGREES (OR HIGHER)
68° F. SAT WITH AN O.A. TEMPERATURE OF 50 DEGREES (OR LOWER)
(SAT SHALL VARY LINEARLY BETWEEN THE HIGH AND LOW SETPOINTS. ALL SETPOINTS SHALL BE ADJUSTABLE).
NOTE: SUPPLY AIR TEMPERATURE RESET SHALL BE LIMITED TO A HIGH OF 62° F. IF ANY ZONED SERVED HAS A CALL FOR COOLING.

BAS SHALL PROVIDE ECONOMIZER OPERATION TO PROVIDE "FREE COOLING" WHEN OUTDOOR AIR CONDITIONS ALLOW. UPON BAS DETERMINATION THAT OUTSIDE AIR ENTHALPY IS BELOW RETURN AIR ENTHALPY IN COOLING MODE, THE OUTSIDE AIR, RETURN AIR AND RELIEF AIR DAMPERS SHALL MODULATE TO MAINTAIN UNIT DISCHARGE AIR TEMPERATURE. IF "ECONOMIZER" CONTROL IS INSUFFICIENT TO MAINTAIN DISCHARGE AIR TEMPERATURE, THE UNIT COOLING CYCLE SHALL FUNCTION AS OUTLINED ABOVE. UPON A DROP IN DISCHARGE AIR TEMPERATURE BELOW SETPOINT, THE OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL MODULATE CLOSED UNTIL THE MINIMUM OUTSIDE AIR POSITION IS REACHED. WITH OUTSIDE AIR DAMPER AT MINIMUM POSITION AND A CONTINUED DROP IN UNIT SUPPLY AIR TEMPERATURE BELOW SETPOINT, UNIT HEATING CYCLE SHALL MODULATE AS REQUIRED TO MAINTAIN UNIT SUPPLY AIR TEMPERATURE.

BAS SHALL PROVIDE FOR MORNING WARM-UP AND NIGHT SETBACK DURING UNOCCUPIED TIMES. UPON UNIT START-UP, IF RETURN AIR TEMPERATURE IS BELOW 65° F. (ADJ.), THE UNIT SUPPLY FAN SHALL BE ENERGIZED; TERMINAL BOXES SHALL OPEN TO 100% AND THE GAS HEAT SHALL BE ACTIVATED IN STAGES TO RAISE THE RETURN AIR TEMPERATURE (THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED DURING MORNING WARM-UP). WHEN RETURN AIR TEMPERATURE RISES ABOVE 70° F. (ADJ.), UNIT SHALL BE CONTROLLED AS OUTLINED ABOVE. WHILE IN THE UNOCCUPIED MODE, THE UNIT SUPPLY FAN SHALL BE OFF AND THE SPACE TEMPERATURE SETPOINTS SHALL BE SET TO UNOCCUPIED SETTINGS OF 60° FOR HEATING (ADJ) AND 85° FOR COOLING (ADJ). UPON A CALL FOR HEATING FROM A MINIMUM OF THREE ZONES; THE UNIT SUPPLY FAN SHALL BE ENERGIZED; TERMINAL BOXES SHALL OPEN TO 100% AND THE GAS HEAT SHALL BE BROUGHT ON IN STAGES UNTIL THE SPACE TEMPERATURES RISES ABOVE THE UNOCCUPIED SETPOINT. UPON A CALL FOR COOLING FROM A MINIMUM OF THREE BOXES; THE UNIT FAN SHALL BE STARTED AT LOW SPEED AND THE UNIT COOLING CYCLE SHALL BE CONTROLLED TO SATISFY SPACE SETPOINTS. WHEN STARTED TO MEET UNOCCUPIED SETPOINTS, THE UNIT SHALL OPERATE FOR A MINIMUM OF 15 MINUTES (OR AS REQUIRED TO SATISFY UNOCCUPIED SETPOINT) AND SHALL NOT BE ALLOWED TO RESTART FOR A MINIMUM OF 30 MINUTES FOLLOWING SATISFACTION OF UNOCCUPIED SETPOINT AND SYSTEM SHUT DOWN.

OUTSIDE AIR INTAKE SHALL BE PROVIDED WITH A MOTORIZED DAMPER. ON UNIT START UP, THE O.A. DAMPER SHALL REMAIN CLOSED UNTIL THE RETURN AIR TEMPERATURE RISES ABOVE 65° (ADJ) OR FALLS BELOW 75° (ADJ). ONCE RETURN AIR TEMPERATURE IS SATISFIED, THE O.A. INTAKE DAMPER SHALL BE OPEN WHILE THE AIR HANDLING UNIT IS IN THE OCCUPIED MODE. DAMPER SHALL REMAIN CLOSED WHILE THE UNIT IS IN THE UNOCCUPIED MODE. BAS SHALL BE CAPABLE OF OPENING AND CLOSING OUTSIDE AIR DAMPERS.

CO2 SENSOR MOUNTED IN THE RETURN DUCT SHALL MODULATE THE OUTSIDE AIR DAMPER FROM THE OCCUPIED MINIMUM TO DESIGN MAXIMUM BASED ON RETURN AIR CO2 LEVEL. DAMPER SHALL MODULATE OPEN AS REQUIRED TO MAINTAIN A SPACE CO2 LEVEL OF 700 PPM ABOVE THE OUTSIDE AIR CO2 LEVEL. AN ALARM SHALL BE ACTIVATED IF THE CO2 LEVEL RISES ABOVE 1500 PPM.

SMOKE DETECTORS SHALL BE PROVIDED IN THE SUPPLY DUCT AND IN THE RETURN DUCT (UPSTREAM OF THE OUTSIDE AIR DUCT CONNECTION) AND SHALL SHUT DOWN THE SUPPLY FAN UPON ACTIVATION.

UNIT FAILURE EMERGENCY OPERATION
IN THE EVENT OF A UNIT FAILURE (TOTAL LOSS OF AIRFLOW) FOR EITHER UNIT, THE FAILED UNIT SHALL BE ISOLATED BY CLOSING THE UNIT SUPPLY FAN MOTORIZED BACKDRAFT DAMPER AND CLOSING THE UNIT OUTSIDE AIR AND RETURN AIR DAMPERS. THE MOTORIZED DAMPER IN THE COMMON SYSTEM SUPPLY DUCT BETWEEN THE TWO SYSTEMS BE OPENED TO ALLOW THE REMAINING OPERATING UNIT SUPPLY AIR TO BOTH AHU DISTRIBUTION SYSTEMS. AN ALARM SHALL BE SENT TO THE BAS INDICATING THE UNIT FAILURE. MANUAL RESET SHALL BE USED TO RESET THE DAMPERS TO NORMAL OPERATION WHEN UNIT IS REPAIRED.

NOTE: THIS MODE OF OPERATION WILL ONLY PROVIDE PARTIAL AIRFLOW FOR THE COMBINED SYSTEMS. IN THE EVENT OF A LONG TERM FAILURE OF A UNIT, THE OWNER WILL MANUALLY SELECT TERMINAL UNITS TO ISOLATE/CLOSE TO ALLOW CRITICAL ZONES TO REMAIN IN OPERATION.

FAN POWERED BOXES (ELECTRIC HEAT)
TERMINAL UNIT "OCCUPIED/UNOCCUPIED" SCHEDULE IS DETERMINED BY IT'S ASSOCIATED ROOFTOP UNIT SCHEDULE. TERMINAL UNITS ARE PROVIDED WITH A WALL MOUNTED TEMPERATURE SENSOR FOR CONTROL.

IN THE OCCUPIED MODE, THE SPACE TEMPERATURE SHALL BE 72° F. (ADJ). AS THE SPACE TEMPERATURE RISES ABOVE SETPOINT, THE PRIMARY AIR VALVE MODULATES OPEN TO THE MAXIMUM AIRFLOW TO MAINTAIN SETPOINT. AS SPACE TEMPERATURE DROPS TO SETPONT, THE PRIMARY AIR VALVE CLOSES TO THE MINIMUM AIRFLOW. ON A CONTINUED DROP IN SPACE TEMPERATURE, THE TERMINAL UNIT SUPPLY FAN IS STARTED, SUPPLYING PLENUM AIR TO THE SPACE. AS THE SPACE TEMPERATURE CONTINUES TO DROP BELOW SETPOINT, THE TERMINAL UNIT ELECTRIC HEAT IS ENERGIZED IN STAGES TO MAINTAIN SPACE TEMPERATURE SETPONT.

IN THE "UNOCCUPIED MODE", THE PRIMARY AIR VALVE SHALL CLOSE TO THE MINIMUM AIRFLOW POSITION. THE SPACE TEMPERATURE SENSOR SHALL BE USED TO PROVIDE "UNOCCUPIED" TEMPERATURE SETPOINTS OF 60° F. (ADJ) FOR HEATING AND 85° F. (ADJ) FOR COOLING. IF SYSTEM IS ACTIVATED BY THE UNOCCUPIED COOLING SETPOINT, THE TERMINAL UNIT SHALL OPERATE AS OUTLINED ABOVE FOR OCCUPIED COOLING. IF THE SYSTEM IS ACTIVATED BY THE UNOCCUPIED HEATING SETPOINT, TERMINAL UNIT FAN AND HEAT SHALL REMAIN OFF AND PRIMARY DAMPER SHALL OPEN 100% TO SATISFY UNOCCUPIED SETPOINTS.

BAS SHALL PROVIDE MINIMUM AND MAXIMUM AIRFLOW ADJUSTMENTS THROUGH THE SYSTEM INTERFACE.

RTU-3 & 4 (REDUNDANT VAV SYSTEMS)
UNITS ARE REDUNDANT AND SHALL OPERATE IN PRIMARY/STAND-BY CONFIGURATION WITH A SINGLE UNIT OPERATING TO PROVIDE CONDITIONED AIR 24/7/365. PRIMARY UNIT SHALL BE ROTATED ON A REGULAR BASIS AT TIME INTERVALS OF 168 HOURS (ADJ.). IN THE EVENT OF A UNIT FAN FAILURE, THE STAND-BY UNIT SHALL BE STARTED AND AN ALARM SHALL BE SENT TO THE BAS. IN THE EVENT OF A LOSS OF SPACE TEMPERATURE (5° F. OR MORE ABOVE OR BELOW SETPOINT), THE PRIMARY UNIT SHALL BE SHUT DOWN AND THE STAND-BY UNIT SHALL BE STARTED AUTOMATICALLY. THE PRIMARY UNIT SHALL BE SHUT-DOWN AND AN ALARM SHALL BE SENT TO THE BAS.

SUPPLY FAN SHALL OPERATE CONTINUOUSLY WHEN THE UNIT IS IN THE OCCUPIED MODE. SUPPLY FAN SPEED SHALL BE CONTROLLED BY A VARIABLE FREQUENCY DRIVE AND DUCT MOUNTED STATIC PRESSURE SENSOR. THE STATIC PRESSURE SENSOR SETPOINT SHALL BE RESET USING A TRIM AND RESPOND ALGORITHM BASED ON ZONE AIR FLOW REQUIREMENTS FROM A LOW SETTING OF 0.75" (ADJ) TO A HIGH SETTING OF 1.25" (ADJ). ON A CALL FOR MORE AIRFLOW AT THE ZONE LEVEL AND THE SPACE TEMPERATURE ABOVE SETPOINT, THE SETPOINT SHALL BE RESET TO THE HIGHER VALUE. AS ZONE TEMPERATURE SETPOINT IS SATISFIED AND THE AIRFLOW DEMAND DECREASES, THE SETPOINT SHALL RESET TO THE LOWER VALUE. EXHAUST FAN SHALL BE STARTED AND MODULATED AS REQUIRED TO MAINTAIN BUILDING PRESSURIZATION AS OUTSIDE AIR DAMPERS ARE OPENED FOR ECONOMIZER OPERATION. POWER EXHAUST FAN SHALL BE CONTROLLED BY BUILDING PRESSURIZATION SENSOR LOCATED IN THE ZONE SERVED TO MAINTAIN A POSITIVE PRESSURE OF 0.05" (ADJ.)

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SUPPLY AIR TEMPERATURE RESET:
57° SAT WITH AN O.A. TEMPERATURE OF 70 DEGREES (OR HIGHER)
68° F. SAT WITH AN O.A. TEMPERATURE OF 50 DEGREES (OR LOWER)
(SAT SHALL VARY LINEARLY BETWEEN THE HIGH AND LOW SETPOINTS. ALL SETPOINTS SHALL BE ADJUSTABLE).
NOTE: SUPPLY AIR TEMPERATURE RESET SHALL BE LIMITED TO A HIGH OF 62° F. IF ANY ZONED SERVED HAS A CALL FOR COOLING.

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BAS SHALL PROVIDE FOR MORNING WARM-UP AND NIGHT SETBACK DURING UNOCCUPIED TIMES. UPON UNIT START-UP, IF RETURN AIR TEMPERATURE IS BELOW 65° F. (ADJ), THE UNIT SUPPLY FAN SHALL BE ENERGIZED; TERMINAL BOXES SHALL OPEN TO 100% AND THE GAS HEAT SHALL BE ACTIVATED IN STAGES TO RAISE THE RETURN AIR TEMPERATURE (THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED DURING MORNING WARM-UP). WHEN RETURN AIR TEMPERATURE RISES ABOVE 70° F. (ADJ.), UNIT SHALL BE CONTROLLED AS OUTLINED ABOVE. WHILE IN THE UNOCCUPIED MODE, THE UNIT SUPPLY FAN SHALL BE OFF AND THE SPACE TEMPERATURE SETPOINTS SHALL BE SET TO UNOCCUPIED SETTINGS OF 60° FOR HEATING (ADJ) AND 85° FOR COOLING (ADJ). UPON A CALL FOR HEATING FROM A MINIMUM OF THREE ZONES; THE UNIT SUPPLY FAN SHALL BE ENERGIZED; TERMINAL BOXES SHALL OPEN TO 100% AND THE GAS HEAT SHALL BE BROUGHT ON IN STAGES UNTIL THE SPACE TEMPERATURES RISES ABOVE THE UNOCCUPIED SETPOINT. UPON A CALL FOR COOLING FROM A MINIMUM OF THREE BOXES, THE UNIT FAN SHALL BE STARTED AT LOW SPEED AND THE UNIT COOLING CYCLE SHALL BE CONTROLLED TO SATISFY SPACE SETPOINTS. WHEN STARTED TO MEET UNOCCUPIED SETPOINTS, THE UNIT SHALL OPERATE FOR A MINIMUM OF 15 MINUTES (OR AS REQUIRED TO SATISFY UNOCCUPIED SETPOINT) AND SHALL NOT BE ALLOWED TO RESTART FOR A MINIMUM OF 30 MINUTES FOLLOWING SATISFACTION OF UNOCCUPIED SETPOINT AND SYSTEM SHUT DOWN.

OUTSIDE AIR INTAKE SHALL BE PROVIDED WITH A MOTORIZED DAMPER. ON UNIT START UP, THE O.A. DAMPER SHALL REMAIN CLOSED UNTIL THE RETURN AIR TEMPERATURE RISES ABOVE 65° (ADJ) OR FALLS BELOW 75° (ADJ). ONCE RETURN AIR TEMPERATURE IS SATISFIED, THE O.A. INTAKE DAMPER SHALL BE OPEN WHILE THE AIR HANDLING UNIT IS IN THE OCCUPIED MODE. DAMPER SHALL REMAIN CLOSED WHILE THE UNIT IS IN THE UNOCCUPIED MODE. BAS SHALL BE CAPABLE OF OPENING AND CLOSING OUTSIDE AIR DAMPERS.

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SMOKE DETECTORS SHALL BE PROVIDED IN THE SUPPLY DUCT AND IN THE RETURN DUCT (UPSTREAM OF THE OUTSIDE AIR DUCT CONNECTION) AND SHALL SHUT DOWN THE SUPPLY FAN UPON ACTIVATION.

COMPUTER ROOM AIR CONDITIONING UNITS
SERVER ROOM 218: (A/C UNIT-1 & 2)
A/C UNITS SHALL OPERATE ON A CONTINUOUS BASIS TO PROVIDE COOLING 24/7/365. FACTORY CONTROLS SHALL OPERATE UNITS TO MAINTAIN SPACE TEMPERATURE AND HUMIDITY OF 75° F. AND 50% RH (ADJ). BAS SHALL ALLOW REMOTE START/STOP, SETPOINT ADJUSTMENT AND SHALL MONITOR ALL ALARMS.

UNITS OPERATE IN A PRIMARY/STAND-BY CONFIGURATION WITH ONE UNIT IN OPERATION. PRIMARY UNIT SHALL BE ROTATED AUTOMATICALLY AT A TIME INTERVAL 168 HOURS RUNTIME (ADJ.). SHOULD THE PRIMARY UNIT FAIL, THE STAND-BY UNIT SHOULD BE STARTED AUTOMATICALLY AND ALARM SHALL BE SENT TO THE BAS.

DUCTLESS SPLIT SYSTEMS
UNITS ARE PROVIDED WITH STAND-ALONE FACTORY CONTROLS AND SHALL PROVIDE COOLING ON A CONTINUOUS BASIS. SUPPLY FAN AND COOLING CYCLE SHALL CYCLE WITH A CALL FOR COOLING TO MAINTAIN ROOM TEMPERATURE SETPOINT OF 75° F. BAS SHALL MONITOR ROOM TEMPERATURE. AN ALARM SHALL BE ACTIVATED IF THE ROOM TEMPERATURE RISES ABOVE 80° F. FOR A PERIOD OF 15 MINUTES.

INFRARED HEATERS
A SPACE TEMPERATURE SENSOR SHALL CONTROL HEATER TO MAINTAIN SPACE TEMPERATURE OF 60° F. (ADJ). WITH SPACE TEMPERATURE ABOVE SETPOINT, HEATER SHALL REMAIN OFF. AS SPACE TEMPERATURE FALLS BELOW SETPOINT, THE HEATER SHALL BE ENERGIZED AND STAGE HEATING AS REQUIRED TO MAINTAIN SETPOINT.

DATA CENTER CLEAN AGENT EXHAUST FANS (FANS F-1)
UPON ACTIVATION OF THE CLEAN AGENT FIRE SUPPRESSION SYSTEM IN ANY ZONE, THE MOTORIZED ROOM ISOLATION DAMPERS IN THAT ZONE SHALL CLOSE TO CONTAIN THE CLEAN AGENT WITHIN THE SPACE AND HVAC EQUIPMENT SERVING THE ZONE ACTIVATED SHALL BE STOPPED. MOTORIZED DAMPERS IN EXHAUST AND MAKE-UP AIR DUCTS SHALL REMAIN CLOSED. AN ALARM SHALL BE GENERATED AND SENT TO THE BAS UPON ACTIVATION OF THE CLEAN AGENT FIRE SUPPRESSION SYSTEM AND SHALL IDENTIFY ZONE ACTIVATED (SEE FIRE PROTECTION DRAWINGS FOR ZONES).

ONCE FIRE EVENT IS EXTINGUISHED AND UPON MANUAL ACTIVATION OF THE CLEAN AGENT EVACUATION FAN, THE EXHAUST FAN MOTORIZED DAMPER SHALL OPEN, THE FAN SHALL START AND THEN THE ROOM ISOLATION DAMPER SH