

REVISIONS			
SYL		DATE	APPROVED

M116	
DIAGRAM SYMBOL LEGEND	DESCRIPTION
—#—	POWER WIRE
—	CONTROL WIRE
—	REF. PIPE

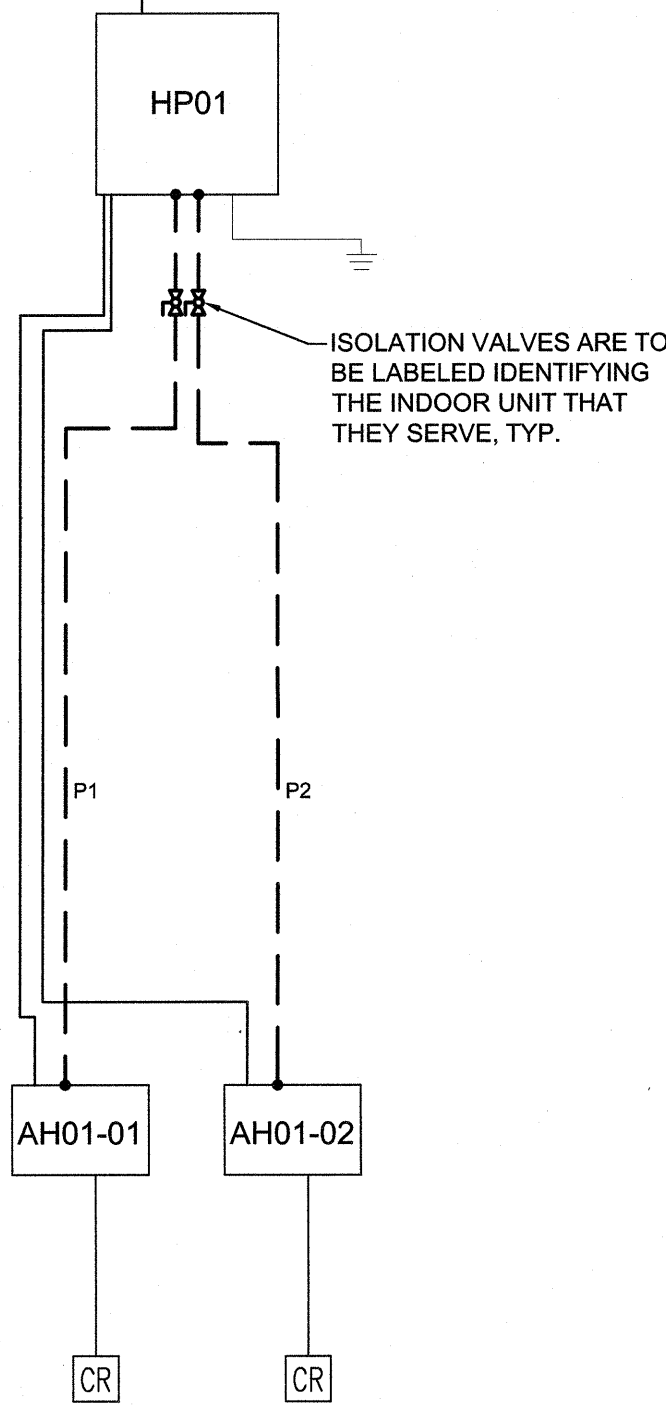
CONT.No. PAGE

SYSTEM SCHEMATIC DWG.

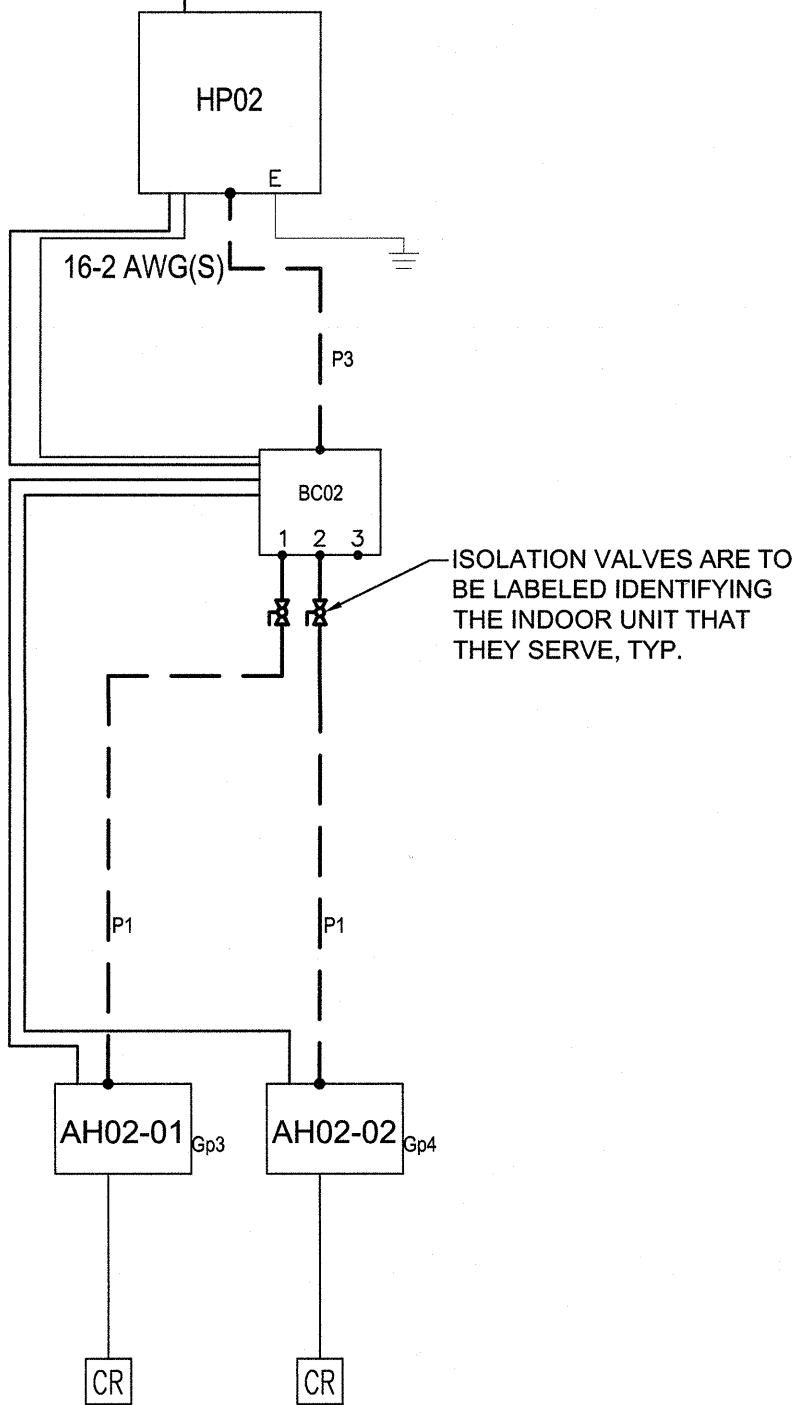
Additional refrigerant charge is needed depending on the size and length of extended piping. Please refer the amount of pre-charge and the formula of calculation which is mentioned on the data book.
1.25mm(6 AWG) : 1.25mm(6 AWG) or more. 0.75mm(20 AWG) : between 0.5mm(24 AWG) and 0.75mm(20 AWG).

PIPING AND CONTROLS	
SYMBOL	DESCRIPTION
P1	14 / 12
P2	14 / 38
P3	38 / 58
SYMBOL	MODE NUMBER
OR	PACHTS/SCHEM

208-230V/60Hz FUSE



208-230V/60Hz FUSE



NOTE: VRF SYSTEM SCHEMATIC SHOWN IS FOR REFERENCE ONLY AND IS FOR BASIS OF DESIGN MANUFACTURER. IF APPROVED ALTERNATE MANUFACTURER IS USED THE SYSTEM SCHEMATIC AND RECOMMENDED INSTALLATION REQUIREMENTS SHOULD BE FOLLOWED AND APPROVED BY GENERAL CONTRACTOR AND ENGINEER. APPROVED ALTERNATE MANUFACTURERS CAN BE FOUND IN EQUIPMENT SCHEDULES.

NOTE: PIPING LENGTHS NOT SHOWN ON THESE DIAGRAMS. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR DETERMINING PIPING LENGTHS USING MOST DIRECT ROUTING WHILE MAINTAINING ACCEPTABLE CONCEALMENT. PIPE ROUTING SHALL BE APPROVED BY GENERAL CONTRACTOR AND ENGINEER.

1 HP01 & HP02 CONTROL SCHEMATIC

NOT TO SCALE

VRF SYSTEM

DESCRIPTION: SPLIT SYSTEM, VARIABLE REFRIGERANT HEAT RECOVERY SYSTEM CONSISTING OF MULTIPLE INDOOR AIR HANDLERS WITH MULTIPLE SPEED AIR VOLUME, UNDER CONTROL OF DDC SYSTEM. EACH INDOOR UNIT MAY BE IN HEATING OR COOLING MODE INDEPENDENT OF THE OTHER INDOOR UNITS.

HEAT PUMP INDOOR AIR HANDLER

EACH INDOOR UNIT SHALL BE SCHEDULED ON BY THE BMS SYSTEM AT THE OCCUPIED TIMES DEFINED BY THE OWNER.

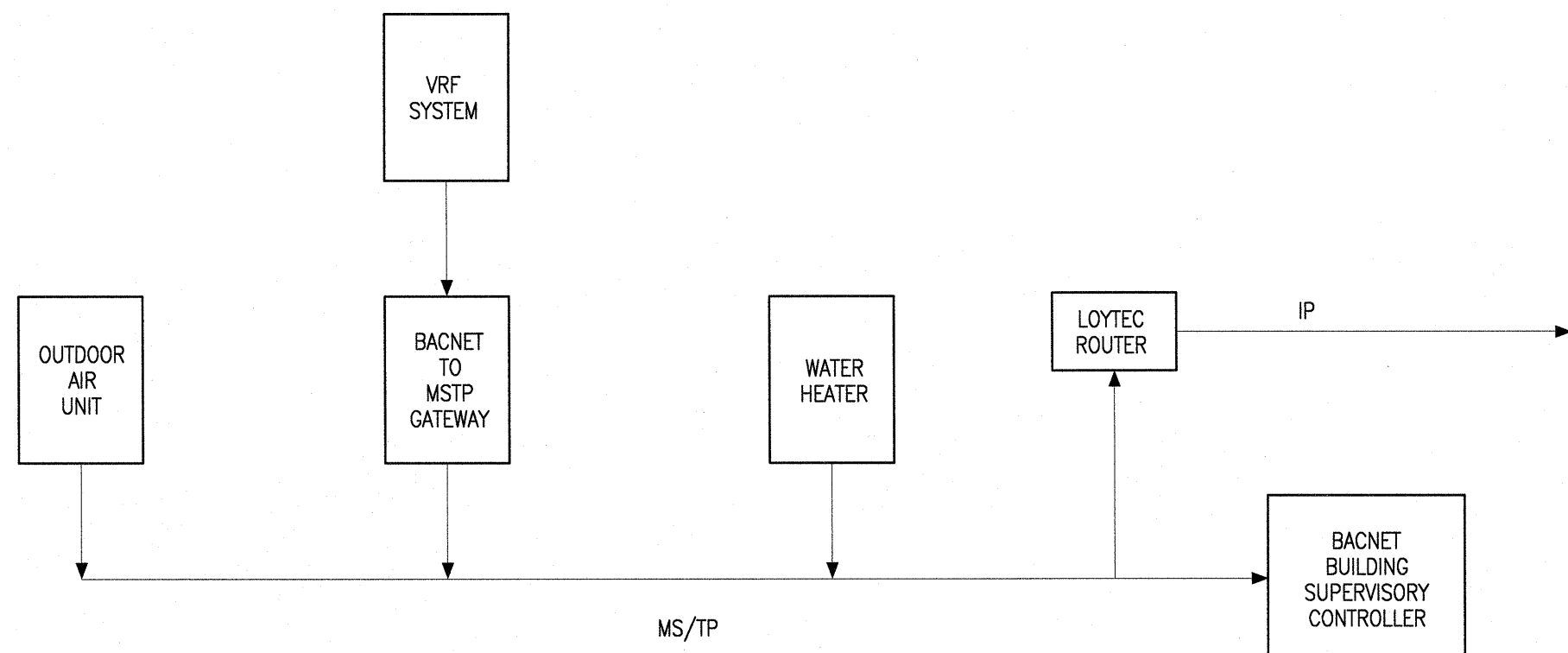
THE INDOOR UNITS SHALL BE SET TO AUTO MODE DURING OCCUPIED TIMES. DURING UNOCCUPIED TIMES THE INDOOR UNITS SHALL BE SET TO HEAT OR COOL BASED ON OUTSIDE AIR ENTHALPY CONDITIONS.

THE BMS SHALL SET THE OCCUPIED AND UNOCCUPIED TEMPERATURE SET-POINTS. BMS SHALL GLOBALLY SET THIS AS A SINGLE HEATING/COOLING SET POINT, WITH AN AMBIENT RESET, 70F AT 50F AMBIENT, AND 78F AT 80F AMBIENT, LINEAR IN BETWEEN.

DURING UNOCCUPIED TIMES THE BMS SHALL SEND THE OFF COMMAND TO THE INDOOR UNIT AT THE START OF UNOCCUPIED TIMES AND EVERY TWO HOURS THEREAFTER TO REINFORCE THE SETBACK CONDITIONS. THE BMS SHALL MONITOR THE ROOM TEMPERATURE AT THE REMOTE CONTROLLER IN THE SPACE AND COMMAND THE UNIT ON IF THE OWNER SPECIFIED UNOCCUPIED LIMITS ARE EXCEEDED. THE BMS SHALL SEND THE COOL MODE COMMAND WHEN THE TEMPERATURE UPPER LIMIT IS EXCEEDED OR THE HEAT MODE COMMAND WHEN THE TEMPERATURE LOWER LIMIT IS EXCEEDED. THE BMS SHALL SEND THE TEMPERATURE UPPER OR LOWER LIMIT AS THE SPACE TEMPERATURE SET-POINT DURING UNOCCUPIED TIME.

VRF SYSTEM INDOOR AIR HANDLER POINTS LIST

INDOOR UNIT CONTROL POINT DESCRIPTION	SOFTWARE POINTS		ALARMS			
	NETWORK VARIABLE INPUT	NETWORK VARIABLE OUTPUT	DISPLAY	HIGH LIMIT	LOW LIMIT	ABNORMALITY
ON/OFF	x					
SET MODE	x					
SET TEMPERATURE	x		x			
MODE STATE		x	x			
ROOM TEMPERATURE		x	x	x	x	
FAN SPEED STATE		x	x			
INDOOR UNIT NOTIFY		x	x			
ERROR CODE		x	x			x



DEDICATED OUTSIDE AIR SYSTEM UNIT

DESCRIPTION: DEDICATED OUTSIDE AIR SYSTEM UNIT SUPPLYING 100% OUTDOOR AIR DIRECTLY TO SPACE, WITH DX COOLING, HOT GAS REHEAT, DX HEATING, ENTHALPY WHEEL AND FIXED PLATE ENERGY RECOVERY HEAT EXCHANGER.

UNIT START/STOP CONTROL: START/STOP UNIT BASED ON (1) USER-DEFINED "ON/OFF" SCHEDULE.

SETPOINTS SHALL BE AS FOLLOWS:

OUTSIDE AIR COOLING SETPOINT: 70°F (ADJ)
OUTDOOR AIR HEATING SETPOINT: 60°F (ADJ)

SYSTEM CONTROL:

DURING "ON/OCCUPIED" PERIODS, THE UNIT SUPPLY AND EXHAUST FAN SHALL BE ENERGIZED.

DURING "OFF/UN-OCCUPIED" PERIODS, THE SUPPLY AND EXHAUST FAN ARE OFF.

TEMPERATURE AND HUMIDITY CONTROL:

WHEN THE DRY BULB AT THE UNIT'S TEMPERATURE SENSOR EXCEEDS THE DEHUMIDIFICATION (COOLING) SET POINT, THE COMPRESSOR WILL BE TURNED ON WITH THE REVERSING VALVE SET IN THE DEHUMIDIFICATION (COOLING) POSITION. THE SUPPLY AIR WILL BE CONDITIONED BY THE ENTHALPY WHEEL AND THE REFRIGERATION SYSTEM.

WHEN THE DRY BULB AT THE UNIT'S TEMPERATURE SENSOR FALLS BELOW THE HEATING SET POINT, THE COMPRESSOR WILL BE TURNED ON WITH THE REVERSING VALVE IN THE HEATING POSITION. THE SUPPLY AIR WILL BE CONDITIONED BY THE ENTHALPY WHEEL AND THE REFRIGERATION SYSTEM.

WHEN THE DRY BULB AT THE UNIT'S TEMPERATURE SENSOR IS BETWEEN THE DEHUMIDIFICATION (COOLING) AND HEATING SET POINTS, THE COMPRESSOR WILL BE TURNED OFF. THE SUPPLY AIR WILL BE CONDITIONED ONLY BY THE ENTHALPY WHEEL.

DEDICATED OUTSIDE AIR SYSTEM UNIT POINTS LIST

INDOOR UNIT CONTROL POINT DESCRIPTION	SOFTWARE POINTS		FUNCTIONS			ALARMS		
	NETWORK VARIABLE INPUT	NETWORK VARIABLE OUTPUT	SCHEDULE	TREND	DISPLAY	HIGH LIMIT	LOW LIMIT	ABNORMALITY
ON/OFF	x		x	x				
SUPPLY AIR TEMPERATURE		x	x	x	x	x	x	
SUPPLY AIR DEWPOINT		x	x	x	x	x		
OUTSIDE AIR TEMPERATURE		x	x	x	x			
OUTSIDE AIR DEWPOINT		x	x	x	x			
RETURN AIR TEMPERATURE		x	x	x	x	x	x	
ON/OFF STATUS		x			x			
SUPPLY FAN STATUS		x			x			
EXHAUST FAN STATUS		x			x			

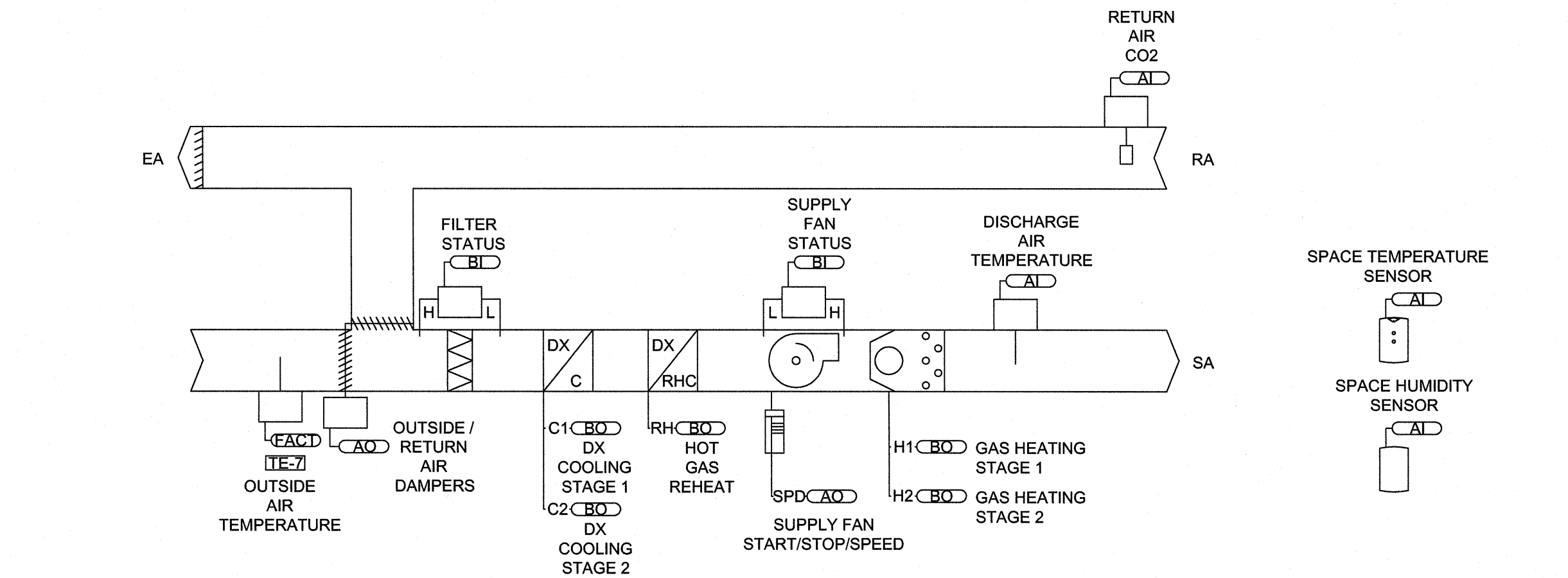
SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET T-1

CBHF Engineers, PLLC 2248 Yawpon Drive Wilmington, NC 28401 Phone: 910.791.4000 Fax: 910.791.5266 www.cbhfindesigners.com © Copyright 2016 CBHF Engineers, PLLC. NCSEA-P-0006 SEAL 043801 TROY O. GRADY ENGINEER 6/24/19	SHEET TITLE: MECHANICAL CONTROLS		M-6	
	TALLEY & SMITH ARCHITECTURE INC. P.O. BOX 518 SHELBY, NC 28151-0518 409 EAST MARION ST. SHELBY, NC 28150		DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA	
DES. GAS	DR. GAS	CHK. TOG	INTERIOR AND EXTERIOR REPAIRS BLDG. M116 CAMP LEJEUNE, NORTH CAROLINA	
SUBMITTED BY:	DESIGN DR. T H BURTON, PE	APPROVED:	DATE	SIZE
				F
SATISFACTORY TO:	DATE	CODE IDENT. NO.	NAVAC DRAWING NO.	
		80091	60024598	
		CONST. CONTR. NO. N40085-18-B-0086		
SCALE: NOTED	SPEC. 05-18-0086	SHEET 38 OF 50		

REVISIONS			
SYM.		DATE	APPROVED

PU02 - SYSTEM POINT LIST														
CONTROLLER: RELIATEL / BCI-R		POINT TYPE					ALARMS							
SYSTEM POINT DESCRIPTION		GRAPHIC	HARDWARE INPUT	HARDWARE OUTPUT	SOFTWARE POINT	DEFAULT VALUE	HIGH ANALOG LIMIT	LOW ANALOG LIMIT	BINARY	LATCH DIAGNOSTIC	SENSOR FAIL	COMMUNICATION FAIL	DIAGNOSTICS	
NOTES:														
SPACE SENSOR	SPACE TEMPERATURE (THERM)	AI		X			X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
	SPACE TEMPERATURE SETPOINT	AI		X	72.5 F						X		DIAGNOSTIC ALARM STATUS	NOTE 1, 2, 3
	ON/CANCEL				X									NOTE 1, 2
OUTDOOR AIR TEMPERATURE		AI			X						X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
SPACE HUMIDITY		AI			X		X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
SPACE RELATIVE HUMIDITY SETPOINT		AI			X	50.00%					X		DIAGNOSTIC ALARM STATUS	NOTE 2
RETURN AIR CO2		AI			X		X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
RETURN AIR CO2 LIMIT		AI			X	900 PPM							DIAGNOSTIC ALARM STATUS	NOTE 2
SUPPLY AIR TEMPERATURE		X AI			X		X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 3
EXHAUST FAN ENABLE SETPOINT		AI												
DIRTY FILTER		BI			X								DIAGNOSTIC ALARM STATUS	
SUPPLY FAN STATUS		BI									X		DIAGNOSTIC ALARM STATUS	
HIGH PRESSURE COMPRESSOR PROTECTION		BI									X		DIAGNOSTIC ALARM STATUS	
LOW PRESSURE COMPRESSOR PROTECTION		BI									X		DIAGNOSTIC ALARM STATUS	
EMERGENCY STOP		BI											DIAGNOSTIC ALARM STATUS	
SUPPLY FAN START/STOP/SPEED					AO									
EXHAUST FAN START/STOP					BO									
COMPRESSOR 1 START/STOP					BO									
COMPRESSOR 2 START/STOP					BO									
CONDENSER FAN A START/STOP					BO									
CONDENSER FAN B START/STOP					BO									
HEAT STAGE 1					BO						X		DIAGNOSTIC ALARM STATUS	
HEAT STAGE 2					BO						X		DIAGNOSTIC ALARM STATUS	
OCCUPANCY					X									NOTE 2
OCCUPIED COOL SETPOINT					X	74.0 F								NOTE 2
OCCUPIED HEAT SETPOINT					X	71.0 F								NOTE 2
UNOCCUPIED COOL SETPOINT					X	80.0 F								NOTE 2
UNOCCUPIED HEAT SETPOINT					X	60.0 F								NOTE 2
SETPPOINT OFFSET					X									NOTE 2
OCCUPIED BYPASS TIMER					X	120 MIN								NOTE 2
COMPRESSOR ENABLE					X	AUTO								NOTE 2
HEAT / COOL MODE					X	AUTO								NOTE 2
FAN MODE COMMAND					X	AUTO								NOTE 2
APPLICATION MODE					X	AUTO								NOTE 2
OUTSIDE AIR DAMPER MINIMUM POSITION					X	10.00%								NOTE 2
EFFECTIVE OCCUPANCY		X			X									NOTE 3
EFFECTIVE HEAT / COOL MODE		X			X									NOTE 3
EFFECTIVE SPACE TEMPERATURE		X			X									NOTE 3
EFFECTIVE SPACE SETPOINT		X			X									NOTE 3
LOCAL SETPOINT					X									NOTE 3
HEAT OUTPUT		X			X									NOTE 3
COOL OUTPUT		X			X									NOTE 3
ALARM		X			X									NOTE 3
COMMUNICATION STATE					X						X			NOTE 3
GENERAL NOTES:														
1. OPTIONAL FEATURE														
2. SNVT NETWORK INPUT VARIABLE														
3. SNVT NETWORK OUTPUT VARIABLE														

PU02 SEQUENCE OF OPERATIONS	
<p>BUILDING AUTOMATION SYSTEM INTERFACE:</p> <p>THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED BYPASS, MORNING WARM-UP / PRE-COOL, OCCUPIED / UNOCCUPIED AND HEAT / COOL MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS.</p> <p>OCCUPIED MODE:</p> <p>DURING OCCUPIED PERIODS, THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER SHALL OPEN TO MAINTAIN VENTILATION REQUIREMENTS WHEN CO2 LEVELS EXCEED SETPOINT. THE DX COOLING AND GAS HEAT SHALL STAGE TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SETPOINT.</p> <p>UNOCCUPIED MODE:</p> <p>WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE GAS HEAT SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE GAS HEAT SHALL BE DISABLED.</p> <p>WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 80.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START AND THE DX COOLING SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 80.0 DEG. F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP, THE DX COOLING SHALL BE DISABLED AND THE OUTSIDE AIR DAMPER SHALL CLOSE.</p> <p>OPTIMAL START:</p> <p>THE BAS SHALL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.</p> <p>MORNING WARM-UP MODE:</p> <p>DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP MODE SHALL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED THE UNIT SHALL ENABLE THE HEATING AND SUPPLY FAN. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.</p> <p>PRE-COOL MODE:</p> <p>DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE SHALL BE ACTIVATED. WHEN PRE-COOL IS INITIATED THE UNIT SHALL ENABLE THE FAN AND COOLING. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.</p> <p>OPTIMAL STOP:</p> <p>THE BAS SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.</p> <p>OCCUPIED BYPASS:</p> <p>THE BAS SHALL MONITOR THE STATUS OF THE "ON" AND "CANCEL" BUTTONS OF THE SPACE TEMPERATURE SENSOR. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT SHALL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT SHALL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.).</p> <p>COOLING MODE:</p> <p>THE UNIT CONTROLLER SHALL MONITOR SPACE TEMPERATURE AND SPACE TEMPERATURE COOLING SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR COOLING. WHEN THE SPACE TEMPERATURE RISES ABOVE THE SPACE TEMPERATURE COOLING SETPOINT, THE UNIT CONTROLLER SHALL STAGE THE COOLING ON OR OFF AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE COOLING SETPOINT. THE FIRST COMPRESSOR STAGE SHALL ENERGIZE AFTER ITS MINIMUM 3-MINUTE OFF TIME HAS EXPIRED. THE SUPPLY FAN SHALL MODULATE ABOVE MINIMUM SPEED TO MEET ZONE REQUIREMENTS. IF ADDITIONAL COOLING CAPACITY IS REQUIRED THE SECOND STAGE OF COOLING SHALL BE ENABLED. ONCE THE SPACE TEMPERATURE FALLS BELOW THE SETPOINT THE COMPRESSORS SHALL BE DEACTIVATED AND THE FAN SHALL MODULATE TO MINIMUM SPEED.</p> <p>HEATING MODE:</p> <p>THE UNIT CONTROLLER SHALL MONITOR SPACE TEMPERATURE AND SPACE TEMPERATURE HEATING SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR HEAT. WHEN THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE HEATING SETPOINT, THE CONTROLLER SHALL ENABLE THE FIRST STAGE OF HEAT. IF ADDITIONAL HEATING CAPACITY IS REQUIRED THE SECOND STAGE OF HEAT SHALL BE ENABLED. THE SUPPLY FAN WILL REMAIN AT 100% DURING HEATING OPERATION. ONCE THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT, THE HEATING STAGES SHALL BE DISABLED AND THE SUPPLY FAN SPEED WILL VARY ACCORDING TO VENTILATION AND COOLING MODES.</p> <p>DEHUMIDIFICATION:</p> <p>FACTORY INSTALLED HOT GAS REHEAT SHALL ALLOW APPLICATION OF DEHUMIDIFICATION.</p>	
<p>DEHUMIDIFICATION SHALL BE ALLOWED ONLY WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 40.0 DEG. F AND BELOW 100.0 DEG. F.</p> <p>ON A CALL FOR DEHUMIDIFICATION, THE REHEAT VALVE SHALL ENERGIZE AND THE COMPRESSOR SHALL ENABLE. WHEN THE HUMIDITY CONTROL SETPOINT IS SATISFIED, THE VALVE SHALL BE DE-ENERGIZED AND THE COMPRESSOR SHALL BE DISABLED. IF THERE IS A CALL FOR COOLING FROM THE SPACE TEMPERATURE CONTROLLER, WHILE IN REHEAT, THE REHEAT VALVE SHALL BE DE-ENERGIZED AND THE COMPRESSOR CONTINUES TO RUN.</p> <p>DEMAND CONTROL VENTILATION (DCV) OPERATION:</p> <p>WHEN THE DEMAND CONTROL VENTILATION (DCV) THRESHOLD IS REACHED, THE OUTSIDE AIR DAMPER SHALL START TO MODULATE OPEN TO BRING IN MORE FRESH AIR TO REDUCE THE CO2 LEVEL. THE DAMPER SHALL MODULATE OPEN IN SMALL INCREMENTS, ACCOUNTING FOR CO2 LEVELS AND SUPPLY FAN SPEED, UNTIL THE CO2 LEVEL IS SATISFIED OR THE DAMPER REACHES THE FULL OPEN POSITION. ONCE THE THRESHOLD IS SATISFIED, THE DAMPER SHALL RETURN TO MINIMUM POSITION. IF THE MIXED AIR TEMPERATURE DROPS TO 40.0 DEG. F, THE CO2 SENSOR INPUT IS OVERRIDDEN AND CLOSSES THE DAMPER TO MINIMUM POSITION. WHEN THE MIXED AIR TEMPERATURE RISES TO 43.0 DEG. F, CO2 OPERATION IS ONCE AGAIN RESTORED.</p> <p>SUPPLY FAN OPERATION:</p> <p>THE SUPPLY FAN SHALL BE ENABLED WHILE IN THE OCCUPIED MODE AND CYCLED ON DURING THE UNOCCUPIED MODE. THE UNIT CONTROLLER SHALL VARY THE SUPPLY FAN SPEED TO OPTIMIZE MINIMUM FAN SPEED IN ALL COOLING MODES. A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FAN. IF THE SWITCH DOES NOT OPEN WITHIN 40 SECONDS AFTER A REQUEST FOR FAN OPERATION A FAN FAILURE ALARM SHALL BE ANNUNCIATED, THE UNIT SHALL STOP, REQUIRING A MANUAL RESET.</p> <p>FILTER STATUS:</p> <p>A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSSES FOR 2 MINUTES AFTER A REQUEST FOR FAN OPERATION A DIRTY FILTER ALARM SHALL BE ANNUNCIATED AT THE BAS.</p>	



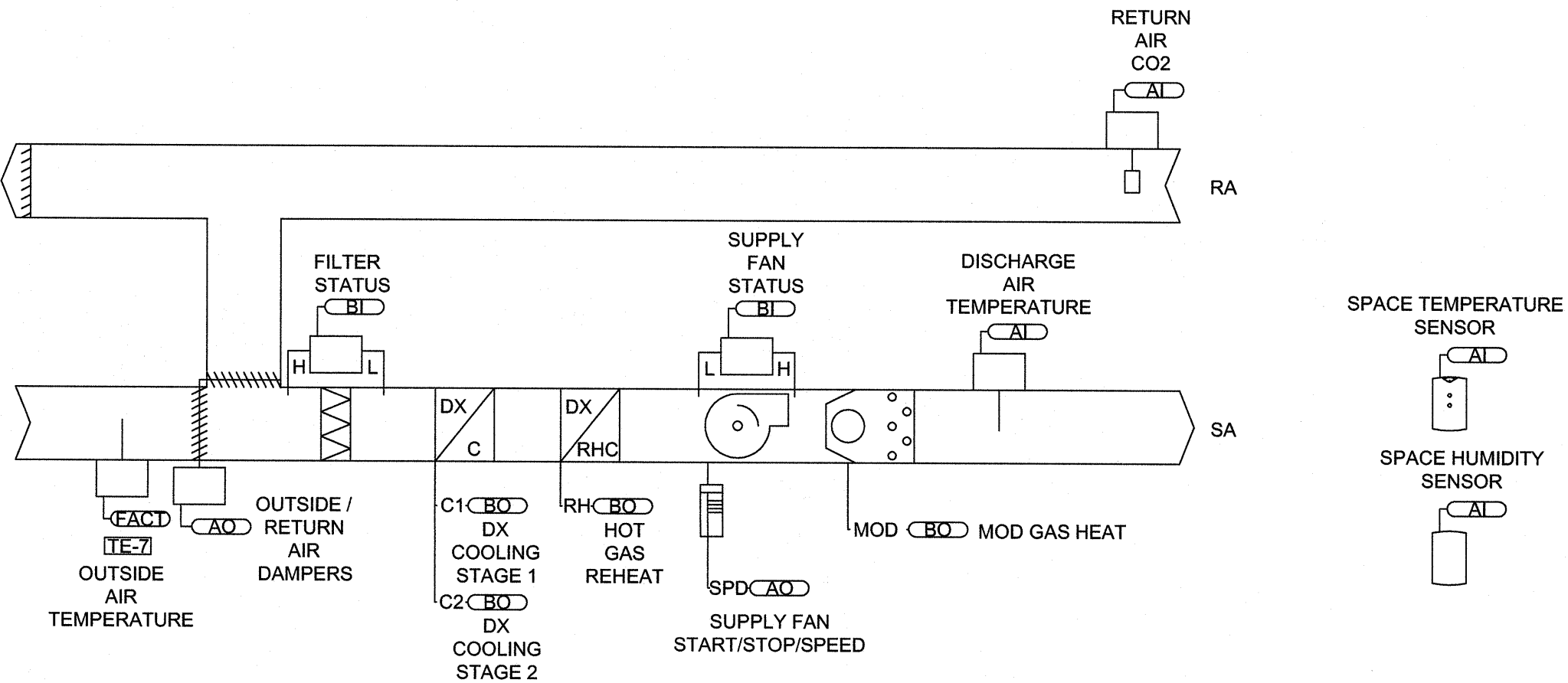
SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET T-1

CBHF Engineers, PLLC 2248 Yaupon Drive Wilmington, NC 28401 Phone: 910.791.4000 Fax: 910.791.5266 www.cbhfindengineers.com	SHEET TITLE: MECHANICAL CONTROLS		M-7
	TALLEY & SMITH ARCHITECTURE INC. P.O. BOX 518 SHELBY, NC 28151-0518 409 EAST MARION ST. SHELBY, NC 28150		
	DEPARTMENT OF THE NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		
	INTERIOR AND EXTERIOR REPAIRS BLDG. M116 CAMP LEJEUNE, NORTH CAROLINA		
DES. GAS	DR. GAS	CHK. TOG	DESIGN DIR. T H BURTON, PE
APPROVED:	DATE	SIZE F	CODE IDENT. NO. 80091
SATISFACTORY TO:	DATE	SCALE: NOTED	SPEC: 05-18-0086
NAVFAC DRAWING NO. 60024599		CONST. CONTR. NO. N40085-18-B-0086	
SHEET 37 OF 50			

REVISIONS			
SYM.		DATE	APPROVED

PU01 - SYSTEM POINT LIST														
CONTROLLER: RELIATEL / BCI-R		POINT TYPE					ALARMS							
SYSTEM POINT DESCRIPTION														
		GRAPHIC	HARDWARE INPUT	HARDWARE OUTPUT	SOFTWARE POINT	DEFAULT VALUE	HIGH ANALOG LIMIT	LOW ANALOG LIMIT	BINARY	LATCH DIAGNOSTIC	SENSOR FAIL	COMMUNICATION FAIL	DIAGNOSTICS	NOTES:
SPACE SENSOR	SPACE TEMPERATURE (THERM)		AI		X		X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
	SPACE TEMPERATURE SETPOINT		AI		X	72.5 F					X		DIAGNOSTIC ALARM STATUS	NOTE 1, 2, 3
	ON/CANCEL				X									NOTE 1, 2
OUTDOOR AIR TEMPERATURE			AI		X						X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
SPACE HUMIDITY			AI		X		X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
SPACE RELATIVE HUMIDITY SETPOINT			AI		X	50.00%					X		DIAGNOSTIC ALARM STATUS	NOTE 2
RETURN AIR CO2			AI		X		X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 2, 3
RETURN AIR CO2 LIMIT			AI		X	900 PPM							DIAGNOSTIC ALARM STATUS	NOTE 2
SUPPLY AIR TEMPERATURE		X	AI		X		X	X			X		DIAGNOSTIC ALARM STATUS	NOTE 3
EXHAUST FAN ENABLE SETPOINT			AI											
DIRTY FILTER			BI		X								DIAGNOSTIC ALARM STATUS	
SUPPLY FAN STATUS			BI							X			DIAGNOSTIC ALARM STATUS	
HIGH PRESSURE COMPRESSOR PROTECTION			BI							X			DIAGNOSTIC ALARM STATUS	
LOW PRESSURE COMPRESSOR PROTECTION			BI							X			DIAGNOSTIC ALARM STATUS	
EMERGENCY STOP			BI										DIAGNOSTIC ALARM STATUS	
SUPPLY FAN START/STOP/SPEED				AO										
EXHAUST FAN START/STOP				BO										
COMPRESSOR 1 START/STOP				BO										
COMPRESSOR 2 START/STOP				BO										
CONDENSER FAN A START/STOP				BO										
CONDENSER FAN B START/STOP				BO										
HEAT ENABLE				BO						X			DIAGNOSTIC ALARM STATUS	
GAS VALVE				AO									DIAGNOSTIC ALARM STATUS	
OCCUPANCY					X									NOTE 2
OCCUPIED COOL SETPOINT					X	74.0 F								NOTE 2
OCCUPIED HEAT SETPOINT					X	71.0 F								NOTE 2
UNOCCUPIED COOL SETPOINT					X	80.0 F								NOTE 2
UNOCCUPIED HEAT SETPOINT					X	60.0 F								NOTE 2
SETPOINT OFFSET					X									NOTE 2
OCCUPIED BYPASS TIMER					X	120 MIN								NOTE 2
COMPRESSOR ENABLE					X	AUTO								NOTE 2
HEAT / COOL MODE					X	AUTO								NOTE 2
FAN MODE COMMAND					X	AUTO								NOTE 2
APPLICATION MODE					X	AUTO								NOTE 2
OUTSIDE AIR DAMPER MINIMUM POSITION					X	10.00%								NOTE 2
EFFECTIVE OCCUPANCY		X			X									NOTE 3
EFFECTIVE HEAT / COOL MODE		X			X									NOTE 3
EFFECTIVE SPACE TEMPERATURE		X			X									NOTE 3
EFFECTIVE SPACE SETPOINT		X			X									NOTE 3
LOCAL SETPOINT					X									NOTE 3
HEAT OUTPUT		X			X									NOTE 3
COOL OUTPUT		X			X									NOTE 3
ALARM		X			X									NOTE 3
COMMUNICATION STATE					X							X		
GENERAL NOTES:														
1. OPTIONAL FEATURE														
2. SNVT NETWORK INPUT VARIABLE														
3. SNVT NETWORK OUTPUT VARIABLE														

PU01 SEQUENCE OF OPERATIONS	
BUILDING AUTOMATION SYSTEM INTERFACE: THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED BYPASS, MORNING WARM-UP / PRE-COOL, OCCUPIED / UNOCCUPIED AND HEAT / COOL MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS. OCCUPIED MODE: DURING OCCUPIED PERIODS, THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER SHALL OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS. THE DX COOLING SHALL STAGE AND GAS HEAT SHALL MODULATE TO MAINTAIN THE OCCUPIED SPACE TEMPERATURE SETPOINT. UNOCCUPIED MODE: WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE GAS HEAT SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE GAS HEAT SHALL BE DISABLED. WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 80.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE DX COOLING SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP, THE DX COOLING SHALL BE DISABLED. OPTIMAL START: THE BAS SHALL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS. MORNING WARM-UP MODE: DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP MODE SHALL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED THE UNIT SHALL ENABLE THE HEATING AND SUPPLY FAN, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE. PRE-COOL MODE: DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE SHALL BE ACTIVATED. WHEN PRE-COOL IS INITIATED THE UNIT SHALL ENABLE THE FAN AND COOLING. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE. OPTIMAL STOP: THE BAS SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT. OCCUPIED BYPASS: THE BAS SHALL MONITOR THE STATUS OF THE 'ON' AND 'CANCEL' BUTTONS OF THE SPACE TEMPERATURE SENSOR. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT SHALL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT SHALL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.). COOLING MODE: THE UNIT CONTROLLER SHALL MONITOR SPACE TEMPERATURE AND SPACE TEMPERATURE COOLING SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR COOLING. WHEN THE SPACE TEMPERATURE RISES ABOVE THE SPACE TEMPERATURE COOLING SETPOINT, THE UNIT CONTROLLER SHALL STAGE THE COOLING ON OR OFF AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE COOLING SETPOINT. THE FIRST COMPRESSOR SHALL ENERGIZE AFTER ITS MINIMUM 3-MINUTE OFF TIME HAS EXPIRED. THE SUPPLY FAN SHALL MODULATE ABOVE MINIMUM SPEED TO MEET ZONE REQUIREMENTS. IF ADDITIONAL COOLING CAPACITY IS REQUIRED THE SECOND STAGE OF COOLING SHALL BE ENABLED. ONCE THE SPACE TEMPERATURE FALLS BELOW THE SETPOINT THE COMPRESSORS SHALL BE DEACTIVATED AND THE FAN SHALL MODULATE TO MINIMUM SPEED. HEATING MODE: THE UNIT CONTROLLER SHALL MONITOR SPACE TEMPERATURE AND SPACE TEMPERATURE HEATING SETPOINT TO DETERMINE WHEN TO INITIATE REQUESTS FOR HEAT. WHEN THE SPACE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE HEATING SETPOINT, THE CONTROLLER SHALL ENABLE THE MODULATING HEAT BANK AT HIGH FIRE FOR 60 SECONDS, THEN THE CONTROLLER SHALL MODULATE THE HEAT BANK TO THE NECESSARY RATE TO SATISFY THE SPACE TEMPERATURE HEATING SETPOINT. THE SUPPLY FAN SPEED SHALL VARY TO MEET ZONE HEATING REQUIREMENTS IN CONJUNCTION WITH THE HEAT BANK OUTPUT. ONCE THE SPACE TEMPERATURE RISES ABOVE THE SETPOINT, THE HEATING CYCLE SHALL BE DISABLED. DEHUMIDIFICATION: FACTORY INSTALLED HOT GAS REHEAT SHALL ALLOW APPLICATION OF DEHUMIDIFICATION. DEHUMIDIFICATION SHALL BE ALLOWED ONLY WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 40.0 DEG. F AND BELOW 100.0 DEG. F.	
ON A CALL FOR DEHUMIDIFICATION, THE REHEAT VALVE SHALL ENERGIZE AND BOTH COMPRESSORS SHALL ENABLE. WHEN THE HUMIDITY CONTROL SETPOINT IS SATISFIED, THE VALVE SHALL BE DE-ENERGIZED AND BOTH COMPRESSORS SHALL BE DISABLED. IF THERE IS A CALL FOR 1ST STAGE COOLING WHILE IN THE DEHUMIDIFICATION MODE, NO ACTION SHALL TAKE PLACE. IF THERE IS A CALL FOR 2ND STAGE COOLING, THE REHEAT VALVE SHALL BE DE-ENERGIZED, AND THE UNIT SHALL REVERT TO THE COOLING MODE. IF 2ND STAGE COOLING IS SATISFIED AND THERE IS STILL A CALL FOR DEHUMIDIFICATION, THE REHEAT VALVE SHALL ONCE AGAIN BE ENERGIZED. DEMAND CONTROL VENTILATION (DCV) OPERATION: WHEN THE DEMAND CONTROL VENTILATION (DCV) THRESHOLD IS REACHED, THE ECONOMIZER SHALL START TO MODULATE OPEN TO BRING IN MORE FRESH AIR TO REDUCE THE CO2 LEVEL. THE DAMPER SHALL MODULATE OPEN IN SMALL INCREMENTS, ACCOUNTING FOR CO2 LEVELS AND SUPPLY FAN SPEED, UNTIL THE CO2 LEVEL IS SATISFIED OR THE DAMPER REACHES THE FULL OPEN POSITION. IF THE MIXED AIR TEMPERATURE DROPS TO 40.0 DEG. F, THE CO2 SENSOR INPUT IS OVERRIDDEN AND CLOSSES THE DAMPER TO MINIMUM POSITION. WHEN THE MIXED AIR TEMPERATURE RISES TO 43.0 DEG. F, CO2 OPERATION IS ONCE AGAIN RESTORED. SUPPLY FAN OPERATION: THE SUPPLY FAN SHALL BE ENABLED WHILE IN THE OCCUPIED MODE AND CYCLED ON DURING THE UNOCCUPIED MODE. THE UNIT CONTROLLER SHALL VARY THE SUPPLY FAN SPEED TO OPTIMIZE MINIMUM FAN SPEED IN ALL COOLING AND HEATING MODES. A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FAN. IF THE SWITCH DOES NOT OPEN WITHIN 40 SECONDS AFTER A REQUEST FOR FAN OPERATION A FAN FAILURE ALARM SHALL BE ANNUNCIATED, THE UNIT SHALL STOP, REQUIRING A MANUAL RESET. FILTER STATUS: A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSSES FOR 2 MINUTES AFTER A REQUEST FOR FAN OPERATION A DIRTY FILTER ALARM SHALL BE ANNUNCIATED AT THE BAS.	



SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET T-1

CBHF Engineers, PLLC 2246 Yaupon Drive Wilmington, NC 28401 Phone: 910.791.4000 Fax: 910.791.5289 www.cbhfindesigners.com		SHEET TITLE: MECHANICAL CONTROLS		M-8	
TALLEY & SMITH ARCHITECTURE INC. P.O. BOX 518 SHELBY, NC 28151-0518 Phone: 910.791.4000 Fax: 910.791.5289 www.cbhfindesigners.com		DEPARTMENT OF THE NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA		NAVAL FACILITIES ENGINEERING COMMAND	
DES: GAS DR: GAS CHK: TOG SUBMITTED BY: DESIGN DIR: T H BURTON, PE		INTERIOR AND EXTERIOR REPAIRS BLDG. M116 CAMP LEJEUNE, NORTH CAROLINA		APPROVED: [Signature] DATE: 6/24/19	
SATISFACTORY TO:		SIZE: F CODE IDENT. NO.: 80091 NAVFAC DRAWING NO.: 60024600 CONST. CONTR. NO.: N40085-18-B-0086 SHEET 38 OF 50		SCALE: NOTED SPEC: 05-18-0086	

REVISIONS			
SYM.		DATE	APPROVED

2018 INTERNATIONAL BUILDING CODE

ELECTRICAL SUMMARY

ELECTRICAL SYSTEMS AND EQUIPMENT

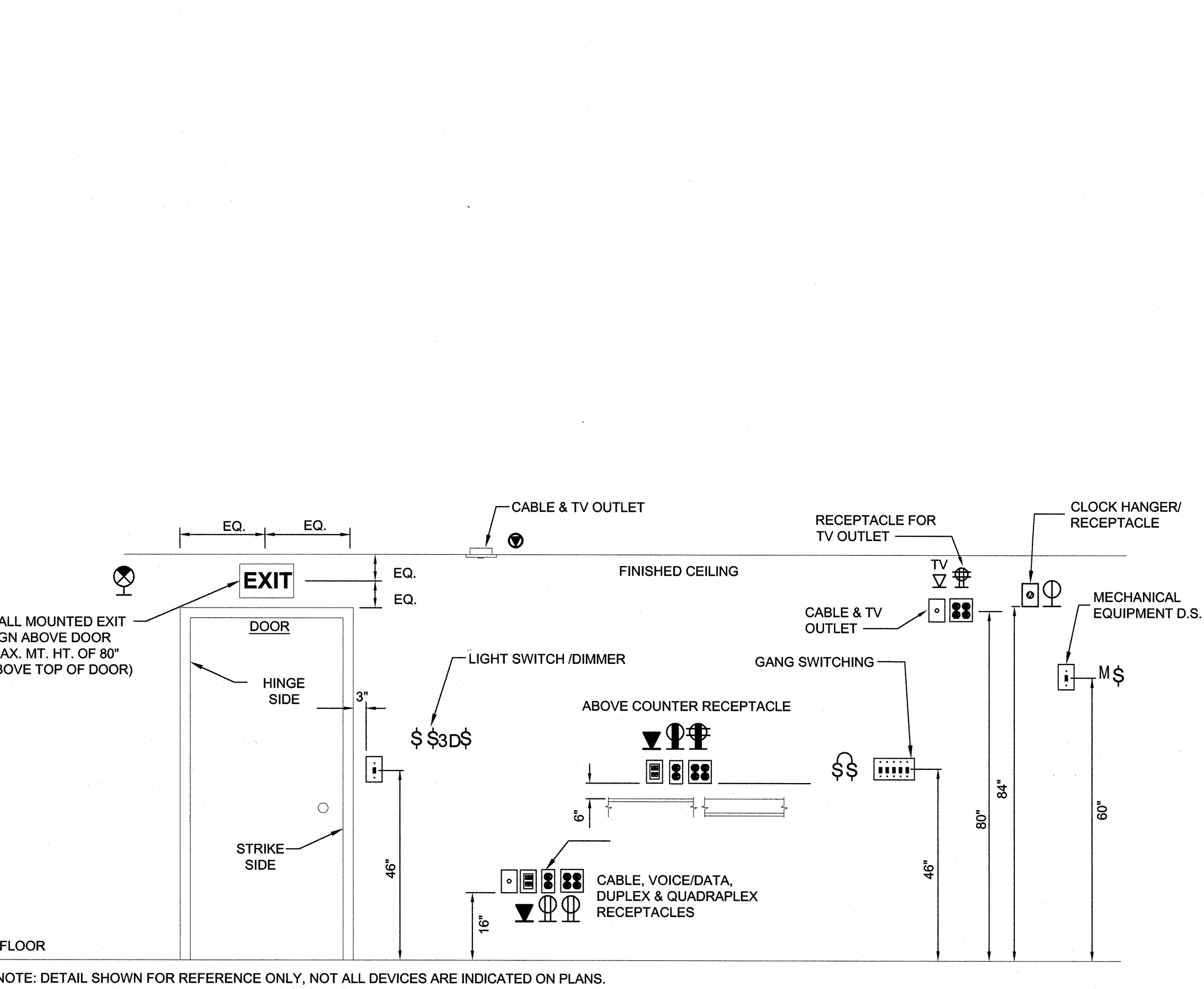
METHOD OF COMPLIANCE: ENERGY CODE: <input type="checkbox"/> PRESCRIPTIVE <input type="checkbox"/> PERFORMANCE ASHRAE 90.1: <input checked="" type="checkbox"/> PRESCRIPTIVE <input type="checkbox"/> PERFORMANCE	
LIGHTING SCHEDULE (EACH FIXTURE TYPE) LAMP TYPE REQUIRED IN FIXTURE: SEE FIXTURE SCHEDULE NUMBER OF LAMPS IN FIXTURE: SEE FIXTURE SCHEDULE BALLAST TYPE USED IN THE FIXTURE: SEE FIXTURE SCHEDULE NUMBER OF BALLASTS IN FIXTURE: SEE FIXTURE SCHEDULE TOTAL WATTAGE PER FIXTURE: SEE FIXTURE SCHEDULE	
TOTAL INTERIOR WATTAGE: (WHOLE BUILDING OR SPACE BY SPACE) ALLOWED = 6,426 WATTS ADDITIONAL 10% = 5,783 WATTS SPECIFIED = 5,455 WATTS	
EXTERIOR ALLOWANCE: (TRADEABLE SURFACES) ALLOWED = 550 WATTS SPECIFIED = 252 WATTS	
(NON-TRADEABLE SURFACES:) ALLOWED = N/A WATTS SPECIFIED = N/A WATTS	
ADDITIONAL PRESCRIPTIVE COMPLIANCE <input checked="" type="checkbox"/> 506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT. <input checked="" type="checkbox"/> 506.2.2 REDUCED LIGHTING POWER DENSITY <input type="checkbox"/> 506.2.3 ENERGY RECOVERY VENTILATION SYSTEMS <input type="checkbox"/> 506.2.4 HIGHER EFFICIENCY SERVICE WATER HEATING <input type="checkbox"/> 506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY <input type="checkbox"/> 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS	

LOAD SUMMARY

VOLTAGE	PHASE
208	3
LARGEST MOTOR APPROX. AMPS	10 AMPS
LARGEST MOTOR APPROX. AMPS x 25	3 AMPS
HVAC	
PU01	21,039 VA
PU02	8,846 VA
HP01	2,862 VA
HP02	6,156 VA
DOAS01	1,730 VA
BC02	1,748 VA
PV01	96 VA
EUH1	1,200 VA
SUB-TOTAL HVAC DEMAND	43,477 VA
SUB-TOTAL HVAC DEMAND	121 AMPS
EQUIPMENT	
EW1	4,500 VA
CP1	125 VA
REFRIGERATOR	1,100 VA
MICROWAVE	1,200 VA
RANGE/STOVE	10,000 VA
EW1	600 VA
SUB-TOTAL EQUIPMENT DEMAND	17,525 VA
SUB-TOTAL EQUIPMENT DEMAND	49 AMPS
ADD FOR LARGEST MOTOR	3 AMPS
TOTAL EQUIPMENT DEMAND	51 AMPS
LIGHTING	
LIGHTS (INTERIOR, BASED ON NEC 220.12)	5,455 VA
LIGHTS (EXTERIOR)	252 VA
SIGN	1,200 VA
TOTAL LIGHTING LOAD	6,907 VA
LIGHTING LOAD x 1.25	8,634 VA
TOTAL DEMAND FOR LIGHTING	24 AMPS
RECEPTACLES	
RECEPTACLES	15,760 VA
FIRST 10000VA	10,000 VA
REMAINDER @ 50%	2,880 VA
TOTAL DEMAND FOR RECEPTACLE/POWER PANELS	12,880 VA
TOTAL DEMAND FOR RECEPTACLE/POWER PANELS	36 AMPS
TOTAL DEMAND BUILDING AMPS	232 AMPS
TOTAL DEMAND BUILDING AMPS	83,416 VA
TOTAL BUILDING CONNECTED LOAD	83,669 VA

TYPICAL ABBREVIATIONS

A, AMP AFF AFG AHU AIC ATS AWG BOF BRKR C, CND CAB CAT CL CB CCTV CKT CLG CONTD CP CR CS CV CT CU EF EGB EMER EMT ENCL EQUIP EWC EWH EPRF FA FAAP FACP FBO FLA FLUOR FLR FM FWE GEN G, GND GB GFI HH HD HOA HP HPF HPS HTR HV Hz IMC INCAND JB K KCMIL KVA KW KWH	AMPERE ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AIR HANDLING UNIT AMPERE INTERRUPTING CAPACITY AUTOMATIC TRANSFER SWITCH AMERICAN WIRE GAUGE BOTTOM OF FIXTURE BREAKER CONDUIT CABINET CATALOG CHLORINE CIRCUIT BREAKER CLOSED CIRCUIT TELEVISION CIRCUIT CEILING CONTINUED CONTROL PANEL CONTROL RELAY, CORROSION RESISTANT CONTROL SWITCH CONTROL VALVE CURRENT TRANSFORMER COPPER EXHAUST FAN ELECTRIC GROUND BAR EMERGENCY ELECTRIC METALLIC TUBING ENCLOSURE EQUIPMENT ELECTRIC WATER COOLER ELECTRIC WATER HEATER EXPLOSION PROOF FIRE ALARM FIRE ALARM ANNUNCIATOR PANEL FIRE ALARM CONTROL PANEL FURNISHED BY OTHERS FULL LOAD AMPS FLUORESCENT FLOOR FLUSH MOUNTED FURNISHED WITH EQUIPMENT GENERATOR GROUND GROUND BAR GROUND FAULT CURRENT INTERRUPTER HANDHOLE HIGH INTENSITY DISCHARGE HAND-OFF-AUTO HORSE POWER HIGH POWER FACTOR HIGH PRESSURE SODIUM HEATER HIGH VOLTAGE HERTZ INTERMEDIATE METALLIC CONDUIT INCANDESCENT JUNCTION BOX THOUSAND THOUSAND CIRCULAR MILLS KILOVOLT-AMPERE KILOWATTS KILOWATT-HOURS	LTG LTCB MCC MCP MDP MFR MH MLO MTD MTG MTS MV N, NEUT NA NC NEC NIC NL NO NTS P PA PB PF PH PLC PNL PP PT PWR RECP, RCP REQ'D RGS RM RTU DCM SH SM SPEC SS SST SW SWBD SWGR TEL TMGB TPS TVSS TYP UGND UH UON UTL V VFD W WH WP WR X XFMR	LIGHTING PANEL, LIGHT POLE LIGHTING MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER MOTOR CIRCUIT PROTECTOR MAIN DISTRIBUTION PANEL MANUFACTURER MANHOLE MAIN LUGS ONLY MOUNTED MOUNTING MANUAL TRANSFER SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSED NATIONAL ELECTRIC CODE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NOT TO SCALE POLE PUBLIC ADDRESS PULL BOX, PUSH-BUTTON POWER FACTOR PHASE PROGRAMMABLE LOGIC CONTROLLER PANEL POWER PANEL, POWER POLE POTENTIAL TRANSFORMER POWER RECEPTACLE RECP, RCP REQUIRED RIGID GALVANIZED STEEL CONDUIT ROOM REMOTE TELEMETRY UNIT DC MOTOR DRIVE SHEET SURFACE MOUNT SPECIFICATION SELECTOR SWITCH STAINLESS STEEL SWITCH SWITCHBOARD SWITCH GEAR TELEPHONE TELECOM GROUND BAR TWISTED PAIR SHIELDED TRANSIENT VOLTAGE SURGE SUPPRESSOR TYPICAL UNDERGROUND UNIT HEATER UNLESS OTHERWISE NOTED UTILITY VOLTS VARIABLE FREQUENCY DRIVE WIRE, WATT WATT-HOUR WEATHERPROOF WEATHER RESISTANT EXISTING DEVICE TRANSFORMER
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ELECTRICAL DEVICES - MOUNTING HEIGHT DETAIL

NOT TO SCALE

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SEE DISCLOSURE OF INFORMATION STATEMENT ON SHEET T-1

CBHF Engineers, PLLC 2246 Yaupon Drive Wilmington, NC 28401 Phone: 910.791.4000 Fax: 910.791.5266 www.cbhfindengineers.com		SHEET TITLE: ELECTRICAL LEGEND, ABBRV, SUMMARIES		E-1
DES. JLG DR. JLG CHK. JPF SUBMITTED BY: DESIGN DIR. T H BURTON, PE		TALLEY & SMITH ARCHITECTURE INC. P.O. BOX 518 SHELBY, NC 28151-0518 409 EAST MARION ST. SHELBY, NC 28150		DEPARTMENT OF THE NAVY MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA
APPROVED: _____ DATE _____		INTERIOR AND EXTERIOR REPAIRS BLDG. M116 CAMP LEJEUNE, NORTH CAROLINA		
SATISFACTORY TO: _____ DATE _____		SIZE F CODE IDENT. NO. 80091 NAVFAC DRAWING NO. 60024601 CONST. CONTR. NO. N40085-18-B-0086 SHEET 39 OF 50		