CSM Buildings 12 & 17 Modernization

1700 West Hillsdale Blvd.
San Mateo, CA 94402

Architect: Noll & Tam

Contractor: ACCO Engineered Systems

IC09I1025

Drawing Index:

t.a.c® by Schneider Electric

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Representing:

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Technologies:

I/A Series® ECHELON®

VYKON BACnet

NETWORK 8000™

REVISIONS		
REV#	DESCRIPTION	DATE
0	SUBMITTAL DRAWINGS	9/22/2009

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Software Standard Tags

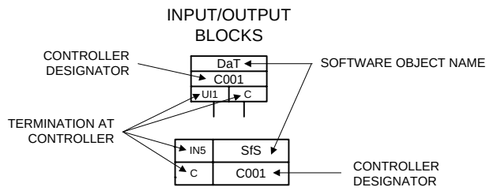
Prefix	Description	Suffix	Description
Bldg	Building	A	Alarm
Blr	Boiler	Amp	Amps
Cba	Combustion Air	Avg	Average
Cd	Cold Deck	C	Command/Control
Cg	Cooling	Ccl	Command Close
Chlr	Chiller	CO	Carbon Monoxide
Cwr	Condenser Water Return	CO2	Carbon Dioxide
Cws	Condenser Water Supply	Cop	Command Open
Chwr	Chilled Water Return	Dew	Dewpoint
Chws	Chilled Water Supply	Dis	Disable
Ct	Cooling Tower	Dmp	Damper
Da	Discharge Air	Dp	Differential Pressure
Dhw	Domestic Hot Water	Drv	Drive
Dx	Direct Expansion	Dt	Differential Temp
Ef	Exhaust Fan	Ec	Energy Consumption
Fb	Face/Bypass	Ena	Enable
Fil	Filter	Enth	Enthalpy
Hd	Hot Deck	Es	End Switch
Ht	Heating	Fire	Fire
Hum	Humidifier	Flo	Flow
Hwr	Hot Water Return	Frq	Frequency
Hws	Hot Water Supply	Hi	High
Hx	Heat Exchanger	HL	High Limit
Lt	Lighting	Hz	Hertz
Ma	Mixed Air	LL	Low Limit
Oa	Outside Air	Lo	Low
P(x)	Pump (number)	Loc	Lockout
Pht	Preheat	P	Pressure
Plw	Pool Water	Rh	Relative Humidity
Pri	Primary	Rst	Reset
Ra	Return Air	S	Status
Rf	Return Fan	Sp	Static Pressure
Rht	Reheat	Spd	Speed
Rm(xxx)	Room	Spt	Setpoint
Sa	Supply Air	SS	Start/Stop
Sec	Secondary	Stg	Stage
Sf	Supply Fan	T	Temp
Sk	Smoke	Tp	Total Pressure
Stm	Steam	Vlv	Valve

Example: ChwsT — Chilled Water Supply Temperature

Suffix

Prefix

SYMBOL LEGEND



Standard Wiring Practice

Function	Device Type	Prefered Color	Conductors	PLENUM Equivalent Reference Info. Windy City Part #	PLENUM Equivalent Reference Info. PS3 (Connect Air) Part #	NON-PLENUM Equivalent Reference Info. Windy City Part #	NON-PLENUM Equivalent Reference Info. PS3 (Connect Air) Part #	Notes
Comm	BACnet	Orange	24/2 Shielded Lo Cap	042002-B	WBAC-4-242C-PR-BX	042007-B	-	(1)
Comm	Modbus	Grn Stp	18/2 Shielded	002326-B	W4-182C-GRS-RB	014106-B	W2-182C-GY-BX (grey)	(2)
Comm	ASD-Bus	Orange	22/2 Shielded	0043240-B	W4-222C-OR-BX	016104-B	W2-222C-GY-BX (grey)	(2)
Comm	Lon-Bus	Orange	22/2 Non-shielded Echelon	105540-B	WLON-3-221P-OR-RB	107540-B	WLON-1-221P-GY-RB (grey)	(3)
Comm	Ethernet	Blue	24/4P Non-shielded	555619-B	WCAT5-3-244P-BL-BX	8665619-B	WCAT5-1-244P-BL-BX	(4)
T-stat	S-Link	Blue	22/2 Non-shielded	004369-B	W3-222C-BL-BX	025100-B (gray)	W1-222C-GY-BX (grey)	(3)
Power	24 VAC Long Distance	White	16/2 Non-shielded	001360-B	W3-162C-WH-BX	028100-B (gray)	W1-162C-GY-BX (grey)	
Power	24 VDC/24VAC	White	18/2 Non-shielded	002360-B	W3-182C-WH-BX	027100-B (gray)	W1-182C-GY-BX (grey)	
I/O	2-wire I/O Shielded	White	22/2 Shielded	004320-B	W4-222C-WH-BX	016100-B (gray)	W2-222C-GY-BX (grey)	(2)
I/O	3-wire I/O Shielded	White	22/3 Shielded	004330-B	W4-223C-WH-BX	016200-B (gray)	W2-223C-GY-BX (grey)	(2)
I/O	4-wire I/O Shielded	White	22/4 Shielded	004340-B	W4-224C-WH-BX	016300-B (gray)	W2-224C-GY-BX (grey)	(2) (5)
I/O	6-wire I/O Shielded	White	22/6 Shielded	004351-B	W4-226C-WH-BX	016400-B (gray)	W2-226C-GY-BX (grey)	(2) (5)
I/O	8-wire I/O Shielded	White	22/8 Shielded	004352-B	W4-228C-WH-BX	-	W2-228C-GY-BX (grey)	(2) (5)
I/O	2-wire I/O Unshielded	White	22/2 Non-shielded	004360-B	W3-222C-WH-BX	025100-B (gray)	W1-222C-GY-BX (grey)	
I/O	3-wire I/O Unshielded	White	22/3 Non-shielded	004370-B	W3-223C-WH-BX	-	W1-223C-GY-BX (grey)	
I/O	4-wire I/O Unshielded	White	22/4 Non-shielded	004380-B	W3-224C-WH-BX	-	W1-224C-GY-BX (grey)	(5)
I/O	6-wire I/O Unshielded	White	22/6 Non-shielded	004391-B	W3-226C-WH-BX	-	W1-226C-GY-BX (grey)	(5)
I/O	8-wire I/O Unshielded	White	22/8 Non-shielded	004392-B	W3-228C-WH-BX	-	W1-228C-GY-BX (grey)	(5)

(1) Capacitance between conductors is approximately 12pF per foot

(2) Shielded twisted pair

(3) Unshielded twisted pair. **No substitutes.**

(4) Category 5e

(5) Multi-color pair can be used to for multi-output on similar systems.

MS/TP — BACNET MS/TP WIRING: 24AWG, 2 CONDUCTOR, LOW CAPACITANCE STRANDED SHIELDED CABLE. 120 OHM 1/4WATT RESISTOR AT EACH EOL. NO TEES ALLOWED. DAISY-CHAINED ONLY. MAX LENGTH 4000'.

MODBUS — MODBUS WIRING: 18 AWG 2 CONDUCTOR STRANDED SHIELDED CABLE. TERMINATE SHIELD OR DRAIN WIRE AT CONTROLLER ONLY. MAX LENGTH 4000' FOR RS-485 OR 50' FOR RS-232.

ASD — ASD WIRING: 22AWG, 2 CONDUCTOR, STRANDED SHIELDED CABLE. 120OHM 1/4WATT RESISTOR AT EACH EOL. NO TEES ALLOWED. DAISY-CHAINED ONLY. MAX LENGTH 4000' OR 31 DEVICES WITHOUT REPEATER.

FTT-10 — LON WIRING: CAT-4, 22AWG, 2 CONDUCTOR, NON-SHIELDED, TWISTED PAIR. DAISY CHAIN CONFIGURATION, NO TEES ALLOWED, LON TERMINATOR MUST BE USED AT EACH EOL. INSTALL ALONE IN DEDICATED CONDUIT, NO OTHER CONDUCTORS ALLOWED. NO SPLICING OF LON WIRING PERMITTED. MAX LENGTH 4600' OR 63 DEVICES WITHOUT REPEATER.

ETHERNET — ETHERNET WIRING: CATEGORY 5, 24 AWG 4-PAIR UTP. INSTALLERS OF ETHERNET BUS WIRING ARE REQUIRED TO REFER TO INVENSYS TECHNICAL MANUAL F-25955 "ETHERNET NETWORKS" PRIOR TO INSTALLATION. MAXIMUM SEGMENT LENGTH 326'.

S-LK — S-LINK WIRING: 22AWG, 2 CONDUCTOR, STRANDED, NON-SHIELDED CABLE. CAPACITANCE BETWEEN CONDUCTORS CAN NOT EXCEED 32pF PER FOOT. S-LINK IS NON-POLARITY SENSITIVE. S-LINK & LON MAY BE HOUSED IN SAME CONDUIT BUT SHOULD BE IN SEPARATE CABLES (TWO PAIR CABLE IS NOT RECOMMENDED). MAX LENGTH 200'.

ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE
A.F.F.	ABOVE FINISHED FLOOR
ASD	ADDRESS SPECIFIC DEVICE
AHU	AIR HANDLER UNIT
COM	COMMON
DDC	DIRECT DIGITAL CONTROL
EA	EXHAUST AIR
(E)	EXISTING
EOL	END OF LINE
EF	EXHAUST FAN
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
GND	GROUND
HC	HEATING COIL
HHW	HEATING HOT WATER
HX	HEAT EXCHANGER
I/A	INTELLIGENT AUTOMATION
LAN	LOCAL AREA NETWORK
LON	LOCAL OPERATING NETWORK
M/S	MOTOR STARTER
MNB	MICRONET BACNET
MNL	MICRONET LON
MZ2	MICROZONE II
NW8000	NETWORK 8000
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
PEM	PACKAGE EQUIPMENT MODULE
RA	RETURN AIR
SA	SUPPLY AIR
TCP	TEMPERATURE CONTROL PANEL
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE

BACnet instance addressing assignment

1. UNC INSTANCE: always starts with 16000x (Example [160001]: FOR UNC # 1)
2. MS/TP CONTROLLER INSTANCE: UNC # + 0 + Port # + MAC Aaddress # (2 digits) (Example [110312]: UNC # 11, port # 3, device # 12)
3. IP SETTINGS: Network # (always 1) + last octet of IP address of the Web Supervisor (3 digits min.) (Example [1186]: W.S IP = 72.20.240.**186**)
4. ETHERNET SETTINGS: Network # (always 2) + last octet of IP address of the Web Supervisor (3 digit min.) (Example [2024]: W.S. IP = 72.20.240.**024**)

MS/TP network assignment models

1. UNC: UNC # + Port # (Example [126]: UNC 12, Port 6)
2. PLANT CONTROLLER:
   - OVER MS/TP: UNC # + Port # (Example [24]: UNC # 2 on port # 4)
   - OVER IP: Network # (always 1) + last octet of IP address of the Web supervisor (3 digit min.) (Example [1126]: W.S. IP = 72.20.240.1**26)**
   - OVER ETHERNET: Network # (always 2) + last octet of IP address of the Web Supervisor (3 digit min.) (Example [2101]: W.S. IP = 72.20.240.**101)**

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		
6		

Architect: Noll & Tam
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

LEGEND

JOB NUMBER
ICO9I1025

FILE NAME
Legends SSF.vsd

SHEET NO.
1 OF 14

BILL OF MATERIAL LISTING

Installing Trade	Item #	Qty	Part Number	Description	Vendor	Manufacturer
Electrical						
Electrical	**1**	11	BA/10K-3(11K)-D-4"-NB-5	DUCT UNIT 4" W/5' CABLE LEAD	BLDG AUTO PRODUCTS	BLDG AUTOMATION PRODUCTS
Electrical	**2**	11	MNL-5RS3	MN 50 LON MARK CTRLR ROOFTOP P	TAC	TAC AUTOMATION
Electrical	**3**	3	MN-S1	IA MICRONET S-LINK SENSOR	TAC	TAC AUTOMATION
Electrical	**4**	7	MN-S3	IA MICRONET S-LINK SENSOR W/OV	TAC	TAC AUTOMATION
Mechanical						
Mechanical	**5**	11	PICCV-15-001 + LRB24-3	PICCV-15-001 + LRB24-3	BELIMO AIR CONTROLS	BELIMO AIR CONTROLS
Panel						
Panel	**6**	1	PSH300A	300 VA PANEL WITH 3 100VA OUT	FUNCTIONAL DEVICES	FUNCTIONAL DEVICES

AUTOMATIC TEMPERATURE CONTROL VALVE SCHEDULE (PLEASE SEE INSTALLATION NOTES)

ITEM	SYSTEM	TAG	QTY	SERVICE	PART # VALVE ASSEMBLY	ACTUATOR	SPRING RANGE	POS. POSIT.	VLV. TYPE	VLV. SIZE	PIPE SIZE	VLV. ACTION	CONN. TYPE	FLOW GPM	VALVE CV #/HR	VALVE CV CALC.	VALVE CV ACT.	ACT. PRESS. DROP (PSI)	CLOSE OFF (PSI) STEM UP	CLOSE OFF (PSI) STEM DN.
1	HC-001	HC-001	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
2	HC-002	HC-002	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
3	HC-101	HC-101	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
4	HC-102(a)	HC-102(a)	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
5	HC-102(b)	HC-102(b)	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
6	HC-105	HC-105	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
7	HC-105A	HC-105A	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
8	HC-105B	HC-105B	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
9	HC-106	HC-106	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
10	HC-108(a)	HC-108(a)	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200
11	HC-108(b)	HC-108(b)	1	HW	PICCV-15-001 + LRB24-3	LRB24-3	FLOATING	N	2 Way Straight	1/2"	3/4"	No Fail Safe Position	Screwed	1.00		0.45	0.0		200	200

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		
6		

Architect:
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

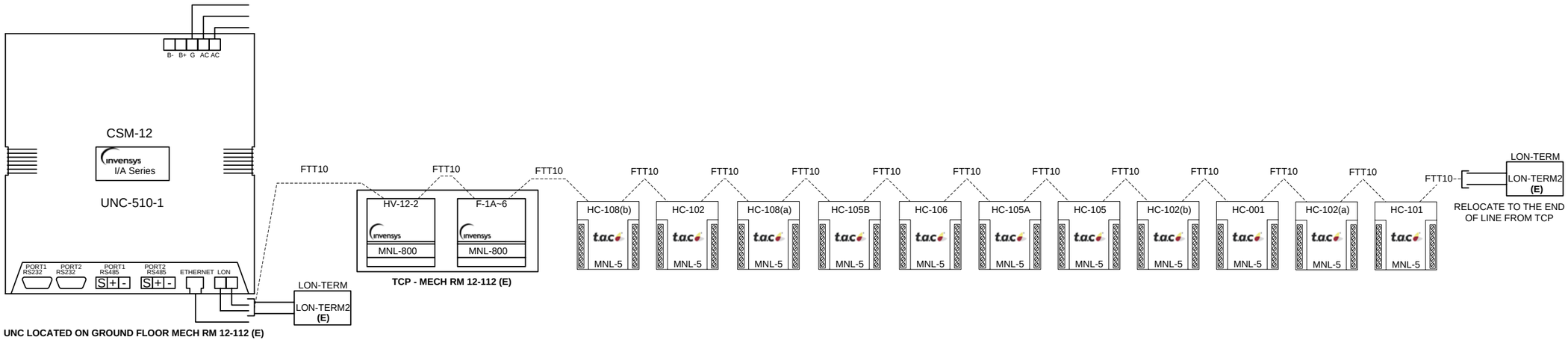
CSM B12 BOM & VALVE SCHEDULE

JOB NUMBER
IC09I1025

FILE NAME
CSM B12 BOM & VALVE SCHEDULE.vsd

SHEET NO.
2 OF 14

FIRST FLOOR



GROUND FLOOR

t.a.c. by Schneider Electric

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

Architect:
Engineer: Noll & Tam
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

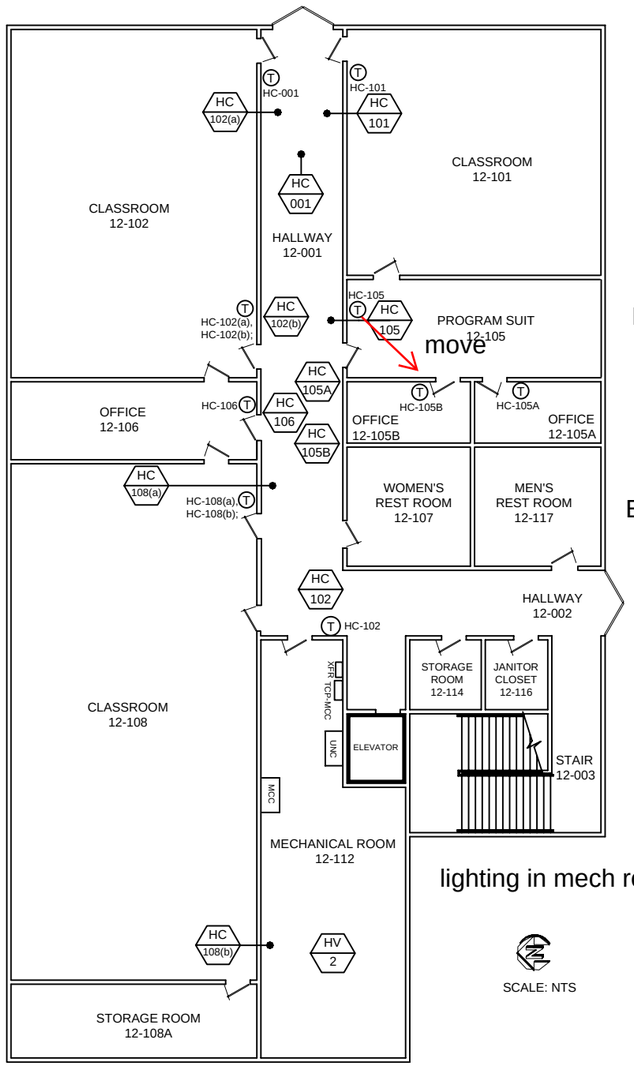
CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B12 RISER

JOB NUMBER
IC09I1025

FILE NAME
CSM B12 RISER.vsd

SHEET NO.
3 OF 14



HC-105 also serves Rm-101

EF to be added for toilets

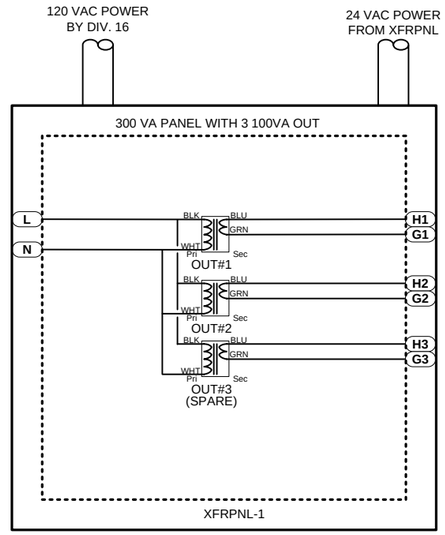
lighting in mech room 112

3-way needed for HC-102(a)

SCALE: NTS

XFR PANELS

Device	Qty	Part Number	Description	Vendor
Panel XFRPNL-1	1	PSH300A	300 VA PANEL WITH 3 100VA OUT	FUNCTIONAL DEVICES



INSTALL THE XFRPNL-1 IN MECHANICAL ROOM 12-112

TABLE 1

#	HEATING COIL	COIL IDENTIFICATION	AREA SERVED	SENSOR TYPE	TRANSFORMER	NOTES
1	HC-001	HC 12-06	HALLWAY 12-001	MN-S1	XFRPNL-1 / OUT#1	
2	HC-002	HC 12-06	HALLWAY 12-002	MN-S1	XFRPNL-1 / OUT#2	
3	HC-101	HC 12-16	CLASSROOM 12-101	MN-S3	XFRPNL-1 / OUT#1	
4	HC-102(a)	HC 12-16	CLASSROOM 12-102	MN-S3 (shares with HC-102(b))	XFRPNL-1 / OUT#1	
5	HC-102(b)	HC 12-16	CLASSROOM 12-102	-	XFRPNL-1 / OUT#1	
6	HC-105	HC 12-06	PROGRAM SUITE 12-105	MN-S3	XFRPNL-1 / OUT#1	
7	HC-105A	HC 12-03	OFFICE 12-105A	MN-S3	XFRPNL-1 / OUT#1	
8	HC-105B	HC 12-01	OFFICE 12-105B	MN-S3	XFRPNL-1 / OUT#2	
9	HC-106	HC 12-04	OFFICE 12-106	MN-S3	XFRPNL-1 / OUT#2	
10	HC-108(a)	HC 12-16	OFFICE 12-108	MN-S3 (shares with HC-108(b))	XFRPNL-1 / OUT#2	
11	HC-108(b)	HC 12-16	OFFICE 12-108	-	XFRPNL-1 / OUT#2	IDF 12-180A RM TEMP ON S-LINK

BUILDING 12 PHYSICAL SCIENCE GROUND FLOOR

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

Architect: Noll & Tam
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
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1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B12 GROUND FLOOR HEATING COILS LAYOUT

JOB NUMBER IC0911025

FILE NAME CSM B12 GF HC.vsd

SHEET NO. 4 OF 14

HC WITH MN-S1 ROOM SENSOR

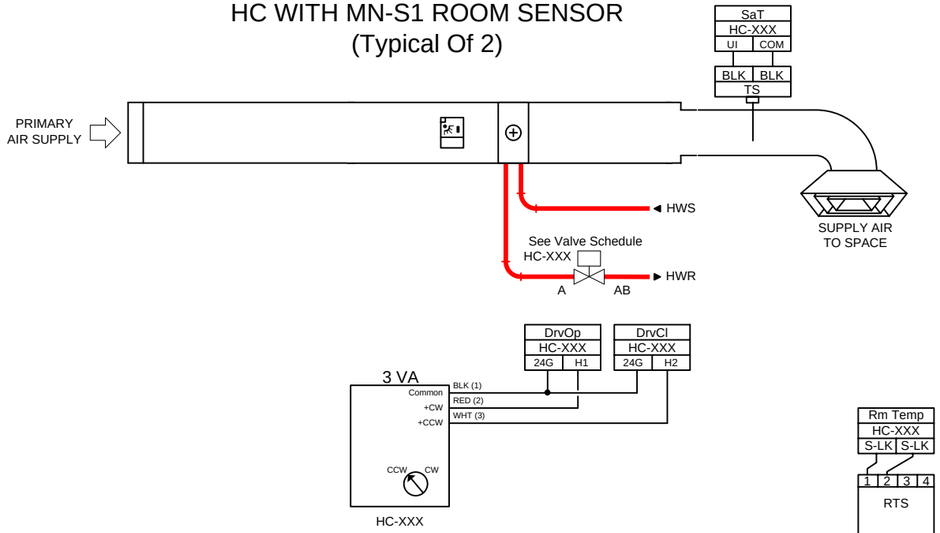
Device	Qty	Part Number	Description	Manufacturer
HC-XXX	2	MNL-5RS3	MN 50 LON MARK CTRLR ROOFTOP P	TAC AUTOMATION
RTS	2	MN-S1	IA MICRONET S-LINK SENSOR	TAC AUTOMATION
TS	2	BA/10K-3(11K)-D-4"-NB-5	DUCT UNIT 4" W/5' CABLE LEAD	BLDG AUTOMATION PRODUCTS

HEATING COIL (HC) WITH MN-S1 SEQUENCE OF OPERATION:

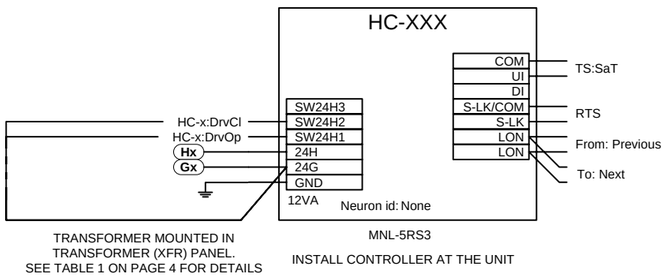
The MN-S1 Room sensor through the MNL-50 DDC controller controls the heating coil control valve HC-x to maintain the temperature setpoint. If the room temperature is below setpoint, the valve will open to heat the space. If the room temperature is above setpoint, the valve will close to prevent overheating the space.

Space Setpoint Adjustment: The MN-S1 is a blank sensor with no local setpoint adjustment. The MN-S1 sensor will be mounted in public corridors, where local setpoint adjustment is not desired. The setpoint used for control will come from the front end computer.

HC WITH MN-S1 ROOM SENSOR (Typical Of 2)



NOTE: MN-S1 SENSORS LOCATED IN HALLWAYS: 12-001 & 12-002



TRANSFORMER MOUNTED IN TRANSFORMER (XFR) PANEL.
SEE TABLE 1 ON PAGE 4 FOR DETAILS

MNL-5RS3

INSTALL CONTROLLER AT THE UNIT

HC WITH MN-S3 ROOM SENSOR

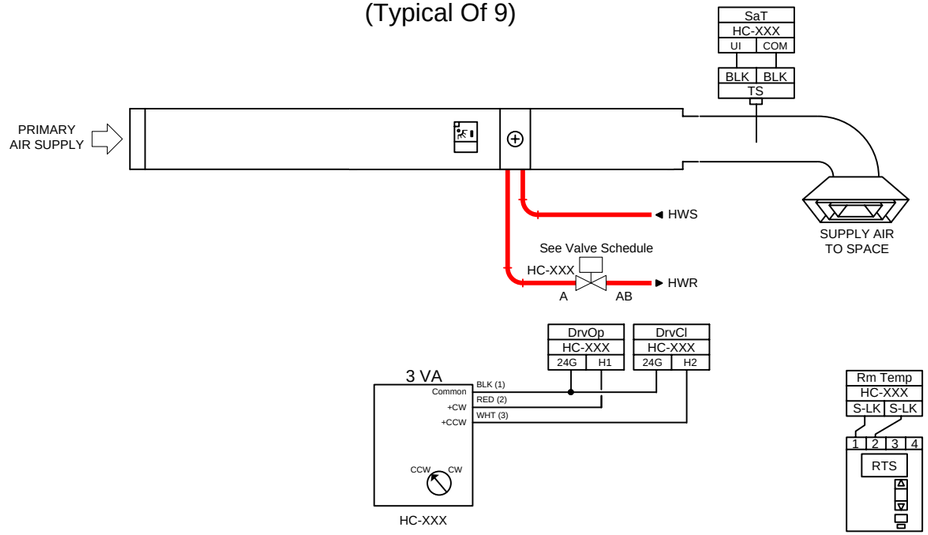
Device	Qty	Part Number	Description	Manufacturer
HC-XXX	9	MNL-5RS3	MN 50 LON MARK CTRLR ROOFTOP P	TAC AUTOMATION
RTS	7	MN-S3	IA MICRONET S-LINK SENSOR W/OV	TAC AUTOMATION
TS	9	BA/10K-3(11K)-D-4"-NB-5	DUCT UNIT 4" W/5' CABLE LEAD	BLDG AUTOMATION PRODUCTS

HEATING COIL (HC) WITH MN-S3 SEQUENCE OF OPERATION:

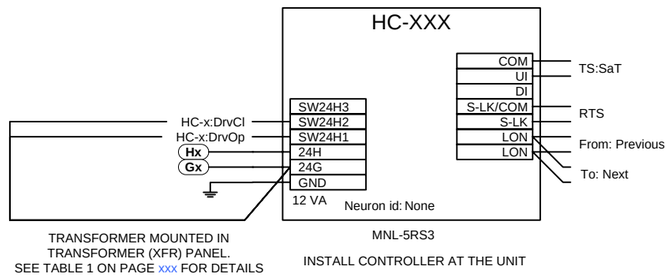
The MN-S3 Room sensor through the MNL-50 DDC controller controls the heating coil control valve HC-XXX to maintain the temperature setpoint. If the room temperature is below setpoint, the valve will open to heat the space. If the room temperature is above setpoint, the valve will close to prevent overheating the space.

Local Room Setpoint Adjustment Operation: The MN-S3 Room Sensor has a pushbutton & up / down arrows for setpoint adjustment locally at the room sensor. The local setpoint adjustment takes effect for 2 hours once the pushbutton is pushed to override the default setpoint from the front end computer. A red LED below the pushbutton will light up after the pushbutton has been pushed to indicate that the local setpoint override is active. By pushing the up or down arrow, the setpoint value will temporarily be displayed on the LCD display of the sensor and will adjust to a higher value when the up arrow is pushed & to a lower value when the down arrow is pushed. The LCD display will go blank once the setpoint adjustment is complete. The adjustment range of the setpoint value will be limited between 68 degrees & 74 degrees. The local setpoint will revert back to the original default setpoint from the front end computer after the 2 hour override period is complete.

HC WITH MN-S3 ROOM SENSOR (Typical Of 9)



SEE TABLE 1 ON PAGE 4 FOR ROOM T-STAT LOCATION AND SHARING INFORMATION



TRANSFORMER MOUNTED IN TRANSFORMER (XFR) PANEL.
SEE TABLE 1 ON PAGE xxx FOR DETAILS

MNL-5RS3

INSTALL CONTROLLER AT THE UNIT

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

Architect:
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

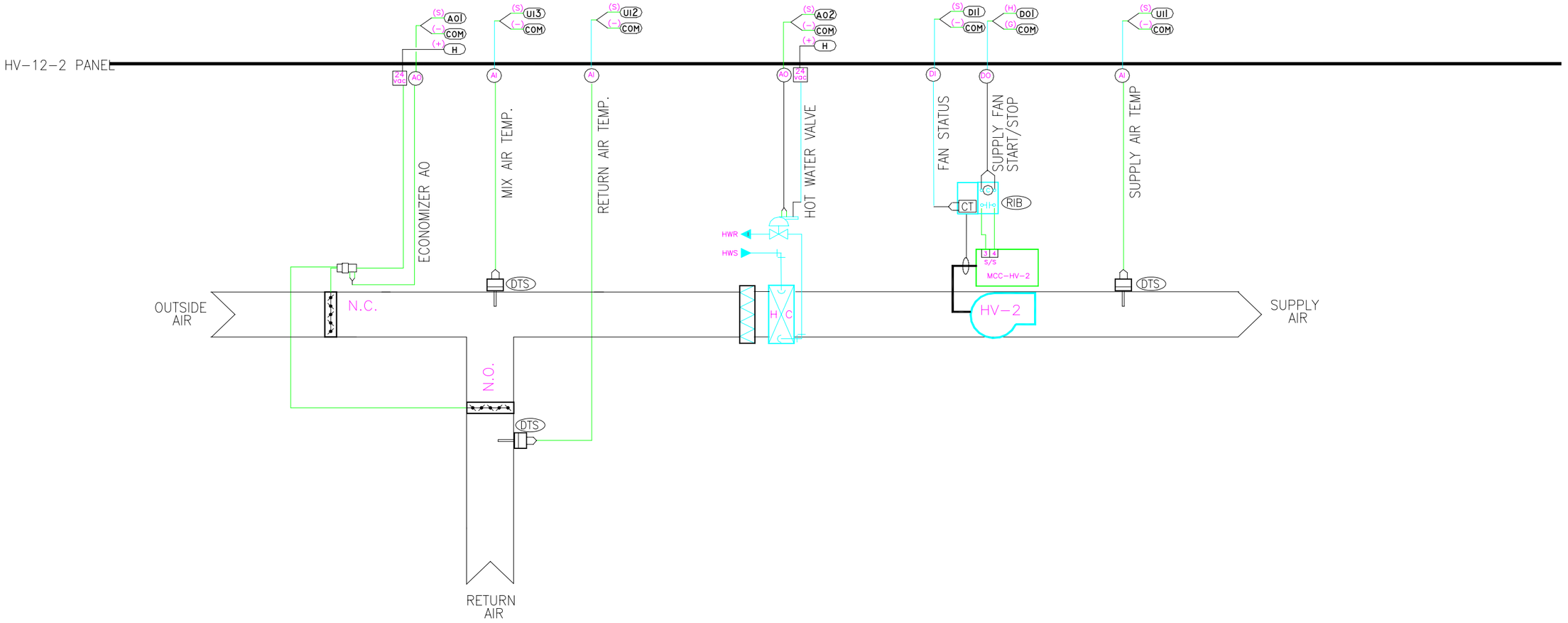
CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B12 HEATING COIL CONTROLLER WIRING DETAILS

JOB NUMBER IC09I1025

FILE NAME CSM B12 GF HC.vsd

SHEET NO. 5 OF 14



Work shown performed on Base Job # 2TCC0064
(DRAWING SHOWN FOR REFERENCE ONLY!)

Sequence of Operation:
Unit shall be started/stopped via programmable occupancy schedule. The discharge air setpoint shall be reset (adjustable) by return air temperature. The economizer (mixed air) dampers and the heating valve shall be controlled to maintain the discharge air setpoint. The economizer shall have an adjustable outside air lockout setpoint, preventing the use of outside air (beyond the minimum requirements for adequate ventilation) when the outside air temp rises above the lockout setpoint. The economizer shall be capable of morning warmup operation, which will use full return air for pre-occupied hours of operation. Unit shall be available for load-shedding.

t.a.c. by Schneider Electric

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

Architect: Noll & Tam
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

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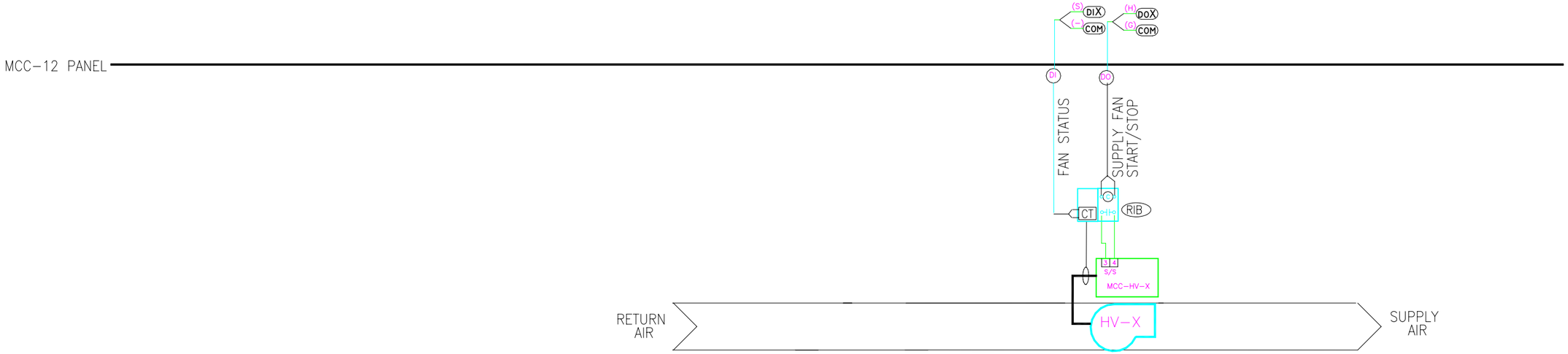
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B12 HV-2 UNIT
SCHEMATICS

JOB NUMBER
IC09I1025

FILE NAME
CSM B12 HV-2 UNIT.vsd

SHEET NO.
6 OF 14



UNIT #	START / STOP	MNL-800	STATUS	NOTES
HV-4	DO2	1	UI5	2ND FLOOR, FIELD VERIFY
HV-7A		1	UI6	DEMO.
HV-7B		1	UI7	DEMO.
F-1A		2	UI3	GEN.CHEM. SF (ABANDONED)
F-2A		1	UI8	CAPPED
F-2B		2	UI4	CAPPED
F-2C		2	UI5	GEN.CHEM. EF (ABANDONED)
F-4	DO2	2	UI1	FAN STILL ACTIVE (TOILETS)
F-5		2	UI2	CAPPED
F-6		2	UI6	CAPPED

PROGRAMMER NOTE: REMOVE INACTIVE FANS MONITORING / CONTROL POINTS FROM CONTROLLERS & GRAPHICS

Sequence of Operation:
Unit shall be started/stopped via programmable occupancy schedule

Work shown performed on Base Job # 2TCC0064
(DRAWING SHOWN FOR REFERENCE ONLY!)

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Revisions

#	Change:	Date:
1		
2		
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Architect: Noll & Tam
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Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
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Modernization
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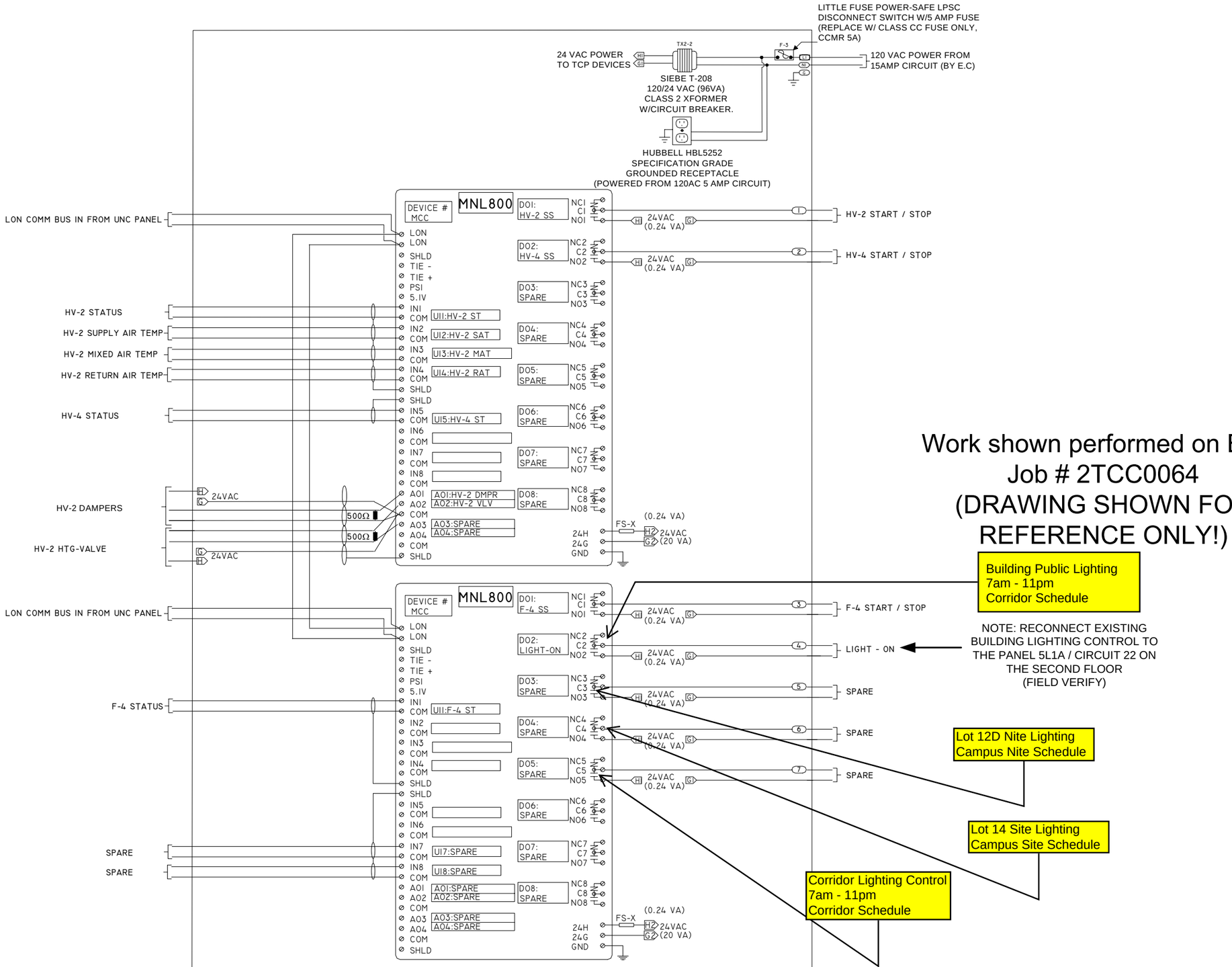
CSM B12 SUPPLY/EXHAUST FAN SCHEMATICS

JOB NUMBER IC09I1025

FILE NAME CSM B12 HV-2 UNIT.vsd

SHEET NO. 7 OF 14



Work shown performed on Base
Job # 2TCC0064
(DRAWING SHOWN FOR
REFERENCE ONLY!)

Revisions

#	Change:	Date:
1		
2		
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4		
5		

Architect:
Engineer: Noll & Tam
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B12 TCP-MCC
PANEL LAYOUT

JOB NUMBER
IC09I1025

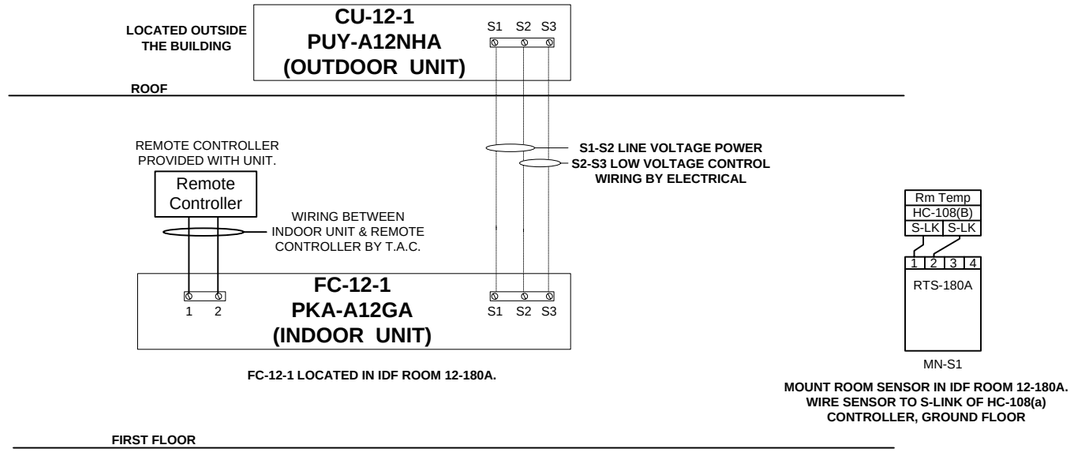
FILE NAME
CSM B12 HV-2 UNIT.vsd

SHEET NO.
8 OF 14

FCU Device	Qty	Part Number	Description	Vendor
Electrical RTS-180A	1	MN-S1	IA MICRONET S-LINK SENSOR	TAC

SPLIT SYSTEM (FC-12-1 & CU-12-1) SEQUENCE OF OPERATION

The split system shall work as a stand-alone unit and control the room temperature to the desired room temperature setpoints (adjustable through unit remote controller). The BMS shall also monitor room temperature and if IDF room temperature is above 80° F, a high room temperature alarm shall be annunciated at the operator screen.



SPLIT SYSTEM COOLING: FC-12-1 & CU-12-1

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

Architect: Noll & Tam
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

CSM Buildings 12 & 17
Modernization
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CSM B12 SPLIT SYSTEM SCHEMATICS

JOB NUMBER IC09I1025

FILE NAME CSM B12 SPLIT SYSTEM.vsd

SHEET NO. 9 OF 14

BILL OF MATERIAL LISTING

Installing Trade	Item #	Qty	Part Number	Description	Vendor	Manufacturer
Electrical						
Electrical	**1**	3	FUN-RIBX24BF	ENC INTRNL FIX CUR SENS&RELAY	SINGLE SOURCED SOLUTIONS	FDI
Electrical	**2**	2	LON-TERM2	LON TERMINATION, DOUBLE, FOR F	TAC	TAC AUTOMATION
Electrical	**3**	45	**MNL-5RS3	MN 50 LON MARK CTRLR ROOFTOP P	TAC	TAC AUTOMATION
Electrical	**4**	6	**MN-S1	IA MICRONET S-LINK SENSOR	TAC	TAC AUTOMATION
Electrical	**5**	39	**MN-S3	IA MICRONET S-LINK SENSOR W/OV	TAC	TAC AUTOMATION
Electrical	**6**	2	P-PAM-1	APC ENCAPSULATED RELAY SPDT 10	SINGLE SOURCED SOLUTIONS	AIR PRODUCTS & CONTROLS
Electrical	**7**	1	TSMN-90220-850	10K THRMSTR 11K SHNT&PRGM JACK	TAC	TAC COMPONENTS
Panel						
Panel	**8**	2	**PSH500A	TRANSFORMER 500 VA,120V-P, 24V	FUNCTIONAL DEVICES	FUNCTIONAL DEVICES

** NOTE: MNL-5RS3 CONTROLLERS, MN-S1, MN-S3 SENSORS & PSH500A TRANSFORMERS
WERE ORDERED & DELIVERED TO SMCCCD DISTRICT IN 2005.

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

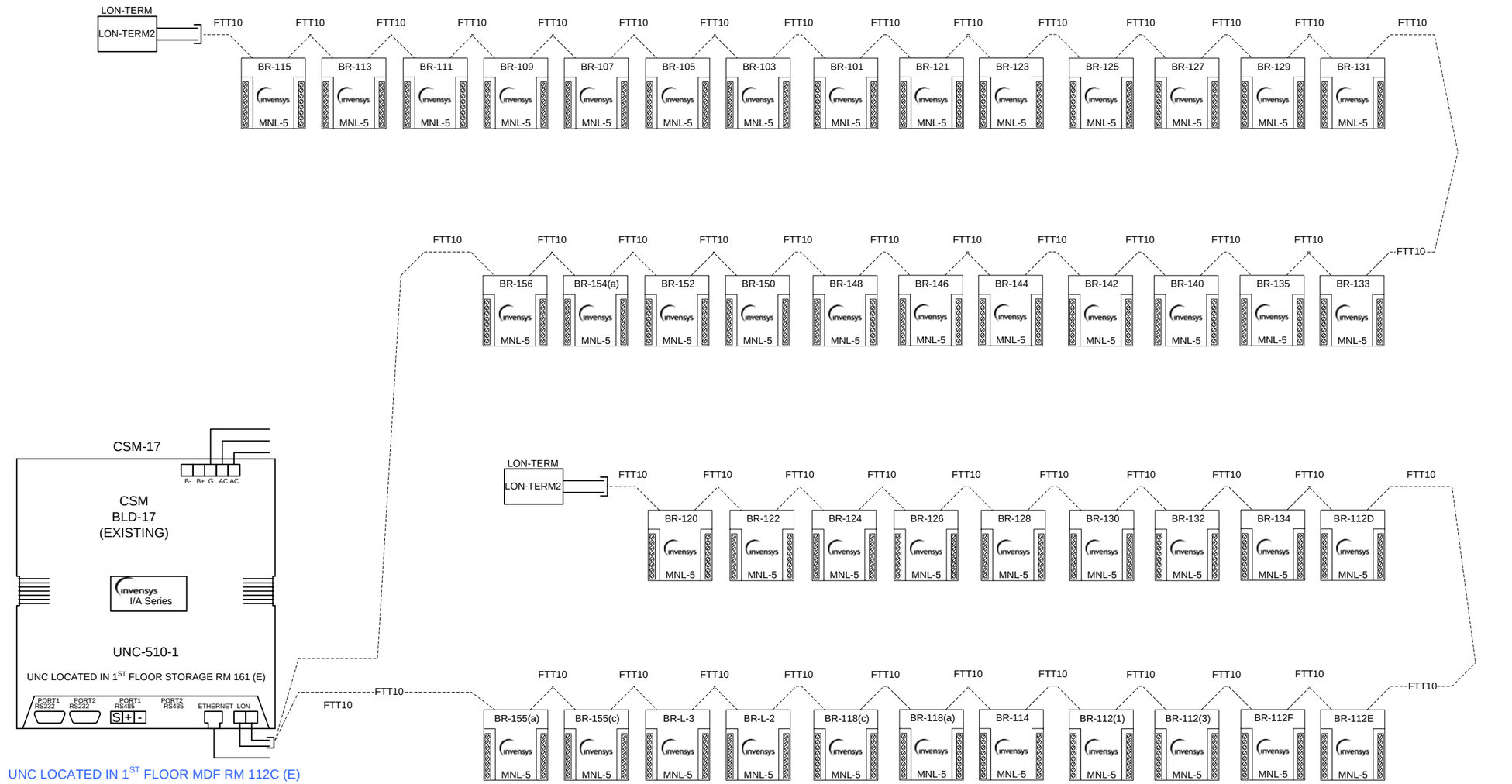
JOB NUMBER IC09I1025
FILE NAME CSM B17 BOM.vsd
SHEET NO. 10 OF 14

CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B17 BOM

Architect: Noll & Tam
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

NETWORK Device	Qty	Part Number	Description	Vendor
Electrical LON-TERM	2	LON-TERM2	LON TERMINATION, DOUBLE, FOR F	TAC



Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

Architect: Noll & Tam
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

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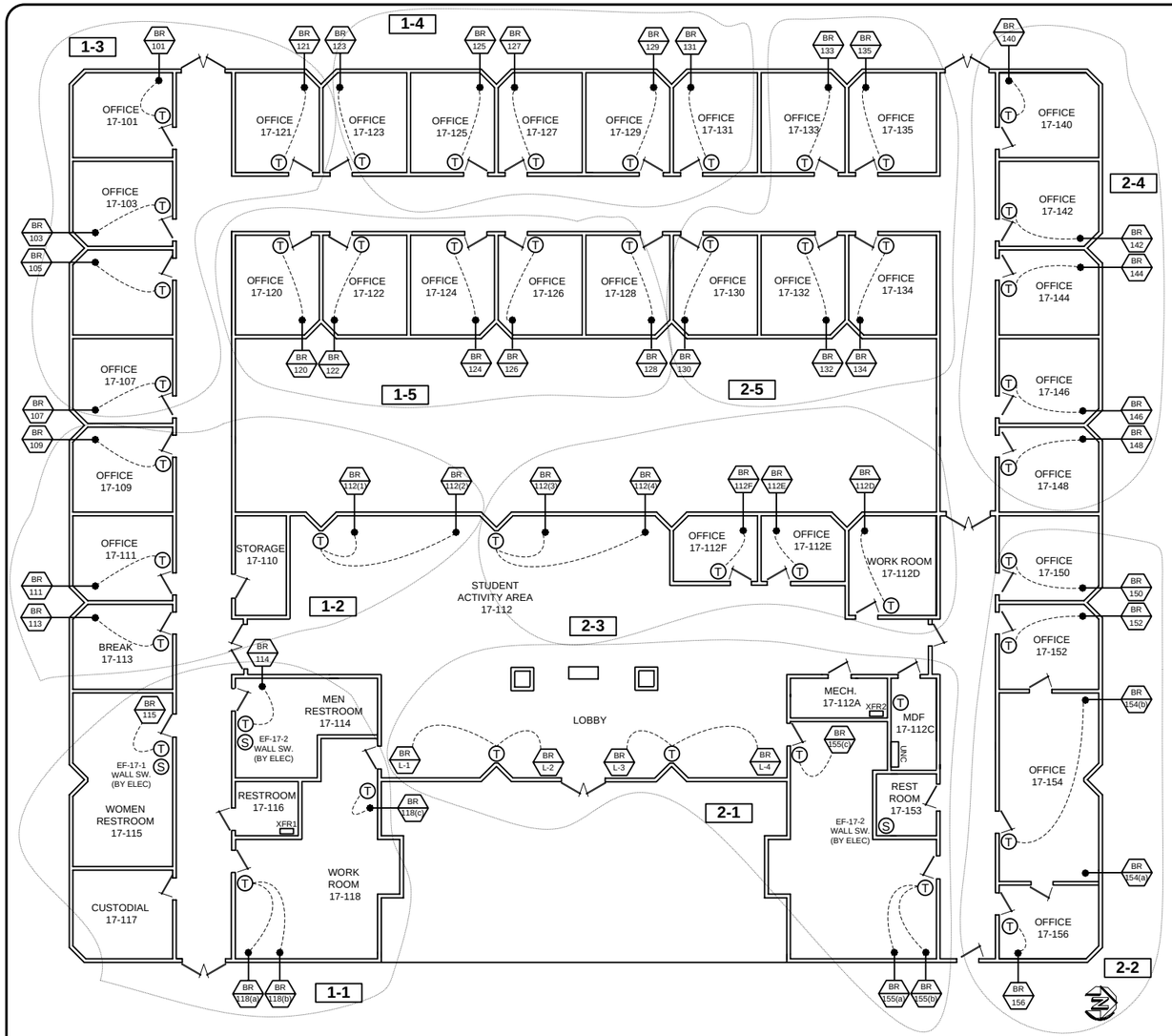
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B17 RISER

JOB NUMBER ICO911025

FILE NAME CSM B17 RISER.vsd

SHEET NO. 11 OF 14



BUILDING 17 FACULTY OFFICES

SCALE: NTS

XFR PANEL #
1-1
XFR CIRCUIT #

CLOUD INDICATES AREA SERVED BY TRANSFORMER (XFR) CIRCUIT.

CONTROLLER + 1 VALVE = 18 VA
CONTROLLER + 2 VALVES = 24 VA

TABLE 1

#	BASEBOARD RADIATOR	BASEBOARD RADIATOR IDENTIFICATION	AREA SERVED	SENSOR TYPE	TRANSFORMER	NOTES
1	BR-101	BR-17-2	OFFICE 17-101	MN-S3	XTR1 / OUT3	
2	BR-103	BR-17-1	OFFICE 17-103	MN-S3	XTR1 / OUT3	
3	BR-105	BR-17-1	OFFICE 17-105	MN-S3	XTR1 / OUT3	
4	BR-107	BR-17-1	OFFICE 17-107	MN-S3	XTR1 / OUT3	
5	BR-109	BR-17-1	OFFICE 17-109	MN-S3	XTR1 / OUT2	
6	BR-111	BR-17-1	OFFICE 17-111	MN-S3	XTR1 / OUT2	
7	BR-113	BR-17-3	BREAK 17-113	MN-S3	XTR1 / OUT2	
8	BR-115	BR-17-3	WOMEN RESTRM. 17-115	MN-S1	XTR1 / OUT1	EF-17-1 S/S ON DO3 EF-17-1 STS ON DI
9	BR-112D	BR-17-1	WORKROOM 17-1112D	MN-S3	XTR2 / OUT3	INTERIOR LIGHTING CONTROL ON DO2; EXTERIOR LIGHTING CONTROL ON DO3.
10	BR-112E	BR-17-4	OFFICE 17-112E	MN-S3	XTR2 / OUT3	
11	BR-112F	BR-17-4	OFFICE 17-112F	MN-S3	XTR2 / OUT3	
12	BR-112(4)	BR-17-6	STUDENT ACTIVITY 17-112	-		ONE CONTROLLER; ONE COMMON ROOM TEMP. SENSOR
13	BR-112(3)	BR-17-6	STUDENT ACTIVITY 17-112	MN-S1	XTR2 / OUT3	
14	BR-112(2)	BR-17-6	STUDENT ACTIVITY 17-112	-		ONE CONTROLLER; ONE COMMON ROOM TEMP. SENSOR
15	BR-112(1)	BR-17-6	STUDENT ACTIVITY 17-112	MN-S1	XTR1 / OUT2	
16	BR-114	BR-17-4	MEN RESTROOM 17-114	MN-S1	XTR1 / OUT1	EF-17-2 S/S ON DO3 EF-17-2 STS ON DI
17	BR-118(a)	BR-17-2	WORK ROOM 17-118	MN-S3		ONE CONTROLLER; ONE COMMON ROOM TEMP. SENSOR
18	BR-118(b)	BR-17-2	WORK ROOM 17-118	-	XTR1 / OUT1	
19	BR-118(c)	BR-17-7	WORK ROOM 17-118	MN-S3	XTR1 / OUT1	
20	BR-L-1	BR-17-6	LOBBY	-		ONE CONTROLLER; ONE COMMON ROOM TEMP. SENSOR
21	BR-L-2	BR-17-5	LOBBY	MN-S1	XTR2 / OUT1	
22	BR-L-3	BR-17-5	LOBBY	MN-S1		ONE CONTROLLER; ONE COMMON ROOM TEMP. SENSOR
23	BR-L-4	BR-17-6	LOBBY	-	XTR2 / OUT1	
24	BR-120	BR-17-1	OFFICE 17-120	MN-S3	XTR1 / OUT5	
25	BR-121	BR-17-1	OFFICE 17-121	MN-S3	XTR1 / OUT3	
26	BR-122	BR-17-1	OFFICE 17-122	MN-S3	XTR1 / OUT5	
27	BR-123	BR-17-1	OFFICE 17-123	MN-S3	XTR1 / OUT4	
28	BR-124	BR-17-1	OFFICE 17-124	MN-S3	XTR1 / OUT5	
29	BR-125	BR-17-1	OFFICE 17-125	MN-S3	XTR1 / OUT4	
30	BR-126	BR-17-1	OFFICE 17-126	MN-S3	XTR1 / OUT5	
31	BR-127	BR-17-1	OFFICE 17-127	MN-S3	XTR1 / OUT4	
32	BR-128	BR-17-1	OFFICE 17-128	MN-S3	XTR1 / OUT5	
33	BR-129	BR-17-1	OFFICE 17-129	MN-S3	XTR1 / OUT4	
34	BR-130	BR-17-1	OFFICE 17-130	MN-S3	XTR2 / OUT5	
35	BR-131	BR-17-1	OFFICE 17-131	MN-S3	XTR1 / OUT4	
36	BR-132	BR-17-1	OFFICE 17-132	MN-S3	XTR2 / OUT5	
37	BR-133	BR-17-1	OFFICE 17-133	MN-S3	XTR2 / OUT5	
38	BR-134	BR-17-1	OFFICE 17-134	MN-S3	XTR2 / OUT5	
39	BR-135	BR-17-1	OFFICE 17-135	MN-S3	XTR2 / OUT5	
40	BR-140	BR-17-2	OFFICE 17-140	MN-S3	XTR2 / OUT4	
41	BR-142	BR-17-1	OFFICE 17-142	MN-S3	XTR2 / OUT4	
42	BR-144	BR-17-1	OFFICE 17-144	MN-S3	XTR2 / OUT4	
43	BR-146	BR-17-1	OFFICE 17-146	MN-S3	XTR2 / OUT4	
44	BR-148	BR-17-1	OFFICE 17-148	MN-S3	XTR2 / OUT4	
45	BR-150	BR-17-1	WORK ROOM 17-150	MN-S3	XTR2 / OUT2	
46	BR-152	BR-17-1	OFFICE 17-152	MN-S3	XTR2 / OUT2	
47	BR-154(a)	BR-17-1		MN-S3		ONE CONTROLLER; ONE COMMON ROOM TEMP. SENSOR
48	BR-154(b)	BR-17-1	OFFICE 17-154	-	XTR2 / OUT2	
49	BR-155(a)	BR-17-2	STUDENT GOVT 17-155	MN-S3		ONE CONTROLLER; ONE COMMON ROOM TEMP. SENSOR
50	BR-155(b)	BR-17-2	STUDENT GOVT 17-155	-	XTR2 / OUT1	
51	BR-155(c)	BR-17-7	STUDENT GOVT 17-155	MN-S3	XTR2 / OUT1	EF-17-3 S/S ON DO3 EF-17-3 STS ON DI MDF 17-112C RM TEMP ON UI
52	BR-156	BR-17-2	OFFICE 17-156	MN-S3	XTR2 / OUT2	

Revisions

#	Change:	Date:
1		
2		
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4		
5		
6		

Architect:
Engineer: Noll & Tam
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
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CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B17 BASEBOARD RADIATOR LAYOUT

JOB NUMBER
IC09I1025

FILE NAME
CSM B17 FF BBR.vsd

SHEET NO.
12 OF 14

BASEBOARD RADIATOR (BR) SEQUENCE OF OPERATION:

Baseboard Radiator shall control to occupied setpoints for the space via programmable occupancy schedule. When the space is unoccupied, the baseboard radiator shall control to unoccupied setpoints. The hot water valve shall be controlled to maintain the room temperature setpoint.

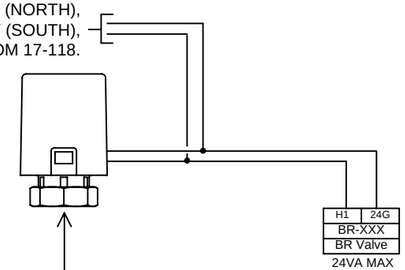
Local Room Setpoint Adjustment Operation: The MN-S3 Room Sensor has a pushbutton & up / down arrows for setpoint adjustment locally at the room sensor. The local setpoint adjustment takes effect for 2 hours once the pushbutton is pushed to override the default setpoint from the front end computer. A red LED below the pushbutton will light up after the pushbutton has been pushed to indicate that the local setpoint override is active. By pushing the up or down arrow, the setpoint value will temporarily be displayed on the LCD display of the sensor and will adjust to a higher value when the up arrow is pushed & to a lower value when the down arrow is pushed. The LCD display will go blank once the setpoint adjustment is complete. The adjustment range of the setpoint value will be limited between 68 degrees & 74 degrees. The local setpoint will revert back to the original default setpoint from the front end computer after the 2 hour override period is complete.

BASEBOARD RADIATORS

Device	Qty	Part Number	Description	Vendor
Electrical				
BR-XXX	45	MNL-5RS3	MN 50 LON MARK CTRLR ROOFTOP P	TAC
R-1-2	2	P-PAM-1	APC ENCAPSULATED RELAY SPDT 10	SINGLE SOURCED SOLUTIONS
RTS	6	MN-S1	IA MICRONET S-LINK SENSOR	TAC
RTS	39	MN-S3	IA MICRONET S-LINK SENSOR W/OV	TAC
Panel				
XFR PNL	2	PSH500A	TRANSFORMER 500 VA,120V-P, 24V	FUNCTIONAL DEVICES

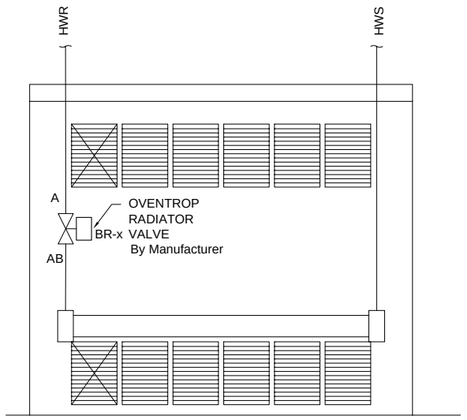
RADIATOR VALVE ACTUATOR WIRING

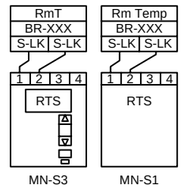
SIGNAL TO CONTROL
1 ADDITIONAL VALVE
OFFICE 17-154,
STUDENT GOVT 17-155,
STUDENT ACTIVITY AREA 17-112-(NORTH),
STUDENT ACTIVITY AREA 17-112-(SOUTH),
LOBBY (NORTH),
LOBBY (SOUTH),
WORK ROOM 17-118.



NOTE: RADIATORS PROVIDED WITH OVENTROP MODEL 101 24 96 2-POSITION NORMALLY CLOSED 24V ACTUATORS (6VA).

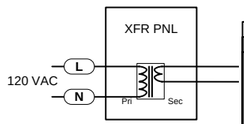
BUILDING 17
BASEBOARD RADIATORS
(Typical of 52 units in 48 locations)





SEE TABLE 1 FOR SENSOR ASSIGNMENT
& SHARING INFORMATION

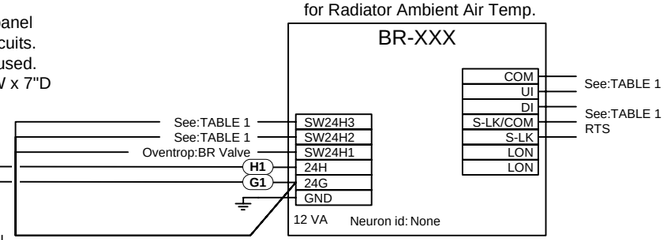
1 500VA transformer in panel
with 5 100 VA Class II circuits.
See Schedule for Circuit used.
Panel size: 12.5"H x 12.5"W x 7"D



TRANSFORMER MOUNTED IN
TRANSFORMER (XFR) PANEL.

2 XFR PANEL LOCATIONS:
1) XFR-1: RESTROOM 17-115
2) XFR-2: MECH ROOM 17-122A

MNL-50 rated for 140 deg. F
for Radiator Ambient Air Temp.



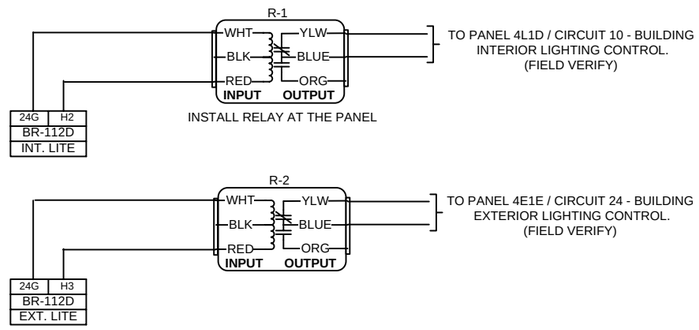
MNL-5RS3

BR-XXX CONTROLLER
MOUNTED IN FIELD AT
BASEBOARD RADIATOR (BR).
SEE FLOOR PLAN FOR
BR LOCATIONS.

BUILDING 17 LIGHTING CONTROL

LIGHTING CONTROL SEQUENCE OF OPERATION:

The BMS shall control building interior lighting (corridors) & building exterior lighting based on the building schedule (TBD).



Revisions

#	Change:	Date:
1		
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3		
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5		

Architect: Noll & Tam
Engineer:
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

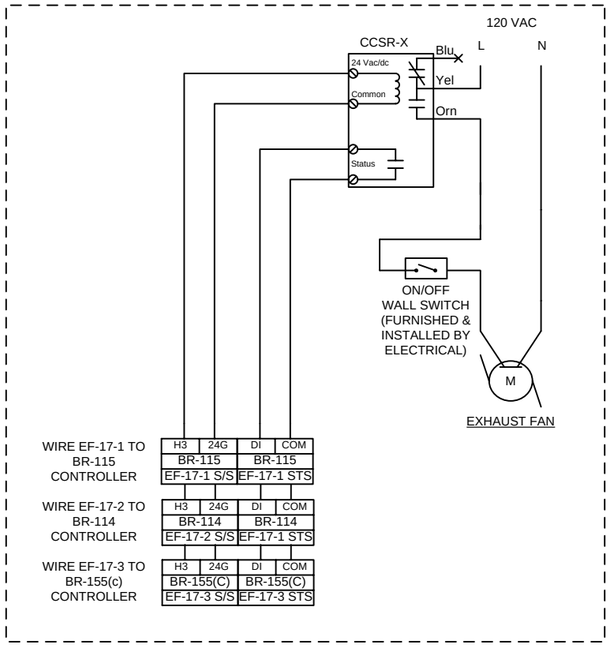
CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B17 BBR CONTROLLER
WIRING / LIGHTING CONTROL

JOB NUMBER
IC09I1025

FILE NAME
CSM B17 FF BBR.vsd

SHEET NO.
13 OF 14



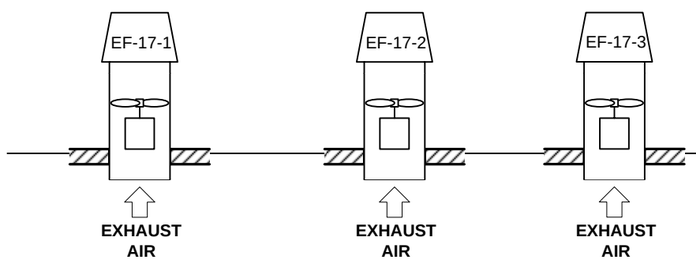
EXHAUST FAN CONTROL WIRING
TYPICAL FOR EF-17-1, EF-17-2 & EF-17-3

EXHAUST FAN & FCU

Device	Qty	Part Number	Description	Vendor
Electrical				
CCSR-X	3	FUN-RIBX24BF	ENC INTRNL FIX CUR SENS&RELAY	SINGLE SOURCED SOLUTIONS
RTS-112C	1	TSMN-90220-850	10K THRMSTR 11K SHNT&PRGM JACK	TAC

EXHAUST FANS (EF-17-1, EF-17-2 & EF-17-3) SEQUENCE OF OPERATION

The exhaust fans shall be enabled by the DDC system based on the building occupancy schedule and controlled locally by a wall switch supplied & installed by the electrical contractor. The DDC system shall also monitor the fan status for runtime monitoring.

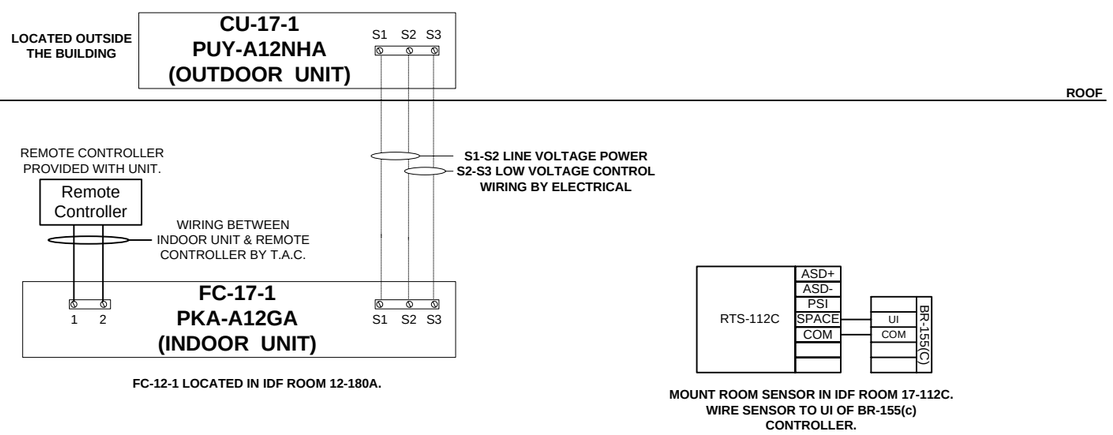


ROOF EXHAUST FANS: EF-17-1, EF-17-2 & EF-17-3

EF #	AREA SERVING	CFM	HP	VOLTAGE
EF 17-1	WOMENS 17-115	340	1/25	115/60/1
EF 17-2	MENS 17-114	365	1/12	115/60/1
EF 17-3	RESTROOM 17-153	285	1/25	115/60/1

SPLIT SYSTEM (FC-17-1 & CU-17-1) SEQUENCE OF OPERATION

The split system shall work as a stand-alone unit and control the room temperature to the desired room temperature setpoints (adjustable through unit remote controller). The BMS shall also monitor room temperature and if IDF room temperature is above 80° F, a high room temperature alarm shall be annunciated at the operator screen.



SPLIT SYSTEM COOLING: FC-17-1 & CU-17-1

Revisions

#	Change:	Date:
1		
2		
3		
4		
5		

Architect:
Engineer: Noll & Tam
Contractor: ACCO Engineered Systems
Designed by: DY Date: 09/22/2009
Software by: Date:
Checked by: Date:

CSM Buildings 12 & 17
Modernization
1700 West Hillsdale Blvd.
San Mateo, CA 94402

CSM B17 SPLIT SYSTEM & EF SCHEMATICS

JOB NUMBER
IC09I1025

FILE NAME
CSM B17 SPLIT SYSTEM & EFS.vsd

SHEET NO.
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