

COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT

1855 NOEL AVENUE, COMOX, B.C.

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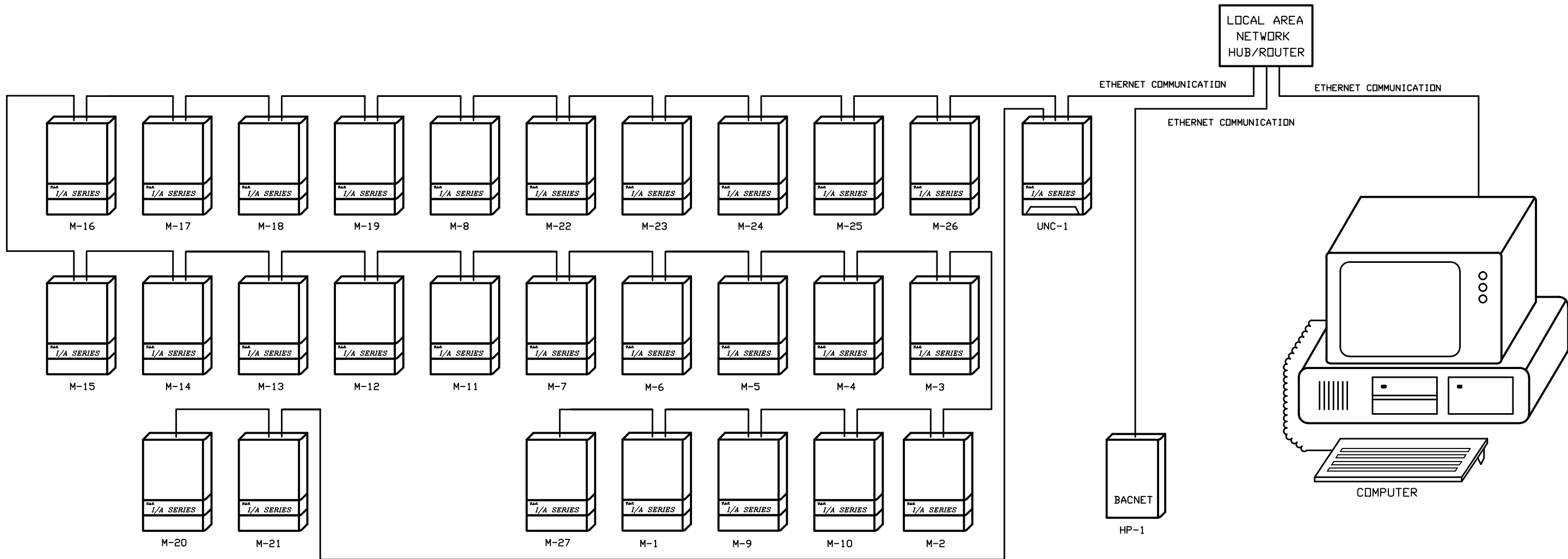
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ARCHITECT: VIC DAVIES ARCHITECT (2003) LTD
ENGINEER: THE AME CONSULTING GROUP LTD.
CONTRACTOR: VONDELLA MECHANICAL LTD.

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. PHONE 604-588-1030 FAX 604-588-1012
527 ACLAND AVENUE, VICTORIA, B.C. PHONE 250-474-3331 FAX 250-474-2250

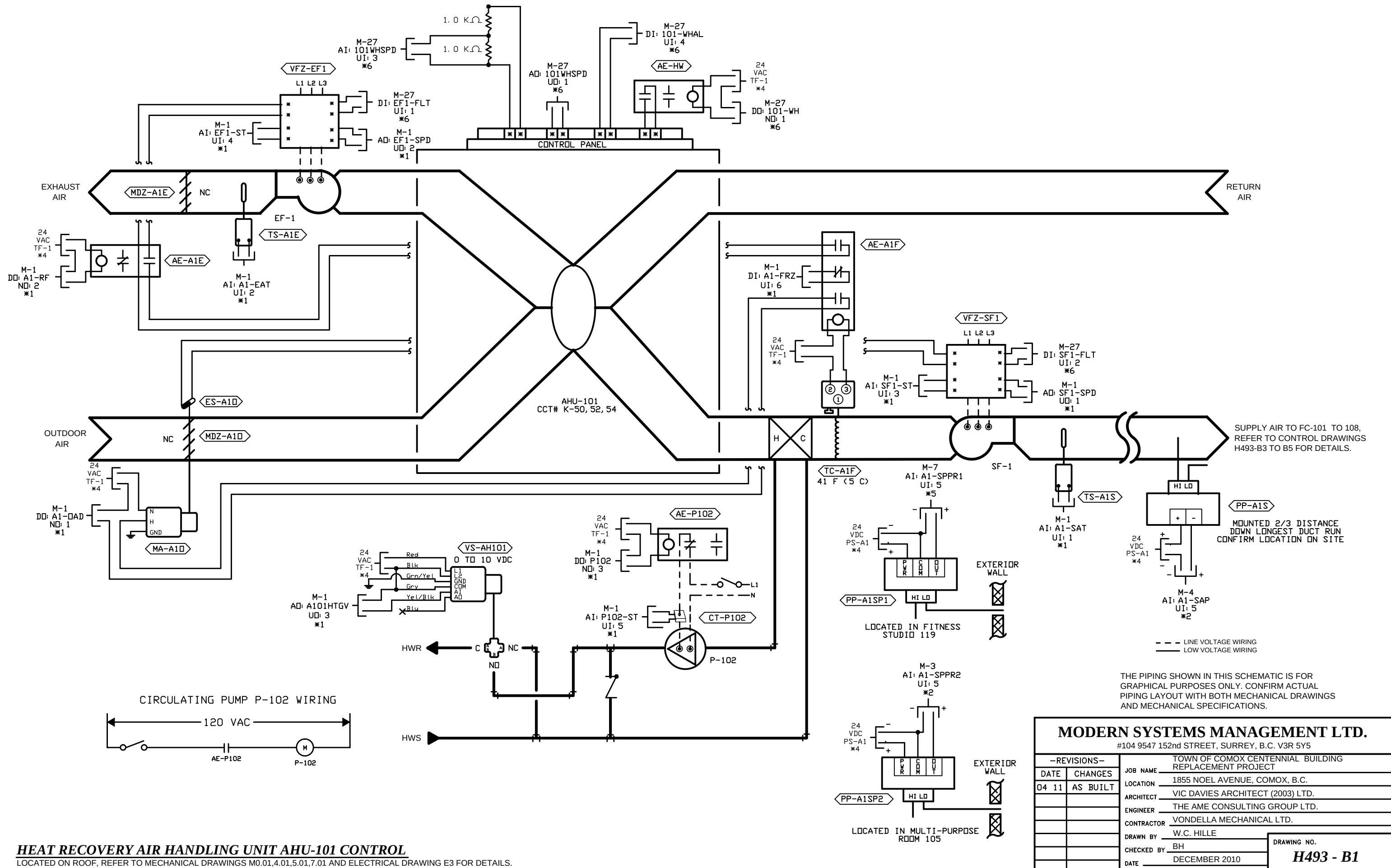




HARDWARE LOCATION SCHEDULE

M-1	MOUNTED LOCAL TO HEAT RECOVERY UNIT AHU-101
M-2	MOUNTED LOCAL TO FANCOIL UNIT FC-101
M-3	MOUNTED LOCAL TO FANCOIL UNIT FC-102
M-4	MOUNTED LOCAL TO FANCOIL UNIT FC-103
M-5	MOUNTED LOCAL TO FANCOIL UNIT FC-104
M-6	MOUNTED LOCAL TO FANCOIL UNIT FC-105
M-7	MOUNTED LOCAL TO FANCOIL UNIT FC-106
M-8	LOCATED IN LOWER FLOOR MECHANICAL ROOM
M-9	MOUNTED LOCAL TO FANCOIL UNIT FC-107
M-10	MOUNTED LOCAL TO FANCOIL UNIT FC-108
M-11	MOUNTED LOCAL TO ROOF TOP UNIT AC-1
M-12	MOUNTED LOCAL TO ROOF TOP UNIT AC-2
M-13	MOUNTED LOCAL TO ROOF TOP UNIT AC-3
M-14	MOUNTED LOCAL TO ROOF TOP UNIT AC-4
M-15	MOUNTED LOCAL TO ROOF TOP UNIT AC-5
M-16	MOUNTED LOCAL TO ROOF TOP UNIT AC-6
M-17	MOUNTED LOCAL TO ROOF TOP UNIT AC-7
M-18	MOUNTED LOCAL TO ROOF TOP UNIT AC-8
M-19	MOUNTED LOCAL TO ROOF TOP UNIT AC-9
M-20	MOUNTED LOCAL TO ROOF TOP UNIT AC-10
M-21	MOUNTED LOCAL TO ROOF TOP UNIT AC-11
M-22	LOCATED IN LOWER FLOOR MECHANICAL ROOM
M-23	LOCATED IN LOWER FLOOR MECHANICAL ROOM
M-24	LOCATED IN LOWER FLOOR MECHANICAL ROOM
M-25	LOCATED IN LOWER FLOOR MECHANICAL ROOM
M-26	LOCATED IN LOWER FLOOR MECHANICAL ROOM
M-27	MOUNTED LOCAL TO HEAT RECOVERY UNIT AHU-101
UNC-1	LOCATED IN LOWER FLOOR MECHANICAL ROOM
COMPUTER	LOCAL TO UNC-1

MODERN SYSTEMS MANAGEMENT LTD.			
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5			
-REVISIONS-		JOB NAME	
DATE	CHANGES	TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
04 11	AS BUILT	LOCATION	
		1855 NOEL AVENUE, COMOX, B.C.	
		ARCHITECT	
		VIC DAVIES ARCHITECT (2003) LTD.	
		ENGINEER	
		THE AME CONSULTING GROUP LTD.	
		CONTRACTOR	
		VONDELLA MECHANICAL LTD.	
		DRAWN BY	
		W.C. HILLE	
		CHECKED BY	
		BH	
		DATE	
		DECEMBER 2010	
			DRAWING NO.
			H493 - A1



HEAT RECOVERY AIR HANDLING UNIT AHU-101 SEQUENCE OF OPERATION

EQUIPMENT SCHEDULE

CODE	QTY	PART	DESCRIPTION
AE-A1E,HW,P102	3	DPDT-24	24 VAC DPDT RELAY C/W BASE
AE-A1F	1	3PDT-24	24 VAC 3PDT RELAY C/W BASE
CT-P102	1	CS-450-1	ANALOG CURRENT SENSOR
ES-A1O	1	AZD-1008	ROLLER LIMIT SWITCH
MA-A1E,A1O	2	MA40-7043	24 VAC TWO POSITION SPRING RETURN DAMPER ACTUATOR
MDZ-A1E,A1O	-	-	INLET, EXHAUST DAMPERS SUPPLIED WITH UNIT
PP-A1S	1	LP2-B-02	DIFFERENTIAL PRESSURE TRANSMITTER C/W LCD DISPLAY +/- 2, +/- 4, 0-4, 0-8" W.C.
PP-A1SP1,A1SP2	2	ULP-B-04	ULTRA LOW DIFFERENTIAL PRESSURE TRANSMITTER, CW LCD DISPLAY +/-0.125,0-0.125 125" W.C.
TC-A1F	1	TC-5241	LOW LIMIT MANUAL RESET THERMOSTAT
TS-A1E,A1S	2	TS-6721-850	DUCT PROBE TEMPERATURE SENSOR
VFZ-EF1,SF1	2	-	VARIABLE FREQUENCY DRIVE SUPPLIED BY OTHERS
VS-AH101	1	VS-7313-812-4-8	1" (25 mm) 24 VAC, MIXING, PROPORTIONAL CONTROL VALVE CV=14

SEQUENCE OF OPERATION

HEAT RECOVERY AIR HANDLING UNIT AHU-101 CONTROL

THE HEAT RECOVERY AIR HANDLING UNIT IS OFF.

THE OUTDOOR AIR DAMPER AND EXHAUST AIR DAMPERS ARE CLOSED.

UPON SENSING A TEMPERATURE BELOW THE LOW LIMIT THERMOSTAT SETPOINT COMING OFF THE HEATING COIL THROUGH THE LOW LIMIT THERMOSTAT, THE OUTDOOR AND EXHAUST AIR DAMPERS ARE CLOSED. THE SUPPLY AND EXHAUST AIR FANS ARE SHUT DOWN THROUGH THE DAMPER END SWITCHES, THE FACILITIES MANAGEMENT SYSTEM POSITIONS THE HEATING COIL CONTROL VALVE TO FULL HEAT AND A LOW LIMIT ALARM IS GENERATED THROUGH THE FACILITIES MANAGEMENT SYSTEM.

THE LOW LIMIT THERMOSTAT MUST BE MANUALLY RESET BEFORE THE SYSTEM CAN RETURN TO NORMAL OPERATION.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE SUPPLY AND EXHAUST AIR FAN STATUS THROUGH THEIR VARIABLE FREQUENCY DRIVE STATUS AND FAULT OUTPUTS AND GENERATES AN ALARM UPON SENSING A FAN FAILURE.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE HEATING COIL CIRCULATING PUMP STATUS THROUGH ITS CURRENT SENSOR AND GENERATES AN ALARM UPON SENSING A PUMP FAILURE.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE HEAT RECOVERY WHEEL SPEED THROUGH THE UNIT SPEED OUTPUT.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE HEAT RECOVERY WHEEL STATUS THROUGH THE UNIT ALARM OUTPUT.

OCCUPIED MODE

THE FACILITIES MANAGEMENT SYSTEM CYCLES THE OUTDOOR AIR AND EXHAUST AIR DAMPERS OPEN ACCORDING TO THE PROGRAMMED SCHEDULE. ONCE THE OUTDOOR AIR AND EXHAUST AIR DAMPERS ARE PROVEN OPEN THE SUPPLY AND EXHAUST AIR FANS ARE STARTED THROUGH THEIR ASSOCIATED DAMPER ENDSWITCHES.

ON A CALL FOR HEAT THE FACILITIES MANAGEMENT SYSTEM CYCLES THE HEATING COIL CIRCULATING PUMP ON AND MODULATES THE HEATING COIL CONTROL VALVE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT SETPOINT.

THE FACILITIES MANAGEMENT SYSTEM RESETS THE DISCHARGE AIR TEMPERATURE SETPOINT BASED ON SPACE DEMAND.

THE HEATING COIL CIRCULATION PUMP RUNS CONTINUOUSLY WHENEVER THE OUTDOOR AIR TEMPERATURE IS BELOW 5C / 41F.

THE FACILITIES MANAGEMENT SYSTEM MODULATES THE SUPPLY AIR FAN SPEED TO MAINTAIN THE DISCHARGE AIR STATIC PRESSURE AT SETPOINT AS SENSED THROUGH THE DUCT MOUNTED PRESSURE TRANSMITTER. THE EXHAUST AIR FAN SPEED TRACKS THE SUPPLY FAN SPEED WITH AN OFFSET TO MAINTAIN A SLIGHTLY POSITIVE AVERAGE SPACE PRESSURE (25 PA /0.1 " W.C.), AS SENSED THROUGH THE SPACE PRESSURE TRANSMITTERS LOCATED IN THE FITNESS AND MULTI-PURPOSE ROOMS.

IF THERE ARE TOO MANY SUPPLY AIR DAMPERS CLOSED TO MAINTAIN THE THE BUILDING PRESSURE THE FACILITIES MANAGEMENT SYSTEM OVERRIDES DAMPERS OPEN UNTIL THE SPACE PRESSURE SETPOINT IS MET.

THE FACILITIES MANAGEMENT SYSTEM ENGAGES THE HEAT RECOVERY WHEEL TO RECOVER HEAT WHENEVER THE OUTDOOR AIR TEMPERATURE IS BELOW THE WARM WEATHER SHUT DOWN SETPOINT (18 C / 64.4 F).

THE FACILITIES MANAGEMENT SYSTEM CONTROLS THE HEAT RECOVERY WHEEL SPEED TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT SETPOINT.

UNOCCUPIED MODE

THE HEAT RECOVERY AIR HANDLING UNIT IS OFF.

THE OUTDOOR AIR DAMPER AND EXHAUST AIR DAMPERS ARE CLOSED.

UPON SENSING A SPACE TEMPERATURE BELOW THE UNOCCUPIED MODE SPACE SETPOINT THE FACILITIES MANAGEMENT SYSTEM OVERRIDES THE AIR HANDLING UNIT ON IN FULL HEATING MODE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

NOTES:

*1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C1 FOR POINT WIRING DETAILS.

*2 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C2 FOR POINT WIRING DETAILS.

*3 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C3 FOR POINT WIRING DETAILS.

*4 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

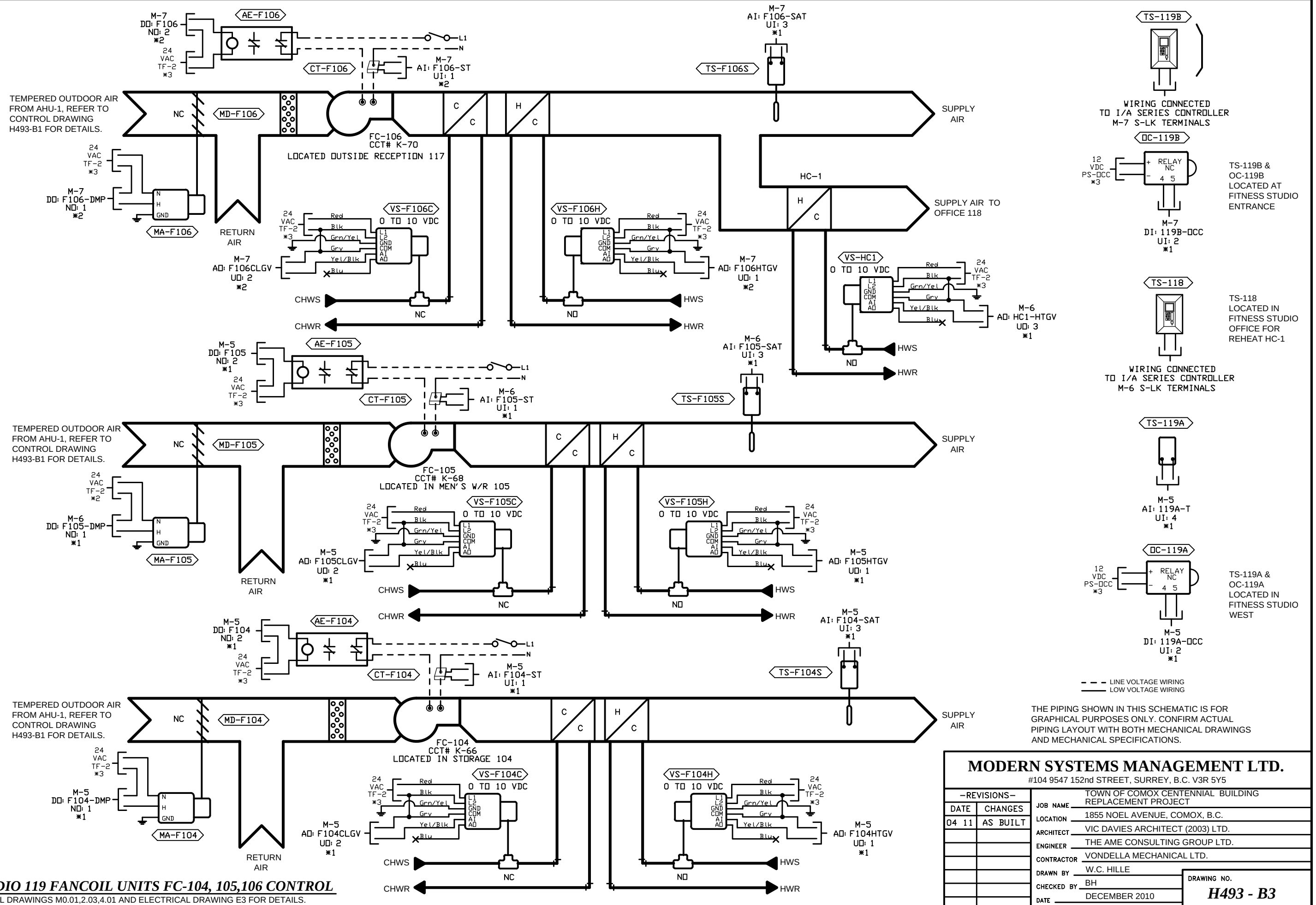
*5 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C4 FOR POINT WIRING DETAILS.

*6 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C14 FOR POINT WIRING DETAILS

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#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	
04 11	AS BUILT	LOCATION	1855 NOEL AVENUE, COMOX, B.C.
		ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.
		ENGINEER	THE AME CONSULTING GROUP LTD.
		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010
		DRAWING NO.	H493 - B2



FITNESS STUDIO 119 FANCOIL UNITS FC-104, 105, 106 CONTROL
REFER TO MECHANICAL DRAWINGS M0.01, 2.03, 4.01 AND ELECTRICAL DRAWING E3 FOR DETAILS.

EQUIPMENT SCHEDULE

CODE	QTY	PART	DESCRIPTION
AE-F104,F105,F106	3	DPDT-24	24 VAC DPDT RELAY C/W BASE
CT-F104,F105,F106	3	CS-450-1	ANALOG CURRENT SENSOR
MA-F104,F105,F106	3	MA40-7043	24 VAC TWO POSITION CONTROL DAMPER ACTUATOR
MD-F104,F105,F106	3	CD-36	PARALLEL BLADE LOW LEAKAGE CONTROL DAMPER 300mm X 200mm
OC-119A,F119B	2	IS-2560	MOTION DETECTOR
TS-119A	1	TE200-AS7	SPACE TEMPERATURE SENSOR C/W FLUSH MOUNT STAINLESS STEEL COVER PLATE
TS-118,119B	2	MN-S3	SPACE TEMPERATURE SENSOR C/W LCD DISPLAY, SETPOINT AND OVERRIDE
	1	PG-6	LOCKING CLEAR PLASTIC GUARD
VS-F104C,F105C,F106C	3	VS-7223-812-4-08	1" (25 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY CLOSED CONTROL VALVE CV=14
VS-F104H,F105H,F106H	3	VS-7213-812-4-04	1/2" (13 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY OPEN CONTROL VALVE CV=4.4
VS-HC1	1	VS-7213-812-4-XX	24 VAC PROPORTIONAL TWO WAY NORMALLY OPEN CONTROL VALVE, VALVE SIZING TO BE COMPLETE UPON RECEIPT OF COIL FLOW INFORMATION

SEQUENCE OF OPERATION

FITNESS STUDIO 119 FANCOIL UNITS FC-104,105,106 CONTROL

THE FANCOIL UNITS ARE OFF.

THE TEMPERED OUTDOOR AIR DAMPERS ARE CLOSED.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE SUPPLY AIR FAN STATUS THROUGH THEIR ASSOCIATED CURRENT SENSORS AND GENERATES AN ALARM UPON SENSING A FAN FAILURE.

OCCUPIED MODE

THE FANCOIL UNITS RUN CONTINUOUSLY.

THE TEMPERED OUTDOOR AIR DAMPERS ARE OPEN.

ON A CALL FOR HEATING THE FACILITIES MANAGEMENT SYSTEM MODULATES THE HEATING COIL CONTROL VALVES TO MAINTAIN THE AVERAGE SPACE TEMPERATURE AT SETPOINT.

ON A CALL FOR COOLING THE FACILITIES MANAGEMENT SYSTEM MODULATES THE COOLING COIL CONTROL VALVES TO MAINTAIN THE AVERAGE SPACE TEMPERATURE AT SETPOINT.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE INDIVIDUAL FANCOIL UNITS DISCHARGE AIR TEMPERATURE TO ENSURE EQUAL HEATING OR COOLING TO THE FITNESS AREA.

UPON SENSING A CALL FOR HEAT IN THE FITNESS OFFICE, THROUGH THE OFFICE TEMPERATURE SENSOR, THE FACILITIES MANAGEMENT SYSTEM MODULATES THE REHEAT COIL CONTROL VALVE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT.

IF THE SPACE OCCUPANCY SENSORS DO NOT SENSE ANYONE IN THE SPACE AFTER A TIMED PERIOD THE SYSTEM SWITCHES TO UNOCCUPIED MODE.

UNOCCUPIED MODE

THE FANCOIL UNITS ARE OFF.

UPON SENSING A SPACE TEMPERATURE BELOW THE UNOCCUPIED MODE SETPOINT THE FACILITIES MANAGEMENT SYSTEM CYCLES THE FANCOIL UNITS IN FULL HEATING UNTIL THE SPACE TEMPERATURE REACHES SETPOINT.

NOTES:
*1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C3 FOR POINT WIRING DETAILS.
*2 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C4 FOR POINT WIRING DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

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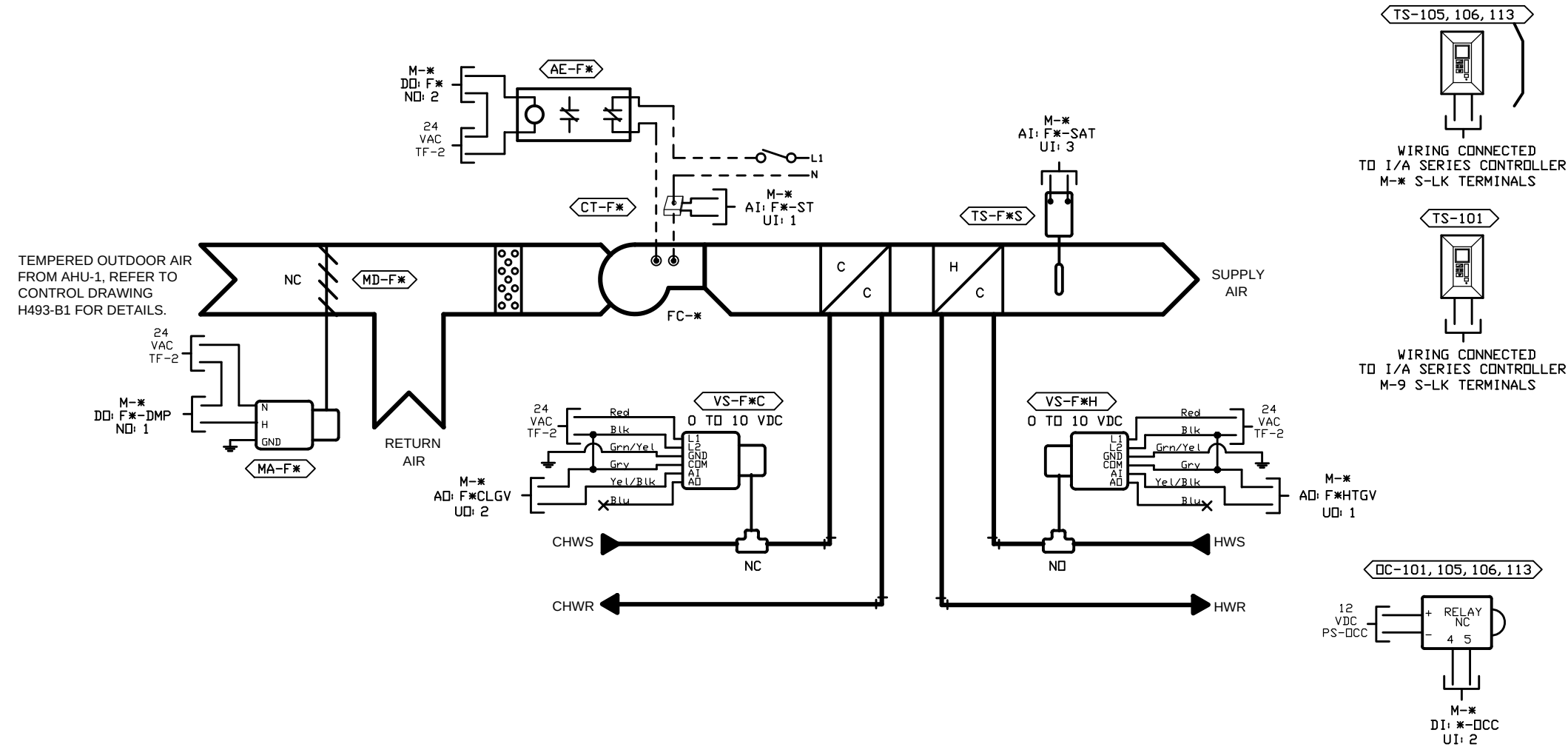
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		ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.
		ENGINEER	THE AME CONSULTING GROUP LTD.
		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010
		DRAWING NO.	H493 - B3S

FANCOIL UNIT NUMBER	FANCOIL UNIT LOCATION	FANCOIL UNIT SERVICES AREAS	OUTDOOR AIR (L/S)	SUPPLY AIR FAN CURRENT SENSOR NUMBER	SUPPLY AIR FAN CURRENT SENSOR ADDRESS	SPACE TEMPERATURE SENSOR NUMBER	SPACE TEMPERATURE SENSOR LOCATION	SUPPLY AIR FAN CURRENT SENSOR ADDRESS	SPACE TEMPERATURE SENSOR ADDRESS	
FC-101	WORKSHOP 103 CEILING SPACE	MULTI-PURPOSE ROOM 1	205	CT-F101	M-2 AI:F101-ST UI:1	TS-105	MULTI-PURPOSE ROOM 1	M-2 AI:105 S-LK		*1
FC-102	MULTI-PURPOSE ROOM 2 CEILING SPACE	MULTI-PURPOSE ROOM 2	205	CT-F102	M-3 AI:F102-ST UI:1	TS-106	MULTI-PURPOSE ROOM 2	M-3 AI:106 S-LK		*2
FC-103	STORAGE 114 CEILING SPACE	FITNESS ANNEX 113	113	CT-F103	M-4 AI:F103-ST UI:1	TS-113	FITNESS ANNEX 113	M-4 AI:113 S-LK		*2
FC-107	WORKSHOP 103 CEILING SPACE	OFFICES 100,101	24	CT-F107	M-9 AI:F107-ST UI:1	TS-101	OFFICE 101	M-9 AI:101 S-LK		*3

FANCOIL UNIT NUMBER	OCCUPANCY SENSOR NUMBER	OCCUPANCY SENSOR LOCATION	OCCUPANCY SENSOR ADDRESS	ASSOCIATED OUTDOOR AIR DAMPER NUMBER	DAMPER ACTUATOR NUMBER	DAMPER ACTUATOR ADDRESS	FANCOIL SUPPLY FAN RELAY NUMBER	FAN RELAY ADDRESS	
FC-101	OC-105	MULTI-PURPOSE ROOM 1	M-2 DI:105-OCC UI:2	MD-F101	MA-F101	M-2 DO:F101-DMP NO:1	AE-F101	M-2 DO:F101 NO:2	*1
FC-102	OC-106	MULTI-PURPOSE ROOM 2	M-3 DI:106-OCC UI:2	MD-F102	MA-F102	M-3 DO:F102-DMP NO:1	AE-F102	M-3 DO:F102 NO:2	*2
FC-103	OC-113	FITNESS ANNEX 113	M-4 DI:113-OCC UI:2	MD-F103	MA-F103	M-4 DO:F103-DMP NO:1	AE-F103	M-4 DO:F103 NO:2	*2
FC-107	OC-101	OFFICE 101	M-9 DI:101-OCC UI:2	MD-F107	MA-F107	M-9 DO:F107-DMP NO:1	AE-F107	M-9 DO:F107 NO:2	*3

FANCOIL UNIT NUMBER	SUPPLY AIR TEMPERATURE SENSOR NUMBER	SUPPLY AIR TEMPERATURE SENSOR ADDRESS	FANCOIL HEATING VALVE NUMBER	HEATING VALVE ADDRESS	FANCOIL COOLING VALVE NUMBER	COOLING VALVE ADDRESS	FANCOIL UNIT POWER CIRCUIT NUMBER	24 VAC TRANSFORMER NUMBER	MECHANICAL DRAWING NUMBER	ELECTRICAL DRAWING NUMBER	
FC-101	TS-F101S	M-2 AI:F101-SAT UI:3	VS-F101H	M-2 AO:F101HTGV UO:1	VS-F101C	M-2 AO:F101CLGV UO:2	K-60	TF-2	M0.01,2.03,4.01	E3	*1,*4
FC-102	TS-F102S	M-3 AI:F102-SAT UI:3	VS-F102H	M-3 AO:F102HTGV UO:2	VS-F102C	M-3 AO:F102CLGV UO:1	K-62	TF-2	M0.01,2.03,4.01	E3	*2,*4
FC-103	TS-F103S	M-4 AI:F103-SAT UI:3	VS-F103H	M-4 AO:F103HTGV UO:1	VS-F103C	M-4 AO:F103CLGV UO:2	K-64	TF-2	M0.01,2.03,4.01	E3	*2,*4
FC-107	TS-F107S	M-9 AI:F107-SAT UI:3	VS-F107H	M-9 AO:F107HTGV UO:1	VS-F107C	M-9 AO:F107CLGV UO:2	K-72	TF-2	M0.01,2.03,4.01	E3	*3,*4



EQUIPMENT SCHEDULE			
CODE	QTY	PART	DESCRIPTION
AE-F101,F102,F103,F107	4	DPDT-24	24 VAC DPDT RELAY CW BASE
CT-F101,F102,F103,F107	4	CS-450-1	ANALOG CURRENT SENSOR
MA-F101,F102,F103,F107	4	MA40-7043	24 VAC TWO POSITION CONTROL DAMPER ACTUATOR
MD-F101,F102	2	CD-36	PARALLEL BLADE LOW LEAKAGE CONTROL DAMPER 300mm X 200mm
MD-F103	1	CD-36	PARALLEL BLADE LOW LEAKAGE CONTROL DAMPER 200mm X 200mm
MD-F107	1	CDRS-25	ROUND BLADE LOW LEAKAGE CONTROL DAMPER 100 mm
OC-101,105,106,113	4	IS-2560	MOTION DETECTOR
TS-101,105,106,113	4	MN-S3	SPACE TEMPERATURE SENSOR C/W LCD DISPLAY, SETPOINT AND OVERRIDE
	3	PG-6	LOCKING CLEAR PLASTIC GUARD
TS-F101S,F102S,F103S,F107S	4	TS-6721-850	DUCT PROBE TEMPERATURE SENSOR
VS-F101C,F102C	2	VS-7223-812-4-06	3/4" (19 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY CLOSED CONTROL VALVE CV=7.5
VS-F103C	1	VS-7223-812-4-07	1" (25 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY CLOSED CONTROL VALVE CV=10
VS-F107C	1	VS-7223-812-4-02	1/2" (13 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY CLOSED CONTROL VALVE CV=1.3
VS-F101H,F102H,F103H	3	VS-7213-812-4-04	1/2" (13 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY OPEN CONTROL VALVE CV=4.4
VS-F107H	1	VS-7213-812-4-02	1/2" (13 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY OPEN CONTROL VALVE CV=1.3

SEQUENCE OF OPERATION

MAIN FLOOR FANCOIL UNITS FC-101,102,103,107 CONTROL

THE FANCOIL UNITS ARE OFF.

THE TEMPERED OUTDOOR AIR DAMPERS ARE CLOSED.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE SUPPLY AIR FAN STATUS THROUGH THEIR ASSOCIATED FAN CURRENT SENSORS AND GENERATES AN ALARM UPON SENSING A FAN FAILURE.

OCCUPIED MODE

THE FANCOIL UNITS RUN CONTINUOUSLY.

THE TEMPERED OUTDOOR AIR DAMPERS ARE OPEN.

THE FACILITIES MANAGEMENT SYSTEM MODULATES THE HEATING AND COOLING CONTROL VALVES IN SEQUENCE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT SETPOINT.

THE FACILITIES MANAGEMENT SYSTEM RESETS THE DISCHARGE AIR TEMPERATURE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT.

IF THE SPACE OCCUPANCY SENSORS DO NOT SENSE ANYONE IN THE SPACE AFTER A TIMED PERIOD THE SYSTEM SWITCHES TO UNOCCUPIED MODE.

UNOCCUPIED MODE

THE FANCOIL UNITS ARE OFF.

THE TEMPERED OUTDOOR AIR DAMPER IS CLOSED.

UPON SENSING A SPACE TEMPERATURE BELOW THE UNOCCUPIED MODE SETPOINT THE FACILITIES MANAGEMENT SYSTEM CYCLES THE ASSOCIATED FANCOIL ON IN FULL HEATING TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

NOTES:

- *1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING SH493-C1 FOR POINT WIRING DETAILS.
- *2 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING SH493-C2 FOR POINT WIRING DETAILS.
- *3 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING SH493-C5 FOR POINT WIRING DETAILS.
- *4 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

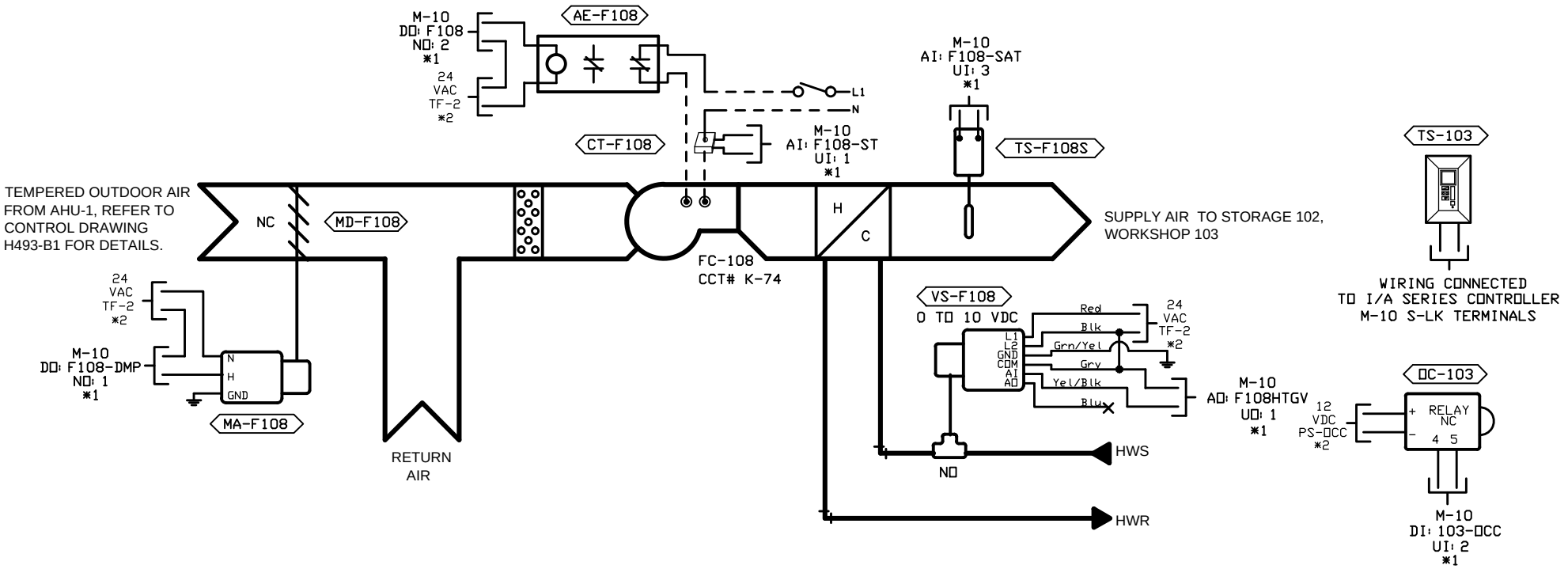
THE PIPING SHOWN IN THIS SCHEMATIC IS FOR GRAPHICAL PURPOSES ONLY. CONFIRM ACTUAL PIPING LAYOUT WITH BOTH MECHANICAL DRAWINGS AND MECHANICAL SPECIFICATIONS.

MAIN FLOOR FANCOIL UNITS FC-101,102,103,107 CONTROL

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	DRAWING NO. H493 - B4



EQUIPMENT SCHEDULE			
CODE	QTY	PART	DESCRIPTION
AE-F108	1	DPDT-24	24 VAC DPDT RELAY CW BASE
CT-F108	1	CS-450-1	ANALOG CURRENT SENSOR
MA-F108	1	MA40-7043	24 VAC TWO POSITION CONTROL DAMPER ACTUATOR
MD-F108	1	CDRS-25	ROUND BLADE LOW LEAKAGE CONTROL DAMPER 150 mm
OC-103	1	IS-2560	MOTION DETECTOR
TS-103	1	MN-S3	SPACE TEMPERATURE SENSOR C/W LCD DISPLAY, SETPOINT AND OVERRIDE
TS-F108S	1	TS-6721-850	DUCT PROBE TEMPERATURE SENSOR
VS-F108	1	VS-7213-812-4-02	1/2" (13 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY OPEN CONTROL VALVE CV=1.3

SEQUENCE OF OPERATION

STORAGE / WORKSHOP FANCOIL UNIT FC-108 CONTROL

THE FANCOIL UNIT IS OFF.

THE TEMPERED OUTDOOR AIR DAMPER IS CLOSED.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE SUPPLY AIR FAN STATUS THROUGH ITS CURRENT SENSOR AND GENERATES AN ALARM UPON SENSING A FAN FAILURE.

OCCUPIED MODE

THE FANCOIL UNIT RUNS CONTINUOUSLY.

ON A CALL FOR HEATING THE FACILITIES MANAGEMENT SYSTEM MODULATES THE HEATING COIL CONTROL VALVE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT.

IF THE SPACE OCCUPANCY SENSOR DOES NOT SENSE ANYONE IN THE SPACE AFTER A TIMED PERIOD THE SYSTEM SWITCHES TO UNOCCUPIED MODE.

UNOCCUPIED MODE

THE FANCOIL UNIT IS OFF.

THE TEMPERED OUTDOOR AIR DAMPER IS CLOSED.

UPON SENSING A SPACE TEMPERATURE BELOW THE UNOCCUPIED MODE SETPOINT THE FACILITIES MANAGEMENT SYSTEM CYCLES THE FANCOIL UNIT IN FULL HEATING UNTIL THE SPACE TEMPERATURE REACHES SETPOINT.

NOTES:
*1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C5 FOR POINT WIRING DETAILS.
*2 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

THE PIPING SHOWN IN THIS SCHEMATIC IS FOR GRAPHICAL PURPOSES ONLY. CONFIRM ACTUAL PIPING LAYOUT WITH BOTH MECHANICAL DRAWINGS AND MECHANICAL SPECIFICATIONS.

MODERN SYSTEMS MANAGEMENT LTD.

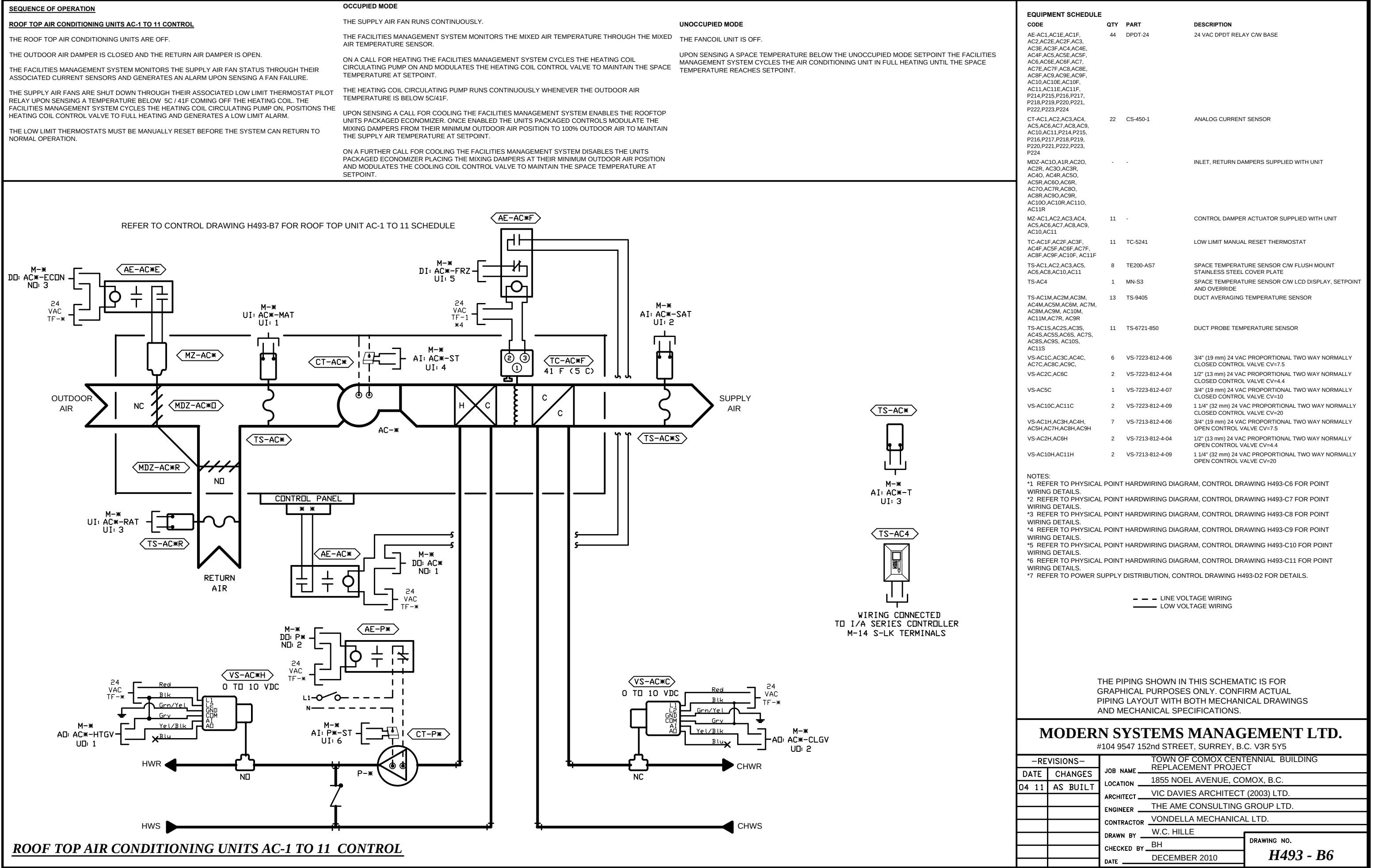
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.
H493 - B5

STORAGE / WORKSHOP FANCOIL UNIT FC-108 CONTROL

REFER TO MECHANICAL DRAWINGS M0.01,2.03,4.01 AND ELECTRICAL DRAWING E3 FOR DETAILS.



ROOF TOP UNIT NUMBER	ROOF TOP UNIT LOCATION	ROOF TOP UNIT SERVICES AREAS	OUTDOOR AIR DAMPER NUMBER	RETURN AIR DAMPER NUMBER	DAMPER ACTUATOR NUMBER	ECONOMIZER RELAY NUMBER	ECONOMIZER ADDRESS			MIXED AIR TEMPERATURE SENSOR NUMBER	MIXED AIR TEMPERATURE SENSOR ADDRESS			SUPPLY AIR TEMPERATURE SENSOR NUMBER	SUPPLY AIR TEMPERATURE SENSOR ADDRESS			SPACE TEMPERATURE SENSOR NUMBER	SPACE TEMPERATURE SENSOR LOCATION			SPACE TEMPERATURE SENSOR ADDRESS		
AC-1	ROOF	LOBBY	CDZ-AC1O	CDZ-AC1R	MZ-AC1	AE-AC1E	M-11	AI:AC1-ECON	NO:3	TS-AC1M	M-11	AI:AC1-MAT	UI:1	TS-AC1S	M-11	AI:AC1-SAT	UI:2	TS-AC1	LOBBY	M-11	AI:AC1	UI:3		
AC-2	ROOF	BOARD ROOM	CDZ-AC2O	CDZ-AC2R	MZ-AC2	AE-AC2E	M-12	AI:AC2-ECON	NO:3	TS-AC2M	M-12	AI:AC2-MAT	UI:1	TS-AC2S	M-12	AI:AC2-SAT	UI:2	TS-AC2	BOARD ROOM	M-12	AI:AC2	UI:3		
AC-3	ROOF	WASH ROOM / CHANGE ROOM	CDZ-AC3O	CDZ-AC3R	MZ-AC3	AE-AC3E	M-13	AI:AC3-ECON	NO:3	TS-AC3M	M-13	AI:AC3-MAT	UI:1	TS-AC3S	M-13	AI:AC3-SAT	UI:2	TS-AC3	WASH ROOM / CHANGE ROOM	M-13	AI:AC3	UI:3		
AC-4	ROOF	OFFICE / ADMIN AREA	CDZ-AC4O	CDZ-AC4R	MZ-AC4	AE-AC4E	M-14	AI:AC4-ECON	NO:3	TS-AC4M	M-14	AI:AC4-MAT	UI:1	TS-AC4S	M-14	AI:AC4-SAT	UI:2	TS-AC4	OFFICE / ADMIN AREA	M-14	AI:AC4	S-LK		
AC-5	ROOF	GYM	CDZ-AC5O	CDZ-AC5R	MZ-AC5	AE-AC5E	M-15	AI:AC5-ECON	NO:3	TS-AC5M	M-15	AI:AC5-MAT	UI:1	TS-AC5S	M-15	AI:AC5-SAT	UI:2	TS-AC5	GYM	M-15	AI:AC5	UI:3		
AC-6	ROOF	VIEWING AREA	CDZ-AC6O	CDZ-AC6R	MZ-AC6	AE-AC6E	M-16	AI:AC6-ECON	NO:3	TS-AC6M	M-16	AI:AC6-MAT	UI:1	TS-AC6S	M-16	AI:AC6-SAT	UI:2	TS-AC6	VIEWING AREA	M-16	AI:AC6	UI:3		
AC-7	ROOF	SQUASH COURTS	CDZ-AC7O	CDZ-AC7R	MZ-AC7	AE-AC7E	M-17	AI:AC7-ECON	NO:3	TS-AC7M	M-17	AI:AC7-MAT	UI:1	TS-AC7S	M-17	AI:AC7-SAT	UI:2	N/A	N/A	N/A	N/A	UI:3		
AC-8	ROOF	UPPER MULTI PURPOSE	CDZ-AC8O	CDZ-AC8R	MZ-AC8	AE-AC8E	M-18	AI:AC8-ECON	NO:3	TS-AC8M	M-18	AI:AC8-MAT	UI:1	TS-AC8S	M-18	AI:AC8-SAT	UI:2	TS-AC8	UPPER MULTI PURPOSE	M-18	AI:AC8	UI:3		
AC-9	ROOF	SQUASH COURTS	CDZ-AC9O	CDZ-AC9R	MZ-AC9	AE-AC9E	M-19	AI:AC9-ECON	NO:3	TS-AC9M	M-19	AI:AC9-MAT	UI:1	TS-AC9S	M-19	AI:AC9-SAT	UI:2	N/A	N/A	N/A	N/A	UI:3		
AC-10	ROOF	AUDITORIUM EAST	CDZ-AC10O	CDZ-AC10R	MZ-AC10	AE-AC10E	M-20	AI:AC10ECON	NO:3	TS-AC10M	M-20	AI:AC10-MAT	UI:1	TS-AC10S	M-20	AI:AC10-SAT	UI:2	TS-AC10	AUDITORIUM NORTHEAST	M-20	AI:AC10	UI:3		
AC-11	ROOF	AUDITORIUM WEST	CDZ-AC11O	CDZ-AC11R	MZ-AC11	AE-AC11E	M-21	AI:AC11ECON	NO:3	TS-AC11M	M-21	AI:AC11-MAT	UI:1	TS-AC11S	M-21	AI:AC11-SAT	UI:2	TS-AC11	AUDITORIUM NORTHWEST	M-21	AI:AC11	UI:3		

ROOF TOP UNIT NUMBER	RETURN AIR TEMPERATURE SENSOR NUMBER	RETURN AIR TEMPERATURE SENSOR ADDRESS			SUPPLY FAN CURRENT SENSOR NUMBER	SUPPLY AIR FAN CURRENT SENSOR ADDRESS			LOW LIMIT THERMOSTAT NUMBER	LOW LIMIT THERMOSTAT RELAY NUMBER	LOW LIMIT THERMOSTAT ADDRESS			COIL PUMP NUMBER	PUMP CURRENT SENSOR NUMBER	PUMP CURRENT SENSOR ADDRESS			SUPPLY FAN RELAY NUMBER	SUPPLY FAN RELAY ADDRESS			COIL PUMP RELAY NUMBER	COIL PUMP RELAY ADDRESS		
AC-1	N/A	N/A			CT-AC1	M-11	AI:AC1-ST	UI:4	TC-AC1F	AE-AC1F	M-11	DI:AC1-FRZ	UI:5	P-214	CT-P214	M-11	AI:P214-ST	UI:6	AE-AC1	M-11	DO:AC1	NO:1	AE-P214	M-11	DO:P214	NO:2
AC-2	N/A	N/A			CT-AC2	M-12	AI:AC2-ST	UI:4	TC-AC2F	AE-AC2F	M-12	DI:AC2-FRZ	UI:5	P-215	CT-P216	M-12	AI:P215-ST	UI:6	AE-AC2	M-12	DO:AC2	NO:1	AE-P216	M-12	DO:P215	NO:2
AC-3	N/A	N/A			CT-AC3	M-13	AI:AC3-ST	UI:4	TC-AC3F	AE-AC3F	M-13	DI:AC3-FRZ	UI:5	P-216	CT-P216	M-13	AI:P216-ST	UI:6	AE-AC3	M-13	DO:AC3	NO:1	AE-P216	M-13	DO:P216	NO:2
AC-4	N/A	N/A			CT-AC4	M-14	AI:AC4-ST	UI:4	TC-AC4F	AE-AC4F	M-14	DI:AC4-FRZ	UI:5	P-217	CT-P217	M-14	AI:P217-ST	UI:6	AE-AC4	M-14	DO:AC4	NO:1	AE-P217	M-14	DO:P217	NO:2
AC-5	N/A	N/A			CT-AC5	M-15	AI:AC5-ST	UI:4	TC-AC5F	AE-AC5F	M-15	DI:AC5-FRZ	UI:5	P-218	CT-P218	M-15	AI:P218-ST	UI:6	AE-AC5	M-15	DO:AC5	NO:1	AE-P218	M-15	DO:P218	NO:2
AC-6	N/A	N/A			CT-AC6	M-16	AI:AC6-ST	UI:4	TC-AC6F	AE-AC6F	M-16	DI:AC6-FRZ	UI:5	P-219	CT-P219	M-16	AI:P219-ST	UI:6	AE-AC6	M-16	DO:AC6	NO:1	AE-P219	M-16	DO:P219	NO:2
AC-7	TS-AC7R	M-17	AI:AC7-RAT	UI:3	CT-AC7	M-17	AI:AC7-ST	UI:4	TC-AC7F	AE-AC7F	M-17	DI:AC7-FRZ	UI:5	P-220	CT-P220	M-17	AI:P220-ST	UI:6	AE-AC7	M-17	DO:AC7	NO:1	AE-P220	M-17	DO:P220	NO:2
AC-8	N/A		N/A			CT-AC8	M-18	AI:AC8-ST	UI:4	TC-AC8F	AE-AC8F	M-18	DI:AC8-FRZ	UI:5	P-221	CT-P221	M-18	AI:P221-ST	UI:6	AE-AC8	M-18	DO:AC8	NO:1	AE-P221	M-18	DO:P221
AC-9	TS-AC9R	M-19	AI:AC9-RAT	UI:3	CT-AC9	M-19	AI:AC9-ST	UI:4	TC-AC9F	AE-AC9F	M-19	DI:AC9-FRZ	UI:5	P-222	CT-P222	M-19	AI:P222-ST	UI:6	AE-AC9	M-19	DO:AC9	NO:1	AE-P222	M-19	DO:P222	NO:2
AC-10	N/A		N/A			CT-AC10	M-20	AI:AC10-ST	UI:4	TC-AC10F	AE-AC10F	M-20	DI:AC10-FRZ	UI:5	P-223	CT-P226	M-20	AI:P223-ST	UI:6	AE-AC10	M-20	DO:AC10	NO:1	AE-P226	M-20	DO:P223
AC-11	N/A	N/A			CT-AC11	M-21	AI:AC11-ST	UI:4	TC-AC11F	AE-AC11F	M-21	DI:AC11-FRZ	UI:5	P-224	CT-P224	M-21	AI:P224-ST	UI:6	AE-AC11	M-21	DO:AC11	NO:1	AE-P224	M-21	DO:P224	NO:2

ROOF TOP UNIT NUMBER	UNIT HEATING VALVE NUMBER	HEATING VALVE ADDRESS			UNIT COOLING VALVE NUMBER	COOLING VALVE ADDRESS			UNIT POWER CIRCUIT NUMBER	COIL PUMP POWER CIRCUIT NUMBER	24 VAC TRANSFORMER NUMBER	GEOTHERMAL PLANT ADDITION MECHANICAL DRAWING NUMBER	ELECTRICAL DRAWING NUMBER
AC-1	VS-AC1H	M-11	AO:AC1-HTGV	UO:1	VS-AC1C	M-11	AO:AC1-CLGV	UO:2	M-1	M-17	TF-3	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-2	VS-AC2H	M-12	AO:AC2-HTGV	UO:1	VS-AC2C	M-12	AO:AC2-CLGV	UO:2	M-3	M-19	TF-4	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-3	VS-AC3H	M-13	AO:AC3-HTGV	UO:1	VS-AC3C	M-13	AO:AC3-CLGV	UO:2	M-5	M-21	TF-5	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-4	VS-AC4H	M-14	AO:AC4-HTGV	UO:1	VS-AC4C	M-14	AO:AC4-CLGV	UO:2	M-7	M-23	TF-6	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-5	VS-AC5H	M-15	AO:AC5-HTGV	UO:1	VS-AC5C	M-15	AO:AC5-CLGV	UO:2	M-2,4,6	M-25	TF-7	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-6	VS-AC6H	M-16	AO:AC6-HTGV	UO:1	VS-AC6C	M-16	AO:AC6-CLGV	UO:2	M-9	M-27	TF-8	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-7	VS-AC7H	M-17	AO:AC7-HTGV	UO:1	VS-AC7C	M-17	AO:AC7-CLGV	UO:2	M-11	M-29	TF-9	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-8	VS-AC8H	M-18	AO:AC8-HTGV	UO:1	VS-AC8C	M-18	AO:AC8-CLGV	UO:2	M-13	M-31	TF-10	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-9	VS-AC9H	M-19	AO:AC9-HTGV	UO:1	VS-AC9C	M-19	AO:AC9-CLGV	UO:2	M-15	M-33	TF-11	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-10	VS-AC10H	M-20	AO:AC10HTGV	UO:1	VS-AC10C	M-20	AO:AC10CLGV	UO:2	M-8,10,12	M-33	TF-12	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1
AC-11	VS-AC11H	M-21	AO:AC11HTGV	UO:1	VS-AC11C	M-21	AO:AC11CLGV	UO:2	M-14,16,18	M-37	TF-13	M1.01,1.02,3.01,3.02,6.01,7.01	E4.1

ROOF TOP AIR CONDITIONING UNITS AC-1 TO 11 SCHEDULE

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C.: V3R 5Y5

–REVISIONS–

DATE

CHANGES

04 11

AS BUILT

TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT

JOB NAME

1855 NOEL AVENUE, COMOX, B.C.

LOCATION

VIC DAVIES ARCHITECT (2003) LTD.

ARCHITECT

THE AME CONSULTING GROUP LTD.

ENGINEER

VONDELLA MECHANICAL LTD.

CONTRACTOR

W.C. HILLE

DRAWN BY

BH

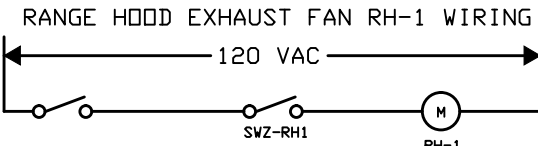
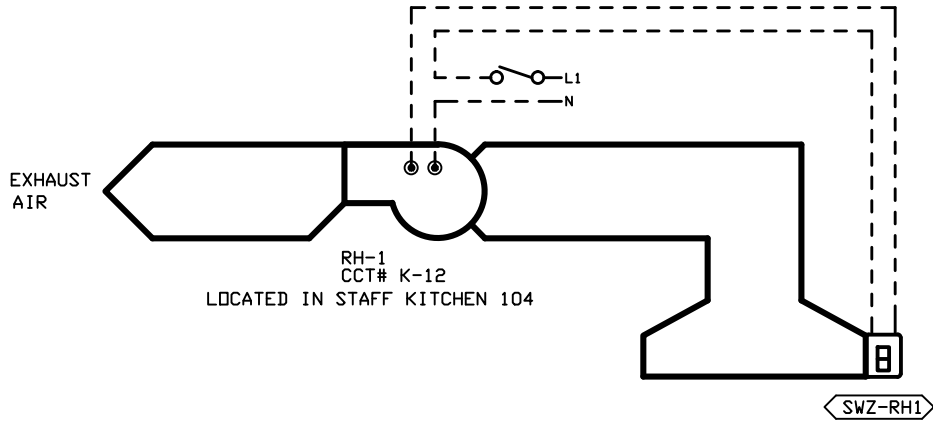
CHECKED BY

DECEMBER 2010

DATE

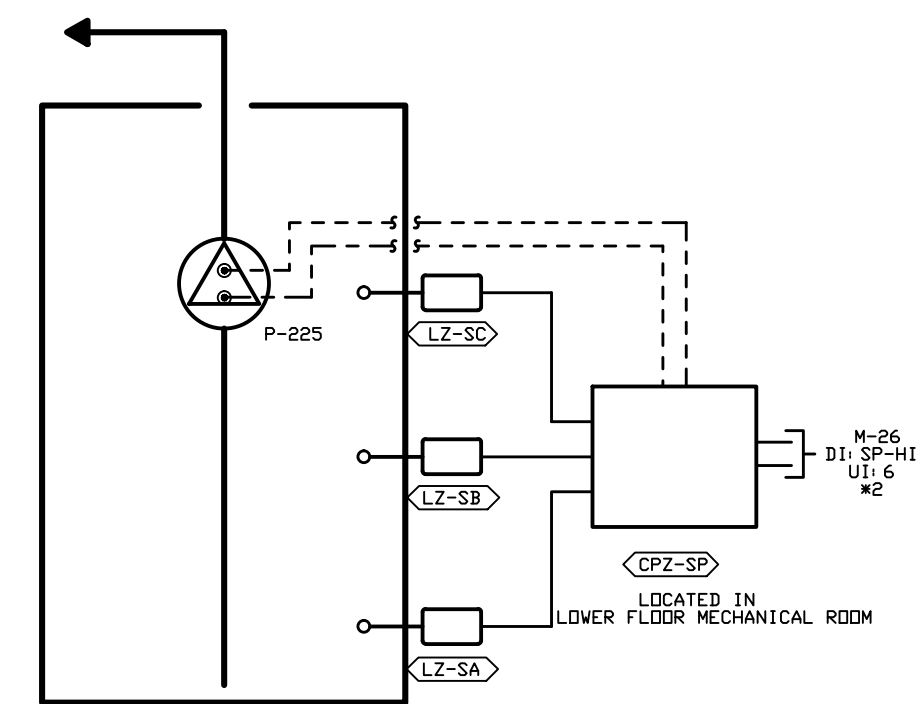
DRAWING NO.

H493 - B7



ALL EQUIPMENT SUPPLIED, INSTALLED AND WIRED BY DIVISION 16

KITCHEN RANGE HOOD EXHAUST AIR FAN RH-1 CONTROL
REFER TO MECHANICAL DRAWINGS M0.01,4.01 AND ELECTRICAL DRAWING E3 FOR DETAILS.



LOCATED ON FOUNDATION LEVEL MECHANICAL ROOM

ALL EQUIPMENT SUPPLIED, INSTALLED AND WIRED BY OTHERS

SUMP PUMP P-225 CONTROL
REFER TO GEOTHERMAL PLANT ADDITION MECHANICAL DRAWINGS M1.01,5.01,6.01,7.01 AND FOR DETAILS.

EQUIPMENT SCHEDULE			
CODE	QTY	PART	DESCRIPTION
AE-P101	1	DPDT-24	24 VAC DPDT RELAY CW BASE
CPZ-SP	1	-	SUMP PUMP CONTROL PANEL SUPPLIED BY OTHERS
CT-P101	1	CS-450-1	ANALOG CURRENT SENSOR
FZ-DWT1	1	-	FLOW SWITCH SUPPLIED WITH UNIT
HLZ-DWT1	1	-	HIGH LIMIT THERMOSTAT SUPPLIED WITH BOILER
LWZ-DWT1	1	-	LOW WATER CUT OFF SUPPLIED WITH BOILER
LZ-SA,SB,SC	3	-	LEVEL SWITCHES SUPPLIED WITH SUMP PUMP CONTROLLER
MV-1	1	-	SELF CONTAINED THERMOSTATIC MIXING VALVE SUPPLIED BY OTHERS
SWZ-RH1	1	-	MANUAL SWITCH SUPPLIED BY OTHERS

SEQUENCE OF OPERATION

KITCHEN RANGE HOOD EXHAUST AIR FAN RH-1 CONTROL

THE KITCHEN RANGE HOOD EXHAUST FAN IS CYCLED THROUGH ITS MANUAL SWITCH.

SUMP PUMP P-225 CONTROL

UPON SENSING AN INCREASE IN THE SUMP LEVEL ABOVE LEVEL SWITCH B THE SUMP PUMP IS CYCLED ON.

UPON SENSING A FURTHER INCREASE IN THE SUMP LEVEL ABOVE LEVEL SWITCH C THE SUMP PUMP REMAINS ON AND AN ALARM IS GENERATED AT THE SUMP PUMP CONTROL PANEL.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE PACKAGED SUMP CONTROL PANEL HIGH ALARM OUTPUT AND GENERATES AN ALARM UPON ACTIVATION OF THE ALARM OUTPUT.

WHENEVER THE SUMP LEVEL IS BELOW THE SUMP LOW LEVEL SWITCH A THE SUMP PUMP IS OFF

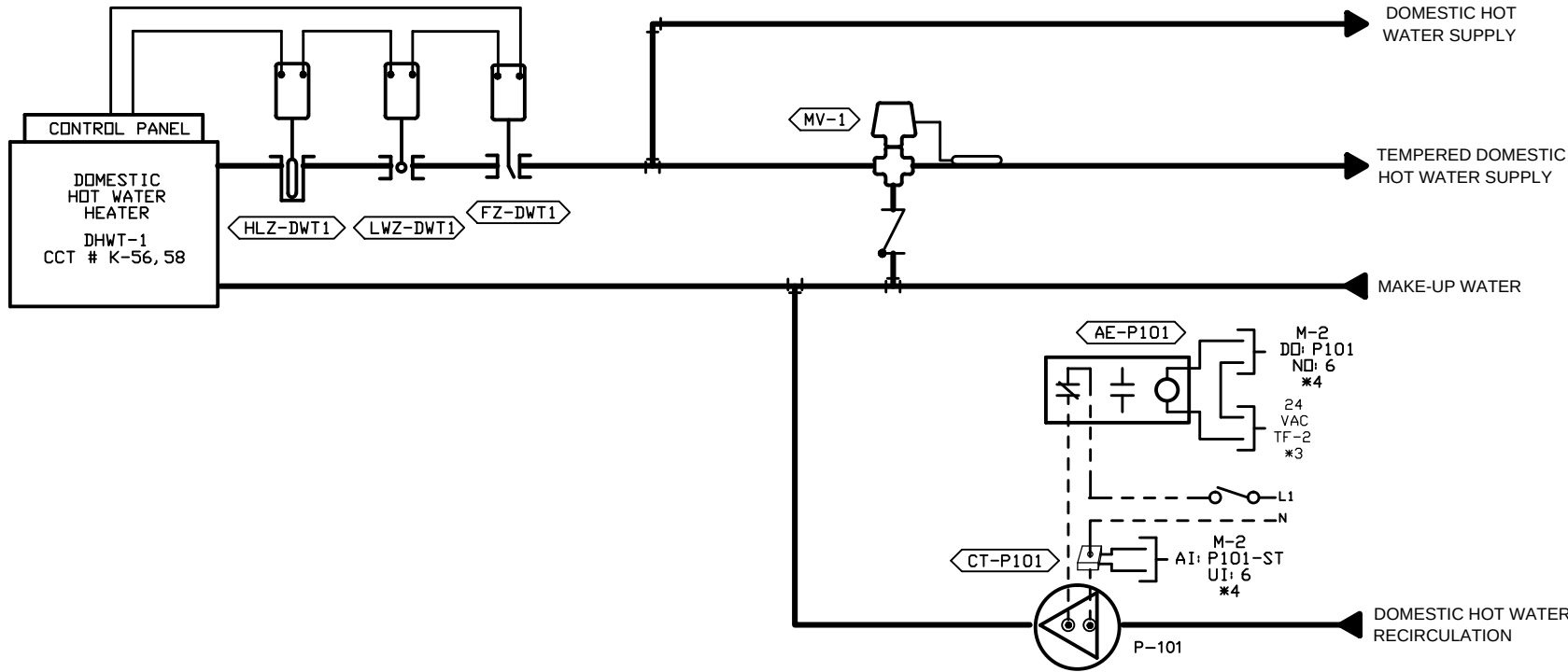
DOMESTIC HOT WATER SUPPLY TEMPERATURE CONTROL

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE RECIRCULATING PUMP STATUS THROUGH ITS CURRENT SENSOR AND GENERATES AN ALARM UPON SENSING A FAILURE.

THE DOMESTIC HOT WATER HEATER OPERATES ON ITS PACKAGED OPERATING AND SAFETY CONTROLS TO MAINTAIN THE DOMESTIC HOT WATER TEMPERATURE AT SETPOINT.

THE FACILITIES MANAGEMENT SYSTEM CYCLES THE DOMESTIC HOT WATER RECIRCULATION PUMP ACCORDING TO THE PROGRAMMED OCCUPANCY SCHEDULE.

NOTES:
*1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C5 FOR POINT WIRING DETAILS.
*2 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C13 FOR POINT WIRING DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.
*4 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C1 FOR POINT WIRING DETAILS.



--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

THE PIPING SHOWN IN THIS SCHEMATIC IS FOR GRAPHICAL PURPOSES ONLY. CONFIRM ACTUAL PIPING LAYOUT WITH BOTH MECHANICAL DRAWINGS AND MECHANICAL SPECIFICATIONS.

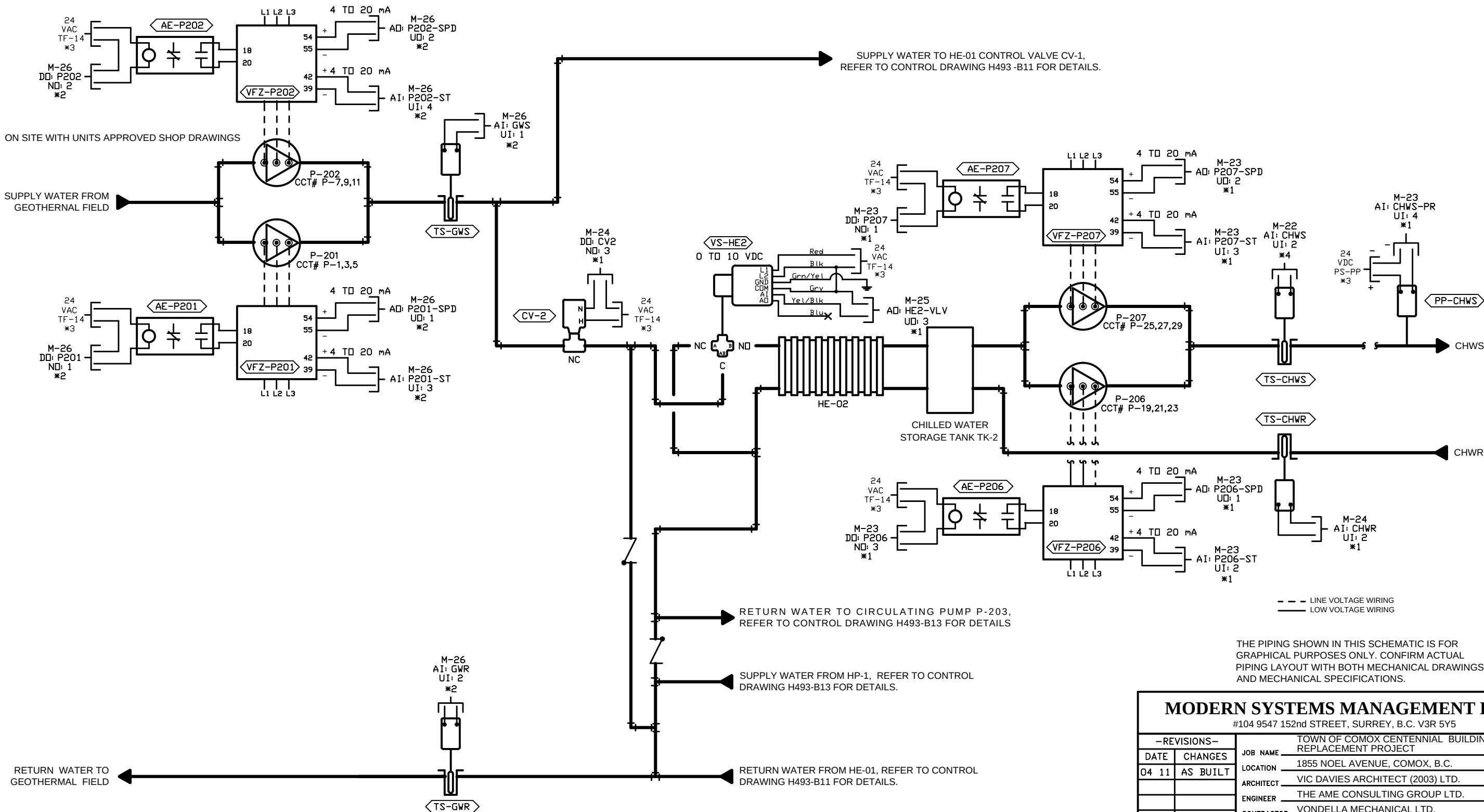
DOMESTIC HOT WATER SUPPLY TEMPERATURE CONTROL
LOCATED IN WORKSHOP 103, REFER TO MECHANICAL DRAWINGS M0.01,2.02,7.0 AND ELECTRICAL DRAWING E3 FOR DETAILS.

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

—REVISIONS—		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.
H493 - B8



CHILLED WATER SUPPLY TEMPERATURE CONTROL

LOCATED IN LOWER FLOOR MECHANICAL ROOM, REFER TO GEOTHERMAL MECHANICAL DRAWINGS M1.01,5.01,6.01,7.01 AND ELECTRICAL DRAWING E4.01 FOR DETAILS.

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		JOB NAME	TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT
DATE	CHANGES	LOCATION	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.
		ENGINEER	THE AME CONSULTING GROUP LTD.
		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010

DRAWING NO.

H493 - B9

CHILLED WATER SUPPLY TEMPERATURE SEQUENCE OF OPERATION

EQUIPMENT SCHEDULE

CODE	QTY	PART	DESCRIPTION
AE-P201,P202,P206, P207	4	DPDT-24	24 VAC DPDT RELAY C/W BASE
CV-2	1	VA-8223-526-5-14	4" (100 mm) 24 VAC 2 WAY, 2 POSITION, NORMALLY CLOSED CONTROL VALVE CV=145
PP-CHWS	1	PGS100A11A1A	PRESSURE TRANSMITTER 0 - 50 PSI
TS-CHWR,CHWS,GWR, GWS	4	TS-6721-850	IMMERSION TEMPERATURE SENSOR
	4	AT-215	IMMERSION WELL
VFZ-P201,P202,P206, P207	4	-	VARIABLE FREQUENCY DRIVE SUPPLIED BY OTHERS
VS-HE2	1	VS-8303-596-5-13	3" (75 mm) 24 VAC PROPORTIONAL DIVERTING VALVE CV=120

SEQUENCE OF OPERATION

CHILLED WATER SUPPLY TEMPERATURE CONTROL

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE CIRCULATING PUMPS STATUS THROUGH THEIR ASSOCIATED VARIABLE FREQUENCY DRIVE STATUS OUTPUT AND GENERATES AN ALARM UPON SENSING A PUMP FAILURE.

NORMAL OPERATION

DURING BUILDING COOLING MODE THE CHILLED WATER LOOP CIRCULATING PUMPS RUN CONTINUOUSLY.

THE FACILITIES MANAGEMENT SYSTEM MODULATES THE CHILLED WATER CIRCULATING PUMP SPEED TO MAINTAIN THE LOOP PRESSURE SETPOINT, AS SENSED THROUGH THE PRESSURE TRANSMITTER.

THE GEOTHERMAL LOOP LEAD PUMP RUNS CONTINUOUSLY AT ITS PROGRAMMED SPEED. THE CIRCULATING PUMP SPEED IS SET DURING SYSTEM BALANCING AND COMMISSIONING.

THE FACILITIES MANAGEMENT SYSTEM CYCLES THE GEOTHERMAL PUMPS ON A LEAD / LAG ROTATING BASIS TO EQUALIZE THE PUMP RUN TIME.

THE LEAD PUMP IS ROTATED ON A MONTHLY BASIS.

UPON SENSING FAILURE OF THE LEAD CIRCULATING PUMP THE FACILITIES MANAGEMENT SYSTEM STARTS THE LAG CIRCULATING PUMP AND GENERATES A PUMP FAILURE ALARM.

THE CONTROL VALVE (CV-2) IS OPEN UNLESS THE HEAT CALL AT CONTROL VALVE CV-1 (REFER TO CONTROL DRAWINGS H493-B11,B12) HAS THE VALVE OPEN MORE THAN 45%.

THE FACILITIES MANAGEMENT SYSTEM MODULATES THE CHILLED WATER HEAT EXCHANGER CONTROL VALVE (VS-HE2) TO MAINTAIN THE CHILLED WATER SUPPLY TEMPERATURE AT SETPOINT.

ONCE THE HEAT EXCHANGER CONTROL VALVE IS AT FULL COOLING AND THE CHILLED WATER SUPPLY TEMPERATURE STILL HAS A COOLING DEMAND THE FACILITIES MANAGEMENT SYSTEM ENABLES THE PACKAGED HEATPUMP (REFER TO CONTROL DRAWING H493-B13).

ONCE ENABLED THE PACKAGED HEATPUMP OPERATES IN STAGES THROUGH IS PACKAGED OPERATING AND SAFETY CONTROLS TO MAINTAIN THE HEATPUMP DISCHARGE TEMPERATURE AT SETPOINT.

NOTES:
*1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C12 FOR POINT WIRING DETAILS.
*2 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C13 FOR POINT WIRING DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.
*4 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C11 FOR POINT WIRING DETAILS.

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	
04 11	AS BUILT	LOCATION	1855 NOEL AVENUE, COMOX, B.C.
		ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.
		ENGINEER	THE AME CONSULTING GROUP LTD.
		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010
		DRAWING NO. H493 - B10	

SUPPLY WATER FROM
BOILERS B-1,2
REFER TO CONTROL
DRAWING H493-B14
FOR DETAILS.

RETURN WATER TO
BOILERS RECIRCULATING
PUMPS P-210,211
REFER TO CONTROL
DRAWING H493-B14
FOR DETAILS.

SUPPLY WATER FROM
PUMPS P-201,202
REFER TO CONTROL
DRAWING H493-B9
FOR DETAILS.

RETURN WATER TO
GEOEXCHANGE FIELD
REFER TO CONTROL
DRAWING H493-B9
FOR DETAILS.

RETURN WATER TO HP-1
CIRCULATING PUMP P-205
REFER TO CONTROL DRAWING
H493-B13 FOR DETAILS.

FOR DETAILS
SUPPLY WATER FROM HP-1 CONDENSER
REFER TO CONTROL DRAWING H493-B13

HEATING WATER SUPPLY TEMPERATURE CONTROL

LOCATED IN LOWER FLOOR MECHANICAL ROOM, REFER TO GEOTHERMAL MECHANICAL DRAWINGS M1.01,5.01,6.01,7.01 AND ELECTRICAL DRAWING E4.01 FOR DETAILS.

THE PIPING SHOWN IN THIS SCHEMATIC IS FOR
GRAPHICAL PURPOSES ONLY. CONFIRM ACTUAL
PIPING LAYOUT WITH BOTH MECHANICAL DRAWINGS
AND MECHANICAL SPECIFICATIONS.

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		JOB NAME	TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT
DATE	CHANGES	LOCATION	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.
		ENGINEER	THE AME CONSULTING GROUP LTD.
		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010
			DRAWING NO.
			H493 - B11

EQUIPMENT SCHEDULE			
CODE	QTY	PART	DESCRIPTION
AE-CT1D,CT1F,CT1S, P204,P208,P209,P212	7	DPDT-24	24 VAC DPDT RELAY C/W BASE
CT-P204	1	CS-450-1	ANALOG CURRENT SENSOR
CV-1	1	VS-8213-596-5-14	4" (100 mm) 24 VAC PROPORTIONAL TWO WAY NORMALLY OPEN CONTROL VALVE CV=145
PP-HWS	1	PGS100A11A1A	PRESSURE TRANSMITTER 0 - 50 PSI
TS-GWR1,HE1R,HE1S, HWR,HWS,TK1S,CT1, CT1R,	8	TS-6721-850	IMMERSION TEMPERATURE SENSOR
VFZ-P208,P209,P212	8	AT-215	IMMERSION WELL
	3	-	VARIABLE FREQUENCY DRIVE SUPPLIED BY OTHERS

HEATING WATER SUPPLY TEMPERATURE SEQUENCE OF OPERATION

SEQUENCE OF OPERATION

HEATING WATER SUPPLY TEMPERATURE CONTROL

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE CIRCULATING PUMPS STATUS THROUGH THEIR ASSOCIATED VARIABLE FREQUENCY DRIVE STATUS OUTPUT AND GENERATES AN ALARM UPON SENSING A PUMP FAILURE.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE HEAT EXCHANGER CIRCULATING PUMP STATUS THROUGH ITS CURRENT SENSOR AND GENERATES AN ALARM UPON SENSING A PUMP FAILURE.

NORMAL OPERATION

ON A CALL FOR HEATING LEAD HEATING WATER PUMP CIRCULATION PUMP RUNS CONTINUOUSLY.

THE FACILITIES MANAGEMENT SYSTEM CYCLES THE HEATING WATER CIRCULATING PUMPS ON A LEAD / LAG ROTATING BASIS TO EQUALIZE THE PUMP RUN TIME.

THE LEAD PUMP IS ROTATED ON A MONTHLY BASIS.

UPON SENSING FAILURE OF THE LEAD CIRCULATING PUMP THE FACILITIES MANAGEMENT SYSTEM STARTS THE LAG CIRCULATING PUMP AND GENERATES A PUMP FAILURE ALARM.

THE FACILITIES MANAGEMENT SYSTEM MODULATES THE CIRCULATING PUMP SPEED TO MAINTAIN THE LOOP PRESSURE AT SETPOINT, AS SENSED THROUGH THE LOOP PRESSURE TRANSMITTER.

THE FACILITIES MANAGEMENT SYSTEM CONTROLS THE HEATPUMP (REFER TO CONTROL DRAWING H493-B13) AND THE HEATING WATER BOILERS (REFER TO CONTROL DRAWING H493-B14) TO MAINTAIN THE HEATING WATER SUPPLY TEMPERATURE AT SETPOINT.

ON A CALL FOR HEAT THE FACILITIES MANAGEMENT SYSTEM ENABLES THE HEATPUMP (REFER TO CONTROL DRAWING H493-B13) AND CYCLES THE HEAT EXCHANGER LOOP CIRCULATING PUMP ON .

THE HEATPUMP OPERATES ON ITS PACKAGED OPERATING AND SAFETY CONTROLS TO MAINTAIN THE HEATING WATER DISCHARGE TEMPERATURE AT SETPOINT.

WHEN THE HEATPUMP IS IN OPERATION THE HEATPUMPS GEOTHERMAL LOOP CIRCULATING PUMP RUNS. THE FACILITIES MANAGEMENT SYSTEM OPENS THE HEAT EXCHANGER GEOTHERMAL LOOP CONTROL VALVE TO REJECT HEAT TO THE GEOTHERMAL FIELD.

THE FACILITIES MANAGEMENT SYSTEM MODULATES THE HEATPUMP CIRCULATING PUMP SPEED TO MAINTAIN THE RETURN WATER TO THE GEOTHERMAL FIELD TEMPERATURE AT 10C / 50F.

ON A FURTHER CALL FOR HEATING IN THE HEATING WATER LOOP AND THE HEATPUMP OPERATING AT FULL CAPACITY (40 TONS) THE FACILITIES MANAGEMENT SYSTEM ENABLE THE HEATING WATER BOILERS (REFER TO CONTROL DRAWING H493-B14).

THE HEATING WATER BOILERS ARE SEQUENTIALLY FIRED THROUGH THEIR PACKAGED OPERATING CONTROLS TO MAINTAIN THE HEATING WATER SUPPLY TEMPERATURE AT SETPOINT.

UPON SENSING A CALL FOR COOLING IN THE GEOTHERMAL LOOP THE FACILITIES MANAGEMENT SYSTEM ENABLES THE COOLING TOWER SYSTEM.

ON A CALL FOR COOLING THE FACILITIES MANAGEMENT SYSTEM CYCLES THE COOLING TOWER DAMPER OPEN.

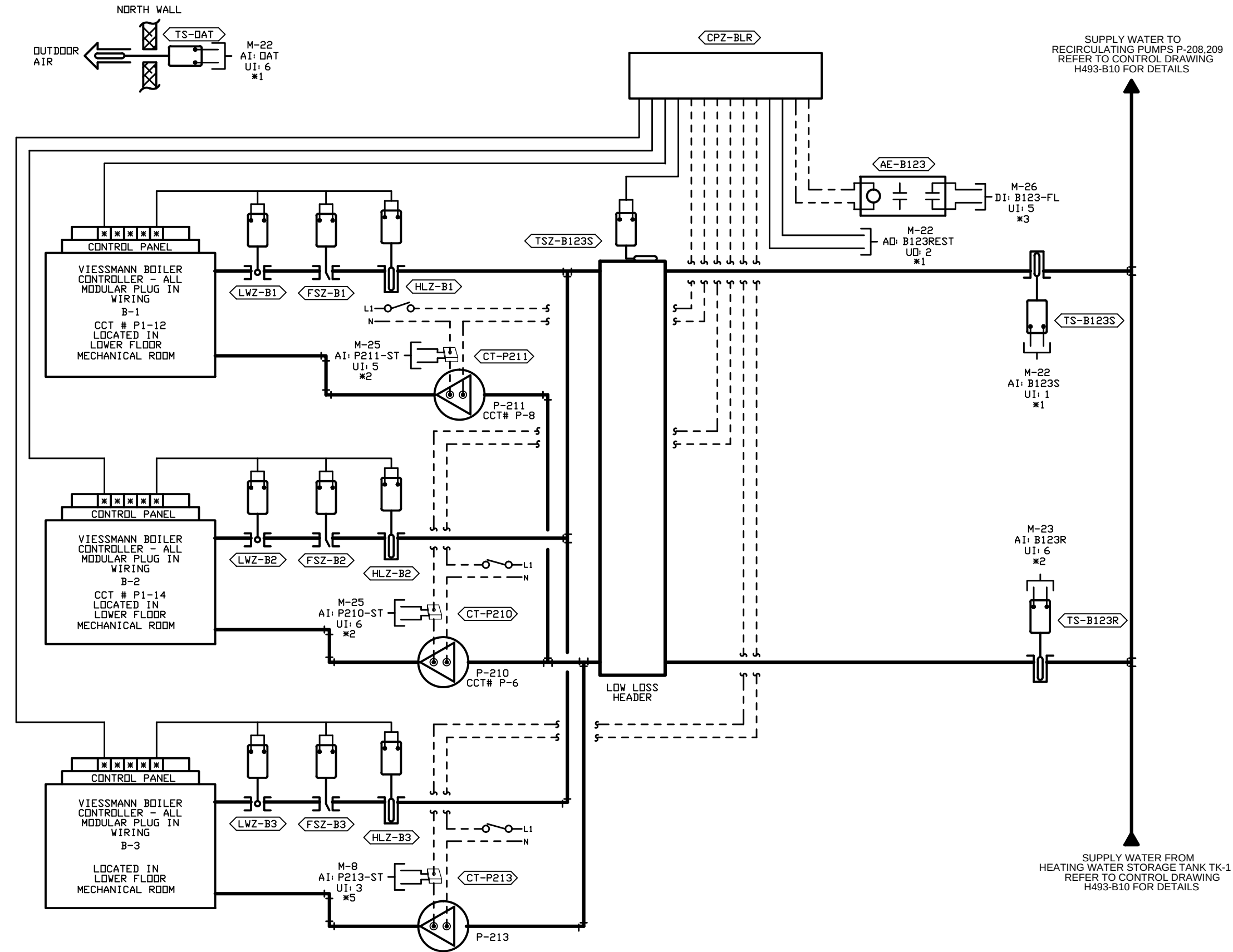
ON A FURTHER CALL FOR COOLING THE COOLING TOWER DAMPER REMAINS OPEN AND THE FACILITIES MANAGEMENT SYSTEM CYCLES THE COOLING TOWER SPRAY PUMP ON.

ON A FURTHER CALL FOR COOLING THE COOLING TOWER DAMPER REMAINS OPEN, THE SPRAY PUMP REMAINS IN OPERATION AND THE FACILITIES MANAGEMENT SYSTEM CYCLES THE COOLING TOWER FAN ON.

NOTES:

- *1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C11 FOR POINT WIRING DETAILS.
- *2 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C12 FOR POINT WIRING DETAILS.
- *3 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C4 FOR POINT WIRING DETAILS.
- *4 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.
- *5 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C13 FOR POINT WIRING DETAILS.

MODERN SYSTEMS MANAGEMENT LTD.				
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5				
-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT		
DATE	CHANGES	JOB NAME		
04 11	AS BUILT	LOCATION	1855 NOEL AVENUE, COMOX, B.C.	
		ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.	
		ENGINEER	THE AME CONSULTING GROUP LTD.	
		CONTRACTOR	VONDELLA MECHANICAL LTD.	
		DRAWN BY	W.C. HILLE	
		CHECKED BY	BH	DRAWING NO. H493 - B12
		DATE	DECEMBER 2010	



EQUIPMENT SCHEDULE			
CODE	QTY	PART	DESCRIPTION
AE-B123	1	DPDT-120	120 VAC DPDT RELAY C/W BASE
CPZ-BLR	1	-	BOILERS CONTROLLER SUPPLIED WITH BOILER
CT-P210,P211,P213	3	CS-450-1	ANALOG CURRENT SENSOR
FSZ-B1,B2,B3	3	-	FLOW SWITCH SUPPLIED WITH BOILER SYSTEM
HLZ-B1,B2,B3	3	-	HIGH LIMIT THERMOSTAT SUPPLIED WITH BOILER
LWZ-B1,B2,B3	3	-	LOW WATER CUT OFF SUPPLIED WITH BOILER
TS-B123R,B123S	2	TS-6721-850	IMMERSION TEMPERATURE SENSOR
	2	AT-215	IMMERSION WELL
TS-OAT	1	TS-8501	OUTDOOR AIR TEMPERATURE SENSOR
TSZ-B123S	1	-	SUPPLY WATER TEMPERATURE SENSOR SUPPLIED WITH BOILER SYSTEM

SEQUENCE OF OPERATION

HEATING WATER BOILERS B-1,2,3 CONTROL

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE BOILER CIRCULATING PUMPS STATUS THROUGH THEIR ASSOCIATED CURRENT SENSOR.

THE FACILITIES MANAGEMENT SYSTEM MONITORS THE BOILERS PACKAGED CONTROL SYSTEM ALARM OUTPUT AND GENERATES AN ALARM UPON DETECTION OF A BOILER ALARM CONDITION.

NORMAL OPERATION

UPON SENSING A CALL FOR HEAT THE FACILITIES MANAGEMENT SYSTEM ENABLES THE PACKAGED BOILER SYSTEM.

THE BOILER SYSTEM OPERATES ON ITS PACKAGED OPERATING AND SAFETY CONTROLS TO MAINTAIN THE HEATING WATER SUPPLY TEMPERATURE AT SETPOINT.

NOTES:
*1 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C11 FOR POINT WIRING DETAILS.
*2 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C12 FOR POINT WIRING DETAILS.
*3 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C13 FOR POINT WIRING DETAILS.
*4 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.
*5 REFER TO PHYSICAL POINT HARDWIRING DIAGRAM, CONTROL DRAWING H493-C4 FOR POINT WIRING DETAILS.

THE PIPING SHOWN IN THIS SCHEMATIC IS FOR GRAPHICAL PURPOSES ONLY. CONFIRM ACTUAL PIPING LAYOUT WITH BOTH MECHANICAL DRAWINGS AND MECHANICAL SPECIFICATIONS.

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

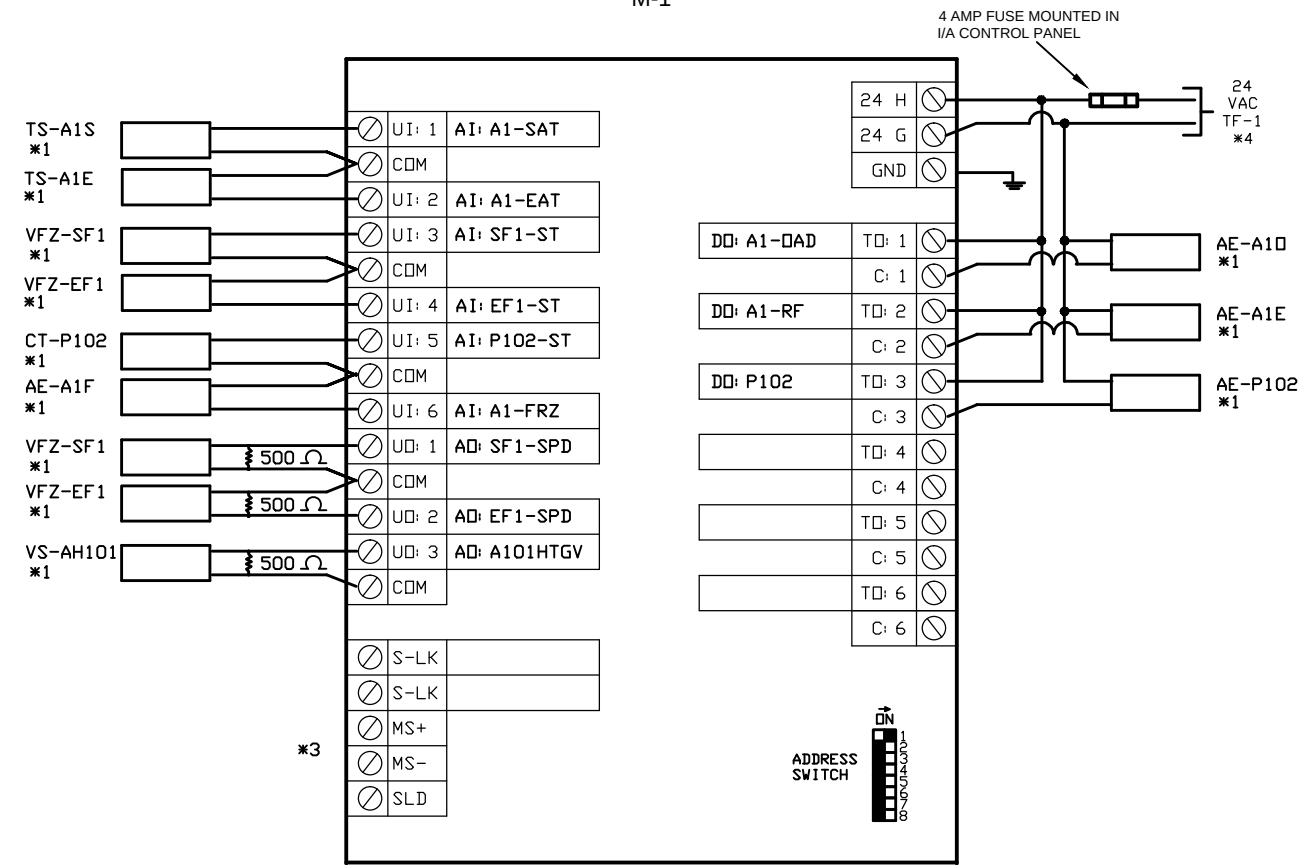
-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.
H493 - B14

HEATING WATER BOILERS B-1,2,3 CONTROL

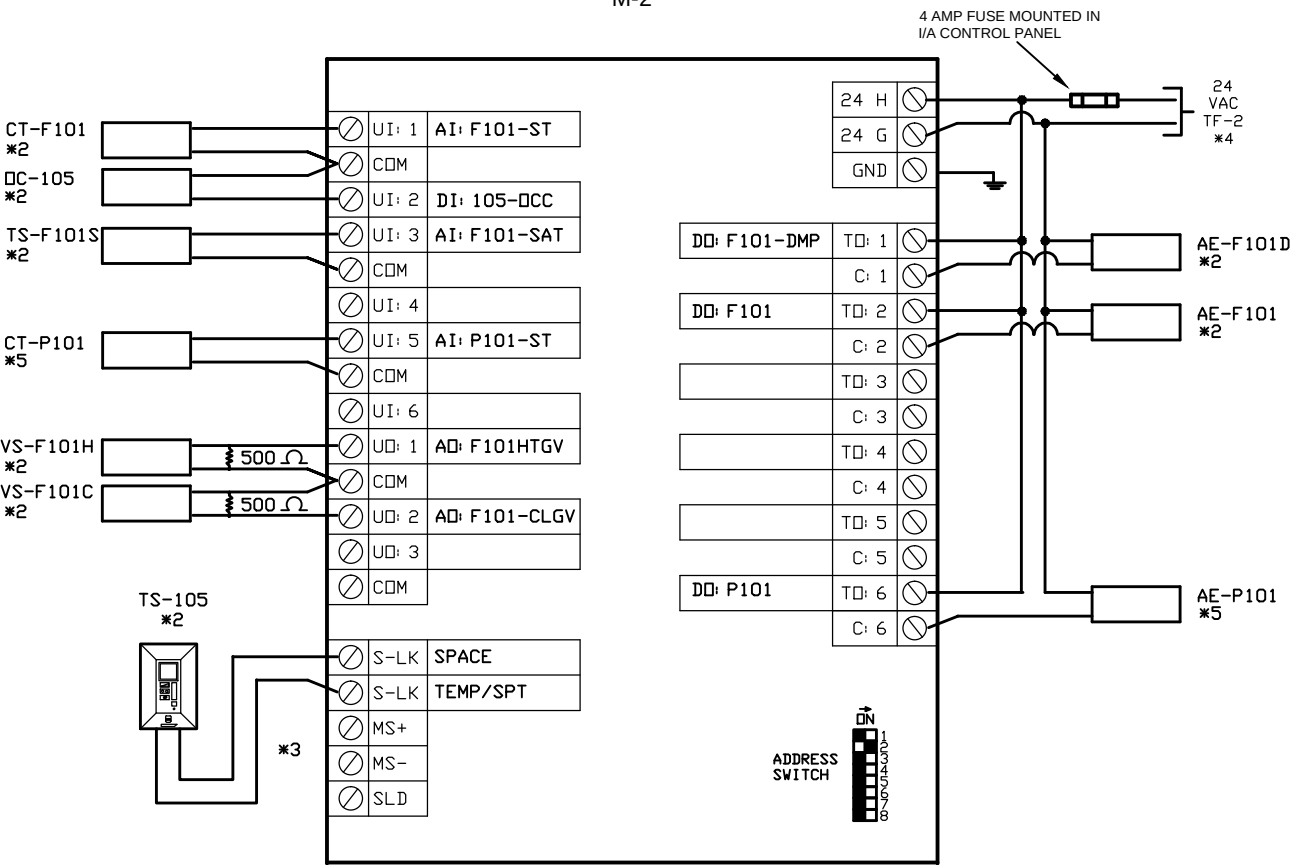
LOCATED IN LOWER FLOOR MECHANICAL ROOM, REFER TO GEOTHERMAL ADDITION MECHANICAL DRAWINGS M1.01,5.01,6.01 AND ELECTRICAL DRAWING E4.1 FOR DETAILS.

M-1



MOUNTED LOCAL TO AHU-101 ON ROOF

M-2



MOUNTED LOCAL TO FANCOIL UNIT FC-101

NOTES:
*1 REFER TO CONTROL DRAWING H493-B1 FOR UNIT LAYOUT DETAILS.
*2 REFER TO CONTROL DRAWING H493-B4 FOR UNIT LAYOUT DETAILS.
*3 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*4 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.
*5 REFER TO CONTROL DRAWING H493-B8 FOR UNIT LAYOUT DETAILS.

--- LINE VOLTAGE WIRING
--- LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	LOCATION
04 11	AS BUILT	1855 NOEL AVENUE, COMOX, B.C.	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.

H493 - C1



DETAILED WIRING DIAGRAM 4 - 20 mA TRANSMITTER TO I/A SERIES CONTROLLER



MOUNTED LOCAL TO FANCOIL UNIT FC-103

NOTES:

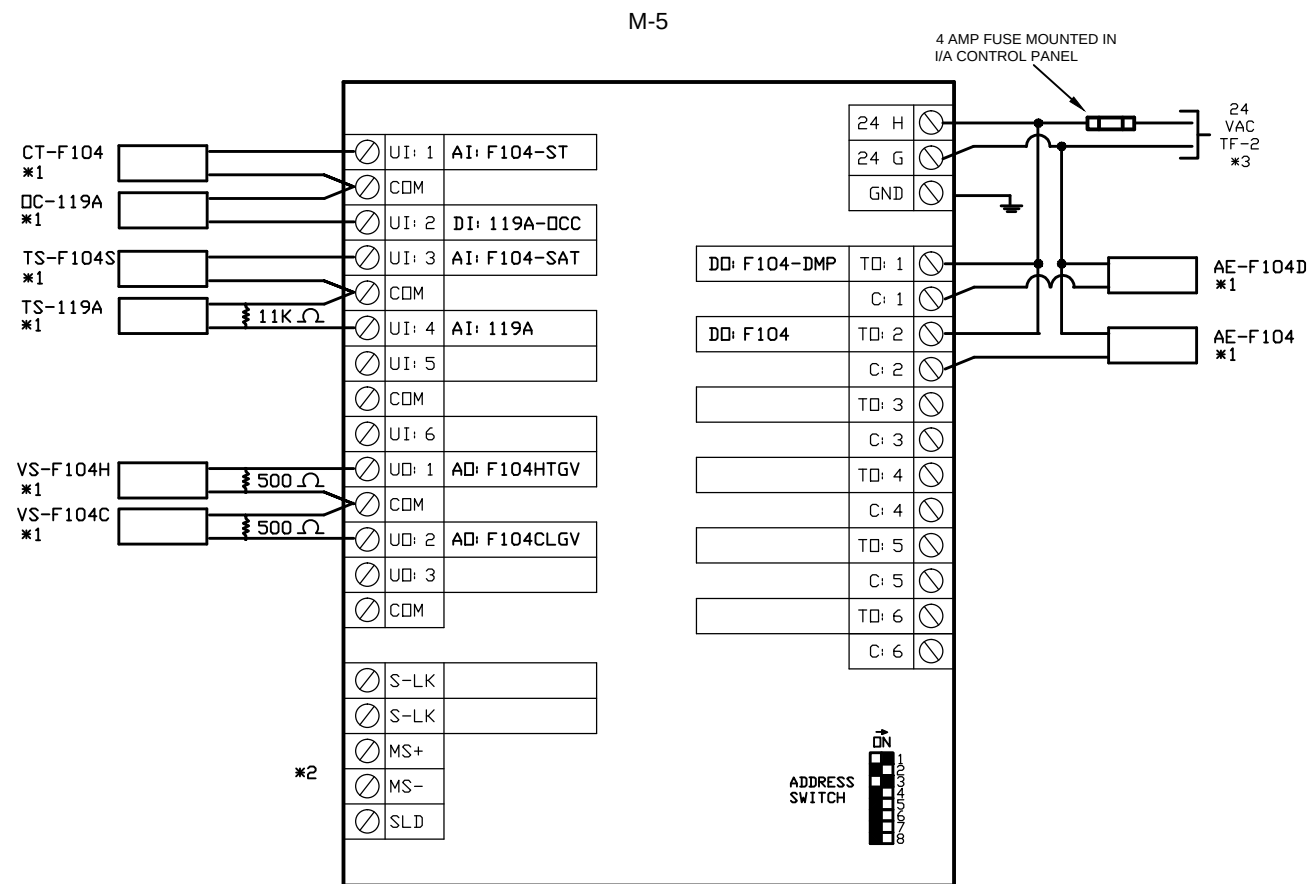
- *1 REFER TO CONTROL DRAWING H493-B1 FOR UNIT LAYOUT DETAILS.
- *2 REFER TO CONTROL DRAWING H493-B4 FOR UNIT LAYOUT DETAILS.
- *3 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
- *4 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

- - - LINE VOLTAGE WIRING
 _____ LOW VOLTAGE WIRING

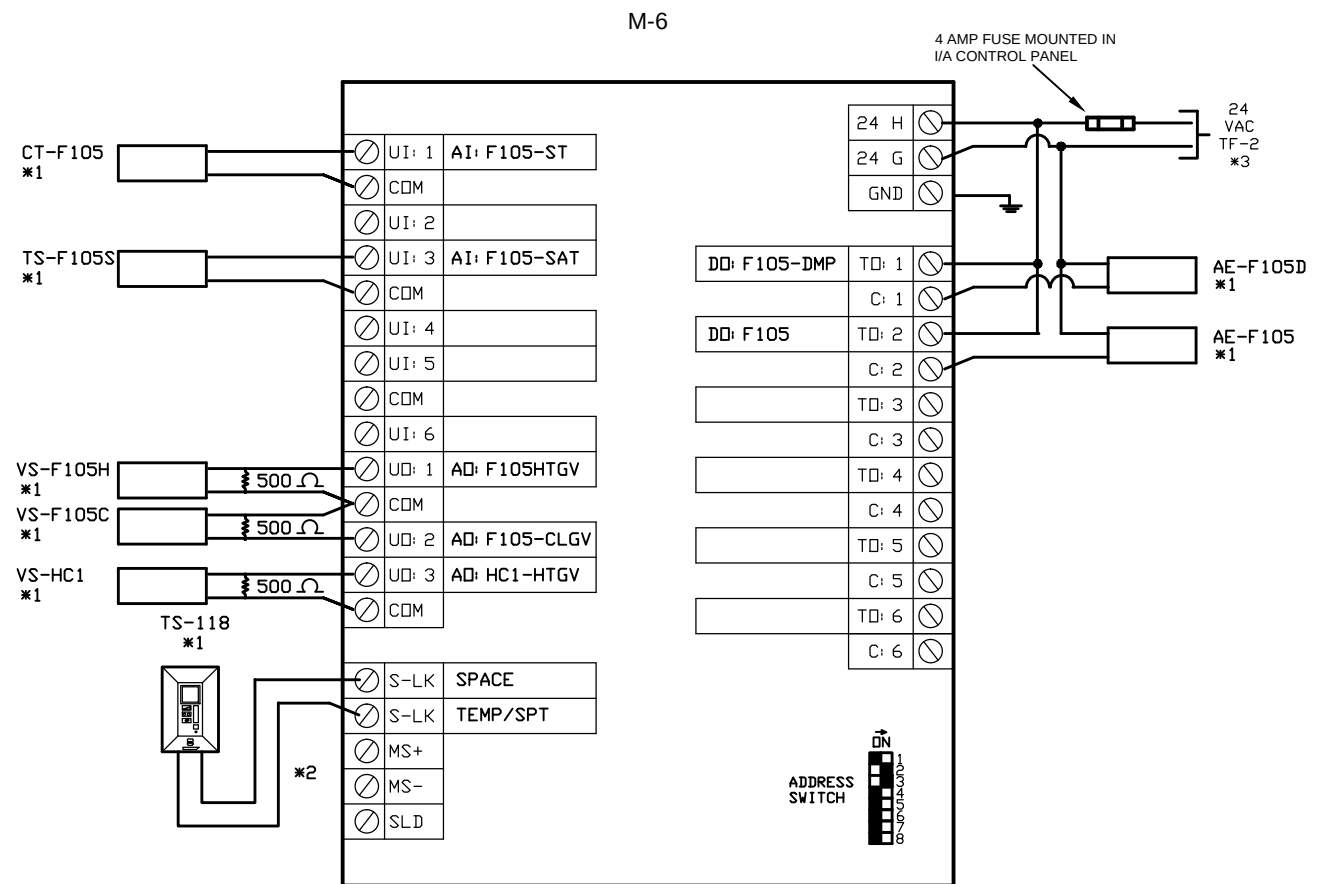
MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	
04 11	AS BUILT	LOCATION	1855 NOEL AVENUE, COMOX, B.C.
		ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.
		ENGINEER	THE AME CONSULTING GROUP LTD.
		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010
		DRAWING NO. <i>H493 - C2</i>	



MOUNTED LOCAL TO FANCOIL UNIT FC-104



MOUNTED LOCAL TO FANCOIL UNIT FC-105

NOTES:
*1 REFER TO CONTROL DRAWING H493-B3 FOR UNIT LAYOUT DETAILS.
*2 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
--- LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

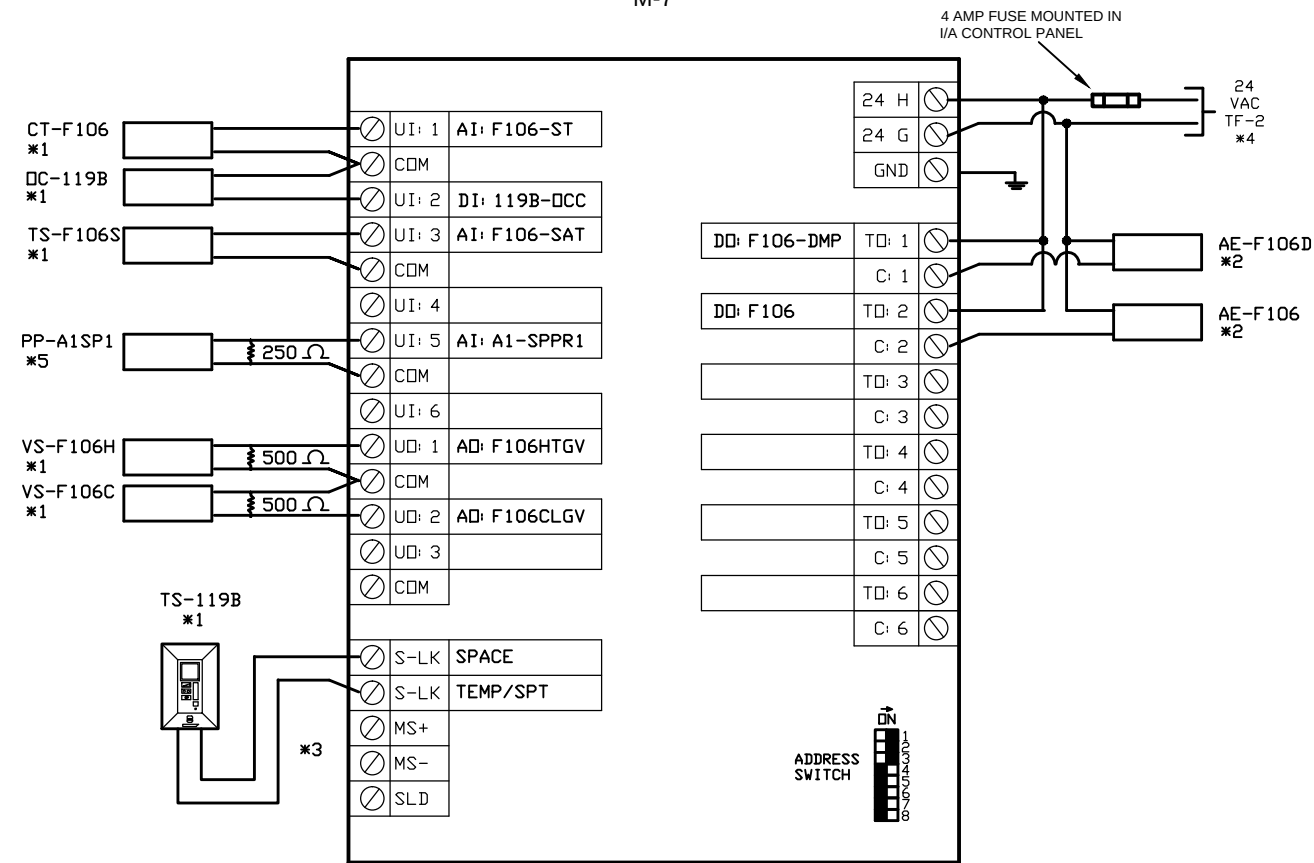
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	LOCATION
04 11	AS BUILT	1855 NOEL AVENUE, COMOX, B.C.	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	CH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.

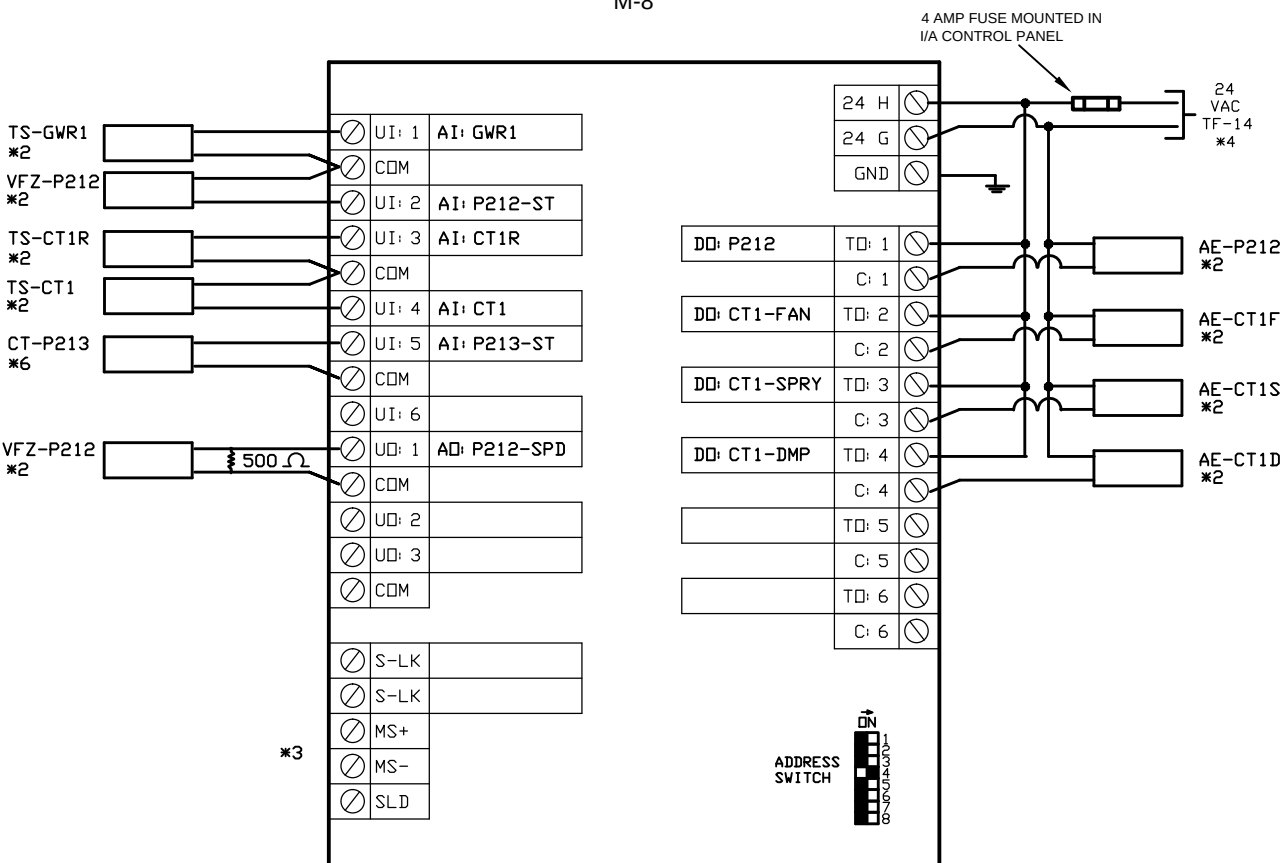
H493 - C3

M-7



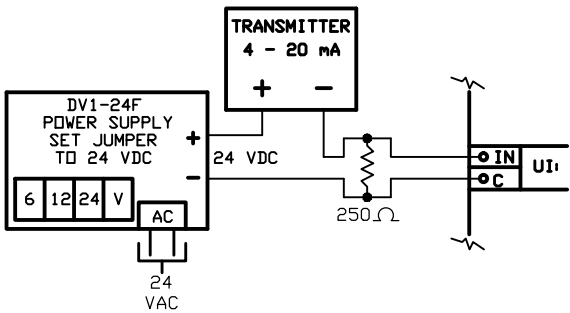
MOUNTED LOCAL TO FANCOIL UNIT FC-106

M-8



MOUNTED IN LOWER FLOOR MECHANICAL ROOM

DETAILED WIRING DIAGRAM
4 - 20 mA TRANSMITTER TO
I/A SERIES CONTROLLER



- NOTES:
- *1 REFER TO CONTROL DRAWING H493-B5 FOR UNIT LAYOUT DETAILS.
 - *2 REFER TO CONTROL DRAWING H493-B11 FOR UNIT LAYOUT DETAILS.
 - *3 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
 - *4 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.
 - *5 REFER TO CONTROL DRAWING H493-B1 FOR UNIT LAYOUT DETAILS.
 - *6 REFER TO CONTROL DRAWING H493-B14 FOR UNIT LAYOUT DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

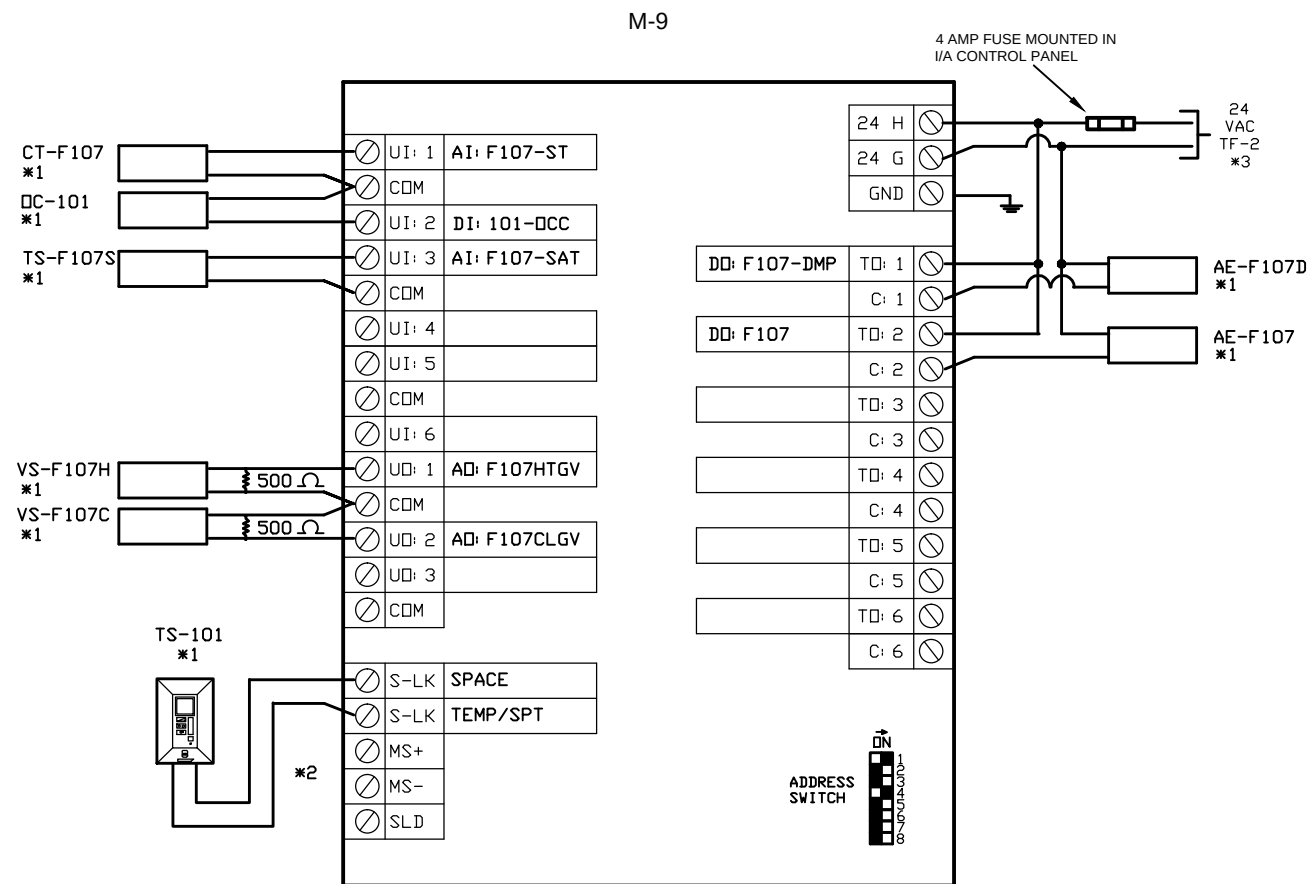
MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

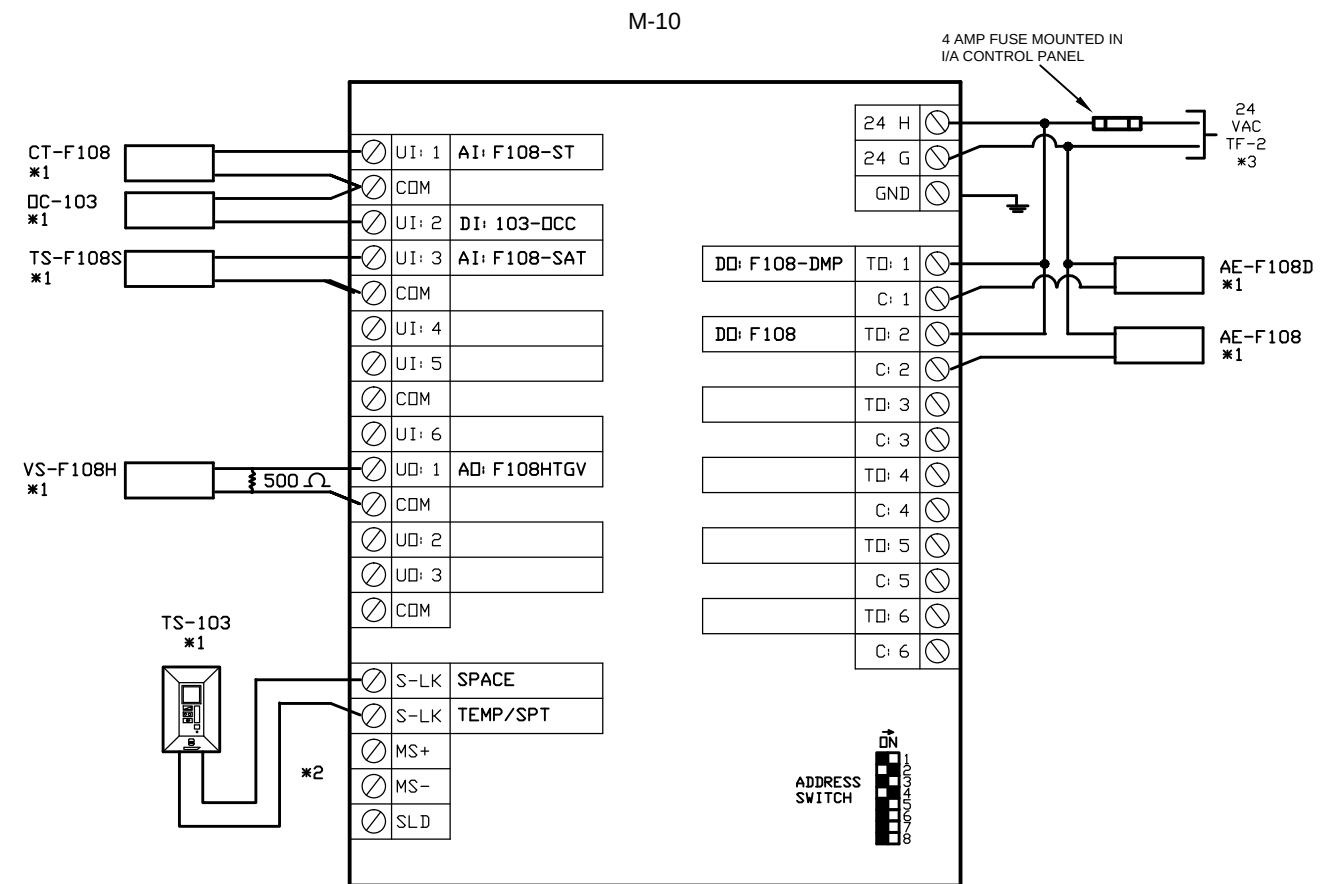
-REVISIONS-		JOB NAME	
DATE	CHANGES	LOCATION	TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT
04 11	AS BUILT	ARCHITECT	1855 NOEL AVENUE, COMOX, B.C.
		ENGINEER	VIC DAVIES ARCHITECT (2003) LTD.
		CONTRACTOR	THE AME CONSULTING GROUP LTD.
		DRAWN BY	VONDELLA MECHANICAL LTD.
		CHECKED BY	W.C. HILLE
		DATE	BH
			DECEMBER 2010

DRAWING NO.

H493 - C4



MOUNTED LOCAL TO FANCOIL UNIT FC-107



MOUNTED LOCAL TO FANCOIL UNIT FC-108

NOTES:

*1 REFER TO CONTROL DRAWING H493-B4 FOR UNIT LAYOUT DETAILS.

*2 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.

*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

- - - LINE VOLTAGE WIRING
 _____ LOW VOLTAGE WIRING

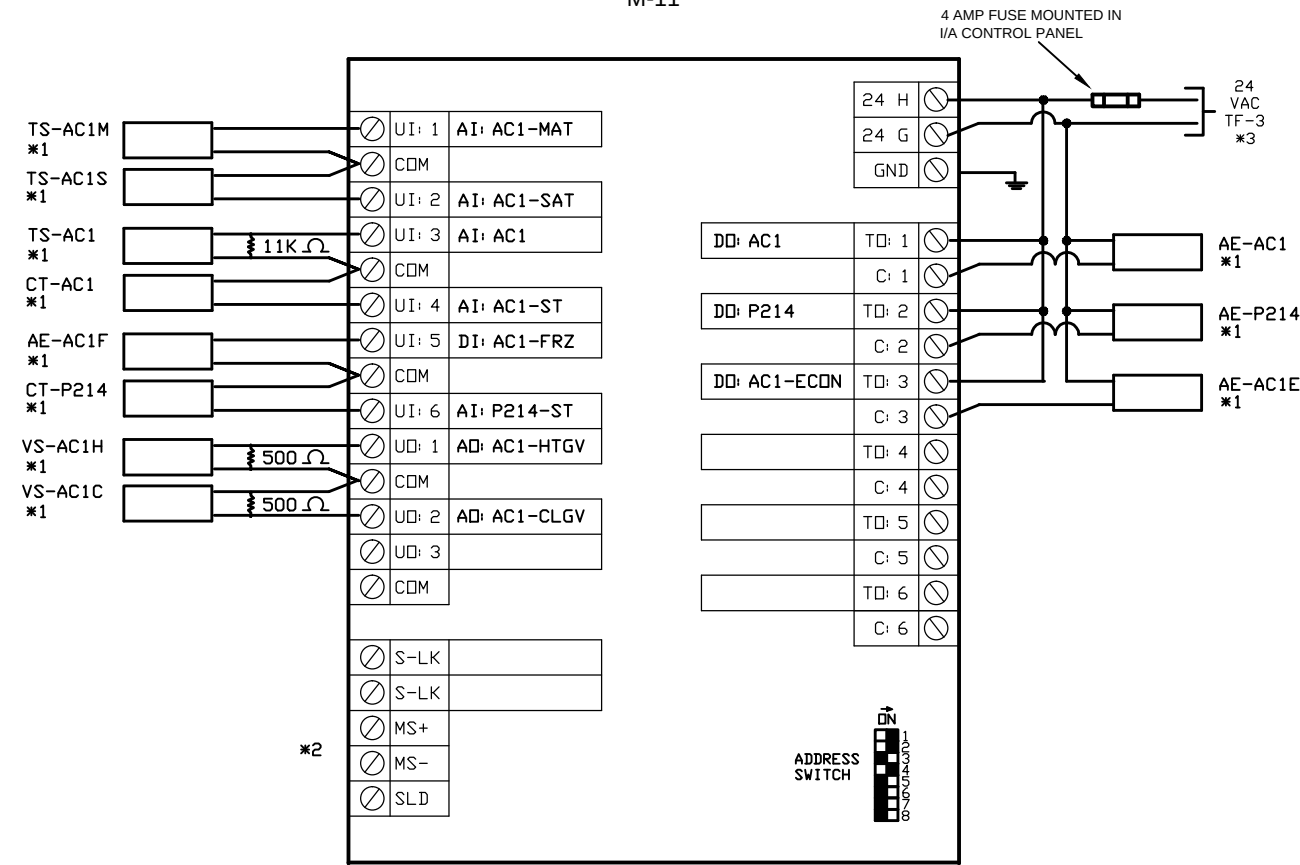
MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	
04 11	AS BUILT	LOCATION	1855 NOEL AVENUE, COMOX, B.C.
		ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.
		ENGINEER	THE AME CONSULTING GROUP LTD.
		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010
		DRAWING NO. H493 - C5	

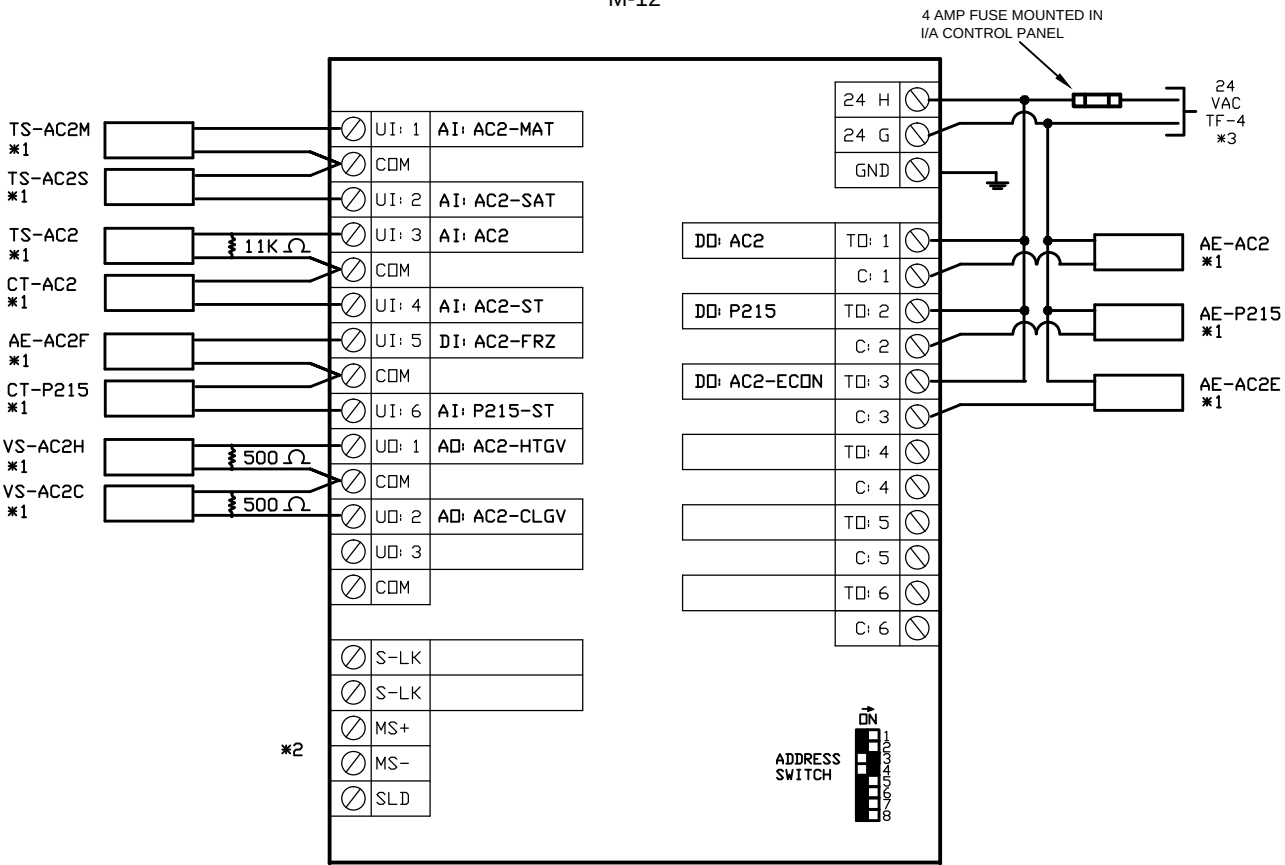
PHYSICAL POINT HARDWIRING DIAGRAM, I/A SERIES CONTROLLERS M-9,10

M-11



MOUNTED LOCAL TO ROOF TOP UNIT AC-1 ON ROOF

M-12



MOUNTED LOCAL TO ROOF TOP UNIT AC-2 ON ROOF

NOTES:
*1 REFER TO CONTROL DRAWINGS H493-B6,B7 FOR UNIT LAYOUT DETAILS.
*2 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

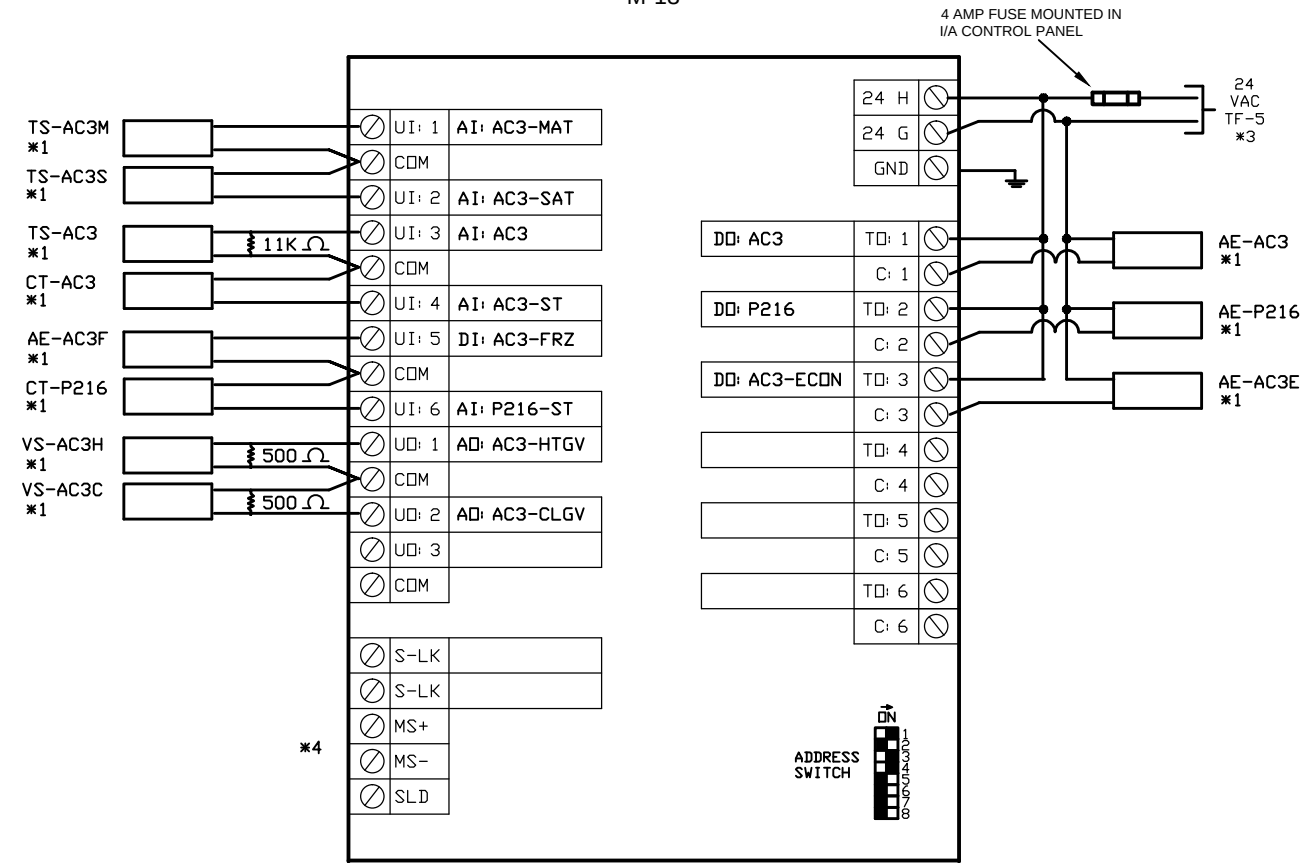
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.

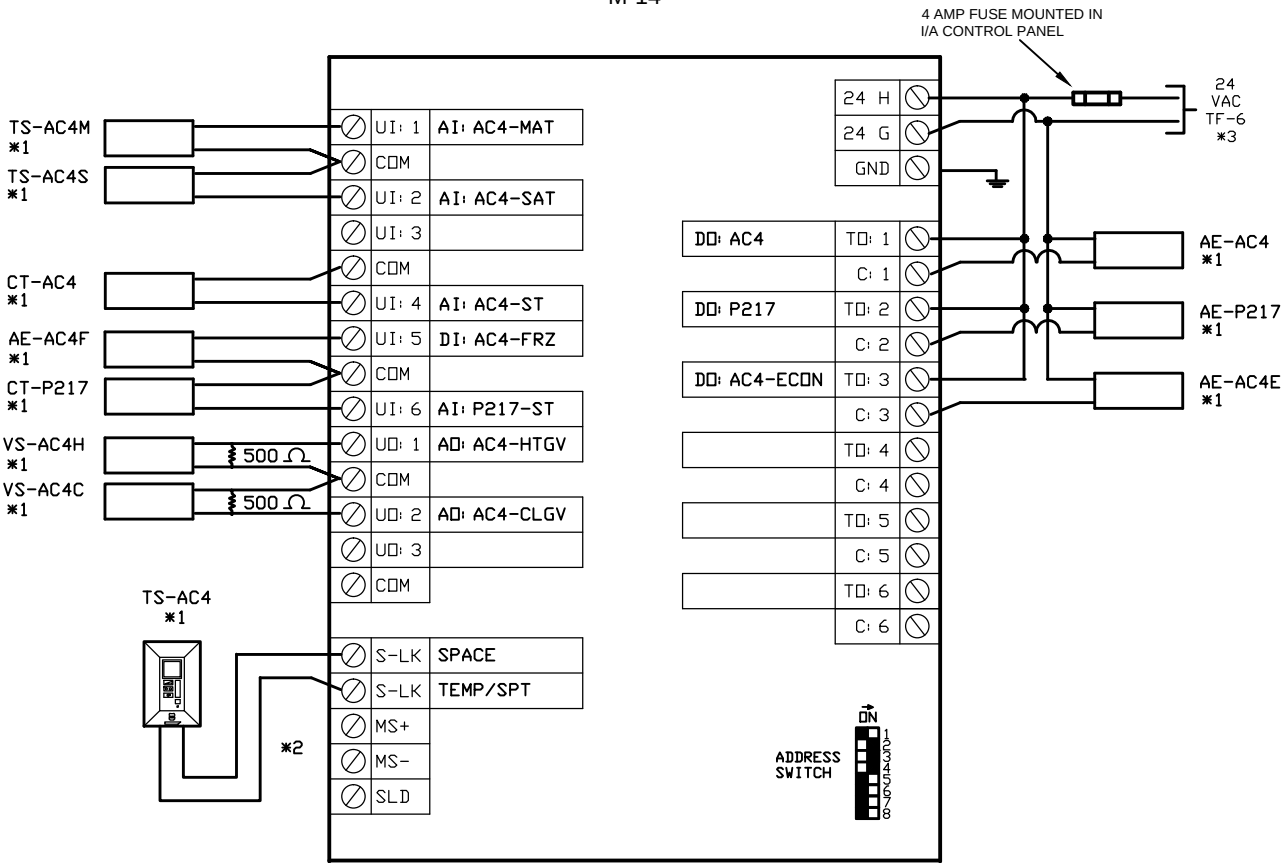
H493 - C6

M-13



MOUNTED LOCAL TO ROOF TOP UNIT AC-3 ON ROOF

M-14



MOUNTED LOCAL TO ROOF TOP UNIT AC-4 ON ROOF

NOTES:
*1 REFER TO CONTROL DRAWINGS H493-B6,B7 FOR UNIT LAYOUT DETAILS.
*2 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

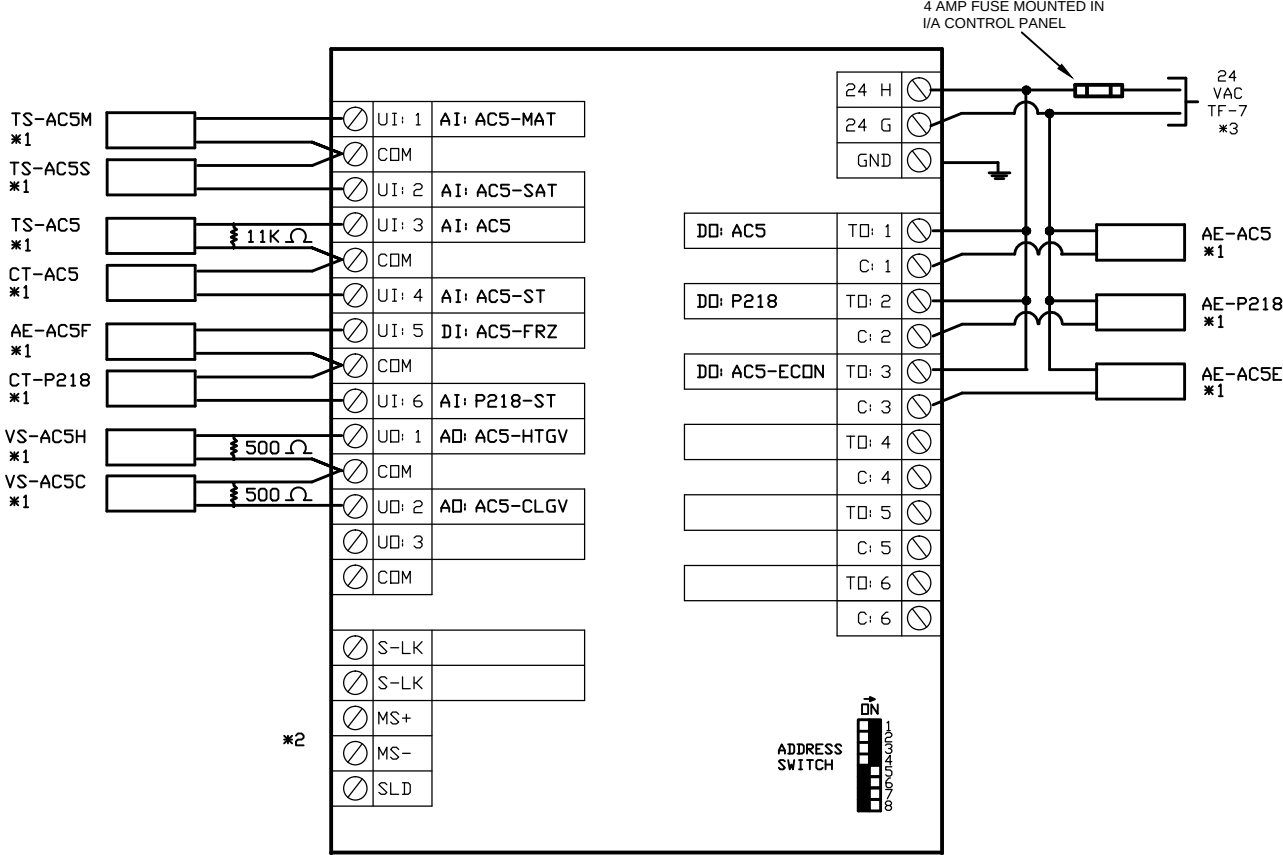
MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
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		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

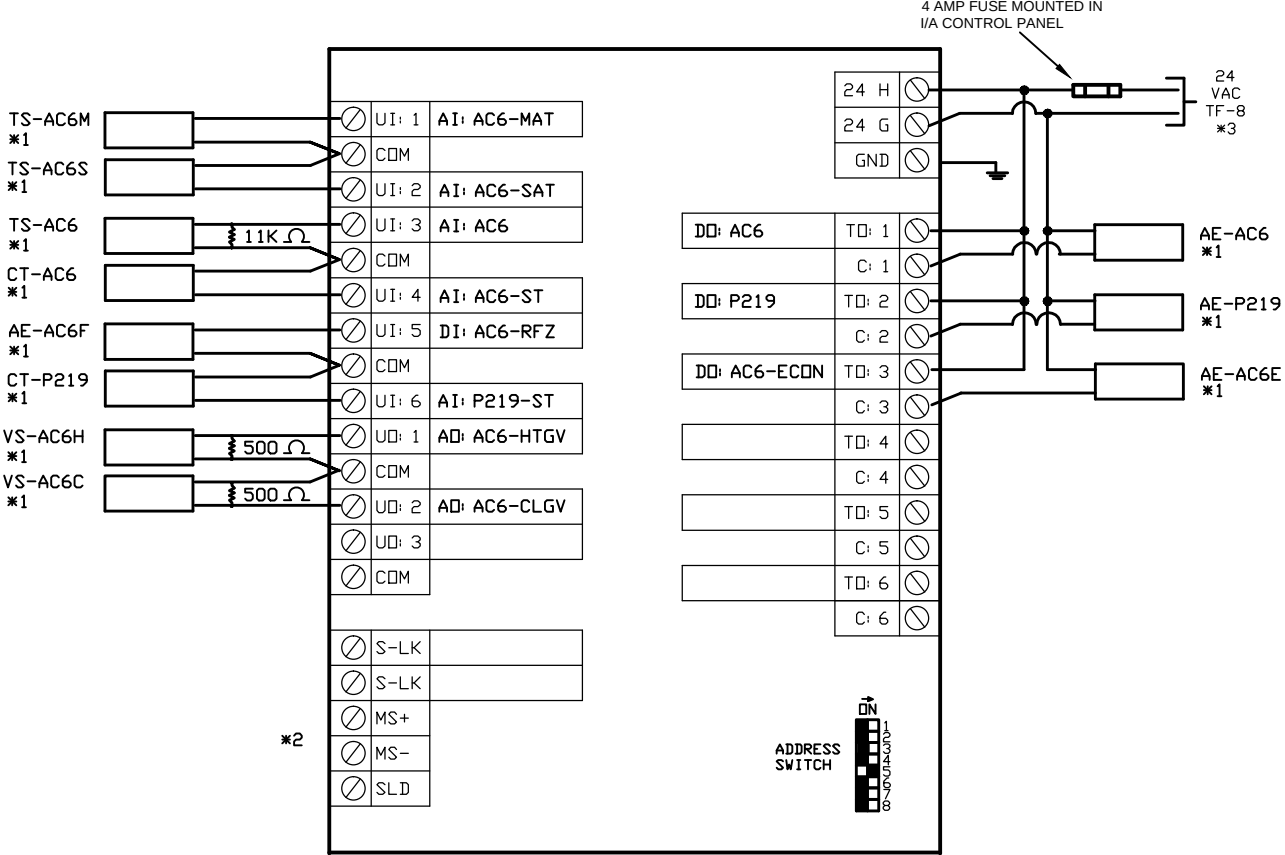
DRAWING NO.
H493 - C7

M-15



MOUNTED LOCAL TO ROOF TOP UNIT AC-5 ON ROOF

M-16



MOUNTED LOCAL TO ROOF TOP UNIT AC-6 ON ROOF

NOTES:
*1 REFER TO CONTROL DRAWINGS H493-B6,B7 FOR UNIT LAYOUT DETAILS.
*2 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

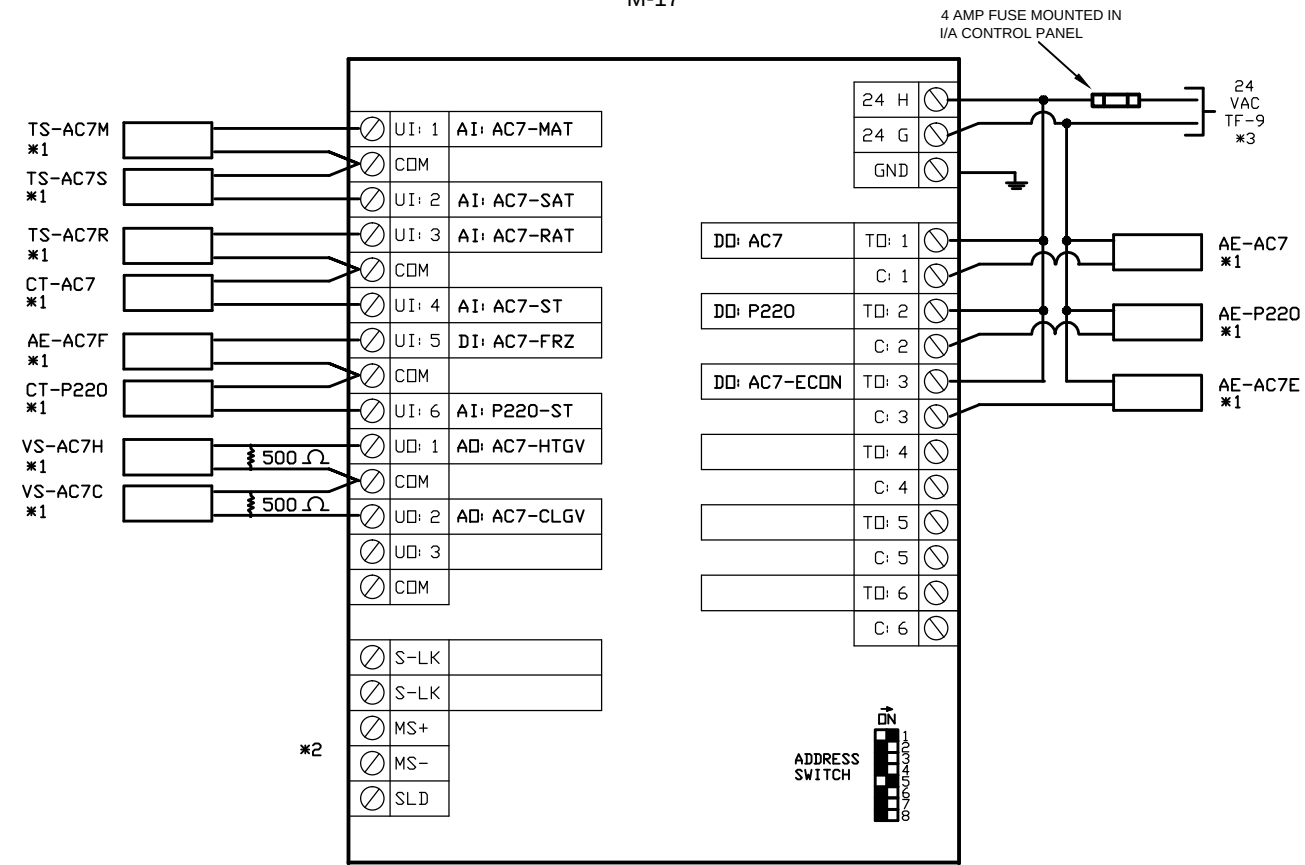
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
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		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.

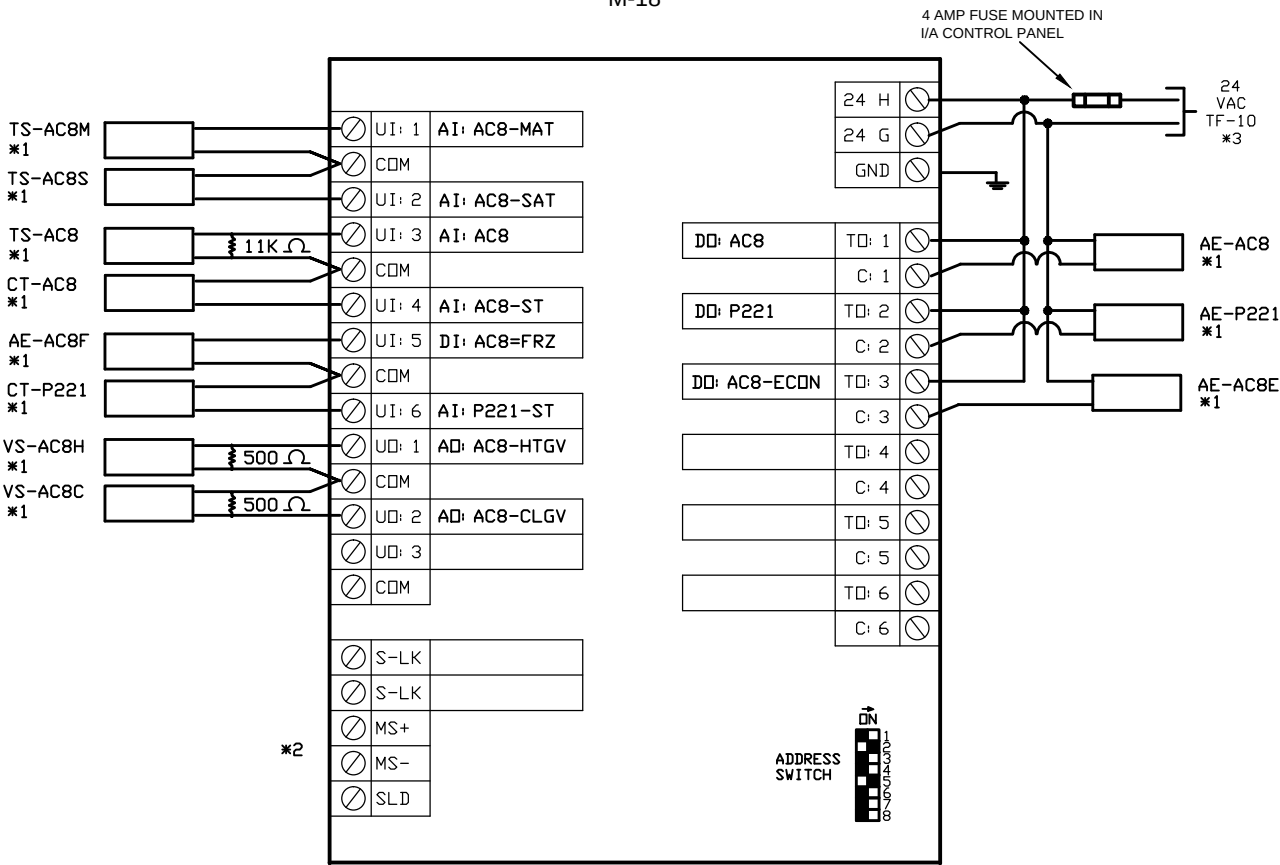
H493 - C8

M-17



MOUNTED LOCAL TO ROOF TOP UNIT AC-7 ON ROOF

M-18



MOUNTED LOCAL TO ROOF TOP UNIT AC-8 ON ROOF

NOTES:
*1 REFER TO CONTROL DRAWINGS H493-B6,B7 FOR UNIT LAYOUT DETAILS.
*2 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

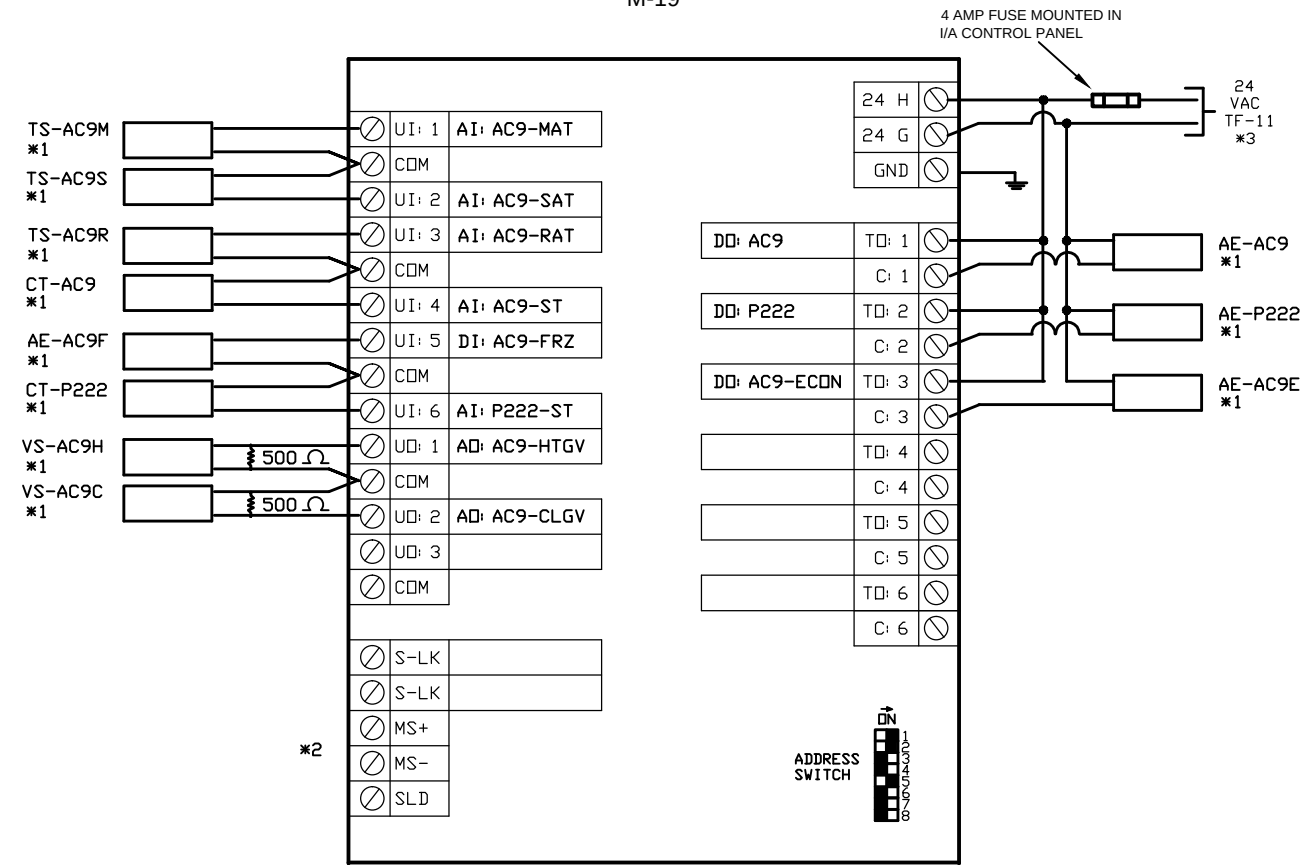
MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
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		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

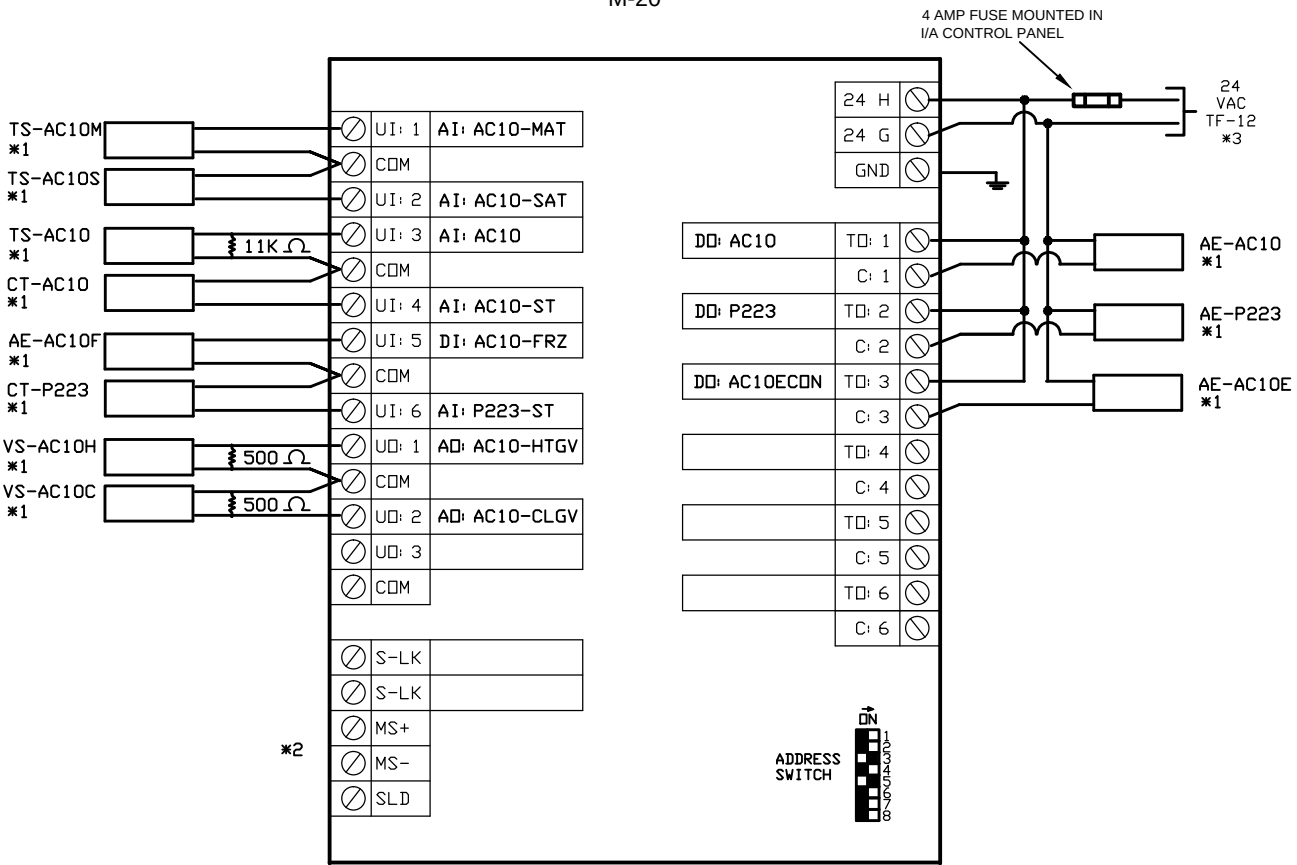
DRAWING NO.
H493 - C9

M-19



MOUNTED LOCAL TO ROOF TOP UNIT AC-9 ON ROOF

M-20



MOUNTED LOCAL TO ROOF TOP UNIT AC-10 ON ROOF

NOTES:
*1 REFER TO CONTROL DRAWINGS H493-B6,B7 FOR UNIT LAYOUT DETAILS.
*2 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*3 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

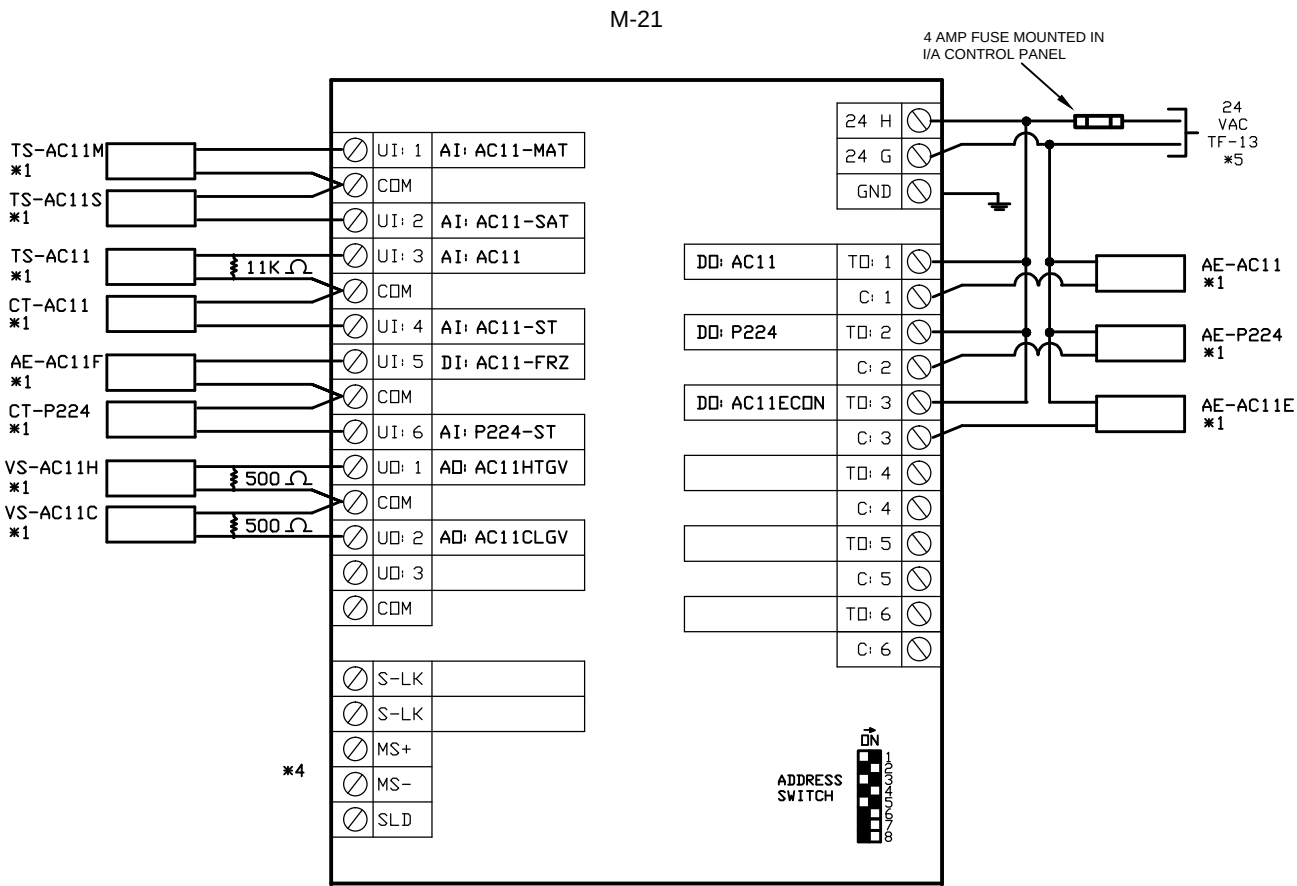
--- LINE VOLTAGE WIRING
--- LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

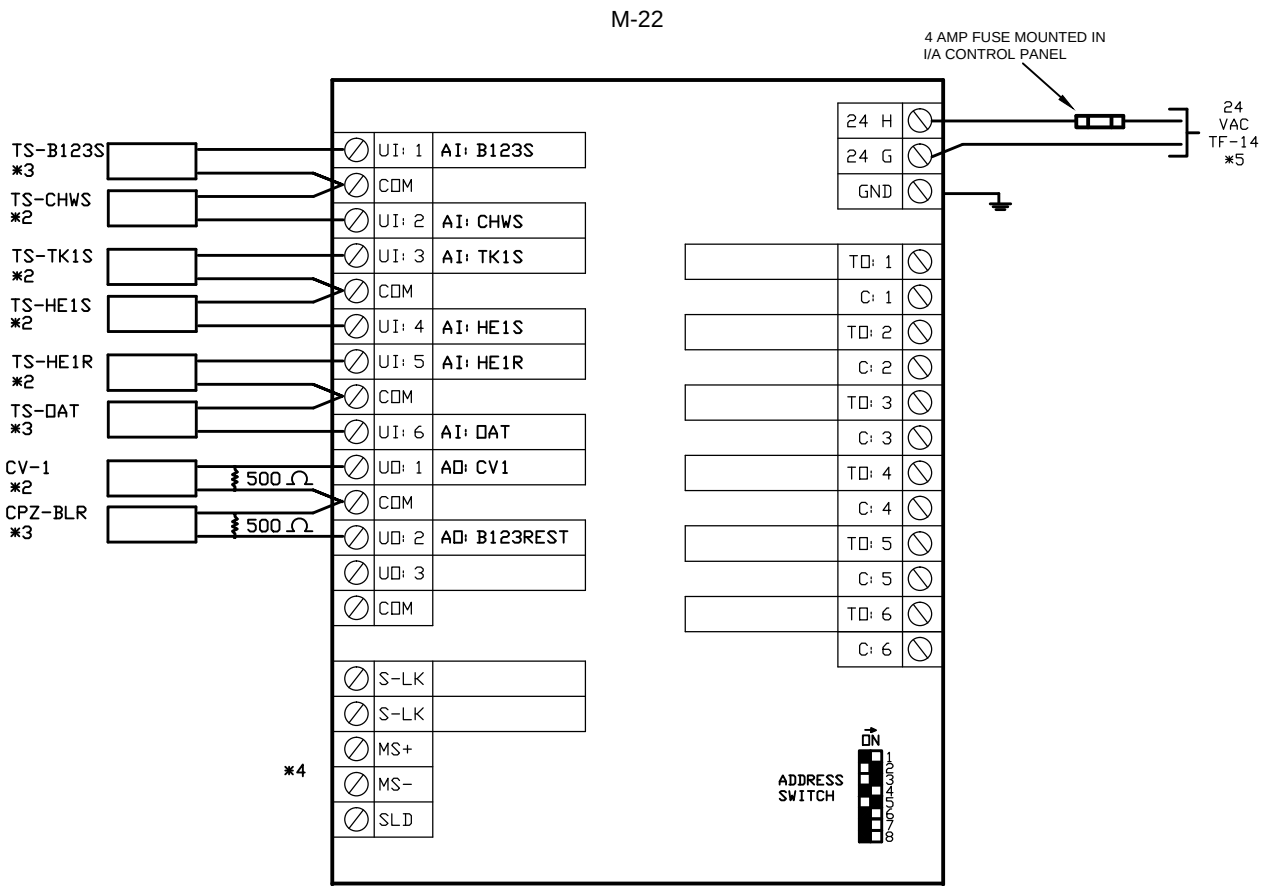
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

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DATE	CHANGES	JOB NAME	1855 NOEL AVENUE, COMOX, B.C.
04 11	AS BUILT	LOCATION	VIC DAVIES ARCHITECT (2003) LTD.
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		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

DRAWING NO.
H493 - C10



MOUNTED LOCAL TO ROOF TOP UNIT AC-11 ON ROOF



MOUNTED IN LOWER FLOOR MECHANICAL ROOM

NOTES:
*1 REFER TO CONTROL DRAWINGS H493-B6,B7 FOR UNIT LAYOUT DETAILS.
*2 REFER TO CONTROL DRAWINGS H493-B11,B12 FOR UNIT LAYOUT DETAILS.
*3 REFER TO CONTROL DRAWINGS H493-B14 FOR UNIT LAYOUT DETAILS.
*4 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
*5 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

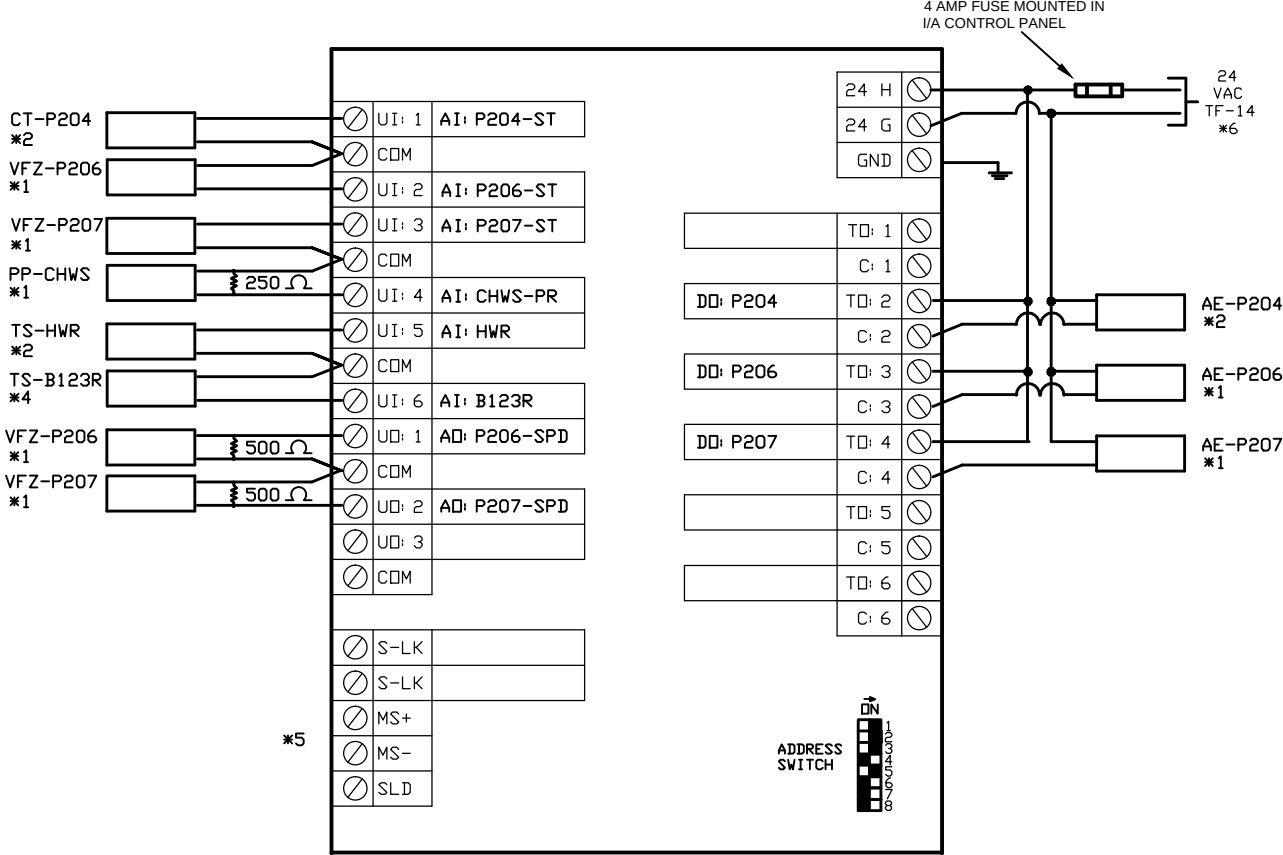
MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

-REVISIONS-		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT	
DATE	CHANGES	JOB NAME	LOCATION
04 11	AS BUILT	1855 NOEL AVENUE, COMOX, B.C.	VIC DAVIES ARCHITECT (2003) LTD.
		ARCHITECT	THE AME CONSULTING GROUP LTD.
		ENGINEER	VONDELLA MECHANICAL LTD.
		CONTRACTOR	W.C. HILLE
		DRAWN BY	BH
		CHECKED BY	DECEMBER 2010
		DATE	

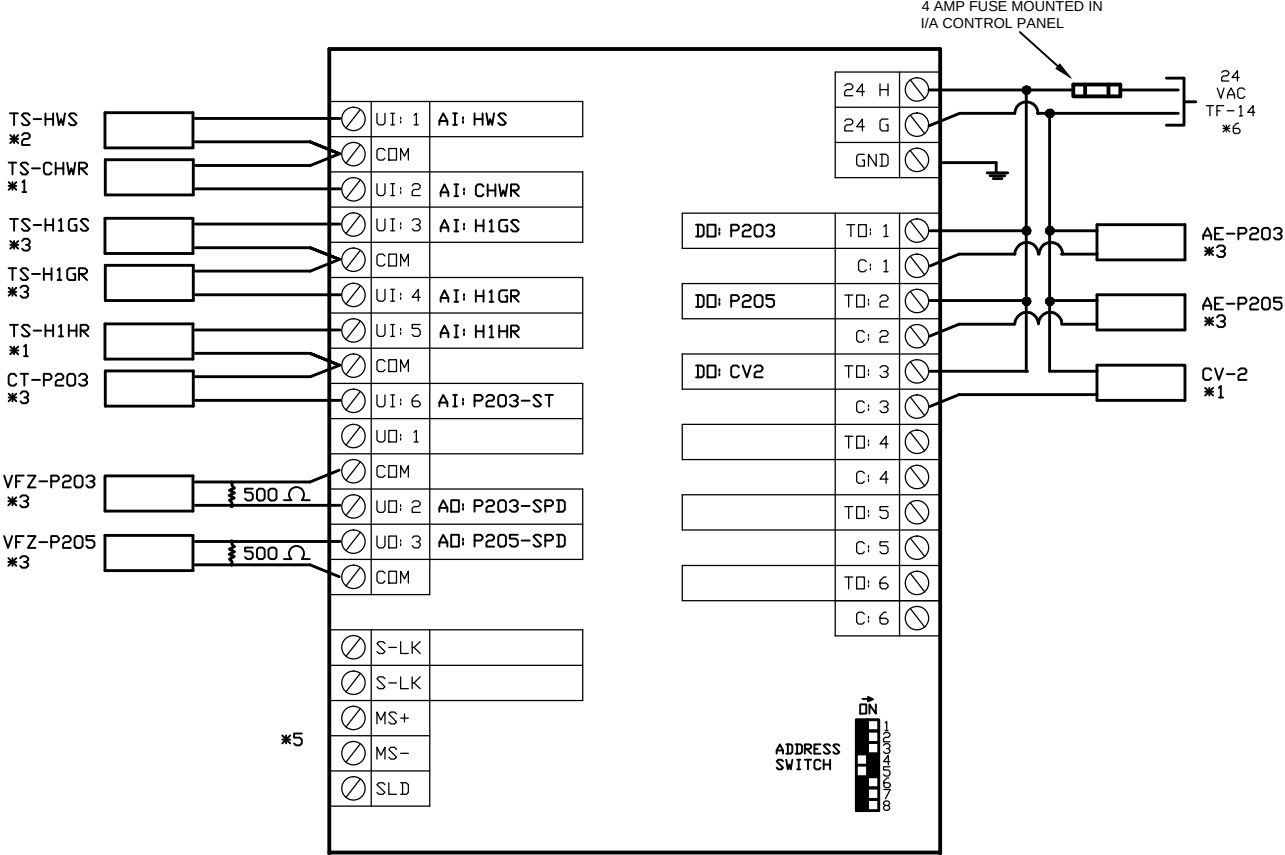
DRAWING NO.
H493 - C11

M-23



MOUNTED IN LOWER FLOOR MECHANICAL ROOM

M-24



MOUNTED IN LOWER FLOOR MECHANICAL ROOM

- NOTES:
- *1 REFER TO CONTROL DRAWINGS H493-B9,B10 FOR UNIT LAYOUT DETAILS.
 - *2 REFER TO CONTROL DRAWINGS H493-B11,B12 FOR UNIT LAYOUT DETAILS.
 - *3 REFER TO CONTROL DRAWING H493-B13 FOR UNIT LAYOUT DETAILS.
 - *4 REFER TO CONTROL DRAWING H493-B14 FOR UNIT LAYOUT DETAILS.
 - *5 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
 - *6 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.

--- LINE VOLTAGE WIRING

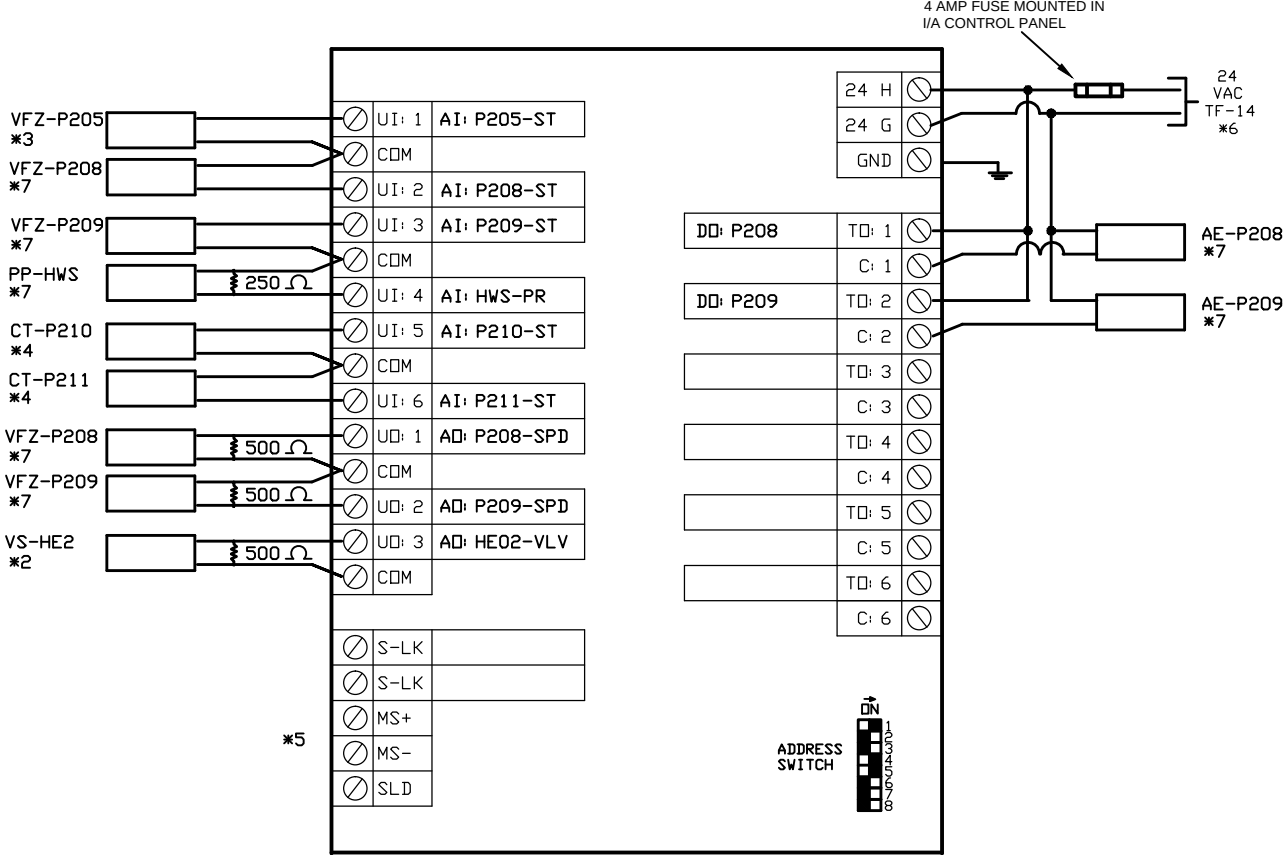
— LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

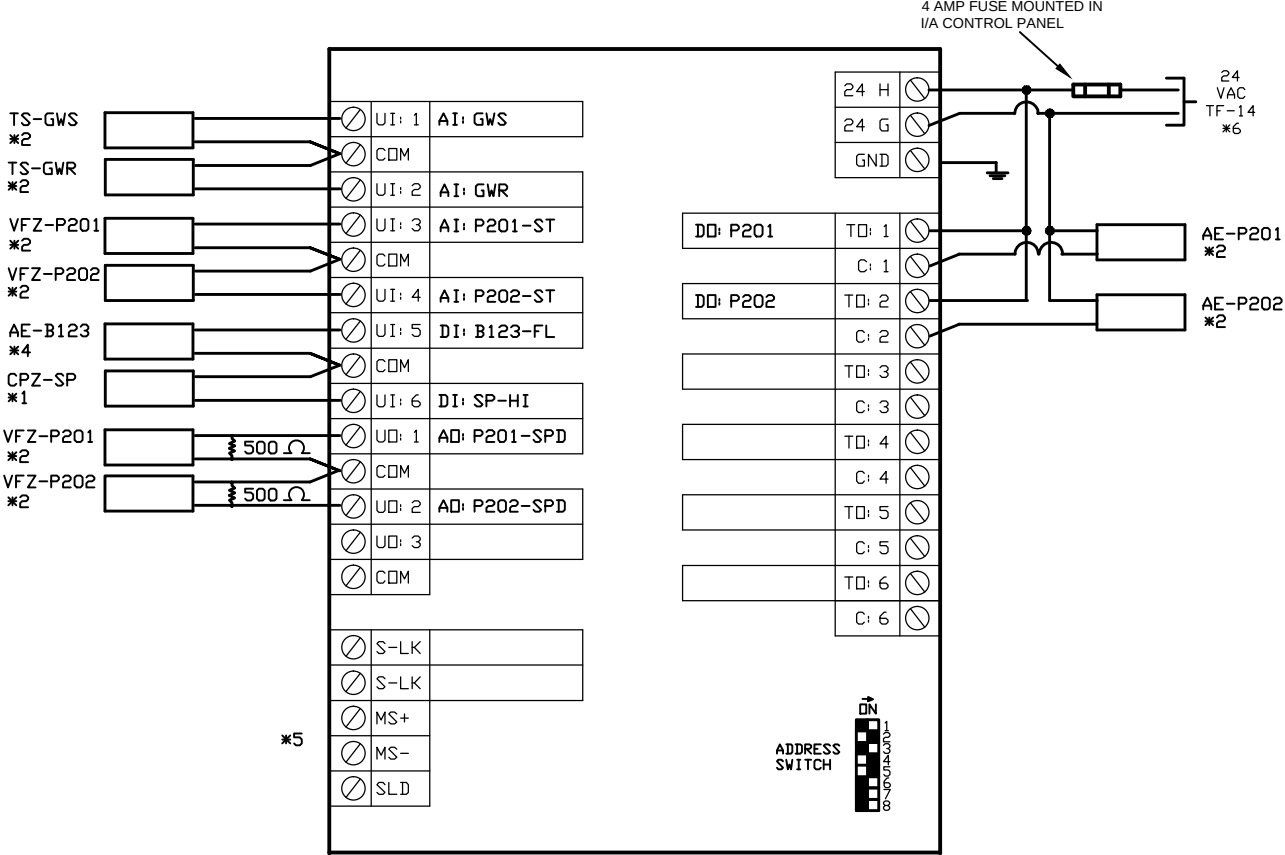
-REVISIONS-		JOB NAME		TOWN OF COMOX CENTENNIAL BUILDING REPLACEMENT PROJECT
DATE	CHANGES	LOCATION	1855 NOEL AVENUE, COMOX, B.C.	
04 11	AS BUILT	ARCHITECT	VIC DAVIES ARCHITECT (2003) LTD.	
		ENGINEER	THE AME CONSULTING GROUP LTD.	
		CONTRACTOR	VONDELLA MECHANICAL LTD.	
		DRAWN BY	W.C. HILLE	
		CHECKED BY	BH	
		DATE	DECEMBER 2010	
				DRAWING NO. H493 - C12

M-25



MOUNTED IN LOWER FLOOR MECHANICAL ROOM

M-26



MOUNTED IN LOWER FLOOR MECHANICAL ROOM

- NOTES:
- *1 REFER TO CONTROL DRAWING H493-B8 FOR UNIT LAYOUT DETAILS.
 - *2 REFER TO CONTROL DRAWINGS H493-B9,B10 FOR UNIT LAYOUT DETAILS.
 - *3 REFER TO CONTROL DRAWING H493-B13 FOR UNIT LAYOUT DETAILS.
 - *4 REFER TO CONTROL DRAWING H493-B14 FOR UNIT LAYOUT DETAILS.
 - *5 REFER TO COMMUNICATION WIRING DIAGRAM, CONTROL DRAWING H493-D1 FOR DETAILS.
 - *6 REFER TO POWER SUPPLY DISTRIBUTION, CONTROL DRAWING H493-D2 FOR DETAILS.
 - *7 REFER TO CONTROL DRAWINGS H493-B11,B12 FOR UNIT LAYOUT DETAILS.

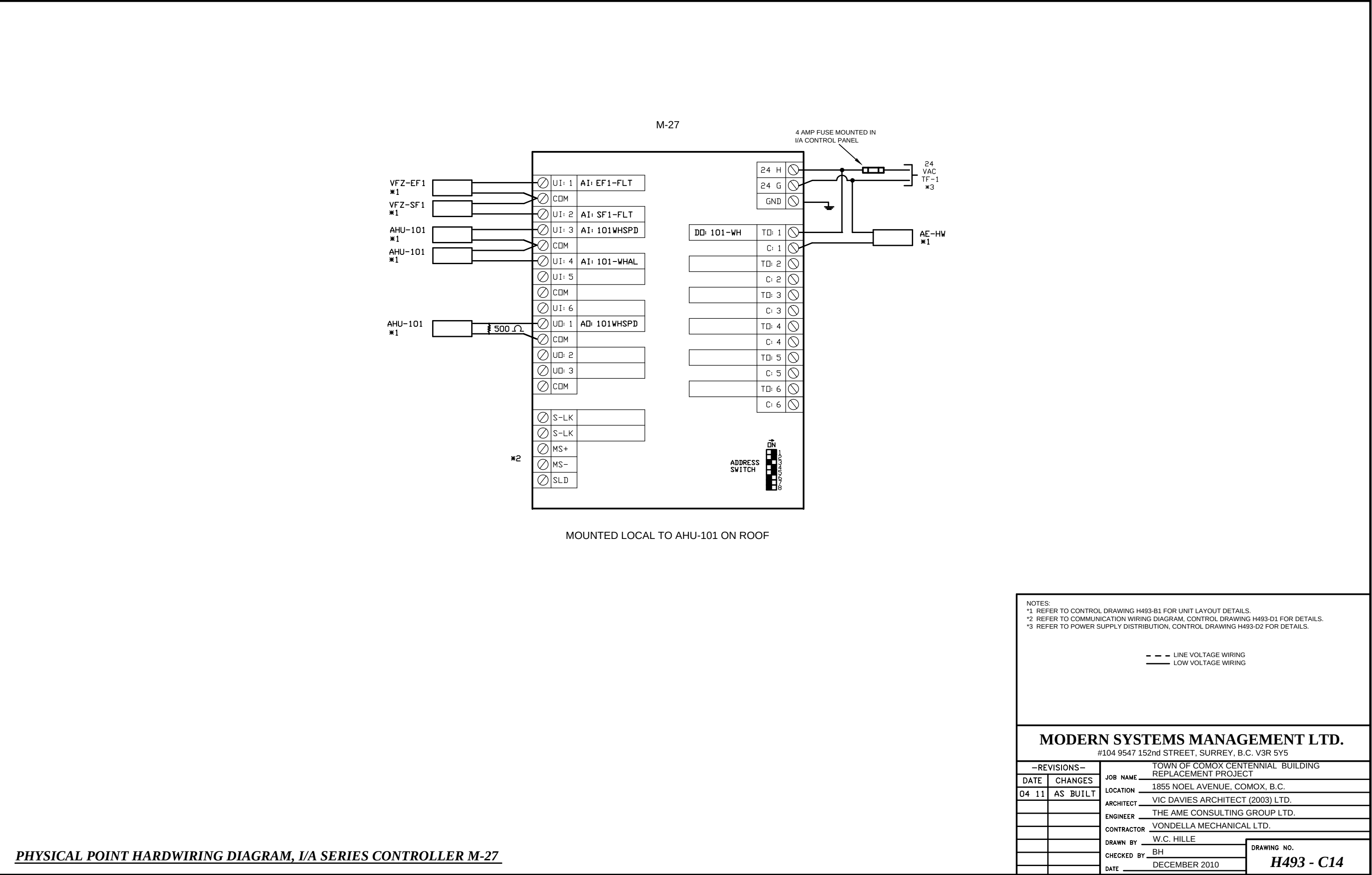
--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

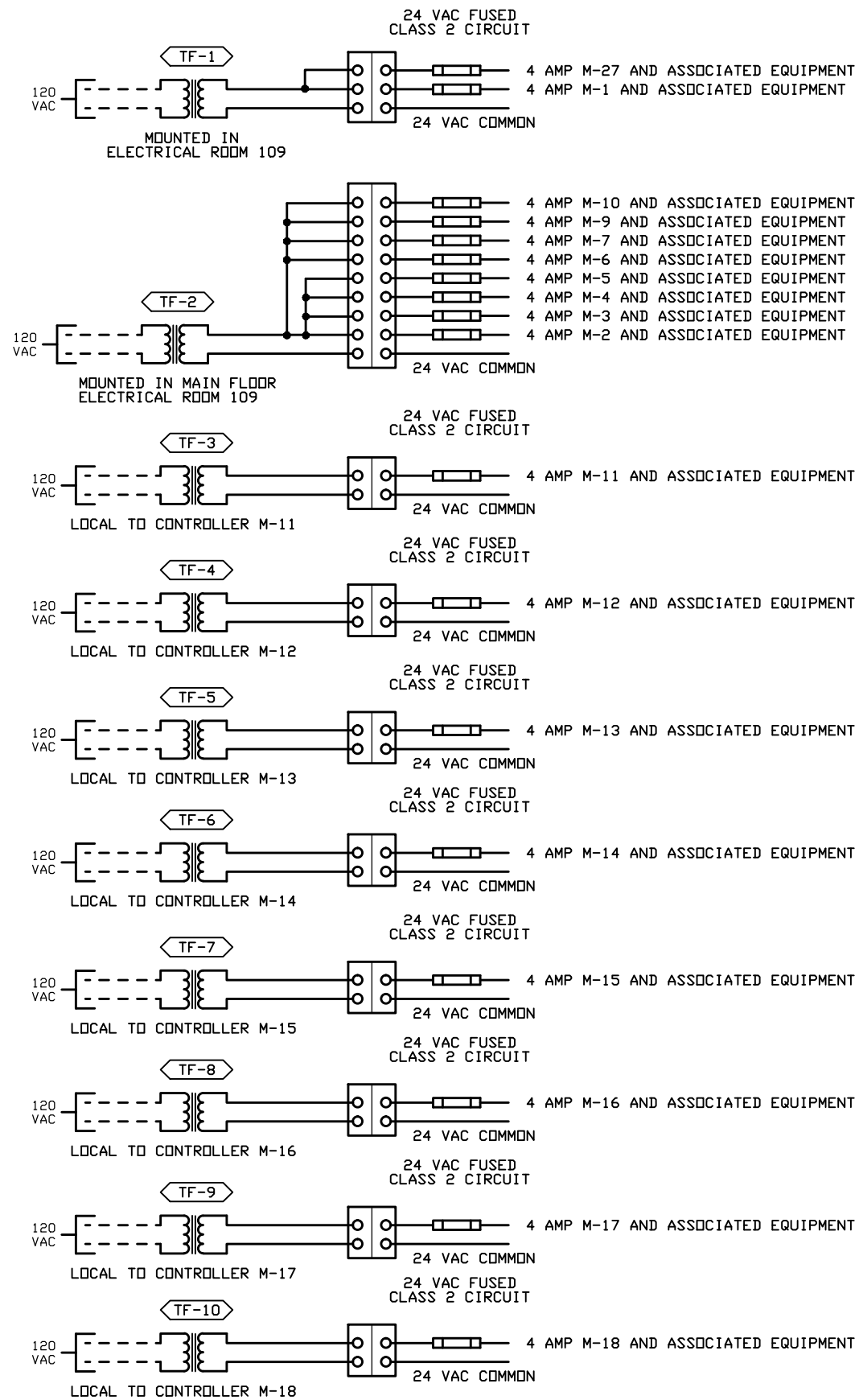
#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

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		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
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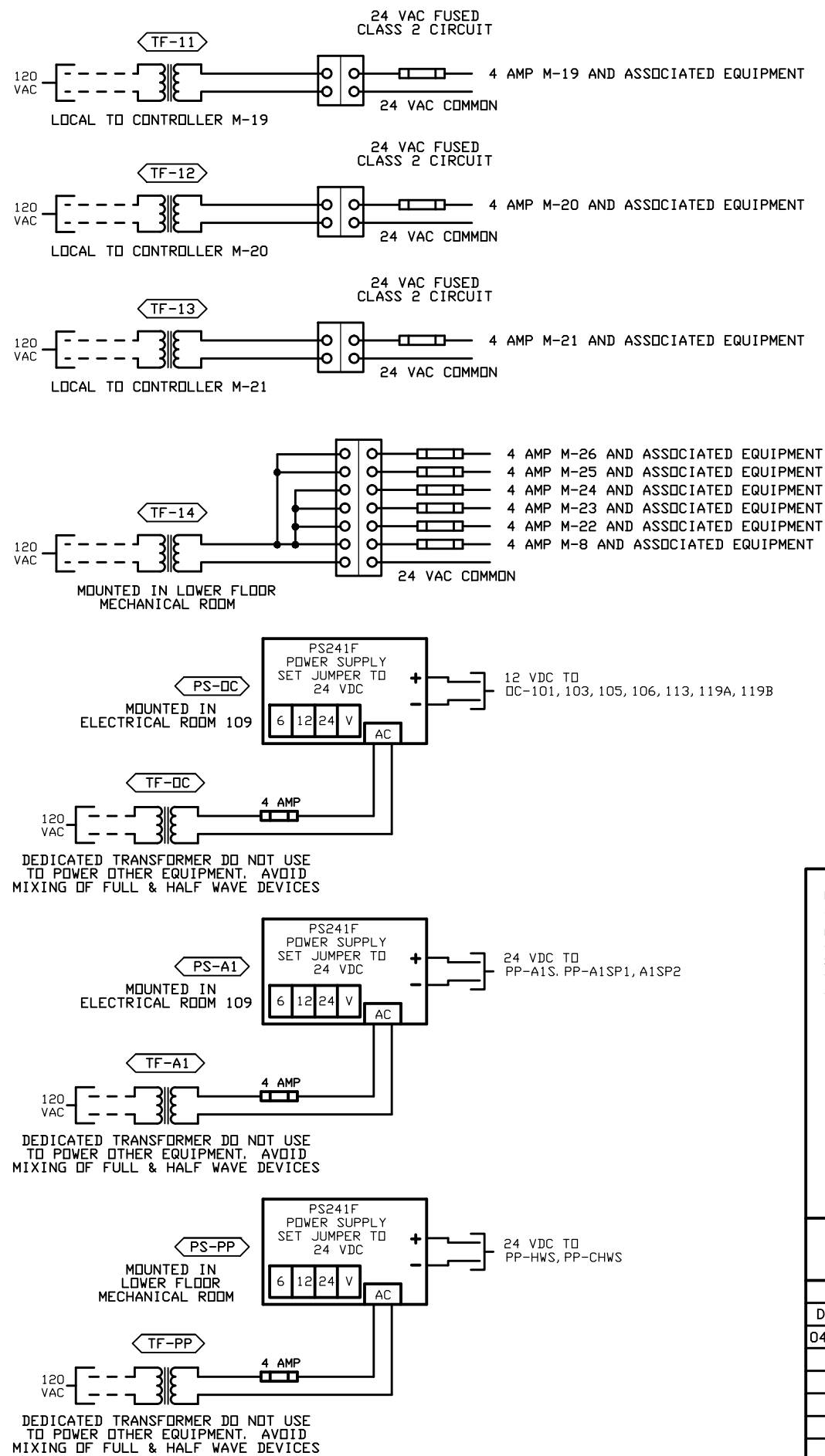
DRAWING NO.
H493 - C13







POWER SUPPLY DISTRIBUTION



EQUIPMENT SCHEDULE			
CODE	QTY	PART	DESCRIPTION
PS-A1,OC,PP	3	PS241F	1 AMP VDC POWER SUPPLY
TF-1,3,4,5,6,7,8,9,10,11,12,13,A1,OC,PP	15	XFMR-50	120 / 24 VAC 50 VA TRANSFORMER
TF-2	1	XFMR-350	120 / 24 VAC 350 VA TRANSFORMER
TF-14	1	XFMR-200	120 / 24 VAC 200 VA TRANSFORMER
	30	AGC-4	1 1/4" X 1/4" FUSE HOLDER
	30	FS-HLD	1 1/4" X 1/4" 4 AMP FAST BLOW FUSE

--- LINE VOLTAGE WIRING
— LOW VOLTAGE WIRING

MODERN SYSTEMS MANAGEMENT LTD.

#104 9547 152nd STREET, SURREY, B.C. V3R 5Y5

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		CONTRACTOR	VONDELLA MECHANICAL LTD.
		DRAWN BY	W.C. HILLE
		CHECKED BY	BH
		DATE	DECEMBER 2010

DRAWING NO.
H493 - D2