

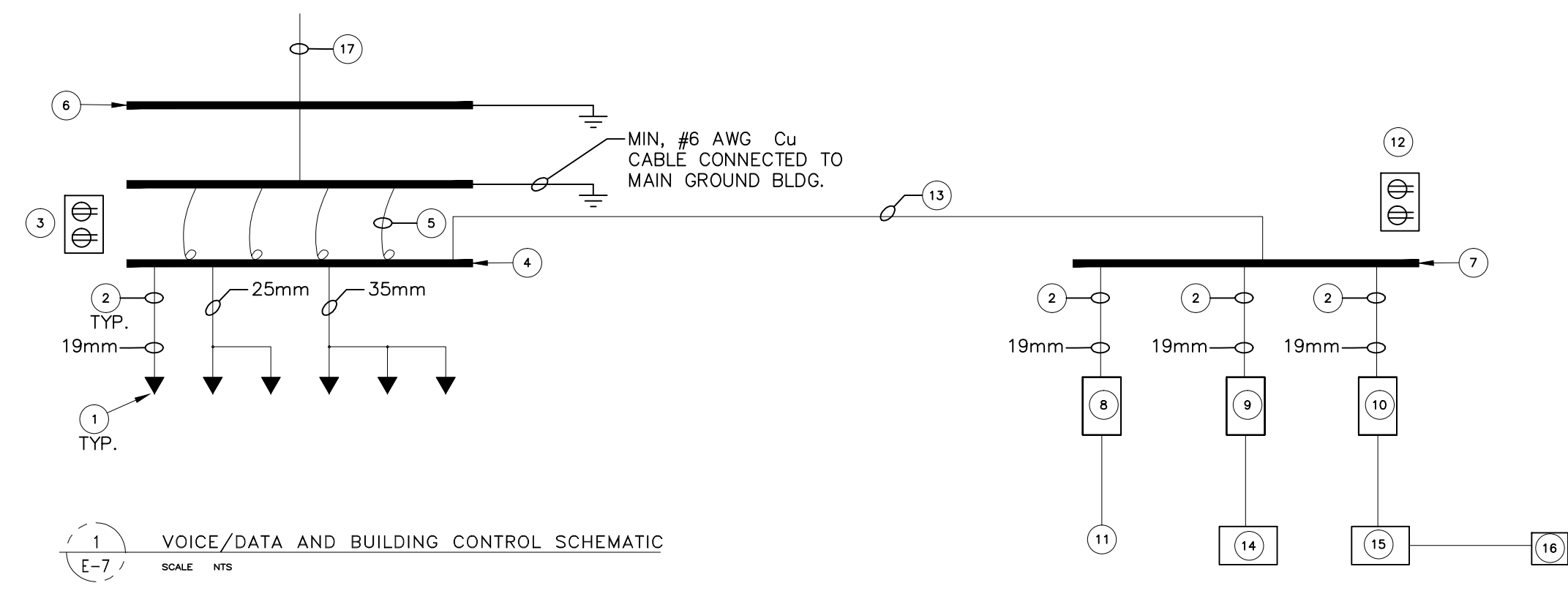
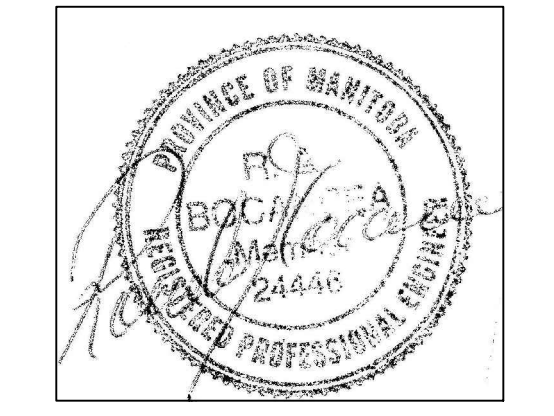
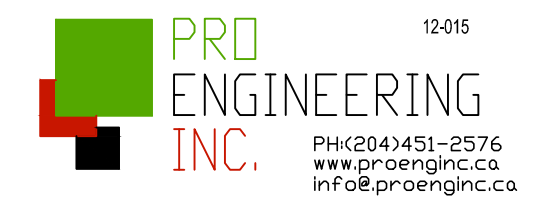
FILE NAME: DATE: 2012.10.10

SHEET TITLE: ELECTRICAL VOICE/DATA AND BUILDING CONTROLS

PROJECT No: 2011-096

ADDRESS: 1380 PEMBINA HIGHWAY

NOTES:



KEY NOTES:	
1	PROVIDE INSTALL AND TEST CABLING FROM VOICE/DATA OUTLET TO BACKBOARD.
2	CABLING TO BE INSTALLED VIA EMT CONDUIT TO CABLE TRAY/J-HOOK/PATHWAY. PROVIDE ALL EXTENSIONS, SUPPORTS, SLEEVES, BUSHING, ETC AS REQUIRED.
3	CLEAN RECEPTACLE FOR CONNECTION OF EQUIPMENT. PROVIDE DEDICATED CIRCUIT FROM CLEAN POWER PANEL.
4	EXISTING PATCH PANEL
5	EXISTING VOICE/DATA CROSSCONNECT CABLING
6	INTERNET SERVICE PROVIDER DEMARC.
7	NEW METASYS NAE CONTROLLER 45/55. CONFIRM REQUIRED UNIT PRIOR TO ORDERING.
8	NEW BOILER CONTROL MODULE
9	NEW AIR HANDLING UNIT CONTROL MODULE
10	NEW CONDENSING UNIT CONTROL MODULE
11	WIRE AND CONNECT CONTROL AND MONITORING POINTS BACK TO CONTROLLER. SEE TABLE FOR DETAILS
12	PROVIDE UPS POWER SUPPLY AND 24V TRANSFORMER. PROVIDE A DEDICATED RECEPTACLE FOR POWER SUPPLY TO THE METASYS EQUIPMENT.
13	PROVIDE AN ETHERNET CONNECTION FROM METASYS TO THE FMS CONTROL AT THE CITY OF WINNIPEG HEAD END.
14	CONNECT THE RTU-1 AAO MINI CONTROLLER TO THE METASYS TO ALLOW MONITORING AND CONTROL OF THE RTU-1 SETPOINTS.
15	CONNECT THE COMMON CENTRAL CONTROLLER(CCC) FOR CU-1&2 TO THE METASYS SYSTEM.
16	CONNECT THE WALL MOUNTED CONTROLLERS FOR 10 EVAPORATOR UNITS TO THE CCC.
17	INCOMING FIBRE AND COM CABLING

CONTROL INSTRUCTIONS:	
1.	INTERLOCK BOILER AND RTU-1 . RTU-1 IS NOT TO ENGAGE IN COOLING MODE WHILE BOILER IS OPERATING.
2.	THE NEW NAE CONTROLLER IS TO COMMUNICATE WITH N2 AND BACHET DEVICES FROM RTU-1, CU-1&2 AND THE NEW BOILER CONTROL. COORDINATE WITH CITY OF WINNIPEG BUILDING MAINTENANCE: 204-986-2351
3.	PROVIDE FIELD MOUNTED DEVICES FOR TO MONITOR LOW AMBIENT BUILDING TEMPERATURE, AMBIENT CO2 LEVELS, BOILER WATER SUPPLY TEMPERATURE, BOILER PUMP OPERATION, OUTDOOR AIR TEMPERATURE. DEVICES ARE TO BE COMPATIBLE WITH THE METASYS SYSTEM COMPONENTS. PROVIDE APPLICABLE INTERFACE WHERE NECESSARY.
4.	PROVIDE COMPLETE SYSTEM COMMISSIONING TO THE CITY OF WINNIPEG AND ENGINEER'S SATISFACTION. PROVIDE COMPLETE PROGRAMMING TO SEND ALARMS TO THE REMOTE FMS AND CONTROL INPUT FROM THE REMOTE FMS AT THE CITY OF WINNIPEG, 510 MAIN ST. REFER TO SEQUENCE OF OPERATION ON THIS DRAWING
5.	CONFIRM ALL REQUIRED I/O WITH CITY AND ENGINEER PRIOR TO FINAL CONNECTIONS AND PROGRAMMING. ALLOW DISCRETE AND ANALOG OUTPUTS TO THE METASYS HEAD END AS REQUIRED BY THE CITY.

FORT GARRY LIBRARY – PARTIAL DDC POINTS LIST

POINT DESCRIPTION	SYSTEM	POINT	HARDWARE POINT				ALARM	COMMENTS
			DO	DI	AO	AI		
OUTDOOR AIR TEMPERATURE						X		
CENTRALIZED DIGITAL CONTROLLER	VRF SYSTEM		X	X				
MINI CONTROLLER	RTU-1		X	X				
CURRENT SENSING RELAY	BOILER PUMP			X		X		
TEMPERATURE SENSOR	BOILER WATER SUPPLY				X	X		
I/O RESET	BOILER		X					
LOW LIMIT TEMPERATURE SENSOR	SPACE				X	X		
CO2 SENSOR	SPACE				X	X		

SEQUENCE OF OPERATION

1.0 PACKAGED ROOF TOP UNIT (RTU-1)
 THE PACKAGED ROOF TOP UNIT (RTU-1) SHALL PROVIDE A SINGLE ZONE SYSTEM TO HEAT, VENTILATE & AIR-CONDITION THE MAIN FLOOR AND MEZZANINE. THE AAO MINI CONTROLLER WITH SPACE TEMPERATURE CONTROL SHALL BE CONNECTED TO THE METASYS SYSTEM AS MENTIONED ABOVE TO PROVIDE REMOTE MONITORING & CONTROL & INTERLOCKED TO THE EXISTING FIRE ALARM SYSTEM TO SHUT DOWN IN THE EVENT OF A FIRE ALARM. THERE IS AN EXISTING ROOF TOP FIRE ALARM SHUT DOWN PANEL IN THE BASEMENT ELECTRICAL ROOM. REWORK PANEL TO ACCOMMODATE NEW RTU-1.

1.1 HEATING OPERATION
 WHEN THE SPACE TEMPERATURE DROPS BELOW THE SETPOINT, HEATING IS ACTIVATED. IF THE SPACE TEMPERATURE STILL REMAINS BELOW THE SPACE TEMPERATURE SETPOINT & HEATING DELAY TIMES OUT, HEATING IS MODULATED TO ACHIEVE THE SPACE TEMPERATURE SETPOINT VIA THE MODULATING BURNER CONTROL & SUPPLY AIR TEMPERATURE SENSOR.

1.2 SUPPLY FAN
 SUPPLY FAN OPERATION IS SELECTABLE BETWEEN "AUTO", "HEAT", "COOL" & "ON".
 IN "AUTO" MODE, HEATING/COOLING OPERATION SHALL CYCLE THE SUPPLY FAN.
 IN "HEAT" OR "COOL" OPERATIONS SHALL CYCLE THE SUPPLY FAN IN "ON" MODE THE SUPPLY FAN OPERATES CONTINUOUSLY.

1.3 COOLING OPERATION
 WHEN THE SPACE TEMPERATURE IS ABOVE THE SPACE TEMPERATURE SETPOINT, THE VARIABLE CAPACITY SCROLL COMPRESSOR IS ACTIVATED TO MAINTAIN THE SPACE TEMPERATURE SETPOINT & THE SUPPLY FAN WILL ACTIVATE & OPERATE AT THE COOLING MAXIMUM SPEED.

1.4 ECONOMIZER
 IN COOLING MODE, IF THE OUTSIDE AIR TEMPERATURE IS BELOW THE ECONOMIZER ENABLE TEMPERATURE SETPOINT, RTU-1 SHALL USE OUTSIDE AIR TO COOL THE SPACE. THE ECONOMIZER SHALL MODULATE TO MAINTAIN 55° SUPPLY AIR TEMPERATURE, IF OUTSIDE AIR TEMPERATURE IS BELOW 50°.

1.5 CARBON DIOXIDE (CO2) ECONOMIZER OVERRIDE
 THE REMOTE CO2 SENSOR SETPOINT SHALL CONTROL THE ECONOMIZER OUTSIDE AIR DAMPER POSITION TO INCREASE OR DECREASE PROPORTIONALLY TO VENTILATE THE SPACE TO ACHIEVE CO2 SETPOINT PPM.

2.0 OUTDOOR VARIABLE REFRIGERANT FLOW (VRF) HEAT PUMP SYSTEM
 THE OUTDOOR VRF HEAT PUMP SYSTEM CONSIST OF (2) OUTDOOR AIR-COOLED CONDENSING UNITS (CU-1, CU-2) PROVIDING COOLING & HEATING (DOWN TO -18°C WB OPERATING OUTDOOR TEMPERATURE). EACH CONDENSING UNIT HAS (5) OUTLETS CONNECTED TO (5) INTERIOR WALL MOUNTED EVAPORATORS. EACH EVAPORATOR IS CONNECTED TO A HARDWIRED WALL MOUNTED CONTROLLER FOR SETTING ROOM TEMPERATURES, FAN SPEED, AIR FLOW DIRECTION, LOUVER & INTERLOCKING OF HVAC EQUIPMENT. A COMMON CENTRALIZED CONTROLLER PROVIDES WEB FUNCTION CONTROL/FEEDBACK TO ALL (10) EVAPORATORS THROUGH THE INTERNET TO CITY OF WINNIPEG METASYS.

2.1 HEATING OPERATION
 THIS OUTDOOR VRF HEAT PUMP SYSTEM IS NOT CONNECTED TO THE PRIMARY HEATING SYSTEM (BOILER) & OPERATES INDEPENDENTLY. IN HEATING MODE, EACH EVAPORATOR IS ACTIVATED INDEPENDENTLY WHEN THE EVAPORATOR SPACE TEMPERATURE SENSOR TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE SETPOINT ON THE CORRESPONDING WALL MOUNTED CONTROLLER. THE INVERTER-DRIVEN (VARIABLE SPEED) COMPRESSOR WILL RUN ACCORDING USING ITS VRF TECHNOLOGY.

2.2 COOLING OPERATION
 THIS OUTDOOR VRF HEAT PUMP SYSTEM IS NOT CONNECTED TO RTU-1 & OPERATES INDEPENDENTLY. IN COOLING MODE, EACH EVAPORATOR IS ACTIVATED INDEPENDENTLY WHEN THE EVAPORATOR SPACE TEMPERATURE SENSOR TEMPERATURE IS ABOVE THE SPACE TEMPERATURE SETPOINT ON THE CORRESPONDING WALL MOUNTED CONTROLLER. THE INVERTER-DRIVEN (VARIABLE SPEED) COMPRESSOR WILL RUN ACCORDING USING ITS VRF TECHNOLOGY.

1 ISSUED FOR TENDER KO 10/10/12

No.	REVISION/DESCRIPTION	BY	DATE

DRAWN	CHECKED	DESIGNED	APPROVED
DTAKO	KO	DTAKO	RB
DATE: 2012.07.24	USER APPROVAL		

THE CITY OF WINNIPEG
 PLANNING, PROPERTY AND DEVELOPMENT DEPARTMENT
 MUNICIPAL ACCOMMODATIONS DIVISION
 3-65 GARRY STREET, R3C 4K4

PROJECT
 FORT GARRY LIBRARY
 INTERIOR & EXTERIOR REFURBISHING DESIGN
 1380 PEMBINA HIGHWAY

SHEET TITLE
 ELECTRICAL
 VOICE/DATA
 BUILDING CONTROLS

SCALE	PROJECT No:	SHEET No:
AS SHOWN	2011-096	E7

DRAWING SHEET SIZE: A1 (841mm x 594mm) PLOT 1:1