PROLON CONTROLS SPECIFICATIONS

SCOPE

1. GENERAL
	1. PROVIDE AND INSTALL A COMPLETE CONTROL SYSTEM, WITH COMMUNICATING CAPABILITY, AS SPECIFIED IN THE PLANS AND SPECIFICATIONS BELOW.

MANUFACTURER: PROLON

1. QUALIFICATIONS
	1. COMMUNICATING CONTROL SYSTEM, USING AN OPEN COMMUNICATION PROTOCOL. DESIGNED AND ASSEMBLED TO MEET THE REQUIREMENTS AND WEATHER CONDITIONS OF THE LOCAL AREA. DOCUMENTATION AND SUPPORT MUST BE AVAILABLE IN ENGLISH.

ALL COMPONENTS OF THE SYSTEM SHALL BE CONFIGURED ACCORDING TO THE ENGINEER’S SPECIFICATIONS. THE PROJECT SHALL BE DELIVERED COMPLETE WITH WIRING DIAGRAMS AND TECHNICAL DATASHEETS. THE SPECIFIED SYSTEM SHALL BE A QUALITY PRODUCT, RELIABLE, AND SHALL OFFER THE BEST COMFORT TO THE OCCUPANTS WHILE OPTIMIZING ENERGY SAVINGS.

* 1. THE CENTRAL AIR HANDLING UNIT CONTROLLER SHALL BE MANAGED ACCORDING TO THE DEMANDS OF THE ZONES AND THEIR VOTING WEIGHTS. THE VOTING WEIGHT OF EACH ZONE SHALL BE ADJUSTABLE ONSITE. THIS CONTROLLER SHALL CONTROL UP TO FOUR (4) STAGES OF COOLING, TWO (2) STAGES OF HEATING AND ONE (1) MODULATING HEATING STAGE (SCR OR HOT WATER VALVE), COMPLETE WITH A MINIMUM SUPPLY TEMPERATURE SETPOINT. THE SUPPLY AND RETURN TEMPERATURE SENSORS SHALL PROTECT THE UNIT FROM HIGH OR LOW TEMPERATURES. A PROOF OF FAN SHALL BE REQUIRED.
	2. THE CENTRAL AIR HANDLING UNIT CONTROLLER SHALL CONTROL THE FRESH AIR DAMPER FOR COOLING, FOLLOWING AN EMBEDDED ECONOMIZER SEQUENCE FOR FREE COOLING. THE DAMPER SHALL REMAIN AT ITS MINIMAL POSITION (ADJUSTABLE) DURING OCCUPIED HOURS AND SHALL REMAIN CLOSED DURING UNOCCUPIED HOURS. THE SAME CONTROLLER SHALL ALSO HAVE AN INPUT FOR AIR QUALITY (CO2) WHICH SHALL MODULATE THE FRESH AIR DAMPER TO MAINTAIN AIR QUALITY AT THE DESIRED LEVEL (ADJUSTABLE) WHILE OPTIMIZING THE UNIT’S PERFORMANCE.
	3. THE CENTRAL AIR HANDLING UNIT CONTROLLER SHALL REGULATE THE SYSTEM’S STATIC PRESSURE WITH A PRESSURE TRANSDUCER LOCATED DOWNSTREAM FROM THE UNIT. THE CONTROLLER SHALL MAINTAIN A CONSTANT STATIC PRESSURE THRU MEANS OF AN ACTUATED BYPASS DAMPER OR A VARIABLE FREQUENCY DRIVE CONTROLLING THE UNIT’S SUPPLY FAN.
	4. THE ZONE CONTROLLERS SHALL HAVE AN EMBEDDED ACTUATOR WITH AUTOMATIC RESET AND SHALL SELF-CALIBRATE THE DAMPER’S BLADE STROKE. IF THE DAMPER STALLS, A VISUAL ALERT SHALL APPEAR ON THE SYSTEM’S GUI (GRAPHICAL USER INTERFACE). EACH ZONE CONTROLLER SHALL POSSESS ONE (1) ANALOG OUTPUT AND ONE (1) OR FOUR (4) DIGITAL OUTPUTS (ACCORDING TO MODEL). EACH OUTPUT SHALL BE CONFIGURABLE TO ONE OF THE FOLLOWING LOGICS (ADJUSTABLE): MODULATING, PULSED OR ON-OFF. WHEN THE CONTROLLER IS USED WITH A TERMINAL HEATING COIL, UPON A HEATING DEMAND, THE CONTROLLER SHALL REPOSITION THE ACTUATOR SO AS TO SUPPLY THE REQUIRED AIR FLOW (AJUSTABLE) FOR THE HEATING COIL’S ADEQUATE OPERATION. ONCE THE ZONE IS SATISFIED, THE ACTUATOR SHALL RETURN TO ITS MINIMAL POSITION (AJUSTABLE).

THE USER INTERFACE (WALL SENSOR) SHALL BE ANALOG OR DIGITAL, COMPLETE WITH SETPOINTS AND TEMPERATURE INDICATIONS. THE ADJUSTMENT RANGE FOR THE HEATING AND COOLING SETPOINTS SHALL BE LIMITED (AJUSTABLE).

* 1. IF REQUIRED, A HUMIDITY CONTROLLER SHALL BE INTEGRATED INTO THE SYSTEM. THIS CONTROLLER SHALL TAKE CONTROL OF A MODULATING OR ON-OFF HUMIDIFIER. THE OUTSIDE TEMPERATURE SHALL BE READ TO READJUST THE RELATIVE HUMIDITY SETPOINT, SO AS TO AVOID CONDENSATION RISK ON THE BUILDING’S WINDOWS OR STRUCTURES.
	2. THE BOILER CONTROLLER SHALL MANAGE THE BOILERS AND PUMPS SO AS TO PROVIDE A STEADY SOURCE OF HOT WATER FOR HEATING PURPOSES. THE BOILERS AND PUMPS SHALL BE ROTATED ON A REGULAR BASIS SO AS TO ENSURE EVEN EQUIPMENT WEAR. A DUTY/STANDBY SEQUENCE SHALL BE IMPLEMENTED TO ENSURE PROPER SYSTEM OPERATION IN CASE OF EQUIPMENT FAILURE.
	3. THE UNIT VENTILATOR CONTROLLER SHALL CONTROL THE UNIT’S FAN, MECHANICAL COOLING AND HOT WATER COIL SO AS TO MAINTAIN COMFORT IN THE SPACE, AS PROVIDED BY THE WALL MOUNTED SPACE SENSOR. THE SPACES SHALL FOLLOW AN OCCUPANCY SCHEDULE AS NEEDED FOR THE OCCUPANTS. UNOCCUPIED SETPOINTS SHALL BE ENFORCED TO PROVIDE ENERGY SAVINGS DURING UNOCCUPIED HOURS.
	4. THE ENTIRE SYSTEM SHALL HAVE THE OPTION OF BEING CONNECTED TO A NETWORK IP CONTROLLER, THUS ALLOWING REMOTE ACCESS THRU THE INTERNET. SOFTWARE WITH AN INTEGRATED GRAPHICAL INTERFACE SHALL ALLOW TO VISUALIZE, MANAGE AND EASILY CONFIGURE EVERY COMPONENT OF THE CONTROL SYSTEM. THIS GRAPHICAL SOFTWARE, PROVIDED BY THE MANUFACTURER, SHALL BE FREE AND BE EXTREMELY EASY TO USE. NO LICENSE SHALL BE REQUIRED. THE CONTROL SYSTEM SHALL BE ACCESSED THRU THE FOLLOWING MANNERS: LOCAL LAN NETWORK, LOCAL COMPUTER STATION, LOCAL TEMPORARY ACCESS (ADAPTOR), REMOTE VIA INTERNET, MOBILE DEVICE APPLICATION.
1. CONTROL DEVICE INSTALLATION
	1. THE INSTALLATION, WIRING, CONFIGURATION AND ADJUSTMENT OF EVERY CONTROL DEVICE SHALL BE DONE UNDER THE SUPERVISION OF THE VENTILATION CONTRACTOR.
	2. THE LABOR INVOLVED WITH CONTROLS MUST COMPLY WITH THE PROJECT’S GENERAL CONDITIONS AND SPECIFICATIONS.
2. EQUIPMENT TO SUPPLY
	1. SOFTWARE WITH GRAPHICAL INTERFACE

MANUFACTURER: PROLON

MODEL: FOCUS VERSION X.X.X

* 1. NETWORK CONTROLLER / IP INTERFACE

MANUFACTURER: PROLON

MODEL: PL-NC2000

* 1. CENTRAL AIR HANDLING UNIT CONTROLLER

MANUFACTURER: PROLON

MODEL: PL-M2000 RTU

* 1. UNIT VENTILATOR CONTROLLER

MANUFACTURER: PROLON

MODEL: PL-M2000-RTUS OR PL-C1050-RTUS

* 1. ZONE / VAV TERMINAL CONTROLLER

MANUFACTURER: PROLON

MODEL: PL-VC2000-PI

* 1. DIGITAL WALL SENSOR

MANUFACTURER: PROLON

MODEL: PL-T1000 OR PL-T500 OR PL-T200F