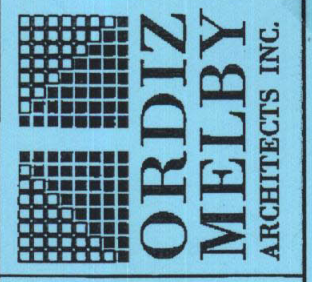


KEYNOTES:

- Mitsubishi PAC-SC51KUA power pac module at each building with VRF heat pump systems with a model AG-150 central controller at building EMS control panel. Extend 24v control wiring as required to controlled devices.
 - Field control wiring to building B network hub that gathers all the communications from all buildings with AG-150 controllers and routes them to a stand alone computer workstation with desktop computer, keyboard & screen
 - Typical outdoor unit heat pump. Extend control wiring to indoor fan coils.
 - Control wiring to other heat pumps / fan coils within building.
 - Typical wiring from fan coil to Mitsubishi wall mounted thermostat. Note: The fan speed can be set to Medium or Low by the user, which on a hot day could cause the supply air temperature to drop to uncomfortable levels. Keeping or changing it to High will avoid this.
- Scheduling:
- Cooling: The schedule shall allow for cool-down if needed, plus 1 hour of purge with minimum ventilation prior to occupancy. Fan speed shall be set to High each day.
- Heating: The schedule shall allow for morning warm-up, plus 1 hour of purge with minimum ventilation prior to occupancy. Fan speed shall be set to High each day.
- Typical wiring to other fan coils on same heat pump system.
 - Honeywell W7212 stand alone economizer controller (or equal). 24v power supply to each controller provided under spec section 15800 extended from Mitsubishi power pac module at EMS control panel or provide separate 120/24V controls transformer in panel as required to meet accumulative power requirements of the controllers. Set minimum outside air at each classroom to 150 CFM and maximum outside air damper position to 400 CFM. This must be set and calibrated in the field. Carefully coordinate work with air balance contractor. Demand control signal from wall mounted CO2 sensor shall override minimum damper position and modulate to maximum setting as required to maintain a maximum 1000 ppm CO2 level in the classroom. Note: Kindergarten classroom damper settings shall be 200 CFM minimum and 500 CFM maximum. Economizer function shall override ventilation settings and drive outside air damper full open (and return air fully closed) on a call for cooling from the fan coil and when the differential temperature inputs warrant economizer mode.
 - Honeywell C7650 dry bulb sensor at both the return air and outside air duct locations with connection back to stand alone economizer controller.
 - Honeywell C7650 dry bulb sensor at mixed air to fan coil with connection back to stand alone economizer controller. Economizer shall control to a mixed air temperature of 65 degrees and no lower. A lower temperature will over cool the space. Economizer shall open the OSA damper to max position anytime that OSA is cooler than return air by 2F, and the fan coil is in the cooling mode.
 - Honeywell C7232 wall mounted CO2 sensor with connection back to stand alone economizer controller. Set control point to 1000 ppm.
 - Honeywell damper motor, typical with power and control wiring connection back to stand alone economizer controller.
 - The occupied signal input for the economizer controller shall be taken from the RUN 12VDC signal output of the CN-S1 fan coil, activating a field provided 12VDC 75mA coil relay with dry contacts. This shall open the economizer outside air damper to minimum position. The COOL MODE and THERMO-ON 12VDC signals combined, from the CN-S2 function on the fan coil, shall activate relays wired in series thru a separate 12VDC 75mA coil relay to signal the economizer controller to function in economizer mode when conditions are appropriate (see note #9 above). When this signal is removed, economizer shall maintain function for a timed period adjustable from 5 to 30 minutes then return to minimum position (set initial run time to 15 minutes beyond cool signal from fan coil). Whenever the system is on the economizer shall maintain minimum outside air damper settings with demand control ventilation override. When the fan coil goes into the cooling mode, the economizer controller shall initiate the economizer function that shall control to a mixed air set point of 65 degrees.
 - Wiring between heat pumps, branch control units, fan coils, and D/DO modules for the purposes of communication and control shall be provided under spec section 15800. Daisy chain the wire back to each AC-130 panel. Follow guidelines provided by the manufacturer. A spare 1" conduit shall be provided between buildings under the data contract for the purposes of routing the wire.
 - Include factory supervised commissioning of all Mitsubishi heat pump controls including programming set points and testing of the system. Wiring and conduit shall be provided in accordance with spec division 16.
 - Outside air duct drop.
 - Return duct main.
 - Supply duct main.
 - Supply duct drop to displacement grille, typical.
 - Relief grille and duct.
 - Back draft damper in relief duct.

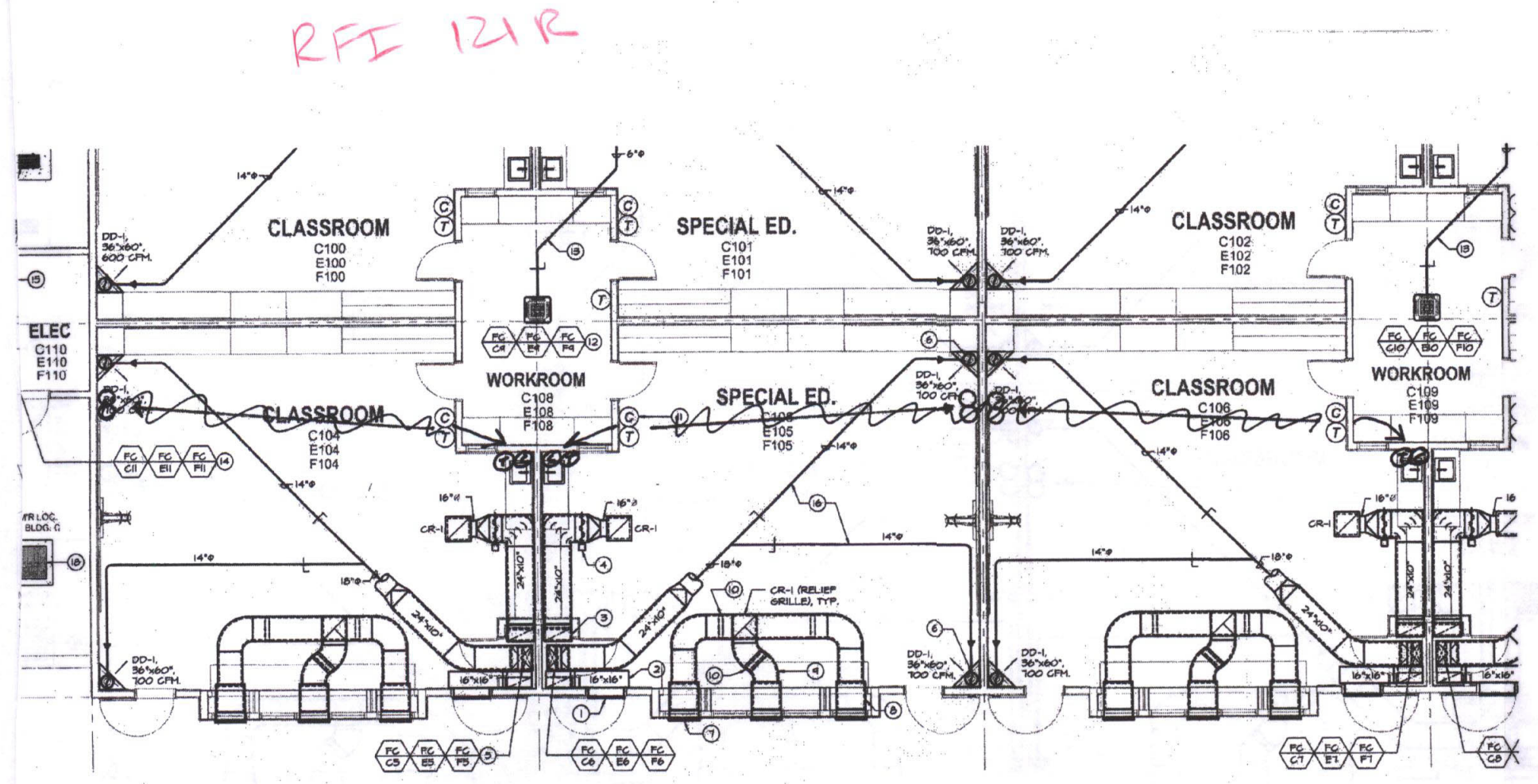


MDC
MECHANICAL DESIGN CONCEPTS, INC.
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Job: 09091 Pjt: 2-14-12



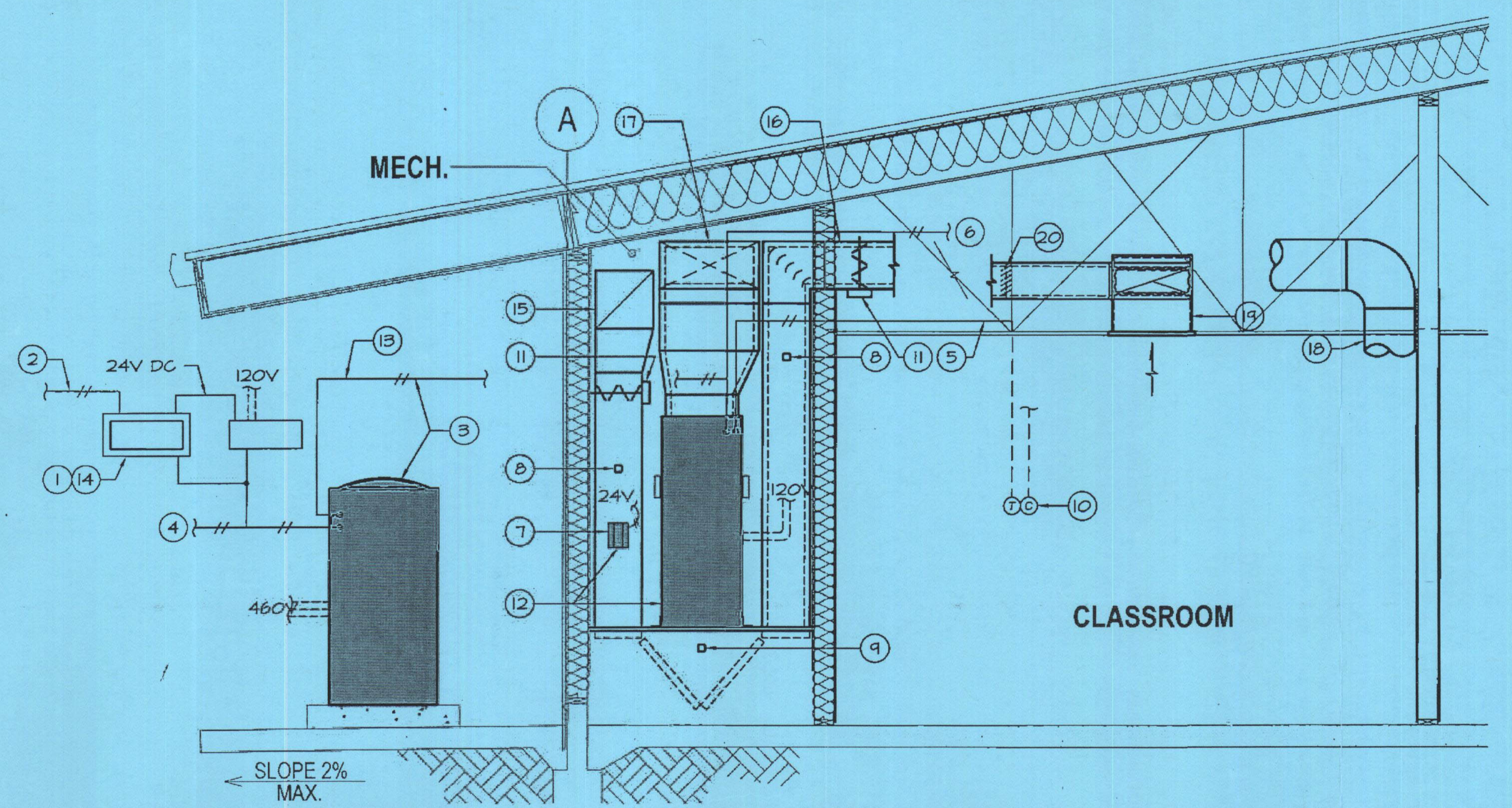
KEYNOTES FOR CONTROL SCHEMATIC
FOR
NEW MIDDLE / ELEMENTARY SCHOOL
BAKERSFIELD CITY SCHOOL DISTRICT
1300 BAKER STREET
BAKERSFIELD CALIFORNIA 93305

APPENDIX I	ADD #1	DATE
M-1212EF	M-1212EF	2/14/2012
JOB NUMBER	2010-0244	
APPL #	02-11-2027	
FILE #	02-11-12	



MECHANICAL PLAN - BUILDINGS C, E & F
RFI 121

REQUEST:
RDM Electric - 8/30/12
Reference Sheets M121CEF, M121D, M121G, M121N, M121P
In Buildings C, D, E, F, G, N and P the Mechanical Plans show a thermostat to be installed just inside the interior door to each classroom. However, there are structural framing members and windows that prevent the thermostats from being installed in the locations shown on the plans. Please provide an alternate location for the thermostats in the classrooms located in Buildings C, D, E, F, G, N and P.
Contractor Solution: Move the thermostats to the adjacent wall by the case-work and sink.
ANSWER:
Ed Hewitt - Ordiz-Melby - 9/11/12
Please relocate thermostat and CO2 sensor as depicted on the attached drawing.



TYPICAL CONTROL SCHEMATIC FOR CLASSROOM BUILDINGS
DIAGRAMMATIC (REFER TO KEYNOTES ON SHEET ADD# M-1212EF.1)



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CONTROL SCHEMATIC FOR CLASSROOMS.
FOR
NEW MIDDLE / ELEMENTARY SCHOOL
BAKERSFIELD CITY SCHOOL DISTRICT
1300 BAKER STREET
BAKERSFIELD CALIFORNIA 93305

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