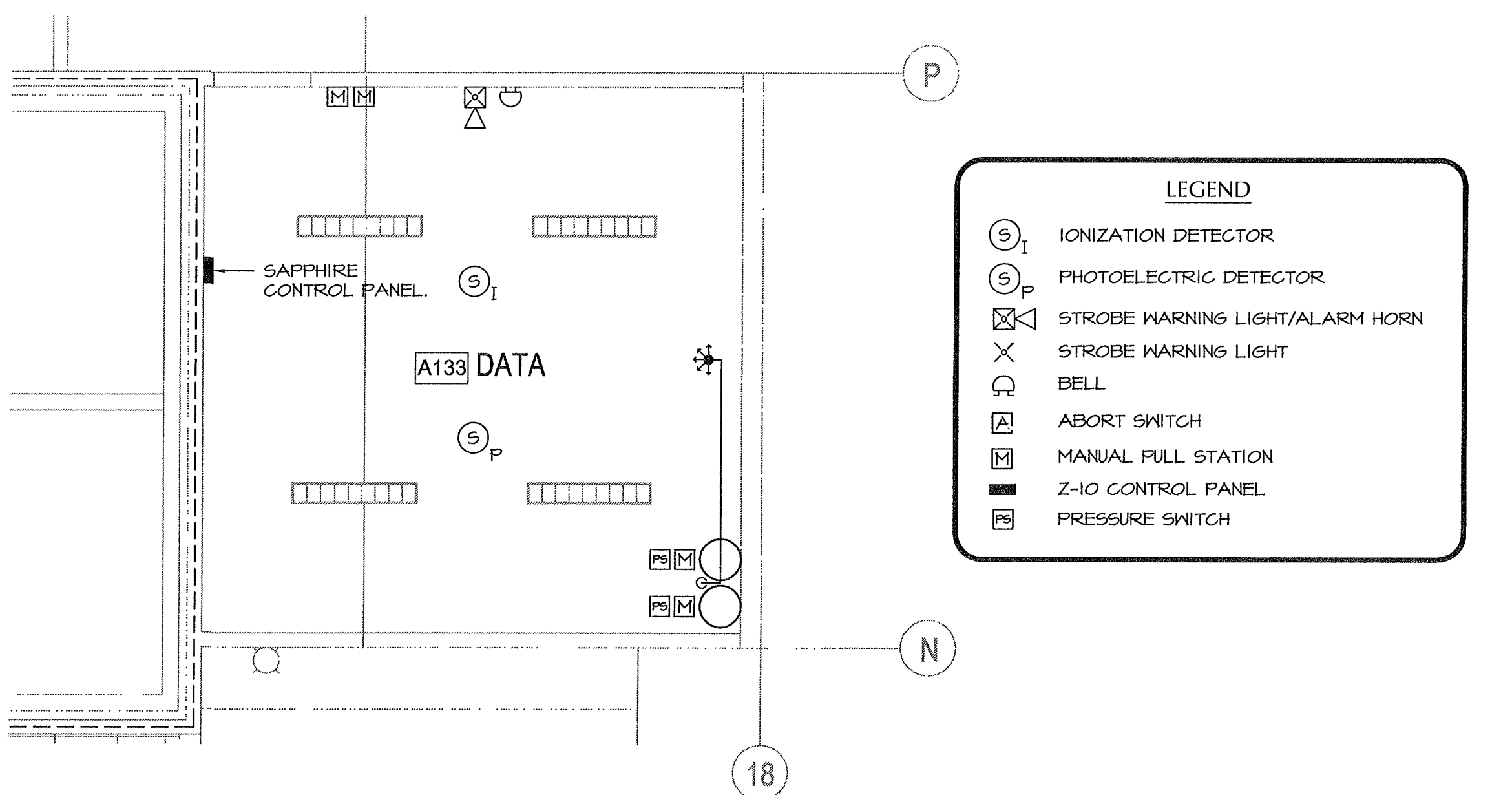


**PARTIAL MECHANICAL PLAN - BUILDING A**  
SCALE: 3/16"=1'-0"



**PARTIAL MECHANICAL PLAN - SAPPHIRE FIRE SUPPRESSION SYSTEM**  
SCALE: 1/4"=1'-0"

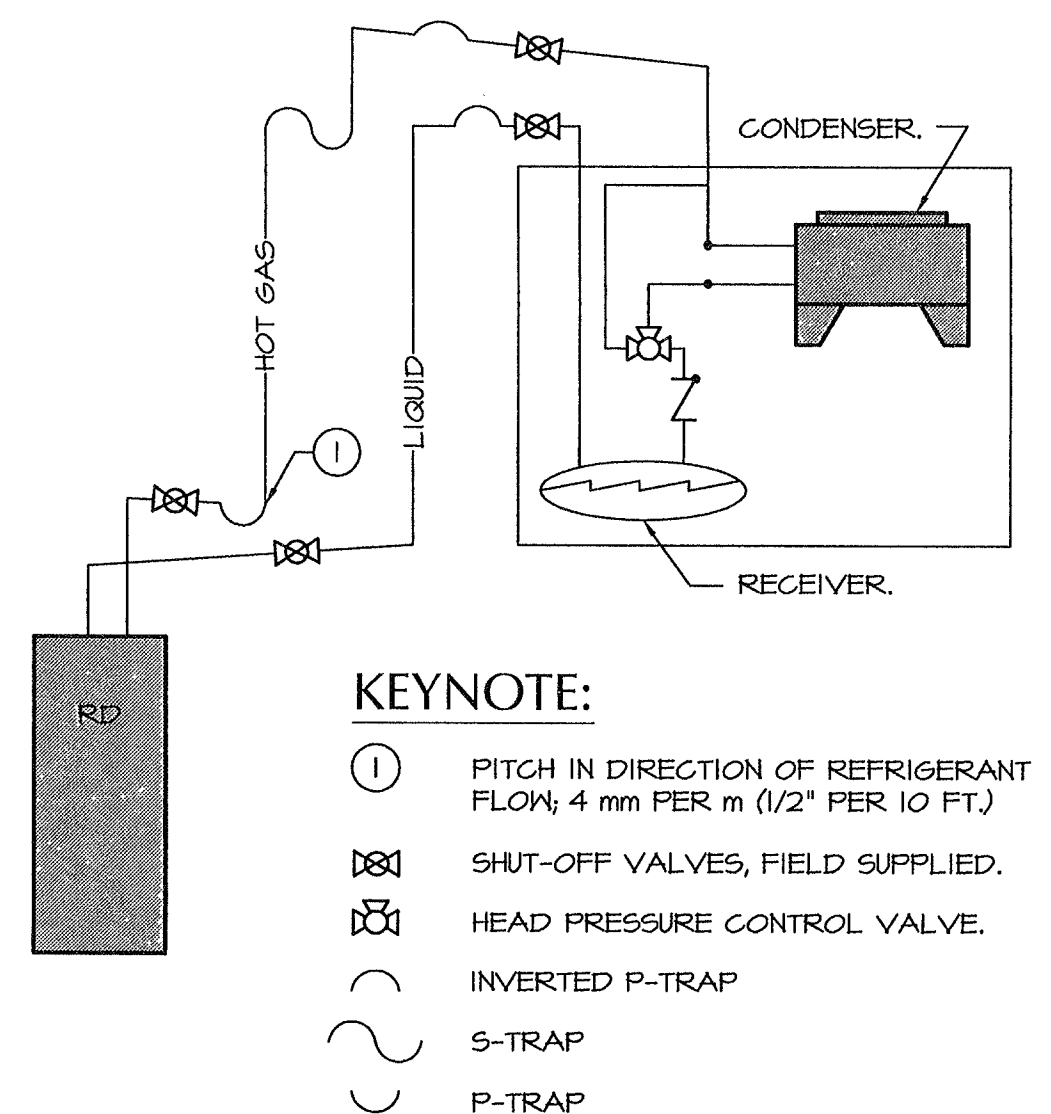
**LEGEND**

- ⊙ IONIZATION DETECTOR
- ⊙ PHOTOELECTRIC DETECTOR
- ⊗ STROBE WARNING LIGHT/ALARM HORN
- ⊗ STROBE WARNING LIGHT
- ⊙ BELL
- ⊙ ABORT SWITCH
- ⊙ MANUAL PULL STATION
- ⊙ Z-10 CONTROL PANEL
- ⊙ PRESSURE SWITCH

**MECHANICAL KEYNOTES:**

1. 18" x 12" supply and 24" x 10" return ducts from AC-A6 with 2" acoustical liner.
2. 24" x 14" supply and 32" x 12" return ducts from AC-A11 with 2" acoustical liner.
3. See typical branch duct to diffuser connection E/M-504.
4. Typical branch duct balancing damper. See detail F/M-504.
5. CR-1 return grille, typical at T-bar ceilings unless otherwise noted. See typical branch duct to return grille detail M-.
6. 54" x 14" supply and 60" x 16" return ducts from AC-A13 with 2" acoustical liner.
7. 250 CFM ceiling diffuser furnished with readily accessible damper actuator protruding from diffuser face.
8. Dishwasher exhaust hood H-A1. See details on sheets M-506, 700 CFM exhaust.
9. Type II exhaust hood with 105" x 12" perforated supply plenum, Hood H-A2, 1,531 CFM exhaust from KEF-A2 and 1,378 CFM make-up-air from MUA-A1. See details on sheets M-506.
10. Type II exhaust hood with 105" x 12" perforated supply plenum, Hood H-A3, 1,531 CFM exhaust from KEF-A3 and 1,378 CFM make-up-air from MUA-A1. See details on sheets M-506.
11. Type I exhaust hood with 175" x 12" perforated supply plenum, Hood H-A4, 2,552 CFM exhaust from KEF-A4 (fans A & B) and 2,297 CFM make-up-air from MUA-A2. See details on sheets M-505.
12. 14" round exhaust duct drop from KEF-A1. Extend to connection at dishwasher exhaust hood H-A1. Solder all joints and seams.
13. 20" x 20" wrapped supply duct from MUA-A1. Extend to connection at H-A2 & H-A3 perforated supply plenum. Balance each plenum to 1,378 CFM.
14. 20" x 20" wrapped supply duct from MUA-A2. Extend to connection at H-A4 perforated supply plenum. Balance plenum to 2,297 CFM.
15. 14" round branch ducts to connection at 26" x 8" duct connections at exhaust hood perforated supply plenum.
16. 16" x 16" exhaust riser to KEF-A2 on roof.
17. 16" x 16" exhaust riser to KEF-A3 on roof.
18. 12" x 10" exhaust riser with 3M Firemaster wrap extended to KEF-A4A & 4B on roof. Construct ductwork of 16 gauge black iron welded to meet MCC 510.5. See details on sheet M-504 for fire barrier wrap details.
19. 15" wide x 21" tall x 6" deep flush mounted remote control panel for type II exhaust hood H-A2 & A3. See details on sheet M-510.
20. Manual pull station location. Coordinate with general contractor and other trades prior to install.
21. EMS control panel and Ansul fire suppression components located in enclosure on right end of hood. See details on sheet M-505, 507, 510 & 511.
22. Fire caulk all piping penetrations at fire rated wall.

24. APC ACRD500 In-Row 10kW rack DX cooling unit. 27 MCA / 40 MOC @ 460v. Unit must be installed, started, and commissioned in strict compliance with APC installation manual. Installation manual must remain on site during installation with one copy provided to the inspector to verify installation compliance with manual. In row cooler furnished by owner and installed under spec section 15800. Installation to include, anchoring, piping (less condensate), controls, and system commissioning.
25. Level unit and join unit to adjacent enclosures (racks).
26. Top liquid and hot gas line connections on top of in row cooler (use fittings provided with unit for connections). See piping diagram, detail C/M-135A. All fittings to be long radius for minimal pressure drop. All piping shall be refrigerant grade ACR type "L" piping. Isolate all building surfaces from pipe vibration. Charge system with proper amounts of R410A refrigerant and compressor oil per the manufacturer's installation manual.
27. Top pumped condensate connection. See plumbing plans for routing of condensate. Install optional leak sensor and connect to leak detector port on In-Row unit. Terminate the leak sensor inside the cabinet, unless otherwise directed by owner.
28. Install remote rack temperature sensor. Determine location of sensor on adjacent rack per the installation manual and per discussions with BCSD I.T. personnel.
29. Confirm exact location of In-Row cooler with BCSD I.T. personnel prior to installation. See detail DM-135A for anchorage to floor.
30. The In-Row cooler has the ability to communicate with the Building Management System (BMS) through a MODBUS interface. The connection to BMS shall be by mechanical contractor and is within the scope of this contract.
31. The In-Row cooler has the ability to communicate with the local area network (LAN). The LAN connection shall be by the data contractor, and is not within the scope of this contract.
32. I.T. rack. Provided by owner.
33. Hot isle (return side).
34. Cold isle (supply side).
35. Bottom condensate overflow drain connection. See plumbing plans for routing of condensate.
36. Refrigerant piping up to roof mounted condenser.
37. EMS control panel. Dedicated 115v circuit provided under spec division 16 at j-box adjacent to panel. Under spec division 15, extend power wiring to EMS panel and any other 115v control items within this building. This EMS panel shall house the Carrier Comfort Network (CCN) and iVu components and software. Provide Carrier 33UNIVCTRL (universal controller) at building EMS panel. Extend control from each universal controller to the components controlled under the CCN system. See control notes on sheet M502.
38. UPS batteries.
39. UPS unit.
40. 12"Ø gravity vent on roof with 12"x12" drop to CE-2, 12"x12" at ceiling. Use Greenheck GRS with curb mounting, birdscreen and 2" insulation below hood.
41. S.F.D. = Smoke/Fire damper, typical. See detail BM-501.
- 42.



- KEYNOTE:**
- ① PITCH IN DIRECTION OF REFRIGERANT FLOW, 4 mm PER m (1/2" PER 10 FT)
  - ⊗ SHUT-OFF VALVES, FIELD SUPPLIED.
  - ⊙ HEAD PRESSURE CONTROL VALVE.
  - ⊙ INVERTED P-TRAP
  - ⊙ S-TRAP
  - ⊙ P-TRAP

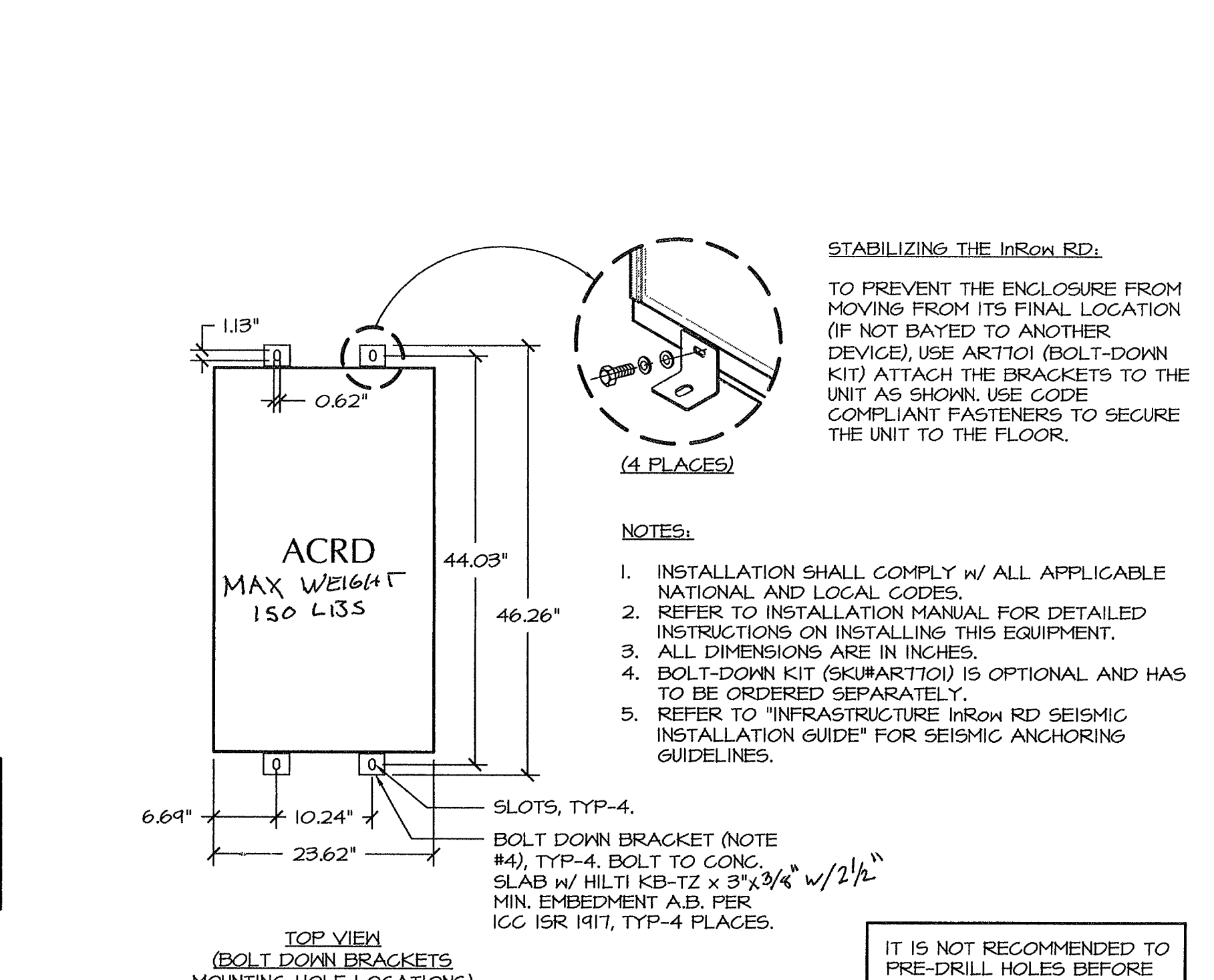
**NOTE:**

- ALL LINES ARE TYPE "L" ACR COPPER TUBING.
- TRAP THE VERTICAL DISCHARGE LINE EVERY 6 m (20 FT) TO ENSURE PROPER OIL RETURN.
- CHANGE THE SIZE OF THE PIPE AFTER THE P-TRAP. SEE THE PIPING DIAGRAM CREATED FOR YOUR SITE.
- THE MAXIMUM PIPING RUN IS 61 m (200 FT) EQUIVALENT LENGTH. SIZE THE PIPING PURSUANT TO ACCEPTABLE REFRIGERATION PRACTICE.
- ALL REFRIGERANT PIPING MUST BE STRAIGHT ACR TO HAVE 565 PSIG OR ABOVE MIN.
- THE EQUIVALENT LENGTH OF 3/4" IN OD DISCHARGE LINE PIPE SHOULD BE KEPT TO LESS THAN 10 m (60 FT).
- THE TOTAL EQUIVALENT LENGTH OF DISCHARGE LINE SHOULD BE LESS THAN 46 m (150 FT) TO PREVENT AN EXCESSIVE HOT GAS PRESSURE DROP WHICH CAN INCREASE THE DISCHARGE PRESSURE DURING HOT SUMMER DAYS.
- TO HAVE A TOTAL EQUIVALENT LENGTH OF 61 m (200 FT), THE LOAD MUST BE REDUCED BY 5%.
- INSTALL A 3/8" SCHRADER PORT ON THE LIQUID LINE OUTLET OF THE FLOODED RECEIVER, APPROXIMATELY 152 mm (6 IN) DOWNSTREAM OF THE SERVICE PORT.
- INSULATE HOT GAS LINE W/ 3" ARMAFLEX INSULATION WHERE PIPING IS ROUTED EXPOSED IN ROOM. INSULATION IS FOR THE PROTECTION OF PERSONEL SCOLDING FROM HOT PIPE.
- REFRIGERANT PIPE SIZES:
  - DISCHARGE LINE, HORIZONTAL RUNS 1/8" ACR.
  - DISCHARGE LINE, VERTICAL RUNS 3/4" ACR.
  - LIQUID LINE, 3/4" ACR.

DO NOT INSTALL THE AIR-COOLED CONDENSER BELOW THE IN-ROW RD. THE CONDENSER MUST BE POSITIONED ABOVE OR AT THE SAME LEVEL AS THE IN-ROW RD TO ENSURE PROPER FUNCTION.

Equivalent Length (m (ft))	Line Type	ACRD100, ACRD101 (OD)
UP TO 150'	DISCHARGE LINE (HORIZONTAL)	1/8" ACR
	DISCHARGE LINE (VERTICAL)	3/4" ACR
	LIQUID LINE	3/4" ACR

**NOTE:** CONFIRM ALL PIPE SIZES WITH MANUFACTURER'S WRITTEN INSTALLATION MANUALS PRIOR TO INSTALLING PIPE.



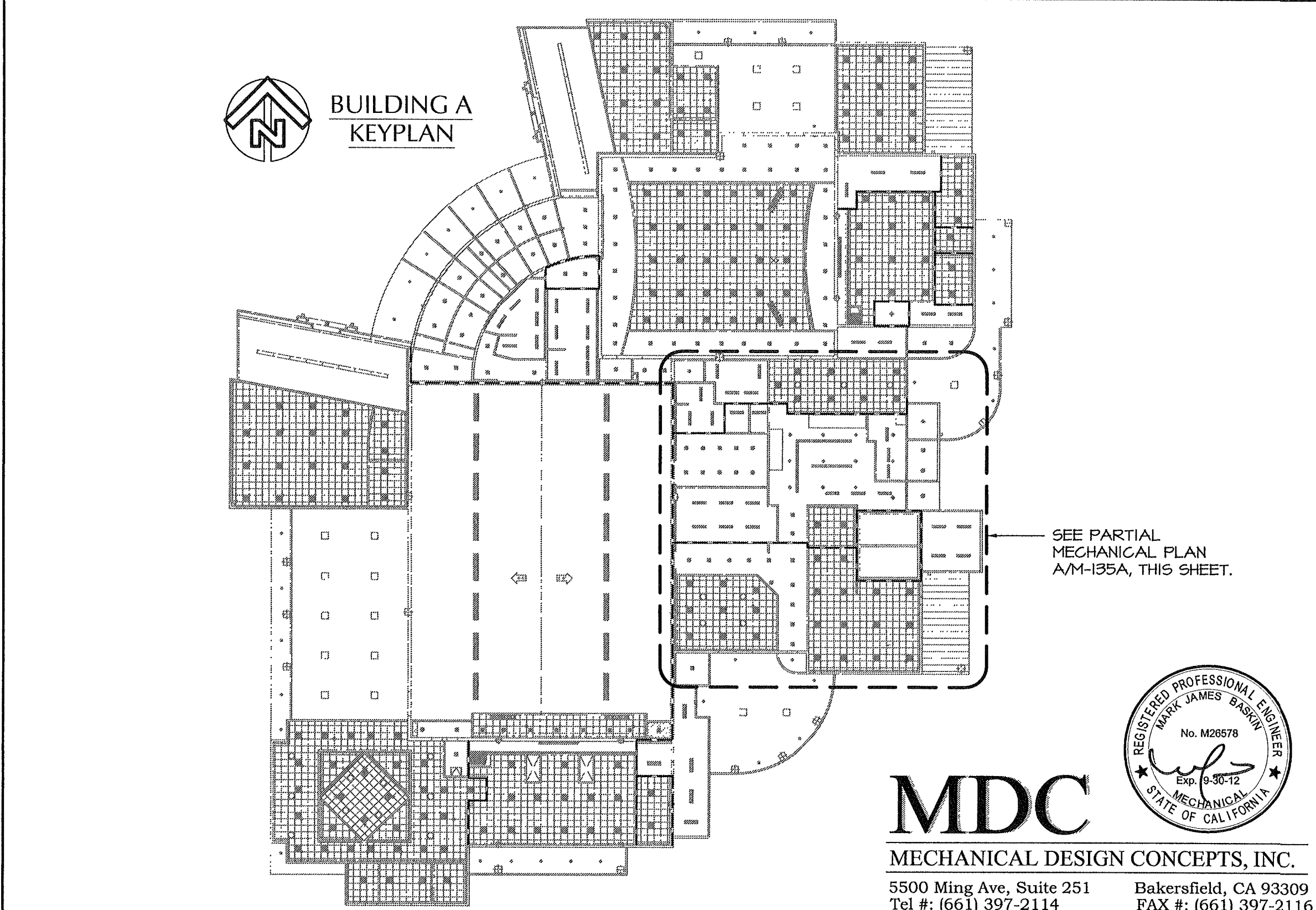
**NOTE:**

- 1. INSTALLATION SHALL COMPLY W ALL APPLICABLE NATIONAL AND LOCAL CODES.
- 2. REFER TO INSTALLATION MANUAL FOR DETAILED INSTRUCTIONS ON INSTALLING THIS EQUIPMENT.
- 3. ALL DIMENSIONS ARE IN INCHES.
- 4. BOLT-DOWN KIT (SKU:ARTIC01) IS OPTIONAL AND HAS TO BE ORDERED SEPARATELY.
- 5. REFER TO "INFRASTRUCTURE IN-ROW RD SEISMIC INSTALLATION GUIDE" FOR SEISMIC ANCHORING GUIDELINES.

**NOTES:**

- TO PREVENT THE ENCLOSURE FROM MOVING FROM ITS FINAL LOCATION (IF NOT BAYED TO ANOTHER DEVICE), USE ARTIC01 (BOLT-DOWN KIT) ATTACH THE BRACKETS TO THE UNIT AS SHOWN, USE CODE 0= branch duct volume damper with remote actuator with painted cover located at ceiling.
- 15" wide x 21" tall x 6" deep flush mounted remote control panel for type II exhaust hood H-A2 & A3. See details on sheet M-510.
- Manual pull station location. Coordinate with general contractor and other trades prior to install.
- EMS control panel and Ansul fire suppression components located in enclosure on right end of hood. See details on sheet M-505, 507, 510 & 511.
- Fire caulk all piping penetrations at fire rated wall.

IT IS NOT RECOMMENDED TO PRE-DRILL HOLES BEFORE PLACING RP UNITS IN ROW.



**IN-ROW COOLER PIPING DIAGRAM**  
DIAGRAMMATIC

**IN-RACK COOLER ANCHORAGE**  
SCALE: NTS.

**MDC**  
MECHANICAL DESIGN CONCEPTS, INC.  
5500 Ming Ave, Suite 251 Bakersfield, CA 93309  
Tel #: (661) 397-2114 Fax #: (661) 397-2114  
Job: 09091

**ORDIZ MELBY**  
ARCHITECTS, INC.  
5500 MING AVENUE SUITE 280  
BAKERSFIELD, CALIFORNIA 93309  
TELEPHONE (661) 832-4256  
FACSIMILE (661) 832-4291

REGISTERED ARCHITECT  
No. C-14728  
MAY 12, 2011  
RENEWAL  
STATE OF CALIFORNIA  
DANNY E. ORDIZ, AIA  
ARCHITECT C-14,728  
WILLIAM J. MELBY, AIA  
ARCHITECT C-16,835

IDENTIFICATION STAMP  
DIVISION OF STATE ARCHITECT  
OFFICE OF REGULATION SERVICES  
APPL. #02-112027  
FILE #: 15-6  
ACR FILE # 15-6  
DATE JAN 2 0 2012  
PTN # 63321-12

**NEW ELEMENTARY SCHOOL**  
9801 HIGHLAND KNOLLS DR  
BAKERSFIELD  
CALIFORNIA  
93306

**NEW MIDDLE SCHOOL**  
4115 VINELAND ROAD  
BAKERSFIELD  
CALIFORNIA  
93306

FOR:  
**BAKERSFIELD CITY SCHOOL DISTRICT**  
1300 BAKER STREET  
BAKERSFIELD  
CALIFORNIA  
93305

MARK	DATE	DESCRIPTION
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CHECKED BY: MB  
CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH THE WORK. REPORT DISCREPANCIES TO THE ARCHITECT.  
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**PARTIAL MECHANICAL PLAN - BUILDING A**  
SHEET IDENTIFICATION NUMBER  
**M-135A**