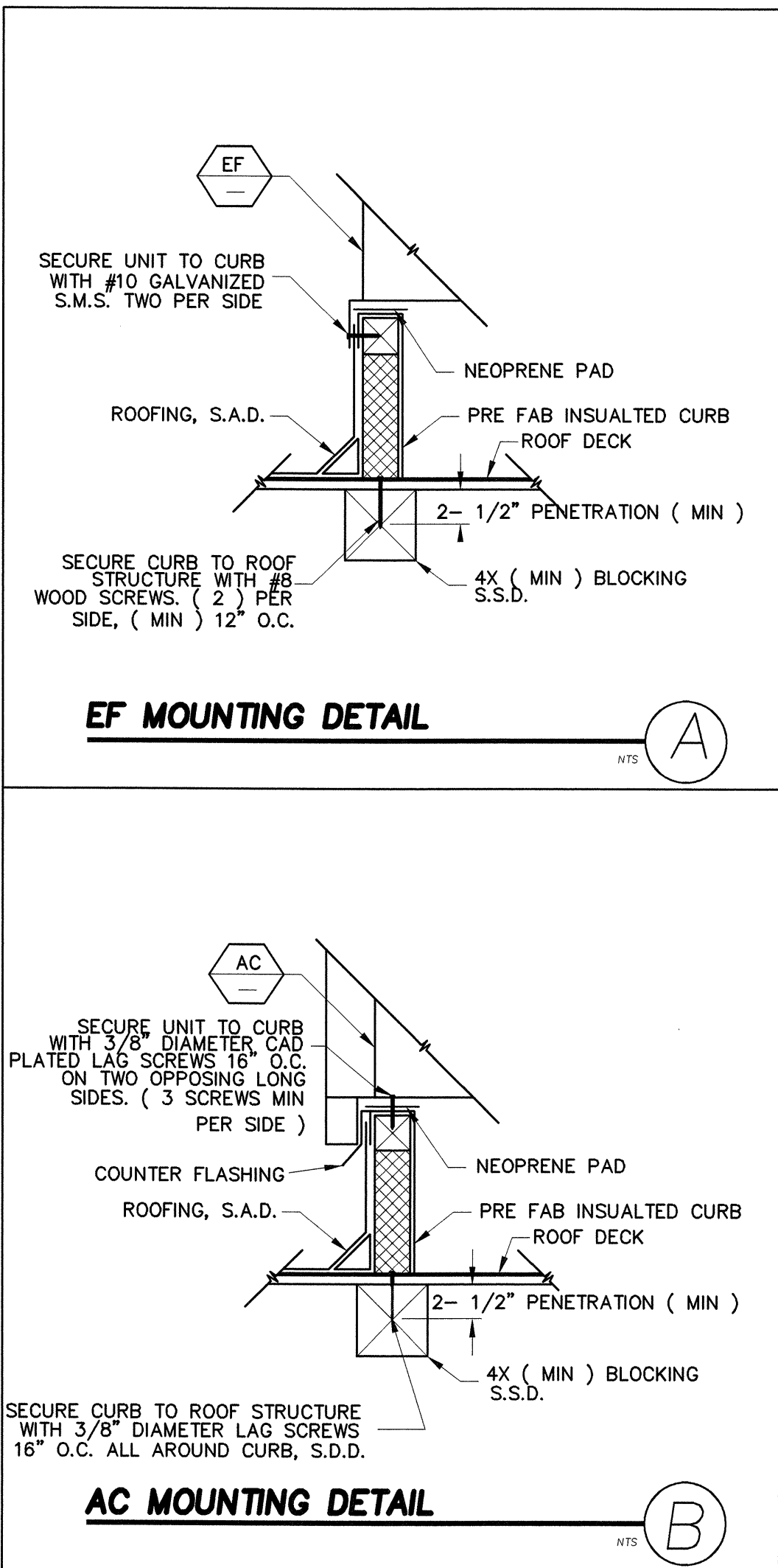


# GAS STATION REMODELING

## 1129 UNION AVE, BAKERSFIELD CA

DETAILS



### HVAC SPECIFICATIONS

1. A. PROVIDE ALL HEATING, VENTILATING AND AIR CONDITIONING ITEMS INDICATED ON THE DRAWINGS, DESCRIBED IN THIS SPECIFICATION, OR REQUIRED FOR A COMPLETE AND PROPER INSTALLATION. HVAC WORK INCLUDES THE FOLLOWING:
  1. HVAC UNITS AND EQUIPMENT;
  2. EXHAUST FANS;
  3. DUCTS, FILTERS, DAMPERS, GRILES, REGISTERS, DIFFUSERS;
  4. CONTROLS, INCLUDING 24 VOLT CONTROL WIRING AND 120/24 VOLT TRANSFORMERS;
  5. CONDUIT FOR LOW VOLTAGE WIRING;
  6. INSULATION FOR DUCTS AND PIPING AS REQUIRED IN THIS SECTION;
  7. REFRIGERANT, CONDENSATE PIPING AND APPURTENANCES;
  8. FLASHING FOR HVAC SYSTEMS THAT PENETRATE WALLS AND ROOFS;
- B. RELATED WORK DESCRIBED ELSEWHERE:
  1. LINE VOLTAGE WIRING, CONDUIT AND DISCONNECT SWITCHES.
2. COMPLY WITH ALL PERTINENT CODES, ORDINANCES AND REGULATIONS, AND ALL PERTINENT RECOMMENDATIONS CONTAINED IN "HVAC DUCT CONSTRUCTION STANDARDS" AS PUBLISHED BY SMACNA, THE UNIFORM MECHANICAL CODE (UMC), LATEST EDITION, AND TITLE 24 BUILDING STANDARDS OF THE STATE OF CALIFORNIA.
3. FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIAL AND LABOR REQUIRED TO COMPLY WITH THE ABOVE CODES AND STANDARDS, EVEN THOUGH THE WORK MAY NOT BE DESCRIBED IN THE CONTRACT DOCUMENTS, WHERE THE REQUIREMENTS OF THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THE ABOVE CODES AND STANDARDS, THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.
4. AFTER AWARD OF CONTRACT AND BEFORE COMMENCING WORK, SUBMIT SIX COPIES OF THE FOLLOWING TO THE ARCHITECT FOR APPROVAL. SUBMITTALS SHALL BE IN BROCHURE FORM WITH INDEX AND SELECTED ITEMS CLEARLY DESIGNATED AND REFERENCED TO THE APPROPRIATE EQUIPMENT TAG NUMBER:
  - A. COMPLETE MATERIALS LIST OF ALL ITEMS PROPOSED TO BE FURNISHED AND INSTALLED UNDER THIS SECTION;
  - B. CATALOG CUTS AND OTHER DATA REQUIRED TO DEMONSTRATE COMPLIANCE WITH THE CONTRACT DOCUMENTS.
5. COOPERATE WITH OTHER TRADES IN ORDER THAT ALL SYSTEMS IN THE WORK MAY BE INSTALLED IN THE BEST ARRANGEMENT.
6. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH WORK OF THIS SECTION WILL BE INSTALLED. CORRECT CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK. NOTIFY ARCHITECT OF ANY DISCREPANCIES. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
7. AVOID INTERFERENCE WITH STRUCTURE, AND WITH WORK OF OTHER TRADES. INSTALL ALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS. INSTALL ACCESSIBLE PARTS, INCLUDING EQUIPMENT, COILS, VALVES, DAMPERS, CONTROLS, AND FILTERS WITH ADEQUATE CLEARANCE FOR INSPECTION, ADJUSTMENTS, REPAIR, AND REPLACEMENT.
8. ALL OTHER MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, SHALL BE AS SELECTED BY THE CONTRACTOR SUBJECT TO ACCEPTANCE BY THE ENGINEER.
9. GALVANIZED SHEET METAL DUCT: PER SMACNA "HVAC DUCT CONSTRUCTION STANDARDS." ALL ROUND DUCTS SHALL BE GALVANIZED STEEL SPIRAL SEAM TYPE, STANDARD GAUGES, MANUFACTURED BY UNITED MCGILL OR EQUAL. AS AN OPTION, ALUMI- FLEX DUCT MAY BE USED.
10. SOFT FLEXIBLE DUCT: CODY-WEST TYPE NIL. 7"-9" MAXIMUM LENGTH UNLESS NOTED OTHERWISE. CLASS 1 RATING WITH R-VALUE OF 4.2 MINIMUM.
11. INSULATION: FOIL-FACED FIBERGLASS, OWENS CORNING TYPE 75 OR EQUAL, 1-1/2" THICK. FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NOT MORE THAN 50.
12. DUCT LINER: FOR EXTERIOR DUCTS: FIBERGLASS 1-1/2" THICK WITH FIRE RATED BLACK COATING, 1-1/2 LB. PER FT<sup>3</sup> MINIMUM DENSITY, OWENS CORNING AEROFLEX TYPE 150. FOR OTHER LOCATIONS SHOWN ON DRAWINGS, AEROFLEX TYPE 150. AS ABOVE, EXCEPT 1" THICK. FLAME SPREAD RATING OF NOT MORE THAN 25 AND SMOKE DEVELOPED RATING OF NOT MORE THAN 50.
13. REFRIGERANT PIPING: TYPE "ACR" COPPER TUBING WITH LONG RADIUS ELLS AND SILVER-BRAZED JOINTS. PROVIDE NITROGEN PURGE DURING BRAZING. INSULATE ALL REFRIGERANT SUCTION PIPING WITH 3/4" THICK ARMSTRONG ARMAFLEX, GLUED AT ALL SEAMS. INSULATION SHALL HAVE A FLAME SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DENSITY NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH U.B.C. STANDARD 42-1. PRESSURE TEST ALL REFRIGERANT PIPING TO 300 PSIG FOR 24 HOURS. IF ANY LEAKS OCCUR REPAIR AND TEST AGAIN. CARRY OUT ALL TESTS BEFORE COVERING UNDERGROUND PIPING.
14. CONDENSATE PIPING: TYPE "L" COPPER, SWEAT FITTINGS.
15. PROVIDE APPROVED FIRE AND SMOKE RATED FLEXIBLE CONNECTIONS BETWEEN FANS AND DUCTS.
16. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS AND RECOMMENDATIONS.
17. PAINT ALL DIFFUSER, GRILLE AND REGISTER BACK PANS FLAT BLACK.
18. MAKE ALL DUCT ELBOWS RIGHT ANGLE TYPE WITH DOUBLE-THICKNESS TURNING VANES OR CONSTRUCT WITH A CENTERLINE RADIUS 1-1/2 TIMES THE DUCT WIDTH.
19. DO NOT CUT INTO OR REDUCE THE SIZE OF ANY STRUCTURAL MEMBER WITHOUT THE PERMISSION OF THE ARCHITECT.
20. PROVIDE WEATHER PROOF FLASHINGS AT ALL DUCT AND PIPE PENETRATIONS THROUGH THE BUILDING WALLS AND ROOF. AS A MINIMUM, FLASHINGS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. FLASHINGS SHALL BE GUARANTEED WEATHERPROOF FOR THE DURATION OF THE GUARANTEE.
21. SUPPORT ALL HVAC UNITS, DUCTWORK, VARIABLE VOLUME VALVES, PIPING AND OTHER APPURTENANCES FROM STRUCTURE. DO NOT SCREW OR DRIVE FASTENERS INTO NON-STRUCTURAL COMPONENTS SUCH AS ROOF DECKS OR WALLS.
22. THOROUGHLY CLEAN ALL COMPONENTS AND REMOVE ALL DIRT, SCALE, OIL, AND OTHER FOREIGN SUBSTANCES. PROVIDE CLEAN AIR FILTERS FOR ALL EQUIPMENT.
23. NOTIFY ALL TESTS NECESSARY TO DEMONSTRATE THE INTEGRITY OF THE COMPLETED INSTALLATION TO THE APPROVAL OF THE WORK OF THIS SECTION TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN OBSERVED AND ACCEPTED BY THE ENGINEER AND BY ALL OTHER AUTHORITIES HAVING JURISDICTION.
24. PERFORM ALL TESTS NECESSARY TO DEMONSTRATE THE INTEGRITY OF THE COMPLETED INSTALLATION TO THE APPROVAL OF THE ENGINEER AND ALL OTHER AUTHORITIES HAVING JURISDICTION. MAKE ALL ADJUSTMENTS NECESSARY AND BALANCE THE COMPLETED SYSTEM IN ACCORDANCE WITH THE DATA SHOWN. BALANCE THE SYSTEMS IN ACCORDANCE WITH THE NEBB OR AABC STANDARDS. BALANCE SHALL BE DONE BY AN INDEPENDENT LICENSED (BY NEBB OR AABC) TAB CONTRACTOR.

- MAKE THE FOLLOWING TESTS AND SUBMIT REPORTS TO THE ARCHITECT
- A. AIR VOLUME AT EACH SUPPLY, RETURN AND EXHAUST OUTLET OR INLET
  - B. VARIABLE VOLUME VALVE MAXIMUM AND MINIMUM FLOW RATES.
  - C. TOTAL CFM AND TOTAL STATIC PRESSURE OF EACH SUPPLY AND EXHAUST FAN. TEST EXHAUST FANS WITH ROOM DOORS CLOSED.
  - D. MOTOR SPEED, FOR MULTIPLE SPEED FANS (E.G. HIGH, MEDIUM, LOW).
  - E. OUTSIDE AIR TO EACH HVAC UNIT AND SUPPLY FAN.
25. THE ENTIRE SYSTEM SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR BEGINNING WITH OWNER'S ACCEPTANCE OF THE WORK. ALL LABOR AND MATERIALS NECESSARY TO REPAIR OR REPLACE THE SYSTEM, OR PORTIONS THEREOF, DURING THAT TIME SHALL BE WARRANTED FOR A PERIOD OF ONE (1) YEAR FROM REPAIR OR REPLACEMENT.
26. INSTRUCT OWNER'S REPRESENTATIVE IN THE OPERATION OF THE SYSTEMS.
27. PROVIDE ONE REPRODUCIBLE (SEPIA) AS-BUILT DRAWING AND AN OPERATION AND MAINTENANCE MANUAL. AS A MINIMUM, THE MANUAL SHALL CONTAIN:
- A. A COMPLETE LIST OF ALL EQUIPMENT AND APPURTENANCES WITH EQUIPMENT DESIGNATIONS (PER DRAWINGS), MANUFACTURERS, AND CATALOG NUMBERS.
  - B. COPIES OF MANUFACTURERS' BROCHURES AND INSTRUCTIONS FOR OPERATION AND MAINTENANCE OF ALL MECHANICAL EQUIPMENT, INCLUDING REPLACEMENT PARTS LIST.
  - C. TYPED SYSTEM OPERATION AND MAINTENANCE INSTRUCTIONS, INCLUDING INSPECTION, LUBRICATION AND SERVICE INSTRUCTIONS AND SCHEDULES.
  - D. LIST OF NAMES, ADDRESSES AND PHONE NUMBERS OF DISTRIBUTORS OF ALL EQUIPMENT AND APPURTENANCES.
  - E. MANUFACTURERS' WARRANTIES.

### CODE, RULES AND REGULATIONS

ALL WORK AND MATERIALS SHALL COMPLY WITH THE LATEST REGULATIONS OF THE STATE FIRE MARSHAL, CALIFORNIA ADMINISTRATIVE CODE, SERVING UTILITY COMPANIES AND OTHER APPLICABLE STATE AND LOCAL ORDINANCES. NOTHING IN THESE PLANS OR SPECIFICATIONS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES, WHERE WORK OF A HIGHER DEGREE IS INDICATED IN THE PLANS OR SPECIFICATIONS THIS REQUIREMENT SHALL GOVERN.

### GENERAL NOTES

1. PROVIDE FLEXIBLE PIPE CONNECTIONS TO EQUIPMENT THAT IS SUSPENDED FROM OR MOUNTED ON VIBRATION ISOLATIONS.
2. PROVIDE MINIMUM OUTSIDE AIR TO HVAC UNITS AS FOLLOWS:
  - A. AC
3. MAINTAIN A MINIMUM OF 10'-0" CLEAR BETWEEN HVAC EQUIPMENT AIR INTAKES AND PLUMBING VENTS OR EXHAUST OUTLETS.
4. SUPPLY FANS IN HVAC EQUIPMENT WITH SMOKE DETECTORS SHALL SHUT DOWN WHEN THEIR DUCT SMOKE DETECTOR DETECTS SMOKE.
5. EXHAUST FAN EF-1 SHALL OPERATE CONTINUOUSLY.
6. INSTALL THE THERMOSTATS COMPLETE WITH OUTSIDE AIR TEMPERATURE SENSOR IN THE RESPECTIVE OUTSIDE AIR INTAKE AND SUPPLY AIR TEMPERATURE SENSOR IN THE MAIN RESPECTIVE SUPPLY DUCT 3'-0" DOWNSTREAM OF THE HEAT PUMP.

CONTROL BOTH HP-1 AND HP-2 IN UNISON FROM ONE THERMOSTA. ALL STAGES OF HEATING AND COOLING AND FAN CONTROL SHALL OPERATE IN UNISON FOR HP-1 AND HP-2.

PROGRAM THERMOSTATS AS FOLLOWS:

  - A. MAXIMUM SETPOINT = 77F;
  - B. MINIMUM SETPOINT = 65F;
  - C. COOLING AND HEATING OFFSETS = 2F;
  - D. UNOCCUPIED COOLING SETPOINT = 78F;
  - E. UNOCCUPIED HEATING SETPOINT = 68F;
  - F. LOCKOUT COOLING AT OUTSIDE AIR TEMPERATURES BELOW 48F;
  - G. INTERNAL CONTROL RAMP (TA) = 60%
  - H. LOCKOUT SECOND STAGE HEATING (ELECTRIC RESISTANCE HEATING) AT OUTSIDE AIR TEMPERATURES ABOVE 50F.
  - I. DURING OCCUPIED HOURS SUPPLY FANS SHALL RUN CONTINUOUSLY SHUT OFF SUPPLY FANS WHEN THE RESPECTIVE SUPPLY AIR TEMPERATURE DROPS TO 38F.
  - J.
7. SET THERMA-FUSES TO HEAT TO 70F AND COOL TO 74F.
8. FLASH PIPING THROUGH ROOF WITH STONEMAN SEAMLESS LEAD FLASHING AND COUNTERFLASHING ASSEMBLY, OR APPROVED EQUAL.

REV      DATE/DESC


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THESE PLANS PREPARED UNDER  
THE DIRECT SUPERVISION OF:  
  
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