

035

PINO YARD - MAINTENANCE SHOP

BUILDING G

CARBON MONOXIDE EXHAUST SYSTEM UPGRADE

(AE #88-GSD-58)

FOR

CITY OF ALBUQUERQUE

BRIDGERS & PAXTON  
CONSULTING ENGINEERS, INC  
4600C MONTGOMERY N.E.  
ALBUQUERQUE N.M. 87109

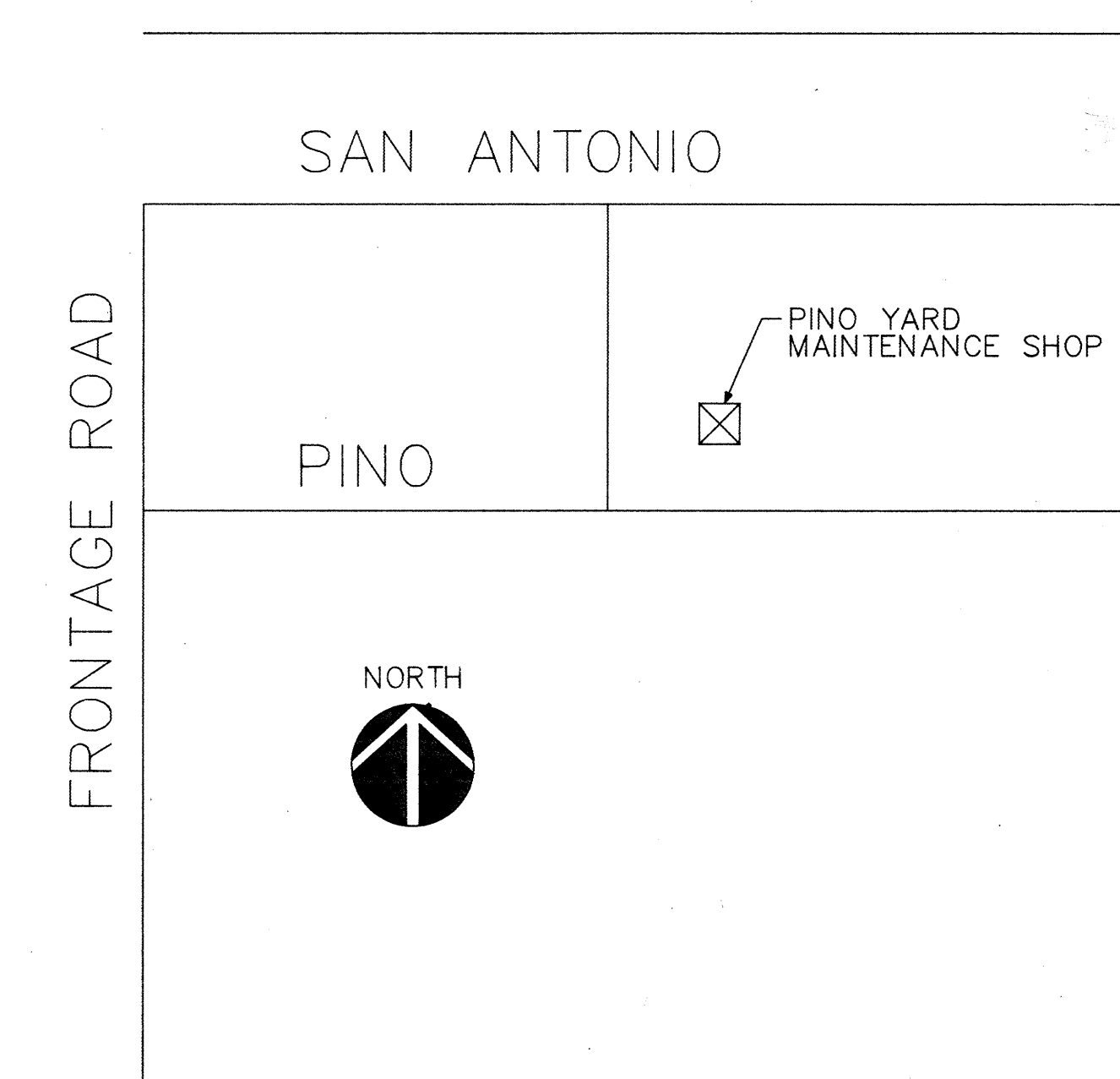
## ELECTRICAL CONSULTANTS

TIERRA DEL SOL ENGINEERING INC.  
4600C MONTGOMERY N.E.  
SUITE 102  
ALBUQUERQUE N.M. 87109

## DRAWING INDEX

M-1	MECHANICAL EQUIPMENT SCHEDULE AND SYMBOLS
M-2	MECHANICAL DETAILS AND CONTROLS
M-3	MECHANICAL FLOOR PLAN-DEMOLITION
M-4	MECHANICAL FLOOR PLAN
P-1	PLUMBING FLOOR PLAN AND DETAILS
E-1	ELECTRICAL FLOOR PLAN

## SITE MAP



1 - 25

#3711



SYMBOL LEGEND

GENERAL NOTES

- A. THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED. ALL DUCT SIZES SHOWN ON DRAWINGS ARE NET INSIDE DIMENSIONS.
- B. CONTRACTOR SHALL COORDINATE ALL NEW DUCTWORK AND PIPING WITH EXISTING PLUMBING, FIRE PROTECTION, STRUCTURAL AND ELECTRICAL SYSTEMS AND SHALL PROVIDE NECESSARY OFFSETS TO AVOID CONFLICTS AND TO MAINTAIN EQUIPMENT ACCESS AND SERVICEABILITY.
- C. CONTRACTOR SHALL FURNISH ALL NECESSARY STRUCTURES, INSERTS, SLEEVES, AND HANGING DEVICES FOR INSTALLATION OF MECHANICAL DUCTWORK AND PIPING, ETC. CONTRACTOR SHALL VERIFY WITH THE ENGINEER THAT THE DEVICES ARE ADEQUATE AND DO NOT OVERLOAD STRUCTURAL COMPONENTS.
- D. CONTRACTOR SHALL SCHEDULE WORK IN PHASES TO REDUCE DISRUPTION OF FACILITY OPERATION. ALL SUCH SCHEDULES SHALL BE REVIEWED AND APPROVED BY THE OWNER. ANY REQUIRED INTERRUPTION OF UTILITIES, SUCH AS WATER OR ELECTRICITY MUST BE BROUGHT TO THE ATTENTION OF THE FACILITY MANAGER AND BE SCHEDULED ONE WEEK IN ADVANCE OF INTERRUPTION.
- E. IN NO CASE SHALL NEW EQUIPMENT BE STORED ON THE EXISTING ROOF DUE TO THE DESIGN OF THE EXISTING ROOF. EQUIPMENT WEIGHTS PROHIBIT PLACEMENT OF EQUIPMENT IN ANY POSITION OTHER THAN THAT SHOWN ON THE PLANS. FOR THIS REASON EQUIPMENT MAY ONLY BE PLACED ON THE ROOF DURING FINAL POSITIONING AND CONNECTION.

DUCTWORK SYMBOLS

- 12" NEW DUCT-DIAMETER
- SUPPLY DUCT
- EXHAUST DUCT
- SIDEWALL SUPPLY REGISTER
- 12" INDICATES A 12" ROUND DUCT
- ROUND DUCT IN CROSS SECTION

VALVE SYMBOLS

- GATE VALVE
- PLUG VALVE

PIPING SYMBOLS

- DRAIN LINE
- MAKE-UP WATER

CONTROL SYMBOLS

- ROOM THERMOSTAT
- SMOKE DETECTOR
- POWER OPERATED DAMPER MOTOR
- NORMALLY, CLOSED OVERLOAD CONTACTS
- SWITCH
- FUSE
- CONTACT NORMALLY CLOSED
- CONTACT NORMALLY OPEN
- COIL IN MOTOR STARTER
- MOTOR
- PILOT LIGHT (COLOR INDICATION)
- TRANSFORMER
- TC TIMECLOCK
- AOH AUTO-OFF-HAND
- DM DAMPER MOTOR

ABBREVIATIONS

- AC AIR CONDITIONING UNIT
- AD ACCESS DOOR
- AFF ABOVE FINISHED FLOOR
- ALT ALTITUDE
- BHP BRAKE HORSEPOWER
- BTU BRITISH THERMAL UNIT
- BTUH BTU PER HOUR
- CFM CUBIC FEET PER MINUTE
- D DRAIN
- EFF EFFICIENCY
- ESP EXTERNAL STATIC PRESSURE IN W.G.
- EXH EXHAUST
- F DEGREES FAHRENHEIT
- FLEX FLEXIBLE
- FPM FEET PER MINUTE
- FT FEET
- HD HAND DAMPER (VOLUME DAMPER)
- HZ HERTZ
- IN INCHES
- LB POUNDS
- MIN. MINIMUM
- NO. NUMBER (QUANTITY)
- OBD OPPOSED BLADE DAMPER
- PSIG POUNDS PER SQUARE INCH GAGE
- QTY QUANTITY
- RPM REVOLUTIONS PER MINUTE
- SP STATIC PRESSURE (INCHES OF WATER)
- SL SOUND LEVEL
- V VOLTS
- VAC VOLTS, ALTERNATING CURRENT
- WT WEIGHT

EQUIPMENT SYMBOLS

- HEX SYMBOL INDICATES NEW EQUIPMENT NUMBER REFERS TO SPECIFIC EQUIPMENT IDENTIFIED IN EQUIPMENT SCHEDULE

- NOMINAL FACE DIMENSIONS
- LETTER IN SQUARE SYMBOL REFERS TO GRILLE OR REGISTER TYPE IDENTIFIED IN THE SUPPLY REGISTER SCHEDULE.
- 12x12 200 CFM

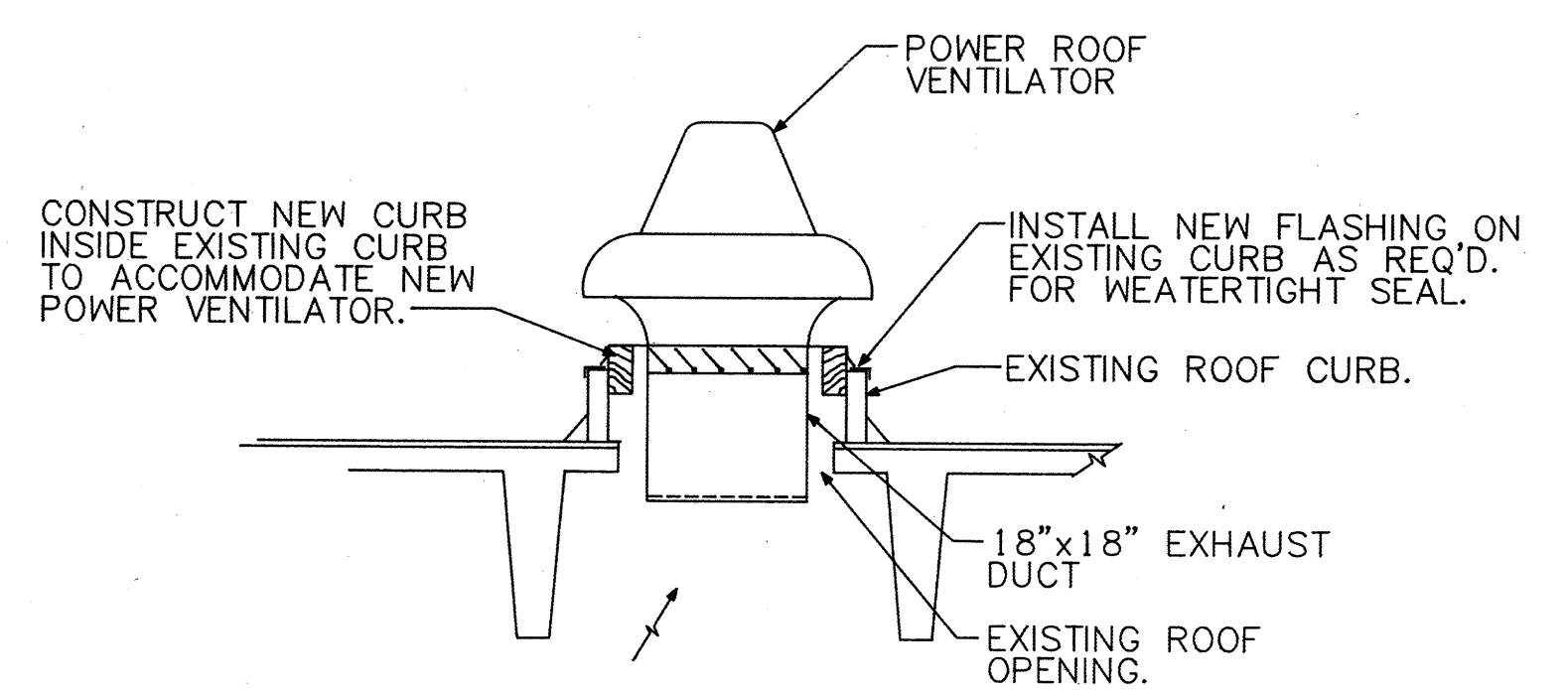
EQUIPMENT SCHEDULE

NOTE: ALL CAPACITIES AT 5300 FEET ELEVATION

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
SUPPLY REGISTER SCHEDULE			
GENERAL NOTES: REGISTERS SHALL BE FABRICATED OF STEEL. STEEL REGISTERS SHALL RECEIVE A ZINC PHOSPHATE PRIME COAT AND A BAKED GREY ENAMEL FINISH. THE TYPE OF REGISTER IS SHOWN BY SYMBOL NUMBER ON THE DRAWINGS. EQUIPMENT MANUFACTURED BY CARNES, KRUEGER, BARBER COLMAN AND TITUS IS ACCEPTABLE. OTHER MANUFACTURERS SHALL BE ACCEPTED BY PRIOR APPROVAL ONLY.			
A	A SIDEWALL SUPPLY REGISTER: PLENUM MOUNTED DOUBLE DEFLECTION AIRFOIL TYPE BLADES WITH 2" VERTICAL BLADES IN FRONT, 2" HORIZONTAL BLADES IN REAR, AND OPPOSED BLADE DAMPER WITH REMOVABLE KEY OPERATOR, 1-1/4" FLAT MARGIN, 2" BAR SPACING, BAKED GREY ENAMEL FINISH, STEEL, AND SIZED AS SHOWN ON THE DRAWINGS. TITUS 122-RS, OR EQUIVALENT.	11 THRU 14	SYMBOL NOS. 11 THRU 14, EVAPORATIVE COOLERS: FURNISH DOWN DISCHARGE EVAPORATIVE COOLING UNITS. STEEL CABINET SHALL BE FURNISHED WITH CORROSION RESISTENT FINISH. MOTORS SHALL BE SUITABLE FOR HIGH MOISTURE OPERATION. CENTRIFUGAL FAN SHALL BE BELT-DRIVEN. SUMP SHALL BE CONSTRUCTED OF STEEL, COATED WITH CORROSION RESISTENT FINISH AND LEAK-PROOF. PROVIDE COMPLETE WITH FLOAT VALVE FOR WATER MAKE-UP AND CONTINUOUS BLEED-OFF VALVE. PUMP SHALL BE SUBMERSIBLE CORROSION-PROOF TYPE, 120/1/60 MOTOR. ALL FOUR SIDE PANELS SHALL BE INTERCHANGEABLE. CABINET AND SUMP SHALL BE GUARANTEED FOR 5 YEARS AGAINST RUST, ARVIN, OR EQUIVALENT.
		15 THRU 18	SYMBOL NOS. 15 THRU 18, MAKE-UP AIR UNIT: FURNISH AND INSTALL PACKAGED ROOFTOP UNIT WITH EVAPORATIVE COOLING AND GAS HEATING. THE UNIT SHALL BE COMPLETELY FACTORY ASSEMBLED, PIPED, WIRED AND TESTED. UNIT SHALL CONTAIN SINGLE POINT ELECTRICAL AND GAS CONNECTIONS. MOTOR STARTER FURNISHED UNDER DIVISION 16 AND LOCATED IN MOTOR CONTROL CENTER. PROVIDE SMOKE DETECTOR IN DISCHARGE AIR PLENUM WIRED TO SHUT-DOWN UNIT ON SMOKE DETECTION. EVAPORATIVE COOLER SHALL BE MINIMUM 80% EFFICIENT. CABINET SHALL BE HEAVY GAUGE ALUMINIZED STEEL WITH WEATHERPROOF FINISH. 115V/60HZ RECIRCULATING PUMP WITH BASKET SCREEN. STAINLESS STEEL SUMP TANK. BLEED-OFF, OVERFLOW AND DRAIN. GAS HEATER SECTION SHALL BE TWO-STAGE INDIRECT FIRED SYSTEM OF AUTOMATIC SPARK IGNITION, SUITABLE FOR NATURAL GAS. FURNACE SHALL HAVE GRAVITY COMBUSTION SYSTEM. CONTROLS SHALL INCLUDE PILOT VALVE, AUTOMATIC COMBINATION MAIN GAS VALVE AND PRESSURE REGULATUR. HIGH LIMIT THERMOSTAT FLAME SENSOR AUTOMATIC RELIGHT SYSTEM AND TRANSFORMER. UNIT SHALL BE AGA APPROVED. 1-INCH FILTERS. PROVIDE HEAT/COOL/VENT SELECTOR SWITCH AND AUTOMATIC 2 POSITION DAMPERS WITH ACTUATOR AS PART OF PACKAGE CONTROL SYSTEM. PROVIDE ROOF MOUNTING CURB. STERLING, AZTEC, REZNOR, ALTON, SUN, OR EQUIVALENT.
		19 THRU 22	SYMBOL NO. 19 THRU SYMBOL NO. 22, CENTRIFUGAL FANS: SINGLE INLET-SINGLE WIDTH AMCA RATED IN ARRANGEMENT 10 WITH BACKWARD INCLINED WHEELS, VARIABLE PITCH V-BELT DRIVES, AND SIZED FOR 150 PERCENT OF THE MOTOR HORSEPOWER. PROVIDE WEATHERPROOF MOTOR AND DRIVE HOUSING, AND DRAIN IN SCROLL. ALL FANS SHALL HAVE RUBBER-IN-SHEAR VIBRATION ISOLATORS. THE ALLOWABLE PEAK TO PEAK VIBRATION AMPLITUDE SHALL NOT EXCEED 3 MILS IN ANY PLANE. FURNISH OPEN BAL BEARING MOTORS WITH GREASE FITTINGS AND SUITABLE FOR CONTINUOUS OPERATION AT JOB SITE ELEVATION WITH PROVEN TORQUE CHARACTERISTICS SUFFICIENT TO BRING THE FAN AND DRIVE UP TO SPEED WITHIN 10 SECONDS. MOTORS TO BE HIGH EFFICIENT DESIGN. TRANE, TWIN CITY, ALADDIN, CARRIER, BUFFALO FORGE, BARRY, PORTER, PEEPLESS, COOK, GREENHECK, NEW YORK BLOWER, OR EQUIVALENT.
		23	SYMBOL NO. 23, VEHICLE EXHAUST SYSTEM ASSEMBLY: EACH OF THE (24) VEHICLE EXHAUST ASSEMBLIES SHALL CONSIST OF ALL THE INDIVIDUAL PARTS LISTED BELOW TO MAKE UP A COMPLETE SYSTEM. PARTS MAY VARY SLIGHTLY FROM ONE MANUFACTURER TO ANOTHER. HOWEVER, THE INTENT IS TO PROVIDE A COMPLETE AND OPERATIONAL ASSEMBLY. ALL PARTS REQUIRED TO ACCOMPLISH THIS MUST BE PROVIDED WHETHER LISTED HERE OR NOT. REFER TO DETAIL 4/M-2 FOR PARTS ARRANGEMENT. VENTAIRE, CAR-MON, NEDERMAN, OR EQUIVALENT.
		24	FLEXIBLE HOSE: PROVIDE 30 LINEAR FEET, 6" DIAMETER, FABRIC FLEXIBLE TUBING, HIGH TEMPERATURE SILICON IMPREGNATED FIBERGLASS WITH STEEL HELICAL SPRING SUPPORT. EACH HOSE SHALL BE FURNISHED WITH A TAILPIPE ADAPTOR ON ONE END AND BOLTING FLANGE ON THE OTHER END. PROVIDE MATCHING BOLT FLANGE FOR ATTACHMENT TO EXHAUST DUCT MAINS AND MATCHING GASKET. PROVIDE REQUIRED CADMIUM PLATED HARDWARE FOR BOLTING FLANGES TOGETHER; I.E., BOLTS, NUTS AND LOCKWASHERS. THE TAIL PIPE ADAPTER SHALL BE STAINLESS STEEL CONSTRUCTION WITH SPRING RETENTION CLIP AND SAFETY SCREEN (50 RAGS CANNOT BE DRAWN INTO SYSTEM). THE ADAPTER SHALL BE SUITABLE FOR USE ON LARGE TRUCKS AND HEAVY OFF-ROAD EQUIPMENT, AS WELL AS, SEMI TRAILERS, CARS AND TRUCKS. EACH HOSE SHALL BE PROVIDED WITH A HEAVY RUBBER COLLAR WHICH SLIDES OVER THE HOSE AND PROVIDES A CONNECTING POINT FOR WINCH CABLE. VENTAIRE MODEL 6"SG WITH ALL ABOVE MENTIONED ACCESSORIES.
		25	WALL MOUNTED WINCH: DIRECT DRIVE WITH SPRING ACTIVATED SAFETY RATCHET. 10" DIAMETER HAND WHEEL WITH RUBBERIZED HAND GRIP IN LIEU OF HANDLE. CABLE DRUM WITH 75' OF 1/8" DIAMETER CABLE, THREADED CABLE ATTACHMENT. PROVIDE (2) PULLEYS AND CADMIUM PLATED HARDWARE FOR ATTACHING PULLEYS TO TEE STEMS OR SUPPORT ANGLE. PROVIDE ALL NECESSARY SWIVELS, EYELETS AND HARDWARE FOR A COMPLETE AND OPERATIONAL SYSTEM. WINCH CAPACITY SHALL EXCEED THAT REQUIRED TO RAISE 30 FT. FLEXIBLE HOSE AND ACCESSORIES OUT OF THE WORK AREA WITH A SAFETY FACTOR OF (3). VENTAIRE MODEL DW5414 WITH ALL ABOVE MENTIONED ACCESSORIES.
		26	SYMBOL NO. 24 AND SYMBOL NO. 25, STACK EXHAUST NOZZLE: PROVIDE 8'-0" LONG, 6" DIA. DIESEL EXHAUST STACK CANE AND DIESEL STACK HOOD WITH RAIN CAP OPENER. GALVANIZED STEEL CONSTRUCTION. VENTAIRE MODEL DC-60.
		27	SYMBOL NO. 26, TIME CLOCK : FOR USE WITH 120 VOLT LINE AND CONTROL CIRCUIT. UNIT SHALL BE 7 DAY DESIGN WITH LCD DISPLAY. FACE OF CONTROLLER SHALL HAVE PUSH BUTTON CONTROLS FOR SETTING TIME AND DAY, ON-OFF CONTROL, PROGRAM REVIEW AND MANUAL OVERRIDE. UNIT CAPACITIES SHALL INCLUDE 6 ONs AND 6 OFFS PER DAY; REPEAT PROGRAMMING, AND MANUAL OVERRIDE. IMPLEMENTATION OF MANUAL OVERRIDE SHALL NOT REQUIRE REPROGRAMMING OF PRESET SCHEDULE. PROVIDE POWER OUTAGE CARRYOVER TO ALLOW RESUMPTION OF THE PROGRAMMED SCHEDULE WHEN POWER RETURNS. MOUNT TIME CLOCK AT MOTOR CONTROL CENTER. UNITS SHALL BE PARAGON PET 71/120 OR EQUIVALENT.
		28	SYMBOL NO. CO., CARBON MONOXIDE SENSOR/CONTROLLER: FURNISH A COMPLETE CARBON MONOXIDE VENTILATION CONTROL SYSTEM. THE SYSTEM SHALL ACTIVATE THE VENTILATION SYSTEM WHEN THE CO LEVEL EXCEEDS 50 PPM. AN AUDIBLE ALARM WILL SOUND IF THE CO LEVEL EXCEEDS 200 PPM FOR 15 MINUTES. FAN CONTROL AND ALARM SHALL HAVE AUTO-MATIC RESET. SYSTEM SHALL EMPLOY MICROPROCESSOR TO MONITOR ACCUMULATED DOSAGE AND CONTROL SYSTEM OPERATION SYSTEM SHALL REQUIRE 120 VOLT POWER. CO SENSOR SHALL BE SOLID STATE WITH 5 YEAR LIFE. FAN ALARM AND 200 PPM ALARM. UNIT SHALL HAVE AUTOMATIC ALARM TO INDICATE END OF SENSOR LIFE. UPON SENSOR FAILURE SYSTEM SHALL FAIL TO FAN OPERATION. MACURCO SS 103-3 WITH SS 102 HA SENSORS OR EQUIVALENT. NOTE: THERE MAY NOT BE EQUIVALENT EQUIPMENT. ALL SUBSTITUTIONS MUST HAVE PRIOR APPROVAL.
		29	SYMBOL NO. SD, DIESEL SMOKE DETECTOR/CONTROLLER: FURNISH IN FACTORY WIRED IN NEMA RATED ENCLOSURE CON-TROLLER SHALL REQUIRE 120 VOLT SERVICE. PROVIDE POWER, AND FAN TROUBLE INDICATOR LIGHTS. BEAM DETECTOR SHALL CONSIST OF AN EMITTER AND RECEIVER. PROVIDE REDUCTION OF INFRA-RED SIGNAL BETWEEN EMITTER AND RECEIVER. THE DETECTOR SHALL CONTAIN MICROPROCESSOR CONTROL. SYSTEM SHALL BE PROVIDED FOR NORMAL OPERATION. SYSTEM SHALL COMPENSATE FOR LONG TERM VARIATIONS. RECEIVER SHALL HAVE ADJUSTABLE SENSITIVITY CONTROL. SYSTEM SHALL BE DETECTOR OR EQUIVALENT. MACURCO DSD-3 CONTROLLER WITH SPA-24 NOTE: THERE MAY NOT BE EQUIVALENT EQUIPMENT. ALL SUBSTITUTIONS MUST HAVE PRIOR APPROVAL.

	PROJECT NO. 3212	JOB NO. 3818
	REVISIONS	DRAWN F.J.G.
		CHECKED J.G.
		DATE 3-10-89
APPROVED BY:		SHEET
		M-1
CITY OF ALBUQUERQUE PINO YARD VEHICLE MAINTENANCE SHOP CARBON MONOXIDE EXHAUST SYSTEM UPGRADE EQUIPMENT SCHEDULE AND SYMBOL LEGEND BRIDGERS & PAXTON CONSULTING ENGINEERS, INC. 4800-C Montgomery Blvd. N.E. Albuquerque, New Mexico 87109 (505) 883-4111		



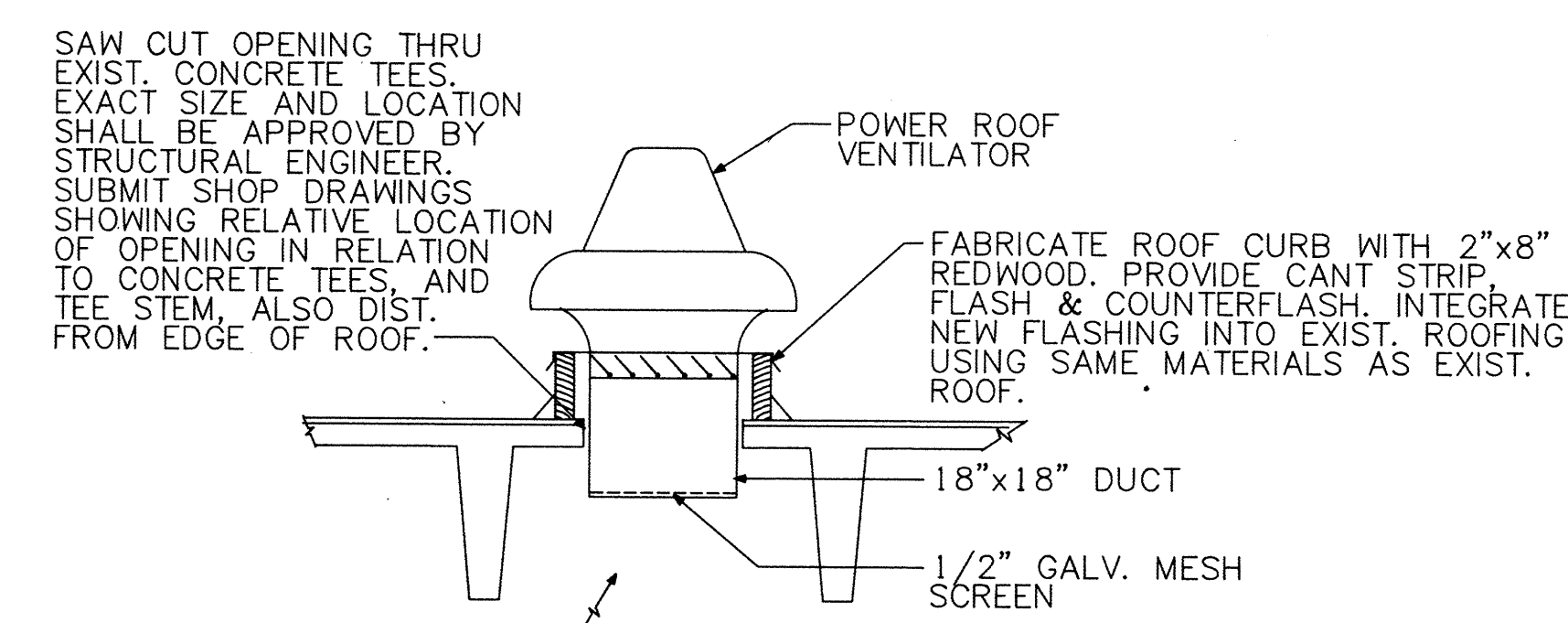


### POWER ROOF VENTILATOR DETAIL

SCALE: 1/2"=1'-0"

FOR MTG. ON EXIST. CURB

1  
M-2

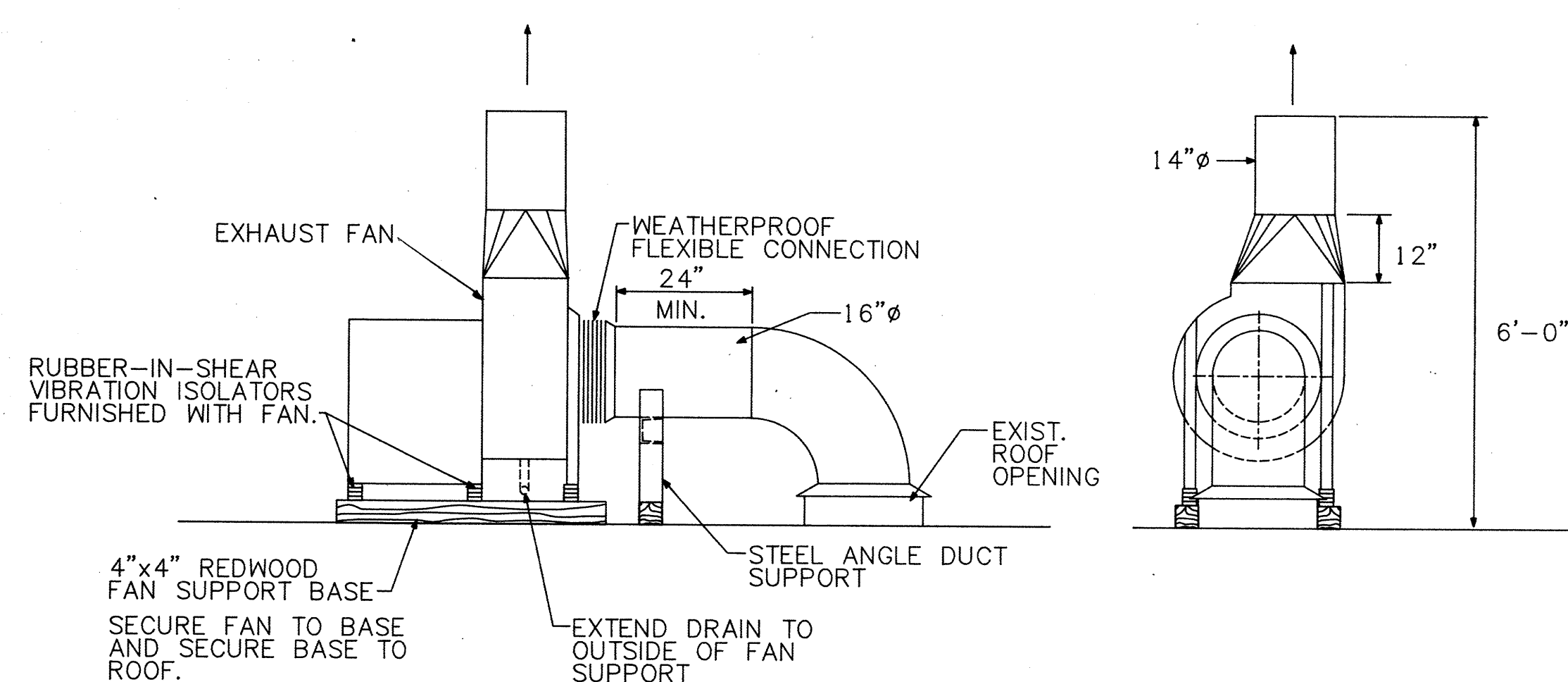


### POWER ROOF VENTILATOR DETAIL

SCALE: 1/2"=1'-0"

FOR MTG. ON NEW CURB

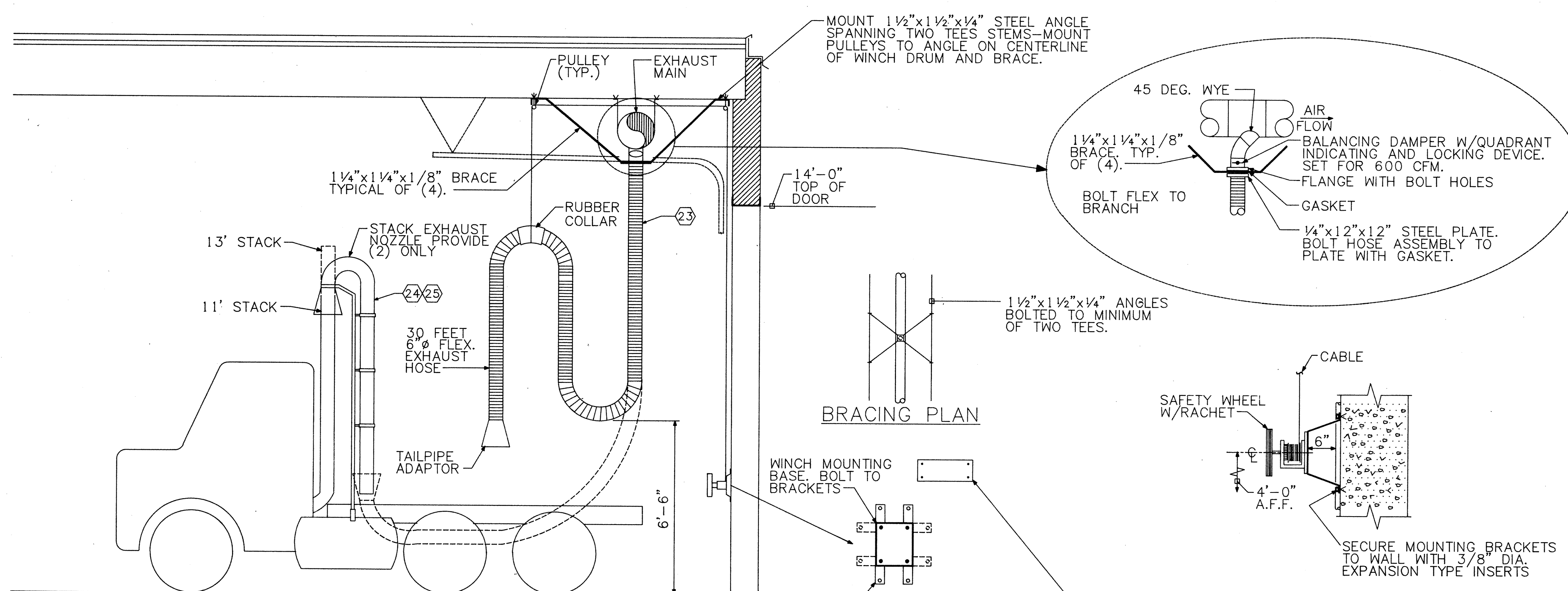
2  
M-2



### VEHICLE EXHAUST FAN DETAIL

SCALE: 1/2"=1'-0"

3  
M-2



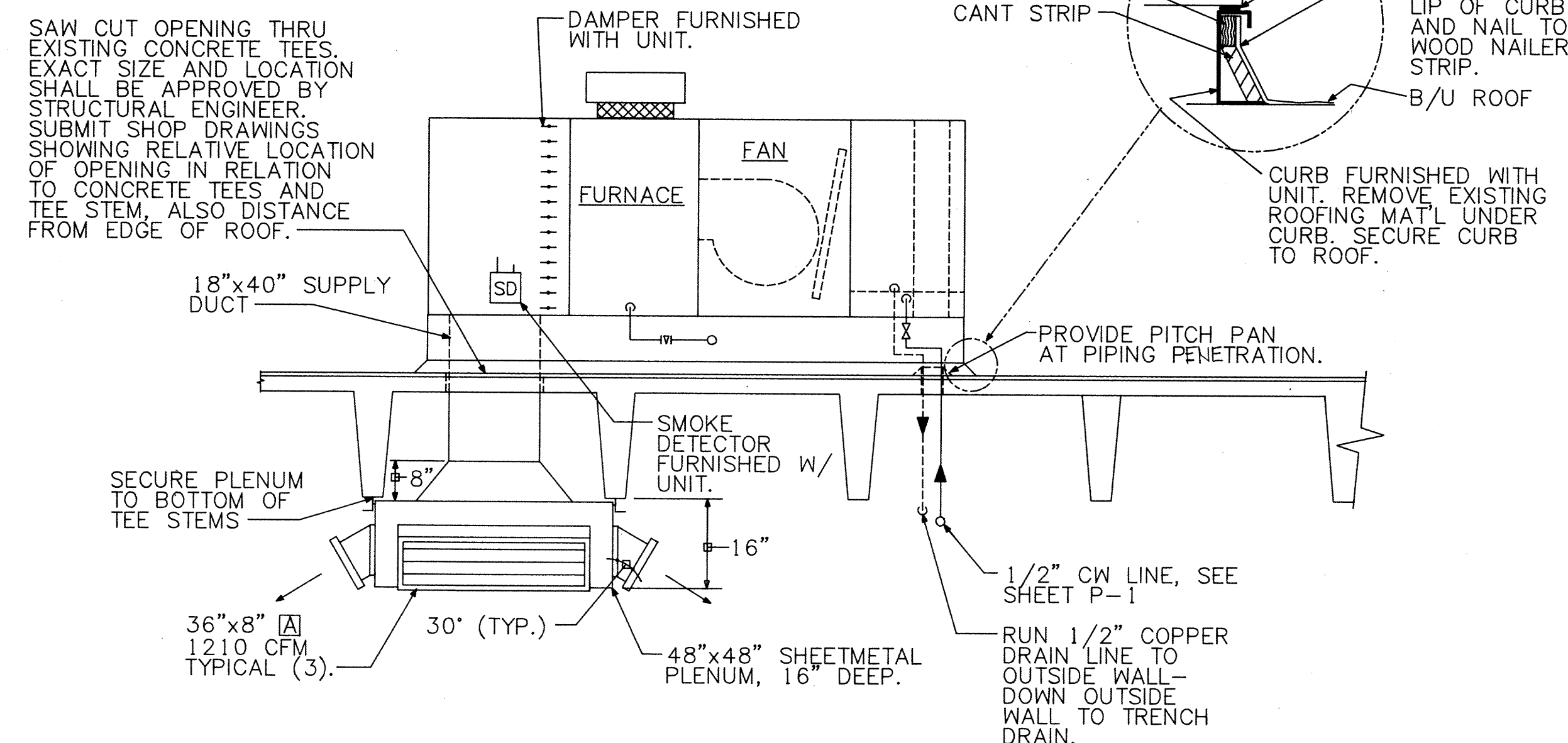
### VEHICLE EXHAUST SYSTEM DETAIL

SCALE: 3/8"=1'-0"

TYPICAL OF (24)

4  
M-2

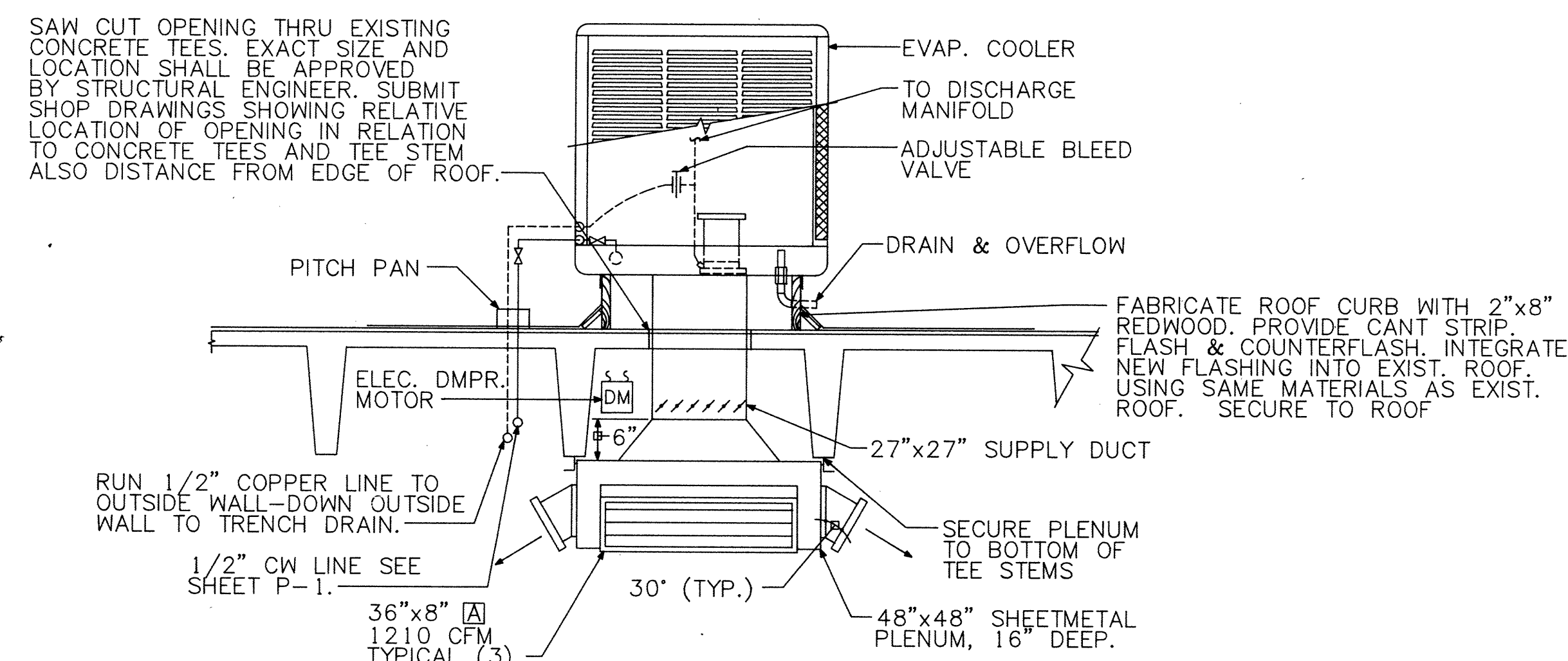
NOTE: INSTALL CURB IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. FLASH AND COUNTERFLASH INTO NEW CURB. INTEGRATE NEW FLASHING INTO EXISTING ROOFING USING SAME MATERIALS AS EXISTING ROOF.



### MAKE-UP AIR UNIT DETAIL

SCALE: 1/2"=1'-0"

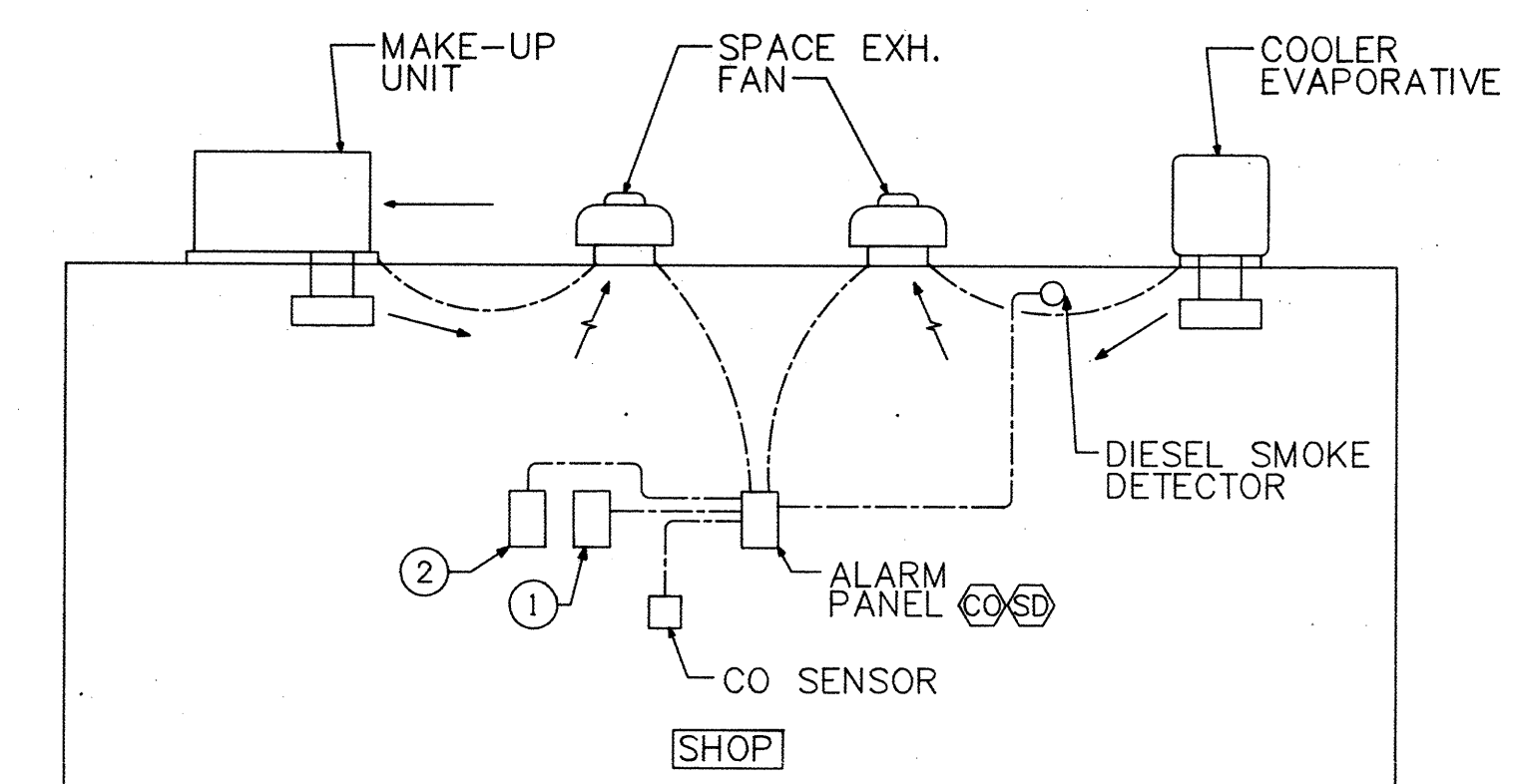
5  
M-2



### EVAPORATIVE COOLER DETAIL

SCALE: 1/2"=1'-0"

6  
M-2



- ① EVAPORATIVE COOLER CONTROLS  
② MAKE-UP UNIT CONTROLS

### SCHEMATIC - TYPICAL ZONE

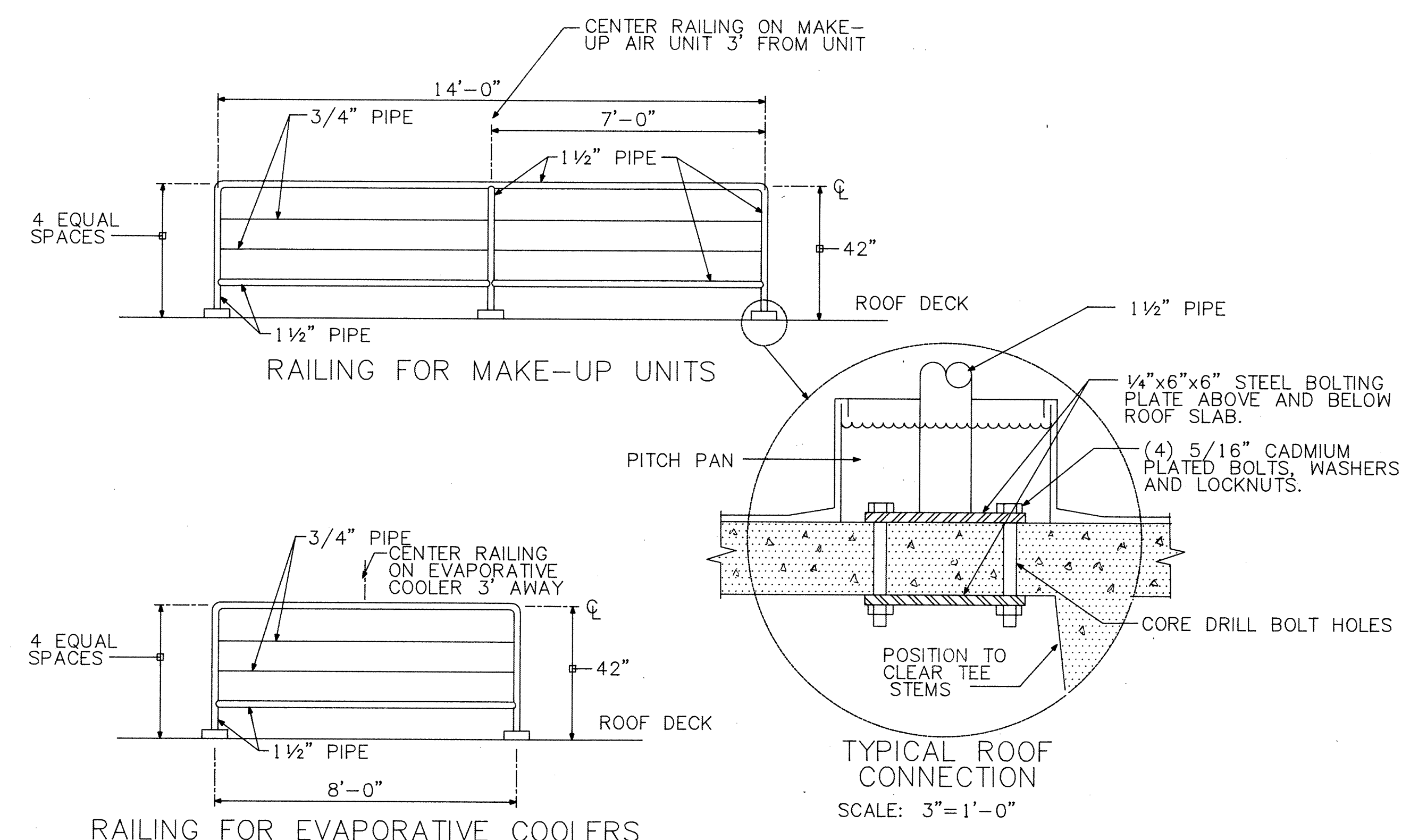
#### SEQUENCE OF OPERATION

MAKE-UP UNITS 14, 15, 16, AND 17 SHALL BE STARTED AND STOPPED BY A 7 DAY TIME CLOCK. THE MAKE-UP AIR UNITS SHALL RUN WHENEVER THE BUILDING IS OCCUPIED AND SHALL MAINTAIN TEMPERATURE THROUGH A FACTORY PACKAGED HEATING-COOLING CONTROL SYSTEM. MAKE-UP UNIT 14 SHALL BE INTERLOCKED WITH EXHAUST FAN 2. MAKE-UP UNITS 15, 16, AND 17 SHALL BE INTERLOCKED WITH EXHAUST FANS 4, 6, AND 8, RESPECTIVELY. EACH MAKE-UP AIR UNIT SHALL BE EQUIPPED WITH A SMOKE DETECTOR LOCATED IN THE DISCHARGE WHICH SHALL STOP THE UNIT SHOULD SMOKE BE DETECTED IN THE DISCHARGE OF THE MAKE-UP AIR UNIT.

VEHICLE EXHAUST FAN 19 SHALL BE CONTROLLED BY A VEHICLE EXHAUST ON-OFF SWITCH LOCATED ON THE WALL BETWEEN BAYS IN THE MAINTENANCE AREA. WHEN EXHAUST FAN 19 IS STARTED, EXHAUST FAN 8 SHALL BE SHUT DOWN TO MAINTAIN APPROXIMATELY CONSTANT AIR FLOW THROUGH THE SPACE. THIS WILL BE TYPICAL FOR EXHAUST FAN 20 AND 6. EXHAUST FAN 21 AND 4. EXHAUST FAN 22 SHALL BE STRICTLY MANUALLY CONTROLLED BY THE VEHICLE EXHAUST WALL SWITCH.

THE BUILDING SHALL BE DIVIDED INTO NORTH AND SOUTH ZONES FOR EVAPORATIVE COOLING WITH EVAPORATIVE COOLERS 11 AND 14 BEING CONTROLLED BY A VENT-OFF-COOL SWITCH, WHICH SHALL IN THE VENT POSITION ENERGIZE THE EVAP COOLER MOTORS AND THRU INTERLOCKS SHALL ENERGIZE EXHAUST FANS 1 AND 3. DISCHARGE DAMPERS LOCATED IN THE DISCHARGE OF THE EVAP COOLERS SHALL OPEN WHENEVER THE FANS ARE ENERGIZED. IN THE COOL POSITION, THE EVAP COOLER FANS SHALL BE ENERGIZED AND THE EVAP COOLER PUMPS SHALL ALSO BE ENERGIZED AS WELL AS THE PREVIOUSLY MENTIONED EXHAUST FANS. THIS SHALL BE TYPICAL FOR EVAP COOLERS 12 AND 13 AND EXHAUST FANS 5 AND 7.

THE BUILDING WILL BE EQUIPPED WITH A CARBON MONOXIDE/DIESEL SMOKE EXHAUST CONTROL SYSTEM, WHICH WHEN CARBON MONOXIDE IS DETECTED IN THE MAINTENANCE AREA ABOVE ALLOWABLE LEVELS, A CONTACT SHALL CLOSE AND SHALL START EVAP COOLERS 11, 12, 13, AND 14, AND EXHAUST FANS 3, 5 AND 7. THE SAME WILL APPLY SHOULD CONCENTRATIONS OF DIESEL SMOKE AT THE CEILING LEVEL IN THE MAINTENANCE SHOP RISE ABOVE ALLOWABLE LEVELS. SHOULD EITHER THE SMOKE LEVEL OR CARBON MONOXIDE LEVEL CONTINUE TO RISE AN ALARM SHALL SOUND AT THE ALARM PANEL ALERTING OPERATING PERSONNEL TO DANGEROUS LEVELS OF CARBON MONOXIDE OR DIESEL SMOKE. CARBON MONOXIDE SENSORS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS AS WELL AS THE PHOTO ELECTRIC BEAM SMOKE DETECTORS LOCATED AT CEILING LEVEL.



### RAILING FOR EVAPORATIVE COOLERS

#### NOTES:

- 1 RAILING SHALL BE ALL WELDED CONSTRUCTION USING SCHEDULE 40 STEEL PIPE.
- 2 CLEAN ALL WELDING SLAG OFF JOINTS, GRIND SMOOTH, PRIME COAT AND PAINT RAILINGS ADOBE COLOR.

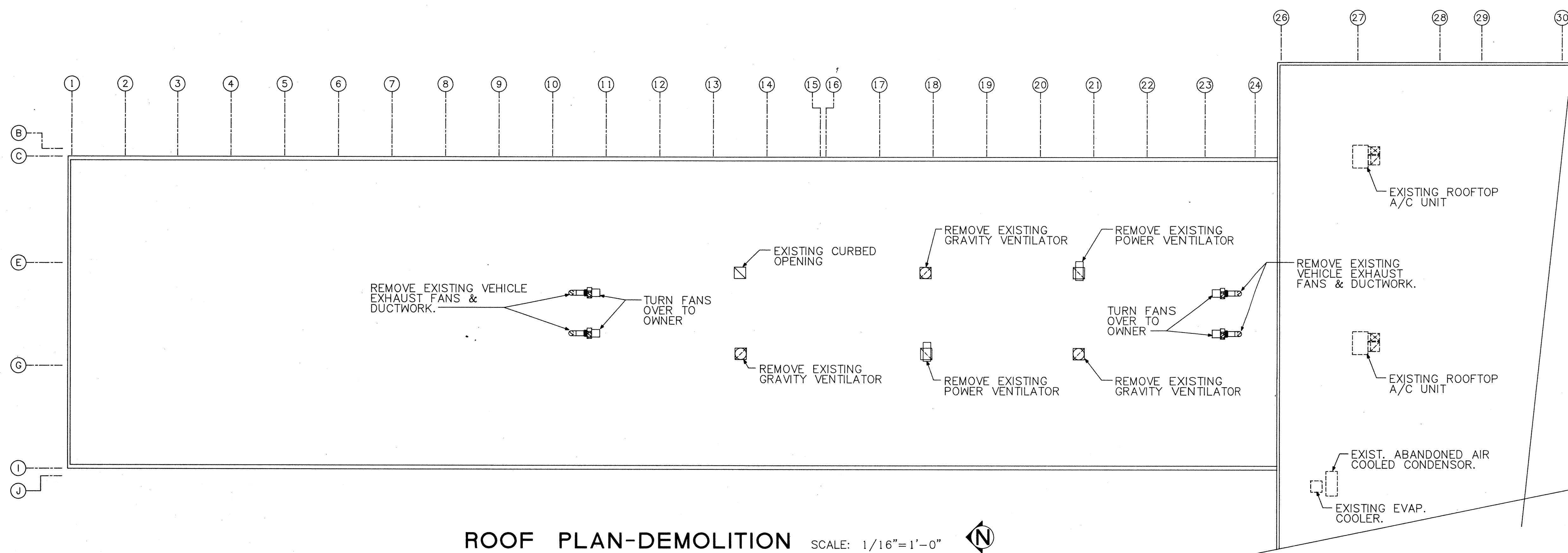
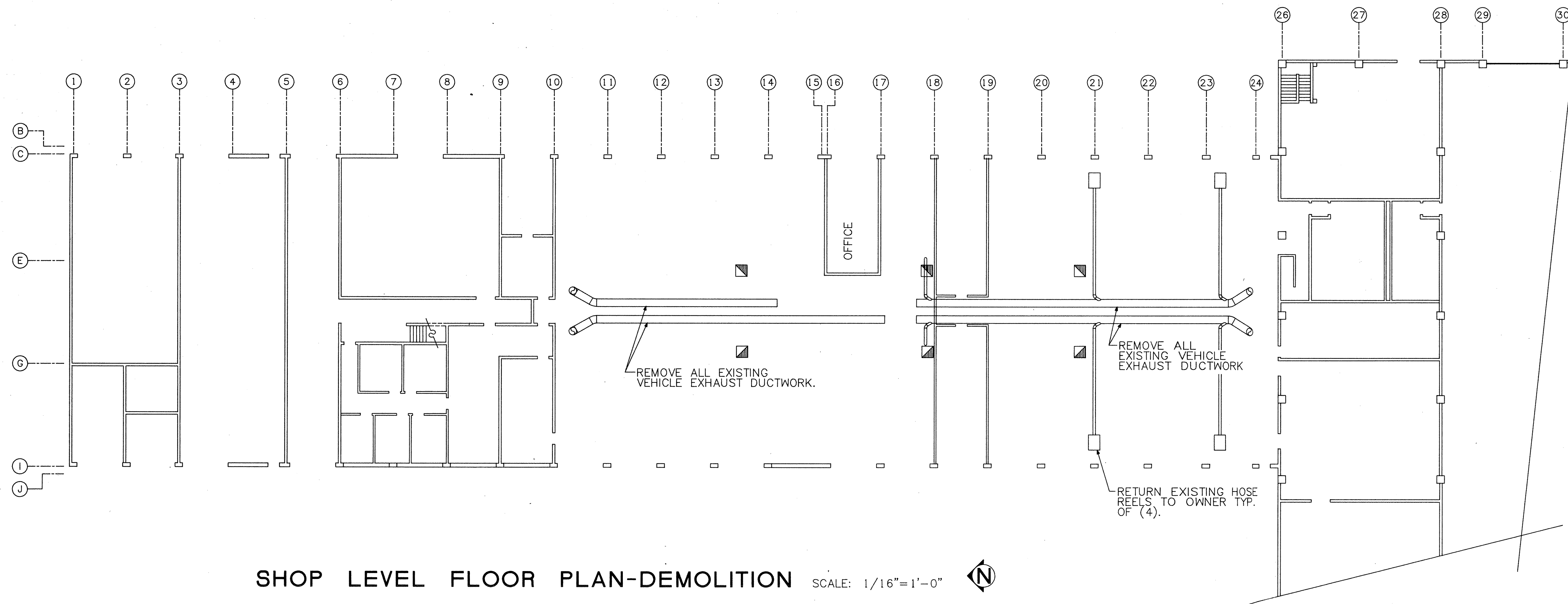
### SAFETY RAILING DETAIL

SCALE: 3/8"=1'-0"

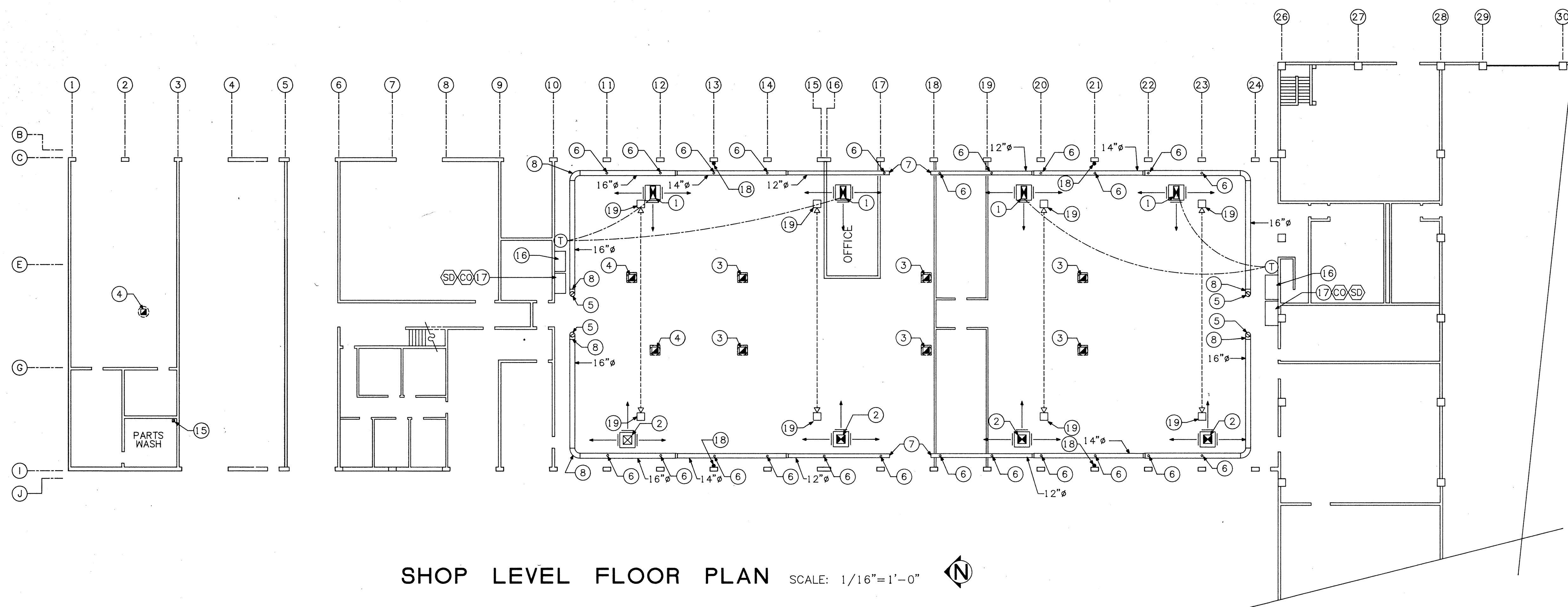
7  
M-2

	PROJECT NO.	CITY OF ALBUQUERQUE	JOB NO.
	REVISIONS	PINO YARD - VEHICLE MAINTENANCE SHOP	3818
		CARBON MONOXIDE EXHAUST SYSTEM UPGRADE	DRAWN F.J.G.
		<b>MECHANICAL DETAILS AND CONTROLS</b>	CHECKED J.G.
	APPROVED BY:		DATE
			3-10-89
			SHEET
<b>BRIDGERS &amp; PAXTON</b> CONSULTING ENGINEERS, INC. 4800-C Montgomery Blvd. N.E. Albuquerque, New Mexico 87110 505-263-4111			<b>M-2</b>



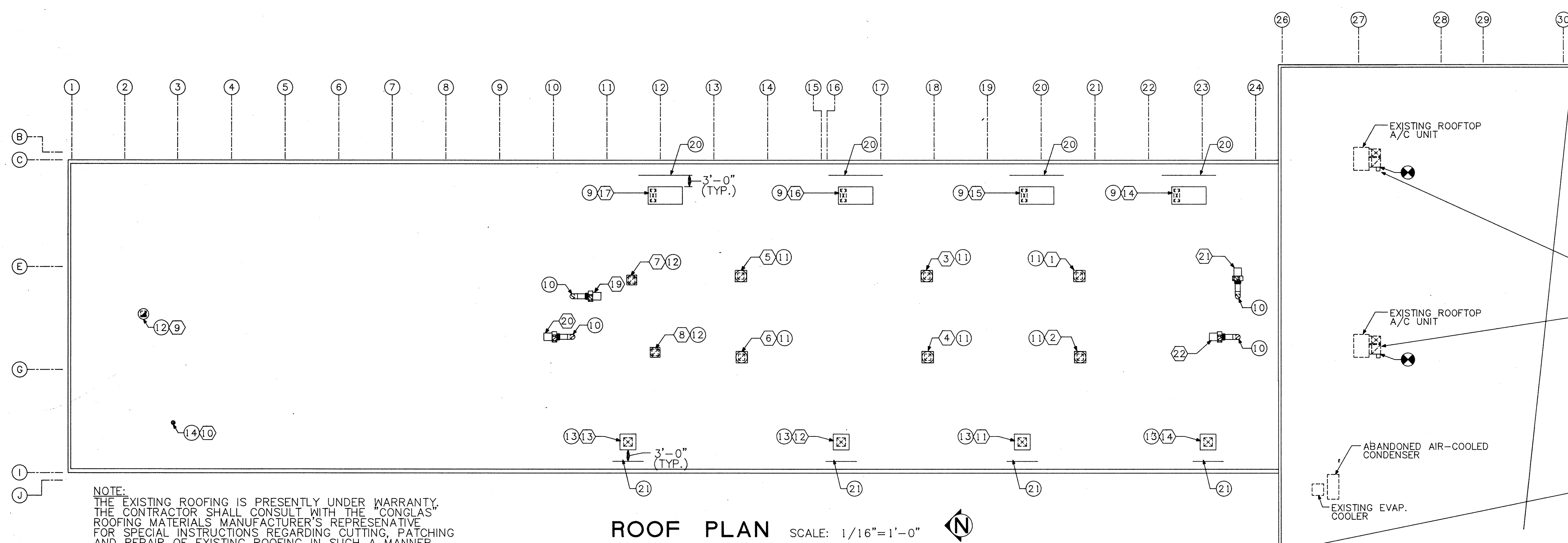


	PROJECT NO.	CITY OF ALBUQUERQUE	JOB NO. 3818
	REVISIONS	PINO YARD — VEHICLE MAINTENANCE SHOP CARBON MONOXIDE EXHAUST SYSTEM UPGRADE	DRAWN F.J.G.
		<b>MECHANICAL FLOOR PLAN DEMOLITION</b>	CHECKED J.G.
		APPROVED BY:	DATE 3-10-89
		 <b>BRIDGERS &amp; PAXTON</b> CONSULTING ENGINEERS, INC. 4600-C Montgomery Blvd. N.E. Albuquerque, New Mexico 87109 (505) 883-4111	SHEET <b>M-3</b>

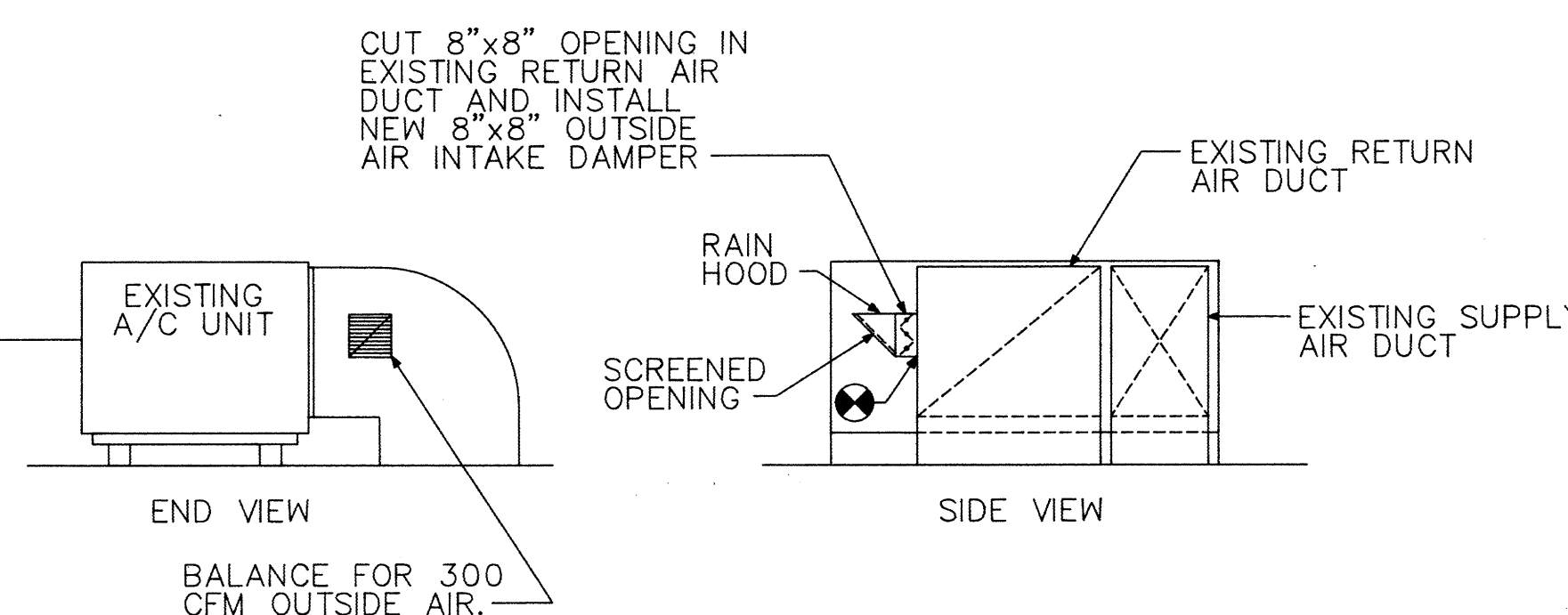


# KEYED NOTES

- 1 18"x40" FROM MAKE-UP AIR UNIT ON ROOF, DISCHARGE INTO 48"x48"x16" DEEP PLENUM. (3) 36"x8" [A], 1210 CFM EACH. SEE DETAIL 5/M-2.
- 2 27"x27" FROM EVAPORATIVE COOLER ON ROOF, DISCHARGE INTO 48"x48"x16" DEEP PLENUM. (3) 36"x8" [A], 1210 CFM EACH. SEE DETAIL 6/M-2.
- 3 18"x18" SCREENED DUCT AT CEILING UP TO EXHAUST FAN ON ROOF. SEE DETAIL 1/M-2.
- 4 18"x18" SCREENED DUCT AT CEILING UP TO EXHAUST FAN ON ROOF. SEE DETAIL 2/M-2.
- 5 18" DIA. EXHAUST DUCT UP TO EXHAUST FAN ON ROOF. ROUTE DUCT THRU EXISTING ROOF OPENING.
- 6 6" DIA. VEHICLE EXHAUST ASSEMBLY [23] SEE DETAIL 4/M-2.
- 7 CAP 12" DIA. DUCT WITH SHEETMETAL CAP. SEAL AIRTIGHT.
- 8 LONG RADIUS ELBOW.
- 9 MAKE-UP AIR UNIT WITH 18"x40" SUPPLY DUCT DOWN. SEE DETAIL 5/M-2.
- 10 16" DIA. VEHICLE EXHAUST FROM BELOW. SEE DETAIL 4/M-2.
- 11 REBUILD EXISTING CURB TO ACCOMMODATE NEW EXHAUST FAN. 18"x18" EXHAUST DUCT FROM BELOW. SEE DETAIL 1/M-2.
- 12 18"x18" EXHAUST FROM BELOW TO NEW EXHAUST FAN. SEE DETAIL 2/M-2.
- 13 27"x27" SUPPLY DOWN TO 48"x48"x16" DEEP PLENUM. (3) 36"x8" [A], 1210 CFM EACH.
- 14 EXTEND 8"x8" EXHAUST DUCT DOWN TO 12" ABOVE FINISHED FLOOR. COVER OPENING WITH 1/2" GALV. MESH SCREEN. SIMILAR TO DETAIL 2/M-2.
- 15 8"x8" EXHAUST DUCT FROM 12" ABOVE FINISHED FLOOR. COVER OPENING WITH 1/2" GALV. SCREEN UP TO EXHAUST FAN ON ROOF.
- 16 EVAP. COOLER CONTROLS. SEE ELECTRICAL LADDER DIAGRAMS.
- 17 EXHAUST ALARM PANEL. SEE ELECTRICAL LADDER DIAGRAMS.
- 18 CARBON MONOXIDE DETECTOR. MOUNT AT 60" A.F.F.
- 19 PHOTO ELECTRIC DIESEL SMOKE DETECTOR. MOUNT TO PROVIDE UNOBSTRUCTED PATH BETWEEN LIGHT BEAM RECEIVERS. MOUNT AT BOTTOM OF TEES.
- 20 14'-0" LONG SAFETY RAILING, SEE DETAIL 7/M-2.
- 21 8'-0" LONG SAFETY RAILING, SEE DETAIL 7/M-2.



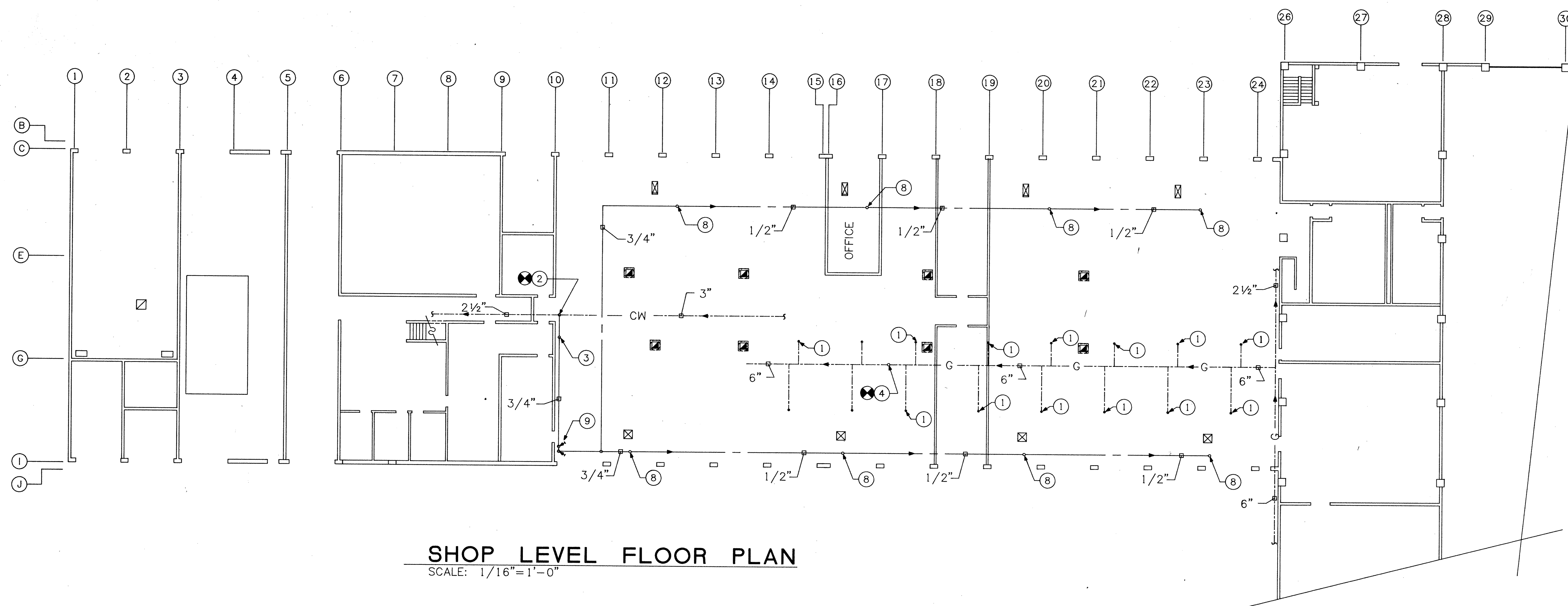
NOTE:  
THE EXISTING ROOFING IS PRESENTLY UNDER WARRANTY. THE CONTRACTOR SHALL CONSULT WITH THE "CONGLAS" ROOFING MATERIALS MANUFACTURER'S REPRESENTATIVE FOR SPECIAL INSTRUCTIONS REGARDING CUTTING, PATCHING AND REPAIR OF EXISTING ROOFING IN SUCH A MANNER THAT DOES NOT VOID THE EXISTING WARRANTY. CONTACT MANUFACTURER'S REPRESENTATIVE AT MID-WEST ROOFING SUPPLY, LARRY WORMINGTON PH. 1-505-344-1144. THE CONTRACTOR SHALL COMPLY WITH ALL RECOMMENDATIONS REGARDING PROCEDURE AND METHODS FOR MAINTAINING INTEGRITY OF EXISTING ROOFING.



	PROJECT NO.	CITY OF ALBUQUERQUE PINO YARD - VEHICLE MAINTENANCE SHOP CARBON MONOXIDE EXHAUST SYSTEM UPGRADE	JOB NO. 3818
	REVISIONS	<b>MECHANICAL FLOOR PLAN</b>	DRAWN F.J.G.
		APPROVED BY:	CHECKED J.G.
			DATE 3-10-89
			SHEET M-4

**BRIDGERS & PAXTON**  
CONSULTING ENGINEERS, INC.  
4800-C Montgomery Blvd. N.E.  
Albuquerque, New Mexico 87109  
(505) 883-4111



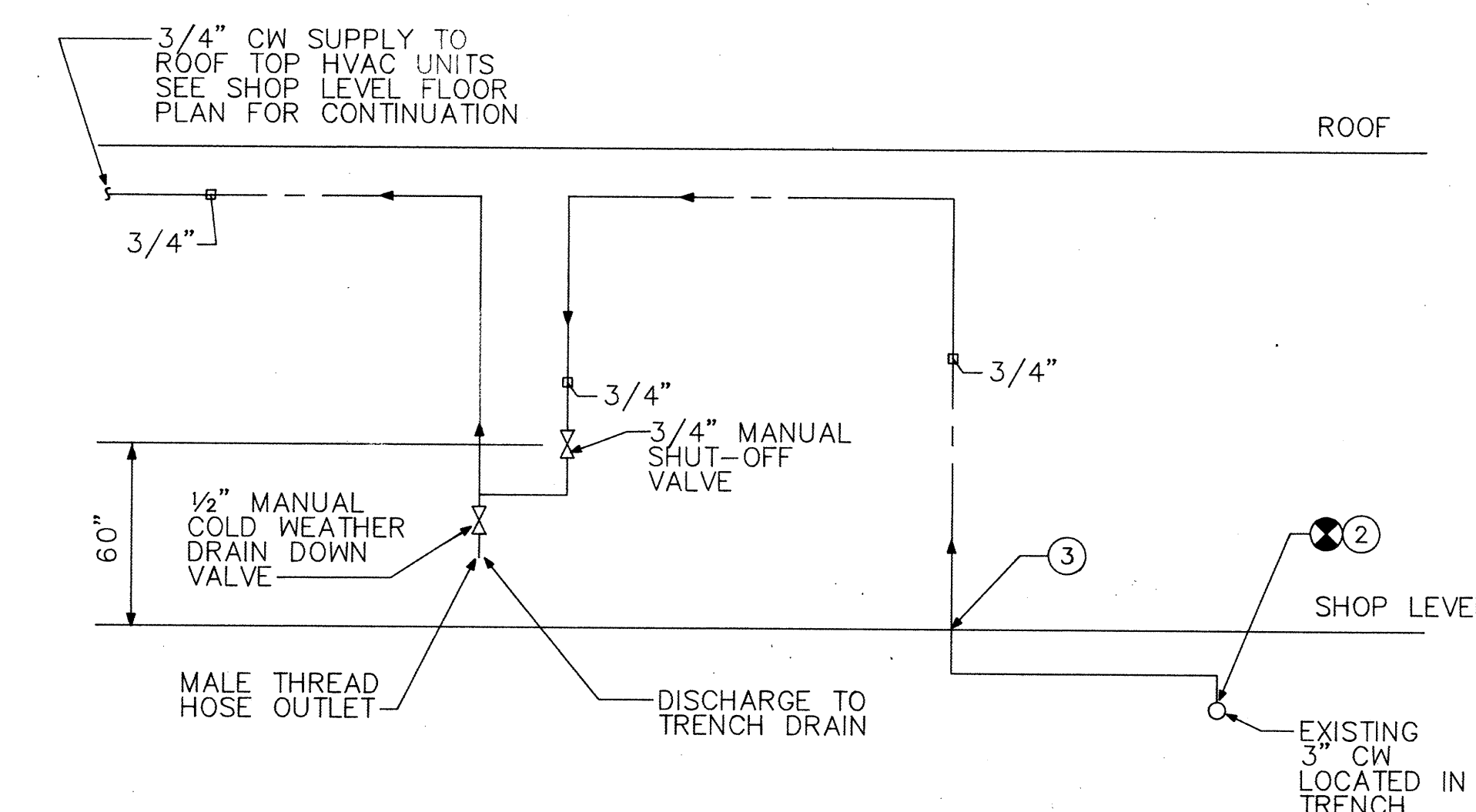
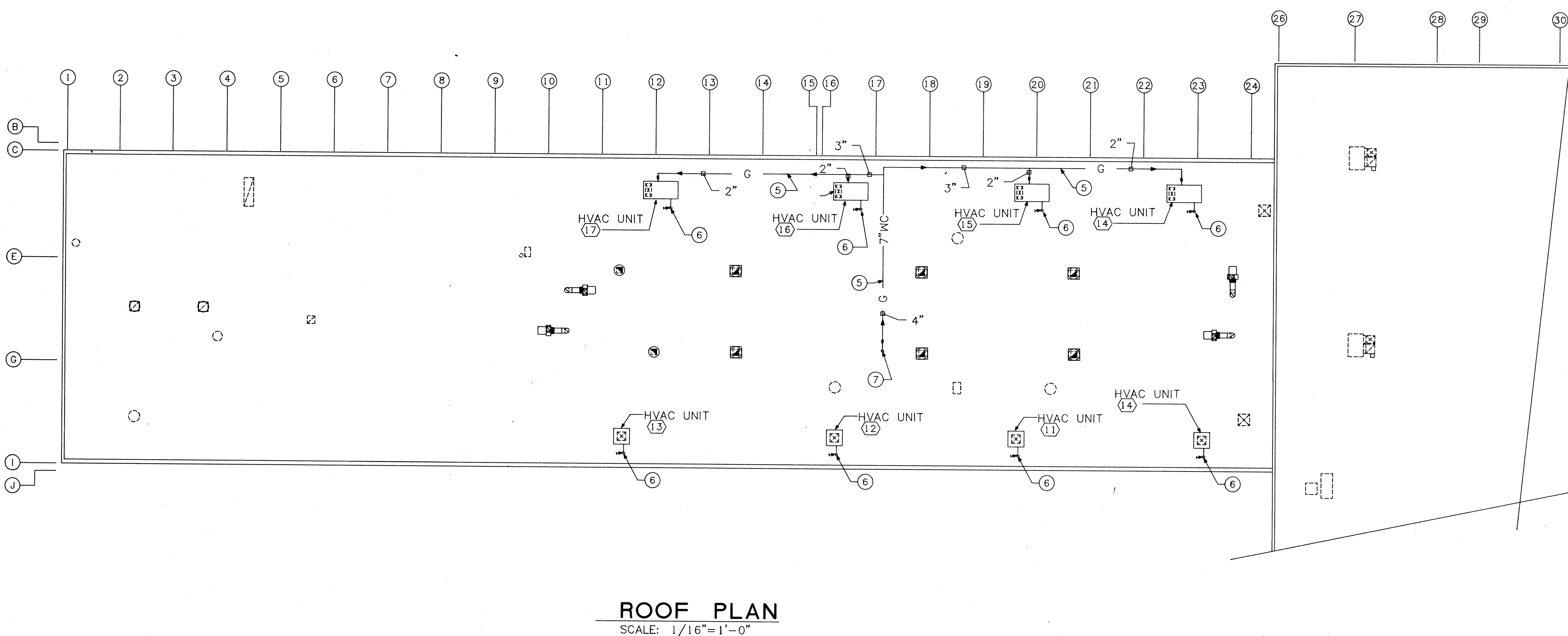


# KEYED NOTES

- EXISTING 1/4" GAS TO EXISTING INFRA-RED HEATER
- CONNECT NEW 3/4" CW TO EXISTING 3" CW LOCATED IN TRENCH. CONTRACTOR TO FIELD VERIFY LOCATION AND SIZE OF EXISTING PIPING
- NEW 3/4" CW RISE UP ALONG SIDE OF EXISTING WALL FROM EXISTING TRENCH. SUPPORT PIPING ALONG WALL USING UNISTRUT BRACKETS AND GASKETED PIPE CLAMPS
- CONNECT NEW 4" GAS TO EXISTING 6" GAS MAIN LOCATED AT STRUCTURE ABOVE. NEW 4" GAS MAIN SHALL RISE THRU ROOF. SEE ROOF PLAN THIS SHEET FOR CONTINUATION
- GAS PIPING ON ROOF SUPPORTED BY PREFAB PIPING SUPPORT AS MANUFACTURED BY THYCURD. SUPPORTS SHALL BE SPACED AS PER THE UNIFORM PLUMBING CODE CHAPTER 12, TABLE 12-2 SUPPORT OF PIPING
- NEW 1/2" CW RISE UP FROM BELOW TO SUPPLY HVAC UNIT. SEE SHOP LEVEL FLOOR PLAN FOR CONTINUATION. PROVIDE SHUT-OFF ON CW SUPPLY
- NEW 4" GAS MAIN UP FROM BELOW. SEE SHOP LEVEL FLOOR PLAN FOR CONTINUATION
- NEW 1/2" CW RISE UP THRU ROOF TO SUPPLY HVAC UNIT. SEE ROOF PLAN THIS SHEET FOR CONTINUATION
- NEW 3/4" MANUAL SHUT-OFF AND 1/2" COLD WEATHER DRAIN DOWN VALVES MOUNTED 60" A.F.F. AGAINST WALL. SEE DETAIL THIS SHEET

## LEGEND

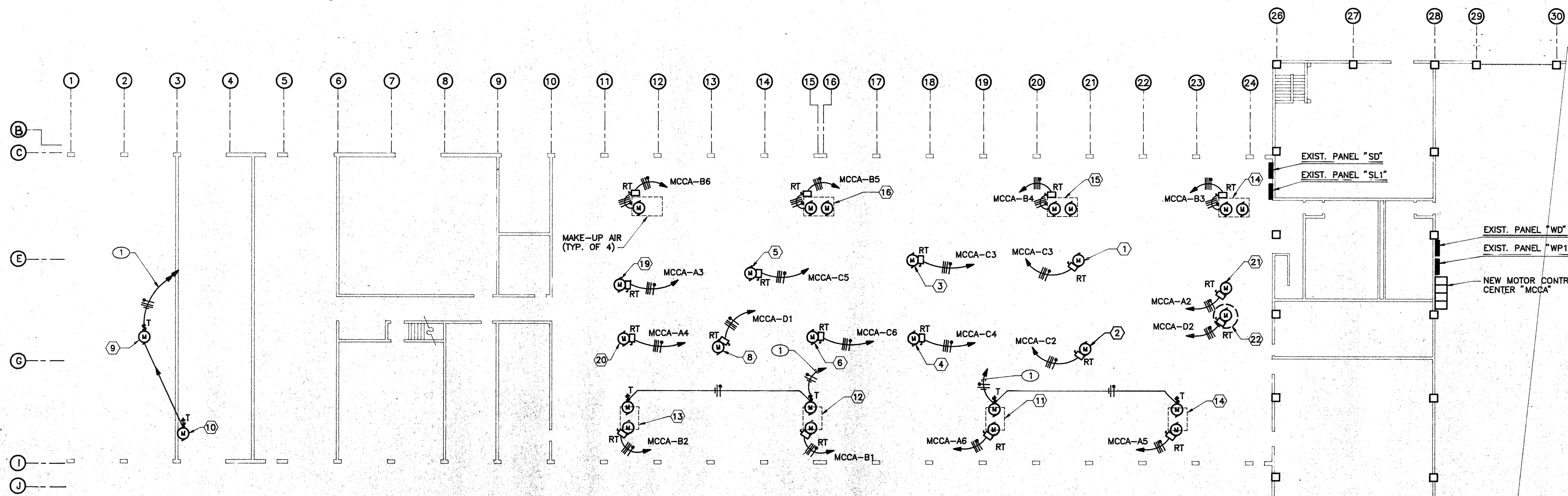
EXISTING	NEW	DESCRIPTION
--- CW ---	--- CW ---	COLD WATER
--- G ---	--- G ---	NATURAL GAS
---	---	DISCHARGE DRAIN LINE
---	---	FLOW ARROW
---	---	GATE VALVE
---	---	BALANCING COCK OR GAS COCK
---	---	VALVE IN RISER
---	---	CAPPED CONNECTION
DROP RISE	DROP RISE	DROP OR RISE



COLD WEATHER DRAIN DOWN DETAIL

	PROJECT NO.	CITY OF ALBUQUERQUE	JOB NO.
	REVISIONS	PINO YARD - VEHICLE MAINTENANCE SHOP	3818
		CARBON MONOXIDE EXHAUST SYSTEM UPGRADE	DRAWN
		<b>PLUMBING FLOOR PLAN</b>	A.M.B.
			CHECKED
	DATE	3-10-89	SHEET
	APPROVED BY:		P-1
<b>BRIDGERS &amp; PAXTON</b> CONSULTING ENGINEERS, INC. 4800-C Montgomery Blvd. N.E. Albuquerque, New Mexico 87109 505-263-9111			

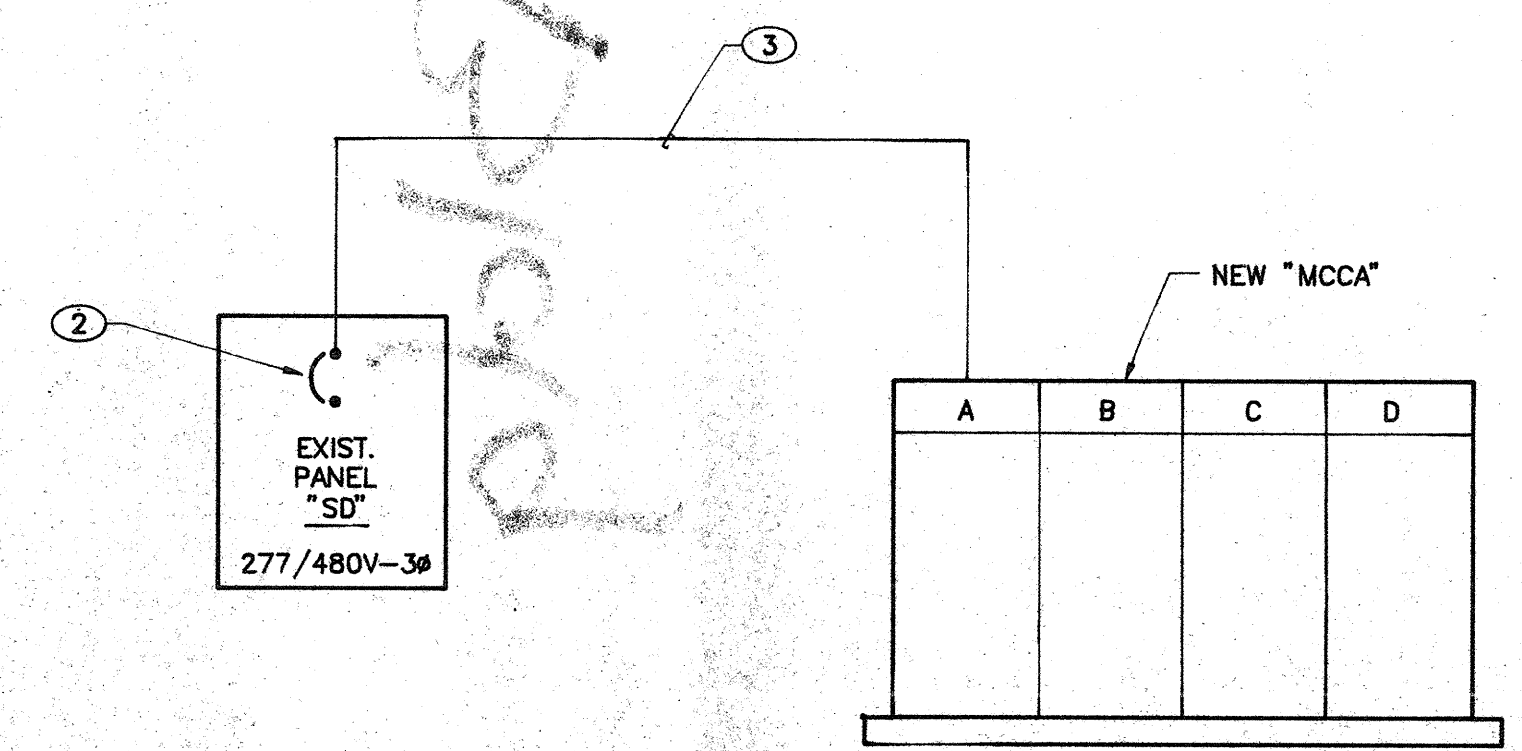




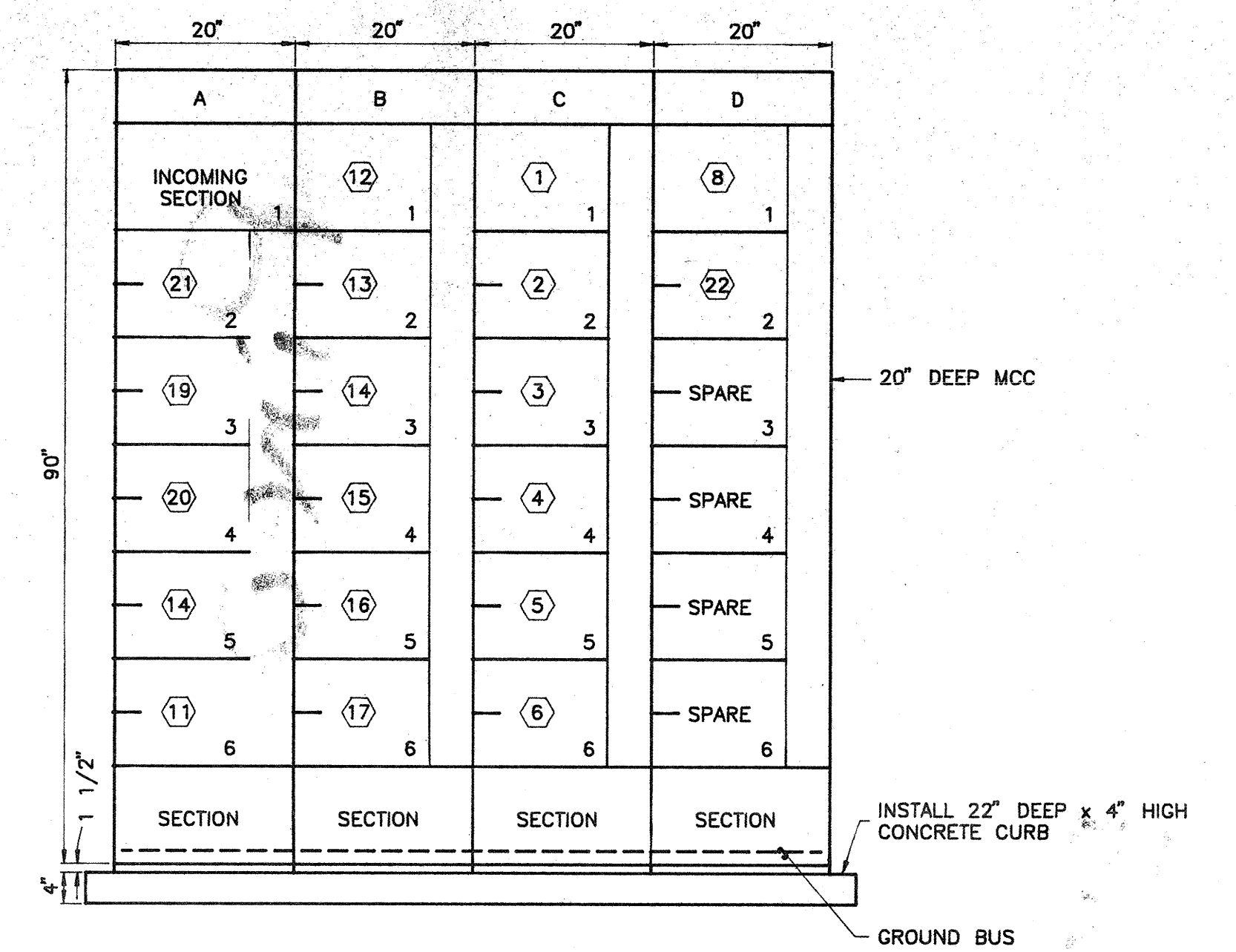
**ELECTRICAL ROOF PLAN**  
SCALE: 1/16" = 1'-0"

**KEYED NOTES**

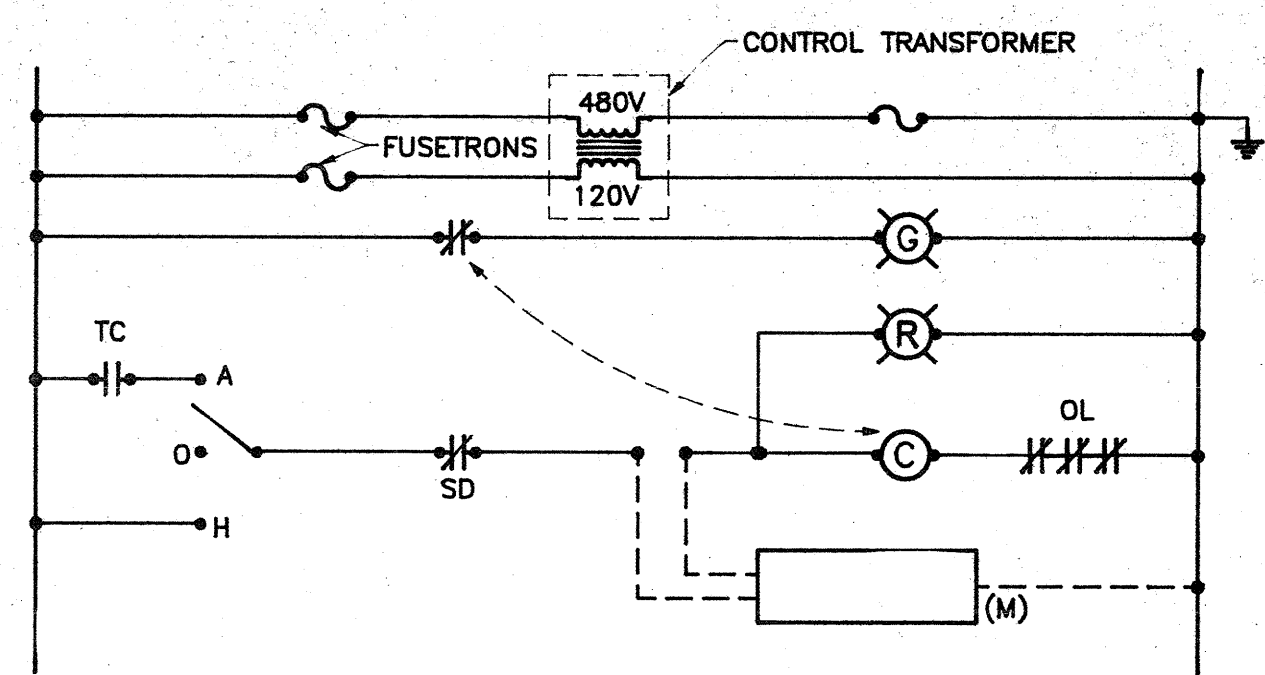
- 1 EXTEND CONDUIT AND CONDUCTORS TO EXISTING PANEL "WP1" AND CONNECT TO A NEW 20A-1P CIRCUIT BREAKER. ARROWS INDICATE NUMBER OF CIRCUIT BREAKERS REQUIRED.
- 2 FURNISH AND INSTALL A NEW 200A-3P CIRCUIT BREAKER IN EXISTING PANEL. USE EXISTING SPACE.
- 3 4#4/0 AND 1#3 GROUND IN 2 1/2" CONDUIT.



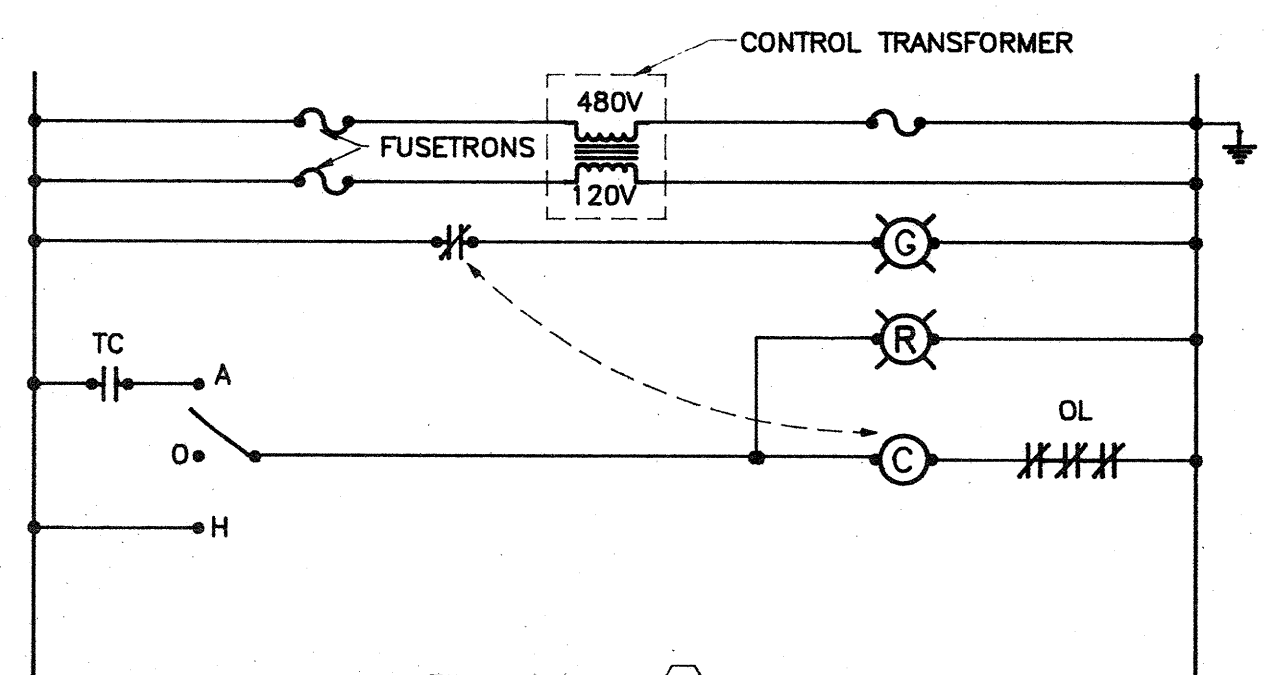
**POWER RISER DIAGRAM**  
NO SCALE



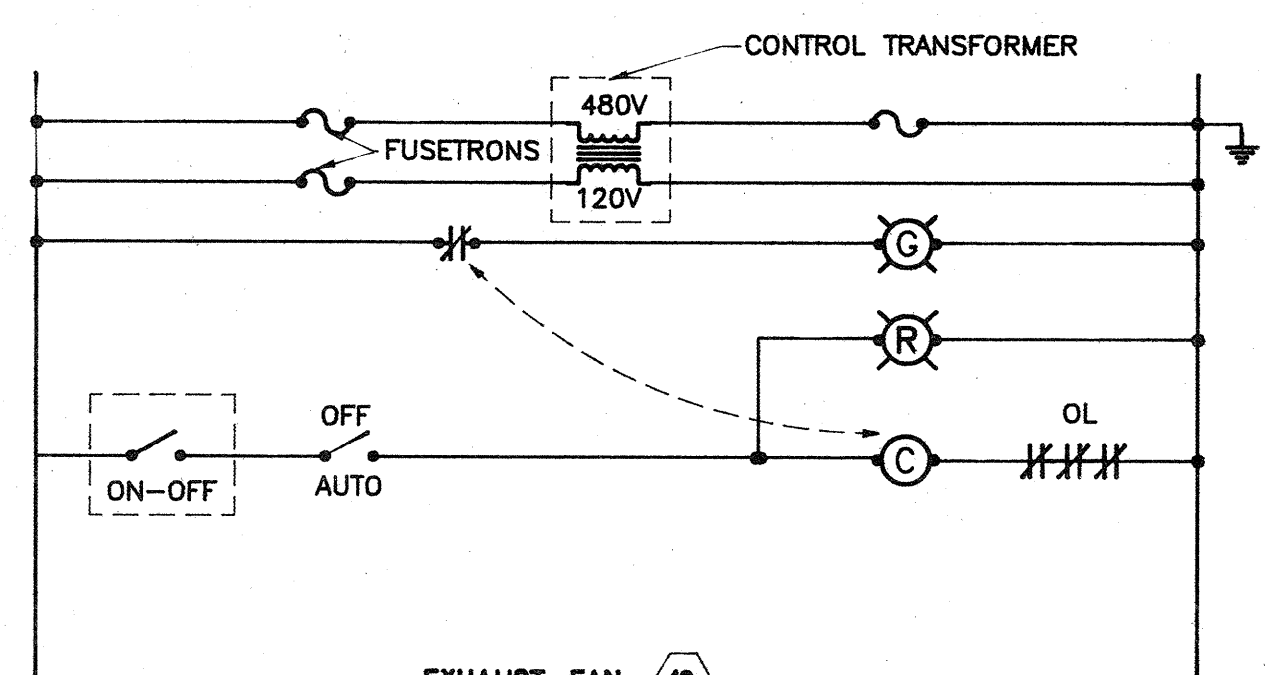
**"MCCA" ELEVATION**  
NO SCALE



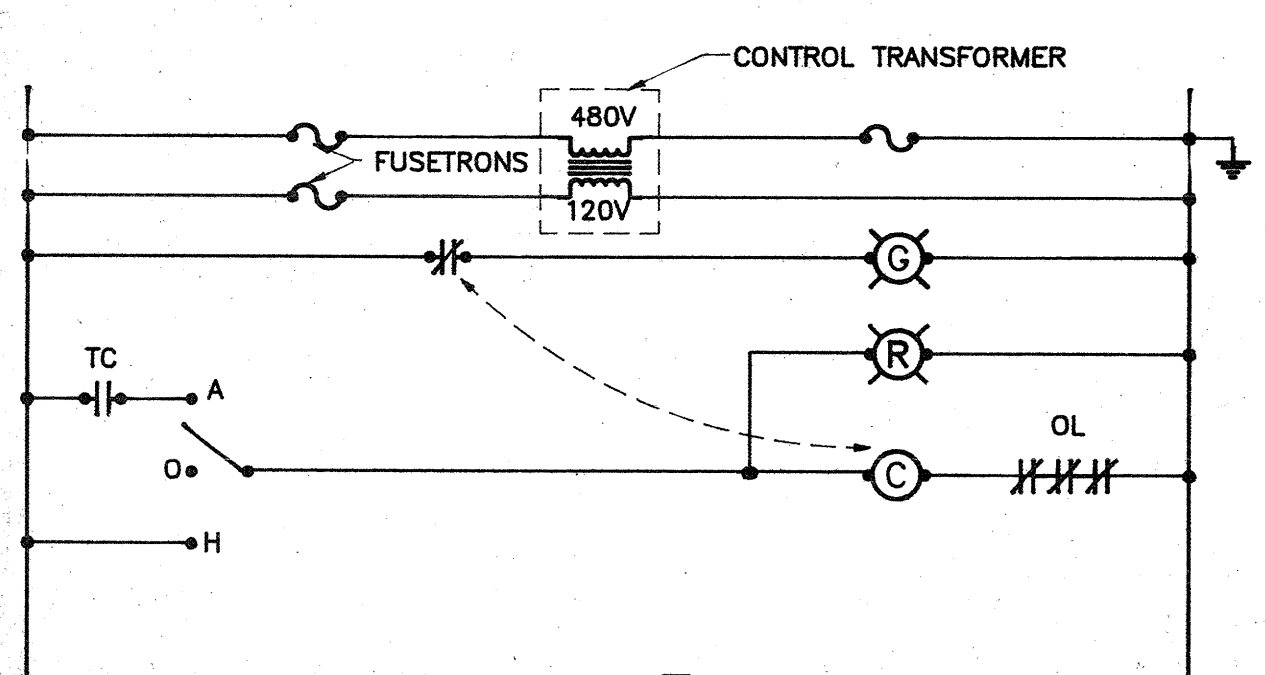
**MAKE-UP AIR UNIT (14)**  
TYPICAL FOR (15), (16), (17)  
EXCEPT (15) INTERLOCKED W/ (4)  
(16) INTERLOCKED W/ (6)  
(17) INTERLOCKED W/ (8)



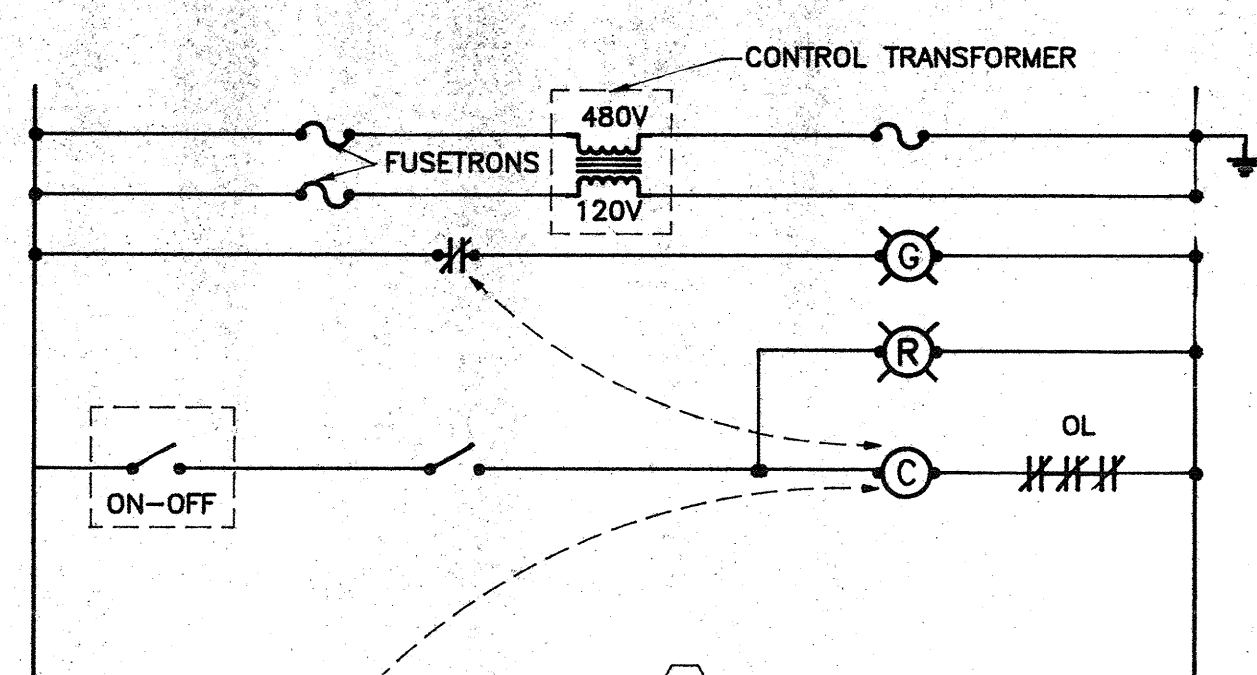
**EXHAUST FAN (2)**



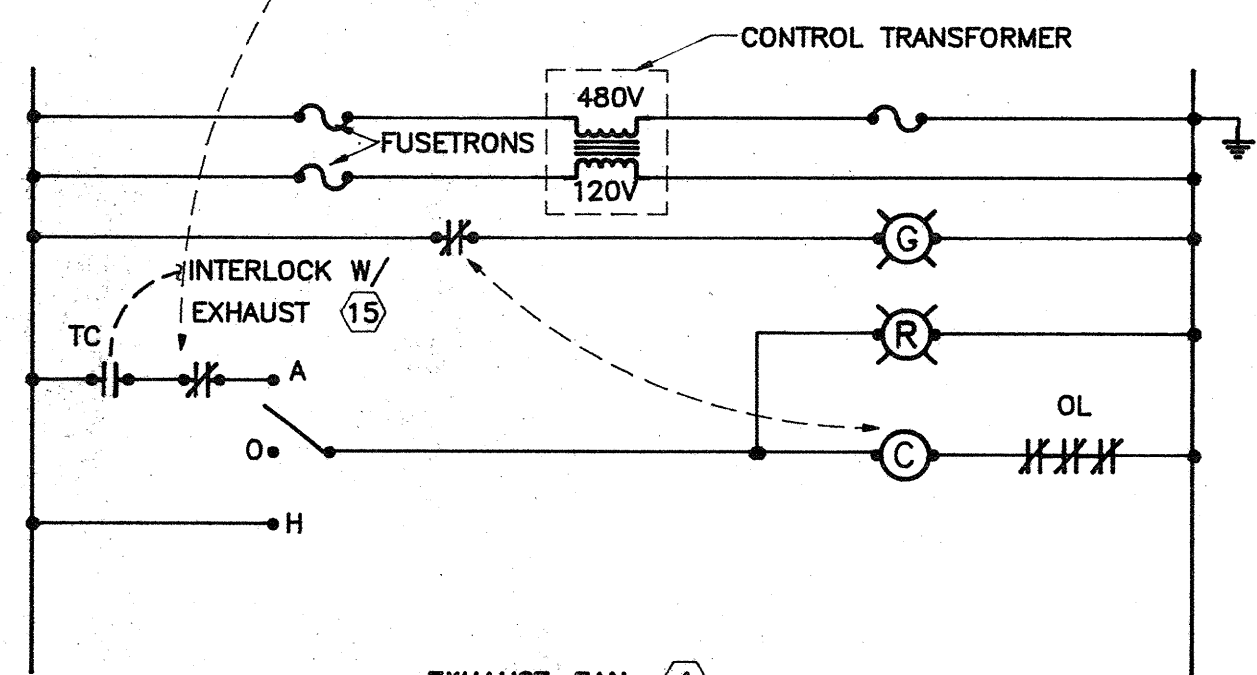
**EXHAUST FAN (19)**



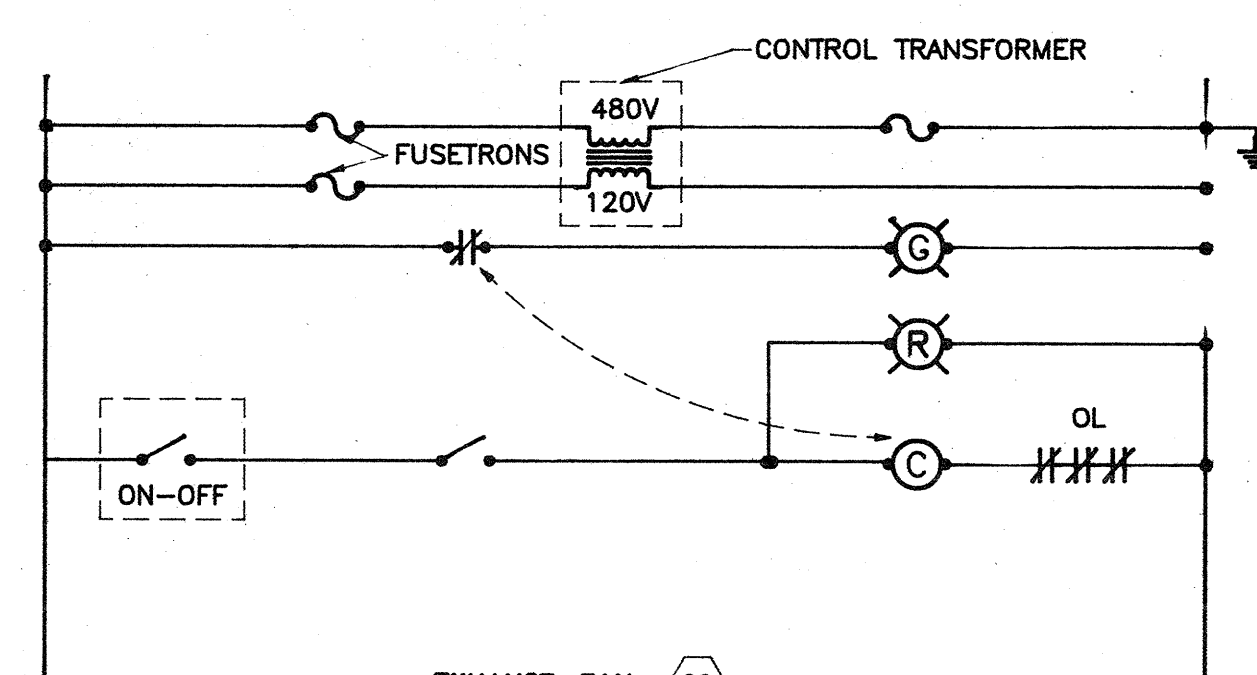
**EXHAUST FAN (8)**



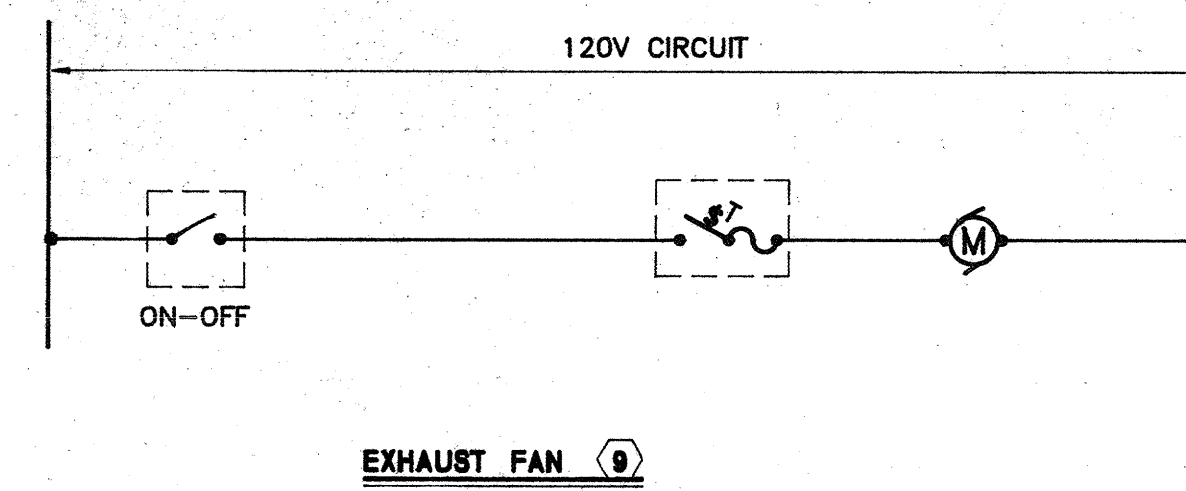
**EXHAUST FAN (21)**



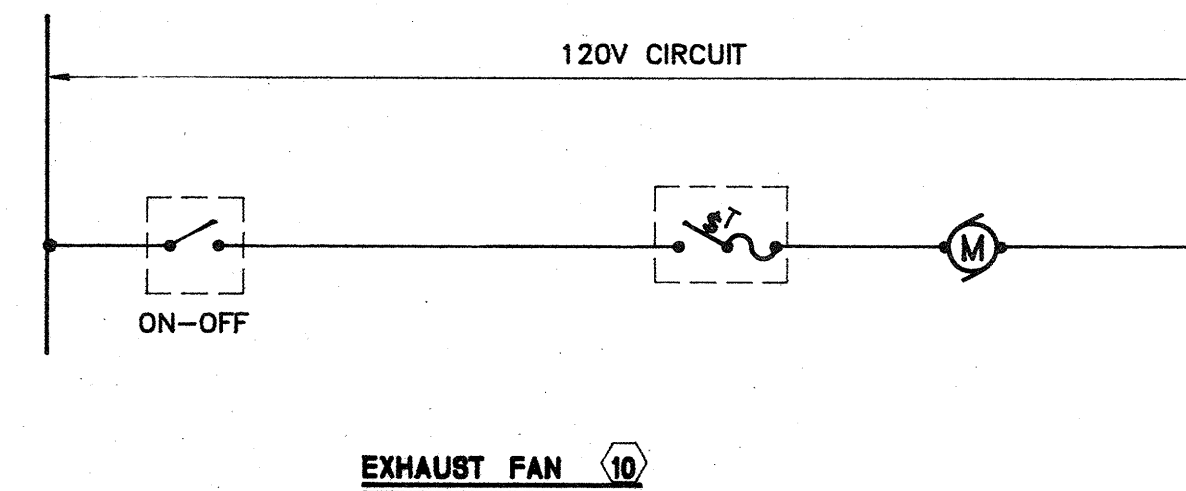
**EXHAUST FAN (4)**



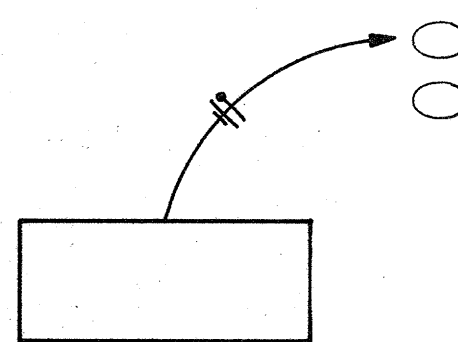
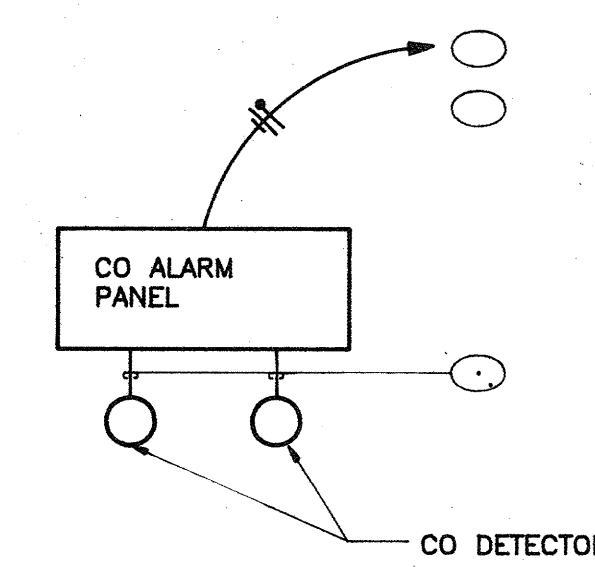
**EXHAUST FAN (22)**



**EXHAUST FAN (9)**



**EXHAUST FAN (10)**



MOTOR CONTROL CENTER "MCCA"																	
MCC UNIT NO.	MCC MECH. EQUIP. NO.	EQUIPMENT NAME/PLATE	HP	KVA	VOLTAGE	PHASE	SWITCH SIZE	FUSE/TRON CLASS "R"	NEMA STARTER TYPE	SELECTOR SWITCH ON OFF	HOA	COIL VOLTAGE	PILOT LAMPS RED GRN NO NC	EXTRA CONTACTS NO NC	CONDUIT AND FEEDER SIZE	REMARKS	
SECTION "A"																	
1		INCOMING SECTION															
2	(21)	EXHAUST FAN	5	6.0	480	3	30	9	1	FVNR	*	120	*	*	2	2	
3	(19)	EXHAUST FAN	5	6.0	480	3	30	9	1	FVNR	*	120	*	*	2	2	
4	(20)	EXHAUST FAN	5	6.0	480	3	30	9	1	FVNR	*	120	*	*	2	2	
5	(14)	EVAP. COOLER	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
6	(11)	EVAP. COOLER	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
SECTION "B"																	
1	(12)	EVAP. COOLER	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
2	(13)	EVAP. COOLER	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
3	(14)	MAKE-UP AIR UNIT	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
4	(15)	MAKE-UP AIR UNIT	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
5	(16)	MAKE-UP AIR UNIT	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
6	(17)	MAKE-UP AIR UNIT	1.5	2.1	480	3	30	2.8	1	FVNR	*	120	*	*	2	2	
SECTION "C"																	
1	(1)	EXHAUST FAN	.75	1.1	480	3	30	1.6	1	FVNR	*	120	*	*	2	2	
2	(2)	EXHAUST FAN	.75	1.1	480	3	30	1.6	1	FVNR	*	120	*	*	2	2	
3	(3)	EXHAUST FAN	.75	1.1	480	3	30	1.6	1	FVNR	*	120	*	*	2	2	
4	(4)	EXHAUST FAN	.75	1.1	480	3	30	1.6	1	FVNR	*	120	*	*	2	2	
5	(5)	EXHAUST FAN	.75	1.1	480	3	30	1.6	1	FVNR	*	120	*	*	2	2	
6	(6)	EXHAUST FAN	.75	1.1	480	3	30	1.6	1	FVNR	*	120	*	*	2	2	
SECTION "D"																	
1	(8)	EXHAUST FAN	.75	1.1	480	3	30	1.6	1	FVNR	*	120	*	*	2	2	
2	(22)	EXHAUST FAN	5	6.0	480	3	30	9	1	FVNR	*	120	*	*	2	2	
3		SPARE			480	3	30		1	FVNR	*		*	*	2	2	
4		SPACE															
5		SPACE															
6		SPACE															

**CONTROL DIAGRAMS**  
NO SCALE

PROJECT NO. REVISIONS	CITY OF ALBUQUERQUE PINO YARD - VEHICLE MAINTENANCE SHOP CARBON MONOXIDE EXHAUST SYSTEM UPGRADE <b>ELECTRICAL ROOF PLAN</b>	JOB NO.
	APPROVED BY	DRAWN TAS
	BRIDGERS & FAXTON CONSULTING ENGINEERS, INC. 4600-C Montgomery Blvd. N.E. Albuquerque, New Mexico 87109 (505) 883-4111	CHECKED DDR
		DATE 3-10-89 SHEET <b>E-1</b>