

**AIR CONDITIONING  
SYMBOLS & ABBREVIATIONS**

SYMBOLS	ABBR	DESCRIPTION
		EXHAUST DUCT SECTION
		RETURN DUCT SECTION
		SUPPLY DUCT SECTION
		DIAMETER OR ROUND/PHASE
	GA	GAUGE
	AC	AIR CONDITIONING
	B.H.P.	BREAK HORSEPOWER
	O.C.	ON CENTER
		THERMOSTAT
	HP	HORSEPOWER
	INSUL	INSULATE/INSULATION
	REQD	REQUIRED
	S.P.	STATIC PRESSURE
	TYP.	TYPICAL FOR
	OPNG	OPENING
	W.G.	WATER GAGE
	CFM	CUBIC FEET PER MINUTE (CFM)

**GENERAL NOTES**

- COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF ALL AC UNITS AND LOUVERS.
- ALL WORK SHALL COMPLY WITH REQUIREMENTS OF ALL APPLICABLE CODES INCLUDING 2013 CMC, LAWS, ORDINANCES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, ADDITIONAL PLAN CHECK FEES, INSPECTIONS, ETC. AND FURNISH SIGNED, CERTIFIED AND ACCEPTABLE COPIES TO THE OWNER FOR HIS RECORD.
- CONTRACTOR SHOULD VISIT THE JOB SITE AND VERIFY ALL THE CONDITIONS, LOCATIONS, AND DIMENSIONS BEFORE STARTING WORK AND ORDERING OF EQUIPMENT.
- PROVIDE AS BUILT DRAWINGS AND SUBMIT COPIES TO THE OWNER.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS.
- IT IS THE SPECIFIC INTENT OF THIS DESIGN CONDITIONS THAT THE ENTIRE SYSTEM INCLUDING EQUIPMENT, DUCTWORK, AIR OUTLETS/INLETS, AND ALL OTHER PARTS BE NOISELESS AND FREE OF VIBRATION TRANSMISSION. PROVIDE AND INSTALL VIBRATION ISOLATORS AND SIMILAR MATERIAL AS REQUIRED. INSTALL VOLUME DAMPERS ON ALL DUCTS AS FAR AS POSSIBLE FROM AIR INLET/OUTLET. MAKE THE NECESSARY NOISE OR VIBRATION CORRECTIONS BY INSTALLING THESE ITEMS AT NO COST TO THE OWNER.
- THE DRAWINGS ARE IN PART DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF THE WORK. THEY INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE SIZES OF EQUIPMENT, DUCTWORK, PIPING, OUTLETS, ETC. FOLLOW THE DRAWING AS CLOSELY AS PRACTICAL IN LAYING OUT THE WORK. BE GUIDED BY THE CONDITIONS AT THE JOB AND CONSULT THE CONSTRUCTION DRAWINGS OF THE OTHER TRADES TO BECOME FAMILIAR WITH ALL CONDITIONS AFFECTING THE WORK.
- PERFORM TESTS BEFORE FINAL ACCEPTANCE AND UNDER THE SUPERVISION OF THE ARCHITECT AND/OR OWNER. OPERATION OF THE TESTS SHALL BE FOR EIGHT HOURS. FURNISH ALL LABOR AND INSTRUMENTS FOR TESTS. UPON COMPLETION OF AND AFTER CLEANING OF SYSTEM AND EQUIPMENT, CAREFULLY ADJUST FOR NORMAL OPERATION.
- WHEN MORE THAN ONE PIECE OF EQUIPMENT ARE INSTALLED ON ROOF OR A COMMON AREA, LABEL EACH PIECE EQUIPMENT TO IDENTIFY THE AREA IT SERVES.
- CONTRACTOR SHALL BALANCE AIR SYSTEM TO THE CFM CAPACITY AS SHOWN ON FLOOR PLAN.
- APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE.
- CONTRACTOR TO INCLUDE ALL NECESSARY LOW VOLTAGE WIRING FOR MECHANICAL SYSTEMS, WITH TERMINATIONS AT MECHANICAL EQUIPMENT PERFORMED OR SUPERVISED BY THE MECHANICAL CONTRACTOR OR CONTROLS SPECIALIST, AS REQUIRED.
- ALL NECESSARY PATCHING, CUTTING, RATED SHAFTS, FURRING, FLASHING, AND PAINTING REQUIRED AS PART OF INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AS PART OF THIS WORK.
- LICENSED ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LINE VOLTAGE WIRING, LOW AND LINE VOLTAGE CONDUITS, AND AUXILIARIES REQUIRED FOR MECHANICAL SYSTEM AS PART OF THIS WORK.

**KEYED NOTES**

- WALL OPENING 2'-0" x 2'-0". INSTALL PER MANUFACTURER RECOMMENDATIONS, SEE SPECIFICATIONS AND BUILDING ELEVATION DRAWING A-4.
- SEE ELECTRICAL DRAWINGS FOR POWER AND WIRING.
- COORDINATE WITH STRUCTURAL DRAWINGS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT AND SIZE FOR AC UNITS, LOUVERS (A&B) AND EXHAUST FAN (EF-1 THRU EF-2).

**VENTILATION CALCULATIONS:**

MIN. VENTILATION PER 2017 LACBC

WELL PUMP ROOM:  
15 AIR CHANGE PER HOUR = (12.67 (FT) x 30.67 (FT) x 9.58(FT) + 206 (SF) x 30.67 (FT)) x 15 ACH/60 = **2,516 CFM**

STORAGE ROOM:  
60 AIR CHANGE PER HOUR = 12 (FT) x 14.67 (FT) x 9.58 (FT) x 60 ACH/60 = **1,686 CFM**

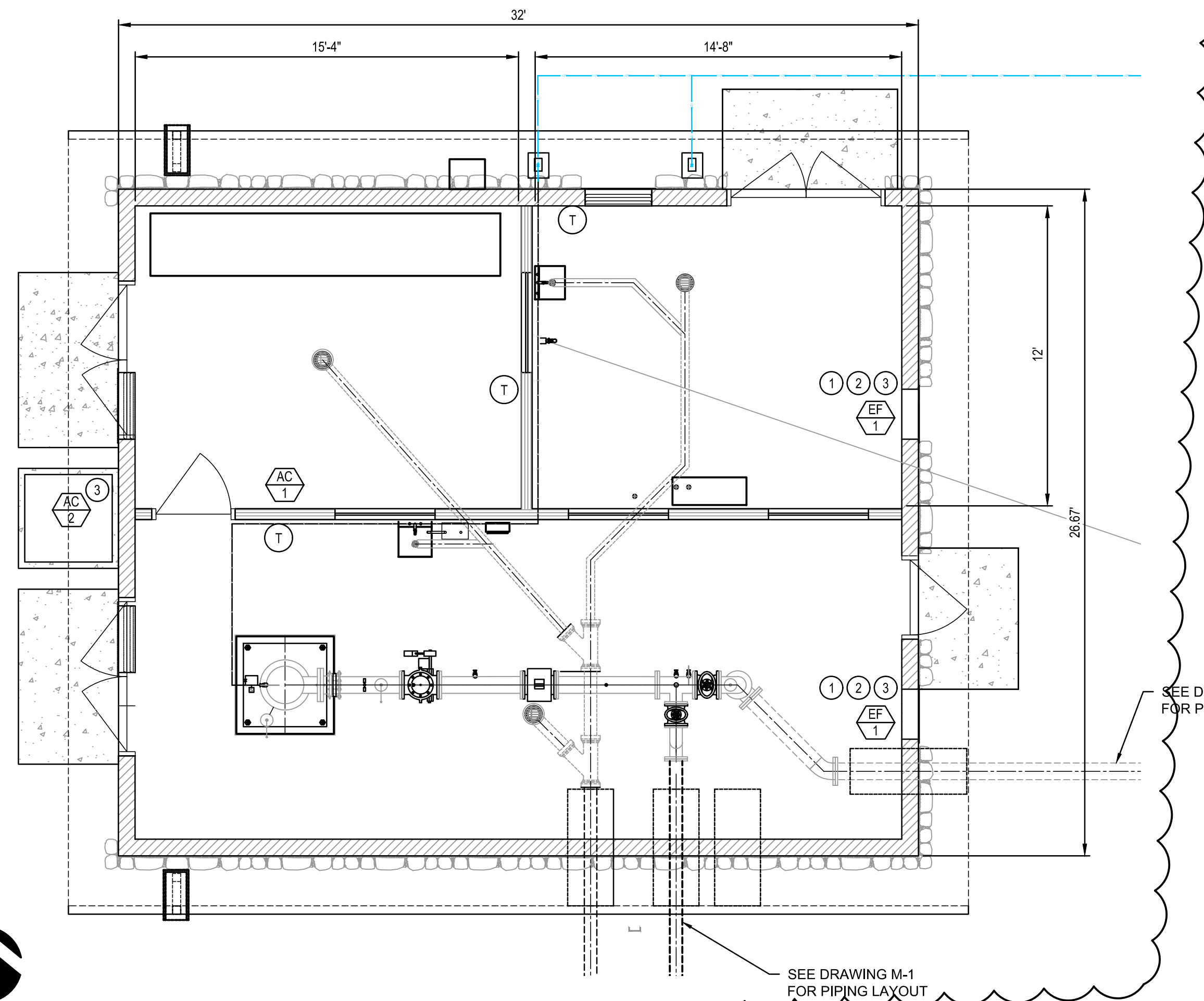
ELECTRICAL ROOM:  
VARIABLE FREQUENCY DRIVE: 100HP, 103KW @ 95% EFFICIENCY = 17,595 BTU/HR  
30KV TRANSFORMER: 30 kW @ 97% EFFICIENCY = 3,074 BTU/HR  
(4) LIGHTS: 0.196 kW @ 1% EFFICIENCY = 663 BTU/HR  
17,595 + 3,074 + 663 = 21,332 BTU/HR / 12,000 = **1.77 TON**

DESIGN VENTILATION CFM PROVIDED:

PUMP ROOM: 3,385 CFM > 2,516 CFM  
CHEMICAL ROOM: 3,385 > 1,686 CFM  
ELECTRICAL ROOM: 2.5 TON/ 30,000 BTU/HR > 1.77 TON/ 21,332 BTU/HR

**SPECIAL NOTES**

- PROVIDE A MINIMUM WORKING SPACE PER NEC 110.27(A)(1), NOT LESS THAN 30 INCHES WIDE OR THE WIDTH OF THE EQUIPMENT, WHICHEVER IS WIDER, SHALL BE MAINTAINED IN FRONT OF ALL SWITCHES, OVER CURRENT DEVICES AND ELECTRIC CONTROL COMPONENTS.
- COMPLETE AIR BALANCE SHALL BE PERFORMED BY INDEPENDENT CERTIFIED AIR BALANCE FIRM. OWNER (TVMWD) RESERVES THE RIGHT TO WITNESS AIR BALANCING AND SHALL BE NOTIFIED AT LEAST ONE WEEK IN ADVANCE OF SCHEDULED DATE OF PERFORMANCE. FIVE COPIES OF COMPLETED AIR BALANCE REPORT SHALL BE PROVIDED TO TVMWD UPON SUCCESSFUL COMPLETION.



**HVAC FLOOR PLAN**

GRAPHIC SCALE: 1 IN. = 4 FOOT

SCALE: 1"=4'-0"

**EXHAUST FAN SCHEDULE**

SYMBOL	SERVICE	LOCATION	MANUFACTURER & MODEL	FAN DATA				MOTOR DATA				WEIGHT (LBS)	REMARKS
				CFM	S. P. IN.W.G.	R.P.M	TYPE	HP	VOLTS	PHASE	HZ		
	PUMP ROOM, STORAGE ROOM	SEE PLAN	DAYTON 484X48 1DG29	3,385/2,069	0.125	1075/945	BALL BEARING	1/3	115	1	60	77	2-SPEED DIRECT DRIVE EXHAUST FAN, PROVIDE BACK DRAFT DAMPER & BIRD SCREEN. MOTORS STARTERS BY ELECT. CONTRACTOR. PROVIDE TOGGLE-SWITCH FAN CONTROL.

**EXHAUST FAN CONTROLS:**

- EXHAUST FANS SHALL BE CONTROLLED BY WALL MOUNTED T-STAT (REFER TO PLANS).TWO(2) STAGE T-STAT SHALL START 1ST EF SPEED AT LOW TEMPERATURE SETPOINT 90°F (ADJ.) AND START 2ND EF SPEED AT HIGH TEMPERATURE SETPOINT 95°F (ADJ.). EF SHALL STOP WHEN TEMPERATURE DROPS BELOW LOW TEMPERATURE SETPOINT.

**AIR CONDITIONING UNIT SCHEDULE**

SYMBOL	SERVICE	LOCATION	MANUFACTURER & MODEL	COOLING CAPACITY (BTU/HR)	ELECTRICAL DATA				EER	AIR (CFM)			REMARKS	WEIGHT (LBS)
					VOLTS	AMPS	WATTS	LENGTH OF POWER CORD		PLUG TYPE (NEMA)	LOW	MED		
	ELECTRICAL ROOM	SEE PLAN	BOSCH 8733954427	30,000	-	-	-	POWER FROM CONDENSER UNIT	-	-	-	-	CLOSED MINI SPLIT UNIT INT. AIR HANDLER	39.9
	ELECTRICAL ROOM	SEE PLAN	BOSCH 8733954427	30,000	230	15	3,450	6'	LCDI (6-30P)	9.0	-	-	CLOSED AC SPLIT SYSTEM EXT. CONDENSER	135.6

**AS-BID PLANS**

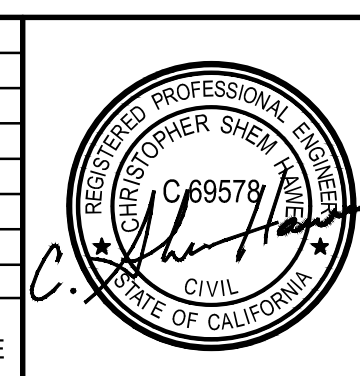
**1-800-422-4133  
DIG ALERT**

UNDERGROUND SERVICE ALERT

AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING

PLAY IT SAFE. DIAL BEFORE YOU DIG!

REV	DESCRIPTION	ENGR	DATE	APPD	DATE
	REVISED PER ADDENDUM # 2				



PLANS PREPARED BY:

**CIVILTEC engineering inc.**

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DESIGNED BY: CSH  
DRAWN BY: JM / MM / JG

CHECKED BY: CSH  
DATE: APRIL 2021

**THREE VALLEYS MUNICIPAL WATER DISTRICT**

1021 E. MIRAMAR AVENUE  
CLAREMONT, CA 91711  
(909) 621-5568

SCALE: AS SHOWN  
FILE NO.:

**THREE VALLEYS MUNICIPAL WATER DISTRICT**

MIRAGRAND WELL EQUIPPING IMPROVEMENTS

**VENTILATION FLOOR PLAN**

PROJECT NO.	58463
DRAWING NO.	HVAC-1
SHEETS NO.	18 OF 49

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