

MECHANICAL CODE GENERAL NOTES	
1. MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX NOT GREATER THAN TWENTY FIVE (25) AND A SMOKE DEVELOPED INDEX NOT GREATER THAN FIFTY (50) WHEN TESTED AS A COMPOSITE PER APPLICABLE TESTING STANDARD. 2. ALL APPLIANCES AND PLUMBING VENTS AND THE DISCHARGE OUTLET OF EXHAUST FANS SHALL BE AT LEAST TEN (10) FEET IN A HORIZONTAL DIRECTION, OR THREE (3) FEET ABOVE THE OUTSIDE AIR INTAKES FOR HVAC UNITS. 3. ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE PER BUILDING CODE REQUIREMENTS OR APPLICABLE MANUFACTURER INSTALLATION REQUIREMENTS. 4. ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE PER BUILDING CODE REQUIREMENTS OR APPLICABLE MANUFACTURER INSTALLATION REQUIREMENTS. 5. GARAGE EXHAUST SYSTEM HAS EXHAUST INLETS THAT ARE DESIGNED BASED ON THE PRINCIPLES OF ENGINEERING AND MECHANICS IN LIEU OF EXHAUST INLETS DISTRIBUTED PER SEC. 403.9.1.2 CMC. THE SYSTEM SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY AND THE TESTING REPORT SHALL BE SUBMITTED TO THE MECHANICAL FIELD INSPECTOR PRIOR TO FINAL INSPECTION AND OCCUPANCY. 6. THE AUTOMATIC CARBON MONOXIDE SENSING DEVICES SHALL BE SIED TO MODULATE THE VENTILATION SYSTEM TO MAINTAIN A MAXIMUM CONCENTRATION NOT GREATER THAN 200 PARTS PER MILLION FOR A PERIOD NOT EXCEEDING ONE HOUR. 7. EXHAUST DUCTS SHALL BE EQUIPPED WITH BACK-DRAFT DAMPERS PER SEC.504.0 CMC. 8. ROOF ACCESS LADDER SHALL COMPLY WITH SECTION 304 CMC. 9. SCREENS/LOUVERS SHALL NOT BE INSTALLED AT DRYER VENT TERMINATIONS PER SEC. 504.3.1 CMC. 11. FLEXIBLE CLOTHES DRYER TRANSITION DUCTS SHALL NOT BE CONCEALED WITHIN CONSTRUCTION. 11. EXHAUST DUCT FOR TYPE I DRYERS SHALL COMPLY WITH SECTION 905.4 CMC. 12. ALL ENVELOPE AND MECHANICAL CERTIFICATE OF ACCEPTANCE FORMS AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FIELD INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED. 13. INSULATION MATERIAL SHALL MEET THE CALIFORNIA QUALITY STANDARD PER SECTION 110.8 ENERGY EFFICIENCY STANDARDS (E.E.S.). 14. DOORS AND WINDOWS SHALL MEET THE MINIMUM INFILTRATION REQUIREMENTS PER SECTIONS 110.6 AND 110.7 (E.E.S.). 15. ALL PIPING AND DUCT WORK SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF SECTIONS 120.3, 120.4 AND 120.7 TITLE 24 ENERGY STANDARDS AND CHAPTER 6 OF CMC. 16. ALL HVAC SYSTEMS SHALL MEET THE CONTROL REQUIREMENTS PER SECTION 110.2 AND 120.2 (E.E.S.). 17. ALL HVAC EQUIPMENT AND APPLIANCES SHALL MEET THE REQUIREMENTS PER SECTION 110.1 – 110.3, 110.5, 120.1–120.4 TITLE 24 ENERGY STANDARDS. 18. BATHROOM EXHAUST FANS SHALL BE ENERGY STAR COMPLIANT AND DUCTED TO TERMINATE OUTSIDE THE BUILDING. 19. UNLESS FUNCTIONING AS A COMPONENT OF A WHOLE HOUSE VENTILATION SYSTEM, BATHROOM EXHAUST FANS MUST BE CONTROLLED BY A HUMIDITY CONTROL, WHICH SHALL BE CAPABLE OF ADJUSTMENT BETWEEN A RELATIVE HUMIDITY RANGE OF 50 TO 80% (SEC 4.506.1.).	
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GREEN BUILDING CODE	
1. THE SIZE AND LAYOUT OF THE HEATING AND AIR CONDITIONING SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH ACMA MANUAL J, ACMA 28-2 AND ACMA 38-5, ASHRAE HANDBOOKS. 2. AT THE TIME OF ROUGH INSTALLATION, OR DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING AND COOLING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEETMETAL, OR OTHER ACCEPTABLE METHODS TO REDUCE THE AMOUNT OF DUST OF DEBRIS WHICH MAY COLLECT IN THE SYSTEM. (4.504.1) 3. BUILDING MATERIALS WITH VISIBLE SIGNS OF WATER DAMAGE SHALL NOT BE INSTALLED. WALL AND FLOOR FRAMING SHALL NOT BE ENCLOSED WHEN THE FRAMING MEMBERS EXCEED 10% MOISTURE CONTENT. INSULATION PRODUCTS WHICH ARE VISIBLY WET OR HAVE HIGH MOISTURE CONTENT SHALL BE REPLACED OR ALLOWED TO DRY PRIOR TO ENCLOSURE IN WALL OR FLOOR CAVITIES (4.505.3) 4. WHOLE HOUSE EXHAUST FANS INSTALLED SHALL HAVE INSULATED LOUVERS OR COVERS MINIMUM R-4.2 WHICH CLOSE WHEN THE FAN IS OFF. (4.507.1) 5. ALL MECHANICAL EXHAUST FANS IN ROOMS WITH A BATHTUB OR SHOWER SHALL COMPLY WITH THE FOLLOWING: - FANS SHALL BE ENERGY STAR COMPLIANT AND BE DUCTED TO TERMINATE OUTSIDE THE BUILDING. - FANS MUST BE CONTROLLED BY A READILY ACCESSIBLE HUMIDISTAT UNLESS FUNCTIONING AS A COMPONENT OF A WHOLE HOUSE VENTILATION SYSTEM. (4.506.1) 6. ADHESIVES, SEALANTS AND CAULKS SHALL MEET OR EXCEED THE STANDARDS OUTLINED IN SECTION 4.504.2.1 AND COMPLY WITH THE VOC LIMITS IN TABLES 4.504.1 AND 4.504.2 AS APPLICABLE. 7. AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEETMETAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUCTS, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM. (CAL GREEN SECTION: 5.504.3.) 8. IN MECHANICALLY VENTILATED BUILDINGS, REGULARLY OCCUPIED AREAS OF THE BUILDING SHALL BE PROVIDED WITH AIR FILTRATION MEDIA FOR OUTSIDE AND RETURN AIR THAT PROVIDES AT LEAST A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8. MERV 8 FILTERS SHALL BE INSTALLED PRIOR TO OCCUPANCY, AND RECOMMENDATIONS FOR MAINTENANCE WITH FILTERS OF THE SAME VALUE SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL. (CAL GREEN SECTION: 5.504.5.3.) 9. INSTALLATIONS OF HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT SHALL COMPLY WITH SECTIONS 5.508.1.1 AND 5.508.1.2. HVAC, REFRIGERATION AND FIRE SUPPRESSION EQUIPMENT SHALL NOT CONTAIN CHLOROFLUOROCARBONS(CFCs) AND SHALL NOT CONTAIN HALONS (SECTION: 5.508.1.1) 10. IN ADDITION TO TESTING AND ADJUSTING, BEFORE A NEW SPACE-CONDITIONS SYSTEM SERVING A BUILDING OR SPACE IS OPERATED FOR NORMAL USE, BALANCE THE SYSTEM IN ACCORDANCE WITH THE PROCEDURES DEFINED BY THE TESTING AGENCY AND BALANCING BUREAU NATIONAL STANDARDS; THE NATIONAL ENVIRONMENTAL BALANCING BUREAU PROCEDURAL STANDARDS; OR ASSOCIATED AIR BALANCE COUNCIL NATIONAL STANDARDS. 11. PROVIDE THE BUILDING OWNER OR REPRESENTATIVE WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AND COPIES OF GUARANTEES/WARRANTIES FOR EACH SYSTEM. O&M INSTRUCTIONS SHALL BE CONSISTENT WITH OSHA REQUIREMENTS IN CSR, TITLE 8, SECTION 5142, AND OTHER RELATED REGULATIONS.	
DRYER DUCT NOTES	
1. DRYER VENT SHALL BE INSTALLED IN ACCORDANCE WITH 2016 CMC SECTION 504.3.2.2 2. DRYER DUCT TERMINATIONS MUST INCLUDE A BACK DRAFT DAMPER. NO SCREENS ARE ALLOWED IN A DRYER DUCT TERMINATION. (CMC 504.3.1) 3. THE DRYER DUCT CONNECTIONS SHALL BE SEALED AIRTIGHT BY UL LISTED METHOD. SCREWS AND OTHER FASTENERS THAT WILL OBSTRUCT FLOW SHALL NOT BE USED. THE DUCT SHALL HAVE SMOOTH INTERIOR SURFACES. DRYER EXHAUST DUCTS MUST BE RIGID METALLIC MATERIAL. (CMC 905.4) 4. LISTED RESIDENTIAL (TYPE I) CLOTHES DRYERS SHALL BE INSTALLED WITH A MINIMUM OF 6 INCHES TO COMBUSTIBLE MATERIAL. CLOTHES DRYERS INSTALLED IN CLOSETS SHALL BE SPECIFICALLY LISTED FOR SUCH INSTALLATION. (CMC 905.1) 5. TYPE 1 CLOTHES DRYERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. (CMC 905.1)	

MECHANICAL SPECIFICATIONS	
15. MECHANICAL DIVISION: 15.1. GENERAL CONDITIONS: 15.1.1. DIVISION 1 GENERAL REQUIREMENTS PROVIDED AS AN ATTACHMENT IN THE SUPPLEMENTARY REQUIREMENTS PACKAGE APPLIES TO THE WORK OF THIS SECTION. 15.1.2. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF SHOP DRAWINGS AND SUBMITTALS TO THE ARCHITECT AND OR OWNER FOR APPROVAL WITHIN 20 WORKING DAYS FROM THE AWARD OF CONTRACT. THE SUBMITTALS WILL INCLUDE DETAILED EQUIPMENT DRAWINGS SHOWING DIMENSIONS, LOCATION OF ALL UTILITY CONNECTIONS, VIBRATION ISOLATION, SEISMIC RESTRAINTS, PERFORMANCE TABLES, CAPACITIES, AND CALCULATIONS TO BACK UP THE ABILITY OF THE EQUIPMENT TO SATISFY THE LOADS AND CONDITIONS OF THE STRUCTURE. 15.1.3. DRAWINGS – THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE RECORD SET OF BLUE LINE PRINTS AS-BUILT DRAWINGS. THE DRAWINGS SHALL SHOW THE ROUTING OF ALL OF THE DUCT WORK AND PIPING, THE METHOD OF AVOIDING ALL OBSTRUCTIONS AND INTERFERENCE, THE LOCATION OF ALL AIR DISTRIBUTION OUT– LETS, AND THERMOSTATS, THE SIZE AND LOCATION OF ALL ROOF OPENINGS, CURBS AND PLUMBING, AND THE CONTROL WIRING DIAGRAMS SHOWING ALL EQUIPMENT INTERLOCKING. IN THE EVENT THAT THE CONTRACTOR DEVIATES FROM THIS SET OF BID DOCUMENTS, WITH THE APPROVAL OF THE OWNER, THE ABOVE SUBMITTAL PACKAGE WILL BECOME THE CONTRACT SET OF DOCUMENTS AND THE CONTRACTOR WILL ASSUME ALL RESPONSIBILITY FOR THE DESIGN, INSTALLATION, OPERATION AND PERFORM– ANCE OF THE JOB. AND THE ENGINEER WILL BE RELIEVED OF ALL RESPONSIBILITIES FOR THE JOB. 15.1.4. COMPLETE SYSTEMS: ALL EQUIPMENT, DUCTWORK, PLENUMS, PIPING, ETC., SHALL BE INSTALLED AND INTERCONNECTED SO AS TO FORM COMPLETE SYSTEMS, AS HEREIN SPECIFIED AND SHOWN ON THE ACCOMPANYING DRAWINGS AND THE DRAWINGS FURNISHED BY THE ARCHITECT TO SUPPLEMENT AND EXPLAIN THOSE ACCOMPANYING THESE GENERAL NOTES. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WORK NECESSARY TO MAKE COMPLETE SYSTEMS WHETHER OR NOT SUCH DETAILS ARE MENTIONED IN THESE NOTES OR SHOWN ON THE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE A COMPLETE SYSTEM. 15.1.4.1. HVAC SCOPE OF WORK: FURNISH AND INSTALL THE HEATING AND PACKAGED AIR CONDITIONING UNITS, CONDENSATE DRAINS, DUCT WORK AND VOLUME DAMPERS INSTATION, SEISMIC RESTRAINTS, HANGERS, SUPPORTS, PIPE SLEEVES AND THE BALANCING OF ALL THE FURNISHED SYSTEMS. THE FINAL PRODUCT SHALL BE A COMPLETE WORKING SYSTEM. 15.1.4.2. WORKMANSHIP AND MATERIALS: ALL WORKMANSHIP SHALL BE FIRST CLASS IN ALL RESPECTS AND CARRIED OUT IN A MANNER SATISFACTORY TO AND MEETING THE APPROVAL OF THE OWNER. ALL WORKMEN EMPLOYED IN THE INSTALLATION SHALL BE RECOMMENDED IN THEIR PARTICULAR TRADES BY AN EXPERIENCED SUPERVISOR SHALL BE IN CHARGE OF THE INSTALLATION. 15.1.4.2.b. ALL MATERIALS, APPLIANCES AND EQUIPMENT SHALL BE NEW AND THE BEST OF THEIR RESPECTIVE KIND, FREE FROM ALL DEFECTS AND OF THE MAKE, BRAND AND MAKE SPECIFIED. 15.1.4.2.c. THE CONTRACTOR SHALL CARRY ON HIS WORK AT ALL TIMES WITH THE UTMOST DISPATCH WITHOUT INTERFERENCE WITH THE CONVENIENCES IN ANY WAY OBJECTIONABLE TO THE OWNER. 15.1.4.2.d. GENERAL – IN CONFORMITY WITH PLANS AND SPECIFICATIONS, LOCAL BUILDING CODES, AND ALL LEGALLY CONSTITUTED PUBLIC AUTHORITIES HAVING JURISDICTION. 15.1.5. LOCATION OF DUCTWORK AND EQUIPMENT: 15.1.5.1. DUCTWORK 15.1.5.1.a. ALL DUCTWORK SHALL BE ERECTED, CONSTRUCTED, SUPPORTED & INSTALLED PER THE MOST RECENT SMACNA (SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION) DUCT CONSTRUCTION STANDARDS. 15.1.5.1.b. ALL ROUND DUCTWORK SHALL BE OF THE SPIRAL WOUND ROUND TYPE. 15.1.5.1.c. SUPPLY & RETURN AIR DUCTS ABOVE THE CEILING SHALL BE INSULATED WITH MANVILLE R-SERIES MICROLITE, 1" THICK, R=4.2 WITH FSKL ALUMINUM FOIL FACING. 15.1.5.1.d. INSTALL AS REQUIRED FOR PROPER INSTALLATION IN AVAILABLE SPACE AVOIDING INTERFERENCE WITH ARCHITECTURAL AND STRUCTURAL MEMBERS AND WORK WITH OTHER TRADES. 15.1.5.1.e. PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. 15.1.5.1.f. INSTALL PIPES AND DUCTS AS SHOWN IN A NEAT MANNER, SYMMETRICAL WITH BUILDING LINES, LIGHTS, ACUSTICAL TILE PATTERNS, ETC. 15.1.5.1.g. DRAWINGS ARE DIAGRAMMATIC AND APPROXIMATE AND ARE SUBJECT TO REARRANGEMENT FOR PROPER INSTALLATION. CERTAIN RUNS OF DUCTWORK AND PIPING ARE SHOWN RETURNED TO AVOID CONFUSION. 15.1.5.1.h. RETURN REGISTERS AND SUPPLY DIFFUSERS: RETURN AIR REGISTERS SHALL BE OF EXTRUDED ALUMINUM CONSTRUCTION WITH OPPOSED BLADE DAMPER. SUPPLY AIR DIFFUSERS SHALL BE OF ALUMINUM ANEMOSTAT RMD-S OF ALUMINUM MULTIPLE CORE (MODULAR) CONSTRUCTION WITH OPPOSED BLADE DAMPER OR APPROVED EQUAL COMPLETE WORKABLE INSTALLATION. 15.1.5.2. ACCESS TO DUCTS AND CONCEALED EQUIPMENT: IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE THE GENERAL CONTRACTOR WITH THE DESIRED LOCATION ON EACH ACCESS DOOR OR PANEL REMOVAL IN CEILING OR WALLS. 15.1.5.3. CLEANING OF PREMISES: REMOVAL OF SCRAPS AND INSTALLATION RELATED DEBRIS FROM AREAS LEAVE ENTIRE INSTALLATION IN A NEAT, CLEAN AND USABLE CONDITION. 15.1.5.4. HOISTING AND SETTING IN PLACE OF ALL FURNISHED HEATING, AIR CONDITIONING, EXHAUST AND MAKEUP AIR EQUIPMENT. 15.1.5.5. EQUIPMENT, FURNISH AND INSTALL THE MECHANICAL EQUIPMENT SPECIFIED ON THE PLANS AND SCHEDULES, OR AN APPROVED EQUAL. 15.1.5.5.a. A SPECIAL WORD OF CAUTION THE ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT SPECIFIED ARE BASED ON THE BEST KNOWLEDGE OF THE PROJECT AT THE TIME OF DESIGN. THE INSTALLING CONTRACTOR MUST VERIFY THE FINAL VOLTAGE REQUIRED PRIOR TO ORDERING THE EQUIPMENT. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY OF SELECTING THE CORRECT VOLTAGE AND IT IS ASSUMED THAT THE VOLTAGES SHOWN ON THE EQUIPMENT SUBMITTALS HAVE BEEN VERIFIED BY THE CONTRACTOR AND ARE CORRECT. THE ENGINEER AND THE OWNER WILL NOT BE RESPONSIBLE FOR ADDITIONAL COST CAUSED BY VOLTAGE CHANGES AFTER THE INITIAL DESIGN. 15.1.5.6. SHEET METAL WORK 15.1.5.6.a. GAUGE AND CONSTRUCTION: GALVANIZED STEEL SHEET METAL IN ACCORDANCE WITH U.M.C., FOR DUCT CONSTRUCTION NOT OUT– RINED IN U.M.C. REFER TO S.M.A.C.N.A. STANDARDS FOR LOW VEL– OCITY DUCT WORK LATEST EDITION. ELBOWS SHALL BE LONG RADIIUS OR SQUARE WITH ARROW TURNING VANES AND TRANSITIONS SHALL BE AT AN ANGLE NO GREATER THAN 15 DEGREES, NO ALUMINUM DUCT WORK WILL BE ALLOWED. ROUND DUCTS MAY BE OF KNOCK DOWN CONSTRUCTION (KD) OR SPIRAL. DUCT, ALL ROUND DUCT ELBOWS TO BE LONG RADIIUS CORDED CONSTRUCTION. 15.1.5.6.b. DUCT SEALING: ALL DUCT AND PLENUM JOINTS AND SEAMS SHALL BE SEALED TO INSURE WATER TIGHTNESS WITH GLENKOTE SEAL/FLEX DUCT SEALANT APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. NO GAP GREATER THAN 1" SHALL BE SEALED. WITHOUT A MESH OR TAPE APPLIED BEFORE MASTIC APPLICATION, PAINTING: ALL DUCTWORK VISIBLE THROUGH OPENINGS SHALL BE PAINTED FLAT BLACK. 15.1.5.6.d. FLEXIBLE DUCT: - MATERIAL: CASCO SILENT FLEX 2 OR APPROVED EQUAL, PRE– INSULATED FLEXIBLE FIBERGLASS DUCT WITH SPUNBONDED NONWOVEN NYLON WITH POROUS SURFACE FOR MAXIMUM ABSORPTION OF SOUND. ENCASED IN A VAPOR BARRIER JACKET, WITH K FACTOR OF 0.24 AT 75° AND MEET THE REQUIREMENTS OF M.F.P.A. 904, 906, FOR AIR DUCTS AND UMC 10-1. 15.1.5.6.d.b. INSTALLATION: INSTALL IN FULLY EXTENDED POSITION USING ONLY THE MINIMUM LENGTH REQUIRED TO MAKE THE CONNECTIONS. SECURE THE INNER JACKET TO CONNECTION WITH TWO WRAPS OF MAUSHA 557 TAPE OR APPROVED UL 181 DUCT TAPE, OR WITH AN APPROVED CLAMP. DUCT TURNS MUST BE GRADUAL, THE MINIMUM INNER RADIIUS OF THE TURN MUST BE EQUAL TO THE DUCT DIAMETER. SUPPORT DUCT AT THREE FEET MAXIMUM OR IN COMPLIANCE WITH LOCAL CODES. 15.1.5.6.e. MANUAL VOLUME DAMPERS: 15.1.5.6.e.a. DAMPERS WITH LOOKING AND INDICATING QUADRANTS TO BE IN– STALLED IN EACH BRANCH OF ALL DUCTS AS INDICATED ON THE DRAWINGS IN ADDITION TO ANY VOLUME CONTROL AT OUTLETS. AFTER FINAL ADJUSTMENT OF SYSTEM, LOCK QUADRANTS AND MARK CLEARLY SHOWING DAMPER POSITION OPEN AND SHUT. HANG INCOMBUSTIBLE RED RIBBON ON HANDLE TO CLEARLY MARK THE DAMPER LOCATION. 15.1.5.6.e.c. DAMPERS IN ROUND DUCTS SHALL BE OF THE SINGLE BLADE TYPE UP TO AND INCLUDING 16" SHALL BE LEON NEOPRENE EXPANDABLE LOW LEAKAGE UNITS, 18" AND ABOVE USE SINGLE BLADE GALVANIZED STEEL DAMPER BLADES. 15.1.5.6.e.d. DAMPERS IN RECTANGULAR DUCTS SHALL BE OF THE SINGLE BLADE TYPE UP TO AND INCLUDING 10"x20" AS MANUFACTURED BY DE LEON OR APPROVED EQUAL ABOVE 10"x20" DAMPERS SHALL BE OPPOSED BLADE TYPE AS MANUFACTURED BY TERRI AIR BALANCE OR APPROVED EQUAL. 15.1.5.6.f. SMOKE/FIRE DAMPERS: WHERE REQUIRED BY LOCAL CODES SHALL BE LISTED FOR THE USAGE INTENDED AND FURNISHED AND INSTALLED BY THE AIR CONDITIONING CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR. 15.1.5.7. INSULATION: 15.1.5.7.a. DUCT LINING: ALL SUPPLY AND RETURN DUCTWORK AND PLENUMS SHOWN ON THE DRAWINGS AS LINED SHALL BE INSTALLED WITH 1" THICK FIBERGLASS 1-1/2" DENSITY DUCT LINER FACED WITH FIRE RESISTANT COATING MEETING THE REQUIREMENTS OF N.E.P.A. 804 AND INSTALLED AS PER THE MANUFACTURERS RECOMMENDATIONS. 15.1.5.7.b. DUCT DIMENSIONS SHOWN ON THE DRAWINGS FOR LINED UNITS ARE INSIDE DUCT INSUL– ATION AND MATERIAL SIZES MUST VARY TO MAKE ALLOWANCE FOR DUCT LINER THICKNESS. 15.1.5.7.b. DUCT INSULATION: ALL SUPPLY AIR AND RETURN AIR PLENUMS AND DUCTS SHALL BE WRAPPED OR LINED WITH INSULATING ULTRAUGHT MATERIAL WITH 6" R OR BETTER COMPLETE WITH A VAPOR BARRIER. NO UNPROTECTED RAR FIBERGLASS MATERIAL WILL BE ALLOWED IN CONTACT WITH SUPPLY OR RETURN AIR IN DUCTS, SHIFTS OR CEILING PLENUMS.	

MECHANICAL GENERAL NOTES	
1. ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE UNIFORM MECHANICAL CODE, UNIFORM BUILDING CODE, AND ALL OTHER APPLICABLE CODES AND REGULATION, INCLUDING CALIFORNIA ENERGY CONSERVATION STANDARDS DIVISION 1-20 (WHERE APPLICABLE). 2. COORDINATE ENTIRE HVAC SYSTEM WITH THE WORK OF ALL OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. PROVIDE FITTINGS, JOINTS, AND TRANSITIONS AS REQUIRED FOR A COMPLETE WORKABLE INSTALLATION. 3. COORDINATE THE LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLS WITH THE ARCHITECTURAL RETROFITING PLAN, ELECTRICAL LIGHTING LAYOUT, ARCHITECTURAL ROOM ELEVATIONS. 4. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION. 5. MAINTENANCE LABEL SHALL BE AFFIXED TO ALL MECHANICAL EQUIPMENT AND MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNER'S USE. 6. ALL LINE VOLTAGE WIRING SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE ELECTRICAL DRAWINGS. ALL ELECTRICAL WORK RELATED TO THE MECHANICAL INSTALLATION SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF ALL GOVERNING BODIES HAVING JURISDICTION THEREOF. 7. ALL DUCT WORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS, OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. 8. MANUAL VOLUME DAMPERS SHALL BE PROVIDED IN ALL DUCT BRANCHES TO INDIVIDUAL DIFFUSERS, GRILLES AND REGISTERS SUPPLY & EXHAUST DUCTS). 9. ALL EQUIPMENT, DUCTS, PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHER-PROOFED. 10. BEFORE BEGINNING ANY WORK, CONTRACTORS SHALL THOROUGHLY EXAMINE ALL EXISTING CONDITIONS, POINTS OF CONNECTION, SIZES, LOCATIONS, AND EQUIPMENT. 11. THE CONTRACTOR SHALL REPORT TO THE ENGINEER IMMEDIATELY ANY INTERFERENCE BETWEEN TRADES OR BUILDING OBSTRUCTIONS. ALL WORK SHALL CEASE IN THAT AREA UNTIL RESOLVED BY THE ARCHITECT. 12. CONTROLS EXPOSED TO WEATHER SHALL BE INSTALLED IN WEATHERPROOFED ELECTRICAL BOX WITH HINGED COVERS. 13. ALL MATERIAL AND FIXTURES SHALL BE NEW, UNLESS OTHERWISE NOTED, AND OF THE BEST GRADE OF THE RESPECTIVE KIND, FREE FROM ALL DEFECTS. 14. MATERIALS FOR SIMILAR USE SHALL BE OF SAME TYPE AND MANUFACTURE, UNLESS OTHERWISE SPECIFIED. 15. DRAWINGS – THE CONTRACTOR SHALL PROVIDE AND KEEP UP-TO-DATE A RECORD SET OF BLUE LINE PRINTS AS-BUILT DRAWINGS. 16. THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL PIPING AND DUCTWORK (WHERE APPLICABLE) AT POINTS OF CONNECTION WITH (E) RECOMMENDATIONS. NO GAP GREATER THAN 1" SHALL BE ALLOWED. ON THESE PLANS ARE APPROXIMATE AND MUST BE CONFIRMED ON SITE. 17. ALL A.C. UNITS SHALL BE SEISMICALLY RESTRAINED PER APPLICABLE CODES. 18. HVAC EQUIPMENT SHALL BE CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION TO COMPLY WITH EFFICIENCY STANDARDS PER TITLE 24 SECTION 2-231.4(A)(9) 19. ALL DUCT SIZES FOR REFERENCE ONLY. DUCT SIZES INSTALLED MAY VARY FROM THAT ON PLANS. CONTRACTOR RESPONSIBLE FOR PROPER DUCT SIZE INSTALLATION TO MEET AIRFLOW REQUIREMENTS SPECIFIED. 20. PROVIDE ISOLATING VALVES AND UNIONS ON PIPING ADJACENT TO ALL CONTROL VALVES AND OTHER APPURTENANCES OR EQUIPMENTS. LOCATE VALVES SO THE EQUIPMENT CAN BE REMOVED WITHOUT DISMANTLING ANY BRANCH LINES. 21. PITCH PIPELINES AS REQUIRED FOR PROPER DRAINAGE AND ELIMINATION OF AIR. 22. INSTALL DRAIN VALVES AT LOW POINTS OF EACH SYSTEM TO ENABLE COMPLETE DRAINAGE, AND AIR VENTS AT ALL HIGH POINTS IN PIPING SYSTEM TO ENABLE COMPLETE AIR VENTING. 23. CONTRACTOR TO PROVIDE COMPLETE SEISMIC ANCHORAGE AND BRACING FOR ALL MECHANICAL EQUIPMENT WEIGHING OVER 400 POUNDS THAT IS DIRECTLY MOUNTED ON THE FLOOR OR ROOF, AND ALL MECHANICAL EQUIPMENT WEIGHING OVER 20 POUNDS THAT IS SUSPENDED FROM THE FLOOR, ROOF, WALL OR SUPPORTED BY VIBRATION ISOLATORS. 24. ALL SERVICEABLE COMPONENTS AND CONTROLS OF THE AIR CONDITIONING UNITS SHALL BE ACCESSIBLE FOR SAFE OPERATIONS, EXAMINATIONS AND MAINTENANCE. 25. SEAL ALL OPENINGS AROUND PIPING AND DUCTWORK PENETRATING FIRE RESISTIVE RATED WALLS AND FLOORS TO MAINTAIN RATING INTEGRITY. 26. COORDINATE EXACT LOCATION OF CORE DRILLING, CUTTING OF FLOOR SLABS OR WALLS OF THE BUILDING WITH THE ARCHITECTURAL AND STRUCTURAL PLANS. 27. DUCT INSTALLED IN LOCATION SUBJECT TO PHYSICAL DAMAGE SHALL BE PROTECTED BY SUBTLE GUARDS OR BARRIERS. 28. DUCT SHALL BE MADE OF METAL. 29. MATERIAL EXPOSED WITHIN DUCTS OR PLENUMS SHALL HAVE A FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING OF NOT MORE THAN 50 WHEN TESTED AS A COMPOSITE PER APPLICABLE TESTING STANDARD. 30. ALL APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FASTENED IN PLACE PER BUILDING CODE REQTS OR APPLICABLE MANUFACTURER INSTALLATION REQUIREMENTS. 31. MECHANICAL EQUIPMENT SHALL BE LABELED W/PERMANENT & UNIQUE IDENTIFICATION AS TO THE SPACE IT SERVES. 32. ALL APPLIANCES AND PLUMBING VENTS AND THE DISCHARGE OUTLET OF EXHAUST FANS SHALL BE AT LEAST TEN (10) FEET IN A HORIZONTAL DIRECTION, OR THREE (3) FEET ABOVE THE OUTSIDE-AIR INTAKES FOR HVAC UNITS. 33. COMBUSTION AIR OPENINGS SHALL BE COVERED W/CORROSION RESISTANT SCREEN OF 1/4 INCH MESH, EXCEPT AS PROVIDED IN SECTION 704.3. 34. FACTORY MADE AIR DUCT (IF USED) SHALL COMPLY WITH REFERENCE CHAPTER 17. SUPPORT OF DUCTS: INSTALLER SHALL PROVIDE THE MANUFACTURER'S FIELD FABRICATION AND INSTALLATION INSTRUCTION PER CMC 604. 35. LINING MATERIALS INSTALLED WITHIN DUCTS SHALL HAVE MOLD, HUMIDITY AND EROSION RESISTANT SURFACE TO MEET THE REQUIREMENTS OF CMC STANDARDS 6-1 (CMC 604.2). 36. EXHAUST DUCTS UNDER POSITIVE PRESSURE AND VENTING SYSTEMS SYSTEMS FOR APPLIANCES SHALL NOT EXTEND INTO OR PASS THROUGH DUCTS OR PLENUMS (PER 95.602.1). 37. MINIMUM EXHAUST RATE FROM TOILET ROOMS, KITCHENS SHALL COMPLY WITH CMC TABLE 4-4. MIN RATE FOR PRIVATE BATHROOM 25/50 CFM/UNIT, PUBLIC BATHROOM 50/70 CFM/UNIT– SHALL ALSO COMPLY WITH NOTE #5 OF CMC TABLE 4-4.	

HVAC LEGEND			
STANDARD HVAC LEGEND			
SYMBOL	ABBR.	DESCRIPTION	
		EQUIPMENT DESIGNATION	
	G	NATURAL GAS PIPING	
		RECTANGULAR DUCT ELBOW TURNED DOWN	
		RECTANGULAR DUCT ELBOW TURNED UP	
		DUCT ARRAY SIZE IN INCHES – FIRST DIMENSION IS SIZE SHOWN	
		DUCT TRANSITION	
		RECTANGULAR TO ROUND DUCT TRANSITION	
		FLEXIBLE DUCT	
		ROOM THERMOSTAT OR TEMPERATURE SENSOR	
		RECTANGULAR ELBOW WITH TURNING VANES	
		RADIUS ELBOW	
		BRANCH CONNECTION-45° ENTRY	
		ROUND BRANCH TAKEOFF	
		FAN FLEXIBLE CONNECTION	
	FD	FIRE DAMPER WITH ACCESS DOOR	
		CEILING DIFFUSER	
		CEILING RETURN REGISTER OR GRILLE	
		CEILING EXHAUST REGISTER OR GRILLE	
		SIDEWALL SUPPLY AIR REGISTER	
		SIDEWALL EXHAUST/RETURN REGISTER OR GRILLE	
	P.O.C.	NEW TO EXISTING POINT OF CONNECTION	
		CONDENSATE DRAIN TRAP AND VENT	
	SAR,RA,SG,TO	SUPPLY AIR, RETURN AIR, EXH AIR, OUTSIDE AIR	
	RR, RG, SR, TO	RETURN REGISTER, RETURN GRILLE, SUP REGISTER, DUCTWORK GRILLE	
	TYP.	TYPICAL	
	CONT.	CONTINUE	
		KEY NOTE DESIGNATION	
38. THE REQUIRED OUTSIDE AIR OR RETURN AIR FOR THE HEATING OR COOLING AIR SYSTEM SHALL NOT BE TAKEN FROM (CMC 311.3):			
a. 10 FEET FROM AN APPLIANCE VENT OUTLET, DISCHARGE OUTLET FROM EXHAUST FAN			
b. WHERE IT IS LESS THAN 10 FEET ABOVE THE SURFACE OF PUBLIC WAY, SIDEWALK, STREET ALLEY OR DRIVEWAY.			
c. A HAZARDOUS OR INSTANTANEOUS LOCATION, REFRIGERATION MACHINERY ROOM			
d. A CLOSET, BATHROOM, TOILET ROOM OR KITCHEN.			
e. ROOM OR SPACE CONTAINING FUEL BURN APPLIANCE SERVE AS SOURCE FOR RETURN AIR			
39. ENVIRONMENTAL AIR DUCT EXHAUST SHALL BE TERMINATED A MIN 3 FEET FROM PROPERTY LINE AND 3 FEET FROM OPENING INTO BUILDING (CMC 504.5)			
STANDARD ABBREVIATION			
AC	AIR CONDITIONING	EXH	EXHAUST
ACH	ARCHITECT OR ARCHITECTURAL	FLA	FULL LOAD AMPS
BDD	BACKDRAFT DAMPER	FLEX	FLEXIBLE
BHP	BRAKE HORSEPOWER	FPL	FLOOR
BTUH	BRITISH THERMAL UNITS/HOUR	FT	FEET PER MINUTE
CD	CEILING DIFFUSER	HP	FOOT, FEET
CFM	CUBIC FEET PER MINUTE	CC	GENERAL CONTRACTOR
CLE	COOLING	GR	GRILLE
CND	CONDENSATE	HP	HORSEPOWER
DB	DRY BULB TEMPERATURE	OP	OUTSIDE AIR
DEGREES FAHRENHEIT		PA	PIPE
DIAMETER		RA	RETURN AIR
DFF	DIFFUSER	RAG	RETURN AIR GRILLE
DOWN	DOWN	RET	RETURN AIR REGISTER
DR	DRAIN	RET	RETURN
DWG	DRAWING	RPM	REVOLUTIONS PER MINUTE
ENT	ENTERING AIR TEMPERATURE	SGR	SUPPLY, GRILLE, REGISTER
ESR	ENTERING DRY BULB TEMPERATURE	SQ	SQUARE FEET
E	ELECTRICAL	TEMP	TEMPERATURE
EQUIP	EQUIPMENT	TEMP	TEMPERATURE
EXT	EXTERNAL STATIC PRESSURE	TEMP	TEMPERATURE
ENTERING NET BULB TEMPERATURE		TEMP	TEMPERATURE
HEATING		TEMP	TEMPERATURE
HVAC	HEATING, VENTILATING & AC	TSP	TOTAL STATIC PRESSURE
IN	IN	V	VOLUME
INCH	INCH	VOL	VOLUME
INSUL	INSULATION	VOL	VOLUME
ISOLMNT	ISOLATION	V	VOLUME
LE	LEAVING AIR TEMPERATURE	W	WATT
POUNDS		W/O	WITH OR WITHOUT
LDB	LEAVING DRY BULB TEMPERATURE	W	WET BULB TEMPERATURE
LDB	LEAVING WET BULB TEMPERATURE	WC	WATER COLUMN
LWT	LEAVING WATER TEMPERATURE	WG	WATER GAUGE
MAX	MAXIMUM	W	WATER
MIN	MINIMUM	MIN	MINIMUM
MECH	MECHANICAL		
APPLICABLE CODES			
1. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING:			
1.1. PART 1 – 2016 CALIFORNIA MECHANICAL CODE			
1.2. 2016 CALIFORNIA BUILDING CODE			
1.3. 2016 CALIFORNIA ELECTRICAL CODE			
1.4. 2016 CALIFORNIA PLUMBING CODE			
1.5. 2016 CALIFORNIA ENERGY CODE			
1.6. 2016 CALIFORNIA ELEVATOR SAFETY CONSTRUCTION CODE			
1.7. 2016 CALIFORNIA FIRE CODE			
1.8. 2016 CALIFORNIA GREEN BUILDING CODE			
SEISMIC RESTRAINT SCHEDULE			
THE SEISMIC SYSTEM SHALL BE DESIGNED TO 2016 CBC, ASCE 7-10 AND SMACNA SEISMIC RESTRAINT MANUAL			

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SUBMITTAL	12/12/17
PC SUBMITTAL	05.07.2018

PROJECT NAME:

PTAC UNITS (HEAT PUMPS)												
UNIT NO.	MANUFACTURER & MODEL NO.	AREA SERVED	C.F.M.	VENT C.F.M.	COOLING CAPACITY (BTUH) TOTAL	HEATING CAPACITY (BTUH) TOTAL	COEFF. OF PERFORM.	ELECTRICAL VOLTAGE	ELECTRIC HEAT	MCA	OPR. (LBS.)	REMARKS
1	REHMAN 524072	ALL UNITS (TYP.)	340	95	7,000	11,8	7000	3.4	208/1/60	2.80W	13.1	120
PROVIDE WITH 18 GAUGE INSULATED WALL ELBOW, CONDENSATE REMOVAL KIT, ELECTRIC SUB-BASE KIT, ARCHITECTURAL GRILLE, AND WALL MOUNTED THERMOSTAT												

DX SPLIT SYSTEM FAN COIL UNIT SCHEDULE																
TAG	MFR & MODEL	NOM. CAP. (TONS)	AREA SERVED	FIRST CO. CERTIFIED REF. NUMBER	TYPE	EQUIP SERVED	SUPPLY AIR (CFM)	ESP (IN WG)	FILTERS MERV	ELECTRICAL			COOLING TOTAL (BTUH)	HEATING TOTAL (BTUH)	OPER. WT. (LBS)	
										V/PH	MCA	MOTOR HP	MCCP			
10-1	FIRST COMPANY 2800C-C	2.0	MANAGER ROOM	—	VERTICAL	10-1	750	0.3	8	208/1	6.0	1/2	15	23,400	24,000	75
NOTES																
1. FUSED DISCONNECT PROVIDED BY ELEC CONTRACTOR.																
2. PROVIDE MATCHING OUTDOOR CONDENSER UNIT. REFER TO CONDENSING UNIT SCHEDULE.																
3. PROVIDE WITH SEVEN DAY PROGRAMMABLE THERMOSTAT																
4. SEE DETAIL 5 ON THIS SHEET FOR INSTALLATION .																
5. PROVIDE WITH ENCLOSURE AND NON-LOUVERED ACCESS PANEL.																

AIR-COOLED CONDENSING UNIT SCHEDULE - RESIDENTIAL UNITS													
TAG	MFR & MODEL	LOCATION	NOM. CAP. (TONS)	SEER	EER	HSPF	REFRIG	V/PH	ELECTRICAL MCA	MOCP	COOLING CAP. (BTUH)	HEATING CAP. (BTUH)	OPER. WT. (LBS)
1	CARRIER 25R404H	on Grade	2.0	14.5	12.0	8.5	R-410A	208/1	16.5	25	23,400	24,000	200
NOTES													
1. FUSED DISCONNECT PROVIDED BY ELEC. CONTRACTOR.													
2. CAPACITY RATED AT AIR STANDARD CONDITIONS.													
3. SEE 6 & 7 ON THIS SHEET FOR INSTALLATION DETAIL.													
4. PROVIDE WITH ALL FACTORY RECOMMENDED ACCESSORIES FOR LONG LINE APPLICATION.													

EXHAUST FAN SCHEDULE												
TAG	MFR. & MODEL	LOCATION	AREA SERVED	DRIVE	AIR FLOW (CFM)	SP (IN WG)	SONES	ELECTRICAL WATT	V/PH	UNIT SIZE (LxWxH)	OPER. WT. (LBS)	NOTES
1	ARNOSS FANCO	CEILING	RESTROOM	DIRECT	68	0.35	1.0	14.0	120/1	11"x11"x8"	---	1-5
2	ARNOSS FANCO	CEILING	RESTROOM	DIRECT	68	0.35	1.0	14.0	120/1	11"x11"x8"	---	1-6
NOTES 1. STARTER AND FUSED DISCONNECT PROVIDED BY ELECTRICAL CONTRACTOR. 2. PROVIDE NON-OVERLOADING MOTOR. 3. PROVIDE NEMA PREMIUM EFFICIENCY MOTOR. 4. SEE DETAIL 1 ON THIS SHEET FOR INSTALLATION DETAIL. 5. PROVIDE BACKDRAFT DAMPER. 6. PROVIDE WITH BUILT-IN HUMIDITY SENSOR.												

RESIDENTIAL TRANSFER AIR FAN SCHEDULE									
TAG	MFR. & MODEL	LOCATION	BLOWER	MOTOR	DIMENSIONS		NOTES		
1	ARESHARE AB1	SEE PLANS	75 CFM	115 VOLTS	60 HZ	DIFFUSER	BLOWER GRILLE	1,2	
						3" X 15 1/8"	7 3/4" X 15 3/4"		
2	AR KING	SEE PLANS	80 CFM	115 VOLTS	60 HZ	FAN HOUSING		1,4,5	
						14 7/8" X 11 1/2" X 10 1/8"			
NOTES									
1. TRANSFER AIR FAN SHALL BE ENERGY STAR.									
2. WALL STUDS MUST BE SPACED A MINIMUM OF 16" O.C. SEE DETAIL 3 IN THIS SHEET.									
3. WALL CAVITY BETWEEN BLOWER IN THIS CASE AND DIFFUSER NEED TO BE LINED WITH DUCT-BORED. SEE DETAIL 4 ON THIS SHEET.									
4. STATIC PRESSURE IS 0.30 (INCHES OF W.G.)									
5. OUTLET FAN BONES @ 0.2" STATIC PRESSURE IS 0.5									

CONDENSING UNIT DETAIL

SCALE: NONE 9

CEILING SUPPLY AIR DIFFUSER

SCALE: NONE 10

CEILING DIFFUSER (SPACE SAVING)

SCALE: NONE 11

VERTICAL FURNACE MOUNTING DETAIL

SCALE: NONE 7

CONDENSING UNIT MOUNTING DETAIL

SCALE: NONE 8

BLOWER INTAKE AND DIFFUSER INSTALLATION DETAIL

SCALE: NONE 4

AS1 GRILL AND DIFFUSER INSTALLATION DETAIL

SCALE: NONE 5

SIDE WALL DIFFUSER CONNECTION DETAIL

SCALE: NONE 6

CEILING MOUNTED EXHAUST FAN DETAIL

SCALE: NONE 1

THERMOSTAT INSTALLATION DETAIL

SCALE: NONE 2

SPLIT SYSTEM CONTROL DIAGRAM

SCALE: NONE 3



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DRAWING REVISION LOG

SUBMITTAL	12/12/17
PC SUBMITTAL	05.07.2018

PROJECT NAME:

DESERT HAVEN
(QUEENS MOTEL)
RE-DEVELOPMENT

PROJECT LOCATION:

16959 STODDARD RD.
VICTORVILLE, CA 92395

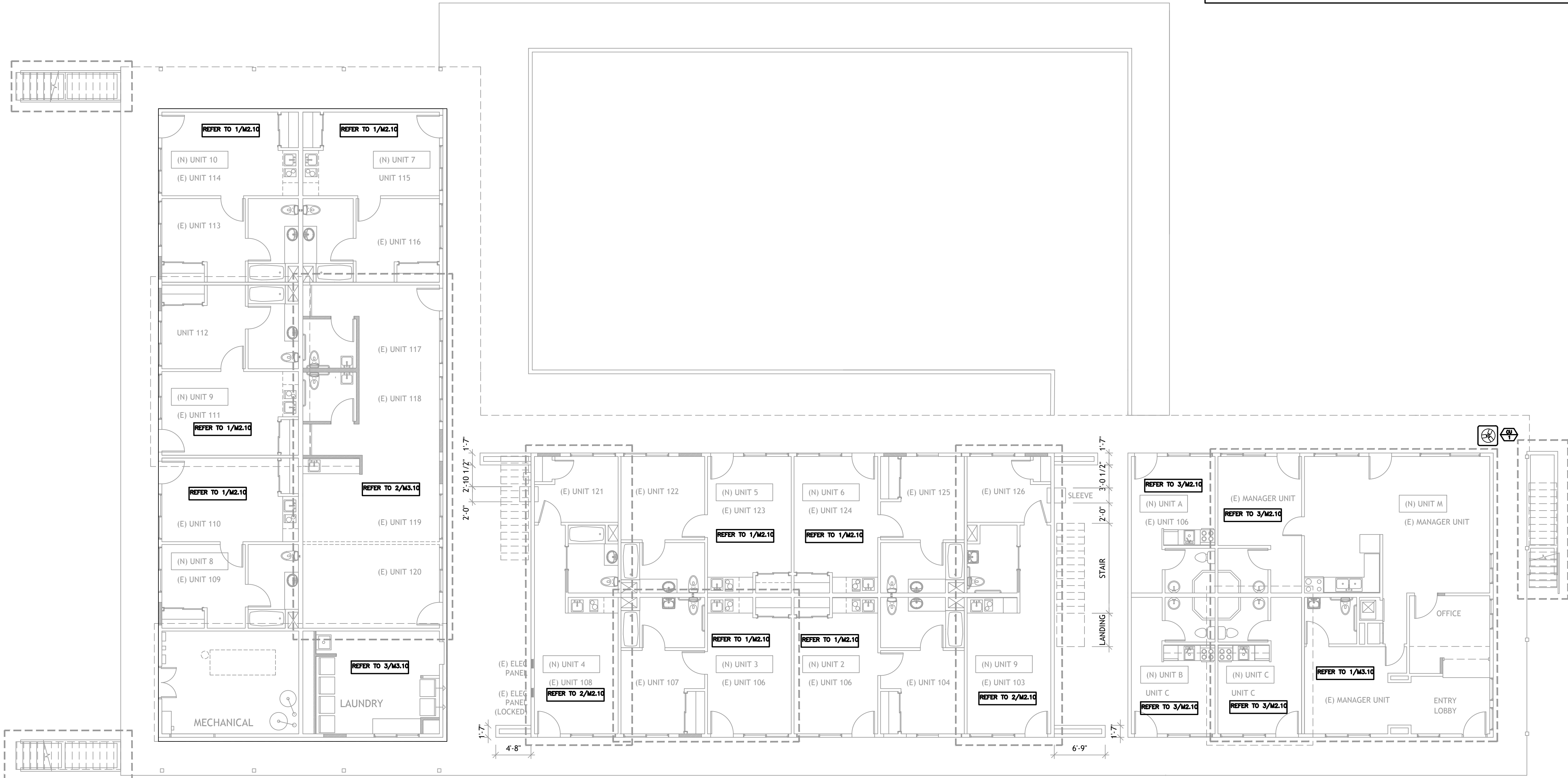
SHEET TITLE:

MECHANICAL GROUND
FLOOR PLAN

M1.10

CONDENSING UNITS GENERAL NOTES:

1. REFER TO EQUIPMENT SCHEDULES ON SHEET M0.10 FOR CONDENSING UNIT AND MATCHING FORCED AIR UNIT CALL-OUT. SEE 8&9/M0.10 FOR INSTALLATION DETAIL.
2. INSTALLING CONTRACTOR SHALL CONSULT EQUIPMENT MANUFACTURER RECOMMENDATIONS FOR LONG LINE APPLICATIONS FOR REFRIGERANT PIPING RUNS OVER 50FT.
3. REFRIGERANT LINES SHALL BE ROUTED IN WALLS OR CHASES DOWN TO INDOOR FAU'S.CONTRACTOR SHALL COORDINATE EXACT ROUTING OF REFRIGERANT LINES IN THE FIELD.
4. CONDENSING UNITS SHALL BE INSTALLED ON BUILT-UP PLATFORM. CONDENSING UNITS SHALL BE SECURED TO PLATFORM. CONDENSING UNITS SHALL BE MOUNTED ON 3/4" NEOPRENE PADS.
5. REFER TO ELECTRICAL PLANS FOR MECHANICAL EQUIPMENT DISCONNECT SWITCH LOCATIONS.
6. CONDENSING UNIT SHALL BE LABELED AS TO THE SPACE IT SERVES.





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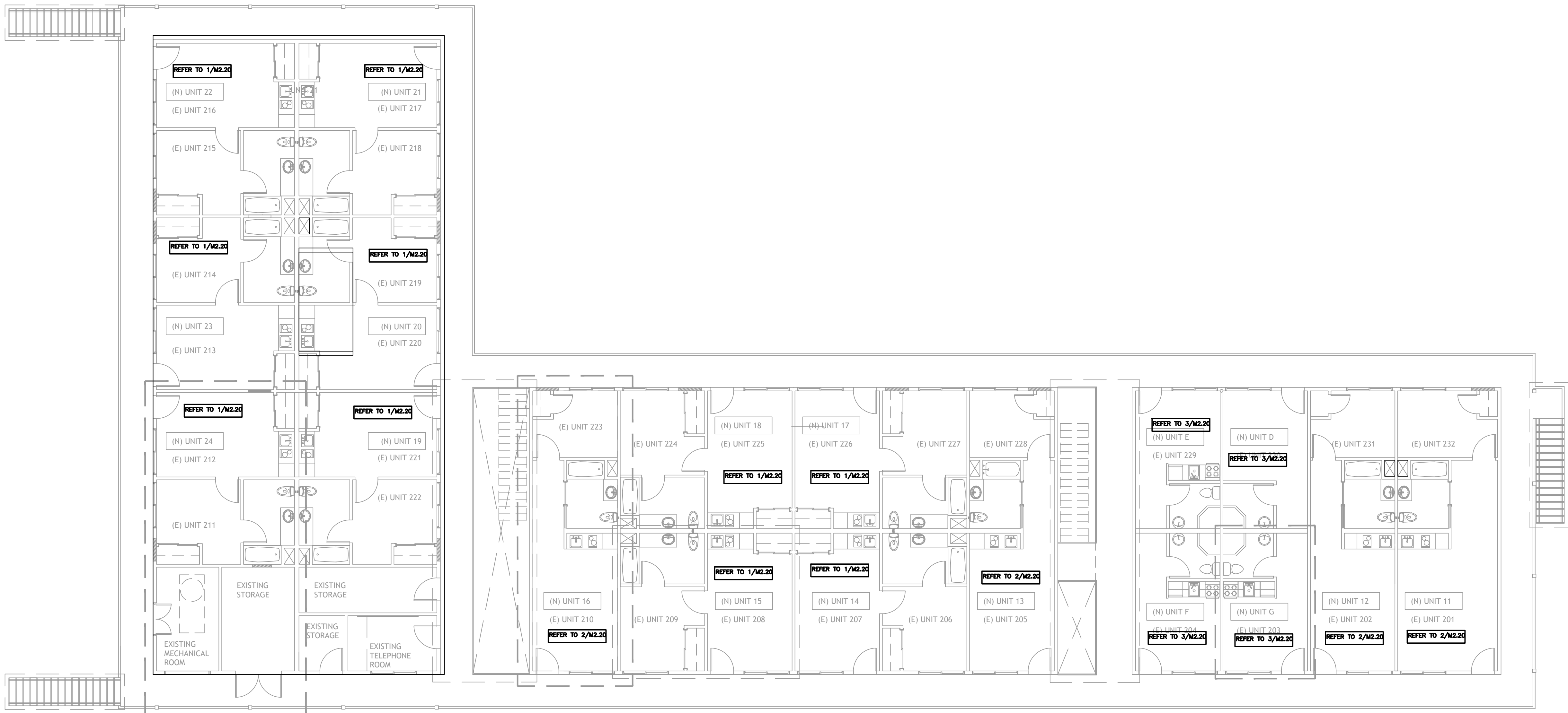
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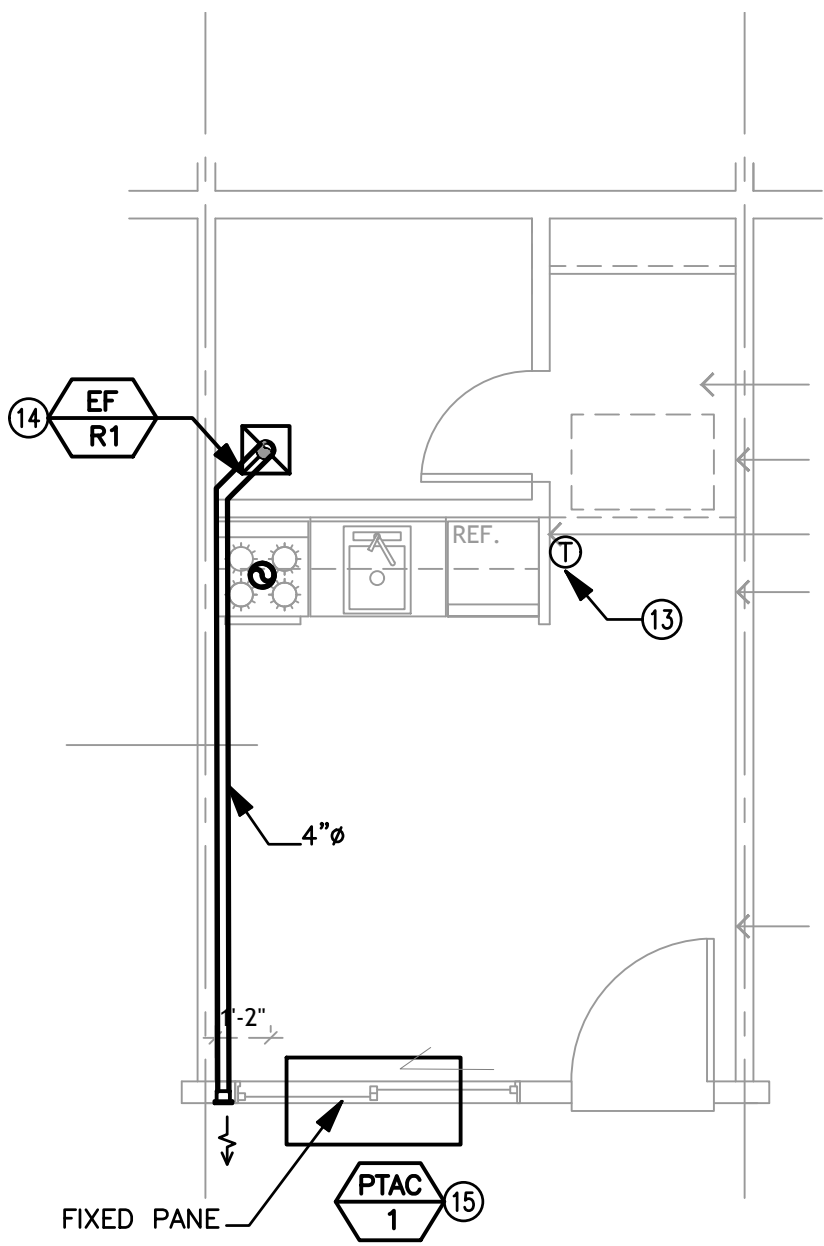
MECHANICAL SECOND
FLOOR PLAN

M1.20

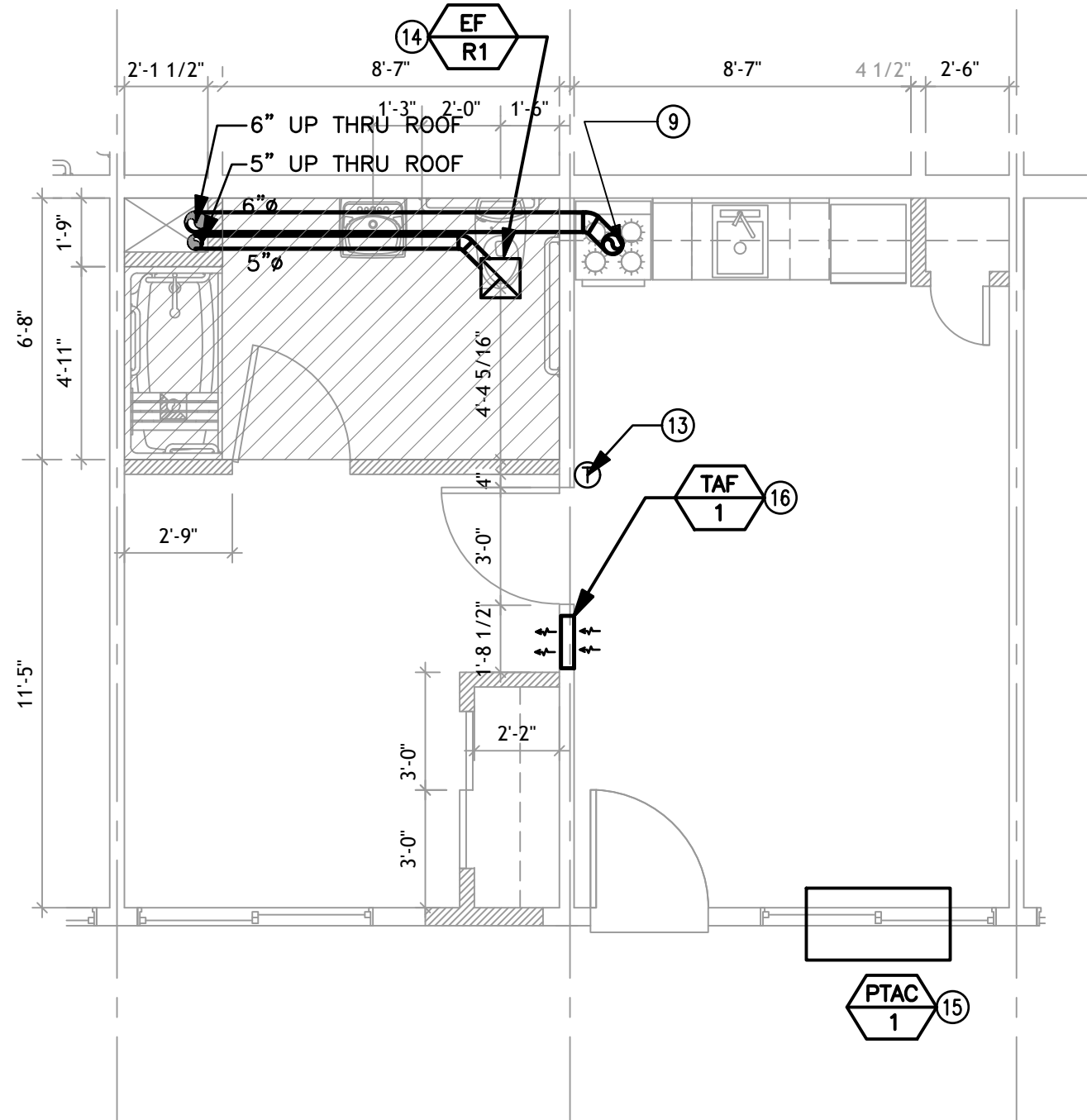


MECHANICAL SECOND FLOOR PLAN

SCALE: 1/18" = 1'-0"

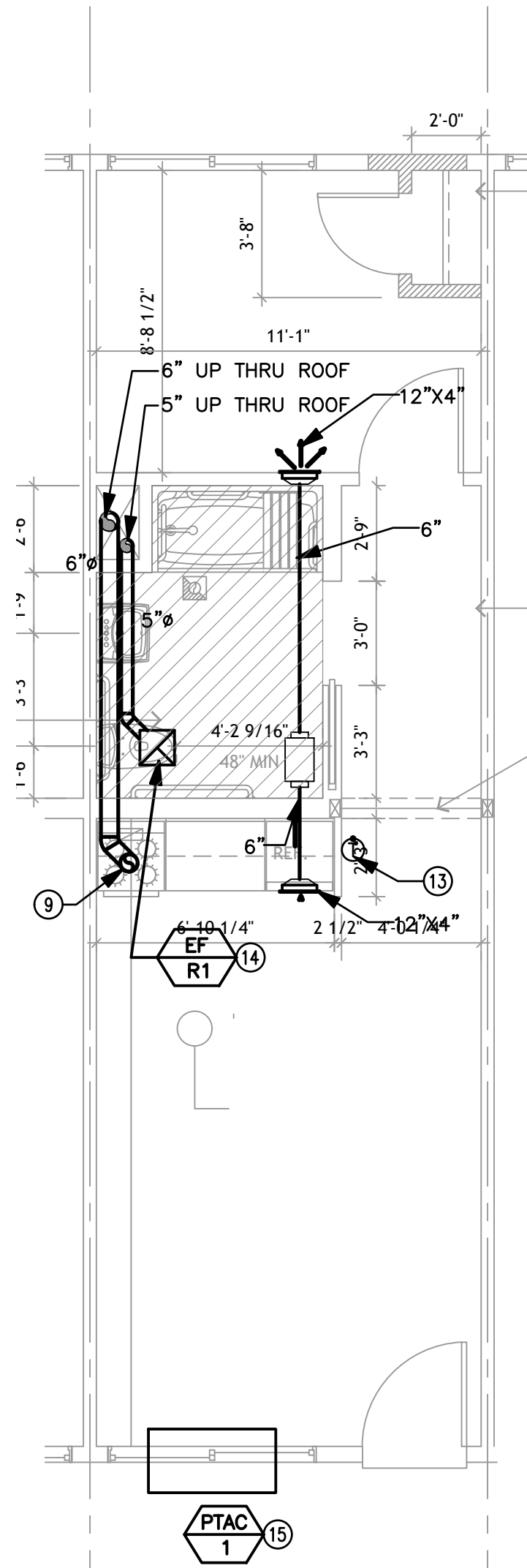


NON-ACCESIBLE EFFICIENCY UNITS
MECHANICAL PLANS GROUND FLOOR
3 Scale: 1/4" = 1'-0"



1 SIDE-BY-SIDE ACCESSIBLE UNIT (UNIT 3)
REMODELED PLAN
SCALE: 1/4" = 1'-0"

TYPICAL SIDE-BY-SIDE ACCESSIBLE REMODED GROUND
FLOOR UNIT MECHANICAL PLAN (TYP. UNITS: 2,3,5-10)
1 Scale: 1/4" = 1'-0"



3 IN-LINE ACCESSIBLE UNIT (UNIT 9)
REMODELED PLAN
SCALE: 1/4" = 1'-0"

TYPICAL IN LINE REMODED ACCESSIBLE GROUND
FLOOR UNITS MECHANICAL PLANS (TYP. UNIT: 1&4)
2 Scale: 1/4" = 1'-0"

KEYNOTES

- FOR SYSTEM INSTALLATION REFER TO DETAIL 7 SHEET M0.10.
- REFER TO FAN COIL UNIT SCHEDULE ON SHEET M0.10.
- LINED SUPPLY AIR PLENUM. PROVIDE FLEXIBLE CONNECTION AT INLET OF FAN COIL UNIT.
- FOR SYSTEMS CONTROLS DIAGRAM REFER TO DETAIL 3, SHEET M0.10
- ROUTING OF AC REFRIGERANT PIPING TO CONDENSING UNIT SHALL TAKE THE SHORTEST DISTANCE POSSIBLE. FOR SIZING, REFER TO SCHEDULE ON SHEET M0.11. REFER TO ARCHITECTURAL PLANS FOR CONDENSING UNIT LOCATIONS. PROVIDE LONG LINE KIT FOR RUNS LONGER THAN 50 FEET. MARK REFRIGERANT LINES MULTIPLE TIMES IN CONCEALED PLACES AS FOLLOWS: CU-UNIT#/CC-UNIT#.
- REFER TO DETAIL 10 & 11, SHEET M0.10 FOR SUPPLY/RETURN AIR REGISTER CONNECTION.
- REFER TO DETAIL 6, SHEET M0.10 FOR SIDEWALL SUPPLY AIR REGISTER.
- FOR AIR DISTRIBUTION REFER TO MECHANICAL SCHEDULE ON SHEET M0.10.
- CONNECT 6"Ø TO RANGE HOOD EXHAUST DUCT OUTLET. TERMINATE WITH CODE APPROVED WALL/CEILING CAP. RANGE HOOD EXHAUST SHALL BE A MINIMUM OF 100 CFM. INSTALL PER RANGE HOOD MANUFACTURERS RECOMMENDATIONS.
- REFER TO EXHAUST FAN SCHEDULE ON SHEET M0.10. REFER TO DETAIL 1, M0.10.
- 4" SMOOTH METAL DRYER VENT TO CODE APPROVED WALL. TERMINATION/CEILING TERMINATION WITH BACKDRAFT DAMPER. DRYER VENT SHALL BE METAL AND SHALL HAVE SMOOTH INTERIOR SURFACES. REFER TO DETAIL 2, M0.40. DRYER PROVIDED BY OWNER AND SPECIFIED IN DETAIL 2/M0.40 IS CAPABLE OF SUPPORTING A VENT LENGTH OF 45 FEET WITH (2) 90 DEGREE ELBOWS. THE LONGEST DRYER VENT IN THE PROJECT IS LESS THAN 45 FEET IN LENGTH WITH (2) 90 DGREE ELBOWS; (2) 45 DGREE ELBOWS ARE EQUAL TO (1) 90 DEGREE ELBOW PER MANUFACTURER'S SPEC'S AND AS SHOWN IN THE DETAIL.
- EXHAUST AIR DUCTS SHALL TERMINATE NOT LESS THAN 3 FEET FROM OPENINGS INTO BUILDING. EXHAUST AIR TERMINATION SHALL BE IN COMPLIANCE WITH C.M.C. SECTION 5.2.2.1
- REFER TO DETAIL 2, SHEET M0.10 FOR THERMOSTAT MOUNTING.
- SEE EXHAUST FAN SCHEDULE ON SHEET M0.10 & DETAIL 1/M0.10.
- SEE PTAC UNITS SCHEDULE ON SHEET M0.10.
- SEE TRANSFER AIR FAN SCHEDULE ON SHEET M0.10 AND DETAIL 4/M0.10 & 5/M0.10.
- 14"x12" COMBUSTION AIR OPENING WITH METAL LOUVERS.

THE SIZING OF THE DUCT SYSTEM SHOWN ON THE MECHANICAL PLANS SHALL COMPLY WITH ACCA MANUAL Q OR ANOTHER APPROVED METHOD PER SECTION 601.2 OF THE 2016 CALIFORNIA MECHANICAL CODE.

GENERAL NOTES

- REFER TO ARCHITECTURAL PLANS FOR LOCATION OF SOFFITS. RUN DUCTS IN SOFFITS BELOW RATED CEILING ASSEMBLY UNLESS NOTED OTHERWISE.
- FLEXIBLE DUCT CAN BE USED IN PLACE OF SHEET METAL PER THE FOLLOWING:
 - MATERIAL: CASCO SILENT FLEX 2 OR APPROVE EQUAL. PRE-INSULATED FLEXIBLE FIBERGLASS DUCT WITH SPUNBONDED NONWOVEN NYLON WITH POROUS SURFACE FOR MAXIMUM ABSORPTION OF SOUND ENCASED IN A VAPOR BARRIER JACKET. WITH K FACTOR OF 0.24 AT 75' AND MEET THE REQUIREMENTS OF N.F.P.A. 90A, & 90B.
 - INSTALLATION: INSTALL IN FULLY EXTENDED POSITION USING ONLY THE MINIMUM LENGTH REQUIRED TO MAKE THE CONNECTIONS. SECURE THE INNER JACKET TO CONNECTION WITH TWO WRAPS OF NAUSAHA 557 TAPE OR APPROVED UL 181 DUCT TAPE, OR WITH AN APPROVED CLAMP. DUCT TURNS MUST BE GRADUAL, THE MINIMUM INNER RADIUS OF THE TURN MUST BE EQUAL TO THE DUCT DIAMETER. SUPPORT DUCT AT THE THREE FEET MAXIMUM OR IN COMPLIANCE WITH LOCAL CODES.

CONTRACTOR SHALL PROVIDE VOLUME DAMPERS WHERE INDICATED ON THE PLANS. CONTRACTOR SHALL PERFORM THEIR OWN AIR BALANCE AND PROVIDE ADDITIONAL VOLUME DAMPERS (IF REQUIRED) AS DIRECTED BY ENGINEER TO MAKE CERTAIN THAT SUPPLIED AIR WILL BE DELIVERED AT THE AIR QUANTITIES (CFM) INDICATED.

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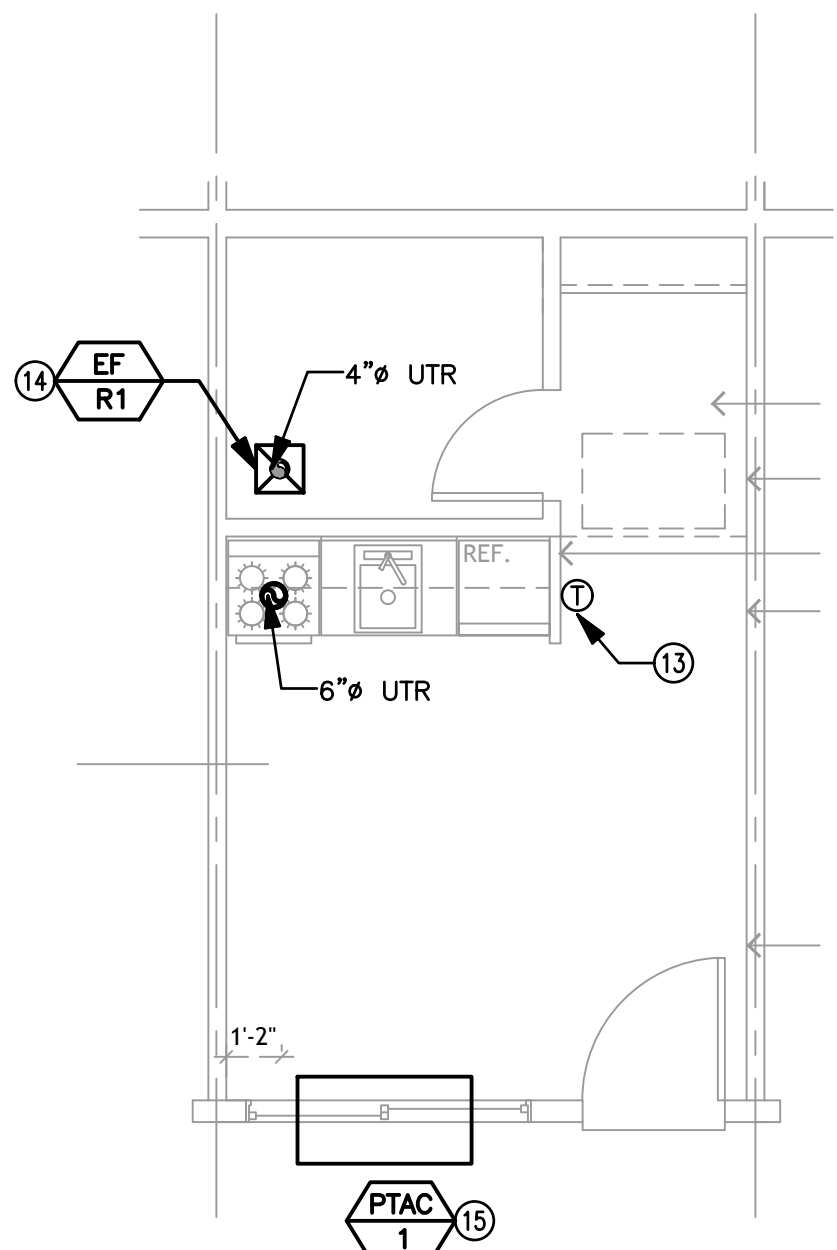
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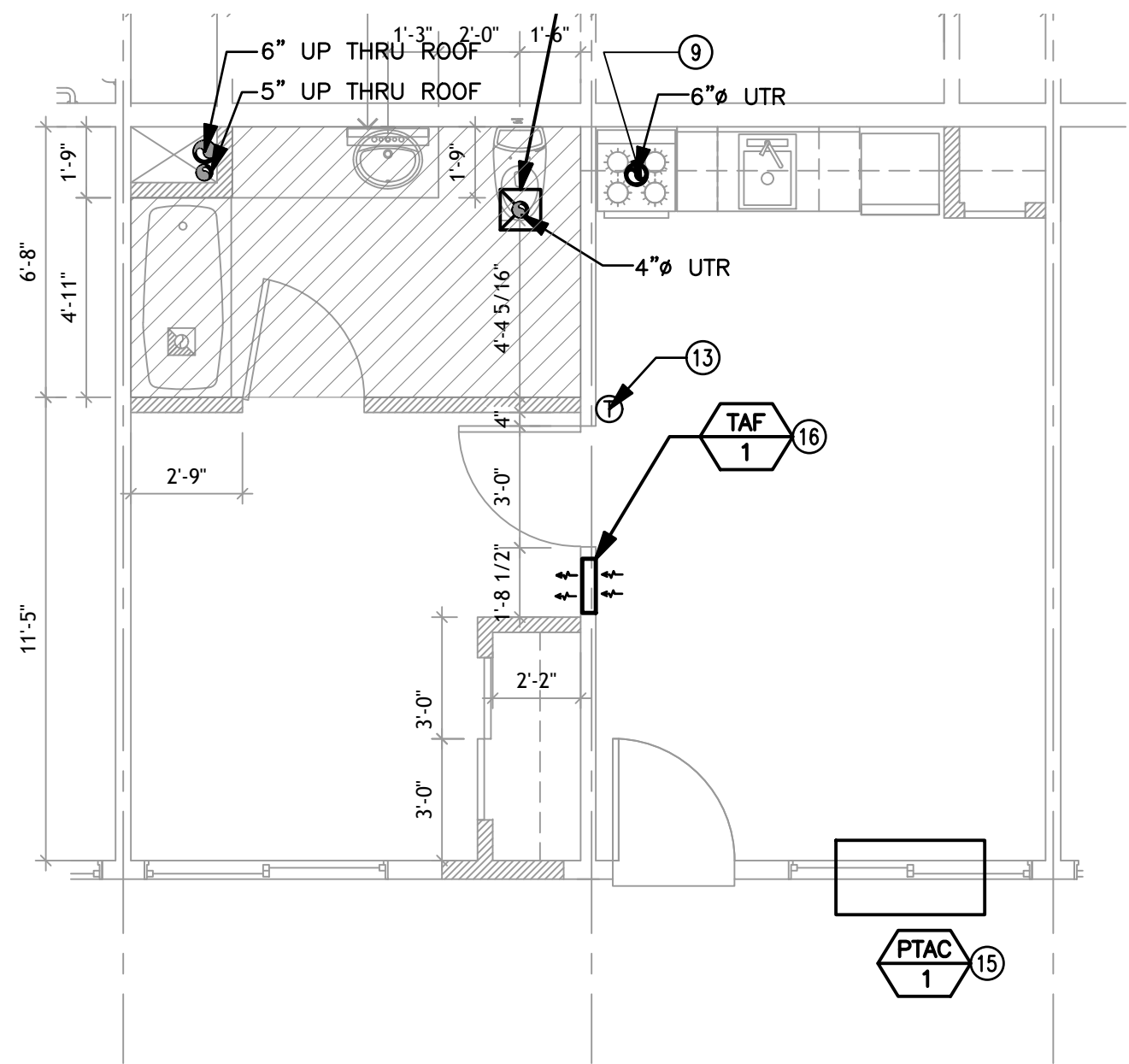
MECHANICAL
UNIT PLANS

M2.10



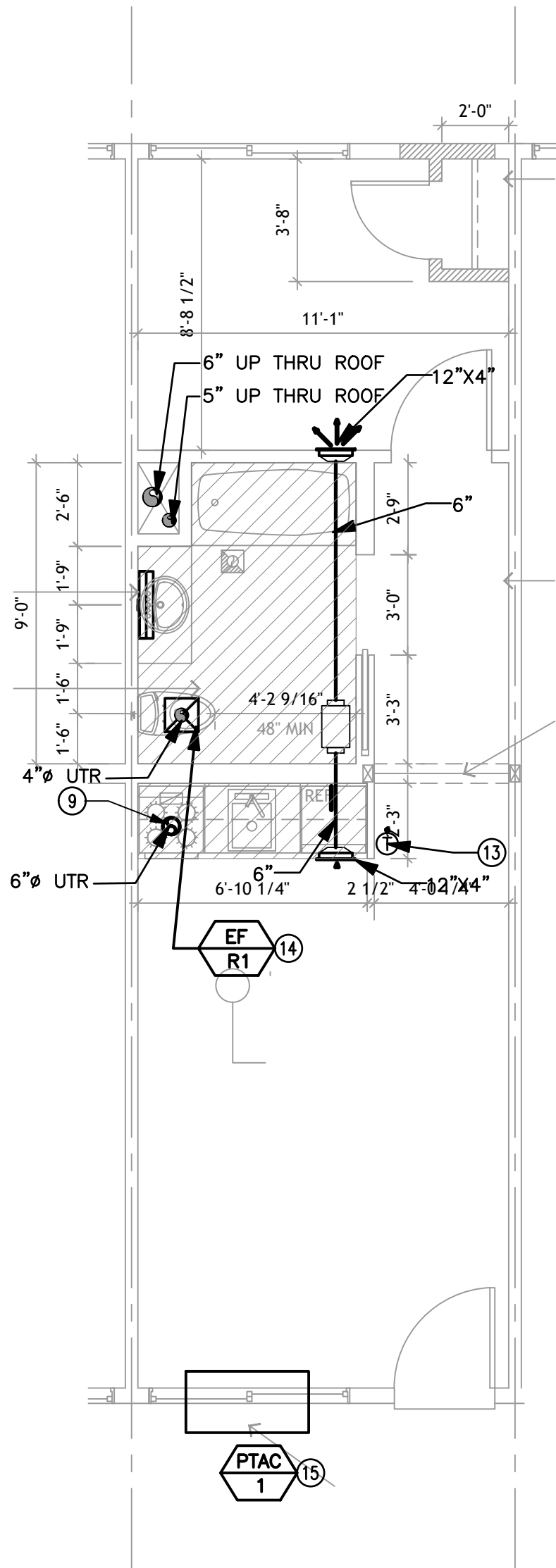
TYPICAL EFFICIENCY UNITS MECHANICAL
PLANS SECOND FLOOR

3 Scale: 1/4" = 1'-0"



TYPICAL SIDE-BY-SIDE STANDARD UNIT REMODELED
MECHANICAL PLAN SECOND FLOOR

1 Scale: 1/4" = 1'-0"



TYPICAL IN-LINE STANDARD UNIT MECHANICAL
PLANS SECOND FLOOR

2 Scale: 1/4" = 1'-0"

KEYNOTES

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- REFER TO DETAIL 10 & 11, SHEET M0.10 FOR SUPPLY/RETURN AIR REGISTER CONNECTION.
- REFER TO DETAIL 6, SHEET M0.10 FOR SIDEWALL SUPPLY AIR REGISTER.
- FOR AIR DISTRIBUTION REFER TO MECHANICAL SCHEDULE ON SHEET M0.10.
- CONNECT 6" TO RANGE HOOD EXHAUST DUCT OUTLET. TERMINATE WITH CODE APPROVED WALL/CEILING CAP. RANGE HOOD EXHAUST SHALL BE A MINIMUM OF 100 CFM. INSTALL PER RANGE HOOD MANUFACTURERS RECOMMENDATIONS.
- REFER TO EXHAUST FAN SCHEDULE ON SHEET M0.10. REFER TO DETAIL 1, M0.10.
- 4" SMOOTH METAL DRYER VENT TO CODE APPROVED WALL. TERMINATION/CEILING TERMINATION WITH BACKDRAFT DAMPER. DRYER VENT SHALL BE METAL AND SHALL HAVE SMOOTH INTERIOR SURFACES. REFER TO DETAIL 2, M0.40. DRYER PROVIDED BY OWNER AND SPECIFIED IN DETAIL 2/M0.40 IS CAPABLE OF SUPPORTING A VENT LENGTH OF 45 FEET WITH (2) 90 DEGREE ELBOWS. THE LONGEST DRYER VENT IN THE PROJECT IS LESS THAN 45 FEET IN LENGTH WITH (2) 90 DGREE ELBOWS; (2) 45 DGREE ELBOWS ARE EQUAL TO (1) 90 DEGREE ELBOW PER MANUFACTURER'S SPEC'S AND AS SHOWN IN THE DETAIL.
- EXHAUST AIR DUCTS SHALL TERMINATE NOT LESS THAN 3 FEET FROM OPENINGS INTO BUILDING. EXHAUST AIR TERMINATION SHALL BE IN COMPLIANCE WITH C.M.C. SECTION 5.2.2.1
- REFER TO DETAIL 2, SHEET M0.10 FOR THERMOSTAT MOUNTING.
- SEE EXHAUST FAN SCHEDULE ON SHEET M0.10 & DETAIL 1/M0.10.
- SEE PTAC UNITS SCHEDULE ON SHEET M0.10.
- SEE TRANSFER AIR FAN SCHEDULE ON SHEET M0.10 AND DETAIL 4/M0.10 & 5/M0.10.
- 14"x12" COMBUSTION AIR OPENING WITH METAL LOUVERS.

THE SIZING OF THE DUCT SYSTEM SHOWN ON THE MECHANICAL PLANS SHALL COMPLY WITH ACCA MANUAL Q OR ANOTHER APPROVED METHOD PER SECTION 601.2 OF THE 2016 CALIFORNIA MECHANICAL CODE.

GENERAL NOTES

- REFER TO ARCHITECTURAL PLANS FOR LOCATION OF SOFFITS. RUN DUCTS IN SOFFITS BELOW RATED CEILING ASSEMBLY UNLESS NOTED OTHERWISE.
- FLEXIBLE DUCT CAN BE USED IN PLACE OF SHEET METAL PER THE FOLLOWING:
 - MATERIAL: CASCO SILENT FLEX 2 OR APPROVE EQUAL. PRE-INSULATED FLEXIBLE FIBERGLASS DUCT WITH SPUNBONDED NONWOVEN NYLON WITH POROUS SURFACE FOR MAXIMUM ABSORPTION OF SOUND ENCASED IN A VAPOR BARRIER JACKET. WITH K FACTOR OF 0.24 AT 75' AND MEET THE REQUIREMENTS OF N.F.P.A. 90A, & 90B.
 - INSTALLATION: INSTALL IN FULLY EXTENDED POSITION USING ONLY THE MINIMUM LENGTH REQUIRED TO MAKE THE CONNECTIONS. SECURE THE INNER JACKET TO CONNECTION WITH TWO WRAPS OF NAUSHA 557 TAPE OR APPROVED UL 181 DUCT TAPE, OR WITH AN APPROVED CLAMP. DUCT TURNS MUST BE GRADUAL, THE MINIMUM INNER RADIUS OF THE TURN MUST BE EQUAL TO THE DUCT DIAMETER. SUPPORT DUCT AT THE THREE FEET MAXIMUM OR IN COMPLIANCE WITH LOCAL CODES.

CONTRACTOR SHALL PROVIDE VOLUME DAMPERS WHERE INDICATED ON THE PLANS. CONTRACTOR SHALL PERFORM THEIR OWN AIR BALANCE AND PROVIDE ADDITIONAL VOLUME DAMPERS (IF REQUIRED) AS DIRECTED BY ENGINEER TO MAKE CERTAIN THAT SUPPLIED AIR WILL BE DELIVERED AT THE AIR QUANTITIES (CFM) INDICATED.

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Stamp:



DRAWING REVISION LOG

SUBMITTAL	12/12/17
PC SUBMITTAL	05.07.2018

PROJECT NAME:

DESERT HAVEN
(QUEENS MOTEL)
RE-DEVELOPMENT

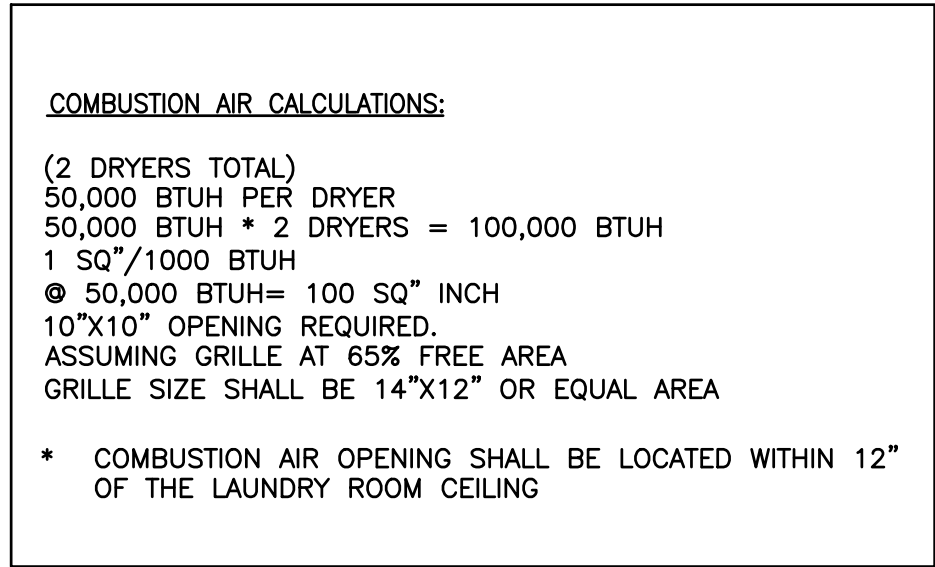
PROJECT LOCATION:

16959 STODDARD RD.
VICTORVILLE, CA 92395

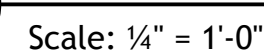
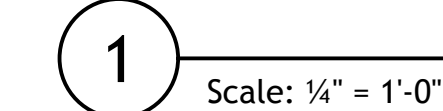
SHEET TITLE:

MECHANICAL UNIT
PLANS

M2.20



3 Scale: $\frac{1}{4}" = 1'-0"$



- CONTRACTOR SHALL PROVIDE VOLUME DAMPERS WHERE INDICATED ON THE PLANS. CONTRACTOR SHALL PERFORM THEIR OWN AIR BALANCE AND PROVIDE ADDITIONAL VOLUME DAMPERS (IF REQUIRED) AS DIRECTED BY ENGINEER TO MAKE CERTAIN THAT SUPPLIED AIR WILL BE DELIVERED AT THE AIR QUANTITIES (CFM) INDICATED.

M3.10

SUBMITTAL	12/12/17
PC SUBMITTAL	05.07.2018

M4.20