EXAMPLE OF PRE-APPROVED PLANS. PLANS AVAILABLE FOR 498, 749, OR 1,190 SF. LAYOUTS IN THREE ARCHITECTURAL STYLES THROUGH THE CITY OF MERCED PRE-APPROVED ADU PROGRAM. CONTACT INSPECTION SERVICES DIVISION AT (209) 385-4773 OR INSPECTIONSERVICESWEB@CITYOFMERCED.ORG FOR MORE INFORMATION.

Heating, Ventilating and Air Conditioning
INSTALLATION REQUIREMENTS

General Notes

1.The following
Building Code
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2.Calculations
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5.All mechanic
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6.Equipment,
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7.Where mechanical equipment is located in the attic provide access and passage way in accordance with 2022 California Mechanical Code, Section 304.4 Provide a minimum 24" wide solid floor passageway to the equipment. The centerline distance from the access point to the equipment shall not exceed 20ft. The passage way must be unobstructed and the access shall be large enough to remove the largest piece of equipment.
8.Adhesives, sealants and caulks used on the project shall meet requirements of the 2022 California Green Code, Section 4.504.1.
9.This design was based upon the architectural and structural plans provided to the designer at the time this design was performed. It is the owner/builders responsibility to coordinate these plans with framing and other trades.
10.Installing contractor shall review the design and assume full responsibility for proper installation, operation, and acceptable noise levels.

Installation Notes

1.Locations of equipment, registers, grilles and duct shown on these plans are approximate and are shown for schematic purposes only and for clarity. If the actual location of equipment, registers, grilles and ducts significantly vary from the plans to the extent that airflow may be impeded or reduced, it is the installing contractor's responsibility to meet the intended design performance.
2.Cooling coil(s) condensate and overflow lines are to be properly trapped, vented, and sloped for drainage in accordance with 2022 California Mechanical Code, Sections 310.4, 310.5 and 310.6.
3.Cooling coils installed in attic spaces are to be installed over an auxiliary water tight safety pan. Safety pan is to have drainage in case of cooling coil overflow. Drainage overflow piping to be piped to an outside wall and over a window. Pipe through wall is to be terminated with a 90-degree elbow, turned down. Piping through walls is to be flashed and made water tight.
4.Exact location of heating and cooling unit(s) is to be verified and determined on site.
5.All ductwork shall be installed and supported in accordance with 2022 California Mechanical Code and manufacturer's published recommendations.
6.All supply air registers boots are to be provided and installed with sheet rock grounds and transitional duct connections (PH-1, PH-2 or PH-3). B-Boxes or shallow boots with tap-ins is not allowed unless approved otherwise.
7.All return air boots are to be a minimum of 6" in depth and be provide and installed with sheet rock grounds.
8.In accordance with 2022 California Green Code, Section 4.504.1, At time of rough installation, or during storage on the construction site and until final start up of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered.
9.All sheet metal duct and fittings and register/grille boots, including seams, are to be sealed air tight with approved duct sealant. After installation, the entire system shall be tested and certified in accordance with the Title 24 CF-1R document.
10.All sheet metal duct and fittings are to be externally insulated with in accordance with Title 24 specifications. Insulation is to be lapped, pulled tight and secured in accordance with manufacturer's recommendations. Pulling up flexible duct insulation and vinyl covering over sheet metal fittings is NOT acceptable.
11.Exhaust fan discharge air is to be discharged outside. As per 2022 California Mechanical Code, Section 407.2, the point of discharge air shall be located a minimum of 10ft. from any mechanical ventilation intake and a minimum of 10ft. from any occupied areas, doors or windows which allows air entry into the building.
12.All cavities and spaces provided to convey supply, return or fresh air shall be fully ducted using duct board, sheet metal, flexible duct or other approved materials. Plywood, drywall, OSB, 2x4's, 2x6's, etc are NOT approved materials. Boxed in framing members, panned joists and stud bays, or other non-ducted building cavities are prohibited.
13.This design incorporates trunk and branch layouts for the strict purpose of zoning and air balancing. The installing contractor shall furnish and install inline-balancing dampers, with locking quadrants, in all main ducts leading away from the primary supply air plenum and/or where shown on plans.
14.Final air balancing is the responsibility of the installing contractor as per 2022 California Mechanical Code, Section 314.1. Air balancing is to be performed on every home using a calibrated Balometer. Unless otherwise noted, the CFM shown at each register is an average design CFM of cardinal orientations, unless specified otherwise, required to meet the room heating and cooling loads. Air balancing using register adjustments is acceptable for fine tuning the air balance only. When an Air Balancing Schedule is provided, air balance to the specific orientation.
15.Refrigerant line sets are to be sized in accordance with manufacturer's recommendations and are not to exceed the maximum distance per manufacturer's specifications.
16.Refrigeration service ports located outdoors shall be fitted with locking-type tamper-resistant caps or shall be protected from unauthorized access by means acceptable to the Enforcing Agency in accordance with 2022 California Mechanical Code, Section 1105.11.
17.Refrigerant suction piping is to be insulated in accordance with T24 Mandatory Measures 150@2, Building Energy Efficiency Standards Table 150-B and Equation 150-A. Protection of insulation shall be in accordance with Section 150@3A - Mandatory Features and Devices.
18.If applicable, special care must be taken in lying out, cutting and installing duct through TGI floor joists. Passage through floor joist is to be in accordance with floor joist manufacturer's recommendations and guidelines.
19.Thermostats shall be 5-day/2-Day programmable night setback.

2022 Energy Efficiency Contractor Requirements

It is the Builder and Installing Contractor responsibility to refer to the Title 24 CF1R Certificates of Energy Compliance for verification of enrgey measures and required contractor testing.

After installation the installing contractor shall submit an Installation Certificate (Form, CF2R), completed and signed by the installer, listing the equipment installed (manufacturer, model, and efficiencies), along with other field verifications and Testing as specified in the Title 24 Certificate of Compliance (Form CF1R).

Registered copies of Installing Contractor CF2R and HERS Rater CF3R Field Verified and Diagnostic Testing Forms are to be submitted prior to final inspection in accordance with CEES Sections 10-103(a)(3) and 10-103 (a)(5).

HVAC Title 24
2022 Energy Standards

See T24 CF-1R Energy Compliance Document for Selected and/or Required Energy Measures.

operate the system.

V Wall switch to be mounted @ 7'-0" above finish floor. Wall switch is to be labeled "Whole House Ventilation Fan to Remain ON at all times the House Is Occupied unless outdoor air quality is poor". The homeowner is to be provided with instructions on how to operate the ventilation system.

REGISTERED copy of the CF3R-MCH-27 form shall be submitted prior to final inspection, signed by a Certified HERS Rater

Humidity Control

2022 California Green Building Standards Code, Section 4.506.1 for bathrooms with tub, shower, or combination tub/shower only

H
1. Hundidity controls shall be capable of adjustment between a relative humidity range of not less than 50% to a maximum of 80%.
2. Humidity control may utilize manual or automatic means of adjustment.
3. Humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in)

Minimum Air Filtration

2022 California Mechanical Code ASHRAE 62.2, Section 401.2 requires that minimum filtration be no less than MERV 13, installed prior to occupancy in HVAC systems outside air and return air having more than 10 ft.of ductwork.

MANDATORY: Filter racks or filter grilles shall be gasketed or sealed to prevent air from bypassing the filerter per Section 150.0(m)12Bv

Environmental Quality

2022 California Green Building Standards Code, Section 4.504.1 Mandatory Measure requires that at time of rough installation, all duct and other related air distribution component openings shall be covered.

Installer and Special Inspector Qualifications

2022 California Green Building Standards, Chapter 7

702.1 HVAC Systems installer shall be trained and certified in the proper installation of HVAC systems.

702.2 Special inspectors employed to provide compliance with this code shall be qualified and/or certified in the discipline they are inspecting.

703.1 Documentation shall be provided showing compliance with the mandatory measures for this code.

Kitchen Range Hood Air Flow Rates

Table 150.0.G Kitchen Range Hood Airflow Rates (cfm) and AS TME 3087 Capture Efficiency (CE) Ratings According to Dwelling Unit FloorArea and Kitchen Range Fuel The Energy Code requires verification that range hoods are HVI or AHAM-certified to provide at least one speed setting at which they can deliver at least 100 CFM at a noise level of 3 sones or lessType

Dwelling Unit Floor Area (SqFt)	Hood Over Electric Range	Hood Over Natural Gas Range
>1500	50% CE or 110 cfm	70% CE or 180 cfm
>1000 - 1500	50% CE or 110 cfm	80% CE or 250 cfm
750 - 1000	55% CE or 130 cfm	85% CE or 280 cfm
<750	65% CE or 160 cfm	85% CE or 280 cfm

Mini-Split Heating and Cooling Equipment Schedule

Outdoor Heat Pump		Indoor Fan Coil Unit	
Cooling Total MBH	12.0	Mark No	FC-1
Heating Total MBH @ 47 deg F	14.0	CFM	453
Heating Total MBH @ 17 deg F	8.8	Electrical	Outdoor Unit

Exhaust Fan Schedule

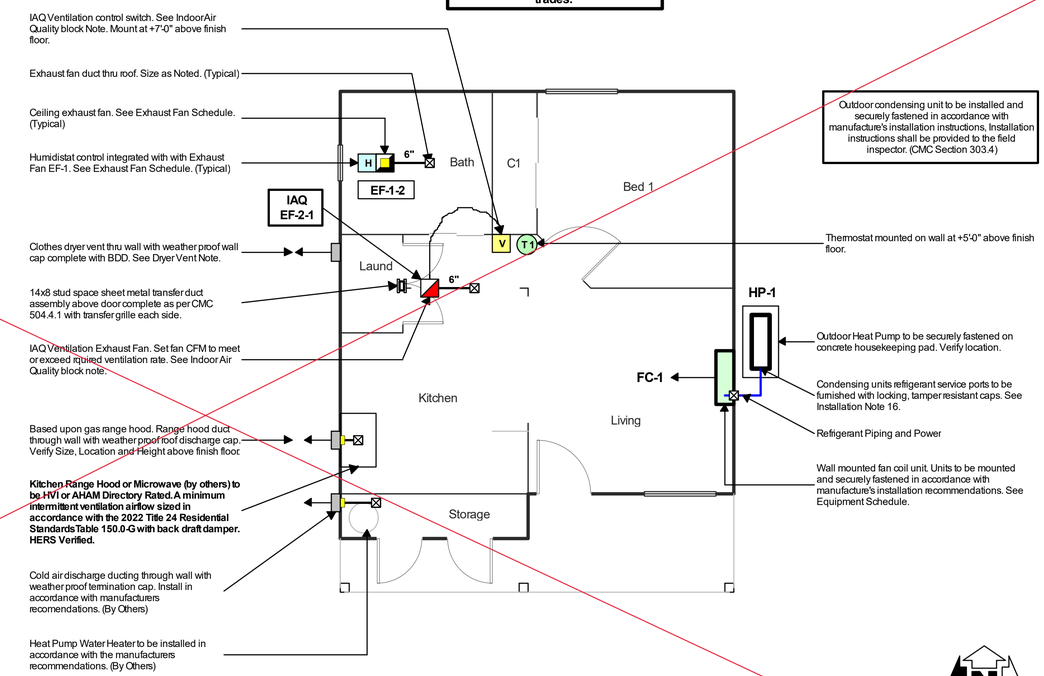
Mark		Mfgr	Model Number	CFM Set Point	S.P. In W.G.	Sones	Electrical Amps	Electrical Watts	Electrical Volts	Electrical Ph	Type	Duct Conn	Op. Wt. LBS
EF-1-	1	Panasonic	FV-0511VK2 w/FV-CSVK1	50	0.1	<0.3	0.06	3.1	120	1	Ceiling	4"" Dia	12
					0.25	0.4	0.07	6.2					
					0.1	<0.3	0.06	5.1					

Heating and Air Conditioning System Design is in accordance with 2022 California Green Building Standards, Section 4.507.2 Note: 1) Duct system is sized in accordance with ACCA Manual J Load Calculations and Manual D Duct Sizing based upon maximum air flow requirement for cooling CFM. 2) Duct has been sized to accomodate cardinal orientations. 3) CFM distribution noted on plans represent the air flow requirements for the noted orientation. 4) Ducts can be oversized one duct size (i.e. 7" to 8"), but not undersized. Oversizing reduces air velicity, therefore, the mechanical contractor is to install manual volume dampers in oversized duct in order to adjust air flow and maintain balance in the duct system. 5) Heating and cooling equipment is sized in accordance with ACCA Manual S based upon building loads calculated in accordance with ACCA Manual J. 6) Contractor to verify SEER, EER, Duct R-Value and testing requirements as specified in Title-24 Engergy Compliance Document Form CF-1R.

Wrightsoft Universal, Version 22.0.07
Energy and HVAC Consulting Services

Allen McIntosh

NOTE: Installing Contractor is to have experience with Ductless Multi-Zone installations. Ductless Mini-Split system(s) are to be installed in accordance with Local Codes and Manufacturers Recommendations, and coordinated with other sub trades.



HVAC Floor Plan
Scale: 1/4" = 1'-0"

N
Worse Case

Clothes Dryer Venting Note

Clothes Dryer Venting: 1] Dryer ventng shall be installed in accordance with Section 504.4.2 of the 2022 California Mechanical Code, unless otherwise permitted and approved by the building official. 2]A minimum four (4) inch diameter dryer vent is allowed. 3] The total length of a 4" dryer vent shall not exceed a total combined horizontal and verticle length of 14 feet, including (2) two 90-degree elbows. 4] Dryer duct is to terminate on the outside of the building and shall be equipped with a back draft damper. Duct is to be sealed air tight. Duct in crawl spaces or attic space is to be exterannlly insulated with 1", 3/4lb. duct wrap.

CITY OF MERCED ACCESSOR
DWELLING UNIT PROGRAM

498

No.	DESCRIPTION	DATE

Project Number
2210.2

M.01

Last date:
02/11/2023

HEATING, VENTILATION and AIR CONDTIONING

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