Mechanical Equipment Schedule

Equipment Selection

Unit	Manufacturer	Model No.	Air Quantites (CFM)	Cooling Capacity Total	Cooling Capacity Sensible	Heating Capacity Input	Heating Capacity Output	Heating AFUE	Cooling (SEER)
FAU-1	Trane	TUH1B040A	800	24000	23976	40000	38000	95%	14

Water Heater Selection

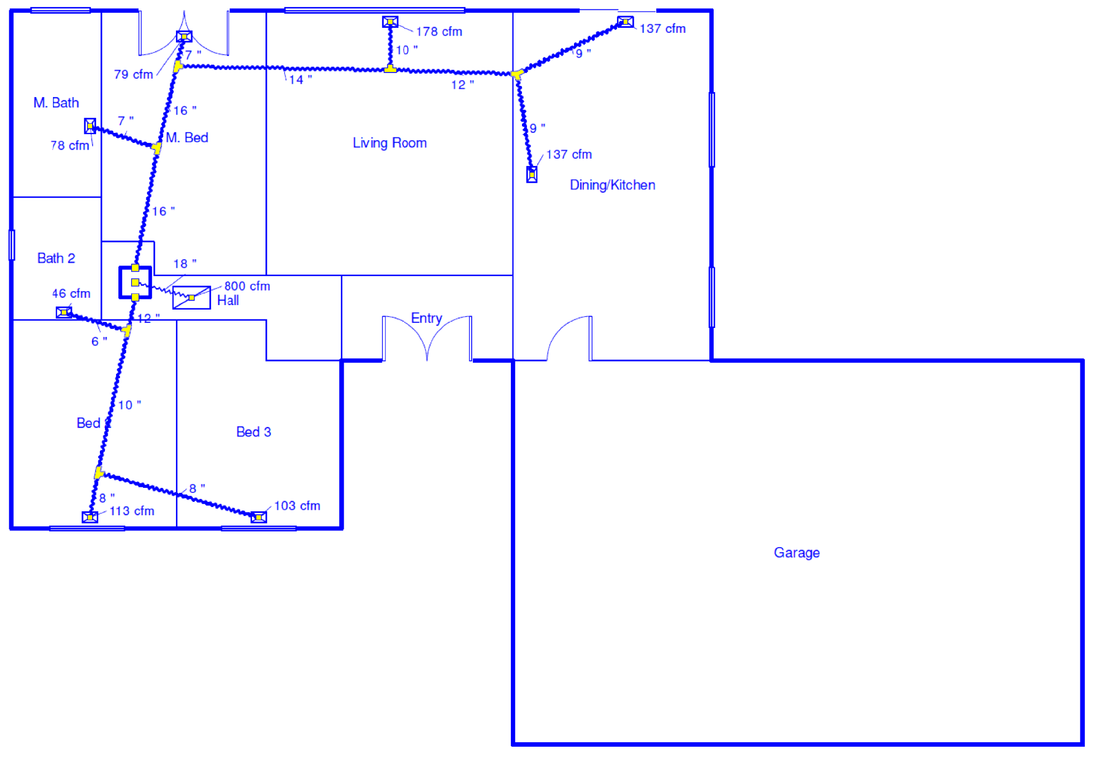
Unit	Manufacturer	Model No.	Volume	Input BTU's/hr.	Energy Factor
DHW-1	Rinnai	RL94i	0 Gallons	199,000	0.94

WHOLE-BUILDING VENTILATION

Q=0.01(Conditioned Floor Area) + 7.5(# Bedrooms+1)

Q=0.01(1880)+7.5(3+1)

Continuous Fan Flow (CFM)= 49 CFM



SYMBOL LEGEND

Supply Register

Return Grille

THERMOSTAT @ 48" A.F.F. MAX.

8" Duct and Duct Size

MECHANICAL PLAN

Manual J Load Summary

COOLING EQUIPMENT

Outdoor design DB	102 Degrees F	Sensible Gain	13965
Outdoor Design WB	67.8 Degrees F	Latent Gain	0
Indoor Design DB	75 Degrees F	Total Gain	13965
Indoor RH	50%	Estimated Airflow	800

HEATING EQUIPMENT

Outdoor design DB	21.9 Degrees F	Heat Loss	24442 Btuh
Indoor Design DB	68 Degrees F		

Note: See full ACCA Manual J,D, and S Report for complete details.

Required HERS Tests

Building-level Verifications:
- **IAQ mechanical ventilation**

Cooling System Verifications:
- **Minimum Airflow**
- **Fan Efficacy Watts/CFM**

HVAC Distribution System Verifications:
- **Duct Sealing**

Domestic Hot Water System Verifications:
- **-- None --**

Mandatory Measures Checklist

SPACE CONDITIONING, WATER HEATING AND PLUMBING SYSTEM MEASURES

HVAC equipment, water heaters, showerheads, faucets and all other regulated appliances are certified by the Energy Commission

Water heating recirculation loops serving multiple dwelling units and High-Rise residential occupencies meet the air release valve, backflow prevention, pump isolation valve, and recirculation loop connections requirements of Section 110.3(c)5.

Heating and/or cooling loads in accordance with ASHRAE, SMACNA, or ACCA.

Heating systems are equipped with thermostats that meet the setback requirements of Section 110.2(c).

Storage gas water heaters rated with an Energy Factor no greater than the federal minimal standard are externally wrapped . with insulation having an installed thermal resistance of R-12 or greater.

Unfired storage tanks, such as storage tanks or backup tanks for solar water-heating system, or other indirect hot water tanks have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.

All domestic hot water system poping conditions listed below, whether buried or unburied, must be insulated pr TABLE 120.3A
The first 5 feet (1.5 meters) of hot and cold water pipes from the storage tank.
All piping with a nominal diameter of 3/4 inch (19 millimeter) or larger.
All piping associated with a domestic hot water recirculation system regardless of the pipe diameter.
Piping from the heating source to storage tank or between tanks.
Piping buried below grade.
All hot water pipes from the heating source to the kitchen fixtures.

Pipe insulation for steam hydronic heating systems >15 psi, meets the requirements of Standards Table 120.3-A

Insulation is protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.

Solar water-heating systems and/or collectors are certified by the Solar Rating and Certification Corporation.

All air-distribution system ducts and plenums installed, are sealed and insulated to meet the requirements of CMC Sections 601, 602, 603, 604, 605, and Standard 6-5
Supply air and return air ducts and plenums are insulated to a minimum, installed level of R-6 or enclosed entirely in conditioned space.
Openings shall be sealed with mastic, tape, or other duct-closure system that meets the applicable requirements of UL181, UL181A, or UL181B or aerosol sealant that meets the requirements of UL723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used.

Building cavities, support platforms, for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air.
Building cavities and support platforms may contain ducts. Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts.

Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.

Exhaust fan systems have back draft or automatic dampers.

Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.

Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.

Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.

Flexible ducts cannot have porous inner cores.

Systems using gas or propane water heaters, whether tank or on-demand, to serve individual dwelling units shall include all the following componets:
A. A 120 V electrical receptacle that is within 3 feet from the water heater and accessible to the water heater with no obstructions
B. A category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed.
C. A condensate drain that is no more than 2 inches higher than the base of the installed water heater, and allows natural draining without pump assist.
D. A gas supply line with a capacity of at least 200,000 Btu/hr.

All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.
Window operation is not a permissible method of providing the Whole Building Ventilation required in Section 4 of that Standard.

Return Duct Sizing

Table 4-10 – (Standards Table 150-C): Return Duct Sizing for Single Return Duct Systems

System Nominal Capacity (Tons)	Minimum Return Duct Diameter (inch)	Minimum Total Return Filter Grille Gross Area (Inches)
1.5	16	500
2.0	18	600
2.5	20	800

Two Returns			
System Nominal Tonnage	Return 1 Minimum Duct Diameter (inches)	Return 2 Minimum Duct Diameter (inches)	Minimum Gross Filter Grille Face Area (sq. in.)
1.5	12	10	500
2.0	14	12	600
2.5	14	14	800
3.0	16	14	900
3.5	16	16	1000
4.0	18	18	1200
5.0	20	20	1500

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Sample HVAC Report
123 Sesame Street
Anywhere, CA

CABEC
California Association of Building Energy Consultants
CERTIFIED ENERGY ANALYST
Timothy Carstairs

REVISIONS:
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DATE: 1/10/2019
JOB NO: 19-00000
DRAWN BY: T.C
CHECKED BY:
SCALE: NTS
SHEET NO:
M1