Peralta Energy
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Peralta Energy Group

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Report prepared for:
EMG Corp.

Property address:
503 - 670 Mobley Lane, Hemet CA 92543

Property type:
Multifamily single story. Eleven buildings of 4 units each:
Four buildings of 10 bedrooms. Seven buildings of 12 bedrooms.
No garages. Built 1979.
Total square footage approx: 35,845

Calculated Energy Use (based on building energy simulation model)**:**
Year round baseline (all units): $34,700.
Seasonal use (space heating and cooling - all units): $27,400
Total calculated energy cost (all units): $62,100

Electrical use: 228,820 kWh/yr.
Gas use: 11,813 therms/yr.
Calculated site energy use intensity: 54.7 kBTU/sq ft/yr

Mechanical equipment:

Rooftop packaged units. Rheem RRMAA024JK06X. Manufactured 2003. AFUE 0.80. SEER 12, EER 10.5. HVAC ducts: Insulation R 2.1

Model RRMA- Series	A024JK04E	A024JK04X	A024JK06E	A024JK06X
Cooling Performance[1]				CONTINUED→
Gross Cooling Capacity Btu [kW]	24,800 [7.3]	24,800 [7.3]	24,800 [7.3]	24,800 [7.3]
EER/SEER[2]	10.5/12	10.5/12	10.5/12	10.5/12
Nominal CFM/ARI Rated CFM [L/s]	800/800 [378/378]	800/800 [378/378]	800/800 [378/378]	800/800 [378/378]
ARI Net Cooling Capacity Btu [kW]	24,000 [7]	24,000 [7]	24,000 [7]	24,000 [7]
Net Sensible Capacity Btu [kW]	17,104 [5]	17,104 [5]	17,104 [5]	17,104 [5]
Net Latent Capacity Btu [kW]	6896 [2]	6896 [2]	6896 [2]	6896 [2]
Net System Power kW	2.3	2.3	2.3	2.3
Heating Performance (Package Gas/Electric)[3]				
Heating Input Btu [kW]	40,000 [11.7]	40,000 [11.7]	60,000 [17.6]	60,000 [17.6]
Heating Output Btu [kW]	31,000 [9.1]	31,000 [9.1]	47,000 [13.8]	47,000 [13.8]
Temperature Rise Range °F [°C]	30-60 [16.7/33.3]	30-60 [16.7/33.3]	40-70 [22.2/38.9]	40-70 [22.2/38.9]
AFUE (%)[4]	80	80	80	80

Water heaters: 40 gallon gas storage, 32 kBTU input. Manufactured 1991 - 1996. Energy factor 0.53

Ventilation: None

Building assemblies:

Floor: Uninsulated slab on grade.
Roof: Attic with truss construction. Lightweight composition shingle and bituminous paper surface. 2" x 4" lumber nailers for ceiling sheetrock. R-11 loose fill fiberglass insulation.
Walls: 2" x 4" lumber. R-11 fiberglass batt insulation.
Windows: Front (of each unit) has dual pane vinyl sliding glass door (retrofit). Side windows are single pane aluminum sliders (original).

Lighting:

Fixtures are 'screw-in' type.
All controls are simple on/off switches. No sensors.

Water pipes uninsulated.

Recommendations:

- **HVAC ducts:** Replace existing ducts with R-8 flex ducts and seal ducts to a leakage level of no more than 6% of total fan airflow.
- **Attic insulation:** Install continuous radiant barrier on the underside of roof deck. Blow in 12 - 14 inches of loose fill fiberglass insulation to achieve R38.
- **Windows:** Install dual pane vinyl windows with a minimum U factor of 0.32 and a minimum SHGC 0f 0.30
- **HVAC:** Install new gas/electric packaged units with a AFUE of 0.80 and a minimum SEER of 14.5.
- **Water heaters:** Install new units with a minimum energy factor of 0.62. *Higher energy factor of 0.94 (on-demand type heater) is recommended.*
- **Appliances:** Install *EnergyStar* refrigerators and dishwashers in all units. Install *EnergyStar* washers and dryers in all units and in shared laundry facilities.
- **Water pipes:** Insulate the cold water line at the water heater for at least five feet. Insulate all accessible hot water lines using insulation that fits snuggly around pipes.
- **Light fixtures:** Replace all light fixtures with Title24 compliant 'pin type' CFL fixtures or LED fixtures.
- **Lighting controls:** Install vacancy sensors on all lighting circuits.

Calculated Energy Savings (see attached Econ2 reports):

Savings estimates are not guaranteed.

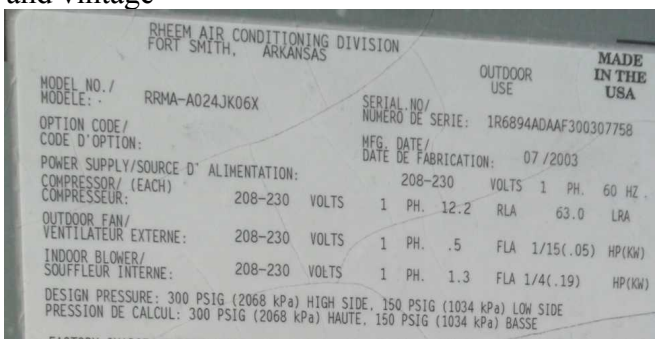
Calculated savings are based on implementing ALL recommendations.

Total calculated site energy savings with a 0.94 energy factor water heater: 47.7%
Total calculated site energy savings with a 0.68 energy factor water heater: 36.7%
Total calculated site energy savings with a 0.62 energy factor water heater: 32.7%

Notes:

- Energy model has been calculated with a new SEER 15 packaged HVAC unit. Higher SEER levels are generally unavailable for 2 ton packaged units.
- Recommended water heater is 'on-demand' type. Some models can be installed on the existing one-half inch gas line. If clothes washers are installed in units, then a 3/4" gas line may be required for an 'on-demand' water heater. All models require an electrical connection. Also, bath/shower valves must be upgraded to pressure compensated type.
- Water heaters with an energy factor of 0.67 and higher generally require an electrical connection and possibly a dedicated electric circuit (dedicated breaker). Check your local building code.
- Water heaters with an energy factor of 0.62 generally do not require electrical connections.
- EnergyStar bath fans with humidistat controls are required for CalGreen compliance.

Rooftop packaged units are all the same model and vintage



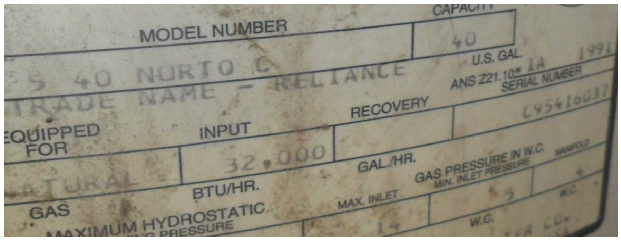
Rheem model RRMAA024JK06X
SEER 12, EER 10.5. AFUE 0.80

Duct insulation: R 2.1

No insulation on water lines

Walls are insulated to R-11 (sample). No automatic lighting controls.

Water heaters all standard type gas storage, 40 gallon. Vintages from 1991 to 1996.
Energy factor 0.53



Front and rear sliding doors are vinyl dual pane.

Side windows are single pane aluminum.

Attic construction: Trusses with 2x4 nailers for ceiling rock. R-11 insulation barely covers nailers.

Ceiling nailers are 2x4.

No automatic lighting controls.

Slab on grade construction.

Energy savings report with recommended on-demand water heater.

Energy Upgrade Recommendations — ECON-2

Project Name: *Mobley Lane*	Documentation Author: *Peralta Energy/Smart Builders*
Project Address: *503 Mobley Lane, Hemet, CA 92543*	Author Address:

Recommended Improvements	Description	Annual Savings	Est. Cost to Install	Savings Site	Savings TDV
Roof Insulation	Type = R-38 Roof Attic w Radiant barrier Cavity Insulation = 38.0 R-Value Interior Insulation = 0.0 R-Value Exterior Insulation = 0.0 R-Value	$5,808	$0	6.5 %	9.8 %
Windows	Type = PlyGen200 U-Factor = 0.320 SHGC = 0.29	$13,173	$0	14.0 %	22.5 %
HVAC Distribution	Heating Distribution = Ducted Cooling Distribution = Ducted Duct Location = Attic, Ceiling Ins, vented Leakage Type = Low Leakage AHU or HERS II Leakage Verified	$16,664	$0	17.1 %	29.3 %
DHW Distribution	DHW Distribution Type = All Pipes Ins	$16,809	$0	17.8 %	29.7 %
Appliances	Indoor Refrigerator = 350 kWh Garage Refrigerator = 0 kWh Dishwasher = 0.65 EF	$18,883	$0	19.5 %	32.1 %
Indoor Lighting	Indoor Lighting Type = High Efficacy Control = Occupant Sensor	$21,335	$0	21.3 %	34.8 %
HVAC System	Name = Goodman Manufacturing Co. GPG152407041** Type = Packaged DX Heating = Central Furnace Efficiency = 0.80 AFUE Cooling = Packaged Air	$23,529	$0	22.9 %	38.9 %
Domestic Hot Water Heater	Name = Eternal GU120 Type = Gas Fired Volume = 1.7 gal Efficiency = 0.940 EF	$28,322	$0	47.7 %	50.5 %

Annual Results	Energy Cost			Electricity (kWh)			Fossil Fuel (therms)		
End Use	Existing	Improved	Savings	Existing	Improved	Savings	Existing	Improved	Savings
Space Heating	$1,068	$158	$910	0	0	0	1,087	162	925
Space Cooling	$20,524	$5,582	$14,942	93,037	25,598	67,439	0	0	0
Fans	$5,799	$2,473	$3,326	26,287	11,338	14,948	0	0	0
Pumps	$0	$0	$0	0	0	0	0	0	0
Domestic Hot Water	$8,921	$3,986	$4,935	0	0	0	9,076	4,068	5,007
Indoor Lighting	$5,067	$2,873	$2,194	22,967	13,173	9,794	0	0	0
Outdoor Lighting	$416	$411	$5	1,884	1,884	0	0	0	0
Appliances/Plug Loads	$20,296	$18,285	$2,010	84,645	76,430	8,216	1,651	1,651	0
Ancillary	$0	$0	$0	0	0	0	0	0	0
Renewables	$0	$0	$0	0	0	0	0	0	0
TOTAL	**$62,091**	**$33,768**	**$28,322**	**228,820**	**128,423**	**100,397**	**11,813**	**5,881**	**5,933**

CO_2 (lbs/year)	Existing	Improved	Savings
Electricity	157,886	88,612	69,274
Fossil Fuel	137,624	68,510	69,114
TOTAL	**295,510**	**157,122**	**138,388**
Average Demand (kW)	158.55	69.19	89.37
TDV Energy (kBtu/ft^2-yr)	174.15	86.26	87.90

Climate Zone:	10
Electric Rate:	SCE GS-1
Gas Rate:	SoCal Gas GR-1
Floor Area:	35,845
Type:	Multi-Family

Improvements above shown with cumulative savings benefit for combined measures

The estimated operating costs shown in this report are dependent upon many factors. The construction and conservation features of the project clearly are important. Equally important is the thermostat setting. How the thermostat is used, appliance use, and occupant interaction all influence the annual operating cost. The estimates provided in this report are based on typical conditions; your actual usage will vary.

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Energy savings report with minimum requirement water heater.

Energy Upgrade Recommendations — ECON-2

Project Name	*Mobley Lane*	Documentation Author	*Peralta Energy/Smart Builders*
Project Address	*503 Mobley Lane* *Hemet, CA 92543*	Author Address	

Recommended Improvements	Description	Annual Savings	Est. Cost to Install	Savings Site	Savings TDV
Roof Insulation	*Type = R-38 Roof Attic w Radiant barrier Cavity Insulation = 38.0 R-Value Interior Insulation = 0.0 R-Value Exterior Insulation = 0.0 R-Value*	*$5,808*	*$0*	*6.5 %*	*9.8 %*
Windows	*Type = PlyGen200 U-Factor = 0.320 SHGC = 0.29*	*$13,173*	*$0*	*14.0 %*	*22.5 %*
HVAC Distribution	*Heating Distribution = Ducted Cooling Distribution = Ducted Duct Location = Attic, Ceiling Ins, vented Leakage Type = Low Leakage AHU or HERS II Leakage Verified*	*$16,664*	*$0*	*17.1 %*	*29.3 %*
DHW Distribution	*DHW Distribution Type = All Pipes Ins*	*$16,809*	*$0*	*17.8 %*	*29.7 %*
Appliances	*Indoor Refrigerator = 350 kWh Garage Refrigerator = 0 kWh Dishwasher = 0.65 EF*	*$18,883*	*$0*	*19.5 %*	*32.1 %*
Indoor Lighting	*Indoor Lighting Type = High Efficacy Control = Occupant Sensor*	*$21,335*	*$0*	*21.3 %*	*34.8 %*
HVAC System	*Name = Goodman Manufacturing Co. GPG152407041** Type = Packaged DX Heating = Central Furnace Efficiency = 0.80 AFUE Cooling = Packaged Air*	*$23,529*	*$0*	*22.9 %*	*38.9 %*
Domestic Hot Water Heater	*Name = A O Smith Water Products GNR 40 200 Type = Gas Fired Volume = 40.0 gal Efficiency = 0.620 EF*	*$25,412*	*$0*	*32.7 %*	*43.5 %*

Annual Results	Energy Cost			Electricity (kWh)			Fossil Fuel (therms)		
End Use	Existing	Improved	Savings	Existing	Improved	Savings	Existing	Improved	Savings
Space Heating	*$1,068*	*$159*	*$910*	*0*	*0*	*0*	*1,087*	*162*	*925*
Space Cooling	*$20,524*	*$5,582*	*$14,942*	*93,037*	*25,598*	*67,439*	*0*	*0*	*0*
Fans	*$5,799*	*$2,473*	*$3,326*	*26,287*	*11,338*	*14,948*	*0*	*0*	*0*
Pumps	*$0*	*$0*	*$0*	*0*	*0*	*0*	*0*	*0*	*0*
Domestic Hot Water	*$8,921*	*$6,892*	*$2,029*	*0*	*0*	*0*	*9,076*	*7,020*	*2,056*
Indoor Lighting	*$5,067*	*$2,873*	*$2,194*	*22,967*	*13,173*	*9,794*	*0*	*0*	*0*
Outdoor Lighting	*$416*	*$411*	*$5*	*1,884*	*1,884*	*0*	*0*	*0*	*0*
Appliances/Plug Loads	*$20,296*	*$18,289*	*$2,007*	*84,645*	*76,430*	*8,216*	*1,651*	*1,651*	*0*
Ancillary	*$0*	*$0*	*$0*	*0*	*0*	*0*	*0*	*0*	*0*
Renewables	*$0*	*$0*	*$0*	*0*	*0*	*0*	*0*	*0*	*0*
TOTAL	***$62,091***	***$36,679***	***$25,412***	***228,820***	***128,423***	***100,397***	***11,813***	***8,832***	***2,981***

CO_2 (lbs/year)	Existing	Improved	Savings
Electricity	*157,886*	*88,612*	*69,274*
Fossil Fuel	*137,624*	*102,892*	*34,732*
TOTAL	***295,510***	***191,504***	***104,006***
Average Demand (kW)	*158.55*	*69.19*	*89.37*
TDV Energy (kBtu/ft^2-yr)	*174.15*	*98.46*	*75.69*

Climate Zone:	*10*
Electric Rate:	*SCE GS-1*
Gas Rate:	*SoCal Gas GR-1*
Floor Area:	*35,845*
Type:	*Multi-Family*

Improvements above shown with cumulative savings benefit for combined measures

The estimated operating costs shown in this report are dependent upon many factors. The construction and conservation features of the project clearly are important. Equally important is the thermostat setting. How the thermostat is used, appliance use, and occupant interaction all influence the annual operating cost. The estimates provided in this report are based on typical conditions; your actual usage will vary.

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