

Project Information

For: Rayburn Construction
 7565 Old Santa Fe Trail, Santa Fe, NM 87505

Notes: The report we provide is only as good as the information we receive.
 Please review all load calculations and reports you receive from us for accuracy.
 It is ultimately the HVAC contractor who is responsible for the equipment they install.
 Texas Department of Licensing and Regulation Number TACLA57315E

Design Information

Weather: Santa Fe Co. Muni, NM, US

Winter Design Conditions

Outside db 10 °F
 Inside db 72 °F
 Design TD 62 °F

Summer Design Conditions

Outside db 91 °F
 Inside db 75 °F
 Design TD 16 °F
 Daily range H
 Relative humidity 50 %
 Moisture difference -46 gr/lb

Heating Summary

Structure 20551 Btuh
 Ducts 0 Btuh
 Central vent (SER=50% 40 cfm) 1084 Btuh
 Energy recovery
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 21635 Btuh

Sensible Cooling Equipment Load Sizing

Structure 11794 Btuh
 Ducts 0 Btuh
 Central vent (SER=50% 40 cfm) 287 Btuh
 Energy recovery
 Blower 0 Btuh
 Use manufacturer's data y
 Rate/swing multiplier 1.00
 Equipment sensible load 12081 Btuh

Infiltration

Method Simplified
 Construction quality Tight
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure -18 Btuh
 Ducts 0 Btuh
 Central vent (LER=50% 40 cfm) -493 Btuh
 Energy recovery
 Equipment latent load 0 Btuh

	Heating	Cooling
Area (ft ²)	840	840
Volume (ft ³)	9292	9292
Air changes/hour	0.21	0.11
Equiv. AVF (cfm)	33	17

Equipment Total Load (Sen+Lat) 12081 Btuh
 Req. total capacity at 0.80 SHR 1.3 ton

Heating Equipment Summary

Make Generic
 Trade
 Model SEER 18.0, HSPF 9.1
 AHRI ref
 Efficiency 9.1 HSPF
 Heating input
 Heating output 15026 Btuh @ 47°F
 Temperature rise 34 °F
 Actual air flow 503 cfm
 Air flow factor 0.024 cfm/Btuh
 Static pressure 0 in H2O
 Space thermostat
 Capacity balance point = 26 °F

Cooling Equipment Summary

Make Generic
 Trade
 Cond SEER 18.0, HSPF 9.1
 Coil
 AHRI ref
 Efficiency 14.7 EER, 18 SEER
 Sensible cooling 12081 Btuh
 Latent cooling 3020 Btuh
 Total cooling 15101 Btuh
 Actual air flow 503 cfm
 Air flow factor 0.043 cfm/Btuh
 Static pressure 0 in H2O
 Load sensible heat ratio 1.00

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

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Design Information

	Htg	Clg	Infiltration	
Outside db (°F)	10	91	Method	Simplified
Inside db (°F)	72	75	Construction quality	Tight
Design TD (°F)	62	16	Fireplaces	0
Daily range	-	H		
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	35	-46		

HEATING EQUIPMENT

Make: Generic
 Trade:
 Model: SEER 18.0, HSPF 9.1
 AHRI ref:
 Efficiency: 9.1 HSPF
 Heating input:
 Heating output: 15026 Btuh @ 47°F
 Temperature rise: 34 °F
 Actual air flow: 503 cfm
 Air flow factor: 0.024 cfm/Btuh
 Static pressure: 0 in H2O
 Space thermostat:
 Capacity balance point = 26 °F

COOLING EQUIPMENT

Make: Generic
 Trade:
 Cond: SEER 18.0, HSPF 9.1
 Coil:
 AHRI ref:
 Efficiency: 14.7 EER, 18 SEER
 Sensible cooling: 12081 Btuh
 Latent cooling: 3020 Btuh
 Total cooling: 15101 Btuh
 Actual air flow: 503 cfm
 Air flow factor: 0.043 cfm/Btuh
 Static pressure: 0 in H2O
 Load sensible heat ratio: 1.00

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Office	155	4504	2328	110	99
Kitchen/Living	358	8358	5845	205	249
Bed	177	3930	1909	96	81
Bath	88	2293	471	56	20
Entry	62	1468	1241	36	53
Entire House	840	20551	11794	503	503
Other equip loads		1084	287		
Equip. @ 1.00 RSM			12081		
Latent cooling			0		
TOTALS	840	21635	12081	503	503

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Design Conditions

Location: Santa Fe Co. Muni, NM, US Elevation: 6345 ft Latitude: 36°N			Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	Heating 72 62 30 34.9	Cooling 75 16 50 -45.6
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 10 - - 15.0	Cooling 91 28 (H) 58 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Tight 0	

Construction descriptions

Construction descriptions	Or	Area ft ²	U-value Btuh/ft ² ·°F	Insul R ft ² ·°F/Btuh	Htg HTM Btuh/ft ²	Loss Btuh	Clg HTM Btuh/ft ²	Gain Btuh
Walls Frm wall, stucco ext, 3/8" wood shth, r-28 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm, 16" o.c. stud	ne	184	0.065	28.0	4.03	740	0.83	153
	se	333	0.065	28.0	4.03	1342	0.83	277
	sw	348	0.065	28.0	4.03	1401	0.83	289
	nw	382	0.065	28.0	4.03	1540	0.83	318
	all	1246	0.065	28.0	4.03	5023	0.83	1037

Partitions (none)

Windows

2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; 2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.28); 3 ft overhang (3 ft window ht, 1 ft sep.); 6.67 ft head ht	ne	12	0.300	0	18.6	223	22.8	273
2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; 2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.28); 2 ft overhang (5 ft window ht, 2 ft sep.); 6.67 ft head ht	ne	25	0.300	0	18.6	465	22.8	569
2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; 2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.28); 3 ft overhang (6 ft window ht, 1 ft sep.); 6.67 ft head ht	ne	9	0.300	0	18.6	167	22.8	205
2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; 2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.28); 3 ft overhang (6.8 ft window ht, 1 ft sep.); 6.67 ft head ht	ne	20	0.300	0	18.6	379	22.8	464
2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; 2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.28); 6.67 ft head ht	se	45	0.300	0	18.6	840	26.1	1179
	se	24	0.300	0	18.6	446	26.1	626
	sw	33	0.300	0	18.6	605	26.1	848
	nw	20	0.300	0	18.6	372	22.8	455
	all	122	0.300	0	18.6	2263	25.5	3108

2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; 2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.28); 12 ft head ht	sw	27	0.300	0	18.6	502	26.1	705
2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; 2 glazing, clr low-e outr, argon gas, clad wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.28); 6 ft overhang (8 ft window ht, 0 ft sep.); 6.67 ft head ht	sw	24	0.300	0	18.6	446	10.6	253
	sw	48	0.300	0	18.6	893	7.39	355
	all	72	0.300	0	18.6	1339	8.44	608

Doors
(none)

Ceilings

Rf/clg ceiling, mtl roof mat, frm cons, r-10 deck ins, 1/2" gypsum board int fnsh, 8" thkns, r-38 ceil ins		878	0.029	48.0	1.80	1579	0.57	497
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Floors

22C-10tpl: Bg floor, light dry soil, prm ext ins cov, on grade depth, r-10 ins		118	0.937	10.0	58.1	6855	0	0
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Project Information

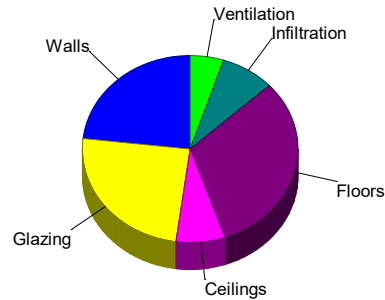
For: Rayburn Construction
7565 Old Santa Fe Trail, Santa Fe, NM 87505

Design Conditions

Location: Santa Fe Co. Muni, NM, US Elevation: 6345 ft Latitude: 36°N		Indoor: Indoor temperature (°F) 72 Design TD (°F) 62 Relative humidity (%) 30 Moisture difference (gr/lb) 34.9		Heating	Cooling
Outdoor: Dry bulb (°F) 10 Daily range (°F) - Wet bulb (°F) - Wind speed (mph) 15.0		Heating	Cooling		
		10	91		75
		-	28 (H)		16
		-	58		50
		15.0	7.5		-45.6
		Infiltration: Method Simplified Construction quality Tight Fireplaces 0			

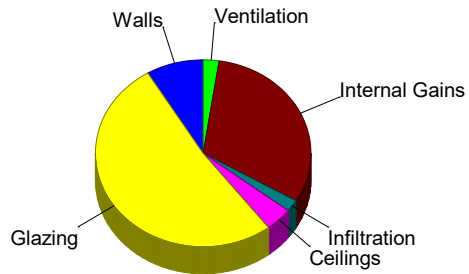
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.0	5023	23.2
Glazing	18.6	5339	24.7
Doors	0	0	0
Ceilings	1.8	1579	7.3
Floors	8.2	6855	31.7
Infiltration	1.1	1754	8.1
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		1084	5.0
Adjustments		0	0
Total		21635	100.0



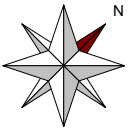
Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.8	1037	8.6
Glazing	21.8	6258	51.8
Doors	0	0	0
Ceilings	0.6	497	4.1
Floors	0	0	0
Infiltration	0.2	243	2.0
Ducts		0	0
Ventilation		287	2.4
Internal gains		3760	31.1
Blower		0	0
Adjustments		0	0
Total		12081	100.0

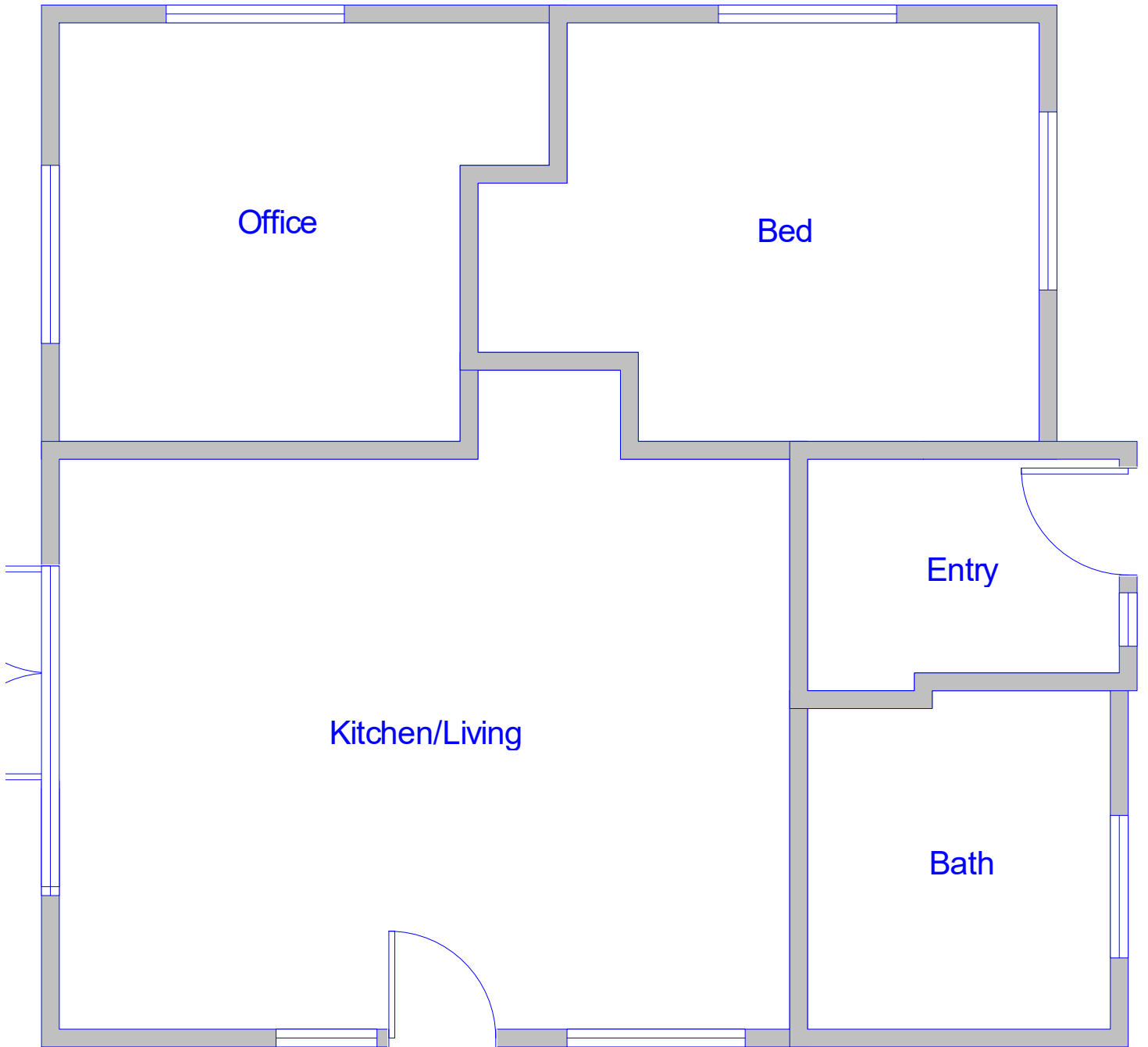


Latent Cooling Load = 0 Btuh
Overall U-value = 0.093 Btuh/ft²-°F

WARNING: window to floor area ratio = 34.2% - more than 25%.



Level 1



Job #
Performed by Andy Pellfor:
Rayburn Construction
7565 Old Santa Fe Trail
Santa Fe, NM 87505

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