

Project Information

For:

Design Conditions

Location: Minneapolis/St.paul, MN, US Elevation: 837 ft Latitude: 45°N		Indoor: Indoor temperature (°F) 70 Design TD (°F) 76 Relative humidity (%) 50 Moisture difference (gr/lb) 53.2	Heating 70 76 50 53.2	Cooling 75 13 50 28.7
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating -6 - - 15.0	Cooling 88 18 (M) 72 7.5		
		Infiltration: Method Construction quality Fireplaces	Simplified Semi-tight 1 (Tight)	

Construction descriptions

Construction descriptions	Or	Area ft ²	U-value Btu/h/ft ² ·°F	Insul R ft ² ·°F/Btu/h	Htg HTM Btu/h/ft ²	Loss Btu/h	Clg HTM Btu/h/ft ²	Gain Btu/h
Walls								
R-34 Dbl Wall: R-34 Dbl Wall R13-13-8 20% FrameFactor	n	227	0.033	34.0	2.49	565	0.68	154
	e	283	0.033	34.0	2.49	705	0.68	191
	s	256	0.033	34.0	2.49	638	0.68	173
	w	460	0.033	34.0	2.49	1146	0.68	311
	all	1226	0.033	34.0	2.49	3054	0.68	830

Partitions

R-35 Garage: Frm wall, 1/2" wood shth, r-28.2 cav ins, 1/2" gypsum board int fnsh, r-7.8 gap between dbl 2"x4" wood frm, 16" o.c. stud	222	0.034	36.0	1.03	228	0.37	82
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Windows

U28 S33: U28 S33; NFRC rated (SHGC=0.33); 50% blinds 45°, medium; 2 ft overhang (4 ft window ht, 6 ft sep.); 6.67 ft head ht	n	10	0.280	0	21.3	213	8.37	84
U30 S32: U30 S32; NFRC rated (SHGC=0.32); 50% blinds 45°, medium; 2 ft overhang (6 ft window ht, 8 ft sep.); 6.67 ft head ht	n	48	0.300	0	22.9	1097	8.48	407
10A-m: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; NFRC rated (SHGC=0.17); 50% blinds 45°, medium; 2 ft overhang (6.83 ft window ht, 1 ft sep.); 6.67 ft head ht	e	37	0.230	0	17.5	649	10.8	399
U27 S28: U27 S28; NFRC rated (SHGC=0.28); 50% blinds 45°, medium; 2 ft overhang (4 ft window ht, 1 ft sep.); 6.67 ft head ht	e	16	0.270	0	20.6	329	23.5	375
U27 S28: U27 S28; NFRC rated (SHGC=0.28); 50% blinds 45°, medium; 2 ft overhang (5 ft window ht, 1 ft sep.); 6.67 ft head ht	e	15	0.270	0	20.6	309	24.0	360
	s	25	0.270	0	20.6	514	10.1	252
	w	50	0.270	0	20.6	1029	24.0	1201
	all	90	0.270	0	20.6	1852	20.2	1814
U28 S33: U28 S33; NFRC rated (SHGC=0.33); 50% blinds 45°, medium; 2 ft overhang (5 ft window ht, 1 ft sep.); 6.67 ft head ht	s	25	0.280	0	21.3	533	11.4	285
1A-c1omd: 1 glazing, clr glz, mtl no brk frm mat, 1/8" thk; NFRC rated (SHGC=0.24); 50% blinds 45°, medium; 2 ft overhang (8 ft window ht, 1 ft sep.); 6.67 ft head ht	w	48	0.300	0	22.9	1097	21.6	1039
U28 S33: U28 S33; NFRC rated (SHGC=0.33); 50% blinds 45°, medium; 2 ft overhang (6 ft window ht, 1 ft sep.); 6.67 ft head ht	w	36	0.280	0	21.3	768	28.3	1018

Doors

Door U30: Door, insulated core, rated	n	21	0.300	3.0	22.9	480	7.71	162
Door U20: Door, insulated core, Rated	n	21	0.200	5.0	6.00	126	7.71	162

Ceilings

Attic ceiling, asphalt shingles roof mat, r-56 ceil ins, 1/2" gypsum board int fnsh: Attic ceiling, asphalt shingles roof mat, r-56 ceil ins, 1/2" gypsum board int fnsh		2244	0.017	61.0	1.26	2830	0.81	1827
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Floors

22D-15wpl: Bg floor, light dry soil, full ext ins cov, on grade depth, r-20 edge ins, r-10 ins, hrd wd flr fnsh		173	0.174	20.0	13.3	2294	0	0
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Outdoor:

Dry bulb (°F)
 Daily range (°F)
 Wet bulb (°F)
 Wind speed (mph)

Heating

-6
 -
 -
 15.0

Cooling

88
 18 (M)
 72
 7.5

Indoor:

Indoor temperature (°F)
 Design TD (°F)
 Relative humidity (%)
 Moisture difference (gr/lb)

Heating

70
 76
 50
 53.2

Cooling

75
 13
 50
 28.7

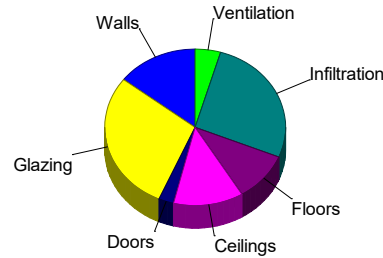
Infiltration:

Method
 Construction quality
 Fireplaces

Simplified
 Semi-tight
 1 (Tight)

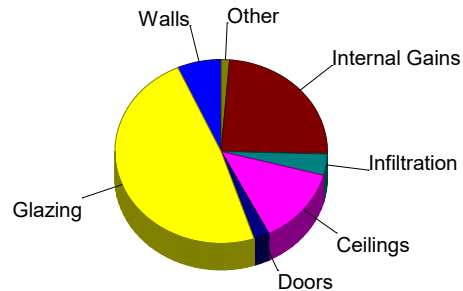
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.3	3282	14.5
Glazing	21.1	6539	28.9
Doors	14.4	606	2.7
Ceilings	1.3	2830	12.5
Floors	1.0	2294	10.2
Infiltration	3.9	6022	26.6
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		1026	4.5
Adjustments		0	0
Total		22598	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.6	912	6.7
Glazing	21.3	6591	48.3
Doors	7.7	324	2.4
Ceilings	0.8	1827	13.4
Floors	0	0	0
Infiltration	0.3	514	3.8
Ducts		0	0
Ventilation		175	1.3
Internal gains		3290	24.1
Blower		0	0
Adjustments		0	0
Total		13632	100.0



Latent Cooling Load = 1302 Btuh
 Overall U-value = 0.034 Btuh/ft²-°F

Data entries checked.

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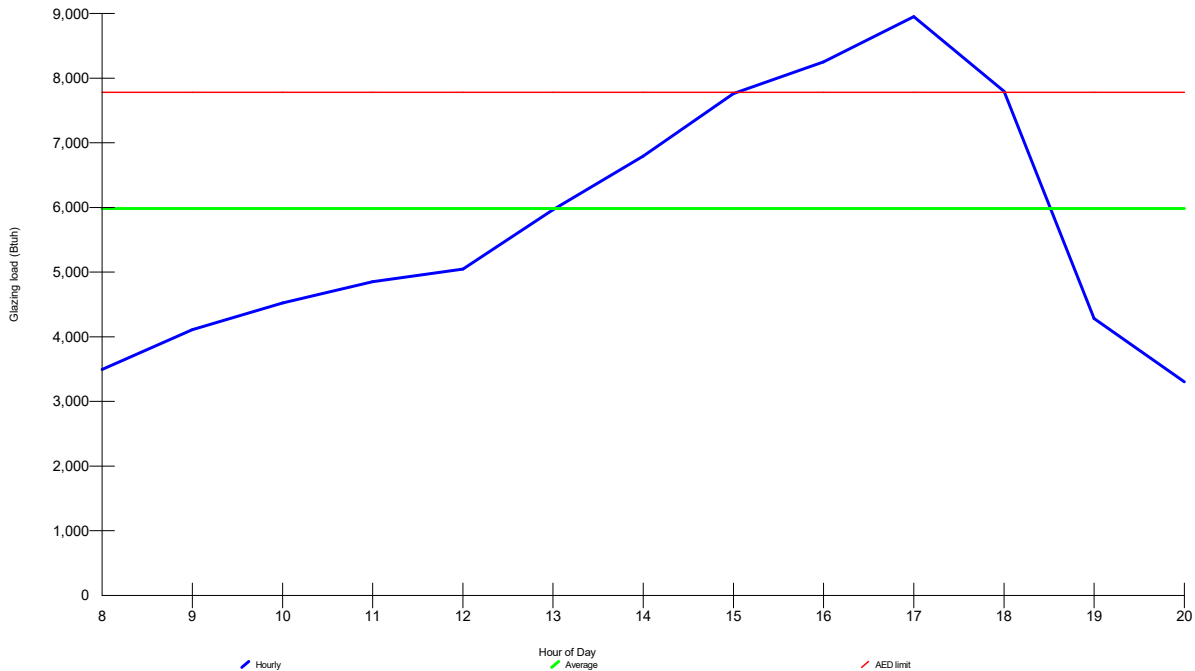
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Infiltration:

Test for Adequate Exposure Diversity

Hourly Glazing Load



Maximum hourly glazing load exceeds average by 49.5%.

House does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 1170 Btuh (PFG - 1.3*AFG)