

ENERGYGUIDE

ENERGY EFFICIENCY SPLIT SYSTEM HEAT PUMP WITH BLOWER COIL

**REGION 4
REGION 5**

MODELS

**WQS30A/BC24B
WQS36A/BC36B
WQS42A/BC36B
24UHPQA/BC24B
24UHPQB/BC24B
30UHPQB/BC36B
36UHPQB/BC36B
42UHPQA/BC48B
48UHPQB/BC48B
60UHPQB/BC60B**

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**MANUAL 2100-186 REV. B
SUPERSEDES REV. A**

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BRYAN, OHIO

ENERGYGUIDE INFORMATION

The cost grids on the fact sheets are based upon representative incremental rates that should correspond to the type of fuel being considered.

IMPORTANT: All cost grid data are "estimated yearly operating costs". Your actual yearly operating costs are dependent upon such factors as weather severity, routine maintenance items affecting operating efficiency (filters, blowers, etc.), actual heat loss of structure, desired indoor temperatures, living patterns of the occupants, and other items affecting operating time of the heating appliance.

To use the cost grids, it is necessary to know the heat loss of your home or building and the energy rate for your area. If not already know, the heat loss can be calculated by the dealer, builder, architect, etc., and the current energy rates obtained from the appropriate local utility.

Even without the specific information listed above, the cost of operation of competitive models can be compared by using similarly rated input models and their respective fact sheets and using the same heat loss of house and energy cost values on each fact sheet.

An example of how to use the enclosed information is as follows:

Geographic Location: Ohio--From Region Map: Region IV
 Heat Loss of Building: 35,000 Btu/h
 Heat Appliance Model Desired: 36UHPQA/BC36B

Consulting the Region IV cost grid (1) and moving down the 35,000 Btu/h (2) column to the \$.120 cost per kilowatt hour line (closest value to actual cost determined by contacting local utility) (3), the estimated cost per year to operate is \$1,004.00.(4) The cost to heat with electric heat only is \$2,127,00 (5).

Subtract the estimated cost of heating with heat pump with electric heat \$1,004.00 from the cost of heating with electric heat only \$2,127.00 for estimated annual cost savings of \$1,123.00.

REGION 4 (1) 36UHPQA/BC36B
 HEAT PUMP MODEL: OUTDOOR 36UHPQA INDOOR BC36B
 ARI RATED COOLING CAP.: BTUH (95) 34000, SEER 10.00
 ARI RATED HEATING CAP.: BTUH (47) 34000, COP (47) 3.10, HSPF 7.00 MIN.DHR REG IV
 BTUH (17) 20000, COP (17) 2.20
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00% AFUE

HEAT LOSS BTUH
 ELEC. COST \$/KWH

35,000 (2)	---THEORETICAL ANNUAL HEATING COST---	
	HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
.05 \$	417	885
.06 \$	502	1060
.07 \$	586	1241
.08 \$	665	1416
.09 \$	750	1596
.10 \$	835	1771
(3) .12 \$----->	1004 (4) ----->	2127 (5)
.14 \$	1168	2482
.16 \$	1331	2838

BALANCE POINT 19 DEG.F (6)

The balance point (the outdoor temperature at which the heat pump is running 100% of the time and just meeting structure heat loss requirements) is located on right side of page (6).

EXAMPLE: For a structure with a 35,000 Btuh with a 36UHPQA heat pump has a balance point of 19°F. Below this theoretical balance point, the heating load is automatically transferred between the heat pump and the furnace by the wall thermostat to maintain the desired temperature.

To find annual cooling cost of heat pump, look at the bottom of page under annual air conditioning cost. Directly under the electric rate \$/KW (3) line, is located the annual cooling cost.

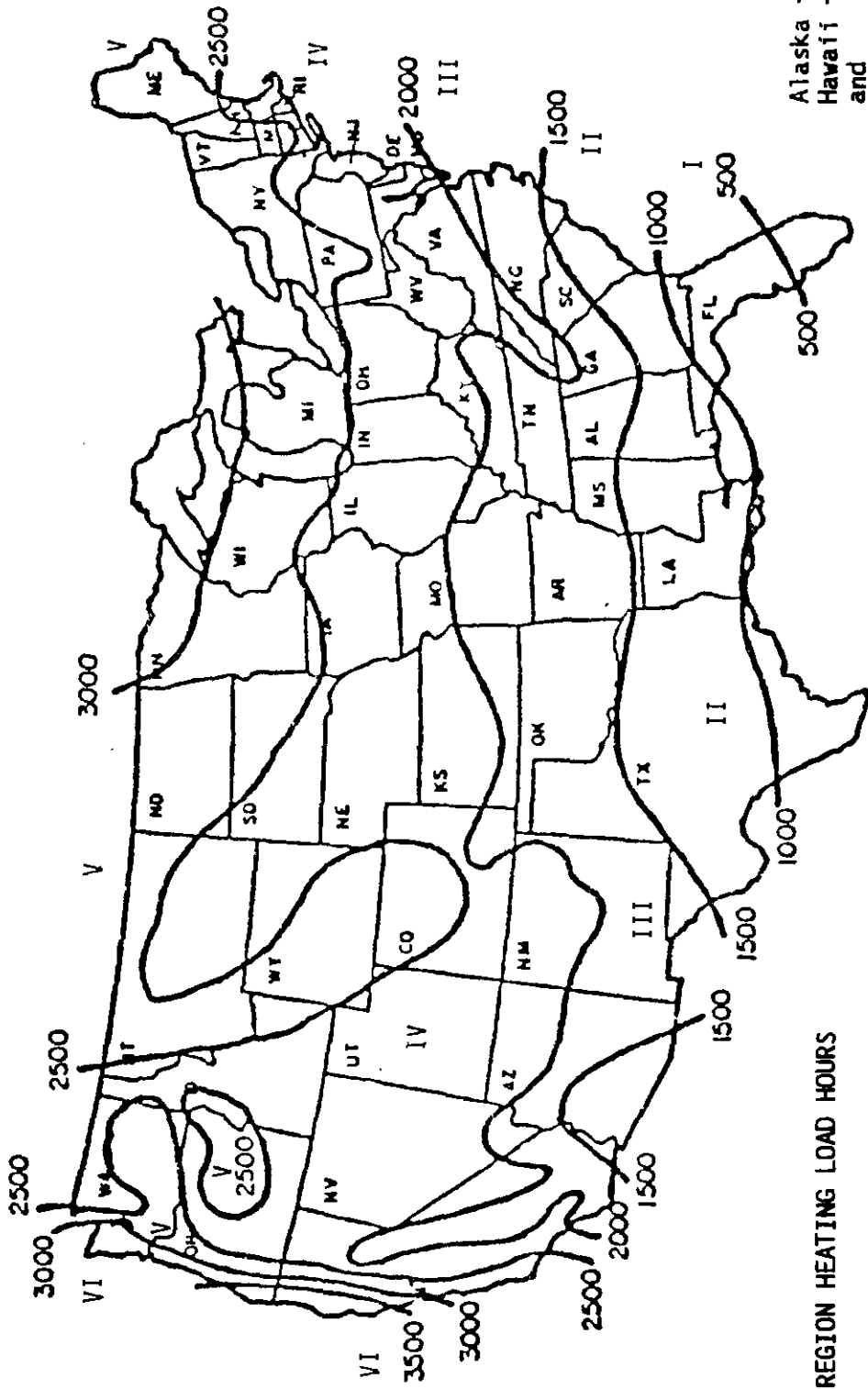
EXAMPLE: At .12 \$/KW rate for electricity, the cooling cost would be \$326.00 annually.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

.05	.06	.07	.08	.09	.10	.12	.14	.16		<--ELECTRIC RATE \$/KWH
\$ 136	163	190	217	244	272	326	380	435		<--THEORETICAL AIR CONDITIONING COST

NOTE: The accuracy of this Energyguide is directly affected by how accurately you estimate the structure's heat loss and heat gain. Because of uncontrollable variables, Bard Manufacturing Company is not responsible for any variation in actual operating costs from these theoretical estimates.

ACTUAL HEATING LOAD HOURS (HLH_A) AND REGIONAL HEATING LOAD HOURS (HLH_R) FOR THE UNITED STATES



Alaska -- 3500 HLH
 Hawaii -- 0 HLH
 and Territories

REGION HEATING LOAD HOURS

Region	HLHr
I	750
II	1250
III	1750
IV	2250
V	2750
VI	2750

This map is reasonably accurate for the most parts of the United States but is necessarily highly generalized and consequently not too accurate in mountainous regions, particularly in the Rockies.

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REGION 4
 HEAT PUMP MODEL: COMPRESSOR SECTION W0530A INDOOR BC24B
 COOLING CAPACITY AT 53 DEG. F. ENTERING WATER TEMP.: 31500 BTUH, 16.73 SEER
 HEATING CAPACITY AT 53 DEG. F. ENTERING WATER TEMP.: 27450 BTUH, 3.59 COP
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00% AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
25,000			
.05	\$	214	631
.06	\$	259	756
.07	\$	299	885
.08	\$	344	1010
.09	\$	383	1139
.10	\$	428	1263
.12	\$	513	1517
.14	\$	603	1771
.16	\$	682	2025

BALANCE POINT 20- DEG. F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
30,000			
.05	\$	253	756
.06	\$	304	908
.07	\$	349	1060
.08	\$	406	1213
.09	\$	451	1365
.10	\$	502	1517
.12	\$	603	1822
.14	\$	705	2127
.16	\$	806	2431

BALANCE POINT 6- DEG. F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
35,000			
.05	\$	287	885
.06	\$	344	1060
.07	\$	406	1241
.08	\$	462	1416
.09	\$	519	1596
.10	\$	575	1771
.12	\$	694	2127
.14	\$	812	2482
.16	\$	925	2838

BALANCE POINT 4 DEG. F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
40,000			
.05	\$	327	1010
.06	\$	394	1213
.07	\$	457	1416
.08	\$	524	1619
.09	\$	592	1822
.10	\$	654	2025
.12	\$	784	2431
.14	\$	919	2838
.16	\$	1043	3244

BALANCE POINT 11 DEG. F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
50,000			
.05	\$	423	1263
.06	\$	507	1517
.07	\$	586	1771
.08	\$	677	2025
.09	\$	761	2279
.10	\$	846	2533
.12	\$	1015	3041
.14	\$	1184	3549
.16	\$	1354	4057

BALANCE POINT 22 DEG. F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	75	90	105	120	135	150	180	210	241	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

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REGION 5
 HEAT PUMP MODEL: COMPRESSOR SECTION W0S30A INDOOR BC24B
 COOLING CAPACITY AT 45 DEG.F. ENTERING WATER TEMP.: 31700 BTUH, 17.55 SEER
 HEATING CAPACITY AT 45 DEG.F. ENTERING WATER TEMP.: 24650 BTUH, 3.40 COP
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00% AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
25,000			
.05	\$	306	772
.06	\$	368	925
.07	\$	431	1085
.08	\$	486	1238
.09	\$	549	1391
.10	\$	612	1544
.12	\$	737	1857
.14	\$	855	2170
.16	\$	980	2476
30,000			
.05	\$	361	925
.06	\$	431	1112
.07	\$	507	1300
.08	\$	577	1488
.09	\$	646	1669
.10	\$	723	1857
.12	\$	862	2232
.14	\$	1008	2601
.16	\$	1154	2977
			BALANCE POINT 14- DEG.F.
35,000			
.05	\$	417	1085
.06	\$	493	1300
.07	\$	584	1516
.08	\$	660	1732
.09	\$	751	1947
.10	\$	827	2170
.12	\$	994	2601
.14	\$	1161	3039
.16	\$	1328	3471
			BALANCE POINT 3- DEG.F.
40,000			
.05	\$	473	1238
.06	\$	570	1488
.07	\$	660	1732
.08	\$	758	1982
.09	\$	848	2232
.10	\$	946	2476
.12	\$	1133	2977
.14	\$	1321	3471
.16	\$	1516	3965
			BALANCE POINT 5 DEG.F.
50,000			
.05	\$	619	1544
.06	\$	737	1857
.07	\$	862	2170
.08	\$	987	2476
.09	\$	1106	2789
.10	\$	1238	3095
.12	\$	1481	3721
.14	\$	1725	4340
.16	\$	1975	4959
			BALANCE POINT 17 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	36	43	50	57	65	72	86	101	115	<--ELECTRIC RATE \$/KWH <--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

REGION 4
 HEAT PUMP MODEL: COMPRESSOR SECTION W0S36A INDOOR BC36B
 COOLING CAPACITY AT 53 DEG.F. ENTERING WATER TEMP.: 37740 BTUH, 15.07 SEER
 HEATING CAPACITY AT 53 DEG.F. ENTERING WATER TEMP.: 27450 BTUH, 3.59 COP
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00% AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
25,000			
.05	\$	214	631
.06	\$	259	756
.07	\$	299	885
.08	\$	344	1010
.09	\$	383	1139
.10	\$	428	1263
.12	\$	513	1517
.14	\$	603	1771
.16	\$	682	2025

BALANCE POINT 20- DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
30,000			
.05	\$	253	756
.06	\$	304	908
.07	\$	349	1060
.08	\$	406	1213
.09	\$	451	1365
.10	\$	502	1517
.12	\$	603	1822
.14	\$	705	2127
.16	\$	806	2431

BALANCE POINT 6- DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
35,000			
.05	\$	287	885
.06	\$	344	1060
.07	\$	406	1241
.08	\$	462	1416
.09	\$	519	1596
.10	\$	575	1771
.12	\$	694	2127
.14	\$	812	2482
.16	\$	925	2838

BALANCE POINT 4 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
40,000			
.05	\$	327	1010
.06	\$	394	1213
.07	\$	457	1416
.08	\$	524	1619
.09	\$	592	1822
.10	\$	654	2025
.12	\$	784	2431
.14	\$	919	2838
.16	\$	1043	3244

BALANCE POINT 11 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
50,000			
.05	\$	423	1263
.06	\$	507	1517
.07	\$	586	1771
.08	\$	677	2025
.09	\$	761	2279
.10	\$	846	2533
.12	\$	1015	3041
.14	\$	1184	3549
.16	\$	1354	4057

BALANCE POINT 22 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

\$	.05	.06	.07	.08	.09	.10	.12	.14	.16	
	93	112	131	150	169	187	225	263	300	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

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REGION 5
 HEAT PUMP MODEL: COMPRESSOR SECTION W0536A INDOOR BC36B
 COOLING CAPACITY AT 45 DEG.F. ENTERING WATER TEMP.: 37900 BTUH, 17.20 SEER
 HEATING CAPACITY AT 45 DEG.F. ENTERING WATER TEMP.: 30650 BTUH, 3.55 COP
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00% AFUE

HEAT LOSS BTUH
 ELEC. COST \$/KWH

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	410	1085
.06	\$	493	1300
.07	\$	570	1516
.08	\$	653	1732
.09	\$	737	1947
.10	\$	813	2170
.12	\$	980	2601
.14	\$	1147	3039
.16	\$	1307	3471

BALANCE POINT 20- DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	459	1238
.06	\$	549	1488
.07	\$	646	1732
.08	\$	744	1982
.09	\$	827	2232
.10	\$	925	2476
.12	\$	1106	2977
.14	\$	1293	3471
.16	\$	1474	3965

BALANCE POINT 9- DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	570	1544
.06	\$	688	1857
.07	\$	799	2170
.08	\$	918	2476
.09	\$	1029	2789
.10	\$	1147	3095
.12	\$	1370	3721
.14	\$	1606	4340
.16	\$	1829	4959

BALANCE POINT 5 DEG.F.

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	709	1857
.06	\$	855	2232
.07	\$	994	2601
.08	\$	1133	2977
.09	\$	1279	3345
.10	\$	1419	3721
.12	\$	1704	4465
.14	\$	1989	5210
.16	\$	2274	5954

BALANCE POINT 15 DEG.F.

70,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	876	2170
.06	\$	1057	2601
.07	\$	1231	3039
.08	\$	1412	3471
.09	\$	1579	3902
.10	\$	1759	4340
.12	\$	2114	5210
.14	\$	2462	6079
.16	\$	2817	6942

BALANCE POINT 22 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16
\$	44	52	61	70	79	88	105	123	141

<--ELECTRIC RATE \$/KWH

<--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

REGION 4
 HEAT PUMP MODEL: COMPRESSOR SECTION W0S42A INDOOR BC36B
 COOLING CAPACITY AT 53 DEG.F. ENTERING WATER TEMP.: 41290 BTUH 16.79 SEER
 HEATING CAPACITY AT 53 DEG.F. ENTERING WATER TEMP.: 39090 BTUH 3.39 COP
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00% AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
40,000			
.05	\$	355	1010
.06	\$	434	1213
.07	\$	502	1416
.08	\$	575	1619
.09	\$	643	1822
.10	\$	716	2025
.12	\$	857	2431
.14	\$	1004	2838
.16	\$	1145	3244

BALANCE POINT 11- DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
50,000			
.05	\$	434	1263
.06	\$	524	1517
.07	\$	609	1771
.08	\$	699	2025
.09	\$	784	2279
.10	\$	874	2533
.12	\$	1043	3041
.14	\$	1218	3549
.16	\$	1393	4057

BALANCE POINT 4 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
60,000			
.05	\$	519	1517
.06	\$	620	1822
.07	\$	727	2127
.08	\$	829	2431
.09	\$	936	2736
.10	\$	1038	3041
.12	\$	1247	3650
.14	\$	1455	4260
.16	\$	1664	4869

BALANCE POINT 14 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
70,000			
.05	\$	615	1771
.06	\$	744	2127
.07	\$	868	2482
.08	\$	987	2838
.09	\$	1117	3193
.10	\$	1241	3549
.12	\$	1484	4260
.14	\$	1732	4971
.16	\$	1974	5682

BALANCE POINT 21 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
80,000			
.05	\$	739	2025
.06	\$	885	2431
.07	\$	1032	2838
.08	\$	1179	3244
.09	\$	1331	3650
.10	\$	1478	4057
.12	\$	1771	4869
.14	\$	2070	5682
.16	\$	2364	6494

BALANCE POINT 27 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	98	118	137	157	177	196	236	275	314	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: COMPRESSOR SECTION W0S42A INDOOR BC36B
 COOLING CAPACITY AT 45 DEG. F. ENTERING WATER TEMP.: 41650 BTUH, 18.14 SEER
 HEATING CAPACITY AT 45 DEG. F. ENTERING WATER TEMP.: 35400 BTUH, 3.20 COP
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00% AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
40,000			
.05	\$	507	1238
.06	\$	612	1488
.07	\$	716	1732
.08	\$	813	1982
.09	\$	918	2232
.10	\$	1022	2476
.12	\$	1224	2977
.14	\$	1426	3471
.16	\$	1634	3965
			BALANCE POINT 21- DEG.F.
50,000			
.05	\$	619	1544
.06	\$	751	1857
.07	\$	869	2170
.08	\$	1001	2476
.09	\$	1119	2789
.10	\$	1245	3095
.12	\$	1495	3721
.14	\$	1745	4340
.16	\$	1996	4959
			BALANCE POINT 4- DEG.F.
60,000			
.05	\$	751	1857
.06	\$	890	2232
.07	\$	1043	2601
.08	\$	1196	2977
.09	\$	1342	3345
.10	\$	1488	3721
.12	\$	1794	4465
.14	\$	2086	5210
.16	\$	2385	5954
			BALANCE POINT 7 DEG.F.
70,000			
.05	\$	897	2170
.06	\$	1078	2601
.07	\$	1252	3039
.08	\$	1432	3471
.09	\$	1613	3902
.10	\$	1787	4340
.12	\$	2142	5210
.14	\$	2511	6079
.16	\$	2865	6942
			BALANCE POINT 16 DEG.F.
80,000			
.05	\$	1071	2476
.06	\$	1279	2977
.07	\$	1495	3471
.08	\$	1704	3965
.09	\$	1926	4465
.10	\$	2142	4959
.12	\$	2566	5954
.14	\$	2991	6942
.16	\$	3422	7936
			BALANCE POINT 22 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

\$	.05	.06	.07	.08	.09	.10	.12	.14	.16	
	45	55	64	73	82	91	110	128	146	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

BARD MANUFACTURING COMPANY

REGION 4
 HEAT PUMP MODEL: OUTDOOR 24UHPOA 24UHPOA/BC24B
 ARI RATED COOLING CAP.: BTUH (95) 24400, SEER10.00 INDOOR BC24B
 ARI RATED HEATING CAP.: BTUH (47) 24000, COP(47) 2.90, HSPF 6.00 MIN.DHR REG IV
 BTUH (17) 12500, COP(17) 1.90
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
25,000			
.05	\$	338	631
.06	\$	406	756
.07	\$	473	885
.08	\$	541	1010
.09	\$	609	1139
.10	\$	677	1263
.12	\$	812	1517
.14	\$	947	1771
.16	\$	1083	2025
			BALANCE POINT 21 DEG.F.
30,000			
.05	\$	411	756
.06	\$	490	908
.07	\$	575	1060
.08	\$	654	1213
.09	\$	739	1365
.10	\$	823	1517
.12	\$	987	1822
.14	\$	1151	2127
.16	\$	1314	2431
			BALANCE POINT 25 DEG.F.
35,000			
.05	\$	490	885
.06	\$	586	1060
.07	\$	682	1241
.08	\$	778	1416
.09	\$	880	1596
.10	\$	976	1771
.12	\$	1173	2127
.14	\$	1371	2482
.16	\$	1563	2838
			BALANCE POINT 28 DEG.F.
40,000			
.05	\$	569	1010
.06	\$	688	1213
.07	\$	795	1416
.08	\$	914	1619
.09	\$	1026	1822
.10	\$	1139	2025
.12	\$	1365	2431
.14	\$	1596	2838
.16	\$	1822	3244
			BALANCE POINT 31 DEG.F.
50,000			
.05	\$	761	1263
.06	\$	908	1517
.07	\$	1060	1771
.08	\$	1213	2025
.09	\$	1359	2279
.10	\$	1512	2533
.12	\$	1811	3041
.14	\$	2121	3549
.16	\$	2420	4057
			BALANCE POINT 36 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

\$	.05	.06	.07	.08	.09	.10	.12	.14	.16	<--ELECTRIC RATE \$/KWH
	97	117	136	156	175	195	234	273	312	<--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: OUTDOOR 24UHPOA 24UHPOA/BC24B INDOOR BC24B
 ARI RATED COOLING CAP.: BTUH(95) 24400, SEER10.00
 ARI RATED HEATING CAP.: BTUH(47) 24000, COP(47) 2.90, HSPP 6.00 MIN.DHR REG IV
 BTUH(17) 12500, COP(17) 1.90
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS
 BTUH
 ELEC. COST
 \$/KWH

25,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	479	772
.06	\$	577	925
.07	\$	667	1085
.08	\$	765	1238
.09	\$	855	1391
.10	\$	952	1544
.12	\$	1147	1857
.14	\$	1335	2170
.16	\$	1530	2476

BALANCE POINT 16 DEG.F.

30,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	577	925
.06	\$	695	1112
.07	\$	806	1300
.08	\$	925	1488
.09	\$	1043	1669
.10	\$	1161	1857
.12	\$	1391	2232
.14	\$	1620	2601
.16	\$	1850	2977

BALANCE POINT 20 DEG.F.

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	688	1085
.06	\$	820	1300
.07	\$	959	1516
.08	\$	1099	1732
.09	\$	1238	1947
.10	\$	1370	2170
.12	\$	1641	2601
.14	\$	1912	3039
.16	\$	2191	3471

BALANCE POINT 24 DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	793	1238
.06	\$	952	1488
.07	\$	1106	1732
.08	\$	1272	1982
.09	\$	1426	2232
.10	\$	1586	2476
.12	\$	1899	2977
.14	\$	2219	3471
.16	\$	2538	3965

BALANCE POINT 26 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1029	1544
.06	\$	1238	1857
.07	\$	1439	2170
.08	\$	1648	2476
.09	\$	1857	2789
.10	\$	2065	3095
.12	\$	2476	3721
.14	\$	2886	4340
.16	\$	3297	4959

BALANCE POINT 31 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	48	58	68	78	87	97	117	136	156	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 4
 HEAT PUMP MODEL: OUTDOOR 24UHPQB 24UHPQB/BC24B INDOOR BC24B
 ARI RATED COOLING CAP.: BTUH (95) 23600, SEER11.40
 ARI RATED HEATING CAP.: BTUH (47) 24600, COP(47) 2.90, HSPF 6.80 MIN.DHR REG IV
 BTUH (17) 14400, COP(17) 1.90
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS
 BTUH
 ELEC. COST
 \$/KWH

25,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	315	631
.06	\$	378	756
.07	\$	440	885
.08	\$	502	1010
.09	\$	569	1139
.10	\$	631	1263
.12	\$	756	1517
.14	\$	880	1771
.16	\$	1010	2025

BALANCE POINT 18 DEG.F.

30,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	383	756
.06	\$	457	908
.07	\$	536	1060
.08	\$	615	1213
.09	\$	694	1365
.10	\$	767	1517
.12	\$	919	1822
.14	\$	1077	2127
.16	\$	1224	2431

BALANCE POINT 24 DEG.F.

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	457	885
.06	\$	552	1060
.07	\$	643	1241
.08	\$	733	1416
.09	\$	823	1596
.10	\$	919	1771
.12	\$	1100	2127
.14	\$	1280	2482
.16	\$	1467	2838

BALANCE POINT 28 DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	541	1010
.06	\$	643	1213
.07	\$	756	1416
.08	\$	868	1619
.09	\$	970	1822
.10	\$	1083	2025
.12	\$	1297	2431
.14	\$	1512	2838
.16	\$	1726	3244

BALANCE POINT 31 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	727	1263
.06	\$	874	1517
.07	\$	1021	1771
.08	\$	1162	2025
.09	\$	1303	2279
.10	\$	1450	2533
.12	\$	1743	3041
.14	\$	2031	3549
.16	\$	2324	4057

BALANCE POINT 36 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	82	99	115	132	149	165	198	231	264	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: OUTDOOR 24UHPOB 24UHPOB/BC24B INDOOR BC24B
 ARI RATED COOLING CAP.: BTUH(95) 23600 SEBR11.40
 ARI RATED HEATING CAP.: BTUH(47) 24600 COP(47) 2.90 HSPF 6.80 MIN.DHR REG IV
 BTUH(17) 14400 COP(17) 1.90
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH
 ELEC. COST \$/KWH

25,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	445	772
.06	\$	542	925
.07	\$	633	1085
.08	\$	716	1238
.09	\$	813	1391
.10	\$	904	1544
.12	\$	1078	1857
.14	\$	1259	2170
.16	\$	1439	2476

BALANCE POINT 13 DEG.F.

30,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	549	925
.06	\$	653	1112
.07	\$	765	1300
.08	\$	876	1488
.09	\$	987	1669
.10	\$	1085	1857
.12	\$	1307	2232
.14	\$	1523	2601
.16	\$	1745	2977

BALANCE POINT 17 DEG.F.

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	646	1085
.06	\$	772	1300
.07	\$	904	1516
.08	\$	1029	1732
.09	\$	1161	1947
.10	\$	1286	2170
.12	\$	1551	2601
.14	\$	1808	3039
.16	\$	2065	3471

BALANCE POINT 22 DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	758	1238
.06	\$	911	1488
.07	\$	1050	1732
.08	\$	1203	1982
.09	\$	1356	2232
.10	\$	1509	2476
.12	\$	1808	2977
.14	\$	2114	3471
.16	\$	2413	3965

BALANCE POINT 25 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	987	1544
.06	\$	1189	1857
.07	\$	1384	2170
.08	\$	1579	2476
.09	\$	1780	2789
.10	\$	1975	3095
.12	\$	2372	3721
.14	\$	2768	4340
.16	\$	3165	4959

BALANCE POINT 31 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	41	49	57	66	74	82	99	115	132	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 4
 HEAT PUMP MODEL: 30UHPQB/BC36B
 RATED COOLING CAP.: BTUH(95) 29000, SEER10.00
 RATED HEATING CAP.: BTUH(47) 29000, COP(47) 3.00, HSPF 7.00 MIN.DHR REG IV
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS
 BTUH
 ELEC. COST
 \$/KWH

30,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	378	756
.06	\$	451	908
.07	\$	524	1060
.08	\$	603	1213
.09	\$	677	1365
.10	\$	750	1517
.12	\$	902	1822
.14	\$	1049	2127
.16	\$	1207	2431

BALANCE POINT 20 DEG.F.

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	440	885
.06	\$	530	1060
.07	\$	620	1241
.08	\$	705	1416
.09	\$	795	1596
.10	\$	885	1771
.12	\$	1066	2127
.14	\$	1235	2482
.16	\$	1416	2838

BALANCE POINT 23 DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	507	1010
.06	\$	615	1213
.07	\$	716	1416
.08	\$	818	1619
.09	\$	919	1822
.10	\$	1021	2025
.12	\$	1224	2431
.14	\$	1427	2838
.16	\$	1636	3244

BALANCE POINT 26 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	665	1263
.06	\$	801	1517
.07	\$	936	1771
.08	\$	1072	2025
.09	\$	1207	2279
.10	\$	1337	2533
.12	\$	1602	3041
.14	\$	1873	3549
.16	\$	2138	4057

BALANCE POINT 31 DEG.F.

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	852	1517
.06	\$	1026	1822
.07	\$	1196	2127
.08	\$	1365	2431
.09	\$	1534	2736
.10	\$	1709	3041
.12	\$	2048	3650
.14	\$	2386	4260
.16	\$	2731	4869

BALANCE POINT 35 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

.05	.06	.07	.08	.09	.10	.12	.14	.16
\$ 116	139	162	185	208	232	278	324	371

<--ELECTRIC RATE \$/KWH
 <--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: OUTDOOR 30UHPOB 30UHPOB/BC36B INDOOR BC36B
 ARI RATED COOLING CAP.: BTUH(95) 29000, SEER10.00
 ARI RATED HEATING CAP.: BTUH(47) 29000, COP(47) 3.00, HSPF 7.00 MIN.DHR REG IV
 BTUH(17) 16000, COP(17) 2.00
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH
 ELEC. COST \$/KWH

30,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	535	925
.06	\$	646	1112
.07	\$	751	1300
.08	\$	862	1488
.09	\$	973	1669
.10	\$	1078	1857
.12	\$	1293	2232
.14	\$	1509	2601
.16	\$	1725	2977

BALANCE POINT 15 DEG.F.

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	633	1085
.06	\$	758	1300
.07	\$	883	1516
.08	\$	1015	1732
.09	\$	1140	1947
.10	\$	1266	2170
.12	\$	1516	2601
.14	\$	1773	3039
.16	\$	2024	3471

BALANCE POINT 18 DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	730	1238
.06	\$	876	1488
.07	\$	1022	1732
.08	\$	1168	1982
.09	\$	1314	2232
.10	\$	1460	2476
.12	\$	1752	2977
.14	\$	2045	3471
.16	\$	2337	3965

BALANCE POINT 21 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	939	1544
.06	\$	1126	1857
.07	\$	1321	2170
.08	\$	1509	2476
.09	\$	1697	2789
.10	\$	1878	3095
.12	\$	2260	3721
.14	\$	2636	4340
.16	\$	3018	4959

BALANCE POINT 26 DEG.F.

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1175	1857
.06	\$	1412	2232
.07	\$	1641	2601
.08	\$	1878	2977
.09	\$	2114	3345
.10	\$	2351	3721
.12	\$	2817	4465
.14	\$	3290	5210
.16	\$	3756	5954

BALANCE POINT 30 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	58	69	81	92	104	116	139	162	185	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

BARD MANUFACTURING COMPANY

REGION 4
 HEAT PUMP MODEL: OUTDOOR 36UHPQB 36UHPQB/BC36B INDOOR BC36B
 ARI RATED COOLING CAP.: BTUH(95) 34000 SEER10.00
 ARI RATED HEATING CAP.: BTUH(47) 34000 COP(47) 3.10 HSPF 7.00 MIN.DHR REG IV
 BTUH(17) 20000 COP(17) 2.20
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS
 BTUH
 ELEC.
 COST
 S/KWH

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	417	885
.06	\$	502	1060
.07	\$	586	1241
.08	\$	665	1416
.09	\$	750	1596
.10	\$	835	1771
.12	\$	1004	2127
.14	\$	1168	2482
.16	\$	1331	2838

BALANCE POINT 19 DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	479	1010
.06	\$	575	1213
.07	\$	671	1416
.08	\$	761	1619
.09	\$	863	1822
.10	\$	959	2025
.12	\$	1151	2431
.14	\$	1342	2838
.16	\$	1534	3244

BALANCE POINT 22 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	620	1263
.06	\$	739	1517
.07	\$	868	1771
.08	\$	993	2025
.09	\$	1117	2279
.10	\$	1241	2533
.12	\$	1489	3041
.14	\$	1737	3549
.16	\$	1986	4057

BALANCE POINT 28 DEG.F.

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	778	1517
.06	\$	936	1822
.07	\$	1094	2127
.08	\$	1247	2431
.09	\$	1405	2736
.10	\$	1563	3041
.12	\$	1873	3650
.14	\$	2189	4260
.16	\$	2494	4869

BALANCE POINT 32 DEG.F.

70,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	964	1771
.06	\$	1162	2127
.07	\$	1348	2482
.08	\$	1546	2838
.09	\$	1737	3193
.10	\$	1929	3549
.12	\$	2313	4260
.14	\$	2702	4971
.16	\$	3086	5682

BALANCE POINT 35 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	136	163	190	217	244	272	326	380	435	<--ELECTRIC RATE S/KWH
										<--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: OUTDOOR 36UHPOB 36UHPOB/BC36B INDOOR BC36B
 ARI RATED COOLING CAP.: BTUH(95) 34000 SEER10.00
 ARI RATED HEATING CAP.: BTUH (47) 34000 COP(47) 3.10 HSPF 7.00 MIN.DHR REG IV
 BTUH (17) 20000 COP(17) 2.20
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH
 ELEC. COST \$/KWH

35,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	598	1085
.06	\$	709	1300
.07	\$	834	1516
.08	\$	946	1732
.09	\$	1071	1947
.10	\$	1182	2170
.12	\$	1426	2601
.14	\$	1662	3039
.16	\$	1899	3471

BALANCE POINT 13 DEG.F.

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	681	1238
.06	\$	813	1488
.07	\$	952	1732
.08	\$	1092	1982
.09	\$	1224	2232
.10	\$	1363	2476
.12	\$	1641	2977
.14	\$	1905	3471
.16	\$	2177	3965

BALANCE POINT 16 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	869	1544
.06	\$	1050	1857
.07	\$	1224	2170
.08	\$	1398	2476
.09	\$	1572	2789
.10	\$	1752	3095
.12	\$	2100	3721
.14	\$	2441	4340
.16	\$	2796	4959

BALANCE POINT 22 DEG.F.

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1085	1857
.06	\$	1300	2232
.07	\$	1516	2601
.08	\$	1739	2977
.09	\$	1954	3345
.10	\$	2170	3721
.12	\$	2601	4465
.14	\$	3039	5210
.16	\$	3471	5954

BALANCE POINT 27 DEG.F.

70,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1321	2170
.06	\$	1579	2601
.07	\$	1843	3039
.08	\$	2114	3471
.09	\$	2372	3902
.10	\$	2636	4340
.12	\$	3165	5210
.14	\$	3693	6079
.16	\$	4215	6942

BALANCE POINT 30 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	68	81	95	108	122	136	163	190	217	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

THE ABOVE ANNUAL HEATING AND COOLING OPERATING COSTS ARE THEORETICAL ESTIMATES ONLY AND ARE PROVIDED FOR A COMMON BASIS OF COMPARISON BETWEEN VARIOUS TYPES OF HEATING AND COOLING SYSTEMS. ACTUAL VALUES MAY VARY DEPENDING ON ACTUAL WEATHER CONDITIONS AND INDIVIDUAL USAGE PATTERN.

BARD MANUFACTURING COMPANY

REGION 4
 HEAT PUMP MODEL: OUTDOOR 42UHPOA 42UHPOA/BC48B
 HEAT PUMP MODEL: INDOOR BC48B
 ARI RATED COOLING CAP.: BTUH (95) 40500, SEER10.50
 ARI RATED HEATING CAP.: BTUH (47) 39000, COP(47) 3.00, HSPF 7.20 MIN.DHR REG IV
 BTUH (17) 24000, COP(17) 2.10
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS
 BTUH
 ELEC.
 COST
 S/KWH

40,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	485	1010
.06	\$	586	1213
.07	\$	682	1416
.08	\$	778	1619
.09	\$	874	1822
.10	\$	976	2025
.12	\$	1168	2431
.14	\$	1359	2838
.16	\$	1557	3244

BALANCE POINT 17 DEG.F.

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	615	1263
.06	\$	744	1517
.07	\$	863	1771
.08	\$	987	2025
.09	\$	1111	2279
.10	\$	1235	2533
.12	\$	1484	3041
.14	\$	1732	3549
.16	\$	1980	4057

BALANCE POINT 24 DEG.F.

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	767	1517
.06	\$	919	1822
.07	\$	1072	2127
.08	\$	1224	2431
.09	\$	1382	2736
.10	\$	1534	3041
.12	\$	1839	3650
.14	\$	2144	4260
.16	\$	2448	4869

BALANCE POINT 29 DEG.F.

70,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	931	1771
.06	\$	1117	2127
.07	\$	1303	2482
.08	\$	1489	2838
.09	\$	1681	3193
.10	\$	1867	3549
.12	\$	2240	4260
.14	\$	2612	4971
.16	\$	2984	5682

BALANCE POINT 33 DEG.F.

80,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1117	2025
.06	\$	1348	2431
.07	\$	1568	2838
.08	\$	1788	3244
.09	\$	2014	3650
.10	\$	2240	4057
.12	\$	2685	4869
.14	\$	3137	5682
.16	\$	3583	6494

BALANCE POINT 36 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

.05	.06	.07	.08	.09	.10	.12	.14	.16
\$ 154	185	215	246	277	308	370	431	493

<--ELECTRIC RATE S/KWH
 <--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: OUTDOOR 42UHPOA 42UHPQA/BC488 INDOOR BC48B
 ARI RATED COOLING CAP.: BTUH(95) 40500, SEER10.50
 ARI RATED HEATING CAP.: BTUH(47) 39000, COP(47) 3.00, HSPF 7.20 MIN.DHR REG IV
 BTUH(17) 24000, COP(17) 2.10
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS
BTUH

ELEC.
COST
\$/KWH

50,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	876	1544
.06	\$	1043	1857
.07	\$	1224	2170
.08	\$	1391	2476
.09	\$	1572	2789
.10	\$	1739	3095
.12	\$	2086	3721
.14	\$	2434	4340
.16	\$	2782	4959

BALANCE POINT 17 DEG.F.

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1064	1857
.06	\$	1286	2232
.07	\$	1495	2601
.08	\$	1711	2977
.09	\$	1919	3345
.10	\$	2142	3721
.12	\$	2566	4465
.14	\$	2998	5210
.16	\$	3415	5954

BALANCE POINT 23 DEG.F.

70,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1279	2170
.06	\$	1537	2601
.07	\$	1794	3039
.08	\$	2052	3471
.09	\$	2309	3902
.10	\$	2566	4340
.12	\$	3081	5210
.14	\$	3589	6079
.16	\$	4104	6942

BALANCE POINT 27 DEG.F.

80,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1516	2476
.06	\$	1822	2977
.07	\$	2121	3471
.08	\$	2434	3965
.09	\$	2733	4465
.10	\$	3032	4959
.12	\$	3645	5954
.14	\$	4250	6942
.16	\$	4855	7936

BALANCE POINT 30 DEG.F.

90,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1766	2789
.06	\$	2121	3345
.07	\$	2476	3902
.08	\$	2824	4465
.09	\$	3178	5022
.10	\$	3533	5578
.12	\$	4243	6698
.14	\$	4945	7811
.16	\$	5648	8931

BALANCE POINT 33 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	77	92	107	123	138	154	185	215	246	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 4
 HEAT PUMP MODEL: OUTDOOR 48UHPOB 48UHPOB/BC48B INDOOR BC48B
 ARI RATED COOLING CAP.: BTUH(95) 46000, SEER10.00
 ARI RATED HEATING CAP.: BTUH(47) 47000, COP(47) 3.00, HSPF 7.20 MIN.DHR REG IV
 BTUH(17) 29000, COP(17) 2.05
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---		
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY	
50,000				
.05	\$	581	1263	
.06	\$	699	1517	
.07	\$	812	1771	
.08	\$	936	2025	
.09	\$	1049	2279	
.10	\$	1168	2533	
.12	\$	1399	3041	
.14	\$	1636	3549	BALANCE POINT 18 DEG.F.
.16	\$	1862	4057	
60,000				
.05	\$	716	1517	
.06	\$	857	1822	
.07	\$	998	2127	
.08	\$	1139	2431	
.09	\$	1280	2736	
.10	\$	1421	3041	
.12	\$	1709	3650	
.14	\$	1997	4260	BALANCE POINT 23 DEG.F.
.16	\$	2279	4869	
70,000				
.05	\$	852	1771	
.06	\$	1026	2127	
.07	\$	1190	2482	
.08	\$	1365	2838	
.09	\$	1534	3193	
.10	\$	1704	3549	
.12	\$	2042	4260	
.14	\$	2386	4971	BALANCE POINT 27 DEG.F.
.16	\$	2725	5682	
80,000				
.05	\$	1010	2025	
.06	\$	1213	2431	
.07	\$	1416	2838	
.08	\$	1613	3244	
.09	\$	1822	3650	
.10	\$	2025	4057	
.12	\$	2426	4869	
.14	\$	2832	5682	BALANCE POINT 30 DEG.F.
.16	\$	3238	6494	
90,000				
.05	\$	1179	2279	
.06	\$	1416	2736	
.07	\$	1653	3193	
.08	\$	1890	3650	
.09	\$	2127	4107	
.10	\$	2364	4564	
.12	\$	2832	5478	
.14	\$	3306	6393	BALANCE POINT 33 DEG.F.
.16	\$	3780	7307	

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	184	220	257	294	331	368	441	515	588	<--ELECTRIC RATE \$/KWH
										<--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: OUTDOOR 48UHPOB 48UHPOB/BC48B INDOOR BC48B
 ARI RATED COOLING CAP.: BTUH (95) 46000, SEER10.00
 ARI RATED HEATING CAP.: BTUH (47) 47000, COP(47) 3.00, HSPF 7.20 MIN.DHR REG IV
 BTUH (17) 29000, COP(17) 2.05
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH ELEC. COST \$/KWH

60,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1022	1857
.06	\$	1217	2232
.07	\$	1419	2601
.08	\$	1627	2977
.09	\$	1829	3345
.10	\$	2031	3721
.12	\$	2441	4465
.14	\$	2852	5210
.16	\$	3255	5954

BALANCE POINT 17 DEG.F.

70,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1210	2170
.06	\$	1453	2601
.07	\$	1697	3039
.08	\$	1940	3471
.09	\$	2184	3902
.10	\$	2420	4340
.12	\$	2907	5210
.14	\$	3387	6079
.16	\$	3874	6942

BALANCE POINT 21 DEG.F.

80,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1419	2476
.06	\$	1704	2977
.07	\$	1996	3471
.08	\$	2281	3965
.09	\$	2559	4465
.10	\$	2845	4959
.12	\$	3415	5954
.14	\$	3978	6942
.16	\$	4549	7936

BALANCE POINT 24 DEG.F.

90,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1641	2789
.06	\$	1968	3345
.07	\$	2295	3902
.08	\$	2622	4465
.09	\$	2956	5022
.10	\$	3283	5578
.12	\$	3944	6698
.14	\$	4598	7811
.16	\$	5251	8931

BALANCE POINT 27 DEG.F.

100,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1878	3095
.06	\$	2246	3721
.07	\$	2622	4340
.08	\$	3005	4959
.09	\$	3380	5578
.10	\$	3749	6197
.12	\$	4507	7443
.14	\$	5251	8681
.16	\$	6003	9926

BALANCE POINT 30 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	92	110	128	147	165	184	220	257	294	<--ELECTRIC RATE \$/KWH <--THEORETICAL AIR CONDITIONING COST

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REGION 4
 HEAT PUMP MODEL: OUTDOOR 60UHPQB 60UHPQB/BC60B INDOOR BC60B
 ARI RATED COOLING CAP.: BTUH(95) 57500 SEER10.30
 ARI RATED HEATING CAP.: BTUH(47) 58000 COP(47) 3.20 HSPF 7.50 MIN.DHR REG IV
 BTUH(17) 34500 COP(17) 2.20
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
70,000			
.05	\$	829	1771
.06	\$	998	2127
.07	\$	1162	2482
.08	\$	1331	2838
.09	\$	1495	3193
.10	\$	1664	3549
.12	\$	1991	4260
.14	\$	2330	4971
.16	\$	2657	5682
			BALANCE POINT 23 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
80,000			
.05	\$	964	2025
.06	\$	1156	2431
.07	\$	1354	2838
.08	\$	1546	3244
.09	\$	1737	3650
.10	\$	1929	4057
.12	\$	2319	4869
.14	\$	2702	5682
.16	\$	3086	6494
			BALANCE POINT 26 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
90,000			
.05	\$	1117	2279
.06	\$	1342	2736
.07	\$	1563	3193
.08	\$	1788	3650
.09	\$	2014	4107
.10	\$	2240	4564
.12	\$	2685	5478
.14	\$	3131	6393
.16	\$	3577	7307
			BALANCE POINT 29 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
100,000			
.05	\$	1269	2533
.06	\$	1529	3041
.07	\$	1783	3549
.08	\$	2042	4057
.09	\$	2290	4564
.10	\$	2544	5072
.12	\$	3052	6088
.14	\$	3566	7104
.16	\$	4073	8119
			BALANCE POINT 32 DEG.F.

HEAT LOSS BTUH	ELEC. COST \$/KWH	--- THEORETICAL ANNUAL HEATING COST ---	
		HEAT PUMP WITH ELECTRIC HEAT	ELECTRIC HEAT ONLY
110,000			
.05	\$	1455	2787
.06	\$	1749	3346
.07	\$	2036	3904
.08	\$	2330	4463
.09	\$	2629	5021
.10	\$	2917	5580
.12	\$	3498	6697
.14	\$	4085	7815
.16	\$	4666	8932
			BALANCE POINT 34 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	223	267	312	357	401	446	535	625	714	<--ELECTRIC RATE \$/KWH <--THEORETICAL AIR CONDITIONING COST

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BARD MANUFACTURING COMPANY

REGION 5
 HEAT PUMP MODEL: OUTDOOR 60UHPQB 60UHPQB/BC60B INDOOR BC60B
 ARI RATED COOLING CAP.: BTUH(95) 57500 SEER10.30
 ARI RATED HEATING CAP.: BTUH (47) 58000 COP(47) 3.20 HSPF 7.50 MIN.DHR REG IV
 BTUH (17) 34500 COP(17) 2.20
 FURNACE TYPE ELECTRIC FURNACE EFFICIENCY 100.00 % AFUE

HEAT LOSS BTUH ELBC. COST \$/KWH

80,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1370	2476
.06	\$	1648	2977
.07	\$	1926	3471
.08	\$	2198	3965
.09	\$	2476	4465
.10	\$	2754	4959
.12	\$	3304	5954
.14	\$	3846	6942
.16	\$	4403	7936

BALANCE POINT 20 DEG.F.

90,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1579	2789
.06	\$	1892	3345
.07	\$	2205	3902
.08	\$	2525	4465
.09	\$	2838	5022
.10	\$	3151	5578
.12	\$	3784	6698
.14	\$	4417	7811
.16	\$	5050	8931

BALANCE POINT 23 DEG.F.

100,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	1780	3095
.06	\$	2142	3721
.07	\$	2497	4340
.08	\$	2858	4959
.09	\$	3213	5578
.10	\$	3568	6197
.12	\$	4284	7443
.14	\$	5001	8681
.16	\$	5717	9926

BALANCE POINT 26 DEG.F.

110,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	2010	3408
.06	\$	2413	4090
.07	\$	2817	4771
.08	\$	3220	5453
.09	\$	3624	6135
.10	\$	4027	6823
.12	\$	4827	8187
.14	\$	5641	9550
.16	\$	6448	10914

BALANCE POINT 28 DEG.F.

130,000

--- THEORETICAL ANNUAL HEATING COST ---
 HEAT PUMP WITH ELECTRIC HEAT ELECTRIC HEAT ONLY

.05	\$	2490	4027
.06	\$	2984	4834
.07	\$	3485	5641
.08	\$	3978	6448
.09	\$	4479	7255
.10	\$	4980	8062
.12	\$	5975	9676
.14	\$	6970	11289
.16	\$	7964	12903

BALANCE POINT 32 DEG.F.

ANNUAL AIR CONDITIONING COST WHEN COOLING LOAD IS SIZED TO MATCH COOLING CAPACITY OF HEAT PUMP

	.05	.06	.07	.08	.09	.10	.12	.14	.16	
\$	111	133	156	178	200	223	267	312	357	

<--ELECTRIC RATE \$/KWH
 <--THEORETICAL AIR CONDITIONING COST

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