



TECHNICAL BULLETIN #18

GreenGuard® Type IV XPS Insulation Board

INSULATING SHEATHING ENERGY CHART

How To Read This Chart

1. Find the State and City 'Where You Live' or are closest to. Highlight that entire row.
2. Go to the section headed 'Your Current Heat Source' and select the current heating source used in your home – choose either All Electric or Gas Heating / Electric Cooling.
3. Then, follow the Heat Source column down to the header titled 'Your Current Insulation Level' and select the one that currently applies to your home – select either Low Insulation or Moderate Insulation.
4. Finally, follow that column down to the row that corresponds to 'Where You Live' to see the estimated potential savings you can achieve by installing this product.

Example

1. Kansas City, MO
2. Electric Heat
3. Low Insulation
4. By adding 3/4" Kingspan GreenGuard® Type IV XPS Insulation Board, this homeowner saved approximately \$947 per year.

1: Where You Live				2: Your Current Heat Source							
				All Electric				Gas Heat / Electric Cooling			
				3: Your Current Insulation Level							
				Low Insulation		Moderate Insulation		Low Insulation		Moderate Insulation	
4: Kingspan GreenGuard® Type IV XPS Insulation Board Thickness				1/2"	3/4"	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"
State	City	Heating Degree Days	Cooling Degree Days	\$	\$	\$	\$	\$	\$	\$	\$
AK	Anchorage	10,570	0	1509	1731	470	559	815	935	237	282
AL	Birmingham	2918	1797	548	629	184	219	357	409	119	142
AL	Montgomery	2224	2212	479	550	160	191	333	382	111	133
AR	Fort Smith	3478	1894	625	718	210	249	397	456	133	158
AR	Little Rock	3155	2005	576	661	193	230	369	423	123	147
AZ	Phoenix	1350	4162	317	363	106	126	228	262	76	91
AZ	Tucson	1678	2954	423	485	142	169	312	358	105	125
CA	Los Angeles	1458	727	289	331	97	115	193	221	65	77
CA	Sacramento	2666	850	450	516	151	129	275	315	92	109
CA	San Diego	1256	984	222	255	74	89	140	160	47	56
CA	San Francisco	3016	65	407	467	136	162	209	239	70	83
CO	Colorado Springs	6415	419	873	1001	292	348	451	518	151	180
CO	Denver	6020	679	829	951	278	331	433	497	145	173
CO	Grand Junction	5548	1183	772	886	259	308	407	468	136	162
CT	Hartford	6151	677	867	995	290	346	463	531	155	184
DC	Washington	5006	973	719	825	241	287	390	448	130	155
DE	Wilmington	4937	1046	731	839	245	292	407	467	136	162
FL	Jacksonville	1434	2551	394	452	132	157	300	344	100	120
FL	Miami	200	4198	302	346	101	120	289	331	97	115
FL	Tampa	725	3427	314	360	105	125	266	306	89	106
GA	Atlanta	2991	1667	551	633	185	220	355	407	119	141

1: Where You Live				2: Your Current Heat Source							
				All Electric				Gas Heat / Electric Cooling			
1: Where You Live				3: Your Current Insulation Level							
				Low Insulation		Moderate Insulation		Low Insulation		Moderate Insulation	
4: Kingspan GreenGuard® Type IV XPS Insulation Board Thickness				1/2"	3/4"	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"
State	City	Heating Degree Days	Cooling Degree Days	\$	\$	\$	\$	\$	\$	\$	\$
GA	Savannah	1847	2365	411	472	138	164	290	232	97	115
IA	Des Moines	6497	1036	936	1074	314	373	510	585	171	203
ID	Boise	5861	754	810	930	272	323	426	488	142	170
IL	Chicago	6536	752	939	1077	314	374	509	585	170	203
IL	Rock Island	6500	579	924	1060	309	368	497	570	166	198
IL	Springfield	5688	1141	849	974	284	339	475	545	159	189
IN	Evansville	4708	1376	738	846	247	294	429	492	143	171
IN	Indianapolis	5615	1014	828	950	277	330	459	527	154	183
IN	Merrillville	6000	728	860	987	288	343	466	535	156	186
IN	South Bend	6331	728	900	1033	302	359	484	556	162	193
KS	Topeka	5265	1304	813	933	273	324	468	537	157	186
KY	Lexington	4783	1140	739	848	248	295	425	488	142	169
KY	Louisville	4514	1288	708	813	237	282	412	472	138	164
LA	Baton Rouge	1669	2690	411	472	138	164	301	346	101	120
LA	New Orleans	1513	2655	388	446	130	155	289	332	97	115
LA	Shreveport	2264	2368	482	553	162	192	334	383	112	133
MA	Boston	5641	678	795	912	258	307	424	487	138	164
MD	Baltimore	4707	1137	722	828	242	288	412	473	138	164
MD	Cumberland	5200	1289	775	889	260	309	433	497	145	173
MD	Frederick	5090	670	766	879	257	305	431	495	144	172
ME	Bangor	8000	220	1071	1228	359	427	545	626	182	217
ME	Portland	7378	268	993	1139	333	396	508	583	170	202
MI	Detroit	6569	626	919	1054	308	366	487	559	163	194
MI	Grand Rapids	6973	534	970	1113	325	387	512	588	171	204
MI	St. St. Marie	9316	131	1236	1418	414	493	624	716	209	248
MN	Duluth	9818	180	1302	1494	436	520	658	755	220	262
MN	Minneapolis	7981	682	1096	1258	367	437	572	657	191	228
MN	Rochester	8250	472	1133	1300	380	452	591	678	198	235
MO	Kansas City	5249	1043	826	947	277	329	481	552	161	192
MO	Springfield	4638	1320	741	850	248	295	436	500	146	174
MO	St. Louis	4758	1534	742	851	248	296	429	492	144	171
MS	Jackson	2467	2215	512	588	172	204	350	402	117	140
MT	Great Falls	7741	388	1031	1183	345	411	522	599	175	208

				2: Your Current Heat Source							
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1: Where You Live				4: Kingspan GreenGuard® Type IV XPS Insulation Board Thickness							
State	City	Heating Degree Days	Cooling Degree Days	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"
				\$	\$	\$	\$	\$	\$	\$	\$
MT	Helena	8031	386	1069	1227	358	426	542	622	181	216
NC	Ashville	4308	787	667	765	223	266	384	440	128	153
NC	Charlotte	3341	1582	585	671	196	233	365	419	122	146
NC	Greensboro	3848	693	629	722	211	251	377	432	126	150
NC	Raleigh	3465	828	584	670	196	233	357	409	119	142
NC	Wilmington	2429	1005	448	514	150	179	288	331	96	115
ND	Bismarck	8968	488	1219	1399	408	486	630	723	211	251
NE	Omaha	6413	1037	940	1079	315	375	519	596	174	207
NH	Concord	7554	328	1036	1189	347	413	540	620	181	215
NJ	Newark	4888	1201	726	833	243	289	405	464	135	161
NM	Albuquerque	4425	1244	664	762	223	265	374	429	125	149
NM	Roswell	3267	1776	554	636	186	221	340	390	114	135
NV	Las Vegas	2407	3201	409	469	137	163	251	288	84	100
NY	Albany	6894	507	964	1106	323	384	511	586	171	203
NY	Buffalo	6747	477	926	1063	310	369	483	554	162	192
NY	New York	5027	921	741	851	248	296	411	472	138	164
NY	Rochester	6713	229	926	1063	310	370	485	557	162	193
NY	Syracuse	6785	195	943	1081	316	376	497	570	166	198
OH	Akron / Canton	6148	270	861	988	288	343	457	524	153	182
OH	Cincinnati	4410	636	682	783	229	272	393	450	131	156
OH	Cleveland	6097	302	866	994	290	346	466	535	156	186
OH	Columbus	5708	797	824	946	276	329	449	516	150	179
OK	Dayton	5678	657	828	950	277	330	455	522	152	181
OK	Oklahoma City	3659	1859	643	738	215	256	403	462	135	160
OK	Tulsa	3691	2017	666	764	223	266	424	486	142	169
OR	Portland	4522	371	608	698	204	243	311	357	104	124
PA	Allentown	6409	378	917	1052	307	366	496	569	166	198
PA	Harrisburg	5201	488	754	865	253	301	413	473	138	164
PA	Lancaster	5400	350	791	907	265	315	436	501	146	174
PA	Philadelphia	4954	1101	735	843	246	293	409	469	137	163
PA	Pittsburgh	5968	654	856	982	287	341	464	532	155	185
RI	Providence	5884	606	823	944	276	328	437	501	146	174
SC	Charleston	2013	2266	429	493	144	171	297	341	99	118

				2: Your Current Heat Source							
				All Electric				Gas Heat / Electric Cooling			
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1: Where You Live				4: Kingspan GreenGuard® Type IV XPS Insulation Board Thickness							
State	City	Heating Degree Days	Cooling Degree Days	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"	1/2"	3/4"
				\$	\$	\$	\$	\$	\$	\$	\$
SC	Columbia	2649	1966	513	588	172	205	339	389	113	135
SC	Greenville	3272	1473	574	658	192	229	359	412	120	143
SD	Pierre	7283	550	1024	1175	343	408	545	626	182	217
TN	Knoxville	3937	1266	649	744	217	259	390	448	131	155
TN	Memphis	3082	2118	551	633	185	220	349	400	117	139
TN	Nashville	3729	1616	630	723	211	251	386	442	129	154
TX	Amarillo	4258	1354	684	784	229	273	404	464	135	161
TX	Dallas / Ft. Worth	2370	1787	497	571	167	198	342	392	114	136
TX	Houston	1599	2700	427	490	143	170	322	370	108	128
TX	Lubbock	3422	1053	606	695	203	242	381	437	128	152
UT	Salt Lake City	5765	1047	808	927	271	322	430	493	144	171
UT	St. George	3103	1684	518	595	174	207	314	361	105	125
VA	Norfolk	3495	1422	584	671	196	233	355	407	119	141
VA	Richmond	3963	1348	644	738	216	257	383	440	128	153
VA	Roanoke	4360	1052	681	782	228	272	395	453	132	157
VT	Burlington	7771	388	1051	1206	352	419	540	620	181	215
WA	Seattle	4908	167	651	747	218	260	329	377	110	131
WI	Spokane	6842	398	916	1051	307	365	467	536	156	186
WI	Green Bay	8089	381	1091	1252	365	435	560	642	187	223
WI	Madison	7499	242	1033	1186	346	412	541	621	181	215
WI	Milwaukee	7324	479	1007	1156	338	402	526	604	176	210
WV	Charleston	4646	1031	708	812	224	266	403	462	128	152
WY	Casper	7534	149	1015	1164	340	405	520	596	174	207
WY	Cheyenne	7326	285	982	1127	329	392	501	575	168	200

Assumptions used in model:

2,000 square feet of resided wall area • Heating efficiencies 70% for gas and 100% for electric resistance • Cooling unit with 7.0 seasonal efficiency rating (SEER) • Natural gas price – \$1.22 per CCF (100 cubic feet or 1 therm) • Electricity price – \$0.118 per kwh (based on 2011 data).

Heating and Cooling Degree Days are a measure devised by the U.S. Department of Energy to describe the variability of temperature over time, during a year, from a base of 65°F.

This is an estimate of savings potential from added R-value, not a promise of realized savings.

This estimate does not constitute an express or implied guarantee of energy savings. It is intended only as an illustration of the difference of added R-value where all other conditions are equal. The estimate of savings is based on the assumptions as stated, which are standardized numbers.

Actual conditions for any given period of time vary for each home and lifestyle. Actual savings will be determined by many factors impossible to include in an energy model.



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