

**ECONOMIC THICKNESS TABLES**

The following tables list the Sproule WR-1200 Economic Thickness recommendations (ETI) for pipe and equipment operating at the given process/service temperature and energy cost as determined using the NAIMA 3E-Plus computer program. The following economic and operating parameters were used:

Annual Fuel Inflation .....	.5%
Annual Hours of Operation .....	8760 Hours
Interest Rate or Return on Investment.....	10%
Physical Plant Depreciation Period .....	15 years
New Insulation Depreciation Period.....	15 years
Incremental Equipment Investment Rate.....	\$2.00/MMBtu/Hr
Percent of New Insulation Cost for Annual Insulation Maintenance .....	.5%
Percent of Fuel Cost for Physical Plant Maintenance .....	.5%
Average Ambient Temperature .....	75°F
Emittance of Outer Jacket .....	0.15 Weathered Aluminum
Emittance of Existing Surface .....	0.90 Steel
Reference Thickness for Payback.....	.0 inches

## ECONOMIC THICKNESS TABLES

Process Service Temperature (°F)		150			300			450			600			750			900			1050			1200		
NPS (in.)	Energy Cost (\$/MMBtu)	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10
1/2	Economic Thickness (in)	≤1	1	1	1	1.5	1.5	1	1.5	2.5	1.5	2.5	3	1.5	2.5	3	1.5	3	3	2.5	3	4	2.5	3	4
	Heat Loss (Btu/ft*/hr)	41	10	10	33	27	27	60	50	40	76	60	57	106	84	79	140	104	104	140	132	120	173	163	148
	Surface Temp. (°F)	150	90	90	117	104	104	143	121	102	140	112	107	160	124	117	181	127	127	149	138	125	162	150	134
	Payback (Years)	0	10.2	5.1	6.1	1.9	1.1	2.4	0.8	0.7	1.4	0.6	0.4	0.9	0.4	0.3	0.6	0.3	0.2	0.5	0.2	0.1	0.4	0.1	0.1
	Annual Cost (\$/ft*/yr)	0.96	2.42	2.86	2.51	3.9	5.17	3.14	5.48	7.36	3.76	6.95	9.7	4.46	8.59	12.26	5.25	10.34	15.16	6.01	12.29	17.65	6.78	14.45	20.93
	Total Savings (\$/ft*/yr)	0	0.4	1.9	1.4	7.9	14.5	5.2	19.6	34.5	10.9	37	63.6	19	61.7	105.00	30.2	95.6	162.00	45.4	142.00	239.00	65.6	203.00	341.00
1	Economic Thickness (in)	≤1	1	1	1	1.5	1.5	1	2.5	2.5	1.5	2.5	3	1.5	3	3	2	3	4	2.5	3	5	2.5	4	5
	Heat Loss (Btu/ft*/hr)	61	12	12	41	34	34	75	50	50	95	76	70	133	98	98	153	129	115	176	163	127	218	180	157
	Surface Temp. (°F)	150	91	91	118	107	107	146	107	107	147	120	113	169	125	125	165	137	123	164	150	116	180	144	124
	Payback (Years)	0	5.9	3.2	308	1.3	0.8	1.6	0.8	0.5	1	0.4	0.3	0.6	0.3	0.2	0.5	0.2	0.2	0.4	0.1	0.1	0.2	0.1	0.1
	Annual Cost (\$/ft*/yr)	1.41	2.64	3.2	2.75	4.47	6.06	3.55	6.38	8.69	4.31	8.19	11.55	5.18	10.2	14.74	6.14	12.36	18.2	7	14.77	20.71	7.97	17.41	24.19
	Total Savings (\$/ft*/yr)	0	1.6	3.8	3.1	13	23.1	8.9	31	53.5	17.6	57.6	98.2	30.1	95.6	162	47.3	148	249	70.9	219	369	102	312	525
1 1/2	Economic Thickness (in)	≤1	1	1	1	2	2.5	1.5	2.5	2.5	2	2.5	3	2	3	4	2	3	4	2.5	4	4	2.5	4	4
	Heat Loss (Btu/ft*/hr)	84	15	15	52	35	31	78	58	58	96	88	82	134	113	100	177	149	132	205	167	167	253	207	207
	Surface Temp. (°F)	150	93	93	123	99	95	132	108	108	130	121	114	146	126	114	164	139	124	165	134	4	182	145	145
	Payback (Years)	0	4	2.3	2.7	1.1	0.8	1.3	1.1	0.8	1.3	0.6	0.3	0.9	0.3	0.2	0.5	0.2	0.2	0.3	0.1	0.1	0.2	0.1	0.1
	Annual Cost (\$/ft*/yr)	1.96	2.94	3.65	3.09	5.13	6.71	4.03	7.11	9.79	4.95	9.21	13.05	5.83	11.48	16.7	6.82	13.98	20.37	7.83	16.72	23.48	8.96	19.47	28.06
	Total Savings (\$/ft*/yr)	0	2.9	6.2	5.1	19.3	34.1	13.5	45.4	77.7	26	83.7	142	44.1	138	233	69.2	214	360	103	316	531	148	451	756
2	Economic Thickness (in)	1	1	1.5	1	1.5	2.5	1.5	2.5	3	1.5	3	4	2.5	3	4	2.5	4	4	2.5	4	5	3	4	5
	Heat Loss (Btu/ft*/hr)	18	18	14	61	49	38	89	68	63	136	95	83	145	133	115	191	151	151	243	192	174	274	237	215
	Surface Temp. (°F)	94	94	88	125	111	98	133	113	107	157	120	109	144	133	119	161	130	130	178	141	129	179	154	139
	Payback (Years)	13.1	3.1	2	2.1	0.07	0.6	1	0.5	0.3	0.6	0.3	0.2	0.5	0.2	0.1	0.3	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1
	Annual Cost (\$/ft*/yr)	2.27	3.1	3.85	3.27	5.57	7.37	4.25	7.78	10.79	5.34	10.16	14.43	6.38	12.75	18.16	7.45	15.36	22.38	8.65	18.2	26.14	9.89	21.35	30.89
	Total Savings (\$/ft*/yr)	0.1	4.1	8.2	6.8	24.7	43	17.4	57.2	97.5	33.1	105	178	55.7	173	292	87.1	268	451	130	397	665	186	566	948
3	Economic Thickness (in)	1	1	1.5	1.5	2.5	2.5	1.5	2.5	3	2.5	3	4	2.5	4	4	2.5	4	5	3	4	6	3	5	6
	Heat Loss (Btu/ft*/hr)	24	24	19	64	48	48	117	87	79	133	120	102	185	142	142	244	187	165	280	237	193	346	259	238
	Surface Temp. (°F)	95	95	90	114	101	101	139	117	110	133	125	113	151	124	124	170	136	124	172	149	125	190	144	134
	Payback (Years)	9.4	2.4	1.6	1.9	0.8	0.5	0.8	0.4	0.3	0.6	0.2	0.2	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	2.72	3.82	4.73	4.03	6.83	9.05	5.27	9.58	13.26	6.59	12.46	17.61	7.8	15.64	22.23	9.17	18.77	27.19	10.59	22.28	30.21	12.13	26.06	35.48
	Total Savings (\$/ft*/yr)	0.7	6.5	12.5	10.4	36.4	63	25.8	83.6	142	48.7	153	259	81.7	253	425	127	391	656	189	578	970	271	824	1382

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Process Service Temperature (°F)		150			300			450			600			750			900			1050			1200			
NPS (in.)	Energy Cost (\$/MMBtu)	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	
4	Economic Thickness (in)	1	1	1.5	1.5	2.5	3	1.5	3	3	2	3	4	3	4	4	3	4	5	3	4	6	3	5	6	
	Heat Loss (Btu/ft*/hr)	28	28	23	76	56	50	141	91	91	180	139	118	193	134	164	255	217	190	324	275	220	400	297	272	
	Surface Temp. (°F)	95	95	91	116	102	98	142	112	112	149	126	115	142	127	127	158	139	126	176	153	128	194	149	138	
	Payback (Years)	7.5	2	1.4	1.6	0.7	0.5	0.7	0.4	0.2	0.5	0.2	0.2	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	3.01	4.33	5.4	4.56	7.87	10.3	6.05	10.85	15.09	7.58	14.17	19.87	8.98	17.59	25.22	10.41	21.22	30.62	12.01	25.29	34.01	13.79	29.32	40.02	
	Total Savings (\$/ft*/yr)	1.3	8.7	16.3	13.7	46.9	80.9	33.4	107	182	62.7	197	331	105	324	544	164	501	840	243	740	1242	348	1056	1769	
6	Economic Thickness (in)	1	1.5	1.5	1.5	2.5	3	2	3	4	2.5	4	4	3	4	5	3	4	6	4	5	6	4	5	9	
	Heat Loss (Btu/ft*/hr)	41	31	31	107	75	67	159	122	99	209	151	151	258	210	182	340	277	219	351	305	278	435	343	276	
	Surface Temp. (°F)	98	92	92	120	104	100	132	116	106	142	118	118	149	131	120	167	144	123	159	143	134	174	144	123	
	Payback (Years)	5.8	1.9	1.1	1.3	0.6	0.4	0.7	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	
	Annual Cost (\$/ft*/yr)	3.76	5.49	6.95	5.79	9.88	13.12	7.85	13.86	18.63	9.52	17.62	24.63	11.38	21.73	31.29	13.29	26.38	37.49	15.26	31.35	41.96	17.19	35.99	48.72	
	Total Savings (\$/ft*/yr)	2.5	13.4	24.5	20.7	69.6	119	49.6	158	269	93	290	488	155	478	801	242	738	1237	359	1091	1828	514	1557	2606	
8	Economic Thickness (in)	1.5	1.5	1.5	1.5	2.5	3	2.5	4	4	2.5	4	4	3	4	5	3	4	6	4	5	9	4	6	10	
	Heat Loss (Btu/ft*/hr)	38	38	38	129	88	78	161	119	119	246	181	181	304	252	218	401	332	259	421	365	260	521	406	302	
	Surface Temp. (°F)	92	92	92	120	104	100	122	107	107	142	120	120	150	134	123	168	148	126	163	147	118	179	148	121	
	Payback (Years)	5.5	1.6	0.9	1.1	0.5	0.3	0.7	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	
	Annual Cost (\$/ft*/yr)	4.49	6.25	8.01	6.62	11.47	15.17	9.07	15.97	21.49	11.04	20.29	28.69	13.12	25.22	36.28	15.36	30.79	43.54	17.46	36.36	48.08	19.78	41.77	54.8	
	Total Savings (\$/ft*/yr)	3.6	18	32.4	27.5	90.7	155	64.8	206	348	121	376	632	202	619	1038	314	956	1602	466	1413	2367	666	2016	3375	
10	Economic Thickness (in)	1.5	1.5	1.5	1.5	3	4	2	4	4	3	4	4	3	4	6	4	6	6	4	6	9	4	6	9	
	Heat Loss (Btu/ft*/hr)	44	44	44	152	94	78	229	141	141	263	215	215	366	299	229	394	302	302	501	383	297	619	474	367	
	Surface Temp. (°F)	92	92	92	120	102	96	135	109	109	136	123	123	154	137	118	152	129	129	168	140	120	185	152	128	
	Payback (Years)	5.1	1.5	0.9	1	0.5	0.4	0.6	0.3	0.2	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Annual Cost (\$/ft*/yr)	5.27	22.6	9.4	7.76	13.47	17.66	10.59	18.5	25.06	13	23.64	33.62	15.39	29.5	41.44	17.82	35.85	49.87	20.29	41.51	53.75	23.04	47.81	61.87	
	Total Savings (\$/ft*/yr)	4.7		40.5	34.3	113	193	80.8	256	432	151	467	784	251	768	1288	390	1187	1988	578	1754	2939	827	2503	4189	
12	Economic Thickness (in)	1.5	1.5	2	1.5	3	4	2	4	4	3	4	4	3	4	6	4	6	6	4	6	10	4	6	10	
	Heat Loss (Btu/ft*/hr)	51	51	42	176	108	88	264	161	161	301	245	245	419	341	259	449	341	341	570	432	310	705	534	383	
	Surface Temp. (°F)	92	92	89	121	102	97	136	110	110	137	124	124	156	139	120	154	131	131	171	143	117	188	155	125	
	Payback (Years)	5	1.5	1	1	0.5	0.4	0.5	0.3	0.2	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Annual Cost (\$/ft*/yr)	6.13	8.52	10.75	9.02	15.13	19.75	11.95	20.71	28.18	14.6	26.56	37.93	17.34	33.24	46.6	19.94	40.3	56.11	22.75	47.02	60.27	25.89	53.79	68.75	
	Total Savings (\$/ft*/yr)	5.6	26.7	48	40.6	134	228	95.8	303	511	178	552	927	297	909	1524	462	1404	2352	685	2076	3477	980	2962	4958	

## ECONOMIC THICKNESS TABLES

Process Service Temperature (°F)		150			300			450			600			750			900			1050			1200			
NPS (in.)	Energy Cost (\$/MMBtu)	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	
14	Economic Thickness (in)	1.5	1.5	2	1.5	3	4	2.5	4	4	3	4	4	4	4	6	4	4	6	4	6	10	4	6	10	
	Heat Loss (Btu/ft*/hr)	159	59	48	202	120	95	252	173	173	335	264	264	367	367	281	483	483	370	614	470	330	759	581	407	
	Surface Temp. (°F)	93	93	90	124	104	97	129	110	110	140	125	125	140	140	122	155	155	133	172	145	118	190	158	126	
	Payback (Years)	5.5	1.6	1.1	1.1	0.5	0.4	0.6	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	7.21	9.95	12.35	1053	17.08	21.87	13.61	22.91	30.95	16.5	29.21	41.44	19.37	36.4	51.63	22.08	44.51	61.97	25.11	51.73	65.64	28.48	59.45	74.65	
	Total Savings (\$/ft*/yr)	5.6	28.6	51.9	43.8	146	250	105	331	560	195	605	1016	325	997	1670	506	1540	2579	751	2276	3815	1075	3249	5440	
16	Economic Thickness (in)	1.5	2	2	2	3	4	2.5	4	4	3	4	4	4	4	6	4	6	7	4	6	10	4	6	10	
	Heat Loss (Btu/ft*/hr)	66	54	54	183	134	105	282	192	192	374	293	293	408	408	311	538	409	362	683	519	360	845	642	445	
	Surface Temp. (°F)	94	90	90	115	104	97	130	111	111	141	126	126	141	141	123	157	134	126	174	147	119	192	160	127	
	Payback (Years)	5.5	1.8	1	1.2	0.5	0.4	0.6	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	8.19	11.19	13.69	11.69	19.14	24.4	15.21	25.56	34.49	18.49	32.56	46.16	21.62	10.55	56.86	24.63	49.3	68.09	28.01	56.98	71.43	31.76	65.52	81.27	
	Total Savings (\$/ft*/yr)	6.4	32.7	59.4	50.1	166	285	119	378	638	222	690	1159	371	1137	1905	577	1757	2943	857	2598	4354	1226	3709	6209	
18	Economic Thickness (in)	1.5	2	2	2	4	4	2.5	4	4	3	4	4	4	4	6	4	6	8	4	6	10	4	6	10	
	Heat Loss (Btu/ft*/hr)	74	60	60	203	116	116	313	212	212	413	322	322	449	449	340	592	448	359	752	568	391	929	703	483	
	Surface Temp. (°F)	94	90	90	116	98	98	130	112	112	142	126	126	142	142	124	158	136	121	176	148	120	194	161	128	
	Payback (Years)	5.5	1.8	1	1.2	0.6	0.3	0.6	0.3	0.2	0.4	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	9.14	12.47	15.23	13.02	21.01	26.4	16.72	27.68	37.51	20.34	35.38	50.35	23.35	44.18	61.81	26.66	53.53	74.09	30.37	61.94	77.36	34.5	71.28	88.04	
	Total Savings (\$/ft*/yr)	7.2	36.7	66.7	56.3	187	320	134	425	717	250	776	1302	417	1277	2141	649	1975	3306	964	2920	4892	1379	4168	6978	
20	Economic Thickness (in)	1.5	2	2	2	3	4	2.5	4	4	3	4	4	4	4	6	4	6	8	4	6	10	4	6	10	
	Heat Loss (Btu/ft*/hr)	81	65	65	223	162	127	343	231	231	452	352	352	490	490	369	645	486	388	820	617	421	1014	763	520	
	Surface Temp. (°F)	94	90	90	116	105	98	131	112	112	143	127	127	143	143	124	159	137	122	177	149	121	196	163	130	
	Payback (Years)	5.6	1.7	1	1.2	0.5	0.3	0.6	0.3	0.2	0.4	0.1	0.1	0.3	1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	10.18	13.68	16.72	14.3	22.95	28.9	18.32	30.29	41.02	22.17	38.7	55.03	25.57	48.3	67.36	29.19	58.37	80.51	33.24	67.5	83.74	37.75	77.65	95.24	
	Total Savings (\$/ft*/yr)	8	40.8	74	62.5	207	355	149	471	795	278	861	1444	463	1417	2375	721	2191	3669	1070	3241	5430	1531	4627	7746	
24	Economic Thickness (in)	1.5	2	2	2	3	4	2.5	4	4	3	4	4	4	4	6	4	6	8	4	6	10	4	6	10	
	Heat Loss (Btu/ft*/hr)	96	77	77	262	190	148	403	269	269	530	410	410	571	571	427	753	563	446	957	714	481	1183	883	594	
	Surface Temp. (°F)	94	91	91	117	106	98	132	113	113	144	128	128	144	144	126	161	138	123	179	151	123	198	165	131	
	Payback (Years)	5.2	1.6	1	1.1	0.5	0.3	0.6	0.3	0.2	0.3	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	11.62	15.65	19.23	16.38	26.38	33.36	21.08	34.99	47.5	25.47	44.8	63.85	29.49	56	77.9	33.71	67.51	93.23	38.44	78.07	96.52	43.7	89.82	109.66	
	Total Savings (\$/ft*/yr)	10	49.3	89.1	75.3	249	425	179	564	951	333	1031	1729	555	16.98	2845	864	2625	4395	1282	3883	6505	1834	5545	9281	

### ECONOMIC THICKNESS TABLES

Process Service Temperature (°F)		150			300			450			600			750			900			1050			1200			
NPS (in.)	Energy Cost (\$/MMBtu)	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	\$2	\$6	\$10	
30	Economic Thickness (in)	1.5	2	2	1.5	4	4	2.5	4	4	4	4	6	4	4	7	4	6	8	4	7	10	4	8	10	
	Heat Loss (Btu/ft*/hr)	118	95	95	405	179	179	493	327	327	498	498	370	693	693	449	914	677	532	1161	750	569	1436	835	703	
	Surface Temp. (°F)	94	91	91	127	99	99	133	114	114	130	130	115	146	146	120	163	140	125	182	143	124	201	146	133	
	Payback (Years)	2.2	1.8	1	0.5	0.6	0.4	0.5	0.3	0.2	0.4	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft*/yr)	8.27	20.31	24.7	14.94	33.87	42.18	24.22	44.16	59.33	28.76	56.07	77.51	33.29	69.66	93.96	38.41	81.75	109.3	48.35	94.11	113.77	54.74	105.66	129.33	
	Total Savings (\$/ft*/yr)	18.6	60.4	110	99.1	308	528	224	702	1184	418	1283	2155	695	2115	3547	1080	3275	5485	1598	4845	8118	2288	6922	11584	
36	Economic Thickness (in)	1.5	2	2	2	3	4	2.5	4	4	4	4	6	4	6	7	4	6	8	4	7	10	4	8	10	
	Heat Loss (Btu/ft*/hr)	140	112	112	382	273	210	583	384	384	585	585	432	815	600	522	1074	791	618	1365	873	657	1688	869	812	
	Surface Temp. (°F)	95	91	91	118	106	100	134	115	115	130	130	116	147	128	121	165	141	126	183	144	126	203	148	135	
	Payback (Years)	4.1	1.7	1	1	0.5	0.4	0.5	0.3	0.2	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Annual Cost (\$/ft*/yr)	14.76	24.08	29.27	22.33	40.73	51.37	28.96	53.71	71.54	35.34	67.71	91.55	40.66	83.26	109.33	46.68	96.51	126.65	56.64	109.52	131.43	66.15	122.43	149.41	
	Total Savings (\$/ft*/yr)	17.4	72	132	114	368	630	268	838	1415	499	1535	2580	831	2532	4250	1293	3923	6573	1914	5807	9730	2741	8299	13885	
48	Economic Thickness (in)	1.5	2	2	2	3	4	2.5	4	4	3	4	7	4	6	8	4	7	9	4	8	10	4	8	10	
	Heat Loss (Btu/ft*/hr)	184	147	147	501	357	273	763	498	498	998	759	481	1057	772	599	1394	881	715	1771	1000	833	2191	1236	1029	
	Surface Temp. (°F)	95	91	91	118	107	100	135	116	116	148	132	112	149	130	117	167	134	123	186	139	128	206	151	137	
	Payback (Years)	4.1	1.7	1	1	0.5	0.4	0.5	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Annual Cost (\$/ft*/yr)	19.56	31.86	38.67	29.56	53.87	67.94	38.3	70.98	94.11	46.85	89.16	118.14	53.89	107.56	139.47	61.71	123.64	161.39	77.4	139.66	167.19	87.78	156.09	189.96	
	Total Savings (\$/ft*/yr)	23.1	96	174	151	836	256	1113	1880	663	2040	3430	1105	3369	5655	1720	5222	8747	2546	7731	12950	3648	11049	18485		
Flat	Economic Thickness (in)	1	1.5	2	2	4	4	2.5	4	4	3	4	6	4	6	9	4	6	10	4	9	10	4	10	10	
	Heat Loss (Btu/ft2/hr)	19	14	11	37	20	20	57	37	37	74	56	39	79	54	36	104	71	43	132	61	55	163	68	68	
	Surface Temp. (°F)	100	95	91	119	102	102	136	118	118	150	135	120	154	133	118	173	147	124	193	139	134	215	145	145	
	Payback (Years)	6.8	2	1.3	1.5	0.7	0.4	0.7	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Annual Cost (\$/ft2/yr)	2.19	2.92	3.44	3.04	4.44	5.38	3.72	5.61	7.33	4.34	6.96	9.04	4.85	8.3	10.66	5.43	9.49	11.94	6.09	10.67	11.06	6.81	11.64	12.57	
	Total Savings (\$/ft2/yr)	1.2	7.3	13.5	11.4	38.9	66.8	27.8	88.9	150	52.3	163	274	88.7	269	452	137	417	700	204	618	1037	292	884	1480	

\* Linear feet

For current information such as Safety Data Sheets (SDS), product data sheets, and other pertinent information, please go to the website at [www.jm.com/industrial.com](http://www.jm.com/industrial.com)

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