

ECONOMIC THICKNESS TABLES

The following tables list the MinWool-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 Inflation5%
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 Maintenance5%
Percent of Fuel Cost for Physical Plant Maintenance5%
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)	0	1	1	1	1	1.5	1	1.5	2.5	1	2.5	2.5	1.5	2.5	3	1.5	3	3	2.5	3	4	2.5	3	4
	Heat Loss (Btu/ft*/hr)	41	7	7	25	25	20	48	39	31	77	49	49	93	73	68	130	95	95	136	128	116	177	167	151
	Surface Temp. (°F)	150	87	87	108	108	97	131	113	97	158	107	107	152	119	112	175	124	124	147	137	123	164	151	135
	Payback (Years)	0	7	3.7	4.5	1.3	1	1.9	0.7	0.6	1	0.6	0.3	0.8	0.4	0.2	0.5	0.3	0.2	0.5	0.2	0.2	0.3	0.1	0.1
	Annual Cost (\$/ft*/yr)	0.96	1.93	2.26	2.02	3.17	4.17	2.56	4.54	6.17	3.24	6.05	8.34	3.98	7.68	10.91	4.84	9.61	14.03	5.78	11.88	17.6	6.73	14.58	21.69
	Total Savings (\$/ft*/yr)	0	0.90	2.50	1.90	8.60	15.50	5.80	20.50	35.70	11.40	38.00	65.00	19.50	62.70	106.00	30.60	96.70	163.00	45.60	142.00	239.00	65.60	202.00	340.00
1	Economic Thickness (in)	0	1	1	1	1.5	1.5	1	1.5	2.5	1.5	2.5	3	1.5	2.5	3	2	3	3	2.5	3	5	2.5	3	5
	Heat Loss (Btu/ft*/hr)	61	9	9	31	25	25	60	49	39	79	62	58	117	92	85	142	118	118	172	159	123	224	207	160
	Surface Temp. (°F)	150	87	87	110	100	100	134	117	101	137	114	108	160	128	120	159	133	133	162	149	115	182	166	125
	Payback (Years)	0	4.6	2.6	3.1	1.1	0.7	1.3	0.5	0.4	0.9	0.4	0.3	0.5	0.3	0.2	0.4	0.2	0.1	0.3	0.1	0.2	0.2	0.1	0.1
	Annual Cost (\$/ft*/yr)	1.41	2.18	2.59	2.30	3.70	4.88	2.96	5.35	7.29	3.77	7.14	9.97	4.64	9.19	13.13	5.68	11.52	17.02	6.79	14.34	20.94	8.00	17.70	25.27
	Total Savings (\$/ft*/yr)	0	2.00	4.40	3.50	13.80	24.30	9.500	32.00	54.90	18.20	58.70	99.80	30.60	96.60	163.00	47.80	149.00	250.00	71.10	219.00	369.00	102.00	312.00	524.00
1 1/2	Economic Thickness (in)	1	1	1	1	1.5	2	1	2	2.5	1.5	2.5	3	2	3	4	2	4	4	2.5	4	4	2.5	4	4
	Heat Loss (Btu/ft*/hr)	11	11	11	40	32	26	77	49	45	100	72	67	117	98	87	164	121	121	200	162	162	260	211	211
	Surface Temp. (°F)	89	89	89	114	103	94	141	107	102	144	114	109	139	121	110	159	121	121	163	133	133	184	147	147
	Payback (Years)	14.1	3.2	1.8	2.2	0.9	0.6	1	0.5	0.3	0.7	0.3	0.2	0.5	0.2	0.2	0.3	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1
	Annual Cost (\$/ft*/yr)	1.90	2.42	2.94	2.57	4.30	5.54	3.43	6.01	8.19	4.39	8.02	11.27	5.30	10.37	14.62	6.38	12.97	18.58	7.62	15.85	23.37	9.02	19.27	29.07
	Total Savings (\$/ft*/yr)	0.10	3.50	6.90	5.60	20.20	35.30	14.10	46.50	79.30	26.60	84.90	144.00	44.70	139.00	235.00	69.60	215.00	361.00	103.00	317.00	531.00	148.00	451.00	755.00
2	Economic Thickness (in)	1	1	1	1	1.5	2	1.5	2.5	3	1.5	2.5	4	2	4	4	2.5	4	4	2.5	4	4	3	4	6
	Heat Loss (Btu/ft*/hr)	13	13	13	46	36	31	70	53	49	114	86	68	143	100	100	177	139	139	237	186	186	282	243	209
	Surface Temp. (°F)	89	89	89	115	103	97	123	106	101	146	120	104	150	114	114	155	126	126	176	140	140	181	155	134
	Payback (Years)	10	2.5	1.5	1.7	0.7	0.5	0.9	0.4	0.3	0.5	0.2	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
	Annual Cost (\$/ft*/yr)	1.95	2.56	3.16	2.73	4.57	6.11	3.67	6.61	9.08	4.68	8.89	12.22	5.82	11.31	15.93	7.01	14.04	20.48	8.41	17.34	25.98	9.98	21.27	32.13
	Total Savings (\$/ft*/yr)	0.50	4.70	8.90	7.30	25.70	44.30	18.00	58.40	99.20	33.80	106.00	180.00	56.30	175.00	294.00	87.60	270.00	452.00	130.00	397.00	665.00	186.00	566.00	946.00
3	Economic Thickness (in)	1	1	1.5	1	2	2.5	1.5	2.5	4	2	4	4	2	4	4	2.5	4	4	4	4	6	4	4	6
	Heat Loss (Btu/ft*/hr)	17	17	14	62	40	35	93	68	52	126	84	84	186	123	123	227	172	172	231	231	186	301	301	243
	Surface Temp. (°F)	91	91	86	119	100	95	128	109	97	136	107	107	158	119	119	164	132	132	147	147	123	164	164	135
	Payback (Years)	7.3	2	1.4	1.4	0.6	0.5	0.7	0.3	0.3	0.5	0.3	0.2	0.3	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1
	Annual Cost (\$/ft*/yr)	2.32	3.13	3.93	3.36	5.67	7.53	4.51	8.17	10.91	5.78	10.71	14.59	7.17	13.46	19.18	8.68	16.85	24.82	10.24	20.94	30.91	11.86	25.81	37.46
	Total Savings (\$/ft*/yr)	1.10	7.20	13.30	11.10	37.60	64.50	26.60	85.10	144.00	49.50	155.00	262.00	82.30	255.00	428.00	128.00	393.00	658.00	190.00	579.00	969.00	272.00	825.00	1,380.00

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	
4	Economic Thickness (in)	1	1	1.5	1	2	2.5	1.5	2.5	4	2	4	4	2	4	4	2.5	4	6	4	4	6	4	6	8	
	Heat Loss (Btu/ft²/hr)	21	21	16	75	48	42	112	81	60	150	97	97	221	143	143	268	199	159	267	267	213	349	277	243	
	Surface Temp. (°F)	91	91	87	120	101	96	131	111	98	139	109	109	163	121	121	169	135	116	151	151	126	169	139	124	
	Payback (Years)	6.4	1.8	1.2	1.2	0.6	0.4	0.7	0.3	0.3	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	0.1
	Annual Cost (\$/ft²/yr)	2.68	3.65	4.53	3.93	6.49	8.68	5.24	9.44	12.54	6.62	12.30	16.80	8.28	15.50	22.13	10.04	19.43	28.15	11.76	24.17	34.43	13.64	29.05	41.78	
	Total Savings (\$/ft²/yr)	1.70	9.40	17.20	14.30	48.20	82.50	34.20	109.00	185.00	63.60	198.00	335.00	106.00	326.00	547.00	164.00	503.00	842.00	243.00	741.00	1,241.00	348.00	1,056.00	1,767.00	
6	Economic Thickness (in)	1	1.5	1.5	1.5	2	2.5	2	4	4	2	4	4	2.5	4	6	4	4	6	4	6	9	4	6	10	
	Heat Loss (Btu/ft²/hr)	30	23	23	81	65	56	125	77	77	202	124	124	256	183	144	255	255	201	342	269	216	446	351	266	
	Surface Temp. (°F)	93	88	88	111	103	98	122	100	100	144	112	112	153	125	110	140	140	120	157	132	114	176	145	119	
	Payback (Years)	5.3	1.7	1	1.2	0.5	0.3	0.6	0.4	0.2	0.3	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	0.1
	Annual Cost (\$/ft²/yr)	3.44	4.77	5.83	5.07	8.26	11.05	6.66	11.97	15.54	8.45	15.24	21.00	10.54	19.34	27.77	12.53	24.37	34.35	14.55	29.81	41.92	16.97	35.49	49.32	
	Total Savings (\$/ft²/yr)	2.90	14.10	25.70	21.40	71.30	121.00	50.80	160.00	272.00	94.10	292.00	492.00	156.00	480.00	805.00	242.00	740.00	1,240.00	360.00	1,092.00	1,828.00	514.00	1,558.00	2,606.00	
8	Economic Thickness (in)	1	1.5	1.5	1	2.5	2.5	2	4	4	2.5	4	4	2.5	4	6	4	6	6	4	6	10	4	6	10	
	Heat Loss (Btu/ft²/hr)	38	28	28	137	66	66	154	92	92	204	149	149	302	219	170	306	237	237	411	318	236	536	415	308	
	Surface Temp. (°F)	93	88	88	126	98	98	124	101	101	132	114	114	153	127	112	143	123	123	161	135	112	182	150	121	
	Payback (Years)	2.1	1.4	0.8	0.5	0.5	0.3	0.5	0.3	0.2	0.3	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	0.1
	Annual Cost (\$/ft²/yr)	2.48	5.32	6.60	4.77	9.45	12.49	7.67	13.55	17.83	9.62	17.48	24.39	11.88	22.39	31.59	14.22	28.36	39.37	16.65	34.00	47.37	19.55	40.73	55.67	
	Total Savings (\$/ft²/yr)	5.60	18.90	33.80	29.30	92.80	158.00	66.20	208.00	352.00	123.00	379.00	636.00	203.00	622.00	1,042.00	315.00	959.00	1,606.00	466.00	1,415.00	2,368.00	666.00	2,017.00	3,374.00	
10	Economic Thickness (in)	1.5	1.5	1.5	1.5	2.5	4	2	4	4	2.5	4	4	2.5	4	6	4	6	6	4	6	10	4	9	10	
	Heat Loss (Btu/ft²/hr)	32	32	32	115	80	57	181	110	110	248	177	177	366	261	199	364	277	277	489	372	269	637	374	351	
	Surface Temp. (°F)	88	88	88	111	100	91	124	103	103	136	116	116	158	130	114	147	126	126	166	139	114	188	129	124	
	Payback (Years)	4.4	1.3	0.8	0.9	0.4	0.4	0.5	0.3	0.2	0.3	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	0.1
	Annual Cost (\$/ft²/yr)	4.61	6.11	7.61	6.53	11.13	14.69	8.87	15.72	20.82	11.36	20.40	28.62	14.10	26.25	36.43	16.53	32.66	45.53	19.42	39.26	53.97	22.87	46.80	63.44	
	Total Savings (\$/ft²/yr)	5.40	23.80	42.30	35.60	115.00	196.00	82.50	258.00	436.00	152.00	470.00	789.00	252.00	772.00	1,293.00	391.00	1,190.00	1,992.00	579.00	1,756.00	2,939.00	827.00	2,504.00	4,188.00	
12	Economic Thickness (in)	1.5	1.5	1.5	1.5	2.5	4	2	4	4	2.5	4	4	4	4	6	4	6	8	4	6	10	4	9	10	
	Heat Loss (Btu/ft²/hr)	37	37	37	133	91	65	209	125	125	286	202	202	297	297	224	415	313	258	557	420	300	726	418	391	
	Surface Temp. (°F)	88	88	88	112	100	92	125	104	104	137	117	117	132	132	115	149	127	115	169	141	116	191	131	126	
	Payback (Years)	4	1.2	0.7	0.8	0.4	0.3	0.5	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 (\$/ft²/yr)	5.10	6.84	8.58	7.33	12.62	16.39	10.07	17.57	23.38	12.88	22.90	32.26	15.76	29.56	40.91	18.49	36.65	51.15	21.79	44.10	60.63	25.72	52.61	71.17	
	Total Savings (\$/ft²/yr)	6.60	28.40	50.10	42.30	136.00	232.00	97.70	306.00	516.00	180.00	556.00	933.00	298.00	913.00	1,530.00	463.00	1,408.00	2,357.00	686.00	2,078.00	3,477.00	980.00	2,964.00	4,956.00	

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	2.5	4	2	4	4	2.5	4	4	4	4	6	4	6	8	4	6	9	4	8	10	
	Heat Loss (Btu/ft ² /hr)	43	43	35	154	103	70	237	135	135	321	217	217	320	320	244	447	340	275	600	457	341	782	481	415	
	Surface Temp. (°F)	89	89	86	115	101	92	129	104	104	140	117	117	133	133	117	150	129	116	170	144	121	193	139	127	
	Payback (Years)	4.5	1.3	0.9	0.9	0.4	0.3	0.5	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 ² /yr)	6.07	8.07	9.99	8.64	14.27	18.33	11.48	19.60	25.85	14.57	25.34	35.41	17.65	32.51	45.34	20.59	40.71	55.86	24.14	48.81	66.21	28.37	57.42	77.43	
	Total Savings (\$/ft ² /yr)	6.80	30.50	54.30	45.70	149.00	253.00	107.00	335.00	565.00	197.00	609.00	1,022.00	327.00	1,001.00	1,677.00	508.00	1,544.00	2,585.00	752.00	2,279.00	3,814.00	1,075.00	3,251.00	5,437.00	
16	Economic Thickness (in)	1.5	1.5	2	1.5	2.5	4	2	4	4	2.5	4	4	4	4	6	4	6	8	4	6	9	4	8	10	
	Heat Loss (Btu/ft ² /hr)	49	49	39	174	115	78	267	150	150	360	242	242	356	356	270	497	376	302	667	505	374	870	529	454	
	Surface Temp. (°F)	89	89	87	115	102	92	129	105	105	141	118	118	134	134	118	152	131	117	172	145	122	195	140	128	
	Payback (Years)	4.3	1.3	0.9	0.9	0.4	0.3	0.5	0.2	0.1	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 ² /yr)	6.72	8.98	11.10	9.62	15.76	19.88	12.79	21.29	28.25	16.09	27.68	38.89	19.13	35.66	49.89	22.40	44.78	60.98	26.35	53.73	72.18	31.06	62.70	84.43	
	Total Savings (\$/ft ² /yr)	7.90	34.90	62.00	52.20	170.00	289.00	122.00	382.00	644.00	225.00	695.00	1,166.00	373.00	1,142.00	1,912.00	580.00	1,762.00	2,950.00	859.00	2,601.00	4,353.00	1,227.00	3,712.00	6,206.00	
18	Economic Thickness (in)	1.5	1.5	2	1.5	2.5	4	2	4	4	2.5	4	4	4	4	6	4	6	9	4	6	10	4	9	10	
	Heat Loss (Btu/ft ² /hr)	54	54	43	193	127	86	296	165	165	398	266	266	392	392	295	547	412	303	735	552	378	958	529	492	
	Surface Temp. (°F)	90	90	87	115	102	93	130	105	105	142	119	119	135	135	118	153	132	113	174	146	119	197	135	129	
	Payback (Years)	4.2	1.3	0.9	0.9	0.4	0.3	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	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft ² /yr)	7.40	9.91	12.19	10.62	17.37	21.86	14.06	23.41	31.07	17.75	30.44	42.78	21.03	39.23	53.89	24.63	48.30	65.75	28.98	58.10	77.48	34.16	67.47	90.76	
	Total Savings (\$/ft ² /yr)	9.00	39.20	69.70	58.70	191.00	325.00	137.00	429.00	723.00	253.00	781.00	1,309.00	420.00	1,282.00	2,149.00	651.00	1,980.00	3,314.00	965.00	2,924.00	4,892.00	1,379.00	4,172.00	6,975.00	
20	Economic Thickness (in)	1.5	1.5	2	1.5	2.5	4	2	4	4	2.5	4	6	4	4	6	4	6	9	4	6	10	4	9	10	
	Heat Loss (Btu/ft ² /hr)	59	59	47	213	140	93	325	180	180	437	290	218	428	428	321	597	447	327	802	600	407	1045	571	530	
	Surface Temp. (°F)	90	90	87	116	102	93	130	106	106	143	120	107	136	136	119	154	133	114	175	148	120	198	136	130	
	Payback (Years)	4.3	1.3	0.9	0.9	0.4	0.3	0.5	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	0.1	0.1	0.1	0.1
	Annual Cost (\$/ft ² /yr)	8.30	11.06	13.53	11.85	19.1	23.66	15.59	25.36	33.71	19.51	33.03	46.3	22.76	42.62	58.26	26.69	52.19	70.86	31.44	62.83	83.35	37.09	72.71	97.66	
	Total Savings (\$/ft ² /yr)	9.80	43.40	77.20	64.90	211.00	360.00	152.00	476.00	802.00	280.00	866.00	1,453.00	466.00	1,423.00	2,384.00	723.00	2,198.00	3,679.00	1,071.00	3,246.00	5,431.00	1,531.00	4,632.00	7,744.00	
24	Economic Thickness (in)	1.5	1.5	2	2	4	4	2	4	4	4	4	6	4	4	6	4	6	9	4	8	10	4	9	10	
	Heat Loss (Btu/ft ² /hr)	70	70	56	198	109	109	384	210	210	339	339	252	499	499	371	697	518	374	936	549	465	1220	654	606	
	Surface Temp. (°F)	90	90	87	108	93	93	131	106	106	121	121	108	137	137	120	156	134	115	177	132	121	201	138	132	
	Payback (Years)	4.1	1.2	0.8	1	0.5	0.3	0.4	0.2	0.1	0.4	0.1	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	0.1
	Annual Cost (\$/ft ² /yr)	9.58	12.84	15.54	13.66	21.79	26.84	17.98	28.82	38.57	22.06	37.78	52.93	25.80	48.98	66.78	30.38	59.75	80.09	35.92	71.31	94.02	42.53	82.22	110.37	
	Total Savings (\$/ft ² /yr)	12.10	52.10	92.70	78.00	253.00	432.00	182.00	571.00	960.00	336.00	1,038.00	1,739.00	559.00	1,705.00	2,856.00	867.00	2,633.00	4,408.00	1,284.00	3,890.00	6,508.00	1,836.00	5,552.00	9,280.00	

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	2	4	4	2.5	4	4	4	4	6	4	4	8	4	6	9	4	8	9	4	9	10	
	Heat Loss (Btu/ft ² /hr)	87	68	68	243	132	132	390	255	255	411	411	303	606	606	350	846	623	445	1136	655	597	1482	778	718	
	Surface Temp. (°F)	90	87	87	109	94	94	123	107	107	122	122	109	139	139	111	158	136	117	180	134	128	204	140	134	
	Payback (Years)	4.3	1.4	0.8	1	0.5	0.3	0.5	0.2	0.1	0.1	0.4	0.1	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 ² /yr)	12.35	16.30	19.48	17.18	26.23	32.36	22.38	34.77	46.6	26.57	45.64	63.43	31.10	59.24	79.48	36.66	71.63	94.78	43.39	84.44	112.42	51.41	97.31	131.96	
	Total Savings (\$/ft ² /yr)	14.60	64.40	115.00	96.90	316.00	538.00	226.00	711.00	1,197.00	420.00	1,294.00	2,169.00	697.00	2,126.00	3,562.00	1,082.00	3,285.00	5,500.00	1,603.00	4,855.00	8,120.00	2,291.00	6,931.00	11,582.00	
36	Economic Thickness (in)	1.5	2	2	2	4	4	2.5	4	4	4	4	6	4	6	8	4	7	9	4	8	10	4	9	10	
	Heat Loss (Btu/ft ² /hr)	103	81	81	288	155	155	461	300	300	483	483	354	713	522	406	995	632	515	1336	760	636	1742	901	829	
	Surface Temp. (°F)	90	87	87	109	94	94	124	108	108	123	123	110	140	123	112	159	129	118	182	135	124	206	142	136	
	Payback (Years)	4.2	1.4	0.8	0.9	0.5	0.3	0.5	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	0.1	0.1	
	Annual Cost (\$/ft ² /yr)	14.30	18.97	22.74	20.01	31.05	38.26	25.97	41.09	55.00	31.45	53.88	73.00	36.78	68.24	90.35	43.33	82.24	107.83	51.24	96.12	128.14	60.67	110.77	150.52	
	Total Savings (\$/ft ² /yr)	17.90	77.50	138.00	116.00	378.00	643.00	271.00	851.00	1,432.00	503.00	1,549.00	2,598.00	835.00	2,547.00	4,269.00	1,297.00	3,938.00	6,592.00	1,921.00	5,821.00	9,733.00	2,746.00	8,310.00	13,884.00	
48	Economic Thickness (in)	1.5	2	2	2	4	4	2.5	4	4	4	4	6	4	6	8	4	7	9	4	9	10	6	9	10	
	Heat Loss (Btu/ft ² /hr)	135	106	106	379	202	202	604	389	389	628	628	456	926	672	519	1292	810	655	1735	879	806	1641	1146	1050	
	Surface Temp. (°F)	90	87	87	110	95	95	124	108	108	124	124	111	141	124	113	161	130	120	184	131	126	175	145	138	
	Payback (Years)	4.1	1.3	0.8	0.9	0.4	0.3	0.5	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	0.1	0.1	
	Annual Cost (\$/ft ² /yr)	18.91	24.83	29.77	26.20	39.82	49.18	33.80	52.86	70.91	40.34	69.47	92.98	47.26	86.87	113.77	55.77	103.72	135.67	66.05	120.84	161.62	78.15	139.41	189.97	
	Total Savings (\$/ft ² /yr)	23.70	103.00	183.00	155.00	503.00	855.00	361.00	1,131.00	1,903.00	669.00	2,060.00	3,455.00	1,112.00	3,390.00	5,680.00	1,726.00	5,241.00	8,773.00	2,558.00	7,750.00	12,956.00	3,657.00	11,065.00	18,485.00	
Flat	Economic Thickness (in)	1	2	3	3	4	4	3	4	6	4	6	10	4	10	10	4	10	10	6	10	10	6	10	10	
	Heat Loss (Btu/ft ² /hr)	14	8	6	20	15	15	38	29	20	47	32	19	69	29	29	96	40	40	88	53	53	114	70	70	
	Surface Temp. (°F)	95	88	84	101	96	96	119	111	101	127	113	101	146	110	110	167	121	121	161	133	133	180	146	146	
	Payback (Years)	4.1	1.4	1	1	0.4	0.3	0.5	0.2	0.2	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	0.1	0.1	
	Annual Cost (\$/ft ² /yr)	1.53	1.97	2.44	2.04	2.85	3.89	2.46	3.82	5.38	2.89	4.87	6.67	3.40	5.74	7.74	4.04	6.52	9.04	4.70	7.47	10.62	5.31	8.59	12.50	
	Total Savings (\$/ft ² /yr)	1.90	8.20	14.50	12.40	40.50	68.30	29.00	90.70	152.00	53.80	165.00	277.00	89.10	272.00	455.00	138.00	420.00	703.00	205.00	621.00	1,038.00	293.00	887.00	1,480.00	

* 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

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