

**Table 2.13(i)** Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Newcastle (Leeming) (2002–2011)

Month	Orientation		Daily mean irradiance (W·m <sup>-2</sup> ) and mean hourly irradiance (W·m <sup>-2</sup> ) for the 21st day of the given month																				
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	
January	Normal to beam		350	0	0	0	0	0	0	0	0	850	377	356	362	514	692	0	0	0	0	0	
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	15	0	0	0	0	0	0	0	11	29	48	59	62	54	39	37	11	0	0	0	0
	NE	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	15	0	0	0	0	0	0	10	29	48	59	62	54	39	43	11	0	0	0	0	0
	E	Beam	32	0	0	0	0	0	0	0	533	160	69	0	0	0	0	0	0	0	0	0	0
		Diffuse	22	0	0	0	0	0	0	12	132	96	81	62	54	39	37	11	0	0	0	0	0
	SE	Beam	87	0	0	0	0	0	0	0	839	348	287	233	229	158	0	0	0	0	0	0	0
		Diffuse	36	0	0	0	0	0	0	13	194	151	146	132	111	68	31	11	0	0	0	0	0
	Sunrise: 0810 Sunset: 1624	S	Beam	114	0	0	0	0	0	0	653	332	337	348	475	580	0	0	0	0	0	0	0
			Diffuse	43	0	0	0	0	0	11	156	147	161	166	175	162	37	11	0	0	0	0	0
		SW	Beam	73	0	0	0	0	0	0	85	122	190	259	442	662	0	0	0	0	0	0	0
			Diffuse	33	0	0	0	0	0	10	40	85	117	140	167	180	43	11	0	0	0	0	0
		W	Beam	22	0	0	0	0	0	0	0	0	0	19	151	356	0	0	0	0	0	0	0
			Diffuse	19	0	0	0	0	0	12	29	48	59	69	90	112	37	11	0	0	0	0	0
		NW	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diffuse			14	0	0	0	0	0	13	29	48	59	62	54	39	31	11	0	0	0	0	0	
	Horiz.	Beam	31	0	0	0	0	0	28	112	80	93	98	126	127	82	0	0	0	0	0	0	
	Horiz.	Diffuse	23	0	0	0	0	10	38	88	109	114	91	57	31	18	0	0	0	0	0	0	
	Horiz.	Global	54	0	0	0	0	38	150	168	202	212	217	184	113	18	0	0	0	0	0	0	
February	Normal to beam		451	0	0	0	0	0	18	346	851	731	838	849	823	507	0	0	0	0	0		
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	24	0	0	0	0	2	23	62	78	86	91	86	71	52	32	1	0	0	0	0	
	NE	Beam	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	24	0	0	0	0	2	23	62	78	86	91	86	71	52	33	1	0	0	0	0	
	E	Beam	33	0	0	0	0	0	15	230	386	155	0	0	0	0	0	0	0	0	0	0	
		Diffuse	31	0	0	0	0	2	23	132	140	104	91	86	71	52	33	1	0	0	0	0	
	SE	Beam	112	0	0	0	0	0	17	333	764	568	510	343	146	0	0	0	0	0	0	0	
		Diffuse	45	0	0	0	0	2	23	163	218	193	176	138	86	52	32	1	0	0	0	0	
	Sunrise: 0713 Sunset: 1725	S	Beam	169	0	0	0	0	10	241	694	648	758	737	642	327	0	0	0	0	0	0	
			Diffuse	57	0	0	0	0	2	23	136	204	210	227	219	188	135	32	1	0	0	0	0
		SW	Beam	129	0	0	0	0	0	8	218	349	562	699	762	492	0	0	0	0	0	0	
			Diffuse	49	0	0	0	0	2	23	66	106	146	187	211	212	178	33	1	0	0	0	0
		W	Beam	45	0	0	0	0	0	0	0	0	0	37	252	435	368	0	0	0	0	0	0
			Diffuse	32	0	0	0	0	2	23	62	78	86	79	119	145	146	33	1	0	0	0	0
		NW	Beam	1	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0	0	0
Diffuse			24	0	0	0	0	2	23	62	78	86	91	86	71	56	32	1	0	0	0	0	
	Horiz.	Beam	75	0	0	0	0	1	3	95	306	300	355	338	275	121	12	0	0	0	0	0	
	Horiz.	Diffuse	36	0	0	0	2	3	45	114	103	123	121	114	95	88	50	1	0	0	0	0	
	Horiz.	Global	111	0	0	0	2	4	48	209	409	423	476	452	371	209	62	1	0	0	0	0	
March	Normal to beam		497	0	0	0	0	46	831	913	913	858	882	814	771	384	46	0	0	0	0		
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	40	0	0	0	0	36	69	128	117	121	125	116	101	87	47	13	0	0	0	0	
	NE	Beam	11	0	0	0	0	22	221	28	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	41	0	0	0	0	52	99	100	117	121	125	116	101	87	47	13	0	0	0	0	
	E	Beam	79	0	0	0	0	44	688	597	398	161	0	0	0	0	0	0	0	0	0	0	
		Diffuse	55	0	0	0	0	58	191	276	170	127	125	116	101	87	47	13	0	0	0	0	
	SE	Beam	155	0	0	0	0	39	752	816	750	595	456	249	57	0	0	0	0	0	0	0	
		Diffuse	68	0	0	0	0	56	204	344	243	212	187	142	94	87	47	13	0	0	0	0	
	Sunrise: 0604 Sunset: 1822	S	Beam	181	0	0	0	0	12	376	557	663	680	710	620	514	202	16	0	0	0	0	
			Diffuse	73	0	0	0	0	49	129	264	225	229	237	216	188	148	64	13	0	0	0	0
		SW	Beam	116	0	0	0	0	0	0	188	367	548	628	670	348	40	0	0	0	0	0	
			Diffuse	60	0	0	0	0	36	69	128	127	167	205	218	220	191	71	13	0	0	0	0
		W	Beam	46	0	0	0	0	0	0	0	0	0	65	268	433	291	41	0	0	0	0	0
			Diffuse	48	0	0	0	0	36	69	128	117	121	109	146	172	174	72	13	0	0	0	0
		NW	Beam	3	0	0	0	0	0	0	0	0	0	0	0	0	63	18	0	0	0	0	0
Diffuse			42	0	0	0	0	36	69	128	117	121	125	116	101	106	65	13	0	0	0	0	
	Horiz.	Beam	133	0	0	0	0	9	278	409	486	498	520	455	378	149	12	2	0	0	0	0	
	Horiz.	Diffuse	58	0	0	0	0	76	91	190	150	157	160	154	139	159	101	22	0	0	0	0	
	Horiz.	Global	191	0	0	0	0	86	369	599	636	655	680	608	517	308	113	24	0	0	0	0	

Table continues

**Table 2.13(i)** Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Newcastle (Leeming) (2002–2011)  
— continued

Month	Orientation		Daily mean irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) and mean hourly irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) for the 21st day of the given month																					
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030		
April	Normal to beam		463	0	0	0	0	22	241	472	714	811	805	860	906	885	844	688	167	0	0	0		
	N	Beam	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	56	0	0	0	1	38	83	110	125	141	149	153	154	134	108	82	65	12	0	0	0	
	NE	Beam	14	0	0	0	0	16	127	147	57	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	59	0	0	0	1	38	132	144	116	141	149	153	154	134	108	82	55	12	0	0	0	
	E	Beam	62	0	0	0	0	22	219	373	437	319	119	0	0	0	0	0	0	0	0	0	0	
		Diffuse	68	0	0	0	1	38	162	206	198	175	142	153	154	134	108	82	55	12	0	0	0	
	SE	Beam	112	0	0	0	0	15	184	380	560	573	462	341	168	0	0	0	0	0	0	0	0	
		Diffuse	74	0	0	0	1	38	151	208	224	226	211	186	151	134	108	82	55	12	0	0	0	
	Sunrise: 0449 Sunset: 1920	S	Beam	151	0	0	0	0	40	165	356	492	534	574	560	459	316	136	0	0	0	0	0	
			Diffuse	78	0	0	0	1	38	105	149	180	209	225	232	234	194	147	98	55	12	0	0	0
		SW	Beam	147	0	0	0	0	0	0	0	122	294	471	624	687	679	531	114	0	0	0	0	
			Diffuse	79	0	0	0	1	38	83	110	125	136	177	212	247	240	218	186	101	12	0	0	0
		W	Beam	98	0	0	0	0	0	0	0	0	0	0	92	322	513	645	616	161	0	0	0	0
			Diffuse	72	0	0	0	1	38	83	110	125	141	149	137	184	205	212	205	117	12	0	0	0
		NW	Beam	30	0	0	0	0	0	0	0	0	0	0	0	0	38	232	340	114	0	0	0	0
			Diffuse	60	0	0	0	1	38	83	110	125	141	149	153	154	110	130	144	101	12	0	0	0
	Horiz.	Beam	188	0	0	0	1	5	90	239	438	561	590	633	635	557	444	275	43	2	0	0	0	
		Diffuse	81	0	0	0	2	74	163	188	179	186	198	196	199	171	140	119	112	19	0	0	0	
		Global	269	0	0	0	3	79	253	427	617	747	788	829	834	728	585	394	155	21	0	0	0	
May	Normal to beam		303	0	0	0	24	22	18	21	45	495	543	668	784	838	797	641	342	211	0	0		
	N	Beam	4	0	0	0	7	2	0	0	0	0	0	0	0	0	0	0	32	62	0	0	0	
		Diffuse	67	0	0	1	18	42	66	93	136	174	180	173	161	146	126	105	95	78	6	0	0	
	NE	Beam	3	0	0	0	21	16	10	7	6	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	69	0	0	1	18	44	87	122	174	174	180	173	161	146	126	105	83	50	6	0	0	
	E	Beam	15	0	0	0	22	20	16	16	26	183	72	0	0	0	0	0	0	0	0	0	0	
		Diffuse	71	0	0	1	18	44	88	124	181	213	181	173	161	146	126	105	83	50	6	0	0	
	SE	Beam	39	0	0	0	11	13	12	15	31	304	263	210	87	0	0	0	0	0	0	0	0	
		Diffuse	75	0	0	1	18	43	88	124	182	248	233	194	146	146	126	105	83	50	6	0	0	
	Sunrise: 0351 Sunset: 2013	S	Beam	82	0	0	0	0	2	5	18	248	300	371	397	342	215	63	0	0	0	0	0	0
			Diffuse	80	0	0	1	18	32	85	122	178	231	243	232	210	182	144	105	83	50	6	0	0
		SW	Beam	120	0	0	0	0	0	0	0	46	161	315	474	575	568	436	202	95	0	0	0	0
			Diffuse	86	0	0	1	18	32	66	93	136	174	205	219	226	228	216	195	150	89	6	0	0
		W	Beam	103	0	0	0	0	0	0	0	0	0	0	75	274	471	588	553	318	197	0	0	0
			Diffuse	84	0	0	1	18	32	66	93	136	174	180	162	185	207	220	223	188	124	6	0	0
		NW	Beam	47	0	0	0	0	0	0	0	0	0	0	0	0	91	264	346	247	183	0	0	0
			Diffuse	74	0	0	1	18	32	66	93	136	174	180	173	161	132	154	173	165	119	6	0	0
	Horiz.	Beam	152	0	0	1	5	8	9	13	32	388	446	551	619	602	493	318	123	46	2	0	0	
		Diffuse	108	0	0	2	34	69	142	202	291	296	296	258	217	189	168	160	155	99	9	0	0	
		Global	260	0	0	3	39	76	151	215	323	684	742	809	836	791	662	478	277	145	11	0	0	
June	Normal to beam		493	0	0	0	188	393	548	648	706	743	774	785	785	771	739	674	573	387	160	0		
	N	Beam	16	0	0	0	67	63	0	0	0	0	0	0	0	0	0	0	63	117	79	0	0	
		Diffuse	81	0	1	23	85	103	110	133	151	165	172	173	167	154	135	113	94	98	63	6	6	
	NE	Beam	48	0	0	0	167	299	322	250	120	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	87	0	1	24	120	177	185	172	151	165	172	173	167	154	135	113	88	62	31	6	6	
	E	Beam	96	0	0	0	170	359	471	484	412	283	117	0	0	0	0	0	0	0	0	0	0	
		Diffuse	96	0	1	24	120	195	225	228	216	194	162	173	167	154	135	113	88	62	31	6	6	
	SE	Beam	110	0	0	0	73	209	344	434	462	434	358	234	80	0	0	0	0	0	0	0	0	
		Diffuse	94	0	1	23	87	149	191	216	228	226	212	185	149	154	135	113	88	62	31	6	6	
	Sunrise: 0329 Sunset: 2046	S	Beam	100	0	0	0	0	16	130	242	331	389	400	366	289	179	52	0	0	0	0	0	0
			Diffuse	86	0	1	23	54	85	103	143	178	204	218	220	207	183	148	106	88	62	31	6	6
		SW	Beam	123	0	0	0	0	0	0	0	0	35	193	332	437	495	496	435	322	167	41	0	0
			Diffuse	95	0	1	24	54	85	110	133	151	141	177	206	222	226	216	195	162	113	50	6	6
		W	Beam	118	0	0	0	0	0	0	0	0	0	0	69	252	411	523	563	518	354	138	0	0
			Diffuse	98	0	1	24	54	85	110	133	151	165	172	152	184	208	222	225	213	171	84	6	6
		NW	Beam	66	0	0	0	0	0	0	0	0	0	0	0	0	86	244	361	411	333	153	0	0
			Diffuse	90	0	1	23	54	85	110	133	151	165	172	173	167	141	162	178	185	165	89	6	6
	Horiz.	Beam	241	0	0	3	44	147	280	411	520	602	659	672	647	585	490	367	236	105	22	1	1	
		Diffuse	113	0	2	38	108	154	181	201	218	230	233	232	224	209	189	167	142	112	62	10	10	
		Global	354	0	3	41	152	301	461	611	738	832	893	904	871	794	679	535	377	217	84	10	10	

Table continues

**Table 2.13(i)** Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Newcastle (Leeming) (2002–2011)  
— continued

Month	Orientation		Daily mean irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) and mean hourly irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) for the 21st day of the given month																				
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	
July	Normal to beam		435	0	0	0	70	408	537	609	659	700	707	728	740	738	679	447	431	372	0	0	
	N	Beam	9	0	0	0	24	60	0	0	0	0	0	0	0	0	0	0	27	97	0	0	
		Diffuse	75	0	0	10	55	90	101	126	146	160	169	170	163	150	133	116	91	86	30	7	
	NE	Beam	43	0	0	0	62	312	317	236	110	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	82	0	0	10	67	168	177	168	149	160	169	170	163	150	133	116	86	55	29	7	
	E	Beam	92	0	0	0	64	382	474	471	402	284	122	0	0	0	0	0	0	0	0	0	
		Diffuse	92	0	0	10	68	189	220	226	218	196	166	170	163	150	133	116	86	55	35	7	
	SE	Beam	110	0	0	0	28	228	354	430	459	439	359	249	106	0	0	0	0	0	0	0	
		Diffuse	93	0	0	10	56	142	187	216	231	231	219	192	155	150	133	116	86	55	36	7	
	Sunrise: 0357 Sunset: 2027	S	Beam	104	0	0	0	0	0	26	137	246	337	385	404	380	313	198	56	0	0	0	0
			Diffuse	86	0	0	10	38	74	98	143	181	208	225	226	214	189	156	128	86	55	30	7
		SW	Beam	113	0	0	0	0	0	0	0	0	38	186	323	432	498	482	307	261	177	0	0
			Diffuse	92	0	0	10	38	74	101	126	146	141	180	208	225	229	222	202	162	111	29	7
		W	Beam	95	0	0	0	0	0	0	0	0	0	0	52	230	390	483	378	397	347	0	0
			Diffuse	92	0	0	10	38	74	101	126	146	160	169	149	182	206	222	223	203	165	35	7
		NW	Beam	46	0	0	0	0	0	0	0	0	0	0	0	54	201	227	300	314	0	0	0
			Diffuse	83	0	0	10	38	74	101	126	146	160	169	170	163	133	157	178	173	155	36	7
Horiz.	Beam	212	0	0	1	13	133	250	361	461	543	581	604	591	542	434	232	165	90	75	0		
	Diffuse	111	1	2	16	80	132	167	196	219	232	243	239	228	210	196	204	153	101	29	12		
	Global	322	1	2	17	93	265	417	558	679	775	824	843	819	752	630	436	318	191	104	12		
August	Normal to beam		405	0	0	0	0	510	457	551	586	591	678	665	709	739	674	304	20	0	0	0	
	N	Beam	1	0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	59	0	0	0	20	52	83	109	131	148	154	155	147	131	112	95	44	21	9	0	
	NE	Beam	36	0	0	0	0	369	247	180	57	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	67	0	0	0	20	149	152	146	130	148	154	155	147	131	112	95	44	21	9	0	
	E	Beam	87	0	0	0	0	497	419	440	367	242	113	0	0	0	0	0	0	0	0	0	
		Diffuse	79	0	0	0	20	184	202	216	210	192	155	155	147	131	112	95	44	21	9	0	
	SE	Beam	117	0	0	0	0	333	346	442	462	422	397	273	144	0	0	0	0	0	0	0	
		Diffuse	84	0	0	0	20	138	181	217	235	239	221	195	153	131	112	95	44	21	9	0	
	Sunrise: 0452 Sunset: 1926	S	Beam	123	0	0	0	0	0	70	185	287	354	449	446	443	391	261	65	0	0	0	0
			Diffuse	82	0	0	0	20	49	99	148	189	221	233	236	220	191	155	121	44	21	9	0
		SW	Beam	105	0	0	0	0	0	0	0	0	79	237	357	482	571	543	236	14	0	0	0
			Diffuse	78	0	0	0	20	49	83	109	131	150	184	215	229	231	221	178	44	21	9	0
		W	Beam	63	0	0	0	0	0	0	0	0	0	0	59	239	417	506	270	20	0	0	0
			Diffuse	70	0	0	0	20	49	83	109	131	148	154	145	175	197	213	190	44	21	9	0
		NW	Beam	15	0	0	0	0	0	0	0	0	0	0	0	0	19	173	145	14	0	0	0
			Diffuse	61	0	0	0	20	49	83	109	131	148	154	155	147	111	135	148	44	21	9	0
Horiz.	Beam	157	0	0	0	4	113	167	274	356	406	496	490	499	469	359	124	5	2	0	0		
	Diffuse	93	0	0	1	31	83	145	179	210	236	228	233	212	185	167	181	87	34	15	0		
	Global	250	0	0	1	36	196	312	453	566	642	724	723	711	653	526	304	92	36	15	0		
September	Normal to beam		423	0	0	0	0	0	468	504	525	560	606	631	646	639	639	705	0	0	0	0	
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	44	0	0	0	1	25	51	79	102	117	124	123	114	98	76	47	88	3	0	0	
	NE	Beam	13	0	0	0	0	0	204	108	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	47	0	0	0	1	28	105	102	102	117	124	123	114	98	76	47	88	3	0	0	
	E	Beam	60	0	0	0	0	0	432	399	318	213	77	0	0	0	0	0	0	0	0	0	
		Diffuse	58	0	0	0	1	32	168	180	177	159	127	123	114	98	76	47	88	3	0	0	
	SE	Beam	110	0	0	0	0	0	406	456	462	445	397	296	163	11	0	0	0	0	0	0	
		Diffuse	68	0	0	0	1	29	161	195	214	218	204	176	135	87	76	47	88	3	0	0	
	Sunrise: 0547 Sunset: 1811	S	Beam	147	0	0	0	0	0	143	246	336	417	484	503	480	407	310	213	0	0	0	0
			Diffuse	75	0	0	0	1	25	88	139	181	210	225	224	209	179	137	86	88	3	0	0
		SW	Beam	130	0	0	0	0	0	0	0	12	144	288	416	516	564	579	612	0	0	0	0
			Diffuse	70	0	0	0	1	28	51	79	96	142	178	204	217	216	200	173	88	3	0	0
		W	Beam	79	0	0	0	0	0	0	0	0	0	0	84	249	391	508	652	0	0	0	0
			Diffuse	59	0	0	0	1	32	51	79	102	117	124	126	155	176	183	181	88	3	0	0
		NW	Beam	19	0	0	0	0	0	0	0	0	0	0	0	0	0	140	310	0	0	0	0
			Diffuse	47	0	0	0	1	29	51	79	102	117	124	123	114	98	98	107	88	3	0	0
Horiz.	Beam	112	0	0	0	0	56	110	185	249	308	356	370	354	301	231	162	0	0	0	0		
	Diffuse	70	0	0	0	10	28	88	133	169	189	193	188	172	149	115	68	147	26	0	0		
	Global	182	0	0	0	10	84	198	318	418	497	549	558	526	450	346	230	147	26	0	0		

Table continues

**Table 2.13(i)** Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Newcastle (Leeming) (2002–2011)  
— continued

Month	Orientation		Daily mean irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) and mean hourly irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) for the 21st day of the given month																					
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030		
October	Normal to beam		404	0	0	0	0	0	0	179	571	721	623	941	797	517	91	0	0	0	0	0		
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	25	0	0	0	0	0	17	48	69	81	90	105	77	63	37	14	0	0	0	0	0	
	NE	Beam	1	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	26	0	0	0	0	0	17	61	69	81	90	105	77	63	37	15	0	0	0	0	0	
	E	Beam	32	0	0	0	0	0	135	323	244	55	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	32	0	0	0	0	0	17	99	143	120	91	105	77	63	37	15	0	0	0	0	0	
	SE	Beam	105	0	0	0	0	0	173	536	610	437	484	237	34	0	0	0	0	0	0	0	0	
		Diffuse	47	0	0	0	0	0	17	112	197	200	183	199	110	68	37	14	0	0	0	0	0	
	Sunrise: 0643 Sunset: 1658	S	Beam	152	0	0	0	0	0	111	434	618	563	842	664	373	52	0	0	0	0	0	0	
			Diffuse	59	0	0	0	0	0	17	91	171	201	213	290	196	158	61	14	0	0	0	0	0
		SW	Beam	112	0	0	0	0	0	0	78	264	359	707	702	494	89	0	0	0	0	0	0	
			Diffuse	49	0	0	0	0	0	17	48	81	125	164	256	204	190	72	15	0	0	0	0	0
		W	Beam	37	0	0	0	0	0	0	0	0	0	0	157	329	325	73	0	0	0	0	0	0
			Diffuse	32	0	0	0	0	0	17	48	69	81	90	116	128	145	68	15	0	0	0	0	0
		NW	Beam	1	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	0	0
			Diffuse	26	0	0	0	0	0	17	48	69	81	90	105	77	63	50	14	0	0	0	0	0
	Horiz.	Beam	67	0	0	0	0	2	39	181	279	262	389	294	149	16	6	0	0	0	0	0	0	
		Diffuse	39	0	0	0	0	0	27	97	111	116	139	145	103	106	77	21	0	0	0	0	0	
		Global	107	0	0	0	0	0	29	136	292	395	401	534	397	255	93	28	0	0	0	0	0	
November	Normal to beam		388	0	0	0	0	0	0	428	532	590	638	652	653	0	0	0	0	0	0	0		
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	14	0	0	0	0	0	13	38	52	58	56	47	31	42	0	0	0	0	0	0	0	
	NE	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	14	0	0	0	0	0	13	38	52	58	56	47	31	42	0	0	0	0	0	0	0	
	E	Beam	19	0	0	0	0	0	0	234	175	53	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	19	0	0	0	0	0	13	103	93	65	56	47	31	42	0	0	0	0	0	0	0	
	SE	Beam	83	0	0	0	0	0	0	414	467	438	359	232	88	0	0	0	0	0	0	0	0	
		Diffuse	34	0	0	0	0	0	13	154	168	159	133	94	47	42	0	0	0	0	0	0	0	
	Sunrise: 0743 Sunset: 1559	S	Beam	130	0	0	0	0	0	0	352	486	566	607	583	515	0	0	0	0	0	0	0	0
			Diffuse	44	0	0	0	0	0	13	137	173	190	191	175	145	42	0	0	0	0	0	0	0
		SW	Beam	100	0	0	0	0	0	0	83	220	363	499	592	640	0	0	0	0	0	0	0	0
			Diffuse	37	0	0	0	0	0	13	61	105	140	165	177	174	42	0	0	0	0	0	0	0
		W	Beam	31	0	0	0	0	0	0	0	0	0	99	254	391	0	0	0	0	0	0	0	0
			Diffuse	20	0	0	0	0	0	13	38	52	58	72	99	117	42	0	0	0	0	0	0	0
		NW	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Diffuse	14	0	0	0	0	0	13	38	52	58	56	47	31	42	0	0	0	0	0	0	0
	Horiz.	Beam	32	0	0	0	0	0	1	73	126	159	168	145	95	0	0	0	0	0	0	0	0	
		Diffuse	23	0	0	0	0	0	21	67	86	92	86	72	47	70	1	0	0	0	0	0	0	
		Global	55	0	0	0	0	0	22	140	212	251	255	216	142	70	1	0	0	0	0	0	0	
December	Normal to beam		369	0	0	0	0	0	0	0	892	865	610	588	0	0	0	0	0	0	0	0		
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	11	0	0	0	0	0	5	33	47	45	45	38	38	8	0	0	0	0	0	0	0	
	NE	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	11	0	0	0	0	0	5	29	47	45	45	38	40	9	0	0	0	0	0	0	0	
	E	Beam	19	0	0	0	0	0	0	0	327	118	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	15	0	0	0	0	0	5	31	133	60	45	38	35	8	0	0	0	0	0	0	0	
	SE	Beam	88	0	0	0	0	0	0	0	808	676	375	245	0	0	0	0	0	0	0	0	0	
		Diffuse	32	0	0	0	0	0	6	35	277	175	130	94	33	7	0	0	0	0	0	0	0	
	Sunrise: 0822 Sunset: 1545	S	Beam	116	0	0	0	0	0	0	0	816	839	593	544	0	0	0	0	0	0	0	0	0
			Diffuse	38	0	0	0	0	0	5	33	279	209	183	168	38	8	0	0	0	0	0	0	0
		SW	Beam	77	0	0	0	0	0	0	0	346	510	464	524	0	0	0	0	0	0	0	0	0
			Diffuse	28	0	0	0	0	0	5	29	139	141	152	163	40	9	0	0	0	0	0	0	0
		W	Beam	11	0	0	0	0	0	0	0	0	0	63	197	0	0	0	0	0	0	0	0	0
			Diffuse	13	0	0	0	0	0	5	31	47	45	55	83	35	8	0	0	0	0	0	0	0
		NW	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Diffuse	11	0	0	0	0	0	6	35	47	45	45	38	33	7	0	0	0	0	0	0	0
	Horiz.	Beam	28	0	0	0	0	0	5	38	150	179	127	103	52	10	0	0	0	0	0	0	0	
		Diffuse	15	0	0	0	0	0	7	39	71	60	71	61	41	10	0	0	0	0	0	0	0	
		Global	43	0	0	0	0	0	12	77	221	239	199	164	93	20	0	0	0	0	0	0	0	