Predicted clear day beam and diffuse irradiances (/ W·m^{-2}) on vertical and horizontal surfaces on specified days in northern (N) and southern (S) hemispheres (see notes at foot of table): LATITUDE 55° N/S

Date and times of sunrise/sunset	Orient-ation	Type	Daily mean irradiance (/ W·m^{-2}) and mean hourly irradiance (/ W·m^{-2}) for stated solar time*																		
			Mean	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030
Jan 29 (N) / Jul 3 (S)																					
	Normal to beam		144	—	—	—	—	78	215	414	519	564	564	519	414	215	78	—	—	—	—
Sunrise: 07:52	N (S)	Beam	0	—	—	—	—	0	0	0	0	0	0	0	0	0	0	—	—	—	—
Sunset: 16:08		Diffuse	15	—	—	—	—	11	24	42	55	61	61	55	42	24	11	—	—	—	—
	NE (SE)	Beam	1	—	—	—	—	15	15	0	0	0	0	0	0	0	0	—	—	—	—
		Diffuse	16	—	—	—	—	15	30	48	57	61	60	55	43	25	12	—	—	—	—
	E (E)	Beam	28	—	—	—	—	65	162	239	188	70	0	0	0	0	0	—	—	—	—
		Diffuse	20	—	—	—	—	22	46	74	84	80	71	58	42	24	11	—	—	—	—
	SE (NE)	Beam	88	—	—	—	—	77	214	402	463	428	330	196	64	0	0	—	—	—	—
		Diffuse	28	—	—	—	—	24	54	96	119	121	107	84	56	28	12	—	—	—	—
	S (N)	Beam	123	—	—	—	—	43	140	330	466	536	536	466	330	140	43	—	—	—	—
		Diffuse	32	—	—	—	—	18	43	86	119	137	137	119	86	43	18	—	—	—	—
	SW (NW)	Beam	88	—	—	—	—	0	0	64	196	330	428	463	402	214	77	—	—	—	—
		Diffuse	28	—	—	—	—	12	28	56	85	107	121	119	96	54	24	—	—	—	—
	W (W)	Beam	28	—	—	—	—	0	0	0	0	0	70	189	239	162	65	—	—	—	—
		Diffuse	20	—	—	—	—	11	24	42	58	71	80	84	74	46	22	—	—	—	—
	NW (SW)	Beam	1	—	—	—	—	0	0	0	0	0	0	0	0	15	15	—	—	—	—
		Diffuse	16	—	—	—	—	12	25	43	55	60	61	57	48	30	15	—	—	—	—
	Horiz.	Beam	32	—	—	—	—	1	16	73	129	161	161	129	73	16	1	—	—	—	—
	Horiz.	Diffuse	19	—	—	—	—	14	31	54	69	76	76	69	54	31	14	—	—	—	—
	Horiz.	Global	51	—	—	—	—	15	47	127	198	237	237	198	127	47	15	—	—	—	—
Feb 26 (N) / Aug 3 (S)																					
	Normal to beam		223	—	—	—	78	237	470	598	668	699	699	668	598	470	237	78	—	—	—
Sunrise: 06:53	N (S)	Beam	0	—	—	—	0	0	0	0	0	0	0	0	0	0	0	0	—	—	—
Sunset: 17:07		Diffuse	25	—	—	—	12	27	48	64	75	80	80	75	64	48	27	12	—	—	—
	NE (SE)	Beam	7	—	—	—	37	86	67	0	0	0	0	0	0	0	0	0	—	—	—
		Diffuse	27	—	—	—	17	39	65	77	82	82	80	75	65	49	27	11	—	—	—
	E (E)	Beam	54	—	—	—	75	216	368	360	253	90	0	0	0	0	0	0	—	—	—
		Diffuse	34	—	—	—	24	57	98	116	118	108	95	80	65	48	27	12	—	—	—
	SE (NE)	Beam	124	—	—	—	69	220	454	564	574	505	377	217	55	0	0	0	—	—	—
		Diffuse	44	—	—	—	23	57	111	145	160	156	139	114	85	55	27	11	—	—	—
	S (N)	Beam	166	—	—	—	22	95	274	438	559	624	624	559	438	274	95	22	—	—	—
		Diffuse	49	—	—	—	15	40	85	126	158	174	174	158	126	85	40	15	—	—	—
	SW (NW)	Beam	124	—	—	—	0	0	0	55	217	377	505	574	564	454	220	69	—	—	—
		Diffuse	44	—	—	—	11	27	55	85	114	139	156	160	145	111	57	23	—	—	—
	W (W)	Beam	54	—	—	—	0	0	0	0	0	0	90	253	360	368	216	75	—	—	—
		Diffuse	34	—	—	—	12	27	48	65	80	95	108	118	116	98	57	24	—	—	—
	NW (SW)	Beam	7	—	—	—	0	0	0	0	0	0	0	0	0	67	86	37	—	—	—
		Diffuse	27	—	—	—	11	27	49	65	75	80	82	82	77	65	39	17	—	—	—
	Horiz.	Beam	74	—	—	—	1	21	102	192	264	303	303	264	192	102	21	1	—	—	—
	Horiz.	Diffuse	31	—	—	—	14	34	62	81	93	99	99	93	81	62	34	14	—	—	—
	Horiz.	Global	104	—	—	—	15	55	164	273	357	402	402	357	273	164	55	15	—	—	—
Mar 29 (N) / Sep 3 (S)																					
	Normal to beam		321	—	—	102	307	530	659	737	782	803	803	782	737	659	530	307	102	—	—
Sunrise: 05:40	N (S)	Beam	0	—	—	7	0	0	0	0	0	0	0	0	0	0	0	0	7	—	—
Sunset: 18:20		Diffuse	39	—	—	17	37	61	77	89	98	102	102	98	89	77	61	37	17	—	—
	NE (SE)	Beam	26	—	—	77	199	241	153	0	0	0	0	0	0	0	0	0	0	—	—
		Diffuse	43	—	—	26	58	91	106	110	109	106	103	97	88	74	55	31	13	—	—
	E (E)	Beam	92	—	—	102	304	489	522	448	299	104	0	0	0	0	0	0	0	—	—
		Diffuse	53	—	—	31	73	124	151	157	148	134	118	104	89	74	56	33	14	—	—
	SE (NE)	Beam	150	—	—	67	231	450	585	637	610	515	367	188	3	0	0	0	0	—	—
		Diffuse	62	—	—	24	62	118	160	184	189	179	160	137	111	83	57	31	14	—	—
	S (N)	Beam	176	—	—	0	22	148	305	453	564	623	623	564	453	305	148	22	0	—	—
		Diffuse	65	—	—	16	40	82	122	157	182	194	194	182	157	122	82	40	16	—	—
	SW (NW)	Beam	150	—	—	0	0	0	0	3	188	367	515	610	637	585	450	231	67	—	—
		Diffuse	62	—	—	14	31	57	83	111	137	160	179	189	184	160	118	62	24	—	—
	W (W)	Beam	92	—	—	0	0	0	0	0	0	0	104	299	448	522	489	304	102	—	—
		Diffuse	53	—	—	14	33	56	74	89	104	118	134	148	157	151	124	73	31	—	—
	NW (SW)	Beam	26	—	—	0	0	0	0	0	0	0	0	0	0	153	241	199	77	—	—
		Diffuse	43	—	—	13	31	55	74	88	97	103	106	109	110	106	91	58	26	—	—
	Horiz.	Beam	147	—	—	2	38	142	262	371	452	495	495	452	371	262	142	38	2	—	—
	Horiz.	Diffuse	46	—	—	18	41	71	92	106	114	118	118	114	106	92	71	41	18	—	—
	Horiz.	Global	192	—	—	20	79	213	354	477	566	613	613	566	477	354	213	79	20	—	—

© J K Page — used with permission

Table continues

Table 2.33(g) Predicted clear day beam and diffuse irradiances (/ W·m^{-2}) on vertical and horizontal surfaces on specified days in northern (N) and southern (S) hemispheres (see notes at foot of table): latitude 55° N/S — *continued*

Date and times of sunrise/sunset	Orient-ation	Type	Daily mean irradiance (/ W·m^{-2}) and mean hourly irradiance (/ W·m^{-2}) for stated solar time*																		
			Mean	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030
Apr 28 (N) / Oct 3 (S)																					
	Normal to beam		398	—	107	310	527	661	747	802	835	851	851	835	802	747	661	527	310	107	—
Sunrise: 04:35	N (S)	Beam	9	—	41	76	19	0	0	0	0	0	0	0	0	0	0	19	76	41	—
Sunset: 19:25		Diffuse	54	—	20	45	72	88	98	106	113	117	117	113	106	98	88	72	45	20	—
	NE (SE)	Beam	54	—	99	264	372	343	225	57	0	0	0	0	0	0	0	0	0	0	—
		Diffuse	59	—	29	68	109	129	134	131	127	123	119	112	103	91	75	56	32	14	—
	E (E)	Beam	121	—	99	298	507	592	575	473	310	108	0	0	0	0	0	0	0	0	—
		Diffuse	69	—	29	73	128	164	178	174	162	148	133	118	105	91	76	57	33	14	—
	SE (NE)	Beam	154	—	40	157	344	495	587	612	569	466	313	131	0	0	0	0	0	0	—
		Diffuse	74	—	20	53	105	149	180	193	192	182	166	145	123	100	78	56	32	14	—
	S (N)	Beam	150	—	0	0	0	108	256	393	495	550	550	495	393	256	108	0	0	0	—
		Diffuse	74	—	14	35	69	104	137	164	183	192	192	183	164	137	104	69	35	14	—
	SW (NW)	Beam	154	—	0	0	0	0	0	0	131	313	466	569	612	587	495	344	157	40	—
		Diffuse	74	—	14	32	56	78	100	123	145	166	182	192	193	180	149	105	53	20	—
	W (W)	Beam	121	—	0	0	0	0	0	0	0	0	108	310	473	575	592	507	298	99	—
		Diffuse	69	—	14	33	57	76	91	105	118	133	148	162	174	178	164	128	73	29	—
	NW (SW)	Beam	54	—	0	0	0	0	0	0	0	0	0	0	57	225	343	372	264	99	—
		Diffuse	59	—	14	32	56	75	91	103	112	119	123	127	131	134	129	109	68	29	—
	Horiz.	Beam	218	—	3	40	144	273	403	515	597	640	640	597	515	403	273	144	40	3	—
	Horiz.	Diffuse	57	—	18	42	71	93	109	118	123	125	125	123	118	109	93	71	42	18	—
	Horiz.	Global	275	—	21	82	215	366	512	633	720	765	765	720	633	512	366	215	82	21	—
May 29 (N) / Nov 3 (S)																					
	Normal to beam		451	87	247	470	618	717	784	829	856	869	869	856	829	784	717	618	470	247	87
Sunrise: 03:42	N (S)	Beam	30	54	124	146	69	0	0	0	0	0	0	0	0	0	0	69	146	124	54
Sunset: 20:18		Diffuse	66	20	43	72	92	103	111	117	123	125	125	123	117	111	103	92	72	43	20
	NE (SE)	Beam	79	86	238	409	451	395	269	101	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	71	26	59	104	136	147	147	142	137	132	126	121	111	101	86	70	50	28	13
	E (E)	Beam	138	68	212	433	570	616	578	469	305	106	0	0	0	0	0	0	0	0	0
		Diffuse	79	23	55	108	154	179	185	178	166	152	139	126	113	100	86	70	49	26	12
	SE (NE)	Beam	145	10	62	203	354	476	549	562	513	408	259	82	0	0	0	0	0	0	0
		Diffuse	80	15	37	78	123	158	181	190	187	177	164	148	128	108	88	69	49	27	12
	S (N)	Beam	123	0	0	0	0	57	198	326	421	472	472	421	325	198	57	0	0	0	0
		Diffuse	78	12	26	52	82	112	140	162	177	184	184	177	162	140	112	82	52	26	12
	SW (NW)	Beam	145	0	0	0	0	0	0	0	82	259	408	513	562	549	476	354	203	62	10
		Diffuse	80	12	27	49	69	88	108	128	148	164	177	187	190	181	158	123	78	37	15
	W (W)	Beam	138	0	0	0	0	0	0	0	0	0	106	305	469	578	616	570	433	212	68
		Diffuse	79	12	26	49	70	86	100	113	126	139	152	166	178	185	179	154	108	55	23
	NW (SW)	Beam	79	0	0	0	0	0	0	0	0	0	0	0	102	269	395	451	409	238	86
		Diffuse	71	13	28	50	70	86	101	111	121	126	132	137	142	147	147	136	104	59	26
	Horiz.	Beam	268	2	24	109	230	363	491	601	680	722	722	680	601	491	363	230	109	24	2
	Horiz.	Diffuse	65	15	34	62	86	103	115	122	125	126	126	125	122	115	103	86	62	34	15
	Horiz.	Global	333	17	58	171	316	466	606	723	805	848	848	805	723	606	466	316	171	58	17
Jun 21 (N) / Dec 21 (S)																					
	Normal to beam		463	109	297	498	633	725	789	831	857	870	870	857	831	789	725	633	498	297	109
Sunrise: 03:27	N (S)	Beam	36	71	153	162	82	0	0	0	0	0	0	0	0	0	0	82	162	153	71
Sunset: 20:33		Diffuse	69	25	52	78	96	107	114	119	124	126	126	124	119	114	107	96	78	52	25
	NE (SE)	Beam	85	109	286	435	465	404	278	112	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	74	32	70	112	140	151	150	144	138	133	127	121	113	103	89	73	54	34	16
	E (E)	Beam	141	83	252	453	576	615	574	464	301	104	0	0	0	0	0	0	0	0	0
		Diffuse	81	28	65	114	156	181	186	178	166	152	140	127	115	102	88	71	52	31	14
	SE (NE)	Beam	141	9	70	206	349	465	534	545	495	392	245	70	0	0	0	0	0	0	0
		Diffuse	81	18	43	82	124	159	181	188	185	175	163	147	129	109	90	71	52	32	15
	S (N)	Beam	115	0	0	0	0	43	181	306	399	450	450	399	306	181	43	0	0	0	0
		Diffuse	79	14	31	55	84	113	140	161	175	181	181	175	161	140	113	84	55	31	14
	SW (NW)	Beam	141	0	0	0	0	0	0	0	70	245	392	495	545	534	465	349	206	70	9
		Diffuse	81	15	32	52	71	90	109	129	147	163	175	185	188	181	159	124	82	43	18
	W (W)	Beam	141	0	0	0	0	0	0	0	0	0	104	301	464	574	615	576	453	252	83
		Diffuse	81	14	31	52	71	88	102	115	127	140	152	166	178	186	181	156	114	65	28
	NW (SW)	Beam	85	0	0	0	0	0	0	0	0	0	0	0	112	278	404	465	435	286	109
		Diffuse	74	16	34	54	73	89	103	113	121	127	133	138	144	150	151	140	112	70	32
	Horiz.	Beam	280	3	37	128	250	382	510	618	696	737	737	696	618	510	382	250	128	37	3
	Horiz.	Diffuse	67	19	40	66	88	105	116	122	125	126	126	125	122	116	105	88	66	40	19
	Horiz.	Global	347	22	77	194	338	487	626	740	821	863	863	821	740	626	487	338	194	77	22

© J K Page — used with permission

Table continues

Table 2.33(g) Predicted clear day beam and diffuse irradiances (/ W·m^{-2}) on vertical and horizontal surfaces on specified days in northern (N) and southern (S) hemispheres (see notes at foot of table): latitude 55° N/S — *continued*

Date and times of sunrise/sunset	Orient-ation	Type	Daily mean irradiance (/ W·m^{-2}) and mean hourly irradiance (/ W·m^{-2}) for stated solar time*																		
			Mean	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030
Jul 4 (N) / Jan 28 (S)																					
	Normal to beam		459	102	281	489	627	721	786	829	855	868	868	855	829	786	721	627	489	281	102
Sunrise: 03:32	N (S)	Beam	34	65	144	157	77	0	0	0	0	0	0	0	0	0	0	78	157	144	65
Sunset: 20:28		Diffuse	68	24	48	77	94	105	113	118	124	126	126	124	118	113	105	94	77	48	24
	NE (SE)	Beam	83	102	271	427	460	401	275	109	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	73	31	66	110	138	149	149	143	138	133	127	121	112	102	87	71	54	32	15
	E (E)	Beam	140	78	239	447	573	614	575	465	301	104	0	0	0	0	0	0	0	0	0
		Diffuse	80	26	61	113	155	179	186	178	166	153	140	127	114	101	87	70	52	29	14
	SE (NE)	Beam	142	9	68	205	350	467	538	549	500	396	249	74	0	0	0	0	0	0	0
		Diffuse	81	17	41	82	123	158	181	188	186	176	164	148	128	109	89	70	51	30	14
	S (N)	Beam	117	0	0	0	0	47	186	311	406	456	456	406	311	186	47	0	0	0	0
		Diffuse	79	13	29	55	83	112	140	161	176	182	182	176	161	140	112	83	55	29	13
	SW (NW)	Beam	142	0	0	0	0	0	0	0	74	249	396	500	549	538	467	349	205	68	9
		Diffuse	81	14	30	51	70	89	109	128	148	164	176	186	188	181	158	123	82	41	17
	W (W)	Beam	140	0	0	0	0	0	0	0	0	0	104	301	465	575	614	573	447	239	78
		Diffuse	80	14	29	52	70	87	101	114	127	140	153	166	178	186	179	155	113	61	26
	NW (SW)	Beam	83	0	0	0	0	0	0	0	0	0	0	0	109	275	401	460	427	271	102
		Diffuse	73	15	32	54	71	87	102	112	121	127	133	138	143	149	149	138	110	66	31
	Horiz.	Beam	276	3	33	122	243	375	503	611	690	731	731	690	611	503	375	243	122	33	3
	Horiz.	Diffuse	66	18	38	65	87	104	116	122	125	126	126	125	122	116	104	87	65	38	18
	Horiz.	Global	342	21	71	187	330	479	619	733	815	857	857	815	733	619	479	330	187	71	21
Aug 4 (N) / Feb 25 (S)																					
	Normal to beam		415	—	148	380	563	679	756	806	837	851	851	837	806	756	679	563	380	148	—
Sunrise: 06:44	N (S)	Beam	16	—	66	103	38	0	0	0	0	0	0	0	0	0	0	38	103	66	—
Sunset: 17:16		Diffuse	58	—	27	56	78	93	103	111	116	119	119	116	111	103	93	78	56	27	—
	NE (SE)	Beam	63	—	140	327	404	361	241	74	0	0	0	0	0	0	0	0	0	0	—
		Diffuse	63	—	38	83	117	135	139	135	130	125	120	114	106	94	79	60	40	18	—
	E (E)	Beam	127	—	132	360	533	599	573	469	306	106	0	0	0	0	0	0	0	0	—
		Diffuse	72	—	37	88	137	169	181	176	162	148	134	121	108	94	79	61	40	18	—
	SE (NE)	Beam	150	—	47	182	350	486	569	588	544	440	290	111	0	0	0	0	0	0	—
		Diffuse	76	—	25	64	110	152	180	191	189	178	163	145	125	103	81	60	39	18	—
	S (N)	Beam	138	—	0	0	0	88	232	364	463	516	516	463	364	232	88	0	0	0	—
		Diffuse	75	—	18	43	73	106	138	163	179	187	187	179	163	138	106	73	43	18	—
	SW (NW)	Beam	150	—	0	0	0	0	0	0	111	290	440	544	588	569	486	350	182	47	—
		Diffuse	76	—	18	39	60	81	103	125	145	163	178	189	191	180	152	110	64	25	—
	W (W)	Beam	127	—	0	0	0	0	0	0	0	0	106	306	469	573	599	533	360	132	—
		Diffuse	72	—	18	40	61	79	94	108	121	134	148	162	176	181	169	137	88	37	—
	NW (SW)	Beam	63	—	0	0	0	0	0	0	0	0	0	0	74	241	361	404	327	140	—
		Diffuse	63	—	18	40	60	79	94	106	114	120	125	130	135	139	135	117	83	38	—
	Horiz.	Beam	236	—	7	65	177	307	435	546	627	669	669	627	546	435	307	177	65	7	—
	Horiz.	Diffuse	60	—	23	50	76	97	111	119	123	125	125	123	119	111	97	76	50	23	—
	Horiz.	Global	296	—	30	115	253	404	546	665	750	794	794	750	665	546	404	253	115	30	—
Sep 4 (N) / Mar 28 (S)																					
	Normal to beam		343	—	—	153	394	576	686	754	793	812	812	793	754	686	576	394	153	—	—
Sunrise: 05:19	N (S)	Beam	1	—	—	22	0	0	0	0	0	0	0	0	0	0	0	0	22	—	—
Sunset: 18:41		Diffuse	43	—	—	23	49	69	84	95	102	106	106	102	95	84	69	49	23	—	—
	NE (SE)	Beam	34	—	—	123	265	275	176	16	0	0	0	0	0	0	0	0	0	—	—
		Diffuse	48	—	—	36	75	103	116	117	115	111	107	102	93	80	62	40	18	—	—
	E (E)	Beam	101	—	—	151	388	528	540	455	301	105	0	0	0	0	0	0	0	—	—
		Diffuse	58	—	—	41	93	138	162	163	153	138	123	108	94	80	62	41	19	—	—
	SE (NE)	Beam	152	—	—	91	284	471	587	628	594	496	347	168	0	0	0	0	0	—	—
		Diffuse	66	—	—	31	78	129	169	187	190	179	161	140	114	89	64	40	18	—	—
	S (N)	Beam	167	—	—	0	14	138	291	432	539	596	596	539	432	291	138	14	0	—	—
		Diffuse	68	—	—	20	50	89	128	160	182	193	193	182	160	128	89	50	20	—	—
	SW (NW)	Beam	152	—	—	0	0	0	0	0	168	347	496	594	628	587	471	284	91	—	—
		Diffuse	66	—	—	18	40	64	89	114	140	161	179	190	187	169	129	78	31	—	—
	W (W)	Beam	101	—	—	0	0	0	0	0	0	0	105	301	455	540	528	388	151	—	—
		Diffuse	58	—	—	19	41	62	80	94	108	123	138	153	163	162	138	93	41	—	—
	NW (SW)	Beam	34	—	—	0	0	0	0	0	0	0	0	0	16	176	276	265	123	—	—
		Diffuse	48	—	—	18	40	62	80	93	102	107	111	115	117	116	103	75	36	—	—
	Horiz.	Beam	169	—	—	8	69	184	308	417	498	541	541	498	417	308	184	69	8	—	—
	Horiz.	Diffuse	49	—	—	24	52	78	98	110	117	120	120	117	110	98	78	52	24	—	—
	Horiz.	Global	218	—	—	32	121	262	406	527	615	661	661	615	527	406	262	121	32	—	—

© J K Page — used with permission

Table continues

Table 2.33(g) Predicted clear day beam and diffuse irradiances (/ W·m^{-2}) on vertical and horizontal surfaces on specified days in northern (N) and southern (S) hemispheres (see notes at foot of table): latitude 55° N/S — *continued*

Date and times of sunrise/sunset	Orient-ation	Type	Daily mean irradiance (/ W·m^{-2}) and mean hourly irradiance (/ W·m^{-2}) for stated solar time*																		
			Mean	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030
Oct 4 (N) / Apr 28 (S)																					
	Normal to beam		258	—	—	—	140	366	549	652	710	736	736	710	652	549	366	140	—	—	—
Sunrise: 06:25	N (S)	Beam	0	—	—	—	0	0	0	0	0	0	0	0	0	0	0	0	—	—	—
Sunset: 17:35		Diffuse	29	—	—	—	18	39	59	74	83	88	88	83	74	59	40	18	—	—	—
	NE (SE)	Beam	12	—	—	—	78	146	97	0	0	0	0	0	0	0	0	0	—	—	—
		Diffuse	32	—	—	—	28	58	80	90	91	91	88	83	74	59	38	17	—	—	—
	E (E)	Beam	67	—	—	—	137	337	434	396	271	96	0	0	0	0	0	0	—	—	—
		Diffuse	41	—	—	—	38	82	119	133	129	118	104	88	74	58	38	18	—	—	—
	SE (NE)	Beam	135	—	—	—	116	331	517	599	592	512	376	210	39	0	0	0	—	—	—
		Diffuse	50	—	—	—	34	82	132	163	171	166	148	122	95	67	39	17	—	—	—
	S (N)	Beam	174	—	—	—	27	131	297	451	567	628	628	567	451	297	130	27	—	—	—
		Diffuse	55	—	—	—	22	57	101	140	168	183	183	168	140	101	57	22	—	—	—
	SW (NW)	Beam	135	—	—	—	0	0	0	39	210	376	512	592	599	517	331	116	—	—	—
		Diffuse	50	—	—	—	17	39	67	95	122	148	166	171	163	132	81	34	—	—	—
	W (W)	Beam	67	—	—	—	0	0	0	0	0	0	96	271	396	434	337	137	—	—	—
		Diffuse	41	—	—	—	18	38	58	74	88	104	118	129	133	119	82	38	—	—	—
	NW (SW)	Beam	12	—	—	—	0	0	0	0	0	0	0	0	0	97	146	78	—	—	—
		Diffuse	32	—	—	—	17	38	59	74	83	88	91	91	90	80	58	28	—	—	—
	Horiz.	Beam	98	—	—	—	6	57	157	255	331	371	371	331	255	157	57	6	—	—	—
	Horiz.	Diffuse	36	—	—	—	22	48	74	91	101	106	106	101	91	74	48	22	—	—	—
	Horiz.	Global	134	—	—	—	28	105	231	346	432	477	477	432	346	231	105	28	—	—	—
Nov 4 (N) / May 29 (S)																					
	Normal to beam		167	—	—	—	—	114	301	476	567	607	607	567	476	301	114	—	—	—	—
Sunrise: 07:33	N (S)	Beam	0	—	—	—	—	0	0	0	0	0	0	0	0	0	0	—	—	—	—
Sunset: 16:27		Diffuse	18	—	—	—	—	14	32	49	60	66	66	60	49	32	14	—	—	—	—
	NE (SE)	Beam	2	—	—	—	—	29	28	0	0	0	0	0	0	0	0	—	—	—	—
		Diffuse	19	—	—	—	—	20	41	57	64	67	65	60	50	33	15	—	—	—	—
	E (E)	Beam	35	—	—	—	—	98	230	279	209	77	0	0	0	0	0	—	—	—	—
		Diffuse	24	—	—	—	—	30	62	88	93	88	77	64	50	32	14	—	—	—	—
	SE (NE)	Beam	99	—	—	—	—	110	298	460	502	456	347	206	65	0	0	—	—	—	—
		Diffuse	33	—	—	—	—	32	73	113	131	131	117	93	66	37	15	—	—	—	—
	S (N)	Beam	138	—	—	—	—	58	191	371	500	568	568	500	371	191	58	—	—	—	—
		Diffuse	37	—	—	—	—	23	57	100	130	148	148	130	100	57	23	—	—	—	—
	SW (NW)	Beam	99	—	—	—	—	0	0	65	206	347	456	502	460	298	110	—	—	—	—
		Diffuse	33	—	—	—	—	15	37	66	93	117	131	131	113	73	32	—	—	—	—
	W (W)	Beam	35	—	—	—	—	0	0	0	0	0	77	209	279	230	98	—	—	—	—
		Diffuse	24	—	—	—	—	14	32	50	64	77	88	93	88	62	30	—	—	—	—
	NW (SW)	Beam	2	—	—	—	—	0	0	0	0	0	0	0	0	28	29	—	—	—	—
		Diffuse	19	—	—	—	—	15	33	50	60	65	67	64	57	41	20	—	—	—	—
	Horiz.	Beam	42	—	—	—	—	3	36	105	166	201	201	166	105	36	3	—	—	—	—
	Horiz.	Diffuse	23	—	—	—	—	19	41	63	76	83	83	76	63	41	19	—	—	—	—
	Horiz.	Global	65	—	—	—	—	22	77	168	242	284	284	242	168	77	22	—	—	—	—
Dec 4 (N) / Jun 3 (S)																					
	Normal to beam		105	—	—	—	—	—	123	288	419	474	474	419	288	123	—	—	—	—	—
Sunrise: 08:23	N (S)	Beam	0	—	—	—	—	—	0	0	0	0	0	0	0	0	—	—	—	—	—
Sunset: 15:37		Diffuse	11	—	—	—	—	—	16	30	43	49	49	43	30	16	—	—	—	—	—
	NE (SE)	Beam	0	—	—	—	—	—	0	0	0	0	0	0	0	0	—	—	—	—	—
		Diffuse	11	—	—	—	—	—	19	33	44	48	48	43	31	17	—	—	—	—	—
	E (E)	Beam	18	—	—	—	—	—	87	162	148	57	0	0	0	0	—	—	—	—	—
		Diffuse	14	—	—	—	—	—	30	51	65	64	56	45	30	16	—	—	—	—	—
	SE (NE)	Beam	67	—	—	—	—	—	123	281	377	365	284	167	52	0	—	—	—	—	—
		Diffuse	20	—	—	—	—	—	37	68	93	97	86	67	40	19	—	—	—	—	—
	S (N)	Beam	94	—	—	—	—	—	87	236	384	459	459	384	236	87	—	—	—	—	—
		Diffuse	24	—	—	—	—	—	30	61	94	111	111	94	61	30	—	—	—	—	—
	SW (NW)	Beam	67	—	—	—	—	—	0	52	167	284	365	377	281	123	—	—	—	—	—
		Diffuse	20	—	—	—	—	—	19	40	67	86	97	93	68	37	—	—	—	—	—
	W (W)	Beam	18	—	—	—	—	—	0	0	0	0	57	148	162	87	—	—	—	—	—
		Diffuse	14	—	—	—	—	—	16	30	45	56	64	65	51	30	—	—	—	—	—
	NW (SW)	Beam	0	—	—	—	—	—	0	0	0	0	0	0	0	0	—	—	—	—	—
		Diffuse	11	—	—	—	—	—	17	31	43	48	48	44	33	19	—	—	—	—	—
	Horiz.	Beam	18	—	—	—	—	—	4	32	76	102	102	76	32	4	—	—	—	—	—
	Horiz.	Diffuse	14	—	—	—	—	—	21	39	55	62	62	55	39	21	—	—	—	—	—
	Horiz.	Global	32	—	—	—	—	—	25	71	131	164	164	131	71	25	—	—	—	—	—

© J K Page — used with permission

Notes:

(1) Hourly values in the first and last columns are calculated for a time halfway between sunrise and end of sunrise hour and halfway between beginning of sunset hour and sunset, respectively.

(2) Orientations for southern hemisphere shown in parentheses.

(3) Computed using a Linke turbidity factor of 3.5.

(4) Ground reflected component included in the slope diffuse irradiance values; ground albedo: 0.20.

(5) Altitude: 0 m.

(6) Values corrected to mean solar distance (MSD) in the northern hemisphere, see CIBSE Guide J: *Weather, solar and illuminance data*. Apply MSD ratio adjustment for southern hemisphere.