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Supplementary materials

Development of Sky Luminance and Daylight Illuminance Prediction Methods for Lighting Energy Saving in Office Buildings

Chul-Ho Kim and Kang-Soo Kim *

Department of Architecture, College of Engineering, Korea University, 145 Anam–Ro, Seongbuk-Gu, Seoul 02841, Korea; kchcd@korea.ac.kr

* Correspondence: kskim@korea.ac.kr; Tel.: +82-2-3290-3744

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Table S1-1. Prediction results and statistical analysis of indoor daylight illuminance in CIE overcast sky using by Desktop Radiance (3.21 at 07:00 am–06:00 pm).

3.21 (Vernal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	232.9	96.4	44.3	24.6	14.8
	Calculation [lx]	246.2	104.9	48.7	25.6	15.1
	Error Rate (%)	***5.4%***	***8.1%***	***9.1%***	***4.1%***	***2.1%***
08:00	Desktop Radiance [lx]	863.8	357.5	164.7	90.8	54.8
	Calculation [lx]	920.3	388.2	179.7	93.9	56.1
	Error Rate (%)	***6.1%***	***7.9%***	***8.4%***	***3.3%***	***2.2%***
09:00	Desktop Radiance [lx]	1435.6	593.4	272.4	150.8	91.0
	Calculation [lx]	1513.1	643.8	293.3	156.2	93.0
	Error Rate (%)	***5.1%***	***7.8%***	***7.1%***	***3.4%***	***2.1%***
10:00	Desktop Radiance [lx]	1912.5	790.6	363.7	200.2	121.2
	Calculation [lx]	2020.5	843.1	398.9	211.0	124.0
	Error Rate (%)	***5.3%***	***6.2%***	***8.8%***	***5.1%***	***2.2%***
11:00	Desktop Radiance [lx]	2256.8	932.7	428.0	237.0	143.0
	Calculation [lx]	2432.8	1015.2	471.5	245.2	145.2
	Error Rate (%)	***7.2%***	***8.1%***	***9.2%***	***3.3%***	***1.5%***
12:00	Desktop Radiance [lx]	2454.6	1014.4	465.5	257.8	155.5
	Calculation [lx]	2560.3	1083.3	512.6	269.4	157.5
	Error Rate (%)	***4.1%***	***6.4%***	***9.1%***	***4.3%***	***1.2%***
13:00	Desktop Radiance [lx]	2482.9	1027.5	472.6	260.7	157.6
	Calculation [lx]	2636.5	1114.2	517.7	274.7	159.7
	Error Rate (%)	***5.8%***	***7.8%***	***8.7%***	***5.1%***	***1.3%***
14:00	Desktop Radiance [lx]	2352.0	972.0	446.0	247.0	149.0
	Calculation [lx]	2475.3	1054.5	488.0	256.0	150.9
	Error Rate (%)	***5.0%***	***7.9%***	***8.6%***	***3.5%***	***1.2%***
15:00	Desktop Radiance [lx]	2059.0	850.9	390.5	216.2	130.4
	Calculation [lx]	2170.4	922.3	429.7	224.5	131.9
	Error Rate (%)	***5.1%***	***7.7%***	***9.1%***	***3.7%***	***1.1%***
16:00	Desktop Radiance [lx]	1625.7	672.7	310.1	171.6	103.1
	Calculation [lx]	1713.5	722.3	341.6	178.5	104.1
	Error Rate (%)	***5.1%***	***6.9%***	***9.2%***	***3.9%***	***1.0%***
17:00	Desktop Radiance [lx]	1083.8	448.5	206.7	114.4	68.7
	Calculation [lx]	1133.1	483.4	228.1	118.9	69.6
	Error Rate (%)	***4.4%***	***7.2%***	***9.4%***	***3.8%***	***1.3%***
18:00	Desktop Radiance [lx]	477.9	202.1	96.5	55.5	34.8
	Calculation [lx]	503.7	215.5	106.6	57.9	35.2
	Error Rate (%)	***5.2%***	***6.2%***	***9.5%***	***4.1%***	***1.5%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -6.001 % **Root Mean Square Error, RMSE** = 54.786 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 9.059 % **T-value** = -6.789, **P-value** = .00000613 (Significance level, α = 0.05)				

Table S1-2. Prediction results and statistical analysis of indoor daylight illuminance in CIE overcast sky using by Desktop Radiance (6.21 at 07:00 am–06:00 pm).

6.21 (Summer solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	1106.6	455.1	205.1	120.5	72.4
	Calculation [lx]	1154.3	503.7	222.9	127.7	76.3
	Error Rate (%)	***4.1%***	***9.7%***	***8.0%***	***5.6%***	***5.0%***
08:00	Desktop Radiance [lx]	1715.2	704.4	315.9	185.7	112.1
	Calculation [lx]	1792.7	778.0	352.8	197.0	117.7
	Error Rate (%)	***4.3%***	***9.5%***	***10.5%***	***5.7%***	***4.7%***
09:00	Desktop Radiance [lx]	2268.8	932.0	419.4	245.8	148.3
	Calculation [lx]	2394.1	1021.5	465.1	259.9	155.8
	Error Rate (%)	***5.2%***	***8.8%***	***9.8%***	***5.4%***	***4.8%***
10:00	Desktop Radiance [lx]	2719.8	1118.4	504.1	296.1	178.0
	Calculation [lx]	2897.2	1220.4	522.3	311.5	187.7
	Error Rate (%)	***6.1%***	***8.4%***	***8.7%***	***4.9%***	***5.2%***
11:00	Desktop Radiance [lx]	3048.5	1252.0	561.5	330.1	199.3
	Calculation [lx]	3281.9	1358.5	614.1	346.1	211.1
	Error Rate (%)	***7.1%***	***7.8%***	***8.6%***	***4.7%***	***5.6%***
12:00	Desktop Radiance [lx]	3218.6	1324.2	594.2	350.0	210.7
	Calculation [lx]	3454.3	1441.8	659.8	367.0	222.1
	Error Rate (%)	***6.8%***	***8.2%***	***9.9%***	***4.6%***	***5.2%***
13:00	Desktop Radiance [lx]	3234.1	1330.6	597.1	351.7	211.7
	Calculation [lx]	3422.8	1453.6	661.5	372.3	223.1
	Error Rate (%)	***5.5%***	***8.5%***	***9.7%***	***5.5%***	***5.1%***
14:00	Desktop Radiance [lx]	3086.0	1269.0	572.0	336.0	202.0
	Calculation [lx]	3273.0	1385.3	635.1	354.7	211.3
	Error Rate (%)	***5.7%***	***8.4%***	***9.9%***	***5.3%***	***4.4%***
15:00	Desktop Radiance [lx]	2790.3	1145.7	515.7	302.0	182.7
	Calculation [lx]	2954.6	1240.5	581.3	318.4	191.8
	Error Rate (%)	***5.6%***	***7.6%***	***11.3%***	***5.1%***	***4.7%***
16:00	Desktop Radiance [lx]	2353.6	967.8	436.3	256.3	154.1
	Calculation [lx]	2517.5	1047.8	491.4	270.0	162.5
	Error Rate (%)	***6.5%***	***7.7%***	***11.2%***	***5.1%***	***5.2%***
17:00	Desktop Radiance [lx]	1817.8	747.4	335.3	197.0	118.9
	Calculation [lx]	1915.9	822.8	373.4	209.2	125.2
	Error Rate (%)	***5.1%***	***9.2%***	***10.2%***	***5.8%***	***5.0%***
18:00	Desktop Radiance [lx]	1215.4	499.7	224.6	131.3	79.6
	Calculation [lx]	1273.4	548.2	247.2	138.4	83.6
	Error Rate (%)	***4.6%***	***8.8%***	***9.1%***	***5.1%***	***4.8%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -6.702 % **Root Mean Square Error, RMSE** = 85.474 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 9.461 % **T-value** = -7.709, **P-value** = .00000017 (Significance level, α = 0.05)				

Table S1-3. Prediction results and statistical analysis of indoor daylight illuminance in CIE overcast sky using by Desktop Radiance (9.21 at 07:00 am–06:00 pm).

9.21 (Autumnal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	432.9	176.7	81.4	44.1	26.3
	Calculation [lx]	456.6	192.3	89.6	46.1	26.9
	Error Rate (%)	***5.2%***	***8.1%***	***9.2%***	***4.2%***	***2.2%***
08:00	Desktop Radiance [lx]	1089.7	444.4	205.9	111.5	66.1
	Calculation [lx]	1160.8	482.1	224.7	117.2	67.3
	Error Rate (%)	***6.1%***	***7.8%***	***8.4%***	***4.8%***	***1.8%***
09:00	Desktop Radiance [lx]	1670.5	679.8	315.3	171.0	101.5
	Calculation [lx]	1769.1	743.8	344.3	180.3	103.3
	Error Rate (%)	***5.6%***	***8.6%***	***8.5%***	***5.1%***	***1.7%***
10:00	Desktop Radiance [lx]	2141.5	873.1	405.2	218.8	130.2
	Calculation [lx]	2257.2	956.9	440.2	226.2	134.0
	Error Rate (%)	***5.1%***	***8.8%***	***7.9%***	***3.3%***	***2.9%***
11:00	Desktop Radiance [lx]	2473.9	1008.9	466.1	252.5	150.3
	Calculation [lx]	2630.1	1100.5	505.6	264.5	153.9
	Error Rate (%)	***5.9%***	***8.3%***	***7.8%***	***4.5%***	***2.3%***
12:00	Desktop Radiance [lx]	2645.0	1076.4	499.3	270.8	160.8
	Calculation [lx]	2793.8	1179.6	537.7	283.8	164.3
	Error Rate (%)	***5.3%***	***8.7%***	***7.2%***	***4.6%***	***2.1%***
13:00	Desktop Radiance [lx]	2635.5	1077.3	497.5	270.0	149.0
	Calculation [lx]	2767.9	1078.9	540.3	280.8	152.1
	Error Rate (%)	***4.8%***	***8.6%***	***7.9%***	***3.8%***	***1.9%***
14:00	Desktop Radiance [lx]	2451.0	998.0	463.0	251.0	127.5
	Calculation [lx]	2570.2	1089.1	505.8	261.3	129.9
	Error Rate (%)	***4.6%***	***8.4%***	***8.5%***	***3.9%***	***2.0%***
15:00	Desktop Radiance [lx]	2104.0	857.1	396.3	215.2	98.0
	Calculation [lx]	2208.3	932.9	429.8	223.6	99.9
	Error Rate (%)	***4.7%***	***8.1%***	***7.8%***	***3.7%***	***1.8%***
16:00	Desktop Radiance [lx]	1615.6	658.6	304.0	164.8	62.0
	Calculation [lx]	1694.2	717.8	330.9	172.0	63.4
	Error Rate (%)	***4.6%***	***8.3%***	***8.1%***	***4.2%***	***1.9%***
17:00	Desktop Radiance [lx]	1020.5	416.0	193.0	104.1	22.3
	Calculation [lx]	1073.5	452.5	211.3	109.0	22.7
	Error Rate (%)	***4.9%***	***8.1%***	***8.6%***	***4.5%***	***2.1%***
18:00	Desktop Radiance [lx]	366.8	149.3	69.2	37.4	1,265
	Calculation [lx]	384.9	163.1	75.6	39.0	1,277
	Error Rate (%)	***4.7%***	***8.5%***	***8.4%***	***4.2%***	***2.0%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -6.081 % **Root Mean Square Error, RMSE** = 57.842 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 8.973 % **T-value** = -7.079, **P-value** = .00000199 (Significance level, α = 0.05)				

Table S1-4. Prediction results and statistical analysis of indoor daylight illuminance in CIE overcast sky using by Desktop Radiance (12.21 at 07:00 am–06:00 pm).

12.21 (Winter solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	–				
	Calculation [lx]	–				
	Error Rate (%)	**–**				
08:00	Desktop Radiance [lx]	141.1	58.0	27.9	15.0	9.1
	Calculation [lx]	147.7	62.3	30.0	15.5	9.3
	Error Rate (%)	***4.5%***	***7.8%***	***6.9%***	***3.5%***	***1.8%***
09:00	Desktop Radiance [lx]	629.6	258.4	124.9	67.0	40.5
	Calculation [lx]	663.6	277.4	134.0	69.2	41.4
	Error Rate (%)	***5.1%***	***8.6%***	***6.8%***	***3.2%***	***1.7%***
10:00	Desktop Radiance [lx]	1027.2	421.5	203.6	109.3	66.0
	Calculation [lx]	1089.9	454.4	219.6	111.9	67.3
	Error Rate (%)	***5.7%***	***8.8%***	***7.3%***	***2.4%***	***2.9%***
11:00	Desktop Radiance [lx]	1313.4	538.4	260.5	139.9	84.5
	Calculation [lx]	1379.8	582.6	281.7	143.4	86.2
	Error Rate (%)	***4.8%***	***8.3%***	***7.5%***	***2.5%***	***2.3%***
12:00	Desktop Radiance [lx]	1460.1	598.9	288.7	155.2	93.8
	Calculation [lx]	1521.2	651.9	312.5	160.0	95.7
	Error Rate (%)	***4.0%***	***8.7%***	***7.6%***	***3.0%***	***2.1%***
13:00	Desktop Radiance [lx]	1466.2	602.2	291.2	156.2	94.2
	Calculation [lx]	1526.0	649.3	313.6	159.8	96.4
	Error Rate (%)	***3.9%***	***8.6%***	***7.1%***	***2.3%***	***1.9%***
14:00	Desktop Radiance [lx]	1321.0	541.0	262.0	141.0	85.0
	Calculation [lx]	1377.7	584.7	282.8	145.3	86.9
	Error Rate (%)	***4.1%***	***8.4%***	***7.4%***	***2.9%***	***2.0%***
15:00	Desktop Radiance [lx]	1042.2	427.5	206.5	110.6	67.0
	Calculation [lx]	1087.1	465.3	223.1	113.9	68.6
	Error Rate (%)	***4.1%***	***8.1%***	***7.2%***	***3.2%***	***1.8%***
16:00	Desktop Radiance [lx]	646.1	265.0	127.9	68.7	41.5
	Calculation [lx]	674.3	285.3	137.5	70.9	42.4
	Error Rate (%)	***4.2%***	***8.3%***	***6.9%***	***2.7%***	***1.9%***
17:00	Desktop Radiance [lx]	160.1	65.7	31.7	17.1	10.3
	Calculation [lx]	168.1	70.6	34.1	17.5	10.6
	Error Rate (%)	***4.7%***	***8.1%***	***7.3%***	***2.8%***	***2.1%***
18:00	Desktop Radiance [lx]	–				
	Calculation [lx]	–				
	Error Rate (%)	**–**				
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -5.320 % **Root Mean Square Error, RMSE** = 25.139 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 8.718 % **T-value** = -5.917, **P-value** = .00017732 (Significance level, α = 0.05)				

Table S2-1. Prediction results and statistical analysis of daylight factor (sky component and internally reflected component) in CIE overcast sky using by Desktop Radiance (3.21 at 07:00 am–06:00 pm).

3.21 (Vernal equinox), Time: 07:00–18:00 (12h)		**1m**			**2m**			**3m**			**4m**			**5m**		
		DF	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC
07:00	Desktop Radiance [%]	16.7	11.9	4.8	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.7	12.5	5.2	7.5	5.2	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***5.7 %***			***8.8 %***			***10.0 %***			***4.3 %***			***2.2 %***		
08:00	Desktop Radiance [%]	16.7	11.9	4.8	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.8	12.6	5.3	7.5	5.2	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***6.5 %***			***8.6 %***			***9.1 %***			***3.4 %***			***1.8 %***		
09:00	Desktop Radiance [%]	16.8	11.9	4.9	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.7	12.4	5.2	7.5	5.2	2.3	3.4	2.4	1.0	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***5.4 %***			***8.5 %***			***7.7 %***			***3.5 %***			***1.1 %***		
10:00	Desktop Radiance [%]	16.8	11.9	4.9	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.7	12.5	5.2	7.4	5.1	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***5.6 %***			***6.6 %***			***9.7 %***			***5.4 %***			***1.3 %***		
11:00	Desktop Radiance [%]	16.8	11.9	4.9	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	18.1	12.7	5.3	7.5	5.2	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***7.8 %***			***8.8 %***			***10.2 %***			***3.4 %***			***1.6 %***		
12:00	Desktop Radiance [%]	16.8	12.2	4.6	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.5	12.3	5.2	7.4	5.1	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***4.3 %***			***6.8%***			***10.1 %***			***4.5 %***			***1.3 %***		
13:00	Desktop Radiance [%]	16.8	12.3	4.5	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.8	12.5	5.2	7.5	5.2	2.3	3.5	2.4	1.1	1.9	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***6.2 %***			***8.4 %***			***9.5 %***			***5.4 %***			***1.4 %***		
14:00	Desktop Radiance [%]	16.8	11.7	4.8	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.6	12.4	5.2	7.5	5.2	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***5.2 %***			***8.5 %***			***9.4 %***			***3.6 %***			***1.3 %***		
15:00	Desktop Radiance [%]	16.8	11.9	4.9	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.7	12.5	5.2	7.5	5.2	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***5.4 %***			***8.4 %***			***10.0 %***			***3.8 %***			***1.1 %***		
16:00	Desktop Radiance [%]	16.7	11.9	4.8	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.7	12.4	5.2	7.4	5.1	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***5.4 %***			***7.4 %***			***10.2 %***			***4.0 %***			***1.0 %***		
17:00	Desktop Radiance [%]	16.7	11.9	4.8	6.9	4.8	2.1	3.2	2.2	1.0	1.8	1.2	0.6	1.1	0.8	0.3
	Calculation [%]	17.5	12.3	5.2	7.5	5.2	2.3	3.5	2.4	1.1	1.8	1.3	0.5	1.1	0.8	0.3
	DF Error Rate (%)	***4.6 %***			***7.8 %***			***10.3 %***			***3.9 %***			***1.3 %***		
18:00	Desktop Radiance [%]	17.0	12.0	5.0	7.2	4.9	2.3	3.4	2.4	1.0	2.0	1.4	0.6	1.2	0.9	0.3
	Calculation [%]	17.9	12.6	5.3	7.7	5.3	2.4	3.8	2.6	1.2	2.1	1.4	0.7	1.3	0.9	0.4
	DF Error Rate (%)	***5.4 %***			***6.6 %***			***10.4 %***			***4.3 %***			***1.5 %***		
3.21 07:00–18:00 DF Average Value (5.9%) Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -5.990 % **Root Mean Square Error, RMSE** = 0.005 % (DF) **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 8.126 % **T-value** = -6.790, **P-value** = .000000612 (Significance level, α = 0.05)														

Table S2-2. Prediction results and statistical analysis of daylight factor (sky component and internally reflected component) in CIE overcast sky using by Desktop Radiance (6.21 at 07:00 am–06:00 pm).

6.21 (Summer solstice), Time: 07:00–18:00 (12h)		**1m**			**2m**			**3m**			**4m**			**5m**		
		DF	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC
07:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	18.6	12.8	5.8	8.1	5.6	2.5	3.6	2.5	1.1	2.1	1.4	0.7	1.2	0.8	0.4
	DF Error Rate (%)	***4.3 %***			***10.7 %***			***8.7 %***			***6.0 %***			***5.3 %***		
08:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.3	0.6	1.2	0.8	0.4
	Calculation [%]	18.6	12.8	5.8	8.1	5.6	2.5	3.7	2.5	1.2	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***4.5 %***			***10.4 %***			***11.7 %***			***6.1 %***			***5.0 %***		
09:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	18.8	13.0	5.8	8.0	5.5	2.5	3.3	2.3	1.0	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***5.5 %***			***9.6 %***			***10.9 %***			***5.7 %***			***5.1 %***		
10:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	19.0	13.1	5.9	8.0	5.5	2.5	3.6	2.5	1.1	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***6.5 %***			***9.1 %***			***9.6 %***			***5.2 %***			***5.5 %***		
11:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.3	0.6	1.2	0.8	0.4
	Calculation [%]	19.2	13.2	6.0	7.9	5.5	2.4	3.6	2.5	1.1	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***7.7 %***			***8.5 %***			***9.4 %***			***4.9 %***			***5.7 %***		
12:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	19.1	13.2	5.9	8.0	5.5	2.5	3.7	2.5	1.2	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***7.3 %***			***8.9 %***			***11.0 %***			***4.8 %***			***5.4 %***		
13:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	18.9	13.0	5.9	8.0	5.5	2.5	3.6	2.5	1.1	2.1	1.4	0.7	1.2	0.8	0.4
	DF Error Rate (%)	***5.8 %***			***9.1 %***			***10.8 %***			***5.8 %***			***4.9 %***		
14:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	18.9	13.0	5.9	8.0	5.5	2.5	3.7	2.5	1.2	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***6.1 %***			***9.2 %***			***11.0 %***			***5.6 %***			***4.6 %***		
15:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.3	0.6	1.2	0.8	0.4
	Calculation [%]	18.9	13.0	5.9	7.9	5.5	2.4	3.7	2.6	1.1	2.0	1.4	0.5	1.2	0.8	0.4
	DF Error Rate (%)	***5.9 %***			***8.3 %***			***12.7 %***			***5.4 %***			***4.8 %***		
16:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	19.1	13.1	6.0	7.9	5.5	2.4	3.7	2.6	1.1	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***7.0 %***			***8.4 %***			***12.7 %***			***5.5 %***			***4.7 %***		
17:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.4	0.5	1.2	0.8	0.4
	Calculation [%]	18.8	13.0	5.8	8.1	5.6	2.5	3.7	2.5	1.2	2.1	1.4	0.7	1.2	0.8	0.4
	DF Error Rate (%)	***5.4 %***			***10.1 %***			***11.4 %***			***6.2 %***			***5.3 %***		
18:00	Desktop Radiance [%]	17.8	12.5	5.3	7.3	5.1	2.2	3.3	2.3	1.0	1.9	1.3	0.6	1.2	0.8	0.4
	Calculation [%]	18.7	12.9	5.8	8.0	5.5	2.5	3.6	2.5	1.1	2.0	1.4	0.6	1.2	0.8	0.4
	DF Error Rate (%)	***4.8 %***			***9.7 %***			***10.0 %***			***5.4 %***			***5.1 %***		

6.21 07:00–18:00 DF Average Value (6.3%) Statistical Analysis	**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -6.680 % **Root Mean Square Error, RMSE** = 0.006 % (DF) **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 8.759 % **T-value** = -9.058, **P-value** = .000000009 (Significance level, α = 0.05)

Table S2-3. Prediction results and statistical analysis of daylight factor (sky component and internally reflected component) in CIE overcast sky using by Desktop Radiance (9.21 at 07:00 am–06:00 pm).

9.21 (Autumnal equinox), Time: 07:00–18:00 (12h)		**1m**			**2m**			**3m**			**4m**			**5m**		
		DF	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC
07:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.6	13.0	5.6	7.9	5.5	2.4	3.7	2.5	1.2	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.5 %***			***8.8 %***			***10.1 %***			***4.4 %***			***2.2 %***		
08:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.8	13.1	5.7	7.8	5.4	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***6.5 %***			***8.5 %***			***9.1 %***			***5.1 %***			***1.9 %***		
09:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.7	13.0	5.7	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.9 %***			***9.4 %***			***9.2 %***			***5.4 %***			***1.8 %***		
10:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.6	13.0	5.6	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.4 %***			***9.6 %***			***8.6 %***			***3.4 %***			***2.9 %***		
11:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.8	13.1	5.7	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***6.3 %***			***9.1 %***			***8.5 %***			***4.7 %***			***2.3 %***		
12:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.7	13.0	5.7	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.6 %***			***9.6 %***			***7.7 %***			***4.8 %***			***2.2 %***		
13:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.6	12.9	5.7	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.0 %***			***9.4 %***			***8.6 %***			***4.0 %***			***2.0 %***		
14:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.5	12.9	5.6	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***4.9 %***			***9.1 %***			***9.2 %***			***4.1 %***			***2.1 %***		
15:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.6	12.9	5.7	7.8	5.5	2.3	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.0 %***			***8.8 %***			***8.4 %***			***3.9 %***			***1.9 %***		
16:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.5	12.9	5.6	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***4.9 %***			***9.0 %***			***8.8 %***			***4.4 %***			***2.0 %***		
17:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.6	12.9	5.7	7.8	5.4	2.4	3.7	2.5	1.2	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.2 %***			***8.8 %***			***9.5 %***			***4.7 %***			***2.2 %***		
18:00	Desktop Radiance [%]	17.7	12.2	5.5	7.2	5.0	2.2	3.3	2.3	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	Calculation [%]	18.6	12.9	5.7	7.9	5.5	2.4	3.6	2.5	1.1	1.9	1.3	0.6	1.1	0.8	0.3
	DF Error Rate (%)	***5.1 %***			***9.2 %***			***9.2 %***			***4.4 %***			***2.0 %***		

9.21 07:00–18:00 DF Average Value (6.1%) Statistical Analysis	**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -6.088 % **Root Mean Square Error, RMSE** = 0.005 % (DF) **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 8.150 % **T-value** = -8.631, **P-value** = .000000005 (Significance level, α = 0.05)

Table S2-4. Prediction results and statistical analysis of daylight factor (sky component and internally reflected component) in CIE overcast sky using by Desktop Radiance (12.21 at 07:00 am–06:00 pm).

12.21 (Winter solstice), Time: 07:00–18:00 (12h)		**1m**			**2m**			**3m**			**4m**			**5m**		
		DF	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC	**DF**	SC	IRC
07:00	Desktop Radiance [%]	–														
	Calculation [%]	–														
	DF Error Rate (%)	–														
08:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.7	11.8	4.9	7.1	5.0	2.1	3.4	2.4	1.0	1.8	1.2	0.6	1.0	0.7	0.3
	DF Error Rate (%)	***4.7 %***			***7.5 %***			***7.5 %***			***3.6 %***			***2.2 %***		
09:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.8	11.9	4.9	7.0	5.0	2.0	3.4	2.4	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	DF Error Rate (%)	***5.4 %***			***7.3 %***			***7.3 %***			***3.3 %***			***2.3 %***		
10:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	17.0	12.0	5.0	7.1	5.0	2.1	3.4	2.4	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	DF Error Rate (%)	***6.1 %***			***7.8 %***			***7.9 %***			***2.4 %***			***1.9 %***		
11:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.8	11.8	5.0	7.1	5.0	2.1	3.4	2.4	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	DF Error Rate (%)	***5.1 %***			***8.2 %***			***8.2 %***			***2.4 %***			***2.0 %***		
12:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.6	11.7	4.9	7.1	5.0	2.1	3.4	2.4	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	DF Error Rate (%)	***4.2 %***			***8.8 %***			***8.3 %***			***2.9 %***			***2.1 %***		
13:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.6	11.7	4.9	7.1	5.0	2.1	3.4	2.4	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	DF Error Rate (%)	***4.1 %***			***7.8 %***			***7.7 %***			***2.9 %***			***2.3 %***		
14:00	Desktop Radiance [%]	16.0	11.2	4.8	6.5	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.7	11.8	4.9	7.1	5.0	2.1	3.4	2.4	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	DF Error Rate (%)	***4.3 %***			***8.1 %***			***7.9 %***			***3.0 %***			***2.2 %***		
15:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.7	11.8	4.9	7.1	5.0	2.1	3.4	2.4	1.0	1.7	1.2	0.5	1.1	0.7	0.4
	DF Error Rate (%)	***4.3 %***			***8.8 %***			***8.0 %***			***2.9 %***			***2.5 %***		
16:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.7	11.8	4.9	7.1	5.0	2.1	3.4	2.4	1.0	1.8	1.2	0.6	1.0	0.7	0.3
	DF Error Rate (%)	***4.4 %***			***7.7 %***			***7.5 %***			***3.3 %***			***2.0 %***		
17:00	Desktop Radiance [%]	16.0	11.2	4.8	6.6	4.6	2.0	3.2	2.2	1.0	1.7	1.2	0.5	1.0	0.7	0.3
	Calculation [%]	16.8	11.8	5.0	7.1	5.0	2.1	3.4	2.4	1.0	1.8	1.2	0.6	1.1	0.7	0.4
	DF Error Rate (%)	***5.0 %***			***7.5 %***			***7.7 %***			***2.8 %***			***2.5 %***		
18:00	Desktop Radiance [%]	–														
	Calculation [%]	–														
	DF Error Rate (%)	–														
12.21 07:00–18:00 DF Average Value (5.7%) Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -5.326 % **Root Mean Square Error, RMSE** = 0.004 % (DF) **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 7.830 % **T-value** = -7.129, **P-value** = .000000002 (Significance level, α = 0.05)														

Table S3-1. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky using by Desktop Radiance (3.21 at 07:00 am–06:00 pm).

3.21 (Vernal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	540.7	292.3	160.3	98.1	69.6
	Calculation [lx]	584.8	314.0	171.8	101.2	71.5
	Error Rate (%)	***7.5%***	***6.9%***	***6.7%***	***3.0%***	***2.5%***
08:00	Desktop Radiance [lx]	1236.2	702.3	379.3	230.4	153.9
	Calculation [lx]	1348.9	753.0	406.1	239.2	157.8
	Error Rate (%)	***8.4%***	***6.7%***	***6.6%***	***3.7%***	***2.4%***
09:00	Desktop Radiance [lx]	2223.7	1327.5	741.3	434.3	288.0
	Calculation [lx]	2420.4	1417.6	784.5	447.5	296.3
	Error Rate (%)	***8.1%***	***6.4%***	***5.5%***	***2.9%***	***2.8%***
10:00	Desktop Radiance [lx]	2733.5	1679.7	959.6	579.3	398.5
	Calculation [lx]	2989.8	1791.6	1018.8	597.0	411.4
	Error Rate (%)	***8.6%***	***5.2%***	***5.8%***	***3.1%***	***3.1%***
11:00	Desktop Radiance [lx]	3078.5	1912.0	1128.8	694.2	473.8
	Calculation [lx]	3341.0	2024.6	1198.2	715.9	448.2
	Error Rate (%)	***7.9%***	***5.6%***	***6.1%***	***3.3%***	***2.9%***
12:00	Desktop Radiance [lx]	39878.1	2056.7	1268.2	815.6	542.8
	Calculation [lx]	42800.3	2191.1	1349.3	838.7	556.8
	Error Rate (%)	***6.8%***	***6.1%***	***6.0%***	***2.7%***	***2.5%***
13:00	Desktop Radiance [lx]	40572.8	2061.4	1248.5	799.4	542.6
	Calculation [lx]	43603.8	2199.4	1327.0	822.1	556.1
	Error Rate (%)	***7.0%***	***6.3%***	***5.9%***	***2.8%***	***2.1%***
14:00	Desktop Radiance [lx]	3209.0	1974.1	1166.0	737.0	497.0
	Calculation [lx]	3503.0	2093.9	1236.2	757.1	509.1
	Error Rate (%)	***8.4%***	***5.7%***	***5.7%***	***2.7%***	***2.4%***
15:00	Desktop Radiance [lx]	2851.3	1754.3	1020.6	625.1	421.3
	Calculation [lx]	3103.4	1858.3	1084.4	645.5	430.4
	Error Rate (%)	***8.1%***	***5.6%***	***6.0%***	***3.2%***	***2.1%***
16:00	Desktop Radiance [lx]	2395.1	1484.2	822.4	498.4	337.5
	Calculation [lx]	2631.1	1570.6	871.3	511.2	344.5
	Error Rate (%)	***9.0%***	***5.5%***	***5.6%***	***2.5%***	***2.0%***
17:00	Desktop Radiance [lx]	1625.1	964.1	519.7	310.2	208.8
	Calculation [lx]	1780.5	1019.4	550.2	319.3	215.4
	Error Rate (%)	***8.7%***	***5.4%***	***5.4%***	***2.8%***	***3.0%***
18:00	Desktop Radiance [lx]	686.0	376.4	203.6	123.3	87.6
	Calculation [lx]	755.0	398.7	215.4	127.0	91.1
	Error Rate (%)	***9.1%***	***6.2%***	***5.2%***	***2.9%***	***3.8%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -6.627 % **Root Mean Square Error, RMSE** = 552.204 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 22.546 % **T-value** = -2.362, **P-value** = .021496885 (Significance level, α = 0.05)				

Table S3-2. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky using by Desktop Radiance (6.21 at 07:00 am–06:00 pm).

6.21 (Summer solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	855.5	481.4	278.9	176.2	121.1
	Calculation [lx]	913.1	515.9	296.8	182.0	123.6
	Error Rate (%)	***6.3%***	***6.7%***	***6.0%***	***3.2%***	***2.0%***
08:00	Desktop Radiance [lx]	1117.5	674.4	392.9	251.8	172.9
	Calculation [lx]	1203.1	726.2	417.7	259.2	175.9
	Error Rate (%)	***7.1%***	***7.1%***	***5.9%***	***2.9%***	***1.8%***
09:00	Desktop Radiance [lx]	1377.3	841.5	493.3	315.8	215.9
	Calculation [lx]	1467.3	907.3	523.8	324.2	219.9
	Error Rate (%)	***6.1%***	***7.3%***	***5.8%***	***2.6%***	***1.6%***
10:00	Desktop Radiance [lx]	1634.0	985.9	576.7	366.3	251.7
	Calculation [lx]	1728.6	1042.4	610.3	375.7	255.1
	Error Rate (%)	***5.5%***	***5.4%***	***5.5%***	***2.5%***	***1.3%***
11:00	Desktop Radiance [lx]	1883.5	1150.4	666.0	422.4	286.3
	Calculation [lx]	2014.2	1232.6	703.4	432.7	292.2
	Error Rate (%)	***6.5%***	***6.7%***	***5.3%***	***2.4%***	***1.7%***
12:00	Desktop Radiance [lx]	2121.4	1282.2	741.7	467.2	315.0
	Calculation [lx]	2274.0	1378.6	779.6	480.9	319.1
	Error Rate (%)	***6.7%***	***7.0%***	***4.9%***	***2.9%***	***1.3%***
13:00	Desktop Radiance [lx]	2190.0	1316.6	755.6	474.5	318.4
	Calculation [lx]	2332.6	1405.4	799.6	489.3	323.9
	Error Rate (%)	***6.1%***	***6.3%***	***5.5%***	***3.0%***	***1.7%***
14:00	Desktop Radiance [lx]	1929.4	1185.0	638.0	431.0	290.0
	Calculation [lx]	2057.5	1266.3	717.5	443.8	294.2
	Error Rate (%)	***6.2%***	***6.4%***	***4.8%***	***2.9%***	***1.4%***
15:00	Desktop Radiance [lx]	1675.4	1014.0	569.9	378.6	260.3
	Calculation [lx]	1806.0	1085.8	629.6	391.5	266.1
	Error Rate (%)	***7.2%***	***6.6%***	***5.2%***	***3.3%***	***2.2%***
16:00	Desktop Radiance [lx]	1370.5	805.3	458.2	283.4	187.7
	Calculation [lx]	1472.1	863.3	481.9	293.4	192.3
	Error Rate (%)	***6.9%***	***6.7%***	***4.9%***	***3.4%***	***2.4%***
17:00	Desktop Radiance [lx]	1119.7	663.0	377.7	231.6	154.2
	Calculation [lx]	1207.6	713.0	398.1	238.6	157.7
	Error Rate (%)	***7.3%***	***7.0%***	***5.1%***	***3.0%***	***2.2%***
18:00	Desktop Radiance [lx]	845.0	490.7	272.7	167.8	111.5
	Calculation [lx]	909.8	527.1	287.8	172.7	113.6
	Error Rate (%)	***7.1%***	***6.9%***	***5.2%***	***2.8%***	***1.8%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -5.749 % **Root Mean Square Error, RMSE** = 59.321 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 7.996 % **T-value** = -7.945, **P-value =** .000000067 (Significance level, α = 0.05)				

Table S3-3. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky using by Desktop Radiance (9.21 at 07:00 am–06:00 pm).

9.21 (Autumnal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	621.2	323.3	171.9	102.4	69.6
	Calculation [lx]	668.0	344.4	183.9	105.7	71.7
	Error Rate (%)	***7.0%***	***6.1%***	***6.5%***	***3.1%***	***2.9%***
08:00	Desktop Radiance [lx]	1409.1	773.8	400.6	232.1	150.4
	Calculation [lx]	1545.2	821.6	430.9	239.1	154.8
	Error Rate (%)	***8.8%***	***5.8%***	***7.0%***	***2.9%***	***2.8%***
09:00	Desktop Radiance [lx]	2158.7	1237.4	654.1	365.0	240.8
	Calculation [lx]	2355.4	1329.3	701.3	380.7	248.5
	Error Rate (%)	***8.3%***	***6.9%***	***6.7%***	***4.1%***	***3.1%***
10:00	Desktop Radiance [lx]	2431.2	1535.2	859.1	505.1	320.8
	Calculation [lx]	2646.2	1659.9	925.0	528.3	332.1
	Error Rate (%)	***8.1%***	***7.5%***	***7.1%***	***4.4%***	***3.4%***
11:00	Desktop Radiance [lx]	2738.0	1736.5	1013.2	616.5	392.0
	Calculation [lx]	2973.3	1890.0	1072.3	637.6	408.9
	Error Rate (%)	***7.9%***	***8.1%***	***5.5%***	***3.3%***	***4.1%***
12:00	Desktop Radiance [lx]	40667.2	2046.2	1279.6	824.3	551.8
	Calculation [lx]	43502.9	2198.1	1357.2	850.9	571.9
	Error Rate (%)	***6.5%***	***6.9%***	***5.7%***	***3.1%***	***3.5%***
13:00	Desktop Radiance [lx]	40489.8	2016.8	1247.8	812.4	548.2
	Calculation [lx]	43496.5	2164.5	1339.0	836.8	567.1
	Error Rate (%)	***6.9%***	***6.8%***	***6.8%***	***2.9%***	***3.3%***
14:00	Desktop Radiance [lx]	36454.2	1893.4	1112.6	692.8	478.9
	Calculation [lx]	39287.9	2036.4	1185.2	717.8	494.8
	Error Rate (%)	***7.2%***	***7.0%***	***6.1%***	***3.5%***	***3.2%***
15:00	Desktop Radiance [lx]	2707.3	1690.4	963.3	578.1	396.4
	Calculation [lx]	2911.5	1820.0	1024.5	597.3	409.2
	Error Rate (%)	***7.0%***	***7.1%***	***5.9%***	***3.2%***	***3.1%***
16:00	Desktop Radiance [lx]	2214.7	1352.5	702.6	450.8	302.9
	Calculation [lx]	2403.0	1462.7	748.5	466.2	310.8
	Error Rate (%)	***7.8%***	***7.5%***	***6.3%***	***3.3%***	***2.5%***
17:00	Desktop Radiance [lx]	1375.4	785.3	421.9	254.4	176.3
	Calculation [lx]	1490.9	842.7	448.9	263.5	181.5
	Error Rate (%)	***7.7%***	***6.8%***	***6.0%***	***3.5%***	***2.8%***
18:00	Desktop Radiance [lx]	590.6	320.1	176.4	108.7	77.3
	Calculation [lx]	643.3	341.4	187.3	112.2	80.6
	Error Rate (%)	***8.2%***	***6.2%***	***5.8%***	***3.1%***	***4.1%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -6.272 % **Root Mean Square Error, RMSE** = 646.590 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 21.562 % **T-value** = -2.522, **P-value** = .014382715 (Significance level, α = 0.05)				

Table S3-4. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky using by Desktop Radiance (12.21 at 07:00 am–06:00 pm).

12.21 (Winter solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	342.9	161.2	99.2	78.3	50.5
	Calculation [lx]	373.2	173.6	105.8	83.3	52.9
	Error Rate (%)	***8.1%***	***7.1%***	***6.2%***	***6.0%***	***4.6%***
08:00	Desktop Radiance [lx]	1503.5	885.1	519.3	371.7	204.8
	Calculation [lx]	1640.7	957.0	559.2	393.6	213.0
	Error Rate (%)	***8.4%***	***7.5%***	***7.1%***	***5.6%***	***3.8%***
09:00	Desktop Radiance [lx]	8003.1	1677.4	1095.2	707.0	417.4
	Calculation [lx]	8753.4	1776.6	1172.4	745.2	430.1
	Error Rate (%)	***8.6%***	***5.6%***	***6.6%***	***5.1%***	***2.9%***
10:00	Desktop Radiance [lx]	15034.9	2313.4	1693.4	1212.9	806.9
	Calculation [lx]	16312.0	2438.6	1817.4	1285.0	833.1
	Error Rate (%)	***7.8%***	***5.1%***	***6.8%***	***5.6%***	***3.1%***
11:00	Desktop Radiance [lx]	21057.2	2616.6	1997.1	1537.0	1030.1
	Calculation [lx]	22866.5	2787.5	2150.2	1637.3	1062.2
	Error Rate (%)	***7.9%***	***6.1%***	***7.1%***	***6.1%***	***3.0%***
12:00	Desktop Radiance [lx]	24126.5	3083.3	2522.3	1595.3	1118.9
	Calculation [lx]	26231.1	3296.5	2698.0	1689.7	1167.0
	Error Rate (%)	***8.0%***	***6.5%***	***6.5%***	***5.6%***	***4.1%***
13:00	Desktop Radiance [lx]	24164.6	3039.0	2459.5	1590.0	1105.3
	Calculation [lx]	26326.7	3240.7	2620.0	1688.1	1151.5
	Error Rate (%)	***8.2%***	***6.2%***	***6.1%***	***5.8%***	***4.0%***
14:00	Desktop Radiance [lx]	22165.8	3125.0	2161.0	1543.0	1023.0
	Calculation [lx]	24428.7	3345.3	2312.2	1624.4	1057.0
	Error Rate (%)	***9.3%***	***6.6%***	***6.5%***	***5.0%***	***3.2%***
15:00	Desktop Radiance [lx]	15264.2	2286.9	1699.8	1235.1	797.3
	Calculation [lx]	16790.7	2453.0	1837.9	1301.9	826.4
	Error Rate (%)	***9.1%***	***6.8%***	***7.5%***	***5.1%***	***3.5%***
16:00	Desktop Radiance [lx]	8453.9	1705.7	1169.3	726.3	433.1
	Calculation [lx]	9250.6	1836.6	1267.2	763.8	448.3
	Error Rate (%)	***8.6%***	***7.1%***	***7.7%***	***4.9%***	***3.4%***
17:00	Desktop Radiance [lx]	1493.6	926.0	550.8	378.1	208.4
	Calculation [lx]	1627.6	976.1	591.7	397.2	215.3
	Error Rate (%)	***8.2%***	***5.1%***	***6.9%***	***4.8%***	***3.2%***
18:00	Desktop Radiance [lx]	348.2	165.9	102.2	81.1	51.7
	Calculation [lx]	379.0	175.5	111.2	85.8	53.8
	Error Rate (%)	***8.1%***	***5.5%***	***8.1%***	***5.5%***	***4.0%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -7.687 % **Root Mean Square Error, RMSE** = 617.929 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 17.258 % **T-value** = -3.821, **P-value** = .000321698 (Significance level, α = 0.05)				

Table S4-1. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 30°) using by Desktop Radiance (3.21 at 07:00 am–06:00 pm).

3.21 (Vernal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	126.8	77.8	47.1	26.6	16.7
	Calculation [lx]	139.6	85.0	52.9	29.0	18.0
	Error Rate (%)	***9.2%***	***8.4%***	***10.8%***	***8.1%***	***7.1%***
08:00	Desktop Radiance [lx]	466.1	273.9	150.0	83.4	51.0
	Calculation [lx]	515.0	298.1	169.1	91.5	55.1
	Error Rate (%)	***9.5%***	***8.1%***	***11.3%***	***8.8%***	***7.4%***
09:00	Desktop Radiance [lx]	947.4	539.4	293.2	159.3	96.8
	Calculation [lx]	1052.1	584.5	326.4	175.0	104.1
	Error Rate (%)	***10.0%***	***7.7%***	***10.2%***	***9.0%***	***7.0%***
10:00	Desktop Radiance [lx]	1310.5	755.3	406.7	222.2	135.1
	Calculation [lx]	1427.8	819.5	451.5	241.8	146.1
	Error Rate (%)	***8.2%***	***7.8%***	***9.9%***	***8.1%***	***7.6%***
11:00	Desktop Radiance [lx]	1584.7	906.4	485.5	267.6	161.5
	Calculation [lx]	1739.8	984.3	534.2	290.8	175.7
	Error Rate (%)	***8.9%***	***7.9%***	***9.1%***	***8.0%***	***8.1%***
12:00	Desktop Radiance [lx]	1726.4	999.0	536.1	290.7	175.6
	Calculation [lx]	1902.1	1087.4	591.8	316.4	191.4
	Error Rate (%)	***9.2%***	***8.1%***	***9.4%***	***8.2%***	***8.3%***
13:00	Desktop Radiance [lx]	1740.9	1001.5	542.6	293.9	177.6
	Calculation [lx]	1894.8	1088.7	595.6	319.6	191.0
	Error Rate (%)	***8.1%***	***8.0%***	***8.9%***	***8.0%***	***7.0%***
14:00	Desktop Radiance [lx]	1638.0	947.0	507.0	275.0	167.0
	Calculation [lx]	1786.3	1024.3	558.4	298.3	179.4
	Error Rate (%)	***8.3%***	***7.5%***	***9.2%***	***7.8%***	***6.9%***
15:00	Desktop Radiance [lx]	1407.8	807.0	438.7	236.5	144.4
	Calculation [lx]	1533.8	876.3	481.1	256.3	154.7
	Error Rate (%)	***8.2%***	***7.9%***	***8.8%***	***7.7%***	***6.6%***
16:00	Desktop Radiance [lx]	1083.4	624.9	337.6	182.7	111.6
	Calculation [lx]	1183.2	679.3	370.1	198.5	119.4
	Error Rate (%)	***8.4%***	***8.0%***	***8.7%***	***7.9%***	***6.5%***
17:00	Desktop Radiance [lx]	638.6	375.8	208.4	111.2	68.2
	Calculation [lx]	700.3	410.8	229.4	122.2	73.3
	Error Rate (%)	***8.8%***	***8.5%***	***9.1%***	***8.9%***	***7.0%***
18:00	Desktop Radiance [lx]	174.4	108.3	63.0	35.4	22.1
	Calculation [lx]	190.1	118.4	69.9	38.8	23.8
	Error Rate (%)	***8.2%***	***8.5%***	***9.9%***	***8.8%***	***6.8%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -8.473 % **Root Mean Square Error, RMSE** = 61.091 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 12.073 % **T-value** = -7.568, **P-value** = .00000029 (Significance level, α = 0.05)				

Table S4-2. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 30°) using by Desktop Radiance (6.21 at 07:00 am–06:00 pm).

6.21 (Summer solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	232.6	151.7	94.6	55.9	34.1
	Calculation [lx]	255.7	163.0	105.4	60.9	37.5
	Error Rate (%)	***9.0%***	***6.9%***	***10.2%***	***8.2%***	***9.0%***
08:00	Desktop Radiance [lx]	370.8	319.9	151.1	72.1	53.5
	Calculation [lx]	407.1	344.4	169.9	79.3	58.6
	Error Rate (%)	***8.9%***	***7.1%***	***11.0%***	***9.1%***	***8.6%***
09:00	Desktop Radiance [lx]	490.7	323.3	199.8	96.7	70.9
	Calculation [lx]	538.1	347.3	219.3	105.1	77.2
	Error Rate (%)	***8.8%***	***6.9%***	***8.9%***	***8.0%***	***8.2%***
10:00	Desktop Radiance [lx]	692.7	441.5	264.3	125.5	91.2
	Calculation [lx]	754.0	473.8	289.9	137.2	99.6
	Error Rate (%)	***8.1%***	***6.8%***	***8.8%***	***8.5%***	***8.5%***
11:00	Desktop Radiance [lx]	862.5	538.3	316.9	181.2	108.4
	Calculation [lx]	952.1	579.6	346.7	197.2	119.2
	Error Rate (%)	***9.4%***	***7.1%***	***8.6%***	***8.1%***	***9.0%***
12:00	Desktop Radiance [lx]	994.5	611.5	355.7	201.1	120.1
	Calculation [lx]	1108.5	661.3	391.0	219.2	132.6
	Error Rate (%)	***10.3%***	***7.5%***	***9.0%***	***8.3%***	***9.5%***
13:00	Desktop Radiance [lx]	1009.0	618.6	357.2	203.7	122.0
	Calculation [lx]	1098.2	672.5	393.1	222.8	132.5
	Error Rate (%)	***8.1%***	***8.0%***	***9.2%***	***8.6%***	***7.9%***
14:00	Desktop Radiance [lx]	884.8	553.0	321.8	184.6	111.1
	Calculation [lx]	964.0	597.3	353.8	201.4	121.3
	Error Rate (%)	***8.2%***	***7.4%***	***9.0%***	***8.4%***	***8.4%***
15:00	Desktop Radiance [lx]	726.0	463.7	272.9	131.4	94.6
	Calculation [lx]	789.2	499.9	300.3	142.7	103.0
	Error Rate (%)	***8.0%***	***7.3%***	***9.1%***	***7.9%***	***8.2%***
16:00	Desktop Radiance [lx]	520.3	343.0	209.7	101.9	74.1
	Calculation [lx]	572.5	370.5	231.6	111.5	81.0
	Error Rate (%)	***9.1%***	***7.4%***	***9.4%***	***8.5%***	***8.6%***
17:00	Desktop Radiance [lx]	386.2	254.3	159.2	76.5	56.8
	Calculation [lx]	419.5	273.9	174.8	83.3	61.9
	Error Rate (%)	***7.9%***	***7.1%***	***8.9%***	***8.1%***	***8.3%***
18:00	Desktop Radiance [lx]	254.7	167.9	104.8	61.5	37.6
	Calculation [lx]	267.9	182.5	114.8	67.4	40.9
	Error Rate (%)	***8.0%***	***8.0%***	***8.7%***	***8.7%***	***8.1%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -8.379 % **Root Mean Square Error, RMSE** = 35.496 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 11.159 % **T-value** = -8.733, **P-value** = .00000003 (Significance level, α = 0.05)				

Table S4-3. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 30°) using by Desktop Radiance (9.21 at 07:00 am–06:00 pm).

9.21 (Autumnal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	155.6	95.0	57.1	32.6	20.4
	Calculation [lx]	173.2	104.5	63.8	35.8	21.7
	Error Rate (%)	***10.1%***	***9.0%***	***10.6%***	***8.9%***	***6.0%***
08:00	Desktop Radiance [lx]	576.9	334.2	185.3	104.7	62.9
	Calculation [lx]	635.6	372.6	205.5	116.7	67.4
	Error Rate (%)	***9.2%***	***10.3%***	***9.9%***	***10.3%***	***6.7%***
09:00	Desktop Radiance [lx]	1010.5	583.5	317.3	172.6	106.6
	Calculation [lx]	1109.4	661.7	349.3	196.1	114.6
	Error Rate (%)	***8.9%***	***11.8%***	***9.2%***	***12.0%***	***7.0%***
10:00	Desktop Radiance [lx]	1361.8	781.2	426.1	230.5	141.9
	Calculation [lx]	1489.3	866.6	471.0	253.3	152.8
	Error Rate (%)	***8.6%***	***9.9%***	***9.5%***	***9.0%***	***7.1%***
11:00	Desktop Radiance [lx]	1588.7	914.0	492.9	269.1	165.5
	Calculation [lx]	1738.7	1003.8	542.6	299.8	177.8
	Error Rate (%)	***8.4%***	***9.0%***	***9.2%***	***10.2%***	***6.9%***
12:00	Desktop Radiance [lx]	1711.8	973.8	528.7	289.0	176.3
	Calculation [lx]	1863.4	1074.9	580.6	317.2	190.4
	Error Rate (%)	***8.1%***	***9.4%***	***8.9%***	***8.9%***	***7.4%***
13:00	Desktop Radiance [lx]	1695.2	968.0	531.3	285.1	175.4
	Calculation [lx]	1847.1	1069.9	590.0	312.3	188.0
	Error Rate (%)	***8.2%***	***9.5%***	***10.0%***	***8.7%***	***6.5%***
14:00	Desktop Radiance [lx]	1576.6	900.8	489.9	295.5	163.4
	Calculation [lx]	1740.4	991.8	541.1	295.5	175.2
	Error Rate (%)	***9.4%***	***9.2%***	***9.5%***	***9.4%***	***6.7%***
15:00	Desktop Radiance [lx]	1312.5	757.8	410.2	225.2	137.9
	Calculation [lx]	1444.3	832.3	454.3	247.5	148.2
	Error Rate (%)	***9.1%***	***9.0%***	***9.7%***	***9.0%***	***6.9%***
16:00	Desktop Radiance [lx]	955.8	554.6	304.9	165.9	101.8
	Calculation [lx]	1049.3	608.6	337.2	182.1	109.5
	Error Rate (%)	***8.9%***	***8.9%***	***9.5%***	***8.9%***	***7.0%***
17:00	Desktop Radiance [lx]	519.5	304.7	170.4	93.0	57.4
	Calculation [lx]	570.1	331.7	187.6	102.0	61.2
	Error Rate (%)	***8.9%***	***8.1%***	***9.1%***	***8.8%***	***7.6%***
18:00	Desktop Radiance [lx]	135.7	85.4	52.2	29.3	18.6
	Calculation [lx]	149.1	93.9	58.3	32.4	20.2
	Error Rate (%)	***9.0%***	***9.0%***	***10.6%***	***9.6%***	***8.0%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -8.926 % **Root Mean Square Error, RMSE** = 63.632 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 12.731 % **T-value** = -7.554, **P-value =** .000000312 (Significance level, α = 0.05)				

Table S4-4. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 30°) using by Desktop Radiance (12.21 at 07:00 am–06:00 pm).

12.21 (Winter solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	61.4	33.8	24.2	17.9	10.2
	Calculation [lx]	68.1	36.8	27.2	19.5	10.9
	Error Rate (%)	***9.9%***	***8.1%***	***11.0%***	***8.0%***	***6.1%***
08:00	Desktop Radiance [lx]	494.8	288.1	141.0	91.9	53.4
	Calculation [lx]	556.3	318.5	159.6	98.9	57.2
	Error Rate (%)	***11.0%***	***9.5%***	***11.6%***	***7.8%***	***6.6%***
09:00	Desktop Radiance [lx]	880.9	445.4	259.8	174.1	102.3
	Calculation [lx]	987.8	486.8	298.2	190.1	110.0
	Error Rate (%)	***10.8%***	***8.5%***	***12.9%***	***8.4%***	***7.0%***
10:00	Desktop Radiance [lx]	1639.6	793.5	494.5	328.9	175.4
	Calculation [lx]	1822.8	872.1	552.8	354.1	188.9
	Error Rate (%)	***10.0%***	***9.0%***	***10.6%***	***7.1%***	***7.1%***
11:00	Desktop Radiance [lx]	2117.8	1006.1	576.0	394.8	217.1
	Calculation [lx]	2350.9	1107.4	639.7	425.5	234.8
	Error Rate (%)	***9.9%***	***9.1%***	***10.0%***	***7.2%***	***7.6%***
12:00	Desktop Radiance [lx]	2359.0	1112.3	645.6	444.0	241.0
	Calculation [lx]	2595.9	1212.1	716.0	478.1	262.0
	Error Rate (%)	***9.1%***	***8.2%***	***9.8%***	***7.1%***	***8.0%***
13:00	Desktop Radiance [lx]	2347.4	1111.9	634.3	442.3	239.1
	Calculation [lx]	2577.1	1213.1	708.4	475.2	256.8
	Error Rate (%)	***8.9%***	***8.3%***	***10.5%***	***6.9%***	***6.9%***
14:00	Desktop Radiance [lx]	2122.3	1006.1	578.3	396.6	216.1
	Calculation [lx]	2369.2	1099.0	645.1	428.3	232.7
	Error Rate (%)	***10.4%***	***8.5%***	***10.3%***	***7.4%***	***7.1%***
15:00	Desktop Radiance [lx]	1657.0	795.2	459.9	315.6	172.6
	Calculation [lx]	1839.1	869.8	510.6	341.7	185.6
	Error Rate (%)	***9.9%***	***8.8%***	***9.9%***	***7.6%***	***7.0%***
16:00	Desktop Radiance [lx]	885.2	458.1	251.0	178.5	97.0
	Calculation [lx]	992.6	497.5	278.2	191.7	105.5
	Error Rate (%)	***10.8%***	***7.9%***	***9.8%***	***6.9%***	***8.0%***
17:00	Desktop Radiance [lx]	471.5	287.9	156.4	103.4	51.1
	Calculation [lx]	529.9	313.5	173.7	111.0	55.9
	Error Rate (%)	***11.0%***	***8.2%***	***9.9%***	***6.8%***	***8.8%***
18:00	Desktop Radiance [lx]	54.6	33.0	23.8	17.8	10.1
	Calculation [lx]	60.7	36.2	26.5	19.2	10.9
	Error Rate (%)	***9.9%***	***8.6%***	***10.2%***	***7.2%***	***7.5%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -9.284 % **Root Mean Square Error, RMSE** = 82.899 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 14.463 % **T-value** = -6.430, **P-value** = .000024774 (Significance level, α = 0.05)				

Table S5-1. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 45°) using by Desktop Radiance (3.21 at 07:00 am–06:00 pm).

3.21 (Vernal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	76.7	44.7	26.3	15.3	9.8
	Calculation [lx]	84.2	48.6	29.8	16.9	10.8
	Error Rate (%)	***8.9%***	***8.1%***	***11.8%***	***9.1%***	***9.2%***
08:00	Desktop Radiance [lx]	326.2	178.7	98.2	56.3	35.2
	Calculation [lx]	358.5	196.0	109.4	62.2	39.2
	Error Rate (%)	***9.0%***	***8.8%***	***10.3%***	***9.5%***	***10.2%***
09:00	Desktop Radiance [lx]	667.9	364.2	199.4	111.1	70.2
	Calculation [lx]	735.8	400.7	222.5	123.8	79.1
	Error Rate (%)	***9.2%***	***9.1%***	***10.4%***	***10.3%***	***11.3%***
10:00	Desktop Radiance [lx]	942.6	510.6	278.7	157.9	98.3
	Calculation [lx]	1037.2	563.2	316.3	177.4	109.6
	Error Rate (%)	***9.1%***	***9.3%***	***11.9%***	***11.0%***	***10.3%***
11:00	Desktop Radiance [lx]	1134.0	612.3	334.0	189.2	118.2
	Calculation [lx]	1243.8	659.3	368.0	211.1	130.7
	Error Rate (%)	***8.8%***	***7.1%***	***9.2%***	***10.4%***	***9.6%***
12:00	Desktop Radiance [lx]	1238.5	668.9	360.6	205.9	128.8
	Calculation [lx]	1359.6	721.1	398.5	226.4	140.6
	Error Rate (%)	***8.9%***	***7.2%***	***9.5%***	***9.1%***	***8.4%***
13:00	Desktop Radiance [lx]	1247.9	683.8	371.5	208.5	130.4
	Calculation [lx]	1373.2	739.6	412.1	228.4	141.9
	Error Rate (%)	***9.1%***	***7.5%***	***9.8%***	***8.7%***	***8.2%***
14:00	Desktop Radiance [lx]	1186.0	648.0	347.0	196.0	123.0
	Calculation [lx]	1298.0	700.5	384.4	215.0	133.7
	Error Rate (%)	***8.6%***	***7.7%***	***9.7%***	***8.8%***	***8.0%***
15:00	Desktop Radiance [lx]	1019.1	556.0	300.5	170.9	106.1
	Calculation [lx]	1117.9	600.2	334.8	187.3	115.3
	Error Rate (%)	***8.8%***	***7.3%***	***10.2%***	***8.7%***	***8.2%***
16:00	Desktop Radiance [lx]	766.9	425.1	232.1	128.7	81.1
	Calculation [lx]	846.6	457.7	263.3	141.4	88.0
	Error Rate (%)	***9.4%***	***7.1%***	***11.9%***	***9.0%***	***7.9%***
17:00	Desktop Radiance [lx]	452.7	251.9	136.6	77.6	48.7
	Calculation [lx]	498.1	274.8	152.8	85.5	53.3
	Error Rate (%)	***9.1%***	***8.3%***	***10.6%***	***9.2%***	***8.0%***
18:00	Desktop Radiance [lx]	109.2	63.9	37.0	21.3	13.6
	Calculation [lx]	120.7	69.4	41.2	23.4	14.9
	Error Rate (%)	***9.5%***	***7.9%***	***10.2%***	***9.4%***	***9.0%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -8.899 % **Root Mean Square Error, RMSE** = 44.831 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 12.631 % **T-value** = -7.625, **P-value =** .000000236 (Significance level, α = 0.05)				

Table S5-2. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 45°) using by Desktop Radiance (6.21 at 07:00 am–06:00 pm).

6.21 (Summer solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	169.1	83.8	62.2	36.9	25.0
	Calculation [lx]	183.6	90.9	69.4	39.7	26.6
	Error Rate (%)	***7.9%***	***7.8%***	***10.3%***	***7.1%***	***6.0%***
08:00	Desktop Radiance [lx]	283.0	143.7	87.2	52.1	41.1
	Calculation [lx]	310.7	156.4	98.9	56.3	44.1
	Error Rate (%)	***8.9%***	***8.1%***	***11.8%***	***7.5%***	***6.7%***
09:00	Desktop Radiance [lx]	389.9	197.6	119.5	70.7	47.8
	Calculation [lx]	427.8	217.4	137.0	76.9	51.3
	Error Rate (%)	***8.8%***	***9.1%***	***12.7%***	***8.0%***	***6.9%***
10:00	Desktop Radiance [lx]	532.0	254.7	152.9	91.2	71.8
	Calculation [lx]	580.9	279.6	175.3	99.3	77.2
	Error Rate (%)	***8.4%***	***8.9%***	***12.8%***	***8.2%***	***7.1%***
11:00	Desktop Radiance [lx]	676.7	305.8	182.7	107.9	85.9
	Calculation [lx]	734.8	335.5	206.1	117.3	93.0
	Error Rate (%)	***7.9%***	***9.0%***	***11.4%***	***8.1%***	***7.6%***
12:00	Desktop Radiance [lx]	759.3	431.4	199.7	118.7	94.5
	Calculation [lx]	829.0	470.8	223.3	128.8	102.9
	Error Rate (%)	***8.4%***	***8.4%***	***10.6%***	***7.8%***	***8.2%***
13:00	Desktop Radiance [lx]	764.1	437.4	246.2	120.3	95.8
	Calculation [lx]	840.8	476.1	273.0	131.1	104.1
	Error Rate (%)	***9.1%***	***8.1%***	***9.8%***	***8.3%***	***8.0%***
14:00	Desktop Radiance [lx]	697.4	311.0	186.2	110.7	88.0
	Calculation [lx]	759.8	339.6	189.0	119.6	95.1
	Error Rate (%)	***8.2%***	***8.5%***	***10.5%***	***8.6%***	***7.5%***
15:00	Desktop Radiance [lx]	575.6	267.6	162.6	95.6	75.1
	Calculation [lx]	625.7	294.1	164.9	105.2	80.8
	Error Rate (%)	***8.0%***	***9.0%***	***10.4%***	***9.1%***	***7.0%***
16:00	Desktop Radiance [lx]	409.6	207.2	124.9	75.1	50.1
	Calculation [lx]	445.8	228.0	138.8	82.2	53.8
	Error Rate (%)	***8.1%***	***9.2%***	***9.9%***	***8.6%***	***6.9%***
17:00	Desktop Radiance [lx]	302.5	153.6	93.0	55.9	37.4
	Calculation [lx]	328.2	169.3	103.6	61.4	39.9
	Error Rate (%)	***7.8%***	***8.9%***	***10.2%***	***9.0%***	***6.2%***
18:00	Desktop Radiance [lx]	187.0	94.7	69.2	34.5	27.8
	Calculation [lx]	203.6	104.0	79.5	38.0	29.9
	Error Rate (%)	***8.1%***	***8.3%***	***13.0%***	***9.2%***	***7.1%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -8.719 % **Root Mean Square Error, RMSE** = 25.859 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 11.771 % **T-value** = -8.468, **P-value =** .000000008 (Significance level, α = 0.05)				

Table S5-3. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 45°) using by Desktop Radiance (9.21 at 07:00 am–06:00 pm).

9.21 (Autumnal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	98.5	54.0	32.6	18.9	12.3
	Calculation [lx]	108.4	58.7	36.1	20.9	13.3
	Error Rate (%)	***9.2%***	***8.0%***	***9.7%***	***9.6%***	***7.1%***
08:00	Desktop Radiance [lx]	411.5	216.3	122.4	69.2	44.1
	Calculation [lx]	455.0	234.7	134.7	76.0	48.0
	Error Rate (%)	***9.6%***	***8.3%***	***9.1%***	***8.9%***	***8.1%***
09:00	Desktop Radiance [lx]	738.5	380.7	216.1	121.3	77.5
	Calculation [lx]	810.5	413.5	237.3	134.7	85.3
	Error Rate (%)	***8.9%***	***7.9%***	***8.9%***	***10.0%***	***9.1%***
10:00	Desktop Radiance [lx]	994.9	523.1	287.0	163.5	104.3
	Calculation [lx]	1096.3	568.7	319.9	187.1	112.9
	Error Rate (%)	***9.2%***	***8.0%***	***10.3%***	***12.6%***	***7.6%***
11:00	Desktop Radiance [lx]	1171.2	608.3	335.3	191.6	122.7
	Calculation [lx]	1271.8	663.1	372.2	210.8	133.6
	Error Rate (%)	***7.9%***	***8.3%***	***9.9%***	***9.1%***	***8.2%***
12:00	Desktop Radiance [lx]	1255.5	655.4	363.6	206.3	131.4
	Calculation [lx]	1376.8	721.5	402.5	228.5	144.6
	Error Rate (%)	***8.8%***	***9.2%***	***9.7%***	***9.7%***	***9.1%***
13:00	Desktop Radiance [lx]	1252.7	652.5	363.4	202.5	130.5
	Calculation [lx]	1379.2	716.5	407.0	224.9	145.4
	Error Rate (%)	***9.2%***	***8.9%***	***10.7%***	***10.0%***	***10.3%***
14:00	Desktop Radiance [lx]	1162.1	610.7	334.1	190.0	121.0
	Calculation [lx]	1281.6	682.8	373.2	214.1	131.2
	Error Rate (%)	***9.3%***	***10.6%***	***10.5%***	***11.3%***	***7.8%***
15:00	Desktop Radiance [lx]	965.7	508.3	280.7	160.2	101.8
	Calculation [lx]	1071.9	566.4	312.9	181.7	109.6
	Error Rate (%)	***9.9%***	***10.3%***	***10.3%***	***11.9%***	***7.1%***
16:00	Desktop Radiance [lx]	704.5	373.0	207.3	118.3	74.7
	Calculation [lx]	773.5	413.3	230.1	132.7	81.3
	Error Rate (%)	***8.9%***	***9.7%***	***9.9%***	***10.9%***	***8.1%***
17:00	Desktop Radiance [lx]	369.3	119.2	109.7	64.2	40.8
	Calculation [lx]	402.1	221.0	120.5	71.8	44.3
	Error Rate (%)	***8.2%***	***10.0%***	***8.9%***	***10.6%***	***7.8%***
18:00	Desktop Radiance [lx]	85.0	49.1	29.6	17.2	11.1
	Calculation [lx]	94.7	54.3	33.1	19.4	11.9
	Error Rate (%)	***10.3%***	***9.6%***	***10.4%***	***11.0%***	***7.2%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -9.371 % **Root Mean Square Error, RMSE** = 46.533 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 13.167 % **T-value** = -7.554, **P-value =** .000000127 (Significance level, α = 0.05)				

Table S5-4. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 45°) using by Desktop Radiance (12.21 at 07:00 am–06:00 pm).

12.21 (Winter solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	31.6	17.5	12.1	9.1	5.3
	Calculation [lx]	35.5	19.2	13.4	9.9	5.8
	Error Rate (%)	***10.8%***	***9.2%***	***9.4%***	***7.9%***	***8.5%***
08:00	Desktop Radiance [lx]	291.2	147.7	98.9	67.1	37.3
	Calculation [lx]	321.4	162.8	108.9	73.1	40.6
	Error Rate (%)	***9.4%***	***9.3%***	***9.2%***	***8.2%***	***7.9%***
09:00	Desktop Radiance [lx]	597.8	289.6	173.5	124.9	70.1
	Calculation [lx]	660.9	324.2	190.5	136.4	76.3
	Error Rate (%)	***9.6%***	***10.7%***	***8.9%***	***8.5%***	***8.2%***
10:00	Desktop Radiance [lx]	1158.7	556.8	324.2	230.9	133.0
	Calculation [lx]	1293.9	613.1	361.3	254.3	145.3
	Error Rate (%)	***10.4%***	***9.2%***	***10.3%***	***9.2%***	***8.5%***
11:00	Desktop Radiance [lx]	1402.3	674.9	397.0	284.8	162.8
	Calculation [lx]	1574.9	748.4	440.3	312.3	180.8
	Error Rate (%)	***11.0%***	***9.8%***	***9.8%***	***8.8%***	***9.9%***
12:00	Desktop Radiance [lx]	1509.3	731.4	429.9	309.0	177.7
	Calculation [lx]	1678.0	815.2	481.7	336.3	194.4
	Error Rate (%)	***10.1%***	***10.3%***	***10.7%***	***8.1%***	***8.6%***
13:00	Desktop Radiance [lx]	1502.2	732.8	433.9	310.5	177.0
	Calculation [lx]	1667.5	823.6	478.2	338.5	193.1
	Error Rate (%)	***9.9%***	***11.0%***	***9.3%***	***8.3%***	***8.3%***
14:00	Desktop Radiance [lx]	1398.8	686.0	398.2	290.7	164.6
	Calculation [lx]	1559.0	764.6	444.0	317.6	177.8
	Error Rate (%)	***10.3%***	***10.3%***	***10.3%***	***8.5%***	***7.4%***
15:00	Desktop Radiance [lx]	1164.0	560.7	327.1	233.4	134.7
	Calculation [lx]	1320.6	622.4	364.4	258.1	146.6
	Error Rate (%)	***11.9%***	***9.9%***	***10.2%***	***9.6%***	***8.2%***
16:00	Desktop Radiance [lx]	605.9	295.0	175.3	126.5	72.6
	Calculation [lx]	672.6	326.6	198.8	137.4	78.9
	Error Rate (%)	***9.9%***	***9.7%***	***9.8%***	***7.9%***	***8.0%***
17:00	Desktop Radiance [lx]	288.9	153.8	86.9	62.8	33.5
	Calculation [lx]	323.8	169.3	95.8	68.3	37.0
	Error Rate (%)	***10.8%***	***9.2%***	***9.2%***	***8.0%***	***9.3%***
18:00	Desktop Radiance [lx]	27.3	17.1	11.9	8.9	5.2
	Calculation [lx]	30.3	18.7	13.1	9.6	5.6
	Error Rate (%)	***9.8%***	***8.9%***	***8.9%***	***7.6%***	***8.1%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -9.276 % **Root Mean Square Error, RMSE** = 61.833 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 15.895 % **T-value** = -6.509, **P-value =** .000018215 (Significance level, α = 0.05)				

Table S6-1. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 60°) using by Desktop Radiance (3.21 at 07:00 am–06:00 pm).

3.21 (Vernal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	36.4	22.5	11.7	7.5	3.8
	Calculation [lx]	39.9	24.8	13.2	8.4	4.1
	Error Rate (%)	***8.8%***	***9.1%***	***11.3%***	***10.1%***	***8.1%***
08:00	Desktop Radiance [lx]	169.4	98.8	46.4	29.4	14.9
	Calculation [lx]	186.2	108.8	53.2	33.0	16.3
	Error Rate (%)	***9.0%***	***9.2%***	***12.3%***	***11.1%***	***8.9%***
09:00	Desktop Radiance [lx]	354.3	204.4	97.0	60.9	30.5
	Calculation [lx]	389.9	222.4	109.2	69.5	33.6
	Error Rate (%)	***9.1%***	***8.1%***	***11.2%***	***12.3%***	***9.3%***
10:00	Desktop Radiance [lx]	507.2	289.5	136.9	85.2	42.8
	Calculation [lx]	559.9	314.4	152.4	94.8	46.9
	Error Rate (%)	***9.4%***	***7.9%***	***10.2%***	***10.1%***	***8.8%***
11:00	Desktop Radiance [lx]	616.2	348.5	165.2	102.9	51.5
	Calculation [lx]	676.7	379.8	188.4	113.5	56.0
	Error Rate (%)	***8.9%***	***8.2%***	***12.3%***	***9.3%***	***8.1%***
12:00	Desktop Radiance [lx]	678.5	385.0	182.0	113.8	56.8
	Calculation [lx]	738.5	424.2	209.5	126.3	61.6
	Error Rate (%)	***8.1%***	***9.2%***	***12.7%***	***9.9%***	***7.7%***
13:00	Desktop Radiance [lx]	685.9	391.7	183.3	114.2	57.4
	Calculation [lx]	747.5	426.8	204.2	127.2	61.8
	Error Rate (%)	***8.2%***	***8.3%***	***10.2%***	***10.2%***	***7.2%***
14:00	Desktop Radiance [lx]	643.0	369.0	170.0	108.0	54.0
	Calculation [lx]	702.1	403.4	189.1	119.5	58.3
	Error Rate (%)	***8.4%***	***8.5%***	***10.1%***	***9.6%***	***7.4%***
15:00	Desktop Radiance [lx]	552.3	317.5	149.3	93.5	46.5
	Calculation [lx]	601.7	346.0	164.4	103.1	50.1
	Error Rate (%)	***8.2%***	***8.7%***	***9.2%***	***9.2%***	***7.1%***
16:00	Desktop Radiance [lx]	421.4	239.2	113.1	70.7	35.2
	Calculation [lx]	460.6	262.4	125.5	79.7	38.3
	Error Rate (%)	***8.5%***	***8.8%***	***9.9%***	***11.3%***	***8.1%***
17:00	Desktop Radiance [lx]	245.8	141.5	66.7	42.4	21.0
	Calculation [lx]	270.2	156.2	73.9	47.2	22.7
	Error Rate (%)	***9.0%***	***9.4%***	***9.8%***	***10.2%***	***7.7%***
18:00	Desktop Radiance [lx]	57.5	34.4	16.8	10.9	5.4
	Calculation [lx]	62.4	37.9	18.6	12.0	5.9
	Error Rate (%)	***7.7%***	***9.2%***	***9.5%***	***9.2%***	***7.4%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -8.973 % **Root Mean Square Error, RMSE** = 24.179 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 12.689 % **T-value** = -7.682, **P-value =** .000000189 (Significance level, α = 0.05)				

Table S6-2. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 60°) using by Desktop Radiance (6.21 at 07:00 am–06:00 pm).

6.21 (Summer solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	108.5	55.5	31.7	19.3	9.2
	Calculation [lx]	117.9	60.4	35.4	21.2	10.1
	Error Rate (%)	***8.0%***	***8.2%***	***10.5%***	***9.0%***	***9.2%***
08:00	Desktop Radiance [lx]	147.9	98.4	46.5	28.2	15.3
	Calculation [lx]	161.4	106.8	51.6	31.0	16.8
	Error Rate (%)	***8.4%***	***7.9%***	***9.9%***	***8.9%***	***8.8%***
09:00	Desktop Radiance [lx]	204.6	135.3	63.8	38.6	20.9
	Calculation [lx]	224.0	147.7	71.3	42.6	23.1
	Error Rate (%)	***8.7%***	***8.4%***	***10.5%***	***9.5%***	***9.2%***
10:00	Desktop Radiance [lx]	371.2	180.2	82.2	50.4	27.7
	Calculation [lx]	410.8	198.0	90.5	55.7	30.6
	Error Rate (%)	***9.6%***	***9.0%***	***9.2%***	***9.6%***	***9.4%***
11:00	Desktop Radiance [lx]	453.2	209.5	98.6	60.7	33.2
	Calculation [lx]	499.6	229.8	110.4	66.0	36.4
	Error Rate (%)	***9.3%***	***8.8%***	***10.7%***	***8.1%***	***8.7%***
12:00	Desktop Radiance [lx]	498.3	225.7	106.6	65.2	36.4
	Calculation [lx]	549.7	244.8	119.6	71.8	39.9
	Error Rate (%)	***9.0%***	***7.8%***	***10.9%***	***9.3%***	***8.8%***
13:00	Desktop Radiance [lx]	507.1	226.2	129.6	66.9	37.1
	Calculation [lx]	556.2	246.0	144.2	73.2	40.5
	Error Rate (%)	***8.8%***	***8.1%***	***10.1%***	***8.6%***	***8.3%***
14:00	Desktop Radiance [lx]	465.6	213.3	99.1	60.9	34.2
	Calculation [lx]	506.8	232.3	110.6	67.1	37.5
	Error Rate (%)	***8.2%***	***8.5%***	***10.4%***	***9.2%***	***8.9%***
15:00	Desktop Radiance [lx]	386.0	186.2	86.2	52.4	28.9
	Calculation [lx]	419.6	204.7	95.6	57.5	31.7
	Error Rate (%)	***8.0%***	***9.0%***	***9.8%***	***8.8%***	***9.5%***
16:00	Desktop Radiance [lx]	232.9	158.0	76.8	49.6	23.5
	Calculation [lx]	253.1	173.3	87.1	54.6	25.8
	Error Rate (%)	***8.1%***	***8.8%***	***11.8%***	***9.2%***	***8.9%***
17:00	Desktop Radiance [lx]	170.7	116.5	55.9	35.6	17.1
	Calculation [lx]	187.8	126.7	62.3	39.0	18.8
	Error Rate (%)	***9.1%***	***8.0%***	***10.3%***	***8.8%***	***9.1%***
18:00	Desktop Radiance [lx]	102.1	68.8	39.2	22.1	12.4
	Calculation [lx]	112.1	75.2	43.5	24.0	13.5
	Error Rate (%)	***8.9%***	***8.5%***	***10.0%***	***7.9%***	***8.1%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -8.900 % **Root Mean Square Error, RMSE** = 16.970 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 12.735 % **T-value** = -7.506, **P-value** = .000000376 (Significance level, α = 0.05)				

Table S6-3. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 60°) using by Desktop Radiance (9.21 at 07:00 am–06:00 pm).

9.21 (Autumnal equinox), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	49.3	30.4	15.8	10.6	5.7
	Calculation [lx]	54.5	33.9	17.7	11.6	6.1
	Error Rate (%)	***9.4%***	***10.4%***	***10.8%***	***8.1%***	***7.1%***
08:00	Desktop Radiance [lx]	224.4	131.5	64.3	42.6	22.6
	Calculation [lx]	247.9	146.0	71.6	46.5	24.3
	Error Rate (%)	***9.5%***	***9.9%***	***10.2%***	***8.3%***	***6.8%***
09:00	Desktop Radiance [lx]	407.9	233.6	113.1	76.3	40.4
	Calculation [lx]	448.9	260.2	125.6	83.7	43.4
	Error Rate (%)	***9.1%***	***10.2%***	***10.0%***	***8.8%***	***6.9%***
10:00	Desktop Radiance [lx]	554.9	318.6	154.6	102.1	54.7
	Calculation [lx]	609.8	359.1	170.2	113.4	58.5
	Error Rate (%)	***9.0%***	***11.3%***	***9.2%***	***10.0%***	***6.6%***
11:00	Desktop Radiance [lx]	652.5	375.0	183.0	120.6	64.2
	Calculation [lx]	725.1	420.1	202.7	136.6	69.4
	Error Rate (%)	***10.0%***	***10.7%***	***9.7%***	***11.7%***	***7.5%***
12:00	Desktop Radiance [lx]	706.9	400.9	196.0	129.7	69.1
	Calculation [lx]	787.7	445.5	215.9	142.8	75.2
	Error Rate (%)	***10.3%***	***10.0%***	***9.2%***	***9.2%***	***8.1%***
13:00	Desktop Radiance [lx]	708.1	405.9	196.3	130.4	68.8
	Calculation [lx]	784.7	447.4	217.0	143.3	75.0
	Error Rate (%)	***9.8%***	***9.3%***	***9.5%***	***9.0%***	***8.3%***
14:00	Desktop Radiance [lx]	653.8	372.5	179.8	119.0	63.1
	Calculation [lx]	721.1	415.9	199.6	129.9	68.2
	Error Rate (%)	***9.3%***	***10.5%***	***9.9%***	***8.5%***	***7.5%***
15:00	Desktop Radiance [lx]	548.0	313.2	150.8	101.1	53.3
	Calculation [lx]	603.3	346.9	167.9	111.7	57.4
	Error Rate (%)	***9.2%***	***9.7%***	***10.2%***	***10.5%***	***7.0%***
16:00	Desktop Radiance [lx]	391.9	227.8	110.3	73.2	38.7
	Calculation [lx]	434.9	251.1	124.6	80.4	41.6
	Error Rate (%)	***9.9%***	***9.3%***	***11.7%***	***8.9%***	***6.9%***
17:00	Desktop Radiance [lx]	207.2	121.2	59.2	39.7	20.8
	Calculation [lx]	231.0	133.0	65.1	43.2	22.3
	Error Rate (%)	***10.3%***	***8.9%***	***8.9%***	***8.1%***	***6.8%***
18:00	Desktop Radiance [lx]	45.1	28.2	14.4	9.6	5.1
	Calculation [lx]	49.5	31.1	16.0	10.4	5.5
	Error Rate (%)	***8.9%***	***9.1%***	***10.0%***	***8.3%***	***7.1%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -9.650 % **Root Mean Square Error, RMSE** = 28.526 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 14.050 % **T-value** = -7.258, **P-value** = .000000989 (Significance level, α = 0.05)				

Table S6-4. Prediction results and statistical analysis of indoor daylight illuminance in CIE clear sky (installing external venetian blind 60°) using by Desktop Radiance (12.21 at 07:00 am–06:00 pm).

12.21 (Winter solstice), Time: 07:00–18:00 (12h)		**1m**	**2m**	**3m**	**4m**	**5m**
07:00	Desktop Radiance [lx]	12.3	8.1	5.0	4.4	2.2
	Calculation [lx]	13.5	9.1	5.6	4.9	2.3
	Error Rate (%)	***9.1%***	***9.2%***	***11.2%***	***9.0%***	***7.0%***
08:00	Desktop Radiance [lx]	161.7	87.5	48.3	41.3	21.1
	Calculation [lx]	177.5	98.5	53.8	46.1	22.7
	Error Rate (%)	***8.9%***	***9.3%***	***10.3%***	***10.4%***	***7.3%***
09:00	Desktop Radiance [lx]	352.7	187.9	101.9	86.7	42.4
	Calculation [lx]	391.9	211.0	113.8	95.6	45.8
	Error Rate (%)	***10.0%***	***10.7%***	***10.5%***	***9.3%***	***7.5%***
10:00	Desktop Radiance [lx]	655.4	344.6	188.0	159.6	77.1
	Calculation [lx]	724.8	389.0	208.7	175.4	83.8
	Error Rate (%)	***9.6%***	***9.2%***	***9.9%***	***9.0%***	***8.0%***
11:00	Desktop Radiance [lx]	805.1	429.4	229.7	195.2	93.8
	Calculation [lx]	883.9	476.6	255.5	213.9	103.1
	Error Rate (%)	***8.9%***	***9.8%***	***10.1%***	***8.7%***	***9.0%***
12:00	Desktop Radiance [lx]	869.6	464.7	250.2	210.6	101.5
	Calculation [lx]	953.6	516.5	284.9	238.5	110.0
	Error Rate (%)	***8.8%***	***10.3%***	***12.2%***	***11.7%***	***7.8%***
13:00	Desktop Radiance [lx]	875.1	462.0	252.1	212.1	101.9
	Calculation [lx]	963.4	519.9	285.7	236.9	109.5
	Error Rate (%)	***9.2%***	***11.0%***	***11.7%***	***10.4%***	***8.3%***
14:00	Desktop Radiance [lx]	805.2	430.6	230.5	193.2	93.3
	Calculation [lx]	897.3	483.9	258.5	211.9	110.5
	Error Rate (%)	***10.3%***	***10.3%***	***10.8%***	***8.8%***	***7.2%***
15:00	Desktop Radiance [lx]	664.7	348.6	189.1	158.8	76.6
	Calculation [lx]	738.5	391.4	211.8	174.8	83.1
	Error Rate (%)	***10.0%***	***9.9%***	***10.2%***	***9.2%***	***8.2%***
16:00	Desktop Radiance [lx]	371.9	196.2	106.8	90.3	43.5
	Calculation [lx]	412.4	220.1	119.4	99.6	46.7
	Error Rate (%)	***9.8%***	***9.7%***	***10.5%***	***9.4%***	***7.0%***
17:00	Desktop Radiance [lx]	177.2	92.2	48.8	41.6	20.4
	Calculation [lx]	197.5	103.3	54.2	46.0	22.0
	Error Rate (%)	***10.3%***	***9.2%***	***9.9%***	***9.7%***	***8.3%***
18:00	Desktop Radiance [lx]	12.9	8.3	5.1	4.3	2.1
	Calculation [lx]	14.3	9.3	5.6	4.8	2.2
	Error Rate (%)	***9.9%***	***8.9%***	***8.9%***	***10.3%***	***7.3%***
Statistical Analysis		**Pearson correlation coefficient, R^2** = 0.99 **Mean bias error, MBE** = -9.916 % **Root Mean Square Error, RMSE** = 33.708 lx **Coefficient of Variation of the Root Mean Squared Error, Cv(RMSE)** = 14.514 % **T-value** = -7.186, **P-value =** .000001308 (Significance level, α = 0.05)				