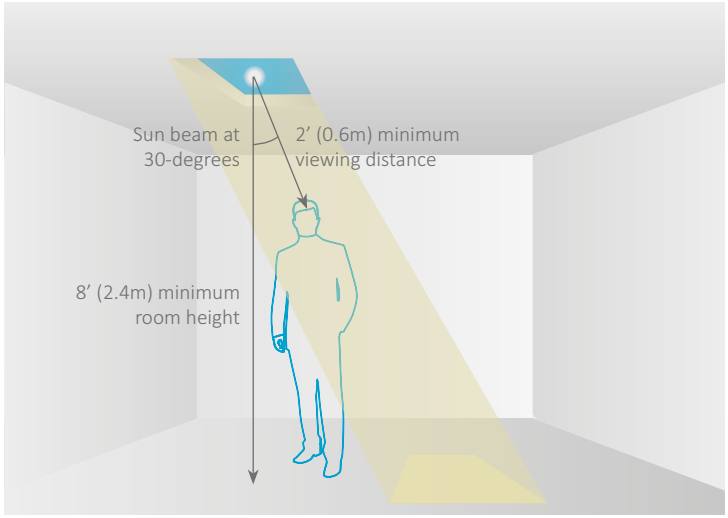
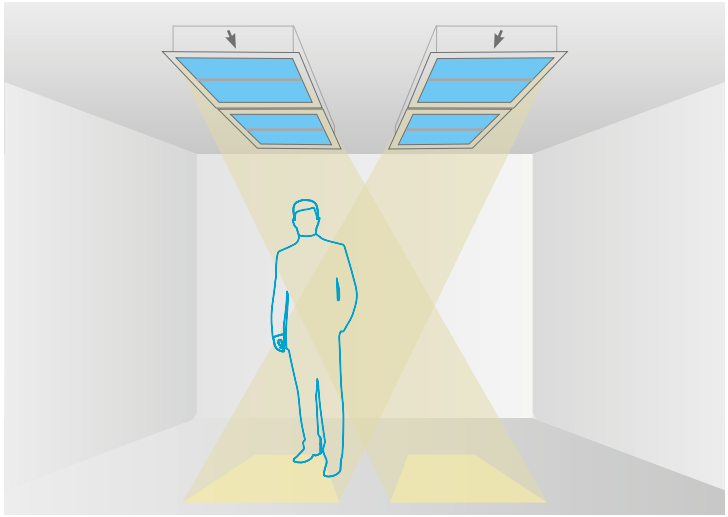
Virtual Sun Orientation



Innerscene Virtual Sun's unique patented parallax-free Sun appears at a 30 degrees angle from vertical.

Virtual Sun projects a beam of light and cast a bright spot onto the floor below just as our real Sun.

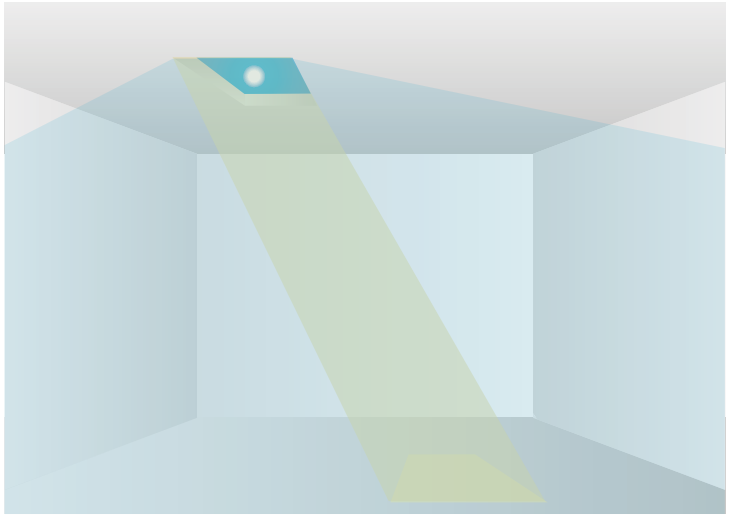
We recommend a minimum viewing distance of at least 2-feet(0.6m) away from the fixture to get the best viewing experience of the Sun. Therefore, the spaces where Virtual Sun is to be situated should be a minimum of 8-feet(2.4m) in height.



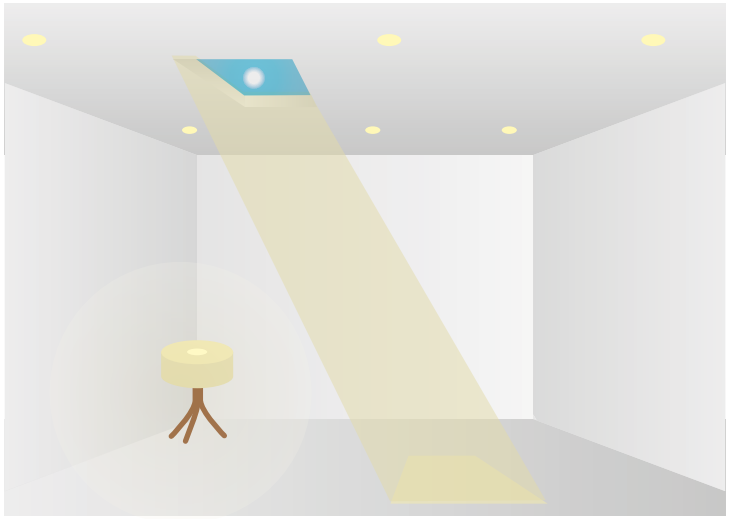
Due to the directional nature of the Sun’s shard of light, we recommend fixtures within the same space to be installed in parallel and in the same orientation to maintain the perception of the Sun’s positon in the sky. All Virtual Sun fixture enclosures are have markings ↘ to indicate the direction of the Sun.

INNERSCENE

Virtual Sun Complementary Lighting



Innerscene Virtual Sun is able to project a wide range of both the Sky and Sun's scenes from warm glow of Sunsets to blue summer sky with the warm glowing sun above. In it's coolest setting, the average CCT output may be quite high. It is advisable to add supplementary warm lighting to achive a lower average CCT.

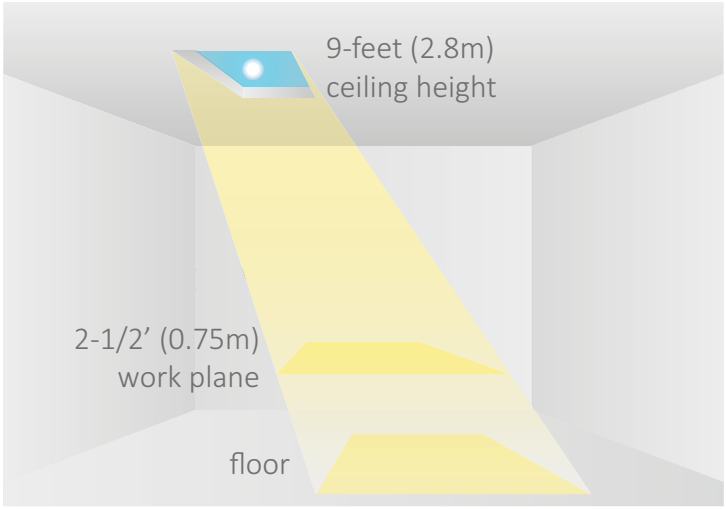


To compensate for the blue cast, Innerscene recommends adding complementary warmer interiors or other warm light sources such as down lights or free standing lights to warm up the overall colour tone.

Examples shown are: Whitegoods 4" down light fixture and CTO Lighting Trico floor lamp with warm 2700K light sources.

INNERSCENE

Virtual Sun Lighting Levels



The ideal light levels in a space depends on the task required. For example, the Chartered Institution of Building Services Engineers (CIBSE) Code for Lighting recommend the following light levels on the work plane:

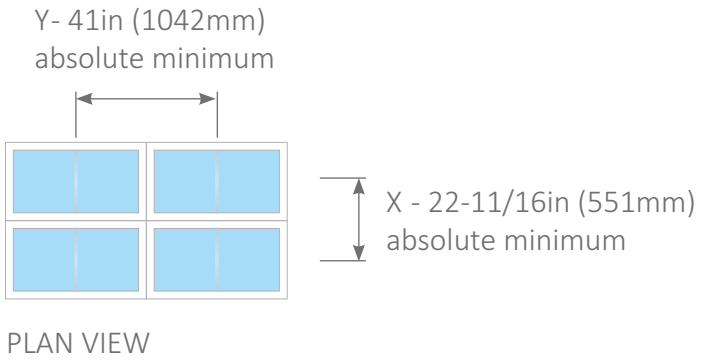
Offices:	300 to 500 lux (28 to 46 FC)
Retail:	500 to 1,000 lux (45 to 93 FC)
Engineering:	300 to 1,000 lux (28 to 93 FC)
Banks:	500 lux (45 FC)
Kitchens:	300 to 500 lux (28 to 46 FC)
Lobbies:	200 lux (19 FC)
Churches & halls:	300 lux (28 FC)

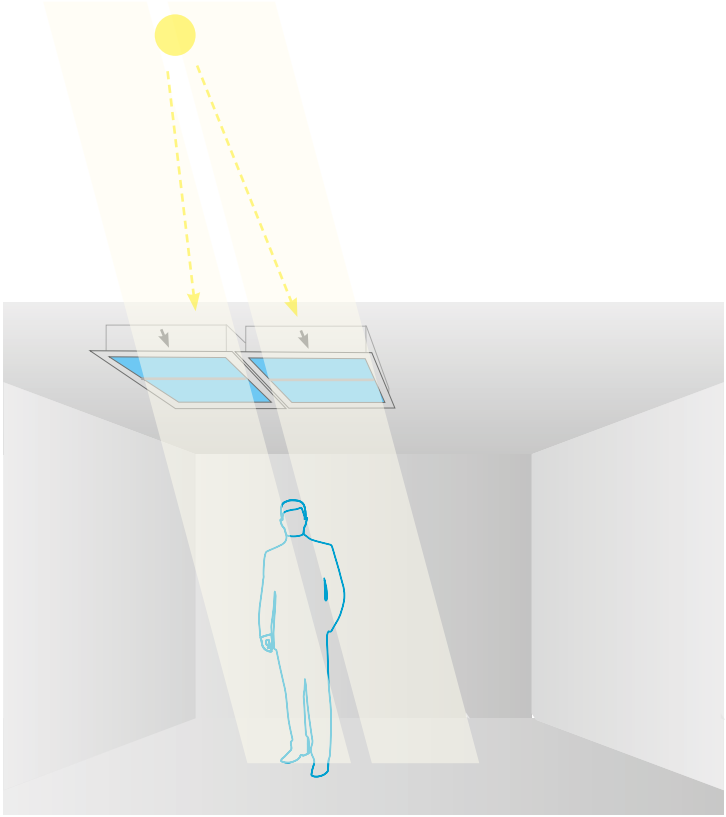
The Illuminating Engineering Society (IES) recommends the following footcandle levels to ensure adequate illumination and safety for occupants:

Commercial Office	15 to 40 FC (160 to 430 lux)
Classroom	40 FC (430 lux)
Gymnasium	30 to 125 FC (320 to 1,340 lux)
Auditorium	7.5 FC (80 lux)
Corridor	25 FC (270 lux)
Retail	20 to 80 FC (215 to 860 lux)
Auto Showroom	50 FC (540 lux)
Hotel /Hospital Lobby	5 FC (54 lux)

INNERSCENE

Virtual Sun Lighting Layout





To aid quick lighting layouts, Innerscene have produced illuminance intensity simulations using typical 9-feet(2.8m) ceiling heights as well as several typical fixture spacings in the following pages. For other layouts please get in touch with our technical team and we would be happy to assit. Alternatively, an experienced lighting designer will also be able to use our standard photometry files to simulate the lighting layouts for your particular requirements. Actual spacing will depend on your requirement and structural considerations.

The absolute minimum X spacing, where the trims are adjoining, is approximately 21-11/16” (551mm). The absolute minimum Y spacing is 41”(1042mm).

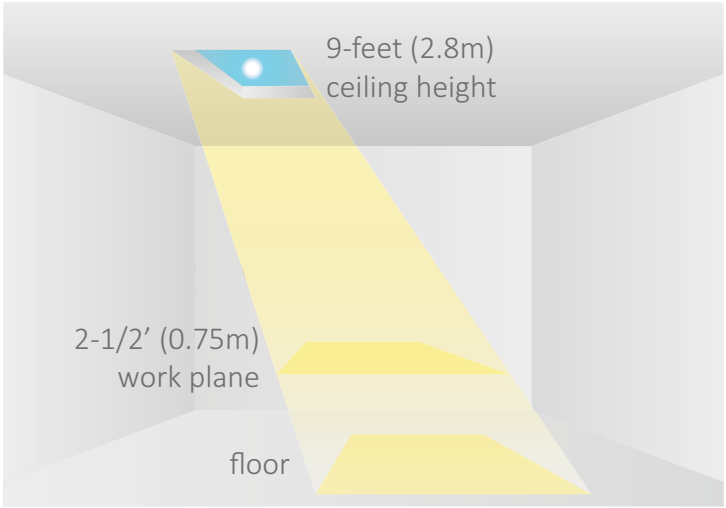
To achive more uniform lighting distribution in larger spaces, Innerscene recommends utilising multiple fixtures in regular rows or columns.

To give the apperance of a single continuous larger sky light, Innerscene recommend arranging multiple fixtures as close together as possible in a line or grid.

The sun appears to be millions of miles away in all fixtures. As the viewer move their view point from one fixture to the next, only one virtual sun is visible at any time, thus completing the illusion of a single expansive sky light. To maximise this effect, the fixtures should be situated as close together as possible.

INNERSCENE

Virtual Sun Individual Fixture Lighting Levels



Using lighting calculation softwares such as Dialux, Innerscene have simulated the approximate illuminance level on the working plane in various room scenarios. The simulation was done with the following assumptions:

Room dimensions:
Length 31-1/2ft (9.6m)
Width 31-1/2ft (9.6m)
Height 9ft (2.743m)

Reflectances
Ceiling 70%
Walls 50%
Floor 20%

Maintenance factor (MF)
0.8 (typical maintanance intervals)

Different room dimensions, reflectances and maintenance levels will have some effects on the actual illuminance. In the charts below, the red rectangle/s ▭ represents the fixture position in the ceiling. The numbers represent approximate illuminance in foot-candles or lux at the work plane 2-1/2 ft (0.75m). The greyscale shading represents the gradient of illuminance on the work plane, white is the brightest and dark grey is the dimmest. The white areas are offset from the fixture location due to the 30 degrees tilt of the sun beam.

9-feet ceiling height
illuminance in foot-candle(FC)

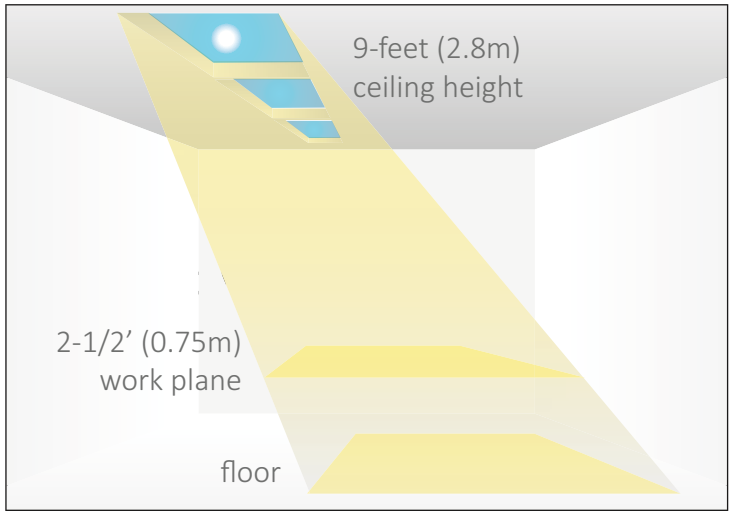
1.4	2.3	3.0	2.3	1.3
2.3	6.7	13.0	6.6	2.2
3.0	12.0	33.0	12.0	2.9
2.3	6.7	13.0	6.6	2.2
1.4	2.3	3.0	2.3	1.3

2.8m ceiling height
illuminance in lux

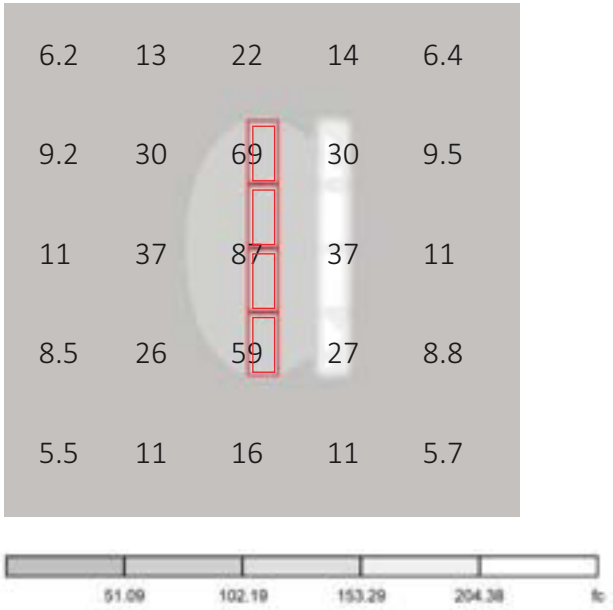
14	25	32	24	14
25	72	137	71	24
32	132	354	131	31
25	72	137	71	24
14	25	32	24	14

INNERSCENE

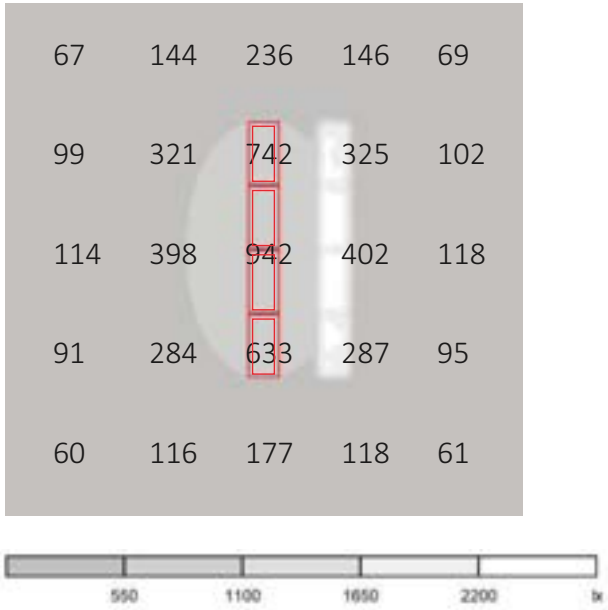
Virtual Sun Line Arrangement Lighting Levels

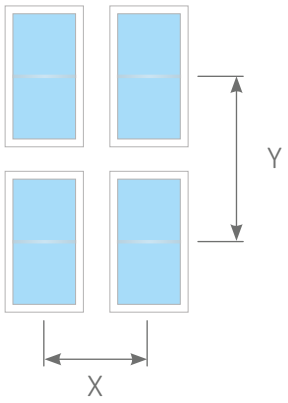


9-feet ceiling height
X=0, Y=41”
illuminance in foot-candle(FC)



2.8m ceiling height
X=0, Y=1042mm
illuminance in lux





PLAN VIEW

The above scenario shows the tightest possible line arrangement at 41” (1042mm) on-center spacings

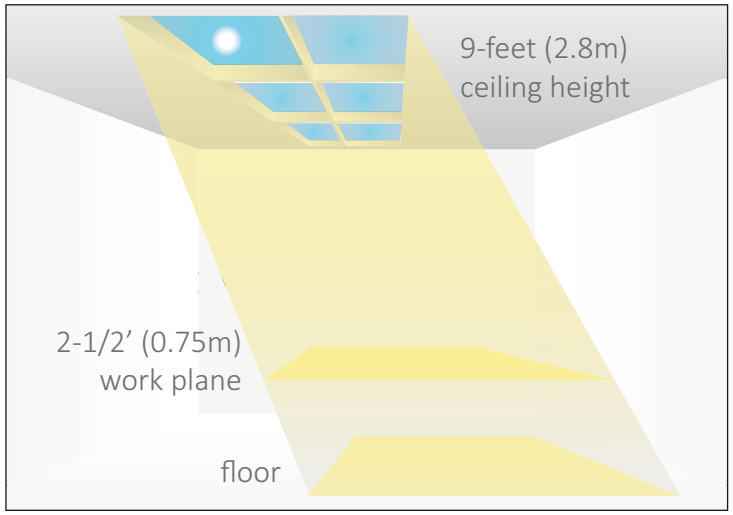
Fixture location on the ceiling

5.5 Simulated illuminance level in FC or Lux

Gradient of simulated illuminance level in FC or Lux

INNERSCENE

Virtual Sun Grid Arrangement Lighting Levels

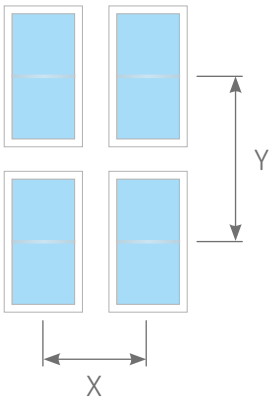


9-feet ceiling height
X=21-11/16", Y=41"
illuminance in foot-candle(FC)

11	23	30	21	10
17	53	262	204	15
20	61	248	190	17
17	53	238	182	15
11	23	29	21	10

2.8m ceiling height
X=1042mm, Y=551mm
illuminance in lux

92	173	243	168	91
151	467	935	434	146
192	716	1592	554	184
154	482	972	446	148
94	179	255	174	93



PLAN VIEW

The above scenario shows the tightest possible grid arrangement at 41" (1042mm) and 21-11/16" (551mm), Y and X on-center spacings, respectively.

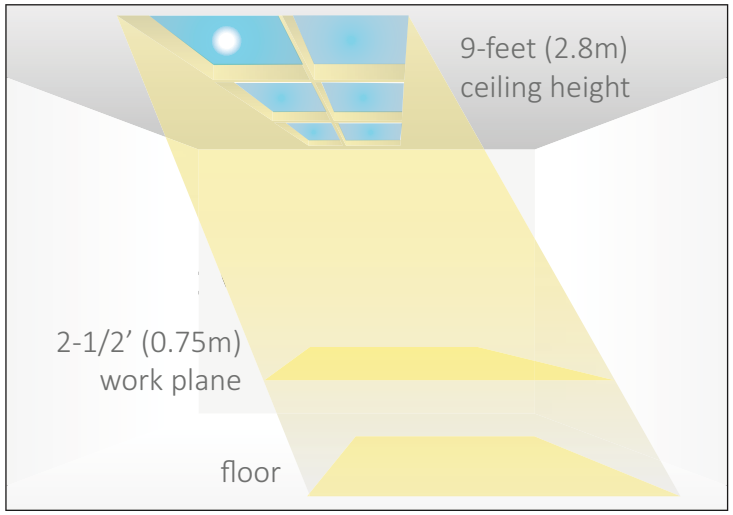
Fixture location on the ceiling

5.5 Simulated illuminance level in FC or Lux

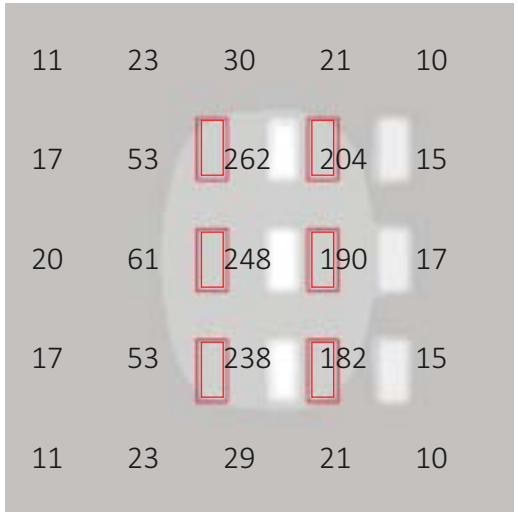
Gradient of simulated illuminance level in FC or Lux

INNERSCENE

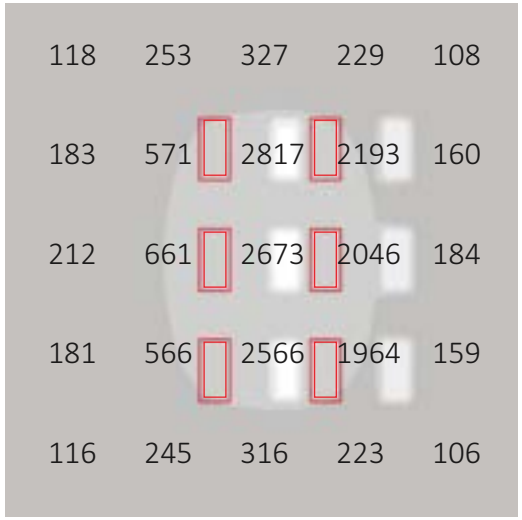
Virtual Sun Grid Arrangement Lighting Levels

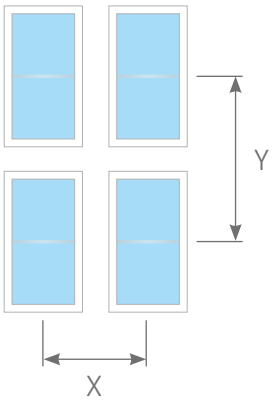


9-feet ceiling height
X=6', Y=6'
illuminance in foot-candle(FC)



2.8m ceiling height
X=1.8m, Y=1.8m
illuminance in lux





PLAN VIEW

Fixture location on the ceiling

5.5 Simulated illuminance level in FC or Lux

Gradient of simulated illuminance level in FC or Lux

INNERSCENE