

Application: Horizontal Surfaces

Lighting a Horizontal Surface

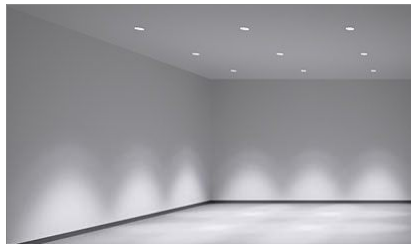
- **Lighting Fixture Solutions**
 - Down Lighting: lighting the floor
 - Uplighting: lighting the ceiling
- **Architectural Solutions**
 - Cove Lighting

1

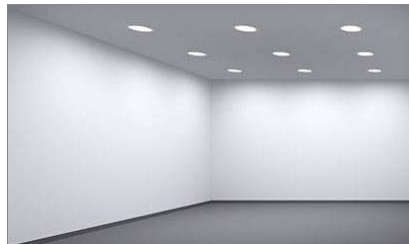
Lighting a Horizontal Surface

Direct Downlighting

Open Reflector Downlight



Lensed Downlight

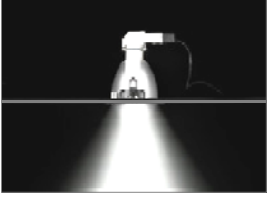
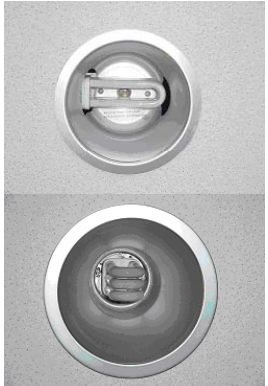


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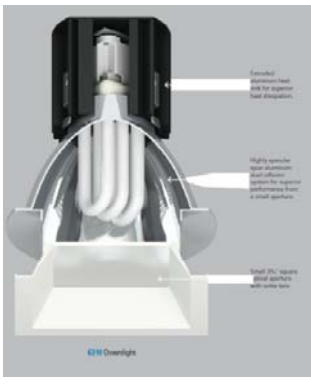
Application: Horizontal Surfaces

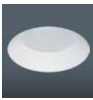


Lighting a Horizontal Surface
Direct Downlighting

Open Reflector Downlight

Lensed Downlight

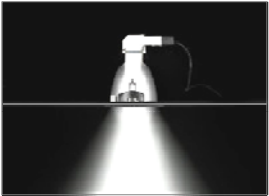



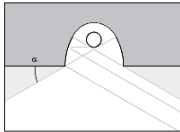




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Lighting a Horizontal Surface
Direct Downlighting

Open Reflector Downlight

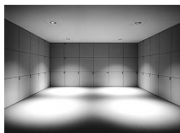




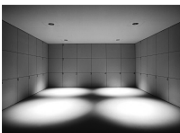
No light is emitted beyond the cut-off angle.



30° cut-off angle



40° cut-off angle



50° cut-off angle

The greater the cut-off angle, the greater the visual comfort provided by the luminaire due to improved glare control.

The greater the cut-off angle, the narrower distribution of light.

The same lighting layout of downlights produces different distributions in the room

- **Downlights with a 30° cut-off angle**, the distribution is towards vertical surfaces
- **Downlights with a 40° cut-off angle** gives the best possible compromise between the lighting horizontal surfaces below and vertical surfaces
- **Downlights with a 50° cut-off angle** achieve a high visual comfort for high rooms and emphasize the objects below – ie accent lighting.

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Application: Horizontal Surfaces

Lighting a Horizontal Surface **Beam Study**

Ceiling height = 9ft

Beam Center

50% Beam / Visual Beam

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This diagram illustrates a single lighting fixture mounted on a ceiling at a height of 9 feet. A vertical dashed line represents the 'Beam Center'. A yellow cone represents the '50% Beam / Visual Beam' spreading downwards from the fixture. A person is shown on the left for scale.

Lighting a Horizontal Surface **Beam Study**

Ceiling height = 9ft

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This diagram shows three lighting fixtures mounted on a ceiling at a height of 9 feet. Each fixture projects a yellow cone representing its '50% Beam / Visual Beam'. The beams overlap, creating a continuous illuminated area on the floor. A person is shown on the left for scale.

Application: Horizontal Surfaces

Lighting a Horizontal Surface

Manufacturers Guides:
Beam Guides

Calculite® Evolution Incandescent Adjustable Accent **C4P20A**

Page 2 of 2 4 1/2" Aperture PAR20 / PAR16 Reflector Trim

Accent Lighting Performance Data

(FC) is initial footcandle at center of beam. Beam length (L) and beam width (W) are to where the candlepower is reduced to 50% of the center beam candlepower. CBCP is center beam candlepower (C) is distance to the center of the beam. Lamp data shown is typical, and is based on bare lamp photometrics. Contact lamp manufacturers for availability and performance.

Lamps	Beam Spread (in NPL CIRC)	CBCP	Rated Life (hrs)	0° Aiming Angle			30° Aiming Angle			60° Aiming Angle				
				D	FC	L W	D	FC	L W	D	FC	L W		
PAR16 Halogen Line Voltage Lamps														
60W PAR16 NSP	10°	5000	2000	6" 130	1.0	1.0	5" 2.3	150	1.3	1.0	2" 3.5	150	1.4	0.7
90W PAR16 NSL	30°	1500	2000	5" 52	2.7	2.7	7" 4.0	90	1.0	1.4	3" 5.2	89	2.1	1.0
75W PAR16 NSP	10°	7500	2000	7" 144	1.0	1.0	7" 1.9	34	2.7	1.3	3" 1.9	103	2.7	1.1
75W PAR16 NSL	30°	1800	2000	5" 52	2.7	2.7	5" 2.0	24	3.7	3.7	2" 3.5	41	9.5	2.1
75W PAR16 NSP	10°	7500	2000	7" 150	1.0	1.0	7" 1.9	133	1.3	1.3	2" 3.5	204	1.4	0.7
75W PAR16 NSL	30°	1800	2000	5" 52	2.7	2.7	5" 2.0	24	3.7	3.7	2" 3.5	41	9.5	2.1
PAR20 Halogen Line Voltage Lamps														
35W PAR20 NSP	4°	3000	2500	6" 85	0.9	0.9	5" 2.9	76	0.9	0.9	3" 3.5	94	1.1	0.6
35W PAR20 NSL	10°	3000	2500	5" 47	1.7	1.7	5" 4.0	40	1.7	1.7	2" 5.2	42	1.7	0.8
35W PAR20 NSP	4°	3000	2500	12" 21	1.7	1.7	8" 8.2	10	2.1	1.9	5" 6.7	15	2.1	1.1
35W PAR20 NSL	10°	3000	2500	5" 30	3.7	3.7	5" 2.9	33	3.7	3.7	3" 3.5	38	3.7	2.1

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Lighting a Horizontal Surface

Downlight Spacing Criteria

Calculite® Incandescent Open Downlight **B7705**

Page 1 of 2 6" Aperture BR30 / PAR30 Lamp

6" Aperture BR30 / PAR30 Lamp

Reflector Trim

- ST8020ZC Reflector Clear Finish with white flange
- ST8020ZP Reflector Clear Finish with polished flange
- ST8020 Reflector Clear Finish with white flange (not dimmable)
- ST8021 Add suffix for other finishes (see options)

Frame-In Kit

- FR8000 Reflector FR8000 (for BR30 & PAR30)
- FR8001 Reflector FR8001 (for BR30 & PAR30)
- FR8002 Reflector FR8002 (for BR30 & PAR30)

Lamp

- FR8000 Reflector FR8000 (for BR30 & PAR30)
- FR8001 Reflector FR8001 (for BR30 & PAR30)
- FR8002 Reflector FR8002 (for BR30 & PAR30)

Calculite® Incandescent Open Downlight **B7705**

Page 2 of 2 6" Aperture BR30 / PAR30 Lamp

6" Aperture BR30 / PAR30 Lamp

Beam Spread

Beam Spread (in NPL CIRC)

Beam Spread (in NPL CIRC)

Options and Accessories (continued)

- Y-Bar Anchor Clip YBAR (set of 4 for BR30 & PAR30)
- Steel Line Wire Run WIRE (set of 4 for BR30 & PAR30)
- Knob Cap KNOC (set of 4 for BR30 & PAR30)
- Knob Cap KNOC (set of 4 for BR30 & PAR30)
- Knob Cap KNOC (set of 4 for BR30 & PAR30)
- Knob Cap KNOC (set of 4 for BR30 & PAR30)

Labels

Label for lamp (see LSC 10)

Label for lamp (see LSC 10)

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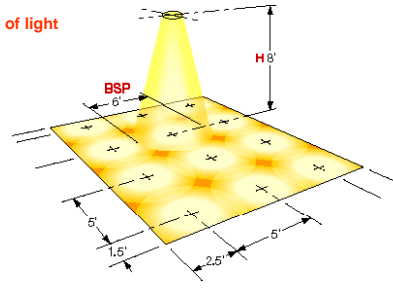
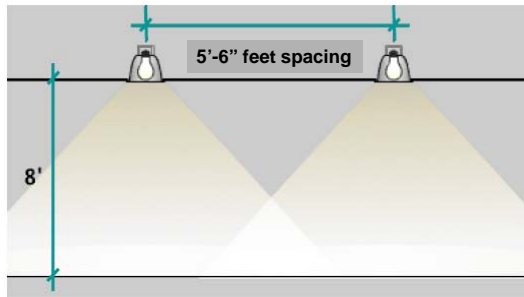
Application: Horizontal Surfaces

Lighting a Horizontal Surface Downlight Spacing Criteria

Luminaire manufacturers provide spacing criteria (SC) or mounting height ratios (S/MH), for specific light fixtures with direct lighting distribution. These light fixtures include downlights, troffers, and high and low-bay light fixtures. These ratios are used to calculate the maximum recommended installation spacing to obtain an even pattern of light on the surface below the light fixtures. SC ratios help ensure that a space is evenly lit by slightly overlapping the light distribution from each light fixture.

SC typically range from 0.9 to 1.7, but can be as low as 0.5 or higher than 2.

SC x Mounting Height = recommended spacing for "even" pattern of light

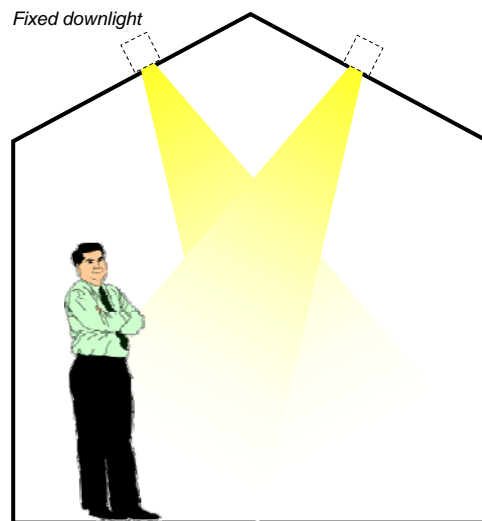


Example for recessed downlights:
If a manufacturer's **SC = 0.7**, and downlights are mounted in an 8 ft. ceiling.....

then the recommended maximum spacing between downlights will be
 $0.7 \times 8.0 \text{ ft} = 5.6 \text{ ft}$ (5'-6" ft.)

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Lighting a Horizontal Surface Sloped Ceiling

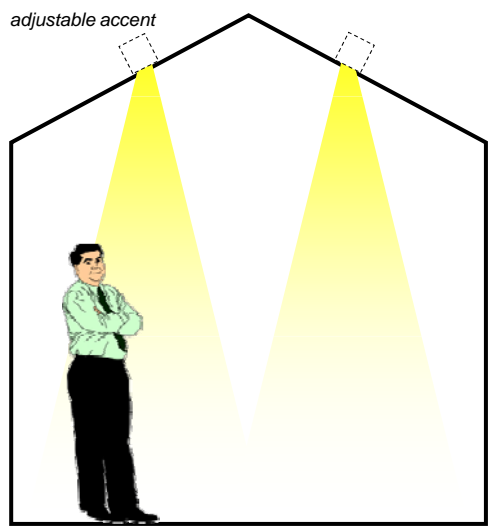


fixed downlight


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Application: Horizontal Surfaces


Lighting a Horizontal Surface



Sloped Ceiling








adjustable accent





sloped ceiling housing

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Lighting a Horizontal Surface

-  **Baffle**
Used for most popular residential trim to minimize glare in General, Accent & Task lighting applications. Available in black and white finishes.
-  **Open**
The most economical choice for recessed downlighting. Available in white and polished brass finishes.
-  **Reflector**
Maximizes light output. Available in clear and gold specular finishes. For General, Accent and Task applications in residential and commercial environments.
-  **Eyeball**
Provides adjustable/directional lighting. Available in white and polished brass finishes. Suitable for Accent, Task and Flat Wash applications.
-  **Lens**
Diffuses light and shields lamp. Available in a white finish. Ideal for closets, bathrooms and covered porches.


Downlighting Housings


			Will housing be in direct contact with insulation?	
			Yes. Insulation can cover housing	No. Keep insulation 3" away from housing
Do you have above ceiling access?	Yes. Choose New Construction Housing	IC = New Construction / Insulated Housing	Non IC = New Construction / Non Insulated Housing	
	No. Choose Remodel Housing	Remodeler / Insulated Housing	Remodeler / Non Insulated Housing	




New Construction Insulated Housing



New Construction Non - Insulated Housing



Remodeler Housing Insulated Housing



Remodeler Housing Non - Insulated Housing

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Application: Horizontal Surfaces

Lighting a Horizontal Surface Downlighting Housings

BEVEL® Trimless Metal Halide Downlight

2450

LUMINAIRE INFORMATION

APPLICATION: Recreational, Commercial, Retail or Hospitality environments.

MATERIALS: Housing: 60 Series Type III housing allows alignment of spacers to finish ceiling installation. Powder painted. Fabricated of 20 ga. galvanized steel with three coats of 3M ClearCoat for 10 year UV protection. Housing and trim supplied as one complete unit.

HOUSING INFORMATION

Trim	Finish	Trim Lens*	Housing	Voltage	Accessories
200	White	W	2450-200001	120V	2450-200001
201	Black	B	2450-201001	120V	2450-201001
202	Clear	C	2450-202001	120V	2450-202001
203	Marbled Gray	M	2450-203001	120V	2450-203001
204	Black	B	2450-204001	120V	2450-204001
205	White	W	2450-205001	120V	2450-205001
206	Black	B	2450-206001	120V	2450-206001
207	White	W	2450-207001	120V	2450-207001
208	Black	B	2450-208001	120V	2450-208001
209	White	W	2450-209001	120V	2450-209001
210	Black	B	2450-210001	120V	2450-210001
211	White	W	2450-211001	120V	2450-211001
212	Black	B	2450-212001	120V	2450-212001
213	White	W	2450-213001	120V	2450-213001
214	Black	B	2450-214001	120V	2450-214001
215	White	W	2450-215001	120V	2450-215001
216	Black	B	2450-216001	120V	2450-216001
217	White	W	2450-217001	120V	2450-217001
218	Black	B	2450-218001	120V	2450-218001
219	White	W	2450-219001	120V	2450-219001
220	Black	B	2450-220001	120V	2450-220001
221	White	W	2450-221001	120V	2450-221001
222	Black	B	2450-222001	120V	2450-222001
223	White	W	2450-223001	120V	2450-223001
224	Black	B	2450-224001	120V	2450-224001
225	White	W	2450-225001	120V	2450-225001
226	Black	B	2450-226001	120V	2450-226001
227	White	W	2450-227001	120V	2450-227001
228	Black	B	2450-228001	120V	2450-228001
229	White	W	2450-229001	120V	2450-229001
230	Black	B	2450-230001	120V	2450-230001

Notes:
* Maximum ceiling thickness 1 inch.
* Downlighting for other ceiling conditions.
* For angled installation only.
* Not for use with recessed ceiling.
* Maximum Mounting Distance 1 inch.
* Downlighting for other ceiling conditions.
* Maximum 1 amp system.
* Not for use with LED lamps.

Simple Trimless Installation

Installation Steps:

1. Install Housing
2. Install Downlight
3. Install Mounting Collar
4. Finish Ceiling

Installation Tools:
Template: A steel cutting template is provided with each housing for exact dimensions. Refer to drawings and a diagram on page 13.
Downlight Protector: A clear acrylic protector is provided with each housing to completely finish ceiling before downlighting.

Downlighting Housing: A clear acrylic protector is provided with each housing to completely finish ceiling before downlighting.

Downlighting Housing: A clear acrylic protector is provided with each housing to completely finish ceiling before downlighting.

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Lighting a Horizontal Surface

Drawing 9

Section **Front View**

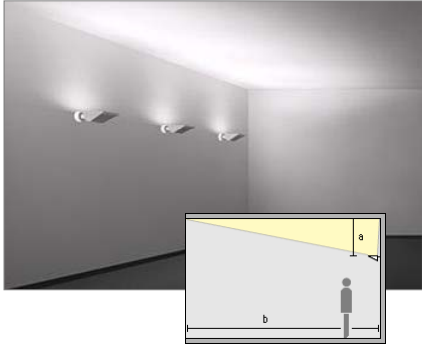
Model No. **	Drawing	A	B	C	D	E	F	Lamp
150PAR-HTC (S or R)-6-IA	9	6"	11-1/8"	14-3/8"	9-3/4"	6-1/8"	8-1/8"	Max 50 w Par30

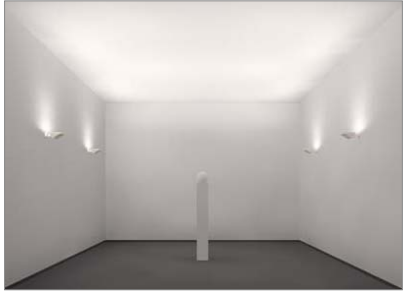
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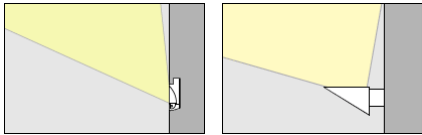
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Application: Horizontal Surfaces

Lighting a Horizontal Surface
Indirect Uplighting







Ceiling lighting requires sufficient room height to achieve even light distribution. Uplights should be mounted above eye-level to avoid direct glare. The ceiling offset depends on the degree of evenness required.


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Lighting a Horizontal Surface
Indirect Uplighting


Architectural Uplight

Interior architectural uplighting is available in a wide variety of indirect beam patterns. Fixtures are mounted so as to locate the lamp above sight lines; thus, the luminaires unobtrusively enhance a space while maintaining glare-free visual comfort.


Beam Patterns (based on ITL photometric):



Click on the beam pattern icon that corresponds to the section you want to view or download.



PAGE: 421
 PAL-118-500-Q-B-RC-4Y




PAGE: 453
 PAL-XL-250-H2-B-S-RB



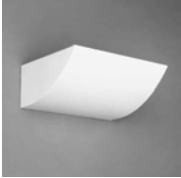
PAGE: 411
 PAL-88-300/500-Q-B-LY



PAGE: 433
 PAL-422-175-MH-MED-B-RC-LY-RB



PAGE: 401


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Application: Horizontal Surfaces

Lighting a Horizontal Surface

Lighting a horizontal surface involves directing light downwards. The diagrams illustrate the beam spread and height of the lighting fixture. The 'existing' setup shows a beam spread of 100 degrees and a height of 10 feet. The 'proposed retrofit' setup shows a beam spread of 120 degrees and a height of 8 feet. The photograph shows a large brick dome interior with warm lighting.

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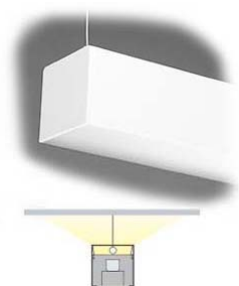
Lighting a Horizontal Surface Indirect Uplighting

Indirect uplighting is a lighting technique where light is directed upwards, reflecting off the ceiling and walls to create a soft, ambient glow. The photographs show this technique applied in various settings: a hallway with arched windows, a swimming pool area, and a lounge area with large windows.

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Application: Horizontal Surfaces

Lighting a Horizontal Surface Linear Uplighting



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Lighting a Horizontal Surface Linear Uplighting



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Application: Horizontal Surfaces

Lighting a Horizontal Surface Linear Uplighting



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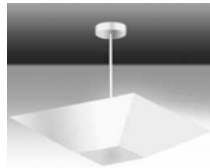
Lighting a Horizontal Surface



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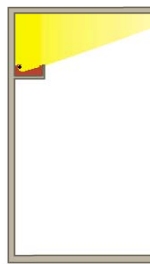
Application: Horizontal Surfaces

Lighting a Horizontal Surface



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Lighting a Horizontal Surface



Light washes and brightens the ceiling while making the room appear larger.

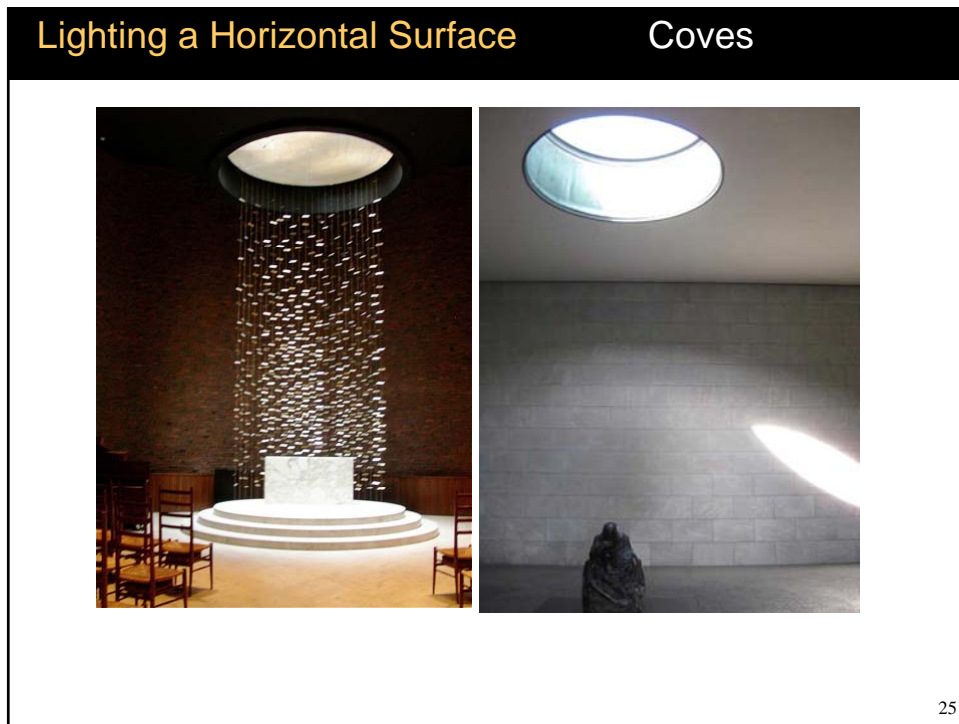


Light washes the wall to brighten the space and create a feeling of definition.




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Application: Horizontal Surfaces




Application: Horizontal Surfaces

Lighting a Horizontal Surface Coves



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Lighting a Horizontal Surface Coves



Martin Residence
Architects: Briggs Knowles

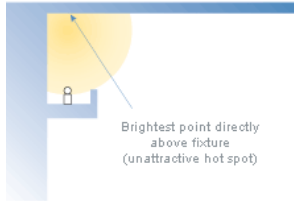
Briggs and Knowles based their design of the oculus on traditional Victorian skylights but tweaked it to fit a more modern sensibility and outfitted it with fluorescent tubing to recreate the effect in the evening.

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Application: Horizontal Surfaces

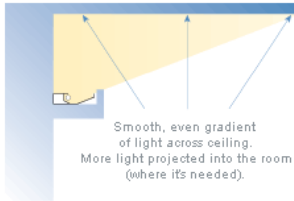
Lighting a Horizontal Surface

Coves



Brightest point directly above fixture (unattractive hot spot)

Bare Lamp Channel




Smooth, even gradient of light across ceiling. More light projected into the room (where its needed).

Cove Channel

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Lighting a Horizontal Surface


Series 1530



MINI-STAGGERED CHANNEL® T8

READ MORE


Series 1540



DOUBLE SIDE MINI-STRIP® T8

READ MORE


Series 1545



RIGHT ANGLE MINI-STRIP® T8

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Series 1550



SIDE MINI-STRIP® T8


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Series 1575




MULTI SIDE MINI-STRIP® T8

Series 1600




MICRO-STRIP® T5

Series 1610



MICRO-CHANNEL® T5

Series 1620



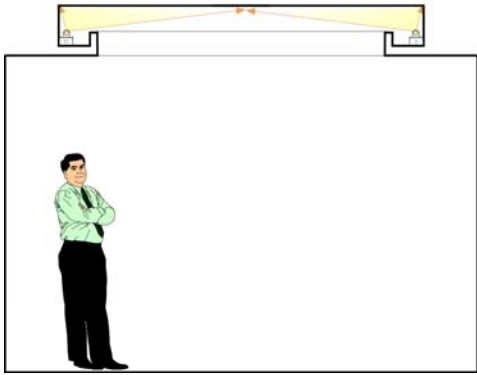

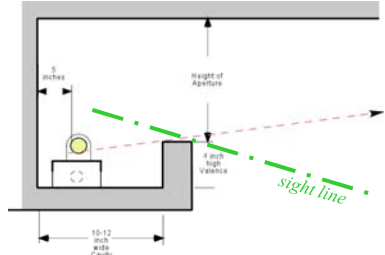
MICRO-STAGGERED CHANNEL® T5
3" Stagger

Bare Lamp Channels

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Application: Horizontal Surfaces

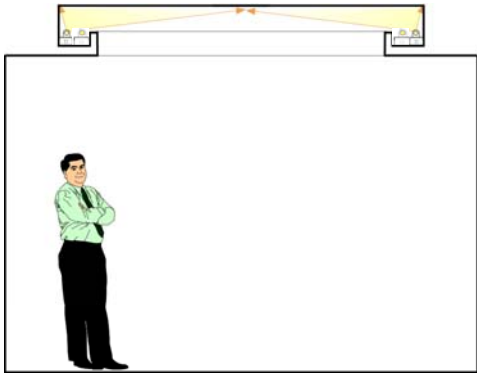
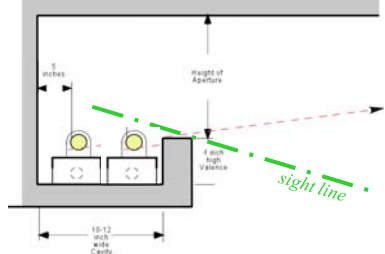
Lighting a Horizontal Surface
Coves

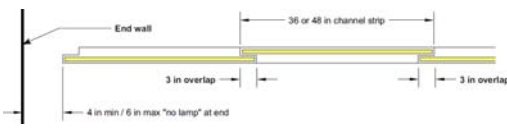
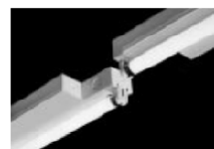
Single Bare Lamp Channel

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Lighting a Horizontal Surface
Coves

Single Bare Lamp Staggered Channel

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Application: Horizontal Surfaces

Lighting a Horizontal Surface



Cove Channel




Coves


Peak Output Angle

Configuration	Peak Output Angle	Efficiency
1-T8	117.5°	78.5% efficiency
3-T8	122.5°	62.8% efficiency
1-T8HO	115.0°	83.8% efficiency
3-T8HO	127.5°	81.8% efficiency
Compact Fluorescent	117.5°	76.5% efficiency




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Lighting a Horizontal Surface


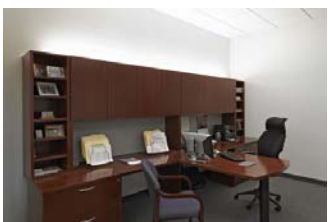


continuous up lighting above cabinet

corridor

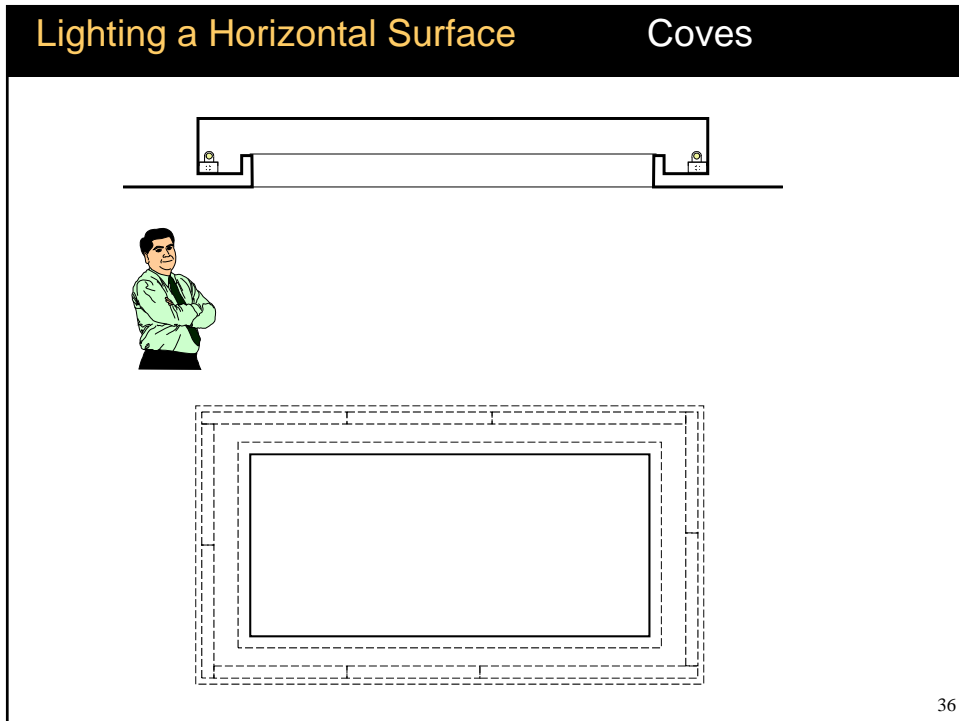
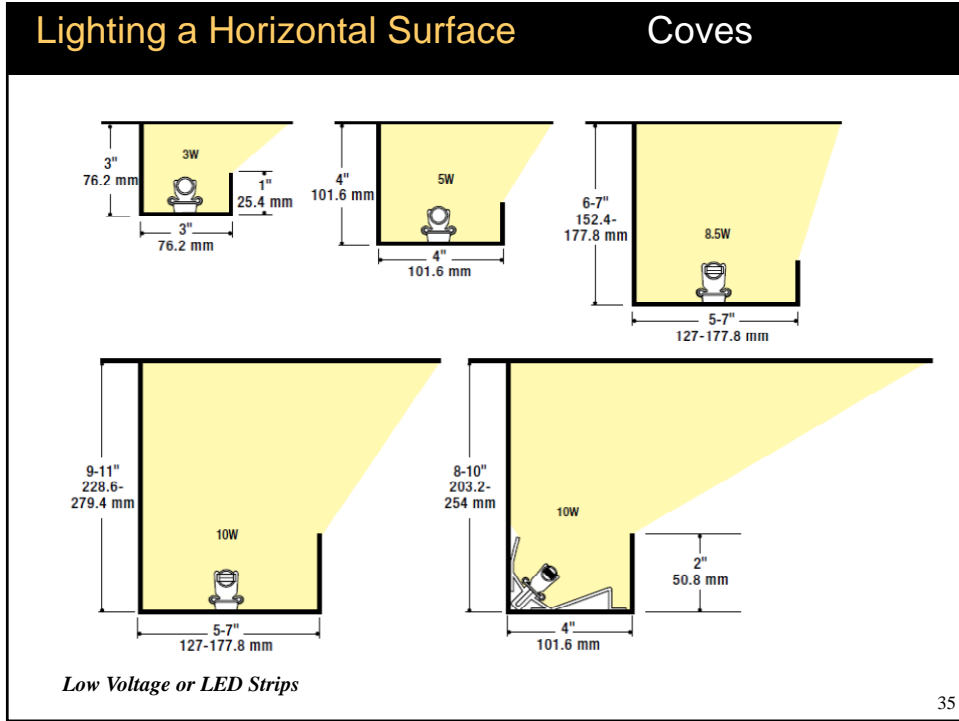
Wall Section - Option C

Coves

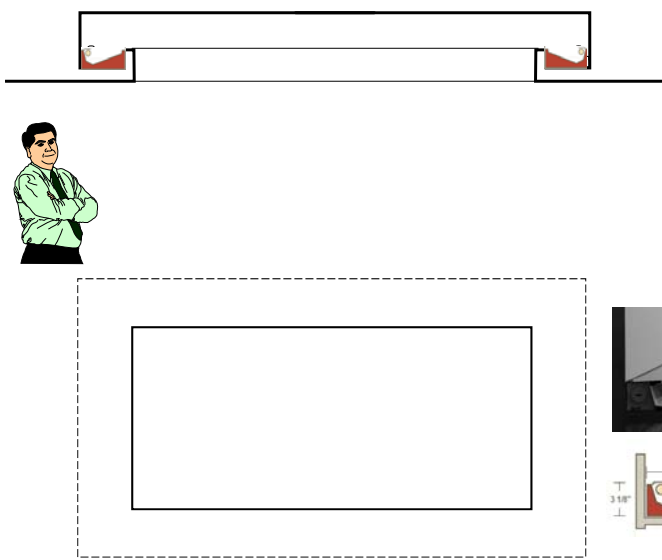
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Application: Horizontal Surfaces



Application: Horizontal Surfaces

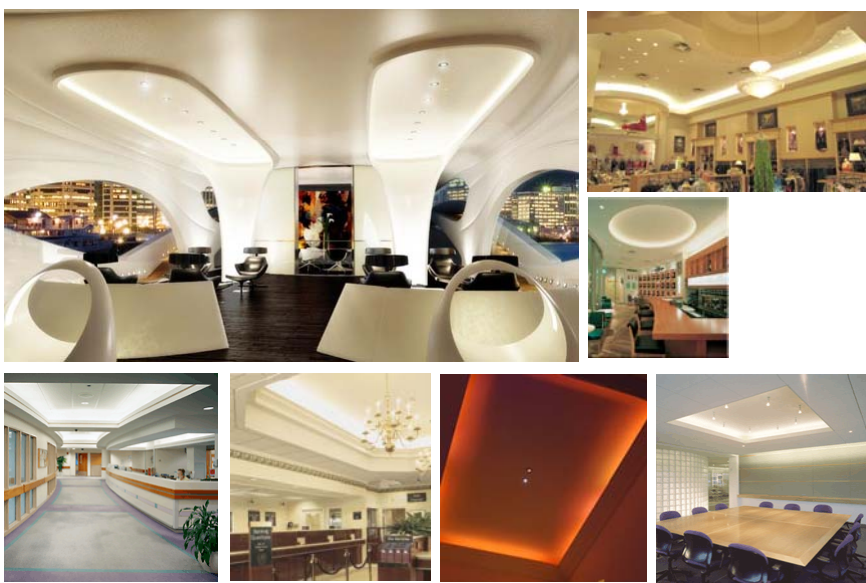
Lighting a Horizontal Surface **Coves**



The diagram shows a cross-section of a lighting cove installed in a ceiling. A light source is housed within a recessed channel, with light directed downwards. Below the diagram, a man in a light green shirt stands with his arms crossed next to a large dashed rectangular box, indicating the area of application. To the right, a photograph shows a close-up of a white lighting cove, and below it, a technical diagram shows a cross-section of the cove with a height dimension of 3.58".

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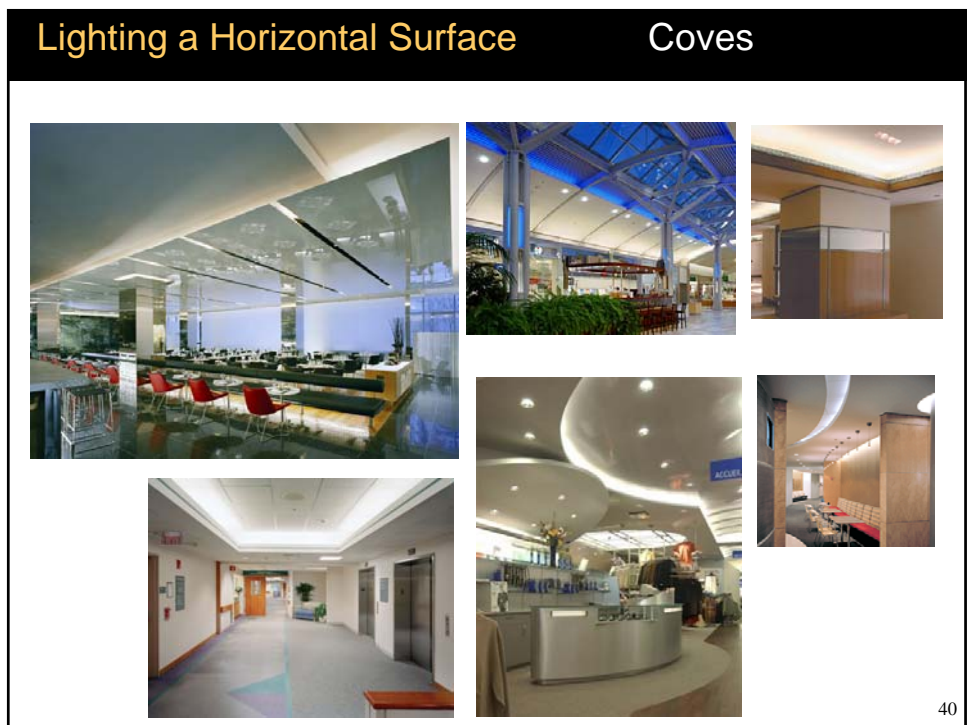
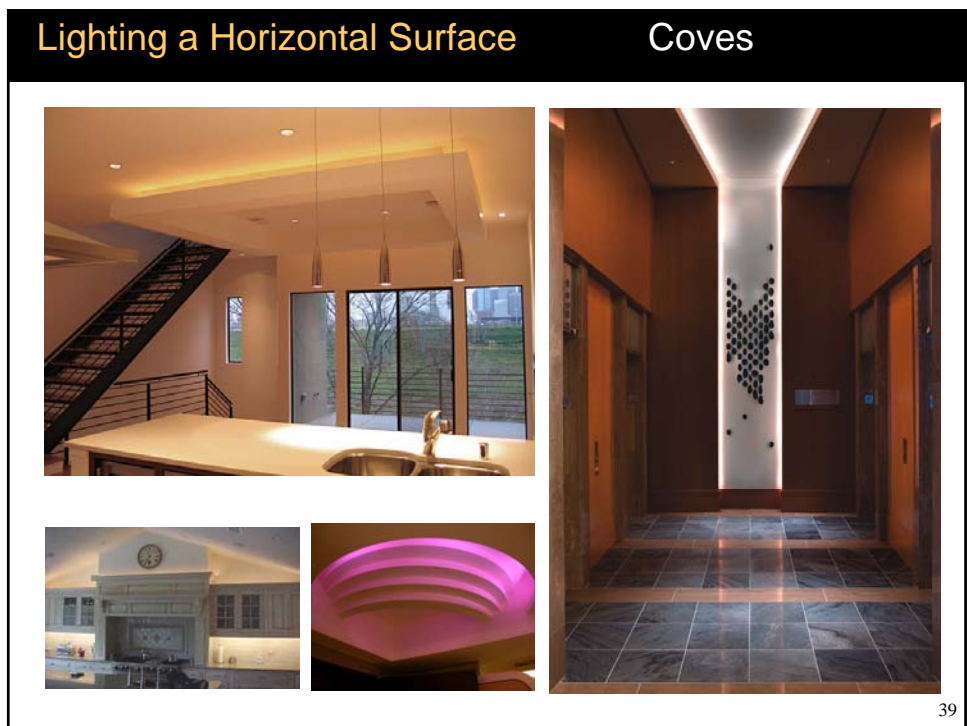
Lighting a Horizontal Surface **Coves**



A collage of seven photographs demonstrating different lighting cove applications in various interior settings. The images include: a modern lounge with curved white coves and recessed lighting; a restaurant with recessed ceiling lighting; a circular office space with a recessed light fixture; a long hallway with recessed lighting; a grand lobby with a chandelier and recessed lighting; a close-up of a recessed lighting fixture with a warm glow; and a conference room with recessed lighting around a large table.


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Application: Horizontal Surfaces



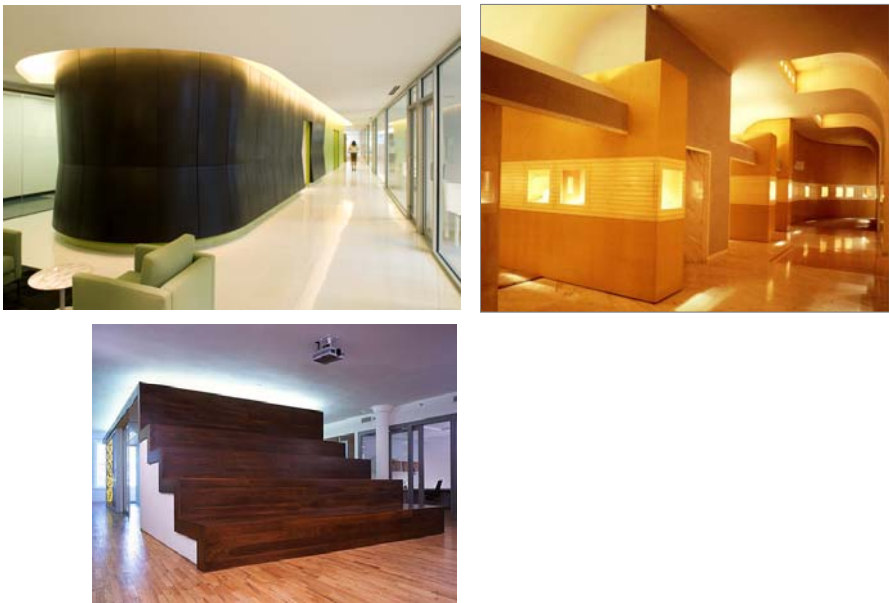
Application: Horizontal Surfaces

Lighting a Horizontal Surface Coves



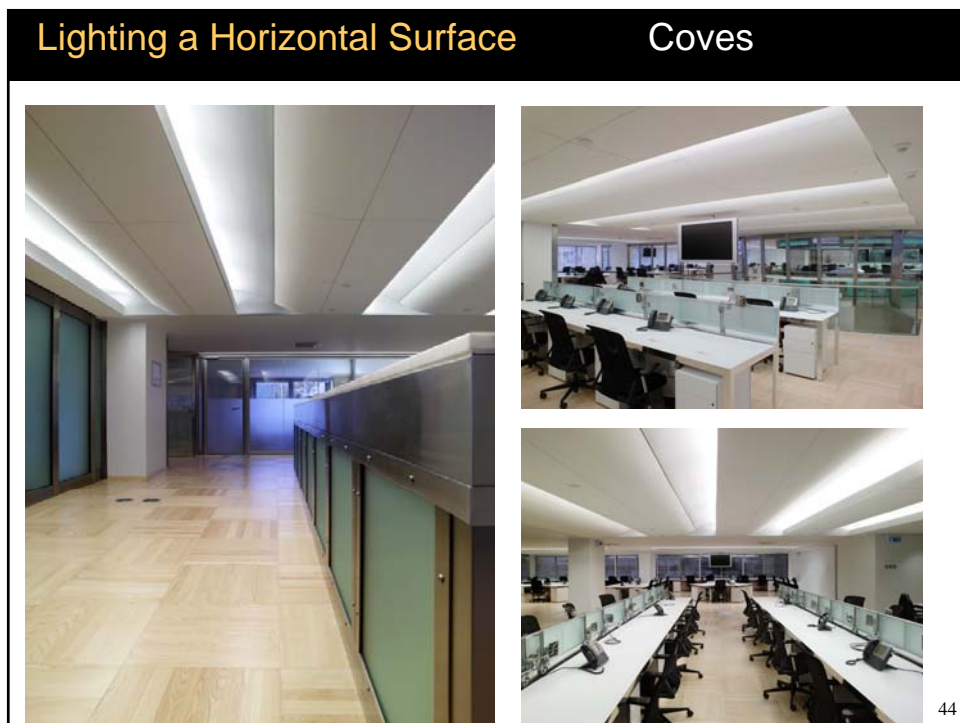
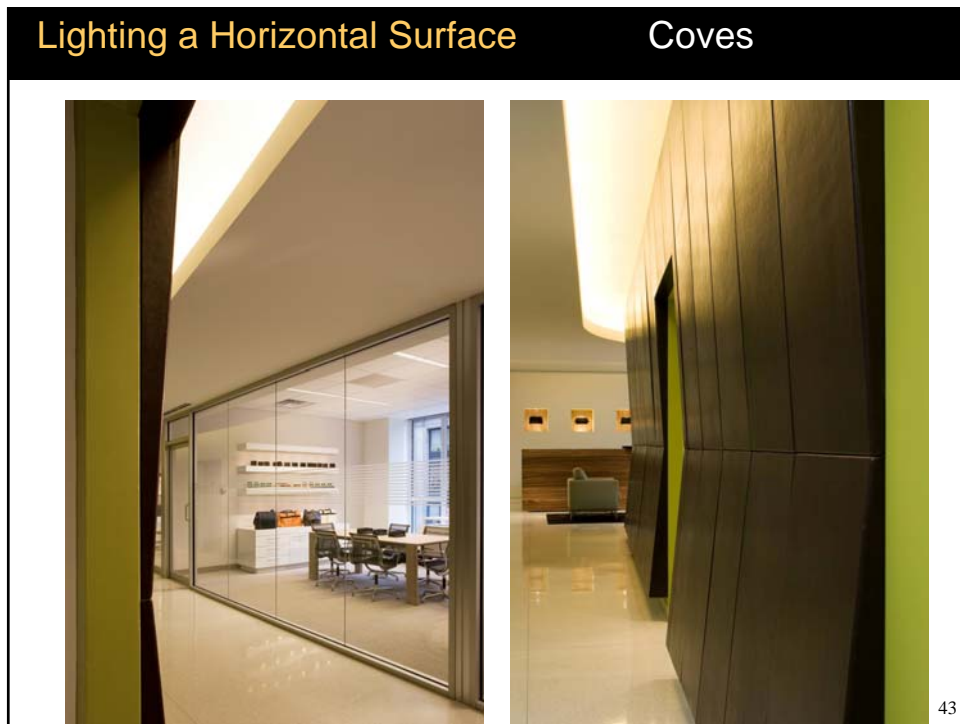
41

Lighting a Horizontal Surface Coves



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Application: Horizontal Surfaces



Application: Horizontal Surfaces

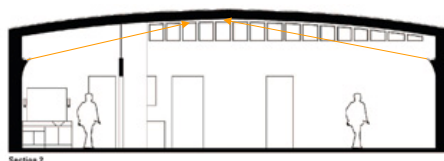
Lighting a Horizontal Surface



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Lighting a Horizontal Surface

Coves



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