DMI
DIGITAL MEDIA INNOVATIONS

dmf

Wall Wash

APPLICATION GUIDE

CONTENTS

Introduction

Lighting designers face many challenges when approaching any project, from seeking to create evenly illuminated spaces and high levels of visual comfort to creating visual interest and architectural intrigue. Wall Washing is one commonly used technique in a designers arsenal that provides a versatile approach to many of these common design challenges.

Why Use Wall Washing?

Create a focal point

Highlight art pieces, mural walls, architectural features or textures

Create an impression of brightness

Vertical surfaces appear up to five times brighter and highly reflective surfaces create even more light

Provide orientation

Bright surfaces draw our attention and help identify major architectural axis

Create dimension and space

Evenly lit walls expand the room visually. Use wall washing to supplement natural daylighting in areas where it does not reach

Increase visual comfort

Office spaces with wall washing help to reduce eye strain and reduce visual fatigue

USE CASE:

Indirect Lighting

Uniformly lighting walls can add an additional layer of indirect lighting and increase the perceived brightness of a room, defining architectural space, and helping to orient the inhabitants in the room.

USE CASE:

Grazing Textured Walls

A steeper angle of wall washing can help to accentuate feature walls or walls with natural texture, such as stucco or brick.

USE CASE:

Featured Artwork & Wall Murals

Wall washing can provide even illumination for mural walls or walls where placement of artwork may continually change.

USE CASE:

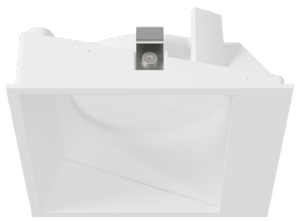
Corridors

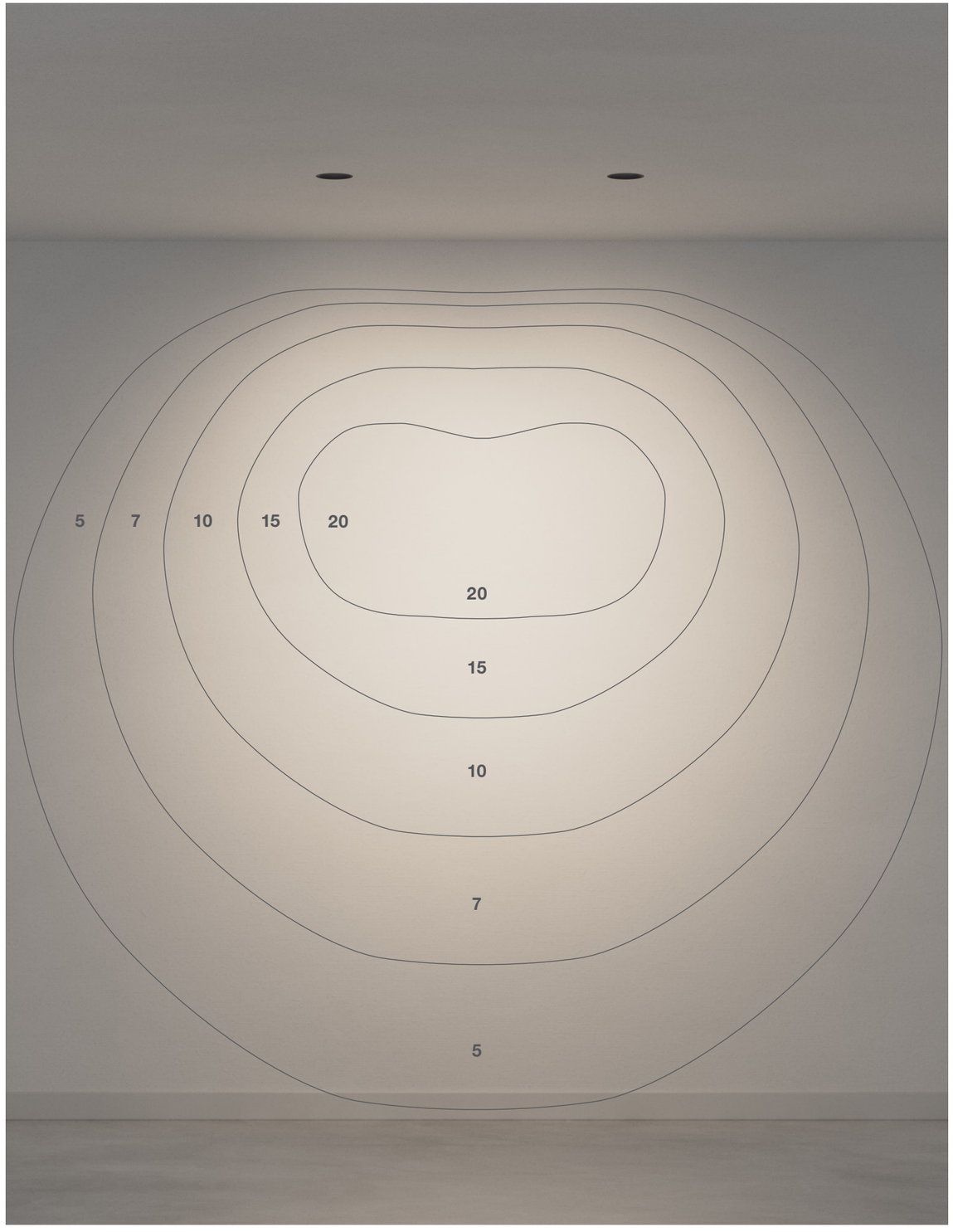
Corridors can benefit immensely from wall washing. The high degree of perceived brightness that comes from illuminated vertical surfaces creates the perception of a more open space.

Wall Wash / Sloped Ceiling Trim

DMF's next generation of wall wash and sloped ceiling trims offer a versatile, modular solution, compatible across the entire range of M Series fixed downlights. High performance optics provide increased lumen output and a flatter field, allowing for up to a 1:2 or even 1:3 setback/ spacing ratio, meaning you can achieve even wall washing with fewer fixtures than before.

Our optics have increased thermal performance, expanding compatibility to all lumen packages in the M Series Commercial and Residential lines. These trims are interchangeable with our full range of M Series downlights and standard trims, so your designs can remain nimble and adaptable to changes, even after housings have been roughed in.



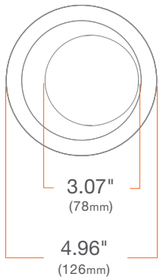


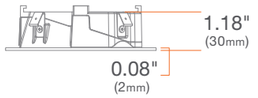
Product Details

M4TRLxx[1]	M Series Residential	4" Round Wall Wash/Sloped Ceiling Trim	○ ● ◐
M4TSLxx[1]	M Series Residential	4" Square Wall Wash/Sloped Ceiling Trim	○ ● ◐
M4TRLxxFL[1]	M Series Residential	4" Round Wall Wash/Sloped Ceiling Flangeless Trim	○ ●
M4TSLxxFL[1]	M Series Residential	4" Square Wall Wash/Sloped Ceiling Flangeless Trim	○ ●
M4TRLxx[2]	M Series Commercial	4" Round Wall Wash/Sloped Ceiling Trim	○ ● ◐
M4TSLxx[2]	M Series Commercial	4" Square Wall Wash/Sloped Ceiling Trim	○ ● ◐
M4TRLxxFL[2]	M Series Commercial	4" Round Wall Wash/Sloped Ceiling Flangeless Trim	○ ●
M4TSLxxFL[2]	M Series Commercial	4" Square Wall Wash/Sloped Ceiling Flangeless Trim	○ ●

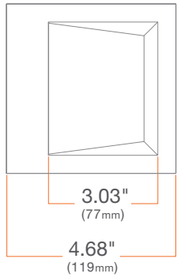
[1] For use with M Series Residential modules with Wide Flood Optic
[2] For use with M Series Commercial modules with Wide Flood Optic

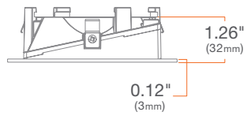
Round M4TRLxx



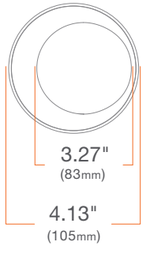


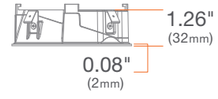
Square M4TSLxx



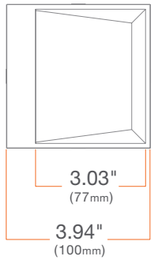


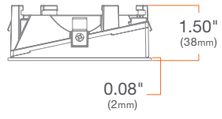
Round Flangeless M4TRLxxFL



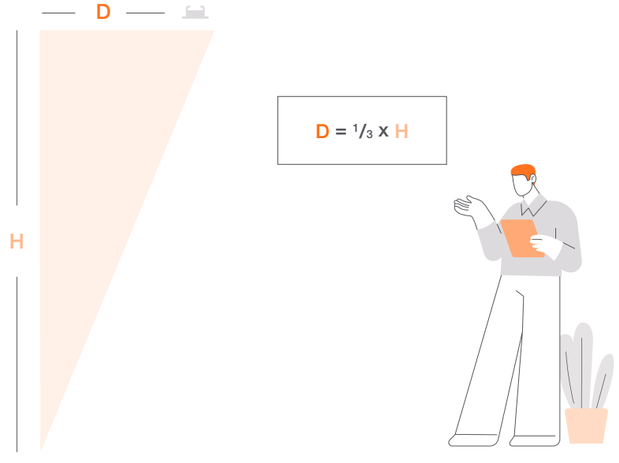


Square Flangeless M4TSLxxFL





Spacing & Placement Guide

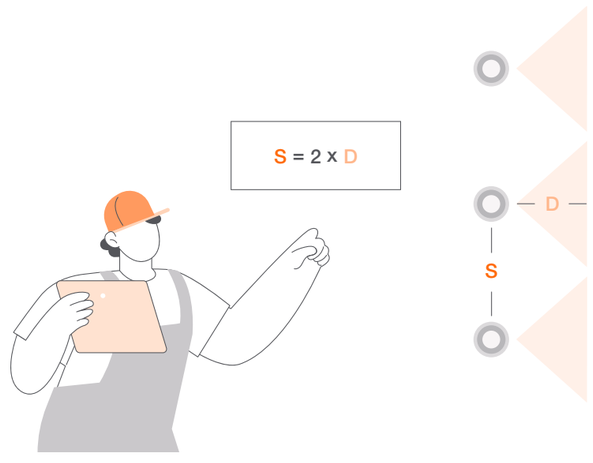


Vertical Illumination

For uniform vertical illumination, wall washers should have a setback distance (D) from the wall of 1/3 times the height of your room (H).

Setback Distance: D = 1/3 x H

Note: Placing fixtures closer (than 1/3 of Height) to the wall (at 1' setback for an 8' ceiling) can produce a more dramatic effect, and be useful for wall grazing or accentuating architectural texture. Placing fixtures further (than 1/3 of Height) from the wall (3'-6" for an 8' ceiling) can produce a more diffused wash with less contrast This will also allow some light to also spill to the floor, potentially helpful in scenarios where objects on the ground may want to be lit as well or when lighting corridors.

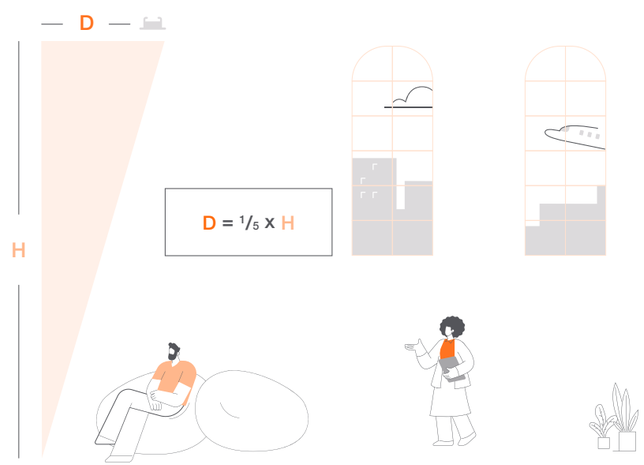


Horizontal Illumination

For uniform horizontal illumination, wall washers should use an on-center fixture spacing (S) of two times the distance from the wall (D).

On-Center Spacing: S = 2 x D

Note: Closer spacing will provide a more even wash and higher levels of illuminance, but depending on the application, good results may be achieved at up to 1:3 or even 1:4 spacing ratios.



High Ceiling Wall Illumination

For scenarios where ceilings are in excess of 15 feet, wall washers should be setback from the wall a distance (D) of 1/5 the height of your room.

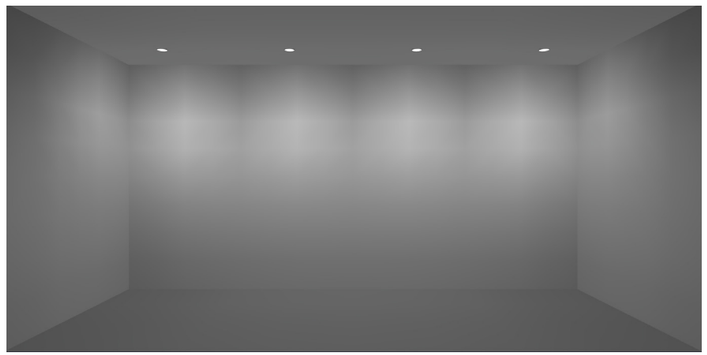
Setback Distance: D = 1/5 x H

Note: Depending on the application, an additional row of adjustable fixtures with spot optics may help to light lower portions of the wall.

Note: The above guidelines are general recommendations. Performing renderings, calculations and/or mockups for each project is highly encouraged to ensure desired results.

Example Layouts

Traditional Even Wall Wash



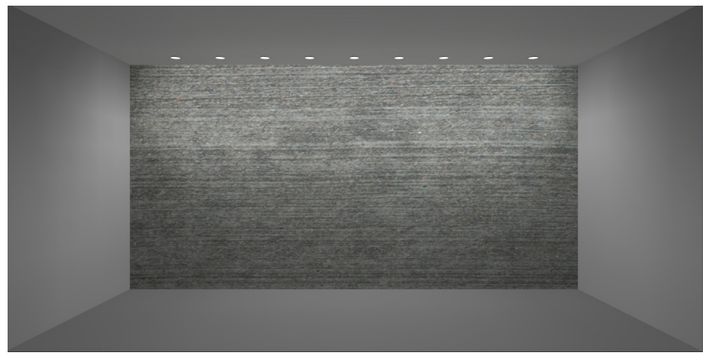
8’ Ceiling | 16’ Wall
2’ Setback | 4’ Spacing

A setback distance of approximately 1/3 of height (H) with a spacing ratio of 1:2 provides an even wall wash. This is useful for lighting open walls and creating additional illumination in a room.

Photometric Data

HEIGHT ON WALL	CENTER OF FIXTURE 1 (FC)	OVERLAP OF FIXTURES (FC)	CENTER OF FIXTURE 2 (FC)
8ft	7.6	4.2	7.6
7ft	25.8	11.3	25.8
6ft	27.1	15.6	27.1
5ft	18.2	14.8	18.2
4ft	11.8	11.5	11.8
3ft	8.3	8.5	8.3
2ft	6.2	6.5	6.2
1ft	5	5.3	5

Grazing Application



8' Ceiling | 16' Textured Wall
1' Setback | 1'-6" Spacing

A setback distance of 1/8 of height (H) with a spacing ratio of 1:1.5 creates a more dramatic and intense effect. This is ideal for highlighting textures of architectural surfaces or sculptural walls.

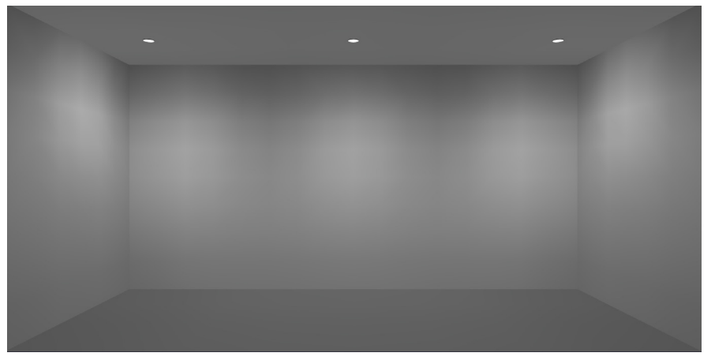
Photometric Data

HEIGHT ON WALL	CENTER OF FIXTURE 1 (FC)	OVERLAP OF FIXTURES (FC)	CENTER OF FIXTURE 2 (FC)
8ft	60.2	37.2	60.2
7ft	89.6	80.2	89.6
6ft	35.7	37.4	35.7
5ft	16.2	17.1	16.2
4ft	9	9.3	9
3ft	5.8	5.9	5.8
2ft	4.3	4.4	4.3
1ft	3.6	3.6	3.6

Note: Luminous intensity values provided in footcandles. All layouts and calculations performed with DRD2/MD Downlight Modules, 1000lm, 3000k, WF Optic with Round, White Trim (DRD2M10930WF-M4TRLWH or MD10930WF-M4TRLWH).

Example Layouts

Economical Approach



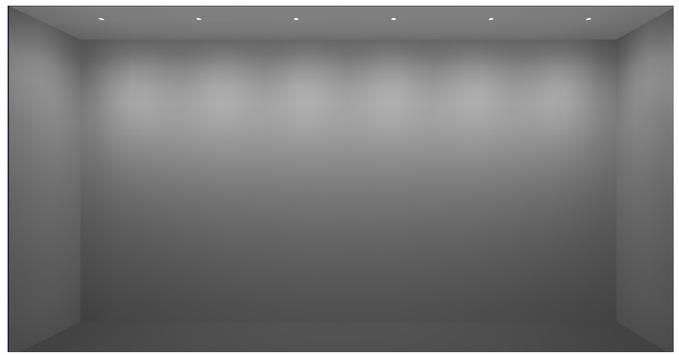
8’ Ceiling | 16’ Wall
3’ Setback | 6’ Spacing

Using a setback distance of more than 1/3 of height (H) with a 1:2 spacing ratio provides a more economical approach that still provides even illumination with fewer fixtures. The increased setback will also provide some illumination on the floor in front of the wall.

Photometric Data

HEIGHT ON WALL	CENTER OF FIXTURE 1 (FC)	OVERLAP OF FIXTURES (FC)	CENTER OF FIXTURE 2 (FC)
8ft	3.5	2.7	3.5
7ft	8.8	4.5	8.8
6ft	13.2	6.8	13.2
5ft	13.7	8.2	13.7
4ft	11.4	8.4	11.4
3ft	8.8	7.7	8.8
2ft	6.9	6.7	6.9
1ft	5.6	5.7	5.6

High Ceiling Wall Illumination



20’ Ceiling | 16’ Wall
4’ Setback | 6’ Spacing

For applications with taller ceilings, fixtures can be setback closer to 1/5 of height (H). A closer spacing ratio of 1:1.5 helps to maintain horizontal intensity.

Note: If more focused light is desired on the lower half of the wall, consider pairing each wall wash with an adjustable downlight with a spot optic.

Photometric Data

HEIGHT ON WALL	CENTER OF FIXTURE 1 (FC)	OVERLAP OF FIXTURES (FC)	CENTER OF FIXTURE 2 (FC)
20ft	3.4	3.2	3.4
18ft	8.6	6.4	8.6
16ft	10.5	7.8	10.5
14ft	8.4	8.4	8.4
12ft	6.2	6.8	6.2
10ft	4.6	5.2	4.6
8ft	3.5	4	3.5
6ft	2.8	3.1	2.8
4ft	2.2	2.2	2.2
2ft	1.9	1.9	1.9

Note: Luminous intensity values provided in footcandles. All layouts and calculations performed with DRD2/MD Downlight Modules, 1000lm, 3000k, WF Optic with Round, White Trim (DRD2M10930WF-M4TRLWH or MD10930WF-M4TRLWH).

Downlighting for Sloped Ceilings

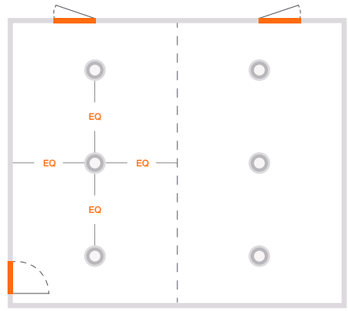
In addition to use in traditional wall washing applications, DMF's second generation of Wall Wash/Sloped Ceiling Trims offer an additional approach to downlighting in spaces with sloped ceilings, particularly when adjustable fixtures might not accommodate the design intent. The angle bending properties of the trim design can counteract the angle of the sloped ceiling. This creates an angled downlight wash without beam clipping or light loss.

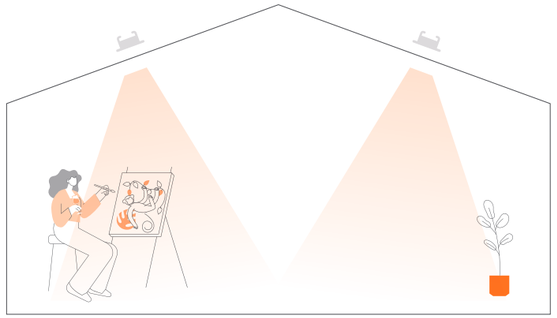
General Guidelines

CEILING PITCH	ANGLE	RECOMMENDATION
0/12 to 2/12	0 to 10	Use downlight module with standard trims and GA or WF Optic
3/12 to 8/12	11 to 35	Use fixed downlight module with SP Beam Optic and Wall Wash/Sloped Ceiling Trim. Aim trim towards the short wall, nearest to the fixture.
9/12 to 12/12	36 to 45	Ceiling's with pitch greater than 9/12 are less than optimal for this application. One suggested approach is to move lights closer to the short walls (about 1/3 the height of the gable) or utilize adjustable modules and cross-aim to the opposite side of the room.

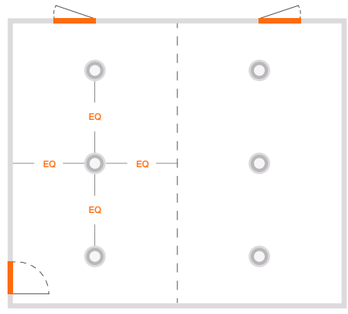
Note: Mockups are highly encouraged to ensure that results match design intent.

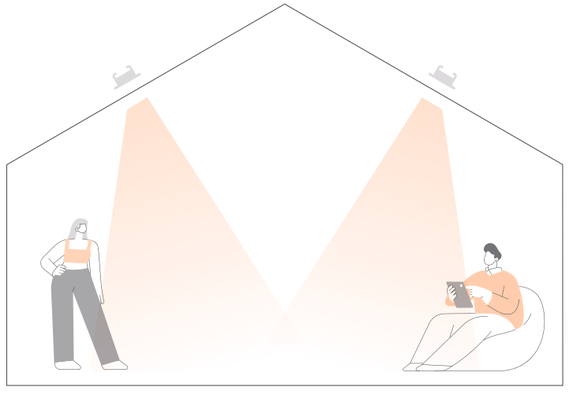
20° Sloped Ceiling



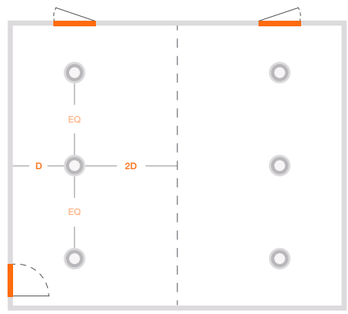


30° Sloped Ceiling





40° Sloped Ceiling



For Patent information, please visit:
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1118 E 223rd Carson, CA 90745 | 323.934.7779

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