

**First in a series of "Light Papers" that address technical and aesthetic issues relating to the application of Matthews Designer Lighting in home theater environments.**

**Introduction**

The growing market for home theaters – whether in dedicated rooms or within traditional living spaces – brings with it a need for appropriately designed peripheral lighting instruments. Matthews Designer Lighting is intended to enhance the appeal of home theater environments through the pairing of visually stimulating Hollywood design with theatrical functionality.

A properly designed home theater should be comfortable and versatile, making it desirable for a variety of alternative activities including listening to music, reading, and entertaining guests. In a functional home theater the quality of the lighting is as important to the visual experience as proper acoustics are to the auditory experience.

**Matthews Designer Lighting**

Rather than offer a redundant array of lights that overlap in form, fit, and function, Matthews has selected four classic designs, and in addition to a standard finish, each is offered in a variety of designer finishes. The lights are constructed with sufficient mass to ensure that they will not become energized and produce audible distractions at any frequency. All are designed and manufactured to the standard of a professional lighting instrument and are impeccably hand finished.

Cameo Light. Classically known as a key or accent light, the Cameo light produces a radiant highlight reinforced by a sharply defined cast shadow reminiscent of the double-layer gem carving for which it is named. Cameo lights are used to define the theme and establish the mood of the theater.

Eclipse Light. The Eclipse light is designed in the likeness of the astronomical phenomenon that it replicates. Traditionally dubbed a

wall sconce, the Eclipse light is used to introduce a soft patterned base illumination on a wall or ceiling to visually open the space surrounding the light. (Base illumination is defined as the level of light required to visually appreciate and comfortably move about the space.)

Cape Light. The Cape light is so named for its cape-like appearance and diffused, wrap-around light pattern. As a wall sconce, the Cape light provides illumination in a downward direction to define wall hangings and art objects. Depending on lamp selection, the Cape light can also introduce a diffused ambient illumination into the room.

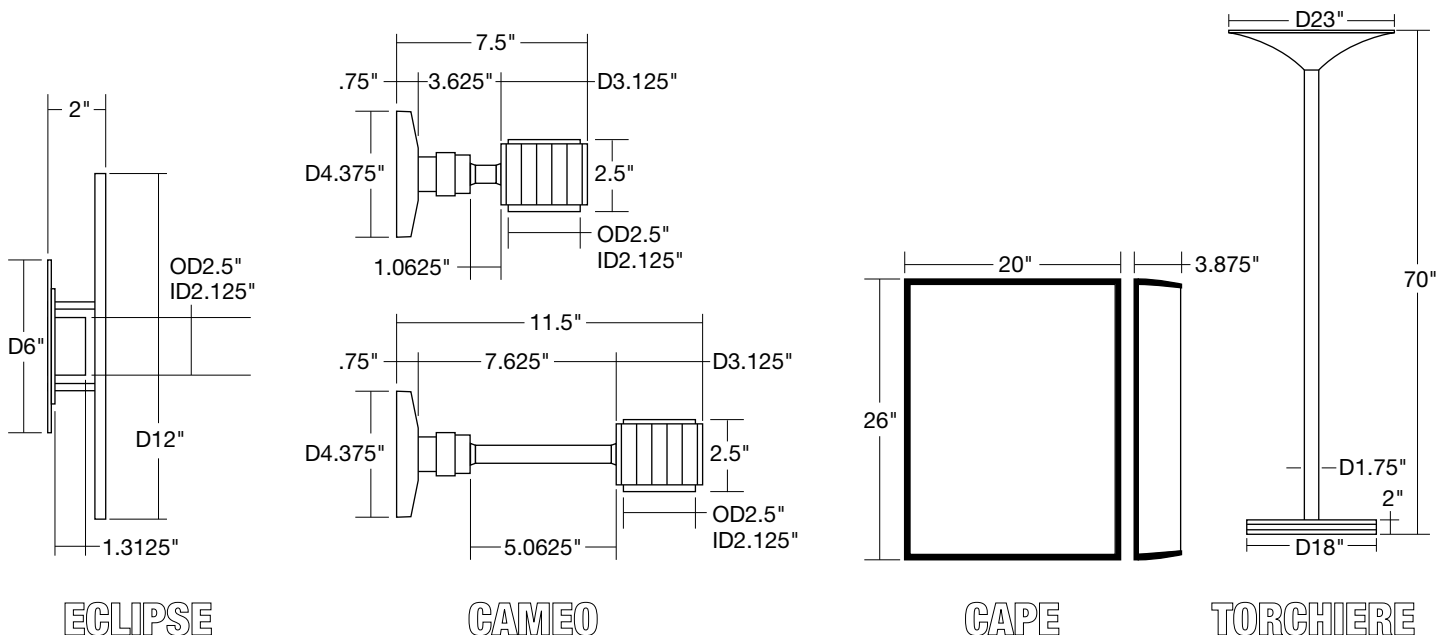
Torchiere. The Torchiere is perhaps the most elegant of all lights. Standing six feet tall, the Torchiere is designed to add beauty and grace to any environment. The Torchiere provides versatile base illumination through numerous lamp and cone options.

**Qualitative Aspects of Light**

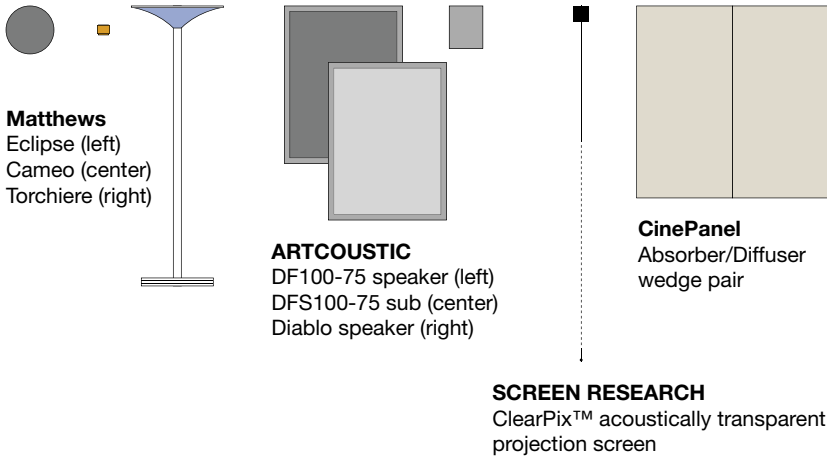
Because the principles of light are learned in a rudimentary manner at an early age, light is generally taken for granted. To illustrate, if we photograph a sphere illuminated from above, the likeness is easily identified as a sphere. If on the other hand we illuminate the same sphere from below, as a result of our previous experiences with light and shade, the resulting photograph will be identified as a depression rather than a sphere.

The above example illustrates that through the application of light, shade, and color it is possible to stimulate the environment, set the tone or mood of a space, even rekindle moments in time.

*(Cont'd on page 4)*



**Guide to Symbols in Illustrations:**



**The Golden Section**

In architecture and interior design, the Golden Section establishes the following relationship for the allocation of vertical wall space: A is to B as B is to A+B.

In these illustrations, the 9' walls are divided per the Golden Section. Furniture typically occupies the vertical space of Section A. The area above that – defined as Section B – is further divided using the Golden Section. The bottom portion of Section B is used for all manner of wall-hangings – in our illustrations, Matthews Eclipse sconces, ARTCOUSTIC speakers, and CinePanel acoustical panels. The top portion of Section B is used for lighting fixtures that attach to the wall proper or suspend from the ceiling – in our illustrations, Matthews Cameo spot lights.

The Golden Section as applied here overlays neatly with the interior design rule of thumb, which states that the focal point of a lamp (base of the shade) should be about 42" above the floor.

**Illustration 1.**

Assuming an 18' side wall of average reflectance with no wall hangings, adequate base illumination can typically be accomplished by mounting one Eclipse light at the center of each 4' panel.

**Illustration 2.**

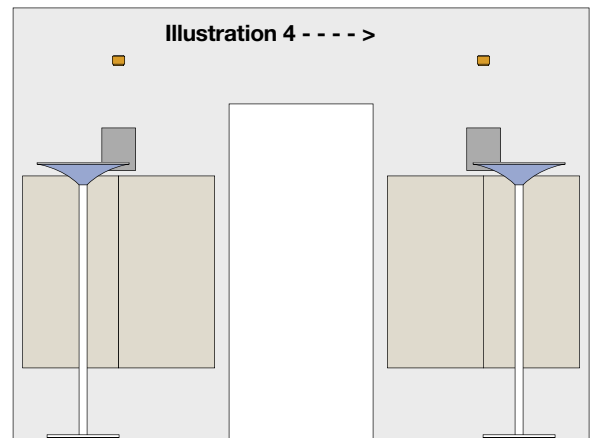
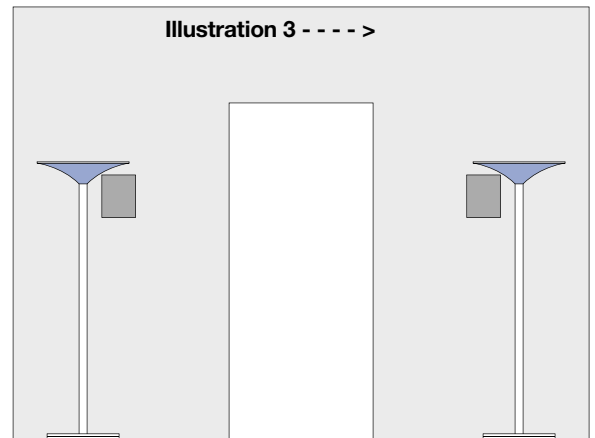
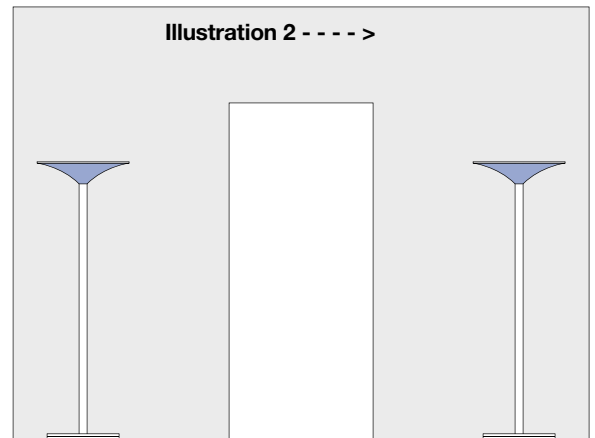
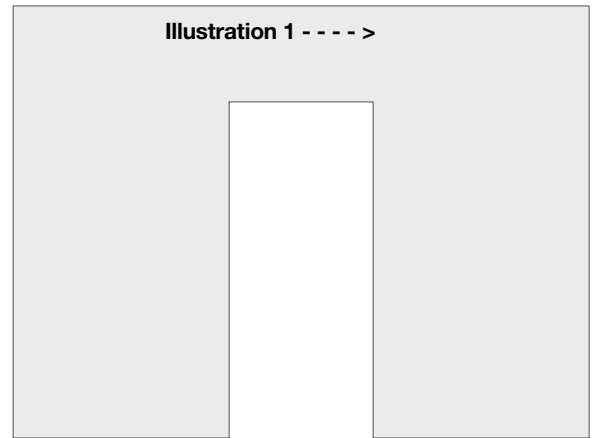
Introduces wall-mounted art. Note the addition of Cameo lights to provide illumination for the art as well as into the seating area. Also note the use of Torchieres in the rear to provide additional base illumination.

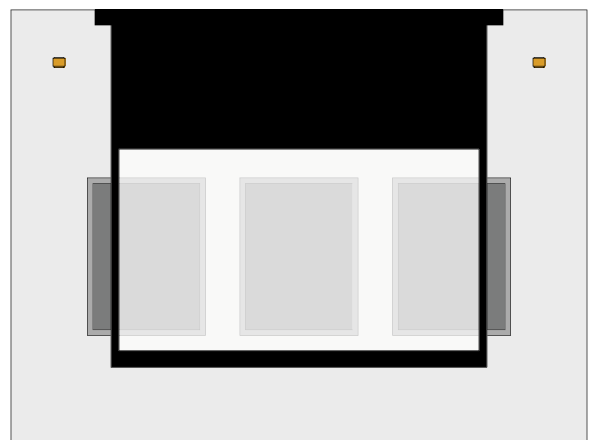
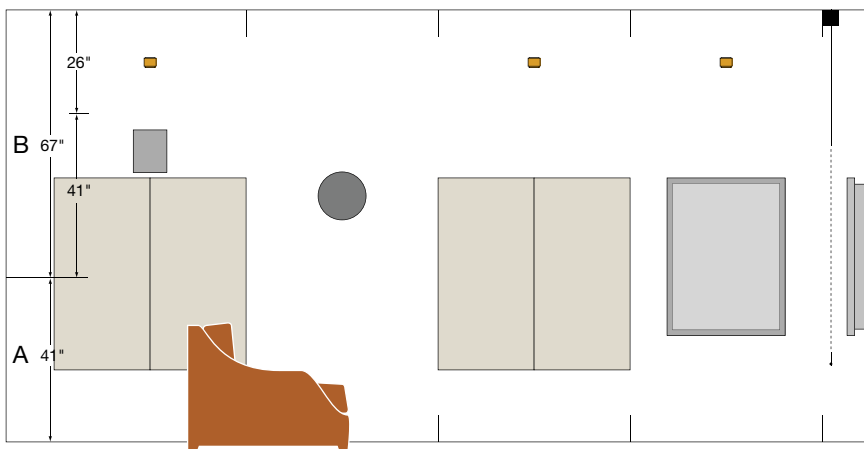
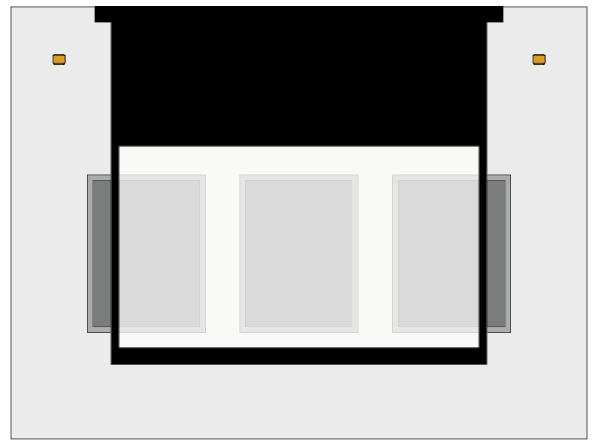
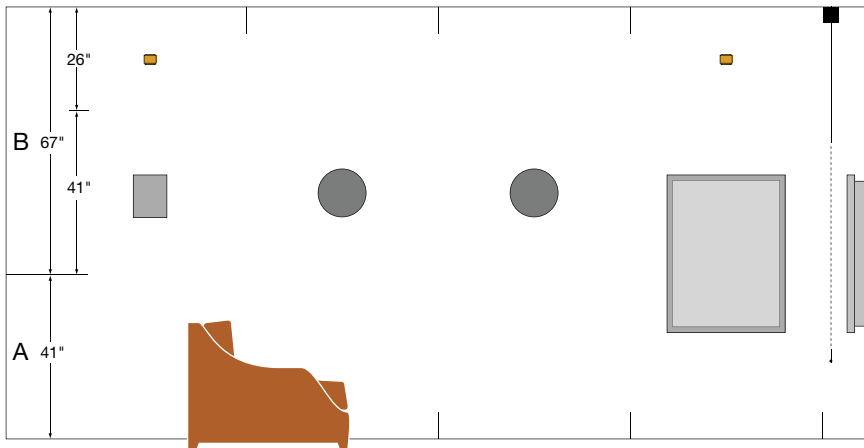
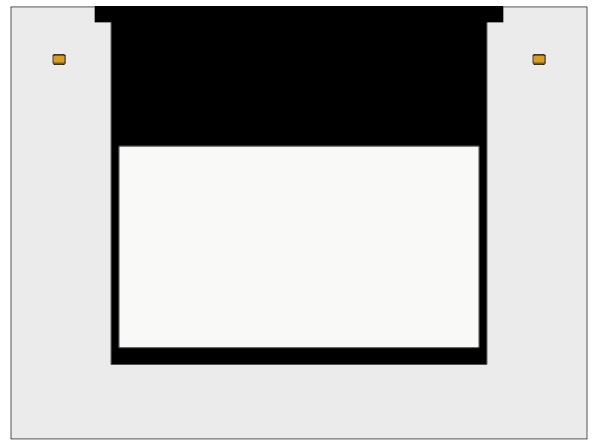
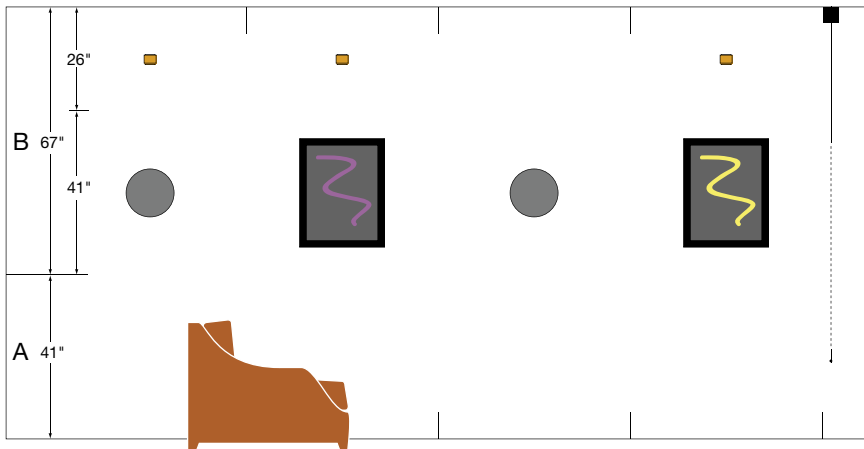
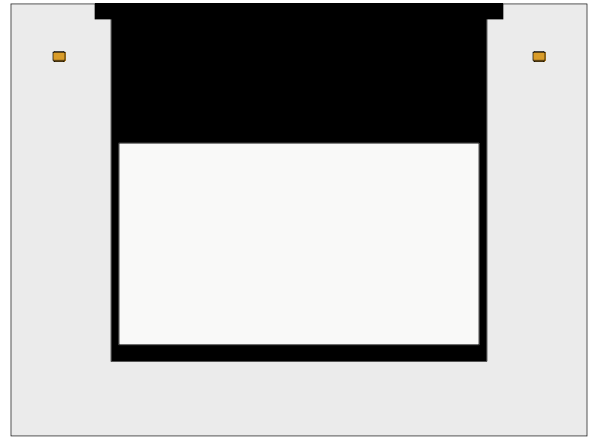
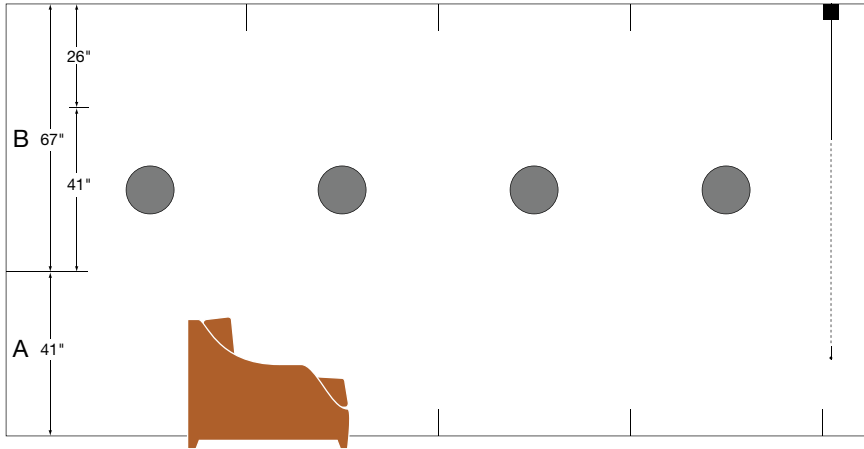
**Illustration 3.**

Introduces wall-mounted speakers and a wall-mounted subwoofer.

**Illustration 4.**

Introduces acoustical treatment panels on the side and rear walls, as well as Cameo lights in the rear.





## Practical Theater Illumination

Of primary importance is the size of the theater, the reflectance of the theater walls and ceiling, treatments such as wall hangings or other objects that may require illumination, the location and level of illumination desired for screen presentation, and any intended alternative uses of the theater. Conceptually, key lights (Cameo) are defined and plotted first, followed by base illumination (Eclipse, Cape, Torchiere). However, it is important to remember that the base illumination must sustain the theater with functional, aesthetically pleasing illumination in situations where the key lights are reduced in intensity or turned off. For this reason, it is useful to complete a lighting plot that treats directional key lighting and non-directional base illumination independently, using dimming as necessary to integrate the two.

The illustrations on pages 2 and 3 – showing the walls of a theater space measuring 18L x 12W x 9H – are intended to assist specifiers and installers in quickly and aesthetically locating installation points. For the purpose of plotting individual lights, all wall attachments are shown centered on 4' wide panels. While perfect symmetry is a valid design alternative, those who wish to exercise personal taste are encouraged to do so!

In larger theaters or in situations where the wall and ceiling reflectance is low, an array of Cameo lights on 4' centers can be mounted around the perimeter of the room or attached to a soffit or acoustical panel. For a directional key light effect, Cameo lights can be focused downward to directly illuminate walls, wall hangings, or other art objects. To increase the level of illumination, Cameo lights can be panel-mounted in multiples and individually focused as necessary. (The term “focus” here refers to directing a light to illuminate a specific object or area.)

Although designed as a key light, Cameo lights can be focused on the ceiling and allowed to indirectly spill into the room below to provide additional base illumination. It is important, however, not to dilute the impact of the theater illumination by over lighting. When used as a key light, Cameo lights should be at least 2 – 3 times brighter than the level of the base illumination. As a general rule, at the 100% dimmer setting, each key light should match in intensity and direction (lights are typically focused downward), as should the lights providing base illumination. Intensity may be dimmed as necessary, depending on the usage of the room.

## Lamping Options

The MR-16 lamp is used universally throughout the Matthews lighting line. The color-rendering index of the MR-16 is superior among tungsten-halogen lamps. In its standard form the MR-16 provides a 3050 Kelvin temperature, and is available in specialty versions that reach as high as 3500 Kelvin, more closely approximating daylight.

A table of 50-watt MR-16 lamps is provided below. Lamps and illumination levels will be discussed in Light Paper 2.

50-watt MR-16 lamps

Watts	Description	ANSI Code	Volts	Base	Color Temp (K)	Rated Life	Beam Angle (Deg)	Candle-Power	Total Lumens
50	Q50MR16/C/WFL55	FNV	12	2PIN(GX5.3)	3050	5000	55	900	875
50	Q50MR16/C/FL40	EXN	12	2PIN(GX5.3)	3050	5000	40	1850	850
50	Q50MR16/C/NFL30	EXK	12	2PIN(GX5.3)	3050	5000	32	2450	850
50	Q50MR16/C/NFL25	EXZ	12	2PIN(GX5.3)	3050	5000	27	3400	825
50	Q50MR16/C/NSP15	EXT	12	2PIN(GX5.3)	3050	5000	14	10200	750