MI Store Lighting Know-How: Part I
Creating effective lighting strategies to help move product
by Pete Miller

INTRODUCTION

The selection of the right lighting can be a major contribution to retail sales. Lighting can establish a store’s image, lead customers inside, focus their attention, make the products attractive and visible, and in general encourage purchasing. “Energy Effective” lighting provides all these benefits for the lowest life-cycle cost, while saving energy, operating costs, and maintenance. This guide shows you how it is done, with sample layouts and specifications that are energy effective, and energy code compliant.

Retail lighting must have good color, contrast and balance between lighted surfaces. Other qualities are listed in the chart below. There is no single formula for all retail lighting. A professional lighting designer or retail designer may be able to create successful designs while breaking all the rules suggested here. However, this guide is intended to provide sound advice and simple techniques for consistently successful and “energy effective” retail lighting.

LIGHTING LAYOUTS

These layouts are intended for independent MI retail establishments between 500 and 1,000 square feet in size, and for three different types of stores: Basic retail lighting systems are appropriate for high activity, self-service retailing such as mass merchandising and discount stores. Shelves are generally tall and dense. Bright surfaces, exposed sources, and industrial luminaires are an important part of the approach, communicating the image of “maximum value” to customers. Higher-end retailing requires lower ambient levels and more accent lighting to create contrast and drama. These stores have a more relaxed level of customer activity with more personalized sales assistance. The majority of stores fall in between these categories, requiring more ambient lighting than exclusive shops, with fewer accent lights. We call this category an intermediate retail store.

MUSIC STORE LIGHTING ELEMENTS

ACCENT LIGHTING

Spotlighting used to provide higher levels of light in a focused pattern to accentuate selected objects in relation to their surroundings. Accent lighting establishes the importance of certain objects through the use of contrast, and highlights the form, structure, texture, or color of the merchandise.

PERIMETER LIGHTING AND VALANCE LIGHTING

Lighting the vertical surfaces. Asymmetrical light fixtures can direct light on tall vertical shelving and displays, typically located at the perimeter of the merchandise area. Valance lighting allows the source to be quite close to the merchandise area. Valance lighting allows the source to be quite close to the merchandise, providing a shield or “valance” to conceal the light sources from the view of the customer. Valances are often built into the wall, shelving unit or gondola. Although primarily intended to provide light down on the merchandise, they also can be designed to light up on signage or provide indirect ambient lighting for the space.

SHELF LIGHTING AND CASE LIGHTING

Small or miniature light sources located very close to the objects being displayed, shielded from the customer’s view. This lighting must be carefully selected for the particular application to avoid accidental contact with hot lamps and to prevent damaging instruments and other merchandise with too much ultra-violet radiation or heat.
MOST IMPORTANT DESIGN FACTORS FOR RETAIL LIGHTING

Color Rendering Index / Color Temperature
Contrast / Accent / Highlight
Daylighting Integration / Control
Direct Glare / Reflected Glare
Image or Style
Modeling of Objects / Shadows
Visual Priority / Organization
Quantity of Light on Vertical Displays (fc)
Quantity of Light on Horizontal Surfaces (fc)
Aiming Flexibility of Accent Lighting

*Adapted from the Lighting Design Guide. IESNA Lighting Handbook, 9th Edition

HELPFUL HINTS

Q. Incandescent light has a truer color?
A. FALSE. There is no “true” color of light, but mid-day natural light is often considered a standard because it has all the wavelengths of color in more or less equal amounts. Incandescent sources are rich in warm tones, but weak in cool tones. This is flattering to skin tones but poor in revealing colors for many products, especially those containing blues and greens. New “tri-phosphor” technology has resulted in fluorescent sources with superior color rendering in a wide variety of color appearances and lamp types.

Q. Low-voltage lamps use less energy than standard voltage lamps?
A. FALSE. A 50-watt 12-volt lamp uses the same amount of power as a 50-watt, 120-volt lamp or 50 watt 277 volt lamp. However, low-voltage lamps have smaller filaments, which enables tighter focus of the beam. Thus, low voltage may be the most energy-effective choice for accent lighting.

Q. More light is better?
A. FALSE. Lighting for retail is all about contrast and focus. Too much accent lighting means no contrast and no focus. The greatest lighting value is achieved by balancing ambient and accent lighting.

TRUE OR FALSE?

IT'S A TRADE-OFF

Higher-end shops do not need to use more energy to be effective. The lighting layouts we’ll discuss in Part II of this guide all have connected loads of 2.1 watts per square foot or less. All achieve good quality lighting appropriate for their businesses. Higher light levels are provided in Basic retailing. Higher-end shops provide more focus and highlights by decreasing the ambient light levels. Compared to common practice, 2.1 watts per square foot not only meets the latest energy codes, but also saves 30 percent of a store’s energy cost for lighting.

quick tips

Getting the Most “Bang for your Bucks”

1. Put the light source close to the merchandise.
2. For ambient lighting, use efficient, diffuse sources, such as fluorescent.
3. For accent lighting, use narrow beam spotlights such as Halogen PARs or Low-Voltage MR-16s.
4. Use the fewest types of lamp to get the desired effect, discarding relamping mistakes, and maintenance headaches.
5. Illuminate the aisles with spill light from the accent merchandising areas or displays.
6. Lower levels of ambient lighting require fewer watts of accent lighting.
7. Use the lightest colors on the interior surfaces of shelving.
8. Use organized patterns of light fixtures. Chotic patterns may confuse, agitate, or fatigue the customers.
9. Use high color rendering lamps for both ambient and task lighting.

don’ts

Common Misapplications

1. Using incandescent lights for everything.
2. Track lighting rather than fixed locations.
4. Random fixture layouts or visual chaos.
5. Too many shiny surfaces.
7. Dark finishes.
8. Accent everything, while emphasizing nothing in particular.
LIGHTING SCHEDULE

These specifications include lighting fixtures that will ensure a balance of performance, flexibility, energy-savings and maintenance at a cost-effective price. Many standard products will meet these specifications.

AMBIENT LUMINAIRES

A. 2’ x 4’ PARABOLIC TROFFER, THREE-LAMP

LAMPS: (3) 32W T8, 835 COLOR

DESCRIPTION: Recessed fluorescent with white baked enamel interior reflector, parabolic louvers that are white-painted or semi-specular anodized aluminum, minimum 2-3/4” deep, with 18 cells; Three-lamp electronic instant-start ballast, 91 nominal input watts; 71% minimum fixture efficiency.

B. 2’ x 2’ PARABOLIC TROFFER, TWO-LAMP

LAMPS: (2) 31W T8 U-TUBE, 6’ Leg spacing, 835 color for intermediate retail, 830 color for higher-end shops.

DESCRIPTION: Recessed Fluorescent troffer with white baked enamel interior reflector and parabolic louvers that are painted white or semi-specular anodized aluminum; minimum 2-3/4” deep; with nice cells; Two-lamp electronic instant start ballast; 61 nominal input watts; 65% minimum fixture efficiency.

C. VALANCE: SIDE-SOCKET FLUORESCENT CHANNEL

LAMPS: (1) 32W T8, 835 color in intermediate retail, 830 color in higher-end shops.

DESCRIPTION: Standard fluorescent industrial strip with single lamp mounted on side; Nominal 8’-0” housing with two lamps in-line; Two-lamp electronic instant start ballast, 61 nominal input watts; Tandem wire and use four-lamp ballasts where possible.

D. SMALL DECORATIVE PENDANT BOWL

LAMPS: (4) 13W TT, 830 color

DESCRIPTION: 20” to 24” diameter bowl with frosted, patterned, or colored glass or acrylic; Provides image and brightness to space, and may light ceiling.

E. 2-LAMP FLUORESCENT INDUSTRIAL WITH RELECTOR. PENDANT OR SURFACE MOUNTED

LAMPS: (2) 32W T8, 841 color for basic retail, 835 color for intermediate retail.

DESCRIPTION: Pendant or surface mounted fluorescent luminaire in modules of 8’-0” (4 lamps per 8’-0”); White baked enamel finish; Minimum 90% daylight; 95% minimum fixture efficiency; Four-lamp electronic instant start ballast, 110 nominal input watts; Surface mount to low ceilings (8’-6” or less) or pendant mount at 18” above highest product shelf.

ACCENT LUMINAIRES

M1. MR-16 SPOT LIGHT

LAMPS: 50W MR-16 Narrow Spot

DESCRIPTION: Requires low voltage electronic transformer; Mount to J-box, canopy, mono-track or pendant, as required by application; Use narrowest beam spread for the most impact.

M2. HALOGEN PAR20 LAMP SPOT LIGHT

LAMPS: 50W PAR20 Spot

DESCRIPTION: Alternative to M1; No transformer required; Mount to J-box, canopy, mono-track or pendant, as required by application; Use narrowest beam spread for the most impact.

M3. HALOGEN PAR30 OR PAR38 SPOT LIGHT

LAMP OPTIONS: 50W PAR30 Spot or Q90 PAR38 Spot

DESCRIPTION: Alternative to M1 or M2; Larger size lamp and softer beam spread; Choose PAR30 or PAR38 fixture to fit lamp size; Mount to J-box, canopy, mono-track or pendant, as required by application; Use narrowest beam spread for the most impact; Reduce quantity of 90-Watt lamps.

N. RECESSED MR-16 ADJUSTABLE ANGLE ACCENT LIGHT

LAMPS: 50W MR-16 Narrow Spot

DESCRIPTION: Recessed housing with nominal 5” diameter aperture; 35-degree tilt or more; Specular or semi-specular clear cone; Integral low-voltage transformer.

Pete Miller is a leader in the lighting industry with over 30 years of industry experience. He is both a Lighting Certified Professional (LC) and a Certified Document Technologist (CDT) from the Construction Specifications Institute.

Through his career, Miller has been involved with the design of over 600 on-time store openings and is quickly adding to this total everyday. Pete Miller specializes in retail lighting, the logistics of national store rollouts, and the architectural interface for store planning, construction, and purchasing. He is a valued retail lighting resource for leading retail architects from North America, South America, and Europe.

Miller is also in regular consultation with store planners, construction managers, and procurement professionals for fortune 500 retailers.

Look for Part II of ‘MI Store Lighting Know-How’ in the May 2014 issue of MMR.