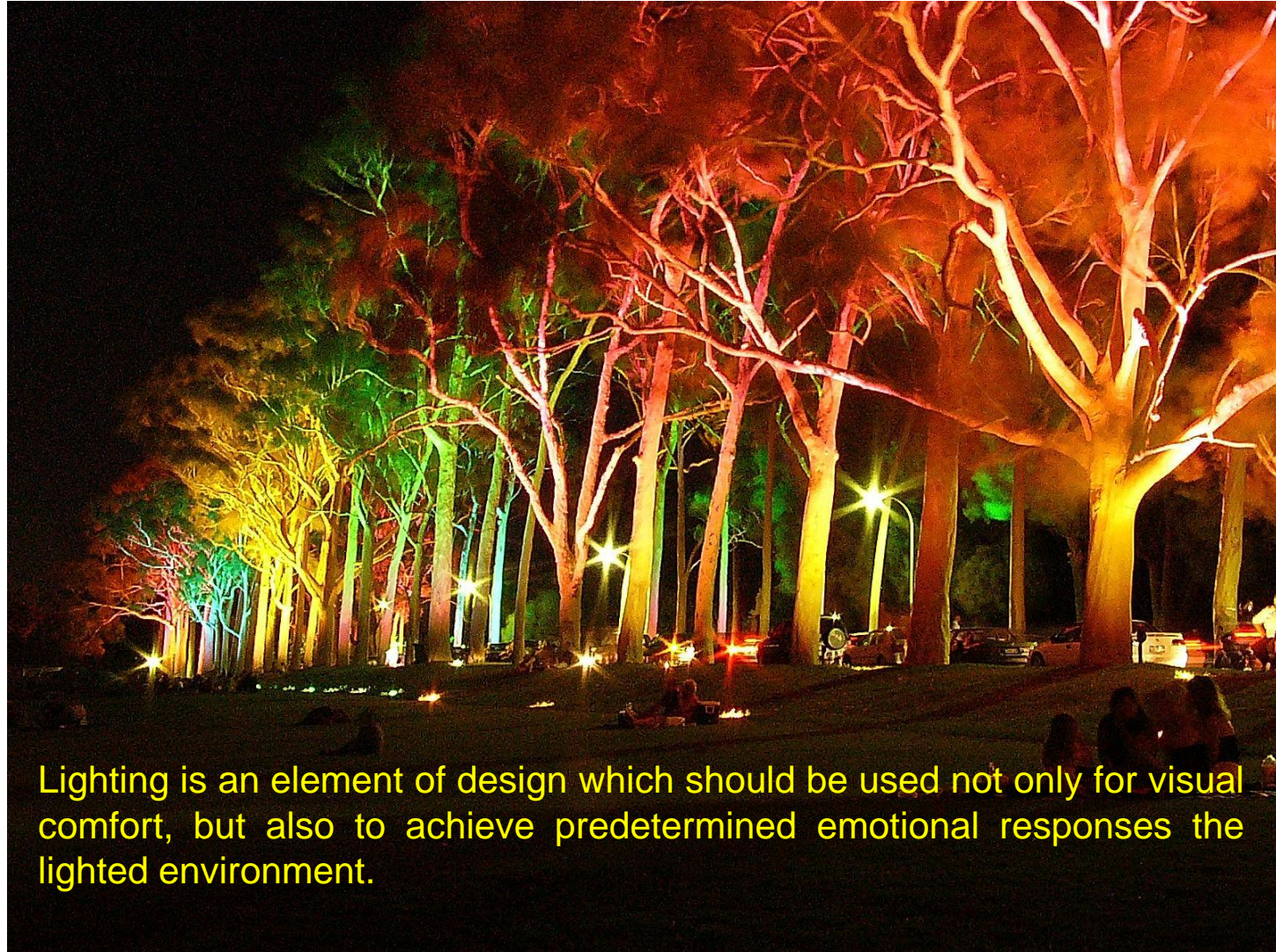


Light is everywhere in our world. We need it to see: it carries information from the world to our eyes and brains.



Lighting is an element of design which should be used not only for visual comfort, but also to achieve predetermined emotional responses the lighted environment.

Light can glow, create shadows, model forms, reflect from polished surfaces, pass through translucent and transparent forms, distort shapes, be mystical and romantic – **depending upon how light is angled, diffused, and positioned.**

DIRECTION	VISIBLE TEMPERATURE	COLOR	DURATION
North	Cool	Bluish	All Day
East	Warm	Yellow	Before noon
West	Warm	Orange-red	After noon
South	Warm	Orange-yellow	All Day

Light brings life to the built environment..

Light as an element of design is critical for the appreciation of color and objects that are contained within an interior environment. The color of an object is a result of three factors: :

- 1) The way that the object absorbs and reflects light,
- 2) The kind of light that makes the object visible,
- 3) The physical condition of the viewer's eyes. Without appropriate lighting, adequate visual perception may be altered. Light brings life to the physical environment. Energy is embodied in light. Light not only allows individuals to see but also affects behavior and attitudes. Depression in an individual may abound on a dull and dreary day where happiness and hope invigorates one on a sun filled afternoon. Light also has the ability to create different atmospheres from quiet and calming to active and stimulating.

How the lighting affects the behavior of people using the space is also of considerable concern for the designers of the space and their clients. Lighting designers think about how behavior is affected by lighting. Here are a few interesting examples in terms of how lighting shapes behavior:

- Visibility of vertical and horizontal junctions aids orientation
- People follow the brightest path
- Brightness can focus attention
- Facing wall luminance is a preference
- Lighting can affect body position

All rooms need a variety of lighting: ambient or background lighting, task lighting for close-up work or accent lighting to highlight special features. You can always update a room and improve the atmosphere with good lighting; equally, nothing makes a room feel dated and unwelcoming like bad lighting.

There are three main types of lighting

- Ambient
- Task
- Accent

Think about a lighting scheme before you start to decorate a room. Where is the furniture to go? You can install floor sockets underneath tables or free-standing furniture, avoiding ugly (and dangerous) trailing cords. How will you be using the room: is it primarily for use during the day or at night? For study or entertaining?

Low-level lighting: It is used for relaxation or for watching TV.

Moderate-level lighting: It is used for short time such as for eating, doing exercise etc.

High-level lighting: It is used for complicated tasks.

Keep Reading Lamps at Height of Shoulder

Reading lamps should be at the height of shoulder. If you write with your right hand, place the lamp at left side. Then it gives you a shadow free light while working. Do opposite if you are left handed. Use ion-max lamp for reading as it produces natural lighting and reduces stress from eyes.

Use Strip Lighting/Lighting Fixtures in Bathroom

Always place light in right direction so that it does not reflect shadow. You can use strip lighting or lighting fixtures around mirrors for proper illumination. For general use, you can install one or two central lights.

Use Task Lighting to Enlighten Particular Place in Kitchen

Kitchen lighting is very crucial to make cooking experience a pleasure. Using ceiling lights in kitchen has become old fashioned. Now a day various arrangements like lighting on counter tops, sinks, cabinets are available. And even you can use task lighting to enlighten a particular place in your kitchen.

Apply Accent Lighting to Focus Artwork in Living Room

Different types of lighting such as task lighting, general lighting and accent lighting are used in living room. Task lighting is used for reading whereas general lighting is used for watching television. Accent lighting is used to focus on any artwork or decorative pieces.

Use Candles, Colorful Silk Lanterns in Dining Room

Use chandeliers, candles, colorful silk lanterns and ambient lighting in dining room as they look good when they are enlightened. These lightings make the room aesthetically attractive and give tranquil effects in dining room.

Place Night Lamps on Both Sides of Bed in Bed Room

Bedroom lighting should be planned in such a way as it creates relaxing and romantic environment. Place night lamps on both sides of bed as it gives aesthetic look to the room. Chandeliers create warm feeling in the room. Up lights and hanging lights look beautiful in bedroom.

The Three Elements of Light



General or Ambient lighting

provides an area with overall illumination. Also known as ambient lighting, general lighting radiates a comfortable level of brightness, enabling one to see and walk about safely.



Task Lighting or Lighting at the Work plane

helps you perform specific tasks such as reading, sewing, cooking, homework, hobbies, games, or balancing your checkbook



Light or Highlighting

adds drama to a room by creating visual interest. As part of a decorating scheme, it is used to spotlight paintings, houseplants, sculpture, and other prized possessions, or to highlight the texture of a wall, drapery or outdoor landscaping.

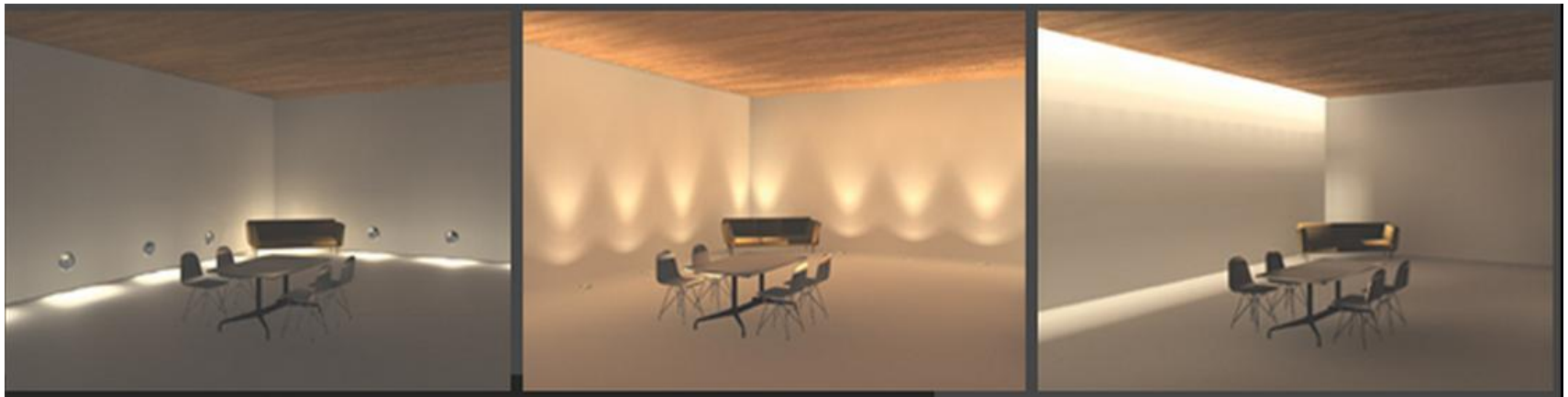




Figure 2.1 Higher light levels (left) translate an exposed, public feeling. Low light levels (right) translate calm and privacy



Figure 2.2 Warm Light (left) and cool light (right) should be chosen for the way they reveal the

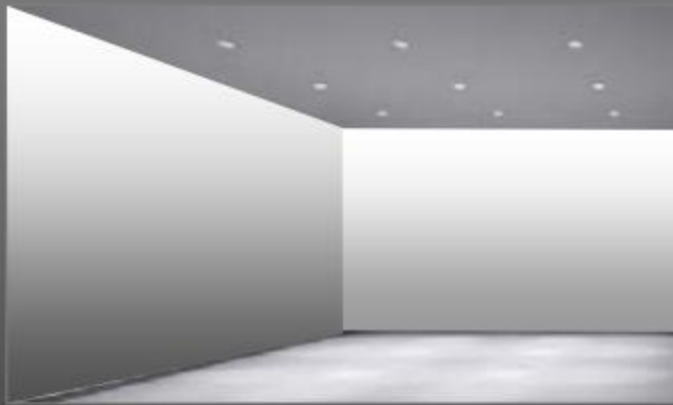


Here are some examples when lighting a space to ensure that the psychological and behavioral issues of the users are met:

- A. Lighting where **vertical** meets **horizontal** is important in terms of safe navigation through a space. Note in the room on the left (the white hallway) the junction of vertical and horizontal are the same in value and hue. This causes a visual problem, especially for the aging eye. The room on the right has the same problem; however, the loss of the visibility of vertical and horizontal is due to the specular (reflective) surfaces.
- B. People follow the **brightest** path. People like to face walls that are illuminated, people do not like to sit in brightness but like to see brightness
- C. Brightness can focus attention. When creating a focal point, increasing the brightness contrast between the object and the surround increases the impact
- E. Lighting can cause people to alter body positions. Any one that has worked at a computer screen knows that reflected brightness on the screen will cause you to alter your sitting position or sometimes the position of the screen. The same is true when you attempt to read materials that have a specular surface.

1 **Downlighting** is something people love or hate. I think it can be incredibly helpful and effective in some respects, but, like everything, should be used in its proper place. During the day, rooms with good-sized windows will receive a fair amount of natural light. Yet in the evening, downlighters can help to create a soft overall glow that adds ambience. This is extra-useful in a reception or dining space.

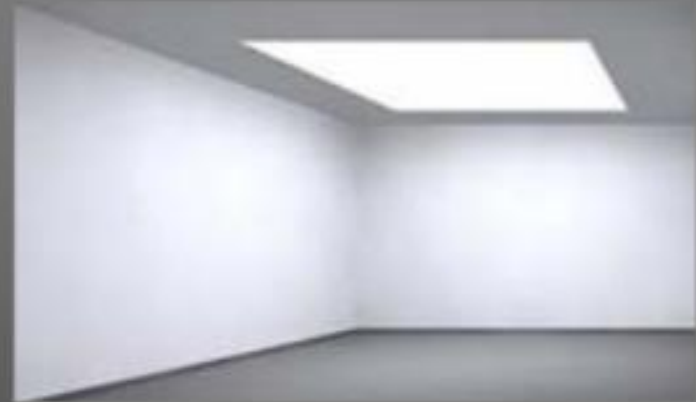
Defining Spatial Borders - *Horizontal*



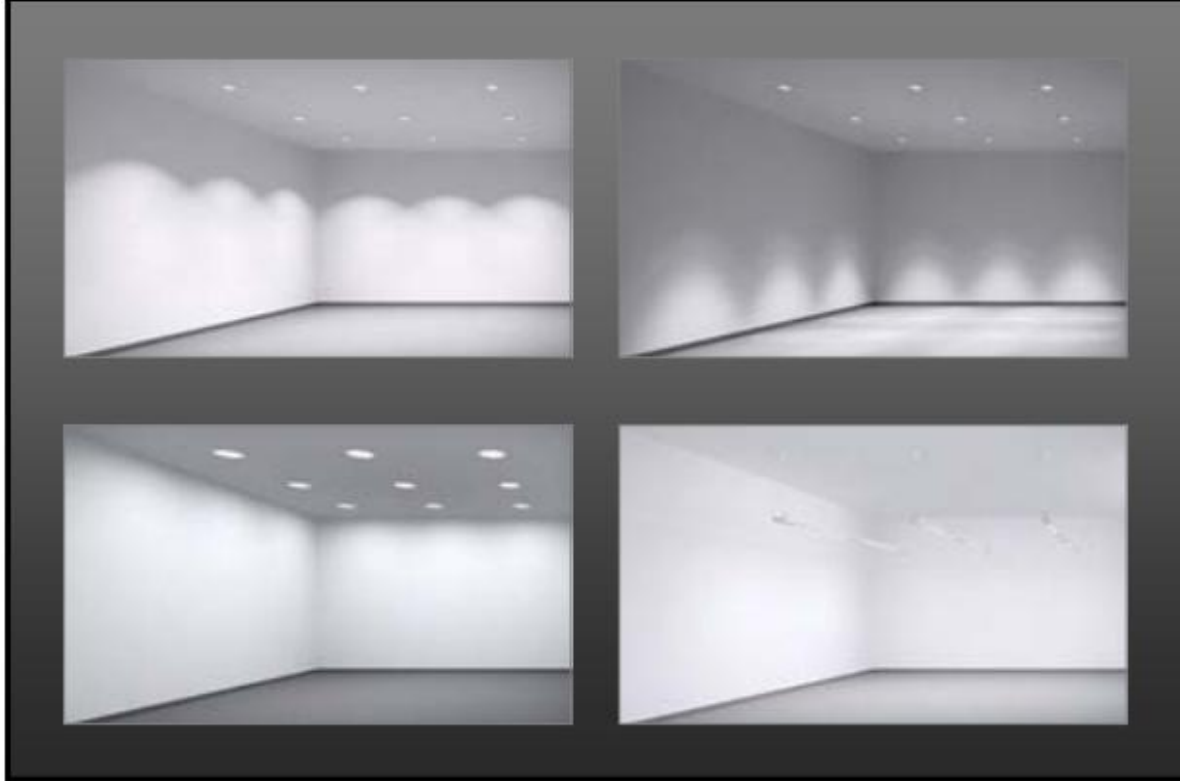
floor lit with downlight fixtures

- Floor illumination emphasizes objects and pedestrian surfaces.

Types of Lighting

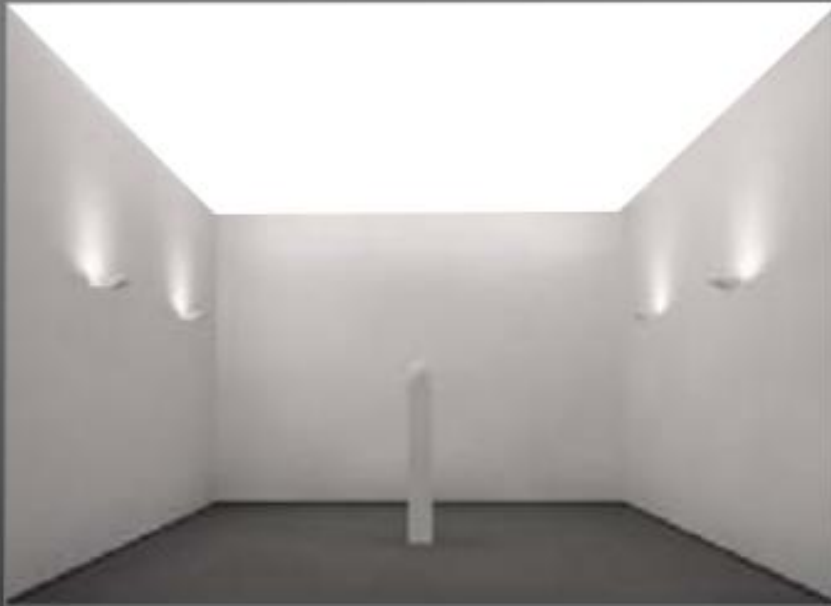


Types of Lighting



Spotlights make a feature out of key possessions and architectural detail. They can also be interesting when used in the corners of rooms, where you would not normally have light. You can then install two different switches, so that any ceiling lights would be on a different circuit to spotlights. In my bedroom, I have installed two circuits. One is for spotlights to highlight specific areas and one for periphery lights, which is good for adjusting levels of light for different moods. A blanket of spotlights on a ceiling isn't glamorous and the excessive light they provide can be exhausting, but a dimmer switch can instantly change the lighting from dramatic to cosy.

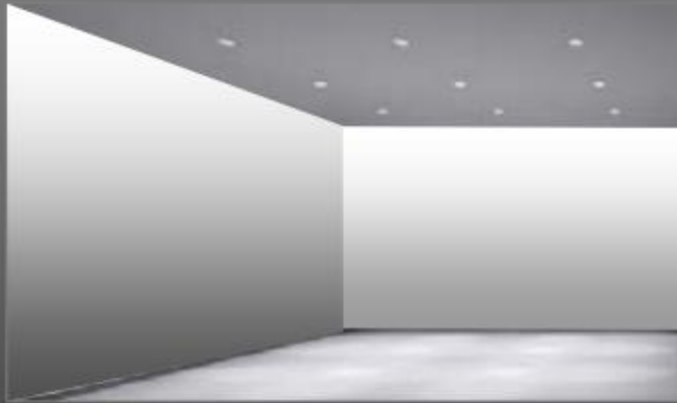
Defining Spatial Borders - *Horizontal*



ceiling uniformly lit with uplight wall fixtures

- Indirect lighting of a ceiling creates diffuse light in the room with the lighting effect being influenced by the reflectance and color of its surface.

Defining Spatial Borders - *Horizontal*



floor lit with downlight fixtures

- Floor illumination emphasizes objects and pedestrian surfaces.

Forming Functional Zones



Forming Functional Zones - *Exterior*



Defining Spatial Borders – *Horizontal*



Defining Spatial Borders – *Horizontal*



Defining Spatial Borders - *Vertical*



- Vertical spatial borders are emphasized by illuminating wall surfaces.
- Uniform light distribution emphasizes the wall as a whole.
- Bright walls create a high level of diffuse light in the room.
- Vertical illumination is used to shape the visual environment.
- Room surfaces can be differentiated using different levels of illuminance to indicate their importance.
- Uniform illumination of the surfaces emphasizes them as an architectural feature.

Defining Spatial Borders - *Vertical*



- Grazing light gives the wall structure by adding patterns of light.
- A decreasing level of brightness across a wall is not as effective as uniform wall washing at defining room surfaces.
- Lighting effects using grazing light emphasize the surface textures and become the dominant feature.

Defining Spatial Borders - *Vertical*



Defining Spatial Borders - *Vertical*



Defining Spatial Borders - *Vertical*



Emphasizing Architectural Features



walls lit with grazing fixtures

- The illumination of architectural details draws attention away from the room as a whole towards individual components.
- Columns appear as silhouettes in front of an illuminated wall.

Emphasizing Architectural Features



columns lit with grazing fixtures

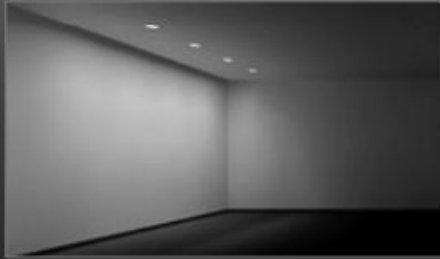
- Rooms can be given a visual structure by illuminating the architectural features.
- Narrow-beam downlights emphasizing the form of the columns.

Emphasizing Architectural Features

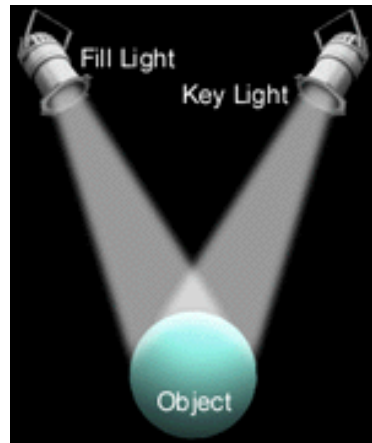


- Grazing light accentuates individual elements or areas and brings out their form and surface texture.
- Grazing light can cause highly three-dimensional features to cast strong shadows.
- By using different levels of illuminance, different parts of a room can be placed in a visual hierarchy.

Visual Clarity



You want to achieve different levels of light, which is where table lamps come in and picture/wall lights (depending on how much art is in your home). You can wire these to become either a picture or a wall light. Indirect lighting is an interesting way of adding atmosphere to a room. This provides hidden light that casts upwards and downwards, lighting the display without producing any heat



Visual Clarity



Layout and Pattern... for clarity



Layout and Pattern... for architectural relationships



CKK

Layout and Pattern... for function



Psychology of Light

Because the sense of sight is contrast sensitive, the brightness contrast of a space determines its emotional impact

Emotional Impact: individual impressions of a space are a function of brightness contrast

- the relationship of surfaces that are lighted to those left in the dark*
- the focus or foreground to the surround or background*

General illumination in a room will permit vision. The emotional impact of an interior through the manipulation of brightness contrast is a real challenge for the creative lighting designer.

Degrees of Stimulation

All activities benefit from some form of visual stimulation

- High levels encourage participation and increase enjoyment
- Low levels help a person feel contented, comfortable, focused, and relaxed

Although individuals react differently to the same environment, there is a high degree of similarity in people's reactions to light.

Degrees of Brightness Contrast

The degree of brightness contrast evokes emotions in the same way as background music. It affects.....

- the performance of task,
- influences the behavior of people at work or play, and
- Impact the amount of containment and pleasure we experience.

The degree of brightness contrast establishes the emotional setting, which either enforces or undermines the intended activity.

Steps in the design process:

1. Define the activity that will occur in the space
2. Determine the degree of simulation that will enforce the activity
3. Establish the degree of brightness contrast that will yield the necessary level of simulation

Brightness contrast is established by developing patterns of light and shade – select which surfaces to receive light or leave other is darkness

Degrees of Stimulation

Environments that are complex, crowded, asymmetrical, novel, unfamiliar, surprising, random are **High-load**.

Environments that are simple, uncrowded, symmetrical, conventional, familiar, unsurprising, or organized are **Low-load**.



Degrees of Stimulation

Environmentalists use the terms **High-load** to **Low-load** to describe the degrees of stimulation of arousal.

The more stimuli that must be processed by a person, the higher the load.



Emotional Impact



You want to achieve different levels of light, which is where table lamps come in and picture/wall lights (depending on how much art is in your home). You can wire these to become either a picture or a wall light. Indirect lighting is an interesting way of adding atmosphere to a room – I have lit the underneath of my footed bath, which gives a nice glow. Equally, I like to light the front of bookcases. You can light up a display of objects in a bookcase by carving a track out of each shelf and inserting a run of LED lights. This provides hidden light that casts upwards and downwards, lighting the display without producing any heat.

Emotional Impact



Degrees of Brightness Contrast

Low Contrast Environment – *everything is of equal emphasis*



Degrees of Brightness Contrast

Mid Contrast Environment – combinations of emphasis



High Contrast Environment – *high bright and dark areas*



Very High Contrast Environment – extreme *high bright* and *dark* areas

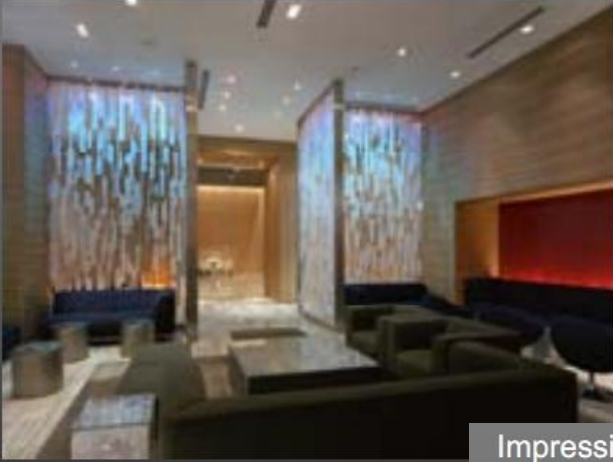


Subjective Impressions

- 1. Direct lighting on table** strong contrast, too harsh for lighting faces
Pleasantness: *Neutral*
Clarity: *Hazy, quiet impression*
Spaciousness: *Strong impression of confinement*
- 2. Lighting on all walls**, low intensity, suitable for display
Pleasantness: *Neutral, tending towards a more pleasant impression*
Clarity: *Neutral*
Spaciousness: *Promotes impression of spaciousness, increased height*
- 3. Lighting of cove above**, low intensity, pleasant for near and distant faces
Pleasantness: *Strong negative*
Clarity: *Strong promoting hazy, quiet impression*
Spaciousness: *Neutral*
- 4. Direct lighting on table, Lighting of small wall**
Pleasantness: *Relatively Strong positive*
Clarity: *Neutral*
Spaciousness: *Neutral with strength in impression of length*
- 5. Direct lighting on table, Lighting of cove above** soft subdued effect, pleasant for near faces
Pleasantness: *Relatively Strong negative*
Clarity: *Strong*
Spaciousness: *Somewhat*
- 6. Lighting of cove above, Lighting of walls flat** shadow free
Pleasantness: *Strong*
Clarity: *Strong*
Spaciousness: *Strong*



Impression of Perceptual Clarity – *the room appears public or private*



Impression of Pleasantness – *the room appears friendly of sociable*



Subjective Impressions

Impression of Spaciousness – *the room appears larger or smaller*



“the campfire of all time, the glowing embers around which stories are told”
“the light burning at the window or welcoming gleam of the open door”
“directive, creates a brighter center: tells us what to look at, organizes, marks the important element”



Home entrance lighting. The entry is the first room encountered when arriving, and the last when departing. The correct lighting makes it as beautiful as the rest of your home. Let your entry set the mood for what's to be found deeper within your home. Use lighting to accent your favorite pieces of art, visually expand the entry space, lead the eye, and make your guests feel at home.



The living room is a gathering place for family and friends that has to accommodate groups of people with warmth, comfort and style. Your lighting can help. In the living room along with lighting fixtures for general lighting also use lighting fixtures that provide a functional and localized for a particular activity lighting (table lamps, floor lamps). Usually functional lighting fixtures are located where they are needed - near sofa tables, armchairs etc.



The living room where we spend most of the time? In this case, the lighting must be flexible and varied. Useful is a large central lamp. In addition to reading place where the lighting will be a snapshot, such as a lamp stand or wall. It is unhealthy to watch TV in the dark, so take care that the wall was lit with the receiver at least a small point of light.



The bedroom is not just for sleeping, the first room you see in the morning upon waking and is the last room you see at night before going to sleep. Given that its main function is to be a room of rest, tranquility and comfort, this is one room where getting the lighting right is of paramount importance.



This private rooms need more flexible lighting that can change from functional to romantic to suit the need and mood of the moment. For bedroom choose lighting that works, both technically and aesthetically, with decorative style of your bedroom. Bedrooms that are designed in the traditional styles need gentle lighting to preserve their mood. In the bedroom use lighting fixtures that produce a reflective soft lighting. Near the bed on the bed side table is a great place for a lamp with low wattage light bulb. Lighting fixtures with the "color corrected" lamps to obtain the best color distribution are needed near the mirror above dressing table in the bedroom.



Dining rooms focus on the table, which can be lit by a traditional chandelier.



Lighting is probably the most important aspect of a dining room. It should be subtle, yet sparkling. Bright overhead lights, other than chandeliers, are inappropriate and even chandeliers should be fitted with dimmer switches, so you can experiment with brightness levels for different occasions. If it is too dark, you won't be able to see what you are eating, but if it is too light the atmosphere will be spoilt and people's complexions will look drained. Wall lights are a good option and setting wall sconces into a mirror creates a dazzling reflective effect, although they would need to be installed by an expert.



For the kitchen is recommended a combination of general lighting and task lighting. It is very important that working zones (places where food are prepared, or for dish washing) have separate lighting fixtures that provide plenty of light that highlights the work area. Moreover in the kitchens commonly installed small lighting fixtures inside the cabinets, shelves and other furniture to provide extra lighting for functional purposes as well as esthetics.



Kitchens are household hubs and need flexible *indoor lighting fixtures*: strong, shadow less light over each work area



Bathroom require task lighting that's gently flattering, yet strong enough for grooming.





Step lighting The idea of step lighting is to create interest and a desire to 'go and see' what is further down the trail. A good reason for this method of lighting is to make the way safe.

Downlighting Downlighting is useful to pick out a particular plant or feature. This is also useful for creating interest with shadows etc. This can also be employed as a 'security' effect, to light doorways/entrances or for general luminance where entertainment may take place

Shadowing This is achieved by placing the light in front of the object you wish to illuminate. Depending on how high the light fitting is secured will depend on how dramatic the shadow will appear.



ENTRY LIGHTING: Walkway lights add ambiance and safety leading to the front of your home. Solar lights are inexpensive and quick, but tend to cast a bluish light. Consider having exterior lighting hardwired to your home's electrical system. Permanent walkway lighting tends to cast a softer amber glow, and looks more natural amongst landscaping.



LANDSCAPE & BUILDING LIGHTING:Down lighting or wall washer lights give homes a dramatic effect that transforms the ambiance of your home. Carriage lights and wall sconces can also make your garage and front entry look inviting and warm. Similarly, landscape lighting can illuminate bushes, trees, ponds, and exterior amenities that normally would get lost in the dark.



Let there be light!!!