Ceiling-mounted luminaires include diffusers and track and adjustable heads that attach directly to the ceiling. They are easy to install compared to recessed luminaires because they cover an outlet box in the ceiling, and do not require any cutting into the ceiling surface. Manufacturers offer many styles of ceiling-mounted luminaires that are available with many lamp types, including incandescent, halogen incandescent, compact fluorescent, and linear fluorescent. Nearly all lighting techniques except indirect lighting are possible with ceiling-mounted luminaires. Purchase ceiling mounted luminaires at lighting stores, electrical suppliers, and building supply stores.

Energy and Lamps
For energy savings select ceiling-mounted luminaires that use fluorescent lamps.

Installation
The ceiling may appear cluttered if different types of ceiling-mounted luminaires are used, or if they are not arranged attractively. Use ceiling-mounted luminaires when plenum space above the ceiling is limited or structural elements, pipes, or ducts prohibit the installation of recessed luminaires.

Controls
To achieve energy savings, increase lamp life, and reduce direct glare, use dimmers for luminaires that contain incandescent lamps and for fluorescent lighting systems with dimming ballasts.

Cautions
The potential for direct and reflected glare is high with many ceiling-mounted luminaires, so place luminaires carefully with regard to the occupants. For instance, one luminaire mounted in the center of a small or medium size living room would become a source of glare with typical arrangements of furniture. Large ceiling-mounted luminaires may extend too far below the ceiling in rooms with low ceiling heights. Ensure that the bottom of the luminaire will be at least 6 feet, 8 inches above the floor.
Ceiling-mounted diffusers provide ambient light. They are meant to distribute light uniformly throughout the room. Diffusers are made of clear or translucent glass or plastics, and are available in many sizes and shapes.

For high luminaire efficiency, long lamp life, and low lamp replacement costs, consider diffuser luminaires containing linear or circline fluorescent lamps for kitchens, playrooms, home offices, and utility rooms.

Globe-shaped diffusers typically contain incandescent lamps, although some may accommodate compact fluorescent lamps. For "sparkle" use clear glass incandescent lamps in clear glass and crystalline luminaires. If replacing incandescent lamps in a globe diffuser, consider using screwbase globe compact fluorescent lamps: remove the original globe diffuser from the luminaire, and make sure that the replacement lamp is large enough in diameter to conceal any remaining mounting rings, clips, or screws.

Diffusers come in many other shapes and are designed for use with incandescent and compact, U-shaped, circline, and linear fluorescent lamps. Compact fluorescent lamps can be used in luminaires that have translucent or prismatic diffusers, but check to make sure that the light is evenly distributed and does not create "hot spots" on the diffuser.
**Installation**

Direct glare can be a problem, especially if a luminaire with a high light output is located in the center of the room. Use other luminaires in the room to provide task lighting to supplement low-level ambient lighting from the ceiling-mounted luminaire.

**Cautions**

Check the luminaire manufacturer’s instructions for maximum lamp wattage, particularly for enclosed globes or diffusers. If you are considering using screwbase compact fluorescent lamps for use in an enclosed luminaire that was designed for incandescent lamps, check the lamp manufacturer’s instructions.

**Techniques:** Ambient

**Lamps:** Incandescent, Halogen A, Reflector, Fluorescent

**Designs:** Small Kitchen, Medium Kitchen 2, Large Kitchen, Small Dinette, Medium Dinette, Small Living Room 2, Medium Living Room 1, Half Bath, Medium Baths, Children’s Bedroom, Large Bedroom, Home Office, Closed Stair, Multi-Family Lobby, Multi-Family Corridor, Multi-Family Fire Stair 1

**Other luminaires:** Ceiling-Mounted Track or Adjustable Heads, Suspended, Recessed, Architectural, Wall-Mounted
Track lighting refers to a lighting system with several components: a track, an electrical feed box, and one or more heads, each of which contains a lamp. The electrically fed linear track, strip, or rail of aluminum is usually mounted directly to the ceiling. It may also be recessed into the ceiling if it is specially designed for that purpose. Track heads can direct light in precise, controlled patterns. Some systems can be suspended from the ceiling or mounted on a wall for indirect lighting. Monopoint mounts allow a single track head to be mounted on an outlet box instead of a track. Track is available in lengths of 2, 4, or 8 feet, and with connectors that allow for a variety of configurations. Track heads are available in many shapes, styles, colors, and finishes; they house an array of lamp types from common and low-voltage incandescent to compact fluorescent.

Track lighting is most useful when flexibility is important because the heads can be repositioned on the track and aimed easily. Various types of heads can be installed to create different lighting designs. Purchase track lighting at lighting stores, electrical suppliers, and building supply stores.

Track heads and lamps vary greatly, so use the minimum size and lamp wattage appropriate for lighting a surface or object. For higher luminaire efficiency, replace A-lamps with reflector lamps unless the track head
includes a reflector. For wall washing, several manufacturers make track heads that use energy-efficient long twin-tube fluorescent lamps. Other track heads use compact fluorescent lamps, but these are most effective when used for wall washing because most cannot achieve a tightly focused beam.

**Installation**

To achieve the desired light distribution pattern, follow the manufacturer’s directions carefully to choose the appropriate number and type of track heads, to locate tracks and track heads, and to avoid direct and reflected glare. Low-voltage halogen lamps that are used in tracks require a transformer. The transformer can be used for individual heads and be located on the track or on the head itself. Alternatively, the transformer can be used for the entire length of track and located in the ceiling or wall cavity.

**Controls**

For energy savings, install dimming controls if incandescent lamps are used. Low-voltage halogen lamps require a special dimmer.

**Cautions**

Track heads from different manufacturers may not be compatible with all tracks, and combining different product lines may violate Underwriters Laboratories listings.

**For more information refer to**

- **Techniques:** Indirect, Wall Washing, Accent, Task, Special Purposes
- **Lamps:** Halogen A, Reflector, Low-Voltage Halogen, Long Twin-Tube Fluorescent, Compact Fluorescent
- **Designs:** Large Kitchen, Large Living Room 3
- **Other luminaires:** Wall Wash, Accent, Architectural