

NEW BUILDS AND REFURBISHMENT

TAKE ENERGY AND WATER EFFICIENCY ISSUES INTO CONSIDERATION IN THE DESIGN PHASE OF NEW CONSTRUCTION, EXPANSION AND REFURBISHING PROJECTS

Incorporating efficiency in the original design of a hotel can reduce its energy and water needs by up to 50% compared to a standard-efficiency hotel.

Efficiency measures that are developed at this point in time are less expensive and more effective than retrofits, and can even allow the hotel to reduce the size, capacity and initial cost of some of its engineering systems.

Some of the key efficiency issues that should be taken into account in the design phase of projects are listed below.

- Make sure that all plumbing fixtures installed on property are water efficient.
These include:
 - Effective low-flow showerheads that consume no more than 10 L/min;
 - Taps that consume no more than 6 L/min in guest, staff and public bathrooms; Taps that consume no more than 10 L/min in most kitchen, bar and laundry sinks;
 - Water-saving toilets that use 6 L/flush or less; and
 - Urinals that use 4 L/flush or less.
- Keep in mind that a hotel often discards a lot of water that is clean enough to be reused for irrigation, laundry or other applications. Examples of these “clean” flows include rainwater from the roofs; defrost water from ice makers; cooling water from water-cooled refrigeration equipment (e.g., ice makers); condensed water from air conditioning systems; and backwash water from sand filters.
- Always take energy efficiency into account when purchasing new equipment, such as water heaters, air conditioning units, refrigeration equipment, motors and kitchen appliances.
- Select light fixtures that can be equipped with energy efficient lamps, and are designed to transmit most of the light produced by the lamps.
- Moderate the use of decorative lighting.
- Design buildings that can maximise the use of natural light indoors.
- Design lobbies, lounges, restaurants, bars and other public areas that can rely on ceiling fans and natural ventilation rather than air conditioning.
- Use an energy management system to reduce the amount of energy consumed by lights and heating/cooling systems in unoccupied guestrooms.
- Reduce air conditioning costs by insulating exterior walls, insulating and venting attics, and installing a radiant barrier in attics.
- Reduce heat gains by shading windows and glass doors that are exposed to direct sunlight. This can be achieved with trees and landscaping, awnings or shades, or with special window-films that reduce light transmittance through the glass panes.
- Minimise air infiltration in air-conditioned areas by implementing the following measures.
 - Make sure all exterior doors and operable windows are weather-stripped (draught proofed).
 - Make sure exterior doors have a door sweep.
 - Avoid louvered or jalousie windows in air-conditioned areas. These windows are extremely draughty and substantially increase air conditioning costs.

Make sure all cracks and gaps around door frames, window frames and other features are properly caulked.

- Provide shading for the condensers of air conditioning or refrigeration units that are exposed to direct sunlight.
- Insulate properly all refrigerant lines.
- Evaluate the cost-effectiveness of using solar water heaters.
- Evaluate the cost-effectiveness of using the waste heat generated by chillers or package air conditioning systems to heat the hotel's hot water supply.
- Insulate properly all water heaters, hot water storage tanks and hot water lines.