

Energy Efficient Technologies

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Energy and the Environment

- Energy production causes particulate emission, acid rain and global warming
- Energy efficient technologies help the environment & are cost effective
- Other green initiatives may not be cost effective but have intangible benefits and improve corporate image
- Energy efficiency of a country –economic, societal and environmental considerations

Energy Efficient Technologies

- Lighting
- Air-conditioning
- Electrical
- Lifts and escalators

Lighting

- T8 with electronic ballast
- High efficiency T5
- High output T5
- Induction lamp
- Self luminous exit sign
- Compact fluorescent lamp
- Dimmable electronic ballast
- Demand control of lighting

T8 & T5 (1200 mm)

- T5 28W (HE) -2900 lm, 104/91 lm/W (35C ambient)
- T8 32W (Electronic) -2900 lm, 94/83 lm/W
- T8 36 W (Magnetic) -3000 lm, 86/65 lm/W

T5 HE & T5 HO

- Lumen output: 2900 lm Vs 5000 lm
- Lamp power: 28W Vs 54W
- Efficacy: 104 lm/W Vs 93lm/W
- Maintenance at 10000hr: both 92%
- Rated Life: both 20000 hr

Advantage of T5

- More energy efficient
- Fits exactly into ceiling grid
- Better lumen maintenance and longer lamp life
- T5 fitting is only 50 mm deep and can suit congested ceiling space
- More environmental friendly due to less mercury, material in production and packaging (1xT8=2.5T5)

Induction Lamp

- Florescent lamp without electrode
- Energy transmission by magnetism
- Mercury as secondary coil
- 2.65 MHz (40-100 kHz for T5)
- Rated Life: 60000 hr (up to 10000 hr)
- 70 lm/W (80 for external coil)
- Case study in a squash court:
 - 150W induction Vs 250W metal halide
 - 24% energy saving, 5 years payback
 - 9% brighter

Self luminous exit sign

- Radioactive tritium gas in glass tube
- Beta ray on fluorescent coating
- Rated life: 15 years
- Payback less than 2 years
- Approved for use by FSD

Air-conditioning

- Variable speed drive
- High efficiency motor
- Heat pump
- Water-cooled condenser
- Automatic condenser tube cleaning device
- District cooling
- Demand control of air-conditioning
- CCMS

Electrical

- High efficiency transformer
- Energy optimizer
- Energy efficient cabling system

Lifts and Escalators

- High efficiency motor
- Intelligent lift grouping and control system
- Energy optimizer for escalator