By incorporating software-based control strategies and usage of energy efficient hardware such as regenerative drives, elevators and escalators can be made energy efficient. Energy efficient elevators also have non-energy benefits like smoother, quieter and faster rides, shorter wait-time and lower service costs.

APPLICABILITY

This regulation is applicable to all building types. Refer to Table 101.07(1) in Section One - Administration for detailed applicability levels.

IMPLEMENTATION

An energy efficient practice for escalators is to incorporate speed control systems that reduce speed or stop when no traffic is detected. Use of efficient motor drive control systems like two-speed motor or a variable-voltage variable-frequency (VVVF) converter, not only reduce the speed but also provide improved energy savings. Sensors shall be used to detect the traffic movement in escalators, which relays the information to control systems to reduce the speed.

Escalator speed shall be reduced when no activity has been detected for a maximum period of 3 minutes. During this period, escalator will run on pre-set standby speed and change to full rated speed only when the passenger movement is detected. If no activity is detected for a maximum period of 15 minutes, the escalator shall shut down fully. Escalator shall re-start automatically when sensors detect any activity (fig. 502.03(1)). On-demand system must be designed with soft start technologies that deliver only the required power to meet the current load. Soft starters are also recommended to reduce the sudden impact on the motor while starting and wear and tear of mechanical components associated with it.

Fig. 502.03(1): Sensor Range in an Escalator