- Incorporate regenerative drive systems. In conventional elevator system, energy generated during the movement is dissipated as heat using heat resistors. Traction energy loss and heat dissipation result in additional energy requirements to cool the mechanical rooms. This makes the entire system non-efficient compared to a regenerative system. Traction lift running in regenerative mode act as power generator based on the lift load while going upward with light load or downward direction with heavy load. Regenerative converters generate and transmit the power to the distribution transformer and supply back to the utility grid. Designers may include the regenerative technologies during elevator design to considerably reduce the energy demand of the vertical transportation.
- Incorporate LED lamps for floor indicators, call buttons and directional arrows. LED lamps provide better energy savings.
- Incorporate more advanced motors like Permanent Magnet Synchronous Motors (PMSM) and Linear Induction Motors (LIM) that require less maintenance than conventional motors. Smart technologies in controllers and sensors like programmable logic controllers (PLC) and microprocessor-based systems can be integrated into the operational side of the vertical transport to minimise waiting time, handling capacity and overall energy consumption.

## COMPLIANCE DOCUMENTATION

**Table 502.03(1) - Documents Required**

| Project Stages | Submittal Documents |
|---|---|
| Design Permit Application | 1. DM BLDG Al Sa'fat declaration. |
| Construction Completion Application | 1. Elevator/Escalator manufacturer technical data-sheet.<br>2. Elevator/Escalator delivery notes. |
| After Completion | 1. Performance and commissioning report. |

## REFERENCES AND ADDITIONAL INFORMATION

The Chartered Institution of Building Services Engineers. (2015). GVD/15 CIBSE Guide D: Transportation Systems in Buildings.

The Association of German Engineers (VDI). (2013). VDI-Standard: VDI 4707 Part 2 - Lift: Energy efficiency of components.