[Adapted from ISO/DIS 25745-2013 Energy performance of lifts, escalators and moving walks, Part 2: Energy calculation and classification for lifts (elevators)]

Guidelines for reducing energy consumption of lifts

Action	New equipment	Existing equipment
Handling capacity		
Select rated speed	Select the lowest rated speed commensurate with traffic design criteria.	n/a
Select appropriate rated speed	Select lift (elevator) speeds that are appropriate to the task, eg: slower speeds for goods lift (elevator)s.	n/a
Select rated load	Select smallest rated load commensurate with traffic design criteria	n/a
Select number of lifts (elevators)	Select the smallest number of lifts (elevators) commensurate with traffic design criteria	n/a
Location of lifts (elevators)	Locate lifts (elevators) together to minimise the number of journeys.	n/a
Location of lifts (elevators)	Locate lifts (elevators) in the most appropriate positions, ie: locate stairs before lifts (elevators).	n/a
Location of population served	Ensure symbiotic activities are located together, eg: sales/marketing, personnel/training.	Consider relocation of activities
Motion dynamics	Select the lowest values for acceleration/deceleration and jerk commensurate with traffic design criteria.	Re-evaluate motion dynamics.
Equipment design		
Drive type: traction/hydraulic	Traction almost always produces significant energy savings	Modernise
Drive type: hydraulic	If hydraulic drives are selected use counterbalancing or energy accumulation systems.	Install counterbalancing or modernize to energy accumulation system
Drive type: technology	Select an energy efficient drive for the lift (elevator) and consider regeneration systems, eg: VVVF	Replace older drives with energy efficient motors, eg: PMSM with regeneration
Starting current	Use soft start technologies	Modernise
Geared/gearless	Gearless recommended over geared machine	n/a
Machine position	Select top drive in preference to bottom or side drive.	n/a
Roping	Select 1:1 roping, where possible.	n/a
Door system	Select door system that does not rely on stalled motor to keep doors closed.	Modernise
Guide shoes	Use roller guide shoes for both car and counterweight in preference to slipper or swivel guide shoes.	Modernise
Guide rail fixings	Ensure guide rails are stiff and do not flex.	Modernise
Guide rail plumbness	Ensure guide rails are plumb and fixed at the shortest spacing.	Modernise

Action	New equipment	Existing equipment
Counter balancing	n/a	Consider changing the value of counterbalancing and using a high average to peak torque ratio motor and/or install a smaller drive motor.
Counter-weight balance	Optimize in accordance with building traffic pattern	Optimize in accordance with building traffic pattern
Car Lighting	LED Lighting produces considerable energy savings.	Modernise existing installations.
Car balance	Ensure the car is balanced against the guide shoes.	Ensure the car is balanced against the guide shoes.
Air resistance	For high speed lifts (elevators) ensure lift (elevator) cars present low air resistance.	Check air resistance
Rope diameter	Select as large a diameter rope as possible to reduce levelling operations due to rope stretch.	Modernise
D/d ratio	Select the lowest possible sheave and pulley diameters to reduce inertial effects.	n/a
Brake	Ensure the brake is not energised when the lift (elevator) is stationary.	Ensure the brake is not energized when the lift (elevator) is stationary.
Tank heaters/coolers	Automatic control to minimum temperature required	Automatic control to minimum temperature required
Lift (elevator) well heaters	Automatic control to minimum temperature required	Automatic control to minimum required
Automatic control to minimum required	Where up starts exceeds 40 per hour install an oil cooler.	Where the number of up starts exceeds 40 per hour install an oil cooler.
Oil cooler location	Install oil coolers outside the machine and recover waste heat.	Install oil coolers outside the machine and recover waste heat.
Operation		
Lift (elevator) traffic strategy	Review the traffic patterns and select the lift (elevator) control strategy to minimize the number of journeys.	Review the traffic patterns and select the lift (elevator) control strategy to minimise the number of journeys.
Parking feature	Consider omitting the parking feature.	Consider omitting the parking feature.
Automatic shut down	Initiate standby after lift (elevator) idle for five minutes.	Initiate standby after lift (elevator) idle for five minutes.
Car lights	Turn off when on standby	Turn off when on standby
Car fan/HVAC	Turn off when on standby	Turn off when on standby
Car fan	Ensure any car fans only operate when car temperature exceeds 25°C.	Ensure any car fans only operate when car temperature exceeds 25°C.
Machine room temperature	Provide automatic temperature control	Provide automatic temperature control
Waste heat	Recover waste heat from lift (elevator) motor rooms if the lift (elevator)s are used intensely.	Recover waste heat from lift (elevator) motor rooms if the lift (elevator)s are used intensely.
Machine room energy loss	Provide sufficient insulation	Provide sufficient insulation
Lift (elevator) well vent (where provided)	Automate opening on fire only	Automate opening on fire only

Action	New equipment	Existing equipment
Maintenance		
Routine maintenance	Ensure proper, thorough and regular maintenance is carried out.	Ensure proper, thorough and regular maintenance is carried out.
Adjustments	Ensure all critical parameters are adjusted during maintenance.	Ensure all critical parameters are adjusted during maintenance.
Drive profile	Set up the acceleration/deceleration profile to the lowest acceptable values.	Set up the acceleration/deceleration profile to the lowest acceptable values.
Levelling/creep	Set up levelling/creep distance to be as small as possible.	Set up levelling/creep distance to be as small as possible.
Motor blowers	Ensure any motor blowers are switched to operate on demand.	Ensure any motor blowers are switched to operate on demand.
Machine room heating	Ensure any machine room heating (including tank heaters) does not operate until the temperature drops below 6°C.	Ensure any machine room heating (including tank heaters) does not operate until the temperature drops below 6°C.
Machine room heating	Ensure machine room cooling/ventilation does not operate until temperature exceeds operating conditions.	Ensure machine room cooling/ventilation does not operate until temperature exceeds operating conditions.
Guide rail lubrication	Ensure guide rails are adequately lubricated where required.	Ensure guide rails are adequately lubricated where required.
Top of car light	Turn off when mechanic leaves	Turn off when mechanic leaves
Lights lift (elevator) well	Turn off when mechanic leaves	Turn off when mechanic leaves
Tie down	Ensure compensation/tie down systems are properly adjusted.	Ensure compensation/tie down systems are properly adjusted.