

# Green Facts Green Facts



*Elevator energy consumption in North American office buildings with central air conditioning systems is generally considered to account for approximately 5% of the total building electricity used. Although the amount of energy is relatively small for an individual building, the aggregate is somewhat staggering.*



*There are approximately 750,000 to 800,000 elevators and roughly 50,000 escalators in the United States. Broad range calculations of combined energy consumption in the U.S. alone equates to an estimated 3,000 GWh/per year (Giga-watt hours per year).*



*Hydraulic elevators are the least efficient form of vertical transportation and represent approximately 75% of the elevator applications in the United States. A lightly loaded low rise hydraulic elevator performing 1,000 starts per year uses approximately 1,900 kWh annually.*



*Electric traction elevators are the most efficient form of vertical transportation and represent approximately 1/4 of the elevator applications in the United States. A heavily used non-regenerative traction elevator in a mid to high rise commercial building performing 500,000 starts per year utilizes approximately 15,000 kWh annually.*



*The least efficient form of traction elevators utilizes a geared machine and requires a motor generator to convert incoming building voltage to use as a DC power source to drive the motors and electro-mechanical control relays. Gearless elevator machines require no harmful lubricants and are approximately 30% more energy efficient than geared traction elevator machines.*



*New Machine Room-less applications or MRL's provide the most energy efficient mode of operation by utilizing compact gearless machines with variable speed permanent magnet motors.*



# *Elevator Efficiency Rankings*

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1. *Machine Room-less traction elevators with permanent magnet motors.*
2. *AC gearless traction machines with permanent magnet motors.*
3. *DC gearless traction machines with micro-processor controls.*
4. *AC geared traction machines & micro-processor controls.*
5. *DC gearless traction machines with relay logic controls.*
6. *DC geared traction machines and SCR motor drive controls.*
7. *DC geared traction machines w/ motor generator & micro-processor controls.*
8. *DC geared traction machines with motor generator & relay logic controls.*
9. *Hydraulic elevators with microprocessor controls.*
10. *Hydraulic elevators with relay logic controls.*

