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EcoSystem™ Elevators

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ECOSYSTEM™ ELEVATORS

THE NEED

Two types of elevators, which are hydraulic and traction, have been widely used as vertical transportation equipment. Hydraulic elevator has lower ownership costs and can be quickly installed if compared to traction elevators. Yet the hydraulic elevator is noisy, slow with poorer ride quality, and it uses a lot of energy and has the potential for environmental damage from leaking hydraulic fluid. On the other hand, the traction type is faster and smoother but it costs more to buy and own. In addition, both types of elevators can slow building completions with their special construction requirements.

THE TECHNOLOGY

EcoSystem™ is a family of AC gearless elevators developed by Montgomery KONE. The members of the EcoSystem family are EcoSystem™ and MonoSpace™. These products are used in simplex or duplex installations for 2-10 landings, up to 80' of travel and operate at 200 fpm.



FIGURE 1 EcoSYSTEM ELEVATOR



EcoSpace has a controller closet located adjacent to the hoistway at the top elevator landing. MonoSpace is differentiated from EcoSpace by having a controller closet built into the front wall of the hoistway at the top landing.

EcoSystem uses EcoDisc™ hoisting machine, which is a compact, powerful and lightweight permanent magnet motor. EcoDisc has two independent brakes that make it safe. It consists of an AC gearless motor of axial synchronous design with an integrated traction sheave, brake flange and rotor. Unlike hydraulic elevators, EcoSystem powered by EcoDisc requires no hydraulic fluid, which can contaminate up to 250,000 gallons of groundwater with even a one-quart leak. Since EcoDisc is compact and lightweight, there is no penthouse or large machine room required.

THE BENEFITS

- EcoSystem is ecologically safe since it has no hydraulic fluid to harm the environment.
- With its AC gearless technology, EcoSystem can lower power consumption by 40 percent, compared to conventional AC-powered traction elevators.
- Since EcoSystem requires only a small machine room at the side of the elevator hoistway, it saves space, eliminates weight stress on the building, and simplifies installation.
- EcoSystem installation is simple and its cost is reduced by eliminating expensive scaffolding or craneage, allowing simultaneous construction of the elevator with the rest of the building.
- Initial building costs for an emergency generator are less due to the lower starting amperage of the machine.

STATUS

Montgomery KONE introduced EcoSystem to the market in April 1998. In March 1999, [Construction Innovation Forum](#) honored EcoSystem as one of the winners of 1999 Nova Award.

BARRIERS

The EcoSystem elevators can only be used for lifting the maximum weight of 2,500 lbs. up to about 8 stories.

POINT OF CONTACT

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REFERENCES

1. 1999 Nova Award Nominations, The Nova Award, Construction Innovation Forum, Inc., October 1998



REVIEWERS

Peer reviewed as an emerging construction technology

DISCLAIMER

Purdue University does not endorse this technology or represents that the information presented can be relied upon without further investigation.

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