



### CASE STUDY

“The Transportation Expansion (T-REX) Project is a \$1.67 billion venture that is transforming the way people in the metro Denver area travel along the southeast corridor of Interstates 25 and 225. The T-REX project is adding 19 miles of light rail and improving 17 miles of highway through southeast Denver, Aurora, Greenwood Village, Centennial and Lone Tree. The project is the result of a unique collaboration between the Colorado Department of Transportation and the Regional Transportation District.” The project uses a multimodal transportation approach to address some of Denver, Colorado’s traffic problems and is “the next generation of transportation projects.”

Reference [www.trexproject.com](http://www.trexproject.com)

T-REX includes thirteen stations with Park-N-Rides at 12 of the stations. The Park-N-Ride garages associated with the new system are between three and five stories high. These garages are serviced by KONE’s MonoSpace® MX20 Machine Room Less (MRL) elevators with glass-paneled cars in glass shafts. These are Traction-Based elevator systems versus traditional Hydraulic elevator systems. Hydraulic elevators require a separate machine room and therefore, increased square footage. Hydraulic-based systems are not environmentally friendly. In Denver’s case, the temperature issues associated with hydraulic fluid also became a reliability concern.

Traction elevators are becoming the elevator of choice in buildings greater than four stories tall. For the past twenty years, elevator contractors have offered Battery Backup Units for Hydraulic elevators. Battery Backup helps to assure that power will be applied to an elevator during a power outage and that passengers may safely exit the elevator car. For Traction elevator systems, this was not always the case.

This begs the questions, **“When there is a Power Outage in the T-Rex parking garages, how will elevator passengers get out? Who will be notified and how long will it take for the mechanics to arrive?”**

The challenge was to create an Emergency Battery Backup Unit designed for Traction elevators that enables the elevator control system to move the elevator car to the next available floor and open the elevator doors in order to prevent passengers from being trapped inside. The new Battery Backup Unit needed to be compatible with the small elevator electrical control room concept of the new MRL designs. This key application can be applied to many circumstances where building owners and managers want to prevent clients, customers and passengers from being trapped in elevators for hours at a time, assuring passenger safety and reducing the level of inconvenience. Battery Backup improves passenger safety by addressing the anxiety associated with entrapment, which may lead to passengers prying doors open, people jumping between floors, etc.

In a patented breakthrough, Reynolds & Reynolds Electronics, Inc. (R&R) designed a Traction Powervator® (TPV) Emergency Battery Backup Unit that is CSA® approved. When the main line power is lost, the Traction Powervator® automatically activates and allows a Traction passenger elevator or a Traction freight elevator to rise or lower to an available floor and open the elevator doors, thus eliminating any entrapment of passengers. These units are currently installed and running in the Park-N-Rides associated with the T-REX project in Denver. They have also been installed in other buildings and are currently contributing to improved passenger safety and convenience.