

PROJECT PROFILE

McKinley Tower
Anchorage, Alaska

Architect:
Faulkenberry Architects

Repair Contractor:
QuakeWrap

Structural Engineer:
Schneider Structural
Engineers



“Creative thinking and good use of technology eliminated tons of concrete and steel, making the project economically viable.” — Thomas Faulkenberry, Faulkenberry Architects

McKINLEY TOWER

McKinley Tower is once again an icon of downtown Anchorage following an innovative seismic retrofit led by Schneider Structural Engineers that preserved the historic profile of the city’s first high-rise. The 1950s structure was severely damaged in the 1964 “Good Friday” earthquake, the largest recorded in North American history. Standard retrofitting techniques proved exceptionally costly and included thick steel columns the full height of the structure which would substantially alter the appearance of this historic tower. Instead, Schneider Structural Engineers strengthened the 14-story building from within, using ultra-thin sheets of fiber-reinforced polymer fabric that can attain the strength of steel within 24 hours.

NEW TECHNOLOGY STABILIZES TALLEST HIGH RISE IN ANCHORAGE

- The landmark McKinley Tower sat empty for 20 years. A traditional retrofitting project was started, then abandoned because of its high cost. Schneider Structural Engineers performed a new seismic evaluation and value-engineered the project using a developing technology — fiber-reinforced polymer (FRP) fabrics. This was an innovative alternative to the original retrofit that was both costly and obtrusive.
- Schneider Structural Engineers used a 3-D model to conduct a dynamic analysis of the cast-in-place concrete structure based on available as-built drawings. This model identified the possible areas of excessive stress during a seismic event.
- Professionals at Schneider Structural Engineers seek out new technologies and state-of-the-art developments in their field. Jeff Robertson, principal of the Anchorage office, studied with the civil engineering professor who pioneered techniques using fiber-reinforced polymer products.
- FRP fabrics can be wrapped around existing columns, structural walls and beams to strengthen buildings in severe seismic hazard areas. The ultra-thin polymer is applied like wallpaper using epoxy resin as adhesive and quickly attains the strength of steel.
- This retrofit solution substantially cut the cost of the project by eliminating the need for tons of concrete and imported steel. In addition, FRP can be installed quickly and easily. Crews of eight to ten locally trained workers installed 55,000 square feet of FRP in just 11 weeks. This helped meet the client’s tight deadline.



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- By using FRP, concrete shear walls were limited to the lower levels, maximizing interior space and easing construction logistics.
- Because the Schneider Structural Engineers design preserved the historic integrity of this Anchorage landmark, the project qualified for historic preservation grant funding.
- The McKinley Tower seismic retrofit received a 2006 Award of Excellence from the International Concrete Repair Institute.

"We've worked with Schneider Structural Engineers quite a bit over the years. We like their creativity and openness to new ideas. They look beyond traditional cut-and-dried structural solutions."

— Thomas Faulkenberry, Faulkenberry Architects