

PROJECT DESCRIPTION

PROJECT:	MCI Saltair Expansion	
LOCATION:	Salt Lake City, Utah	
DESIGN TEAM:	<i>Architect:</i>	Group Mackenzie
	<i>Structural Engineer:</i>	Group Mackenzie
	<i>Geotechnical Engineer:</i>	Bingham Engineering, Inc.
CONTRACTOR:	Hoffman Construction Company	



DESCRIPTION:

- 2-story cast-in-place concrete with tilt-up wall panels, moment frame design
- Soft clays and high groundwater
- Seismic Zone 4
- Floor loading = 500 psf
- Column loads of up to 1000 kips gravity and 310 kips uplift

Previous buildings constructed immediately adjacent to the new building site had been supported on driven piles and deep replacement structural fill. The geotechnical explorations for this expansion revealed comparable subsurface conditions and the potential need for long piles or 9' of overexcavation and replacement fill. The Geopier® System was selected by the project design-build team as a more cost-effective and expedient approach to achieving foundation support.

With Rammed Aggregate Pier® (RAP) subgrade reinforcement, the allowable design bearing pressure for spread footings was 5500 psf. Pier shafts extended up to 15' below the bottoms of the spread footings.

Pier elements were used to support the building columns and walls as well as the heavily loaded ground floor battery storage slab. Piers supporting the floor slab were spaced 11'-12' on-centers.

To confirm Geopier design parameters, full-scale compression modulus (load) tests and pullout tests were performed. The test results confirmed that the design bearing pressure of 5000 psf for the footings, the design compression loading for each pier-cell of 75 kips, and the pier design uplift loading of 40 kips were conservative.

A total of 310, 30" diameter RAP elements (including 91 tension piers) were installed in only 21 working days.

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