

# 111 Sutter Street Seismic Retrofit

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San Francisco, California

**Owner**

Ellis Partners

**Completion Date**

2002

**Construction Cost**

\$15 million

**Total Area**

320,000 sf

**Number of Stories**

24



111 Sutter Street is a 24-story, 320,000-square-foot, vintage steel-framed office building built in the 1920s. The seismic evaluation used a nonlinear static pushover analysis per FEMA 273 and ATC 40 that accounted for the structural contribution of all existing building elements, including the building's concrete fireproofing and masonry cladding. This approach led to a calculated elastic strength for the building of approximately twice what would have resulted from the strength of the bare steel frame, thereby justifying a significantly reduced retrofit while still meeting all local building code requirements for seismic upgrade.

Working closely with the owner, the construction manager, and the architect, Thornton Tomasetti developed an efficient retrofit program to effectively strengthen the most critical elements in the structure and mitigate the building's undesirable torsional response while minimizing construction costs and tenant disruption. The retrofit scheme included column strengthening and strategically placed concrete shear walls.