



Structural Engineering

IMPROVING, MAINTAINING AND PRESERVING YOUR VALUABLE ASSETS.

Marx|Okubo's Structural Engineering Group knows your real estate portfolio is a substantial investment, and growing its short- and long-term value means staying on top of the property's physical condition in order to properly improve, maintain and preserve it.

 Owner's Representation

 Property Condition Assessment

 Project Management

 Constructability Reviews

 Repair | Reconstruction

 Facility Condition Assessment

 Construction Loan Monitoring

 Accessibility

 Building Enclosure

 Fire | Life Safety

 Mechanical | Electrical | Plumbing

 Resiliency

 **Structural Engineering**

 Sustainability

 ASAP® - Automated Structure Alert Program



Key structural engineering services:

> Property Consulting

- Seismic evaluation
- Seismic/wind risk assessment
- Structural condition assessment
- Seismic retrofit project review
- Earthquake resiliency studies
- USRC ratings

> Construction Services

- Structural repair/retrofit design
- Seismic retrofit scheme development
- Retrofit benefit-cost analysis
- Structural preliminary project review
- Structural value engineering review
- Constructability studies
- Peer review
- Materials testing monitoring

> Forensic Investigation

- Building failure
- Construction defects
- Foundation settlement
- Structural damage
- Material deterioration
- Moisture intrusion



We consult to limit your exposure now, giving you greater confidence in your decisions for the future.

Marx|Okubo understands buildings and where they are vulnerable. We are realistic and sensitive to our clients' economic and operational issues and how those play into the upgrade or repair equation. As Marx|Okubo is multidisciplinary and takes 360-degree approach, our experienced/credentialed Structural Engineering Group is already informed and trained to consider the bigger-picture—the industry and all disciplines involved, local economies and competition—in order to reduce your risk, maximize your investment and ensure nothing is missed. In the process, we are keenly aware and respectful of our industry's demand for accountability—to adhere to budgets and schedules with attention to detail.

Our specialized in-house group is staffed with licensed structural and civil engineers who have expertise in all aspects of analysis and design. We can evaluate a building's condition, diagnose causes of degradation or failure, conduct seismic assessments and develop strategies to renovate, repair or retrofit, as well as perform new construction services and resiliency studies.

Project Examples

Palace Hotel Garage

Client: **Kyo-Ya Management, Ltd.**

Location: **San Francisco, California**

Service: **Seismic Retrofit Design**

Following San Francisco Building and Planning Department guidelines, Marx|Okubo conducted a seismic evaluation and completed the retrofit design for this 100-year-old historic hotel's structure within a very short construction schedule, while creating considerable cost and time savings over hiring separate design companies in a conventional design-bid-build project system.



Bank Square

Client: **Withheld**

Location: **California**

Marx|Okubo led a repair design and reconstruction effort on this seven-story, above-grade parking structure, which was experiencing deterioration related to issues concerning its initial construction. Excessively-deflecting beams and exposed post-tension cabling in this operational garage's decks required careful evaluation and planning to minimize disruption to users while providing a cost-effective solution that addressed the areas of concern. Our solution allowed for a safe, integrated approach that addressed the structural elements as well as architectural and accessibility-related concerns.



One Panorama Center

Client: **Prudential Real Estate Investors**

Location: **Irving, Texas**

Service: **Parking Garage Slab Water Retention Issues**

Marx|Okubo led a repair design and reconstruction effort on this recently constructed garage that had begun showing signs of unusual and excessive slab heaving and unevenness. Our investigation efforts led to an effective solution that involved slab demolition, base material remediation and doweled reconstruction tying the new elements into the existing structure. Our efficient work provided for a quick solution that restored the usability of this critical property resource.



Our structural engineering team helps owners, investors and lenders understand the risks and opportunities inherent in each property.



Marx|Okubo is a national AEC consulting firm that works with real estate owners, investors and lenders—at every point of the property lifecycle—to **evaluate** their building projects, **solve** complex challenges and **implement** tailored solutions.

We help clients understand their projects' complexities, so they can make more informed decisions and, ultimately, mitigate their risk.

Denver • Seattle • San Francisco • Pasadena • Orange County • Dallas • Atlanta • New York

SATELLITE: Portland • San Diego • Houston • Chicago • Boston • Washington, D.C. • Miami

