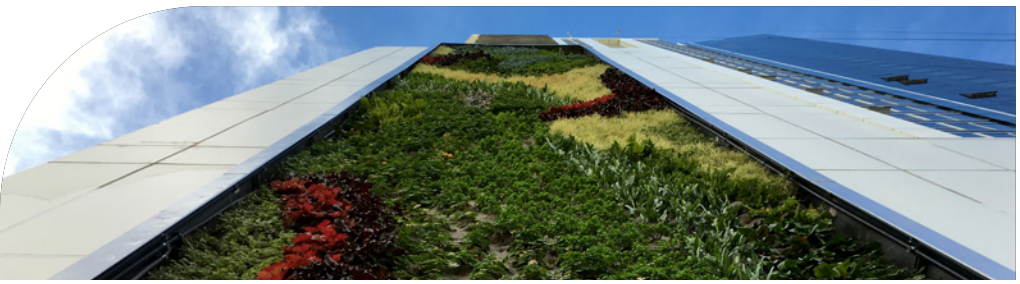


Sustainability

Smarter properties: Building increased value.

Whether you are looking to address long-term ownership and operational efficiencies, get assistance with development design, improve portfolio sustainability metrics, or boost investment ROI, Marx Okubo's sustainability solutions go beyond traditional engineering to consider all elements of sustainability and their relation to current and future code requirements, industry trends, building operations, durability, and ultimately, value.

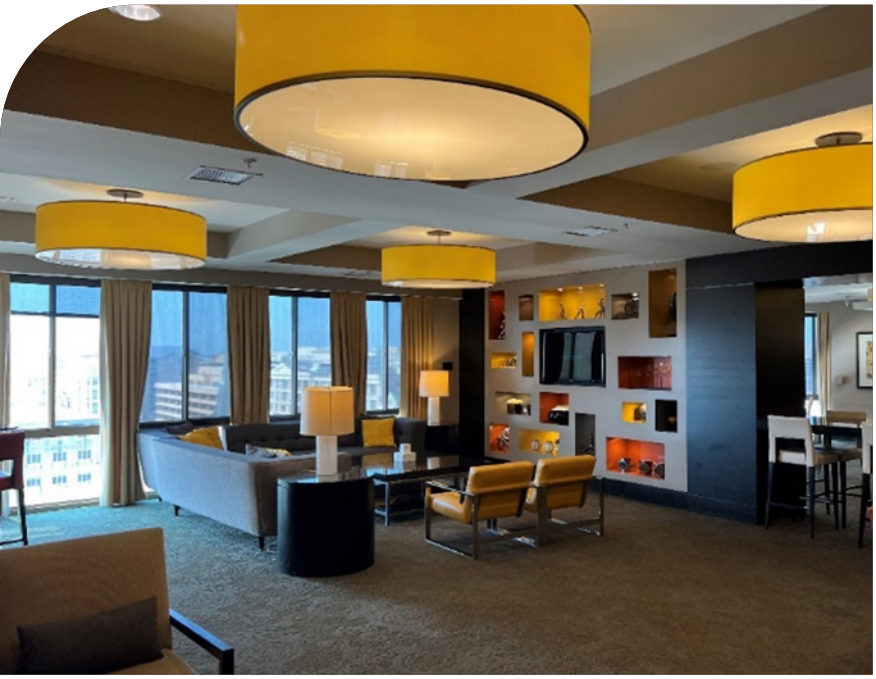
Marx Okubo understands the intricacies of buildings and how they often end up wasting energy and money. While green design is becoming a more standard practice and solution, it's critical to have guiding expertise in this process to reduce the long-term operating costs of a property as well as add greater efficiencies and value to the built environment for the next generation.

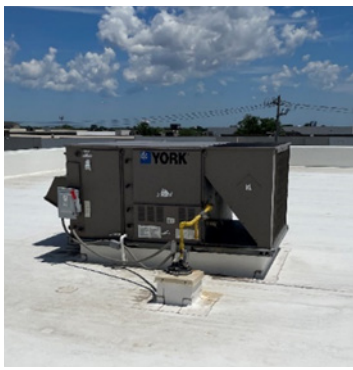
The Marx Okubo team includes architectural and engineering professionals with additional LEED, WELL, Fitwel, Certified Energy Modeling, and Certified Indoor Air Quality Professional accreditations. Providing sustainability consulting on both new construction and existing property projects, Marx Okubo's teams help owners, investors, lenders, and tenants determine the sustainability potential of a property and lifecycle cost benefits; navigate government regulations and environmental certifications; and comply with/prepare for sustainability benchmarking and reporting initiatives, such as Global Real Estate Sustainability Benchmark (GRESB) and Global Reporting Initiative (GRI).

KEY SUSTAINABILITY SERVICES:

- Sustainability reviews: baseline, enhanced, customized sustainability, management reports
- Net-zero energy studies
- Whole building life cycle analysis (WBLCA)
- Certification gap analysis
- Solar and battery storage feasibility studies
- ASHRAE Level I, II, and III energy audits
- Carbon RIsk Real Estate Monitoring (CRREM)
- Building commissioning: new building, building envelope, LEED, and code-required
- Healthy building services: WELL & Fitwel certifications, indoor air quality testing/monitoring
- Electric vehicle charging station reviews
- Governmental, code and local jurisdiction regulations and incentive programs

Connect with a sustainability specialist.





OUTCOME

The energy audit identified energy conservation measures that could result in approximately $594,743 in potential energy cost savings.

UBS Energy Audit Portfolio

Various cities and states throughout the US

CLIENT

UBS Realty Investors

SERVICES

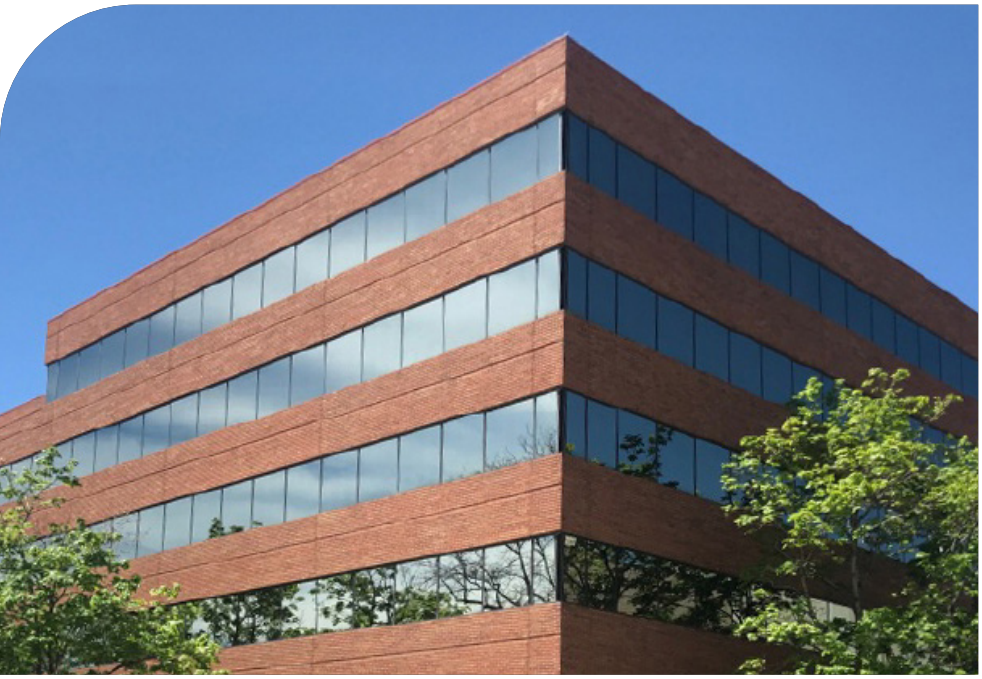
Sustainability, Mechanical/Electrical/Plumbing

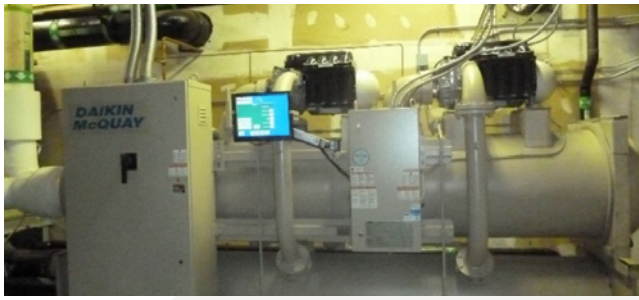
Our team worked with UBS Realty Investors, LLC, to complete seven ASHRAE Level II energy audits on 39 buildings, spread out over seven properties, totaling more than 2,209,325 square feet. Our survey included a review of the physical conditions related to systems, equipment, and components of the building infrastructure to determine recommended energy conservation measures (ECMs), water conservation measures, and how to improve building operations.

The energy audit identified energy conservation measures that could result in approximately $594,743 in potential energy cost savings from reduced annual energy consumption and annual maintenance savings.

The audit also identified low-cost measures such as lighting upgrades as well as capital improvement measures that include HVAC equipment upgrades. In general, the results of an energy audit tend not to recommend replacing HVAC equipment because the high cost outweighs the relatively low annual savings. However, our evaluations considered the incremental cost of replacing equipment that is at the end of its useful service life with high-efficiency equipment, and thus installation of this equipment was included with our recommendations.

MARX OKUBO





455 Sherman Street

Denver, Colorado

CLIENT

Sherman Joint Venture

SERVICES

Sustainability

Built in 1983, this project consisted of a Class A, five-story, 117,305-square-foot office building with an upgraded conference room, showers/lockers, covered parking, and onsite ownership/management.

Marx Okubo performed an ASHRAE Level II energy audit of the property to identify and provide a savings and cost analysis of practical measures that met the owner's constraints and economic criteria as well as discuss effects on operation and maintenance procedures. Our assessment included a review of the existing building envelope (windows, doors, roofing, insulation, wall systems, etc.) together with the mechanical, electrical, and plumbing systems as they relate to the building energy and water usage.

In performing the energy audit, Marx Okubo recommended two capital improvement options including replacement of the obsolete air distribution system with a variable air volume system, and a shift from the pneumatic control system to electronic controls with direct digital control (DDC) logic. Marx Okubo assisted the client in performing owner's representation services for these capital improvement projects by creating performance drawings and specifications, providing bid process oversight with three design/build contractors, selecting the contractor, and providing design construction administration throughout the construction.

With work completed in 2021, the building shows increased efficiency, in time for the latest energy efficiency requirements through the Energize Denver ordinance.

MARX OKUBO

Multifamily Residential in New York

Westchester County, New York

CLIENT

Withheld

SERVICES

Sustainability,
Owner's Representation,
Accessibility

The client engaged Marx Okubo to provide owner's representation services for the ground-up development of a senior living facility with 26 memory care units and 74 assisted living units in Mt. Pleasant, New York. During the design phase, our team identified multiple indoor environmental quality risks and opportunities, including potential radon risk for dwelling units proposed at grade level, substandard acoustic assemblies, opportunities to improve HVAC filtration, and vulnerabilities in the building enclosure design that presented a water intrusion risk. Marx Okubo also led studies to assess potential costs and benefits of a ground source heat pump system and rooftop solar arrays, and our team identified opportunities to add electric vehicle charging stations to the project. Among other design modifications that resulted from Marx Okubo's analysis, the development team added a radon mitigation system, electric vehicle charging stations, and rooftop solar arrays to the project.

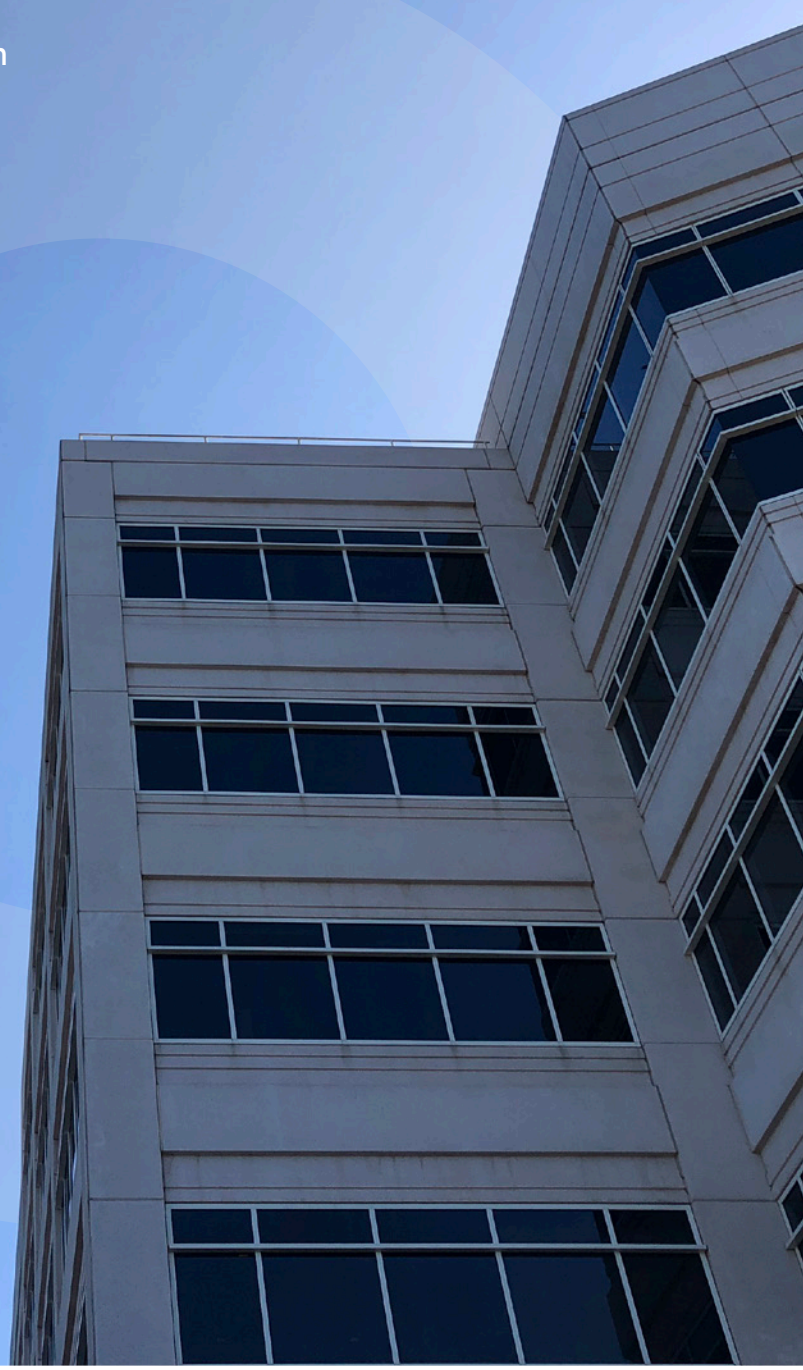
During construction, our team conducted detailed reviews of waterproofing and roofing systems to ensure these systems were installed in conformance with the approved construction documents and manufacturer's installation requirements. In addition, the team performed thorough accessibility reviews to verify compliant access for occupants with mobility challenges.

Marx Okubo also performed comprehensive solar consulting services, including solicitation of bids from qualified contractors, bid leveling, an interconnection study with the local utility, a review of state and federal financial incentives, an analysis of electricity demand and estimated solar production, a review of carbon avoidance impacts, and contract negotiation for a 160,000 kWh rooftop solar electricity system. The client executed an agreement with a solar contractor, and energy savings are anticipated to result in a payback period of less than five years, with an anticipated 15% reduction of total operating carbon emissions from the project.

MARX OKUBO

Uncertainty **doesn't stand a chance.**

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.



LOCATIONS

Denver	Orange County
Seattle	Dallas
San Francisco	Atlanta
Pasadena	New York

SATELLITE OFFICES

Portland	Houston	Tampa
San Diego	Boston	Orlando
Phoenix	Washington, D.C.	Miami
Austin	Nashville	

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