

CASE STUDY

# 111 MAIN SALT LAKE CITY, UTAH



Rising in the heart of Salt Lake City, 111 Main redefines the city's skyline with its monumental stature. The Class A tower comprises 24 stories of office space and contributes to the city's long-term vision for a vibrant, walkable downtown. Although completed in 2017, 111 Main remains a defining example of how customized facade engineering can support bold architectural ambitions in complex urban conditions.

This striking architectural landmark posed complex challenges in design and execution due to its location and the adjacent structures. These challenges were met by the expertise of the Kawneer Collaborative team. Kawneer Collaborative offers

premium support for bespoke projects, partnering with architects and glaziers to deliver ambitious projects. To meet the needs of 111 Main, our special projects team engineered a fully customized unitized curtain wall system. The outcome not only matched the aesthetic vision and installation needs of the project, but also met the resiliency demands of a high-rise tower located in a seismic zone.

Architect : Skidmore, Owings & Merrill (SOM)

General Contractor: Okland Construction Company, Inc., Salt Lake City, UT

Glazing Contractor: Steel Encounters, Inc., Salt Lake City, UT

Photography: ©Cesar Rubio



## AN UNCONVENTIONAL STRUCTURE

Located directly above the George A. and Dolores Doré Eccles Theater, the 111 Main office tower was under significant structural constraints, as no gravity loads could be transferred to the existing theater, which was outside the project scope. To accommodate this condition, the tower was designed to suspend from a roof-level steel hat truss that supported the perimeter columns above the theater. This suspended system allows the office tower to overhang the theater without extending structural columns through it. This enables the tower and theater to function as structurally independent buildings, despite sharing the same footprint.

The resulting suspended structure had unique constraints for the installation of the facade. As construction of each floor progressed and weight was introduced incrementally to the steel hat truss, the cumulative weight resulted in the lower floors shifting downwards. For the curtain wall panels, this caused minor but continuous deflection, requiring field crews to make more adjustments than would be needed on a conventional tower.

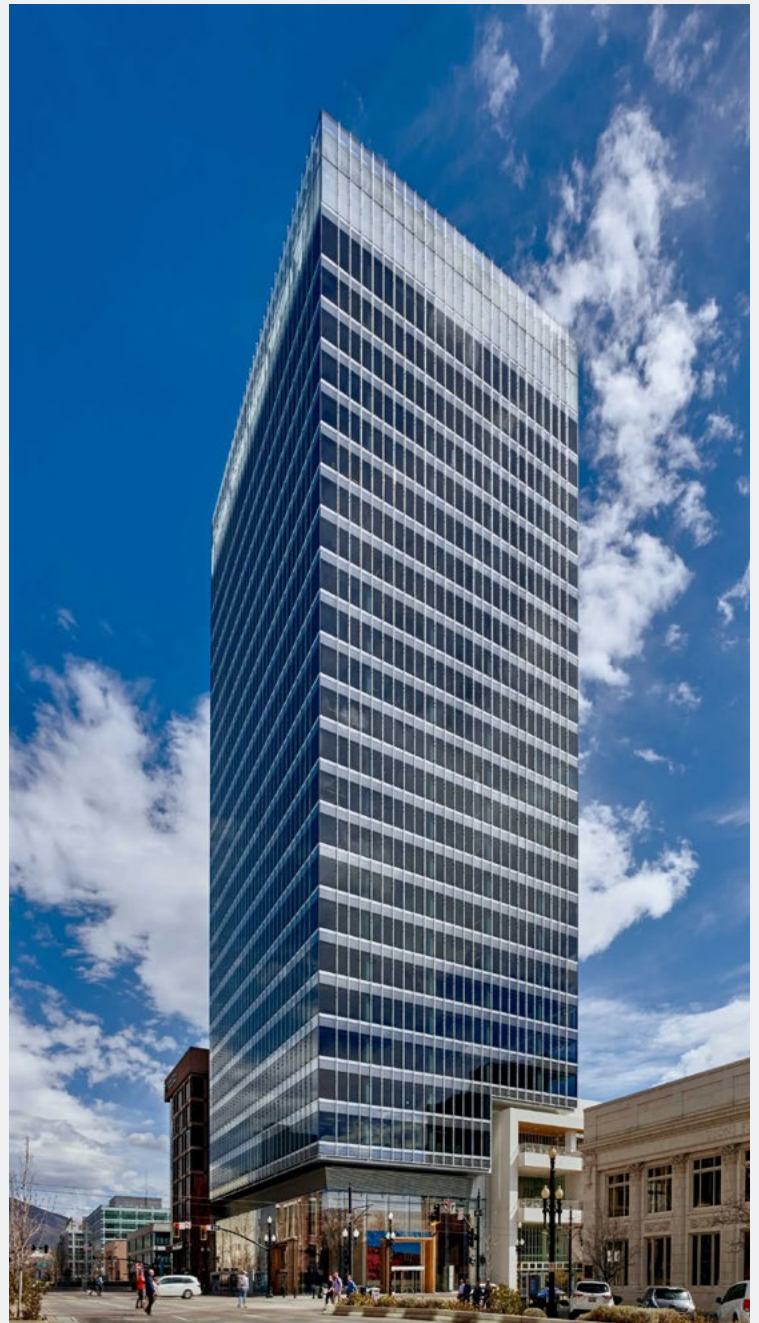
To address this, the Kawneer Collaborative team engineered custom curtain wall anchors that incorporated jacking bolts, enabling installers to make precise, large-scale adjustments after units were set. This ensured long-term alignment as structural loads evolved.

## ADVANCED ENGINEERING FOR A HIGH SEISMIC ZONE

An additional challenge was the building's proximity to the Wasatch Fault Zone. The project sits in a high seismic zone, requiring a facade solution that would provide resilience during significant building movement.

In addition to project requirements calling for a seismic-tested curtain wall, the architect envisioned a facade with units that would tilt during a seismic event, allowing controlled rotation rather than relying solely on conventional interlocking components. Traditional systems would have restricted this motion and introduced unwanted stresses.

In response, the Kawneer Collaborative team developed a customized curtain wall solution allowing adjacent units to remain structurally coordinated yet independent. This solution uses specialized horizontal and vertical framing components to preserve alignment and continuity, enabling the desired tilting action without disengaging or compromising performance.



## ENABLING DESIGN VISION

111 Main's standout structure is further enhanced by the use of translucent glass fins designed to reflect shifting daylight. To integrate these seamlessly into the curtain wall system, Kawneer Collaborative engineered custom brackets to clamp onto the fins, allowing the facade to come to life with a subtle, luminous effect.

## COMPREHENSIVE SUPPORT

In addition to designing the fully customized curtain wall system, the Kawneer Collaborative team provided a comprehensive technical services package, including detailed shop drawings and an engineering review.

To confirm performance prior to construction, the team fabricated a full-scale mock-up unit of the custom system. This was tested for air and water infiltration, thermal performance, and seismic response, ensuring that the system met all specified performance criteria before field installation.



## CHALLENGES

- The project's location in a high seismic zone near the Wasatch Fault Zone called for a high-performance facade that could withstand seismic activity.
- The building structure was suspended by a steel hat truss, resulting in higher-than-normal level of deflection during the installation process.
- The architectural vision featured translucent glass fins incorporated into the facade.

## SOLUTIONS

- The Kawneer Collaborative team engineered a fully customized unitized curtain wall system that provides controlled tilting movement during seismic events.
- Custom anchors were designed with integrated jacking bolts to easily adjust for deflection without re-hanging or re-shimming curtain wall units.
- Custom-engineered brackets allowed for seamless integration of the glass fins into the curtain wall system.

## PRODUCTS USED

- Custom Curtain Wall System

To learn more about Kawneer Collaborative, [click here](#)