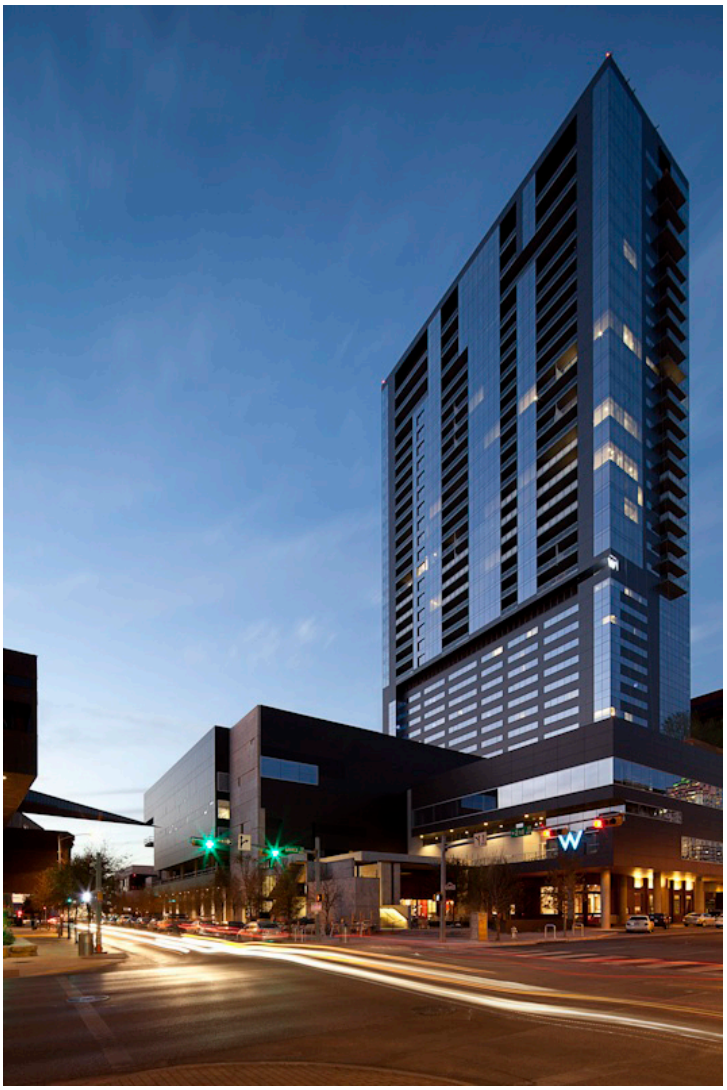
BLOCK 21

200 LAVACA STREET
AUSTIN, TEXAS 78701

SUSTAINABILITY CASE STUDY



Credit: Andrew Pogue

STRATUS®

CANYON-JOHNSON URBAN FUNDS

v0811

Credit: Arthur Andersson

Overview

Owner:	CJUFII Stratus Block 21 LLC
Location:	200 Lavaca Street, Austin, TX 78701
Building Type:	New Construction: The Residences at W Austin - 34% W Austin (Hotel) - 26% ACL Live at the Moody Theater - 13% Retail / Office - 5% Other - 22%
Size:	1,082,150 sq. ft. (100,535 sq. meters) Lot size: 76,666 sq. feet (7,122.5 sq. meters) Building footprint: 65,977 sq. feet (6,129 sq. meters)
Project Scope:	37-story mixed-use high-rise tower (5-story podium and 32-story tower)
Completion Date:	Spring 2011

Design / Construction Team

Design Architect
Andersson-Wise Architects
www.anderssonwise.com

Architect of Record
BOKA Powell
www.bokapowell.com

Structural Engineer
Thornton Tomassetti
www.thortontomasetti.com

Civil Engineer
Bury & Partners
www.burypartners.com

Mechanical, Electrical, Plumbing Engineer
JJA Inc.
www.jjainc.com

Interior Design
Heather Plimmer
Stratus Properties Inc.
www.stratusproperties.com

Landscape Architect
Talley Associates
www.talleyassociates.com

Lighting Design
Horton Lees Brogden Lighting Design
www.hlblighting.com

Sustainable Design / LEED® Consultant
Center for Maximum Potential Building Systems
www.cmpbs.org

Commissioning Authority
ACR Engineering Inc.
www.acreng.com

Contractor
Austin Building Company
www.austin-ind.com

Context

Block 21 is a mixed-use high-rise property located in Austin's Central Business District. The 1.08 million square foot building includes the W Austin Hotel and The Residences at W Austin; Austin City Limits Live at the Moody Theater, a 2,700+ capacity live music venue and recording studio; restaurants and bars; a spa; and retail and office space. The world-class W Austin and The Residences at W Austin include 251 hotel rooms and 159 luxury residential condominiums, respectively, and employ approximately 300 full- and part-time staff. More than 450 additional people are employed at ACL Live at the Moody Theater, retail establishments and offices. ACL Live, the new home of PBS Station KLRU's legendary Austin City Limits television series, will also host 75 - 100 concerts annually as well as a variety of private events.

Block 21's location in the heart of Austin's vibrant downtown 2nd Street District provides ready access to public transportation, general services, nightclubs, arts, city, county, and state government offices, and picturesque Lady Bird Lake.

Sustainable Design Commitment

From its inception, Block 21 committed to an integrated design process and third-party certification through the U.S. Green Building Council's LEED for New Construction, a nationally recognized green building rating system, and Austin Energy's Green Building Program. Sustainable design features include low-impact site development; water and energy efficiency; recycled-content, regionally sourced- and manufactured, and low-emitting construction materials; diversion of construction debris from landfills; abundant daylight and views; and healthful indoor air quality. Block 21 seamlessly combines cosmopolitan elegance with environmental stewardship. The project is targeting LEED Silver certification and Austin Energy Green Building Program 4-Star rating.

Stratus Properties and the Canyon Johnson Urban Fund II, the project's owner, has positioned Block 21 to be a hallmark of sustainability throughout its operational life cycle. To this end, a green operations plan and tenant guidelines coordinated between the developers, the project sustainability consultant Center for Maximum Potential Building Systems and principal tenants establishes a cohesive framework to realize this goal.

Credit: Andrew Pogue

Site, Land Use, And Community Connectivity

Block 21 embodies the project owners' goal of combining high style with a sustainable urban lifestyle and reduced environmental footprint. The City of Austin is an established leader in green building. Austin's Central Business District provides a vibrant cultural and economic context to attract and sustain an environmentally astute, cosmopolitan population.

Block 21's central location is a compelling environmental asset, enabling employees, residents and guests to maintain a car-free lifestyle. Located within one-quarter mile of six bus stops, more than 420 rides are available and readily accessible each day. In addition to locked bike storage compartments provided to W Austin residents, 48 bike racks and two showers are available for employees that choose to bike to work. During performances at ACL Live, patrons have access to an additional 47 bike racks located across the street at Austin City Hall.

To promote alternative transportation options, Block 21 provides a 20% discount on valet parking to hotel, office and retail guests who drive low-emitting, fuel-efficient cars. Additionally, residents of The Residences at W Austin receive complementary memberships to the Car2Go car-sharing program. Museums, the State Capitol, restaurants, nightclubs, business offices, parks and green spaces, and other services and amenities are within accessible walking distance.

The Block 21 site, formerly an asphalt parking lot, was determined to be a brownfield upon an environmental as-

sessment undertaken during the project's early phase. The site was exposed to years of contaminated runoff from leaking cars and offsite releases of pollutants into the groundwater. As part of the project team's commitment to environmental restoration, the contaminated soil was excavated from the site and properly disposed. Brownfield redevelopment cleans up and puts into productive reuse these compromised sites and provides the co-benefits of conserving undisturbed land and curbing urban sprawl.

Additional measures to enhance the project's long term environmental performance include efforts by the project's civil engineer, Bury + Partners, to filter incoming groundwater in perpetuity to prevent recontamination from off-site sources. This pond also collects and filters stormwater that flows off the building, mediating the deleterious effects of stormwater pollution and stream erosion.

Integrative, Climate-Responsive Design

Andersson-Wise Architects developed a spectrum of integrated features to sustain the building's environmental integrity over its life. All parking is located underground, eliminating a massive, heat absorbing impermeable parking lot. The heat island effect—a phenomenon of warmer ground level temperatures in urban areas resulting from increased absorption of heat by dark-colored and non-reflective impervious surfaces—increases demand for air-conditioning and can result in higher energy usage and compromised air quality. Measures to mitigate the heat island effect include light-colored, reflective paving surfaces, trellises and vegetation on the pool deck and plaza level (that also provide verdant shaded seating areas), and a non-halogenated, single-ply membrane highly reflective roofing material.

Block 21's building orientation takes strategic advantage of the prevailing southeasterly breezes, with operable windows on the ground level on the southeastern façade to allow for passive cooling given appropriate climatic conditions. Additionally, the building's orientation, coupled with the envelope design, provides for integral shading of the windows throughout the day, eliminating the need for added shading devices. Carefully designed and positioned full cut-off exterior lighting fixtures protect the dark night sky by preventing uplighting and limiting light trespass beyond the project's property line.

Credit: Andrew Pogue

Water Conservation

Water is a precious resource in Central Texas. Having experienced successive droughts over the last decade, the Block 21 ownership and design team prioritized operational water savings as a signature achievement resulting in annual water savings of 2.4 million gallons. The high-performance, high-quality plumbing fixtures throughout Block 21, including 1.6/0.8 gallon per flush (gpf) dual-flush toilets in guestrooms, residences, and hotel restrooms and 0.5 gpf urinals throughout the project, contributed to this goal. Showerheads designed with 1.75 gallon per minute (gpm) and 1.5 gpm flow rates in the residences and hotel rooms, respectively, and metered low-flow lavatory fixtures, meet or exceed the performance of code-compliant fixtures at the time of procurement, substantially reducing indoor potable water usage by more than 30% compared to code. Complementing the project's interior water savings, Block 21's landscaped areas celebrate the beauty and diversity of drought-tolerant native and non-invasive adapted species. A 76% landscape-related water savings resulted from appropriate plant choices combined with high efficiency irrigation equipment.

Energy and Atmosphere

Reducing energy demand lowers the building's operational costs and mitigates environmental and human health consequences of climate change. With this goal in mind, the Block 21 design team specified and installed high performance lighting, glazing, and insulation. The specified lighting is especially impressive with 37% reduced energy use compared to code. Block 21's high performance glazing and insulation result in a building envelope 16% more efficient than code.[1] As mentioned previously the highly reflective TPO single-ply roofing material also reduces energy demand by restricting heat gain and thus reducing air conditioning loads.

Music venues typically have significant energy requirements associated with powering sound equipment and stage lighting. To minimize this energy usage, LED stage lighting that dramatically curbs energy use while delivering high quality color rendering and long life was installed at ACL Live.

Conventional CFC-based refrigerants used in Heating, Ventilation and Air Conditioning (HVAC) and refrigeration systems are associated with depleting the Earth's ozone layer and contributing to global climate change. Block 21 specified and installed HVAC and refrigeration systems that eliminate ozone-depleting refrigerants while enhancing energy performance.

Block 21's HVAC system efficiency also benefits from tying into the City of Austin Paul Robbins District Cooling Plant. The 33,000-ton capable ice thermal storage system freezes water at night during off-

[1] Interior Lighting and Power compliance calculated using COMcheck Software v. 3.6.0. Envelope compliance calculated using COMcheck Software v 3.5.3. Energy savings based on ASHRAE/IESNA 90.1-2004.

peak demand periods. As the ice melts throughout the day chilled water is delivered directly to Block 21 where it offsets air conditioning needs. Connection to the plant contributes to Block 21's reduced energy consumption, CO2 emissions and other pollutants that result from fossil fuel electrical generation.

Finally, to ensure that the building's operational performance is consistent with its basis of design, ACR Engineering was hired as the third party Commissioning Agent to verify that all base building mechanical, lighting and domestic hot water systems were installed per the Owner's Project Requirements. As part of the enhanced commissioning process, the Commissioning Agent was engaged early in the design process. In collaboration with the Owner and Design Team, the Commissioning Agent developed a commissioning plan and conducted regular reviews to ensure that the installation of specified equipment is aligned with project goals and design documents, and a manual for facility management staff responsible for the building's ongoing maintenance and operations.

Materials and Resources

Block 21 benefited from Austin's maturing construction debris recycling infrastructure, diverting more than 75% of construction debris from landfills for recycling and reuse. In addition, recycling receptacles for storage and collection of plastics, metals, paper, cardboard and glass are provided throughout the project for use by building occupants, including in each hotel guestroom and condominium. A contract with Austin-based Texas Disposal Systems facilitates single stream recycling for the entire building, and also provides collection services for compostable materials and mixed waste.

Block 21's construction materials palette contains over 22% pre- and post-consumer recycled content based on cost. Additionally, 23% of materials were extracted, processed and manufactured within 500 miles of the project site, reducing fossil fuel combustion and air emissions associated with transportation and bolstering the regional economy.

Credit: Andrew Pogue

Indoor Environmental Quality

A healthy indoor environment is central to Block 21's preeminent goals of comfort and sustainability. Creating and maintaining excellent indoor environmental quality begins early in design. The building's ventilation systems were designed to deliver fresh outdoor air; indoor CO2 sensors monitor occupancy levels and modulate ventilation rates to ensure they are responsive to varying occupancy levels. Particular attention was paid to air quality during construction. High performance air filters protected the building's air handling units from being compromised by airborne contaminants; absorptive materials were protected from moisture and mold exposure. These important measures during construction contribute to Block 21's long-term indoor air quality.

With indoor air quality and creating a healthy indoor environment project priorities, eliminating products that emit high levels of volatile organic compounds (VOCs) was reflected in Block 21's specifications and verified throughout the construction process. Adhesives and sealants, paints and coatings, and carpet align with stringent third party standards including carpet and carpet pad that meets the Carpet and Rug Institute's Green Label Plus and Green Label standards. To mitigate the potential hazardous effects of mold, the building's exterior walls are designed to breathe and resist moisture build up. Smoking is prohibited throughout Block 21's interior and exterior public spaces and throughout the W Austin. The privately owned Residences at W Austin are designed to prevent air exchange between units; smoking is prohibited on the Residences' balconies.

Block 21 was designed to enhance everyone's comfort and enjoyment. Natural daylight enhances the indoor environmental quality in 75% of regularly occupied spaces. People working in Block 21 offices will benefit from workstations designed for individual controllability to provide lighting and thermal comfort based on personal preference. Outdoor views, including expansive views of Lady Bird Lake immediately to the south, the Hill Country to the southwest, and the vibrant downtown and Capitol Complex to the east, west and north, are available in 88% of the building. Acoustical consultants ensured that hotel guests and condominium residents have quiet rooms even with the venue's high decibel concerts. Demonstrating the Owner's commitment to indoor environmental quality, building occupants will be surveyed after six months of occupancy to gauge the quality of the building's interior thermal comfort; survey results will be used as a basis to make any necessary adjustments.

LONG TERM SUSTAINABILITY

Operations

The Block 21 project team recognizes that their environmental responsibility continues well beyond opening day: Block 21 was built as a green building and will operate as a green building. The project team developed the Green Operations Opportunities (GO2) program to set Block 21 on the path to qualify for LEED for Existing Buildings, Operations and Maintenance (LEED-EBOM) certification. LEED-EBOM establishes measurable benchmarks for sustainable operations with particular emphasis on indoor environmental quality including green cleaning and integrated pest management, energy and water efficiency, environmentally preferable purchasing programs, and waste reduction. As an example, each W Residence owner receives a welcome basket filled with a six-month supply of green housekeeping products upon move-in.

Local Purchasing

Locally sourced products, including food, benefit the local economy, reduce fossil fuel consumption associated with transportation, and enhance the W Austin's guests' unique Austin experience. Trace, the W Austin's restaurant and guestroom food service provider, employs a local forager to locate fresh, organic local fruits and vegetables, dairy and meat. The seasonal food is healthy, flavorful, and environmentally sustainable. The W Austin mini-bars are stocked with local products including Austin Nuts and Tito's Vodka, recognizing and supporting Austin's burgeoning small business purveyors.

Tenant Guidelines

As a mixed-use building, Block 21 contains leasable space including offices, retail, and restaurants. As established in the lease agreement, tenants share the responsibility to maintain the building's green integrity. Sustainability consultant CMPBS prepared the Block 21 Green Guidebook for Tenants outlining requirements including for energy and water efficiency, indoor air quality, and construction waste management to ensure tenant spaces are finished out in a manner consistent with Block 21's sustainability commitment.

Green Cleaning Policy

Block 21's commitment to health and wellness recognizes that a green cleaning regimen reduces building occupants' and maintenance personnel's exposure to potentially hazardous chemical, biological and particulate contaminants. The W Austin, ACL Live at the Moody Theater, and tenants implement sustainable purchasing for cleaning materials and products, and disposable janitorial products for in-house operations.

Tours of Block 21 are available upon request.

To schedule a tour please contact Cassidy Ellis at The Center for Maximum Potential Building Systems at 512.928.4786 or cellis@cmpbs.org.

This case study was prepared by the Center for Maximum Potential Building Systems.