2023 AIA|DC CHAPTER DESIGN AWARDS

Project Title: Capital One Hall

Location: 7750 Capital One Tower Rd, Tysons, VA 22102

Date of Completion: October 2021

Project Statement (146 words):

Capital One Hall in Tysons, Virginia, sits at the heart of a new 24.5-acre, mixed-use urban redevelopment of Capital One's corporate headquarters. The flexible new performing arts center consists of two theaters surrounded by several public spaces suited to host a range of large and small events.

Situated at a nexus of transportation options, Capital One Hall is the centerpiece of a full block development that is a response to growing desire for mixed use urban development and greater access to cultural amenities. Site constraints led to a dynamic vertical stacking of urban program creating a layered sandwich of activities.

From a distance, one sees the building's folded white marble façade lifted above the street catching light and shadow like the pleats of a dress. Thin vertical windows wrap the building, stepping upwards towards the rooftop park while bouncing light and views into the public spaces.

Design Narrative: How does this project address Design for Integration, Wellbeing, and Discovery? (150 words)

A feat of complex engineering, the project is defined by careful integration of building systems and intense research processes that support a range of benefits to the well-being of visitors and the surrounding community.

The acoustically isolated main theater is situated between a grocery loading dock and a rooftop park known as "The Perch." Box-in-box construction coupled with a system of rubber isolators and low-velocity mechanical systems enable the hall to achieve rigorous acoustic standards that provide world-class experience for artist and patron.

The team used an analytical parametric model to fine tune the geometry and fenestration of the façade relative to view, glare, solar heat gain and its impact on sizing of mechanical systems. The team partnered with façade engineers and geologists in a rigorous testing protocol that informed marble selection and culminated in comprehensive façade mock-up constructed offsite at a testing lab to ensure proper installation and performance.

Would you like this project to be considered for a Jury Citation in any of the following categories? (For more information on the 10 Measures from the Framework for Design Excellence, please click here.)

- ☑ Integration
- ☑ Equitable Communities
- ☑ Ecosystems
- ☑ Water
- ☑ Economy
- ☑ Energy
- ☑ Well-being
- ☑ Resources
- ☑ Change
- ☑ Discovery

Community Engagement: How does this project address Design for Equitable Communities and Economy? (148 words)

From the inception of the project, the client worked closely with Fairfax County and community arts organizations to establish the vision for the development. Through this engagement process, the project evolved from community center to corporate meeting space to arts and events venue, filling a much-needed void in the region as both a significant cultural arts destination and a community arts resource unlike any other. Thanks to the advocacy of the County and the vision of the client, the design of the entire campus evolved from its original suburban plan, solely accessible via automobile, to a multi-modal urban hub, steps away from the new DC Metro Silver Line McLean station.

Upon opening, the Perch, a public park in the sky that hosts a multitude of recreational opportunities, immediately become a beloved and unique outdoor gathering space for a community starved for such a place in a post-Covid world.

Sustainability and Resilience: How does this project address Design for Ecosystems, Water, Energy, Resources, and Change? (142 words)

The design of Capital One Hall breaks ground in achieving all of its aims while adhering to some of the highest standards in sustainability. Water efficient landscaping, along with stormwater quality and quantity controls exceed standard performance. Local and recycled materials were prioritized for the building's construction materials and finishes, and Capital One was already committed to a green cleaning program. Finishes and coatings were selected for low or no emissions to help promote human-healthy indoor environments. The building envelope has been optimized for daylighting and views, as well as mitigating solar gains and reducing energy loads.

Heating and cooling systems are zoned and optimized to include energy recovery techniques which, combined with the optimized envelope, are anticipated to achieve more than 27 percent energy savings as compared to a code-compliant building. The project has achieved a LEED 2009 NC Gold Certification.

AIA FRAMEWORK MEASURES

DESIGN FOR INTEGRATION

Sandwiched between the busy loading dock and the active rooftop park and amphitheater is the state-of-the-art main theater, which plays host to some of the world's top performers. Because the theater had to be acoustically isolated from external noise and vibration, it was designed as a box-in-box structure to attain the necessary acoustic performance. This resulted in the audience seating and stage being completely separated from the rest of the structure. Carefully integrated AV systems provide maximum performance flexibility in both venues and throughout the public space. A low-velocity mechanical system provides energy efficient comfort while minimizing acoustic impact.

DESIGN FOR EQUITABLE COMMUNITIES

Prior to this project, Tysons lacked a significant cultural arts destination and was sorely in need of a unique public space. This project delivers two diverse and well-equipped world class arts venues for community arts groups based in Fairfax County. On its roof, a unique public park loaded with a variety of uses has been heavily used by the community since its opening last fall, even during the winter months. The project is located within a new pedestrian-friendly street grid that connects to the Metro rail system just one block from the main Hall entry. The project is a key new asset for a place that aspires to become America's next great city.

DESIGN FOR ECOSYSTEMS

To meet County standards, Capital One included a public park called 'The Perch' on the roof of the entire block, accessible via elevators at grade, providing recreational amenities that support ecosystem health. This new open space exceeds local zoning requirements by 82.8%. Native vegetation and pollinator-supporting species account for 33% of the roof area. The selected species offer a more diverse range than the turfgrass used in the previous use of the site as a baseball field, increasing biodiversity, supporting regional flora and fauna, and requiring less maintenance than conventional landscaping materials. The park includes a variety of spaces including an amphitheater; a biergarten, food trucks; bocce ball courts; lawn areas suited to yoga or summer movie nights; a dog park; mini-putt and a sculpture garden. These programmed areas connect visitors to the vegetation, allowing them to observe the seasonal cycles of flora and fauna that inhabit the space.

DESIGN FOR WATER

Transitioning from 90% vegetation in the site's previous life as a greenfield, to a fully developed multi-use block made stormwater management a critical driver for the project. Two cisterns collect water from the green roof and sidewalk bioretention planters, treating 86% of stormwater runoff on site. Careful coordination allowed for 10 trees to be planted on the roof, their roots growing in the void provided by the sawtooth ceiling over the lobby inside the Hall. Rooftop plants are hydrated with recycled rainwater, reducing the need for potable water in irrigation by 62%. Indoor water use has been reduced by over 27%.

DESIGN FOR ECONOMY

Amidst a global pandemic where the labor pools have been compromised and a construction environment that is strained for timely and budget friendly resources, the Capital One Hall team chose to initiate a full-size off-site mock-up for one of the more technically complex, labor rich and resource heavy portions of the building, the exterior facade. Here the team chose to invest in a fraction of exterior façade budget to ensure the procurement of materials and the construction techniques were all aligned to ensure the final delivery of the facade was precise, timely and schedule friendly.

DESIGN FOR ENERGY

The project has a modeled pEUI of 69 (29.6% below the AIA2030 baseline of 98) with significant reductions in HVAC and lighting system energy use. The envelope's 22% glazing area is strategically placed to daylight public spaces without compromising energy performance. The pleated façade with monumental windows wrapping the grand lobby space was modeled early to maximize daylight while minimizing solar heat gain and glare.

Interior lighting reduces full-load lighting design power 62% from the ASHRAE 90.1 baseline, using LED lighting (including in performance spaces), daylight controls, and occupancy sensors. 45% in cooling savings over ASHRAE 90.1 was achieved with improved wall, window U-value, and roof performance (including the additional insulation provided by the green roof assembly), LED lighting, enthalpy wheel, economizers, and UFAD systems that work to condition only occupied areas - conditioning people, not space. High efficiency condensing boilers also contribute to the space heating savings of 23%.

DESIGN FOR WELL-BEING

The distinctive pleated facade and its arrangement of monumental windows was initially guided by a sense of composition that expressed a sense of vertical movement from foyer level up to rooftop park. As the design progressed, the team used an analytical parametric model to evaluate which faces would be exposed to excessive solar radiation, and at which angles. This information was used to guide a refinement of the facade geometry and its arrangement of stone and glass, using stone on faces that received excessive amounts of solar radiation and glass on faces with indirect sunlight. Additionally, integrated building systems and a carefully coordinated theater interior ensures world-class acoustic experience for patrons.

DESIGN FOR RESOURCES

Wood played a major role in the architectural expression of the entire project. When selecting the wood and wood veneer, the team chose walnut to complement the marble exterior and project a sense of time-honored craftsmanship that lasts generations. The visual variation of expressions in the veneer, from light to dark, creates a compelling, layered palette of slats and panels throughout the foyer/lobby and theater. Furthermore, the project asked for unique shapes and geometry of the millwork within the theater balcony ceiling and catwalk cladding, which included many compound curves --geometries typically difficult to perform well with wood. The team took advantage of 3D models and shop visits attended by the millworker and architect to review and develop unitized systems for efficient installations of the complicated shapes. In the end, the working relationship between the architect and millworker was imperative to the project's success, saving valuable time and money.

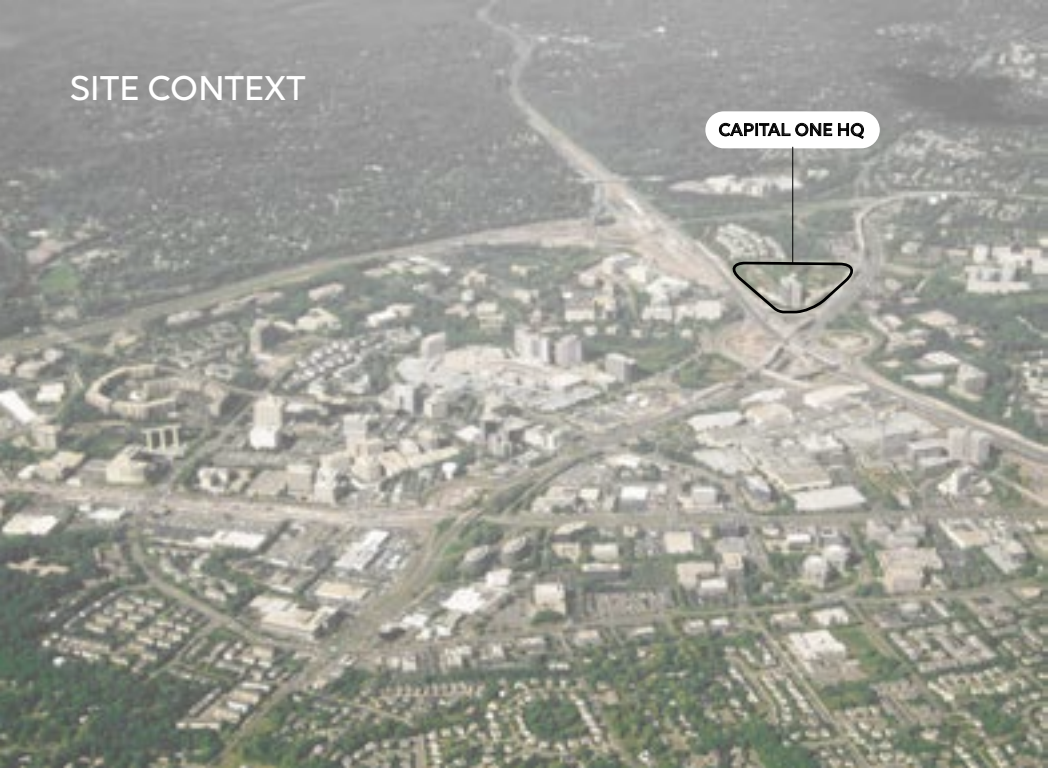
DESIGN FOR CHANGE

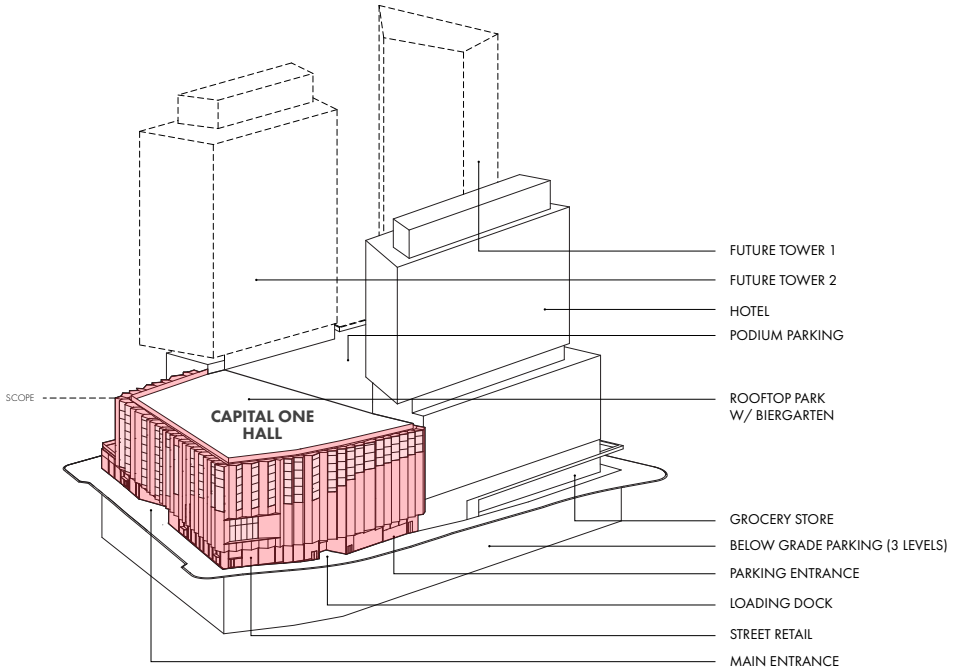
The design team balanced specific program needs with goals for short-term flexibility and long-term adaptability to support the diverse needs of this center for years to come. Multi-use spaces accommodate flexible uses, whether a cocktail party, choir rehearsal, barre class, Capital One corporate event, or conference with breakout sessions throughout the building in the lobby, classrooms, Black Box Theater, or even on the Main stage. Moveable furniture, mobile bars, and a grid of in-floor power support flexible room layouts for diverse uses in the lobby and second-floor gallery. In the Main Theater, adaptable acoustics support any performance or event modality. The space includes an acoustic enhancement system with nearly 80 speakers discreetly integrated into the architecture which enables the theater operator the flexibility to accommodate an intimate performance of a 4-piece ensemble or the enveloping energy of a rock concert, all with the flip of a switch.

DESIGN FOR DISCOVERY

The client strongly desired a white marble facade, associating it with monumentality and a sense of cultural significance. However, the use of marble as exterior cladding poses some potential risks. Most marble bows when exposed to moisture and temperature change. Alternate material options lacked the distinctive beauty and character of white marble. This led the design team on a long process of discovery about the unique physical properties of marble, working closely with two geologists -- one in London and the other in Sweden -- who are global experts on the topic of marble envelope assemblies.

SITE CONTEXT



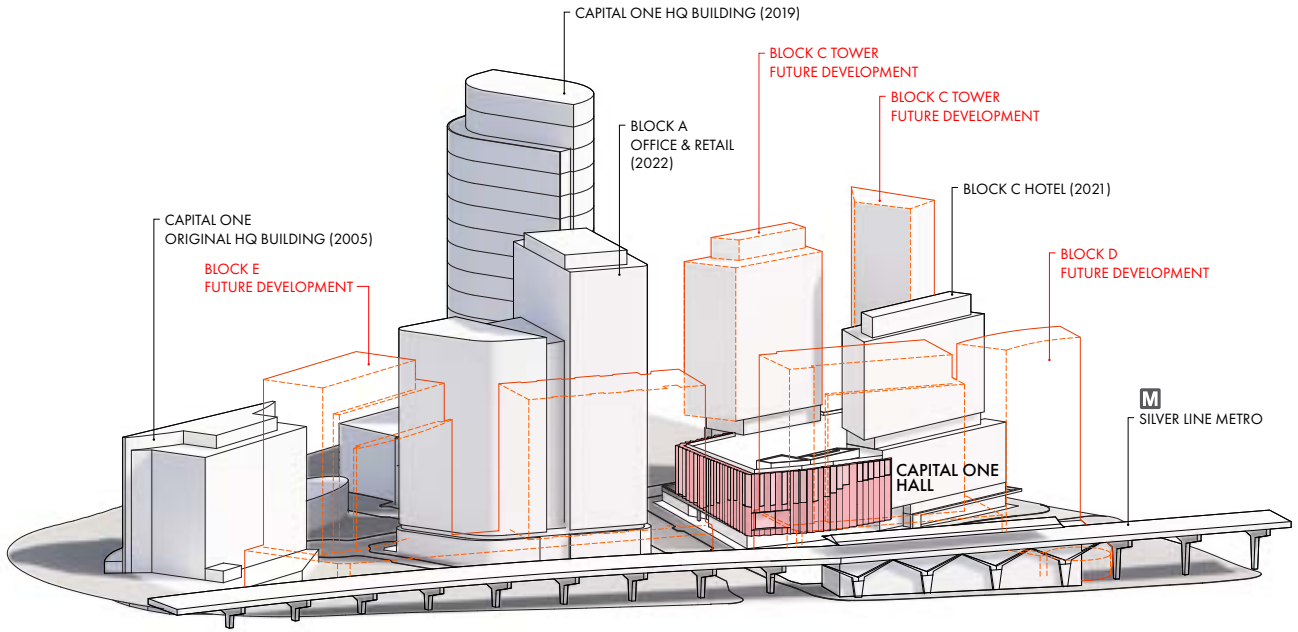


A CENTER FOR AN EDGE CITY?

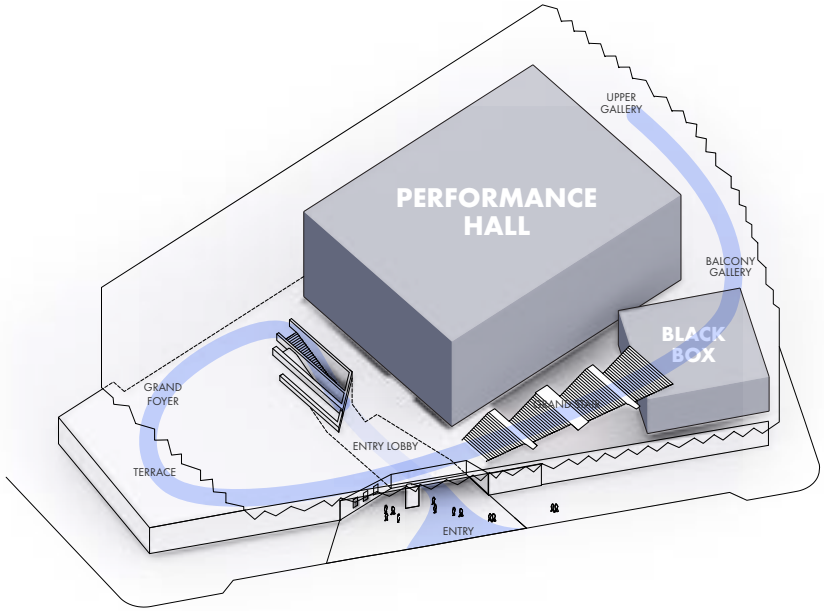
In the early 1990's the author Joel Garreau famously coined the term "Edge City" to describe the sprawling decampment of urban life away from the city center and into the hinterlands. For Garreau, Tysons Corner, Virginia, epitomized this urban phenomenon.

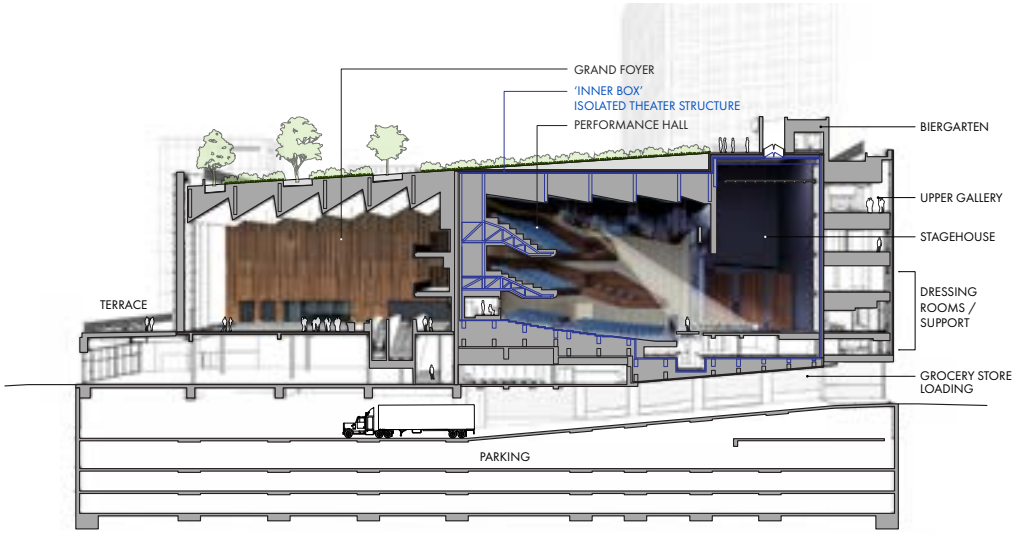
Now, 30 years later, Tysons is in the midst of a transformation. Connected via public transit and bolstered by an ambitious comprehensive plan, the city is pursuing new growth patterns that foster not just office and retail space, but housing, recreation and cultural amenities.

Situated at a nexus of transit options, Capital Financial's 26 acre campus is developing into a multi-use urban center. At the heart of this development sits Capital One Hall, a 1600 seat performance hall, flexible theatre, and multi-function event venue.

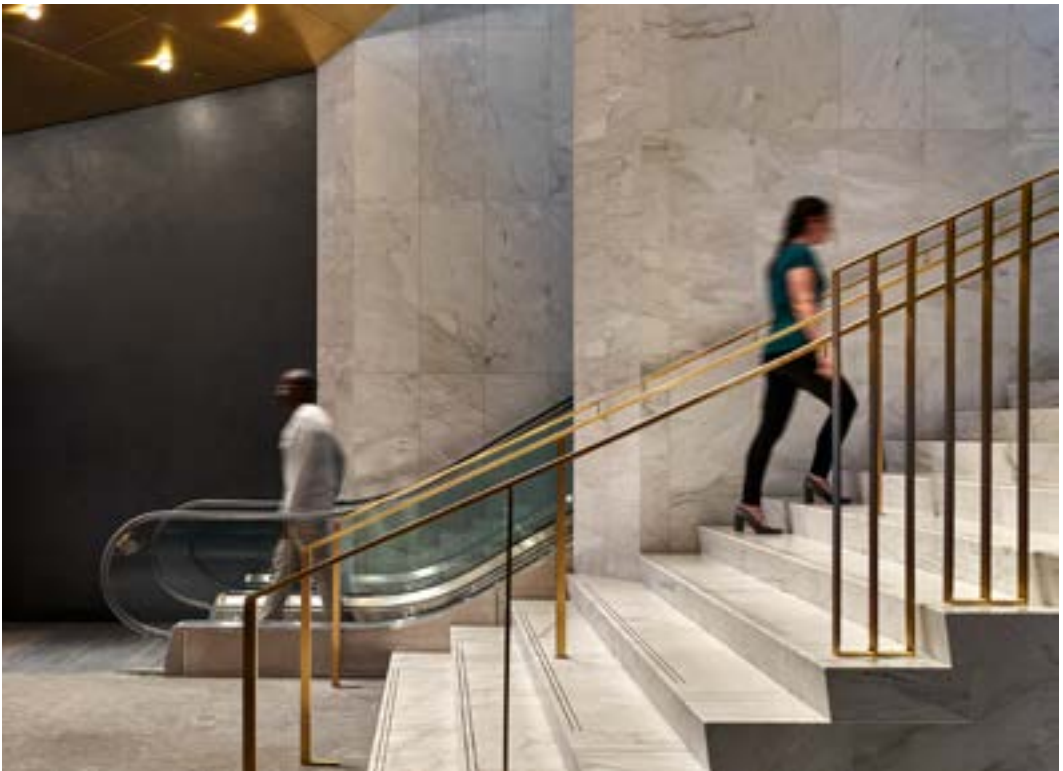


PROJECT ORGANIZATION



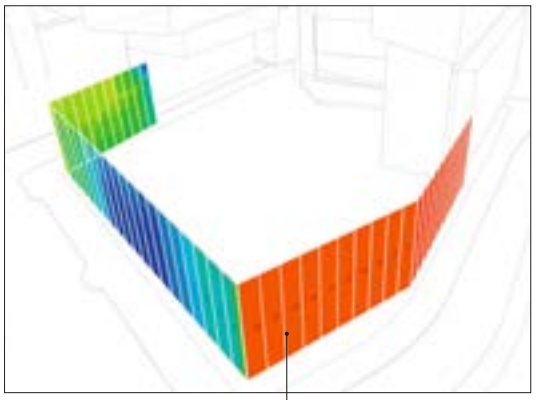


ENTRY AND PUBLIC SPACE

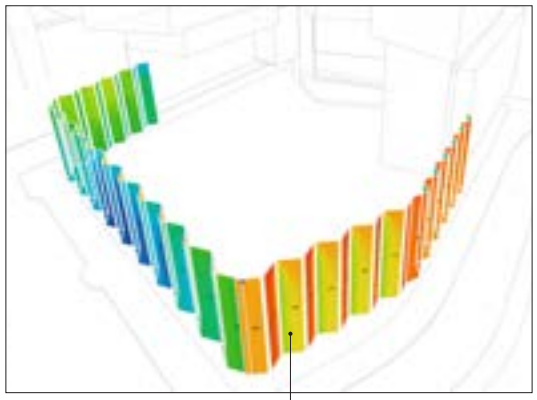


PERFORMANCE HALL

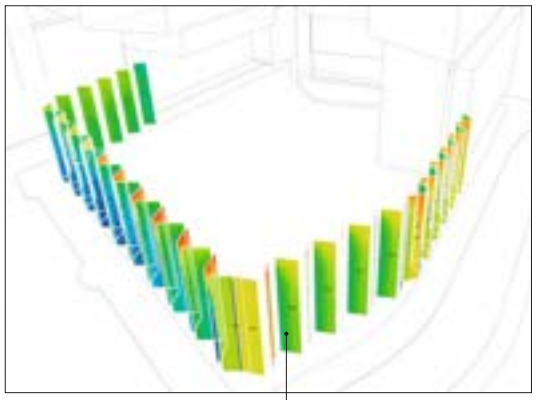
BUILDING ENVELOPE



HIGH SOLAR GAIN / GLARE



'PLEATED' FACADE GEOMETRY



COOL FACE / HOT FACE

ROOFTOP PARK