

FIFTH + TILLERY

AUSTIN, TX

Architectural Record | Mass Timber as a Solution for Commercial Offices | April 4, 2024





the site

Located in far East Austin, the site is an existing warehouse surrounded by surface parking.

the ask

Our client sought to redevelop the existing warehouse, utilizing only the existing footprint of the building to minimize the entitlement process.

client goals

Their stated goals were to maximize yield, emphasize spaces for smaller creative businesses, and create something exceptional.

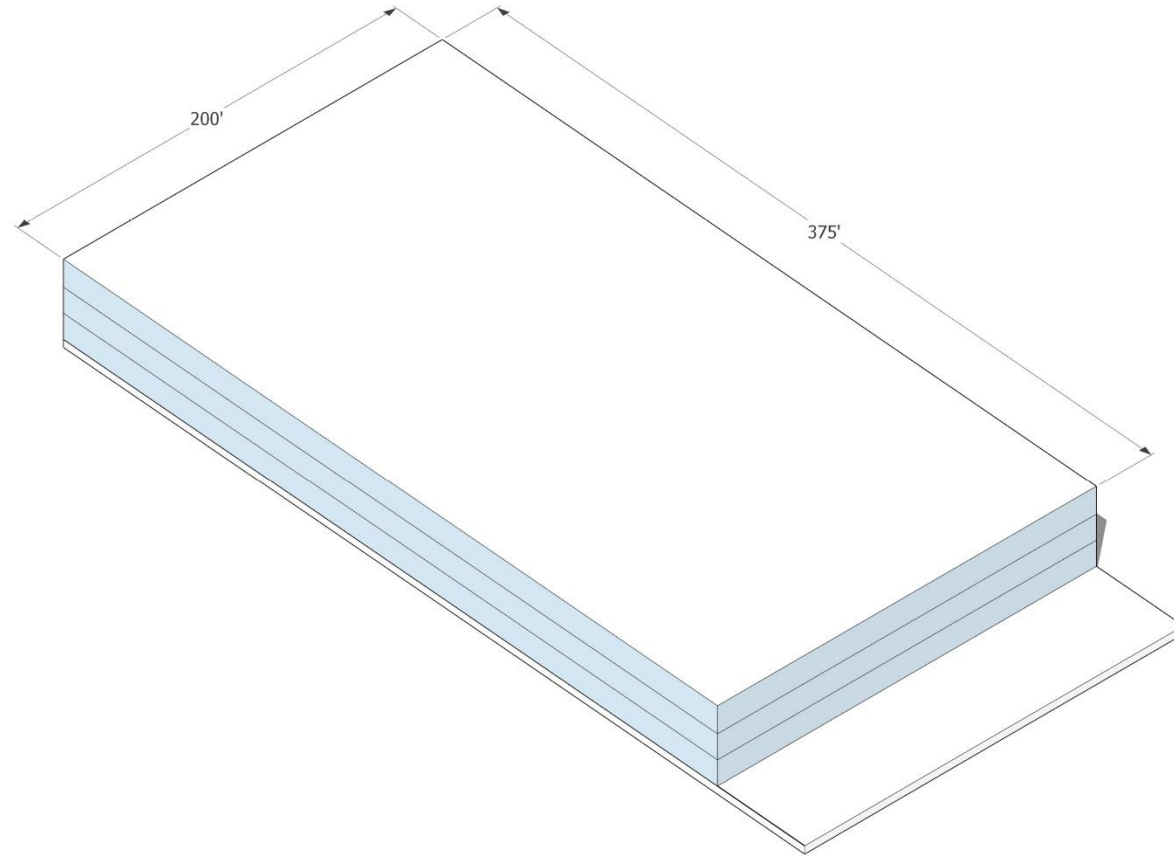
our push

We challenged the client to create a building that increased wellbeing through sustainable strategies, active design, and connection to a landscape that did not exist on site.

existing conditions

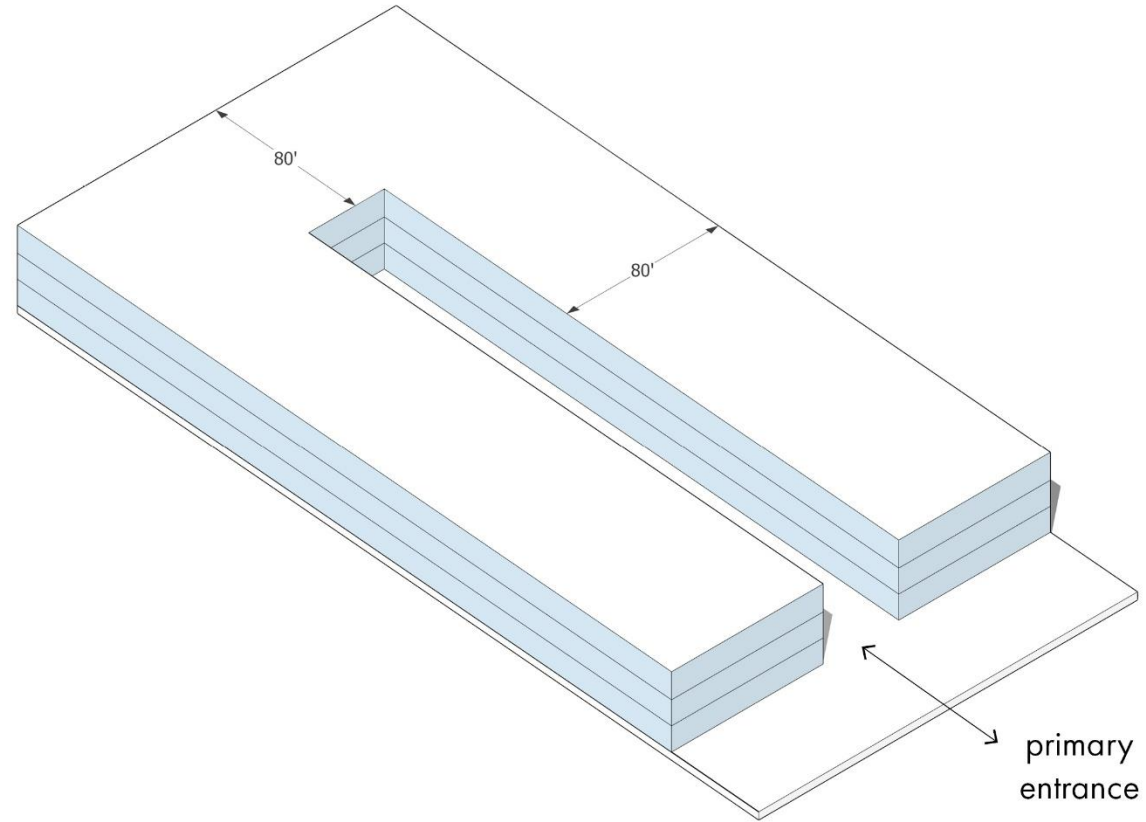


massing approach



building envelope

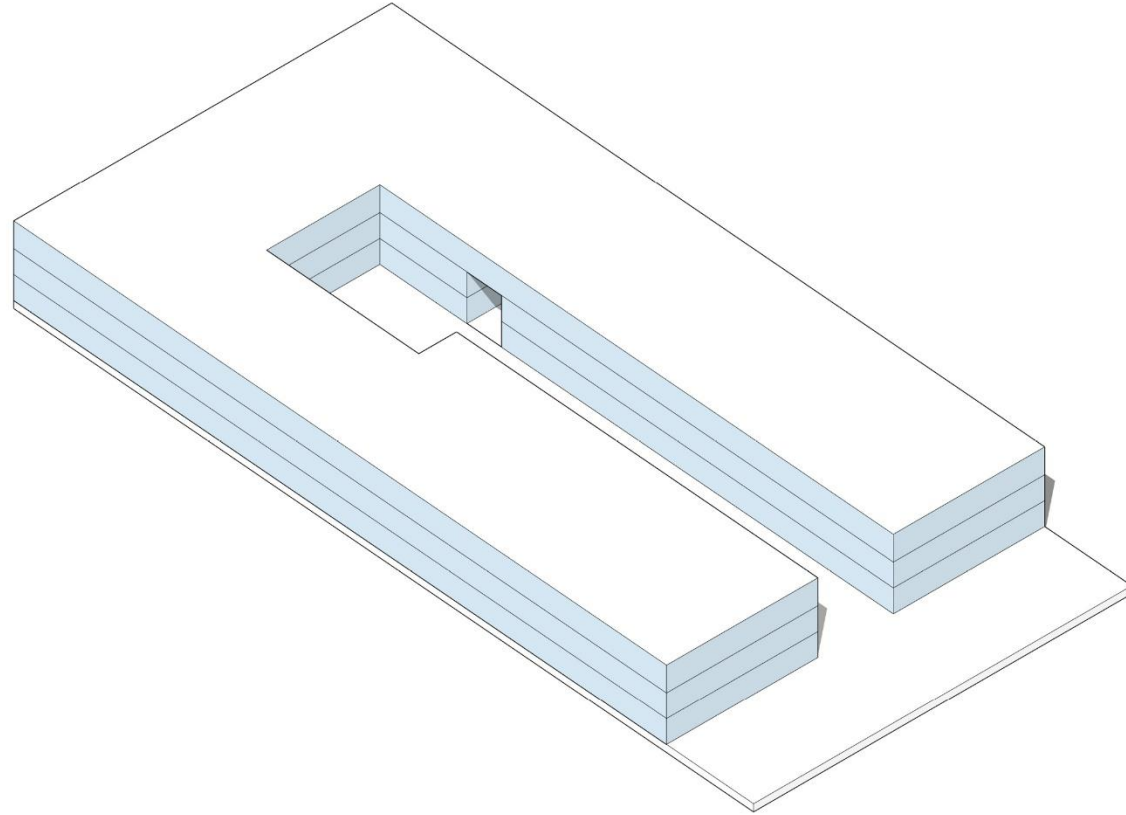
The existing footprint is great for large floor plates,
but terrible for daylighting.



the lightwell

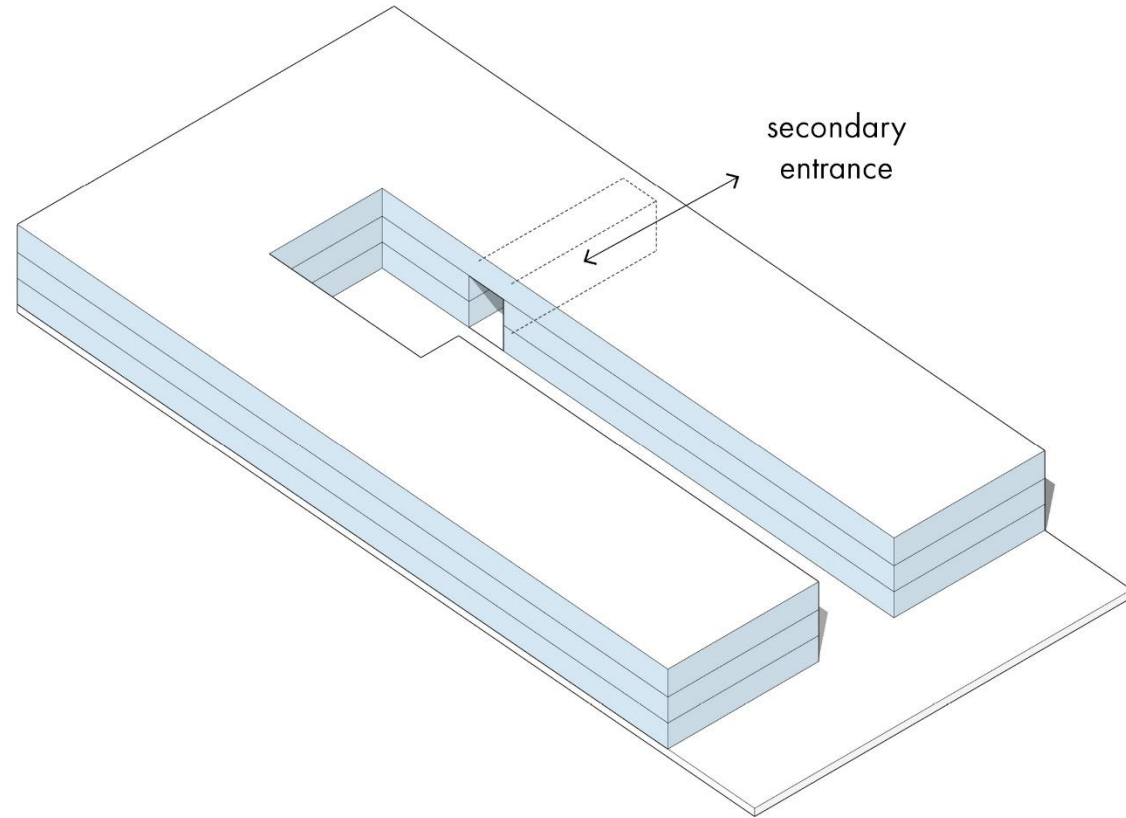
A long courtyard on axis with the primary entrance is carved out of the center, creating 80-foot-deep floor plates ideal for daylighting.

massing approach



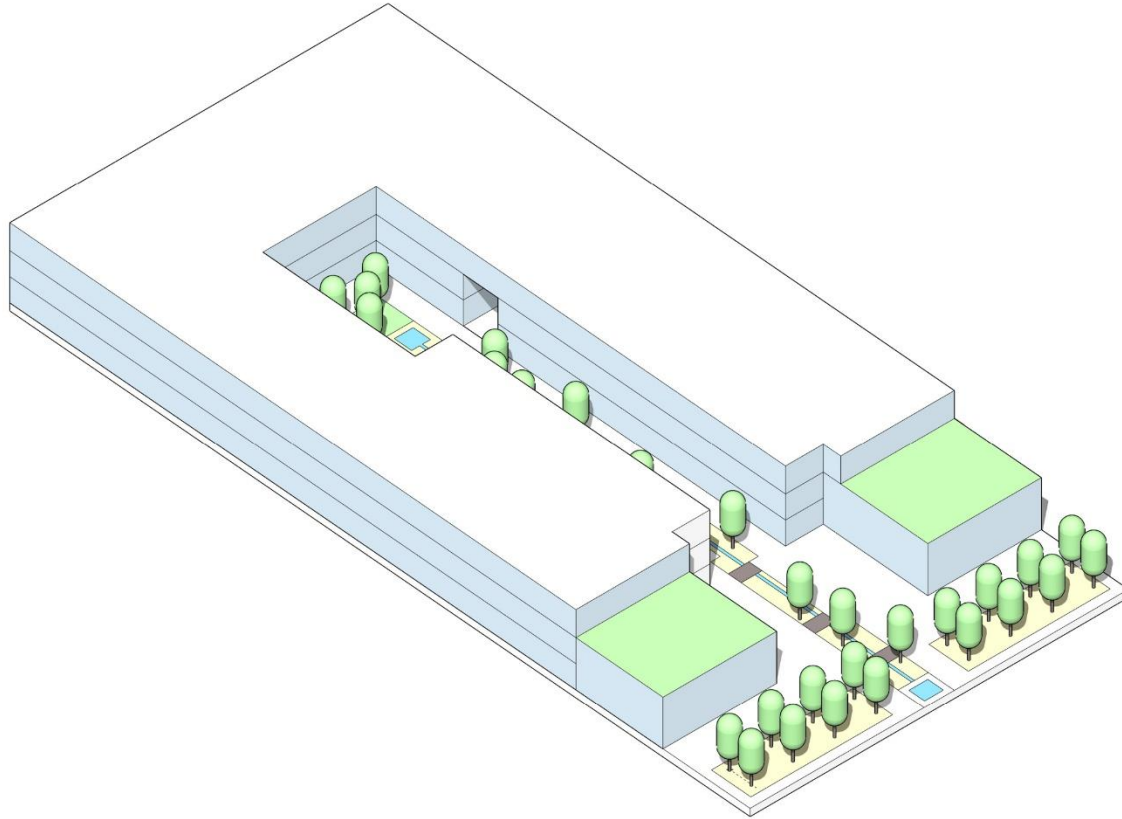
a new core

In a typical office building, 15-20% of the floor plate is taken up by a dark central core that blocks access to daylight and views. Removing this core opens up the tenant spaces to more daylight and outdoor spaces and eliminates the materials and energy use associated with long dark corridors.



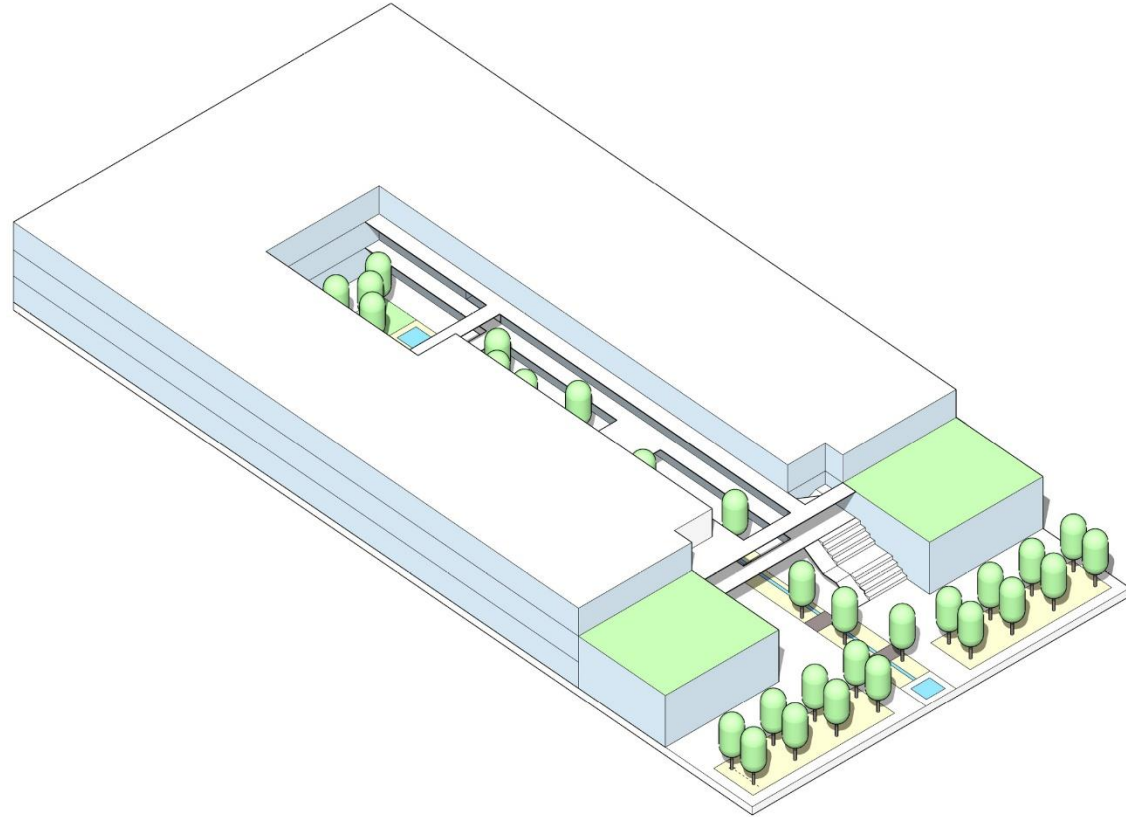
carved spaces

A larger central courtyard is opened up to create a secondary gathering space, with a double height connection carved through the ground floor for secondary circulation to the parking.



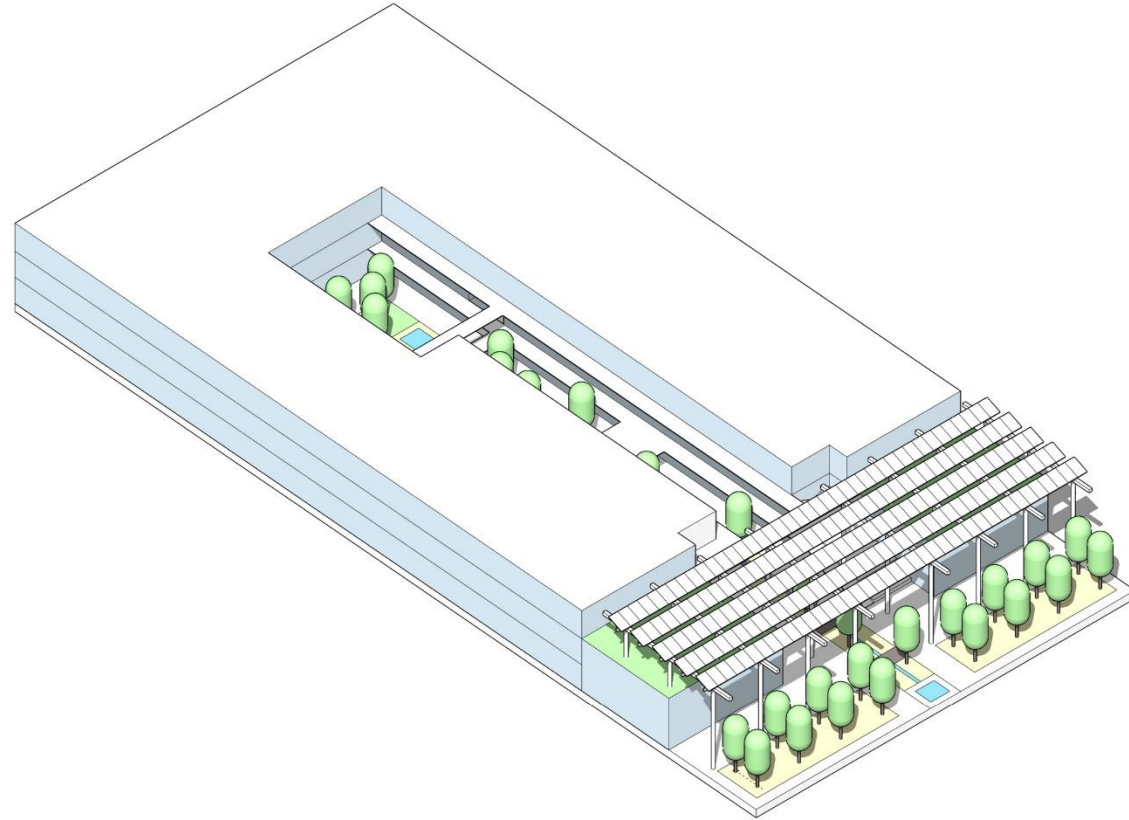
the landscaping

A grove of trees shades the front arrival plaza and extends into the central courtyard with a water runnel connecting two fountains at each end. Third-floor roof terraces are created to capture views of the city beyond.



the connectivity

A series of exterior stairs and walkways turns the building lobby and circulation inside out. This encourages interaction with the landscape and other building occupants, transforming the courtyard into dynamic social space.



the solar plaza

Utilizing the large roof area, a PV array covers the majority of the roof. A large, triple-height trellis of photovoltaics extends over the front plaza, expressing the building's sustainable feature and blurring landscape and architecture.

approach & arrival plaza

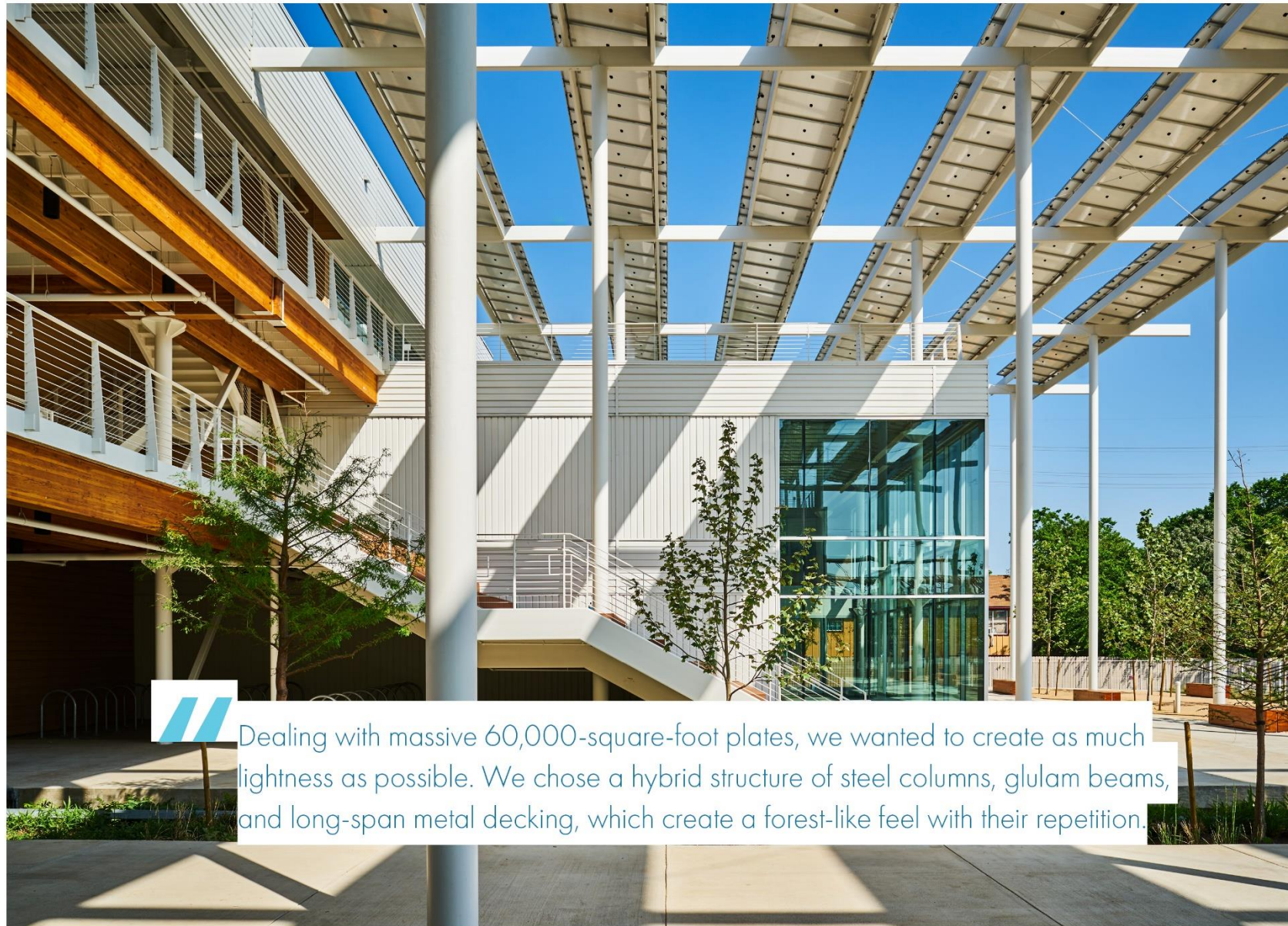
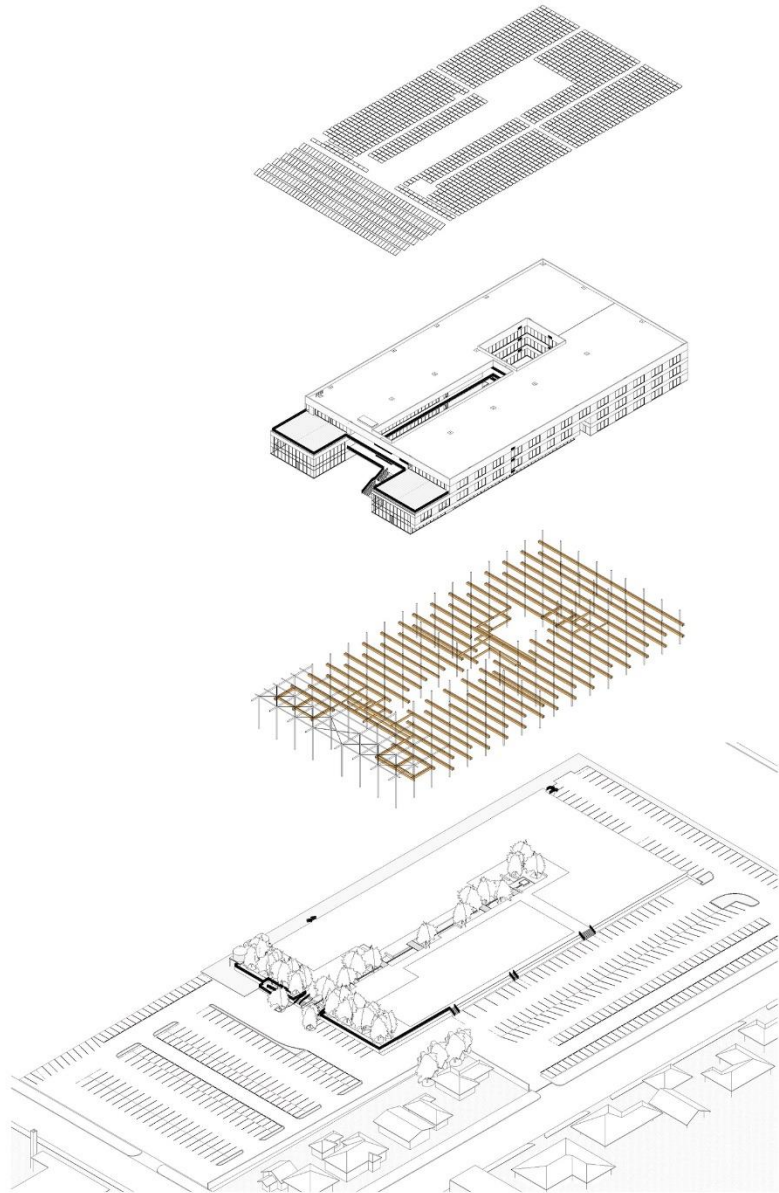


// Sustainability and expressing it became an important design goal. The entire roof is covered in a PV array, with the array expressed as a grand trellis over the outdoor entry plaza.

approach & arrival plaza



structural approach



Dealing with massive 60,000-square-foot plates, we wanted to create as much lightness as possible. We chose a hybrid structure of steel columns, glulam beams, and long-span metal decking, which create a forest-like feel with their repetition.

resiliency strategies



energy

Utilizing the large roof surface for PV panels to offset peak energy demand usage



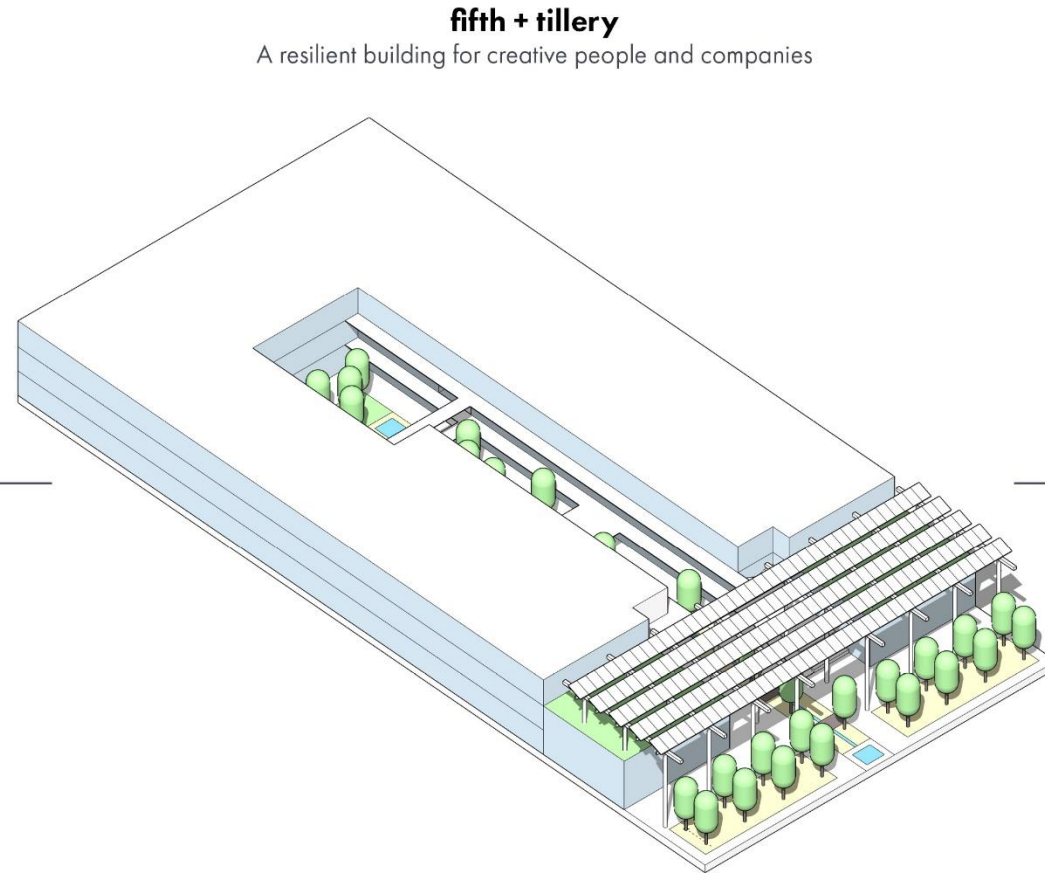
daylighting

Sizing floor plates and window openings to optimize daylighting to reduce use of artificial lighting



access to nature

Provide views to landscaping from all spaces within the building; Views of nature have been proven to reduce stress, improve mental function, and increase happiness



fifth + tillery

A resilient building for creative people and companies



water harvesting

On-site water tanks provide storage for captured HVAC condensate to supplement landscape irrigation needs and make-up water for the central water feature



stormwater management

The central courtyard landscaping is a series of rain gardens that capture, filter, and slow the run-off of storm water from the site



active design

Exterior circulation encourages and promotes movement through the building and landscaping

workplace benefits



daylight

Decreased headaches: up to 63%
Decreased drowsiness: up to 56%
Decreased eyestrain: up to 51%



views

Increased mental function: up to 25%
Increased productivity: 6-7%
Decreased absenteeism: up to 16%



fresh air

Improved mental function: up to 101%
Decreased respiratory ailments: up to 76%
Decreased sick building syndrome: up to 25%



Sources: WGBC, HBR, TBG, LBL



A combination of roof-mounted and trellis-mounted PV panels provides over 478 kVA of energy production, which is stored to offset peak demand when energy costs are the highest. Excess energy is sold back to the grid.



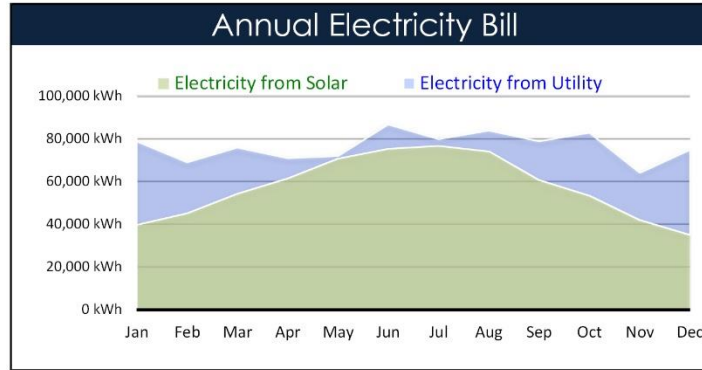
Custom Solar Design

System Size	Annual Production
477,950 W-DC	688,688 kWh

Materials	
1210	SunPower P19 395W Solar Modules
1	Tier 1 String Inverter System
1	Racking System
1	Freedom eGauge Monitoring System
	NEC Compliant Electrical Equipment
	Miscellaneous Materials

System Cost	
Total Cost	\$809,726
Out of Pocket Cost	\$809,726
Federal Tax Credits	(\$242,918)
100% Bonus Depreciation	(\$240,893)
Adjusted Total	\$325,915

Assumptions	
Modeling Assumptions	
3.0% utility rate inflation	
35.0% marginal tax rate	
6.7 ¢/kWh in year 1	



Project IRR
18.7%

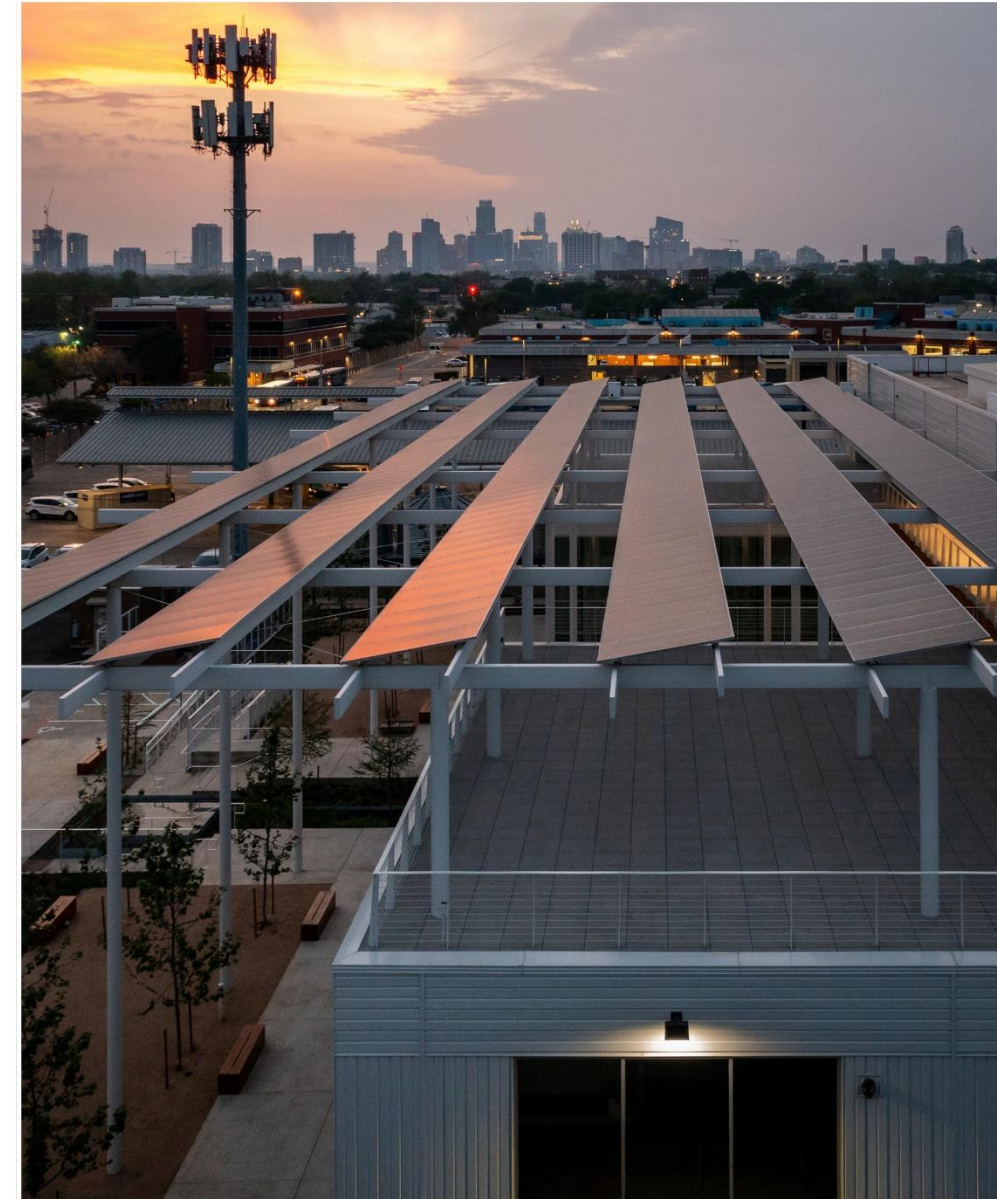
Levered IRR
N/A

Annual Offset
N/A

Payback
4.30 Years

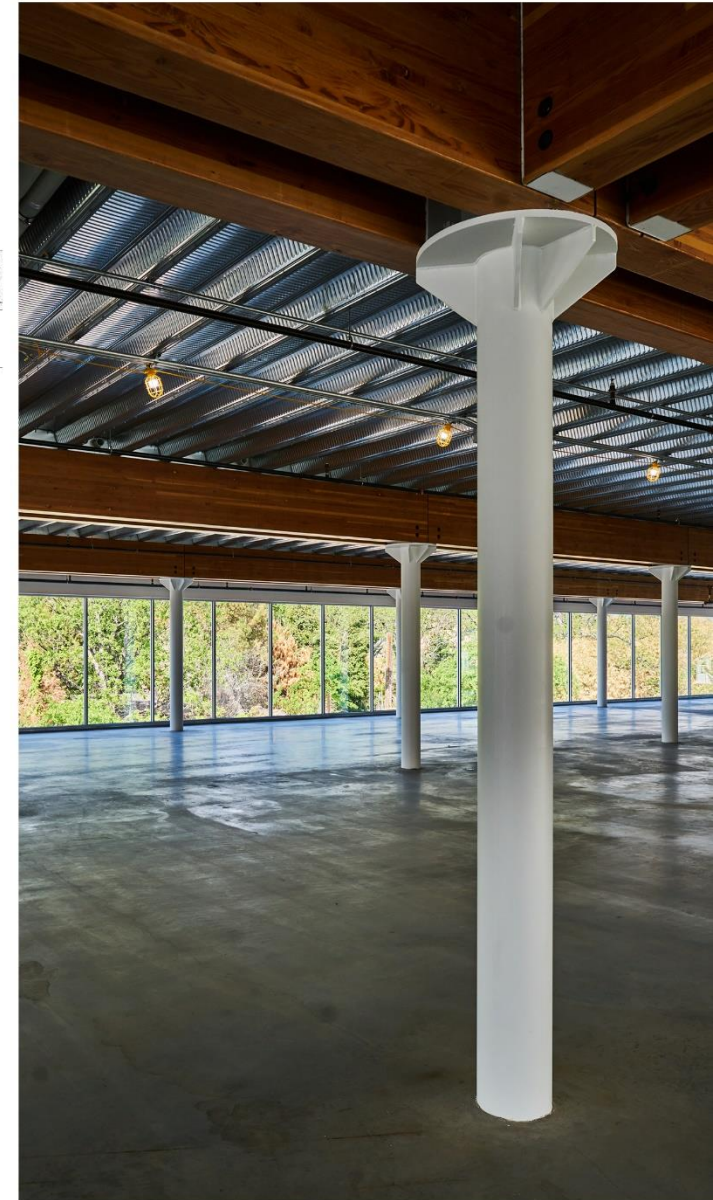
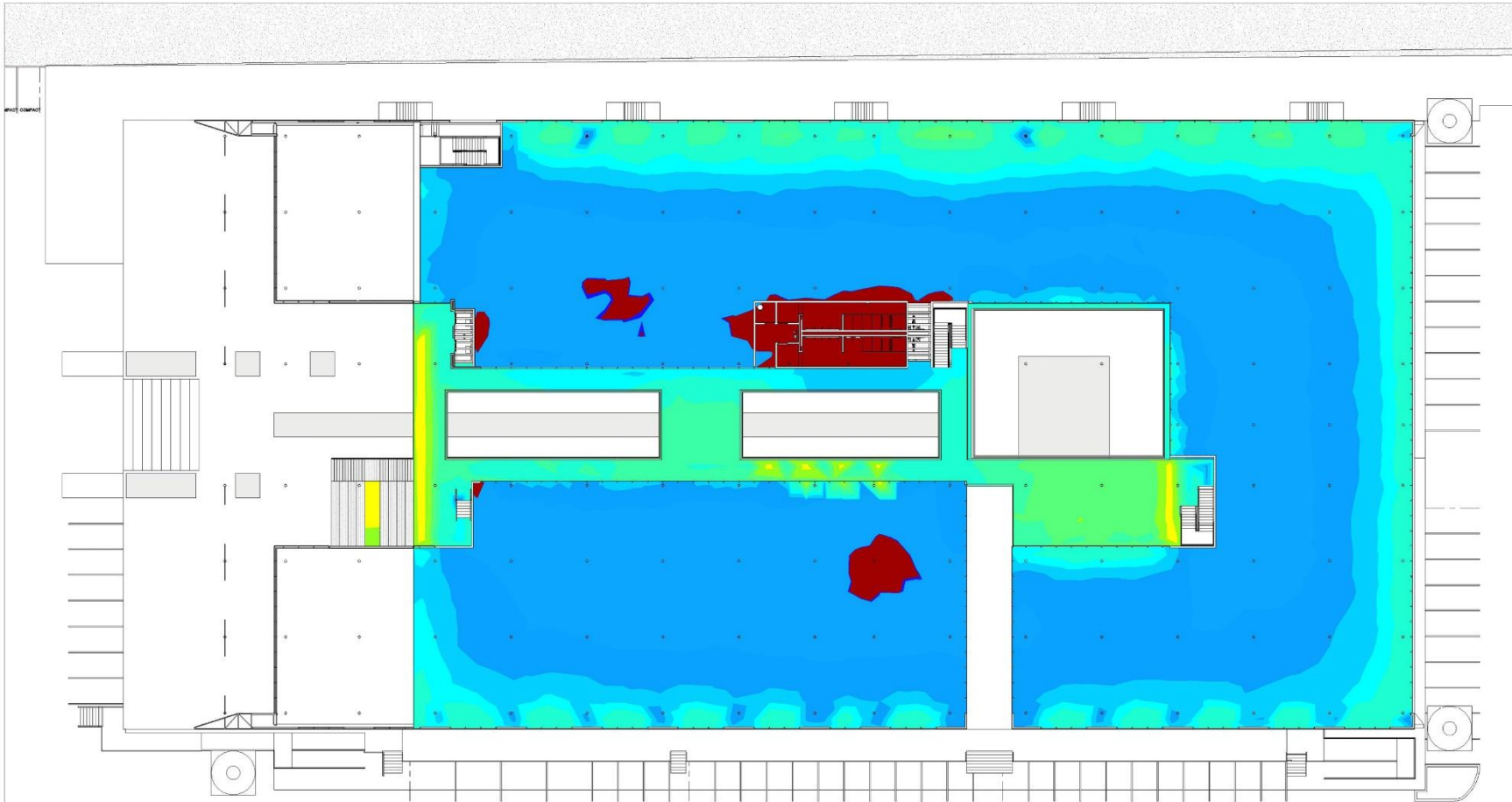
Levelized Cost of Energy
1.95 ¢/kWh

Lifetime Savings
\$1,573,052.58



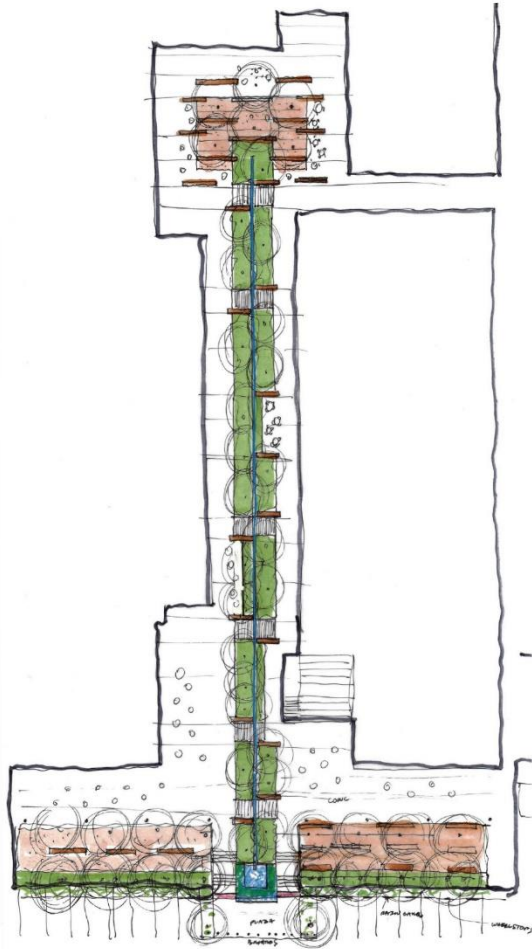
daylighting & views

// We studied the floor openings, fenestration, and PV structure with a goal for soft, dappled light. Daylighting studies were run to ensure we had the right balance of daylight. Yellow is eye burn. Blue is perfect.



access to nature

With the existing building surrounded by surface parking, we set a goal to provide views of nature from all spaces within the building. We achieved this by bringing the landscape through the building and framing views to adjacent greenery.

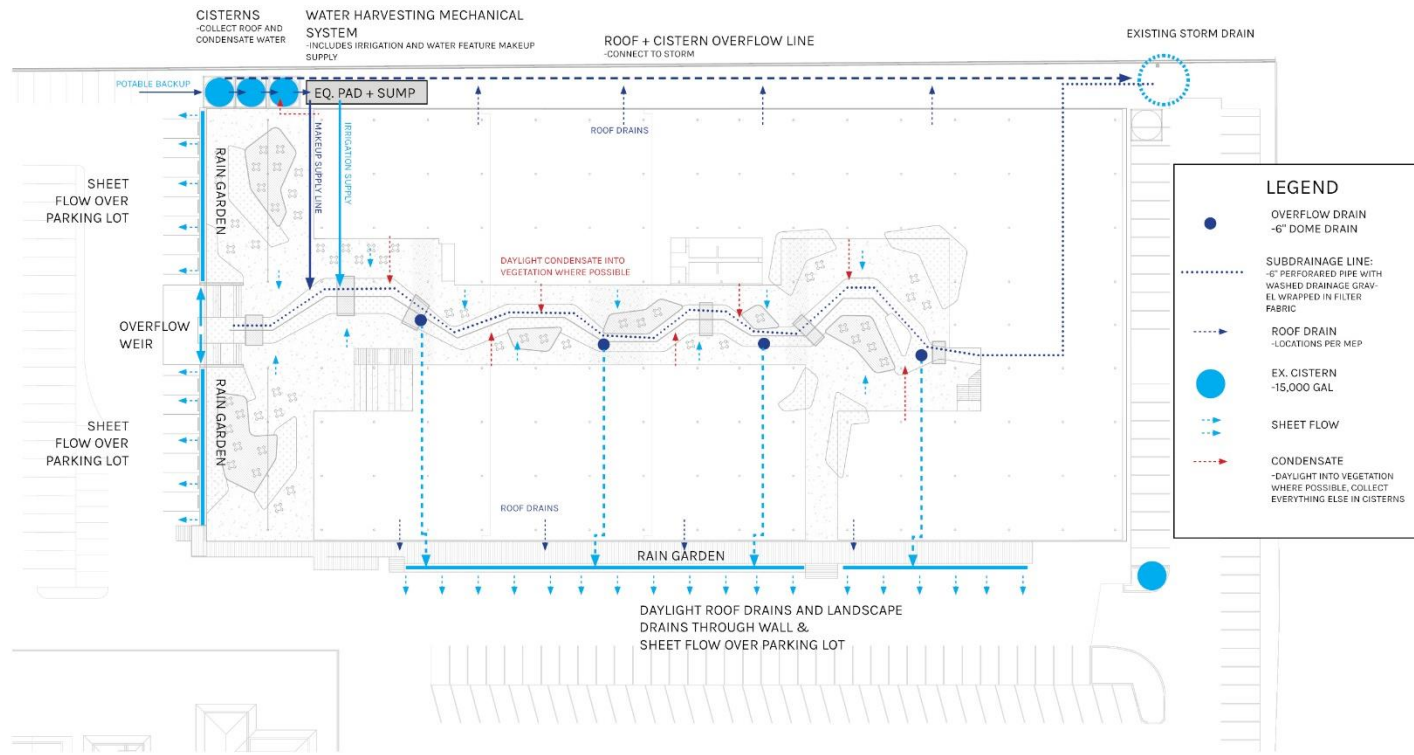


access to nature

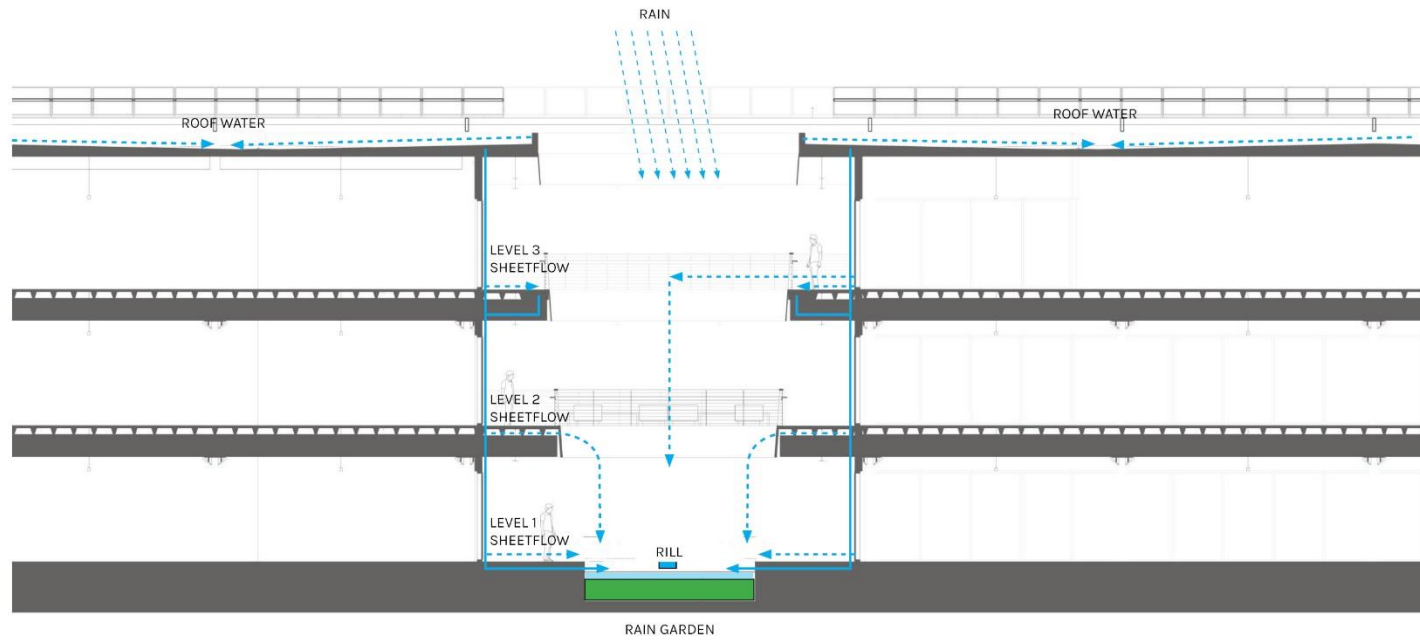


water harvesting & stormwater management

/// A central rain garden collects condensate and stormwater, with overflow water directed to additional rain gardens. This system compensates for the high percentage of impervious cover on site, slowing and filtering run-off. A separate water harvesting system collects condensate to provide landscape irrigation and make-up water for the central water feature.



water harvesting & stormwater management



active design



In a typical center core office building, once you are through the lobby and in the elevator you have very little interaction with other building users. We have brought all of the typical lobby and core elements to the exterior, where a series of stairs and walkways connect all spaces and encourage users to actively move through the building and interact.



THANK YOU

Architectural Record | Mass Timber as a Solution for Commercial Offices | April 4, 2024

