Gensler

CLIMATE ACTION THROUGH DESIGN

THE PRESENTERS

Samar Hussein

Associate
Design Resilience Regional Leader APME
LEED AP BD+C, Fitwel Ambassador

Steven Velegrinis

Design Director
Regional Cities & Urban Design Lead at Gensler
AILA, PIA, LEED ND AP

As an industry—and a global community—we are witnessing universal momentum a round addressing the urgent issue of climate change. This year is marked by the passing of key legislation across the globe with the aim of reducing carbon emissions through the entire value chain of the built environment.

We are propelled by the momentum of a crisis multiplier the world continues to face—an ongoing and evolving global pandemic, frequent and recurring extreme weather events, the rising cost of energy and materials, and issues of equity and systemic racism.

Organizations across industries are crafting plans to address the full spectrum of the impacts of climate change. Today, more than 700 of the largest 2,000 publicly traded companies globally have zero carbon commitments.

Gensler's designers across the globe worked on over 6,000 projects in last year alone, representing a massive opportunity for positive impact via sustainable design solutions.

Gensler Cities Climate Challenge (GC3) is our roadmap for how we intend to help our clients reach their carbon targets and our goal of making every building in our portfolio net zero carbon.

Beyond sustainability is the concept of **resilience**, a term we use to recognize that design must constantly evolve, adapting to and preparing for a changing world.

Gensler

Climate Resilience

As the climate continues to shift, we must invent new ways for cities to enrich the human experience within a changing environment.

Gensler

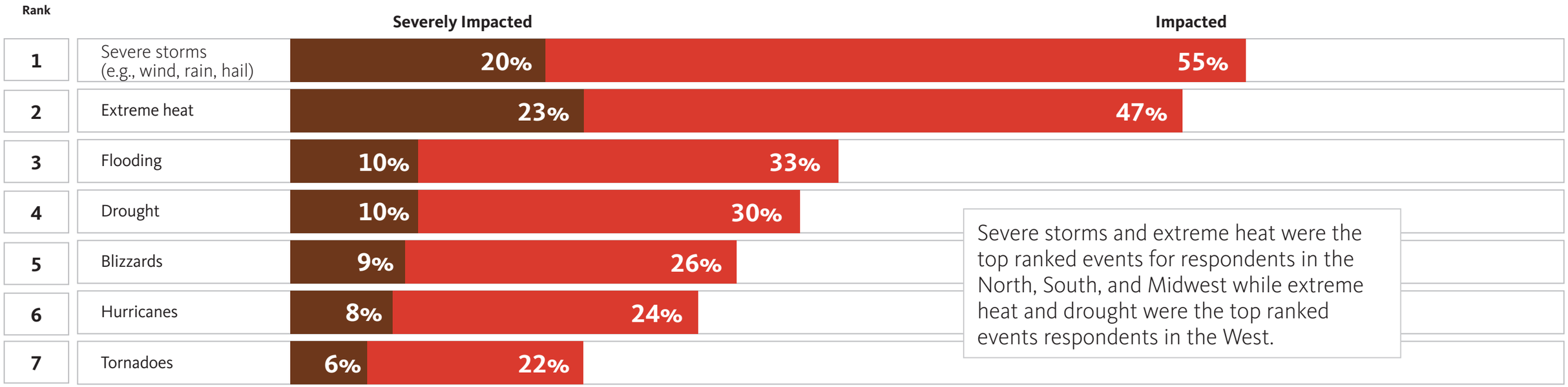
U.S. Climate Action Survey 2022

Only 18% of Americans believe their communities are built to withstand climate change.

Gensler RESEARCH INSTITUTE

WHAT ARE THE MOST SEVERE IMPACTS?

PERCENT OF RESPONDENTS WHO INDICATED THAT THEY WERE ADVERSELY AFFECTED TO SOME EXTENT SINCE 2019



Severe storms and extreme heat were the top ranked events for respondents in the North, South, and Midwest while extreme heat and drought were the top ranked events respondents in the West.

Response options ranged from "Not at all impacted" to "Severely impacted." Total exceeds 100% because respondents could select multiple options.

HOW CAN WE PREPARE?

PREPAREDNESS FRAMEWORK

- Minimizing the amount of new carbon emitted into the environment.
- Reducing the resource needs/impact of new development.
- Investing in natural capital and greening our communities.
- Supporting/preserving local ecologies and resources.

- Business continuity in the face of climate events.
- Incentives or cost recovery vehicles for adaptation/ resilience upgrades.
- Prioritizing investments in energy and resource efficiency and adaptation.
- Addressing insurability and long-term value of real estate.

- **Promoting cultural resilience and preparedness.**
- **Creating places that improve human health, well being, and social connection.**
- **Creating awareness and optimism in our communities.**

- Prioritizing marginalized communities, who are already feeling the most negative impacts from climate change.
- Addressing the impacts of climate change on local and regional identity.

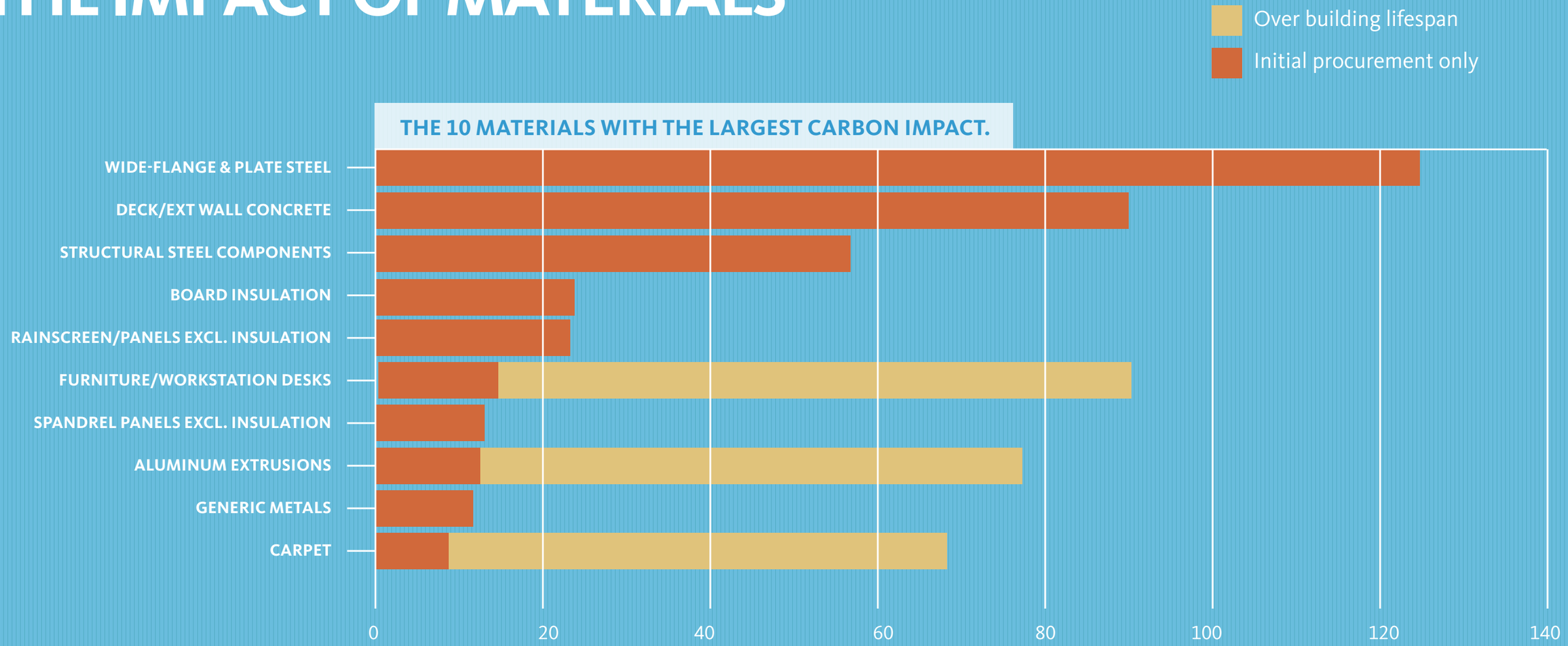
10 STEPS TO GET TO NET ZERO ENERGY

1. UNDERSTAND YOUR BUILDING'S ENERGY PROFILE.
2. CREATE AN ENERGY BUDGET.
3. ORIENTATE YOUR BUILDING TO ITS SURROUNDING CLIMATE.
4. USE BUILDING ENERGY MODELING TO SELECT YOUR ENVELOPE.
5. INTRODUCE EXTERIOR SHADING.
6. DESIGN FOR DAYLIGHT.
7. CONSIDER OUTDOOR PROGRAMMING.
8. BOOST NATURAL VENTILATION.
9. REDUCE PLUG LOADS.
10. PRIORITIZE WHOLE SYSTEMS OVER LOCALIZED SOLUTIONS.

THE RIGHT MATERIALS

When you do build new, focus on low-impact and low-carbon resources.

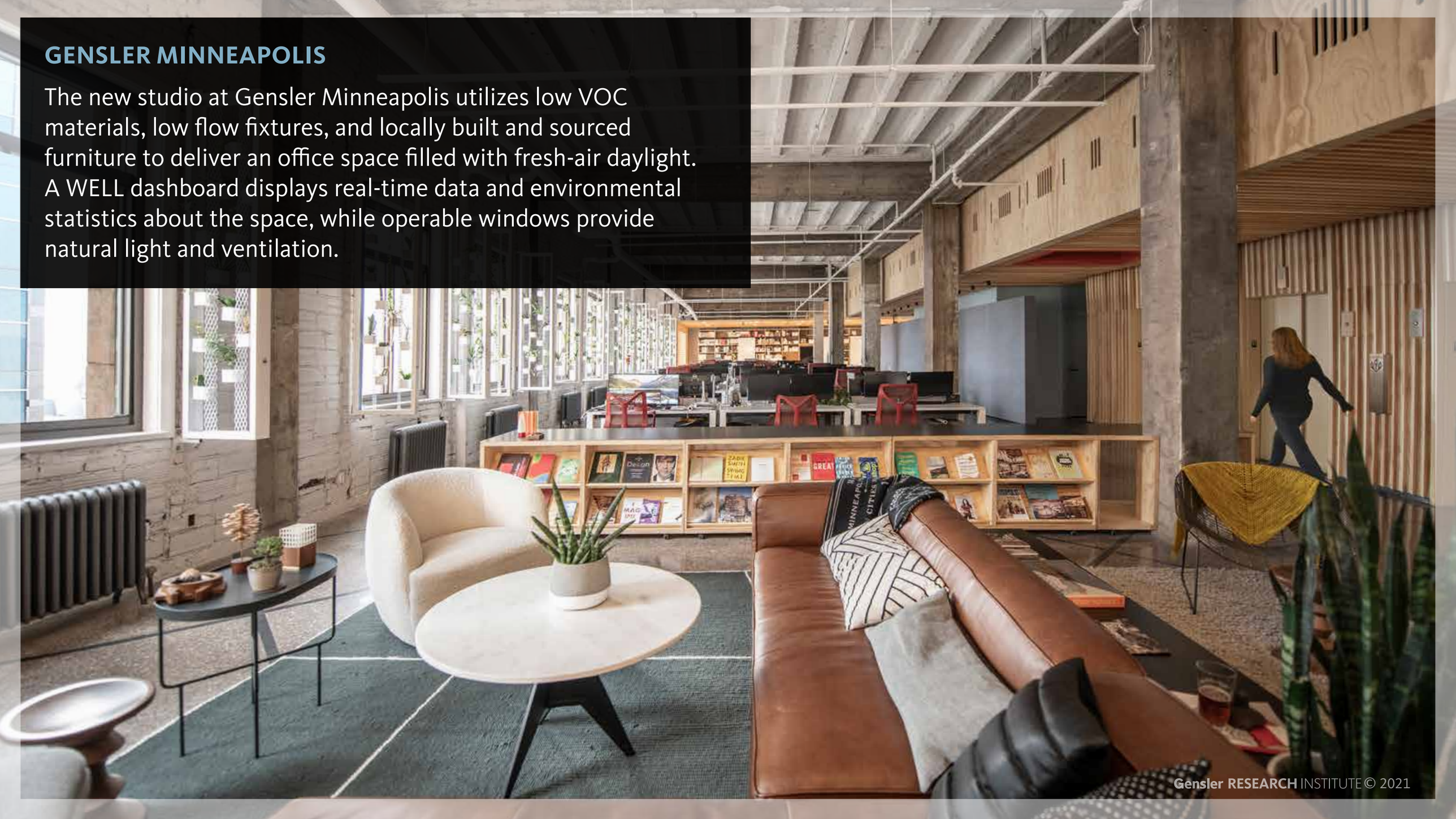
UNDERSTANDING THE IMPACT OF MATERIALS



Global Warming Potential (GWP) Intensity within selected case studies, measured in kg CO2e/m2, and capturing product stage impacts including raw material supply, transport, and manufacturing impacts (A1-A3 life cycle stages).

GENSLER MINNEAPOLIS

The new studio at Gensler Minneapolis utilizes low VOC materials, low flow fixtures, and locally built and sourced furniture to deliver an office space filled with fresh-air daylight. A WELL dashboard displays real-time data and environmental statistics about the space, while operable windows provide natural light and ventilation.



UPCYCLE, AUSTIN, TEXAS

The repositioning of the warehouse building into a multi-tenant creative office space. It seeks to preserve a piece of the city's history while also providing an updated, modern, and collaborative working environment. The design reuses 100% of the existing structure, even the building skin, which is turned inside out to reveal its natural finish. Even old elements such as exhaust fans were reused as decorative design features.

REAL ESTATE MUST ADAPT

The climate is already changing—
real estate must adapt accordingly.

HOW TO MITIGATE THE RISK OF RISING WATER

1. **CREATE PEDESTRIAN ACCESSIBILTY.**

The focus of the scheme is accessibility; a network of pedestrian green routes connect the neighborhoods and large parks located at the coastal edge and in the center of the development. There are no level changes across the scheme to strengthen accessibility and promote exercise and healthy living.

2. **CREATE GREEN AND BLUE VIEWS.**

The scheme is designed to maximize green and blue views by ensuring that the development steps down in height from the dense core to the shoreside neighborhoods.

3. **CREATE "SPONGE ROOFS" AND PERMEABLE PAVEMENTS**

A mix of green roofs and permeable pavements support a sustainable drainage system strategy to capture and storewater.

4. **COLLECT RAINWATER AND USE GRAYWATER.**

Sponge roofs paired with siphonic drainage and a storage system collect rainwater and significantly reduce water usage in a property when combined with graywater from sinks and showers.

HOW TO MANAGE THE HEAT

1. **ADD SHADE.**
Envelope-mounted sun screens, both vertical and horizontal, and deep roof eves can shade buildings and the sidewalk below.

2. **REPLACE CONCRETE AND ASPHALT.**
The use of permeable pavers absorbs much less heat than asphalt.

3. **USE NATIVE LANDSCAPING.**
Native trees and shrubs on top of and around buildings serve as added shade while also capturing stormwater runoff.

4. **PARTNER WITH LOCAL COMMUNITIES.**
Education and outreach on a local level can raise awareness of the harmful effects of heat. Offering practical and actionable solutions such as volunteer tree planting efforts or weatherization instruction can engage the community and lower the temperature.

MSHEIREB DOWNTOWN DOHA, QATAR

Realized by Gensler in partnership with Turner International Middle East and a team of architects and consultants, Downtown Doha represents one of the highest concentrations of LEED-certified buildings in the world, with 11 LEED Platinum and 6 LEED Gold Certified buildings to date.

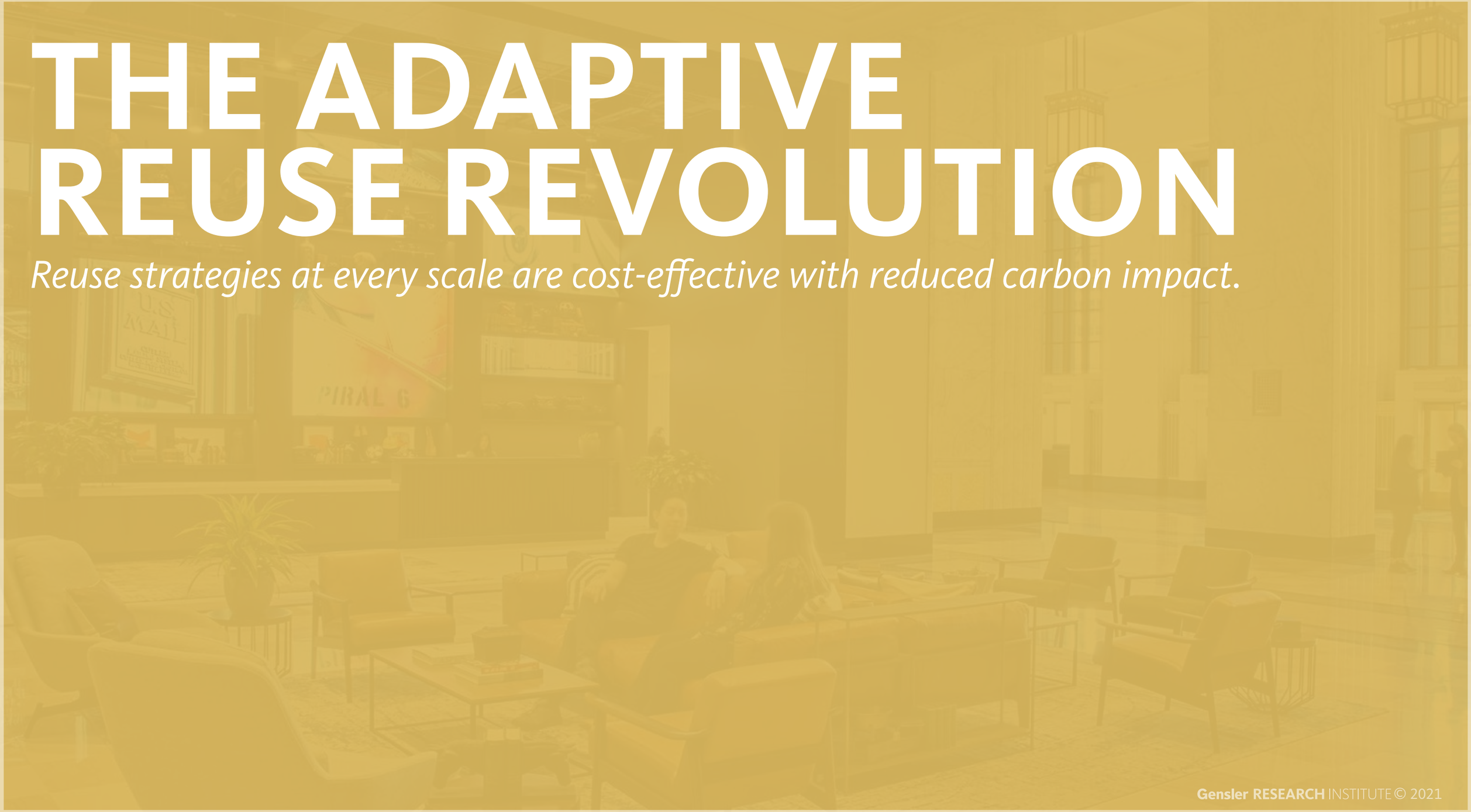
Combining modern construction techniques with cultural and contextual precedent for sustainable design, the project takes a markedly different approach to downtown redevelopment—focusing on the human experience, street presence, and progressive approaches to providing human comfort in a hot climate.

"This project achieves a distinctly Qatari architectural style and experience, and represents a progressive new approach to sustainability in hot, arid climates."

LISA CHOLMONDELEY, Design Manager, Gensler San Francisco

THE ADAPTIVE REUSE REVOLUTION

Reuse strategies at every scale are cost-effective with reduced carbon impact.



ADAPTIVE REUSE STRATEGIES CAN BE APPLIED AT MULTIPLE SCALES.

PRODUCTS

REUSE, REPURPOSE, RECYCLE.

BALANCE REUSE OF APPLIANCES WITH CURRENT DEMANDS AND ENERGY EFFICIENCY.

USE LOCALLY SOURCED PRODUCTS.

INTERIORS

DESIGN FOR DISASSEMBLY.

SELECT LOW-CARBON MATERIALS.

CHOOSE MATERIALS THAT ARE EASY TO REUSE.

BUILDINGS

REPOSITION AND RETROFIT.

ASSESS THE BUILDING'S CORE AND SHELL.

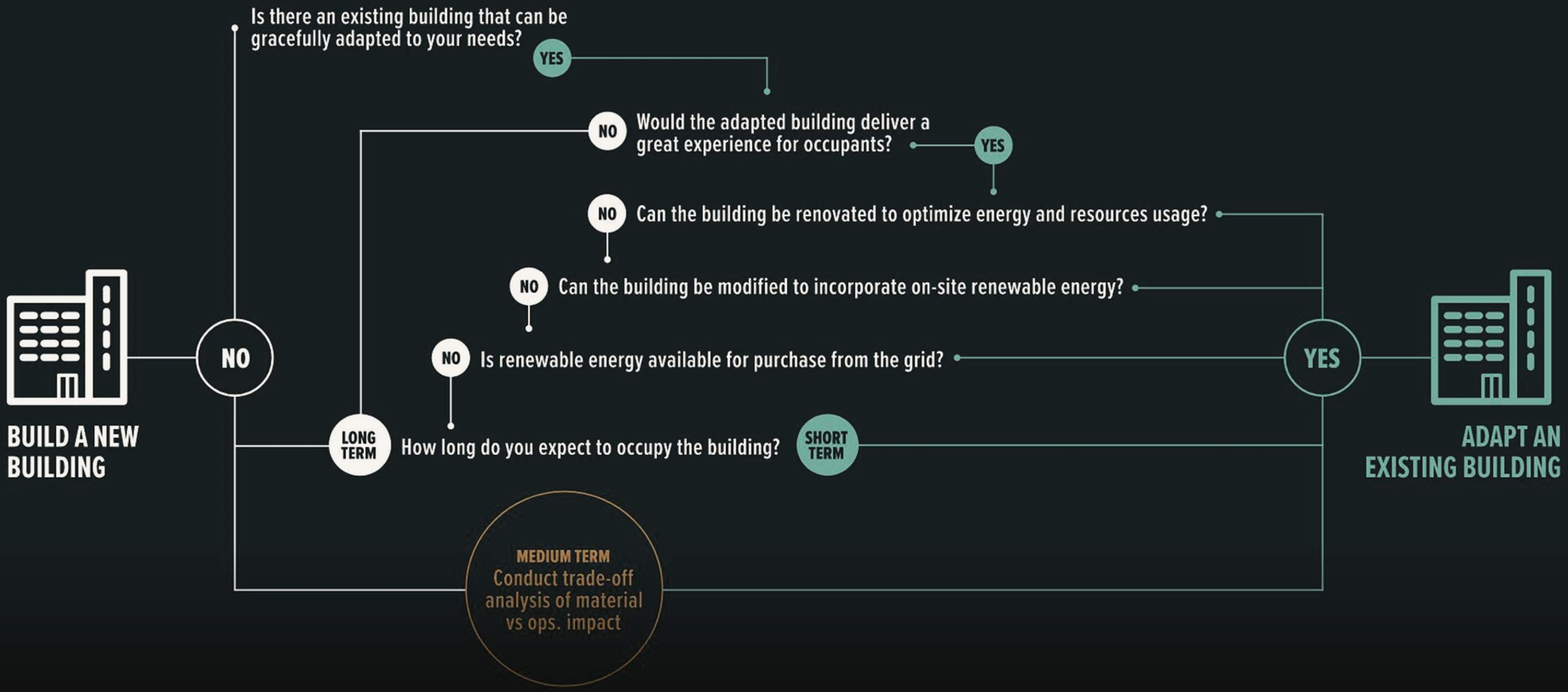
CONSIDER THE ENVELOPE.

CITIES

EXAMINE NEW USES THAT MEET COMMUNITY NEEDS.

LOOK FOR OPPORTUNITIES FOR PARTNERSHIP.

CONNECT WITH YOUR COMMUNITY.


Is there an existing building that can be gracefully adapted to your needs?
YES
NO
Would the adapted building deliver a great experience for occupants?
YES
NO
Can the building be renovated to optimize energy and resources usage?
NO
Can the building be modified to incorporate on-site renewable energy?
NO
Is renewable energy available for purchase from the grid?
NO
YES
BUILD A NEW BUILDING
LONG TERM
How long do you expect to occupy the building?
SHORT TERM
ADAPT AN EXISTING BUILDING
MEDIUM TERM
Conduct trade-off analysis of material vs ops. impact

Gensler

THE NEW DESIGN JOURNEY

To achieve a net zero carbon portfolio by 2030, we optimized our design process from end to end.

START EVERY PROJECT WITH CLEAR SUSTAINABLE PERFORMANCE GOALS

"To meet our goal of zero carbon impact by 2030, we need to improve our design performance significantly each year. We are developing new educational initiatives and project kick-off processes in line with this goal."

GAIL NAPELL, Director of Sustainability, Gensler San Francisco

CONFIDENTIAL PROJECT

A NEW TECHNOLOGY ECOSYSTEM FACILITATES DATA-INFORMED DECISIONS AT SCALE

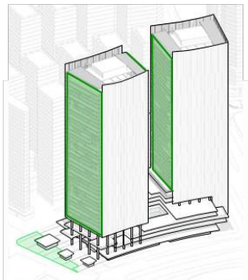
"Our digital transformation strategy brings innovative solutions like climate data simulations as a vital part of storytelling and decision-making in the design journey—a must-have experience for our clients and designers to engage and co-create a resilient tomorrow."

JOSEPH JOSEPH, Global Director of Design Technology

GENSLER NFORM ECOSYSTEM

FILLINVEST SPECTRUM CITY - PHILIPPINES

SUSTAINABLE + EFFICIENT
FAÇADE TYPOLOGIES

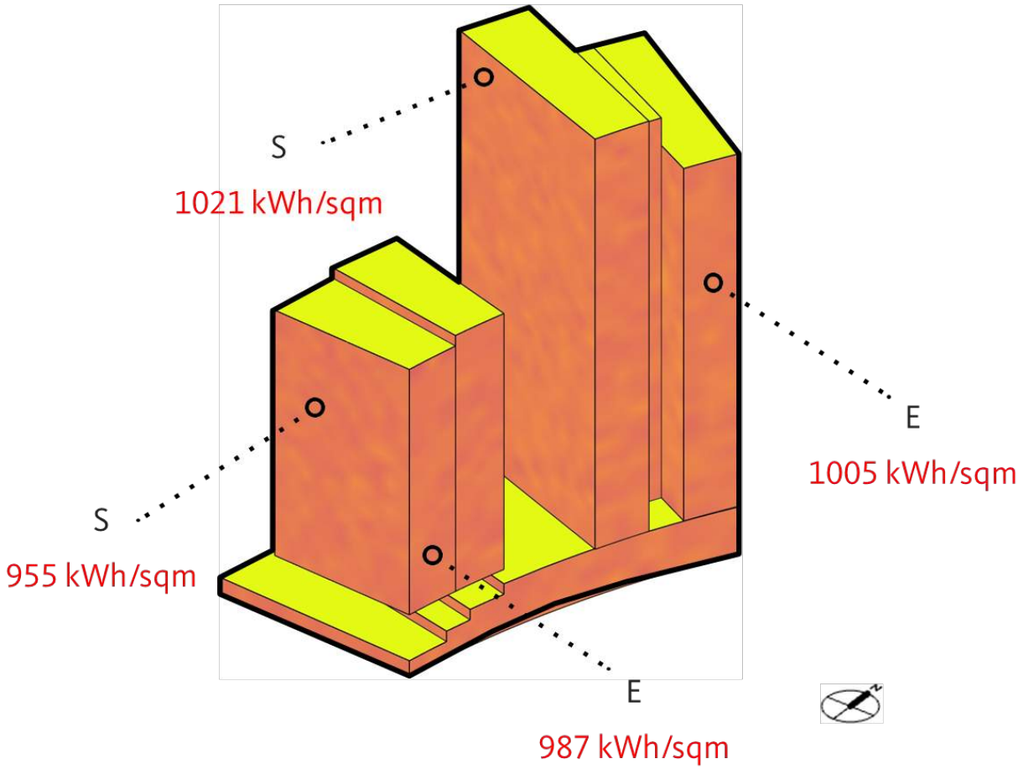


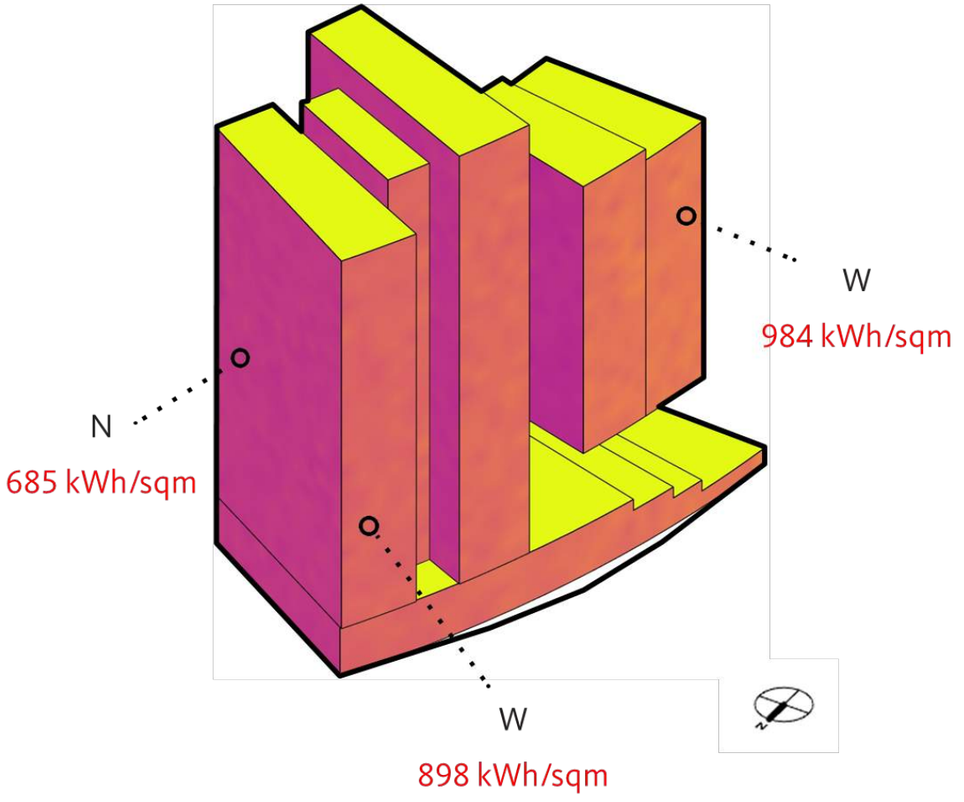
Facade Type 1

BUILDING ENVELOPE OVERVIEW

SOLAR RADIATION MASSING STUDY

FINDINGS: The South and South-East facing facades receive the most cumulative yearly solar radiation.





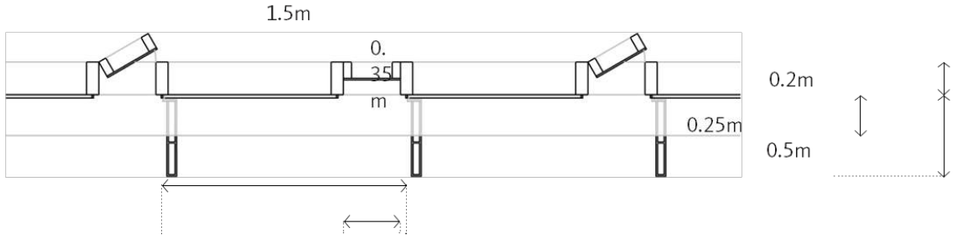
NORTH-WEST ISOMETRIC VIEW

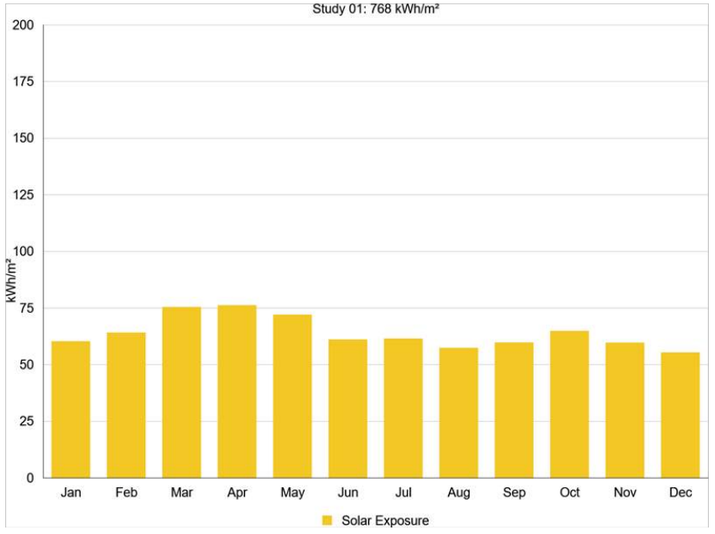
SOUTH-EAST ISOMETRIC VIEW

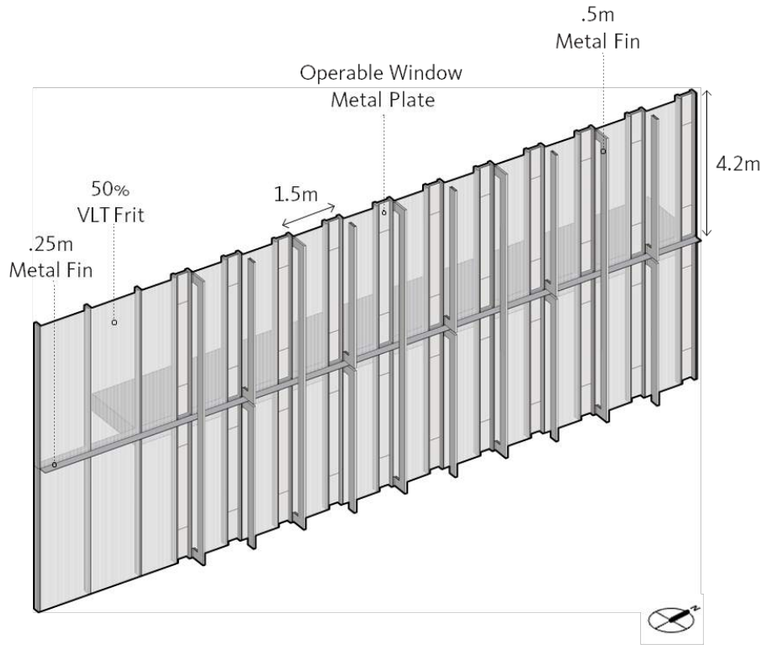
CURTAIN WALL STUDIES

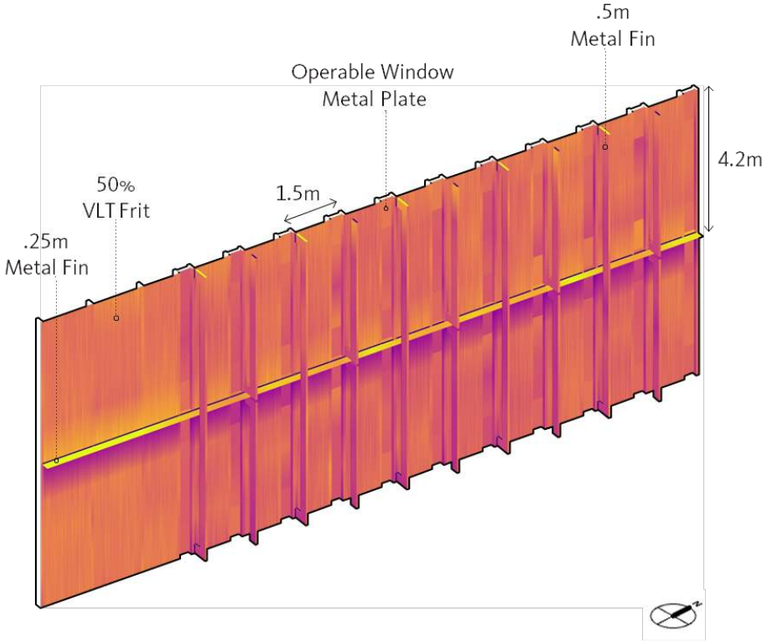
OPTION 01

2-Story Staple Fins .5m
Opaque Operable Slot - Stagger





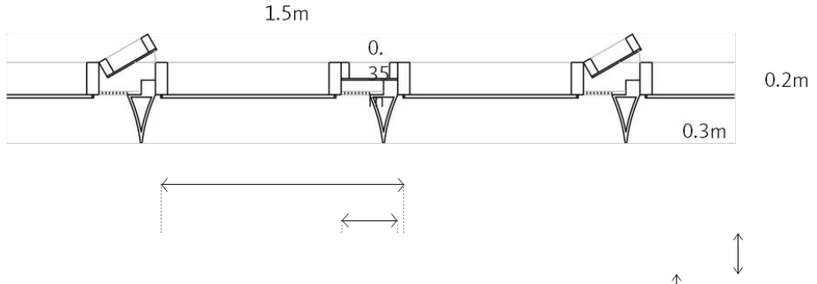


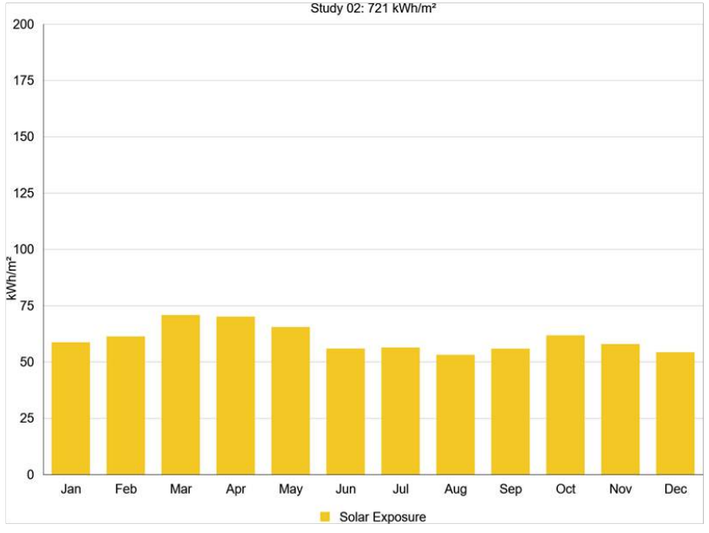


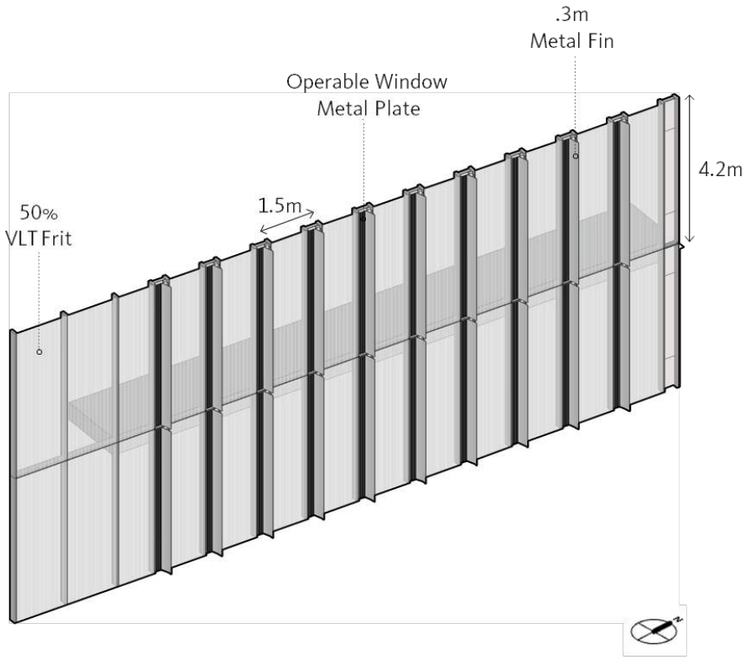
CURTAIN WALL STUDIES

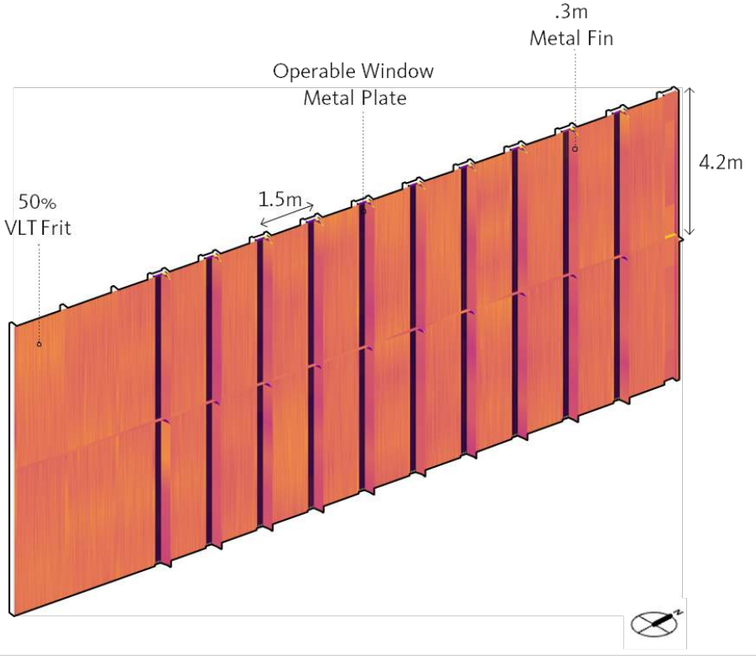
OPTION 02

2-Story Staple Fins .5m
Opaque Operable Slot - Stagger



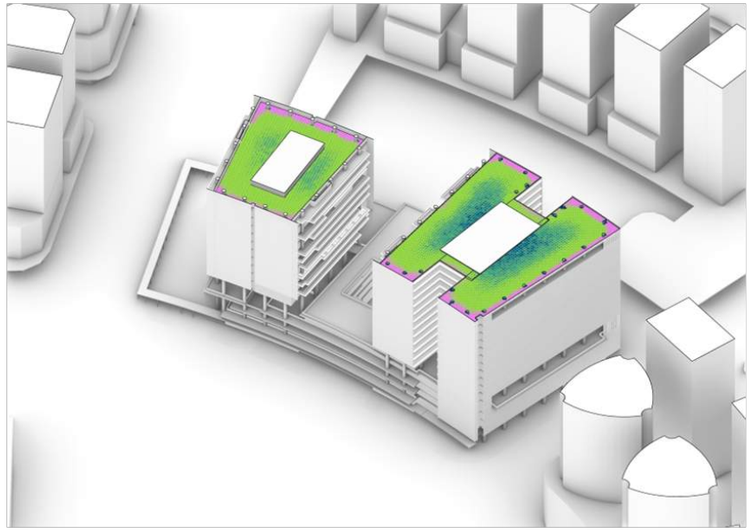


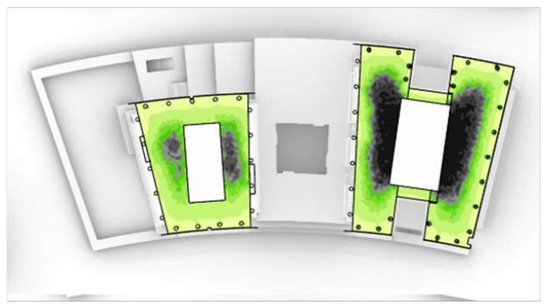




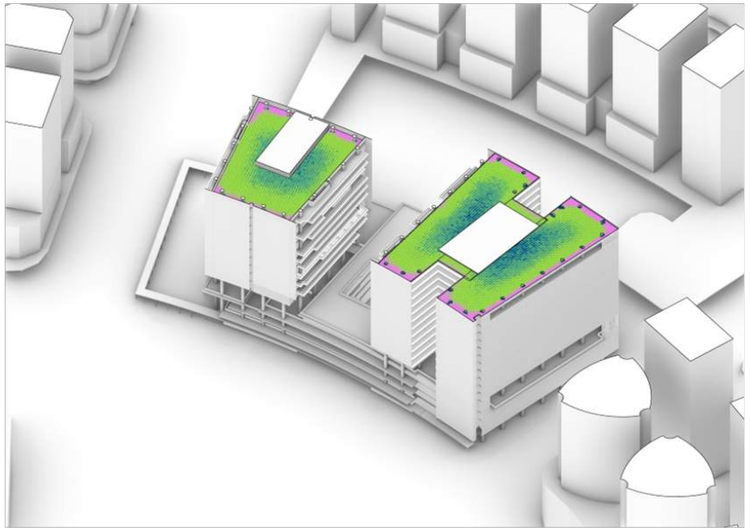
CORE STUDIES
DAYLIGHT SIMULATIONS

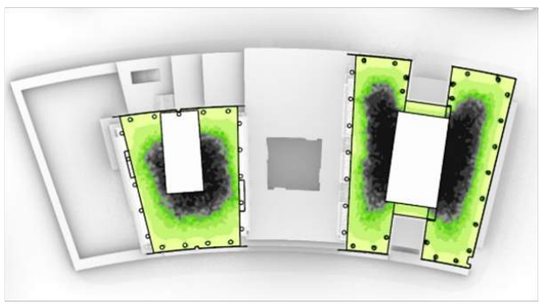
FAILING SUPPLEMENTAL ACCEPTABLE EXCESSIVE



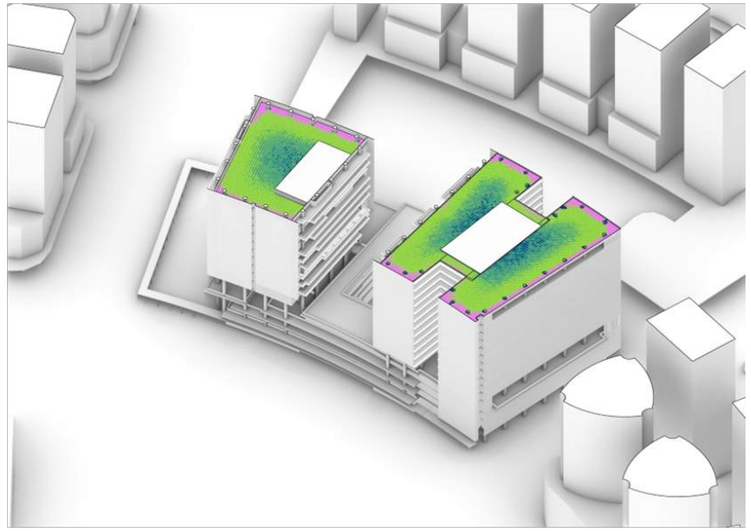


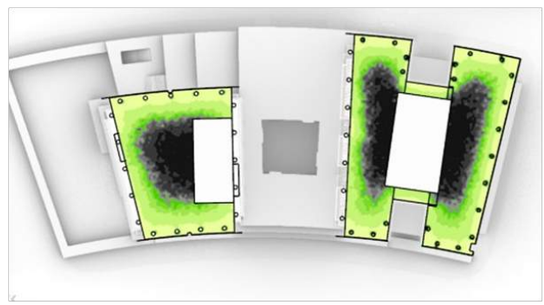
CENTRAL CORE





WEST SIDE CORE





NORTH SIDE CORE

ONGOING INVESTMENTS IN DESIGN-RESILIENCE RESEARCH PROVIDES DEEP INSIGHTS

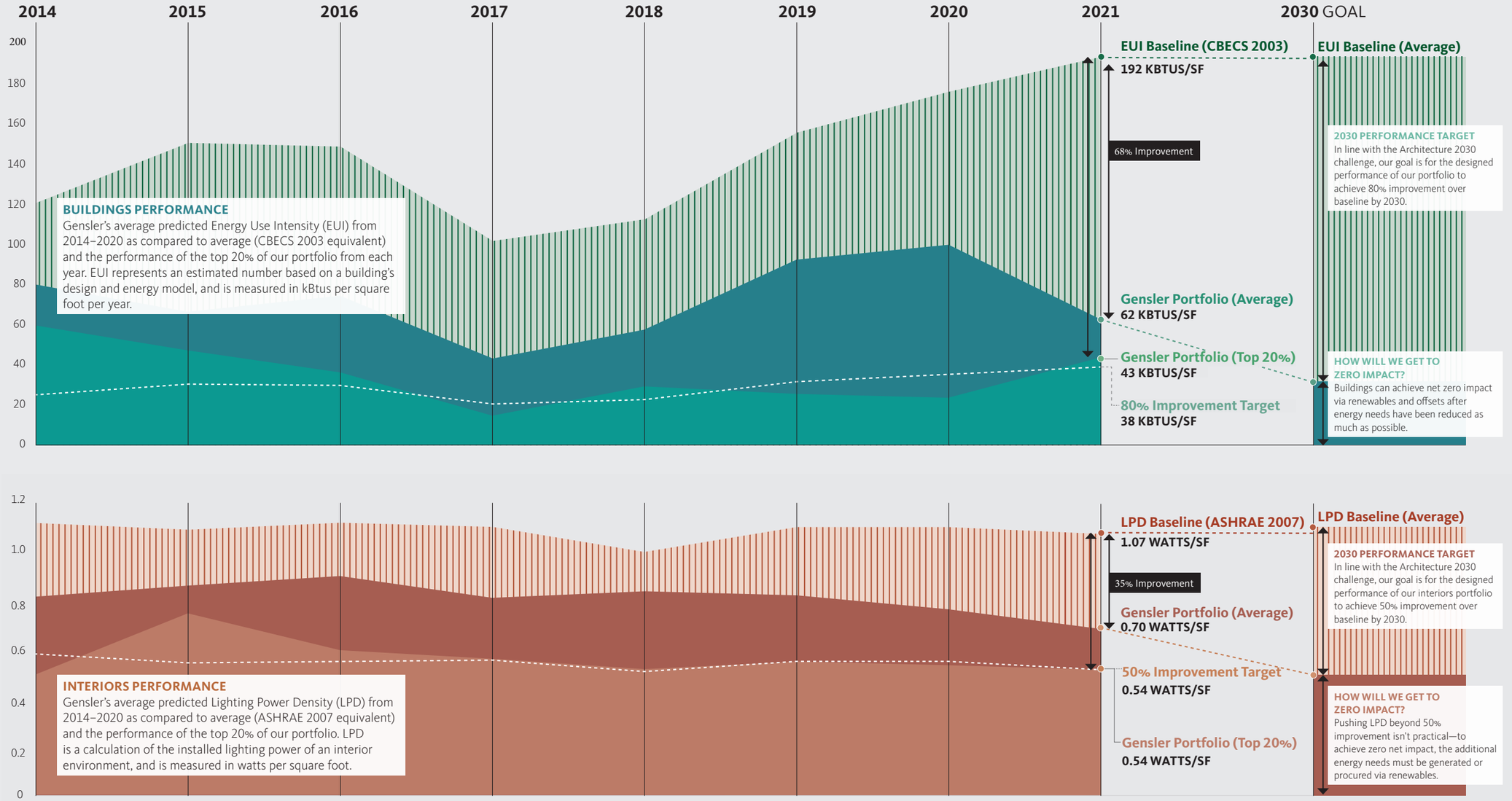
"The Gensler Research Institute's new Center for Resilience Research is focused on funding a wide range of efforts addressing the connection between design, climate change, and issues of equity."

CHRISTINE BARBER, Director, Gensler Research Institute

QUANTIFYING EMBODIED CARBON

Gensler **RESEARCH** INSTITUTE ©

2021 PORTFOLIO OPERATIONAL PERFORMANCE METRICS



The performance of the top 20% of Gensler's portfolio has already achieved performance improvement targets in line with our 2030 goals.


THANK YOU