



# 2020

ENVIRONMENTAL  
STEWARDSHIP  
R E P O R T

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# 20 WELCOME

DLR Groups' brand promise is to elevate the human experience through design. This inspires our culture of design and fuels the work we do around the world.

One of the most pressing challenges of our generation is to mitigate the impact of climate change caused by greenhouse gas emissions from human activities. This 2020 Environmental Stewardship Report reflects DLR Group's progress toward meeting the carbon neutral design goals of the Architecture 2030 Challenge.

## An Incredible Decade

2020 marks the end of an incredible decade with seven of the 10 hottest years ever recorded contributing to an increase in the frequency and intensity of extreme weather events. In the past decade, we have seen supporting policies, regulations, and commitments at the local and regional levels in the United States and throughout the world, urging industries and institutions to accelerate action to combat climate change. The past year also brought challenges beyond our control including the COVID-19 pandemic and a significant uptick in natural disasters including wildfires and hurricanes.

The design and delivery of zero net energy buildings is the most direct way the design industry can positively address climate change. DLR Group is a passionate advocate for zero net energy design. We are collaborating with clients around the world to deliver true sustainable facilities with innovative operational plans to foster a richer understanding of zero net energy design. Accelerating the design and delivery of zero net energy buildings is crucial if we are to produce the needed outcomes to solve the climate change challenge by 2030.

## Sustainability in Action

DLR Group's average reduction target of predicted net Energy Use Intensity based on performance data, has consistently exceeded the national peer group average. In 2020, our integrated design process resulted in a 53 percent pEUI reduction compared to average buildings.\* More than one-third of design projects were adaptive reuse or major renovation projects, further contributing to the embodied carbon savings by reusing existing buildings. Beyond embodied carbon, DLR Group is addressing the impact of designs on another precious resource – water. In 2020, the energy delivery process of our designs saved an estimated 1.4 trillion gallons of water.

## Continued Commitment

We continue to live our core value of environmental stewardship through a variety of internal and external initiatives including material transparency efforts; developing workshop tools for zero net energy, net positive water, and biophilic design. Building on our mass timber expertise we have begun to position carbon as the common denominator in integrated design conversations. This report celebrates DLR Group's commitment to environmental stewardship by highlighting key projects, initiatives, and accomplishments of the past decade.

### LINDSEY PEREZ, AIA, LEED FELLOW

Principal  
Global Sustainability Leader



### PREMNATH SUNDHARAM, AIA, WELL AP

Senior Principal  
Applied Research Leader



\* Information in this report has been extracted from estimated operational energy consumption, energy production, and energy optimization of DLR Group design in 2020. Reduction determined using The Zero Tool, an Architecture 2030 platform developed for building sector professionals to establish energy reduction baselines and targets, compare a building's energy performance with similar buildings and to codes, and understand how a building achieved its current energy performance.

# 20 GUIDING PRINCIPLES

Environmental Stewardship  
& 2030 Commitment

**1** PRACTICE INTEGRATED DESIGN  
& SUSTAINABILITY

**2** SET ENERGY  
PERFORMANCE GOALS

**3** OPTIMIZE BUILDING  
DESIGN & PERFORMANCE

**4** VERIFY MODELING & TESTING

**5** ASSESS RENEWABLE OPPORTUNITIES

**6** ENCOURAGE POST OCCUPANCY ENERGY  
MEASUREMENT & VERIFICATION

**7** LIVE SUSTAINABLY  
IN OUR OFFICE

**8** TELL OUR STORY

**9** LEAD THIS  
CHALLENGE

# 20 SUSTAINABLE DESIGN

At DLR Group, sustainability is intrinsic to our design culture. In every project, DLR Group aims to inspire, conserve, and promote.

## Inspire

Our work should create an emphasis on community by raising awareness of social, ecological, and built systems; being open and honest in our actions and decisions; and honoring existing beauty as we design anew.

COMMUNITY  
AWARENESS  
HONESTY  
BEAUTY

## Conserve


In our design process, we search for ways to conserve water and energy in every way possible. We aim to conserve the land. We promise to not only look at the ways that one building can impact a neighborhood, but also the global ecosystem as a whole.

LAND  
WATER  
ENERGY  
ECO-SYSTEM

## Promote

We aim to encourage our building users, as well as the surrounding community, to be their best in productivity, wellbeing, health, and fitness through our sustainable design choices.

PRODUCTIVITY  
WELLBEING  
HEALTH  
FITNESS



As designers of the built environment,  
it is our responsibility to balance operational  
efficiency with design goals.

# Challenge

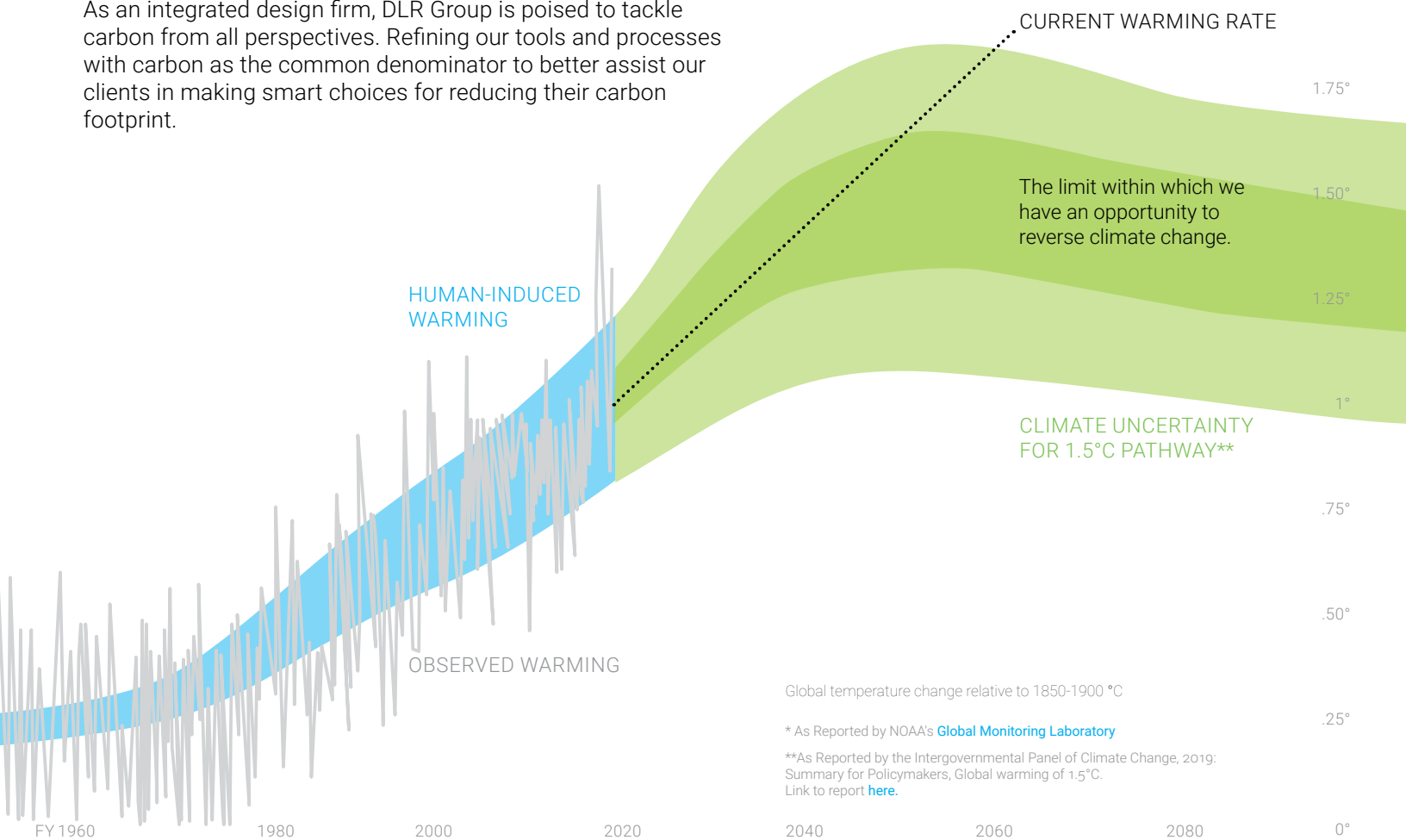
SFO Long-Term Parking Garage #2  
South San Francisco, California

# 20 CURRENT REALITY

Atmospheric carbon dioxide levels hit a record high in 2020 peaking at 417 parts per million despite the COVID-19 related drop in emissions.\* The concentration of CO<sup>2</sup> in the atmosphere increases every year, and this year marks the highest levels ever recorded. The 2020 peak value was two ppm higher than the 415 ppm peak in 2019. Such high concentrations of CO<sub>2</sub> levels result in changing weather patterns causing a significant impact to economies and communities worldwide.

Annually, embodied carbon is responsible for 11 percent of global GHG emissions and 28 percent of global building sector emissions. Embodied carbon is the sum impact of all GHG emissions attributed to extraction, transportation, manufacturing, construction, maintenance and end of life/disposal of building materials. As buildings continue to be designed for operational high performance, the embodied carbon impact during construction becomes a larger challenge demanding attention.

As an integrated design firm, DLR Group is poised to tackle carbon from all perspectives. Refining our tools and processes with carbon as the common denominator to better assist our clients in making smart choices for reducing their carbon footprint.



With a holistic approach to sustainability, we continue to refine a set of metrics to evaluate our design impact and evolve our practice.

# Progress

Hines T3 Toronto  
Toronto, Ontario




# 20 RESULTS

In 2020, DLR Group tracked 19,437,851 SF against the 2030 challenge goals.


Our design impact is measured in three parts to impact the full life-cycle of buildings: reduce, optimize, produce. We begin with reducing the need for energy use within buildings through high-performance design strategies. We close the loop with optimizing existing buildings and commissioning new buildings to improve their operational efficiencies. Then, we enhance resiliency of the built environment through on-site energy production.

Our sustainable designs in 2020 translated into water, energy, and environmental savings in these ways:

fills  
**2,150**   
U.S. Olympic-size swimming pools

removes  
**259,252**  passenger vehicles from the road

saves   
**1,567,144** acres of forest

powers   
**138,472** homes in a year

In 2020

**1,200,000**

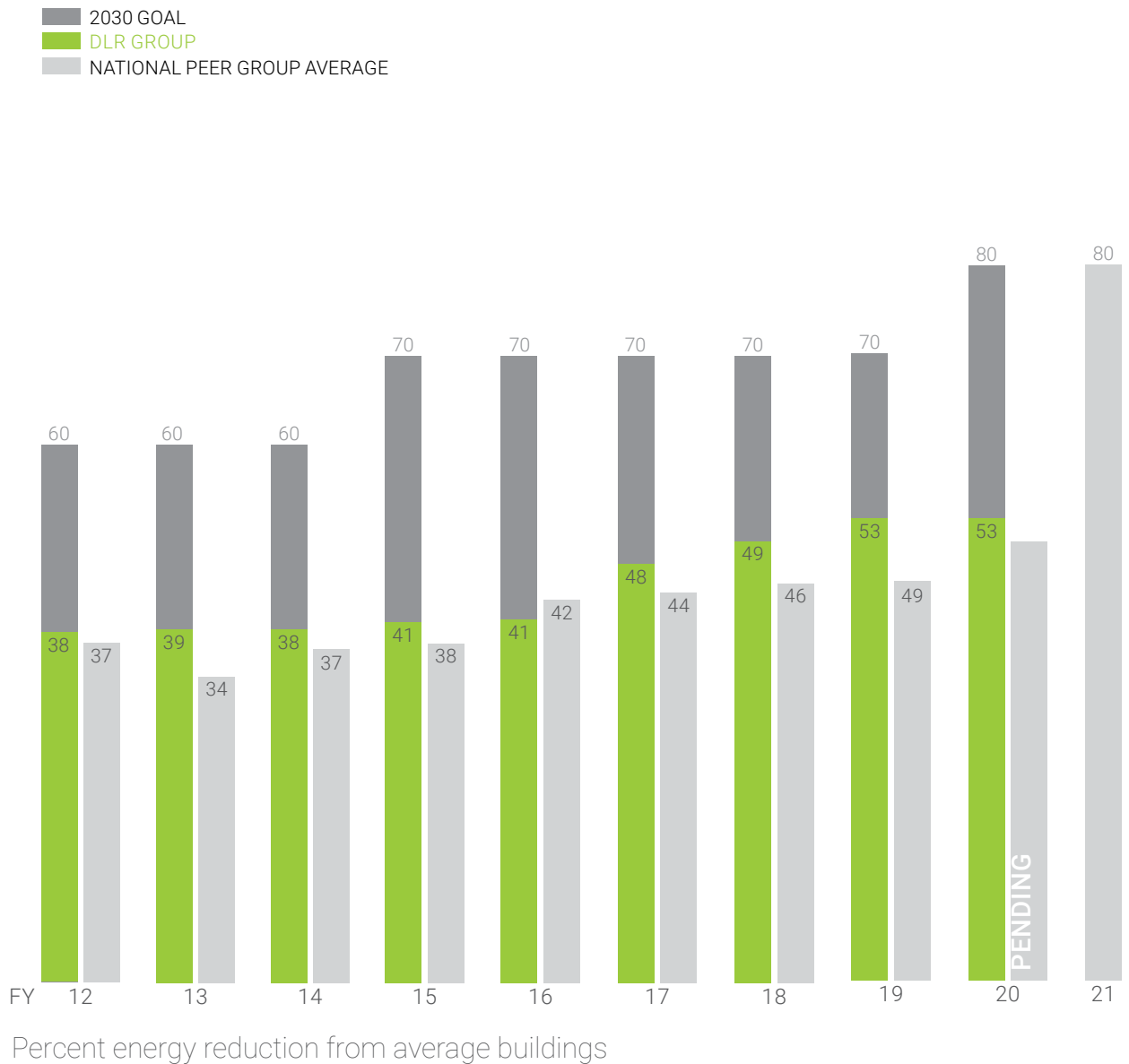
metric tons of GHG\* avoided

\* GHG emissions are estimated using national average fuel ratio for energy use in buildings and EPA's Power Profiler Tool

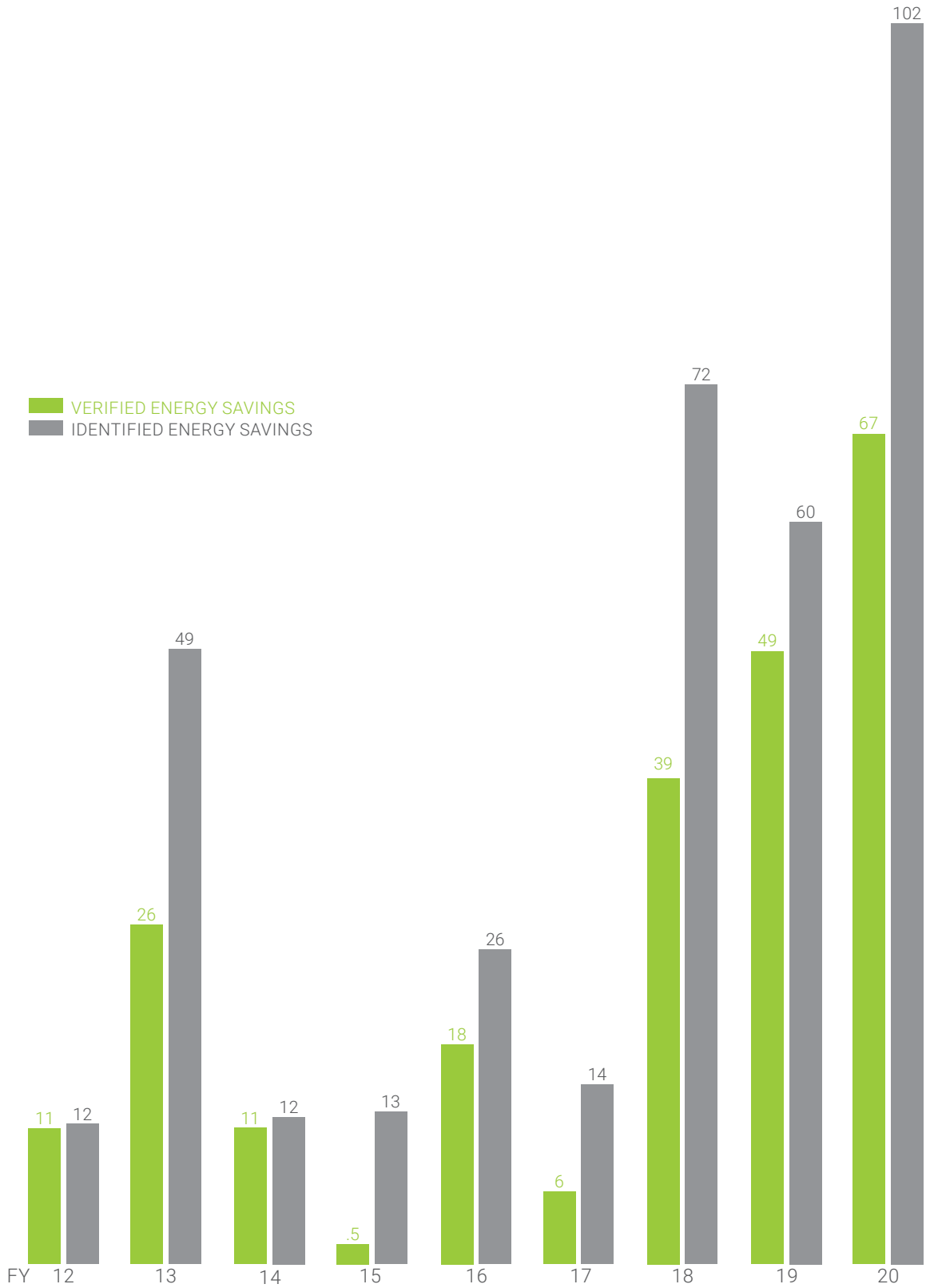
# 20 IMPACT

DLR Group aims to design to 2030 Challenge

REDUCE

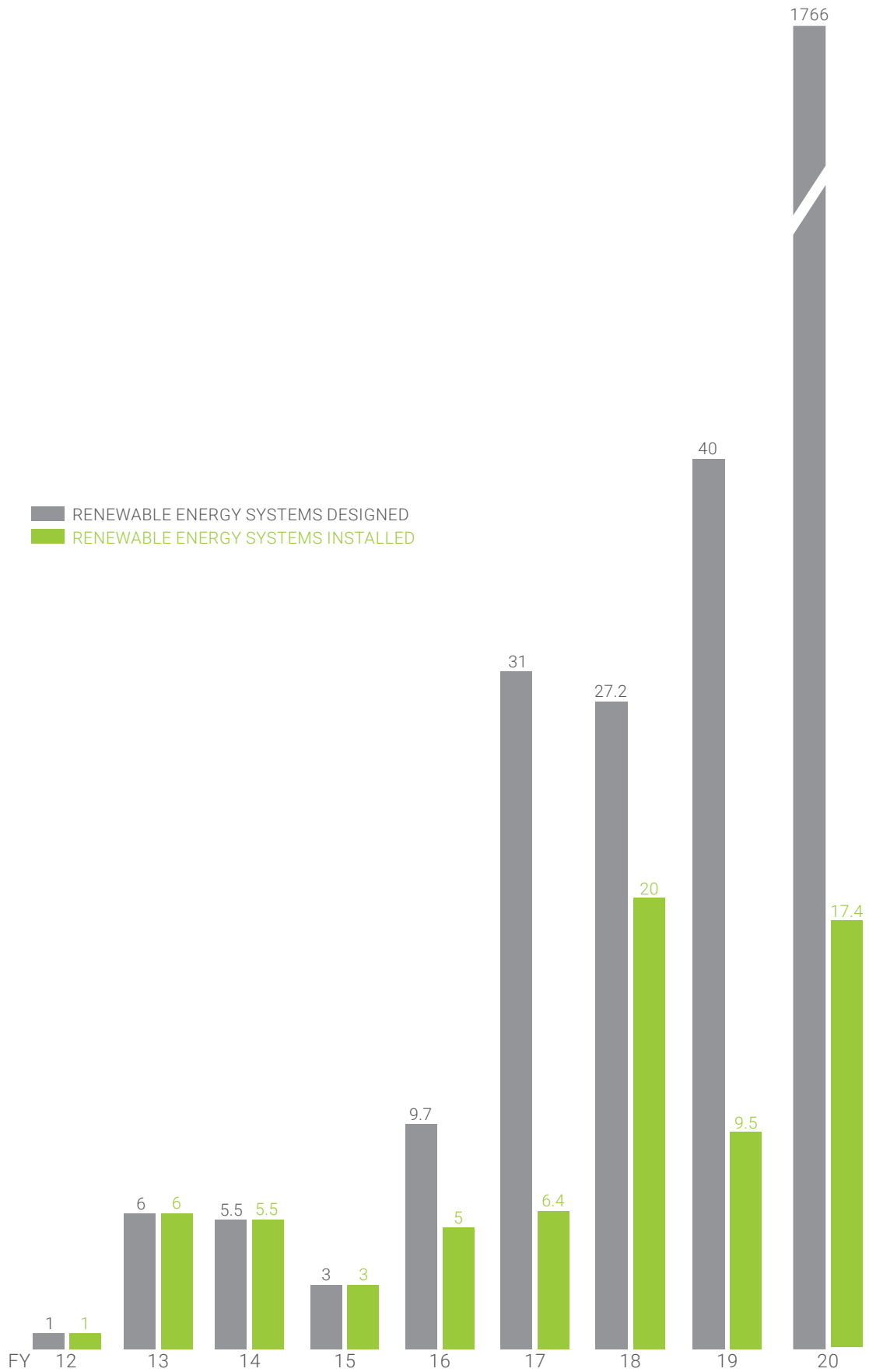


# OPTIMIZE



Energy savings through building optimization strategies in million kBtu

# PRODUCE



Percent energy production in mega watt potential

REDUCE

53%

Annual energy reduction over average building

Based on energy reduction projects firm-wide in 2020

OPTIMIZE

67

MILLION kBtu Optimized

Based on energy optimization projects firm-wide in 2020

PRODUCE

1766

MWp Designed

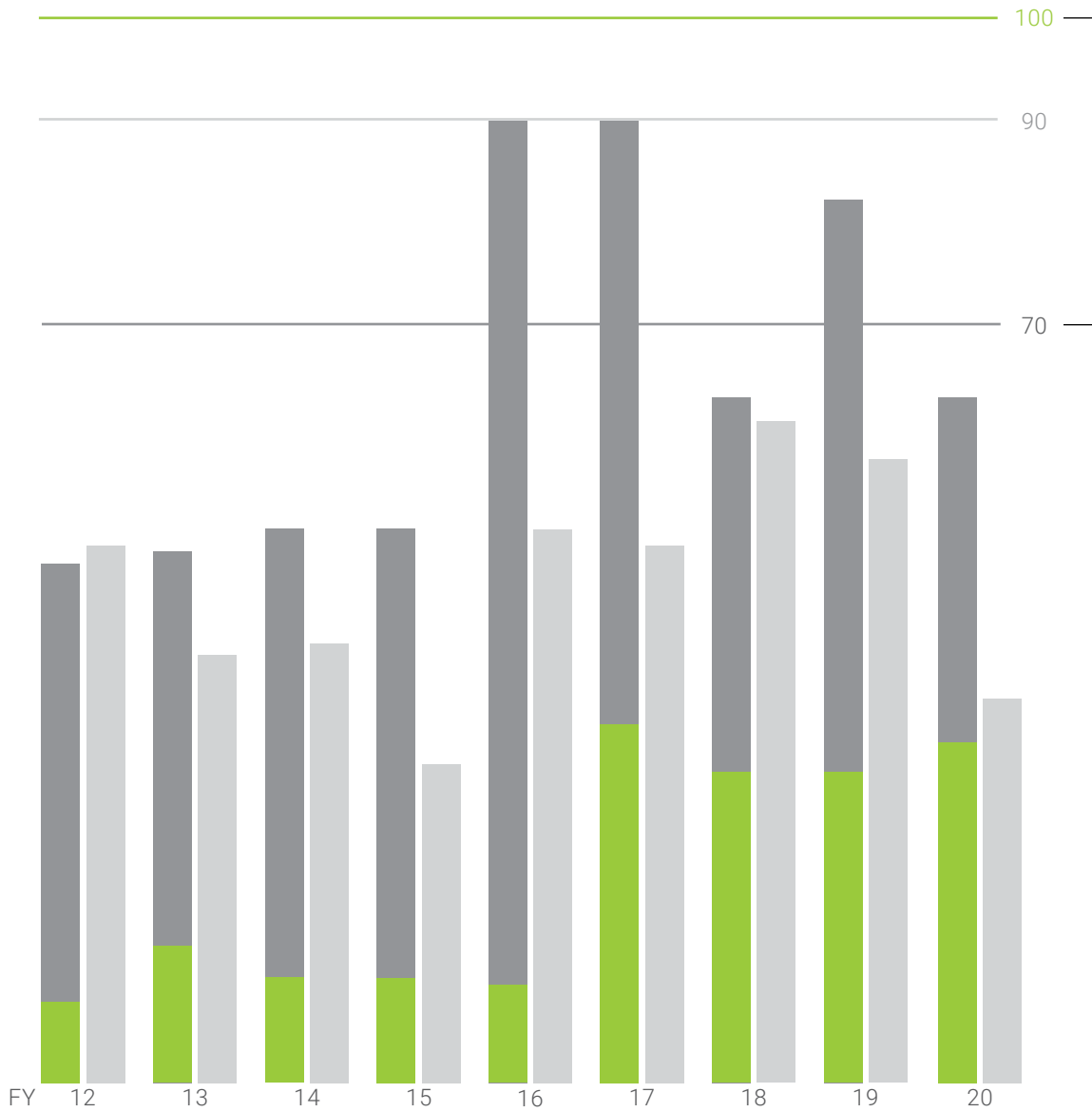
Based on solar architecture projects firm-wide in 2020

VERTAFORE

DENVER CHICAGO

# 2030 COMMITMENT

- DESIGNING TO 2030 AS A PERCENTAGE OF PROJECT AREA WITH PERFORMANCE ANALYSIS
- PERFORMANCE ANALYSIS AS A PERCENTAGE OF PARTICIPATING PROJECT AREA IN GSF
- PARTICIPATION AS A PERCENT OF TOTAL PROJECT AREA IN GSF



Participation and key performance indicators

# Design

The key to success is our systematic approach, process, and strategies for designing high-performance buildings.

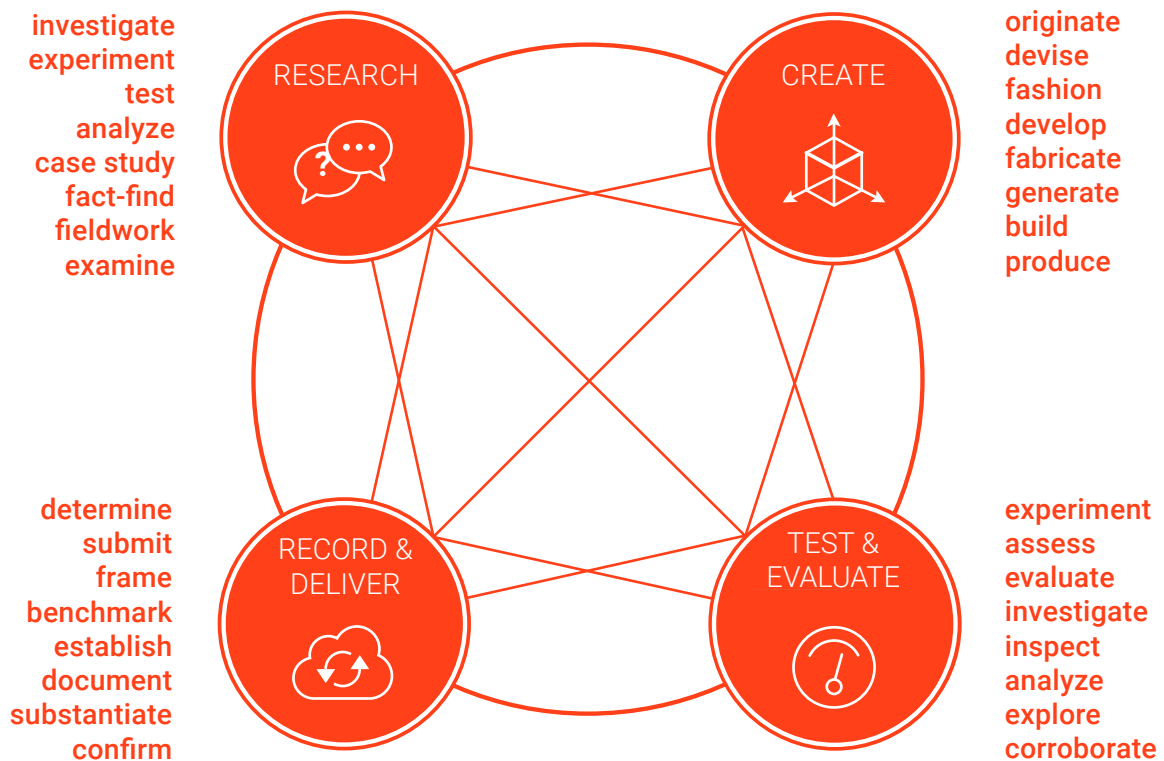
Steelhead Partners Office  
Seattle, Washington

# 20 PROCESS

The key to success is our systematic approach, process, and strategies for designing high-performance buildings.

DLR Group's Intergrated design process embraces a research-based and results-oriented approach at each phase of the design process. Deeply embedded in our practice is our high-performance design team that analyzes critical aspects of our designs against robust performance metrics.

A key focus area within our integrated design is our commitment to the carbon neutrality goals of the 2030 Challenge. Our designers are uniquely poised to service the full life-cycle of a building from energy optimization to energy reduction and energy production.





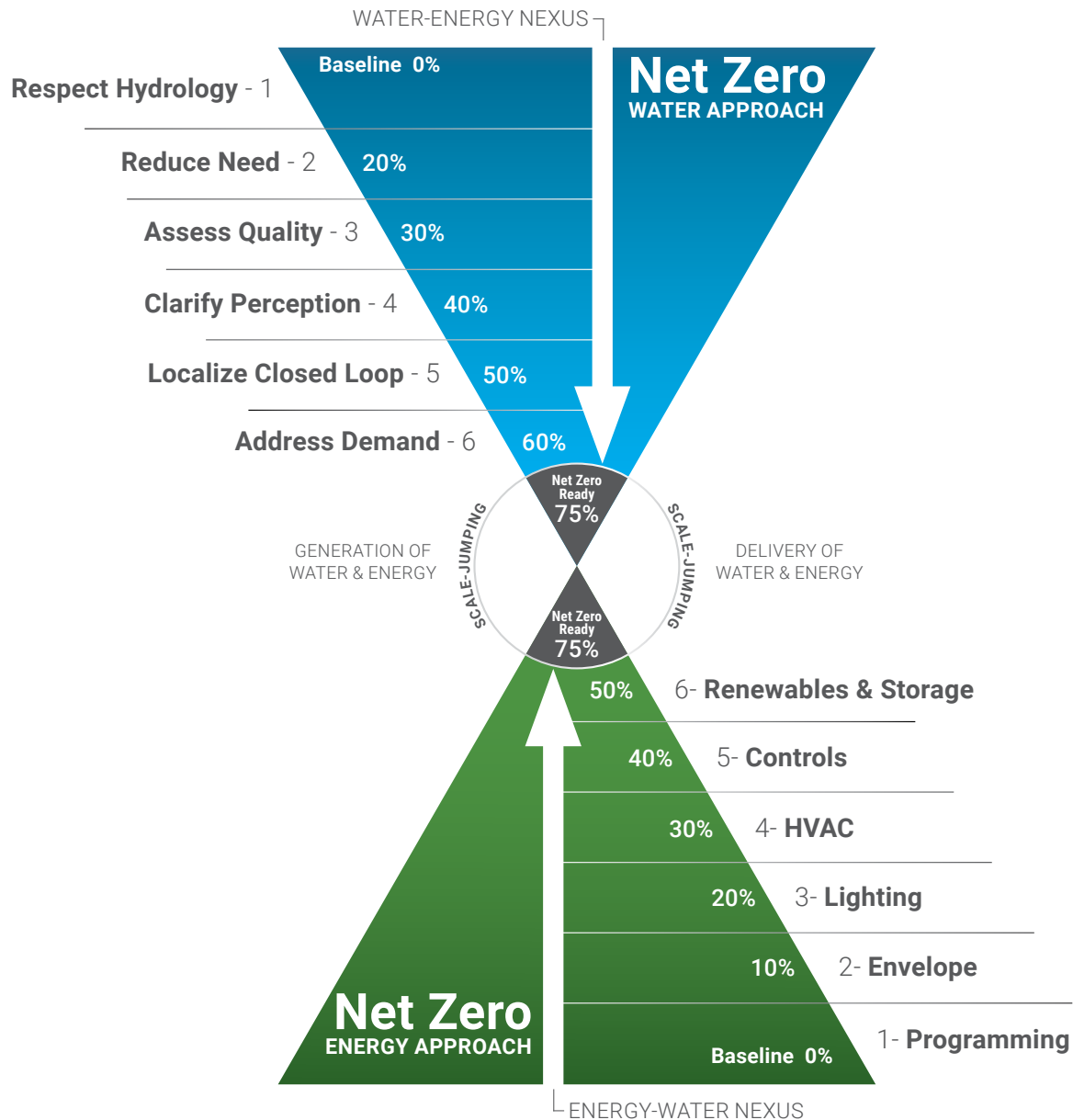
# 20 WATER-ENERGY NEXUS

## Energy.gov Net Zero Water Definition

Net Zero Water refers to a water-neutral building where the amount of alternative water used and returned to the original water source is equal to the building's total water consumption.

## AIA 2030 Net Zero Energy Definition

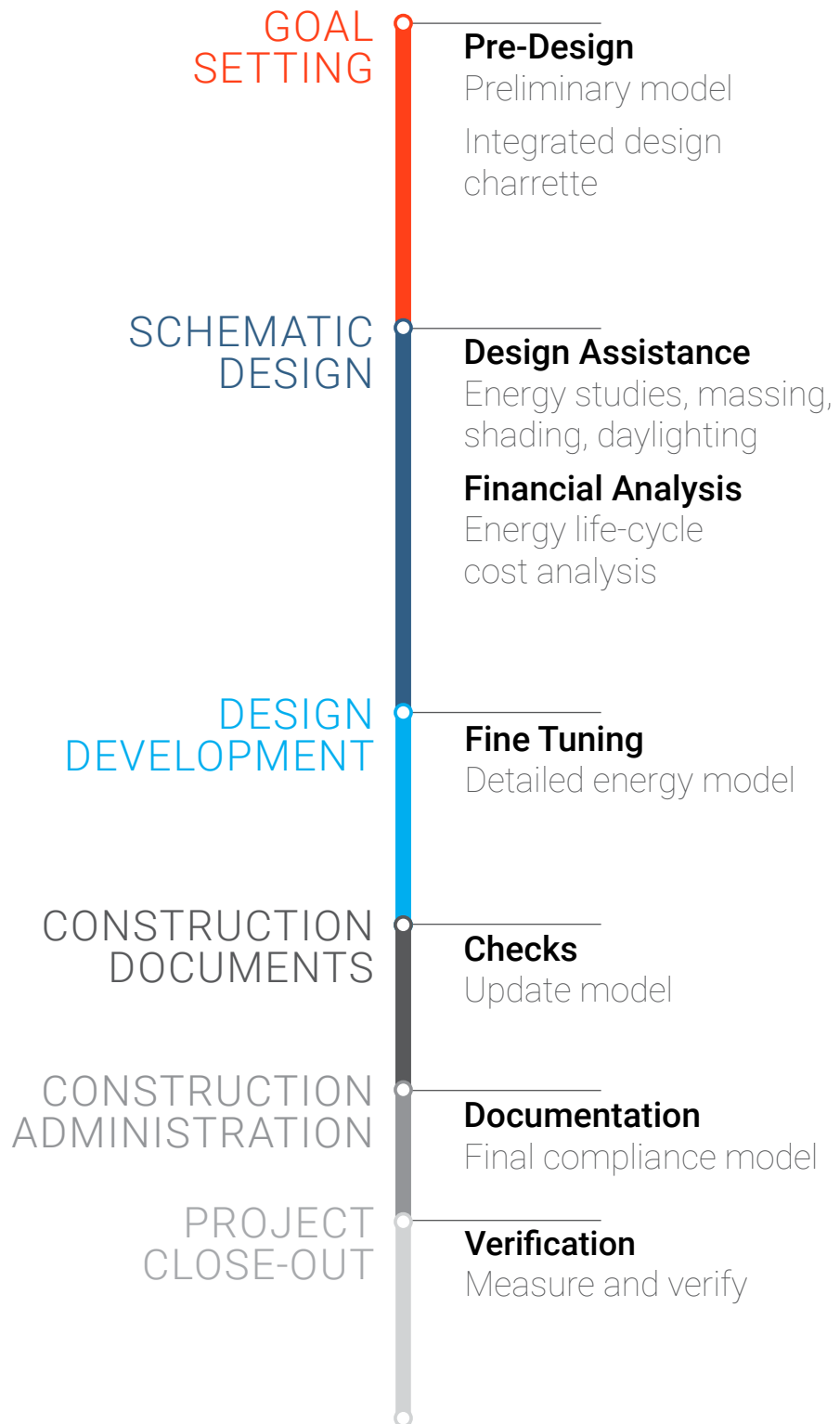
A highly energy efficient building that produces on-site, or procures, enough carbon-free renewable energy to meet building operations energy consumption annually.



# 20 PERFORMANCE MODELING

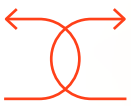
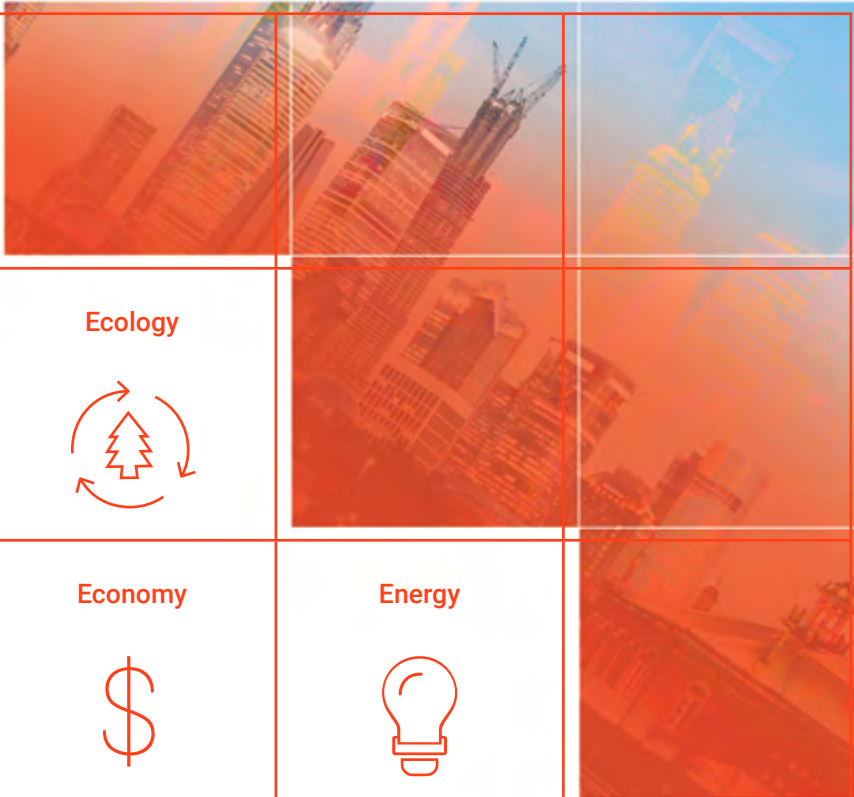






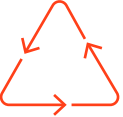


Measuring and validating design goals and building performance is key to our approach.

DLR Group is able to generate a representative model or digital twin of the building for the purpose of detailed energy and utility cost benefit analysis.



# 20 DESIGN FRAMEWORK

Our sustainable design story is built on these measures.

<b>Integration</b> 			
<b>Community</b> 	<b>Ecology</b> 		
<b>Water</b> 	<b>Economy</b> 	<b>Energy</b> 	
<b>Wellness</b> 	<b>Resources</b> 	<b>Change</b> 	<b>Discovery</b> 

At DLR Group we take a holistic and long-term approach to sustainability from initial planning and strategy to design and construction and through occupancy and operations. In this report we use the **AIA Framework for Design Excellence** to give more detail to our sustainable design story on the following pages.

# Projects



University of Nevada - Reno, University Arts Building  
Reno, Nevada



# WEST-MEC SOUTHWEST NEX

Buckeye, Arizona

8,675 SF



**108%**  
REDUCTION

**-3**  
pnEUI



# CRAFTON HILLS COLLEGE - PERFORMING ARTS CENTER

Yucaipa, California

24,400 SF



**100%**  
REDUCTION

**0**  
pnEUI



# LONG BEACH CITY COLLEGE - MUSIC AND THEATER BUILDING

Long Beach, California

57,640 SF



**82%**  
REDUCTION

**24**  
pnEUI



# SARASOTA SOUTH COUNTY COURTHOUSE

Venice, Florida

30,540 SF



**80%**  
REDUCTION

**24**  
pnEUI





# FORT BEND ISD NEW HIGH SCHOOL

Rosharon, Texas

501,967 SF



**73%**  
REDUCTION

**20**  
pnEUI



# AC HOTEL BY MARRIOTT-NORTHGATE MALL

Seattle, Washington

57,640 SF



**71%**  
REDUCTION

**28**  
pnEUI



# URBANDALE NEW ELEMENTARY SCHOOL #1

Urbandale, Iowa

118,000 SF



**60%**  
REDUCTION

**26**  
pnEUI

# Sharing



Missouri Innovation Campus  
Lee's Summit, Missouri

# 20 LIVING IT

## A Sustainable Commitment

At DLR Group our sustainable culture is integrated throughout our practice, creating more robust internal tools to enhance the built environment.

DLR Group hosts monthly Sustainability Design Share sessions for employee-owners hosted by our subject matter experts on a variety of sustainable design topics. These sessions often qualify for professional credits. Often the Sustainability Design Shares align with the AIA top ten measures and inform future projects.

Over 30 sessions featured nearly 50 presenters and 2,500 attendees with even more team members accessed the recorded content for viewing later.

## Recent Sustainability Design Shares

[GIS: Beyond the Building](#)

[Embodied Carbon Tracking](#)

[Historic Preservation](#)

[GSA Sustainable Facilities Tool](#)

[Material Transparency Framework](#)

*"The Sustainability Design Shares give members of design teams a platform to not only showcase the great work going on around the group, but also allow the opportunity for others to learn about a wide range of topics that advance sustainable design."*

**HEATHER HUGHES,**  
AIA, LEED AP BD+C

Senior Associate  
Architect



*"The Sustainability Design Shares are a platform for sharing the critical conversations happening within project teams in a consistent and very visible way. Not only is the series a great vehicle to educate, it's also a proving ground to tighten messaging and confirm content, and then address actual audience questions to prepare these concepts to be shared with clients and other external audiences."*

**JILL MALTBY-ABBOTT,**  
AIA, WELL AP

Senior Associate  
Architect



*"Sustainability encompasses such a wide range of topics; being able to both share knowledge and be the recipient of other's experience and passion through design shares allows us to tackle more complex challenges together."*

**ROGER CHANG,**  
PE, LEED FELLOW

Principal  
Senior Engineering Leader



*"The recorded library of Sustainability Design Shares provides a repository of great resources that I have personally used for projects and presentations. It allows us to think globally but act locally and align our vision for sustainability with the firm's design goals. In one session, I demonstrated how to use DLR Group's Getting to Zero Dashboard as a dynamic tool improve our design and impact our AIA 2030 Commitment goals as a firm."*

**CORAL PAIS,**  
PE, BEMP

Senior Associate  
Mechanical Engineer



Connect with us  
[dlrgroup.com](http://dlrgroup.com)



For more information about  
sustainability and the services  
DLR Group provides visit us at

[dlrgroup.com](http://dlrgroup.com)

listen.DESIGN.deliver