City of Dallas

Updated CECAP Considerations for 2024 Bond Program

Environment & Sustainability Committee
May 1, 2023

Susan Alvarez, PE, CFM
Assistant Director
Office of Environmental Quality & Sustainability

Purpose

Paris Smart City 2050, copyright Vincent Callebaut Architectures

Updated recommendations provided in response to answer the staff and then ENVS Committee question:

> "*How can we update the Technical Specifications supporting the 2024 Capital Bond Program to be consistent with the CECAP net zero goals moving forward*?"

Goals

Integrate Dallas CECAP goals and actions into bond-funded projects in order to…

- Lead by example
- Pilot projects to demonstrate the value of green, healthy, resilient and equitable building investments
- Prepare the ground for future codes and standards to meet CECAP 2030 NZC goals with a coalition of local and industry leaders.

Moody Performance Hall

Priorities

Dallas Fire Station No. 6, LEED Platinum

The performance criteria must be:

- Easy to explain
- Aspirational
- Achievable

Demonstrated interest and need

- Original Programmatic Request received from Convention Center Team in 2021
- Dallas AIA provided recommendations February 1, 2022
- ENVS Briefed February 7, 2022
- EVC – Convened Strategic Partnerships Committee - July, 2022

Jack Evans Police Headquarters

Overview

- Context
  - Existing “Green” Policy Precedents
  - Related CECAP Targets/Goals
- Recommendations
  - Baseline Requirements
  - Stretch Goals – Projects pick at least one
- EVC Process

Bond and City Precedents

- Bond programs
  - 2003 - LEED Silver +
  - 2006 - LEED Gold +
  - 2012 - LEED Gold+
    - 30% water use reduction (WE c3.1)
    - 16% energy use reduction (EA c1, 3 pts)
  - 2017 - exemplar projects
    - Singing Hills Rec Center – LEED Gold BD+C/ Architecture 2030
    - Vickery Meadows Library - LEED Gold BD+C/ Architecture 2030
- 2013 Dallas Green Construction Code
  - LEED certifiable
  - 20% water use reduction
- CECAP (2020)
- Sustainable Procurement (2021)

Existing "Green" Policies

- Environmental Policy (2005)
- ★Green Building Policy (2003, 2008, 2012, 2016)
  - Cool Roof Policy (2012)
- Complete Streets (2016)
- Update to Tree & Landscape Ordinance (Article X), (2018)
- Green Energy Policy (2019)
- Updates to City Paving/ Drainage Criteria (2019)…..

CECAP Targets/Goals

NET ZERO ENERGY NEW CONSTRUCTION

ENERGY USE IN EXISTING RESIDENTIAL BUILDINGS

SOLAR POWER GENERATED

RENEWABLE ELECTRICITY PLANS

PUBLICLY AVAILABLE EV CHARGING

ELECTRIC FLEETS

SINGLE OCCUPANT VEHICLE TRAVEL MODE SHIFT

ORGANIC WASTE

PAPER WASTE

LANDFILL DIVERSION

WATER CONSUMPTION

WATER FOR INDIRECT REUSE

IMPAIRED WATERBODIES LISTED IN WATERSHED

GHG EMISSIONS FROM TREATMENT FACILITIES

CANOPY COVER CITYWIDE

URBAN HEAT ISLAND INDEX

PARK OR TRAIL ACCESS

HEALTHY, AFFORDABLE FOOD ACCESS

ACRES OF URBAN GARDENS

RESTAURANTS, FARM STANDS, OR MARKETS SOURCING FROM LOCAL PRODUCERS

GROUND LEVEL OZONE

AIR POLLUTANTS

GOAL 1: DALLAS' *BUILDINGS* ARE ENERGY EFFICIENT AND CLIMATE RESILIENT.

Objectives

- Increase energy efficiency of **existing buildings** or facilities.
- Ensure that **new buildings** are constructed sustainably and are carbon neutral.
- Increase **climate resilience** for new and existing buildings through structural and operational improvements.

Targets

Net zero energy new construction

- 100% starting in 2030

Energy use in existing residential buildings

- 10% of existing buildings reduce energy use 10% by 2030
- 10% of existing buildings reduce energy use 25% by 2030

Sustainable Procurement Policy

Trinity River Audubon Center

- Resolution # 21-0908 adopted by Dallas City Council in May 26, 2021
- "Comprehensive Sustainable Procurement Policy to guide purchasing decisions to positively impact the City's social, economic, and environmental health"
- Implemented through a working group of affected departments that is charged with:
  - Maintaining environmentally preferred products lists (EPP);
  - Identifying sustainability labels/standards to use in writing specifications;
  - Analyzing citywide purchases for efficiency and waste reduction opportunities;
  - Recommending social, economic, and environmental contracting aspects under the City's Administrative Directive 4-05.

Overview

- Context
  - Existing “Green” Policy Precedents
  - Related CECAP Targets/Goals
- Recommendations
  - Baseline Requirements
  - Stretch Goals – Projects pick at least one
- EVC Process

Baseline Recommendation (Buildings)

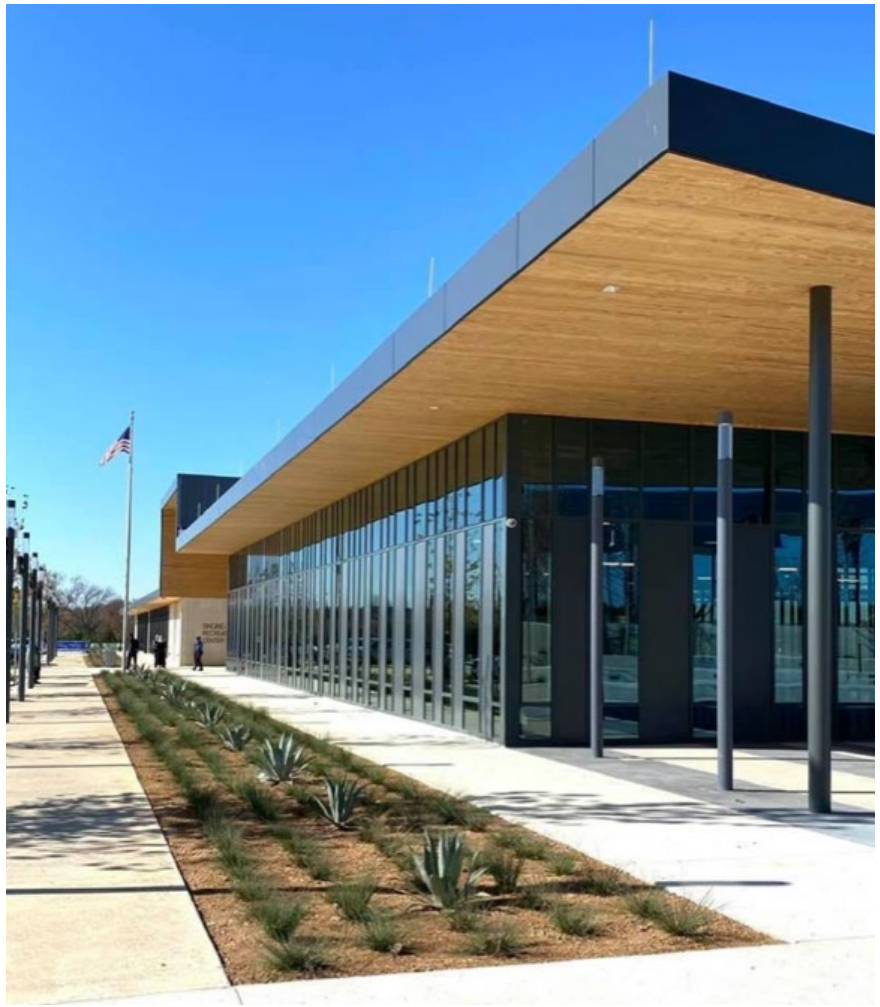
Vickery Park Branch Library, Architecture 2030/ LEED Gold BD+C

- Implement Technical Specification language
  - to require **LEED™ Gold certification (at current version)** with minimum performance criteria.
  - that results in a **significant reduction in Energy Use Intensity** based on National EPA Energy Star or comparable national benchmark. **Specify top 20% EnergyStar** rate for all appliances and equipment.
  - to require **embodied carbon disclosure (EPD)** for select materials at time of procurement
  - implement the use of **Green Button**, a free DOE tool that supports benchmarking and transparency. Performance data is a powerful tool.

Pick One: Stretch Goal - Buildings

- **Consider pilot project opportunities for LEED Zero Carbon.**
- **Implement Architecture 2030 framework** for promoting advanced efficiency and electrification, using zero-code.org/resources, or similar resources;
- **Meet an established efficiency threshold** (Energy Star score or EUI threshold through a building performance standard).
- **Design smart, efficient buildings with distributed renewable energy that are grid-integrated** and play a critical role in electricity generation, peak load management and storage.
- **Consider piloting International Living Future Institute (ILFI) design principles or petal certification.** The Living Building Challenge (LBC) is a stretch goal that requires onsite energy, water treatment, healthy and transparent material selection.

Baseline Recommendation (Infrastructure)



Singing Hills Recreation Center, Architecture 2030

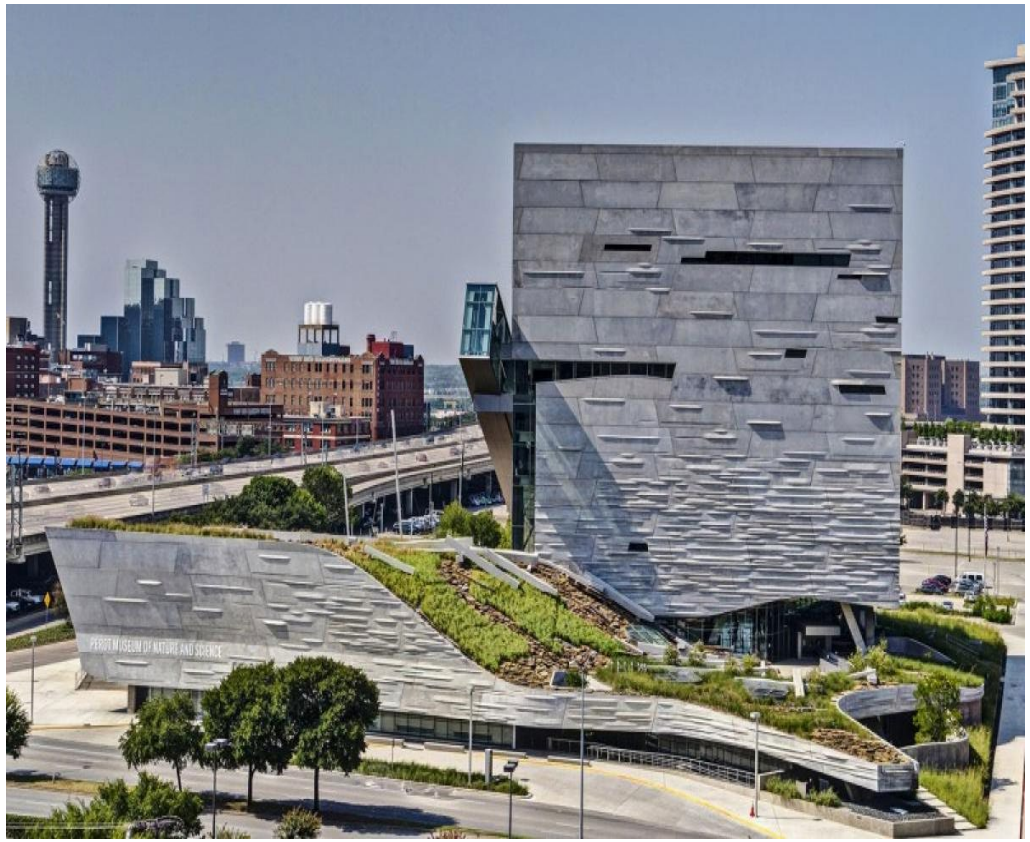
- Implement Technical Specification language
  - to require **Envision** or **SITES certification** at the current version and **achieve selected site-related credits**
  - that results in a **significant reduction in Energy Use Intensity** based on National EPA Energy Star or comparable national benchmark. **Specify top 20% EnergyStar** rate for all appliances and equipment.
  - to require **embodied carbon disclosure (EPD)** for select materials at time of procurement
  - implement the use of **Green Button**, a free DOE tool that supports benchmarking and transparency. Performance data is a powerful tool.

Envision Program

- Founded in 2010 collaboratively by the American Public Works Association, American Council of Engineering Companies and American Society of Civil Engineers (ASCE).
- *Envision* applies to infrastructure, as LEED does for habitable buildings.
- Guides project teams to more sustainable design and social impact of 'quality of life,' including collaboration and long-term economic impact and resilience.

TRWD/ DWU Integrated Pipeline Project

SITES Program



Perot Museum of Nature & Science

- SITES certification is for parks and other project sites with or without buildings.
- Framework for designing, developing and managing/ maintaining sustainable and resilient landscapes and supporting nature positive design.
- Complementary w/ City's LEED Gold requirement
- **Program Goals**
  1) Transform the market through design, development and O&M practices
  2) Create regenerative systems that foster resilience (flood control, urban heat island, community space, etc)
  3) Protect and ensure access to future resources & mitigate climate change (clean air/ water, open space, etc)
  4) Enhance human well-being and strengthens community.

Pick One Stretch Goal - Sites/ Infrastructure

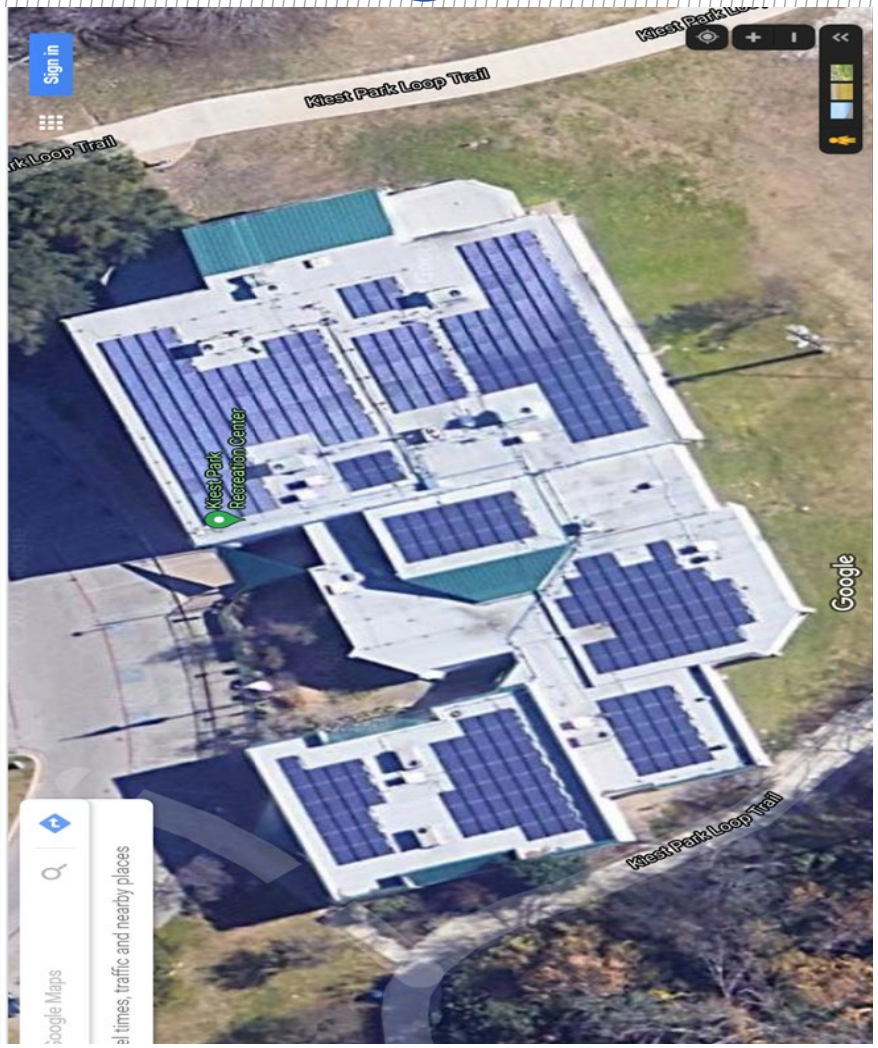
- Implement the Climate Positive Design challenge **including tools such as *Pathfinder* tool** for landscape design and related **targets in performance specifications.**
- Rethink surfaces holistically using the ***Smart Surfaces* tool**. Limit hard, impervious dark surfaces additions/ replacements.
- Make parking more sustainable and higher performing by **incorporating the principles of *Parksmart*.**

Forest Green Library, LEED Gold BD+C

Overview

- Context
  - Existing “Green” Policy Precedents
  - Related CECAP Targets/Goals
- Recommendations
  - Baseline Requirements
  - Stretch Goals – Projects pick at least one
- EVC Process

EVC Strategic Partnerships Committee Efforts



Kiest Park Community Center

- Compiled foundational City Codes Policies & Ordinances
- Convened panel of national & international experts on energy efficiency, and sustainable design*
- **SPI requested expert guidance for the Bond Program on recommended pathways to Net Zero Carbon that are easy to explain, achievable and aspirational.**
- Presented recommendations in two 90-minute workshops for Senior Staff in Departments developing Bond Program
  - March 3, 2023: Buildings & Facility Design
  - March 10, 2023: Parks & Infrastructure

Next Steps

- Present to Environmental Commission – May 10, 2023
- Provide EVC recommendations to 2024 Bond Committees as part of Technical Specifications process May 11, 2023;
- Provide support as appropriate during Bond Program development and implementation
- Convene Stakeholder Working Group to explore related updates to City Policy


Questions?

Appendices

EVC-SPI & Expert Panel Members

EVC SPI Committee: Julie Hiromoto, FAIA, Living Future Accredited, WELL AP, LEED AP | Alan Hoffmann, CGB, CGP | David Marquis | Colleen Murray, DVM | Michael Martin | Dr. Barry Lachman

Expert Panel Members

- Vincent Martinez and Erin McDade (Architecture 2030)
- Meghan C. Lewis, Jordan Palmeri and Megan Kalsman (Carbon Leadership Forum, EC3)
- Stacy Smedley and Don Davies (Building Transparency, EC3 calculator)
- Lindsay Baker (International Living Future Institute)
- Liz Beardsley, Jennifer Gundy and Wes Sullens (US Green Building Council, LEED)
- Anthony Kane (Institute for Sustainable Infrastructure, Envision rating system)
- Vivian Loftness (National Academy of Sciences and Carnegie Mellon University)
- Greg Katz (Smart Surfaces Coalition)
- Paul Wessel, Danielle Pieranuzi (USGBC/ GBCI, Parksmart and Sites)
- Pamela Conrad (Climate Positive Design, Pathfinder tool)
- Jennifer Goupil, Michael Gryniuk, (Structural Engineering Institute, SE 2050)

Sustainable Procurement Policy

- Resolution # 21-0908 adopted by Dallas City Council in May 26, 2021
- Is a "*comprehensive Sustainable Procurement Policy to guide procurement decisions to positively impact the City's social, economic, and environmental health*"
- Implemented through a Sustainable Procurement Working Group of affected departments
- Sustainable Procurement Working Group is charged with maintaining environmentally preferred products lists, identifying sustainability labels and standards to use in writing specifications, analyzing citywide purchases for efficiency and waste reduction opportunities, and making other recommendations related to the social, economic, and environmental aspects of contracting; these recommendations shall be included in the City's Administrative Directive 4-05, as appropriate.

Building Opportunities Moving Forward:

- LEED Net Zero (2020)
- International Green Building Construction Code (2021)
- Building Industry Design Challenges:
  - AIA Architecture 2030 Challenge (2006)
  - Structural Engineers 2040 Challenge (2020)
  - Mechanical-Electrical-Plumbing 2040 Challenge (2021)
- Institute of Living Building Initiatives (2020)
- WELL Building / Fitwel (2020) focused on indoor health
- Building Decarbonization Code(NBI/ US DOE – National Renewable Energy Laboratory) (2021)

Other LEED™ Programs

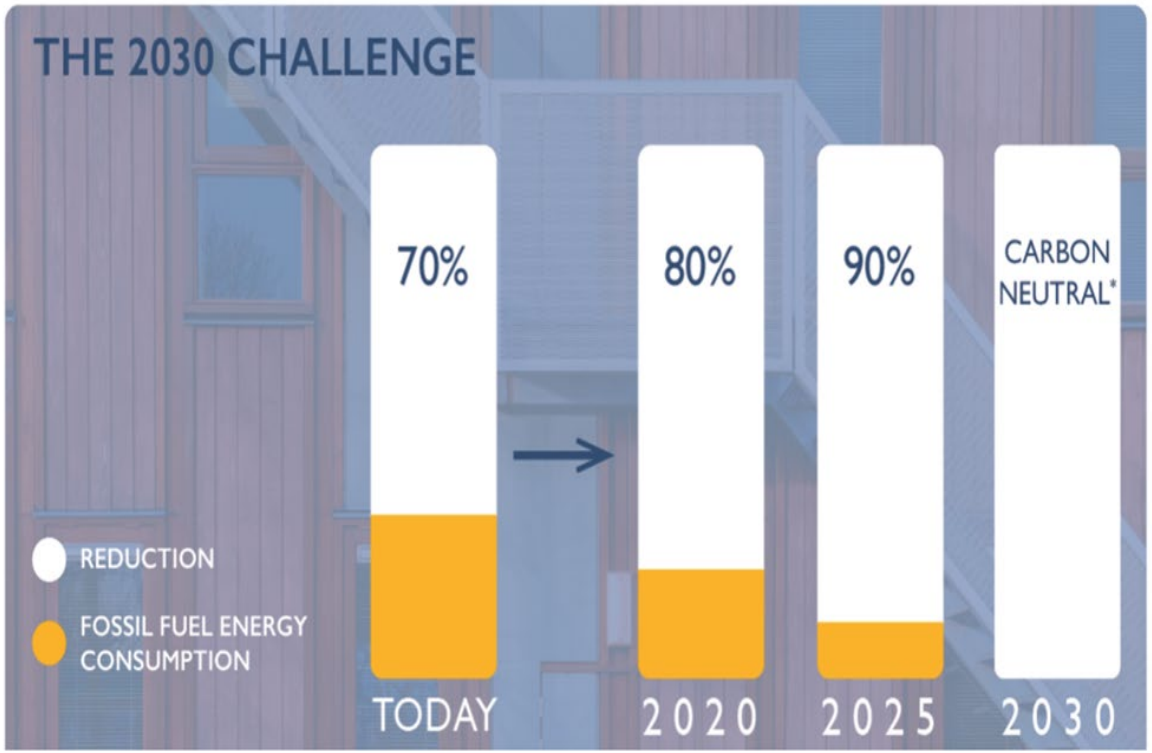
- **LEED + Water Conservation and Energy Efficiency** – current version
- **LEED Retrofit or Existing Buildings** provides guidance for sustainable retrofit design
- **LEED for Operations and Maintenance (O+M)** offers existing buildings an opportunity to address to building operations, by supporting buildings and interior spaces
- **LEED Zero Carbon** recognizes net zero carbon emissions from energy consumption through carbon emissions avoided or offset over a period of 12 months.
- **LEED Zero Energy** recognizes a source energy use balance of zero over a period of 12 months.
- **LEED Zero Water** recognizes a potable water use balance of zero over a period of 12 months.
- **LEED Zero Waste** recognizes buildings that achieve Green Business Certification Institute's TRUE certification at the Platinum level.

Bank of America Plaza, Dallas

AIA Architecture 2030 Challenge

The American Institute of Architects created the 2030 Commitment Program in 2006, basically challenging architects to holistically respond to the climate crisis. Over 400 A/E/P firms have adopted this Commitment.

- **Establishing an Energy Use Intensity** (EUI) baseline and target.
- **Applying low/no cost passive design strategies** to maximize energy efficiency
- **Integrating energy efficient technologies** and systems.
- **Incorporating on-site and/or off-site renewable energy** to meet the remaining energy demands.
- **Performing iterative energy modeling** throughout the design to assess progress towards meeting the EUI target.

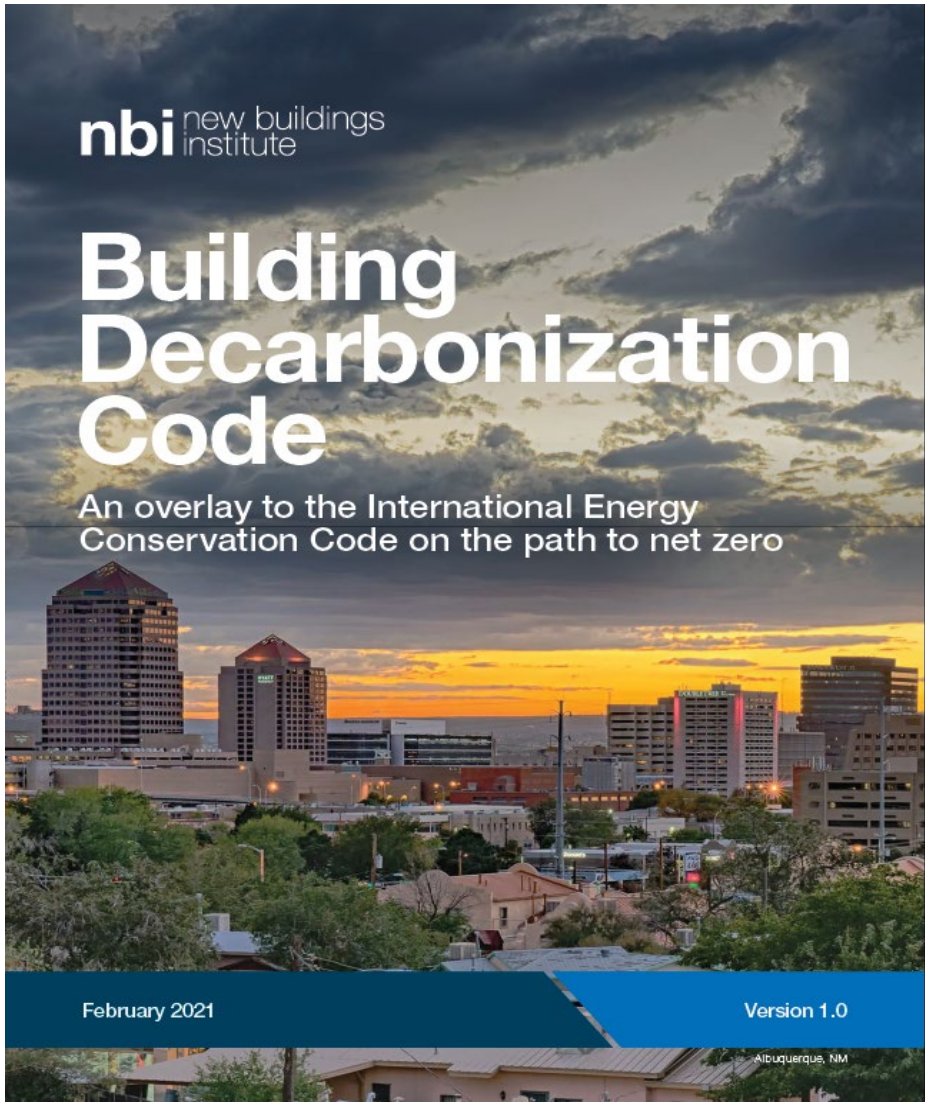


International Green Building Construction Code (IgCC)(2021)

- Released by the International Code Council, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the U.S. Green Building Council (USGBC) and the Illuminating Engineering Society (IES)
- Provides communities with model code language to assist in achieving sustainability in building stock
- Includes ANSI/ASHRAE/USGBC/IES 189.1-2020 Standard the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings
- Correlates with the International Energy Conservation Code, ASHRAE Standard 90.1 and other referenced standards.
- Streamlines code development and adoption saving the time and money needed to develop their own codes and creating uniformity among adopting jurisdictions.

Building Decarbonization Guide (NBI/ RMI)

- Provides sample language to use as a Code Overlay to meet cities' goals for Net-Zero Emissions
- Based on International Code Council's 2021 International Energy Conservation Code
- Provides sample code amendments for commercial and residential buildings under all-electric and mixed-fuel energy
- Primary emphasis on solar energy, battery storage, electrical vehicles and demand-response systems



Institute of Living Building Initiatives: Living Building Challenge 4.0

SUMMARY MATRIX

The Living Building Challenge is composed of 20 Imperatives grouped into seven petals. Some Imperatives are not required for all Typologies.

PETAL	IMPERATIVE		TYPOLOGY: New Building	Existing Building	Interior	Landscape + Infrastructure
PLACE	1	Ecology of Place	■	▨		■
	2	Urban Agriculture	■	■		
	3	Habitat Exchange	■	■	■	■
	4	Human Scaled Living	■	▨	▨	
WATER	5	Responsible Water Use	■	■	■	■
	6	Net Positive Water	■	■		■
ENERGY	7	Energy + Carbon Reduction	■	■	■	■
	8	Net Positive Energy	■	■	■	■
HEALTH + HAPPINESS	9	Healthy Interior Environment	■	■	■	
	10	Healthy Interior Performance	■	■	■	
	11	Access to Nature	■	■	■	
MATERIALS	12	Responsible Materials	■	■	■	■
	13	Red List	■	■	■	■
	14	Responsible Sourcing	■	■	■	■
	15	Living Economy Sourcing	■	■	■	■
	16	Net Positive Waste	■	■	■	■
EQUITY	17	Universal Access	■	▨	▨	▨
	18	Inclusion	■	■	■	■
BEAUTY	19	Beauty + Biophilia	■	■	■	■
	20	Education + Inspiration	■	■	■	■

■ IMPERATIVE REQUIRED FOR TYPOLOGY
▨ REQUIREMENT DEPENDENT ON SCOPE
□ NOT REQUIRED FOR TYPOLOGY

CORE IMPERATIVE
SCALE JUMPING ALLOWED
HANDPRINTING IMPERATIVE

International WELL Building Standard

- People-first approach to buildings, organizations and communities.
- WELL Building Standard (WELL): a roadmap for creating/ certifying spaces that advance human health and well-being.
- Aligned with UN Sustainable Development Goals (SDGs)
- "Sets pathways for accomplishing health-first factors that help us to do our best work and be our best selves by supporting our physical and mental health across 10 core concepts"

Fitwell Standards

The Fitwel Scorecards include 55+ evidence-based design and operational strategies that enhance buildings by addressing a broad range of health behaviors and risks:

- Impacts Surrounding Community Health
- Reduces Morbidity and Absentee-ism
- Supports Social Equity for Vulnerable Population
- Instills Feelings of Well-Being
- Enhances Access to Healthy Foods
- Promotes Occupant Safety
- Increases Physical Activity

City of Dallas

Updated CECAP Considerations for 2024 Bond Program

Environment & Sustainability Committee
May 1, 2023

Susan Alvarez, PE, CFM
Assistant Director
Office of Environmental Quality & Sustainability