Affordable Design

The U.S. Department of Housing and Urban Development sponsors or cosponsors three annual competitions for innovation in affordable design: The Innovation in Affordable Housing Student Design and Planning Competition; the American Institute of Architects – HUD Secretary's Housing Community Design Awards; and the HUD Secretary's Opportunity & Empowerment Award, co-sponsored with the American Planning Association. This Cityscape *department reports on the competitions and their winners. Each competition seeks to identify and develop new, forward-looking planning and design solutions for expanding or preserving affordable housing. Professional jurors determine the outcome of these competitions.*

2023 Innovation in Affordable Housing Student Design and Planning Competition: Chicago Housing Authority in Chicago, Illinois

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The Jury:
Jenny Carney, Vice President, Sustainability, Energy and Climate Change, WSP
Tammy Greer, Professor of Political Science, Clark Atlanta University
Bruce L. Levine, Founder and President, 3d Development Group, LLC
Mina Marefat, Principal, Design Research, AIA
Joe Neri, Chief Executive Officer, IFF
Ryan E. Smith, Director, School of Architecture, The University of Arizona
Alternate Juror: Marisa Novara, Commissioner, Chicago Department of Housing

Winning Team: University of Illinois Chicago
Michael Cullen
Emily Etzkorn
Wen Po Hsu
Alexandra Pollock
Bailey Werner

Runner-Up Team: The University of Texas at Austin
Chase Bryan
Jonathan Lee
Natalie Raper
Maria Rubio Figueiredo
Shaw Valier

The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research, the U.S. Department of Housing and Urban Development, or the U.S. Government.

Introduction

The 10th annual U.S. Department of Housing and Urban Development (HUD) Innovation in Affordable Housing (IAH) Student Design and Planning Competition challenged multidisciplinary graduate student teams to respond to an existing affordable housing design and planning issue. The IAH Student Design and Planning Competition is open to graduate students in architecture, planning and policy, finance, and other disciplines. The competition challenges students to address the social, economic, and environmental issues relating to a specific housing development problem identified by a partnering public housing agency (PHA).

The primary goal of the competition is to encourage innovation in the design of affordable housing. The students address the social and economic issues outlined by the PHA in their plans and designs, and identify improvements to promote durability, reduce energy consumption, increase the quality of housing, and enhance the social and economic vitality of the surrounding community. For the 2023 challenge, HUD partnered with the Chicago Housing Authority (CHA).

The competition is designed in two phases. During Phase I, a jury of six practitioners evaluated the first round of proposals electronically submitted by teams from 25 universities. The jury selected four finalist teams from the 25 proposals to move on to Phase II of the competition. In Phase II, the finalist teams further refined their proposals following the site visit to Chicago—addressing complex issues, incorporating more detail, improving their design plans, and conducting additional analyses on the financing needed to create viable housing. The site visit enabled the finalists to expand on their original proposal and submit a revised final project. Several weeks after the site visit, on April 12, 2023, the jurors and the four final teams traveled to HUD headquarters in Washington, D.C., to present their plans for the final awards ceremony. Following the presentations, the jury selected the team from The University of Illinois Chicago as the winner and the team from the University of Texas at Austin as the runner-up.

The CHA challenged the student teams to innovatively develop an underdeveloped vacant building located in a thriving community. They were asked to design the site while being mindful of the

social and cultural context of the partnering community. The student teams needed to consider the long-term needs of the residents, maximize the number of affordable housing units on the site, add amenities, ensure congruity with the surrounding neighborhood, and align with the City of Chicago's Climate Action Plan.[1] The climate plan's goals are to reduce carbon emissions while also increasing household savings, advancing environmental justice, and improving community health.

The site, 420–430 West North Avenue, is in Chicago's 2nd Ward and bound by North Sedgwick Street to the east, West North Avenue to the south, North Hudson Avenue to the west, and an alley to the north. The site is located within the Lincoln Park Community area and Old Town neighborhood, which has adjacencies to the Gold Coast to the east, the Cabrini Green neighborhood to the south, and Goose Island to the west (exhibit 1).

Exhibit 1

Site Location and Surrounding Area

Aerial view of the 2023 Innovation in Affordable Housing Student Design and Planning Competition's project site located at 420–430 W. North Avenue in Chicago's Lincoln Park neighborhood. The property is outlined in the red box and borders N. Hudson Avenue and N. Sedgwick Street. Photo credit: Google Maps.

The resident buildings surrounding the site include two-, three-, and four-story residential buildings, mixed-use buildings varying between one and five stories, and some taller buildings on West North Avenue. In addition, the site is situated near architecturally historically significant structures that possess architectural features or historical associations, making them potentially significant in the context of the surrounding community. The southern boundary of the Old Town Triangle District consists of narrow, tree-lined streets and distinctive architectural character,

[1] The 2022 Climate Action Plan can be found at https://www.chicago.gov/city/en/sites/climate-action-plan/home.html.

including small-frame workers cottages, larger brick and stone houses, rowhouses, and apartment buildings along the eastern portion of the district. The site is one block from the Sedgwick Station, providing access to the Brown and Purple lines and along bus lines.

The Winning Team: University of Illinois Chicago

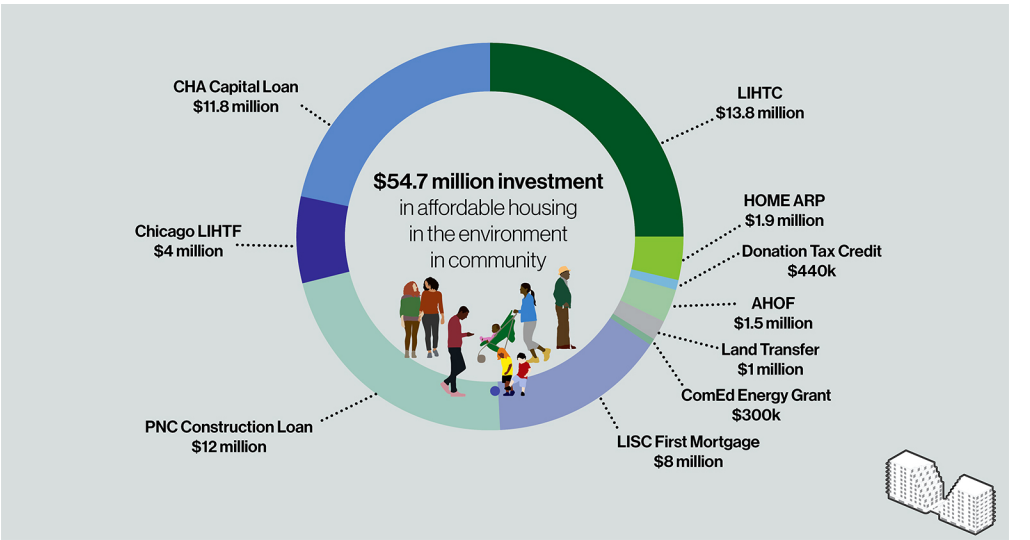
Michael Cullen, Emily Etzkorn, Wen Po Hsu, Alexandra Pollock, Bailey Werner

The award-winning student team site plan, *Garden City*, is from the University of Illinois Chicago (UIC). The team's design is anchored on four fundamental principles: community, opportunity, health, and accessibility. Their design fosters a strong sense of community among the residents and offers opportunities for growth and adaptability. To promote a sense of community, the design incorporates two smaller buildings that house different cohorts of residents. These buildings are separated by a shared courtyard, which serves as a focal point for community interaction and engagement.

Garden City will have 100 units, 90 of which will be reserved for tenants with project-based vouchers. Rents on these units are set to HUD's Fair Market Rent limits for the area. The remaining 10 units will be reserved for tenants who qualify for the HOME Investment Partnerships American Rescue Plan Program (HOME-ARP). The UIC team proposed to fund Garden City using Low-Income Housing Tax Credits (LIHTC), HOME-ARP funds, state donation tax credits, a ComEd energy grant, and traditional hard debt. The project's total development cost is $54.7 million, including $13.8 million from LIHTC, $1.9 million from HOME-ARP, and various loans and grants (exhibit 2).

Exhibit 2

Overview of Garden City Financing



AHOF = Affordable Housing Opportunity Fund. ARP = American Rescue Plan. CHA = Chicago Housing Authority. LIHTC = Low-Income Housing Tax Credit. LIHTF = Low-Income Housing Trust Fund. LISC = Local Initiatives Support Corporation.

Source: Final PowerPoint Presentation UIC

One notable feature of the design is its flexibility and adaptability to changing needs. The units within the buildings are designed in a way that allows them to accommodate evolving demands. The units can adapt to the changing needs of residents, either by removing or opening a shared doorway. The design also prioritizes the health and accessibility of the residents by incorporating features and amenities that promote physical and mental well-being, such as open spaces, recreational areas, and ample natural light.

In addition, UIC's design places a strong emphasis on environmental sustainability by integrating eco-friendly practices and technologies to minimize the environmental impact of development. These practices include energy-efficient systems, water conservation measures, the use of sustainable materials, and the incorporation of green spaces to enhance biodiversity and contribute to the overall environmental health of the community. Overall, the team's design reflects their commitment to creating a vibrant, inclusive, and sustainable community that prioritizes the well-being and evolving needs of its residents.

Exhibit 3

Overview of Garden City

Source: Final PowerPoint Presentation UIC

The team's design balances the community's needs, providing opportunities for generational wealth for residents, who can build their credit scores by using special credit reporting for their rental payments. Garden City is accessible through local transit; however, the team wants to provide bikes as an alternative mode of transportation. Their third pillar of health is achieved via a grocery store within the buildings providing fresh groceries. To achieve accessibility, the building is designed using accessible elements and well-being standards, including access to nature and green space and a free exercise room.

Garden City's sustainability design includes landscaping that prioritizes low-maintenance native plants and irrigation that uses a rain catchment system. Keeping in alignment with the 2022 Chicago Climate Action Plan, the development's outdoor composting system will divert organic waste from the landfill and benefit personal and communal gardening. The building will achieve energy star certification, be fully electrified, and prioritize energy efficiency through various means, including large windows providing passive heat and roof-top solar panels. The building currently on site will be reused as much as possible; for example, bricks will be repurposed.

Juror Dr. Mina Marefat commented that UIC "was able to balance the needs of the community, the aesthetics of the structure, and the variety of uses that they had for the community . . . they were successful in trying to address the community and neighborhood needs."

Exhibit 4

Sustainability Features: Rooftop Solar Panels, Terrace Garden, and Central Courtyard

Source: Final PowerPoint Presentation UIC

The Runner-Up Team: The University of Texas at Austin

Chase Bryan, Jonathan Lee, Natalie Raper, Maria Rubio Figueiredo, Shaw Valier

Students from The University of Texas at Austin (UTA) were selected as runners-up for their proposal, *Cabbage Patch Commons*. Their design creates affordable housing that holistically integrates well-being, sustainable design, and human connection. The team was mindful of the presence of eight old-growth trees and demonstrated their commitment to sustainability by successfully preserving six of them. They envisioned housing as a human right and a foundation for opportunity. The team considered the development's short- and long-term impacts on the environment, the neighborhood, and the residents. The UTA team used three guiding principles

in designing Cabbage Patch Commons: integration of housing residents into the neighborhood, intentional inclusion of all people, and prioritization of support and well-being of the residents.

Exhibit 5

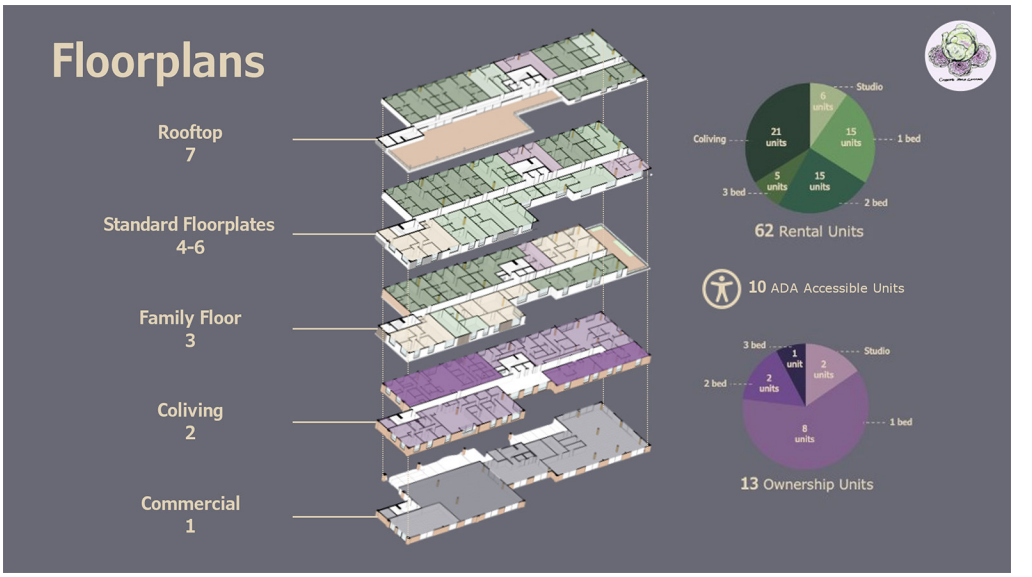
Overview of Cabbage Patch Commons

Source: Final PowerPoint Presentation UTA

Their design includes 75 units, 62 of which are for rent and 13 for home ownership. Four of the ownership units are market rate, and the remaining are affordable at 80–120 percent of the area median income. The design includes market-rate units as a method of developing mixed-income units. UTA's financing plan leverages reliable, affordable housing programs and incorporates novel financing solutions. Nine-percent LIHTC forms the backbone of the team's proposed capital stack. The team designed the project to achieve the highest score possible in the Illinois Housing Development Authority's Qualified Allocation Plan. They also aimed to minimize the loan-to-cost ratio, thereby increasing the debt service coverage ratio, to enable operating costs to fund deeply affordable units over the long term. Finally, the ground floor includes commercial spaces for a community credit union, co-op daycare, lobby, library, and coffee shop.

Exhibit 6

Floor Plan and Financing for Cabbage Patch Commons

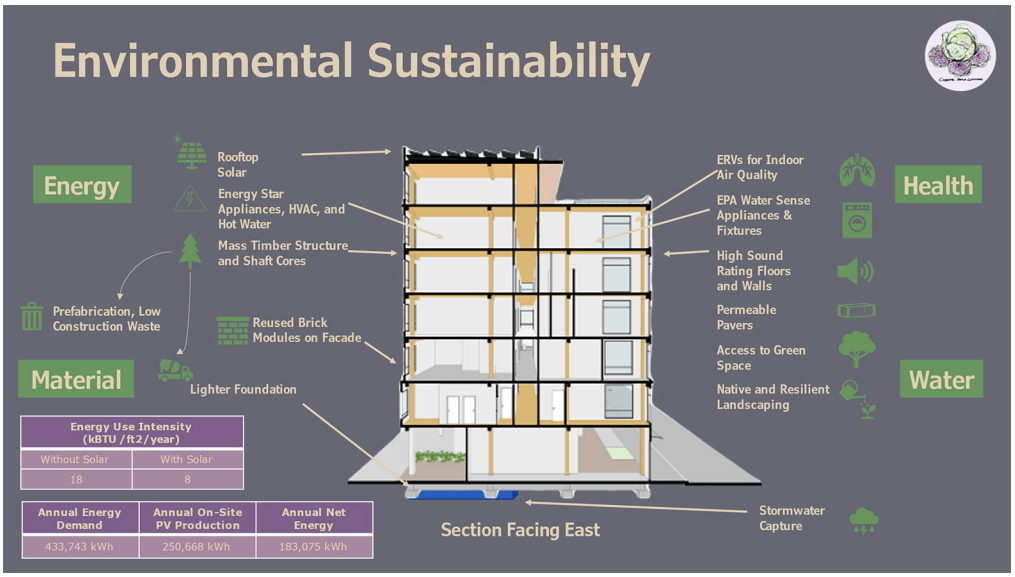


ADA = Americans with Disabilities Act.
Source: Final PowerPoint Presentation UTA

The team prioritizes four elements in their design: environmental sustainability, energy, material health, and water. The UTA team said the heart of every design decision they made was sustainability. The primary construction technique is mass timber, which they say will significantly reduce the embodied carbon of the building and perhaps make construction carbon negative (pending life-cycle assessment). The team also addresses end-of-life carbon emissions, operational energy efficiency, and indoor air quality in their sustainability plan. Cabbage Patch Commons will be fitted with rooftop solar panels, use bricks from the existing structure, use design elements for noise reduction, monitor air quality, conserve water, install permeable pavers, provide access to green space, and incorporate native and resilient landscaping.

Exhibit 7

Environmental Sustainability



EPA = U.S. Environmental Protection Agency. ERV = Energy Recovery Ventilator. HVAC = heating, ventilation, and air-conditioning.
Source: Final PowerPoint Presentation UTA

Juror Jenny Carney found that "from a sustainability perspective, the UT Austin team did a great job of laying out specific details and linking those strategies to funding sources like IRA or things that are actually relevant. It's not just generic green building strategies that you can read about and checklist."

Thoughts From the Jury

Jenny Carney, Dr. Tammy Greer, Bruce L. Levine, Dr. Mina Marefat, Joe Neri, Ryan E. Smith

The jury of the 2023 IAH Student Design and Planning Competition faced the challenging task of selecting the most comprehensive student site plan from the four outstanding entries. The jurors were tasked with evaluating how well the student teams addressed the following crucial elements:

- Reasonable and Feasible Design: Assessing whether the proposed design demonstrates knowledge and understanding of codes, zoning constraints, and solutions that align with the Housing Authority's stated objectives.
- Resilience and Environmental Responsiveness: Evaluating whether the proposed design is responsive to local climate and site conditions, considering factors such as promoting health, energy efficiency, water efficiency, resource efficiency, and low environmental impact. The inclusion of an economic life cycle analysis was also considered.

- Affordability: Determining whether the pro forma is cost-effective to construct and operate over the long term.
- Integration into the Neighborhood and Community: Determining whether the design innovatively integrates with the surrounding neighborhood and community—considering aspects such as visual aesthetics, functionality, and overall cohesion—and redresses past injustices.
- Innovative Approaches: Analyzing whether the proposed design demonstrates innovation across all aspects of the solution, including planning, design, construction, environmental considerations, and durability.

The jurors found that two of the four teams' proposals addressed all the issues discussed above clearly and with forethought. After narrowing the competition down to University of Illinois Chicago and The University of Texas at Austin, the jury set about identifying elements of the site plans they thought were particularly innovative while keeping an eye on the critical elements listed previously. The jurors selected UIC because their proposal was able to balance the needs of the community, the aesthetics of the structure, and the variety of uses that would provide for the community while aligning with Chicago's Climate Plan. They were consistent in all categories. The University of Texas at Austin team had a solid sustainability plan and was able to give back to the community.

Final Thoughts

Tracey Scott, Chief Executive Officer of the Chicago Housing Authority, was excited to be around young people with new and fresh ideas. At the final competition event at HUD headquarters in Washington, D.C., she said she wanted the students to "innovate, innovate, and innovate" to resolve the issues of affordable housing. She emphasized that CHA faces significant challenges related to housing affordability, climate change, and social equity. To effectively meet the needs of their residents, she said, CHA must adopt a creative and forward-thinking approach that provides innovative solutions to these issues. This competition is about how to transform communities, she noted. She thanked the students for their thoughtfulness and time spent on their designs. Recently, CHA included some of the student designs in its request for proposals, and they are using the designs to evaluate options presented by bidders.

The students from UIC reflected that for the competition they drew on the four different disciplines—planning, city design, architecture, and public health—to imagine affordable housing that responds to the challenges and demands of the past, present, and future. In developing their project concept, Team UIC imagined a future for Chicago in which affordable housing is an asset to residents and the community alike.

The UTA students said they shared a goal of creating affordable housing that holistically integrates well-being, sustainable design, and human connection. They envisioned housing as a human right and a foundation for opportunity, and they strove to incorporate this into their project by thinking beyond physical design and into social and programmatic elements.

Finally, to celebrate the 50th anniversary of HUD's Office of Policy Development and Research (PD&R) and Operation Breakthrough, an exclusive interview was broadcast during the competition

event's intermission that featured Ivan Rupnik, founding partner of MOD X, and Todd Richardson, General Deputy Assistant Secretary of PD&R. The interview shed light on the significance of Operation Breakthrough, which was initiated in 1969 as a pioneering effort to introduce modern production methods aimed at increasing and enhancing the availability of housing, particularly for low-income families.

Mr. Rupnik, a prominent researcher specializing in offsite construction and Operation Breakthrough, emphasized that the primary objective of Operation Breakthrough was to comprehend the existing barriers in the homebuilding industry and stimulate innovation. While acknowledging that many of these barriers persist today, originating from both the industry and government, Mr. Rupnik stressed the need for a regulatory framework reform in the homebuilding sector. The proposed changes to the regulatory framework encompass several key aspects, including the standardization of terms and regulations governing non-onsite construction. This standardization would involve establishing consistent protocols for inspections, transportation procedures, financial products, and labor-related matters.

The jurors were asked to provide advice to the students as they enter the workforce. Jenny Carney advised the students to delve beyond surface-level information and investigation, encouraging them to consider invisible relationships and study empirical data. She urged them to cultivate curiosity, foster innovation, and strive to uncover the underlying truths. Ryan Smith congratulated the students on their impressive designs and emphasized that developing affordable housing presents an incredible opportunity for young professionals to engage in innovative work. He encouraged them to utilize their skills to make a positive impact and benefit society. Dr. Tammy Greer commended the students for their accomplishments and reminded them to recognize the interdependencies between the built environment and the people who inhabit it. She highlighted that, for residents, homes are not just a place to sleep but also a source of identity, community, opportunity, and security.

HUD encourages the students to continue working across fields to plan and build communities of the future that meet the diverse needs of all residents.

Acknowledgments

HUD thanks the award-winning student teams from University of Illinois Chicago and The University of Texas at Austin for sharing their thoughts and all the hard work they put into their submissions for this year's competition. HUD also thanks the remaining two teams that were selected to participate this year: The University of Maryland, College Park, and Harvard University. HUD greatly appreciates the 2023 Innovative Affordable Housing jury members' dedication and hours devoted to the awards selection process. Finally, HUD thanks Schatz Publishing Group, LLC for planning and logistics efforts. Their hard work and flexibility made this year's competition a success.

Author

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Postscript

The competition is thoroughly documented on the web. To learn more about the award, please visit: https://www.huduser.gov/portal/challenge/home.html.