

Affordable Design

This department seeks to identify and develop new, forward-looking planning and design solutions for expanding or preserving affordable housing. This department also reports on design competitions and their winners. Professional jurors determine the outcome of these competitions.

The 2024 Innovation in Affordable Housing Student Design and Planning Competition

Alaina Stern

Jagruti Rekhi

U.S. Department of Housing and Urban Development
Office of Policy Development and Research

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The Jury:

Ivan Rupnik, PhD, (Head Juror) Founding Partner, MOD X; Associate Professor of Architecture, Northeastern University

Mona Hodge, Associate Principal, Smith Gee Studio, AIA, LEED AP, NOMA

Connor Jansen, Technical Services Director, Slipstream Group, Inc.

Anne Neujahr Morrison, Owner and Founder, New Year Investment

Heather Stouder, Planning Director, City of Madison, WI

Tyler Pullen (Alternate Juror), Senior Technical Advisor and Researcher, Turner Labs and Turner Center, University of California, Berkeley

Winning Team: Harvard University

Emily Hsee

Erik Larson

Aaron Smithson

Maggie Weese

Runner-up Team: University of California, Berkeley

Zhenyang Terence Chan

Jonathan Coles

Hailey Gil

Sophia O'Neil-Roberts

Phuong Nyny Vu



The 2024 first-place winners of the Innovation in Affordable Housing Competition from Harvard University pictured on stage with Solomon Greene (far left), Principal Deputy Assistant Secretary for the Office of Policy Development and Research, and Dominique Bloom (far right), General Deputy Assistant Secretary for Public and Indian Housing. (Photo by HUD)

Introduction

This year marks the 11th anniversary of the U.S. Department of Housing and Urban Development (HUD) Innovation in Affordable Housing (IAH) Student Design and Planning Competition. Each year, this competition invites graduate students enrolled in accredited U.S. educational institutions to respond to an existing affordable housing design and planning issue. The multidisciplinary teams—composed of graduate students studying architecture, planning and policy, finance, and other areas—must address social, economic, environmental, design, financial, and construction issues in addition to the affordable housing design challenge.

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 public housing agency 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.

The competition occurs in two phases. During Phase I, a jury of six practitioners evaluates initial submissions and selects four finalist teams to advance to Phase II of the competition. In Phase II, the finalist teams further refine their proposals following a site visit—this year, to Madison, Wisconsin—to address complex issues, incorporate more detail, improve their design plans, and conduct additional analyses on the financing needed to create viable housing.



Students from the finalist teams pictured with Mayor Satya Rhodes-Conway (center, in green shirt), Community Development Authority staff, and HUD employees during their site visit to Madison, Wisconsin. (Photo by Schatz Publishing Group, LLC)

The site visit enables the finalists to expand on their original proposal and submit a revised final project. Several weeks after this year's site visit, on April 18, 2024, the jurors and the four finalist teams traveled to HUD headquarters in Washington, D.C., to present their refined project plans for the final awards ceremony. Each student team delivered a 20-minute presentation addressing how their plans respond to the economic, social, and environmental challenges of the development site. The students were then provided 10 minutes to field questions from jurors. Following the presentations, the jury selected the Harvard University team as the first-place winner; the University of California, Berkeley (Blue Team), was the runner-up.

For the 2024 competition, HUD's Office of Policy Development and Research (PD&R) partnered with the City of Madison [WI] Community Development Authority (CDA). CDA challenged students to devise innovative solutions to transform Romnes Apartments, a 169-unit public housing building situated on a 7-acre site at 540 West Olin Avenue in Madison.



Aerial view of 540 West Olin Avenue in Madison, Wisconsin, project site for the 2024 Innovation in Affordable Housing Student Design and Planning Competition. (Photo courtesy of the Madison Community Development Authority)

The two-story, horseshoe-shaped building was built in 1968; today, the existing structure faces overwhelming rehabilitation and modernization costs. CDA is considering demolishing the current property to construct new buildings with improved amenities and sustainable features, including, perhaps, additional housing units. The demolition and reconstruction effort would involve relocating the existing 169 public housing residents.

CDA aims to create a mixed-income community with affordable housing options that integrate well into the surrounding neighborhood. In addition, CDA wants to increase the housing density on the site while maintaining the neighborhood's character. The ideal final plan would provide onsite community amenities, including healthcare services, self-sufficiency programs, and supportive services and spaces for administrative uses such as project planning and staff meetings. Preferably, current residents can stay on site and move only once; however, remaining on site presents logistical challenges because of the current building's location and space constraints.

The Winning Team: Harvard University

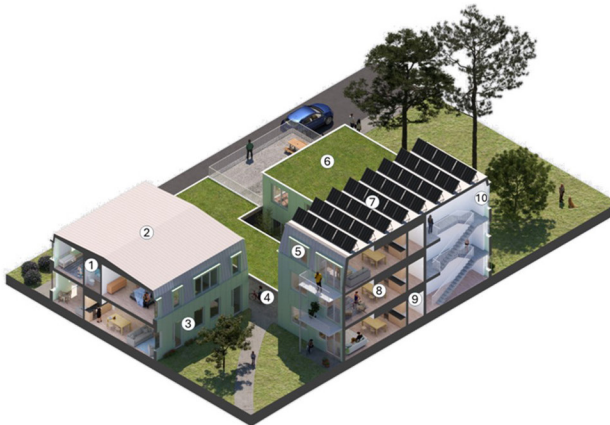
The winning design by Harvard University, dubbed Lakeside Grove, uses phased construction to create L-shaped buildings and requires current residents to move only one time (exhibit 1). The design consists of five development sites strategically placed to divide the current site's open space into smaller, more intimate courtyards while also maintaining as many of the current mature trees as possible. The proposal increases the housing density of the site, resulting in 270 affordable housing units with a mixture of one to three bedrooms in four buildings (exhibit 2).

Exhibit 1

Illustration of the Amenities Included in the Winning Team's Final Proposed Building Design, Including Green Roofs, Solar Panels, All-Electric Buildings, and Other Amenities

LAKESIDE GROVE

TEAM 362: HARVARD UNIVERSITY



- 1 WaterSense Certified Fixtures
- 2 High-Albedo White Roofs
- 3 Passive House Construction
- 4 Covered Bike Storage
- 5 Energy-Efficient Glazing
- 6 Green Roofs Over Hinges
- 7 1,000 PV Panels
- 8 Energy Star Appliances
- 9 All-Electric Buildings
- 10 Windows in Stairs

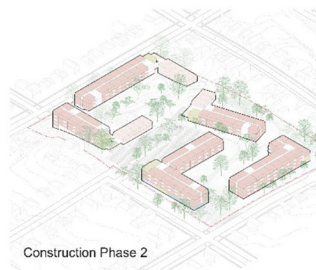
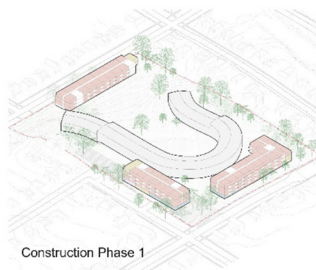
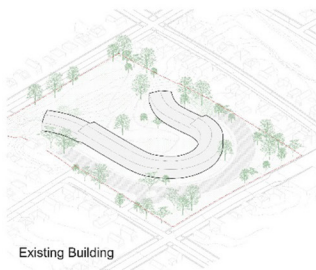
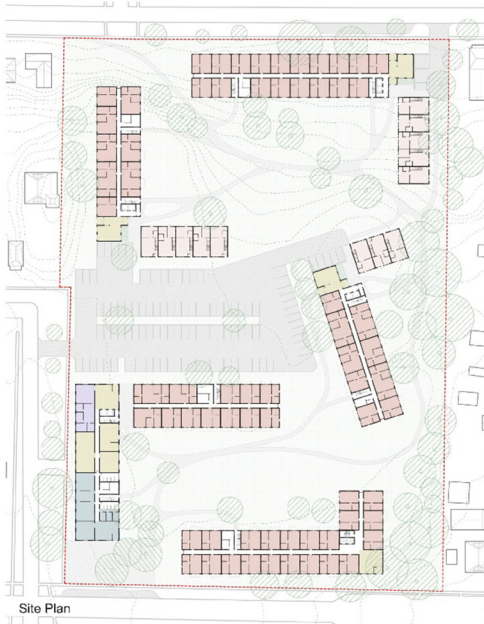
Source: Harvard Team Presentation

Exhibit 2

Three-Phase Construction Development Process and L-Shaped Building Orientation Proposed by the Harvard University Team

LAKESIDE GROVE

TEAM 362: HARVARD UNIVERSITY



Source: Harvard Team Presentation

The team designed the interiors using universal principles that prioritize the health and well-being of residents and staff through inclusive design, accessibility, natural light, and access to nature. On the basis of feedback from the current residents and staff of the Romnes Apartments, the team’s design includes resident amenities such as balconies for all units, generous green spaces, and onsite parking. In addition, their design strongly focuses on healthy indoor air quality through the incorporation of passive house air filtration and low volatile organic compound materials. The development also features rain gardens, permeable paving, and native plants.

In addition, the team's trauma-informed design includes community spaces at the hinge of the building, different-colored corridors, spaces at the front door to display personal items, ample natural light, and central washers and dryers on each floor (exhibit 3).

Exhibit 3

Digital Renderings of Building Design Conceptual Integrations of the Winning Team's Universal and Trauma-Informed Design Showing Interior Areas of the Apartments and Common Spaces



Source: Harvard Team Presentation

Overall, Lakeside Grove's design strategy was a well-balanced combination of environmental sustainability, transit connectivity, and community vitality.

The Runner-up Team: The University of California, Berkeley (Blue Team)

The runner-up team was the University of California, Berkeley. Their design, dubbed the Villages at Monona Bay, is a three-phase, mixed-income, and mixed-use community that would provide the Madison's Bay Creek neighborhood with senior care, new homes for inclusive and intergenerational living, and thoughtful amenities and services for the community (exhibits 4 and 5). The Villages at Monona Bay would provide 290 rental units and 100 affordable townhomes for homeownership while preserving green space, which was a concern of the current residents. Of these homes, 87 percent are for low-income families, seniors, veterans, and those with supportive needs and will be affordable to families earning 80 to 120 percent of the Area Median Income (AMI), with 50 units specifically earmarked for those earning below 80 percent AMI.

Exhibit 4

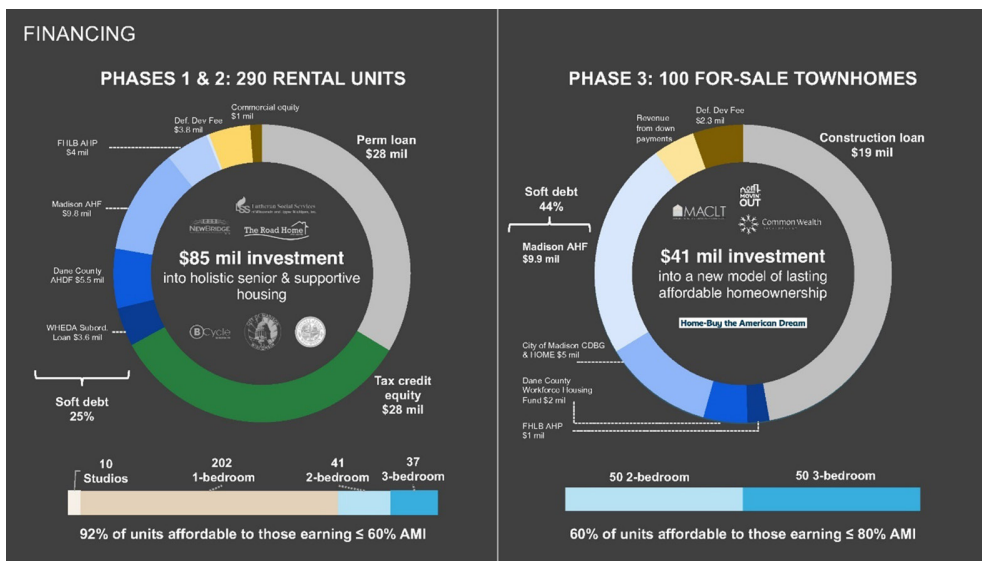
The Villages at Monona Bay Proposed Community Plan and Site Map



Source: The University of California, Berkeley, Team Presentation

Exhibit 5

Overview of the Three-Phase Financing Plan Proposed for Residents at the Villages at Monona Bay



Source: The University of California, Berkeley, Team Presentation

Through a hyper-local, village-style approach, the development provides a network of amenities to promote health and foster connections while preserving the natural beauty and character of the neighborhood. The proposal includes financing and ownership contracts to offer affordable rental and homeownership opportunities to its residents. Redevelopment will occur in three phases, with detailed financial planning to maintain long-term affordability.

The proposal features four villages, each with an open courtyard with programmed outdoor spaces, scaling the development to neighborhood proportions and fostering a sense of community and eyes on the street. Each interior has abundant natural light and a cross-ventilation window scheme to support natural ventilation in each unit. A major concern of the current staff was the high cost of maintenance; therefore, the Villages will transition into an all-electric community to promote sustainability and operational efficiencies. Electrifying the development simplifies mechanical systems, minimizing repairs and operational costs.

Thoughts From the Jury

The jury for the 2024 Innovation in Affordable Housing Student Design and Planning Competition faced the difficult task of deciding which of the four outstanding finalist team site plans best exemplified an innovative design. As the jurors deliberated on the final four designs, they were struck by the creativity and effort shown by the students. They were particularly impressed by the changes the students had made to their original designs based on their site visit. As the deliberation continued, the jurors realized that they faced a tough decision.

Ultimately, the jury selected the Harvard University team as the first-place winner for being multifaceted and meaningful, including the trauma-informed design, well-thought-out unit layouts, sustainability features, and balance between offering residents privacy and openness at the same time. One of the jurors, Anne Neujar Morrison, commented, “I liked the branding exercise of calling the corner of the building a hinge. I was like, almost every L-shaped building, in my experience, has something in the middle, but this was a brand-new concept.” Another juror, Heather Stouder, further appreciated that “they [the Harvard team] didn’t put a unit there. I’ve seen so many L-shaped buildings with units that then get that kind of poorly used space in the elbow—they just acknowledged that and used it for common space.”

Moreover, the jurors collectively praised the Harvard team’s ideas about trauma-informed design, the WELL Building Standard, and concepts of community spaces, such as the laundry facilities, that demonstrate how the Harvard team considered the small details and took into consideration the residents’ needs. Overall, the jury believed that Harvard’s proposal stood out because the team had thoughtfully considered a plan to provide a sense of place, focusing on individuals and how they occupy that space and feel in the neighborhood.

The 2024 jury selected the University of California, Berkeley (Blue Team), as the runner-up. They praised the team’s design for their comprehensive approach to the project, including aging-in-place aspects, plans for childcare and senior care, and cost-effective natural systems. The jurors were impressed with the amount of research the Blue Team had put into their design. They especially

appreciated that their financing reflected a large investment in the building's systems rather than the development's aesthetics.

Upon the jury's decision, the winning team receives a \$20,000 prize, with \$10,000 awarded to the runner-up and \$5,000 to each of the remaining two finalist teams.

Acknowledgments and Honorable Mentions

HUD thanks the award-winning student teams from Harvard University and the University of California, Berkeley, for sharing their thoughts and for all the hard work they put into their submissions. HUD also thanks the remaining two finalist teams who participated this year—from the University of Maryland and the University of California, Berkeley (Gold Team).

University of Maryland (Team 359): The Village at Bay Creek design was deeply informed by research on community preferences and history. The team's interests in participatory design, public space, financial equity, community resilience, and emerging construction methods were integrated into their environmentally and economically sustainable proposal. They emphasized connection by fostering integration across generations and income levels, and they highlighted community by prioritizing indoor and outdoor gathering spaces. The development's natural environment was accentuated through various garden types to support human flourishing, and healing was promoted through similar integration principles. The housing mix included townhomes, garden-style apartments, and condos; solar energy and geothermal walls supported community resilience.

University of California, Berkeley (Team 370: Gold Team): The Romnes Commons plan leveraged innovative volumetric modular construction methods. The ambitious and creative proposal aimed to excel programmatically, architecturally, environmentally, and financially. Central to their design was a commitment to transparency, openness, and minimal disruption to prevent displacement and engage residents actively. The proposal emphasized community building and healthy living through placemaking and high-quality public spaces. The plan incorporated advancements in construction and sustainability to enhance long-term resiliency. Lastly, it focused on providing pathways to economic mobility and wealth building by offering affordable rental and homeownership opportunities for all households.

HUD would like to thank all the teams that submitted site plans for the 2024 competition. Although only four teams were selected for the final phase of the competition, six additional teams were ranked as noteworthy by the jurors. Highlights from the teams' plans are as follows, in chronological order by team number.

University of Kansas (Team 353: Ad Astra Group): The Romnes Terrace plan prioritizes innovation in wellness and healthy living while transcending class and social boundaries. The site reconnects with the original neighborhood and adds features such as a medical clinic, a community center, and a didactic park that honors Madison's heritage. Their solution, which contains more units than the original structure without sacrificing the

many benefits of the city, promotes the physical and mental health of the residents by incorporating a walking trail and access to parks and other neighborhood amenities.

Pennsylvania State University (Team 354: The Hamer Center Collective): The Bay View Commons plan enhances a sense of community by being responsive to the surrounding neighborhood context and respectful of the site's environmental and historical conditions. The proposal provides a variety of missing middle and full life-cycle housing that will increase density, accommodate the needs of existing residents, and be highly energy efficient, universally accessible, and transit oriented. Jurors noted that the team put considerable thought and research into understanding the goals for the City of Madison regarding housing, transit, sustainable outcomes, and the expected demographics of the development. Further, the team's use of 45L tax credits tied to sustainable project outcomes meets Madison's energy goals. It is a good solution to support increased costs to go beyond typical code-built construction practices.

University of Miami (Team 358: UM Team 1 Architecture Real Estate and Law): The Renaissance Madison plan offers 168 replacement units for current residents and addresses the needs of the broader Madison community by providing an additional 41 one-bedroom and 114 two-bedroom apartments and 42 single-family townhomes available for purchase by low-income families. The team's plan to promote physical and mental well-being, provide access to a variety of neighborhood amenities, and bring in commercial tenants to help generate additional "market rate" income were highly creative.

The Ohio State University (Team 361: Knowlton School): The Rhize plan is an innovative system grounded in the innovation of a prefab pod. This foundational unit is engineered to serve multiple functions, embodying the principles of modularity and adaptability. Each pod functions as a standalone three-bedroom home, complete with a single-bedroom apartment attached to its rear. The team's plan for adaptable prefab units exhibits innovation and adds strength to the proposal, and the overall proposal is consistent with Madison's long-range plans. Its components, including ideas for adaptable modular housing, are positioned to meet a variety of housing needs over time by providing building blocks that can be arranged and easily modified over the next few decades.

The University of Colorado, Denver (Team 363: CU Denver CAP): The Lakeview Commons plan brings together innovative housing concepts and flexible self-sufficiency programming to enhance the community and integrate residents across generations, incomes, and backgrounds. The project centers on bridging gaps and elevating lives to create an affordable and sustainable mixed-income community by creating 236 units of varying sizes, including rental units and opportunities for ownership in an innovative co-living community. The overall design approach was extremely cohesive, and attention to detail on proposed floor plans demonstrates a clear overall concept of the tenants' use of space.

University of Kansas (Team 365: Team ArcD): The team's goal was to create a moderately dense and sustainable mixed-income community with affordable and

market-rate housing. The plan included multifamily rental developments and affordable homeownership opportunities while connecting the site to the surrounding Bay Creek neighborhood. The team divided the current site into three integrated city blocks by extending Emerson Street through the site to a new street connecting Lakeside and Olin Streets. By breaking up the mass of the site, the plan allows for higher density and greater integration with the surrounding neighborhood context. Moreover, improving site circulation by extending Emerson Street and adding a new street will strengthen the site's connection to the surrounding neighborhood, and the mix of building sizes and types will help the Madison CDA meet its goals.

By initiating and funding this competition, HUD hopes to inspire and support aspiring members of fields such as architecture, planning, policy, and finance in advancing affordable and sustainable housing for low- and moderate-income Americans. HUD would like to acknowledge and commend all the teams who participated in the 2024 IAH Student Design and Planning Competition. HUD hopes to continue building capacity for affordable housing as the younger generation begins to think about creating homes and communities that are inclusive, equitable, and climate resilient.

In addition, HUD would also like to express sincere gratitude and appreciation for the 2024 Innovative Affordable Housing jury members' dedication and hours devoted to the awards selection process. Lastly, HUD thanks Schatz Publishing Group, LLC, for their planning and logistics efforts. Their hard work and flexibility made this year's competition a success.

The competition is thoroughly documented on line; for more information, please visit huduser.gov/portal/challenge/home.html.