

# 2022 Innovation in Affordable Housing Student Design & Planning Competition



**First Place Winner**  
University of Maryland

**Team Members**  
Danielle Abe | Fadi Alajati | Maria Fernanda Farieta | Samuel McCormally  
Donald Nuzzio

**Project Overview**  
The University of Maryland team presented their winning proposal called, "Rise of Pines" during HUD's 9th Annual Innovation in Affordable Housing Student Design and Planning Competition. The team's design addresses the need for a true mixed-use, mixed-income community in the heart of Atlanta, GA, in a neighborhood that is rapidly gentrifying and losing its supply of affordable housing.

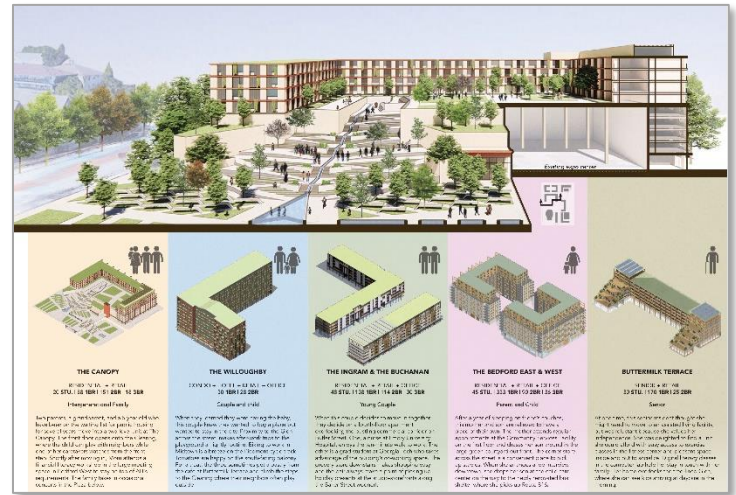


**Site:** The central design feature of Rise of Pines is the integration of Atlanta's existing Exhibition Hall into the site. The northern half of the Exhibition Hall is demolished at an existing expansion joint. The roof of the Exhibition Hall is reimagined as a one-acre park connected to the Civic Center Plaza by a terraced network of water, plants, stairs, and wheelchair-accessible ramps.

Aligning with existing plans and regulations which aim to create a dense urban texture in Atlanta's Historic Fourth Ward, Rise of Pines proposes 1,394 residential units across seven structures; three cross-laminated timber high-rise buildings, and four wood-frame mid-rises.

Rise of Pines proposes housing options for low and very-low income households, recently homeless people, seniors, and working families in an amenity-rich environment with abundant open spaces.

**Financial:** The project relies on funding from state and federal 4% and 9% Low-Income Housing Tax Credits (LIHTC). It will be competitive for 9% LIHTCs due to its amenities, transit-accessibility, and wide range of services for disabled and elderly residents, and it is eligible for a 30% basis boost due to its location in a Qualified Census Tract, Difficult Development Area, and New Market Tax Credit area.



The competition jurors praised the team for their focus on construction and design. The University of Maryland team was also commended for their utilization of the topography of the site and for innovative methods of construction, financing, and organization.

### SUSTAINABILITY

**CROSS-LAMINATED TIMBER (CLT)**

Rise of Pines' three CLT buildings are Type IV-B, a new building type introduced in the 2021 revision of the IBC, which allows high-rise construction without the use of concrete as primary material.

**Type IV-B-CLT**

180 ft  
12 stories

36,000 sq ft

3 in. Gypsum board finish - R-45  
Service void  
Vapor control membrane  
4.5 in. CLT panel - R-6.0  
6 in. Loose cellulose insulation - R-19  
1 in. Insulating wood fiber sheathing - R-1.7  
Drained & ventilated cavity  
5 in. Horizontal weatherboarding - R-6.0

Type IV-B permits some exposed structural elements, mass timber stair towers, and concealed spaces. Sprinklers are required.

**ENVIRONMENTAL PERFORMANCE**

The environmental advantages of CLT include:

- Reduced embodied carbon compared with concrete.
- CO<sub>2</sub> absorbed by trees stays locked in CLT structures. Mass timber buildings are also lighter, which reduces required foundation size.
- Improved Thermal and Moisture Performance: CLT has a lower R value than concrete, which reduces thermal bridging. In combination with cellulose insulation, CLT provides an excellent moisture barrier in humid climates.

CLT Embodied Carbon: 32%  
Concrete Embodied Carbon: 37%

**CONSTRUCTION TECHNIQUE**

The project utilizes modular and premanufactured methods to lower cost through reduced waste materials, construction time, and labor.

**STORMWATER MANAGEMENT**

- Permeable Pavers: 83k sq ft
- Green Roof: 162k sq ft
- Vegetation: 23k sq ft
- Rainwater Storage: 140k gal

**ENERGY**

- Solar Energy: 8M kWh/yr
- Geothermal
- EV Charging: 100 EV Charging Spots

**Sustainability:** The Rise of Pines structures are designed to be compatible with the EarthCraft program for multi-family homes, and the site could be certified Platinum under the LEED for Neighborhood Design v4 guidelines. Solar panels and geothermal heat pumps, supported by tax credits, would reduce the project's carbon footprint.

