

Georgia Institute of Technology Urban Single Family

Project Summary

In partnership with the Grove Park Foundation, the Grove Park Yellow Jackets will design a prototype net-zero home at 1591 Hasty Place. Our team will collaborate with the local community to develop this prototype as an exemplar to inform future plans for an urban subdivision of five high performance homes in Grove Park. Our objectives are to promote energy security, affordability, personal health, and community cohesion to help holistically redevelop an at-risk neighborhood. By partnering with the Grove Park Foundation, a charitable organization working to revitalize the Grove Park neighborhood, our team has the opportunity to aid in the development of a real project that will impact the lives of those in our local community.

Competition Relevance

Often, residents of neighborhoods like Grove Park do not have access to energy efficient housing. With preliminary Georgia Tech studies showing that energy insecurity is among the highest in the area, the residents of Grove Park have a need for net-zero housing solutions. Additionally, this project will serve as a case study that will educate residents and invested parties on strategies to retrofit the existing building stock to combat issues of indoor air quality and energy affordability

Design Strategy

While this home will reside by itself on the designated plot, it will be ingrained into a nearby community of “clustered” cottages on neighboring plots. With neighboring plots containing more than one home, this plot will be designed to house communal spaces, gardening and greenery, and a singular dwelling. There are a variety of challenges associated with this project. Many nearby homes suffer from high mold growth potential due to a nearby creek and tributaries. The site also has a heavily wooded tree canopy, making solar energy a difficult challenge.



Figure 1: Overview Render



Figure 2: Our design will need to fit into the “puzzle” of this existing neighborhood.

Project Data

- Site located at 1591 Hasty Place
- IECC Climate Zone: 3A
- Single-family Unit Template: 950 ft² Proposed
- 2 Bed, 2 Bath Dwelling
- Singular Dwelling Planned on Plot
- Tributary on Land

Proposed Technical Specifications

- Wall Insulation R-value: 45 h-ft²-°F/BTU
- Roof Insulation R-value: 55 h-ft²-°F/BTU
- HVAC specifications: Air Source Heat Pump
- Site EUI targets: 15 kBtu /ft²-yr
- PV Array Size: 5 kW DC

Project Highlights

During the mid-twentieth century, Grove Park was created by Dr. Edwin Whiley Grove and the Grove Park Development Company to house workers for nearby factories. The neighborhood was eventually had been annexed into Atlanta, and then followed the pattern of many other cities with White Flight and decline. Today, Grove Park is a 95% minority-occupied community with approximately 2,500 lots; 30% of which are vacant. 85% of Grove Park residents are also on fixed-income, leading a lack of funds for things like building and land maintenance. This combined with regular local standing water from the Proctor Creek results in dire consequences for Grove Park homes and residents. These factors relate back to the significant VOC levels and mold spore counts found by the Grove Park Foundation’s housing audits.

Due to these drivers, there is significant potential for neighborhood and community redevelopment within Grove Park. Within the next three years a new KIPP K-8 elementary school, a new 110-unit multifamily project, and a comprehensive development along the Donald Lee Hollowell Parkway corridor are all anticipated for the neighborhood. Drivers such as the new Westside Park and the extension of the Atlanta Beltline have historically warned of gentrification and displacement of legacy residents, so our team’s goal is to create and affordable, effective single-family home template.



Figure 3: Grove Park Map- Future Plan



Figure 4: Past and future perspectives of our site.

Georgia Tech has a history of partnering with community groups as a means of reaching outside of the campus to be a better community neighbor. The university has recently assisted in Grove Park initiatives to preserve the oral history of its residents and in studies to quantify disproportionately high energy burdens to residents. To complement this existing partnership, our team proposes a single family prototype to achieve the following:

- Reduce Energy and Financial Burden
- Strengthen Community
- Promote Health and Social Well Being
- Provide a Template for Grove Park Homes

For this project, we propose a 700-1,000 square foot cottage on 1591 Hasty Place. It is anticipated that there will be ample shared outdoor space, shading from mature trees, and a community green space. The primary goal of this project is to make affordable net-zero homes to address the disproportionately high energy burden of Grove Park residents compared to the rest of the Atlanta metropolitan area. This problem occurs due to older homes having the “lock in” effect of energy inefficiency. With most residents lacking the financial opportunity to retrofit their existing building stock, the problems of high energy burden are further exacerbated. With this in mind, homes will be designed with energy savings and affordability in mind.