



Prairie View A&M University

Independence Heights Net Zero Ready Home



Project Summary

The Independence Heights neighborhood is historically significant in that it was the first incorporated black municipality in Texas. The neighborhood was subsequently incorporated into the City of Houston and most recently suffered significant damage from Hurricane Ike in 2008. This net zero ready home was designed to provide an affordable, high performance, small footprint home for low-income families in an area that needs it the most.



Relevance of Project to the Goals of the Competition

The purpose of the competition is to extend the reach of building science both in the university curriculum as well as in practice. Our team has taken that impetus several steps further by applying Passive House methodologies to a hot & humid climate, pioneering the Certified Passive House Consultant training in a Historically Black College & University (HBCU), and designing an affordable net zero ready home for a historically significant, low-income neighborhood.

Design Strategy and Key Points

In order to make the home affordable, we knew that we had to keep the size of the home small, yet comfortable and modern. The design was further constrained by the historically narrow and deep lots in Independence Heights. Our team began with the recently completed PHIUS+ 2015 BEopt optimized design criteria for our climate and then made adjustments based on the recommendations of our industry partners.

Project Data

- Houston, Texas
- Climate 2A
- 1,200 SF
- 3 Bedrooms, 2 Baths, 1 Story
- HERS 39 prior to photovoltaic system
- \$72 prior to photovoltaic system

Technical Specifications

- Wall Insulation = R-27
- Foundation Insulation = R-27
- Roof Insulation = R-44
- Window Performance = U-0.15, SHGC-0.26
- HVAC specifications = SEER-17.5