ZEROES

HouZe GT

Project Summary

Our target client is a middle-class young couple living in Atlanta. Their requirements represent evolving life style along with its new market expectations. The residents of the house will be the couple and their future children. Additional users of the house will be temporary guests. The clients require enough indoor and outdoor space for socializing.

Relevance of Project to the Goals of the Competition

The definition of high performance home is the first step of our study. High-performance home minimizes its energy consumption and satisfy the users' expectation. Our goal is to design a high performance home, an equilibrium of its function and cost, and to demonstrate our achievement with numerical evaluation methods. To find an optimized design solution, our design process consisted of a series of interactions that led to integrated design evolution.

Design Strategy and Key Points

Our site has a unique history from 19th century. Our design strategy is to create a building shape which maintains the historical value of the site and harmonizes with the urban context. And we develop this initial design to be optimized for the energy-efficiency and the user comfort. To program a compact living space, we referred to an average small room area in US and minimized circulation space.

Project Data

- o 528 Irwin street, Atlanta, Georgia
- o Climate Zone 3A, Moist, Mixed-Humid
- o 1,656 square feet
- o 3 bedrooms, 3 bathrooms, and 2 stories
- o HERS Index: without PV 40, with PV 0
- o Projected Annual Utility Costs: without PV $630, with PV $67

Technical Specifications

- o Walls: 2x6 wood frame; fiberglass cavity batt R-19; 0.5'' XPS board R-3; total R-22
- o Foundation: concrete slab on grade, uninsulated; 1'' EPS inside foundation walls
- o Cathedral roof: 2x10 rafters; fiberglass cavity batt R-30; 1.25'' ccSPF R-8.75; 0.5'' XPS board R-3; total R-41.75
- o Windows: Double-paned vinyl-frame, U=0.27, SHGC=0.18
- o HVAC specifications = ERV for ventilation, mini-splits (10.7 HSPF and 17.8 SEER) and ducts in conditioned space