Housing Taxonomy and Database

Overview
Our team has been commissioned to create a Housing Taxonomy and Database. The goal of this database was to provide an accurate and accessible representation of the different decisions that leaders of housing projects have made in the past two decades in regards to energy systems.

Objectives
The project focused on defining 23 specific attributes for each project. These attributes fall under the categories of General Building Information, Policy/Regulations, Cost/Financing, Energy, Building Systems, and Exterior Attributes. Trends were identified with data from the United States Census Bureau and historical events that contributed to decision making in the housing industry.

Approach
- Assessed standards and needs of the Sustainable Housing Initiative Sponsors
- Divided houses into four separate categories: Single-family, Multi-family, Mixed Use and Institutional housing
- Evaluated architectural design of each category based on 23 designated building attributes
- Chose the time-frame of focus to be the past two decades (1990-2017) to collect data from
- Collected data from 25-30 housing projects per housing category
- Divided the research into four regions of the U.S. to find trends: Northeast, Midwest, South, and West
- The Building Performance Database (BPD) was utilized for EUI data in all four regions
- When we changed direction we focused on four main attributes: time zone, region, EUI, and housing type
- Compared research on Census Scope data to find nation-wide trends in the industry
- Analyzed Census Scope data for attributes of single-family and multi-family homes by region
- Census Scope data was used in comparison to historical oil prices throughout the United States to investigate various peaks
- This data was compared through the use of line-graphs as a visualization tool
- To further investigate the housing industry and its trends, the Housing Market Index per year was added as an additional variable to consider in each trend.

Outcomes
- The overall project accumulated a substantial amount of data and trends to be used for the proposed database
- Various trends were found in connecting oil and natural gas prices to the geographical area in question
- Due to the fluctuating housing economy, finding historical trends and future planning can be difficult
- The figure to the right displays the recommended database and display for this project