

PROUDLY PURSUING
LEED
CERTIFICATION



The Residences at Harpeth Square

LEED Certification: How we built green!

Features and Benefits of a LEED Certified home

The environmental impact of the residential sector is significant. There are more than 120 million homes in the United States. According to the U.S. Department of Energy, the residential sector accounts for 22% of the total energy consumed in the nation and 74% of the water. Levels of indoor air pollutants can often be four to five times higher than outdoor levels.

Green homebuilding addresses these issues by promoting the design and construction of homes that have much higher performance levels than homes built to the minimum building codes.

The LEED for Homes Rating System provides a voluntary certification system for quantifying the benefits of green homes, thereby facilitating the widespread construction of more sustainable homes.

There are seven categories of requirements and optional measures that teams can pursue to earn LEED certification:

1. Innovation & Design Process.
2. Location & Linkages.
3. Sustainable Sites.
4. Water Efficiency
5. Energy & Atmosphere
6. Materials & Resources
7. Indoor Environmental Quality

1. Innovation & Design Process

The Innovation & Design Process (ID) credit category encourages project planning and design to improve the coordination and integration of the various elements in a green home.

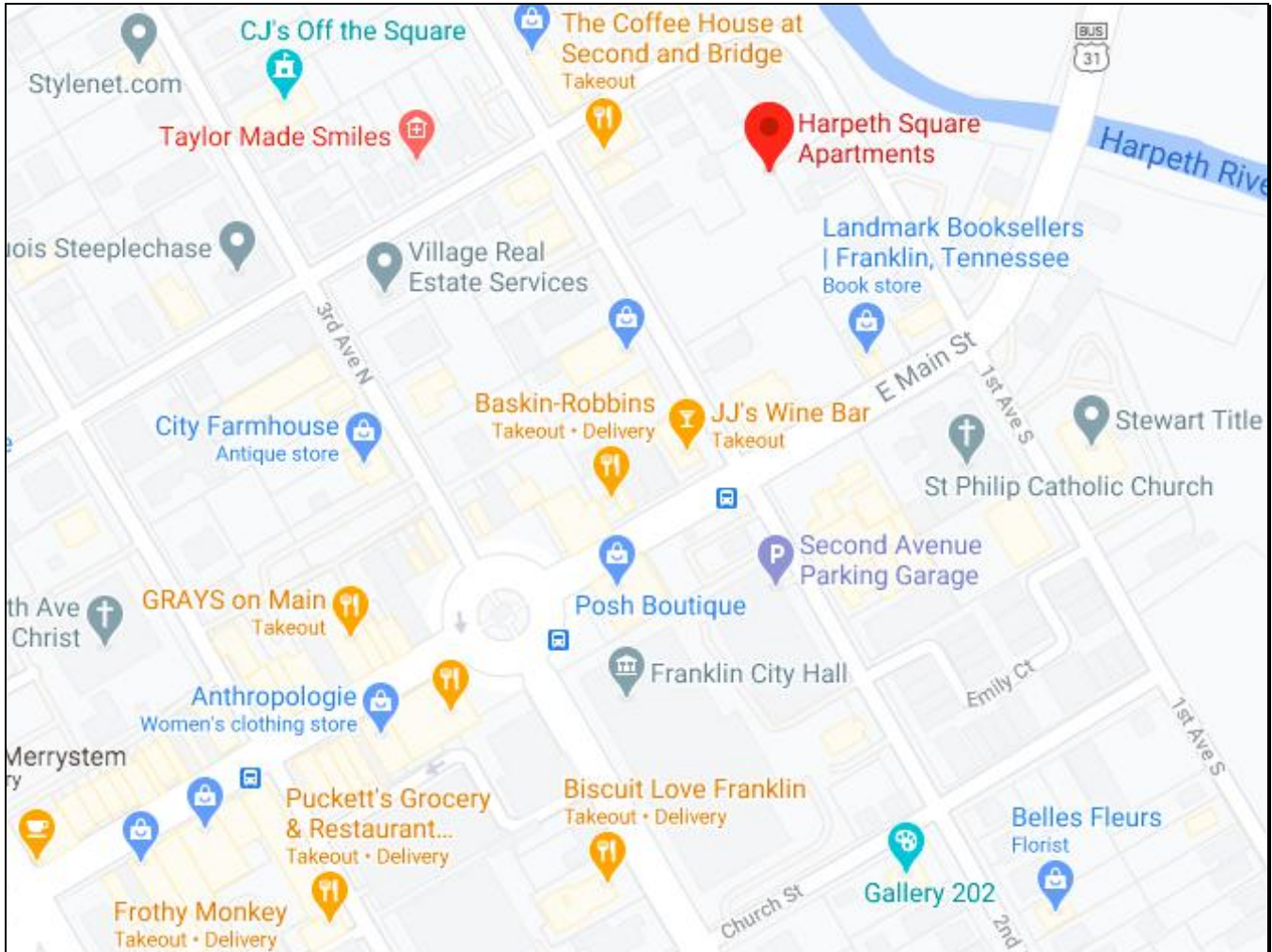


Source: Tennessean.com

Harpeth Square's team conducted an 8-hour charrette over 2 days to get designers and the contractor focused on the certification goal during the earliest design phase. The Owner kicked off the meeting by setting minimum construction and efficiency standards such as concrete and steel construction for a building that should last well over 100 years.

2. Location & Linkages

Because homebuilding projects have substantial site-related environmental effects, Location and Linkages (LL) credits reward builders for selecting sites that have more sustainable land-use patterns and offer environmental advantages over conventional developments. Fragmentation of farmland and forest and other natural areas is minimized by locating new development within and near existing developed areas. Such developments promote a range of sustainable transportation options, including walking, cycling, and mass transit, thereby reducing dependence on personal automobiles.



Source: Google Maps

Harpeth Square's location was selected specifically because of its proximity to the most walkable sections of Franklin. The new building took advantage of existing utilities and replaced single story buildings with four stories of apartment homes.

3. Sustainable Sites

Because the design of the site and its natural elements can have a significant environmental impact, Sustainable Sites (SS) credits focus on early decisions about how to promote local and regional ecosystems, and reduce demand for water, chemicals, and pesticides.



Source: Greystar.com

Harpeth Square's team chose native and drought-tolerant tree and plant species and designed a pest-resistant structure.

4. Water Efficiency

Americans extract 3.7 trillion gallons per year more than they return to aquifers and other water sources. Water Efficiency (WE) measures can easily reduce water usage by 30% or more often with minimal investment.



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www.epa.gov/watersense/new_homes

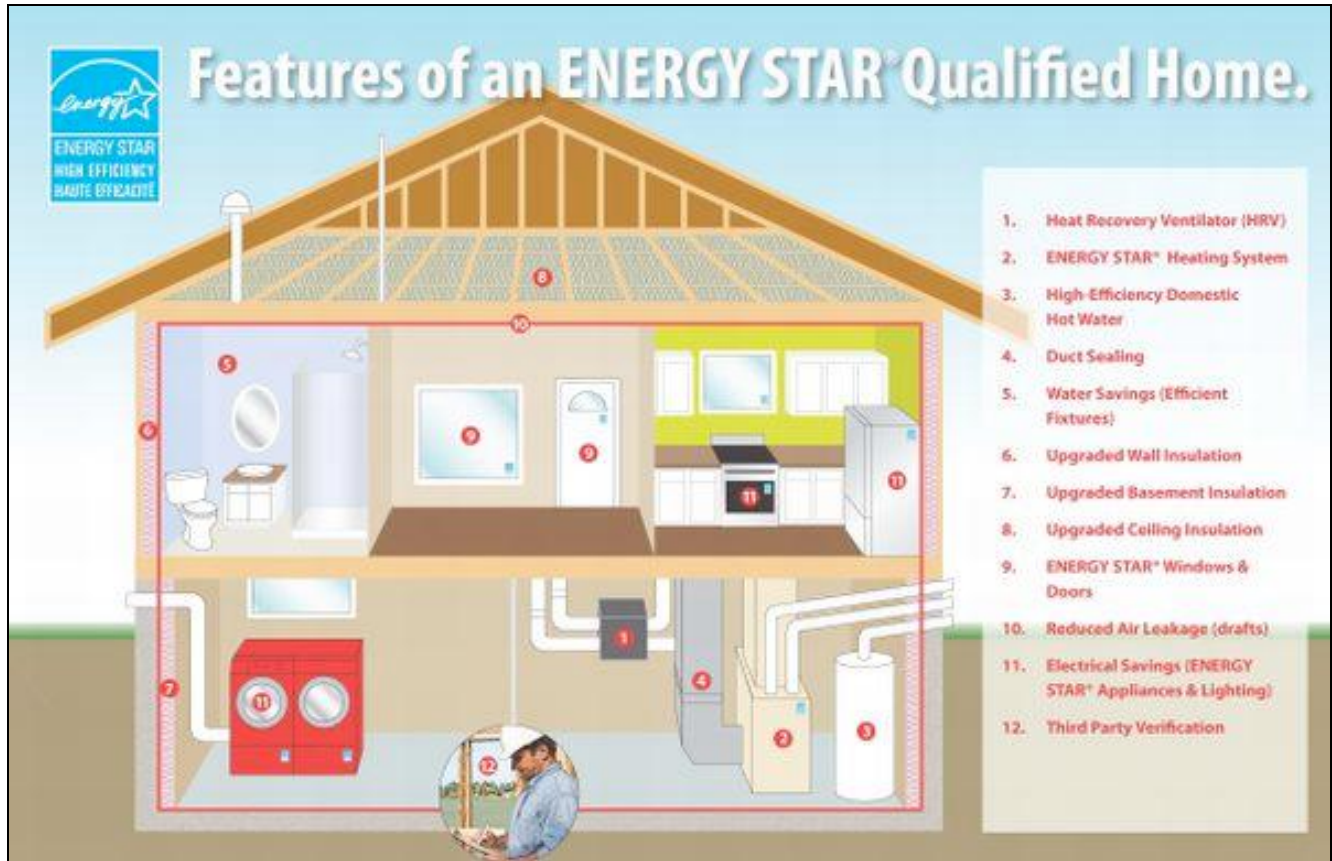
The graphic shows a cross-section of a house with a red pipe system. On the left, a water heater is connected to a shower and a toilet. On the right, a kitchen sink, stove, and refrigerator are shown. The house is surrounded by greenery and a lawn. The EPA Energy Star logo is visible on the washing machine and refrigerator.

Source: U.S. EPA

The Harpeth Square team selected water-efficient fixtures and an irrigation system that provides the same comfort and function as standard devices while using less than half the amount of water.

5. Energy & Atmosphere

The average American consumes 5 times more energy than average global energy use per person. Homes have a lifespan of 50 to 100 years, during which they continually consume energy. Building green homes is one of the best strategies for reducing energy use and its downstream impacts on air quality and resource consumption.



Source: U.S. EPA

Conceived in 2015, the Harpeth Square team earned Energy & Atmosphere (EA) points for adding R-26 wall insulation, windows 20% better than 2018 Energy Code, Energy Star appliances, LED lamps in over 80% of fixtures, and 14.5 SEER/8.5 HSPF air-source heat pumps. The net result is that apartments at Harpeth Square are designed to use less energy than either Energy Star Certified Homes or apartments built to the 2018 International Energy Code.

6. Materials & Resources

As building materials are extracted, processed, and transported they require energy, water, and raw materials. Those materials may require thousands of miles, hundreds of ingredients, and dozens of handoffs before they are installed. Materials & Resources (MR) credits recognize builders who reduce all those impacts by purchasing a precise quantity of building materials, sourcing from local suppliers, and requesting recycled content where possible.

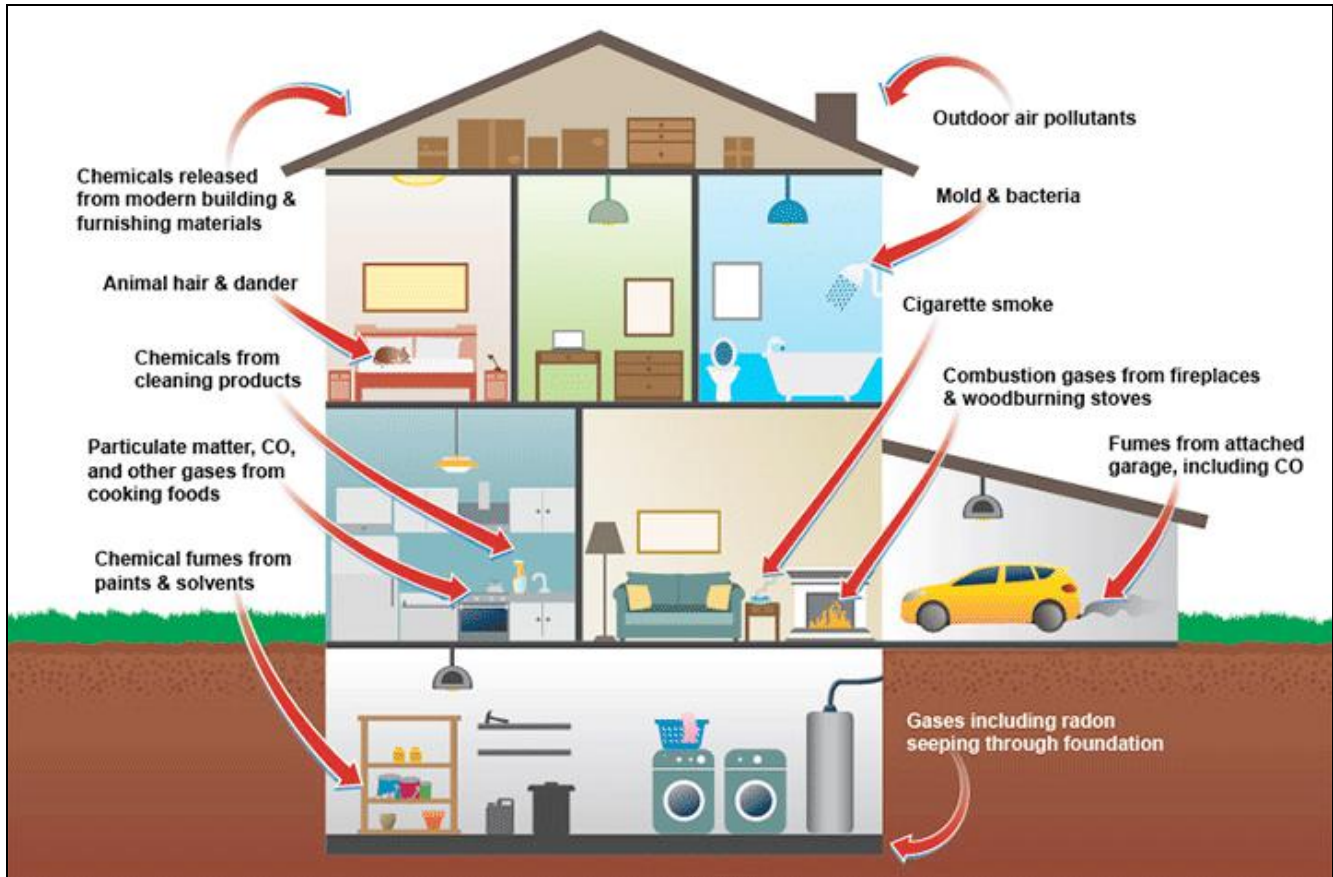


Source: USDA

The Harpeth Square team purchased concrete, stone, and wood flooring from within 500 miles and often within 50 miles. Common materials such as insulation and wallboard ranged from 35-95% recycled content. When complete 67% of the remaining debris was recycled into new products.

7. Indoor Environmental Quality

Americans spend on average 90% of their time indoors, where levels of pollutants may run two to five times higher than outdoors (U.S. EPA). Indoor Environmental Quality (EQ) credits reward teams that reduce the risk of pollutants like carbon monoxide, radon, formaldehyde, mold, dirt and dust. Recommended methods include source removal, source control, and dilution.



Source: U.S. EPA

The Harpeth Square team improved indoor air by using low-VOC paints and flooring, installing MERV 8 filters, supplying continuous fresh air to the apartment, and having dedicated exhaust in each bathroom. Both hallways and apartments have a carbon monoxide sensors installed.