

## WEST MEADE RESIDENCE- GREEN/SUSTAINABLE DESIGN OVERVIEW

### PLANNING

1. Integrated Project Team of Designers, Builders & LEED Raters
2. Design Charrette that included Owners, Designers, Builders, Suppliers, Raters
3. LEED for Homes Accredited Professional

### SITE

1. New house site uses a previously developed infill lot with existing infrastructure/utilities
2. Minimized site disturbance; construction primarily over previous site footprint;
3. Developed a tree preservation plan; no trees removed
4. Invasive plants removed on property
5. Developed a basic Landscaping Design Plan
6. Reduced the amount of existing turf area
7. 50% + drought tolerant plants
8. Custom Rainwater Harvesting system to capture 50%+ of roof area run off for a 1"/24hr rain fall; Roof downspouts are connected together under ground & connect to the rainwater tanks; use the rainwater for the landscape irrigation system
9. Installed permanent erosion controls in the form of trees, shrubs, ground cover & rain gardens
10. Non-toxic pest control
11. Innovation- Used an underground utility trench filled with gravel & drainage pipe to minimize & re-direct subsurface water

### REUSE OF EXISTING MATERIALS, RECYCLING, DEMOLITION, WASTE

1. Materials from the existing demolished house were reused and recycled
2. The brick from the existing house & 2 other houses in the neighborhood are reused on the new house
3. Donated home items/appliances/building materials from the demolished house to Nashville Habitat HomeStore
4. Various recycling companies removed specific items for recycling, ie. Plumbing pipe, electrical wiring
5. 75% of construction waste is diverted from landfills

### CONSTRUCTION TECHNIQUES

1. Detailed Framing documents showing layout & sizes of wood framing
2. Advanced framing techniques & minimal lumber waste
3. Coordination with other systems

### PRODUCTS & MATERIALS

1. Locally-sourced wall stone
2. Recycled brick
3. Reclaimed hardwood floors (old growth white oak from Columbia [TN] Cotton Mill, built in 1884)
4. Reclaimed wood in some cabinetry
5. No/low VOC paints and glues
6. FSC certified wood trim

7. 100% of floor surfaces are hard surfaces that are easy to clean & do not trap dirt/dust
8. Roof shingles are certified to be used for foam insulated roofs

#### WATER EFFICIENCY

1. Custom Rainwater Harvesting system
2. High efficiency landscape irrigation system
3. High efficiency plumbing fixtures- Faucets, Shower Heads, Toilets
4. Low water use clothes washer

#### HEATING & AIR CONDITIONING, AIR QUALITY

1. Energy Modeling & Manual J Calculations to determine HVAC right sizing
2. Multiple unit Geothermal HVAC system that is divided into zones that heats and cools different areas of the house separately
3. Air tight insulated metal duct system, Humidifier, (ERV) Energy Recovery Ventilators
4. All ducts are located within semi-conditioned spaces
5. Energy Star exhaust fans
6. Fireplace- EPA approved 73% efficiency, wood burning
7. Innovation- A door is used at the bottom of the stair leading to the 2<sup>nd</sup> floor to “thermally” close off the 2<sup>nd</sup> floor from the 1<sup>st</sup> floor
8. 90% of the windows are operable for natural ventilation
9. Energy Star ceiling fans in all bedrooms & 2<sup>nd</sup> floor gallery/hallway
10. Entryway walk off mats to improve indoor air quality

#### INSULATION, AIR INFILTRATION, MOISTURE PROTECTION

1. Enhanced insulation- Open cell foam insulation for the roof & 2<sup>nd</sup> floor knee walls
2. 5 ½” blown cellulose insulation in the exterior walls
3. Cellulose insulation is used between floors for both thermal & sound purposes
4. The house envelope is caulked/foamed to achieve Minimal Envelope Leakage
5. Encapsulated crawlspace
6. Commercial-grade waterproofing & water drainage around foundation
7. Insulated water piping

#### WINDOWS & DOORS & GLASS FLOOR

1. High quality double glazed insulated windows & doors
2. The coating on the glazing is specific to the orientation of the windows & doors; Low E II & Low E 366 with Argon gas
3. 90% of the windows are operable for natural ventilation
4. Increased the number of windows to enhance daylighting & views
5. Pre-finished aluminum clad windows for durability & minimize maintenance
6. Solar controlled skylights in the Art Studio to enhance daylighting
7. Solatube in the interior bathroom to enhance daylighting
8. Laminated Glass Floor in the interior hallway to enhance daylighting

#### WATER HEATING & DISTRIBUTION

1. 3 different zoned/structured plumbing water heating systems that serve different areas of the house.
2. High efficiency water heaters that are right sized for their zoned uses.
3. Re-circulating hot water loops

**LIGHTING**

1. Energy Star LED & Compact Fluorescent fixtures
2. Adjustable down lights that can be retrofitted with LED bulbs
3. Motion sensors to turn off lights in some rooms
4. Automated lighting controls

**SYSTEMS AUTOMATION**

1. Computer controlled system that controls lighting, hvac, data network, AV, telephone;  
Employs energy efficiency options

**APPLIANCES**

1. Energy Star refrigerator, ceiling fans, dishwasher, clothes washer
2. Operable Ceiling-suspended clothes "airer" in laundry room
3. Central vacuum system

**RENEWABLE ENERGY**

1. 4KW Solar Photovoltaic System
2. Battery back-up storage system

**OTHER**

1. Universal design, aging in place features