

# The New American Home 2016 Environmental Performance Profile



*Credit: Jeffrey A. Davis Photography*

**THE NEW AMERICAN HOME (TNAH)** is built to showcase contemporary design and the latest technology in the home building industry. The home incorporates green and sustainable building materials, products, energy-efficient techniques, and construction methods in order to reduce its impact on the environment and provide the highest levels of comfort and quality for the occupants. TNAH 2016 offers a real-world demonstration of the latest concepts in design, construction techniques, new products, and lifestyle trends available in the marketplace today. Through the home's systems engineering, Element Design Build demonstrates how to optimize energy performance without significantly impacting the cost of construction. A comprehensive listing of the partners and products used in the project can be found online – visit [www.TNAH.com](http://www.TNAH.com).

This brochure provides an Environmental Performance Profile of TNAH. Its high-performing design is extensive and comprehensive, as documented through the numerous third-party performance ratings the home is expected to achieve – see the complete list to the right.

## Key Energy Features

TNAH demonstrates how systems engineering can make energy efficiency and innovation available at all price points. In designing the home, Element Design Build worked with industry partners to select cost-effective strategies for improving home performance and reduce the amount of material used. The home achieved remarkable air tightness (2.69 air changes per hour) without the use of spray foam insulation, which can be more expensive than other insulation options. Rigid exterior wall insulation was combined with blown-in fiberglass wall and roof system insulation to achieve optimal thermal performance.

Due to the conscientious design and construction planning, TNAH 2016 achieved net-zero energy, meaning the total amount of energy used by the building is roughly equal to the amount of renewable energy created on site. In fact, while a typical code-built new home would garner a rating between 50 and 100 on the RESNET HERS Index, TNAH 2016 boasts a (to be confirmed) HERS Index of better than net zero at -17! A 19.215KW Photovoltaic (PV) system will power a portion of the home's electrical systems, space conditioning, and hot water systems. Taking advantage of solar energy should result in approximately \$5,100 in annual energy savings compared to a typical home. TNAH 2016 also features both natural gas and electric car charging stations in the garage.



Credit: Element Design Build

## Projected Performance Ratings

- **National Green Building Standard™ (NGBS Green) Certification**  
Emerald level
- **LEED for Homes (LEED-H) Certification**  
Platinum level
- **DOE**  
Zero Energy Ready
- **EPA**  
ENERGY STAR  
Indoor airPLUS
- **RESNET HERS Index with solar -17**  
*Regional Programs:*
  - **Southern Nevada Green Building Partnership**
  - **Water Smart Home Program**

## Lot Design

- Driveways and parking aligned with natural topography
- Natural drainage features preserved & vegetative swales constructed to increase groundwater infiltration
- Integrated pest management plan to minimize chemical use in pesticides and fertilizers

## Resource Efficiency

- Additional green practices to account for large home
- Advanced framing, windows, and flooring not requiring site-applied finishings; rainscreen wall design on exterior wall assemblies; recycled-content materials; construction waste recycled; certified wood; engineered wood products; preassembled roof and floor trusses; indigenous materials; ISO 14001 registered materials

## Energy Efficiency & Renewable Energy

- Exterior walls insulated with rigid foam insulation
- Fully air-sealed and insulated attic
- Windows and patio doors with low-e coatings and argon gas fill
- Air tightness 2.69 air changes per hour @ 50 Pa
- Variable speed compressors in outdoor heat pump units



- All ductwork sealed for air tightness
- 100% of all interior and exterior lamps are energy-efficient LED lighting
- ENERGY STAR®-rated appliances, including dishwasher, refrigerator, freezer, and clothes washer
- Extended roof overhangs to aid in shading the home from the harsh Nevada sun
- ENERGY STAR-rated roof to limit solar gains
- Light colored exterior finish for solar reflectance
- 19.215KW solar photovoltaic (PV) system
- Natural gas and electric car charging stations

### Water Efficiency

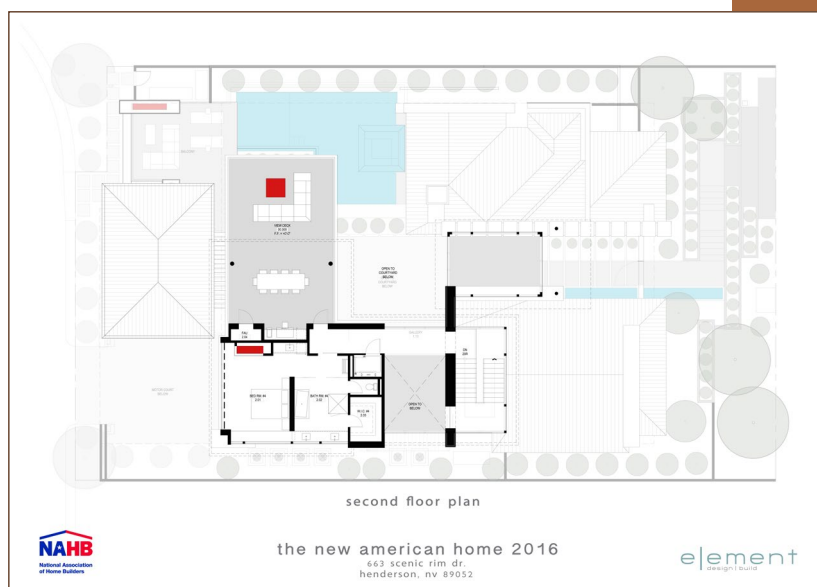
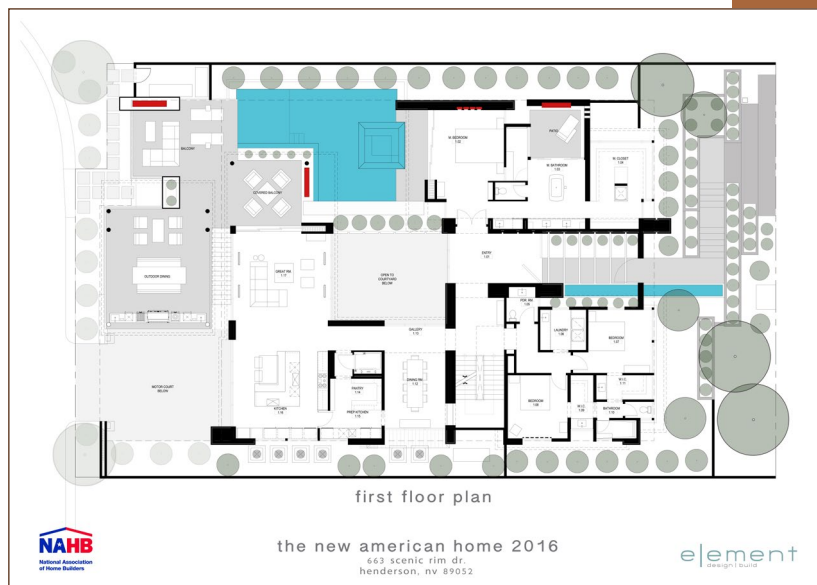
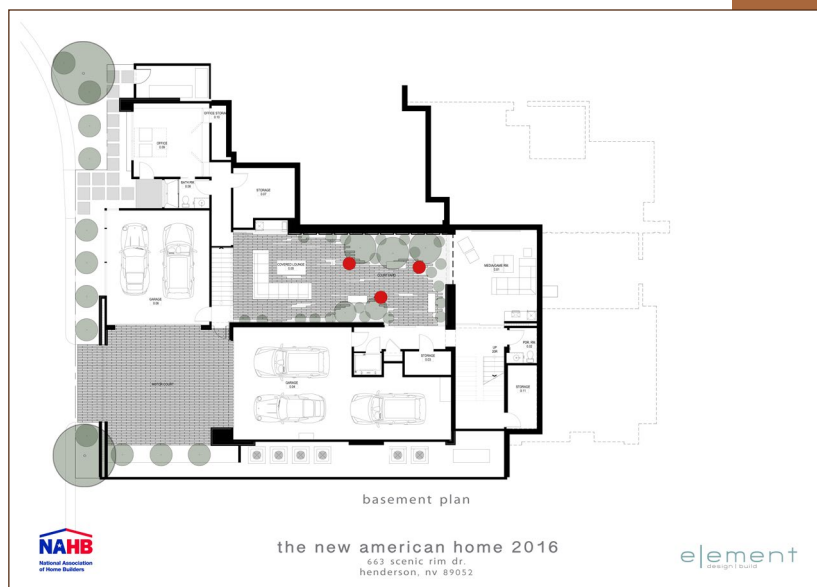
- Natural gas-fueled tankless water heater
- Water-efficient fixtures
- ENERGY STAR water-conserving appliances
- Drip irrigation controls regulated by plant type and water needs

### Indoor Environmental Quality

- Energy-recovery ventilator (ERV)
- Ultra-violet light air treatment system
- MERV filters on central air system
- HVAC system with humidity controls
- Central vacuum system
- Power-vented furnace and water heater
- Low- and non-emitting products
- CO alarm monitor
- Automatic timer/humidistat devices in bathrooms
- Low Sone ENERGY STAR exhaust fans

### Operation

- Homeowners' manual – including maintenance, equipment manuals, renewable energy options from utility, native landscaping and organic pest control options, termite inspection checklist



Credit: Element Design Build

## DESIGN BUILD TEAM

### Builder/Designer

#### Element Design Build

Henderson, NV  
[www.ElementBuildingCompany.com](http://www.ElementBuildingCompany.com)

**Josh Anderson**, Owner  
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### Interior Design

**Elma Gardner**, CMKBD, CID  
Interior Designer  
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## GREEN BUILDING CONSULTANT/VERIFIER

### Two Trails, Inc.

Sarasota, FL  
[www.TwoTrails.com](http://www.TwoTrails.com)  
**Drew Smith**, President  
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## NATIONAL GREEN BUILDING STANDARD (NGBS) CERTIFICATION

### Home Innovation Research Labs

Upper Marlboro, MD  
[www.HomeInnovation.com/Green](http://www.HomeInnovation.com/Green)

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## NAHB – THE NEW AMERICAN HOME

### TNAH 2016 Task Force

#### John Ted Mahoney III

Chairman  
Windjammer Construction  
Bridgewater, MA

#### Bill Owens

Vice Chairman  
Owens Construction  
Powell, OH

## National Association of Home Builders

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