



Montverde, Florida

THE NEW AMERICAN HOME[®] 2018

Since 1984, the National Association of Home Builders (NAHB), in partnership with a leading residential building trade publication, has sponsored The New American Home (TNAH) project. TNAH is a concept home that makes its debut each year at The International Builders' Show (IBS). These show homes demonstrate the industry's best practices, including innovative design concepts, advanced products and the latest construction techniques for

maximizing housing performance and energy efficiency. Products are selected from members of NAHB's Leading Suppliers Council (LSC), a standing committee of manufacturers and service providers representing the building industry. This year, a property in Montverde, Florida's Bella Collina Golf Community, overlooking Lake Apopka, was selected to be The New American Home 2018.

EFFICIENCY GOALS

From the start, the home's development team at Legacy Custom Built Homes had big goals for the 6,600-square-foot, three-level home in terms of both efficiency and design aesthetic. While they would maintain the neighborhood's "modern Tuscan" style, Legacy was intent on designing a home with a tight envelope complemented by high-performance HVAC equipment. To meet these objectives, Legacy worked with the LSC to select Mitsubishi Electric Zoned Comfort Solutions™ as TNAH's HVAC system.

"We went with a lifestyle-designed house," noted Mike Rowen, president, Legacy Custom Built Homes. "The family

room, the kitchen, the foyer, the entry to the second floor is all combined into one space." With the open floor plan, the project team was adamant on using the right technology to keep the cooling and heating costs down.

Two Trails, Inc. served as the energy consultant and verifier for the project. They helped to ensure the home had high-performance mechanical systems. "Part of what TNAH does is showcase all the new products now readily available to homeowners; these products help to achieve a very sustainable, high-performance home with no extra utility costs," noted Drew Smith, president and COO, Two Trails.

SELECTING A STANDARD

From the beginning, Rowen expressed that the National Green Building Standard's™ (NGBS) Emerald status was the team's objective. This certification is part of a nationally recognized standard definition of green building for homes. The highest level, Emerald, requires a building to save 60 percent or more of its energy usage. Smith agreed that Mitsubishi Electric's Zoned Comfort

CHALLENGE

Selecting an efficient and stylish HVAC system that could achieve a tight, energy envelope

SOLUTION

Mitsubishi Electric Zoned Comfort Solutions™

RESULT

A sleek, low-profile HVAC system that helped secure NGBS Emerald Status for top-notch luxury home energy performance

Solutions could assist in meeting this challenge. “This HVAC system is a game changer, especially for large homes. It changes the way builders look at mechanical systems.”

The team worked closely with Mitsubishi Electric and HVAC installer, M&S Air Conditioning, to design the system’s layout and determine which units fit the home’s style and function.

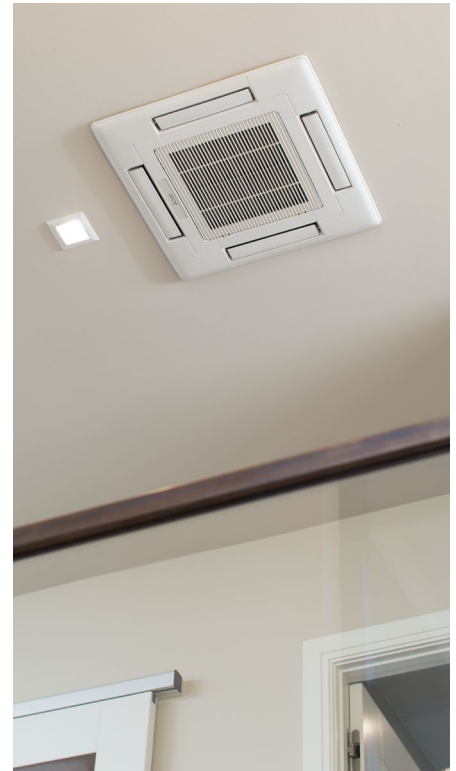
“Looking at this large 6,600-square-foot home, we recommended multiple air handlers so that we could zone the house and get the optimal comfort, health and efficiency that we were looking for,” said Chad Gillespie, senior manager of performance construction, Mitsubishi Electric. “It’s really an ideal solution for this project.”

ZONING AND HVAC DESIGN

Ultimately, the home was divided into nine cooling and heating zones. For discrete conditioning, the design takes advantage of Mitsubishi Electric’s air handlers. Nine air handling units were specified throughout the home – six ducted and three ductless. With proper zoning, the result allows for short duct runs and optimal energy efficiency.

“In this house, because the air handlers are pushing the air right at the area of delivery, return air happens closer to the unit,” explained Smith. “This saved hundreds of feet of ductwork.”

In keeping with the sophisticated design, David Macdonald, owner,



“ This was a unique opportunity to collaborate with a variety of different suppliers, such as Mitsubishi Electric, whose common goal is energy efficiency and sustainability. It’s our intention – as well as those of other builders from around the country – that many of our future projects follow suit. ”

- Mike Rowen, Legacy Custom Built Homes



M&S Air Conditioning, noted that Mitsubishi Electric also provides a variety of installation options to fit homeowners’ preferences. “With this system, you have the flexibility to offer individual cooling areas with a lot of different indoor unit options. For this project, we installed a variety of indoor units: indoor units that mount on a wall; units that sit flush to the ceiling and we even installed units above the ceiling and in the attic.”

In addition, four outdoor units with INVERTER-driven compressors, a two-ton single-zone and three four-ton multi-zone units – handle the entire home’s cooling and heating needs and even run a third-party energy

recovery ventilator (ERV) with MERV-13 filtration to supply fresh air. For full home automation, all the electric systems – including the cooling and heating system – are synced to a universal tablet for streamlined management.

SETTING A PRECEDENT

The results set the precedent for residential HVAC design and efficiencies. “Today’s homeowners are expecting to have optimal comfort, optimal efficiency and also a healthy home,” expressed Gillespie. “We’re looking at cooling and heating systems being an integral part of high-tech, healthy homes going forward.”

As for the goal, TNAH was able to achieve NGBS Emerald Status and then some. “The Zoned Comfort Solutions is by far the most superior system on the market today,” said Rowen. “Mitsubishi Electric has been that key partner in helping us achieve Emerald status.”

Since completion, the home has received a proposed Home Energy Rating System Index (HERS) of 45, which is 36 percent more efficient than the average new code-built house. The home is also targeted to become certified in the EPA’s ENERGY STAR® and Indoor airPLUS programs, as well as a DOE Zero Energy Ready Home.

According to Two Trails, homeowners with this level of efficiency enjoy approximately \$1,300 in energy cost savings annually. With outcomes such as these and great feedback at the 2018 IBS, Rowen and the Legacy team hope that other builders take notice.

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Photos: davisphotography.com

EQUIPMENT

- ▶ (3) MXZ-8C48NA Outdoor Units
- ▶ (1) MUZ-GL24NA Outdoor Unit
- ▶ (4) MVZ-A12/18/24AA7 Multi-Position Ducted Air Handlers
- ▶ (2) SEZ-KD09NA Ducted Air Handlers
- ▶ (2) MSZ-GL24NA Wall-Mounted Ductless Indoor Units
- ▶ (1) SLZ-KA09NA Ceiling-Cassette Ductless Indoor Unit

PROJECT TEAM

Developer/General

Contractor:

Legacy Custom Built Homes, Winter Park, Florida

Architect:

Hyatt Design, Orlando, Florida

Energy Consultant/Verifier:

Two Trails, Inc., Sarasota, Florida

Installing Contractor:

M&S Air Conditioning & Appliance Service of Central Florida, LLC
Fruitland Park, Florida