The New American Remodel 2023

Proposed Thermal Shell

- Unvented and air sealed attic with open-cell polyurethane spray-foam insulation (R-19).
- Sierra Pacific Windows with low-e coating and argon gas fill limits solar heat gain and optimizes air tightness (U-factor average 0.28 and SHGC average of 0.21).
- Exterior CMU walls insulated using injected core-fill foam insulation (R-8) and Fi-Foil M-Shield reflective wall insulation (R-4.1) (Total R-12.1).
- Exterior frame walls insulated with open-cell polyurethane spray-foam insulation with an average R-3.7 per inch (R-13 to R-19)
- Large overhangs to aid in protecting the home from the harsh Florida sun.
- Light colored exterior walls to assist in reflecting the sun.

Proposed HVAC

- Carrier HVAC system provides space conditioning
- Space conditioning system located entirely within the conditioned space, minimizing any conditioned air leaking to the exterior.

Proposed Water Heaters

- Navien ENERGY STAR®-rated tankless water heaters.

Proposed Electrical

- 100% energy-efficient LED lighting for all interior and exterior lighting.
- SubZero-Wolf and Bosch ENERGY STAR®-rated appliances.
- ENERGY STAR®-rated variable speed pool pumps.

Proposed Energy Efficiency and Innovation

As one of the NAHB's official show homes, The New American Remodel (TNAR) 2023 is a symbol of energy efficiency and innovation. The home exhibits innovative products from manufacturers all over the world. TNAR 2023 is designed to exceed the requirements for certification to the Gold level of the National Green Building Standard™. Its energy-efficient features can be used in homes in a hot climate at any price point with similar energy savings.

Two Trails, Inc. worked closely with Phil Kean Homes to ensure energy efficiency and innovation in TNAR 2023. The projected HERS index after the extensive remodel is a HERS 52, 48% more efficient than the average code-built home.

Proposed Water Efficiency Features

In addition to energy savings, this home is designed to achieve an estimated 50% reduction from baseline in water use. This remarkable water use reduction is made possible using low-flow water fixtures, natural indigenous landscaping, and a high-efficient irrigation system. Water saving features include:

- Kohler low-flow, EPA WaterSense certified 1.5 GPM lavatory faucets and an average of 1.28 GPF toilets provides the indoor water use reduction
- High-efficient Hunter micro spray, driplines and irrigation controller contributed to the outdoor water use reduction

Indoor Environmental Quality Features

Indoor Environmental Quality encompasses the conditions inside a home, and their effects on residents. The New American Remodel 2023 incorporates innovative strategies, creating an indoor environmental quality that enhance the lives of homeowners, protects occupants' health, and improves quality of life. Indoor Environmental Quality strategies include:

- Sherwin Williams Low-VOC paints and finishes and low-VOC interior adhesives and sealants
- MERV 13 space conditioning air filters
- HVAC ducts sealed during construction to prevent pollutants from construction activities from entering the system
- Whole Building ventilation system configured to allow the correct amount of fresh air into the home
- Sustainable, natural stone Cambria and Caesarstone countertops provide healthy and durable surfaces.

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Systems Engineering Approach

The systems-engineering approach unites segments of the building industry that have previously worked independently of one another. The concept is simple: systems-engineering can make America's homes cost effective to build or retrofit and energy efficient to live in. Energy consumption of new houses can be reduced by as much as 40% with little or no impact on the cost of construction.

To reach this goal, the Phil Kean Homes team is working with their building partners to produce a home that incorporates energy and material saving strategies from design through construction. First, the team analyzed and selected cost-effective strategies for improving home performance. Next, the team evaluated design, business, and construction practices within individual partnerships to identify cost savings. Cost savings could then be reinvested to improve energy performance and product quality. For example, a design that incorporates new techniques for tightening the building envelope enabled Phil Kean Homes to install smaller, less expensive heating and cooling systems. The savings generated in this process can then be reinvested in other high-performance features to further reduce energy use. Proving the efficiency of the system-engineering approach to construction, this home's projected HERS Index is 52, which is 48% more efficient than the construction of the average new home.

The "pilot" or "test" home is the field application of solution design. The team assisted Phil Kean Homes team in designing TNAR 2023 in accordance to strategic design, modeling to maximize building efficiency of each system, and directed the team to increase efficiency through cost effective decisions. Before additional houses are built, these changes are incorporated into the design. This process of analysis, field implementation, reanalysis, and design alteration facilitate ultimate home performance once a design or retrofit strategy is ready for use in production or community-scale housing.

Understanding the interaction between each component in the home is paramount to the systems-engineering approach. Throughout design and construction, the relationship between building site, envelope, mechanical systems, and other factors is carefully considered. Recognizing that features of one component can dramatically affect the performance of others enables the Phil Kean Homes building team to engineer energy-saving strategies at little or no extra cost.