PROPANE
CLEAN AMERICAN ENERGY™

In homes and developments across the country, building professionals are successfully applying this five-in-one energy package to maximize efficiency, performance, comfort, and carbon savings.

What Is the Propane Energy Pod?

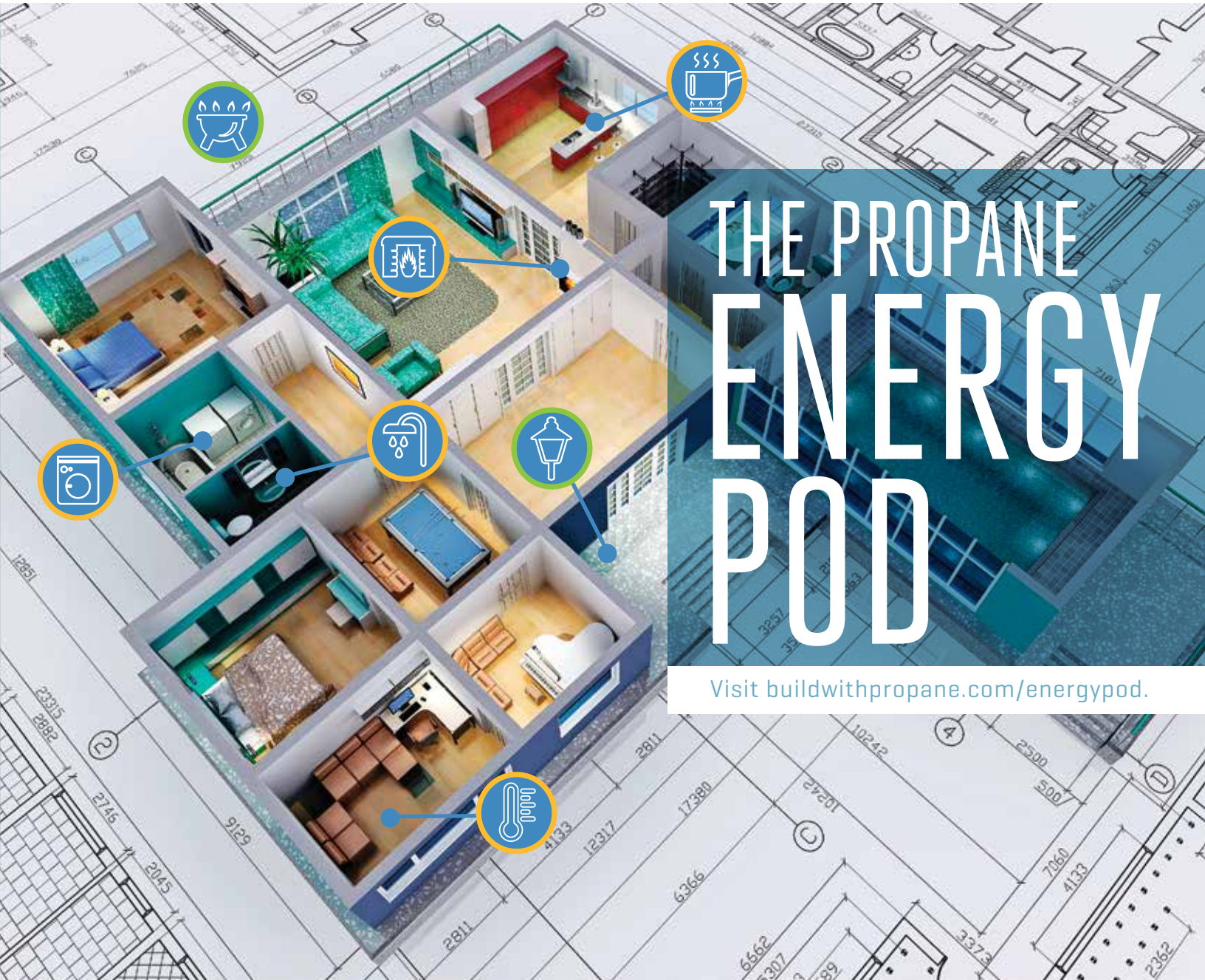
The Pod is a model for new-home construction that merges five applications of propane — space heating, water heating, cooking, clothes drying, and fireplaces — into an integrated, whole-home energy package. It's a comprehensive, research-based approach that maximizes efficiency, performance, comfort, and carbon reduction.

Introducing Pod PLUS

The five applications of the Propane Energy Pod are core to a home's energy savings and low-emissions profile, but outdoor living features can add just as much to a home's overall comfort and resale value as its indoor spaces. That's why this brochure highlights two projects that also include outdoor Pod PLUS applications: propane-fueled features that give your clients luxurious and energy-efficient outdoor spaces.

Continue Your Learning

In the following pages, you'll find real-world success stories from builders who are integrating Pod principles into their projects — and have the energy performance to prove it. To see how Pod homes stack up against standard homes in your region and check out videos, fact sheets, and more, continue your learning online at **buildwithpropane.com/energypod**.



1 Chamberlain Commons

Kennebunk, Maine
Builder: Patco Construction

HERS rating: 57

Home cost: Starting at $288,000

Home size: 1,000 to 2,000 square feet

Propane applications:

space heating · water heating · fireplace · cooking · clothes drying

Comfort and Convenience

The townhomes at Chamberlain Commons in Kennebunk, Maine, are primarily being sold to downsizing couples. With first-floor master suites and a second floor for visitors, the 1,000- to 2,000-square-foot homes make the ideal life-stage choice for an empty-nester family.

With convenience, comfort, and low maintenance on the mind of his customers, Mark Patterson, co-owner of Patco Construction in Sanford, Maine, found that outfitting the homes with a full suite of propane applications was more cost-effective and appropriate than using any other energy source.

The Chamberlain homes' space and water heating are provided by propane-fueled, high-efficiency hydronic boilers that also deliver on-demand hot water. The propane heating systems run more efficiently than heating-oil systems — with average efficiencies of about 92 percent versus around 87 percent — and they require less maintenance. Oil-based heating systems must be serviced annually at a cost of up to $175, compared with minimum maintenance recommended by the manufacturers of the propane-fueled heating systems. Further, Maine's higher-than-average electricity rates make an all-electric home more expensive to run.

Attainable Luxury

Every Chamberlain home comes with a propane fireplace, and customers are also offered propane-fueled ranges and clothes dryers. Customers prefer the luxury of cooking with gas, and they want the flip-of-a-switch convenience of gas fireplaces. The comforting heat provided by the baseboard radiators is also a selling point.

With the Chamberlain homes starting at $288,000, adding above-code insulation to improve energy efficiency would have decreased the homes' affordability. But Patterson's choice to install propane-based on-demand hot water heaters and high-efficiency boilers allow him to build efficient homes that are also affordable. One home earned a projected rating of 57 on the Home Energy Rating System (HERS), exceeding the EPA's requirements for an Energy Star home and, according to the home's energy rater, saving the owner approximately $3,028 a year over a typical existing home with a 130 HERS rating.

From the Builder

A community propane system, supplied by central underground tanks with individual meters in each unit, allowed Patterson to meet customers' demands for propane-fueled amenities such as baseboard radiator heat, a feature that wouldn't be possible with electric heat pumps. "Maine people do not like the forced-air heat produced by a heat pump," Patterson says. "Baseboard heat is much more even."

2 Carriage Hill

Doylestown, Pennsylvania
Builder: Cornell Homes

HERS rating: 65

Home cost: Starting at $220,000

Home size: 1,522 to 1,748 square feet

Propane applications:

space heating · water heating · fireplace · cooking · clothes drying · outdoor grill

Exceptional Value

Greg Lingo, president of Cornell Homes, has 20 years of building experience and a smart strategy: Provide homes with great value in strong locations.

Cornell's Carriage Hill development, just a short bike ride from downtown Doylestown, Pennsylvania, is a prototypical example. The company is building 263 courtyard townhomes ranging from 1,522 to 1,748 square feet and starting at $220,000, making them some of the lowest-priced new homes in the Central Bucks School District.

Energy Performance

But it's not just the home price that makes the community a great value. Cornell builds all of its homes to the Energy Star standard to ensure that the customer's monthly payment stays as low as possible. And in Carriage Hill, which has no access to natural gas, propane was critical to building cost-effective, Energy Star–rated homes.

An individually metered central propane distribution system feeds the entire community. Without propane, Lingo says, he would have had to choose less efficient or much more expensive appliances. In Cornell's homes, propane fuels a 95.5 percent efficient furnace, as well as water heaters, fireplaces, ranges, an outdoor gas grill line, and optional clothes dryers.

Using all five components of the Propane Energy Pod package has paid off in efficiency. The Carriage Hill homes rate an average of 65 in the HERS index, making them 35 percent more efficient than homes built to current code and saving their owners approximately $629 per year in energy costs over the typical new home.*

From the Builder

While reduced energy costs are vital to Cornell's customers, Lingo says part of the appeal of these homes comes from their sustained value and high future performance.

"Buying a home is a long-term decision, which is oftentimes the biggest monetary decision of a customer's life," he says. "We want them to be proud of the home that they built and bought, and know at the same time they lowered their carbon footprint by buying that house."

*Cost and energy saving calculations according to Residential Energy Services Network (RESNET), a national standards-making body for building energy efficiency rating and certification systems.

3 Cadenhead Residence

Hunt County, Texas
Builder: Mishler Builders

HERS rating: 51

Home cost: $600,000

Home size: 3,500 square feet

Propane applications:

space heating · water heating · fireplace · cooking · clothes drying · outdoor grill · generator

Custom Comfort

When John Cadenhead, president of Gas-Tex Energy, set out with Mishler Builders to construct his home in Hunt County, Texas, he was resolute about two things: energy efficiency and using gas fuel. Propane met his needs on both counts.

With no access to natural gas near his site, which lies 35 miles east of Dallas, Cadenhead is operating his home with propane from a 1,000-gallon tank. The propane will fuel the 3,500-square-foot home's central heating and water heating, as well as cooking, fireplaces, clothes drying, an outdoor grill, and a backup generator.

Using propane for those applications allowed Cadenhead and his wife to achieve several of the comfort and convenience features they desired in their home. His wife, for instance, prefers the instant-on convenience and luxury of a large propane-fueled stovetop, and Cadenhead prefers the real flame of a gas fireplace to electric alternatives. The warm heat delivery of a gas furnace was also an important advantage over using a heat pump.

Serious about Savings

Propane heating and appliances also figured into the home's sophisticated energy-saving strategy. Cadenhead fully sealed the home's interior and exterior walls and roof deck with foam insulation to reduce both energy costs and the amount of equipment needed to heat and cool the home. Consequently, the home requires only one heating and air-conditioning system in a floor plan that normally would have required three units.

Cadenhead is expanding those cost savings by installing a heating system fueled with propane. On average, a high-efficiency propane furnace is the least expensive first-cost system to install. And because Cadenhead is building his home with the full Propane Energy Pod package, his energy savings will grow even more. The home's energy rater projects that it will have a rating of 51 on the HERS Index and save the owner $1,154 and 8.1 tons of CO_2 annually compared with a standard American new home.

From the Builder

The Cadenhead residence will achieve ongoing cost savings by using propane-powered appliances and by spending more upfront to carefully insulate the home. "Even though it's more expensive, we're going to have a better-sealed home, and we're saving the cost of two additional HVAC units," says Mike Mishler of Mishler Builders. "The home's energy costs will be approximately half what they would have been if we had used conventional insulation."