

ENERGY-SAVING SYSTEMS FOR A LIFETIME OF COMFORT

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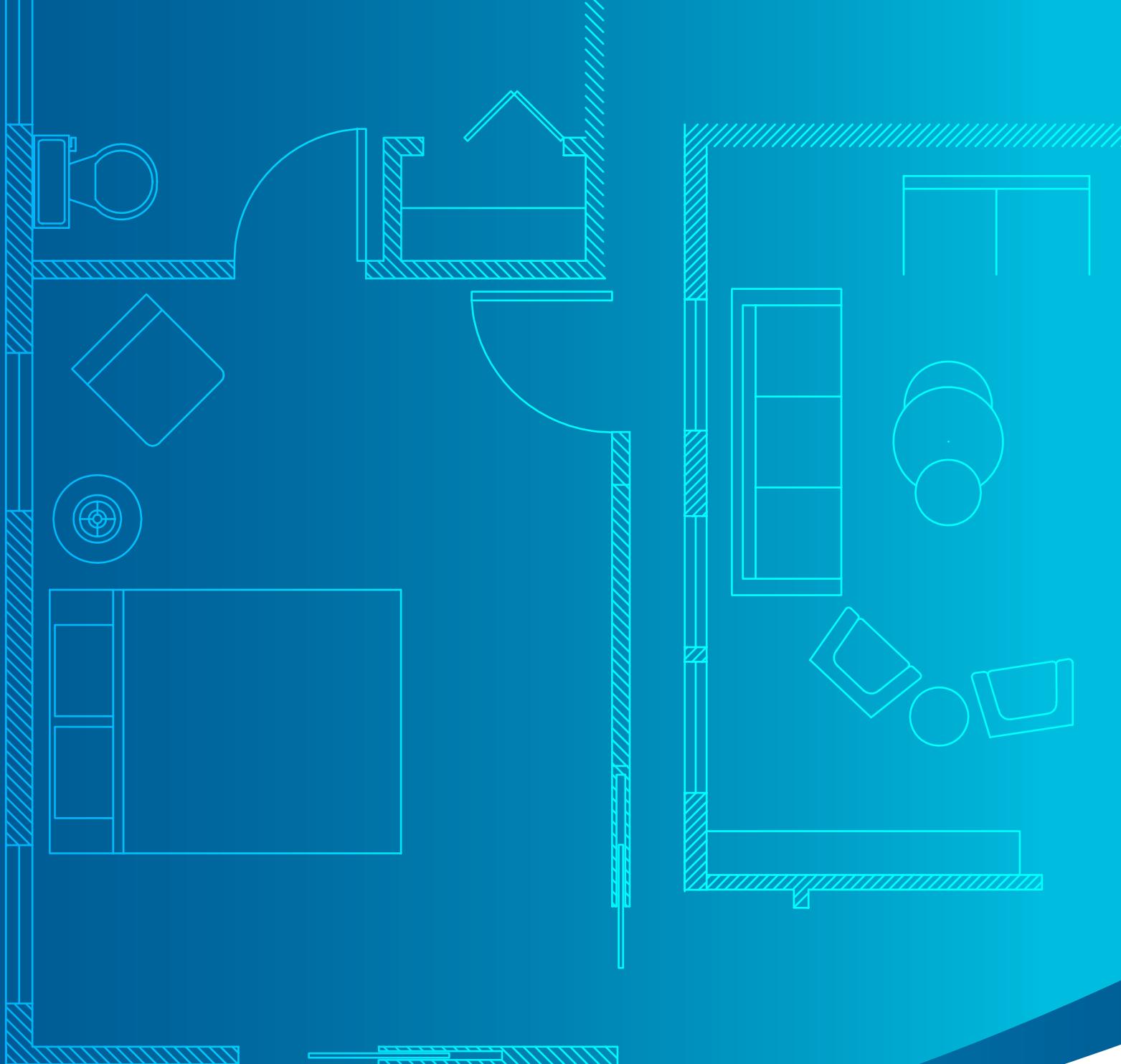
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ENERGY STAR®

Planning and building an ENERGY STAR home.



What is ENERGY STAR®?

ENERGY STAR is a symbol of energy efficiency, backed by the U.S. Environmental Protection Agency and the U.S. Department of Energy. Products or practices that earn the ENERGY STAR help us all save money and energy while protecting the environment.

What makes an APS ENERGY STAR Home?

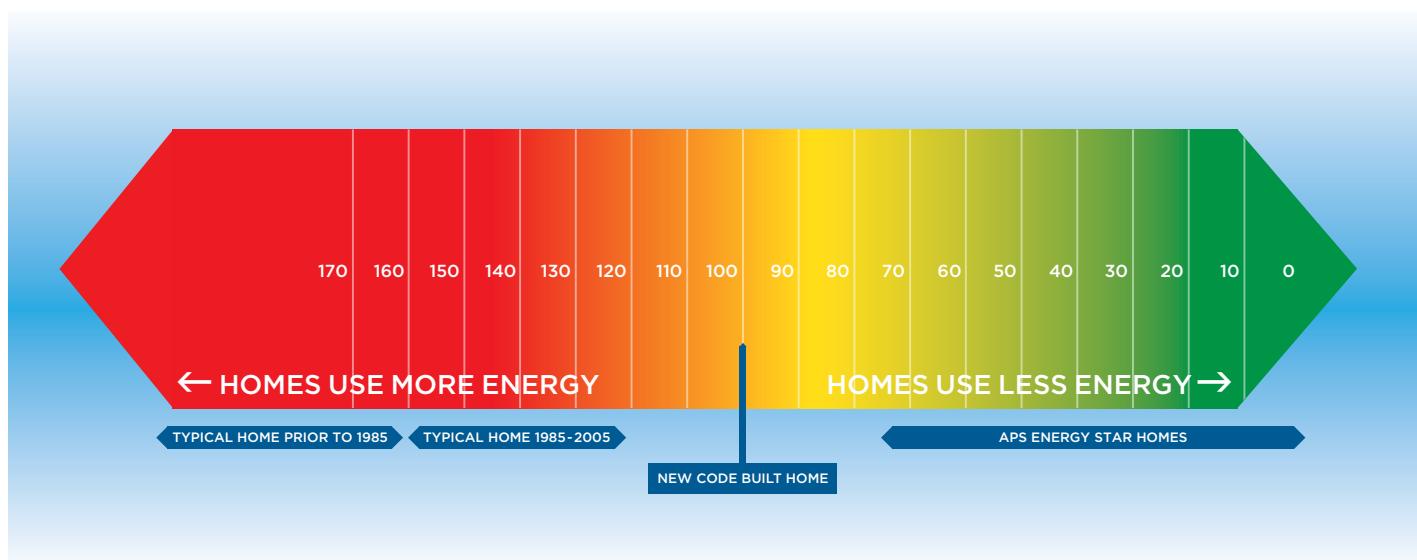
Builders consider the interaction of all the systems in the home — including heating/cooling, windows, insulation, appliances and lighting — to construct a home that is more durable and comfortable to live in, and that saves you energy and money.

HERS Index Scale

Prior to construction, ENERGY STAR builders team with independent Home Energy Raters to analyze construction plans and the home's design and identify the energy-efficiency improvements needed to ensure the house will meet ENERGY STAR performance guidelines. This analysis yields a Home Energy Rating Scale (HERS) Index number.

The HERS Index is a scoring system established by the Residential Energy Services Network (RESNET). The lower a home's HERS Index number, the more energy efficient it is in comparison to standard building practices.

APS ENERGY STAR Homes have a HERS score of about 75 or better, meaning they are at least 25% more efficient. When solar is added, HERS scores can get close to zero, depending on the size of the system.





Insulation

Enjoy year-round comfort with improved insulation.

IMPROVED INSULATION

Having the right amount of insulation in a home's walls, floors and attic is the key to year-round comfort. But to perform effectively, insulation needs to be installed correctly with no gaps, compressions or voids. The properly installed insulation in an APS ENERGY STAR® Home acts like a blanket for the home, keeping it warmer in the winter and cooler in the summer.



Installers take care to ensure insulation fits correctly with no gaps or voids.



Insulation completely blankets the home and is inspected before the drywall goes up.

Features & Benefits

Construction Features:

- Insulation completely blankets the home, filling every void
- Insulation comes in full contact with air barrier, so air cannot leak through
- No gaps, voids or compressions

Owner Benefits:

- More even temperatures make every room comfortable
- HVAC units work more efficiently
- Minimize heat gain and loss, which lowers utility bills

Did you know?

If insulation—whether it is batt, spray foam, or cellulose—is installed incorrectly, it's almost as if there is no insulation at all. In an APS ENERGY STAR Home, a third party inspector checks for gaps, voids and compressions before drywall is installed.



Envelope & Ducts

Improve indoor air quality and efficiency with a tightly sealed system.

TIGHT ENVELOPE AND SEALED DUCTS

Up to 30% of energy loss in an average new home is attributed to leaks in the “envelope” and duct systems. Even before insulation is added and windows installed, ENERGY STAR® builders go the extra mile to seal holes and cracks in the home’s envelope and duct systems.



In an ENERGY STAR home, holes created for wiring or plumbing are tightly sealed.



The building “envelope” is indicated by the orange line around the ceiling, walls and floors.

Features & Benefits

Construction Features:

- Framework tightly constructed and sealed
- Openings for wiring or plumbing are carefully cut and sealed
- Ductwork tightly sealed with mastic

Owner Benefits:

- HVAC units work more efficiently
- Improved comfort
- Reduced energy bills
- Quieter indoors
- Reduced allergens
- Better air quality



Well-sealed ducts are essential for an energy-efficient home.

Did you know?

Even a brand new home can have ducts that leak. In an APS ENERGY STAR Home, your builder tightly seals frame openings and ducts, and then third-party inspectors verify efficiency with a test to check for leaks.

Envelope & Ducts

CONTINUED

ROOM PRESSURE BALANCING

APS ENERGY STAR® Homes feature room pressure balancing. This ensures that air will flow freely throughout the house, even when interior doors are closed.



"Jump ducts" ensure adequate air flow from room to room.



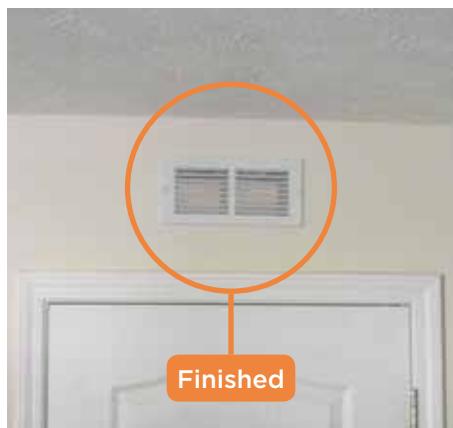
Features & Benefits

Construction Features:

- "Jump ducts" and/or "transfer grilles" act as a pressure relief valve, equalizing pressure from one room to another
- Homes may include a separate return vent in the master suite

Owner Benefits:

- Interior doors won't slam when air turns on
- Improved overall air flow—no more hot or cold rooms
- Balanced pressure prevents unconditioned air from being drawn in from the outside



Transfer grilles are another option to help balance pressure.

Did you know?

Trying to blow conditioned air into a bedroom with the door closed is a lot like trying to blow air into a plastic bottle: unless a hole is made in the bottle for air to escape, more air cannot be blown in. A jump duct or transfer grille allows air to exit the room so that conditioned air can flow in, even when the bedroom door is closed.



HVAC & Ventilation

High-efficiency systems bring comfort and energy savings.

HIGH EFFICIENCY HVAC SYSTEMS

Here in Arizona, summer cooling and winter heating costs make up a large part of a home's energy bill—often up to one half of your annual energy costs. APS ENERGY STAR® Homes include high-efficiency cooling and heating systems. Builders also go a step further to properly install and “right size” the unit to best fit the home. Depending on usage, homeowners can save hundreds of dollars in heating and cooling costs while enjoying improved comfort.



A high-performing HVAC system provides a comfortable amount of conditioned air to each room.



Properly sized and installed HVAC systems both cool and heat your home with maximum efficiency.

Features & Benefits

Construction Features:

- High efficiency SEER level is selected for the home
- “Right sized” with accurate calculations
- Contractors adhere to quality install practices
- Units run consistently rather than frequent cycling on and off

Owner Benefits:

- Energy savings
- Improved comfort
- Less noise
- Reduced maintenance and greater durability
- Better humidity control

Did you know?

Bigger is not always better. When a unit is too large, it results in “short cycling”—frequent on and off—which can cause uneven temperatures while decreasing the life of your equipment. The HVAC systems in ENERGY STAR homes are designed specifically for the size and layout of the home. These properly sized units supply conditioned air more steadily to provide better comfort and efficiency.

HVAC & Ventilation

CONTINUED

FRESH AIR VENTILATION

ENERGY STAR® homes are tightly built, which increases their efficiency, comfort and durability. To keep the indoor air as healthy as possible, APS ENERGY STAR Homes feature a ventilation system, which brings in fresh air from the outdoors, filters it, and distributes it to the entire home.



Fresh, filtered air gives you peace of mind that your home is clean and healthy.



A special duct draws in outside air, filters it (blue filter shown) and distributes it evenly throughout the home.

Features & Benefits

Construction Features:

- Special duct to the outside draws in fresh air
- Air is filtered and evenly distributed throughout the home

Owner Benefits:

- Fresh air for your family's health
- Improved indoor air quality
- Better humidity control

Did you know?

ENERGY STAR homes are tightly constructed to improve efficiency. But as homes get tighter, it makes sense to bring in filtered fresh air. This improves indoor air quality throughout the home, controlling humidity and normal household odors.



Windows

Brighten the home and lighten
your energy bill.

ENERGY-EFFICIENT WINDOWS

Your dream home likely features beautiful windows for bright, natural light and spectacular views. APS ENERGY STAR® Homes are built with energy-efficient low-E windows to give homeowners the light they want, but also minimize the sun's heat and harmful ultraviolet rays.



Low-E windows allow for both beauty and energy savings.



Energy-efficient low-E windows reduce heat gain and loss and contribute to better comfort and HVAC performance.

Features & Benefits

Construction Features:

- Invisible low-E coated glass
- Advanced window frames
- Proper flashing, weather-stripping and window finish details

Owner Benefits:

- Reduced heat gain and loss
- More comfortable room temperature
- Furniture, flooring and window treatments protected from 90% or more of UV rays
- Reduced potential for leaks and condensation

Did you know?

Approximately 50% of heat gain in summer can come in through windows. APS ENERGY STAR Homes have advanced window systems to prevent heat gain in the summer. This translates into cooler rooms, which improves the efficiency of HVAC equipment.



Lighting & Appliances

Greater energy efficiency for everyday items.

HIGH-EFFICIENCY PRODUCTS

There are two price tags associated with household lighting and appliances: the purchase price and monthly energy costs. ENERGY STAR® homeowners can save even more energy and money by choosing ENERGY STAR qualified lighting and appliances.



ENERGY STAR qualified lighting and appliances provide the home with beauty and energy savings.



Products like ENERGY STAR washers and dryers can use 20% less energy and water.

Features & Benefits

Product Features:

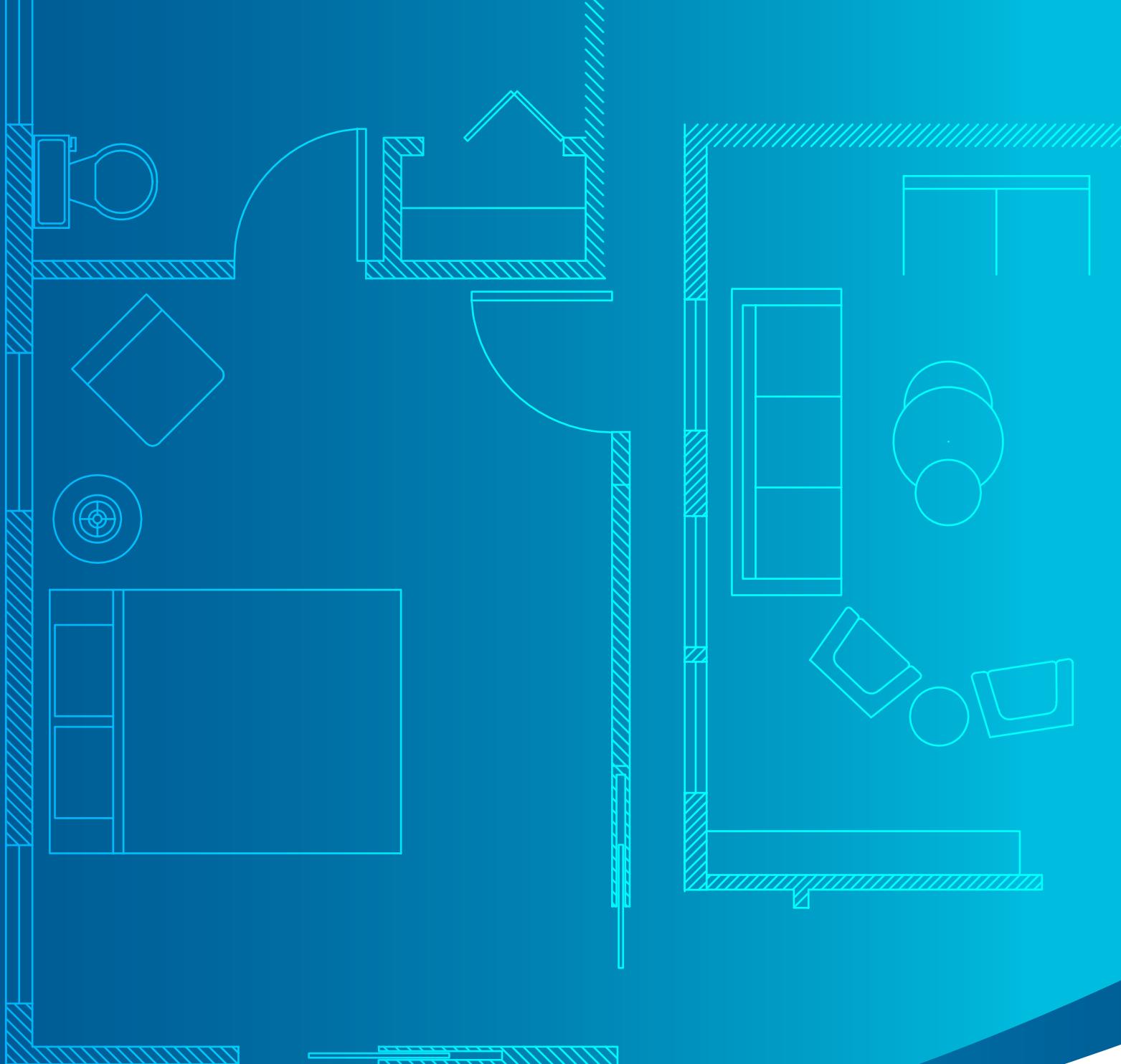
- Meet rigorous ENERGY STAR standards for quality and efficiency
- Can use up to 75% less energy than standard products
- Many feature extended warranties

Owner Benefits:

- Reduced energy consumption
- Lower utility bills
- Improved quality and durability
- Enhanced performance
- Increased comfort

Did you know?

ENERGY STAR products make it easy to reduce utility bills without sacrificing comfort or performance. Qualified products may cost slightly more than conventional counterparts, but buyers will quickly recover their investment in increased efficiency and utility bill savings.



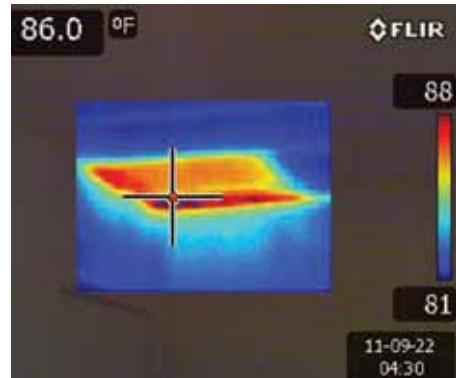
Testing & Inspections

Independent verification to ensure ENERGY STAR® standards.

THIRD-PARTY TESTING

Builders work with HERS raters even before construction begins to ensure the home is designed to be as efficient as possible. The involvement of the rater doesn't end there.

During construction, raters conduct on-site inspections and testing of the home to ensure the energy measures are constructed and/or installed correctly to meet ENERGY STAR® guidelines. Then, once homes have entered the final phase of construction, third-party inspectors conduct a series of tests to verify ENERGY STAR standards have been met.



Inspectors can utilize infrared technology to identify areas in the home where heat (shown as red) is entering from the outside.



A blower door test is performed to detect leaks in the building envelope.

Features & Benefits

Construction Features:

- Insulation inspection to ensure there are no gaps, voids or compressions, and to measure the depth of blown-in insulation
- Window test to inspect for the presence of low-E coating
- “Duct Blaster” test to measure air leaking from ducts
- “Blower Door” and Infrared tests to ensure the efficiency of the building envelope.

Owner Benefits:

- Third-party inspection ensures neutrality
- Buyers are assured that systems work properly
- Mistakes can be spotted and corrected quickly during construction

Did you know?

You can get more information about ENERGY STAR homes and standards by visiting the EPA's website at energystar.gov or at aps.com/homes.

TAKE COMFORT IN YOUR NEW APS ENERGY STAR® HOME

In your search for a new home, you are probably thinking about price, neighborhoods and floor plans. Energy efficiency may not be the first thing you think about, but now that you've learned more about the benefits of APS ENERGY STAR Homes, choosing a home with these features becomes an easy decision. ENERGY STAR homes built today have positive future impacts: on comfort, on energy costs and on natural resources.



For more information, visit aps.com/homes
or e-mail us at energystar@aps.com.