Why smart home tech will revolutionize the green building industry

EEBA • September 27, 2016



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http://sheltongrp.com/lp/energy-pulse-2015-special-report/#gendergap

The Smart Home Gender Gap

What it is and how to bridge it

The smart home technology market is a sleeping giant – and no one's sure exactly when it will awaken. Many market observers think the tipping point will be an advance in technology that proves impossible for consumers to resist. But we think market success may actually hinge on speaking credibly to an audience that has been largely overlooked: women. See what our research shows about the smart home gender gap: what it is and how to bridge it.





http://sheltongrp.com/lp/energy-pulse-2015-special-report/#gendergap



Smart Home Strategies for UtilitiesFive reasons you should get in the game

The energy landscape is changing, and utilities are retooling old business models to include more products and services. Smart home technology is a natural fit, offering utilities unbeatable opportunities for increasing customer revenue and loyalty. But you'd never know it, judging by how slowly utilities are moving into the space. Our research shows that now is the time to act – and we've got five compelling reasons why.



The short answer











choose **smart thermostats** as one of the top things that have an impact on making a home more energy efficient

9%

choose **insulation** as one of the top things that have an impact on making a home more energy efficient



The longer answer



1.80

Connected home devices expected to ship in 2019

\$4906

Expected connected home revenues in 2019



believe a fully connected home will be achievable within five years

 $Source: www.throughtek.com/report/ThroughTek_Internet\%20 of \%20 Challenges\%20 Report.pdf$



84%

of smartphone or tablet owners either currently, or plan to, control a connected home device in the next year

N=1,423



39%

prioritize smart thermostats as the technology they'd "try" if given a chance

Shelton

N=920

Within the year...

19.8m

Likely household penetration for smart thermostats

19.5m

Likely household penetration for smart lighting



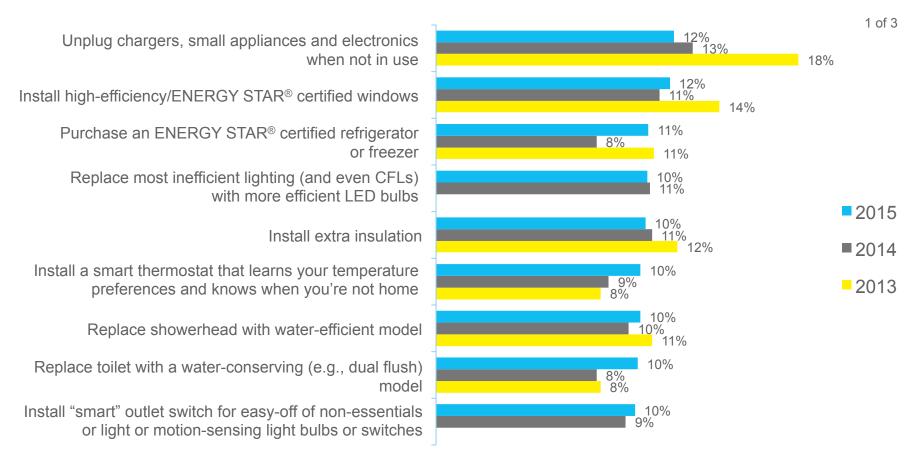
Meanwhile...



Likelihood of doing nearly every EE home improvement we track is in a 3-4 year flatline.



Propensities have declined and stagnated

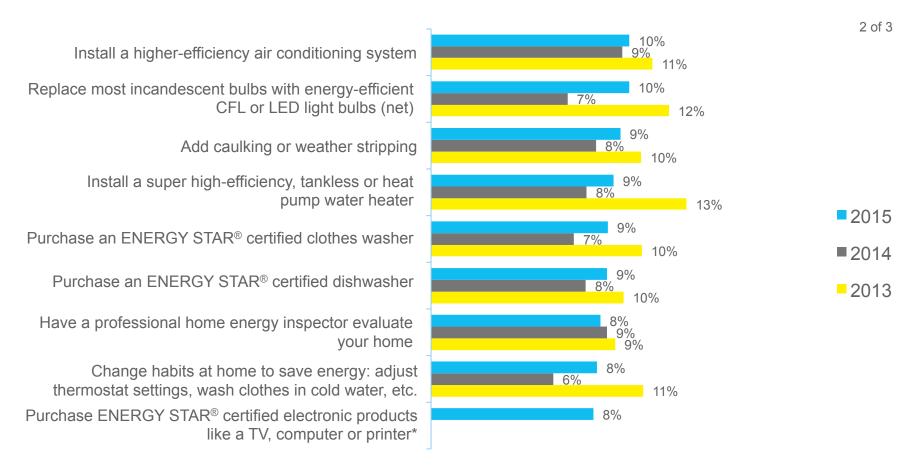


N=2,029

Energy-Efficient Home Activity Propensity





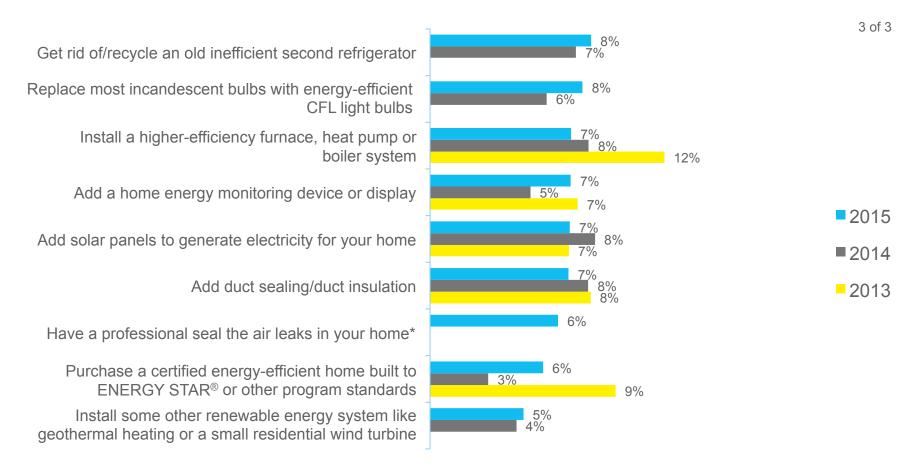


*New item in 2015 N=2,029

Energy-Efficient Home Activity Propensity – Continued







*New item in 2015 N=2,029

Energy-Efficient Home Activity Propensity – Continued

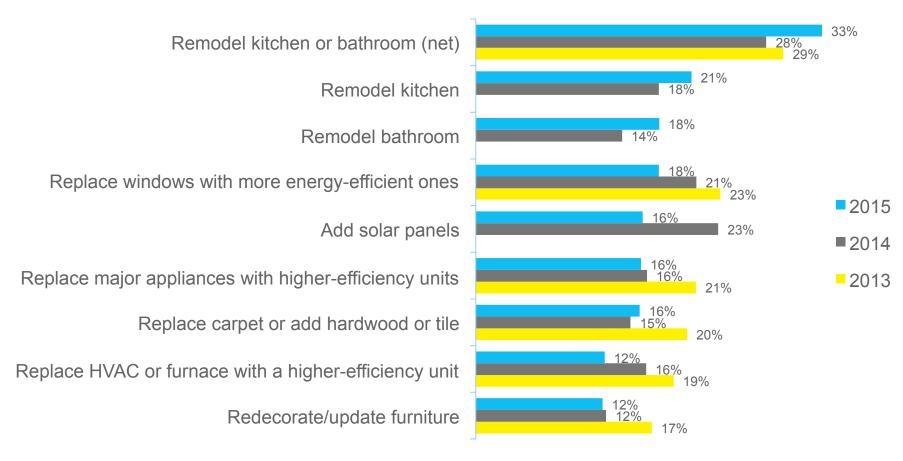








Most homeowners prioritize aesthetic remodeling



N=2,029

Q15 – If you were suddenly given \$10,000 to make home improvements, which two of the following things would you do?



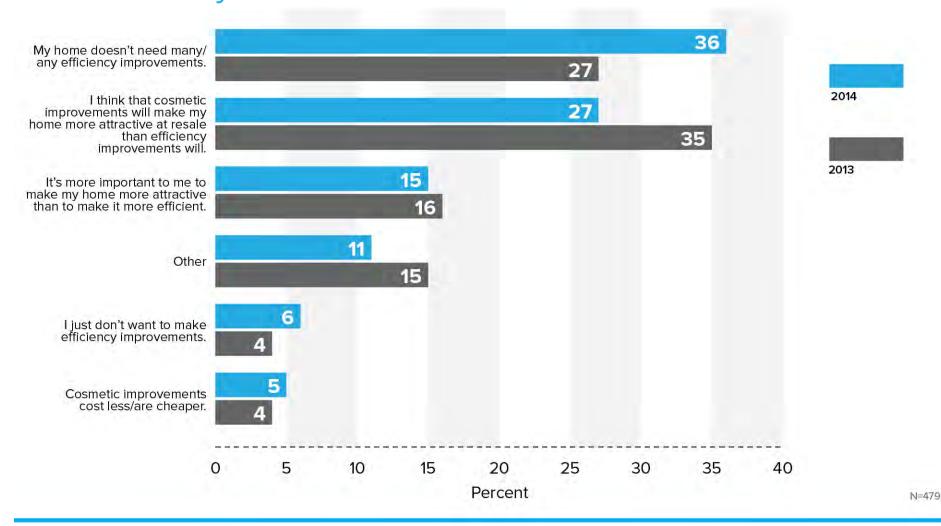


43%

Plan to make aesthetic improvements



They deny they have a problem & don't think efficiency is "worth it".



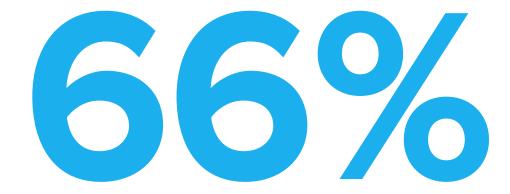
You say you're likely to make cosmetic improvements to your home, but earlier you said you were not likely to make very many energy efficiency improvements. Why is that?





By contrast...





of those who said they had installed a smart thermostat in their current home saw a reduction in their energy use due to their smart thermostat

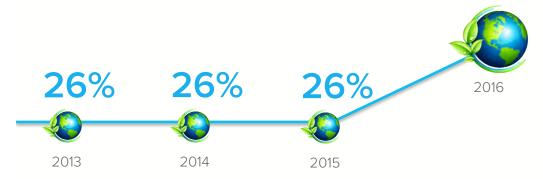
Shelton

Say energy conservation is important-very important in the way it impacts their daily purchases and activities.



45%

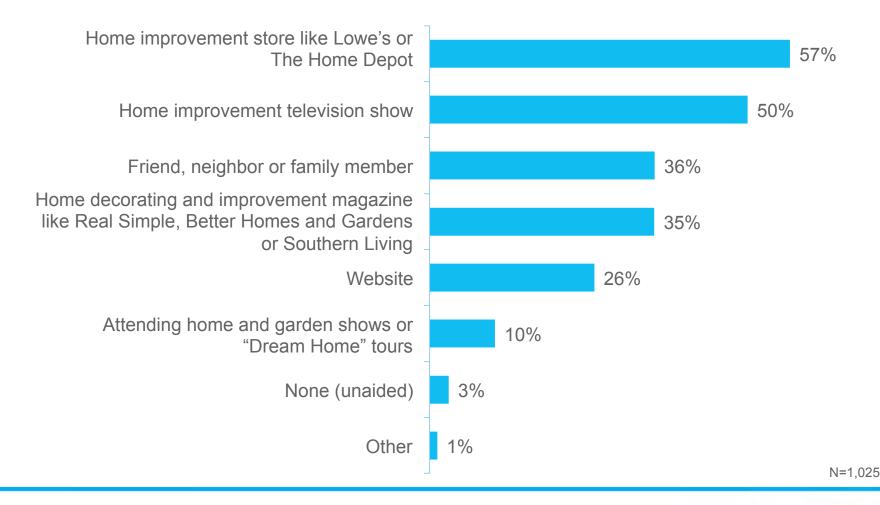
say buying/using eco-friendly products is an important part of their personal image







One more piece...



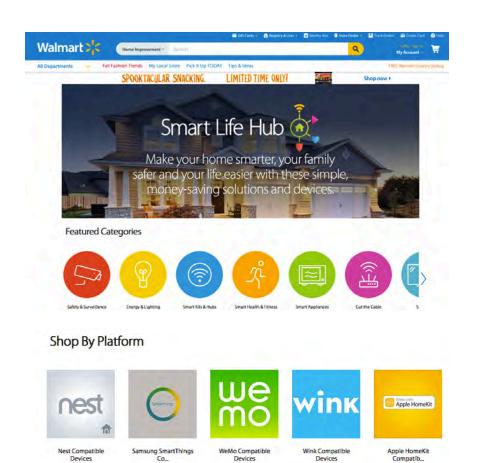
Q41 – Where do you get ideas and information for home improvements?

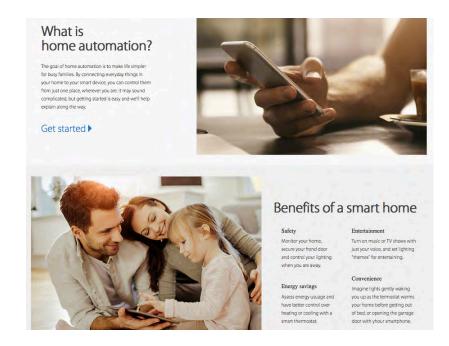




Walmart has a connected home section for online shopping.

Product offerings continue to increase and now include smart appliances, health and fitness. The site even allows searching by platform.







Target is creating a smart home section in stores.

Target's Open House includes connected light bulbs, baby monitors, sprinklers, doorbells and more, displayed in rooms with clear plastic furniture to better highlight the devices and their uses.

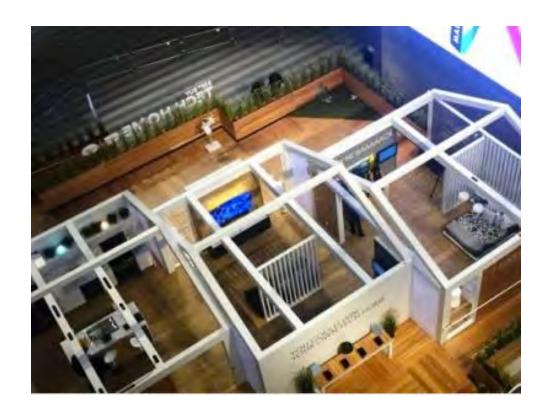
Target announced in June it would expand to three more existing stores (Minneapolis, Cupertino, CA and NYC) which would have a "connected living experience" department.





Best Buy built a demonstration model of a connected home in the Mall of America.

Connected products displayed include Samsung Family Hub refrigerator, ecobee 3 smart thermostat, Yale smart locks, and Philips Hue lighting.





Many big-box, brick-and-mortar stores now have connected home display space.

- For Lowes, EE products (except for lighting) generally do not have separate displays, but are included with all products in the category.
 - End cap displays are used to highlight connected home products separately.









So let's recap:

- People care about energy efficiency, and being green is now a mainstream value
- It's a mainstream concept because it's cool
- Smart home devices are cool
- People can give themselves permission to buy smart home devices because they'll save energy
- And because they're really convenient
- And because they see them everywhere when they're shopping – clearly everyone's doing it, so I should, too!



To leverage the promise of smart tech and push green building forward...





We'll need to bridge the gender gap.



Profile of home technology enthusiasts (13% of the population):

- Male
- Millennials or Gen X
- Well-educated, with bachelor's degree or higher
- High income (\$75K+)
- White-collar and professionals
- Married with children present in the household
- Homeowners (83%)
- Predominantly white, but over-index for minorities (index 126)
- Concerned Parents, True Believers





Women are the driver behind home purchases, yet they are ...

- Less likely to be technophiles or home technology enthusiasts
- Less likely to prioritize home automation when spending money on their homes
- More likely to prioritize making their homes healthier/safer and more beautiful
- Significantly less likely to think that smart/connected homes help save energy, make people feel more secure, or save money



So we must position smart home tech as easy, undaunting and as a means to an end to achieve what she really wants — a comfortable, beautiful, quality home.



How to



Building an effective campaign

- Be super clear about who your target audience actually is
 - Profile past buyers, not future/likely buyers
- Be where they're searching
 - Contextual targeting
 - Behavioral targeting
 - Retargeting
- Use messaging that hits their care-abouts
 - Comfort, control, health, peace of mind and/or resale value
- Leverage their desires
 - Remember that aesthetics trump efficiency/sustainability
- Learn from results
 - Do A/B testing; ditch what's not working
- Make it super easy for them to act; give them no more than two actions to take.











When "good enough" isn't good enough, choose CertainTeed Insulation.

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Remodeling?
Your
insulation
matters.

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SMARTBATT™ Insulation helps protect your home & family.

Here's how

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Insulation













My CertainTeed insulation SMARTBATT Complete Comtent

Thormal Parformance Moniton Management

At Traffic son

What's going on between your studs?

Insulation 101

Insulation isn't rocket science, but if does involve some other sciences: building science, materials science and some basic physics. Fortunately, you don't need to know all that to choose the right insulation for your project. You just need a few of the basics.

Why you're insulating

It's not complicated, but There's more to it than simply keeping your home comfortable, temperature-wise.

- Energy efficiency. Insulation can make a big difference in your energy bill. That
 means a more comfortable budget.
- Acoustics. Your home should be an easis of peace and quiet. Insulation can help block the sound of your neighbor's barking dog and the movie the kids are watching in the peat room.
- Moisture management. When moisture gets into your wall cavifies, it can
 condense on every surface and create a breeding ground for moid, middew and
 wood rot. A vapor retarder installed with your insulation can help keep moisture
 out: some troise can do even more.
- Air tightness. Air (and noise and moisiture) can sheak into and out of your home through the tiniest of gaps. The right insulation system, properly
 installed, can holp with that.



Heal flows from warmer areas to cooler ones. That's basic thermodynamics. Insulation works by stowing that flow of heal. Whether it's fiberglass, foam or blown—b. it's the little pockets of air for other gas) between the fibers or within the foam that dreate thermal resistance, which is given as the insulation's Froblank (see below).

We could get even more technical and fell you that there are three different types of heat flow (aka heat transfer). We could explain that insulation works by stowing conductive heat flow, and it's the conductancy of the air in the pockets that determines the thermal resistance of the material. We could also full you that the U-factor you may have heard of when you selected new windows or doors measures heat transfer, and that R-value is U-factor thread on its head - 4s inviers. But we won't.

The vocabulary

Batt; Balts are panels of insulation, sized for the most common widths between studs and joists. The term refers both to pre-cut lengths of insulation and the big fair rolls you see at retail stores.

Envelope: Just as a paper envelope is the wrapping on a piece of mail, a building's envelope is its "wrapping": the totality of what separates the indoor, conditioned and the outdoor, unconditioned envilonments. Technically it comprises a weather barrier, an air barrier and a thermal barrier, but the term is often used to mean the building anclosure.

Facedountaged: Some insulation comes with a lacing (see "Kraft" below), some doesn't. We're sure you can figure out which is which

Revalue: If you were paying attention up in the How Insulation Works section above, you already know this one. Revalue is a measure of how well a material—your insulation—resists the flow of heat through it. The recommended minimum Revalue for your home depends on where you live—your climate zone.

Kiatt. Sometimes capitalized, sometimes not, but never does it have anything to do with max & cheese. Kiraft is what many companies and contractors call that paper facing attached to batt insulation. The facing typically incorporates flariges (flaps of paper) on both edges used for stapling the insulation in place. Kiraft facing also performs as a verpe beaver, but perhaps not optimally.

Vapor barriet/retarder. A vapor barrier is meant to block the movement of moisture (water vapor) through walls, ceilings and floors.

Note that "barrier" is actually a misroome: "Retarder" is the more accurate term, because most materials have sume degree of permeability, so some moisture can still get through. Call it what you will though, the point – the very important point – is moisture management. Left uncontrolled, moisture can lead to mold and wood not issues; pulling your home and your family at risk.

The types of insulation appropriate and available for remodeling projects

There are many different types of insulation, but not a few insulation should be a commission received. Here are the cone amountable by walls. There are many different types of insulation, but only a few you need to know about fer a remodeling project. Here are the ones appropriate for walls but with wood study in a residential but film.

Elberglass batt, faced; For exterior walls and interior walls in kitchens, bathrooms and laundry rooms - anywhere a vapor retarder is appropriate.

Fiberglass batt, unlaced, For exterior walls when installed in conjunction with a vapor retarder. Also appropriate for interior walls to damper, room-to-

Blown-in liberglass; Blown-in fiberglass can provide superior Pr-velue. If easily fills all voids, so it's great for irregular cavilies

Spray notional floam: Commonly called spray floam or SPF, this product provides the highest insulation R-value per inch, expands to seal every crack and void and is ideal for tough to insulate areas like rim joists and craw's spaces.

So there you go. That's pretty much everything you need to know to talk to your contractor or choose the right insulation for your project. Now go test your insulation to by taking this fun little quize—if seap, and whost of the answers are right here in this article. When you're done, you can explore the rest of that page to continue building your knowledge and learn about the full range of insulation products available from CertainTeed.

Committee St. I. Committee Committee P. C. Pomeria Valley From PA 19492 - 700 J. D. 200 J.



My Certain Feed Insulation SMARTBATT ... Complete Comfort

Complete

Montare Manager

5 things DIYers need to know

Insulation tsn't pretty. Choosing counterlops, Rooring, wall cokins and window treatments – that's the fun part of building or remodeling a home. Those are the things that will make your home pretty and impress your visitors. Insulation? Not so much.

So why think about it? Why not just let your builder or contractor put whatever into your walls?

Because it's way more important than you think. Here are the top five reasons you should give your insulation some serious thought.

1. There's more to it than you think

Insulation products can – and should – do more than help maintain comfortable temperatures within your home and help control your energy bills. Thanks to some recent advances in building science, today's insulation products can go much further in helping you:

- Achieve a truly comfortable environment and that involves air quality, noise levels, and an air-tight home.
- . Guard your family's health
- · Protect the investment you've made in your home

2. Your climate matters

This is probably the most straightforward part of choosing insulation, insulation comes in different "E-values", which measure its abitity to block cold air movement from one side of it to the other. The colder your climate: the higher the R-value you'll need to stay controlatable – and energy efficient.

3. What you're insulating matters

We hope you don't think it's only your exterior walls that need insulation. It's crucial to insulate affice, basements and crawl spaces as well, and by, helping reduce room-to-room noise, insulating the wells between rooms can make a big difference too. The tricky part can be in knowing the right kind of insulation to use in each area.

4. The type - and even the brand - of insulation products matter

Fiberigass batts, blow-in fiberglass, spray foam, vapor barriers... what type will you use in which areas of your home? White you can get different insulation products from various manufacturers, you must understand that even standard fiberglass batts are not all created agail. Some are cartilled by independent organizations like GREENGUARD. Others aren't. Some help with moisture management. Others don't. And to date, only one can be considered "smart." From Certain Teet, SMARTEATT" with MoistureSense." Technology helps control the moissure that can seep into your waits, and in doing so, helps protect your home and family form the travages or moist, mildows.

5. You need to get it right the first time

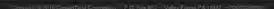
Don't like the cator of your walls? Easy enough to repaint. Don't like that rug as much as you thought you would? Simple —get a new one. With many of the decisions you'll make building or remodeling your home. It's not the ned of the world if you find your choice was not quite gift. But if you discover mod, noise, orthiness or temperature problems after your walls are closed up, litting them is going to be truble. Big. expensive trouble.

We hope these tips have given you some lood for thought. With just a little bit of knowledge, you'll be able to make insulation choices that will create the comfort, efficiency and protection your family deserves.

To help you get started, let's find out what you really know about insulation.

Take our quiz

Tip: It's easy! Most of the answers are right here in this article.





H2O: Friend or foe?

Rainbows, babbling brooks, long hot baths ... there's no denying the glories of water - but it does have a dark side. No, we're not talking about floods, tsunamis or the sudden downpour that catches you without an umbrella. We're talking about a stealthy, insidious threat to the health of your family and your home: moisture in the air that creeps unnoticed into the walls of your home.

Moisture's mischief - it's not harmless

In hot humid summers, moisture migrates into your walls from the outside. In cold dry winters, moisture generated by everyday family activities cooking, laundry, bathing, and such - seeps in from the inside. (Bet you didn't know that the average family of four generates two to three gallons of water vapor every day!)

Once inside your wall cavities, that moisture will condense on every surface, creating a breeding ground for mold and mildew. Once it gets started, that nastiness will grow and spread. Eventually its spores can make their way out of your walls, into your living space and into the air your family breathes every day. Asthma and allergic reactions, including eye irritation, runny noses, coughs and other respiratory symptoms, can soon follow.

If you wonder, even for a minute, whether enough moisture can get into your wall to cause real problems, just Google "mold inside wall cavity" and look at the images that come up. I dare you.

And it's not just the health of your family you need to worry about. The health of your home is at stake as well. Moisture is a catalyst for wood rot, which can eat away at your home's structure and potentially lead to some very costly damage.

Moisture in your home is unavoidable - that's the bad news. The good news is that thanks to modern science, it is manageable. Thanks to modern science, there is a SMART way to control the risks that moisture creates.

Right now - while you're planning or in the process of remodeling your home - is the time to take advantage of that science.

Insulation with an IQ

SMARTBATT™ by CertainTeed is the first and only insulation that can help protect your home and family against mold and rot. At its core is a fast drying, sustainable fiberglass wool. Unlike conventional vapor barriers and kraft facings, its patented MoistureSense™ facing is a smart vapor retarder - its pores open and close based on the humidity in your walls. In low humidity, SMARTBATT blocks indoor moisture from getting into your walls. In high humidity, it lets moisture escape to the air-conditioned indoors.

If you're planning or have already started to remodel, renovate or build a home, you need to know about - and ask for - SMARTBATT.



Learn how it works





INSULATION ISN'T PRETTY.

Insulation isn't the fun part of building or remodeling a home. So why not just let your builder or contractor put whatever into your walls?

Because it's way more important than you think. Here are five reasons you should be giving your insulation some serious thought.



There's more to it than you think

Insulation can - and should - do more than help keep you warm.



Where you live matters

Insulation comes in different "R-values." The colder your climate, the higher the R-value you'll need.



What you're insulating matters

Attics, basements, inside and outside walls ... insulating different areas means using different insulation products.



The type – and even the brand – of insulation matters

Make sure yours is made by a company known for innovation.



You need to get it right the first time

After your walls are closed up, replacing your insulation is going to be big, expensive trouble.

So start thinking about insulation.

To help you get started, let's find out what you really know about it.

Take our quiz

Take your knowledge to the next level by exploring our Think about Insulation resources and tools.







MOISTURE IS AFOOT.

Rainbows, babbling brooks, long hot baths ... there's no denying the glory of water – but it does have a dark side. Moisture in the air creeps unnoticed into the walls of your home where mold, mildew and rot can pose threats to the health of your family and your home.

That moisture is unavoidable – but it's manageable. Thanks to CertainTeed, there's now a very smart way to take control of the risks that moisture creates: SMARTBATT™ insulation with MoistureSense™ Technology.



MoistureSense™ - the brains behind SMARTBATT

SMARTBATT's MoistureSense facing is a smart vapor retarder that adapts to the humidity in your walls.

Show me how it works

While you're at it, check out our SMARTBATT web page for tools, resources and more information.







Think about it. Comfort is not just about the temperature in your home. It's also about air quality, noise levels, drafts ... and saving money on your energy bills.

Now think about the insulation going into your home ... because it can have a huge impact on all of those.

CertainTeed insulation products are engineered to help you achieve Complete Comfort.



More comfort, more choice

Known for quality, known for innovation, CertainTeed offers the industry's most comprehensive line of insulation products.

- Sustainable Insulation[®] fiberglass batts
- SMARTBATT™ the industry's only moisture-managing fiberglass batts
- MemBrain™ the state-of-the-art smart vapor retarder
- CertaSpray[®] spray foam insulation
- OPTIMA® blow-in insulation
- InsulSafe® SP blow-in attic insulation
- Hybrid solutions advanced product combinations that provide superior thermal resistance, moisture management, an air-tight seal and outstanding noise reduction

Ask your builder or contractor which CertainTeed solution is right for your project.

Ask now!















Moisture is the enemy of a healthy home - it can lead to mold growth, health issues and even structural damage. SMARTBATT insulation with MoistureSense™ Technology knows that you need to know that too.

SMARTBATT is the first and only insulation that helps protect your family and your home from moisture's damaging effects. If you're planning or have already started to remodel, renovate or build a home, you need to know about – and ask for – SMARTBATT.

Find out what makes it so smart.



Moisture management

Moisture will migrate into your walls. It's unavoidable. Inside your walls, where you can't see it happening, moli and mildew problems can start. Traditional vapor barriers intended to help control moisture can actually trap it inside your walls, creating a breeding ground for nastiness. SMARTBATT doesn't.

When the humidity outside is low, SMARTBATT's facing remains moisture tight to prevent the moisture generated by normal activities within your home, such as cooking, bathing and laundry, from seeping into your walls. When the humidity is high, it opens up to allow the moisture inside the walls to escape into the conditioned environment of your home.



For a healthier family

Mold and mildew can have a significant impact on the quality of the air inside your home - the air your family breathes every day. When mold spores make their way into your home, they can trigger asthma and allergic reactions, including eye irritation, runny noses, coughs and other respiratory symptoms. With SMARTBATT, you help reduce the risk of mold growth in your home and the risk of potentially serious health issues for those living



For a healthier home

Persistent moisture inside your walls can cause wood framing to rot. With outstanding drying capabilities along with its MoistureSense facing, SMARTBATT can help reduce the risk of expensive structural damage to your



How SMARTBATT works to

At the core of SMARTBATT is a mesh mable fiberglists wood engineered for superior drying capabilities along with hermal resistance (measured by Revalue) and noise reduction. Unlike traditional polyethylene vapor barriers and kraft facings, the SMARTBATT MoistureSense facing is a smart vapor relative!—Its permeability adjusts according to the humidity inside your wats.

MemBrain™ - The Smart Vapor Retarder and Air Barrier Film

There's a smart, MoistureSense solution even if you're using unfaced or blow-in insulation. Installing MemBrain along with either adds both continuous air tightness and adaptable moisture protection.



WHAT'S YOUR INSULATION IQ?

Test your knowledge by taking this fun little quiz.

Start muiz



TELL YOUR BUILDER OR CONTRACTOR YOU WANT SMARTBATT

Click a button below and we'll send an email for you saying when it comes time to choose insulation for your project, you choose SMARTBATT! Don't have a professional on your project? Find a pro near you.

Building a new home?

Remodeling your home?

Email your builder

Email your contractor

Resources and calculators









Results:

- Generated nearly 20,000,000 impressions and over 74,000 clicks to the brand's website — for less than half of the cost of one small advertisement in some leading home renovation magazines (a savings of over 1400% in terms of CPM).
- The campaign's click-through rate exceeded Google industry benchmarks for display advertising by over 500%.
- Our pre-roll video placement finished with a **76% completion rate** vs. the average of 59%.



Discussion

Thank You!

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@sheltongrp
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