Are You a Building Science Practitioner

Bill Meehan
National Technical Manager
Home Performance and General Contracting companies have the opportunity to provide complete solutions to customers’ comfort, health, safety, Indoor Air Quality and energy issues by addressing The House as a System. This not only expands current project work scopes, it allows for reduced call backs, fewer emergency situations and improved conversion rates of referrals from customers. Happy Satisfied Customers
The Building as a System

The idea of the *building as a system* springs from modern systems theory and the application of building science principles to building behavior and performance.

The *building as a system* concept is a relatively new development in building science. It resulted directly from the introduction of a *systems approach* to building science practice, starting in the 1960s. As innovation increasingly became the means to achieving new forms of architectural expression in the 20th century, analysis and review of building failures indicated that traditional approaches to design were inadequate. This was due to inappropriate adaptations of successful past precedents, or an unknowingly narrow analysis at the building component level for radical departures from technical norms. In both cases the behavior of the whole system was not considered.
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Building Science Defined

Building science is a field of knowledge that draws upon physics, chemistry, engineering, architecture, life sciences, and observation of your surroundings and there Systems.

Understanding the physical behavior of the building as a system and how this impacts energy efficiency, durability, comfort, and indoor air quality is essential to innovating high-performance buildings. Modern building science attempts to work with models of the building as a system, and to apply empirical techniques to the effective solution of design problems.
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System thinking is an important part of building science because it helps simplify problems by classifying them according to common types. There exist millions of buildings and their diversity would be overwhelming were it not for the systems approach. This approach is derived from general systems theory and the basic characteristics common to all systems are important to keep in mind when applying building science.
Typical home...full of systems...

Drainage system
Foundation system
Flooring system
Wall system
Ceiling system
Roof system
Insulation system
Heating system
Air conditioning system
Ventilation & IAQ systems
Moisture control systems
Distribution system
Exhaust systems
Plumbing systems in/out
Electric, Appliance & Lighting systems
Biological Pollutants May Be in the Home

1. Dirty air conditioners
2. Dirty humidifiers and/or dehumidifiers
3. Bathroom without vents or windows
4. Kitchen without vents or windows
5. Dirty refrigerator drip pans
6. Laundry room with unvented dryer
7. Unventilated attic
8. Carpet on damp basement floor
9. Bedding
10. Closet on outside wall
11. Dirty heating/air conditioning system
12. Dogs or cats
13. Water damage (around windows, the roof or the basement)
Systems & Biological Pollutants

Dust and Allergies
Comfort Issues
High Utility Bills
Hazardous Materials
Moisture
Climate Change

Indoor Air Quality
Discover Hidden Treasures, Along with Health and Safety issues in Every Home!

With the right tools, professionals are showing homeowners where their homes waste money, have health and safety issues!

Help homeowners put a stop to all those lost hard-earned dollars and their health issues, inefficient appliances and more.

learn how to apply Building Science to every Job.

use the latest equipment and technologies to teach homeowners about wasted dollars, healthy and safety by taking them on a search in their own home.
Cause and Affect

Every “Action” leads to a “Reaction”
And Can Have
“Unintentional Consequents”
The Cause & Effect Detective Meets the Building Science Practitioner

Holy Cow, Myrtle, I think they have some “Real Issues”
It’s a good thing that we used our investigative deduction method, along with our building science knowledge.
The water traps the lint, leaving just warm, moist air to circulate back into the room.
The grille in the return plenum is at the point of greatest negative pressure in the duct system. These may depressurize the CAZ and cause a backdrafting.
What is Whole House Home Performance Contracting?

The systematic approach to improving the comfort, Indoor Air Quality, health, safety, energy efficiency and durability of your customers’ homes.
“Check for Gas Leaks”

A small gas leak at the pilot burner control blows bubbles in the gas leak detector fluid.
Corrosion on Hot Water Tank
Outlets near the sink have to be GFCI protected
"What do you mean 'it just happened'? Didn't we discuss cause and effect?"
Beautician vs. HP Contractor

What happens if your hairdresser makes a mistake?

Bad Hair Day

What happens if your home improvement contractor makes a mistake?

CO Spillage

Three Die From Carbon Monoxide Poisoning in Connecticut

By PATRICK HEALY; Avi Selvaman contributed reporting for this article.
Published: Tuesday, January 13, 2004

Gas-burning furnaces filled two homes on Long Island and in Connecticut with carbon monoxide in the last few days, poisoning the occupants during a lull in a cold snap.

The Long Island residents escaped. But in Connecticut, three people -- including two women who had arrived to help the family -- were killed.

In a gray Victorian home in East Lyme, Conn., David and Kelly Dunn and their two daughters felt as if they had been stricken with the flu. On Saturday, the family decided to stay inside. Ms. Dunn's mother and a family friend stayed with the Dunns to help them recuperate, the Connecticut State Police said.

On Sunday night, another relative found the family lying on the first floor of the house. Relatives and neighbors soon realized that the flu-like symptoms had been an early sign of carbon monoxide poisoning, the police said.

Ms. Dunn's mother, Aralia Cameron, and Kathleen Dumais, the women who had come to help, were dead at the scene. Mr. Dunn died yesterday after being flown to a hospital in Rhode Island. His wife and daughters, Chelsea, 8, and Elissa, 3, were in critical condition last night at Hartford Hospital, the police said.

Ronald Pringle, chief of the Niantic Fire Department, said carbon monoxide had built up in the home because of a plugged flue pipe attached to a propane heater in the basement. The family had also sealed several windows with plastic, a move that kept the cold at bay but also trapped the gas, officials said.
What Is A Call Back
Callback:

The most significant investment a company can make in building a negative image with its customers.
RESOLUTIONS? ME??
JUST WHAT ARE YOU IMPLYING? THAT I NEED TO CHANGE?? WELL, BUDDY, AS FAR AS I'M CONCERNED, I'M PERFECT THE WAY I AM!
Want to know what happens next?
Well that’s up to you.
So, Why Should You Be Interested In Home Performance And Building Science Because They Go Hand In Hand
Questions