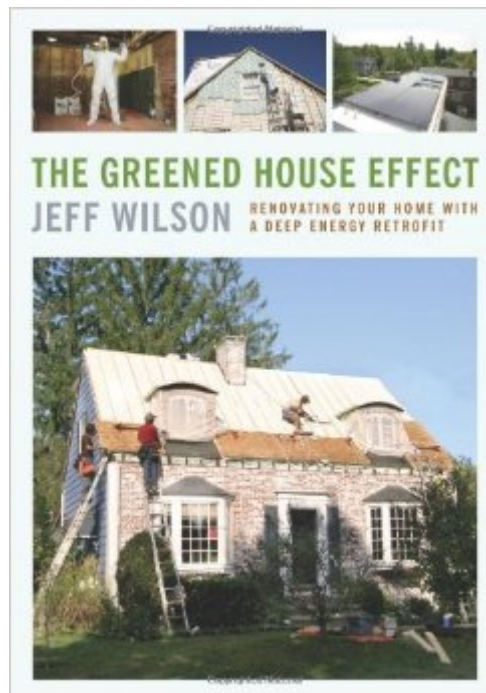


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# The Greened House Effect: Renovating Your Home With A Deep Energy Retrofit



## Synopsis

With greater public awareness of the need for energy independence, the issue of how we can make our existing homes more resource efficient is becoming ever more critical. Residential buildings make up a large fraction of our energy needs, largely due to heating and air-conditioning. So it's no longer enough to simply do the small stuff, like switching to compact fluorescent bulbs, or turning down the thermostat at night. In *The Greened-House Effect*, author Jeff Wilson brings his twenty-five years of construction experience and knowledge of home building to bear on making our current houses cleaner, greener, and healthier. Think of a deep-energy retrofit (DER) as a "home makeover" - one that represents a significant investment, but that saves money from the get-go by capturing the energy you "drop on the ground" every month, every year, through inefficiency, poor design, or simply living in a typical older home. Using his own family's DER of their 1942 home as a prime example, Wilson weaves a readable narrative at a practical, hammer-and-nail level. He presents the solutions to our building and energy problems, making them seem possible for average homeowners and small contractors by offering the right set of information, skills, and materials. More technical information is presented in sidebars and graphs, and numerous color photos illustrate the process, including: Testing the energy efficiency of your home and learning where improvements need to be made Issues of local building codes and regulations Financing and paying for a DER Major components of the DER, such as roofs, exterior walls, basements, and home systems Wilson's building experience, along with his lifelong passion for energy issues, all come together to form an inspirational, can-do approach to making our neighborhood, our community, our nation, and our world a better place - one home at a time.

## Book Information

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## Customer Reviews

Published in 2013 by Chelsea Green, *The Greened House Effect: Renovating Your Home with a Deep Energy Retrofit*, by Jeff Wilson, is a worthy read. Jeff Wilson is committed to doing what he can to conserve energy and safeguard our environment, and he does this through tackling his own home with a deep energy retrofit (DER). As a media professional focused on sustainable architecture and a former builder, he brings considerable knowledge to the topic. His detailed account of the experience is both instructive and entertaining. The Wilson family had dreamed of building a new house in the countryside, abandoning their 70 year old house in Athens, Ohio. But then they realized that the more ecological thing to do was to stay put, drive less, and make their existing house more comfortable and energy efficient. They hired a professional energy consultant to perform a thorough energy audit of the old house, and he found many places to focus their attention on to get the best return on their investment. While discussing the choices they made for their particular situation, Jeff covers practically all aspects of accomplishing a DER in general. His aim is to inform the reader of all of the options available for their personal situation. So while he describes the specifics of performing the renovation from the exterior of their house, he also explains how the same ends could be met through an interior retrofit. The goal in all of this work is to greatly improve comfort and energy efficiency through adding insulation, sealing out air leaks, and reducing thermal bridging throughout the exterior envelope of the house. This includes foundations, floors, walls and roofs. The Wilsons managed to reduce the cost of the energy used in their house by 85% with the modifications they made, which included the replacement of some inefficient appliances. While they were in the disruptive process of renovation, they decided that this would also be a good time to make a needed addition to their house, providing garage and office space. This led to completely changing the angle of part of their roof, and this made it possible to conveniently add solar electric panels on that roof. They mitigated the cost of the photovoltaic system through tax and renewable energy credits. Jeff does mention how passive solar retrofitting can increase efficiency, bringing in sunlight to help heat your home, but he never explains why he opted not to do this in his own DER project. I would have preferred more emphasis on passive solar design, particularly given that a major home renovation can often benefit from this. Likewise, the role of thermal mass within the thermal envelope of the home is not adequately discussed. I feel that any house can be improved thermally with the strategic distribution of thermal mass, even when passive

solar windows are not employed. I appreciate the depth of detailed information provided in this book and recommend it to anyone considering taking on a home renovation project and would like to make their home more energy efficient.

"The Greened House Effect" is the inspiring tale of one man retrofitting insulation on one house. It is not a treatise on the subject. Not covered is the psychrometric calculator which allows one to predict the temperatures and humidity levels within a wall. The author is very fond of "cold side vapor barriers" which trap water within a wall (NOT good). He then states that it won't hurt a house to store 50(fifty) gallons of water within the walls of an average home. What? Store a half a gallon of water in each of the 100 stud cavities of an average home? See if you can find an indoor air quality expert or structural engineer who thinks that's a good idea. Also missing is at least a chapter on insulation properties and costs. "Insulation\_Handbook", by Richard Bynum, Jr., c2001 contains the information you'll need. The author of Greened House Effect explains the properties of open-cell and closed-cell spray foam insulation, but never in the course of this book does he state which type he uses in which location. The reader is left to guess-- or learn to make his own design decisions, or as the author states: Hire someone who can advise you. This author is not providing design guidance. He is only telling the tale of his insulation retrofit. On page 149, the author claims that the tightest air seal possible is made with a layer of OSB. I would suggest a layer of 6mil poly (LDPE) which is ten times tighter in terms of moisture permeability and when the edges are sealed and it is physically supported, you can build a vacuum chamber with this stuff. I agree with the author that one wants as tight a house as possible, and then supply fresh air through a heat exchanger. On page 94, the author goes on and on about thermal bridging and how to stop this with thermal breaks while referencing a thermal image of a completely UN-insulated house. Anyone who has seen thermal images would have spotted this mistake. Your reading list should include "Insulation Handbook" mentioned above and "The Superinsulated Home Book" by JD Ned Nisson, Gautam Dutt, c1985 and perhaps "Super Insulated Retrofit", Argue and Marshall, c1981. Where I totally agree with the author is his conclusion that the US military is scattered about the globe, securing our "interests", which we squander by means of inefficient vehicles and inefficient homes. The author wants us to "sacrifice" by fixing up our homes so we can live cheaply in warm and comfortable homes. This is not too much to ask. As the author demonstrates, insulation retrofitting is very much a DIY project.

This guy is hard core. He takes an older home in southern OH and does a complete green

makeover. Nothing is left untouched. I am impressed. If you are into energy efficiency and denying excessive profits to utility companies, this is your (and my) kind of book. He showcases and highlights new methods and technologies that I was not even aware of. It is so refreshing to see just what some fantastic, forward thinking companies and individuals are doing to lessen our dependence on fossil fuels. As he does this he explains the physics and concepts behind these refits and why they make sense. I have done about as much as I can within the economic limits that our household lives under. If I had a much fatter wallet and a lot more time I would certainly try to emulate many of the alterations Wilson showcases in this book. So far we have taken the plunge automotively, Volt and Prius, and done away with the usual small change energy wasters. Once our old appliances retire we shall surely spend a little more for energy star rated units. For those who are blessed with deeper pockets, more time and are a little handier, this book should give you a plethora of ideas to stay warm and cozy and send less to the carbon crooks. Great read. Kudos to Mr. Wilson. For those who think that this new tech is way too pricey, Jeff lists some nice government programs that could help defray your personal outlay. What's not to like? Tis the future, folks. Embrace it. Your children will thank you!

I bought this book hoping that I would find some "how to" information but it is all written in the story of building their house. I appreciate the story and following what they did, but I was hoping for some hard facts and lessons learned.

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