

About the Film

The Mission

To increase understanding about energy use in buildings by introducing a proven construction standard that reduces CO₂ emissions by 80% and help make Passive House *the* standard for energy-efficient building in the U.S.

The Message

Passive House: A Building Revolution emphasizes the importance of decreasing CO₂ emissions by 80% before 2050 and proposes a solution: Using the Passive House methodology and standard to reach very high, but achievable energy and CO₂ reductions and efficiency goals in existing and new buildings.

The film showcases Passive House innovators from across the country – architects, builders, and home owners, as they share their experiences of building a Passive House or doing a deep-energy retrofit.

Passive House Innovators in the Film

Katrin Klingenberg, Architect and Founder of the Passive House Institute US (PHIUS)

Wolfgang Fiest, Ph.D., Physicist and Founder of the PassivHaus Institute (Germany)

Eugene Murphy, Research Director, Arthur Morgan Institute for Community Solutions

Tad Everhart, Andrew Kline, Gunter Lang, Rachel Wagner, Ward Lutz, Roy Eastman, Jonathan Brown, and more

The Timeline

Final cut will be released March/April 2013.

Directed by Faith Morgan

Produced by the Arthur Morgan Institute for Community Solutions

Passive House A Building Revolution



Photos: Faith Morgan and MoSA Architects

Passive House

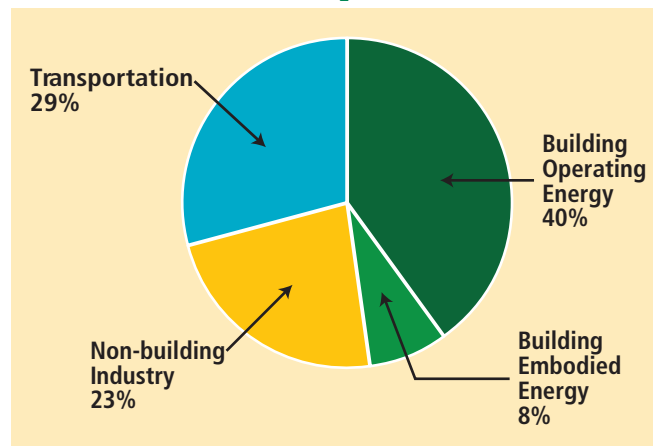
A Building Revolution

A new documentary from the producers of the award-winning film *The Power of Community: How Cuba Survived Peak Oil*

The Issue

48% of all the energy used and CO₂ generated in the United States comes from the construction and daily operation (heating and cooling) of buildings.

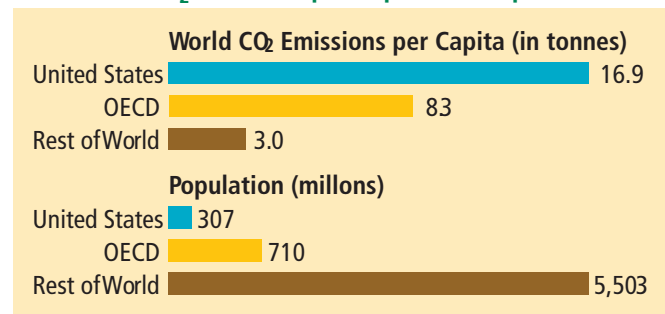
Energy Consumption and CO₂ Generated in the U.S.



The 116 million dwellings and five million commercial buildings – the biggest single energy user in America, need to be made more energy efficient to help mitigate the consequences of climate change.

Most climate scientists and national governments agree that by 2050 we must eliminate 80% of our CO₂ emission to help stabilize Earth's climate.

Worldwide CO₂ Emissions per Capita and Population



To achieve this goal, the U.S. needs to set high energy reduction objectives for new and retrofitted buildings.

Green Building Limitations

“Green” and other energy efficient building programs make up only a small percent of all buildings constructed between 1999 and 2011. Of the 18.7 million homes built during this time, only 1.4 million were either green or energy-efficient. Their energy savings objectives range

from 15% to 40%. In the years ahead, most will need to be retrofitted to meet future energy reduction targets.

U.S. "Green" and other Energy-Efficient Buildings¹

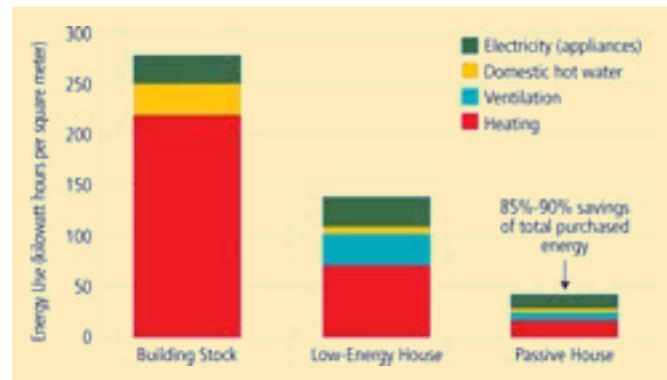
Total Occupied Residences in the U.S.	116,300,000
Residences Built between 1999 and 2011	
Conventional	18,690,000
Total "green" or energy-efficient	1,406,820
"Green" Residence Breakdown	
Energy Star (15% energy savings)	1,301,000
Building America (30-40% savings)	51,720
Other: state and local groups (15% savings)	40,000
LEED & NAHB Green (15-35% savings)	14,100

¹ Data from Census Bureau and Building Energy Data Book

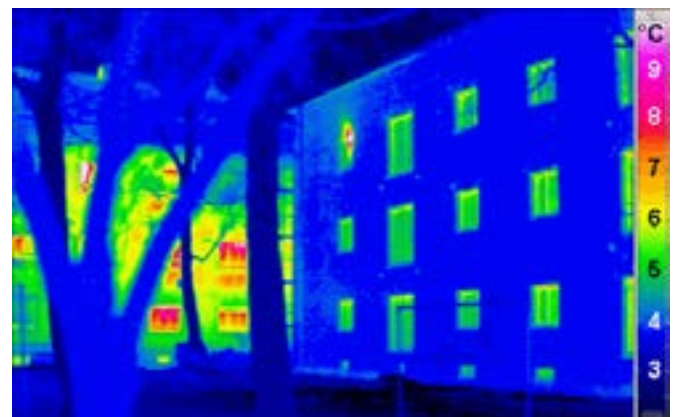
Toward a New Standard

Most of the energy used in buildings is used for heating and cooling. By adding super insulation, air-sealing, triple-paned windows, and whole house ventilation, the 80% energy reduction of Passive House exceeds by far even the savings of our current energy-efficient buildings.

Passive House Reduces Energy Used by 80%



We can make enormous cuts in domestic energy consumption and CO₂ emissions by using the Passive House standard for all structures.



The dark colors show how little heat is escaping from the Passive House on the right, compared to the traditional building on the left.

Comparison of a Built-to-Code Home, a LEED Home, and Passive House Home²

	Home Built to Code	LEED Home	Passive House-1 10% more
Sales Price of 2,400 sq. ft. Home	\$300,000	\$308,500	\$330,000
Increased Construction Cost	0	\$8,500	\$30,000
Energy Saving (%)	0	30%	75%
Annual Costs			
Annual Energy Costs	\$1,800	\$1,260	\$450
Annual Energy Cost Savings	0	\$540	\$1,350
Lifecycle Analysis			
60 Year Energy Cost Savings (No Energy Price Increase)	0	\$32,400	\$81,000
60 Year Energy Cost Savings (4% Annual Energy Price Increase)	0	\$128,515	\$321,287
Annual CO ₂ Generated (lbs.)	26,000	18,200	6,500
Annual CO ₂ Reduction (lbs.)	26,000	-(7,800)	-(19,500)
60-Year CO₂ Emissions Reduction (lbs.)	1,560,000	- 468,000	- 1,170,000

When we spend 10% more in construction to bring a home to Passive House standards, this translates into an 80% savings in heating and cooling, lowering the owner's monthly payments (mortgage plus utility bills).

² *The Green Tragedy: LEED's Lost Decade*, by Pat Murphy, p65