



The Net-Zero Impact Home

Defining “Green” Building

by David & Stephanie Adamson

Let’s face it: I dragged my wife through a 7-year adventure to redefine green building that rivaled Frodo’s journey to destroy the ring. After living in a 450 sq.ft., one-room loft of the back carriage house since May 2001, first together and then with our first son Elijah, all she wanted was “a door to slam,” which was a funny (yet also serious) way to say she wanted a few bedrooms. We could have moved to Martin Acres or Shannah Ridge, added some insulation, bought some RECs and called it good. But no, after 15 years of proselytizing about green building and co-founding 3 green building materials firms in Boulder, I had to prove that I could build a beautiful, net-zero impact, comfortable, and inspirational house on a moderate budget.

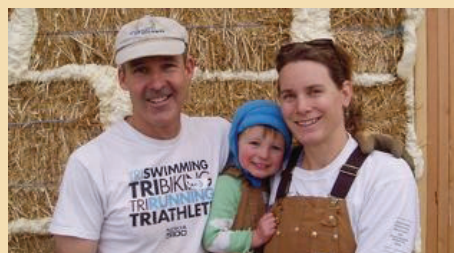
“Okay, fine,” she said as we celebrated her pregnancy with child #2 (then known as “Sweet Pea”) back in September 2006. “But the new house is still going to be finished by spring so we can have the baby at home, right?” “Oh yes, dear, well before that June 5 due date!” Well...we got a temporary Certificate of Occupancy on June 7. Abraham Tecumseh Adamson, showing welcome early signs of listening to his papa, held off until June 13!

While my wife wanted a home, I also wanted a movement: help make all buildings achieve at least net-zero ecological impact. Isn’t this the only truly “green” approach? In our case that meant: 1) reducing ecological loads with natural, reclaimed, and recycled content materials, a highly insulated envelope, passive solar gain, heat recovery, and on-site renewables; 2) measuring the “embodied energy” of all materials; and 3) offsetting the impact off-site with enough prairie and tropical habitat restoration, through contributions to The Nature Conservancy, to absorb the equivalent carbon emitted in manufacturing the materials and throughout construction (still in process; for more information on this approach

see Victor Olgyay’s article: www.unige.ch/cuepe/html/plea2006/Vol2/PLEA2006_PAPER965.pdf).

In addition to 1500 sq.ft. for our family, there’s also 300 sq.ft. for the EcoBuild environmental materials rep and consulting firm office, 1000 sq.ft. for a ground-level grandparent suite and 300 sq.ft. for shared laundry and storage. The 600 sq.ft. of decks off the kitchen/living/dining area upstairs are also intended to offer future “common house” facilities for a neighborhood cohousing/resource-efficiency-district prototype and community meetings. An ample front terrace invites connection with passersby and is an outdoor meeting space for the office. The existing back carriage house provides additional housing in a neighborhood well-suited for density.

We had a fantastic team to make this idea a reality, among them architects Victor, Vikram and Ashley of Rocky Mountain Institute and Brian Fuentes of Fuentes Design, builder Doug Parker and super Jon Kinstad of Big Horn Builders, Ryan Chivers and Phil Metzler of Artesano for plasters, as well as Feng Shui consultant, Carole St. Germaine and artist Juliana Forbes to help make it a harmonious and beautiful building. Most inspiring, we had over 100 volunteers stack strawbale walls, apply earthen plaster, and perform other miracles. The final cost including PV and decks is just under \$200 sq.ft. of finished interior area. Let us know what you think and how we can work together to make buildings truly green!



David and Stephanie Adamson

Year Built: 2007

Home Size: 3000 sq.ft.

Contractors:

SolSource (see ad on page 14)

Big Horn Builders (see ad on page 14)

Rocky Mountain Institute

Fuentes Design

Home sponsored by:



ENERGY FEATURES

- 8.5 kW PV system
- Furnace-free passive design with high-mass concrete floor and earthen plaster
- Energy-recovery ventilator
- RECs
- High-efficiency electric hot water pre-plumbed for solar if needed
- Tuned low-e triple-paned windows and maximum daylighting
- Rigid exterior and blown 30% soy polyurethane and cellulose insulation (R30 garden level walls; R45-50 roof areas)
- Pin CFLs
- Energy Star appliances

GREEN FEATURES

- FSC/engineered/reclaimed wooden structure with strawbale infill covered with earthen stucco
- High fly ash concrete walls and slab
- Earthen plaster interior walls (gypsum and clay)
- St. Astier Natural Lime waterproofing and paint
- Nature’s Carpet natural latex carpets, cork flooring, wheat-straw particle board
- Trex decking

WATER FEATURES

- Water directed from roof into planters and garden
- No impermeable paths or landscaped surfaces
- Permaculture and restored native vegetation
- Significant exterior planters and “green walls” to provide shade and soften structure

RE-USE/SALVAGE FEATURES

- Immix pavers made from 80% recycled Stapleton runway
- Colorado aspen and reclaimed glulam millwork