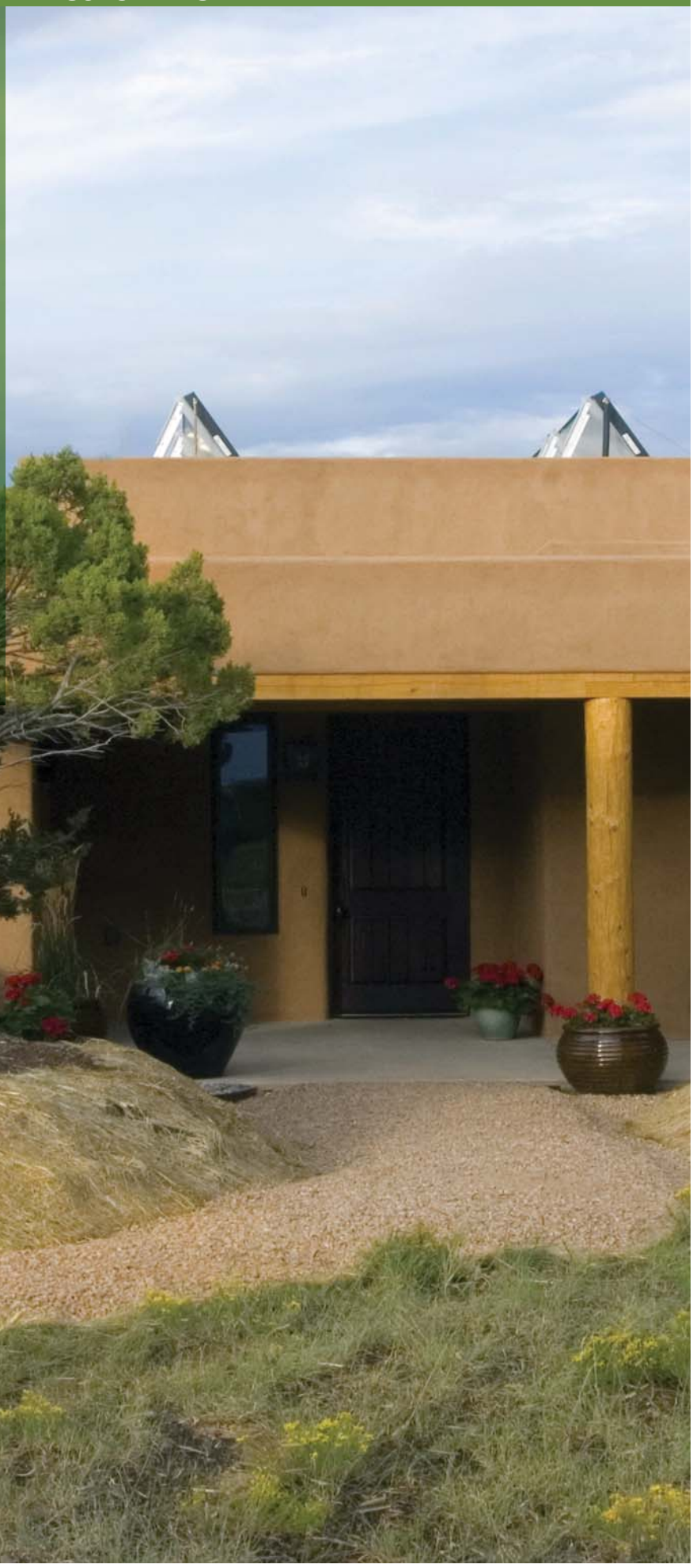
CHAPTER PROJECT PROFILE

TUCKER RESIDENCE
SANTA FE, NM

100% of irrigation water provided by rainwater collected in a cistern

35% reduction in domestic water use

Certified HERS **12** index



LEED® Facts
Tucker Residence
Santa Fe, NM

LEED for Homes
Certification awarded Feburary 2009

Platinum 99 pts awarded*

Innovation & Design	5.5/11
Location and Linkages	4/10
Sustainable Sites	16/22
Water Efficiency	10/15
Energy and Atmosphere	36.5/38
Materials and Resources	7/16
Indoor Environmental Quality	18/21
Awareness and Education	2/3

**Out of a possible 136 points*

TUCKER RESIDENCE

First LEED Platinum Home in New Mexico

A Compromise of Tradition and Innovation Set an Exceptional Sustainable Standard

PROJECT BACKGROUND

While our clients enthusiastically teamed up to achieve as sustainable a home as possible without subordinating traditional real estate values—views and traditional Santa Fe style, our primary intent was to achieve a high LEED certification. We accomplished this without passive solar building orientation that would have compromised the prized mountain views and thus have significantly undermined the home's market value.

STRATEGIES AND RESULTS

One of the core concepts upon which we focused: most people in America don't have good solar access. While this idyllic 2.5 acre ridge-top lot does have that, it also has Northeasterly mountain views. We could have easily accomplished a high passive solar contribution but our intent was to capture the valuable mountain views from all major spaces in the house as well as achieving a high LEED certification and Build Green NM certification without passive solar. To design the home with a long axis facing south, hence turning away from the panoramic mountain view to the East North East, would have degraded the home's real estate value . So the challenge became how to reach verified high performance without passive solar.

Another major goal was to create high ambient natural light levels. The MBR has high awning windows facing SE and an exterior glass door flanked by casements for views and light and for cross ventilation producing the desired effect. The MBR bath has substantial window area for its size (all operable) facing SE and NE. The Great Room has clerestory windows (7 @ 14" x 22") located close to the ceiling. This raises the ambient light level. The remaining 2 bedrooms have windows on 2 walls for cross ventilation. In fact, we deliberately minimized windows on the SW (front) wall to reduce solar gain in the summer. Existing juniper trees were retained to shade the front entry and kitchen windows which face SW.

We wanted this home to demonstrate that passive solar features, while desirable, are not mandatory in order to achieve a HERS 60 before active solar by using proven conservation strategies, mostly common sense reaching for the "lowest hanging fruit on the tree" first. To accomplish tgus HERS 60 or less before installing active solar applications, we:

- integrated a HERS Rater and LEED Provider from the start of the design process,
- super-insulating and air-tightening the shell, employing thermal bypass mitigation strategies, installing a Viessmann 95 % efficient condensing gas boiler, and using a simple low-cost solution for whole-house indoor air quality: exhaust fans with constant negative air pressure balanced by passive air inlets.

Our clients, incentivized by the New Mexico Sustainable Building Tax Credit, then decided to integrate substantial renewable energy input with Viessmann solar thermal collectors, driving the HERS rating down into the mid-40s—a seamless addition to the already solar-ready Viessmann radiant heating system. Then they added 3 kW of PV collectors to drive the HERS rating down to 15 with the final Blower-Door test driving it down to 12.

Other core strategies included installing 100 percent rooftop rainwater collection into a 5,000-gallon cistern for drip irrigation, separating gray and black water under the slab for future recycling back to the toilets.

ABOUT THE TEAM

Kreger Design Build LLC is the winner of 2006, 2007, 2008 Green Builder Awards in Santa Fe Parade of Homes. Larry Gorman of Building Energy Solutions was our HERS Rater. Donny Dorton and Andrea Fair of Guaranteed Watt Savers were part of the LEED Provider team.

"We never visited the house once during construction. We saw it for the first time shortly after it was completed and fell in love with it. We plan on living in this house for the remainder of our lives, and look forward to doing so"

Rocky & Patricia Tucker, Owners

Builder: Kreger Design/Build
Owner: Patricia & Rocky Tucker
LEED Provider Team: Guaranteed Watt Savers
HERS Rater: Building Energy Solutions
Project Size: 2300 sf
Floors: 1
Number of Bedrooms: 4
Total Cost: $612,500
Cost per Sq Foot: $266

Photographs Courtesy of: Robert Reck

ABOUT CHAPTER

The USGBC - NM Chapter is a local non-profit with a mission: to transform our built environment through education, collaboration and outreach, to promote environmentally responsible practices that are economically and socially beneficial to the community.

www.usgbcnm.org
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