

The Optimum Performance Home®

Contributed by AIA Knowledge Resources Staff

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SUMMARY

Gary Reber has taken on a difficult project: designing and building a home that follows the guidelines of both universal design and sustainable design. Adding to the challenge, the site is in The Sea Ranch community of Sonoma County in Northern California, where design guidelines are strict and regulations are numerous. Reber hopes the home will be a proof of concept—a home to learn from and study.

The home has become more than a habitat; it is the core of a thriving business trying to educate homeowners and builders about “ultimate home design.” Reber calls it the Optimum Performance Home® as a way to educate and market the concept for future study and discussion. Reber is responding to the growing demand for better-built homes. His home will take into account the environment, energy use, the natural landscape, and, more important, a long lifetime. Moreover, he is designing the spaces considering the home occupants from birth to old age, a concept known as universal design.

UNIVERSAL DESIGN TAKES HOLD

Universal design is the second wave of a post-WWII concept called “barrier-free” living. The original designers and builders of barrier-free living wanted to create homes for war veterans who needed a place to heal and learn to live with war-inflicted disabilities. Unfortunately, designers of the time did not make the leap from barrier-free to nice-looking, and few of the homes were built because early models were ugly.

The need for homes built with all inhabitants in mind has not diminished, however, and in recent years the residential industry has developed universal design: buildings designed for all people, regardless of age or abilities. Universal design is not a prescriptive process. It does not require a checklist of items or certification. It is a concept that can be followed exhaustively or minimally, depending on the objective.

AARP, a leading advocate for universal design, lists five common features of the concept on its Web site.

- **No-step entry.** No one has to use stairs to enter the home.
- **One-story living.** Places to eat, bathe, and sleep are all on one level.
- **Wide doorways.** Doorway design takes into account the width of wheelchairs and walkers.
- **Wide hallways.** Hallways are wide enough for easy access between rooms.
- **Extra floor space.** Open floor space allows for greater comfort and mobility.

Reber's Optimum Performance Home incorporates all of these features plus lever door handles, flush thresholds, and grab bars in bathrooms.

SUSTAINABLE DESIGN ADDS VALUE

The Optimum Performance Home, when built, will connect universal design with sustainable design. The home is designed to conform to the standards of many of the prominent green-building rating systems in the United States: the U.S. Green Building Council's LEED® for Homes Platinum rating, the U.S. Environmental Protection Agency's Energy Star Program, and the American Lung Association's Health House program. The home will also meet the requirements of the National Association of Home Builders's Model Green Home Building Guidelines, the Sustainable Buildings Industry Council Green Building Guidelines, and the “Green Points” program of Sonoma County.

Among the outstanding sustainable-design accomplishments of the Optimum Performance Home are these:

- Energy will be produced from four different energy sources: geothermal, solar, wind, and propane.
- The driveway and walkways are a pervious ground surface.

- The pond floor is sealed with vegetable polymer.
- The home has an underground rain-water harvesting system.
- Building Performance
- Sustainability
- Sustainable Research

Along with the more conventional ideals of green design, the home incorporates “biophilic” design. This relatively new term (a cousin to green design) focuses on the importance of connecting humans with nature. Humans evolved in settings with strong connections to water, plants, and fresh air. Studies conclude that humans are more apt to let their guard down and release stress in more natural settings or settings that look to nature. The Optimum Performance Home takes advantage of biophilic design with the placement of the home on the site and views of the landscape.

About the Presenter

Gary Reber is the president of Ultimate Home Design Inc. and editor-in-chief and publisher of *Ultimate Home Design*. He is also president of WSR Publishing Inc., which publishes *Widescreen Review*. To learn more about the Optimum Performance Home, visit Ultimate Home Design.

RESOURCES

For More Information On This Topic

See also “Accessibility Compliance” by John P.S. Salmen, AIA, and “Sustainable Building Design” by Muscoe Martin, AIA, in *The Architect’s Handbook of Professional Practice*, 13th edition, Chapter 18, pages 551 and 656, respectively. The *Handbook* can be ordered from the AIA Bookstore by calling 800-242-3837 (option 4) or by sending an e-mail to bookstore@aia.org.



More Best Practices

The following AIA Best Practices provide additional information related to this topic:

- 18.11.10 Energy Modeling and Daylighting Analysis
- 18.11.12 The Living Building Challenge
- 18.11.06 Watch Out for the Potential Pitfalls of Green Design

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Key Terms