

## Larry R. Hartweg

### Contact Data:

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**In 1979, Larry Hartweg constructed his own 5,000 sq. ft. near-Zero Energy Home**, and swam in its 38-foot 90° F indoor pool, with no heating bills when there was 10° snow outside. It also kept itself cool and comfortable when the peak outside temperature broke a record at 110° F. The **passive solar heating AND cooling design** effort was a relatively EASY task for this unique **Second Generation Energy Research Scientist**. He quickly became the **largest exhibitor and most-popular speaker at the National Energy Expositions**. The meaningful Trade Mark for **Zero Energy Design, Inc.** is:

*“Abundant Energy in Harmony With Nature”*

Larry has designed hundreds of Near-Zero Energy (and no-carbon-emission) buildings, constructed from Australia to the USA to Canada. 70% to 90% of why they work so well is **Superior Energy Efficiency Technique**. He calls his unprecedented insight, proven track record, and design pattern heuristics **“Holistic Systems Engineering,”** which are documented in great detail in his **800-page “Zero Energy Design” book**, and over 400 slides in the **Three Decades of Lessons Learned** DOE / ORNL full-day workshop, December 7, 2007. **ZED is arguably the NUMER ONE SOLUTION to the NUMBER ONE PROBLEM facing the world today.** Larry’s **Compelling Vision For a Bright 21<sup>st</sup> Century** is now far beyond what he proved to be Very Cost Effective Decades Ago.

Hartweg briefly introduces *realistic* near-future alternative energy source developments, and then elaborates in detail about easy-to-implement **Zero Energy Design** ideas, new materials, and his own design patterns throughout the **ZED** book and **Three Decades of Lessons Learned** presentation.

Larry Hartweg’s Energy Research Scientist father held a nuclear material handling license, and patents for remote nuclear monitor-and-control systems. He brought a lot of energy-related equipment home (including nuclear power sources) for his son to understand. Thomas Edison said: **“To invent, you need a good imagination, and a pile of junk.”** Larry’s father gave him wonderful scientific “toys” to play with, taught him to respect Edison, Einstein, Tesla, Walt Disney, AND *How to Invent*.

Larry constructed, understood, and presented a nuclear cloud chamber for his Jr. High Science Fair. It demonstrated Einstein’s Unified Field Theory “Weak Force”, which describes nuclear radioactivity. His university had a grant to develop the hydrogen fuel cell for use in cars. As an undergrad, Hartweg won first place in his university’s Engineering Science Fair. He did post-graduate leading-edge studies at Stanford University, and directed corporate development funding for Stanford. Today, he maintains his interest in Quantum Physics and Alternative Energy Research, but his primary focus is **Cost-Effective, Pragmatic, Zero Energy Design implementation** – Super-Efficient Abundant-

Energy Buildings that inexpensively produce as much power as they consume. He explains that *“America does NOT have an energy technology problem today. What we lack is agility and education about Zero Energy Design principles that were clearly demonstrated years ago.”* Compelling Zero Energy Buildings are challenging to design, but relatively easy to construct – They are just VERY DIFFERENT from traditional industry inefficiencies. Some can even cost LESS per square foot than conventional construction – as low as \$60 per sq. ft. in low-income-home-addition quantities.

*"Discovery consists of seeing what everybody has seen and thinking what nobody has thought."*  
- Albert Szent-Gyorgyi, Research Scientist

Hartweg's professional developments have generated **Multiple Billions of Dollars in Revenue**, while lowering costs for consumers, and helping to improve the Earth's delicate environment. You will be very pleased with his unequalled comprehensive compilation of **Three Decades of Lessons Learned**. Many of Hartweg's distinctive **Zero Energy Design** specifics are **available from no other source**. The most powerful lesson that Larry's father taught him has motivated his aggressive successful life:

**“Lifelong Learning in an Ever Expanding Universe of Endless Possibilities.”**