

Lawrentian

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Doing Your Homework

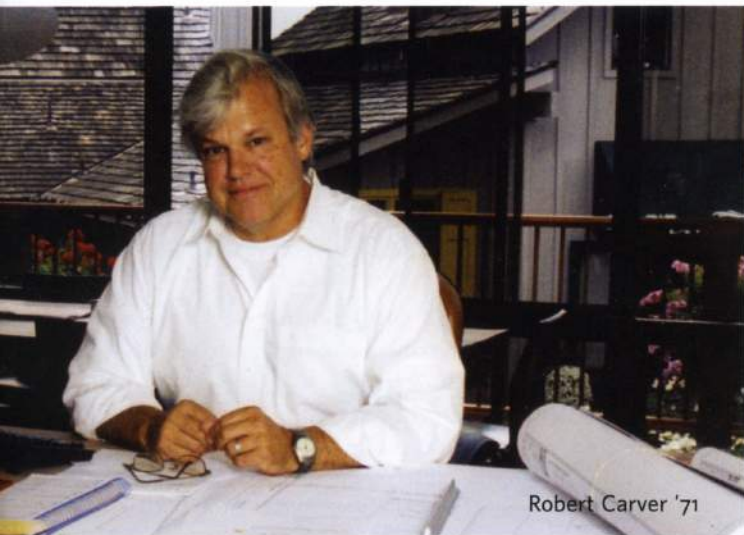
Smart renovations are saving Lawrentians big bucks.



Michael Eisner '60 on Mickey | Vern Loucks '53 on Segway | Chi Modu '84 on Diddy



The Taylor House, located in the middle of a redwood forest, was arguably Rob Carver's greatest architectural challenge. The foundation was hand dug to avoid interfering with root systems, timber for the project was harvested from fallen trees, and the home's steel exterior was chosen specifically because the rusted metal mimics the appearance of redwood trunks.



Robert Carver '71



The sod roof on Rob Carver's home.

The epitome of green architecture for Carver was a recent Carver & Schicketanz project in the middle of an environmentally sensitive California redwood canyon that required builders to laboriously hand-dig the foundation to avoid interfering with nearby tree root systems. The finished house floats about two feet above the ground on narrow steel beams. The wood used for the structure was “old growth,” meaning that redwoods that fell in the forest by natural means—but had not yet begun to rot—were harvested for the lumber. The finished house was encased in a steel skin that was designed to be evocative of redwood bark. Inside, the home is decorated with all natural fiber carpets and nontoxic paints. It also includes nifty engineering innovations such as a garage that employs a lift and turntable design in order to stow three cars in what appears to be space for only one, as well as an automatic fire spray system that temporarily protects the house in a region vulnerable to conflagrations.

“It was a very sensitive site,” Carver states. “It took us ten years to get the permits.”

That, of course, is the extreme of green home building. Others, such as Aresty, designed his home with an eye toward saving on fuel bills and showing off the practical applications of his company's products.

Aresty is the founder and owner of Solar Energy Corporation (www.solec.org), a Princeton based firm that deals not in the solar panels, but in the heat absorbing coating that goes on them. Ninety percent of the solar panels in the U.S. use Solar Energy Corporation's SOLKOTE selective coating and the product is in use in 30 other countries.

Aresty's home is a passive solar house with active elements. The passive end is, in large part, made up of windows. Double panes of insulated glass with argon gas sandwiched in-between run from the floor to the ceiling and then continue onward and upward, partly cutting into the 45 degree roof line. The

windows not only welcome heat, but also light; even on cloudy days, Aresty rarely has to reach for a light switch. The floor, another element of the passive solar system, is made of soft, red brick (“a good color for absorption,” he says) which captures and holds the heat from the windows and releases it after the sun goes down. “This thermally stabilizes this part of the house,” Aresty explains.

But where are the solar panels? One floor up, Aresty points them out. Almost entirely hidden along the roofline of the garage, the panels are used to collect energy that is used to heat the house's water. Solar is not capable of being the sole energy source for heating water (we do have cloudy days after all) so a traditional backup system needs to be in place, Aresty estimates that the panels handle 50% of the job. Today's solar, as well as other forms of alternative energy in use these days all work in tandem with more traditional sources, such as oil and gas.

The solar panels Aresty uses are thermal panels, used exclusively for heating. The other panels, designed for electricity generation, called photovoltaic, are not installed on the Aresty home. The reason boils down to the energy conversion factor; thermal panels hover at around a 40% level of efficiency while the photovoltaic are about 15%. In other words, for photovoltaic to make an effective difference, more roof space is required. Aresty regrettably notes that his roof only has room for the thermals.

Bob Hillier '55, the founder and president of Hillier Architecture (www.hillier.com), the fifth largest architecture firm in the U.S. (and also the designer of Lawrenceville's own science building) however, marvels at how photovoltaic panels are “increasingly more efficient and prices keep dropping.” He, as well as Carver, has designed buildings that utilize solar panels for both heating and electricity. “The market demand has really increased,” Hillier says.

The government incentives also make photovoltaic panels worth a second look. New Jersey, for example, has the most liberal solar rebate in the country, offering to pay up to 60% of the cost of photovoltaic panels through the state's energy fund.

An energy efficient home, however, begins and ends with good insulation. Exterior walls with six inch studs (instead of the traditional 2x4s), provide more room to stuff insulation and are increasingly common in contemporary construction. Aresty made sure he used them in his renovation and Hillier commonly uses them in his own designs.

John Bailey, the Prius owner, recently completed his own home renovation in Ketchum, ID, and was also unwilling to