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CELEBRATING 55 YEARS

Question of the Month: Can green building techniques be incorporated into historic renovations?

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There is no question that "going green" is a top priority in architecture today. Whether you live in the commercial, institutional, or residential worlds, you'd be hard pressed to run into someone these days who is not interested in sustainable design and renewable energy. But if you think about it, historic restoration was way ahead of the curve; it was really the first "green" construction. Instead of throwing buildings into dumpsters and landfills, preservationists have been taking advantage of all of the latent energy present in existing buildings. Of course there were emotional, cultural, aesthetic, and financial considerations involved, too. But in re-using old buildings, we are making a positive contribution in terms of the environment.

Since the energy crisis of the 1970s billions of dollars have collectively been invested in making America's historic buildings more energy efficient. This work has included efforts to both conserve existing energy resources with improvements to the building envelope with the addition of insulation, weather stripping, and the like and to reign in future energy consumption with high-efficiency heating and cooling systems.. This investment has been returned manyfold in terms of lower energy and operating costs.

Our best clients are those who share our interest in energy conservation, For instance, we've been extolling the virtues of cellulose or expanding foam insulations (such as Icynene) for well over a decade when the norm in the industry has been fiberglass batt insulation. We're proud of the fact that nearly every client we've served in the past decade has chosen to go with one of these better alternative upon learning how both cellulose and foam outperform batts by a wide margin in terms of energy conservation and comfort. The difference they can make in a 100 year old Victorian house is literally staggering.

Today, however, many people want to do even more. Some were frightened, frankly, by the sharply rising cost of energy last year. With heating oil costing over $4/gallon, property owners were hit hard and nervous about how high prices would go. And although prices have come down since then, most experts agree there is still a great deal of uncertainty regarding energy costs.

Global warming is a great concern to many people and I find that many of my clients just want to do the right thing for the environment- sometimes even if it will cost them more.

Whatever the motivation to take back control of our energy consumption, we have seen a tremendous upsurge in the interest in alternative energy sources. Clients are increasingly asking about renewable energy sources such as solar and geothermal. In fact, we are currently installing both solar electricity systems and geothermal systems on our two largest renovations right now.

Yes, renovations- not new construction. Renewable energy systems can cost-effectively be installed into existing structures - even those dating back hundreds of years, so long as the cost can be amortized over the years, like any other capital improvements.
Let's take a closer look at these two types of systems.
Geothermal systems use the near constant temperature from deep in the ground to provide heating in the winter and cooling in the summer. In New England this means drilling a well somewhere between 500 and 1,500 deep. The water is sent through a heat pump located in your basement which extracts the heat and sends it on to the heating system where it is delivered as hot air. In the summer, the process is reversed and heat from the house is dumped into the water and sent back into the ground, and cool air is delivered to the ductwork.

A residential geothermal system will typically add at least $50,000 to the cost of a renovation project.

Solar energy, of course, is more familiar to many of us. The radiant energy from the sun can be used to heat domestic hot water and to create electricity. You can expect to pay at least $10,000 for a hot water system, and $20,000 or more for a photovoltaic (solar electricity) system depending on the energy needs and the amount of available sunlight.
Payback periods vary for each technology, with solar hot water at the low end (4-6 years), geothermal systems in the middle (7-10 years), and solar photovoltaic systems at the upper end (15 years or more).

Is it worth it? That depends on the client's expectations and willingness to wait many years for a return on investment. Now is an excellent time to explore these systems because there are rebates available from the energy companies and tax credits available from the government.

Before investing in any of these new systems, however, it makes sense to do the basics first:

* Insulate with the right material: We recommend either cellulose or expanding foam insulation.

* Insulate in the right locations: We recommend insulating the slope of the attic roof instead of the attic floor. This ensures that any HVAC and plumbing components are within "conditioned" space.

* Address your door and window openings: We recommend keeping and weatherstripping old doors and windows instead of replacing them, if at all possible. Properly weatherstripped windows with good storm windows are as energy efficient as new double glazed windows.

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