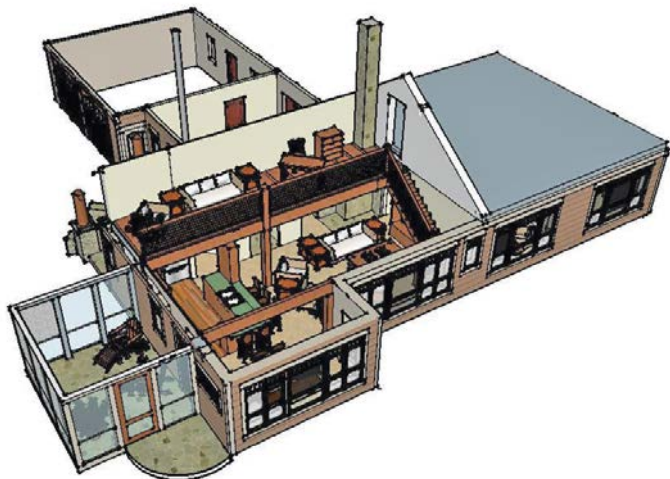


Building Efficiency

Stock or Custom Solar Plans?



Home Power spoke with architect and author Debra Rucker Coleman, who designed the RISE house (featured in this issue). Coleman specializes in passive solar design and offers more than 50 “sun-inspired” designs through her website at sunplans.com. Here, Coleman shares her best advice for building a passive solar home.

Home Power (HP): With pre-designed home plans now readily available, is it even necessary to work with an architect these days?

Debra Rucker Coleman (DRC): Pre-designed plans are a wonderful resource, but they’re really just a starting point. A key objective in striving for sustainability is designing a house to be as small as possible while still meeting your needs. Most homeowners typically do not find a pre-designed plan that fits their needs perfectly. Often the homes are either too small or too big, and when faced with the choice, most people opt for bigger. However, it is shortsighted to decide that an architect’s fee is unaffordable and then purchase a pre-designed plan for a larger home, since the extra construction costs will easily exceed the fee for a custom design that would better fit your needs. Enlisting an architect to create a smaller home can reduce construction costs and the home’s lifetime energy costs by many times the architectural fee.

There’s also a middle-road option: Save money by hiring an architect to adapt a pre-designed plan. Working from an existing plan is far less expensive than a custom, start-from-scratch design.

HP: What is your best advice for someone starting the design process?

DRC: Keep the complexity of the design in line with your budget. Creating a home plan or selecting a pre-designed

home plan that is too complex in shape and style can lead to high construction costs. Your builder can provide early and valuable insight into the labor and materials costs, and help keep your plans grounded. It is equally important to have an architect that understands and respects your budget.

HP: What is a common mistake people make when working with pre-designed plans?

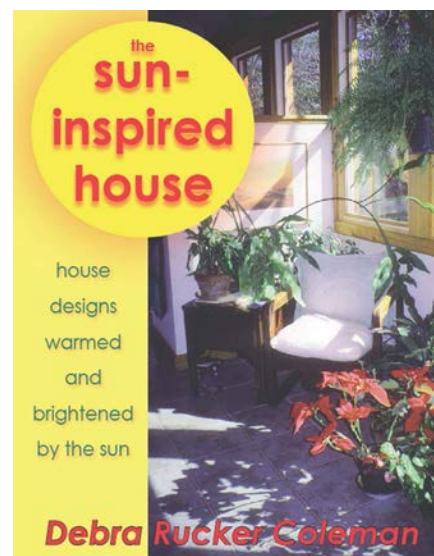
DRC: People often think that the house plans contain everything they need to begin building. For those engaging an architect, the house plans are a milestone in the planning process—the end result of weeks or months of planning and thinking. However, if you choose to purchase a pre-designed plan, the drawings are merely the start of the planning process. You will need to study and analyze the plans with your builder, and determine if you need to make any possible changes due to budget restrictions or local codes.

A knowledgeable builder steps in where the plans leave off. They know how to modify and adapt for the local particulars, and will be coordinating with material suppliers and subcontractors. They also know when to contact the architect for clarifications or implications of proposed changes. No one builds a home exactly as it appears on paper.

HP: You tend to favor the use of conventional building methods and materials in your designs. Why?

DRC: To make a home easier and less costly to construct, I design with as many conventional construction materials

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Courtesy Sun Plans, Inc.

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and technologies as possible. People often assume that the newest materials and technologies on the market are the best, greenest choices, but what they don't realize is that conventional methods and local materials can be as good, if not better, in some cases. Insulated concrete forms (ICFs) and structural insulated panels (SIPs) offer several advantages, but they might not be available in your area or they might not fit your budget. Conventional building methods can be just as good—it's all about the quality of work, which makes your builder choice especially important. In the case of the RISE home, doubling up the exterior studded walls allowed for additional insulation that fit the budget and performed as well as alternatives.

HP: Speaking of choosing a builder—any advice?

DRC: A home may be designed to be passive solar and energy-efficient, but it is typically beyond the responsibility of the architect to assure that the house performs as designed, especially when site visits may be cost-prohibitive. For example, thick insulation won't work as specified if it is carelessly compressed into cavities or installed with voids, and a high-efficiency HVAC system will not perform well unless it is properly designed and installed.

Choose a builder with experience in energy-efficient construction. If none are available, choose one who seems open-minded and willing to learn. Whether your builder

is experienced or not, hire a third party, such as a home energy rater who is certified under the RESNET program or one who will guarantee that energy bills do not exceed their estimates. Energy raters usually perform blower door tests and supervise the installation of the HVAC system, as well as inspect the insulation and caulking details.

HP: When building a home, homeowners often end up making budget concessions at some point. Where should homeowners absolutely *not* skimp when aiming for an energy-efficient, passive solar home?

DRC: Talk to your builder and architect, and ask for suggestions. Slight modifications to the design could bring your costs down substantially. Buy the most energy-efficient windows you can afford, and don't skimp on insulation and sealing. Perhaps, most importantly, save room in the budget for a third-party home energy rater that will oversee the insulation and sealing of the home. Fees range between \$500 and \$2,000 based on the distance needed to travel, particular design, and services chosen, but it is money well spent. Over a home's lifetime, more energy—and consequently more money—is lost through infiltration than through the insulation, so at a bare minimum, have a third-party rater perform a blower test to identify any leaks in the completed home. The results can be truly eye-opening and save you big in the long run.

—Kelly Davidson

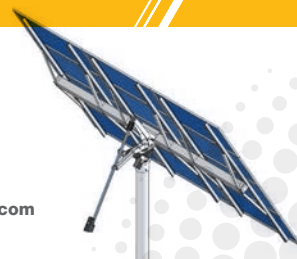
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