A Perspective from the Field: The House as a System

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ABSTRACT

A tour of almost all new homes under construction in northern Arizona will reveal that many cost-effective opportunities to save energy are being missed. Our technology and understanding of how to build a better home are obviously not filtering down to the intended user. As a building science instructor at the community college level, I've been forced to ask, "Why is this message not reaching builders and architects?" Although low energy prices are largely to blame, I'm not entirely satisfied with this explanation. I've come to realize that another part of the problem has to do with the way the message is being delivered. If builders' needs were effectively being addressed, builder education would be more successful than it has been to date. My presentation will focus on the insights I've gained into improving builder education while teaching my class.

The goal of builder education is to affect the way builders think about and build homes. Success should be measured strictly in these terms. Did the builders change the way they approached building and design as a result of a class, workshop, or conference? Success has often been confused with level of interest and participation. Having 80 people attend a workshop doesn't constitute success. The effectiveness of builder education should be based on a builder's willingness to integrate into his or her work the strategies learned through a builder education program. Delivery and course content become much more crucial when success is based on results. If the goal is not being achieved, then there is an impetus to amend the process.

Improving builder education begins by acknowledging the way builders learn. Builders learn in the field, and this experiential approach to education holds true for building science. One can talk about blower door testing and pressure differentials induced by duct leakage, but students won't appreciate what is involved until they participate in actual testing. The field is the reality that builders know and in which they are interested. Consequently, when I can't go to the field, I make every effort to bring the field into the classroom through carefully selected videos and slides and a format that fosters discussion. The importance of this symbiotic relationship between the classroom and field cannot be overstated.

The integration of field experiences into builder training programs is essential. I have found my experience in the field (i.e., building, gasketing, blower door testing, nad duct sealing) to be one of my most valuable resources in the classroom. I rely heavily on my first-hand experience to help make theory as interesting and accessible as possible. The absence of these insights reduces builder education to theory, formulas, and calculations. This academic approach to builder training does not offer a sufficiently dynamic and coherent view of the home for most builders. Fortunately, a new view of the home has been evolving that elegantly combines principles and practice.

The building science perspective offers an opportunity to revitalize builder education. Suddenly efficiency, comfort, indoor air quality, health, safety, affordability, and durability can be neatly synthesized to form a clear picture of how a home ought to perform. This is a very persuasive argument that is relatively easy to substantiate when diagnostic work is part of the curriculum. The beauty of the building science perspective is that it is a way of thinking about homes, not a prescriptive or code-based approach. If taught well, the systems approach can create a very compelling case for change. I know this first hand because most of the builders, architects, and realtors that have taken my course have integrated this understanding into their work.

One of the big challenges of the 1990s will be to successfully transfer the knowledge gained in the research and development community to a larger portion of the building community. This is a tall order in light of current building practices and our complete understanding of home performance. Yet I have found that there is a significant amount of latent interesting issues that can be dealt with neatly by the building science perspective. Tapping and channeling this interest has been the goal of my building science course. The lessons I've learned teaching, consulting, and building offer valuable insights into enhancing the technical transfer process.

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