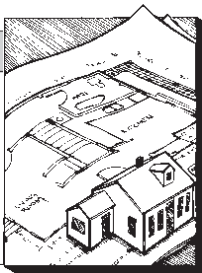


What's It Going to Cost?

by Gordon F. Tully



In my class on custom house design at Harvard's Graduate School of Design, much of the discussion centers on how to spend money wisely when building or rebuilding a house. Here are some of the questions most often asked.

Why Do Building Costs Vary So Much? Very similar houses can range in price from \$50 a square foot to over \$200 a square foot. What is an owner buying at \$200 which is not included at \$50?

There are of course a number of unproductive ways to spend money, such as waste, the cost of inexperience, excessive profit, graft, and theft. Leaving these aside, the useful things money can buy in a house might be arranged in five categories:

Desirable location -- Location is the biggest variable in the cost of construction:

- Labor and materials costs vary from place to place.
- Sites with complex septic and environmental problems cost more to develop.
- Severe code and zoning restrictions or adverse interpretations by inspectors can cost a great deal.
- Ledge, steep slopes, bad weather, high dumping fees, etc. raise costs.
- It costs more to build in booming real estate markets, when there is a shortage of labor or materials.

The typical client for a custom house wants a unique solution and a brisk construction schedule on a low budget.

Innovative or thoughtful design -- Innovative and carefully designed houses often cost more because of:

- Complex details which take longer to put together.
- Complex forms which have more pieces and take longer to build.
- More expensive materials.
- Higher billing rates for designers and builders who are trained in thoughtful design.
- Thinking time by the architect and builder to work things out carefully, instead of compromising on expedient solutions.
- Inclusion of desirable items which are overlooked or

deliberately omitted in cheaper construction.

Craftsmanship -- How carefully a given design is built has a strong impact on the cost, because:

- Careful workmanship takes more time.
- Better and more expensive (because scarce) craftsmen are required.
- Doing something to a high standard often means doing it twice to get it right.

Time -- All other things being equal, faster construction usually costs more because of:

- ♦ Overtime pay.
- ♦ Less efficient scheduling of subs and tradesmen.
- ♦ Less time to adjust to and design economically around errors or missed deliveries; more costly solutions are required.
- Working in all kinds of weather conditions.
- Need for more reliable and therefore more expensive workmen.
- Need for careful scheduling and control, which is often beyond the capability of a small, inexpensive builder.

Insurance -- Experienced designers and builders can, in effect, provide various kinds of insurance by adding things to the construction that are often left out. This makes a house and its components:

- Stronger.
- Longer lived.
- Less likely to have maintenance problems.
- Better able to accommodate the future needs of the owner.
- Cheaper to operate (as in energy-conserving design).
- Safer to live in.

These five aspects can be traded off against each other. For example, time is typically substituted for quality, while good design and insurance items are usually omitted altogether. Few people try to build a really low-cost building in the city.

The typical client for a custom house wants a unique solution and a brisk construction schedule on a low budget. Since both time and innovative design cost money, this approach usually doesn't work. However, some good designers have evolved a stylistic formula which allows some innovation but without the costly uncertainty of a truly unique design.

Because there are so many variables which influence the cost of a residence, predictability becomes a major issue, which leads to the next question:

How Can You Predict What a House Will Cost? A whole sub-industry is dedicated to cost estimating which tries to predict the costs of houses or other buildings.

In the end, however, there is only one way to make the cost of a building predictable: recreate a recently completed building with a known cost.

Developers understand this principal and deviate from a construction formula only for a unique site with a fabulous potential for profit. These sites demand a unique and expensive solution—for example, a downtown shopping mall, high-rise office building or Disney World.

The vast bulk of profitable development involves copying the last project, making a few changes to accommodate the site, to correct errors, or to cut costs further. The cost of an exact copy is highly predictable.

The vast bulk of profitable development involves copying the last project, making a few changes to accommodate the site, to correct errors, or to cut costs further.

As mentioned above, there is a "custom formula" approach, in which some innovation is possible within fairly predictable boundaries.

More typically, one or more members of the team-owner, designer, and builder-think they can have their cake and eat it too. You know you're in trouble when you hear statements like "The cost of this winding stair with turned balusters and extended treads is not all that different from a simple stair with gypsum board railings; let's add 15 percent for the extra thinking time." Such is the stuff that lawsuits are made of.

Since perfect predictability involves copying, the risk of cost overruns or technical failure are always present in unique designs, leading to the next question:

How can you avoid risk in building a unique home? Risk avoidance is a fascinating subject. The details are best left to the lawyers and insurance companies, but in principle, a risk avoided should be a cost incurred. Oh, that it were so.

In truth, the owner holds most of the cards because the owner has all of the money. An owner gets a raw deal on occasion, usually because he chooses not to play all his cards, or doesn't know how. If the owner is a government, it has not only all the money but all the power, and a lot of experience using that power.

Only a designer or builder in great demand, perhaps because of an unmatched reputation for quality or design, can expect to be compensated properly for his or her risk. The rest are forced to quote a minimum fee that does not include enough insurance to pay for the

uncertainty of construction.

The owner naturally sees a very different picture—a huge expenditure riding on the expertise of one or two people. In the owner's mind, the whole venture is full of risks that should be carried by the designer and builder.

For example, a fixed upset limit (guaranteed top price) on the cost of a house protects the owner at the expense of the designer or builder. An upset price is reasonable only if the project is routine and highly predictable. If the project is unusual, or if the owner wants to add to or otherwise change the design, there is a risk that the cost will go up from the initial estimate.

One highly reputable contractor I know deals with this problem by giving the owner on a custom house job an upset price which is substantially higher than his detailed cost estimate. In this way, the contractor makes it clear that he must cover his risk in guaranteeing the cost of the project that is certain to change during construction. An owner, who wishes to realize maximum savings must rely on the builder's reputation for cost control as his guarantee and go with a cost-plus agreement.

Consider the issue of payments. In the usual case, the designer and builder buy materials and pay workers, bill the owner and wait for a month or more to get paid. Throughout the project, the designer and builder are in effect loaning money to the owner.

The owner usually insists on this arrangement because it gives him protection in the event either the designer or the contractor defaults. It allows him immediate redress if he feels ill used, simply by not paying the last bill. No lawsuit or arbitration—just don't pay. It is very hard to recover an unpaid fee from an owner.

The owner is avoiding risk at the expense of the designer and builder, and a proper fee relationship will take account of this. Yet most designers and builders do not explicitly include this cost in the work, but assume it will come out of the profit.

How does the owner avoid risk in an unusual project? The best approach is to choose a reliable designer and builder, sign proper agreements which protect both parties, and stay involved in the project. The worst approach is to bully the designer and builder into carrying risks for which they are not being compensated.

Final Advice

Alas, the world is full of bullies. So I leave you with this advice:

- Identify risks and place a value on them.
 - Avoid risks for which you are not properly compensated.
 - Seek compensation for risks you can't avoid.
 - Do the best work you can, to develop an excellent reputation.
- If you follow this advice, you may sooner or later get a fair deal. ■

Copyright © 1988 by Gordon F. Tully

Gordon F. Tully is president of Tully & Ingersoll Architects in Cambridge, Mass.