

The Business Side of Whole House Design

by Jay T. Deakins

A new builder demographic means increased profit for the component manufacturer. The key is for the manufacturer to sell value in each step of the project.

Congratulations! Your biggest customer just told you that in addition to roof trusses, they now want to buy all of their wall panels, floor trusses, engineered wood products (EWP), windows, doors, loose lumber and trim from you. Open the champagne; give your salesman a raise, pat everyone on the back. Now what does this really mean to you?

For starters, it means that your life just got a whole lot more complicated. Managed properly, your life also just got a whole lot more profitable. Managed improperly, this once in a lifetime opportunity might just put you out of business. Let's put that champagne back in the fridge for a few minutes.

A Little Background

Whole house design has long been the Holy Grail for designers of architectural, truss and wall panel software. The concept of designing an entire structure in one system and generating from that single design all the engineering data, material requirements, cost data and sell prices seems like a simple concept, but has been a long, tedious process coming to reality. People have been talking about whole house design for about as long as people have spoken about flying cars. It will be interesting to see which one truly comes to reality first; right now it looks like whole house design will be the winner by a nose. The good news is that while the engineering systems are still a few years away from truly seamless integration of the whole house process (i.e., roof engineering is done separately from the floors and walls and also maintained in a separate file from other elements), they are close enough today that it is relatively easy for a manufacturer to efficiently manage the entire process.

Where to Start

The starting point for the business side of whole house design is always converting a design or group of designs into a quote or sales order for a customer. Ideally, information will be imported into business software from a single design system. Right now, the information needs to be imported from multiple design systems. While this is less than optimal, it is a limitation which can be dealt with quite easily.

As data is imported into a quote or sales order from the design software systems, it must be arranged in a logical way so that the customer can understand it, and so that it will eventually convert easily into manufacturing and shipping orders. Typically, order detail is arranged into Phases—each Phase is an element of the job that will be produced and scheduled together. Typical Phases for a single family home would look something like this:

- 1st floor floors
- 1st floor walls
- 2nd floor floors
- 2nd floor walls
- Roof
- Loose lumber
- Hardware/interior trim
- Windows/doors

Getting the order arranged this way from the beginning is the key to managing the ultimate scheduling, costing and communication issues downstream. The actual number of Phase groups is not that important and will vary depending upon your specific product mix. The important part is that the order is arranged properly from the beginning so that items which will generally be delivered together are grouped together.

Once the line items are imported into the sales order in this fashion, it can be sent to your customer in a variety of ways. It may be rolled up into one line item, such as a house model and a price shown with no detail. It can also be broken out by Phase or, alternatively, each individual component can be priced. Regardless of how it is communicated to the customer, it is critical for margin analysis by business segment that each base level element of the order maintains a sell price and a cost. If the sell price of the entire structure is changed, it should change the sell prices of each line item by the pro-rata amount of the change. By enforcing this pricing integrity, you will maintain your ability to report on margin contribution for each individual element of your business.

Scheduling & Communication

Once a quote is accepted and changed into a firm sales order, it needs to be split by Phase so that it can be produced and shipped individually. If the Phases were set up correctly, it is simply a matter of having the business software create one individual sales order for each Phase. Each individual sales order will get its own production date and delivery date. A link must be maintained between each of these free-standing orders to monitor the project as a whole. Many manufacturers new to whole house design have struggled to maintain unified communication with their customer. Your customer doesn't want to get a call from your door guy, your window guy and your floor guy all in the same day to discuss the schedule. By maintaining separate, but linked, orders, you can centralize your scheduling as well as your communications with your customers.

Inventory Control & MRP

In the whole house world, part numbers tend to increase exponentially. A typical component manufacturer will have hundreds or maybe a few thousand individual SKUs with an emphasis on lumber in varying lengths, connector plates in various sizes, and maybe engineered wood products. A typical whole house company will have thousands and thousands of SKUs, including all of the parts stocked by a typical component plant as well as items such as insulation, trim,



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shingles, hardware, windows, and doors. The addition of all of these SKUs requires a well-managed MRP (material resource planning) system to assist with the purchasing process. MRP will take all of the bottom level inventory requirements generated by sales orders and subtract that from inventory currently on hand or on order. The result of this calculation is the net available inventory. Typically, the net available inventory is compared to a reorder point, which is maintained for each SKU. If the total net is less than the reorder point an order is recommended for that SKU. The second level of MRP is to do time phased MRP which takes into account when your requirement is actually due and the lead time of your supplier to allow you to order what you need, when you need it.

MRP requires that all of the requirements of the sales order be present at the beginning of the process. This requires all of the lumber and plates that make up each individual truss to be imported into the business system at the time the order is created.

Once we know what to purchase when, our next step is to lean out our inventory. Leaning out your inventory presents one of the best opportunities to save money in lots of ways. Everyone knows that inventory is expensive, but the true costs of inventory are often forgotten. The cost of inventory is far more than the actual financial carrying cost of the inventory. Inventory takes up expensive space and must be counted periodically (even when it never moves).

Start the inventory leaning process by running an aged inventory report sorted by number of days old. Anything that has been in place for longer than the specified number of days should be reworked, segregated into a "bone yard" to

Continued on page 64

at a glance

- ❑ More and more component manufacturers are taking on whole house design due to the demands of their customers.
- ❑ The business side of whole house design starts with converting a design to a quote or sales order.
- ❑ Because part numbers and inventory levels increase significantly with whole house design, a well-managed material resource planning (MRP) system can be helpful.
- ❑ Since some builders set up payment plans according to a project's progression, the progress billing function of whole house design business software must be able to make deliveries without invoicing and create invoices without deliveries.

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The Business Side of Whole House Design

Continued from page 63

be sold at reduced prices, or simply thrown out. This process is much like cleaning the attic. Do not get emotionally attached to your inventory. It is not an heirloom. Use it or lose it. Once this process is completed the first time, make it a part of your process to review the aged inventory every thirty days. This discipline will keep you from gradually returning to your current situation.

Step two of the inventory leaning process is to review your sales and inventory usage figures to find items which are

not moving and eliminate or replace them. After leaning the top level of items that you actually sell, be certain to eliminate the raw materials which are used to produce the top level items which are no longer moving.

Special Order Items

An inevitable result of the increased inventory demands of whole house design is the requirement for special order items. Special order items are items that you will buy one time for a customer. Examples include hardware items with different finishes, trim items or light fixtures. When a customer has a requirement for a one-off item for a specific job, you will need to have your business system generate an individual purchasing demand for the item which needs to carry through any special descriptions that were entered into the sales order module. The purchase order must be linked to the sales order to communicate to the shipping people when the item arrives and to update the cost of the sales order line with the specific cost of this unique purchase.

Progress Billing

In the component business, there is typically a one to one relationship between shipments and invoices. If a load of any type is delivered to a jobsite, an invoice is sent to the customer. In the whole house world, there is often a disconnect between shipments and invoicing. Many developers will work deals with payments made as the project progresses. For example, you get paid 30 percent when the first floor is installed, 30 percent when the roof is installed, and 40 percent upon completion of the structure. The percentages and timing will vary, but this concept needs to be handled by your business system so you

can separate deliveries and invoices. With progress billing, you send invoices upon reaching pre-arranged milestones. No invoices will be sent for your individual deliveries. Each delivery will reduce your inventory with a corresponding entry into a progress billing suspense account instead of cost of goods sold. Invoicing at your pre-arranged milestones will increase accounts receivables with a corresponding entry to a liability account specific to progress billing. Upon completion of the project, or at period end in recognition of a percentage completion, the progress billing suspense account and the liability account will be reversed to revenue and cost

Continued on page 66

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The Business Side of Whole House Design

Continued from page 64

of goods sold accounts. When the progress billing is ultimately closed, a progress billing gain/loss account will be posted with the difference between what would have been billed without using the model and the amount actually billed. This account provides a key indicator as to how accurately material requirements are being estimated for each project. Properly structured, this progress billing model can also provide you with real-time feedback on jobsite quantity variances. For instance, if you estimate that you need 3,000 sticks of loose lumber to complete a project, progress billing can track your actual consumption as the project is built to alert you if you are going to have a problem.

Where to Go from Here

The resources required to be in the whole house business are greater than those required to simply manufacture components. By taking on the task of providing a complete structure, the opportunity exists to differentiate your product and services from a commodity into a greater value-added service. Developers are in the business of turning raw land into saleable homes as quickly as possible. They are looking for suppliers that can help them shorten the time involved in this process. A demonstrated ability to manage the complexities and shorten the life cycle of a project can be a wonderful marketing tool for your company.

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The transition from component manufacturer to a company providing complete structures is one which creates an enormous opportunity to dramatically increase your revenues. The cost of this revenue-enhancing opportunity comes in the form of a significantly increased SKU count and tremendously more operational complexity. Increases in complexity always require improved processes and procedures to successfully cope with all of the moving parts. If you are willing to take this step to manage and improve your processes, your newly expanded business should provide an opportunity to significantly grow your profits.

Now, let's get that champagne out again... **SBC**

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