

Eggshell Home Builder

A local home builder had trouble thinking of a name for his company, so he named it after the color he commonly painted the walls of his new homes. The company builds typical midsize subdivision houses. The builder starts 10 to 20 houses at a time. The builder finances the construction costs through a bank and then makes money as each house is sold. Due to a strong economy, sales have been going well and the company is profitable. Depending on the weather and the reliability of the work crews, it takes 4 to 6 months to build a house. The houses are built in stages: pour foundations for one set, frame another set, roof a third set, and so on.

HOUSES

In a strong economy, houses are sold before they are built. Buyers work with sales agents to select a house and a lot. A given subdivision has three or four styles of houses, each with a different name. For variety, each style has a slightly different exterior, called the elevation. For example, elevation A is typically the base design, elevations B and C have different windows, a slightly different roofline, or stone accents in the trim.

Sales have been good. With the early sales and some delays in construction, Eggshell Builders has about 80 open contracts. The company's one full-time sales agent is responsible for most of the paperwork. Obviously, she is very busy. The owner knows that some type of computer system is needed. He is thinking about putting some of the elements on a Web site to provide more information to buyers and to make it easier for them to choose houses and select options. Figure 1 provides the basic information about the styles. In addition to the photo, the builder would like to include links to the floor plans on a Web site. But for now, a good

FIGURE 1

House Styles						
Subdivision						
Style Name		Options List			Photo	
Base Price						
Style description						
Size						
Room	Size	Floor	Comments	No. Windows	Ceiling	
Elevation		Description		Additional Cost Sketch		
A						
B						
C						

description of each room will help buyers visualize the house, including which floor the room is on. The ceiling information describes the tall cathedral ceilings typically used in the entranceway (foyer) and living rooms.

Buyers also find it helpful to see a map of the subdivision. In fact, the sales staff makes heavy use of this map because it shows which lots have been sold. A key feature of the subdivision is that a specific house style has already been assigned to each lot. For instance, Lot 55 might be assigned a Renaissance-style house, with elevation C. One additional element of the houses is that they can be built as shown in the primary photo and sketches, or reversed. For example, if the garage is typically on the right side of the house with the kitchen on the left, a reverse build would place the garage on the left and the kitchen on the right. Each lot is numbered and has been given an address by the U.S. Post Office. Buyers also generally want to know the school district for the subdivision—and the names of the elementary, middle school, and high school. While you are building the database, include the latitude and longitude coordinates for each house for future reference.

OPTIONS To buyers, one of the most challenging aspects of purchasing a newly constructed house is deciding on the options. To hold down construction costs, Eggshell Builders offers a limited number of options, but the process is still difficult and error prone. The sales agent and the design department write down all changes, and the builder wants buyers to choose options quickly. But buyers have trouble making decisions, and they often want to come back later to revise their choices. Of course, it is difficult and expensive to change options after construction has started on the house, so the builder charges additional costs for making changes after certain stages. The builder defines seven stages in the construction of a house, but the buyer sees only these three stages: Stage 1 is when the foundation has been poured. Stage 4 is when the framing is complete, and Stage 7 is when the interior walls are finished. Some options can be purchased only before specified stages. For example, all plumbing choices must be made before Stage 1. A few options, such as electrical wiring for lights, have one price if they are chosen at Stage 4, and a significantly higher price if they are chosen at Stage 7, which would require reworking the walls. Figure 2 shows some examples

FIGURE 2

Options List				
House Style: Renaissance				
Option	Description	Stage	Cost	Category
1027	Wire for ceiling fan	4	\$125	Electrical
1027	Wire for ceiling fan	7	\$350	Electrical
2010	Sink in garage	1	\$450	Plumbing
4114	Carpet-level 4	7	\$800	Interior
4116	Carpet-level 6	7	\$1,200	Interior
Revision Date: 10/25/2000				

FIGURE 3

Decorator Choices				
Home Style		Date		
Subdivision Number		Employee		
Lot ID		Title		
Construction Stage				
Exterior Options				
Elevation	Item	Description	Price	
Trim				
Roof				
Plumbing				
Garage sink	Item	Room	Description	Price
Fixture upgrade				
Electrical				
Ceiling fan wiring	Item	Room	Description	Price
Phone jack				
Electrical outlet				
Interior Design				
Cabinet upgrade	Item	Room	Description	Price
Kitchen countertop				
Countertop grout				
Carpet upgrade				
Entryway tile				
Buyer Signature		Date		

of the basic options available. Note that the price of these options can change over time—particularly as labor costs increase. Also note that options are listed by category. Ultimately, buyers will want to sort this list by category, as well as other columns.

Eventually, buyers' selections are recorded on a form similar to that shown in Figure 3. From the builder's perspective, most of the choices are straightforward. However, items such as electrical lights and phone jacks require a detailed description (and usually a diagram) to indicate their exact position. Similarly, interior design options such as carpets and tile require the specific style number and manufacturer for each selection. Since the construction stage directly influences the prices, separate design sheets are submitted at different stages. The sales or design representative is responsible for choosing the correct price.

CONSTRUCTION PROGRESS

The construction manager tracks the progress of each house and evaluates the work crews in terms of that progress. This detailed information is not really needed by the buyers, but most want to keep an eye on the progress of their houses. Depending on how busy she is, the main sales representative sometimes walks the subdivision so she can respond to phone calls from the buyers. However, she does not always remember the details on each house. Increasingly, buyers are moving in from distant areas, making it difficult for them to check on the progress of the house. Because design decisions have to be made by certain stages, the builder is thinking about providing a brief listing of the progress of each house. Ideally, the construction manager would keep the data up-to-date and make it available to the sales representative. Eventually, it would be helpful to provide the same information directly to the buyers through a Web site. Figure 4 shows the basic information the builder would like to include. When possible, he wants to list the major tasks remaining for the current stage. The estimated completion date is important to buyers, but the builder's lawyer notes that you must include a statement that the estimate is subject to change at any time. The sales representative suggested that it would be nice to include a photo of the current status of the house, but the builder is concerned that it will require too much time to take photos and put them into the application. You should describe the overall process and estimate the time required.

FIGURE 4

Construction Progress				
City				
Subdivision				
Lot ID		Construction Manager		
Date	Stage	Percent Complete		Est. Completion
Photo		Task	Description	Percent Complete

FIGURE 5

Sale		
Date		
Customer Name	Sales Representative	
Address	Title	
City, State ZIP	License Number	
Subdivision ID		
Subdivision Name		
Lot ID	Lot Size	
Lot Address	Description	
City, State ZIP	Lot Premium	
House Style	Base Price	
Elevation	Financing Method	
Escrow Deposit	Escrow Agent	
	Address	
	City, State ZIP	
Bank		
Contact	Phone	Fax
Address		
City, State ZIP		
Estimated Completion Date		
Buyer received copies of:		
<input type="checkbox"/> Subdivision agreement		
<input type="checkbox"/> Disclosure form		
<input type="checkbox"/> Contract		
(more)		

SALE The initial contract for the sale of the house is straightforward. The buyer writes a check for the escrow amount (typically \$1,000 to \$2,000). The basic details of the lot and the house are recorded. Since the contract is often signed before construction has begun, the legal agreement has a time limit of a year, at which point the buyer can cancel the contract if the house is not completed. The buyer also has to obtain a loan for the house. When the house is finished, considerably more paperwork is processed and handled by the closing agent or attorney, but cities and financial institutions still require that this paperwork be processed manually, so there is no point in trying to create computer forms for them yet. Figure 5 shows the basic elements of the form. The buyer has to initial each item in the list at the bottom to indicate that he or she received all of the required forms and manuals. The actual list is quite long but does not change very often.

EXERCISES

1. Create the feasibility study (initial proposal).
2. Create a list of all of the forms and reports that the company might use.
3. Create a normalized list of tables for each form and report.