

## Padre Island challenge

Written by Carole McMichael

*A first-time concrete builder's ICF townhomes sit 200 feet from Gulf waters*



**Photography courtesy of Brian Miller**

Building a home anywhere on the Southern coast of the United States after hurricanes Katrina and Rita—especially on Padre Island, standing in the teeth of the Gulf of Mexico—strikes many people as a questionable investment. Frequently they ask, what can you build that will survive hurricane winds? And can you get insurance? The answer, according to Brian Miller, president of Sand Dollar Development in Corpus Christi, Texas, is that insulating concrete form (ICF) systems can survive these catastrophes (and yes, you can get insurance).

Miller, who has degrees in accounting and finance, came down to Padre Island, Texas, looking for rental property. About five years ago, prices started to rise, changing the buyer demographic from people buying property for rental and investment to people buying second and third homes. At that point, Miller decided to get into the home-building business. For about five years, he has been constructing a combination of single-family homes and duplexes, all of which were conventional stick frame, the choice of most island builders.

“My first experience with building concrete homes is my current project, Las Palmas Luxury Townhomes, calling for 72 units on North Padre Island,” Miller says. “I started building last year in May, one year after the major storms hit, so I was looking for a product that would be good from the standpoint of a wind storm, but also for insurance purposes and for energy costs, which were beginning to rise.

“I heard about ICFs from my architect. He had done a custom ICF home toward Port Aransas, Texas, and had some samples of different blocks in his office. We looked them over to see which one worked best for our application and chose the Arxx Block.”

### **Island community**

Miller's property sits 10 feet above sea level, 200 feet off the 15-foot seawall. The finished project, a gated community, will include 72 units of Mediterranean-style, three-story townhomes, either 2,300 or 2,600 square feet. The project's sixteen buildings include four different floor plans, which are repeated in different areas of the project, providing eight different plans in all. These involve combinations of three to four bedrooms and three-and-a-half to four bathrooms.

Typically on the first floor there are two bedrooms, a full bath and a two-stall garage. The second floor has the kitchen, dining room, a great room, and a half-bath, or a full bath in the four-bedroom units. The third floor includes a master bedroom suite and laundry room. Open landing areas off the stairs can be used as office space or reading nooks. In case the unit is used as a rental, there is also a stackable washer and dryer on the first floor.

"I worked with an interior decorator in making choices," Miller says. "We have an allowance for individual items, such as fixtures, appliances, flooring, and lighting. Buyers can exceed that budget if they pay for the overage. The average overage has been \$2,000. Some want a more elegant crown molding or more colors. By stacking closets, we are able to offer an elevator upgrade option.

"We had one buyer who wanted the kitchen on the bottom floor, bedrooms on the second and one large living room on the top. He was primarily interested in entertaining and wanted to take advantage of the view, which takes in the Gulf on one side and Lake Padre on the other."

Besides the great views, this community offers resort-style amenities, such as a \$500,000 swimming pool with several spas and rock features, a sand volleyball court, a tennis court, a fitness center, a clubhouse, and a Texas favorite—a lazy river feature. The lazy river is an elongated oval path with a lagoon catch pool at one end. Riders, lolling in inner tubes, float along in the water, which is pushed by a current. Added ambiance is created by a combination of bridges, seating, and landscaping.

Pricing for the townhomes started at \$340,000 and has already jumped to \$450,000. The two phases that opened in February 2006 sold out by May. Phase Three opened the last week of December 2006 and sold nine units in three weeks. Phase four opened in May this year. So far, 70 percent of buyers have come from outside of the area.

### **Building with ICFs**

According to Miller, the design challenge in this project was planning the logistics for the electrical and mechanical with ICFs. He had to make sure all the utilities were sleeved out in the proper places—dryer vents dropped into soffits, etc. Some exceptions were made if the architectural drawings were not yet finished. Walls could be moved as long as they weren't load bearing; counter space could be added. Buyers can inspect the model unit, but it is the building that dictates the floor plan selection. They can't say, "I

want this building and that floor plan.”

Lee Swindle, owner of Noah’s Arxx, was the ICF contractor. He has been building with ICFs in Corpus Christi for four years, and for six years in Wimberley, Texas, before that, but he had always built single-family custom homes. This was his first multi-family ICF project, which is rare in the area.

“This project did take more time,” Miller says. “A typical fourplex in stick framing takes four months, but with ICFs, it takes about six months. Stacking the rebar, tying rebar, setting up pours, and the logistics makes ICF building more labor-intensive, but there is a tradeoff for the construction quality and the end product.

“We also went with ICFs because of height. Where we are it is all about the views and the height. We have 12-foot ceilings on the first floor, 12-foot on the second and 10-foot on the third. Any time in conventional stick, if you go above a certain height, you have to go to 2 by 6 walls, and have to deal with many other cost factors associated with that.”

Swindle used a 6-inch concrete core Arxx block for the exterior walls with No. 5 rebar every 16 inches on center, horizontal and vertical, creating a grid. The common or party walls are 4-inch core blocks going all the way up with the rebar grid. A two-hour firewall is required for multi-home residences. If stick frame is used, builders have to install double layers of 5/8-inch sheetrock on both sides of the firewall, which is an expensive measure. With ICFs, which already qualify with a two-hour rating, Swindle installed only one layer of 5/8-inch sheetrock on each side—providing a considerable savings.

“In a single home,” Miller says, “it costs about 10 percent more upfront to build with ICFs, but in our multiple fourplex application, with the economies of scale, and the large mass of the project, it costs only between 3 and 5 percent more.”

The exterior finish is synthetic stucco. Miller chose to use synthetic because the wall expanses are so big. With a 40-foot wall from the foundation to the top plate and a 60-foot-wide foundation, using real stucco could lead to shifting and cracks; whereas synthetic stucco has some flex to it. On the outside balconies, he used concrete. They were hand-troweled and tiled over the top. The interior walls were done with sheetrock. The floors have a 1 5/8-inch decking, then tile or carpet.

“We have 22-inch floor open-web trusses on top of the 12-foot ceiling height,” Miller says. “With the ICF application, the plumber has limited wall space for running pipes, so that allows him to make bends and turns and long-radius 90s because he is losing four walls.”

### **On the jobsite**

Whenever a builder tries a new system, he has concerns about getting an experienced crew. That was not the case for Miller because Swindle has a set crew. Typically, it consists of five to seven men and himself on the jobsite. He has stayed with that number because, though the townhomes have a lot of custom features, they still are building as a production crew.

“Our scheduling is quite complex, and it is all about timing and production speed

because the units are pre-sold,” Miller says, “If it takes longer, we can’t pass the interest back to the buyer. We do two buildings at a time, and have 24 units in different phases currently. As soon as the ICF crew gets off one building, leaving the framers to start, they jump on to the next slab—continuously pouring concrete slabs. The two crews rotate back between the two fourplexes. We have about 250 people working there every day.”

The jobsite soil, naturally, was sand, which is ideal because the sand particles compress, preventing shifting. Swindle used a rebar slab on beams, 2 feet wide and 30 inches deep on the exterior walls; 24 inches for party walls.

Because the 14-foot walls (12-foot ceiling and 2-foot floor trusses) are 4 feet higher than the standard bracing for ICFs, Swindle built a jack-stand to lift it up the extra distance for the pour. He did the outside wall pour in one pour, erected the party walls, and poured them in one pour as well. The foundation with rebar protruding 18 inches and the footings are poured at the same time. On a fourplex 60 feet wide and 90 feet across, it takes five or six hours to pour. It is dry by the next day, so the ledger board is put up around the outside for the web trusses to sit on, with plywood decking on top. Typically, they allowed two weeks to pass before erecting the next ICF story.

### **Energy partnership**

One of the biggest advantages of building with ICFs is the energy savings. “We teamed up with a company in Arlington, Texas, called Energywise Solutions,” Miller says. “The company did a load calculation to determine what sized HVAC we needed for the townhomes, based upon the ICF walls, the number of windows, and type of insulation. HVAC was sized at 2 1/2 tons for inner units and 3 tons for the outer ones because they have more windows. All have low-E windows and vinyl impact glass for hurricanes, so no boarding up will be required.

“Energywise also figured the consumption for HVAC based on calculations for two years and determined a monthly cost. For one of our 2,500-square-foot units, they guaranteed it to be \$25 per month.”

### **More plans**

“I have another project planned that is close to the same area, but I will have to see where the market is and gauge if I should go to smaller townhomes,” Miller says. “I think building with ICFs has a great future not only from the structural standpoint and what it does for wind storm insurance savings, but also for energy cost savings.

“Building with ICFs is a win-win factor all the way around. As far as living in hurricane country, I haven’t seen any concern from buyers. I think that’s because they have seen the way the structure is put together with ICFs. The blocks are completely tied into the foundation all the way up to the roof—you have a continuous concrete wall with rebar spanning the vertical and horizontal. A tidal wave would have to flip the property as a whole to do damage. And in the end, people who want to live on the coast will live on the coast.”