



STEEL FRAMING INDUSTRY ASSOCIATION



CASE STUDY

A QUALITY HOTEL BUILT FOR LESS

HOLIDAY INN EXPRESS
HEARNE, TEXAS

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OVERVIEW

PROJECT

Use

Hotel

Size

37,045 sqft., 64 guest rooms

Completion date

2008

PEOPLE

Owner

Hearne Hospitality

Architect

Abacus Engineering

Steel Fabricator

Nucor Building Systems

STEEL

Pre-fabricated, cold-formed steel studs, joists and rim track

3-story construction

RESULTS

Significant savings in construction, risk and property insurance premiums and ongoing facility maintenance



Cold-Formed Steel's Flexibility and Low Weight Saves Money

Jerry Baxter, an owner of the Holiday Inn Express in Hearne, Texas, attests to the benefits of cold-form steel framing. He's saved money in the hotel's construction, insurance costs and ongoing maintenance needs.

"After building our first hotel using wood for structural purposes, we decided to try out cold-formed steel," Baxter says. "The insurance savings were just the beginning of many advantages."

"WE NEEDED TO FIND OUT THE FACTS"

Hearne is located in central Texas in the middle of a triangle formed by Dallas/Ft. Worth, Houston and San Antonio. The town draws visitors, and thus hotel guests, from those metro areas to Texas A&M University, Blinn College and the East-Central Texas oil fields.

Baxter's company, Hearne Hospitality, LLC, owns two hotel properties. One is the wood-framed Best Western in Franklin, Texas, built in 2006. The other is the pre-fabricated, cold-formed steel Holiday Inn Express built two years later.

The three-story Holiday Inn Express is 37,045 square feet in size. It has 64 guest rooms, an inviting lobby, breakfast area, meeting rooms, back offices and an outdoor pool.

Baxter hired Abacus Engineering to design both of his properties. When Baxter built the Best Western, his team assumed that, because of cost, wood framing was the only acceptable type of construction for a three-story structure. They built the Best Western using wood.

But for the second hotel, the design and construction team decided to go in a different direction. Baxter says Dennis Dyke, owner of Abacus Engineering, suggested using pre-fabricated, cold-formed steel framing. Pre-fabricated, cold-formed steel offered several advantages, including speedier erection, lower insurance rates and, the team believed, lower ongoing upkeep and maintenance versus wood.


Nucor Building Systems (formerly Nucon-steel), Denton, Texas, a division of Nucor Corporation explored the possibilities. This occurred after the subcontractors' bids and estimates had been accepted and wood material



The hotel was built using pre-fabricated, cold-formed steel studs, joists and rim track.



Baxter says that window openings were framed into the outside walls at factory, saving time and ensuring accuracy of construction.



Ground breaking in 2008: Jerry Baxter stands to the right wearing a navy shirt and khakis.

prices had already been factored into the project. Given the possibility of changing to cold-formed steel construction, many of the subcontractors, including HVAC, plumbing and electrical, all wanted to reevaluate their bids.

“We needed to find out the facts about pre-fab construction,” Baxter says. “So, we held a meeting in Denton [Texas] with our questions, concerns and skepticism ready to go.”

Nucor presented the costs for pre-fabricated, cold-formed steel design. And the subcontractors, one by one, agreed that the pre-fabricated, cold-formed steel construction would not create additional work for their crews. They stuck by their original bids, and the final material and erection costs came in close to the original bid for lumber framing.

LESS LABOR REQUIRED

Each steel framed wall at the Holiday Inn Express became a pre-fabricated, numbered panel section. The panels were manufactured in Denton and shipped onsite. Plans showed where each panel would be installed and the order of installation.

“The holes and chases for electrical, plumbing and HVAC were already cut

“Even the project manager was freed up to focus on other areas,” Baxter says. “He didn’t make constant checks of the cold-formed steel for accuracy and tolerances, which he’d have to do with wood.”

at the manufacturing site,” Baxter says. “Window openings were framed into the outside walls. The construction was more precise, accurate and efficient.”

Pre-fabricated cold-formed steel joists and rafters proved lighter than their wood equivalents. Thus, less labor was required to handle the material and install the walls, floors and roofs. Since the CAD design and pre-fabrication included the punches and openings, the installers had no need to drill and cut through walls and chases.

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NO PROBLEMS WITH PESTS

Operationally, cold-formed steel building has proven a durable choice for the hotel.

“During five years of operation, maintenance costs at the Holiday Inn Express have

been minimal,” says Baxter. He says that even on a sound foundation wood framing tends to settle due to its shrinkage, unlike cold-formed steel. “We’ve had absolutely no issues that involve the property’s structure.”

Hearne Hospitality’s risk and property insurance premiums have dropped since, compared to wood, cold-formed steel is non-combustible. It simply does not burn and never contributes to the spread or intensity of a fire.

“Pest control costs are also an ongoing savings,” Baxter says. “Pests can destroy wood, but we have no issue.”

Would Hearne Hospitality build another pre-fabricated, cold-formed steel building?

“Absolutely. The advantages of pre-fabricated, cold-formed steel makes it the best choice for load-bearing framing in sustainable, commercial projects like our Holiday Inn Express,” Baxter says. “I think the cold-formed steel framing was the primary factor in this job’s success.”

THE TAKE-AWAY

Cold-formed steel systems offered Hearne Hospitality the following benefits, according to Jerry Baxter.

1. GREATER DURABILITY

- Water, insects and mold are all natural enemies to organic framing materials, such as lumber, but that's not true of cold-formed steel.
- Steel does not contain knots and will not twist or warp like lumber.
- Steel is always dimensionally correct.

2. CONSTRUCTION SAVINGS


- Whereas wood wall construction must be checked, moved and adjusted to ensure that tolerances are met, pre-fabricated cold-formed steel panels can be set to standards on the factory floor.
- "Once the chalk lines were on the floor, it was easy to see if the prefab panels were in the right place," says Baxter, who is also an Executive Professor of project management at Texas A&M University. "Since the material was pre-fabricated using CAD design, the panel sections fit together accurately, according to tolerances."

3. LOWER INSURANCE PREMIUMS

- "When working with our insurance carriers, we discovered a savings that will continue for the life of the building," Baxter says.

4. LESS MAINTENANCE

- "Our maintenance person hardly spends any time at our steel-framed hotel," Baxter says. "He spends the majority of his time dealing with maintenance at our wood-framed property."



The HVAC, plumbing and electrical subcontractors all thought they'd have to revise their bids in order to go with steel. That proved not to be the case.

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