



Embassy Suites, Columbus, OH

Cold-formed steel framing
used for structural members
in top six stories of a seven
story hotel

General contractor has
estimated cost savings of
\$10/square feet



The Embassy Suites is a seven story hotel built by Brackett Builders of Troy, Ohio. Its light weight, high strength, non-combustible nature, ease of installation and other benefits make cold-formed steel (CFS) an excellent and cost competitive choice for structural applications on buildings as high as nine stories. The contractor and owners of the Embassy Suites hotel in Columbus, Ohio could not agree more. The bottom story contains the lobby and other common areas and is constructed with structural steel and concrete. Above this “podium” level sits six stories with CFS exterior load-bearing walls, floors and roofs. Worthington Integrated Building Systems (WIBS) provided the structural CFS framing and installation.

CFS Use At Embassy Suites

CFS framing was used for interior and exterior load-bearing and non load-bearing walls, and floor and roof joists. A very small amount of structural steel was used within the top six floors of the cold-form steel portion of the structure. The podium level was constructed of a 3 1/2" concrete over 3" deep composite metal deck on top of structural steel. In order to provide the fire-resistance necessary in a residential building of this type, the floors and flat roof are constructed with the Trade-Ready® joist system supporting metal deck. The Trade-Ready® system is a proprietary system that allows for ease of utility installation through pre-fabricated holes in the joists.

The wall framing illustrates how much strength steel provides relative to its light weight. Six inch studs spaced at 24 inches on center were used for all load-bearing wall framing, even on the lowest CFS story. Worthington’s designers accomplished this through the use of progressively thicker studs from the top to bottom stories. The studs on the top story (seventh story) are 18 ga (43 mil), followed by 16 ga (54 mil) for stories 6, 5, and 4, 14 ga (68 mil) for story 3, and double 16 ga (54 mil) studs for the second story walls.





Cost Versus Competition

The general contractor initially estimated the cost of hotel buildings of this type to evaluate the differences between steel and concrete. They determined that steel beats the competition by a wide margin. The contractor estimates that the cost savings of CFS compared to concrete is at least \$10/SF of floor area. For the Embassy Suites, this would equate to approximately \$1,350,000 for the 135,000 square foot of floor area framed with CFS. According to Vern Hoying, president of Brackett Builders, there are other savings beyond the material such as “the added time to construct the concrete building.”

Construction Cycle Time

For hotel owners, timing is extremely important. Once a commitment is made to construct a hotel, the owner must hire and train staff within a two to three week window. An opening date that is firm is critical to start generating cash flow. The time from groundbreaking to finish was 13 months. The CFS framing was complete in 96 days. According to Hoying, “the panelized WBS system schedule is very dependable and predictable. Panelized steel systems obviously do not experience weather delays during cold weather as you would see with concrete, block, and precast planks.” Because there is no concrete shoring to get in the way, mechanical and electrical trades can get started quicker with their rough-in work.

Project completed in 2009



Further Information And Project Participants

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