



Steel in the Winter

A Pennsylvania Winter was Defeated by Using Steel To Build a Motel

The winters can be mighty severe in Pennsylvania.

And in years past, no one would deliberately plan to build a huge motel through the winter months even if it were important to have the structure ready for the summer tourist crowd.

That's what Ramada Inn did, though, and it was steel framing that came to the economical rescue.

For the architect planning the new Ramada Inn in Breezewood, Pennsylvania, weather was as much a factor as were the other design considerations related to usage requirements for a modern motel.

Construction would begin in the fall of 1978 and, by following a tight schedule, the 125-room motel would be ready to open by June, 1979. Breezewood is located on the Pennsylvania Turnpike about midway between Philadelphia and Pittsburgh. It's also at the junction of I-70, a ma-



major route to Washington, D.C., and the South.

Because of all the traffic, it was imperative that the motel open in time for the summer travel season. Thus, the undertaking would have to be done over the winter months.

And at Breezewood-in the heart of the Allegheny Mountains-winters are brutal. The cold weather there can

make concrete or masonry construction near impossible.

A worker selects a Super-C steel joist, precut to exact specified lengths, and color-coded for easy selection at the site. In the background, two-story exterior wall panels with one layer of sheathing attached, have been raised into position and braced.

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The architect, OKE, Inc., of Silver Spring, Maryland, started reviewing his construction options and this, of course, included a careful analysis of

Workers raise an interior load-bearing partition into place at the Ramada Inn. In the background are two-story exterior wall panels that were also made from Super-C steel studs. The open spaces between exterior wall panels will become the window areas in adjacent motel rooms.

alternate construction materials. After a careful study, light gauge steel framing was specified for all the walls and floors in the guest room buildings.

Super-C steel framing, developed by U.S. Steel and manufactured and sold by independent licensees, was to be used for framing the floors and load-bearing walls.

For the task, the owners pulled together a first-rate team-and one with considerable experience in winter construction challenges. The contractor was Callas Contractors, Inc., of Hagerstown, Maryland, and the steel framing manufacturer was Bostwick Steel Framing Company of Niles, Ohio.

In addition to the Super-C joists, Bostwick furnished hundreds of pieces of steel framing pre-cut to exact specified lengths from 1'4" to 38'8", with joist sizes of 5½", 7¼" and 9¼", and studs of 3½".

The Super-C joists were manufactured from 40,000 psi hot-dipped galvanized steel with thicknesses ranging from 14 to 20 gauge. Completing the supplier package were the perimeter channel, strapping (for bracing), framing accessories, and 25-gauge drywall studs.

Two-Story Assembly Done with Jigs

"The method for building the frame was a bit unusual, but very efficient," explained Mike Callas, president of the construction firm and former president of Associated Builders & Contractors. "The exterior walls were framed on the ground using an assembly jig table.

"That may not seem unusual to anyone versed in this technology, but realize that the wall panels were two stories high. A single panel covered the outside of two motel rooms on each of two floors."

Studs were spaced 24 inches on center and fastened to top and bottom track channels with screws.



An overall view, from the second floor, shows the two-story wall panels that have been fabricated from Super-C steel studs. The worker on the scaffold is welding perimeter joists to the tops of the wall panels.

A welder fastens Super-C perimeter joist to the top of two-story high steel studs. The double joists and studs have been welded in a box configuration, and frame the window areas in adjacent rooms.

Some outside and center studs were welded together to form a box-shaped vertical framing member.

Diagonal steel strapping screwed to the studs provided wind bracing. Gypsum sheathing was screwed to the exterior side of the frame.

Then the two-story panel was raised to a vertical position, braced, and shot-fastened to the concrete slab foundation. Panels alternated with open wall spaces that would become the window areas for the motel rooms. Panels framed the building's longitudinal wall; Super-C studs were used to conventionally frame the end walls and stairways.

After the two-story exterior wall panels were in place, 9¼", 14-gauge

Super-C perimeter joists were welded into a box configuration, raised into position, and welded horizontally to the top plates of the wall panels.

A double vertical stud was placed at the mid-point between wall panels, and it became the window and interior wall divider between adjacent motel rooms.

For room partitions, crews assembled load-bearing panels on the slab, and quickly raised them into position. The assembly procedure was similar to that for the two-story exterior walls, except that interior partitions were one-story high.

To frame the second floor, steel

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The newly completed 125-room Ramada Inn. One of the two steel-framed guest-room buildings is to the left. The building to the right contains the restaurant, registration area, swimming pool, and meeting rooms.

joists up to 38'8" long were placed between the outside walls and the center corridor walls. Floor joists were spaced 24 inches on center, the same as the wall studs, so that loads

are transferred efficiently. The second floor subdeck was $\frac{3}{4}$ inch tongue-and-groove plywood fastened to the steel joists with self-drilling, self-tapping screws.

Partition wall panels for the second floor were made from nonload-bearing metal studs. Load-bearing studs were used to frame the public corridor walls. Sound barrier insulation was placed in the partition wall cavities, and then a single layer of $\frac{5}{8}$ inch drywall screwed to each side of the partition, and to the resilient channels attached to the ceiling framing.

Fiberglass insulation was placed between the studs in the exterior walls, and two layers of $\frac{1}{2}$ inch drywall attached to the inside. Exterior metal siding was placed vertically over the sheathing on the exterior wall panels.

Entire Project Virtually Wood-Free

"Except for the wood roof trusses and a few pieces of 2x4 inch wall blocking, no structural lumber was used in the two buildings containing the 125 guest rooms," said Perry Mullenax, Bostwick's Sales Manager. He added, "these were truly all-steel framed buildings."

Steel studs were also used to frame exterior and interior walls in a third building containing the lobby, restaurant, meeting rooms, and indoor swimming pool.

"We shipped all of that steel framing on three trucks," Mullenax said. He added that the C-shape permits the framing to be nested for efficient shipping. "Because of the many different precut lengths, we had each joist and stud color-coded for fast and easy selection by construction crews. The color coding also reduced the chance of error at the site."

Mike Callas added, "This, was our first light-gauge steel building, but our crew had no difficulty making the switch from lumber to steel framing. The color coding feature and engineering service were a big help. Our framing crew completed its work on schedule, even though we had one of the roughest winters in the last decade."

The Breezewood Ramada Inn opened and began checking in its first guests in June, 1979—right on schedule.