It is by far the largest structure of its kind in the area.
The logistics alone were enough to tax the management talents of the most experienced contractor.
It’s the MGM Grand Hotel in Reno, Nevada, which marked its official opening day on May 4, 1978.
With some 1,015 guest rooms and suites towering 26 floors above its lobby, this multi-million dollar “leisure complex” has brought a drastic alteration to Reno’s skyline, and is likely to spearhead the town’s emergence as a major U.S. convention city.
The structure incorporates a casino twice as large as any other; a 1,650-seat theater-entertainment center; seven restaurants; a 50-lane bowling alley; and many other unique entertainment features, all at one address.

10 Million Square Feet Of Wallboard
As a convention center, the new MGM Grand Hotel can provide 133,000 square feet of meeting and function space alone. Facilities on
Approximately 75,000 square feet of fixed scaffolding were installed by Oahu for wall installation work in the jai-alai court and theater loft areas of Reno’s MGM Grand.

Planning the Management of 10 Million Square Feet of Drywall at the MGM Grand Hotel Was a Talent Taxer

The exterior of the hotel, designed by Martin Stern, AIA, of Los Angeles, include a 33-acre lake and a 500-space camper parking site.

Even the construction statistics for the MGM Grand in Reno are impressive. For its interior drywall needs alone, for example, the structure required the installation of close to 10 million square feet of gypsum board, including varying types and sizes of standard, fire-resistant and water-resistant wallboard, shaftliner board and backing board.

The architect’s design called for a substantial portion of this material to be fabricated into special shapes, lengths and sizes to meet stringent aesthetic, structural, and security specifications. For ceilings alone, close to 43 acres of suspended gypsum board were required.

When the drywall contract went out for bids, only a very limited number of drywall contractors from throughout the country were able to bid because of the sheer size of the job. Stipulations also called for 100% bonding and no joint venture arrangements.

The winning bid for the contract was submitted by Oahu Interiors, Inc. of Los Angeles and Honolulu. The firm was responsible for layout and installation of all interior steel stud framing and partitioning; wall cavity insulation; metal door frame erection and insulation; as well as all wall and ceiling board erection, taping and finishing.

Oahu thus became responsible for the installation of nearly 14 thousand tons of material in the hotel, under a $9 million contract calling for the employment of over 250 craftsmen and laborers. Through the cooperation of the local building trades and the carpenter’s union, workmen for the job were recruited from as far away as Alaska and New York State. The great variety of wall and ceiling shapes and sizes for all of the differing kinds of room facilities in the complex called for, in some cases, particularly specialized skills.

Construction Logistics

Before Oahu Interiors could even begin work on this immense contract in early 1977, the equally immense task of planning had to be organized and implemented.

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For this task, Oahu relied heavily upon the use of its Los Angeles computer to put the job on a “fast track” construction schedule, and to continuously analyze labor and other cost data. Such a procedure enabled Oahu management to manage and control the work in progress on a week-to-week basis as well as to establish performance goals.

“Fast track” scheduling determined that all of the wallboard for the job would be manufactured and shipped by huge triple tandem trailer trucks from The Flintkote Company’s Las Vegas, Nevada, plant, located some 450 miles to the southeast of Reno.

Very little of the hotel’s 150-acre construction site could be set aside for storage of materials. Eighteen to 20 trailer loads of wallboard per week had to be brought in during ongoing site groundwork that required application of up to 8 feet of landfill. On its arrival at Reno, each truckload of material had to be moved into the building’s structural frame via external elevator material hoists, directly to the floor where it would later be erected. Close coordination between Oahu, Flintkote, and the trucker Wells Cargo, for manufacturing, shipping, delivery and distribution had to be effected, to insure a steady flow of materials to the site.

According to Ernest Jackson, Oahu’s president, further coordination between site access for drywall delivery and hoisting, and other trade’s delivery requirements for the job, had to be planned so that all trades would have access to the external hoists. Arrangements were made to have most wallboard deliveries arrive for floor stocking after conventional work hours during weekdays, and on Saturdays and Sundays.

In setting up the manufacturing, shipping and installation schedule so that it would perform satisfactorily and meet Oahu’s schedule for completing all corridor and suite partitions on a given 50-room floor in the hotel tower in 5 working days, 72 days of spread were required.

Under the circumstances of such complex “fast track” scheduling, Oahu organized the work in sequences involving 19 separate visits by their installation crews to each floor, before the wallboard work on the given floor was completed. (Traditional drywall work in a typical high rise building ordinarily calls for all work on one floor to be completed before moving on to the next.)

Oahu’s work was taking place on a given floor at the same time other trades were working in the same areas.

“Fast track” gypsum board installation for the high rise portion of the MGM Grand was organized as follows: first, Oahu foremen layed out partition lines to guide stocking crews in distributing material, next, specialized framing teams erected the steel track and stud framing for each suite and corridor wall. Then the wallboard was installed on one side of all walls which would receive special acoustic treatment, wall cavity insulation was put into place, the walls were closed, and the surfaces were taped and finished.

Crews then moved on to the next floor and repeated this sequence.

After this phase of the job was completed, Oahu moved on to the site, wallboard shipments were moved, via external elevator hoists, directly to floors where the board was to be installed.
For the tight curve configurations in corridor ceilings of the MGM Grand, Oahu Interiors used an outside sheet metal contractor to prefabricate the framing.

View of a typical finished corridor ceiling on one of the MGM Grand’s 26 suite floors. Design called for fabrication of both recessed and protruding 5-foot-diameter round and half-round shapes.

three low rise portions of the complex, which contain the large room facilities such as the casino, theaters, tennis courts and other public areas. Most of the custom work at the MGM Grand was involved in these areas. Walls and ceilings as high as from 45 feet to 100 feet above floor surfaces had to be installed.

Approximately 75,000 square feet of fixed scaffolding was put into place by Oahu for some of this work in the jai-alai court and in the loft area of the main theater. But for greater flexibility in other high wall and ceiling areas, several motorized swing stages, fifteen scissor lifts and three cherry picker cranes were employed.

Following completion of all wall and ceiling work for the low-rise sections, Oahu crews returned to the hotel floors to complete elevator shafts and lobbies, and other center core wall and ceiling work.

Since the installation work took place over a time period ranging from February, 1977, to January, 1978, interior work at the MGM Grand had to continue through a wide range of temperatures. To maximize efficiency and provide as much comfort to the work crews as possible, during the coldest parts of the winter, the building structure was completely enclosed in reinforced vinyl sheeting.

Prefabricated Ceiling System
Ceiling design in the MGM Grand called for the fabrication of some relatively complex shapes for wallboard, both in the hotel tower and in the public rooms of the facility. Both recessed and protruding 5-foot-diameter round and half-round shapes are featured on the suite floors, to break up what otherwise would be arrow-straight sightlines in corridors.

Oahu used a specialty sheet metal contractor to prefabricate the framing for these corridor and guest room configurations, rather than in-

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Logistics

Locating heavy time and labor commitments for inside fabrication.

The casino area, on the other hand, features a ceiling made up of barrel-shaped elements with radiiuses of up to 17 feet long. To construct these shapes, Oahu installed its own fabrication shop, with jigs and worktables, right on the job site. Following fabrication of the frames and attachment of the wallboard, they were hoisted into position and suspended from 8-gauge hanger wires, which were put into place before the floor and roof deck above were poured.

Several different techniques were used for bending the gypsum board to the various radii, depending on the severity of the curve. For the gradual curves of the casino ceiling configuration, the back of the gypsum board was wetted and allowed to form over a template. For the tighter curves of the corridor areas, two layers of 1/4” thick gypsum board were applied.

Soundproofing And Fire-Resistant Construction

Partition soundproofing and fire-resistant construction requirements for the entire MGM Grand Hotel-Reno structure were extremely stringent. Hotel management, for example, wanted guests in rooms adjoining elevator shafts to enjoy as much acoustical separation as those occupying suites elsewhere on a given floor.

To accomplish this, a Studco “I” cavity shaft wall system was built, using one-inch shaft-liner board, with horizontal resilient furring channels applied to the “I”-stud facings. The cavities were then filled with sound insulation, and two layers of 5/8” Type X gypsum board were then applied to the faces of the channel.

Sound-control sealants were then applied both above and below the top and bottom tracks of the framing. To further isolate this assembly, an additional two-layer gypsum board wall was constructed parallel to the shaft partition.

In the conventional hotel suite
partition walls, 90% of the walls were made up of double-layer gypsum board. Sound-attenuating acoustic batts were conventionally installed in these wall cavities and in the hollow door frames.

More than 16,000 gallons of acoustical sealant were used throughout the structure at every point where any wall penetration gap for piping or other ductwork would otherwise permit sound transmission. Decorative acoustic spray finish was then applied to ceilings in all room suites.

To isolate the sounds of bowling activity in the second floor 50-lane alley from areas beneath it, special sound and vibration damping techniques were used. Suspended from the floor below the alley were 6,000 coil spring/neoprene sound insulation hangers, and the gypsum board ceiling was then attached to the hangers.

In the kitchen areas of the hotel, water-resistant gypsum board was installed as an underlayer, and ceramic tile was then applied.

Most of the partitions in both the suites and public areas of the MGM Grand have an extra measure of fire and pilferage security features built into them. Walls in these areas extend from the floor slab through to the underside of the floor slab above, extending through the finished ceilings, creating sound, fire and security barriers throughout.

**Pride Of Workmanship**

Oahu Interiors has just cause to be proud of the work they accomplished for the elegant MGM Grand Hotel-Reno. After reference points were provided by the architectural engineers, Oahu took over, and provided all layout location work for gypsum board partitions, walls and ceilings for the entire structure.

Oahu president Ernest Jackson says, “It’s Oahu Interiors’ belief that not only the building of walls make a space become properly contained; it’s more like how the formerly free space becomes contained and how the walls and ceilings are built, that makes the real difference in the final result. Achieving a high degree of quality in a finished product is an attitude that we instill at every level in our organization.”