

Project Profile



USG Drywall Ceiling Solutions

Name:

Cumberland Mall

Location:

Atlanta, Georgia

Architect:

Thompson, Ventulett and Stainback and Associates

General Contractor:

Winter Construction.

Subcontractor:

Eurocraft Wall Industries, Inc.

Distributor:

Tucker Acoustical Products, Inc.

Featured Product:

USG Drywall Ceiling Solutions

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Pre-Engineered Drywall Suspension System Simplifies Ceiling Installation: Reduces Labor and Material Costs

The Cumberland Mall in Atlanta recently underwent a multi-million-dollar renovation that added 77,000 square feet to the building. Part of the renovation included installing three distinct architectural ceiling elements, two wave ceilings over the second-floor concourse and an elliptical dome that served as the main focal point of the mall ceiling.

All three ceiling structures were impressive in design and scope. Each of the second-floor concourse wave ceilings measured 24 feet by 300 feet. The architectural plans called for a suspended drywall ceiling superstructure that served as a metal skeleton, in which drywall panels could be attached to form the curved element.

Two-thirds of all drywall ceilings are framed with conventional ceiling framing systems consisting primarily of carrying channel and hat channel connected with tie wire and suspended with hanger wire. The system specified in the Cumberland Mall project required installers to cut a grid and form the inside and outside radii by hand in order to replicate the curves the architect created in the drawings. This approach was very labor intensive, considering the wave ceilings required 14,400 lineal feet of framing members, and the end result would be completely dependent on the accuracy and knowledge of the installer.

A Pre-Engineered, Customized Solution

The USG drywall suspension system offered a more accurate and efficient alternative. The USG drywall suspension system is a pre-engineered system that allows contractors to create unique, curved, domed and conventional flat drywall ceilings without cutting or curving support structures in the field. Since it is easy to install, a lower-skilled workforce can assemble and install it, while still achieving a high-quality predictable finish.

One of the most significant challenges of installing the wave ceiling structures in Cumberland Mall was the strict time constraints. Installation could occur only during the evening after mall closure. As a result, the contractor required a system that could be easily and quickly installed and one that didn't require any specialized equipment knowledge.

Jorge Toro, drywall foreman at Pepper Construction in Chicago, can speak firsthand about aggressive time demands. He is currently installing the USG drywall system in the gallery of the Art Institute of Chicago. "Construction schedules are always tight, and crews are asked to make time up somewhere along the way," explains Toro. "Installing a drywall ceiling grid is one area where we really can make up time."

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USG’s grid is much simpler to install than other systems and, as a result, installs in half the time. It’s easier to fasten together in the field, and there are fewer components compared to other systems.”

“For the Cumberland Mall project, we custom designed the drywall support system to meet the specs outlined in the architect’s drawings,” says Jon Teli, USG. “All the contractor had to do was open the box and install the system. No cutting or altering of any kind was required.” Any alternate solution would have required on-site jigs to be created in a variety of radii. Installers would have to custom shape each framing member prior to installation. USG provides a complete solution, beginning with custom shop drawings from USG’s ceiling solution center and factory-curved main tees to on-site training and installation support.

The USG drywall suspension system offered the Cumberland Mall contractor a simplified installation without delays, yet met the aggressive design element the architect specified. Using the USG system, the contractor reduced installation costs by 40 percent compared to conventionally framed drywall ceilings.

In Chicago, Toro was able to reduce installation costs by having fewer installers on site. He currently has two individuals installing the gallery ceiling. He estimates he’d need three installers if he were using another brand of suspension system. “We were able to get one-third of the ceiling completed using just two installers and 16 man-hours,” says Toro. “Anytime you can have two individuals doing the work of three, you’re increasing productivity and reducing costs.”

Getting Rid of Dead Weight

Cumberland Mall’s elliptical dome presented another design challenge. The elliptical dome measured 77 feet wide by 94 feet long by 26 feet high and included a massive skylight feature. The dome required 7,500 lineal feet of curved tees with 26 separate radii dimensions to be assembled in place by the contractor.

“Originally, glass-fiber reinforced gypsum (GFRG) panels were specified for the project, but the contractors soon realized these would be too heavy for the existing roof structure to support,” explains Teli. “Using GFRG panels would require the owners to reinforce the roof structure, adding more time and expense.”

The contractors submitted a custom USG elliptical dome package to the architect for consideration, and USG supported the contractor by providing detailed shop drawings to the architect to illustrate how his vision could be achieved using USG’s drywall suspension system.

Using the USG pre-engineered system, installers assembled the elliptical dome on site, with no hand-cutting or bending. The most challenging aspect of the installation was to ensure all of the joints where the drywall panels met were smooth so the ellipse had a continuous smooth surface.

The dome turned out more uniform than could have been expected. Typically, such a large dome constructed with a conventional drywall suspension system would have to be plastered, but since SHEETROCK® brand gypsum panels can be flexed over the USG system, standard materials were used, resulting in lower material costs. This solution saved the owner construction costs because the roof structure did not require reinforcement. The architect obtained a more uniform and smooth finish appearance to the ceiling; and the contractor reduced labor costs.

Solution Values:

- On-site training for installation crews
- Quality finish
- Lighter-weight solution that did not require roof structure reinforcement
- Design and engineering support provided to design team
- Pre-engineered factory-curved solution significantly reduced field labor

The resulting feature is the first and largest elliptical dome created using a drywall suspension system and SHEETROCK® in the country. The resulting feature is the first and largest elliptical dome created using a drywall suspension system and SHEETROCK® in the country, impressing thousands of visitors at the Cumberland Mall each day.