



Drywall and the Stadium

Amidst All The Steel and Concrete There is \$1,000,000 in Drywall in Minneapolis' New Dome Stadium

It's hard for people to understand there is a million dollars worth of drywall construction, when all they see is concrete and steel in the new Hubert H. Humphrey Metrodome in downtown Minneapolis.

When contractors were asked to bid the job, they couldn't in their wildest dreams believe there would be that much gypsum board in a sports stadium. They were in awe of the unique and imaginative manner in which the architects used the lightweight gypsum board to save costs and weight in the structure.

The architect for the Metrodome is Skidmore, Owings & Merrill. The Construction Manager is a joint venture of Barton Malow/Construction Management Services, Inc., and their project manager John Gockel, P.E., stated that gypsum board is gaining even wider acceptance as a usable surface for commercial construction. He felt that this was partly due to the high

quality of workmanship and performance on this project.

The cost savings—from what is described as a “pioneering” concept in the use of drywall—is estimated to run into the hundreds of thousands of dollars.

The stadium, which will be the home of the Minnesota Vikings, Minnesota Twins and the Kicks, is literally wrapped in drywall.

The project was explained this way: What was done was to create a drywall partition to form the mechanical mezzanine area that completely encompasses the entire stadium. It serves as a conveyor of air for ventilation and the dome pressure and also houses many other mechanical and electrical installations.

Normally in this type of construction one would build interior and exterior walls as separate partitions to separate one area from another and serve no other purpose. Then

New domed sports stadium nearing completion in downtown Minneapolis contains \$1 million of drywall, used in a way to save hundreds of thousands of dollars in construction costs.

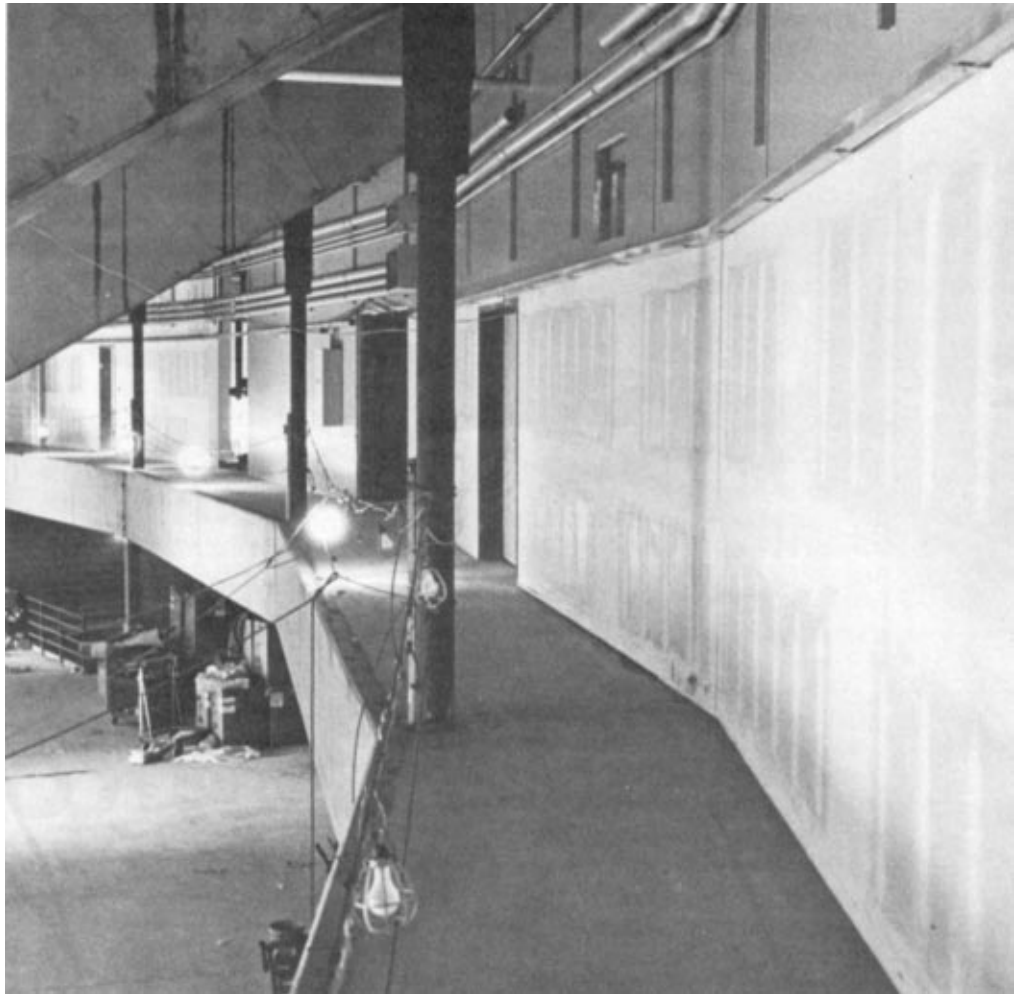
metal ducts would be installed to convey the air to where it is needed. In this case the air was needed to feed the defrosting units for the dome. From there it goes to the center of the two air-supported skins which form the dome.

The air is essential to heat the dome and keep it at a constant temperature so it doesn't get a snow load and collapse.

Rather than make the interior walls of masonry and install metal ducts, the plan called for the use of drywall to serve both needs. The walls themselves enclose an area that serves as the duct for air movement, which produces the energy needed to lift and maintain the pressure needed for the 415,000 pound (or 200 ton) dome.

In this case, the walls serve two purposes: they act as a dividing wall, as well as the enclosure through which the air moves.

The enclosure around the perimeter of the stadium is a wall 2,100 feet long and 20 feet high, and is constructed of 6-inch, 16 gauge steel studs, 18-inches on center, with 3/4" steel bridging at quarterpoints; insulation in the stud void and four layers of 5/8" gypsum board. The wall also provides fire protection between the mechanical and electrical plenum and the public concourse.



This is a portion of the drywall partition which encircles the domed stadium. Use of the drywall on interior and exterior walls eliminated the need for metal duct work by forming a space through which air moves to where it is needed.

It also contains the twenty 100 HP turban fans—each the size of a turban fan on a 747 jet—which are needed to inflate the dome and

maintain the pressure within the stadium.

The light gauge framing used on this project, if laid end to end, would extend from the stadium to Hastings, MN. The gypsum board used was in excess of one-half million square feet.

To further economize in an effort to keep the project within budget, the designers eliminated all of the masonry normally used in the well of the pre-cast concrete, using drywall in-fill panels instead. This, too, is believed to have saved hundreds of thousands of dollars.

The Hubert H. Humphrey Metrodome is scheduled to be completed in time for the 1982 baseball season.

Snow Causes Dome Cave-in

Yes, this is the same Minneapolis Dome which made national headlines in November when snow piled up on the unfinished dome causing a \$500,000 cave-in.

Dome officials, admitting to some embarrassment, explained that the regular heating system which was designed to avoid just such an incident by melting the snow had not yet been switched on. The storm caught the stadium and its builders by surprise while the summer orifices were still open.