

A Unique Opportunity...a Truly Amazing Result



A Truly Amazing Result

This made framing tricky. "The most challenging part of this project was figuring out how it was going to come together in the center. It was going to be a flat ceiling, but then we decided to make it vaulted, which was more of a challenge since it had an opening in the center," said Haverkorn.

The owner also asked that the floor system be designed to withstand the weight of a vehicle. "Originally we were going to use clear span trusses, but since the owner wanted to be able to park on the floor system, we decided to change it to be center bearing." To accommodate the owner's request, Thiesfeldt designed the center bearing floor to be 24" deep.

Haverkorn said that more interaction than usual was necessary for this project: "[Thiesfeldt] would continue making up drawings while we started building, and then as we got further into it we found out what we needed and they fine-tuned their part. The plans went back and forth until we felt comfortable."

Each wall had a 5-degree change in angle, which caused a variety of different ceiling and roof planes (total of 144 separate roof planes and 72 ceiling planes). Thiesfeldt was challenged to keep the number of hangers to a minimum because



By keeping the web pattern as constant as possible, an interesting design was created to the satisfaction of the owner.

of the constantly changing angles and to enhance the aesthetics of the building. He accomplished this by utilizing a series of four trusses that intersected all 72 ceiling planes, acting as carriers with partial flat top chords that framed the hole in the roof. The common trusses were designed to bear on the flat tops of the carriers. By keeping the web pattern as constant as possible, an interesting design was created to the satisfaction of the owner.

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by Laura Herzog & Emmy Thorson-Hanson

There's nothing "square" about this project.

at a glance

- ❑ This project called for a 36' diameter round barn with a gambrel type roof and a 7' diameter hole in the center.
- ❑ To create the circular shape, each wall had a 5-degree change in angle, creating a total of 144 separate roof planes and 72 ceiling planes.
- ❑ The cathedral ceiling was accomplished using a series of four trusses that intersected all 72 ceiling planes.

Rick Thiesfeldt, a veteran component technician at Richco Structures (a division of Richardson Industries) in De Pere, WI, was presented with a unique challenge by Green Bay area builder Michael K. Haverkorn. In February 2006, Haverkorn, the contractor and framer for the project, brought in a sketch along with some ideas that he and the owner wanted to incorporate into the plan. The owner essentially wanted a 36' diameter round barn with a gambrel type of roof and a 7' diameter hole in the center to support a higher separate 8' diameter round roof. A gambrel roof has a steep pitch for the first portion of the roof and changes to a lower pitch toward the center. The owner wanted this unique structure for entertaining friends and family.

"I viewed it as a challenge. I do see a lot of home plans, but when you see something that is out of the ordinary it is always fun to get involved," commented Thiesfeldt on his initial reaction to the intricacy of the project. He is also one of Richco's Design Team Leaders.

Thiesfeldt drew up some preliminary designs and determined that the project was feasible for Richco to design and manufacture. Haverkorn took the drawings to the owner who was ready to get the project started, but wondered if it was possible to design a cathedral ceiling, and leave the trusses exposed because of the complex design they formed.

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What made this job unique was the 7' diameter hole in the center of the building with no interior supports.

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Dizzying Details

The interior of the building was completely finished with wood walls and a curved stairway leading down to the lower level. Custom lighting was installed, the most unique of which is a wagon wheel fixture that hangs from a point in the center of the building that is 28' high. The fixture is set low enough so that it illuminates the entire inside of the roofing system that has been stained to match the walls.

In his 32 years at Richco, Thiesfeldt has faced many design challenges. What made this job unique was the 7' diameter hole in the center of the building with no interior supports. "The complexity of it was interesting to me just because there were so many roof planes since we were trying to make it as round as possible. I had to work with Mike a lot to make sure everything went together smoothly," said Thiesfeldt.

As the project progressed, the builder often remarked that he felt as though he was "going in circles." Thiesfeldt explained that the girders had a curved bottom chord because it was intersecting so many planes at different angles. He added, "The hardest part was trying to mark where you set the first truss and making sure each truss was set in the correct position."

Creating a round structure made framing more complicated as well. "This project was different because when you don't have square walls you have to build as you go. You have to build it upright because you can't put the wall together on the ground and then lift it into place. You are building more in pieces," noted Haverkorn.

Although the process may have been tedious, the end product is remarkable. The circular masterpiece was built just a few miles south of De Pere, WI in the Town of Rockland. "This project took place three blocks from my house, so the fact that it was in my neighborhood made it more interesting," noted Thiesfeldt.

Richco Structures, working closely with a builder who had a desire to build something truly unique, was pleased to give the owner something to be proud of. **SBC**

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