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DESIGN IDEAS
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Seeing Joists From Another Angle

A curved wall under construction at the Packey Webb Ford Dealership in Downers Grove, Illinois, uses barrel joists in a unique way to deliver a branded, architectural statement.



Barrel joists clad in plywood and connected by custom trusses span the roof of a car dealership under construction (left) and will resemble this previously completed design (right).

An expanding car dealership wanted to make a branded statement with the architecture of its new location in Downers Grove, Illinois. With the help of New Millennium Building Systems, it will get a visually striking, curved structure to deliver its message. The Ford brand wall uses barrel joists clad in plywood connected with a custom truss system to bridge the members.

Unique Application of Joists

Normally, joists are used in applications for downward dead gravity loads, live loads such as snow, and positive

wind loads to support the roof of a structure. In addition, the joists carry uplift and wind loads. But in this case, the joists are flipped horizontally and connected to each other with bridging.

“The horizontal joists take the wind loads coming from the sides. The bridging between the joists creates a box truss in the vertical direction — in the gravity load direction — in two different dimensions,” says Joe Penepent, Sales Engineer, New Millennium Building Systems.

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Seen here, a barrel joist is installed on its side and supported by webbing to create a box truss that can handle both downward gravity loads and sideways wind loads.



New Millennium delivered the barrel joist box trusses to the customer fully assembled, along with detailed field drawings to aid in proper installation to speed erection and ensure correct and safe on-site construction.



The bridging between the barrel joist trusses connect them all to provide support in more than one direction on the Ford dealership brand wall application.

Saving Time and Money

By utilizing New Millennium to construct the box trusses with the joists and ship them on-site, the project saved time and money.

“Because the customer was using the joists in a non-standard direction, we needed to detail the bridging in the vertical direction beyond the SJI standards,” says Jenning Li, Engineer at New Millennium. “The customer approved the bridging size, and configuration of the bridging was determined by New Millennium. It was interesting to work on this project because we had to think through how to support the wind loads from the side. Our joists are a component of an entire system.”



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