



BY JON BRITTON/THE TRIBUNE

The tornado simulator team at Iowa State University is made up of Fred Haan, professor of aerospace engineering; Partha Sarkar, professor of aerospace engineering; Bill Gallus, professor of geological and atmospheric sciences; and Bill Rickard, laboratory manager who built the simulator.



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Miniature structures contain pressure sensors to measure forces involved in the tornado simulation.

Tornado: Winds reach 60 mph

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tornado left to right over a moveable platform. Winds reach 60 mph.

Gallus is part of a team of ISU researchers working on the project. Fred Haan, a professor of aerospace engineering, is testing wind loads. Partha Sarkar, also a professor of aerospace engineering, is the simulator's creator. Bill Richard, laboratory manager, built the simulator.

"Moving the vortex itself is the best way to simulate nature," Sarkar said.

The machine measures 18 feet wide, 11 feet tall and creates a 4-foot wide vortex. It took three years of planning, \$300,000 and three weeks to build.

ISU researchers are using scaled-down models of high-rise and low-rise buildings, and buildings with domed roofs and slender chimneys. They will test the surface pressure to determine how much wind a building will withstand.

Scientists use engineering practices to scale-up the impact of the simulator on test structures small enough to fit in the palm of a hand. They can scale-up results as much as 100 to 1, Haan said.

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