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# Students build cannon to test strength of wall

By RICK STORM  
Globe-News Staff Writer

CHILDRESS - In the canon of Childress High School education, you can pretty well guess the school never has seen such a cannon.

Russell Graves' fourth- and fifth-period Energy and Environmental classes use Y2 Kannon to blast 4-foot-long 2-by-2 boards into wall samples.

"We used a chronograph to track the speed," Graves said. "It fires the projectiles at 209 mph."

Graves said that was the approximate speed of a small F4 category tornado.

"We are going to enter the project in the Agriscience Fair at the State FFA Convention this summer in Corpus Christi," Graves said.

Y2 Kannon, a pneumatic cannon, measures a tad more than 10 feet and is made from 4-inch pipe, with the firing end of the barrel sporting a nipple that reduces its size to 2 inches. The classes use 80 pounds per square inch of air pressure to launch the boards. Graves said he borrowed the idea from a project at Texas Tech University to study effects of tornadoes.

"I think we kind of bridge the gap between high schools and college

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graduate work," he said.

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Graves did address a specific concern.

"I built the cannon, so as not to teach the kids the technology," Graves said. "The kids did all the rest."

Students are testing the projectiles on five wall panels they built, including an exterior wall with studs, Masonite siding and Sheetrock inner walls; inner walls with Sheetrock on each side; a brick veneer wall with studs and Sheetrock inner walls; a cinder block wall bolstered with steel concrete reinforcement rods; and a panel with studs and 2 1/2-inch layers of plywood over Sheetrock on both sides.

The last wall's resistance surprised both teacher and class.

"The board went right through it," Graves said. "We thought it would do much better."

After each pine board was fired from 10 feet, six inches away, students noted damage on charts.

The cinder block wall by far proved the most durable, notching only a dent after getting hammered by a board.

The projectiles thumped through the Masonite-covered exterior wall and interior wall like a bowling ball through wet toilet paper.

The brick veneer wall cracked like an eggshell after it was pummeled by a hurtling 2-by-2.

Students agreed the project gave them some perspective on tornado safety.

"You definitely want to hide behind a safe wall," said Kevin Keyes, 16.

This isn't just a one-trick cannon.

"We fired a potato, and it did more damage than a board," said Lauron Layton, 16.

These students don't doubt a tornado's power these days.

"I couldn't believe how the board went through the exterior wall," said Jake Chapman, 16.

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