Turkish earthquake deaths were preventable

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Purdue University scientists analyzed the 2003 Turkish earthquake and concluded the deaths of 168 people, many of them children, could have been prevented.

The report, recently prepared for the National Science Foundation, details how the quake caused extensive damage to 180 buildings, including 48 schools and four dormitories in the eastern Turkish city of Bingol.

Although Turkey has modern building codes, the report concluded: "There is a striking gap between the requirements of these codes and actual construction practice -- both in the rural and the urban areas."

Engineering professors Mete Sozen and Julio Ramirez said the school buildings that failed had a feature called captive columns.

"This occurs when you build a reinforced-concrete column, which is nice and slender, and then you build a wall right next to the column, but not as high as the column," said Sozen. "That makes the unsupported portion of the column very rigid and brittle so that earthquake forces concentrate on the column, causing it to break."

After one column breaks, the weight of the building causes the remaining columns to collapse, he added.

The 6.4 magnitude Bingol earthquake struck in a region where the North and East Anatolian Faults converge.