Horizontal Distribution of Large Hail in a Severe Storm

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Large hail varying from two to three inches in diameter severely damaged the roofs of many buildings on the Oklahoma State University campus on April 2, 1950. The cost of repairing these roofs was more than $750,000. This storm covered an area about two miles wide and eight miles long.

The average number of large hail per unit area was calculated by counting the indentations on a copper covered portion of the roof on the Student Union and four other buildings. The total horizontal area studied on the Student Union roof was 276 square feet. The average number of large hail was 2.28 per square foot. The tile roof on this building was completely destroyed.

Indentations also were counted in the flat galvanized iron on the north half of the roofs on four poultry buildings. The area of each roof and the average number of indentations per square foot was as follows:

Building Number	Horizontal Area in Square Feet	Indentations Per Square Foot
1	920	1.48
2	207	1.31
3	1677	1.31
4	1677	1.17

An irregular pattern of identations was observed at all locations. The hail intensity may have been slightly higher than the measurements indicate on the galvanized iron since this material was supported by 6-inch boards spaced from 18 to 36 inches apart. Another building in the area covered with galvanized iron placed over a solid board roof had very few indentations in the metal.

A severe hail storm northwest of Perry, Oklahoma, left an average of 4.15 indentations per square foot in a flat metal roof.