# Estimating the Number of Salt and Pepper Dots in a Representative Suburban Bathroom

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R. Pierce, III, Dixie Elementary School; C. Pierce, Dixie Elementary School; R. Pierce, Jr., El Camino Institute.

**Abstract:** The study estimates a total of 565,056 salt and pepper dots on the ceramic tiles in a bathroom found in a representative U.S. suburban house.

**Introduction:** The authors take baths almost every day in a bathroom with yellow tiles that display small dots. These dots are referred to in the existing literature as salt and pepper dots (SPD).
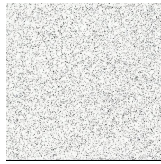


Fig. 1. Detail: Salt and Pepper Dots

The authors wanted to know how many SPD there are in the bathroom, but dismissed as impractical the task of manually counting the SPD. An estimation of the number was all that was practical. Using a mathematically-based method the authors estimate there are an aggregate of 565,056 SPD on the bathroom tiles

**Method:** The authors first described a one square inch sample area within a bathroom tile randomly chosen from tiles in the bathroom (such area the "Sample Area" or "SA"). The number of SPD within the SA was then counted by sight (the total count referred to as "TC"). The authors then determined the total square inch surface area of all tiles in the bathroom ("TSA"). By multiplying the number of SPD found within the SA by the TSA, an estimate of the total number of SPD within the entire bathroom was determined (EBSPD).

$$sa \times tc \times tsa = ebspd$$

**Findings:** By visual count, 72 SPD were found within the SA. The bathroom uses tile each having a surface area of 24 inches (i.e., 6 inches x 4 inches). By multiplying the number of visually counted SPD by the area of a tile, it was determined that there are approximately 1,728 SPD in each bathroom tile. A manual count found that there are 327 tiles in the bathroom. By multiplying the estimated number of SPD in a single bathroom tile by the total counted number of tiles in the bathroom, an estimate of 565,056 SPD was generated.

**Weaknesses:** The authors note the non-standard size of a small number of tiles in the bathroom that were cut into sizes smaller than the standard size in order to fit borders of the bathtub. The authors also note that a number of bullnose tiles with characteristically curved edges were used in the bathroom and that it is unknown whether those tile are of a 24 inch surface area. The study used only one SA. More robust findings would result from the use of more than one SA. Further studies should use a multiple-SA approach.

**Conclusion:** This study is the first known investigation into the number of SPD in a representative US suburban household bathroom. While further studies are needed, the 565,056 estimate is consistent with expectations and determined using a straightforward mathematical approach.