Parallel covering of a square with equilateral triangles

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Abstract. Suppose that I is a unit square. Let $\triangle$ be an equilateral triangle with a side parallel to a side of I, and let $\{\triangle_n\}$ be a collection of the homothetic copies of $\triangle$. In this note, we show that if the total sum of the areas of equilateral triangles from $\{\triangle_n\}$ is at least $1 + \frac{7\sqrt{3}}{12}$, then these equilateral triangles can parallel cover the unit square I, and this bound is optimal.

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