Abstract An edge e of a brick G is *removable* if $G - e$ is matching covered. A removable edge e is *b-variant* if $G - e$ has exactly one brick. A removable edge e is *thin* if, for each barrier B of $G - e$, the graph $G - e - B$ has precisely $|B| - 1$ isolated vertices, each of which has degree two in $G - e$. Improving upon a theorem proved in [4] and [5], we show here that every brick different from the three basic bricks K_4, $\overline{C}_6$ and the Petersen graph has a b-invariant edge that is thin. It follows from this result that all bricks can be generated from the three basic bricks by means of four simple operations.

A cut C of a brick G is a *separating* cut of G if each of the two graphs obtained by shrinking a shore of C to a single vertex is matching covered. A brick is *solid* if it does not have any nontrivial separating cuts. Solid bricks have many interesting properties ([4]) and may be thought of as building blocks of bricks themselves. The complexity status of deciding whether a given brick is solid is not known. Here, by using our theorem on the existence of thin edges, we show that every simple planar solid brick is an odd wheel.