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Characterizing prism-free planar bricks.

A 3-connected graph G is a brick if for any two vertices u and v, $G - \{u, v\}$ has a perfect matching. Lovász showed that any brick contains either K_4 or the prism $\overline{C_6}$ as a conformal minor. A prism-free brick is a brick which does not contain the prism as a conformal minor. We show that the only prism-free planar bricks are the odd wheels, odd staircases and an exceptional graph on ten vertices. This implies a result of Carvalho, Lucchesi and Murty: odd wheels are the only solid planar bricks. Our characterization extends to prism-free planar matching covered graphs.