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Using a generalized version of the star-triangle transformation, a method was recently developed to determine the exact bond percolation critical thresholds for lattices in a certain class. By a bond-to-site transformation, the result extends to finding exact site percolation critical thresholds for the line lattices of lattices in the class. We view the problem from the site percolation perspective and identify a method to find the exact site percolation critical threshold for lattices with certain properties. This allows us to solve for the site percolation critical thresholds for lattices not arising as line lattices of bond models, thereby generalizing the bond model results. (Received September 20, 2009)