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Steven Klee*, University of Washington, Department of Mathematics, Box 354350, Seattle, WA 98154. *Lower Bounds for Balanced Simplicial Complexes.*

Barnette's Lower Bound Theorem establishes that a stacked d -polytope on n vertices has the minimal f -numbers among all simplicial d -polytopes on n vertices. We say that a $(d - 1)$ -dimensional simplicial complex is *balanced* if its 1-skeleton, viewed as a graph, is d -colorable. We define a balanced analogue of a stacked polytope by taking connected sums of cross polytopes, and we prove that such a polytope has minimal f -numbers among all balanced d -polytopes on n vertices. (Received September 08, 2009)