1023-20-421 **Anne Thomas*** (athomas@math.uchicago.edu), Department of Mathematics, University of Chicago, 5734 S University Ave, Chicago, IL 60637. *Lattices in automorphism groups of polygonal complexes with symmetric links.*

A (k, L)-complex is a polygonal complex with the link at each vertex a fixed graph L, and each 2-cell a regular k-gon. Świątkowski showed that for L belonging to a class of highly symmetric graphs, and $k \geq 4$, there is a unique (k, L)-complex X, and the group $\mathrm{Aut}(X)$ is nondiscrete. We study lattices in $\mathrm{Aut}(X)$. Using graph theory and group extensions, we construct uniform and nonuniform lattices. For specific examples of L, such as the Petersen graph, we then obtain further results, including the existence of an infinite ascending chain of uniform lattices. We note that the (k, L)-complex X is not in general a building. (Received September 12, 2006)