Relatively convex sets and problem of Jamison

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The problem of Jamison asks what collections of convex sets arise from using subsets of a finite set of points in the plane and the usual convex hull operator (see P.H.Edelman and R.E. Jamison, "The theory of convex geometries", Geom.Dedicata 19 (1985), 247-270). The collection of such sets for configurations where one point is placed inside the convex polygon was described in P.H. Edelman and D.G. Larman, "On characterizing collections arising from N-gons in the plane", Geom.Dedicata 33(1990), 83-89.

We explore several necessary conditions for collections of relatively convex sets, also a hypothesis about sufficient conditions that proves to hold in Edelman-Larman case as well as for all configurations of 6 points on the plane. We study the connections of this problem to other geometrical problems and investigate whether the Jamison problem is NP-complete.