A straight-line drawing of a graph, compared to a general drawing, is not just more aesthetically appealing but, from a practical point of view, it is easier to store it in a computer. This drives to a natural question: when can we convert a topological drawing into an equivalent geometric one?

In 1988, Thomassen completely answered this question for drawings in which every edge is crossed at most once (generalizing the well-known Farys Theorem). Thomassen's answer is by means of forbidding two drawings. Following Thomassen's result, I will talk about interesting classes of geometric graph drawings than can be characterized in terms of forbidding a set of subdrawings, and how this approach can bring new insights on tackling general graph drawing problems.

This talk is mainly based on joint collaborations with Julien Bensmail, Dan McQuillan, Bruce Richter, Gelasio Salazar and Matthew Sunohara.