Abstract: An integrated model-based development approach has to capture the relationship between requirements, design, and implementation models. In the requirements engineering phase, the most important view is the functional one, which specifies functionalities offered by the system and relationships between them. In the design phase, the component-based view describes the system as a network of interacting components. Via their interaction, they have to realize the black-box behavior specified in the functional view. To ensure the consistency between both views, a formal integration of them is necessary. The presented formal framework captures both function- and component-based models. In particular, we provide a correct-by-construction procedure, which transforms a functional specification into a component-based architecture. Applicability of the method is evaluated on an industrial case study in a CASE tool.