This work deals with effectiveness of planing algorithms controlling group of elevators. For comparing planing algorithms was created simulation software, which test its properties with regarding to setting of parameters of elevator system and building where is elevator system placed. Results of testing are compared by measured values and determinate pertinence of use of particular planing algorithm in dependency on setting of parameters. Capabilities of planing algorithm also depend on informations which can elevator system provide to it. For this reason this work also deals with elevator system itself and suggest its changes allowing planing algorithms work more effective.