ABSTRACT

The purpose of this dissertation is to design a moving rooftop for the stands of a football stadium. To begin with, the kind of rooftop that will be used was selected out of five original ideas, which will be rigid and will be moving in an alternating manner. In addition, the dimensions of the stand that will be covered by the moving rooftop were determined which are 8m long, 6m wide and 3m high. When all the necessary data were collected from companies and more experienced people in this subject (how the material selection would be conducted and how the construction would be welded), the materials that would be used for the stable and also for the moving part were collected as well as the materials for the transmission system. Furthermore there were endurance and safety checks of the metallic construction in a way so we have in all critical areas a safety factor bigger than 2. Then the construction was designed using the Solid Works program, where the designs of the moving and stable parts of the rooftop as well as the designs fot the transmission were extracted.

Finally, after a comprehensive review of the way the materials were selected and the construction design itself, we have concluded that the moving rooftop was able to eventually be built and work in the desired manner. At the same time there was a brainstorming on how the construction cost could be lowered, how its safety could be increased in critical areas and how it would generally function in a better way. One aspect that was considered was the transmission system and how noisy it could get.

Keywords: mobile rooftops, Solid Works , metal construction