

Using movable modular grandstands in large sports stadia

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Abstract

The King Baudouin Stadium in Brussels is for many years the national stadium for football and athletics of Belgium. Being built in 1930 and renovated in 1995, one can image the stadium is outdated and not conform the current safety regulation. Since building a completely new stadium brought too many complexities with it, the latest idea is to renovate the current stadium. A major point of attention is the fan experience in the stadium, which is hard to achieve during football games when a running track is around the pitch. Therefore, a hybrid stadium with modular seats is suggested. It allows to modify the stadium in an ideal way for each event. Two different systems are worked out to move the stands, due to structural and financial considerations. One is based on the use of air cushions, while the other system makes use of cantilever beams. For both systems, it is important to protect the running track, when the stands are in football mode. This modular system creates a lot of extra space in the stadium and will enhance the atmosphere in the arena according to each type of event.

Keywords: Modular Seats, Sport Stadia, Movable Structure, Renovation

1 Introduction

The King Baudouin Stadium in Brussels (Figure 2) is for many years the national stadium for football and athletics of Belgium. With the organisation of the 1985 European Cup final, the Euro 2000 Opening Game and the yearly Diamonds league final, the stadium has an impressive history. Being built in 1930 and renovated in 1995, one can image the stadium is outdated and not conform the current safety regulations for hosting large sport events. With Belgium as current number one on the FIFA ranking (as been written in 2020), and with multiple Olympic medals in athletics, the stadium is a mismatch for its users. In extend, the fan experience during an event is far below the current standards. Figure 1 shows the sight from the lower seats on the pitch. Combined with the running track, which creates an additional distance during

football games, and the narrow space between the seat rows, one can imagen that there is room for many improvements.

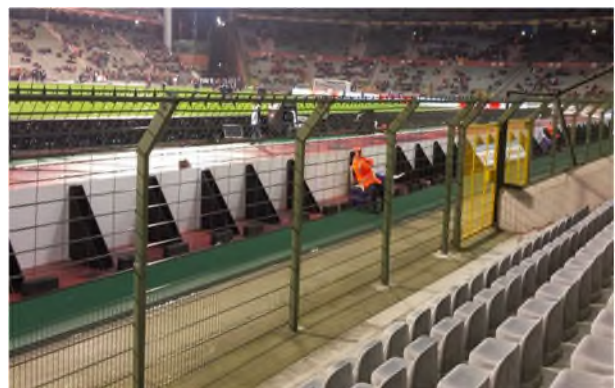


Figure 1: Sight on field from stands

For these reasons, the Belgian government and sports organisations have been thinking about a solution. Since building a completely new stadium