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Pedestrian Flow in Sport Infrastructure

SALMA AOUAM

Abstract

Pedestrian flow in sport infrastructures, especially stadiums, is a crucial factor for citizens' safety and events' efficiency. This poster examines how stadium design influences pedestrian movement and vice versa, focusing on problems encountered during important events and some suggestions to avoid them. Using real-life study cases and real-world solutions, the research identifies architectural elements that contribute to good flow for sport and non-sport activities held in stadiums.

Introduction

Overcrowding incidents as witnessed at the UEFA champions league 2022, particularly at the Stade de France in Paris, and the final incident happening at Mohamed V stadium in Morocco, Casablanca, inevitably lead to questions about their architectural efficiency. Stadium infrastructure problems can significantly impact the overall experience for fans and the smooth operation of events. That is why it is imperative to analyze the pedestrian flow and its access points, setting up well-based architecture to facilitate people circulation.

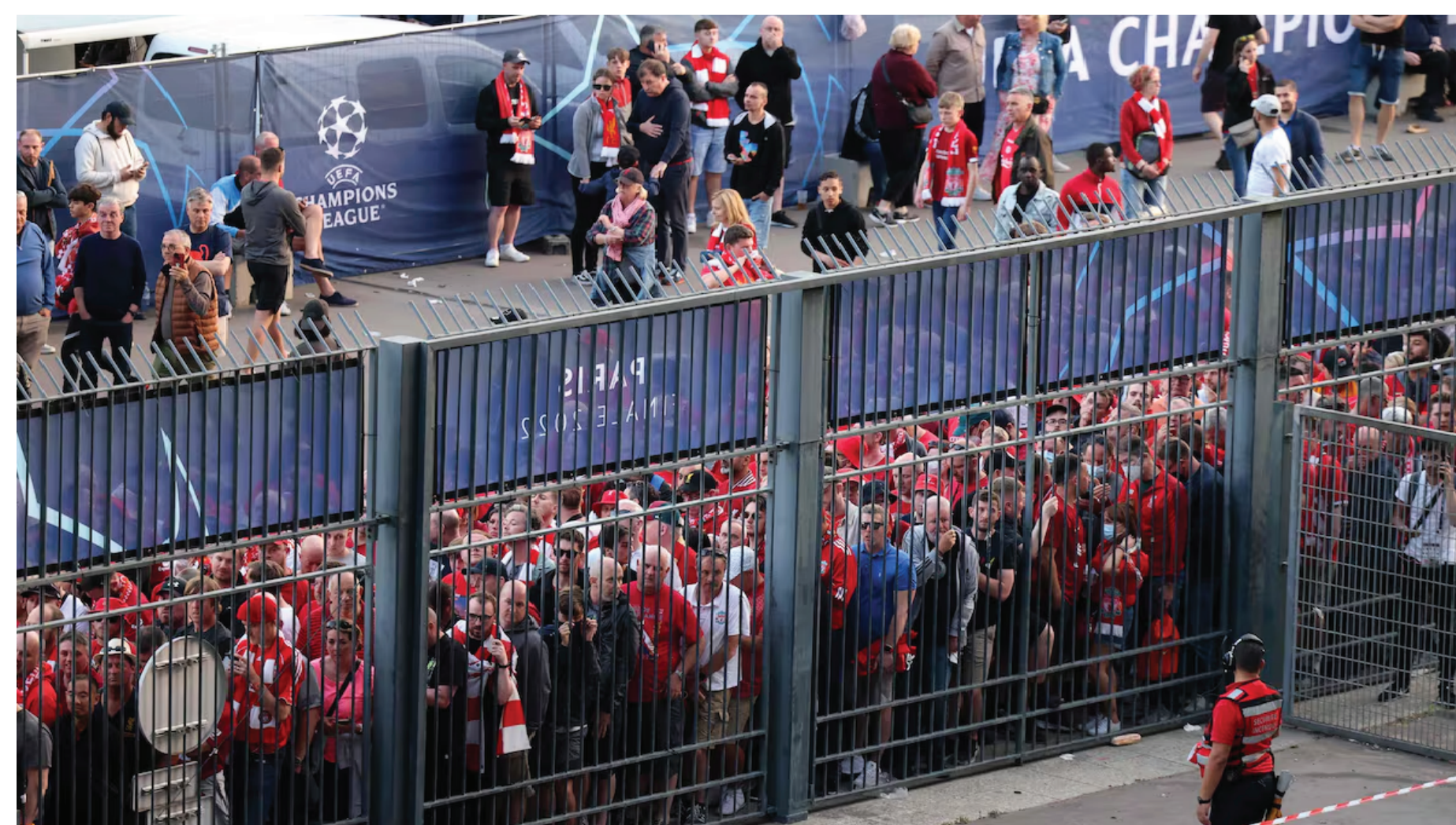


Fig. 1



References



Contact me

Case Study

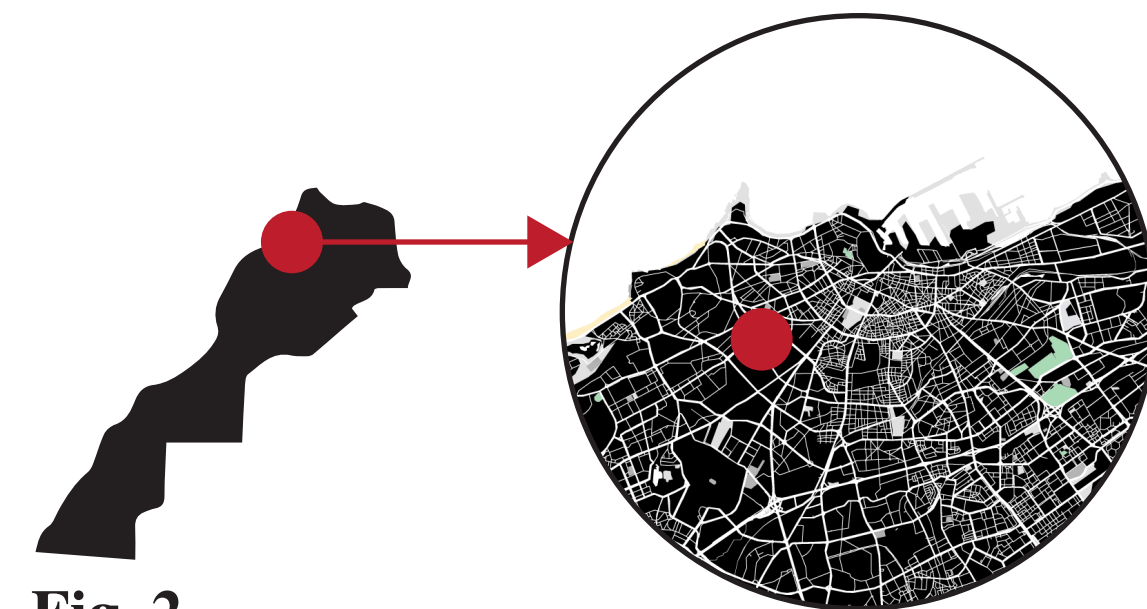


Fig. 2

Located in the economic capital of Morocco, Casablanca, Mohamed V stadium is one of the oldest stadiums of the kingdom. It is considered a masterpiece of Moroccan sports since it has not only a Football pitch with a track and field stadium but also a covered omnisport complex for different disciplines such as basketball, handball, volleyball and gymnastics.

Mohamed V Stadium

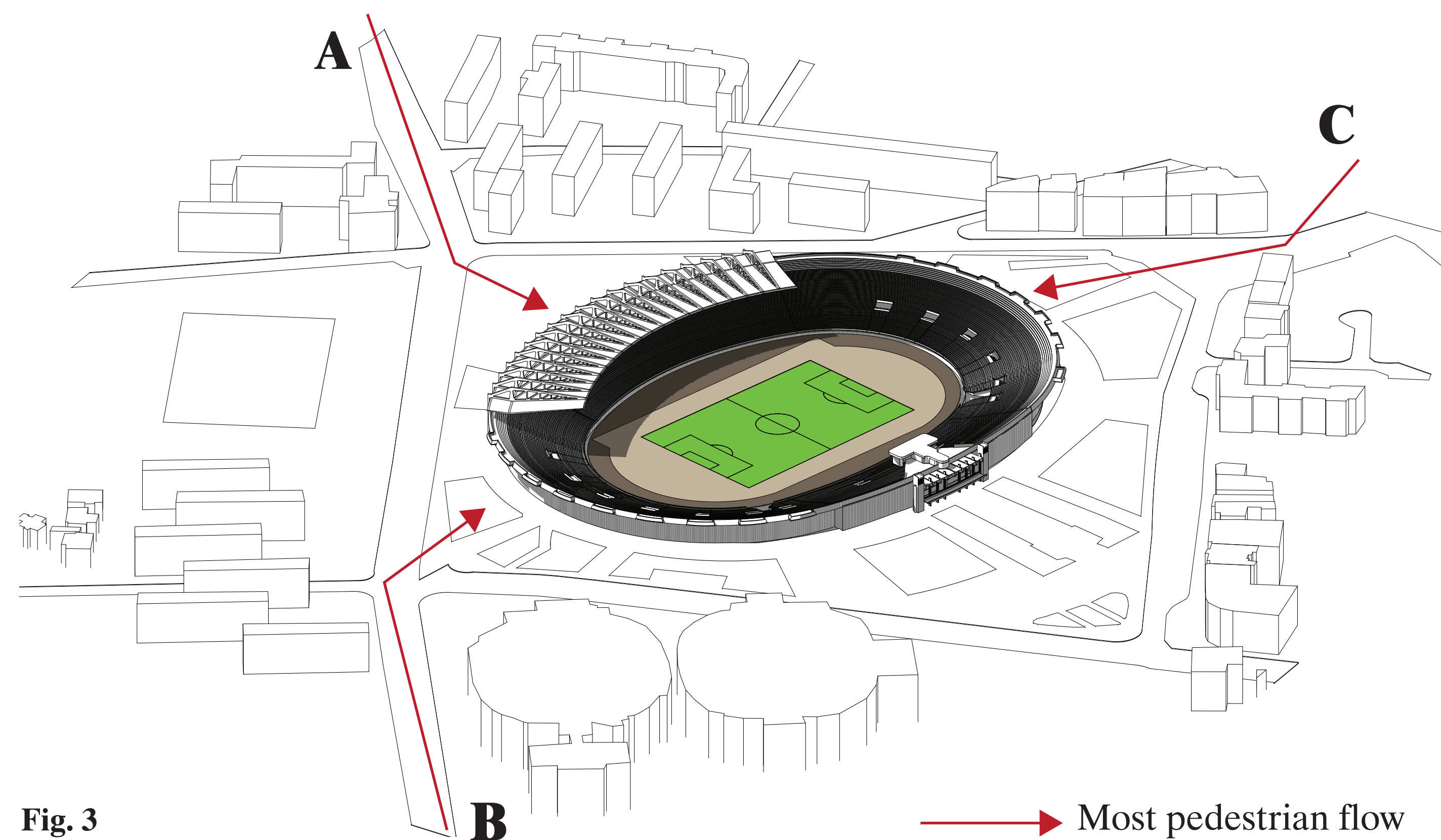


Fig. 3

What went wrong ?

Among the deficiencies noticed are related to movement and flow and the control of the crowd flow.

Movement and Flow : Mohamed V stadium's internal layout lacks smooth circulation of people. The arrow aisles and insufficient corridors in the entrances A, B and C (Fig. 3) obstruct the fans' movement and exacerbate overcrowding issues.

Crowd Control: There is a partial absence of features in the stadium's design to help control the crowd flow, such as partitions, signalisation, crowd monitoring systems and real-time alerts.

Suggestions

Technology Integration: Incorporating modern technology, such as crowd monitoring systems and real-time alerts, can help manage crowd dynamics and respond to emergencies more effectively.

Traffic Control Systems: Advanced traffic management systems help direct vehicles efficiently, reducing congestion around the stadium.

Pedestrian flow simulations while renovating or constructing: Several software tools are used to model and analyze pedestrian flow in architectural and urban planning contexts, such as Pedestrian Dynamics with Rhinoceros.

Case in Point



Fig. 4

Located in Madrid, Santiago Bernabéu stadium is state of the art. It has undergone major renovations to implement modernized facilities, using new technologies to improve fans and players experience during major events. L35 Arquitectos, the architecture firm responsible for its renovation, is using new architecture softwares and methods to enhance the structure.

Fig.5 below shows an example of pedestrian's flow simulation using architectural software.

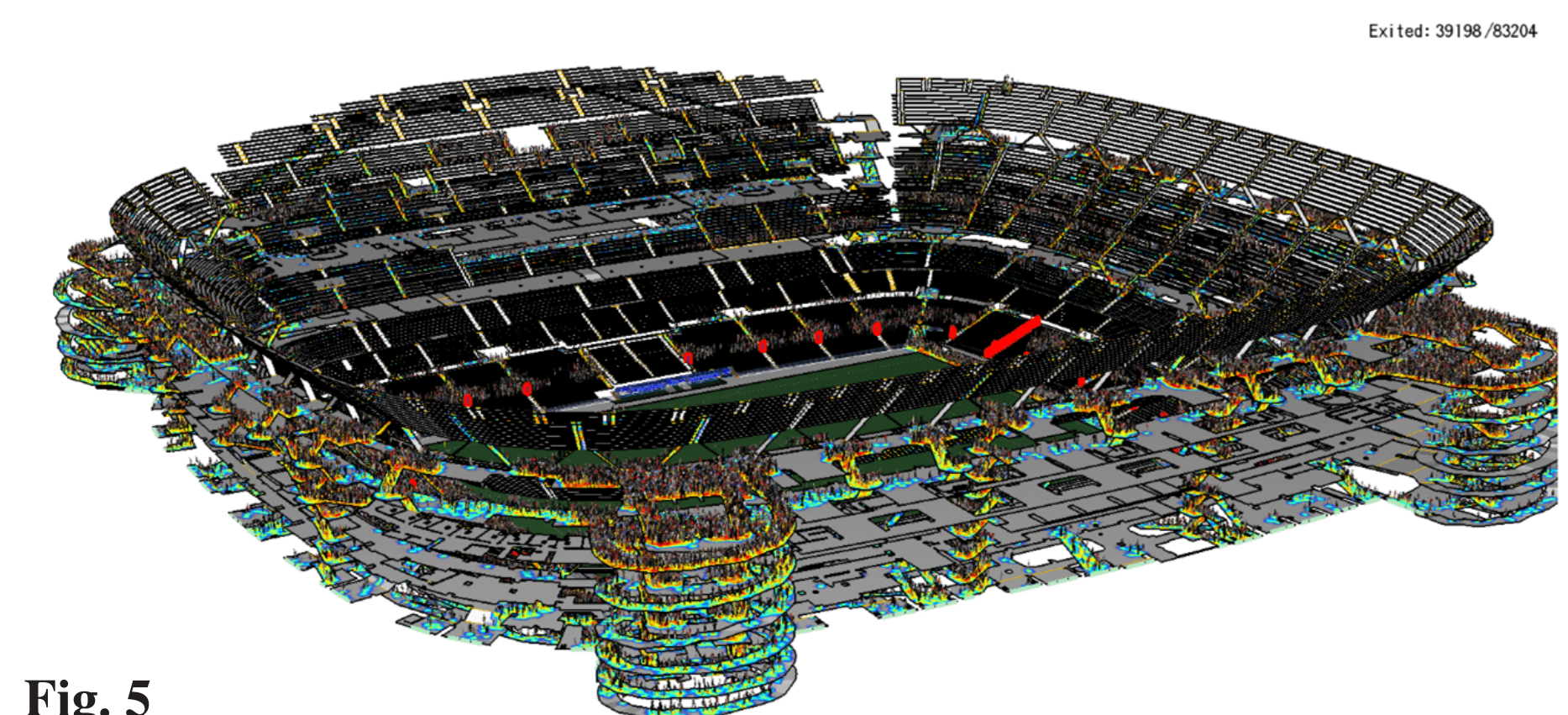


Fig. 5