STANDARDS THAT ARE FAR FROM STANDARD

CASE STUDY

KING'S BASTION | SPORT & LEISURE

fds consult

CASE STUDY - KING'S BASTION LEISURE CENTRE | SPORT & LEISURE

Originally constructed as a defence post in the 18th century, the King's Bastion in Gibraltar was also the island's main power station during the 1960s and 70s. For the 21st century, the Bastion has been transformed once more, this time into one of the Island's premier visitor attractions: The King's Bastion Leisure Centre. In this latest incarnation, the Bastion offers a wide array of entertainment including bowling, ice skating, an amusement arcade, a games room, an internet lounge, a restaurant, numerous bars, a youth bar/lounge, a disco, cinemas and a fitness gym, all contained within the existing 300-year-old structure.

The original fire strategy for this complex scheme did not gain approval from the local Fire Office, the approving authority in Gibraltar, so FDS Consult was brought in to apply the company's innovative approach to fire design and international knowledge of building regulations to the development.

The limitations of the existing structure posed challenges in terms of devising a viable evacuation strategy and this was further complicated by the complexity of evacuating members of the public from specific areas of the leisure centre, such as the ice rink, where visitors would be wearing ice skates. In addition, FDS Consult's creative approach to designing the fire strategy also had to address the need to maintain the architect's vision for an open, free flowing space which featured both an atrium and glass bridges to maximise light.

Thanks to the team's experience of complex multi-use buildings and international schemes, FDS Consult was able to use its expertise to:

- Introduce natural smoke venting strategies that also doubled up as day-to-day environmental ventilation to maintain a clear layer height and allow extended evacuation times, essential for this type of structure where a wide range of entertainment facilities are located under one roof
- Justify increased occupancy levels by using the compartmentation within the design to develop a phased evacuation strategy in key areas such as the nightclub and the cinema
- Justify the absence of fire rating for the glass bridge via CFD modelling to demonstrate relevant temperature profiles below and around the bridge structure, resulting in substantial cost savings
- Overcome issues relating to fire fighter access due to the complex's location on a main arterial route and the fact that the building is inherently designed to limit access. This was achieved by a network of dry mains with connections out side the perimeter of the building.
- Demonstrate the effectiveness of the proposed fire strategy by using CFD (Computational Fluid Dynamics) modelling to prove the effectiveness of the smoke venting strategy, tenable evacuation times and sufficient fire service access

Thanks to FDS Consult's expert evaluation of the existing structure and understanding of the client's requirements, the team was able to rationalise the scheme's means of escape requirements and design a phased evacuation strategy to enable increased occupancy levels and improved evacuation management, making the development both safer and potentially more profitable. FDS Consult's creative approach to addressing the challenges of the scheme ensured that it successfully gained Fire Office approval.

Type of project:
Sports & Leisure

Client:
Voker Stevin Gibraltar

Architect:
Bureau Ritzen

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