FEASIBILITY STUDY

NEW NATIONAL STADIUM
REYKJAVIK / ICELAND

October 14, 2016

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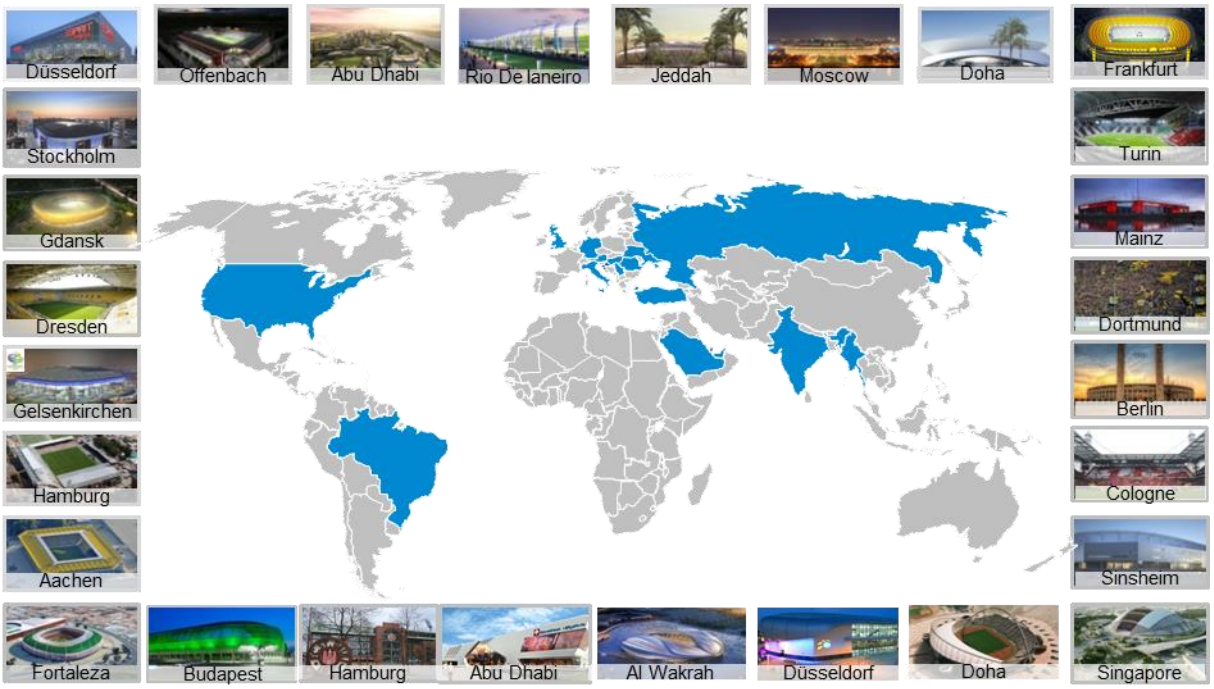
1 PRE-PLANNING PHASE

INTRODUCTION

The general desire and demand in Iceland for a New National Stadium Reykjavik has been a constant and long-lasting project for the past years and decades. In cooperation with the Football Association of Iceland (KSI), the consultancy firm Borgarbragur ehf conducted a thorough and explorative pre-feasibility study inquiring into whether there is a foundation for constructing a new multi-purpose national stadium in Reykjavik.
Next to its main purpose as the dedicated homeground to the Icelandic national football teams (including Men's, Women's and Youth Teams), Borgarbragur's research also examined the cabapilities for such a venue to realize other football matches and sports (such as Icelandic league and cup matches), possibilities to host other non-sports events (i.e. concerts, festivals and exhibitions) as well as the demand and benefits for additional commercial usage of the stadium and its territory (e.g. conferences, business meetings and economic driving force for local communities). Even though that the report indicates that such a new multi-purpose national football stadium could represent an economic viable business case as well as a highly supportive influence for local urban and social development, a further verification and examination of the reports' findings by experienced international experts has been explicitly suggested and commissioned.

After a detailed selection process, Lagardère Sports Germany GmbH (LS) has been awarded the mandate to compile a comprehensive feasibility study into the project's fundamental assumptions, while at the same time creating a comprehensible business case including a dedicated project direction for a future development of a New National Stadium Reykjavik.
Lagardère Sports is the leading European sports rights marketer with a clear focus on football, managing TV and sponsorship rights for more than 270 European football clubs. Not only from a comprehensive marketing perspective, but also together with its role as Europe's most prominent stadium operator the company gained a wide range of expert know-how regarding international stadium and club consulting, development, management and marketing. With its worldwide network of 35 offices, Lagardère Sports furthermore services all major international football (e.g. FIFA, UEFA, CAF) and sports associations (e.g. IOC, FIS Skiing, IHF Handball, WRC World Rally Championship) as a longstanding partner to implement official requirements and expectation levels. Additionally, Lagardère Sports holds marketing rights for World Cup and European Championship qualifiers as well as 15 European leagues and cup-competitions.

From Lagardère Sports' experience the development and operation of stadiums is as captivating as the challenge is complex. The pre-planning/feasibility, design, construction and operation of the New National Stadium Reykjavik depends significantly on practical know-how of all involved parties. Lagardère Sports' stadium experts can draw upon over 20 years of hands-on expertise all over the world. Having pioneered stadium consultancy and management in Germany, the most developed market in terms of football stadium infrastructure, Lagardère Sports has also expanded its reach and expertise into global markets within the last ten years. Dedicated stadium development and operation experts have been involved in a wide range of German venues (e.g. Berlin, Hamburg, Frankfurt) and furthermore successfully extended this expertise into international markets (e.g. Brazil, France, Hungary, Poland, Qatar, Russia, Saudi Arabia, Singapore, Sweden, United Arab Emirates).



The long-lasting debate of Iceland's current national stadium Laugardalsvöllur revolves primarily around criticism of the current facilities, or lack thereof, for spectators, media, athletes as well as local businesses and communities.

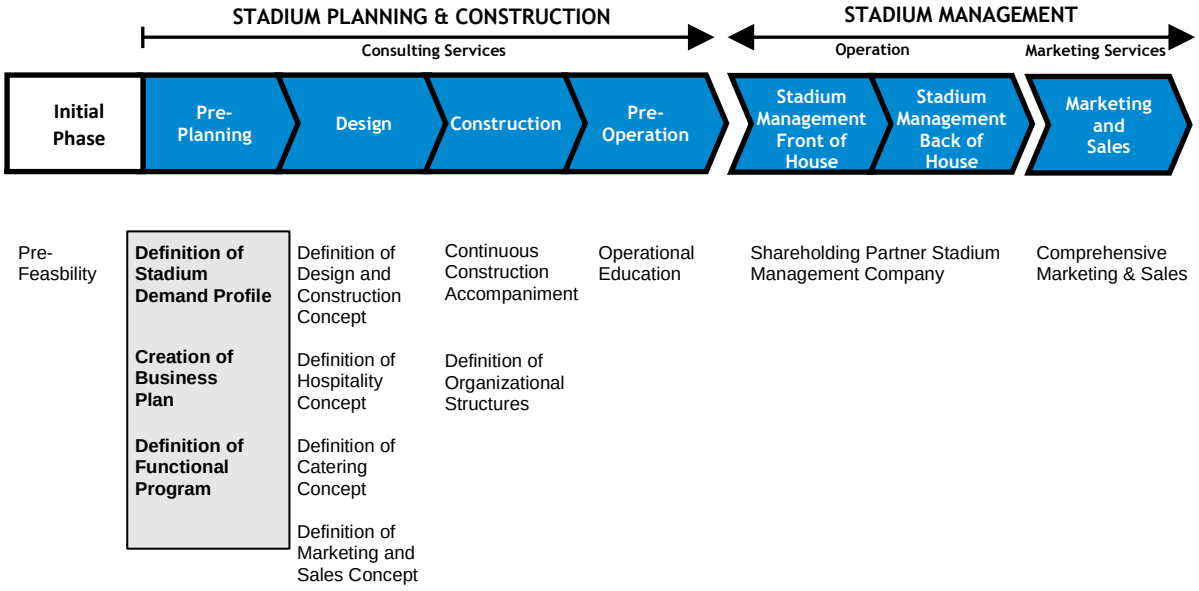
Additionally to the existing and ongoing vision to upgrade the current national stadium to a state-of-the-art level of facilities, the continuous positive results of the Icelandic football national teams has heavily increased the demand for tickets and the desire to be part of these unique live-events. Especially the highly prolific qualification campaign as well as the unprecedented success at the UEFA European Championships France 2016 (i.e. runners-up in Group F including Portugal, Austria and Hungary as well as winning the round of last 16 game vs. England), significantly raised Iceland's image internationally and created a certain football hype within the country and its people, society and businesses.

All of the above mentioned factors combined add up to the final assumption that this is now the ideal point in time to unify as well as intensify all previous working processes regarding a New National Stadium Reykjavik by developing a dedicated and detailed project feasibility to initiate further steps as professional and soon as possible. The study has been compiled in close collaboration with the local experts of Borgarbragur ehf.

GENERAL STADIUM DEVELOPMENT PROCESS

Given Lagardère Sports involvement and track-record within top-standard sports venue development ventures, experience shows that a certain standardized approach for such complex projects is essential in order to guarantee a prerequisite level of planning, development, construction as well as marketing and operations.

In the following, a proven standard working process outline is illustrated which allows ideally aligned working steps as well as interrelated processes and development of know-how within such complex projects:



Given Borgarbragur's vital and profound pre-feasibility study in December 2015, Lagardère Sports was appointed to contribute its renowned international stadium development expertise within the project's pre-planning phase, professionally analyzing the strategic and economical feasibility of a planned New National Stadium Reykjavik.

The comprehensive results of this report (covering the components Stadium Demannd Profile, Multi-year Business Plan and Functional Program for Architectural Planning) provide the substantial foundation for essential next steps building on each other within a following Design Phase (ideally including Definition of Design and Construction Concept, Hospitality & Catering Concept, Marketing & Sales Concept) crucial for the overall realization as well as long-term success for any new stadium development project.

1.1 DEFINITION OF STADIUM DEMAND PROFILE

CURRENT STADIUM SITUATION (Laugardalsvöllur)

Located in Reykjavik's Laugardalur area, the existing Laugardalsvöllur stadium is both, Iceland's largest stadium (with a current maximum capacity of 15.000) and the country's dedicated national football stadium for KSI matches – most notably Men's / Women's national sides as well as Youth Teams (U21/U19).

The current spectator stands of Laugardalsvöllur stadium were originally built in 1958, with several renovations taking place since then (see details on last renovation in 2006 below). Additionally to the already mentioned seating capacity of 9.800 seats in the stands, the stadium offers the possibility to add 5.200 places in mobile terraces (north and south stands).
The highest number of spectators in attendance at a sporting event in the existing Laugardalsvöllur stadium was a total of 20.204 spectators back in 2004 (Men's training match vs. Italy, however, according to current high FIFA standards this historical attendance figure is beyond today's allowed stadium capacity due to infrastructure regulations). Next to KSI's national football games, Laugardalsvöllur on the other hand rarely hosts concerts or any other major events, the latest concert being held back in August 2007 in the form of a 25th anniversary concert of Kaupthing bank (estimated number of guests of 25.000).

This leads to the overall perception and fact that the current stadium is hardly ever utilized to its full capacity, besides for a few Men's national games against highly popular opponents where on the other hand the available tickets are rapidly sold out for top-level matches. This imbalance in utilization results in the fact that the current stadium Laugardalsvöllur is by no means a profitable operational unit as well as does not offer state-of-the-art infrastructural conditions according to modern official standards.

Status quo operations contract
The municipality of Reykjavík currently represents the largest stakeholder in the existing national stadium Laugardalsvöllur. Additionally, the city's department of environment and planning is the dedicated planning authority in the Laugardalur area, which is a specially emphasised green zone including an urban park (according to Official Plan (OP) of Reykjavik 2010–2030). Furthermore, KSI functions as the dedicated stadium operator while at the same time owning and occupying two levels of office space for their staff within the (new) main stand built in 2006. The following rules are laid down between the city of Reykjavik and KSI for the operations of existing Laugardalsvöllur stadium:

- The city of Reykjavik is the main owner of Laugardalsvöllur national stadium
- Since 1st January, 1997, the Laugardalsvöllur national stadium has been operated by the KSI, in accordance to a contract made between the football association and the city of Reykjavík. In 2014, a new contract was signed between the two parties, valid until 2025.

As the country's national stadium, Laugardalsvöllur receives substantial subsidies from its owner, the city of Reykjavik's administration:

- The city is obliged to pay KSI as the operator an annual fee (ISK 44.900.000) for the years 2014, 2015, 2016. For the years 2017–2025 this annual fee is reduced by approx. 11.5 %.
- KSI receives additional subsidies from the city of Reykjavík in the form of three instalments à ISK 11.000.000, paid out in 2015, 2016 and 2017 respectively.
- In the past as well as at present, expensive renovations were and are required in the stadium (thanks to updated FIFA/UEFA requirements as well as competition changes such as the planned introduction of UEFA's new Nations League for national federations from 2018 onwards). However, the current agreement does not stipulate in detail the responsible party for funding particular renovations (e.g. natural grass pitch renovation, pitch heating and watering system, etc.).
- Additionally, it has to be mentioned, that according to local legislation, sports facilities in Reykjavik are not subject to property tax. Nevertheless, the city of Reykjavik as the stadium owner is required to pay for general maintenance work on a regular basis.

Next to KSI, other concerned parties in the operational matters of Iceland's current national stadium include the National Olympic and Sports Association of Iceland, the Reykjavík Sports Union, the responsible governmental ministries (education & culture as well as finance) as well as the local city council of Laugardalur.

Latest stadium renovation (west stand, 2006)

The current total seating capacity of Laugardalsvöllur was achieved by the stadium's last renovation (2005–2006) via the expansion of the west stand from 7.000 to 9.800. In the same process, KSI built and located their new headquarters and education centre in the southern end of the new west stand.
The total cost of the renovation was ISK 2,2bn, and the funding was divided as follows:

- KSI (including allowance from FIFA): 42%
- City of Reykjavik: 38%
- Icelandic government: 20%

Athletic track

Another complaint often heard regarding the current national football stadium Laugardalsvöllur concerns the distance between the spectator stands and the pitch itself due to the existing athletic track. From a pure football perspective, the New National Stadium Reykjavik is ideally developed without such a separation of spectator stands and playing field, as this represents a major distraction for both the overall atmosphere within the venue as well as the best possible sightlines for spectators due to larger distances.
Therefore the relocation of the Athletic Federation within the Laugardalur area is an influencing factor for the development of the New National Stadium Reykjavik stadium which has to be solved as early and convenient as possible (please note: this issue is particularly not a primary focus for this report).

STRATEGY AND DEMANDS FOR THE DEVELOPMENT OF ICELAND'S NEW NATIONAL STADIUM REYKJAVIK

The overall aim for any new stadium development project in Reykjavik is to properly serve its main usage as Iceland's national football stadium for Men's, Women's and Youth Teams by enhancing its spectator capacities to the increased demands as well as offer state-of-the-art facilities according to new and up-to-date infrastructure standards (FIFA/UEFA as well as local Icelandic facility and venue requirements). Given the fact that the above mentioned stadium's primarily utilization for KSI football matches only stages a limited number of home games per year/season (according to the respective year's match schedule, including all qualification and friendly games as well as from 2018 onwards UEFA's new Nation League matches), such a solely national football centred business unit is never going to be profitable and therefore needs additional income streams and/or official subventions.

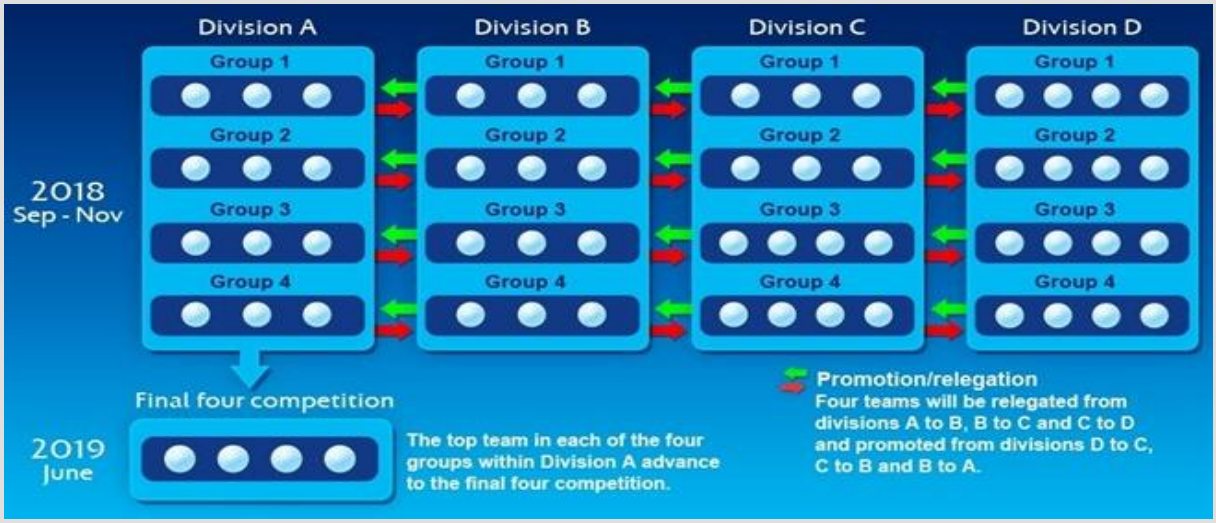
Therefore, the long-term strategy for Iceland's new national stadium also includes the transformation into a multi-purpose venue offering additional revenue generation (concerts, business use, urban development) as well as enhance the quality and business environment of the facilities including its territory for a year-long usage for sports and other purposes. This process would allow the stadium's operations to maximize stadium-related revenues enhancing a sustainable long-term project outlook.
Another important factor with regards to the development of a New National Stadium Reykjavik and its usage program are significant changes in UEFA's competition format for Men's national teams, most notably the already mentioned establishment of the new UEFA Nations League in 2018. As part of the competition, the Icelandic Men's national team will have to stage home matches every spring (March) and autumn (October–November) from 2018 onwards, which represents especially unpredictable and sometimes severe climate conditions in Iceland. Therefore it is an essential prerequisite for the new stadium to offer top-level facilities (including pitch) on a year-round basis in order to host all scheduled matches and potential events.

New UEFA Nations League (from 2018 onwards)

Competitive format for Men's national football teams (incl. qualification spots for UEFA European Championship tournaments)

Competitive format:

From 2018 onwards (starting with six matchdays during double-headers in September–November) UEFA plans to introduce a new competition format improving the quality and standing of national team football, therefore replacing large parts of friendly games as well as consequently streamlining UEFA European championship qualification campaigns. This leads to a new allocation of gamedays for national associations and therefore indicates changes to yearly match-scheduling.



The new format basically splits the 54 participating national teams into four leagues according to their strength/official rankings (top A to lowest D), each league itself is divided into four groups of 3–4 teams (as pictured above). Each league produces four group winners and losers which are either promoted or respectively relegated (four group winners of A league will compete in a knock-out format Final Four tournament to become Nations League winner, starting June 2019).

EURO 2020 qualificaiton (and onwards)

In order to upvalue the new format, the UEFA Nations League rankings are considered the factors of draw pots for subsequent European qualification campaigns. Furthermore, four additional automatic qualification spots for UEFA EURO final tournaments being awarded to UEFA Nations League play-off winners, matches taking place in March 2020 (each group winner of all four leagues of UEFA Nationas League excluding already qualified teams passing their right to the next best ranked team)

Considering the special Reykjavik situation, it is imperative that any new stadium development project is done in complete accordance within the rules, regulations and vision of the current OP of the city of Reykjavik. Currently, the location of today's national stadium Laugardalsvöllur is declared as a specified sports zone[1] which includes a dedicated focus on the preservation of green zones in the city. Especially with regards to the necessary upgrade of facilities to state-of-the-art standards within as well as around the stadium territory, any increased use of land in the Laugardalur area has to support the main goals of the city's OP.

Nevertheless, the planned stadium development at the same time represents also a unique opportunity for combined local infrastructure and real-estate development projects, upgrading and enhancing the area for all involved stakeholders. The overall aim has to include the compliance and satisfaction of the related requirements and needs of all concerned parties in terms of official regulations, urban development as well as financial feasibility and success for KSI, city of Reykjavik and local authorities/environments.

MARKET ANALYSIS ICELAND / REYKJAVIK

General[2]

Iceland, as well as its capital Reykjavik, possess highly unique social, demogrpahic and economic settings on an international level, especially within Europe. The continent's second biggest island (after the UK) is located in the middle of the atlantic ocean on a total landscape of 103.000 km² inhabiting approx. 330.000 (2016) people, leading to a population density of just around 3,2/km² (which puts Iceland on 235th position out of 244 countries in a comparative international ranking). These figures already show the highly specific situation when considering the countries general GDP per capita (ISK 6.661.000, 2015) and GDP growth (4,0%, 2015), main sources of income and industries (tourism 30% / fisheries 23% / aluminium 20%, 2015) as well as average salaries per year (ISK 5.053.000 gross / ISK 3.710.000 net, 2014).
Focusing on Reyjkavik, the location of the current as well as the planned new national stadium, data and figures clearly show that the capital city represents Iceland's heartbeat and hub in terms of population (121.822 in Reykjavik / 211.282 in greater capital area, 2015) and labour force (118.400 in capital area / 64% out of Iceland's 184.800 in total, 2015) as well as hosting the country's most important financial entities (Borgartún as Iceland's financial centrum).

Iceland and its rapid as well as dynamic development in recent decades is best exemplified via the progress from being a traditional fishing nation to the country's nowadays biggest industrial sector of tourism. Recent statistics indicate a re-established economy after the Icelandic financial crisis (2008–2011), mainly facilitated by the country's application for EU single market membership in 2009 (ensuring free movement of goods, capital, services, and people within the European Union) and a closely related considerable growth in tourism and other major industries since. Over the past couple of years the annual income from tourism is constantly increasing from ISK191,2bn ISK (2008) over ISK 354,6bn (2014) to a total of ISK 412,2bn (2015). These figures illustrate Iceland's ongoing tourism boom (est. number of tourists in 2016 of 1.600.000 people / 29,0% increase compared to 2015), which is inseperably linked to an unprecedented blossoming of sports within the country, not least reflected by the high number of out- and indoor activities offered.

[1] "Sports zones include all activities and operations that relate to sports and the practice of sport, for example, facilities and organized operations of sports clubs in the city. A sports zone serves one or more areas within the city. Swimming pools are categorized as sports zones but are also permitted in open areas. Within a sports zone, buildings related to the operations of the area in question, including floodlights, artificial grass pitch, stands and sports halls, outdoor and indoor swimming pools, gyms, auditoriums, clubhouses, and so on. Facilities for catering service and sports stores may be included." – *source: Pre-Feasibility Study by Borgarbragur ehf*
[2] All market analysis related data provided by Borgarbragur ehf, www.hagstofa.is, www.islandsbanki.is, www. ferdamalastofa.is

Tourism and sports boom

The close correlation between the ongoing increase in visitor figures as well as the high interest in sports (facilities) coincides with the most successful period of Icelandic football in its entire history. KSI as well as football as a sport itself have never been as strong and popular before (both Men's and Women's national teams achieving unrivalled results over the past couple of years). This combination of success stories as well as their close interrelation with each other constitute reason enough to reasonably review the country's internal structures on a wide range in order to further develop prevailing standards as well as fully maximize future potentials and synergies. This includes the availability of enhanced services and contingencies to tourists and sports-interested people, improved capacities according to increasing demand for sports and other events as well as offering state-of-the-art facilities on a general level. The provision of an appealing and diverse destination, especially considering the country's capital city of Reykjavik, plays an important role for tourists as well as residents and local businesses alike.
Therefore, the urban development of Reykjavik takes up an significant and strategical role, whilst especially the stadium-related Laugardalur area together with its surrounding facilities and structural opportunities are predestinate to become the center of professional sports infrastructure and organizations in Iceland.

The ongoing tourism boom in Iceland and especially Reykjavik as its main city and logistical center results in the need to not only manage and maintain existing structures as well as facilities for tourists and other related target-groups, but at the same time enlarge and strategically develop potential capabilities. The continuing stream and growth of visitor figures in Iceland demands while at the same time constitutes the premise for a more diverse event offering within its capital city. Thus, the New National Stadium Reykjavik represents a perfect development opportunity to fulfill such event-related shortcomings and needs with its multi-purpose character of hosting national/international football games together with other sports and third party events. As particularly the concert, festival and other entertainment events market has so far been heavily under-developed in Iceland, this project ideally combines the closely interlinked characterstics and synergies between tourism demands, sports professionalization and event opportunities.

Competitive venues

Given the size and infrastructural characterstics of the country's main and biggest sports venue, the existing national stadium Laugardalsvöllur already offers vastly larger capacities than any other sports venues in Iceland (2nd biggest football venue Kaplakriki offers 6.450 total capacity for football / 3.050 seats plus 3.400 standing places).

However, when comparing Laugardalsvöllur's total capacity as well as its multi-functional capabilities to competing facilities within the region/country, it has to be concluded that all major concerts/entertainment events in Iceland are held in other (mostly indoor) venues such as the sports and exhibition centre of Laugardalshöll (indoor arena max. capacity 5.000 / concerts 3.186 / sports 2.300) in Reykjavik, Iceland's most-modern concert hall Harpa (indoor concert hall max. capacity 3.500 / concerts 1.800) in Reykjavik, the recreation and sports centre of Egilshöll (indoor arena max. capacity 18.000 concerts / football 3.000) in Reykjavik and the multi-purpose auditorium Kórinn (indoor arena max. capacity 19.000 concerts / football 1.564) in the nearby municipality of Kópavogur (11km from Reykjavik). This leads to the conclusion that in order to support any essential multi-functional purpose of the New National Stadium Reykjavik it is absolute vital, from a competitive perspective, to provide top-level event and entertainment conditions all year long as well as offer economically reasonable while at the same time, from a marketing and sales point of view, superior capacities.

When even expanding the object of investigation and examination to the possibility to host MICE events (meetings, incentives, conferences and exhibitions), the infrastructural landscape becomes even more competitive as nearly all Reykjavik based event and cultural venues as well as especially convention centers and hotels (more than 40 facilities) offer some kind of conferencing mode. Therefore, any new competitive conference site has to provide some additional features and/or values in order to successfully enter this highly differentiated market. Especially the emotional and image related connection of hosting conventions, corporate events as well as presentations within its exclusive facilities provide the New National Stadium Reykjavik with a unique selling proposition.

CONCLUSION

Since the Icelandic financial crisis in 2008, the country and its capital city of Reykjavik are on a constant rise across all sectors, specifically with regards to the re-established economy. This general positive prospect and outlook within Iceland is not the least underlined by the ongoing tourism boom contemporaneous with the country's most successful period in sports, in particular considering its fooball national teams.

Especially the current positive image of Icelandic football, endorsed by the country's latest achievements during the UEFA European Championships 2016 France qualification campaign as well as at the tournament itself, represent the ideal point in time to challenge the long-lasting need and desire of Iceland's sports industry for a new state-of-the-art homeground for their highly successful national football teams.
In combination with a modern multi-functional usage character for year-long third party event potential, the planning of a New National Stadium Reykjavik will become a driving force for Iceland's football industry as well as the city's long-term development and promotion.
With regards to the current national stadium Laugardalsvöllur, the existing infrastructural situation is not of a long-term satisfactory character due to the constantly upgrading technical requirements from FIFA/UEFA, in particular when considering the continuous positive development of the football national teams together with the associated rising public demand. In addition to that, the planned alterations regarding the playing schedules of national federations (i.e. UEFA Nations League from 2018 onwards) implicate further concerns and requirements for KSI homegames, most notably in the already problematic and weather inconsistent months of early spring and late autumn respectively.
All this leads to the conclusion that there is a specific need within Iceland to offer a modern all-year venue dedicated to the national football teams, ideally combined with a multi-functional usage character for other sports and third party events supporting the stadium's operations itself while at the same time provide improved facilities for the city of Reykjavik and Iceland's society in general.

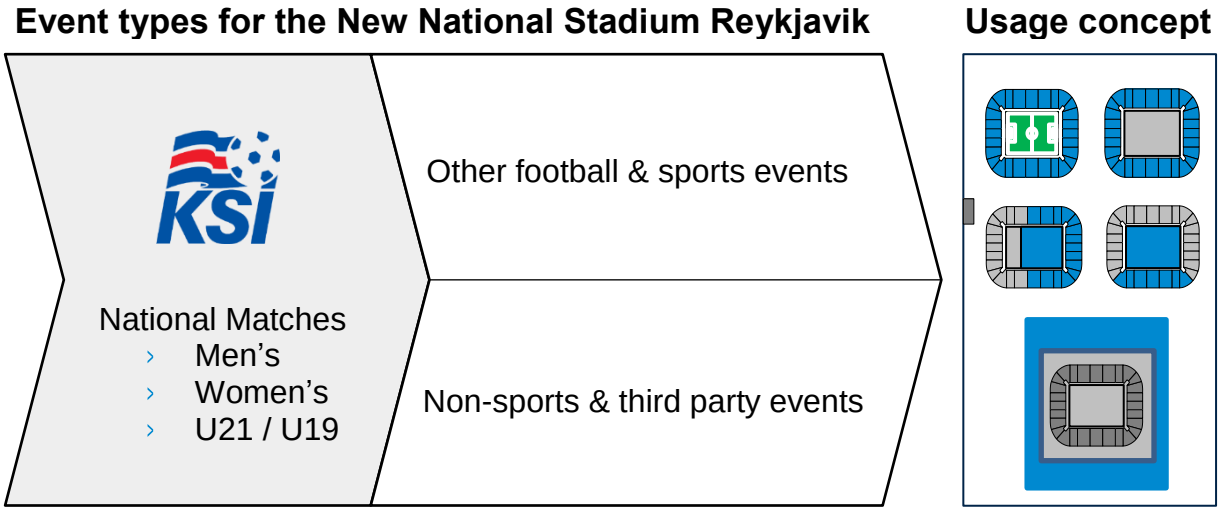
Iceland needs to **capitalize** on its **ongoing tourism- and sport boom** on **all business sectors and levels of society**!

The Icelandic football industry has to **upgrade** its **existing national infrastructure to an international top-standard level** in order to accompany its great athletic achievements!

Due to the current great success and image, now is the **perfect timing for Icelandic football and its development projects** to **benefit from the unanimous support within its country**!

1.1.1 Definition of the Reykjavik Multifunctional Stadium Specific Usage Concept

The event types for the new stadium are differentiated in a first step according to its general usage as the home stadium for all Icelandic football national teams. On top of that, events without direct link to this stated main purpose, however, also contributing as important factors to the stadium's overall economic and social performance, are furthermore also identified.



Events directly linked to the main football purpose for KSI include:

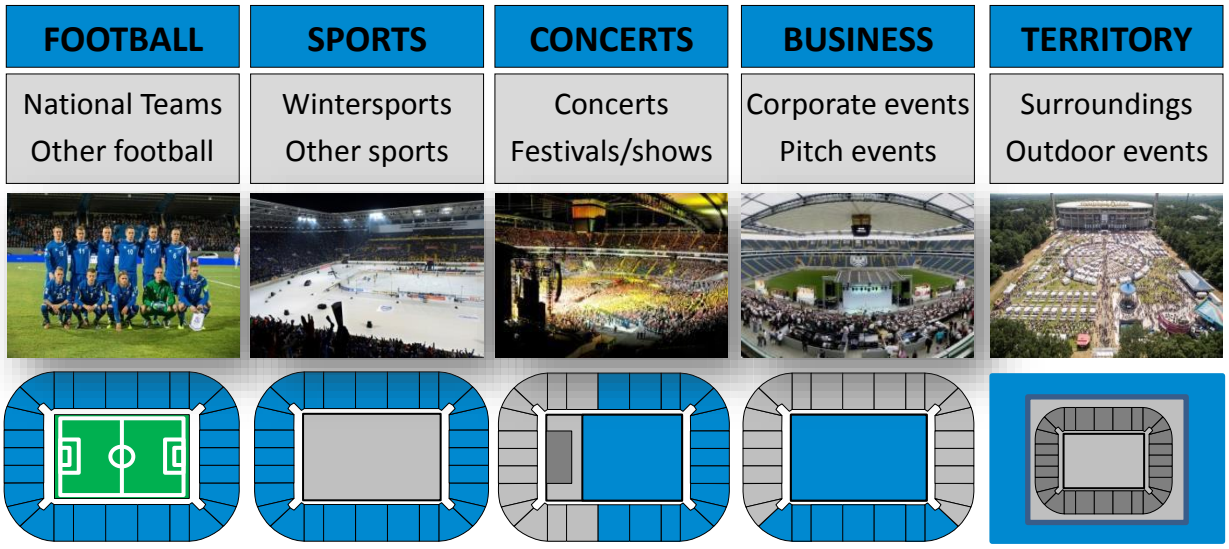
- All Men's National Team matches (qualifiers, friendlies, proposed new UEFA Nations League from 2018 onwards)
- All Women's National Team matches (qualifiers, friendlies, etc.)
- All U21/U19 National Teams matches (qualifiers, friendlies, etc.)

Events without direct link to KSI football purposes are generally divided into:

- Other football and other sports events (e.g. national cup competitions, wintersports, motorsports, etc.)
- Non-sports & third party events (concerts, festivals, business and social usage)

A classic event-mix for multi-purpose football venues consists of a combination of basic stadium event types (including football, other sports, international/national concerts and festivals as well as business events). Furthermore, individual created and configured stadium events add a more diverse scope of interest and target groups to the stadium's audience, including special sports formats, entertainment shows, pitch and non-pitch events, local festivals and social engagement etc.
Given Reykjavik's special situation and location, possible events with regards to climatic parameters (wintersports) as well as general national interests (motorsports and equestrian events) provide a customized feature to the new stadium's usage concept. Taking into consideration Reykjavik's booming image as a top-level tourist destination, the addition of events that actively promote the city's image as the world's northernmost capital and outdoor adventure hot-spot provide a unique selling and communication potential (special host city marketing aspect for the city of Reyjkavik).
Addtionally, the concept of Iceland's highly social responsible characteristics allow an ideal integration of public and official events, holidays and celebration dates into the stadium's usage program. Finally, it is also of utmost importance to include the venues' purpose to improve urban development into its usage concept by hosting selected events that actively enrich local facilities and infrastructure (office buildings, hotels, commercial shops, etc.).

In order to create a customized and comprehensive usage concept for the New National Stadium Reykjavik, all of the above mentioned viable event types are comprehensibly outlined as well as in a further step categorized via a tailor-made evaluation pattern:



The possible event types per category are listed as follows:

FOOTBALL

Category	Types
National Teams	
- Men's National Team	Qualifiers, friendlies, UEFA Nations League (from 2018 onwards)
- Women's National Team	Qualifiers, friendlies
- U21/U19 National Teams	Qualifiers, friendlies
Other football	
- National cup competitions	Official national cup games/finals

SPORTS

Category	Types
Wintersports	
- Cross-country skiing/biathlon	Cross country/biathlon compeitions
- Ski/snowboard	Air & Style, Winter X-Games,
- Ice hockey/figure skating	Special league/cup games, exhibition games, figure skating gala
Other sports	
- Motorsports	Race of Champions, Monster Jam, Nitro Circus, Night of the Jumps, Red Bull X-Fighters, demolition/stock cars, super cross
- Equestrian events	Equestrian shows, galas, theme days and conventions
- Handball/basketball	National league/cup matches, exhibition games
- Multi-sport events	European/world games, Universiade, disabled sport games
- Adrenalin games/extreme sports	Adrenalin games, X-Games, Red Bull events
- Track cycling	UCI events, Grand Fondo cycling competition

CONCERTS

Category	Types
Concerts	
- International	Top-level and Iceland-suited international artists
- National	Well-established and upcoming national music artists
Festivals/shows	
- Music festivals	Large sized national (and international) music festivals
- Art & culture festivals	Medium- & large sized art & culture festivals (national/international)
- Kids festivals	Local and urban relevant kids festivals
- Entertainment shows	Small- and medium sized shows and concerts
Public viewings	
- Football National Teams	Screening of popular national teams away matches (all categories)
- Others sports/third party events	Broadcasting of special interest sports and other kinds of events

BUSINESS

Category	Types
Corporate events	
- MICE	Meetings, incentives, conventions, exhibitions
- Sponsor events	Product presentations, CRM events, trainings & educations
Pitch events	
- B2B/B2C events	Business clubs, product platforms, small trade shows
- Trade fairs	Regional/local, national, international
- Corporate parties	Pitch-using corporate events such as celebrations/birthdays

TERRITORY AND SPECIAL EVENTS

Category	Types
Stadium surroundings	
- Social and sports	Meet & greet events, KSI fundraising
- Community festivals	Food markets, block parties, street festivals
Special events	
- Political conventions	Local/national party conferences
- Cultural/community events	University/school festivals

In order to help evaluate the respective applicability and capabilities of each of the above listed event types, Lagardère Sports designed a customized evaluation pattern according to the New National Stadium Reykjavik's in order to reasonably assess the economic as well as social potential with regard to its specific usage concept (scale lowest 1 – 10 highest).

Criteria	Evaluation factors
Economic potential	Long-term potential for sustainable profitability
Attractiveness	Degree of attractiveness for national/international and local target groups
Technical feasibility	Practicality of reasonable technical implementation based upon planned building features and required additional equipment/facilities
Seasonality	Possibility to stage certain event according to point in time of the year, weather and climate conditions
Innovativeness	Degree of innovative character and event related potential
Social leverage	Factor of social influence on local/national target groups and society itself
Total	**Final evaluation score suitable for comparison of respective event types**

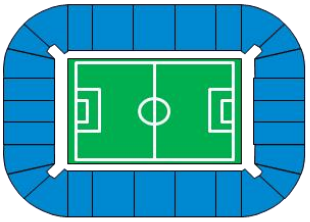
Applying the above illustrated evaluation pattern to the listed categories allows for a general comparison of and recommended emphasis on specific event types/events within the comprehensive stadium usage program for the customized Reykjavik situation.

FOOTBALL

As the main purpose of the New National Stadium Reykjavik is to host Iceland's football national teams, the following evaluation starts with the major event category concerning dedicated KSI football events.

National Teams:
Due to the rapid and constanct development of Iceland's highly successful football national teams, the usage program of the New National Stadium Reykjavik is obviously mainly driven by the official (qualifiers, UEFA Nations League) as well as friendly matches within the footballing calendar.

National Team Men

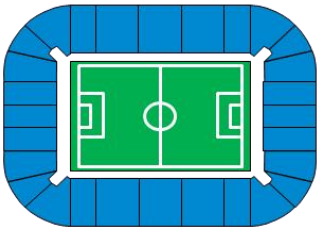


Events	Ø no. of events/year	Total number of events/year
> Qualifiers (FIFA/UEFA)	3	7 (from 2018 onwards)
> Friendlies	1 (according to qualifiers)	
> New UEFA Nations League *(from 2018 onwards)*	3	

Criteria	Evaluation
Economic potential	9
Attractiveness	9
Technical feasibility	9
Seasonality	9
Innovation power	7
Social leverage	7
TOTAL	**50**

Next to the currently highly successful Men's national football team, of course also the Women's as well as Youth Teams (U21/U19 men's & women's teams) play an important role within the football event category of the new stadium's usage program.

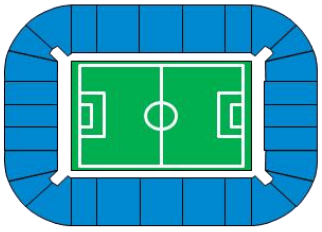
National Team Women



Events	Ø no. of events/year	Total number of events/year
> Qualifiers (FIFA/UEFA)	3 (every second year)	2-4 (average per year)
> Friendlies	1-2 (according to qualifiers)	

Criteria	Evaluation
Economic potential	4,5
Attractiveness	4,5
Technical feasibility	9
Seasonality	9
Innovation power	7
Social leverage	7
TOTAL	41

National Teams U21/U19 (Mens's & Women's)



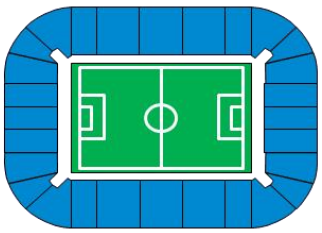
Events	Ø no. of events/year	Total number of events/year
> Qualifiers (FIFA/UEFA)	2-3 (according to schedules)	2-4 (average per year)
> Friendlies	1-2 (according to qualifiers)	

Criteria	Evaluation
Economic potential	4
Attractiveness	4
Technical feasibility	9
Seasonality	9
Innovation power	7
Social leverage	7
TOTAL	40

Other football:

On top of the Icelandic football national teams, the potential staging of national/local cup competitions would allow an even more steady mix of football events within the usage program during the Icelandic footballing season.

Potential national/local cup games



Events	Ø no. of events/year	Total number of events/year
> Official national cup games *(Icelandic FA)*	2-3	2-4 (average per year)
> Local cup matches	0-1	

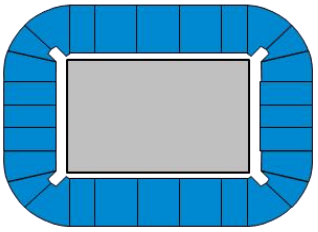
Criteria	Evaluation
Economic potential	5
Attractiveness	5
Technical feasibility	9
Seasonality	9
Innovation power	7
Social leverage	8
TOTAL	**43**

SPORTS

Next to the new stadium's main purpose as the country's major football venue, the additional inclusion of adequate and appropriate other sports events allows for an enlarged and more balanced usage program throughout the year.

Wintersports:
Considering Iceland's special climate situation, most notably short chilly summers and long cold winters, winter sports offer an ideal opportunity to supplement the above illustrated football programs. Especially cross-country skiing and biathlon, given the sports event set-ups including tracks and special elements (e.g. shooting range), provide highly entertainable conditions with great audience appeal. Such event types offer ideal possibilities for special event implementation within the usage program of modern mulit-purpose stadiums.

Cross-country skiing/biathlon

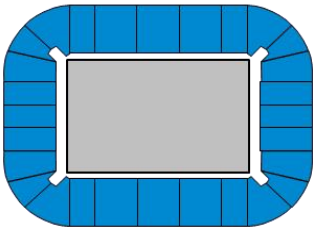


Events	Ø no. of events/year	Total number of events/year
> FIS competitions/exhibitions	1-2	1-2 (average per year)
> National competitions / schools / universities	0-1	

Criteria	Evaluation
Economic potential	5,5
Attractiveness	6,5
Technical feasibility	5
Seasonality	6
Innovation power	7,5
Social leverage	7
TOTAL	**37,5**

Other classical winter sports events (such as ski/snowboard) together with additional usages requiring icy surfaces (such as ice hockey/figure skating) possess the potential for highly attractive exhibition games and gala shows. Due to the more complex installation of necessary features and technical facilities (e.g. jumping hills), a dedicated review and verification of the potential economic capabilities with all involved stakeholders (i.e. federations, event promoters, etc.) is highly recommended.

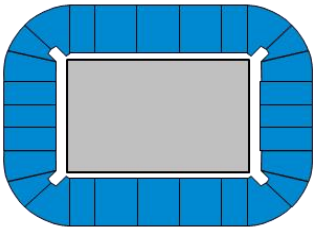
Ski/snowboard



Events	Ø no. of events/year	Total number of events/year
> Air & Style	1	1-2 (average per year)
> Winter X-Games	0-1	
> Freestyle FIS competitions	0-1	

Criteria	Evaluation
Economic potential	6
Attractiveness	7
Technical feasibility	4
Seasonality	6
Innovation power	8,5
Social leverage	7
TOTAL	**38,5**

Ice hockey/skating



Events	Ø no. of events/year	Total number of events/year
> Exhibition games ice hockey	1-2	1-2 (average per year)
> Figure skating gala	0-1	

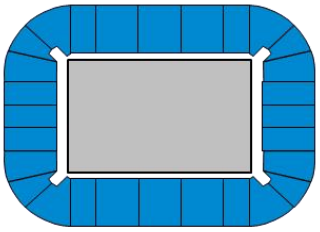
Criteria	Evaluation
Economic potential	5,5
Attractiveness	5
Technical feasibility	6,5
Seasonality	6,5
Innovation power	6,5
Social leverage	6,5
TOTAL	**36,5**

Motorsports:

Due to a possible 365-day-a-year usage of a state-of-the-art multi-purpose venue, also other sports besides the classical football and weather-related winter sports provide attractive options and tools for a year-round usage programe for the New National Stadium Reykjavik. As there is a general great variety of possible sports to be hosted in a modern stadium, the following selection of additional sports events represents a customized collection for the specific Iceland/Reykjavik situation considering all local and external factors and influences.

Given its high economic potential, also due to the existing interest in powerful motor vehicles in Iceland, as well as all-year event character, motor sports represent an ideal addition to the New National Stadium Reykjavik's usage program. Especially Lagardère Sports long-lasting business cooperation with some of the most renowned event promoters for motor sports events, allow an optimum approach and integration within the football-driven usage program.

Motorsports



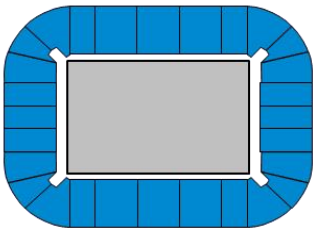
Events	Ø no. of events/year	Total number of events/year
> Race of Champions / Monster Jam	1	2 (average per year)
> Nitro Circus / Night of the Jumps	1	
> Red Bull X-Fighters / stock sars	0-1	

Criteria	Evaluation
Economic potential	6,5
Attractiveness	6,5
Technical feasibility	6
Seasonality	8
Innovation power	6,5
Social leverage	7
TOTAL	**40,5**

Equestrian:

Due to Iceland's long history of horse breeding, keeping and dressage the event category of equestrian shows and conventions hold a very interesting local as well as national potential. Given the fact that the New National Stadium Reykjavik's multifunctional character together with the venue's surroundings infrastructre provide top standard conditions for such equestrian related galas, shows and/or conventions, these events offer the possibilities to become a regular feature in the event scheduling and would further enhance the stadium's diversification. On top of that, Lagardère Sports` operational experience within the related Scandinavian market (especially with regards to the "Sweden Horse Show" held annually at one of Lagardère Sports stadium operations venues, Friends Arena Stockholm) allow for highly beneficial synergies.

Equestrian



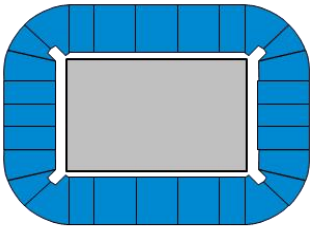
Events	Ø no. of events/year	Total number of events/year
> Equestrian shows / galas *(multi-days possible)*	1	1-2 (average per year)
> Theme days, conventions, trade fairs	0-1	

Criteria	Evaluation
Economic potential	5
Attractiveness	5
Technical feasibility	5
Seasonality	8
Innovation power	7
Social leverage	7,5
TOTAL	**37,5**

Other sports:

Next to the above mentioned event types considered and elaborated in detail, other well-established general sports events also function as ideal supplements to a multi-purpose venue's usage program. Even though not considered regular or permanent tenants, certain exhibition and/or special games of classical indoor sports (e.g. handball, basketball, etc.), facilitated due to the planned year-long utilization mode of the New National Stadium Reykjavik, possibly attract larger audiences thanks to their highly appealing event character.

Handball/basketball



Events	Ø no. of events/year	Total number of events/year
> National league/cup competitions	0-1	1-2 (average per year)
> Exhibition games	1-2	

Criteria	Evaluation
Economic potential	5,5
Attractiveness	5,5
Technical feasibility	6,5
Seasonality	6,5
Innovation power	6,5
Social leverage	7
TOTAL	**37,5**

Exhibition games sports events

"goldgas Day of Handball" – Commerzbank Arena Frankfurt (Germany), 6th September 2014

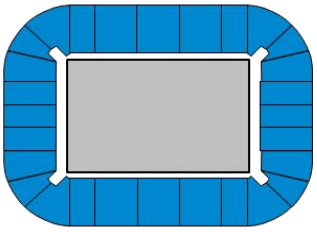
On the 6th of September 2014 the multi-purpose football stadium Commerzbank Arena Frankfurt, managed by Lagardère Sports' subsidiary Stadion Frankfurt Management GmbH, initiated and hosted an official German handball league (DKB Handball Bundesliga) game between the local team of the Rhein-Neckar Löwen (EHF Cup winner 2013) against HSV Handball (EHF Champions League winner 2013). This so called "goldgas Day of Handball" event still holds the world record attendance for an official handball league game with 44.189 spectators.

However, the stadium management team of Commerzbank Arena Frankfurt not only hosted the above mentioned official handball league game, but also organized a wide-ranged entertainment program including a corresponding youth team handball tournament, a celebrity exhibition-game as well as open forum and panel discussions dealing with dedicated sports/handball topics together with signing sessions featuring star players of the competing teams and the entire German handball scene.
In the course of the corresponding youth team handball tournament, the Commerzbank Arena Frankfurt included its spacious stadium surroundings to stage the multitude of games for the different age groups (cumulating into 80 youth teams in total) as well as providing a dedicated entertainment promenade including top-level food & beverage offerings for all athletes, coaches, families and spectators alike.
Prior the day's main event, a star-studded warm-up game was staged including a variety of German prominent figures out of sports, television, cinema and society.
Finally, after the official game a special panel discussion including signing sessions were staged in order to elaborate and promote the handball sport in front of this record audience.

Summary of event data:
- World record attendance for an official handball game with 44.189 spectators
- Special youth team side tournament within the stadium territory hosting a total of 80 youth teams
- Warm-up celebrity exhibition game including national top stars from sports, movies and society
- Dedicated VIP set-up within the inner-circle around the playing field offering unique on-site feeling
- Live-TV coverage of the all-day event in more than 45 countries all over the world
- Comprehensive all-day event program including quality food & beverage offering for all guests

Other event types adequate for the interests and preference of Icelandic sports interested people and general public (e.g. crossfit/calisthenics, cycling, extreme sports etc.) or typical multi-purpose venue events (e.g. multi-sport events) are ideally also included in the new stadium's usage program.

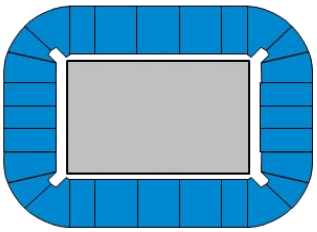
Multi-sport events/extreme sports



Events	Ø no. of events/year	Total number of events/year
> Red Bull events / Adrenalin- & X games	1-2	1-2 (average per year)
> Universiade / disabled sport games	0-1	
> Crossfit / calisthenics	0-1	

Criteria	Evaluation
Economic potential	4,5
Attractiveness	4,5
Technical feasibility	6
Seasonality	7
Innovation power	6
Social leverage	8
TOTAL	**36**

Track cycling



Events	Ø no. of events/year	Total number of events/year
> UCI track cycling competitions	0-1	1-2 (average per year)
> Gran Fondo	1	
> Stadium & surroundings events	0-1	

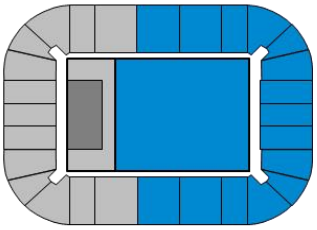
Criteria	Evaluation
Economic potential	4,5
Attractiveness	5
Technical feasibility	6,5
Seasonality	7
Innovation power	6
Social leverage	7,5
TOTAL	**36,5**

CONCERTS

One of the most important factors and pillars for the development of a multi-purpose venue is the possibility to stage medium- and large-sized concerts, festivals and entertainment shows. Not only from a pure economic potential, which of course also plays a key role for the proper inclusion of above mentioned event types within the usage program, but also the attention, awareness and image created for the stadium represent highly important factors.

International and national concerts:
Due to its location and unique environmental settings, Iceland/Reykjavik represents a highly booming and attractive concert destination for international performers/promoters in particular, however, also local acts alike. In combination with the existing and continuing tourism increase in the country, the adequate selection and inclusion of leading national and international artists is going to be comprehensively beneficial for a variety of sectors of Iceland's economy and society.

Concerts



Events	Ø no. of events/year	Total number of events/year
> International top concerts *(full capacity)*	1-2	3 (average per year)
> International concerts	1-2	
> National concerts *(small capacity)*	1-2	

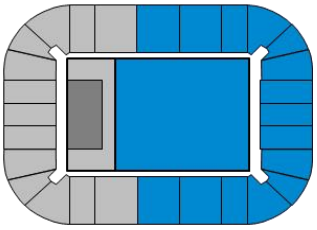
Criteria	Evaluation
Economic potential	8,5
Attractiveness	9
Technical feasibility	7
Seasonality	6
Innovation power	7
Social leverage	8
TOTAL	**45,5**

Festivals/shows:

Quite similar to concerts, however, slightly lesser attention-catching, are the event types of festivals and shows. Especially shows and entertainment performances can be staged in various formats and sizes (from small and medium up to large sized) providing a tailor-made opportunity to add to any existing music and entertainment usage program.

On top to the classic concert and show configuration, festivals offer the additional capability to include the stadium territory and surroundings into the event set-up. This allows for a larger diversification within the respective event itself (e.g. music stage inside, artist fair outside) and enlarges the possibilities to target potential audiences. Especially for the specific Reykjavik situation, the new stadium represents the ideal focal point/centre stage for highly successful multi-location festivals like Secret Solice, Iceland Airwaves, etc.

Festivals/shows



Events	Ø no. of events/year	Total number of events/year
> National music/culture/art festivals	2-3	4-5 (average per year)
> International music festivals	1-2	
> Kids festivals/entertainment shows	0-1	

Criteria	Evaluation
Economic potential	7,5
Attractiveness	8
Technical feasibility	7
Seasonality	6
Innovation power	7
Social leverage	8
TOTAL	**43,5**

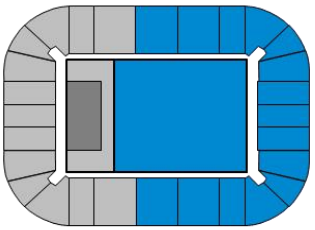
Public viewings:

Since the FIFA World Cup 2006 in Germany, public screenings of popular sports events enjoy a huge success not only with the target group of dedicated (sports) fans, however, also create a highly appealing place-to-be event for all kinds of customers including families and young age groups/teenagers.

Next to its high level of attractiveness for sports and event fans, the extensive as well as lucrative business opportunities deriving of and emerging around such public viewings make it a highly effective tool within the usage program mix. Especially the implementation within an emotion-charged venue such as football stadiums (incl. its surroundings) represent an ideal combination of emtional and business-related synergies.

Finally, Iceland's phenomenal success at the UEFA European Championships 2016 in France created, demonstrated a real demand for such events as center of attention for the general public within Reykjavik.

Public viewing



Events	Ø no. of events/year	Total number of events/year
> Public viewing National Teams	2-3	2-3 (average per year)
> Other sports & third party events	0-1	

Criteria	Evaluation
Economic potential	6
Attractiveness	6,5
Technical feasibility	6,5
Seasonality	7
Innovation power	7
Social leverage	7
TOTAL	**40**

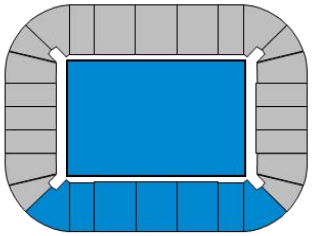
BUSINESS

Next to a stadium's capability to stage and host football, sports and entertainment events, the opportunity to offer unique and customized business facilities represents a highly attractive factor for companies, sponsors and other business target groups.

Corporate Events/MICE

The event category of corporate events and play a key role in filling up the usage program of modern stadiums and multi-purpose venues. The capabilities to offer 365 days a year usage for various kinds of business purposes, not only enlive a modern multi-purpose stadium and its territory, but also cement its place in the daily business life and infrastructural portfolio within a city/country.

Corporate events/MICE



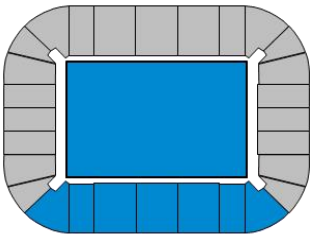
Events	Ø no. of events/year	Total number of events/year
> MICE	15-20	20-30 (average per year)
> Sponsor events	5-10	

Criteria	Evaluation
Economic potential	7
Attractiveness	7
Technical feasibility	9
Seasonality	8
Innovation power	6
Social leverage	6
TOTAL	**43**

Pitch events:

On top of the above mentioned corporate and MICE events within the business usage of the new national stadium's facilities, the possibility to incorporate the pitch itself (including pitch view) illustrates an extraordinary unique selling point for any business events. Especially sponsors as well as sport associated companies try to capitalize on such an emotional feature when staging events for their clients and/or employees.

Pitch events



Events	Ø no. of events/year	Total number of events/year
> B2B/B2C events	3-5	5-8 (average per year)
> Trade fairs	2-3	
> Corporate birthdays	1-2	

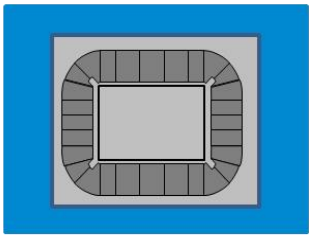
Criteria	Evaluation
Economic potential	7
Attractiveness	8
Technical feasibility	6,5
Seasonality	7
Innovation power	7
Social leverage	6
TOTAL	**41,5**

TERRITORY AND SPECIAL EVENTS

Modern and state-of-the-art multi-purpose stadiums offer a wide range of possible usage scenarios within its dedicated facilities as listed above. However, in order to even further extend a venue's reach, the inclusion of the respective stadium territory can bring along extraordinary benefits for both, the stadium itself as well as the surrounding areas and stakeholders (local community, urban region, etc.).

Stadium surroundings:
Event types with a dedicated use of the stadium surroundings generally consist of two different set-up options, either stadium territory only (e.g. local community festivals) or an interrelated use of both, the stadium inside as well as its surroundings (e.g. sports and social events).

Stadium surroundings



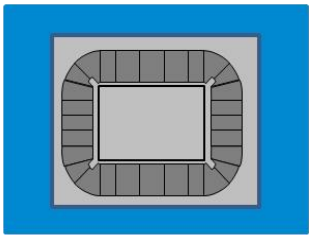
Events	Ø no. of events/year	Total number of events/year
> Social and sports	1-2	2-3 (average per year)
> Community festivals	1-3	

Criteria	Evaluation
Economic potential	5
Attractiveness	7
Technical feasibility	6,5
Seasonality	5,5
Innovation power	7
Social leverage	9
TOTAL	**40**

Special events:

Another valuable, since highly flexible and adoptable, option represent so called special events of various kinds. Ranging from usage of the stadium and its surrounding for society usage to cultural and community events (e.g. political party convention, universities/schools, etc.).

Special events



Events	Ø no. of events/year	Total number of events/year
> Political convention	1-2	1-2 (average per year)
> Cultural and community events	1-2	

Criteria	Evaluation
Economic potential	5
Attractiveness	5,5
Technical feasibility	6,5
Seasonality	5,5
Innovation power	6
Social leverage	8
TOTAL	**36,5**

CONCLUSION

The ideal event mix for the New National Stadium Reykjavik contains a broad range and customized mix of football, other sports as well as third party events and business usage, while at the same time at no point risks to compromise its main utilization mode for the national football teams.

The defined usage program contains selected event types according to local supply and demand, competitive venue infrastructure as well as careful considerations with regards to special weather conditions in Reykjavik/Iceland and seasonal timing of national/international event promoters. Especial third party events like concerts, shows and festivals follow a certain cyclical tour mode (e.g. dedicated route within a region or continents). Thus limits the influence on independent planning for stadium operators according to their respective own schedules and usage program mix.
Nevertheless, the trend of international concert and event promoters to focus on special territories and ambience to offer exclusive features and atmosphere to their respective tours/shows allows Iceland/Reykjavik to actively push its unique destination as both, the most fascinating natural scenery as well as the linkage between Europe and Northern America.
Considering a tailor-made compilation of an appropriate usage program for the New National Stadium Reykjavik, it has to be generally stated that a technical well-fitted stadium paired with a professional and experienced operational organization offer a definite competitive advantage in terms of event aquisition and implementation to other stadiums and venues. Additionally, the appropriate mixture of events with a stadium-only usage (infield and/or all facilities) combined with the option to involve the entire venue territory into the dedicated utilization mode play an important role regarding the stadium's vision to engage as well as enrich local communities and administration. Finally, the customized selection and facilitation of innovative and social responsible events allow for a target-group oriented approach on a national as well as interational level, reflecting the high social values and trendsetting character of Iceland and Reykjavik in particular.
Ultimately, the final usage program needs to make sure that the New National Stadium Reykjavik provides a year-long utilization of its facilities in order to ideally allocate its direct and indirect operational costs while at the same time maximize its revenue streams and sources of income (reflected in the customized business case within this report).

The usage program of the New National Stadium Reykjavik needs to **represent a dedicated multi-purpose character**, while at the same time **primarily serve its main purpose for Iceland's football national teams**!

A **365-days-a-year utilization** including football, sports and third party events as well as business usage and local engagement is an **essential factor for the new stadium's economic and social eligibility**!

The customized event-mix for the New National Stadium Reykjavik needs to carefully consider the **special international/national football schedules** together with **seasonal prerequisites of specific event-types** as well as **global and local event promoters**!

1.1.2 Analysis of Structural Building Measures

The proposed event types (according to 1.1.1 Definition of the Reykjavik Multifunctional Stadium Specific Usage Concept) give a first insight of suitable events for the specific venue and event situation in Reykjavik, which could be hosted in the new stadium as well as the territory outside the facility, or even in combination of both. Events of different kind predetermine the way the stadium should be constructed as a constant multifunctional usage requires a certain technical infrastructure.

In the following, Lagardère Sports analyzes the degree of functionality needed for the new stadium in Reykjavik to host specific events according to these points:

- Pitch use
- Special pitch coverage
- Necessity to have a roof
- Special installations
- Transport of heavy loads to the infield
- Interference with stadium surroundings/local communities

Event types (according to 1.1.1)		Definition of degree of functionality							
		Pitch use	Special pitch coverage	Special installations	Transport of heavy loads to the infield	Interference with stadium surroundings	Roof		
							not necessary	favourable	mandatory
Football									
	National Teams (Men's, Women's & Youth Teams)	yes	no	no (standard video walls/cube)	no	no	x	(x)	
	Other football (Potential national cup competitions)	yes	no	no (standard video walls/cube)	no	no	x	(x)	
Other sports									
	Wintersports (Cross-country skiing/biathlon, ski/snowboard, ice hockey/skating)	yes	special surface (snow incl. ramps)	tracks, shooting stands, video walls/cube	yes	possible (inclusion for competitions or extra events)	(x)	x	
	Motorsports	yes	special surface (asphalt, sand, plates)	appropr. ceiling heights, video walls/cube	yes	possible (inclusion for competitions or extra events)		x	(x)
	Equestrian	yes	special surface (wood chippings)	containers for riders, animals, veterinarians, food and water supply	yes	yes (compound site and horse areas within stadium perimeter)		x	(x)
	Handball/basketball	yes	special surface (special floorings)	appropr. ceiling heights, temporary seats next to playing field	yes	no		x	(x)
	Multi sports events	yes	special surface (depending on competition)	depending on sports/event, video walls/cube	yes	possible (inclusion for competitions or extra events)		x	(x)
	Adrenalin games/extreme sports	yes	special surface (depending on competition)	appropr. ceiling height, video walls/cube	yes	possible (inclusion for competitions or extra events)	(x)	x	

Event types (according to 1.1.1)		Definition of degree of functionality							
		Pitch use	Special pitch coverage	Special installations	Transport of heavy loads to the infield	Interference with stadium surroundings	Roof		
							not necessary	favourable	mandatory
Concerts									
	Concerts (International/national)	yes	yes	special focus on sound & rag systems, stage set-up	yes	yes (high spectator appeal, full engagement of local areas)		x	(x)
	Festivals/shows (Music, art, culture, kids & entertainment shows)	yes	yes	special focus on sound & rag systems, stage set-up	yes	yes (high spectator appeal, full engagement of local areas)		x	(x)
	Public viewings (National Teams & other sports and third party)	depending on screen mounting / positioning		high resolution screens or video cube (needs special suspension)	no, if screen/cube is pre-installed	yes (high spectator appeal, full engagement of local areas)		x	
Business									
	Corporate events (MICE & sponsor events)	depending on the used area		focus on sufficient technical devices for business purposes, WLAN access	depends on the used area	no (possible for very large events within the stadium territory)	(x)	x	
	Pitch events (B2B/B2C events, trade fairs & corporate parties)	yes	yes (according to respective event category)	provision of adequate technical services and devices, LED screens preferable	depends on the event size and the used area	yes (possible within the stadium territory)		x	(x)
Territory/special									
	Stadium surroundings (Social, sports & community events)	depending on the usage of infield together with surroundings		provision of infrastructure within stadium precinct	no (depending on used area)	yes	x		
	Special events (Political/cultural events)	yes	yes (according to respective event category)	appropr. ceiling height due to stage mounting and video screening	yes	possible (depending on event category and size)		x	(x)

PITCH USE, COVERAGE AND MAINTENANCE

The most important and key talking point when considering a multipurpose stadium use (main usage mode football mixed with other sports and event types) concerns the pitch. The top-level condition of the playing surface represents one of the major factors for a successful stadium usage for football purposes, which leads to the main assumption that by all means it has to be assured that any third party event usage is not interfering with the quality of the pitch. Therefore a fundamental strategic decision regarding the instalment of the playing surface has to be made as early as possible: natural grass vs. artificial turf.

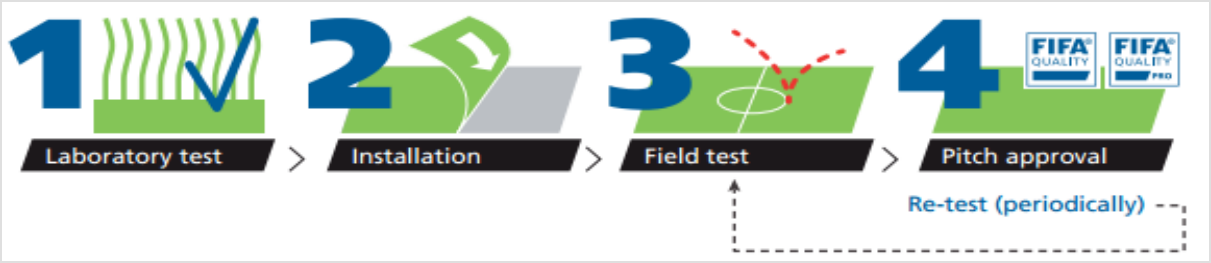
Generally, on an international level football matches are still predominantly played on natural grass pitches due to the usual practice of FIFA and UEFA competitions as well as the natural feeling for players and officials. However, continuous developments and the ongoing professionalization of the artificial turf business sector already achieved that both main football federations FIFA and UEFA allow specially licensed manufacturers in the course of the FIFA Quality Programme to provide the playing surface for certain competitions (FIFA World Cup and UEFA European Championship tournaments still define a natural grass pitch as an essential prerequisite). The FIFA Quality Pro mark is awarded to fields that ensure the highest playing performance for professional-level football and meet the International Match Standard requirements of the FIFA Quality Concept for Football Turf. On a final note it has to be mentioned that the certification of an artificial playing surface is due to a long-lasting as well as complex testing scheme/phase by FIFA (laboratory and on-pitch tests) and therefore requires an additional lead time in advance.

Artifical turf

Official requirements and regulations as well as dis-/advantages compared to natural grass pitches

Alternatively to the football purpose default mode of natural grass pitches, artificial turf is implemented with a slightly increasing frequency nowadays. Especially in regions with extreme external conditions (e.g. climate, soil composition, ventilation/insolation), synthetic solutions sometimes offer certain operational amenities.
Therefore FIFA has implemented a very strict certificate program to authorize certain manufacturers to supply football stadiums for international matches (except some competitions still only allow natural grass pitches for playing surfaces, i.e. Men's FIFA World Cups). In order to be qualified as a FIFA recommended turf field, there are several general guidelines that must be followed (e.g. minimum amount of maintenance, technology of material (3G), etc.). In 2015 the FIFA Quality Programme released new test manuals and marks containing more stringent requirements for football turf installations, replacing the previous standards of FIFA 1 and FIFA 2 Star Recommended fields. This means currently there are two different artificial turf qualificaitons, FIFA Quality (recreational, community and municipal football) and FIFA Quality Pro (professional football with additional stricter requirements for international match pitches).

For its new artificial turf certification FIFA developed a complex and lengthy testing scheme that specifically focuses on the needs of football players. Only artificial playing surfaces that have been tested in accordance with the FIFA Quality Programme test criteria in the laboratory as well as on the pitch are permitted to be labelled football turf for FIFA purposes. This name means that those systems are specifically designed to meet the requirements necessary for football in terms of playing performance, safety, durability and quality assurance.



Even though that over the past couple of years the development of artificial turf achieved considerable progress, playing fields consisting of natural grass are, from a pure economical perspective, still the more cost-efficient installations (slightly lower maintenance costs vs. high investement for implementation). In particular the generally stated main reasons for using artificial turf (extreme weather conditions and lack of natural sunlight) are easily remedied with modern technology (e.g. turf growth covers, second generation of mobile growing lamps, etc.)

Regardless of the final decision between the more common used natural grass and the emerging technology of artificial turf, a profound structural set-up as well as green keeping and maintenance are one of the key factors regarding the longivety of a football pitch. Furthermore, the specific usage program including football and other usage modes (as illustrated in 1.1.1 Definition of the Reykjavik Multifunctional Stadium Specific Usage Concept) has to be considered carefully. Depending on the degree of utilization, potential soil exchanges are work- and also cost-incentive processes which are only possible in certain seasonal time slots (according to the event scheduling as well as prevailing weather conditions). Also the risk of damaged and polluted soil from an excessive exchange frequency of the playing surface, especially for natural grass pitches, has to be taken into consideration regarding a final decision. Additionally, in Reykjavik's severe conditions the extra need for artifical ventilation and particular sufficient exposure to light have a huge influence on both quality and longevity of naturals grass pitches.

Taking into account event types within the usage program that include a dedicated pitch use, heavy load capacities on the pitch itself as well as around requires special ultimate load capacity appliances to protect the playing surface and possible necessary additional installations (e.g. underground heating systems, drainage constructions, sprinkler installations, artificial ventilation, etc.). Considering the general preservation of pitches during multi-purpose usage, the necessity to secure an adequate pitch protection is essential as repair works connected to the playing surface itself are highly time and cost intensive and sometimes damages are even irreparable (depending on the chosen pitch quality and characterstic of coverage). The main issue regarding pitch coverage and protection is the actual duration of the coating (aggravated due to set-up and removal processes) as well as the material used. A universal rule of thumb implies the shorter the time of the coverage, the better for the respective surface. A general comparison of set-up and removal times reveals a broad range stretching from one day up to several days, depending on the event set-up, scheduling, professionalism of the hired promoter/technical company etc. In order to streamline necessary process as well as support a quick, easy and therefore cost-effective instalment/removal of special pitch protection, the appropriate storage of the required materials is ideally planned inside the stadium facilities (according to sizes and dimensions).
Simultaneously, the green keeping and maintenance industry is constantly developing and produces special equipment reducing the stress factor for playing surfaces by combining coverage with certain integrated mobile green keeping tools and maintenance features (including controlling of influencing factors such as light, temperature, CO2, water, air and nourishment). This is mostly achieved by a good natural and artificial ventilation system in conjunction with an appropriate heating and drainage system as well as all-year green keeping and maintenance plan. Experts are required to achieve best possible results against the background of the specific local situation taking into account weather conditions, grass growth and pitch longetivity as well as event exposure as the main influencing factors.


As the majority of the proposed events within the customized usage program utilize the pitch area, the above mentioned implications have to be closely considered. In Central Europe, where most playing surfaces are made of natural grass, pitches are exchanged on a regular basis. This is of course dependent on the intensity and frequency of usage as well as the the robustness of the grass species and the structural foundation set-up. In most cases pitch exchanges take place more or less every year, ideally after the end of the footballing season in order to be best prepared for the upcoming season (Central Europe: summer) while at the same time provide ideal conditions and time slots for international event promoters. As the exchange of a football pitch is a highly cost intensive process (costs of approx. EUR 100k and higher, depending on material labour and local costs), the return on investment through facilitated third party events ideally covers the necessary expenditures.
Due to the unlike football season in Iceland as well as the unique and severe local weather conditions for large periods of the year, the specific Reykjavik situation needs a customized solution combining both, football scheduling as well as necessary time slots, for other sports and third party events.
Taking all the above into account as well as closely considering the local preferences of KSI and other football stakeholders, a final decision has to be taken and implemented within a next step Design Phase covering the definition of a design and construction concept.

ROOF CONSTRUCTION

Appropriate roofing represents one of the key factors for a comprehensive mutli-purpose usage of modern stadiums nowadays. Especially in countries and regions with unique and extreme weather conditions, protection via a compatible roof construction is a prerequisite for the hosting of sports, concerts and other third party events which all represent additional sources of income. Generally, the European stadium market is divided in two basic categories for football venues:

- Regular roof constructions, partly/fully protection of spectator seats only
- Retractable roof constructions, offering the possibility to fully cover not only spectator areas but also pitch level (whole stadium infield)

Due to the partly severe climate conditions during the Icelandic football season, KSI schedule from March–October as well as national league schedule from May–October, a retractable roof remains mandatory to guarantee that all (possible) national home matches are to be hosted in Iceland and with best possible playing conditions. Negative examples have shown that the home-turf advantage and correlated revenue streams from those matches had been missed out due to (heavy) snow falls and constantly low temperatures (down to -10°C). It remains of both fundamental importance (athletically, socially, imagewise, etc.) and financial assets to guarantee all national home matches being played at the New National Stadium Reykjavik at all times of the year.

For stadiums without a consistent and financially sustainable main tenant on club-level (staging 10–20 home matchdays per season in addition to national team matches), third party events even become an even more significant role when it comes to maximization of stadium-related revenue streams and consequently positive return on investment. Due to the dedicated purpose of the New National Stadium Reykjavik to be further functioning as a multi-purpose venue hosting third party events throughout the year, next to the KSI home matches, it furthermore supports a retractable roof solution. The customized usage program (please refer to chapter 1.1.1 Definition of the Reykjavik Multifunctional Stadium Specific Usage Concept) illustrates that next to the proposed football events, which represent a roof-favouring character themselves, the additional event types are classified into:

- event categories with a “favourable/mandatory” roofing solution (8 out of 13, resulting into 80% of total income from additional events p.a.)
- event categories with a “not necessary/favourable” roofing (5 out of 13, resulting into 20% of total income from additional events p.a.)

Next to the favourable situation to offer the possiblility of a retractable roof to many other sports and third party events, especially concerts, festivals and entertainment shows mostly require a secure protection from all extraneous influences. The highly attractive live events follow tight and strictly planned tour schedules which do not allow any room for rescheduling or potential cancelation due to preventable external influences. Especially the cost intensive character of such live-entertainment events demand well-organized and reliable host venues and execution. Within the competitive environment of the existing event locations in Reykjavik, a retractable roof remains crucial for the new stadium to participate in the limited number of international event allocation in Iceland.
As a consequence it is recommended, from a pure operational perspective, to support a retractable roof solution for the New National Stadium Reykjavik, being able to fully cover the whole stadium to host the entire amount of predicted assumed stadium events, both KSI matches and third party events.
From an experts' perspective it has to be stated and taken into account that today's industry offers various options and possibilities regarding roofing on an international scale. Exact specifications and quality structures (depending on various influencing quantities and external conditions, such as architectural blueprint, snow load, temperature, wind force, etc.) as well as resulting costing, should be further elaborated and developed within the next step Design Phase including design and construction concept.

In order to identify qualified and viable roofing solutions for the specific Reykjavik situation during the next phase, Lagardère Sports wants to decisively point out that the following incluencing factors have to be closely considered:

- Building costs (light-roof vs. heavy steel construction)
- Operating costs (maintenance, energy consumption and technical services)
- Operating features (dis-/advantages of opening and closing of roofing solutions, pitch impact)
- Static problems (ultimate load especially through snow, rain)

SPECIAL INSTALLATIONS

In today's business driven and entertainment-related football industry, the standards set by the governing federations (FIFA/UEFA) include some basic technical requirements for state-of-the-art football stadiums. Within Europe's highly elaborated level of football and entertainment venues, modern big screen scoreboards as well as LED walls and/or video cubes already belong to a stadium's basic equipment. This technical installations do not only support and enhance the live event experience on-site (possibility to rewatch highlights, transfer of basic game information, etc.) but also play an important role in a stadium's commercializiation by providing additional advertising space and sponsor messages offering various additional revenue streams (e.g. digital advertising, connected stadium, etc.). Therefore it needs to be guaranteed that any new stadium development is appropriately equipped with compatible technical services and devices depending on the individual project conditions such as roofing solution including necessary mounting tools, total capacity and constructional shape of the stadium bowl/infield (example: a large video cube system like in the Commerzbank Arena Frankfurt results in a total load of 30t kg fixed within the roof construction, this of course has to be calculated thoroughly by dedicated experts/engineers and closely considered.

Additionally to the New National Stadium Reykjavik's main purpose of hosting all home games of the Iceland's national football teams (Men's, Women's and Youth Teams), also other event types require certain special installations in particular. Especially those events including an opulent stage or screen and sound set-up (i.e. concerts, festivals, entertainment shows and public viewings) require a lot of technical devices, mounting and construction materials.

From a technical service perspective, a special focus will be laid on event stage designs, sound and rag systems as well as light impressions. Such technical facilities require dedicated specialists as well as customized solutions for different event demands and scenarios. Furthermore, all necessary technical devices need to adhere to international and local safety & security regulations as well as sufficient power supply (including tailor-made breakdown scenarios and back-up emergency solutions) needs to be provided. As such installations and connections are highly cost intensive when altered retrospectively, all technical considerations are ideally included at an early stage within a next step Design Phase including the definition of a design and construction concept.

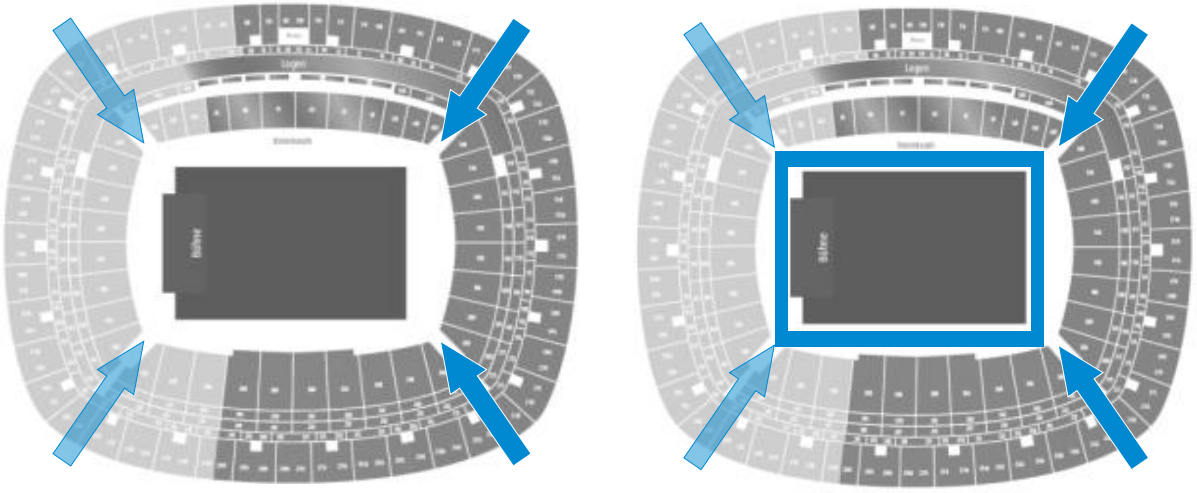
Apart from the technical installations mentioned above, other event types also require special services and tools to guarantee a top-level and trouble-free staging of the respective event. Special prepared surfaces (e.g. snow/ice, asphalt/bitumen, sand, wood chippings, etc.) as well as track & field elements (e.g. ramps, physical demarcations, obstacles, etc.) play a crucial part when hosting wintersports, motorsports or even equestrian events. Other events, such as special entertainment shows, require a particular small focus of entertainment, mostly located within the center of the stadium infield in order to engage all surrounding spectators. In these circumstances, the proximity to the audience is a vital asset for the live fan experience, which requires flexible/mobile seating as well as simple access solutions for both customers and artists (especially as for such events also special hospitality areas are possibly to be placed in close vicinity to the center stage set-up).
Moreover, events that are staged within the venue territory or even combine infield (e.g. pitch events) and stadium surroundings usage (e.g. trade fairs), indicate additional requirements. From a general perspective, the installation of a well-planned and easy-to-understand guidance system obeying all necessary safety and security regulations is vital. This enables an organized arrival and departure for all spectators, fans and performers as well as to ensure a clear and visible overview for all involved security staff and authorities. Depending on the interrelation between stadium infield, surroundings and maybe even close-by urban areas/communities, special schedule of responsibilities and operating plans have to be created in order to guarantee a trouble-free execution of outstreteched events (i.e. for equestrian shows animal and rider compounds including special treatment/nutrition facilities need to be placed within the stadium surroundings according to strict official rules and regulations). Also all sizes of social and political events/festivities take up an important role when considering the combination of stadium inside/outside facilities and need to be considered closely.

Finally, corporate and business events represent an entirely separate category in terms of needs for special installations. As such events are usually hosted at the dedicated hospitality areas within the stadium building, the necessary equipment (screens, beamer, sound systems, etc.) and technical services (WLAN, connected interface, etc.) are ideally included in the existing hospitality settings. In order to offer an emotional added value for certain corporate/business meetings, in some cases even event-related access to the pitch is granted. This means that a clear and easy-to-implement segregation and access system has to be in place within the stadium's facilities (please also refer to 1.1.6 Economic Review on specific stadium-related Building Components).

TRANSPORT OF HEAVY LOADS TO THE INFIELD (incl. interference with stadium surroundings)

Due to the New National Stadium Reykjavik's main characteristic to offer multi-purpose event conditions next to its main usage mode for football, big gates which allow for easy passageways between stadium infield and territory/surrounding are an essential feature. These gates fulfill two highly important funcitons: they enable logistical transport of heavy loads between the stadium infield and its sourroundings which is necessary for all kinds of third party events (as described in the following) while at the same time represent an essential tool for spectator access and egress within the customized evacuation plan for pitch usage during concerts, festivals and other events (described in detail in chapter 1.1.6 Economic Review on specific stadium-related Building Components).

With regards to the mentioned transport of heavy loads into the stadium infield, it has to be clearly stated that it is highly favourable to have at least two tunnels to the infield (if structural feasible four tunnels are recommended) with truck size heights and width capacity as well as additional truck top loads like mobile slewing jibs and cranes (suggested minimum size of 5m height and 8m width, angles need to allow for bulky truck transport). This is essential for all event logistics allowing to transport heavy materials for special installations (e.g. mounting, staging etc.) from and into the stadium inside. For example stage settings of international artists remain the same throughout all tour dates. A production convoy of up to more than 100 trucks, sticking to tight time frames within all roadshow locations/ cities, is reliant on easy access infrastructure.
Furthermore, as mentioned additional requirements for other sport events like pitch coverage, special surfaces or track & field elements can be easily transported and stored via such big gates. In some cases, gates might also offer additional space for food & beverage or sanitary solutions during large concerts.
Finally, from a safety and security point of view, in case of an emergency the evacuation of staff and spectators from the stadium infield via appropriate big gates is also more feasible and effective and represents an important feature regarding the multi-purpose character of the New National Stadium Reykjavik.



Dealing with the matter of combination of the stadium infield together with its surroundings, the concept of dedicated territory usage plays an important role for the specific Reyjkaviv situation. As already mentioned before, the multi-purpose character of the new stadium should on the one hand contribute significantly to the successful economic operations of the venue, but also plays an important role in the engagement and development of close-by urban areas and communities.
Therefore it is highly suggested to design and implement dedicated cooperation concepts together with the urban planning department of the city of Reykjavik (in accordance with current OP) as early as possible in order for the local environment and neighbourhood to benefit from the sports, business as well as social attributes of the new stadium development project. This by all means has to include tailor-made sequence plans and schedules for public interactions on match and event days as well as on normal business days.

CONCLUSION

The desired and economically necessary multi-purpose character of the New National Stadium Reykjavik presupposes certain structural conditions and installations. In order to ensure a satisfactorily utilization of the stadium facilities for its main purpose of hosting all home matches of Iceland's football national teams (Men's, Women's and Youth Teams) in combination with a year-long provision of top-quality multifunctional capabilities for additional third party events, the hereof key indicators have to be closely considered and coordinated accordingly.

Long-lasting and well-proven international project development and stadium operations experience shows that the proper planning and implementation of pitch usage, cover and maintenance, adequate roofing, the necessary provision of special installations as well as the possibility for transport of heavy loads to/from the infield/interference with stadium surroudings represent the major influencing factors for an optimal and financial sustainable long-term utilization of modern multi-purpose venues.
Therefore it has by all means to be guaranteed that the right decisions with regards to the above mentioned components are taken as early as possible (e.g. pitch, roofing) as well as optimally integrated within the overall design and strategy for the New National Stadium Reykjavik's project planning.
With particular regards to the specific Reykjavik situation, the country's prevailing unique circumstances, especially concerning extreme climate conditions, a general high earthquake risk as well as complex logistical situation (e.g. supply, basic and raw material reserves, etc.), all structural building measures related considerations have to be taken in consultation with local expertise in order to reasonably transfer international best practices to Iceland.

All constructional measures need to **fully support** the new stadium's **multi-functional character** and are ideally **planned/implemented as early as possible!**

The stadium's **main purpose to host all home matches of Iceland's football national teams**, demands additional installations and equipment to **unequivocally facilitate the football usage mode** or have to be subordinated accordingly!

The desired **year-long stadium utilization** for football matches and other third party usage modes indicates a **clear focus on durable and easy to operate** structural and technical building solutions!

1.1.3 Definition of ideal Total Public Capacity for the Reykjavik Multifunctional Stadium

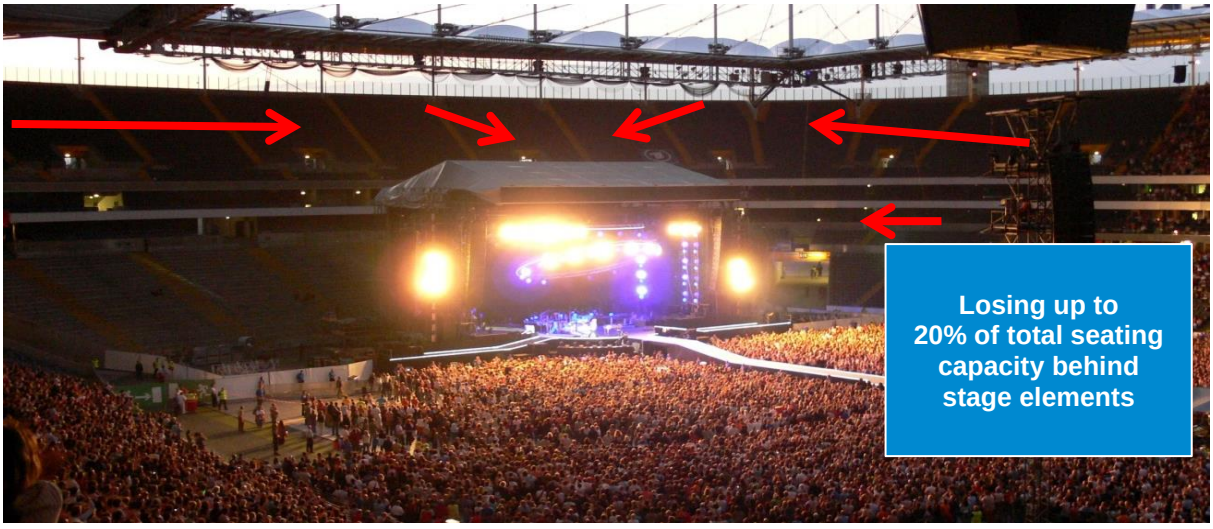
Given the fact that the existing stadium Laugardalsvöllur currently only offers 9.800 seating places (with the possibility to increase its maximum capacity to 15.000 via mobile north- and south stands), a new developed national venue in Reykjavik needs to offer an appropriate stadium capacity according to the continuily increasing demand and ongoing success of Iceland's national football teams for the past couple of years.
Therefore, Lagardère Sports' expert team conducted detailed local market research as well as looks into a variety of internationally proven influencing factors for a stadium's maximum capacity (requirements, limitations as well as best practices) which finally result in an appropriate total number of possible spectators for the specific Reykjavik situation.

INCREASING DEMAND AND UPVALUATION OF THE LOCATION REYKJAVIK/ICELAND

As already mentioned before within this report, existing capacities, both public and hospitality, at the current national stadium Laugardalsvöllur no longer meet peak ticketing demands of top-level international football matches (qualifiers & friendlies). Additionally, the given infrastructure offers inadequate facilities for any desired multi-purpose utilization (e.g. international concerts, entertainment shows, events within the stadium surroundings).
Considering the previously described past, present and ongoing success of the Icelandic football national teams and corresponding sports enthusiasm in Iceland, eventual economic potentials (e.g. increasing ticket sales, additional/improved sponsorships and advertising opportunities, new income streams via catering and digitalization) are not realized and/or fully exploited within the prevailing facilities. Particularly the increasing demand for live events and football games due to the Icelandic success stories in sports as well as the tourism industry to requires for an uplift in peak capacities and multi-purpose utilization possibilities. Otherwise, the lack of sufficient and contemporary facilities within Reykjavik results in virtually losing out on possible revenues.
Finally, it has to be stated that experience shows that state-of-the-art sports venues do have a highly beneficial effect on overall image parameters of related areas and in best case scenarios even function as architectural sights and landmarks within cityscapes. Especially with Iceland's/Reykjavik's image as a major tourism hub, the new national stadium and its surroundings could play an important role in all connected official branding and marketing activities.

CONSIDERATIONS REGARDING EVENT REQUIREMENTS AND CAPACITIES

Concerts with a classical stage set-up means losing up to 20% of the total stadium capacity, in particular those seats that are generally located behind the stage. However, in case of an optimized evacuation plan, it is possible to achieve 10.000 – 12.000 additional standing positions in the infield area.



In case of of utilization of the infield as additional standing room, for the sake of safety and security, a customized evacuation plan has to be created guaranteeing secure clearance of deployed spectator areas via dedicated additional escape stairs.

In combination with an efficient use of the available facilities and capabilities of the big gates, a full exploitation of possible infield space can be achieved in order to meet various stage set-up requirements from national as well as international artists and concert promoters.

ADVANTAGE OF SIZE

From a microeconomic perspective, the new national stadium needs to become the top-event destination within the environment of the sports-, culture- and concert-event infrastructure in Iceland/Reykjavik to host peak-traffic events on an internationally attractive and competitive high level. Additionally, it has to offer an improved and updated maximum capacity situation according to Iceland's continously increasing demand for football and other events and therefore likewise supports the general positive development of Reykjavik/Iceland as a footballing nation and top-level tourist destination while at the same time giving back an increased life quality towards its population regarding entertainment assets.

From a macroeconomic perspective international event promoters look for total event capacities allowing for a certain organizational steadiness and economic substantiality, enabling the possibilities to hire top-level acts in the category of Justin Bieber, Coldplay, Rihanna, etc. In a next step, local acts and national promoters have a powerful incentive to add to this strong concert & artist mix and benefit strongly from raised awareness and event scheduling. On top of that, such dynamic developments strongly support the attraction and establishment of international event tours to the Icelandic region, especially considering the fact that Reykjavik/Iceland being a vastly booming tourism destination. In combination with other Northern-European countries (Sweden, Denmark, Finland, etc.) as well as its strategic positioning between the American continent and Europe, Iceland appeals as a highly attractive stop-over destination for boths artists and spectators alike.

FURTHER PROFESSIONALIZATION OF FOOTBALL INFRASTRUCTURE AND LANDSCAPE

Based on and thanks to the strategic decision of KSI to heavily invest in the professionalization of the national coaching system as well as year-long indoor training facilities all over the island, the continous success of Iceland's football national teams (especially the successful qualification campaign to the UEFA European Championships 2016 in France and the unique achievements at the tournament itself) already created a truly football and sports boom which subsequently is going to influence and change the country's future football landscape.
Given Icelandic football's ongoing prosperous development, the demand for top-level football events within the country will on a long-term perspective exceed the existing infrastructures for international games. The promotion of the new national stadium and the possibility of other sports, events and activities within its facilities and surroundings attracts additional target groups (families, hospitality and business guests, etc.) as the new stadium will offer an improved infrastructure via more comfortable seating, better catering offer as well as increased security measures. Proper designed small or medium sized stadiums also offer intimate seating arrangements resulting in a more direct entertainment feeling due to shorter distances. Generally, spectators also prefer to buy tickets close to the pitch offering best possible sightlines. All this implicates that compact and reasonably designed stadium constructions fully support and enhance the general spectator experience.
Of course the ongoing process of improving and developing the existing football infrastructure via a best-practice project like the New National Stadium Reykjavik simultaneously promotes and encourages the public perception to continuously increase the quality of national football and in reverse most certainly has a positive kick-back effect on Iceland's youth and coaching development system as well (e.g. through international state-of-the-art matchday/training facilities and conditions).

The evaluation of Lagardère Sports' experts team assumes that with an ongoing positive athletic development scenario for Iceland's National Teams (Men's as well as Women's & Youth Teams) at the current ticketing price level, together with the assumed acquisition of stadium-related third party events and the associated number of spectators to join both football matches and events, the ideal total capacity for the new national stadium Reykjavik should comprise of 20.000 spectators.

Official demands & regulations (FIFA / UEFA / KSI)		Additional sports/event-related requirements	
▪ Men's National Team – Qualifiers – Friendlies – UEFA Nations League (from 2018 onwards)	✓	▪ Potential local football tenant	✓
▪ Women's National Team – Qualifiers – Friendlies	✓	▪ Wintersports ▪ Motorsports ▪ Equestrian events ▪ Handball/basketball ▪ Multi-sport events ▪ Adrenalin games / extreme sports ▪ Track cycling	✓
▪ U21 / U19 Youth National Teams – Qualifiers – Friendlies	✓	▪ Concerts ▪ Festivals / shows ▪ Public viewing (football/non-football) ▪ MICE ▪ Corporate/pitch events	✓
		▪ Stadium surroundings ▪ Special events (political/cultural)	✓

Considering all necessary official regulations and event-related requirements for multi-purpose usage of New National Stadium Reykjavik

Total capacity 20.000

Taking into consideration the before mentioned deliberations regarding event requirements (i.e. capacity limitations due to stage setups, infield usage for spectators and dedicated evacuation plans) this leads to a maximum concert capacity of up to 28.000 for the specific and recommended Reykjavik situation, which represents an attractive as well as competitive figure in order to host international top-level concerts as well as popular national artists and entertainment shows.

CONCLUSION

As the definition of the total capacity of a football stadium plays a major role in various essential general aspects (e.g. ticket demand and sales utilization, overall setup and appearance of the venue, possible spaces and dimensions for main usage modes as well as additional facilities within the stadium premises, etc.) all related deliberations need to include a holistic outlook regarding the stadium's long-term operational capabalities. This results into the necessity to not only take into account the stadium's main purpose to host all homegames of Iceland's national football teams, but also closely consider the specific capacity requirements for any economically essential multi-functional utilization.

This means that in order to offer adequate state-of-the-art infrastructural conditions to Iceland's continuously successful national football teams, the existing facilities of the current national stadium Laugardalsvöllur have to be modernized as well as adapted accordingly to the increasing public demand. Additionally, the New National Stadium Reykjavik also enhances its own operational profitability by offering contemporary multi-purpose facilities, while at the same time supports the city's image by providing a modern third party event location to attract international as well as national concerts, artists and entertainment shows.
In order to combine this pure football usage together with the desired multifunctional character, certain conditions regarding event requirements and capacities have to be observed. The main considerations for international promoters represent a steady total capacity for different event types (e.g. top international concerts, local artists, special entertainment shows). Therefore it has to be taken into account, that any necessary stage elements come along with the loss of certain seating capacities, however, which can be counterbalanced by a dedicated infield usage for spectators (incl. respective oblagitory evacuation plan and additional facilities).

Considering all relevant operational as well as economical deliberations, the new total capacity for the specific Reykjavik national stadium situation ideally amounts to 20.000 seats for international football matches of KSI (allowing for a maximum capacity of 28.000 for other events and concerts including infield usage).

Iceland's dedicated national stadium needs to offer **adequate infrastructural conditions and capacities** according to the **ongoing success of its national football teams and the corresponding increasing public demand**!

Additional to the main football usage, the New Natioinal Stadium Reykjavik needs to also **provide up-to-date multifunctional facilities** for third party event utilization in order to **support its own operational result** as well as **enhance the city's attractiveness**!

Local research and proven international benchmarks show that **a total capacity of 20.000 seats for football matches** (incl. maximum capacity of 28.000 for other events) offers ideal conditions for successful long-term operations for specific Reykjavik situation!

1.1.4 Definition of ideal Hospitality Capacity for the Reykjavik Multifunctional Stadium

One of the main revenue streams of modern sports and event venues represents the category of hospitality and business guests. Contrary to the classical spectator and fan, the special target group of hospitality customers not solely pay for a ticket to a certain sports game or third party event, rather than additionally acquiring an exclusive package of services, rights, as well as atmosphere and comfort surrounding such events hosted within contemporary stadiums. Additionally to the described hospitality character, a dedicated focus on business clients offering highly valuable business to business ("B2B") as well as business to customer ("B2C") products and services represents an important standard tool within modern commercial strategies. This also means in order to define, market and sell tailor-made hospitality offerings, a certain level of constant quality in terms of products and services (including food & beverage) has to be provided. This not only includes the possibility to create certain rights and service packages able to be sold at a higher price than a normal single ticket, but also allows for a more steady source of income for stadium operators due to the unattached value from the pure live event performance.
The overall aim of such hospitality and business offerings is to design a product that is not entirely dependent on the venue's main attraction of national football games, but also transfer this unique business feeling and exclusive hospitality demand to other sports and events hosted within the mult-purpose usage program of the New National Stadium Reykjavik.

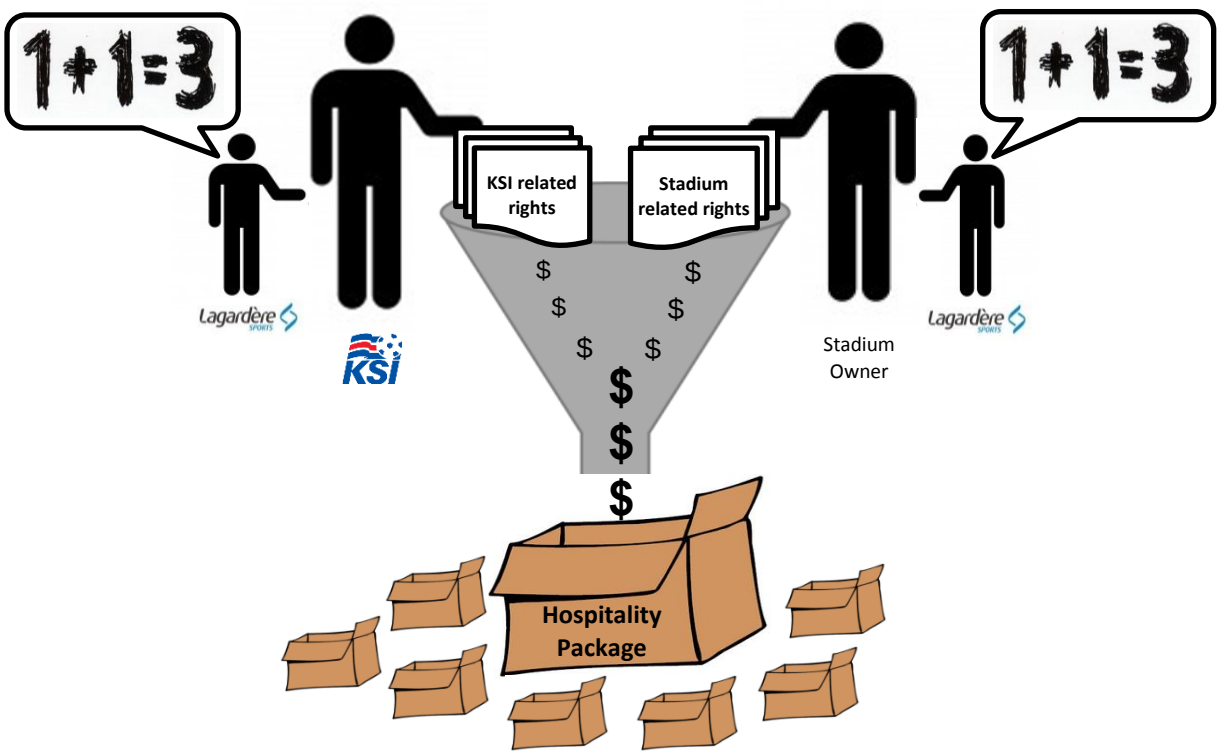
The current national stadium Laugardalsvöllur provides no dedicated hospitality and business offerings for private customers (only certain sponsors are allowed access to the designated warm areas within the new developed west stand from 2006 as part of their sponsoring deals). This fact can mostly be attributed to underdeveloped VIP facilities at the existing stadium, however, also results from the lack of dedicated hospitality concepts and infrastructures in Reykjavik as well as Iceland in general.

Therefore, from a sustainable development and operations perspective, it has to be clearly stated that well-planned and reasonably designed hospitality and business concepts represent one of the major contributors of long-term refinancing plans of stadium development projects. Bearing in mind the distinct nature and characterstics of Iceland's society in general, dedicated VIP offerings are ideally combined and upvalued with specially designed social values and products. Considering the large development potential of hospitality- and business-related revenue streams during a stadium's lifecycle, the detailed planning and conception of VIP areas remains one of the most decisive economic factors for sustainable operational success as well as social eligibility of any associated investments.
The principle of hospitality diversification rests upon the understanding that the aggregation of private people and companies willing to buy into hospitality products in Reykjavik are not to be considered as a homogenous group that necessarily shares the same targets precipitated through implemented VIP offerings, but a group of individual people with a variety of interests and expectations resulting into an altering willingness to pay a certain price for particular hospitality and business services.
That variety of needs has to be served efficiently through a principle that allows bundling certain components for specific groups of clients. A specific customer-oriented differentiation of hospitality and business packages for the New National Stadium Reykavik's entire VIP offering therefore represents a key factor in regard to short-term implementation as well as long-lasting hospitality sales and development processes.

In order to establish a customized as well as reasonable hospitality and business infrastructure for the specific New National Stadium Reykjavik situation, Lagardère Sports knows how to transfer and adapt stadium-related hospitality knowledge to new markets. Therefore, in a first step, the main ideas and concepts of state-of-the-art hospitality packaging are introduced.

INTRODUCTION HOSPITALITY PACKAGING AND SALES PROCESSES

A combination of customized bundling of stadium- as well as KSI-related rights results into desirable services packages. This means that rights with different levels of attractiveness are combined into a comprehensive offer and therefore create additional value compared to the individual selling of those singular rights (1+1=3 principle).



A unified offer enables the standardization of all related efforts that come along with such VIP packages and the following steps of the sales process itself. Therefore bundled products and services within the same level of the hospitality and business offering have to include the exact same type of stadium- and KSI-related rights and services. The defined VIP package reflects a fixed price, keeping off customers from selective bargaining and/or cherry picking. As the interaction level of hospitality and business clients is relatively high, a certain standardization of packages secures fairness instead of enviousness. Sales employees in the next step have to stick to those standardized packages and corresponding price structures.
Next to standardization, modularization is another important sales tool. Within specific sponsoring and hospitality packages, single modules are being preconceptualized with respect to the different and individual communication focus of the sponsors (e.g. module “B2B communication” including sky box and/or business seat contingents, module “national awareness” including TV-relevant billboards or module “CSR” respresenting social engagement and endorsement by supporting certain campaigns and youth programs).

As the above mentioned preconditions of effective rights/service packaging and sales processes represent the basic foundations for successful VIP concepts & sales, experience shows that there are certain main drivers for long-term growth of hospitality and business offerings:

- Standardization vs. modularization
- Transparency of hospitality categories
- Differentiation of hospitality (hospitality hierarchy)
- Definition of hospitality packages

The final conditions and requirements of such comprehensive hospitality, catering, marketing & sales (sponsoring) concepts are ideally further defined in detail during a next step Design Phase.

CREATING HOSPITALITY DEMAND

Football teams, especially such with an extraordinary appeal for fans, represent a highly interesting product also from a stadium-related commercial point of view. It is essential to realize that by observing specific indicators, stadium stakeholders can not only capitalize on such high popularity via increasing general ticket sales, but are also able to create a certain demand for well-concepualized hospitality offerings. Being able to implement all preliminary requirements mentioned in the hospitality introduction above, enables skimming-off this new market segment and ultimately enhances the success of absorbing maximum buying power and engagement.
Looking at Europe's stadium re-developments or new constructions, it can be seen that the number of hospitality seats is on an ever rising basis, which can be easily explained by a growing demand and even more professional utilization of given capacities by marketing & sales experts. This trend is even more impressive, considering that prices of hospitality offerings are generally increased periodically depending on demand and utilization. For example the German Bundesliga registered, thanks to a holistic modern stadium infrastructure, a significant increase of hospitality revenues of up to 50% of the total sponsorship revenues. VIP areas therefore have to be planned and developed well-conceived and strategically, with a permanent focus on future hospitality and business developments.
Regarding the identification of services that enjoy demand in the market it is important to realize that the main drivers arousing customer interests remain to a high degree internationally transferable, independently from specific market conditions or cultural differences. Lagardère Sports is by far the biggest seller in terms of football hospitality tickets on a global level (e.g. selling more than 450.000 German VIP tickets per season with Germany being by far the most developed market in terms of non-TV related commercial revenues). This well-proven expterise together with detailed local research of the national market and its possible hospitality business potential offer the ideal platform to introduce the basic concept of hospitality differentiation and sales. Especially the introduction and implementation of new internationally proven marketing activities (e.g. additional B2B or B2C advertising tools), social responsibility campaigns (e.g. support of disabled and troubled-children teams) as well as dedicated non-event day experiences (e.g. seasonal receptions at stadium premises, golf tournaments) add further exclusivity.

The specific know-how from mature markets is being constantly transferred by Lagardère Sports within its extensive international network, encouraging the full potential exploitation of hospitality related revenues in new and developing stadium projects.

SEGMENTATION OF VIP TARGET GROUPS AND DEFINITION OF HOSPITALITY CAPACITIES

As follows, Lagardère Sports in a first step defines an aggregated overview of services and rights to be possibly bundled in concluding hospitality packages and capacities applying specifically to the Icelandic business and consumer market. Global benchmarks proved, that those offered products create a certain development of demand on an national as well as international level. Those rights and services derive both from KSI- and stadium-related property and therefore have to be made available from both sides to a full extent.

KSI-related rights	Stadium-related rights
▪ KSI gifts and products ▪ Players hospitality visits ▪ Escort kids ▪ Former player receptions ▪ Matchday program advertising ▪ Online advertising ▪ Access to B2B/B2C/CSR events ▪ First option right (special matches) ▪ Hospitality area TV commercials ▪ Access to press / media facilities ▪ Exclusive player interviews (hospitality lounges) ▪ Access to training camps ▪ Access to charity events	▪ Quality levels of parking ▪ Priority access to stadium (fast-lane) ▪ Qualities of entrance levels ▪ Target group-related route guidance ▪ Access to dedicated B2B/B2C areas ▪ Access to dedicated CSR-platforms ▪ Qualities of interior seating/standing ▪ Qualities of catering/services ▪ Outdoor/indoor advertising ▪ Qualities of exterior seating ▪ Guided stadium tour (non-matchdays) ▪ Pre-match stadium tour ▪ Collective/personal wardrobe ▪ Panorama stadium / pitch view ▪ Non-matchday skybox usage ▪ Business card presentation

Under close consideration of international marketing know-how combined with detailed national market research and resulting local potential, the following hospitality and business categories are to be recommended for the development of a New National Stadium Reykjavik:

1st category: Skyboxes (= 192 seats in 13 boxes)

2nd category: Business Club (= 150 seats)

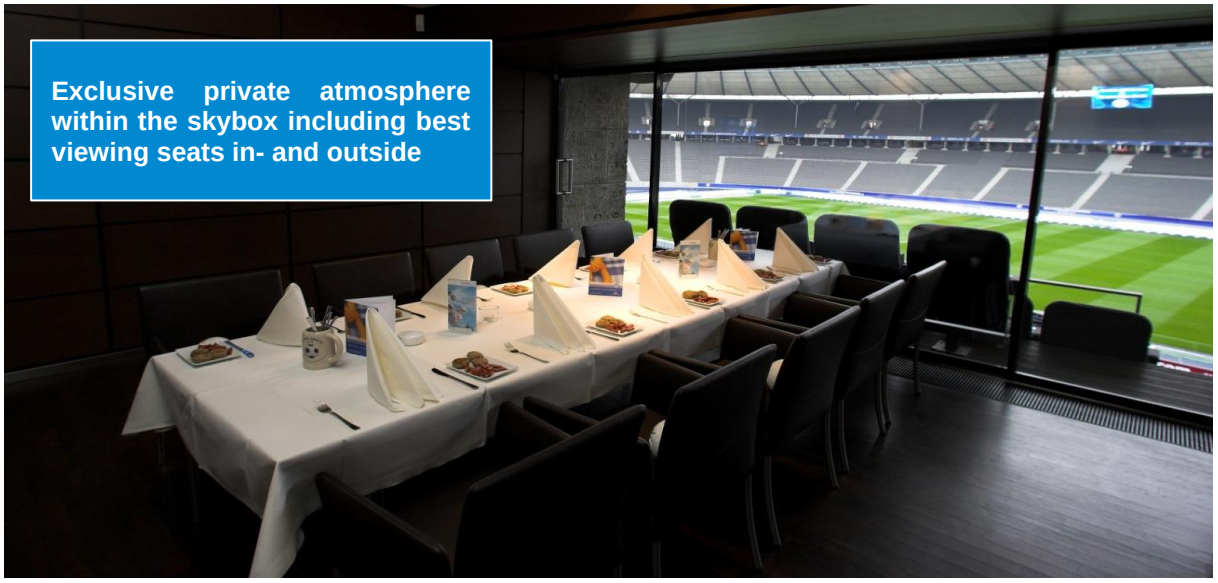
3rd category: Family & Friends (= 300 seats)

This leads to a recommended total hospitality capacity of 642 seats for the New National Stadium Reykjavik, segmented into 192 seats within the top category skyboxes (13 boxes) as well as a further 450 hospitality seats (150 Business Club / 300 Family & Friends). This number represents a reasonable quantity as a starting point for the newly introduced concept of hospitality and business offerings, while at the same time allows for possible adaptions in size and price structure at a later stage due to changing demands (within a further marketing & sales concept it has to be defined whether to start of with only a certain percentage of the total hospitality capacity for the first season and expand the offer to full capacity at a later stage).

Skybox category:

The skybox category represents the most exclusive hospitality and business offering within the stadium premises. This is mostly achieved due to the private atmosphere within the respective suites including an individual character of interior as well as exterior seating segmentation. The major target group of this section represent sponsors showing the willingness to enjoy unique match and event days at the New National Stadium Reykjavik in an exclusive environment.

From a corporate perspective skybox customers enjoy an exclusive atmosphere within private rooming to specially focus on invited guests. This presentational aspect, offering the perfect environment for customer relationship management as well as employee incentives, is very much appealing to respective national and regional mid-sized enterprises as well as big companies.
As the premium category within the hospitality hierarchy, skybox customers enjoy top-class products (including food and beverage) combined with exclusive service levels (e.g. dedicated waitresses for each box, menue service, etc.) during their stay at the New National Stadium Reykjavik. Furthermore, all skybox seats have to offer direct pitch view from interior as well as exterior seating positions, which might require the adequate lowering of the 1st exterior seating row of each box itself. According to international standards and well-proven sales experiences, skybox facilities ideally offer dimensions of 3,6sqm/person while hosting up to a number of 12 guests at the same time. This guarantees a perceived high level of comfort and freedom of movement, which represent essential influencing factors with regards to the overall experience of top-quality live events.



The rearward spatial arrangements on the dedicated skybox level are ideally designed and utilized as networking platforms and areas. This allows this top category to individually combine the private and exclusive atmosphere of the suites with the business character of the hospitality concept. Additionally, separated commercial arrangements within this B2B area are highly interesting from a pure business perspective and could attract further customized sponsorships (e.g. cigar lounge, champagne bar, etc).
In order to underline the top-ranking within the hospitality hierarchy, skybox guests can be granted access to networking and business platforms of the other categories (Business Club / Family & Friends), however, in no way .

Given the New National Stadium Reykjavik's special situation, Lagardère Sports recommends the following allocation of available skybox facilities (13 in total):

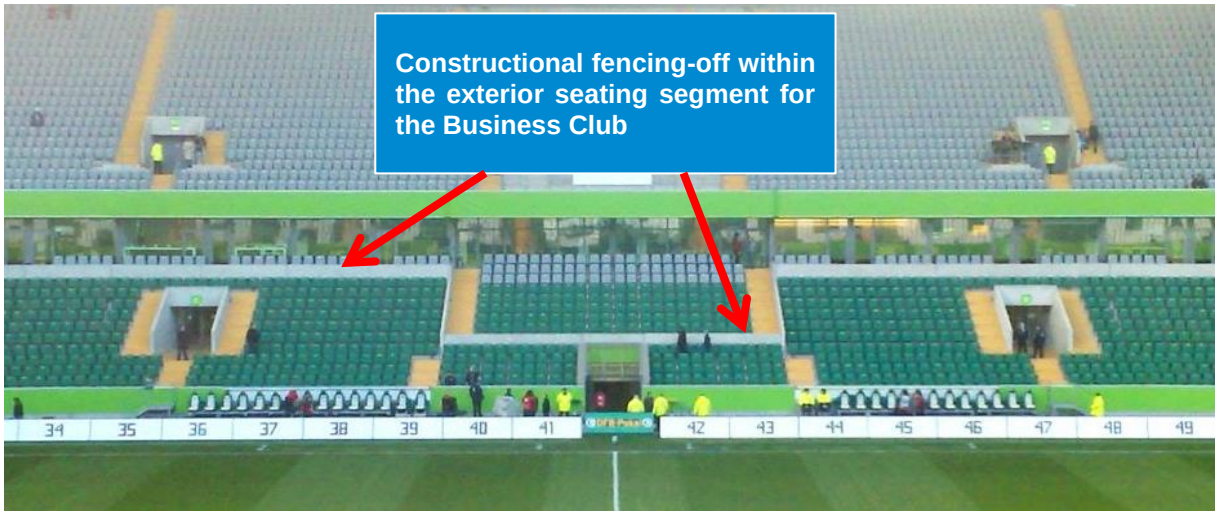
- 1 KSI (double) skybox hosting up to 24 people (= two merged standard skyboxes)
- 10 standard skyboxes hosting up to 12 people per unit
- 2 (double) event boxes hosting up to 24 people per unit (= two merged standard skyboxes)

The dedicated KSI skybox constitutes the centerpiece of the entire hospitality hierarchy and therefore should consist of two merged standard boxes hosting up to 24 people. For representative purposes, it should be located centrally at the most valuable positioning at the halfway line offering best possible sightlines onto the pitch within the entire stadium area. Additionally, a possible segmentation into two separate parts/boxes, if needed, is strongly recommended.
The other 10 standard skyboxes should be located left and right to the KSI suite according to the halfway-line principle, meaning that the most central positioning possess the highest value with a gradual decrease in attractiveness towards the goal lines.
Additionally to the above mentioned facilities, experience shows that the possibility to also offer the option of large-scaled and event-related boxes is positively perceived among customers. Therefore it is highly recommended to design two extra event boxes located in the corners of the skyboxes floor providing flexible capacities as well as dedicated event areas.

<u>Business Club category:</u>
The Business Club level at the New National Stadium Reykjavik embodies the pure B2B/B2C business and networking character within the hospitality hierarchy. As the hospitality and business conception represents a fairly unexperienced idea within Reykjavik/Iceland, this category focuses on top-decision level business and private people, who are seeking for an highly exclusive match- and event day experience. The by far most important sales arguments represent the dedicated business/networking platforms and tailor-made marketing activities for these customers in combination with visibly perceived see-and-to-be-seen-character achieved via constructional marking-off of this specific category within the interior and exterior seating arrangements.

In general the highest degree of products and services (including food & beverage) are offered within this category as well as prioritized and personally customized benefits bundled within hospitality packages are to be made available to this group of business customers. This means top priority for arrival, access and departure to the stadium (e.g. parking priority, fast lane access, dedicated VIP driveways in the stadium surrounding, etc.), high-class welcoming and services during the event (hostesses, welcome drinks, waitress services, etc.) as well as customized products for top-level business customers (networking areas, business card holders, sponsoring boards, etc.).

Correspondent to the halfway-line principle, exterior seating positions located most centrally on Business Club / Family & Friends level are reserved for this category. The dedicated 150 chairs should be of highest standard, preferably including heated seating as well as headrests. As already mentioned, the seating arrangement in the stands needs to be constructional fenced off in order to make a clear separation to the remaining hospitality seat categories evident.



Accordingly, the interior seating arrangement within the stadium's hospitality areas is ideally likewise clearly but openly separated from the remaining interior seating arrangementes (half-height separation) in order to support the valuable seen-and-to-be-seen character of this category.

Family & Friends category:

In order to introduce the new idea of hospitality conception sensibly and reasonably for the specific New National Stadium Reykjavik situation, it is recommended to also offer some kind of VIP light capacities in order to ease-in customers to invest in hospitality and business packages rather than the classical general public ticketing. For this reason, the Family & Friends category represents the ideal combination of two highly important hospitality starting target groups, entire families as well as emotional attached fans willing to show their financial support ("friends of KSI"). This is even more supported by the fact, that over the past couple of years remarkable developments towards new target groups took place in modern stadiums. Deep-rooted football fans just as well-off businessmen are more and more interested to bring their fellows and families to the stadium, as long as secure access as well as family- and visitor friendly standards are provided.

In order to set up this offering as broadly based as possible, there should be no clear distinction between the Family & Friends sections rather than only a few customized characteristics for each respective subcategory, however, always facilitating and enhancing both at the same time. This means for instance that next to the basic product and service level accustomed to hospitality areas (incl. food & beverage), special family food areas (incl. self-made pizza station for children) as well as dedicated supporters meet&greet bars are implemented. Such features can be even expanded so widely that family and children friendly route guidance is put in place or that friends of KSI do get their own donators-board within the hospitality and business areas inside the stadium premises.
However, one of the main features of this family friendly category comprises a dedicated child care and playing section. Experience shows that rather than locating such facilities somewhere in the rearward areas, the construction of a playground within the exterior seating positions of this category are highly preferred. The implementation of such family-related seating arrangements as well as the respective ticket sales process have shown that a supervised kids area within the direct line of sights of parents are well-accepted. That way the parents make sure of the well-being of their kids (if dropped off at the kids area) while being able to follow the match at the same time. This means that at the lower part to the left/right corner of the stand approx. 40 seats have to be relinquished in order to implement the playground area (this capacity can be reduced/expanded according to demand).

Finally, it has to be stated that within the Family & Friends category the respective capacities ideally remain as flexible as possible allowing for easy and appropriate up- or downsizing according to the particular demands and sales processes.

CONCLUSION

The dedicated capacities for hospitality and business clients within the planned state-of-the-art facitlities of the New National Stadium Reykjavik represent a highly pivotal economic factor for the project's overall and long-term financial success. In combination with the virtually non-existing class-society culture in Iceland as well as the underdeveloped VIP infrastructure at the current national stadium Laugardalsvöllur, the source of income from hospitality and business offerings has to be strategically conceptionalized as well as progressively introduced and adopted.
The basic idea of hospitality/business products is to create and sell packages of particular rights and services which are not accessible to the general spectator. This, in combination with provided unique and private atmosphere as well as top-level services and products, represents highly appealing buying incentives to certain customers who are willing to buy into an exclusive event and matchday experience. Furthermore, hospitality offerings usually include dedicated business and social values, representing the close connection and affiliation with KSI as well as Iceland's sports- and event industry in general.

In order to support such an implementation of hospitality and business products as well as facitiliate the corresponding sales process within the relevant target groups, Lagardère Sports provided its unique international hospitality know-how to create a locally adopted and customer oriented packaging of stadium- and KSI related rights and services for the specific Reykjavik situation. This conception considers official requirements, local demands as well as international standards and best practices.
As a result, the tailor-made hospitality and business offering provides a total capacity for 642 guests and includes three different categories (Skyboxes, Business Club and Family & Friends) aiming at specific and distinct target groups with the strategic perspective to link those customers on a long-term basis to KSI and the New National Stadium Reykjavik itself.

The basic conception of hospitality and business capacities **attract entirely new target-groups** due to the **bundling of certain KSI- and stadium related rights/services** providing exclusive new products for customers!

Hospitality and business packages provide an **important source of additional income** due to the **customer's willingness to pay a certain price** for service and rights packages!

Well-conceptualized and –implemented hospitality/business offerings allow for **more steady operational revenues** due to the independency from athletic and/or event-related performances!

1.1.5 Economic Relevance of Event-related Down- and/or Upsizing

Given the situation at the existing national stadium Laugardalsvöllur, the event-related down- and/or upsizing of total capacities of 15.000 (9.800 fixed seats plus 5.200 places in mobile facilities) via temporary stands (north and south tribune) plays a vital part in the current stadium's operations as well as day-to-day business of ticket sales processes.
However, in general it has to be stated that the considerations regarding the new stadium development made in chapter 1.1.3 Definition of ideal Total Public Capacity for the Reykjavik Multifunctional Stadium already include a clear vision for a long-term usage strategy of the stadium and its facilities, where fix installations and an associated minimum capacity play vital roles for a succesfull multi-purpose utilization. Furthermore, from a constructional point of view, a permanent and full bowl stadium solution presents such a large number of indispensable design and operational advantages, that any patchwork conceptions are clearly outweighed. Especially any time and cost intensive substantial downsizing measures with the purpose of achieving hypothetical operational savings, have to be balanced against the marginal benefits of slightly reduced maintenance costs (cleaning, heating, etc.) bearing in mind that construction expenditures are the predominant cost factor. As a result this means that there are no significant automatic savings by the demolition of permanent (seating) facilities.

The most prominent consideration when contemplating the potentialities of event-related down- and/or is the New National Stadium Reykjavik's main usage mode to host all home matches of Iceland's national teams (Men's, Women's and Youth Teams). Therefore, there are generally two main categories of measurements and tools which can be reasonably taken into account to adapt capacities according to the other sports and third party events requirements and attendance utilization rate:

- Conversion of specific stadium areas into other usage mode
- Re-dedication of certain seating capacities

In general it has to be added that also other circumstances and conditions partly influence the need for possible event-related down- and/or upsizing, however, always have to be considered in the context of the stadium's long-term strategy and dedicated multi-purpose usage program.
Thus the overall event attractiveness represents an additional influencing factor as different types of events attract varying numbers of spectators and interested people depeding on general attractiveness and local preferences (operational split into different event categories according to attendance figures possible). However, taking into account the already discussed event-related influences such as third party event requirements and advantage of size as well as the new stadium's main purpose of hosting matches of Icelandic national football teams, the considerations from chapter 1.1.3. Definition of ideal Total Public Capacity for the Reykjavik Multifunctional Stadium are fully valid for this project. Furthermore, for other event types the full capacity of the stadium only respresents a circumstantial and/or negligible condition as they are hosted within other facilities within the premises (business areas, surroundings, etc.)

Conversion of specific stadium areas into other usage modes

Generally, this method represents a far better alternative than a radical demolition of concrete or time and resources/cost expensive mobile event-related down- and/or upsizing. Furthermore, as already mentioned, the deliberations regarding necessary minimum capacities in order to offer a certain degree of steadiness for third party usage (e.g. concerts and international artists/promoters) as well as the structural and design benefits provided by a full-bowl stadium solution also play an important role in sustainable long-term operations. Therefore it is strongly recommended to consider any necessary event-related down- and/or upsizing via a change in usage mode (a large number of western European benchmark stadiums utilize such solutions to their full operational advantage).

Re-dedication of certain seating capacities

Another commonly used method to react rather flexible to a changed situation in demand represents the adaption of certain seat categories (although not on such a possible large scale as the conversion of areas into other usage modes). Most commonly a permanent re-dedication between media and regular seats as well as regular seats into higher priced hospitality seats are feasible.

CONCLUSION

As the the New National Stadium Reykjavik's main purpose to host all home matches of Iceland's football national teams (Men's, Women's and Youth Teams) requires for indespensable permanent structural building measures (discussed in detail in chapter 1.1.2 Analysis of Structural Building Measures) as well as certain long-term considerations regarding ideal stadium total capacity for both, football matches as well as additional other sports and third party event utilization (discussed in detail in chapter 1.1.3 Definition of ideal Total Public Capacity for the Reykjavik Multifunctional Stadium), the possible event-related down- and/or upsizing of stadium capacities constitutes in most cases, from a pure economical perspective, an unjustified practice.

However, with regards to appropriate adjustments to particular capacities and facility usage modes, temporary adaptions can be reasonably applied and might contribute to an optimized operation as well as overall event experience. Long-lasting operational experience in combination with internationally proven best-practice cases show that the most effective measurements for such purposes include the conversion of specific stadium areas into other usage modes (e.g. office space ↔ hospitality capacities) as well as re-dedication of certain seating capacities (e.g. public seating ↔ hospitality seats).
In general it has to be stated, that when considering any permanent changes to a stadium's full capacity, building expenditures invested into the construction are the predominant cost factor compared to any hypothetical operational savings deriving from possibly slightly reduced maintenance costs (cleaning, heating, etc.)

Due to structural, event-relevant and demand-related considerations for the New National Stadium Reykjavik's, **any permanent down- and/or upsizing** of its full capacity **does not represent an economic viable solution**!

Construction expenditures represent the predominant cost factor compared to hypothetical operational savings due to reduced maintenance costs!

In case event-related down- and/or upsizing is temporarily applicable for additional event types, the **conversion of areas into other usage modes** as well as the **re-dedication of certain seating capacities** represent the most reasonable measurements!

1.1.6 Economic Review on specific stadium-related Building Components

This chapter focusses on customized suggestions regarding specific building solutions to fulfill a multifunctional stadium character. Certain events (especially non-football events) have special stipulations, which should be considered as soon as possible when starting to plan a stadium.
In contrary to football matches, some events might claim a completely different set-up in terms of the usage of the pitch, the stands, the stadium interior/exterior, the sound installations etc. In chapter 1.1.1 Definition of the Reykjavik Multifunctional Stadium Specific Usage Concept, Lagardère Sports already defined a number of possible events which should be included in the stadium's event calendar according to international best practices as well as local conditions and qualifications in Reykjavik/Iceland. Each of these events demand a particular number of special requirements and installations, which of the prinicipal constructional-related items have already been discussed in chapter 1.1.2 Analysis of Structural Building Measures. However, not only those permanent structural building measures contribute to the overall success of multi-purpose stadiums, but also the following features:

According to Lagardère Sports' long-lasting and well-proven expierence the main event requirements to implement a sustainable multipurpose usage encompass:

- Acces and usage of pitch level (general logistics, sanitary facilities, etc.)
- Spectator segregation (gates/fences for the separation of specific spectator areas)
- Stage access routes (backstage connection passageways, offices and temporary facilities)
- Technical logistics (e.g. power, water supply)
- Pitch considerations (discussed in 1.1.2 Analysis of Structural Building Measures)
- Appropriate roofing construction (discussed in 1.1.2 Analysis of Structural Building Measures)
- General rules & regulations by local, national and/or international bodies (at this stage not further examined)

As a final general rule it can be stated that all necessary multi-functional facilities and features have to be considered, planned and implemented at the earliest stage possible in order to avoid cost-intensive or even impossible later adjustments/corrections.

ACCESS AND USAGE OF PITCH LEVEL

Next to the New National Stadium Reykjavik's main purpose for football games, also other already mentioned event types (e.g. concerts, festivals, corporate and pitch events) use the playing field as well as the entire pitch level for different purposes (spectators, storage, instalments, etc.). As already mentioned in chapter 1.1.2 Analysis of Structural Building Measures when discussing the necessity for the transport of heavy loads to the infield, one of the main logistical features for multi-purpose usage of stadium's represent big gates.

However, such gates do not only fulfill the function of enabling heavy load trucks to enter and exit the stadium infield, but also play an essential part with regards to necessary evacuation plans out of the infield area during the utilization of the pitch level for spectator groups (therefore a minimum of two big gates are required, however, best practice examples show that four facilities are highly recommended as mentioned in chapter 1.1.2 Analysis of Structural Building Measures). International experiences indicate, that the size as well as offered facilities within those tunnels are a major influencing factor on universally valid and special local regulations regarding the allowed number of people onto the pitch level during specific usage modes.

In order to fulfill the safety and security requirements obligatory for evacuation planning, those big gates connecting the stadium outside with the infield need to include sanitary facilities (male, female and handicapped) accessible for spectators during specific event types on pitch level (e.g. concerts and pitch events) as well as on the stadium territory (surroundings events, community events, combined usage of infield and outside). From a constructional point of view the sanitary facilities are ideally positioned on the outside of the gates that close the stadium in an „off-mode".

SPECTATOR SEGREGATION

A dedicated spectator segregation plan and system is not only a prerequisite for football matches (in order to separate home, away and neutral fan groups), but also plays an important role when considering the multi-purpose usage modes of the new stadium development. The potential to host events with different sizes and capacities is closely linked to the ability to separate certain sections as well as divide the stadium into independent sub-sections. Such systems provide a high degree of size and capacity customization and therefore enable the staging of smaller events within the stadium premises. Additionally, this function plays a vital part in reducing event-related operational expenses and subsequently support the target to run respective events in the most cost-efficient way.
This means that the access to different sections of the stadium is ideally observed and controlled by a interrelated gates system, which allows a tailor-made cordoning-off of certain sections and therefore stops possible access routes and spectator flows. This is particularly important for events which not fill up all available capacities and therefore parts of the stadium have to closed off (upper tiers/bowls). Experience shows that the installation of gates at all significant positions in the stadium represents an important factor for cost-efficient operations of small- and middle sized event types. For safety and security purposes those gates have to include automatic door systems, which open/close themselves in an case of emergency.

STAGE ACCESS ROUTES

In order to achieve the desired multi-purpose usage capabilities of the New National Stadium Reykjavik, a special planning and design focus has to be given to the implementation of third party events, especially concerts, festivals and other entertainment shows. For such events there is the natural need for a dedicated stage set-up (final stage installations depending on respective event type as well as artist/promoter preferences). However, one feature that always comes along with such elements is the necessity for backstage areas including specially assigned access routes and passageways.

The required access to the stage from behind for artists requires direct connection to a dedicated backstage area behind the stage (ideally the stage also conceals this particular passageway for artists, promoters and staff). Experience shows, that in most cases this is achieved most simplest by staircases to a different level below the tribune, which also provides the necessary multifunctional areas and dressing rooms. Given the fact that in most cases the choosen stage-set up represents an end-stage scenario, all required facilities, storage rooms and installations are ideally positioned for such purposes, however, should remain as flexible and mobile as possible in order to adjust accordingly (e.g. some events like special entertainment shows call for center stages, which require a different access and passageway set-up respectively).

TECHNICAL LOGISTICS

In case of third party event usage of the pitch level, the utilized facilities (stages, catering services and possible other temporary features and staff) need sufficient power and water supply. Such installations again are subject to international as well as local requirements and regulations which warrant careful and detailed planning and implementation (for all technical related requirements and configurations described in detail please refer to chapter 1.1.3 Definition of Functional Program – Guideline for Architectureal Planning).

Exemplary power suppy box

APPENDIX: ADDITIONAL RELATED AND/OR CONDUCIVE FACILITIES AND BUSINESS UNITS

As the development process of a New National Stadium Reykjavik aims to optimally combine economic viable stadium operations together with highly social relevant features for Iceland's football/sports landscape as well as support and promote local urban development/community agendas, not only the stadium's main purpose to host all home matches of Iceland's football national teams (Men's, Women's and Youth Teams) all year long, but also the efficient and effective multi-functional character of its facilities and surroundings play a major role in the project's comprehensive success.

This means that any operational result of the stadium's main utilization modes (football and multi-purpose usage) can be and ideally is either enhanced via additional social relevant functions or financially supported by related self-sufficient business units (already discussed and illustrated in Borgabragur's comprehensive pre-feasibility study, chapters 6.2–6.4). Combined approaches of this type do not only support the overall legitimization of such complex projects within society in general, but also allow for reduction of investment and/or economic profitability for all involved parties (e.g. KSI, city of Reykjavik, sports- and finance ministries).
Therefore, Lagardère Sports wants to, from an operational and economical perspective, illustrate internationally well-proven and practicable cooperations and facility-related synergies within stadium territories, allowing for an overall improvement of performance levels for all involved stakeholders (additionally Lagardère Sports includes expert assessements of financial and social footprints of the following facilities in order to better evaluate the respective contributions). Nevertheless, any valid and comprehensive assumptions concerning possible investements and necessary funding can only be reasonably compiled within a next step Design Phase including the definition of a design and construction concept.

Elite performance/youth academy infrastructure

The closest correlation to any football specific venue of course represent sports/football related elite performance and youth academy facilities. In general this means to build on the top-level foundations set by a new state-of-the-art (national) football venue and equally establish and professionalize infrastructural conditions for top athletes within the youth systems (national teams and club level).
Given the non-business related nature of such expenditures, the overall financial blueprint of this investements are most certainly negative, however, represent strategic considerations for the long-term development of professional sports/football structures within Iceland as well as hold a very high social value contribution for the entire region.

Educational and medical excellence centres

Next to the naturally strong links between sports/football and its related infrastructures mentioned above, the close connections to and possible synergies with educational and medical/science purposes have to be clearly stated. Especially given the New National Stadium Reykjavik's main purpose of hosting all home matches of Iceland's football national teams (Men's, Women's and Youth Teams), the stadium will most naturlly become some kind of sports/football related hub itself (particularly in case of the provision of additional training and youth acdademy facilities as mentioned above).
Therefore, the inclusion of and/or cooperation with dedicated educational (e.g. schools and universities) or medical related institutions (e.g. rehabilitation centre and sports science department) allow the New National Stadium Reykjavik together with the whole Laugardalur territory to become a highly social accepted and vital area. Furthermore, the possible business generated from any regular and/or temporary customers of a prospective educational/medical centre helps to financially balance or even surpass any needed additional investement (cost-neutral character).

Hotel/shopping center/retail outlets

Additionally to the above mentioned predominantly social-related additional usages for available facilities within the stadium territory, a more conventional real estate development approach is regularly applied in combination with stadium construction projects. This means that business related units (e.g. hotels, shopping centers, retail outlets) do not only use the opportunity to earn profits themselves, but the stadium project itself participates significantly. Possible ways of financial contribution of the different business units have to be respectively customized, however, the overall financial success of the development project's business case is strongly facilitated.

For the specific Reykjavik situation, connected facilities to the stadium's structure (included within the premises and/or adjacent) represent highly valuable profit generators as well as unlike the declared sports zone (according to OP) generate dedicated tax revenues for the city of Reykjavik. Especially the ongoing tourism boom within Iceland/Reykjavik, predestinate the stadium's Laugardalur area for some kind of associated hotel option. Other potential developments include commercial units (retail, additional office spaces, etc.) as well as community facilities and services. Due to the unique location and neighbourhing residential areas, most ventures of this kind posses great business potential as well as synergies amongst themselves. However, any possible building projects have to fully comply with the city's administration/planning legislation as well as closely aligned with applicable local restrictions and requirements. Considering all of the above, any lucrative business-related development as part of the project should be carefully considered in order to increase the financial viability of the overall development.

CONCLUSION

The close correlation between specific stadium-related building components together with structural building measures make the combination of those two factors an essential influence on a modern football stadium's main purpose to host football matches as well as its possible multi-functional usage modes for other sports and third party events.

Especially when taking into account the economic impact of the capability to host main usage modes in the most financially effective way (football, other sports and third party events), a certain number of crucial building components have to be strategically analyzed, planned for long-term usage and optimally implemented for easy utilization. Next to the already mentioned main elements pitch, roofing, special technical installations and access/exit between stadium infield and territory (e.g. heavy truck loads and spectator evacuation) discussed in chapter 1.1.2 Analysis of Structural Building Measures, particularly general installations and necessary amenities for pitch level usage, individual spectator segregation systems (gates/fences), technical logistics (i.e. power/water supply) as well as dedicated stage access routes and facilities for third party usage play an important part in a stadium's overall operations performance including multi-functionality.
Economic relevance of these considerations is included and shown within the customized business case (chapter 1.1.2 Creation of Business Plan).
On top of that, the further facilitation of extra building capacities for supplementary usage within the stadium's premises and territory allow for added value to the project's overall character, both from an economical and social perspective. Internationally well-proven examples include closely connected athletic usages (i.e. elite performance/youth academy structures), social relevant cooperations (i.e. educational and medical excellence centres) as well as the provision of dedicated business-related units (i.e. hotel, retail outlets, etc.).

Specific building-components (together with structural building measures) play a **vital role** for modern **football stadium's main usage mode** as well as its **multi-functional character**!

Any specific stadium-related building components have to be **planned, considered and ideally implemented as early as possible** in order to avoid costly alterations and adaptions at a later stage!

Additional facilities/units within the stadium premises and territory **add highly important financial and social value** according to their respective accuracy of fit to the main usage modes!

1.2 CREATION OF BUSINESS PLAN

For the customized business case for the specific New National Stadium Reykjavik situation (including all subchapters 1.2.1 Illustration of a multi-year overview including performance scenarios of main tenant(s), 1.2.2 Estimation and Allocation of stadium-related Revenues Reykjavik Multifunctional Stadium and 1.2.3 Estimation and Allocation of stadium-related Costs Reykjavik Multifunctional Stadium) please refer to the separate document.

1.3 DEFINITION OF FUNCTIONAL PROGRAM – GUIDELINE FOR ARCHITECTURAL PLANNING

1.3.1 Indication of economic relevant / usage-dependent / multifunctional characteristics of room sizing

Introduction

Within the following, Lagardère Sports provides information regarding its stadium development expertise for KSI. Detailed recommendations regarding the maximization of stadium-related revenues and the minimization of stadium-related costs are based within this functional program, supporting the and function as a guideline for architectural preplanning from an assessable economic perspective.

The new national stadium Reykjavik, has to be secured as a state-of-the-art facility development which should ideally provide a safe, protected and comfortable environment for all stadium stake holders. Therefore the different perspectives have to assure the following achievement of objectives:

- to secure a safe state-of-the-art stadium for players, officials, artists and other performers
- to provide a convincing and satisfactory guest experience to all visitor target groups (public / hospitality)
- to support a provision of compelling television viewers experience around the globe
- to maximise revenues from hosting stadium-related events
- to minimize costs from stadium-related events
- to enable a competitive 365-days-usage of the venue generating new revenues (multi-purpose utilization)
- to give satisfaction to governing bodies like UEFA/FIFA

The task of Lagardère Sports to provide recommendations regarding an audited planning of the new national stadium, the positioning and fitting of certain areas like sporting areas, business / hospitality areas, catering, sanitary, press / media, spectator areas as well as facilities for third party usage and the surroundings are based within the specific functional program and to be further discussed within a next step Design Phase together with all involved stakeholders.
The remarks and references which are made in the following will refer to the of the regulations and requirements for international FIFA/ UEFA matches (stadium category 4) as well as specific Lagardère Sports recommendations out of the long term stadium experience from a consultants, marketers and operators perspective (due to the possible inclusion of potential national cup competitions within the specific multifunctional usage concept also national regulations and considerations are taken into account). There are some architectural and technical expert terms in the continuous text which are self-explanatory.

General reflections

Orientation

Event and match participants (i.e. players, officials, artists and staff), spectators (public/hospitality) and media representatives must be protected as much as possible from the glare of the sun. As the current main tribune (built in 2006) is most certainly being planned as part and parcel of the new venue, the location of the new stadium is set and fixed at the existing positioning, therefore flexibilities in orientation of the pitch are limited. Nevertheless, the main idea of any new development is to still use the current main tribune (2006) containing among others the dedicated KSI offices, however, as the new opposite stand of the new national stadium Reykjavik. This means that the remaining three stadium stands to be build (incl. a new main tribune in the east hosting all athletes, officials, business, media and event-related areas) will shape a full stadium bowl structure for the future.

The effect of a stadium's roofing construction on the playing field must also be considered. The pitch needs ideal as good weather and climate conditions (light, ventilation and nutrition) as possible to offer a top-quality playing surface, which has to take into account several constructional considerations (e.g. pitch access gates, roof, etc.) during the stadium planning.

The current stadium design in Reykjavik has a north-south field orientation. Any future development concepts have to closely consider deliberations regarding the right angle of sun radiation (e.g. for top-quality TV productions), especially given Iceland's unique climate situation in terms of highly diverging exposures to daylight for different timeperiods and seasons (generally more sophisticated analyses have led stadium designers to choose an angle equal to the average direction of the sun at half time for afternoon game). However, such measurements are ideally included in a next step Design Phase including the definition of a design and construction concept.

Sightlines

All seats should have an unobstructed view, not hindered by columns, barriers, railings, etc. Consideration should be given to adopting a policy whereby no seats have a viewing distance of more than 190m and a c-value (please see *Figure 2: Sightlines (c-value) for spectators*) of less than 90m. Obstructed view seats, seats with a c-value of less than 90m or with a viewing distance to the far corner of the pitch of more than 190m cannot be included in the net capacity, so they consequently come along with definite loss in revenues as well as a potential noncompliance of international requirements.

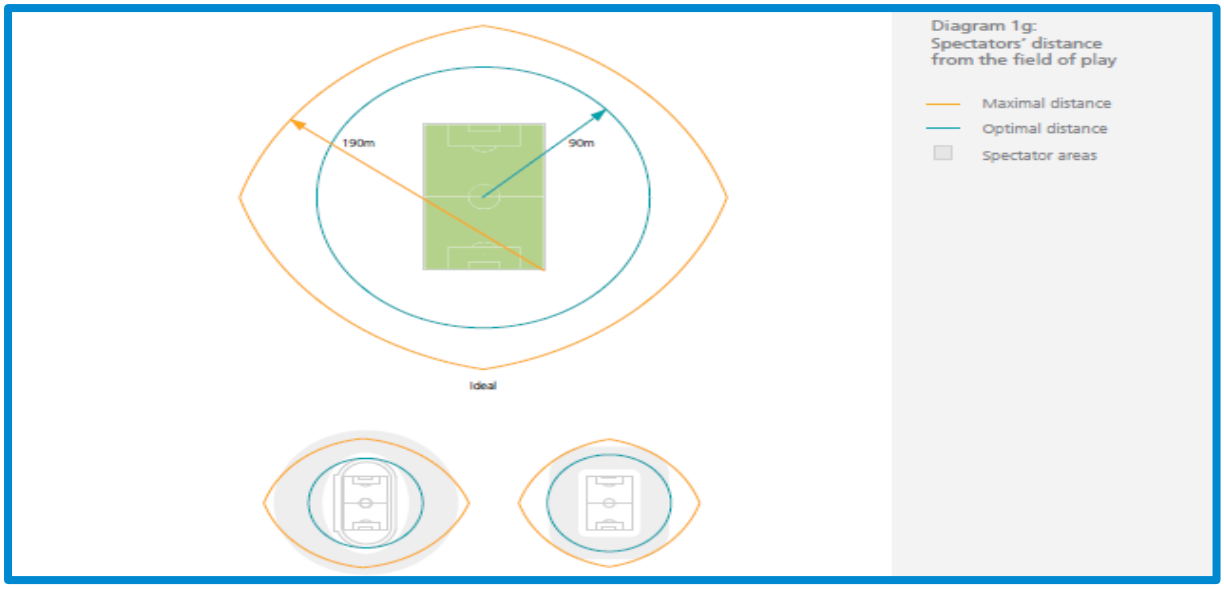


Figure 1 Sightlines (Source picture: FIFA recommendations 5th edition 2011)

Net capacity is only the number of seats for the spectators, without the seats for press and media, hospitality seats and seats with obstructed view.

Ideally there should be a clear view of the playing field from all seats in order to market 100% of capacities. In calculating the sight lines, it should be taken into account, that advertising boards of 90-110cm in height may be erected around the field at a distance of five metres from the touch lines and five metres behind the centre of the goal lines. The minimum criteria is that all spectators in the stadium can see over the head of a spectator seated two rows in front in a direct line to the pitch without any obstructions (it also has to be taken into consideration, that sometimes roof constructions occur sightline obstructions because of pillars of the roof, which ideally should be avoided, camera positions may destroy the sightlines for the spectators, if the sightlines are not well calculated).

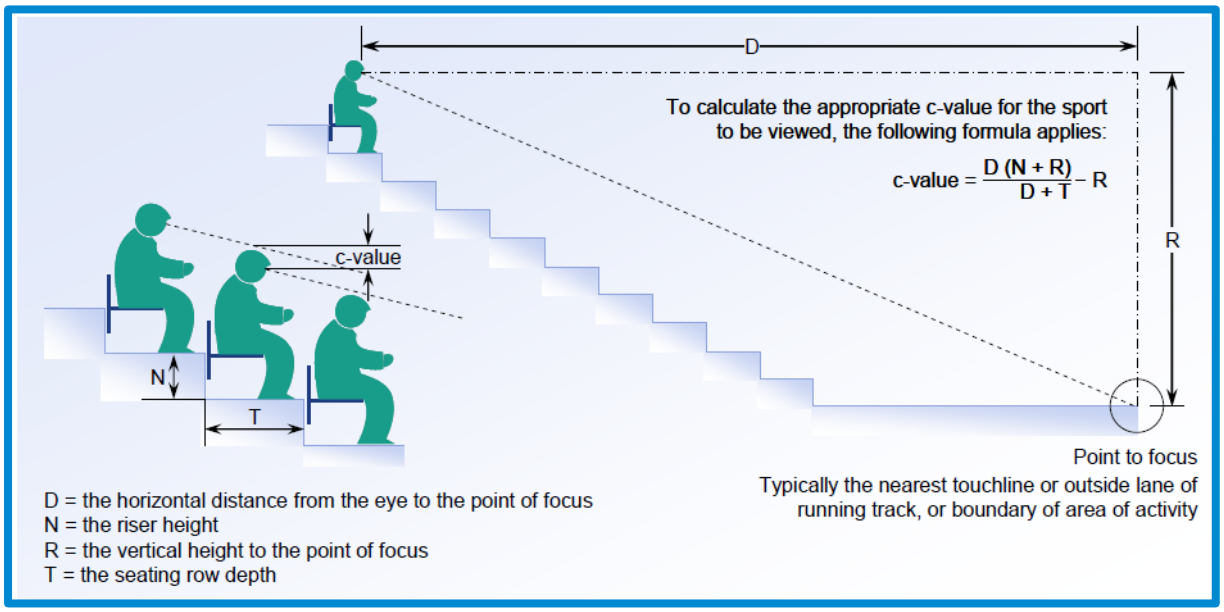


Figure 2 Sightlines (c-value) for spectators (Source: UEFA 2016 requirements)

The stadium in Reykjavik shall be used not only for football matches, but it will be the main usage mode of the stadium. It should be possible to further host other events in the stadium, to optimise the revenues out of the stadium business.

Roof

The stadium must be covered by a roof in order to protect from unique Icelandic climate, which in some cases offer severe weather conditions (e.g. rain, sun, and most important, heavy snow). The roof should have an angle of >15%, the distance of the roof edge should be approx. 35m above the pitch. The planning of the stadium should secure a roof covering pitch, all spectator seats, and preferably the concourses of the stadium as well. Especially if there are hospitality and business communication areas planned in the outside, which is a recommended tool, these areas should be covered, too. The construction of the roof should secure, that there is no influence on the sightlines of the spectators. The constructions should be a sort of cable construction, which has its main power distribution to the outside.

When designing the roof structure, the implications for the provision of a healthy and high-quality pitch should be taken into account. In addition, the shading effect as well as materials used for the roof structure might have implications on the pitch itself, the overall ventilation within the stadium as well as for the television coverage; therefore the inner area of the roof should be of adequate substance. Last but not least, roof access is required for maintenance, rigging, and signage purposes.

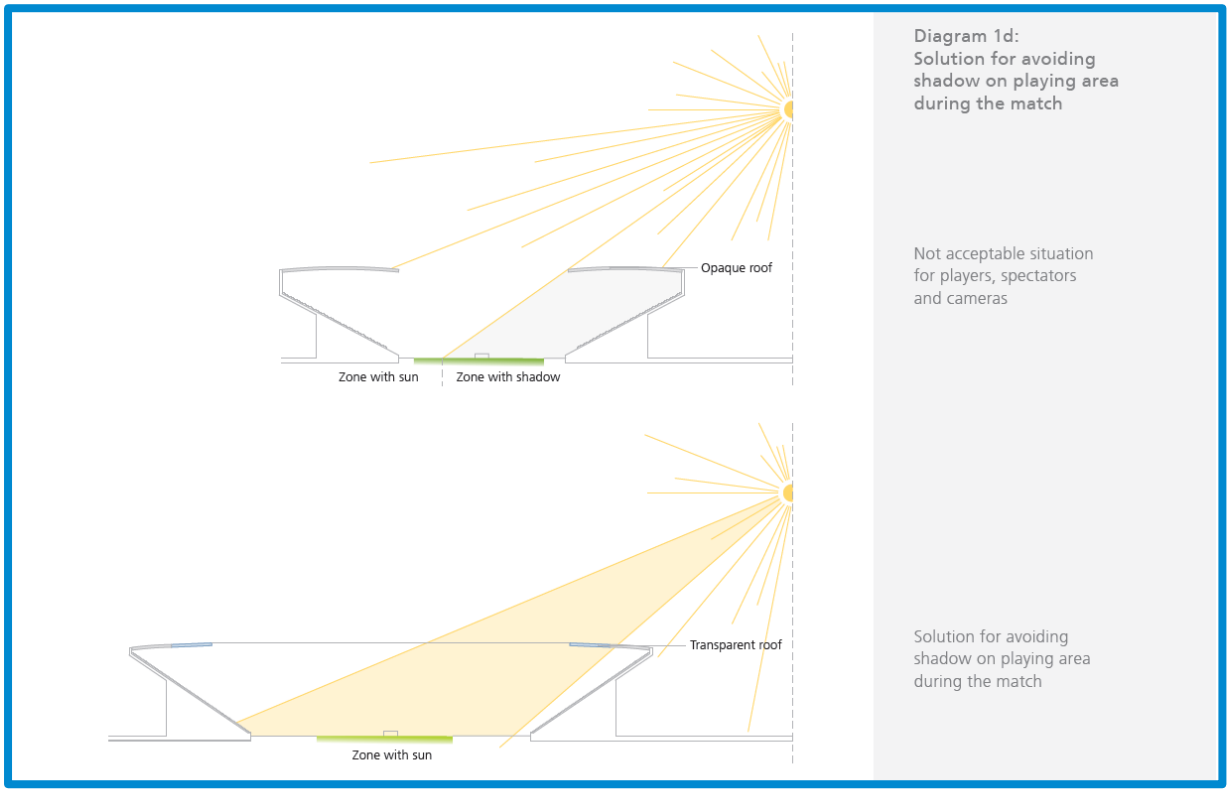


Figure 3 Solution for avoiding shadow (Source picture: FIFA recommendations 5th edition 2011)

Furthermore floodlight and video screens/cube should be installed at the roof construction. Therefore the ultimate load of the roof must be calculated for these additional weights. The roof must have as well a service ring, which secures the technical maintenance of the floodlight and the screens/cube, these are additional weights, which have to be taken into consideration.

Figure 4 Classic open roof construction Volksparkstadion Hamburg, Germany

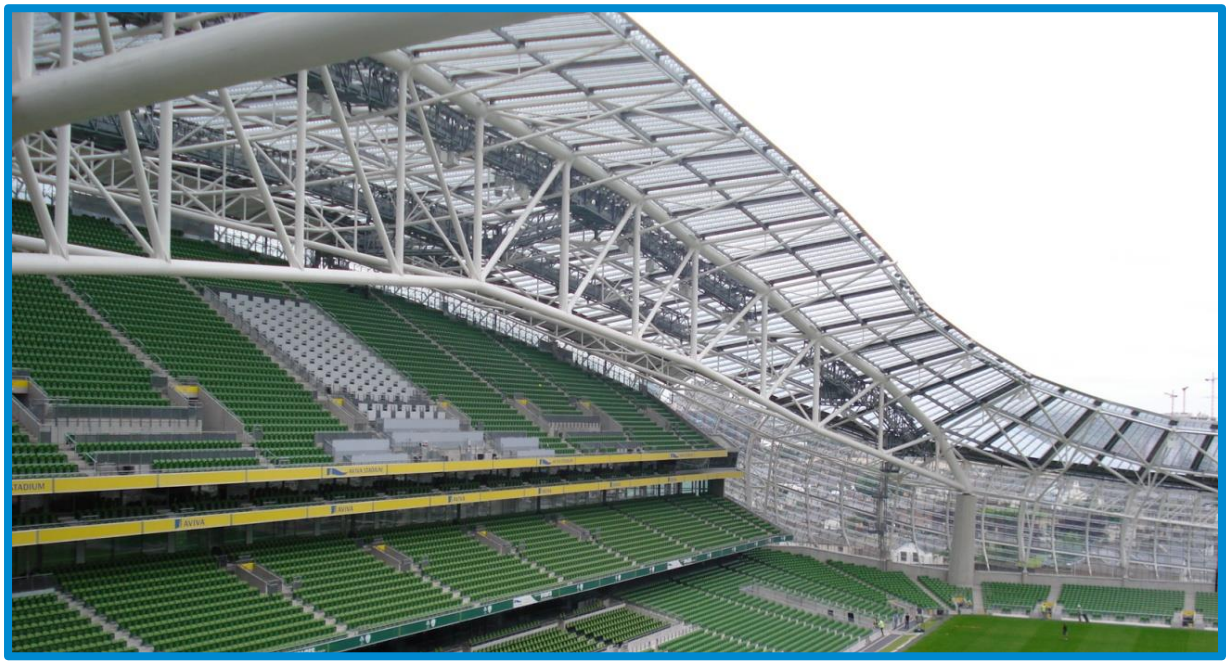


Figure 5 Standard roof construction Aviva Stadium Dublin, Ireland

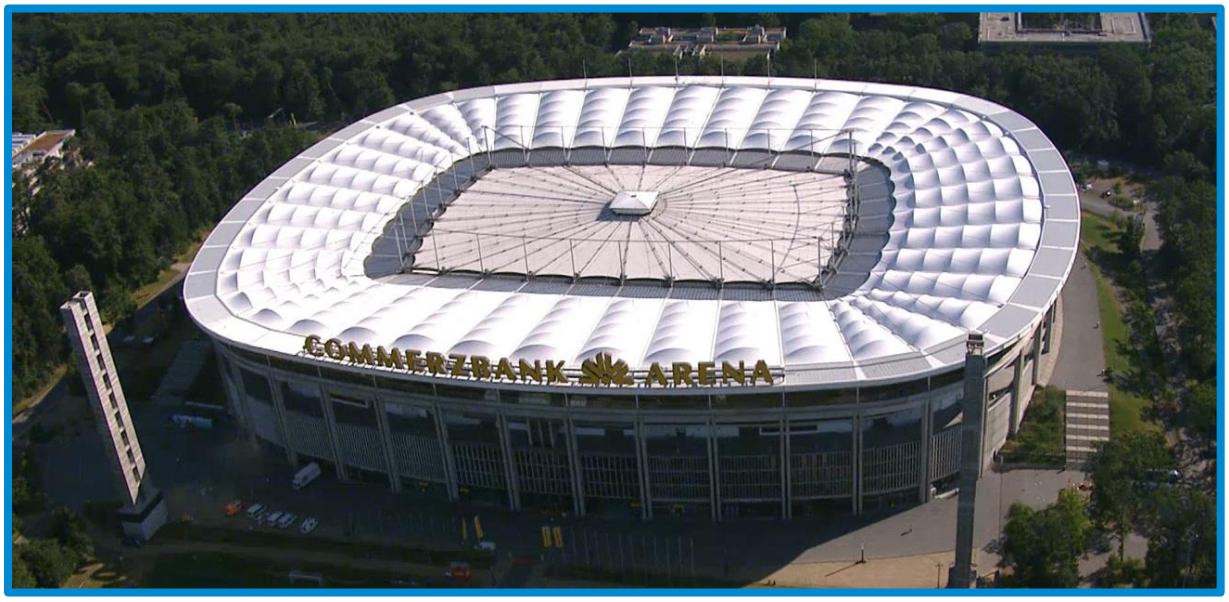


Figure 6 Light cable retractable roof construction Commerzbank Arena Frankfurt, Germany

Figure 7 Heavy steel construction retractable roof Friends Arena Stockholm, Sweden

Façade

Next to the roof, the façade represents a major component in term of structural features for a modern football stadium, especially taking into account a desired multi-purpose usage. This element not only plays a major part in protecting the stadium inside from extreme weather conditions (to be closely considered in case of the specific Reykjavik situation), but also takes up a strong influence regarding the overall experience and grafting of the facilities (e.g. high quality materials like glass/synthetics vs. basic concrete structures).

Structure

As already mentioned above, the texture, structure and materials used for the stadium façade highly affect the facilities' overall image and performance characteristics. Generally it has to be stated, that it is essential to strike the right balance between investement and construction costs (high-class materials like glass and synthetics are more cost intensive) vs. necessary functionality and exterior/visual appearance (closed constructions made from basic materials like concrete also offer a high protection from external influences, however, do not provide possible additional features like built-in illumination). From a pure constructional perspective a classic concrete structure offers all major benefits desired for football and multi-purpose usage (for specific Reykjavik situation a fully-closed construction is highly recommended). Any additional high-performance materials are subject to available funding and extra functionality purposes.

Figure 8 Illuminated glass façade Friends Arena Stockholm, Sweden

Figure 9 Exterior membrane façade Allianz Arena Munich, Germany

Figure 10 Concrete structure Coface Arena Mainz, Germany

Figure 11 Concrete structure Millerntorstadion St. Pauli, Germany

Pitch

Dimensions

The dimension of the playing field and the area around for all matches at the top professional and international level are very clearly defined:

- Playing field: length: 105m, width: 68m

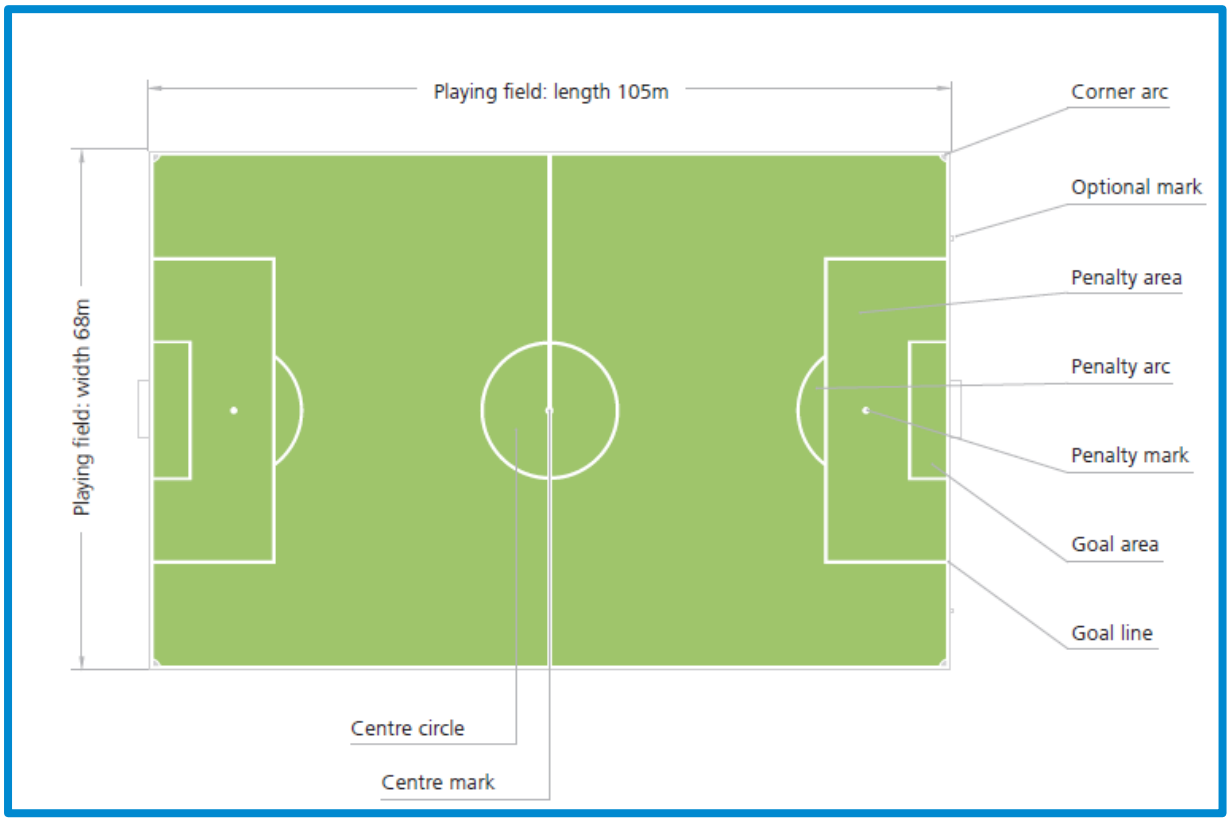


Figure 12 Dimension of playing field (Source: FIFA recommendations 5th edition 2011)

These dimensions are obligatory for hosting of national and international matches at a UEFA category 4 stadium. Additional flat areas are required beside the playing field, ideally behind each goal line, where players can warm up. This area should also allow the circulation of assistant referees, ball boys and girls, medical staff, security staff and the media. It is recommended that this should be a minimum of 8,5m on the sides and 10m on the ends.
This results in an overall playing field and auxiliary area dimension of:

- Total pitch area: length: 125m, width: 85m.

The pitch area must extend all the way to the advertising boards in the auxiliary area, which typically are erected 5m beyond the touch lines and goal lines. Any part of this additional auxiliary area that will be used as a warm-up area should have the same surface as the playing field. Other sports are possible within those measures.

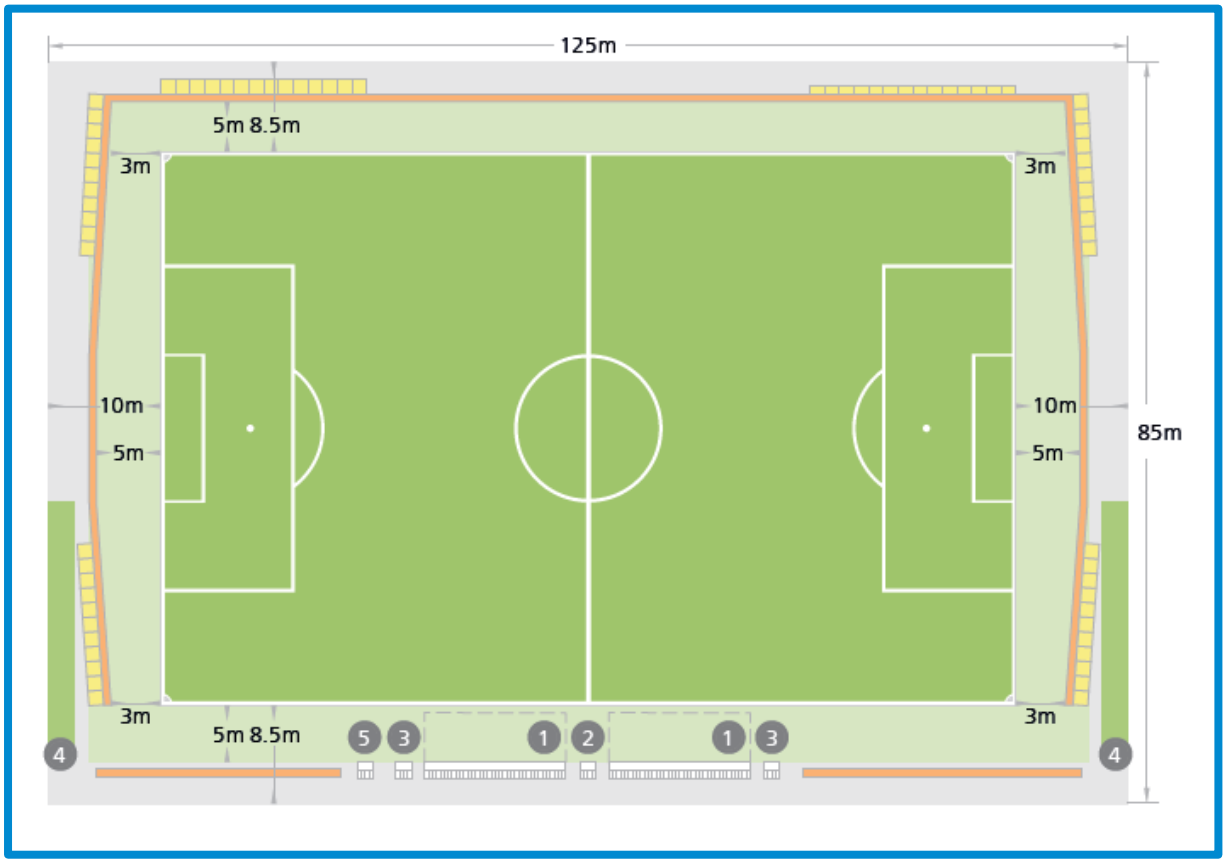


Figure 13 Dimension of playing field (Source: FIFA recommendations 5th edition 2011)

Substitute benches

The two substitutes' benches should be situated on either side of the halfway line, parallel to the touch line, outside and at a distance of five metres from the playing field. The nearest point of each bench to the halfway line should be at least five metres from the point where the halfway line meets the touch line.

Each bench should be able to accommodate up to 23 people for international matches. The benches should be placed at ground level but they should not obstruct the view of spectators. They must be protected by a transparent plexiglas-type shell against bad weather and respectively secure against objects thrown by spectators.

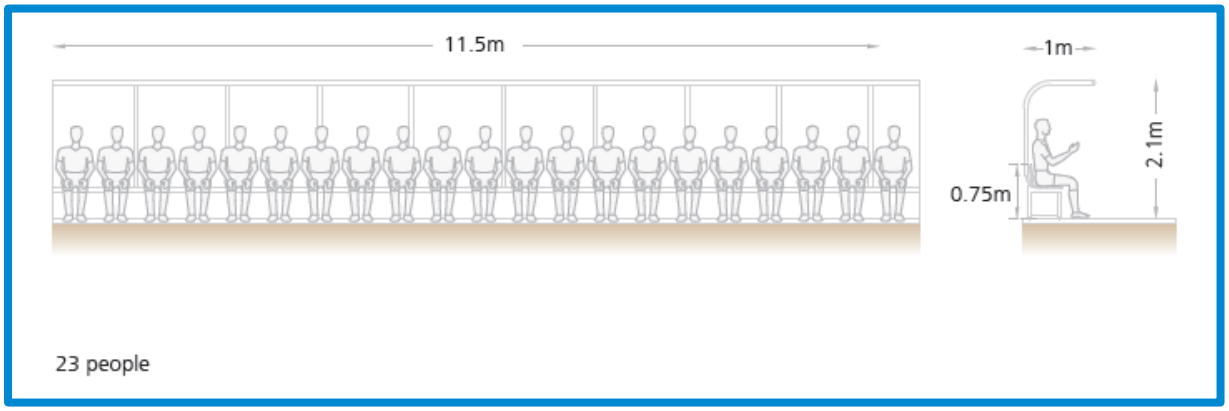


Figure 14 Substitute bench (Source: FIFA recommendations 5th edition 2011)

Pitch condition

The playing field must be absolutely smooth, level and in best condition. Ideally it is natural grass but nowdays official regulations by FIFA/UEFA also allow (with certain exceptions such as FIFA World Cup tournaments) and certify certain artificial turf systems. With natural grass, it should have an efficient watering system (sprinkler system) for use in dry weather. The playing field should be equipped with an under soil heating system to prevent it from freezing in winter conditions.

The primary characteristics of a good playing field should include proper underground and surface drainage in order to allow matches to be played during aggravating weather conditions (rain, snow, etc.). It is also necessary to have a proper maintenance plan to keep the field always in a great and useful condition, this plan should include trained personnel, mechanical equipment, fertilisers and testing equipment. The highest pitch quality is fundamental to the game and must be considered a high priority. It is vital that qualified experts with a proven record in stadium pitch development are employed from the earliest stage to allow for the best possible pitch surface delivery.

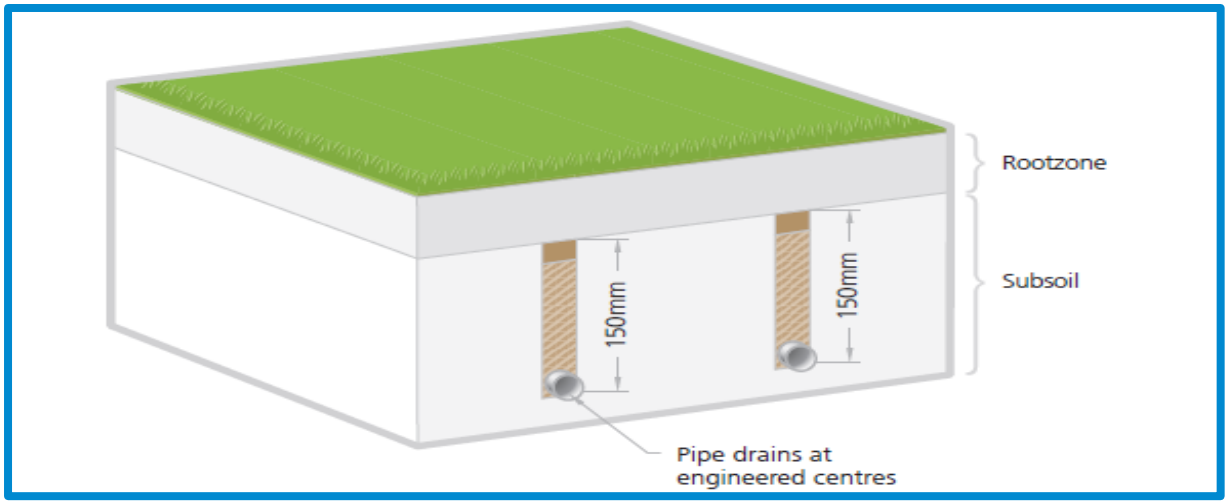


Figure 15 Drainage system natural grass (Source: FIFA recommendations 5th edition 2011)

Access to the pitch

Vehicles of the emergency services, including ambulances and fire trucks, must be able to gain access to the playing area and drive all around the arena (service ring) as well as driving on the pitch. All types of ground maintenance vehicles and various other kinds of vehicles should also be able to gain access to the playing area; especially for third party event usage it is extremely important to ensure the access to the infield. The drainage and heating system must withstand any form of high loads such as fire trucks, event trucks, etc (for further details please also refer to dedicated chapter 12 “requirements for third party usages”)

Exclusion of spectators from playing area

Ideally, the playing area of a stadium should be free of any barriers between spectators and the playing field. FIFA has decreed that its final competitions will only be played in fence-free stadiums. However, it is essential that players are protected against intrusion by spectators. This could be accomplished in a number of ways, including one or more of the following:

- Security personnel: the presence of police and/or security personnel in or near the playing area is the ideal situation.
- Adapted seating configuration: could be employed that situates front-row spectators at a height above the arena (2,5m above pitch level), rendering intrusion into the playing field improbable, if not impossible. There are the obvious dangers with this method as far as the possibilities of utilising the playing area as an emergency evacuation area.

- Screens and fences: insurmountable transparent screens or insurmountable fences could be used which could be mounted permanently or affixed in such a way that they may be removed whenever they are not necessary for a particular match. While the removal of all perimeter fences and screens from football stadiums is desirable, it is acknowledged that there are places where local authorities insist upon the provision of such barriers.

If fences or screens are used, they must be constructed with sufficient emergency escape gates to enable spectators to reach the playing area in the event of an emergency evacuation of the seating areas. The number, size and configuration of these gates must be approved and certified by the competent local safety authorities. Spectator gates must open outwards away from the spectators stands, be clearly marked, be unlocked at all times and each one must be permanently attended on the inside by its own dedicated stewards during the whole period that there are spectators within the stadium. An alternative solution to insurmountable fences and screens is the use of horizontal fences between the spectators' seating stand and the pitch auxiliary area. The advantage of this type of barrier is that it does not pose a safety hazard for spectators and can be collapsed with ease by field stewards in case of emergency.
Whatever form of protection against intrusion is used, it must be approved by the local authorities and must not represent a danger to spectators in the event of panic or an emergency evacuation.
Behind the goals there has to be an installed tight-knit net (70-80mm perforation) to protect the players (especially the goal keepers) in the case of missiles from the spectators and protect the spectators against the goal shots.

Spectator areas

The stadium should be designed in such a way that all spectators are safe and comfortable, have perfect view on the pitch and have easy access to quality welfare facilities, in order to provide a first-class match day experience. The stadium should have high quality welfare facilities for all spectator categories, including sanitary, catering, seating and viewing, moderate space, etc. The stadium should be designed with a flexible approach in order to accommodate future technologies and construction techniques.

Signage
All public passageways, concourses and stairways must be clearly marked. In particular, all evacuation routes must be clearly indicated. All direction signs inside and outside the stadium must be provided in internationally understandable signage. Clear, comprehensive signposting should be provided at the stadium approaches, around and throughout the stadium in order to indicate the routes to the different sectors. Prominent, clearly visible signage that guides spectators to welfare facilities, exits and other customer services should be provided.

Regarding the maximization of stadium-related revenues from sponsoring, a potential naming right partner package should be considered at an early level. Relevant considerations have to be made in a marketing and sales (hospitality) concept, prior to the architectural planning.

Seating
All spectators must be seated for international matches. All seats must:

- be fixed to the construction of the stadium (e.g. to the floor)
- be individually separated from one another
- be shaped
- be identified by a number
- be made of unbreakable, non-flammable material

- be equipped with a backrest of a minimum height of 30cm (measured from the back edge of the seat). Operational experience shows that a recommended size of the seats containts width: 50cm, depth: 80 - 90cm
- each seat should have direct view to the playground / pitch.

Areas which can be used for walking and adjoin to lower areas should be secured with railings (if the stairs are higher than 0,50m); these railings should have a height of 1,10m. The railing in front of seats should have a height of 0,90m. The hospitality areas should be separated by a railing system from the spectator areas.

Figure 16 Railings Aviva Stadium Dublin, Ireland

Hospitality categories should also be separated from each other (flat walls, different shells) to demonstrate different quality and price categories.
Seats should be installed in blocks of 30 parallel rows of seats, to secure the evacuation time. Between the blocks there should be a corridor with a min. of 1.20m depth.

Figure 17 Seats Aviva Stadium Dublin, Ireland

Figure 18 Seats Allianz Arena Munich, Germany

Also new target groups (e.g. families) can be defined as new potential clients in a modern stadium. The sourcing of new revenues can be found through making an adequate, kids focussed visit available. Stadium-related areas dedicated to enhance chilren´s matchday experience as well as the general facilitation for parents to spend family-related time a dedicated areas drive sales.

Spectators with disabilities

Proper provision should be made at all stadiums to accommodate spectators with disabilities in safety and comfort. This should include the provision of good, unobstructed viewing facilities and ramps for wheelchairs, sanitary facilities and support services.

The quality of seating positions and ticket options should be varied to allow disabled people the same opportunities as non-disabled spectators. It should be possible for wheelchair-users to gain entry to the stadium at all the entrances – including the hospitality and business areas (both skyboxes and business seats categories), media, broadcasting and player facilities – and to their viewing positions, without undue inconvenience either to themselves or to other spectators. Disabled spectators should have their own dedicated entrance gate from which they may have direct wheelchair access to their viewing area. Disabled spectators should not be accommodated in any position within the stadium where their inability to move quickly would present a hazard to themselves or to other spectators in the event of an emergency.

The viewing platform for spectators who use wheelchairs should not be in a position where the occupants' view of the playing field could be obstructed by other spectators jumping to their feet or by flags or banners hanging in front of them. Similarly, the position of disabled spectators should not hinder the view of spectators seated behind them. On these platforms there should be a seat at the side of each wheelchair position for a helper and electrical power available for assistance equipment. Dedicated sanitary facilities as well as dedicated concession stands for disabled people should be close by and easily accessible.

Figure 19 Platforms Emirate Stadium London, England

It is suggested that a figure between 0,5 per cent and 1,0 per cent of all spectator seats should be allocated for disabled seating.

Sanitary facilities

Sufficient sanitary facilities for both male and female as well as for disabled people must be provided inside the security perimeter of the stadium. The recommended minimum number of sanitary facilities according to UEFA category 4 stadium requirements is (based on a ratio of male 80:20 female)

- 1 toilet and 2 urinals per 250 males
- 2 toilets per 250 females
- 1 toilet specially designed for disabled people per 15 wheelchair users

Medical examination rooms visitors

A central first aid room must be provided and located in a position which allows easy access from inside and outside the stadium for spectators and emergency vehicles. It must be self-contained with its own welfare facilities, accessible to wheelchairs. Every sector of the stadium must have its own (satellite) first aid rooms so that spectators do not have to cross sectors in case of an accident or injury. First aid rooms must provide a comfortable environment, have doors and passageways allowing access by stretcher or wheelchair and must have walls and floors made of a smooth and easily cleanable material. They must contain sufficient storage space for first aid equipment. First aid rooms must be clearly signposted. The number, location, size and equipment of these rooms should be agreed in consultation with the local health authorities.
Sufficient defibrillation equipment must be available evenly throughout the stadium in easily accessible locations.

Concessions

In general, for every 250 spectator seats in the stadium, there should be one permanent concession point of sale ("POS"). A central logistics and storage area is required which can be reached through a separate, dedicated entry. Transportation elevators are needed to all serviced levels of the stadium.

General

There are two main performance indicators for food and beverage facilities in football stadiums: speed of service (incl. payment) and quality of service.

- Under *speed of service*, the following factors are evaluated: the location of the facility; point of sale ratio; design and set-up; product variety; production system of food items; serving system of beverages; signage and menu boards; and payment system.
- Under *quality of service*, the following factors are evaluated: the taste and quality of products; qualification and training of employees; display and presentation of products; availability of items on the menu; waste management and environmental considerations; consumer-friendly serving and transport / logistics.

Facility types

There are many types of facilities where food and beverages are served at the stadium. These include: restaurants, beer gardens, shops, bars with tables and seating and concessions (permanent and mobile). Any of these types can be either built-in/existing facilities or temporary operations (please also refer to chapter "public catering facilities / outlet and concessions).

Safety and security

Fire safety

The safety and security of the stadium must take priority over all other considerations in the design, planning, operation and management of the stadium. Fire safety must meet all current guidelines and standards by the local fire service and other local authorities. Considerations should be given to employing specialists within the design team to look at the fire safety concept.

Maximum safe stadium capacity

This relates to the maximum permitted capacity and the maximum times allowed for the entry, exit and emergency exit of spectators. It needs to be approved by the public authorities in Reykjavik (special attention has to be paid to the maximum number of safe usage of entrance/exit gates when considering a maximum total capacity, entry/exit times will vary according to the design and structure of the venue, in particular its level of fire resistance). Experience has shown that all spectators should reach a point of safety when exiting from the stadium within a maximum of eight minutes. The capacity should be reduced if either the physical condition of the venue or the safety management is inadequate.

The safe capacity of the stadium should be calculated by using a formula involving the number of turnstiles and a flow rate no greater than 660 persons per hour to each turnstile.

Outer security zone

The outer security zone is a secure zone around the stadium, which serves as the first ticket checkpoint. The area within this zone falls under an exclusive control throughout the relevant exclusivity period and includes:

- all areas to be used by accredited members of the media, without limitation, media working rooms and the broadcast compound;
- commercial display areas for commercial partners, hospitality and business facilities for VIP guests, commercial partners and any other facilities at or close to the stadium which are owned or controlled by the relevant stadium owner and/or operator;
- the exterior of the stadium extending to, and including, perimeter fences.

The outer security zone must be secured by a fence at least 2,4m high, taking into account dressing of the fence with 60% wind resistance or other forms of security barriers which are acceptable. The posititioning of the outer security zone must be sufficiently far off the stadium to accommodate the above facilities and allow spectators and emergency vehicles to circulate safely at all times.

Segregation concept

Each sector must be self-contained in terms of welfare facilities, access, egress and evacuation. A flexible segregation system is recommended. The stadium should be at least divided into four separate sectors, each with its own access point, refreshment and sanitary facilities and other essential services. Each of these sectors may, in turn, be divided into smaller areas. It should be possible to prevent spectators from moving from one sector, or sub-sector, to another, unless it is required for the stadium's evacuation process (e.g. supporter fights) or for an event without any security problems (e.g. concerts).

The nature of the barriers which may be used to sub-divide sectors is for each stadium management to determine. Barriers should be easily dismountable by security personnel and have a collapsing load which is in accordance with local authority regulations. It must be possible to see through the barriers.

To host events with different capacities it is important to be able to separate sections of the stadium. This makes smaller events possible and reduces the expenses to operate and run the events.

The access to the different sections of the stadium should be controlled by various gates which can be closed to prohibit spectators from accessing a section. The separation of the upper tiers/bowl is a particularly important installation as smaller events can be hosted and the event expenses can be kept low.

Figure 20 Examples for the separation of areas in Frankfurt, Germany

Inner security zone

The fence-free stadium concept is also applicable to the pitch security zone. As a result there should be no fences separating the spectators from the pitch. This also includes safety nets. In order to ensure that players and others on or around the pitch area are protected from invasion by spectators, the preferred solution is the use of stewards or security staff.

For safety and security reasons there has to be a barrier (0,90m/1,10m height) installed in front of the first seating row in order to protect spectators and/or to prevent them from unrestricted access to the pitch. In certain national league competitions (e.g. German Bundesliga) areas without seats (standing areas) are still used and allowed. For international matches (UEFA/FIFA) and other events (concerts etc.) the stadium has to be converted to an all seats stadium.

To make the conversion as easy and efficient as possible the system to fix the fences has been optimised. The posts are fixed with a plug-in system that allows a quick conversion and reduces the frequency to renew the fittings.

Figure 21 Fences in the Commerzbank Arena Frankfurt, Germany

The stadium must also be controlled by a video system, which secures an overview of every area inside and outside of the stadium. The video has to be saved and needs a zoom, to identify every person in the stadium, if necessary.
The entrances need a turnstile and ticket control system (see following chapters), which secures the identification of the spectators and the guarantee of a safe, recognised and controlled entrance system. It is also essential to have the possibility to control the spectators in the view of security and install boxes for the confiscated materials.

Stadium control room

Each stadium must have a state-of-the-art control room with an overall view of the inside of the stadium and equipped with public address system facilities, access control counting systems as well as CCTV screens. The size, configuration and furnishing of the control room should be based on current best practice. The joint control room must provide space for stadium safety and security management as well as emergency services staff, without any partitions.
The stadium control room of the stadium should be divided in different sections. There should be a separate section for the fire brigade control room, the police control room and the stadium control room. Between the sections there should be windows or glass doors to ensure easy communication between the people in different rooms. The main control room should have a front door that allows direct access to the stadium bowl.
A separate meeting room measuring at least 20sqm must be provided, directly connected to the control room. Ideally, the stadium control room should be fully self-contained with its own welfare facilities.

CCTV surveillance

Each stadium must be equipped with internal and external public surveillance television cameras which are mounted in fixed positions. These cameras will monitor all the stadium approaches and all public areas inside and outside the stadium.

The best possible CCTV system must be provided, including:

- a digital system;
- full colour cameras;
- remote pan, tilt and zoom cameras;
- all cameras capable of taking still photographs and digital recording.
- The following areas must be fully covered by the CCTV system:
- outer security zone;
- inner security zone:
- all turnstiles and stadium entrances;
- all public concourses;
- all seating areas.

Figure 22 Security control room Frankfurt Commerzbank Arena, Germany

Figure 23 Police control room Frankfurt Commerzbank Arena, Germany

Ticketing and electronic access control

The primary purpose of ticketing and access control systems is the safety and security of spectators. The ticketing plan also has to be designed to eliminate the possibility of fraud and corruption and to reduce attempts at forgery. It must be commercially viable and serve as a means of driving revenue.
It must be supported by a ticketing management plan, which includes the following:

- support validation
- reliability
- personalisation
- segregation
- a failsafe system
- capability of multi-stage emergency management plan with a fall-back solution
- compatibility and integration with the access control system (turnstiles)

At the outer security zone, a first (visual) ticket or accreditation check will take place and spectators will undergo an initial search before they proceed to the stadium entrances. The objective is to ensure that only people with the appropriate tickets or accreditation obtain access, which prohibited objects are removed and that congestion around the stadium entrances is prevented. Areas set aside for searches will need to be designed so that they do not become overcrowded, particularly during the last few minutes before the start of the event. At all entry gates, it is necessary to make provision for the safe storage of confiscated items and personal belongings (e.g. backpacks and umbrellas) which are not permitted inside the stadium but which should be returned after the event.
A second security check will take place at the stadium turnstiles, after which the inner security zone starts. These controls are necessary to prevent unauthorised entry that could lead to the stadium (or more likely one sector) become overcrowded. The access control systems are positioned at the second security checkpoint.
An appropriate queuing system in front of each turnstile block must be provided to prevent overcrowding and congestion. Consideration should be given to the position of turnstiles in relation to crowd flows and queuing systems.

Technical requirements

Public address system

It is essential that stadium operators and authorities are capable of communicating with spectators inside and outside the stadium by means of a sufficiently powerful and reliable public address (PA) system. The PA system should be designed to meet the following minimum operational requirements:

- located in a position where the operator has a clear view of the stadium spectator areas.
- have the ability to select audio signals from the PA announcer, stadium video control, outside broadcasters and local sources within the control centre.
- capable of addressing messages exclusively to individual sectors within and adjacent to the stadium.
- capable of having its volume level automatically increased in response to increased crowd noise to ensure intelligibility of voice messaging.
- have an override facility, which would permit the stadium operator or authorities with jurisdiction for the stadium to interrupt the sound system in the event of an emergency.
- provide an emergency alternative power supply to ensure the system remains operative without interruption in the event of a power failure for a minimum period of three hours.
- To ensure that adequate speech intelligibility for public address and emergency messages is achieved in the stadium spectator areas,
- Designed to meet the following performance requirements and standards:
- to achieve STI values (measured using the STI-PA method or calculated from the impulse response) of not less than STI 0,55 in the fixed spectator seating areas.
- provide maximum continuous sound levels of not less than 100 dBA and peak sound levels of at least 105 dBA, with deviations in overall direct sound levels across the spectator seating not exceeding +/-3.5 dBA.
- Frequency response as measured in the seating areas shall be at least 120Hz to 5000Hz +/-3 dB.
- Documentation of performance is required.

Instead of a PA a so called “sound reinforcement system” represents a reasonable investment as it is more effective for relaying music and other entertainment and informational audio programs. The system would have to meet the minimum speech intelligibility requirement and exceed the performance requirements for loudness, frequency response and uniformity.

Acoustic requirements

Stadium architectural surfaces and geometry must be considered when designing the speaker systems and should be designed to avoid problematic acoustic reflections that would reduce speech intelligibility for people in public areas. Sound absorption material meeting an NRC value of 0,9 or bigger, as required, on the face of pre-cast seating and other vertical sections and interior roof surfaces should be provided to achieve the required STI values.
Noise levels from stadium mechanical systems or other equipment should not exceed a NC 45 level in the public areas.

Scoreboards and video screens

Most modern stadiums have some kind of electronic communication with spectators. This could be a relatively basic scoreboard, which records in written form the match result and goal scorers and provides short and simple public messages. Or it could be a much more sophisticated and expensive giant LED video screen(s)/cube, which can provide instant action replays or other televised/video entertainment. These screens are often an additional source of income when used for advertising.

The location and instalment of such devices within the stadium is an important issue which must be addressed at an early stage of the design process. Generally, at least two screens are used to provide spectators in all areas with an acceptable, relatively direct view. They are large and can result in seat loss both in new stadiums and when introduced as an addition to an existing stadium.
The favored positions for them are in two diagonally opposite corners or one behind each of the goals. They can be positioned to fill in open corner spaces between side and end grandstands. They can also be situated on top of, or suspended from, a grandstand roof.

The principal determining factors when deciding the best position for the screens are:

- to provide optimal viewing for all spectators;
- to eliminate or to lessen capacity reduction caused by seat loss;
- to be placed in a location where the screens do not represent any risk to spectators and where there is no possibility of spectator interference with them.

A video cube universally is installed within the roof construction requiring additional statical considerations and mounting.

Although there are some controls by football and stadium authorities on the extent of instant replays of the events during a match, there is a strong public demand for as many replays as possible. This is a primary reason why any stadium which aspires to be classed as a modern, upmarket venue must equip itself with the latest and most sophisticated means of electronic video communication with the public. The design of electronic communication systems is changing rapidly and so is the cost.
Larger and clearer video screens, individual armrest monitors and personal handheld television/video screens are some of the new products establishing within the market.
Portions of the scoreboards and video screens/cube can be used for displaying messages during emergencies and should be connected to electrical systems with a three-hour standby power supply in the event of a normal power outage. The aspect ratio of 16:9 for the video area of the screen is recommended, which may be extended if scoring and substitution details are also to be inserted around the main video content. Generally, large LED screens nowadays typically offer a standard definition resolution (576 x 720 pixels). The control room equipment should nevertheless be built in the HD-SDI standard (1.080 x 1.920 pixels), compatible with OB vans and other broadcast-spec equipment, in order to use the produced high-definition signal.
The control room should be located in a position that allows both all video systems to be seen and controlled directly. A co-location with PA control, stadium announcer, satellite reception and conversion equipment, and the CATV/IPTV head-end keeps the necessary cabling between these technical installations at a minimum and allows better communications between the operators. One spare desk (2m) offers space for temporary equipment and personnel in case of special events production. Pre-cabling of single-mode fibre-optic lines, as well as some video and audio lines between the broadcast compound and the video system control room, should be installed for easy cross-connection. For pre-match entertainment, a small production unit (three cameras, one of them remote controlled, two with operators) adds the functionality to create a basic live program without the need of having an OB van on site. Pre-cabling of these cameras to different locations (pitch, press conference room, VIP interview position, etc.) enhances the versatility further. The equipment recommendations are as follows:

- HD-SDI vision mixer, minimum of eight inputs, ideally with integrated multi-view monitoring
- video server to play out pre-produced content
- HD-VTR in the format commonly used by local broadcasters
- audio mixer, offering a minimum of 20 inputs for CD players, OB van audio,
- microphones, etc.

Stadium lighting

Floodlighting

The pitch must be lit in accordance with the requirements and specifications

- average vertical illuminance towards fixed cameras: EV ave > 2000 lux;
- vertical illuminance uniformity for fixed cameras: EV min/EV max ≥ 0,6 and EV min/EV ave ≥ 0,7;
- average Vertical illuminance towards mobile cameras: EV ave > 1500 lux;
- vertical illuminance uniformity for mobile cameras: EV min/EV max ≥ 0,4 and EV min/EV ave ≥ 0,6;
- horizontal illuminance uniformity: EH min/EH max ≥ 0.7 and EH min/EH ave ≥ 0,8.

The above illuminance levels are calculated on a grid of points over the field of play. A grid spacing of 5m x 5m is recommended for the calculations. Vertical illuminance towards cameras is calculated 1m above ground level; while horizontal illuminance is calculated at ground level. The field of play is defined as the area within the pitch markings.

All the lamps used for lighting the field of play should have the following properties:

- Colour temperature (Tk) ≥ 5600K
- Colour rendering index (Ra) ≥ 90

The lighting system should be designed in order not to adversely affect the performance of players, referees and officials. The GR value, calculated according to CIE 112, should be less than 50. A back-up generator must be provided so that, in case of emergency, there can be an uninterrupted changeover to the emergency lighting, which should provide a minimum vertical illuminance of 1.400 lux.

Stadium lighting timings

Every stadium should be operating under full stadium lighting levels on event and match days. Stadium lighting should be at full capacity from two hours prior to kick-off until 90 minutes after the final whistle. At this point it can be switched to 60% capacity, but it should remain on at least 60% capacity until three hours after the final whistle. Event-related lightning has to be agreed with the respective involved parties (e.g. promoters).

1.3.2 Sportsfunctional Areas

General

First of all the new stadium Reykjavik will be the home ground of the Icelandic national teams (Men's, Women's and Youth Teams). Other than that the stadium might be also a venue for Icelandic cup compeitions as well as certain third party events like other sports, concerts, conferences, exhibitions etc. Therefore the stadium must provide facilities for all kinds of events in the stadium, although it will be impossible to have these facilities on a permanent basis. Nevertheless it is cost-saving to anticipate some of the possible needs in advance. In the following we therefore mention a reasonable provision of facilities, but under the point of view to build a real football stadium, with the possibility to accommodate other events.

Team facilities

Modern stadiums should provide well-spaced and high-quality dressing rooms and other facilities to make sure that players and match officials have the best working conditions. There should be a private and protected area which can be accessed by team buses, cars and ambulances, from which the match participants can enter or leave the stadium safely, away from the public, the media and any unauthorised people.

Figure 24 Entrance for the players and officials in the Emirates Stadium London, England

The team facilities should be located in the main stand on pitch level. It is essential that the two dressing rooms in the stadium for the football teams are of equal size, style and comfort. For accommodating reasons the home team area could have some features which the away team areas do not have (e.g. fitness area, pool, lounge area with TV and gaming stations)
The area should be on the ground floor (level 0) with a direct and safe connection to the pitch and to the bus drop-off zone / parking zone. The location of the dressing rooms must secure that the players must pass the mixed zone on their way to the pitch and on the way back to the dressing rooms for example for interviews.

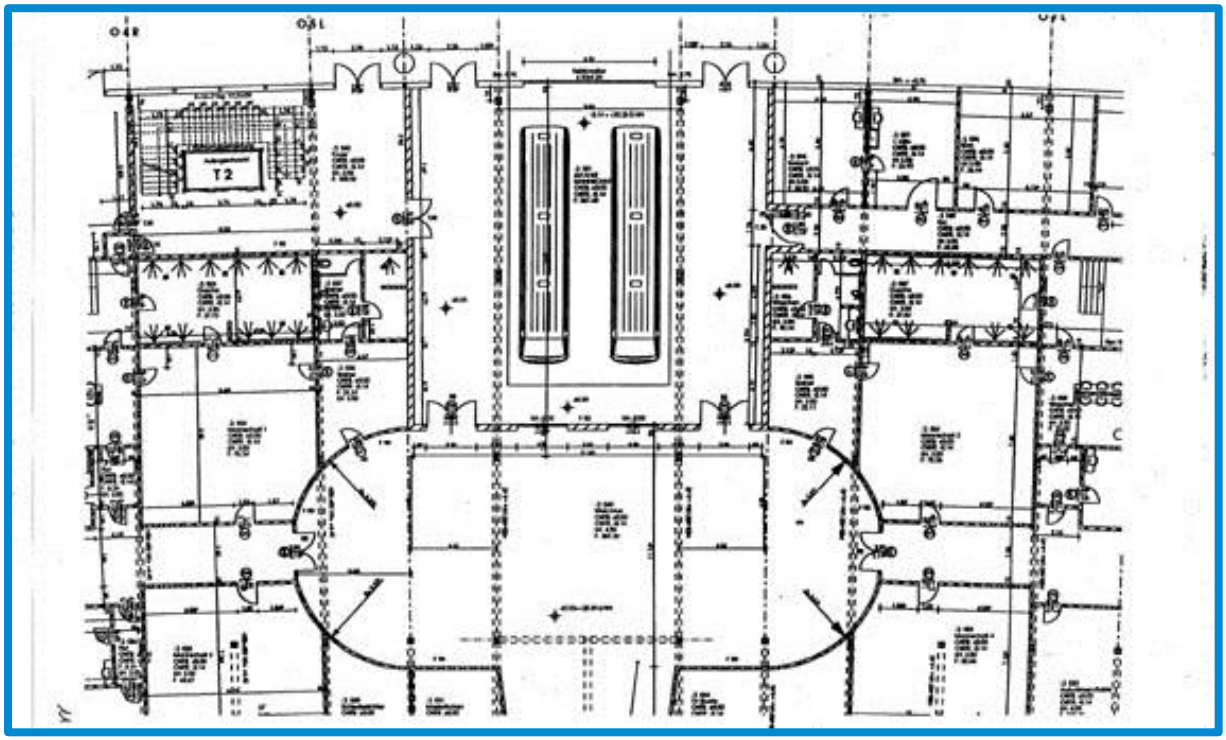


Figure 25 Mixed zone and dressing rooms in the Volksparkstadion in Hamburg, Germany

Team areas should: be well ventilated with fresh air and be air conditioned and centrally heated, have easily cleanable floors and walls of hygienic material, have non-slip floors and be brightly lit.

The whole team dressing area should have at least the following facilities:

- one dressing room for the home and the away team with respective sanitary facilities, equipment and storage room (for equipment, shoes, etc.)
- recreation area with massage area
- warm-up zone (mandatory for hometeam, if applicable also for away team)

The corridors and the doors widths should be generously dimensioned, because on a match day they will be used on a frequent level. Therefore they should be planned with at least 1,5m width. An appropriate ventilation, cooling and heating system in the whole area is also necessary.

For the fittings the recommendation is:
Team facilities total 200sqm (at least two of them, better four):

- Dressing room (80sqm)
- Sanitary facilities (50sqm) with at least 11 showers, 5 wash bowls with mirrors, 1 wash bowl for feet, 1 drying-off area with towel hooks, 1 sink for cleaning boots, 3 separated toilets and 3 urinals
- Seats for 25 persons, these seats are ideally in form of a bench
- Hooks and lockable closets for at least 25 players
- Tactic board
- TV and video player
- Telephone
- 2 electric shaving points
- 2 Hairdryers
- Refrigerator, maybe a small pantry close to the recreation / fitness area
- Relaxing pool

If the home team will use the stadium for training there should be also a Recreation / Fitness area with sauna, a massage area, a lounge (with couches, boards, closets, chairs and table) and a warm-up zone. The massage area (40sqm) should include space for three massage tables, a desk, a utility table and an ice machine.

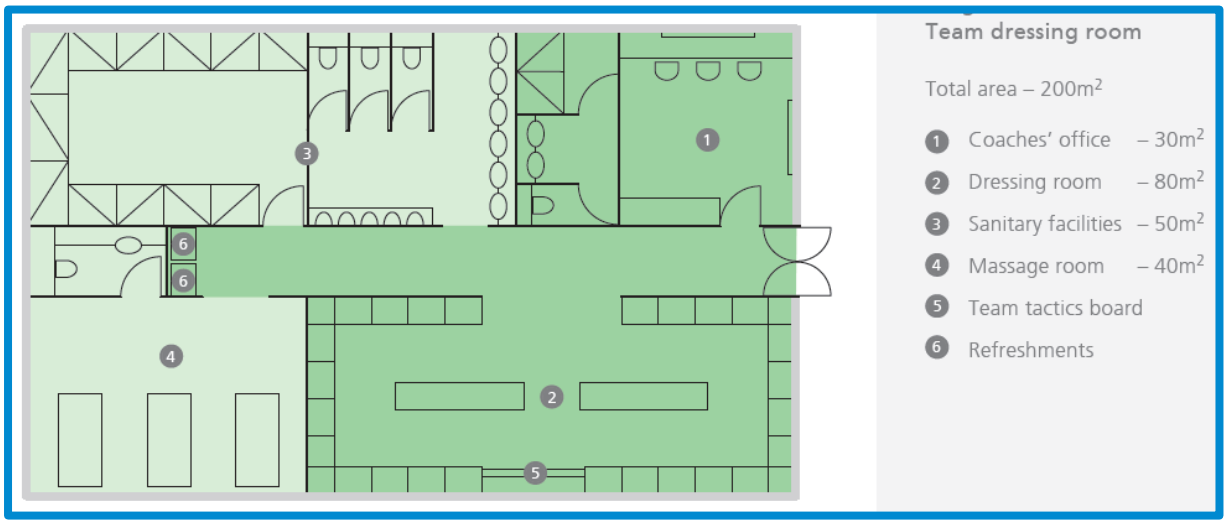


Figure 26 Team facility configuration (Source FIFA recommendations 5th edition 2011)

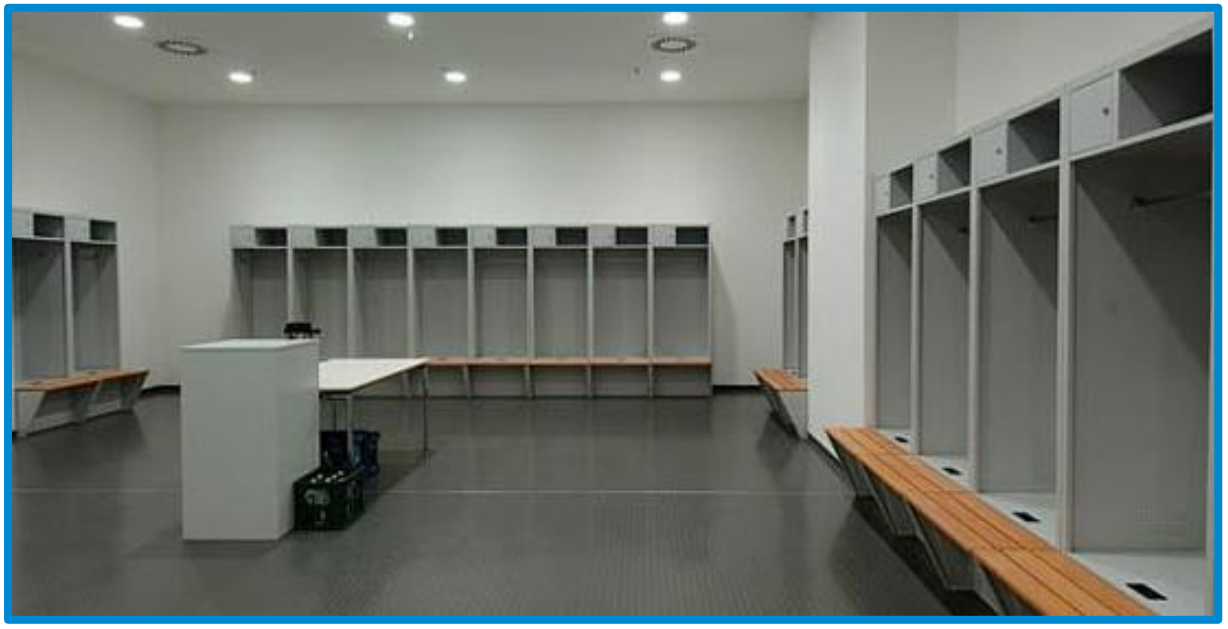


Figure 27 Dressing room Allianz Arena in Munich, Germany

Figure 28 Dressing room Emirates Stadium London, England

Figure 29 Dressing room Frankfurt Commerzbank Arena , Germany

Next to each team dressing room must be also a dressing room for the coaches, min. 30sqm. This room should have a direct connection to the team dressing rooms, with

- its own sanitary facilities with 1 shower, plus toilet and sink
- 1 desk,
- 5 chairs,
- a whiteboard and telephone,
- one TV Monitor, hooks,
- and lockable lockers

Referees facilities

There must be also a dressing room (min. size 24sqm) for the referees with sanitary facilities in the main stand close to the player facilities. It should provide direct, protected access to the playing area and be inaccessible to the public and the media. It should be separate from, but close to, the teams' facilities with the following equipment:

- well ventilated with fresh air, be air conditioned
- centrally heated
- easily cleanable, non-slip floors and walls of hygienic material
- bright light
- hooks and lockable closets for 4 persons
- 1 table
- chairs/bench for a min. of 4 persons
- a table with 2 chairs
- bench for massage
- refrigerator
- provision for a television set
- tactic board
- telephone (external / internal)
- sanitary facilities should be immediately adjacent to, and with direct private access from, the dressing room. They should have a minimum of: 2 showers, 1 washbasin with mirror, 1 urinal, 1 toilet, 1 electric shaving point, 1 hair dryer and 1 sink for cleaning boots.

It is not unusual for matches to be controlled by female referees and/or assistant referees, or for the refereeing team to be comprised of both sexes. A modern stadium should provide equal, separate areas for both sexes. Therefore, one area for five referees and one area for two referees should be provided, both with the requisite washing facilities.

Doping control

Every stadium must provide a room (min. size: 36sqm, including toilet, working room and waiting room) for doping control purposes, close to the team and referees dressing rooms and inaccessible to the public and the media. The waiting room can be part of the working room with a mobile separation.
The doping control area should be well ventilated with fresh air and be air conditioned and centrally heated, have easily cleanable floors and walls of hygienic material, have non-slip floors and be brightly lit.

Fittings:

- Waiting room (8sqm) immediately adjacent to the working room with chairs for 8 persons, hooks and lockable closets, refrigerator and TV Monitor.
- Working room (20sqm) with 1 desk, 4 chairs, 1 wash bowl with mirror, 1 telephone (external/internal) a cabinet with a lock for sample bottle and sanitary facilities.
- Toilet area immediately next to, with direct private access to, the working room, capable of accommodating two people. Toilet and sanitary facilities should include 1 toilet, 1 washbasin and mirror and 1 shower.

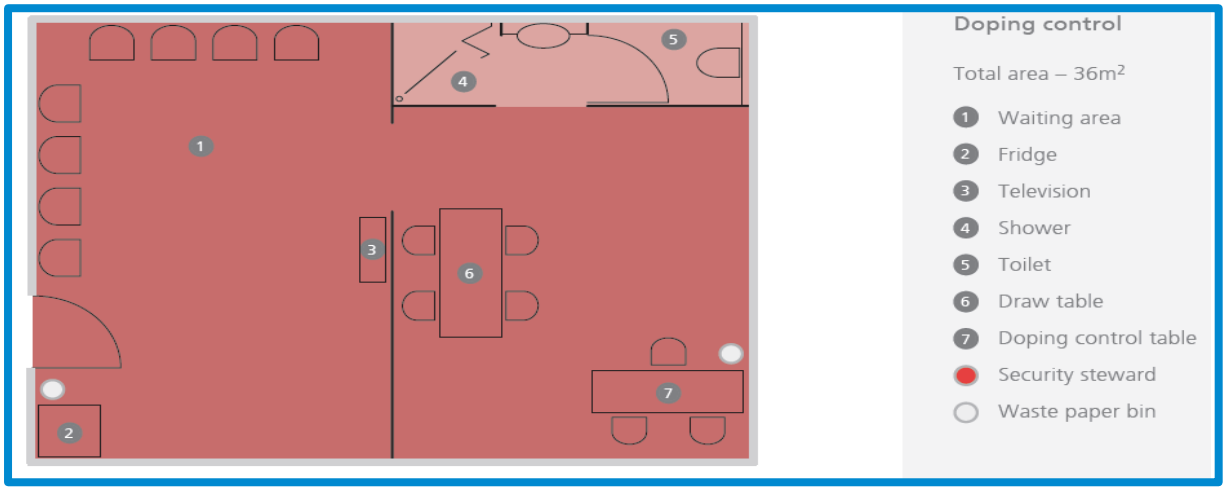


Figure 30 Example for a dope testing area (Source FIFA recommendations 5th edition 2011)

Warm-up areas

Indoor

The location of indoor warm up areas has to be close to the dressing rooms and should provide a minimum size of 100sqm each.

It should be noted that indoor warm-up areas are especially important when doubleheaders take place so that the teams for the second match have enough time to warm up properly. Each team should have an indoor warm-up area. It should be surrounded by plain walls with no protrusions. The wall surface should have shock absorbent material to prevent collision injuries and a loose net below the ceiling. Areas should be ventilated with fresh air, be air conditioned and should be brightly illuminated with lights which are protected against damage by footballs.

Outdoor

These areas should have a grass surface (artificial turf is acceptable).

Players' medical room

This room should be used by players. The location is ideally as close to the teams' dressing rooms and the playing field as possible, with easy access to the outside entrance directly to emergency vehicles. The doors and corridors leading to this room should be wide enough to allow access for stretchers and wheelchairs. A minimum size of 50sqm has to be provided.

The room should have:

- an examination table,
- 2 portable stretchers (in addition to those at the pitch-side),
- a washbasin (hot water),
- a low foot basin (hot water),
- a glass cabinet for medicines,
- a lockable non-glass cabinet,
- a treatment table
- and a telephone (external/internal).

The room should have walls or partitions which enable it to be divided into two when necessary. In addition, the room needs to be equipped with:

- defibrillator with rhythm and patient data recording;
- cardiac monitor;
- external cardiac pacing;

- infusion mounting and system with all equipment for injections and infusions set, including venous indwelling cannulae;
- infusion system which is designed to allow administration of fluid warmed to 37°C +/- 2°C;
- pressure infusion device, volumetric infusing device;
- central vein catheters;
- pericardial puncture set;
- drug administration equipment;
- intubation equipment;
- automatic ventilator, stationary oxygen min. 2.000 litres or portable oxygen min. 400 litres, stationary non-manual suction device with minimum negative pressure of 500mm of mercury with a minimum capacity of 1 litre, capnometer,
- PEEP-valve, thorax drainage kit;
- immobilisation equipment like vacuum mattress, spinal board, cervical collar-set.

Access from team areas to playing field

The team areas should be located on either side of the players' tunnel. The tunnel should be a minimum of 4m wide and a minimum of 2,4m high. The point where the players and the referees enter the playing area must be protected by means of a fireproof telescopic tunnel. This should be at the halfway line on the main stand (including all respective players, officials and media areas). The telescopic tunnel should extend into the playing area far enough to prevent the risk of injury to the match participants caused by objects thrown by spectators. Such telescopic tunnels should be capable of being extended or closed quickly so that they may be used during the match when a player is entering or leaving the field, without causing a lengthy viewing obstruction.
The surfaces of the corridors must be made of, or covered by, a non-slip material.
There should be no possibility of public interference in these corridors. Close to the point where the dressing room corridor or tunnel opens into the playing area, there should be a small sanitary area consisting of a toilet and washbasin with mirror for those who use the playing area.

Other facilities

To be a host for other events there are a lot of special requirements which are needed in certain areas, these are for example:

- Special pitch access for pitch usage
- Sanitary facilities on the pitch or easy to access from the pitch
- Power and water supply on the pitch, around the pitch
- Gates to secure the entrance to the pitch
- Fences on the pitch, or if there are fences in the stadium, they maybe have to be disassemble
- The signage has to be adapt to the event
- Stage access has to be secured, the same way the player's access to the pitch is secured.
- Offices for the promoter and other events organizers has to be supplied
- Backstage facilities has to be delivered

But, to accommodate different uses, it is important not to change the stadium in total to an extent that has a negative impact on its primary purpose for football and will increase the building cost extremely. Therefore the recommendation is to build a football stadium, with great facilities to accommodate other events, but without increasing the building costs (detailed information in chapter 12 "Requirements for third party usages").

1.3.3 Event Areas

General requirements for third party usages

A stadium today is more than a football pitch and it should hosts events of various types. Concerts, wintersports, motorsports, other sport events, shows, corporate events are just some examples for the variety of events in a modern football stadium.

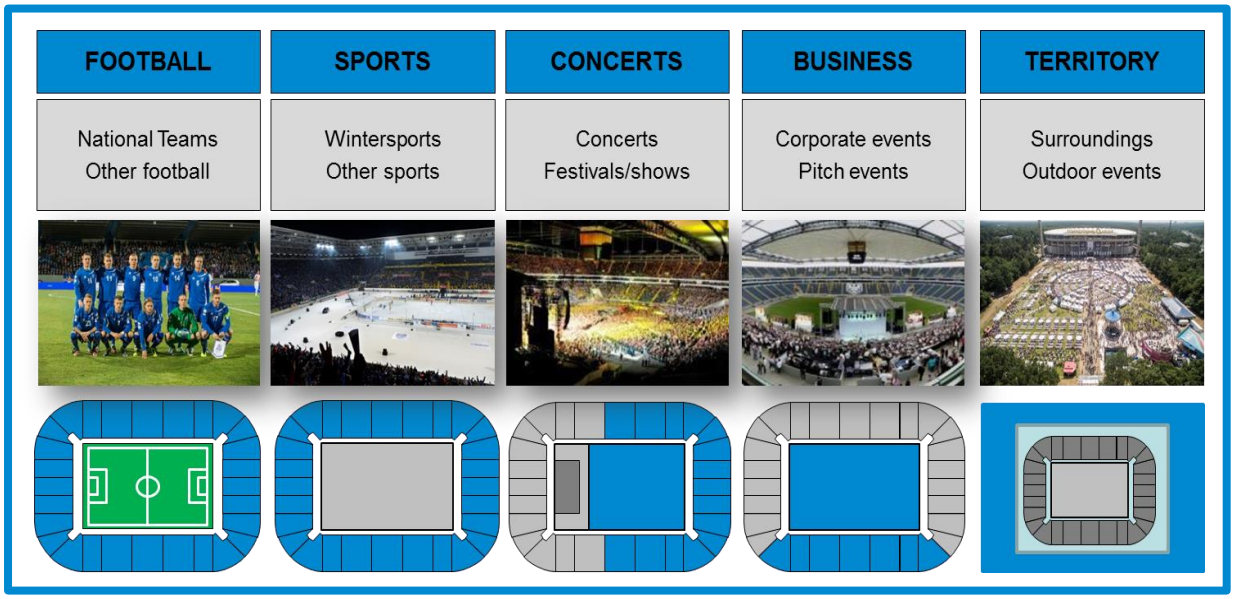


Figure 31 Possible events in a football stadium

Stadium events (especially non-football events) have special requirements which need to be considered when planning a new stadium. Other facilities should be taken into account to be able to operate the stadium in a flexible way.

Special requirements are requested as follows:

- Pitch access / pitch usage
- Toilets
- Power and water supply
- Gates
- Fences
- Signage
- Stage access
- Offices
- Backstage

For cost-effective reasons the right balance between extra facilities/equipment and additional revenues generated by third party events has to be defined and adhered to.

From operational experience the following additions can be reasonably considered:

- Minimum two more dressing rooms
- More storage rooms (for the storage of infield seating, goals, penalty benches if not in use, panel advertising etc.)
- Circuit points and data links around the pitch
- Consideration of supply, if the infield is in use (sanitary, concessions, escape routes)

- Possibility to access for the temporary construction of stages, with trucks
- The ultimate load of the infield must be strong enough for holding stages, trucks etc.
- There are maybe special requirements regarding the noise protection, which has to be taken into consideration
- Mountings to hold sponsorship boards should be designed as flap systems enabling quick changes of the boards. In order to neutralize the stadium from sponsorship boards the boards can easily turned around to a blank side.
- The stadium should have offices and multipurpose rooms in the backstage area of the stadium (which is usually based on an end stage-scenario)

Infield Events (e.g. concerts)

Concerts and events which use the pitch level for stages and spectators have many special requirements. Most important design issues for that are:

- 4 big gates to get access to the pitch level from outside the stadium (truck height)
- Heavy load capacity on pitch level and especially around the pitch
- Access to toilets from pitch level (for example in pitch access tunnels)

Trucks get through the big gates inside the stadium and use the area around the pitch to move:

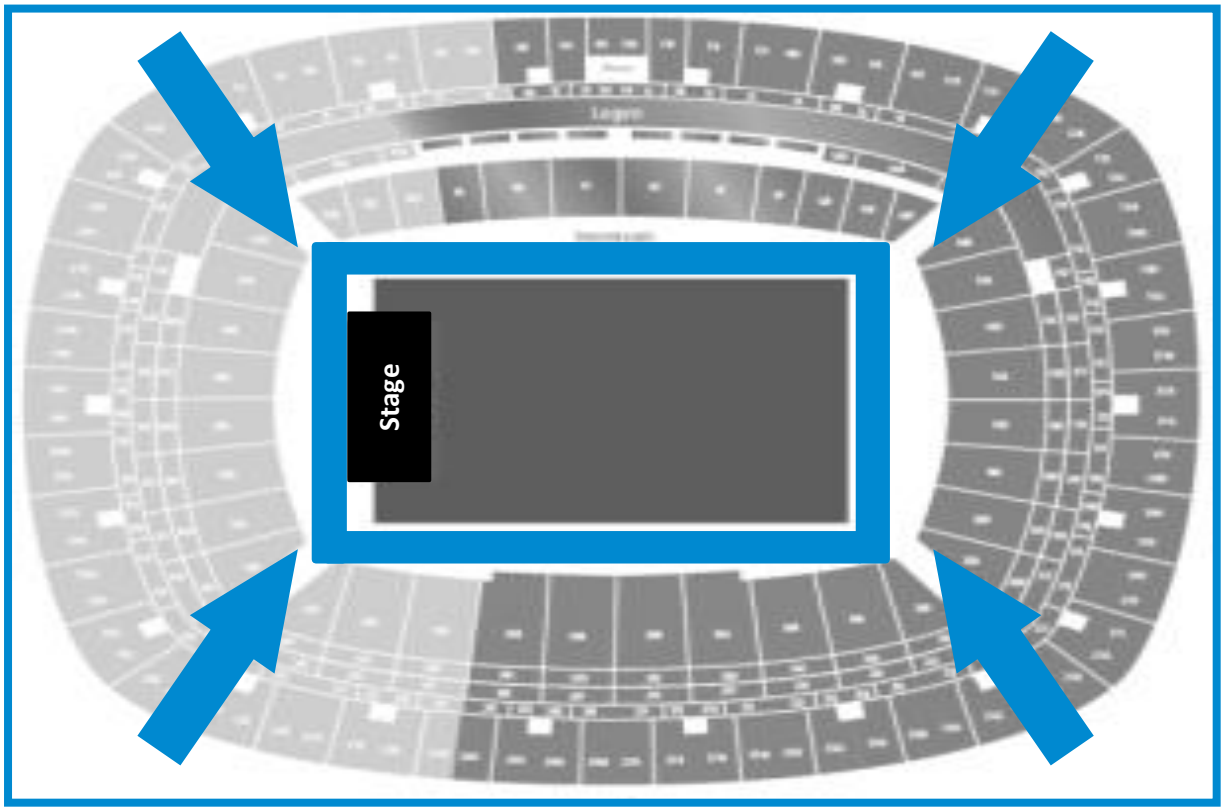


Figure 32 End-stage setup example Frankfurt Commerzbank Arena, Germany

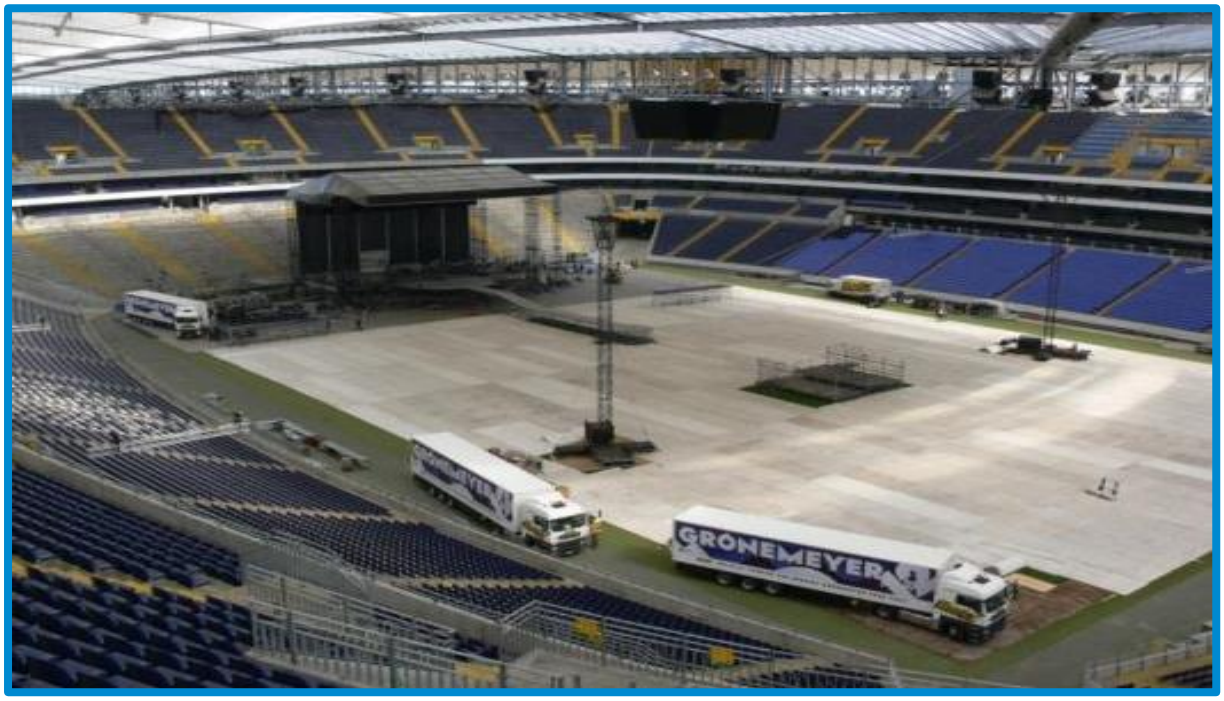


Figure 33 Example truck access pitch Frankfurt Commerzbank Arena, Germany

Figure 34 Example Frankfurt Commerzbank Arena, Germany

The big gates are used to get the spectators in and out of the stadium. The number of people allowed on pitch level is according to the size of the big gates.

Figure 35 Example access pitch Frankfurt Commerzbank Arena, Germany

The tunnels to the stadium should have access to toilets that can be used for people that are on the pitch (for concerts) and people that attend events outside of the stadium (outdoor events, running events, corporate events). At least 2 of the tunnels should hold toilets for spectators. The toilets should be located outside of the gates that close the stadium in „off-mode“.

Figure 36 Example tunnels Frankfurt Commerzbank Arena, Germany

If it should be possible, to use the pitch level of a stadium for different types of events, it has to be taken into consideration to have power and water supplies available for stages, catering stands and other temporary facilities.

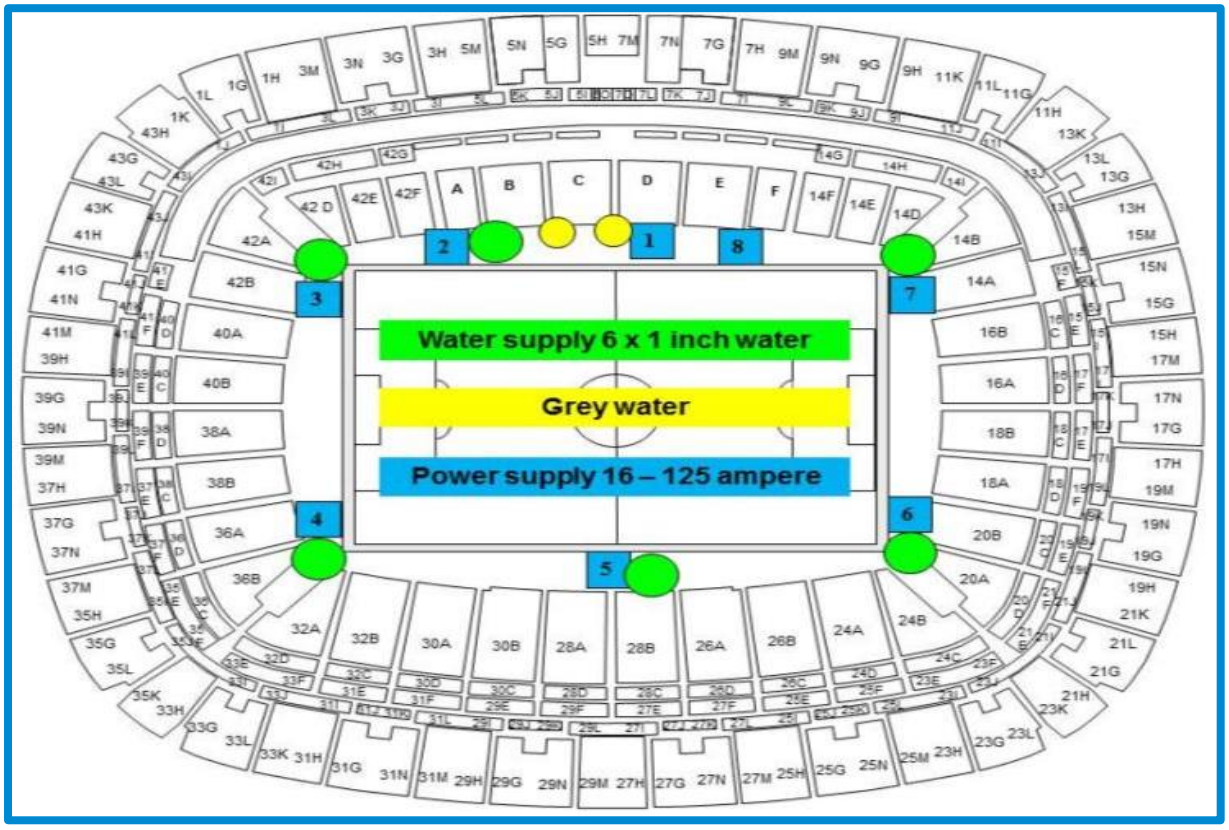


Figure 37 Example power and water supplies Frankfurt Commerzbank Arena, Germany

To access the stage from behind it is necessary to have direct access to a backstage area. This access should be hidden by the stage itself and is most likely a staircase to a different level below the tribune.

Figure 38 Example backstage accesses Frankfurt Commerzbank Arena, Germany

Between the main dressing room area (locker rooms) and the backstage area should be an internal connection (to give artists and production a secret route through the stadium)

Figure 39 Rolling Stones concert, Commerzbank Arena Frankfurt, Germany

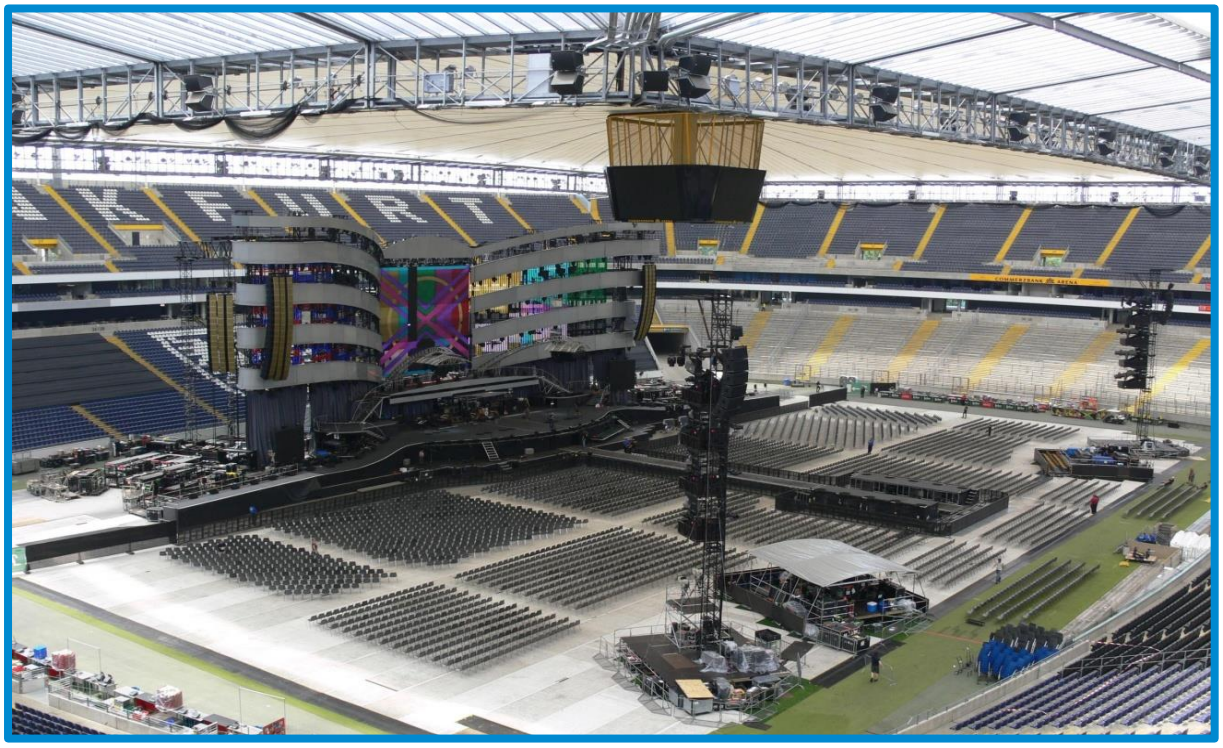


Figure 40 Rolling Stones concert Commerzbank Arena Frankfurt, Germany

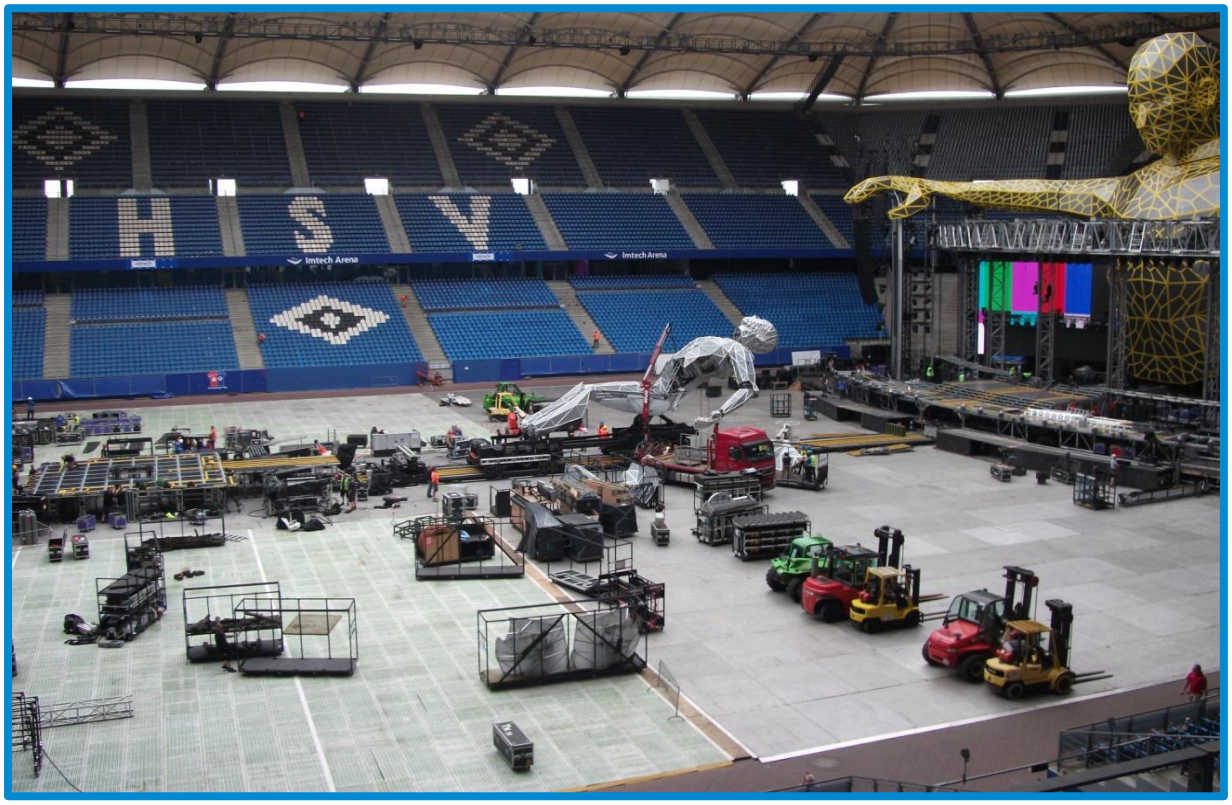


Figure 41 Take That concert Volksparkstadion Hamburg, Germany

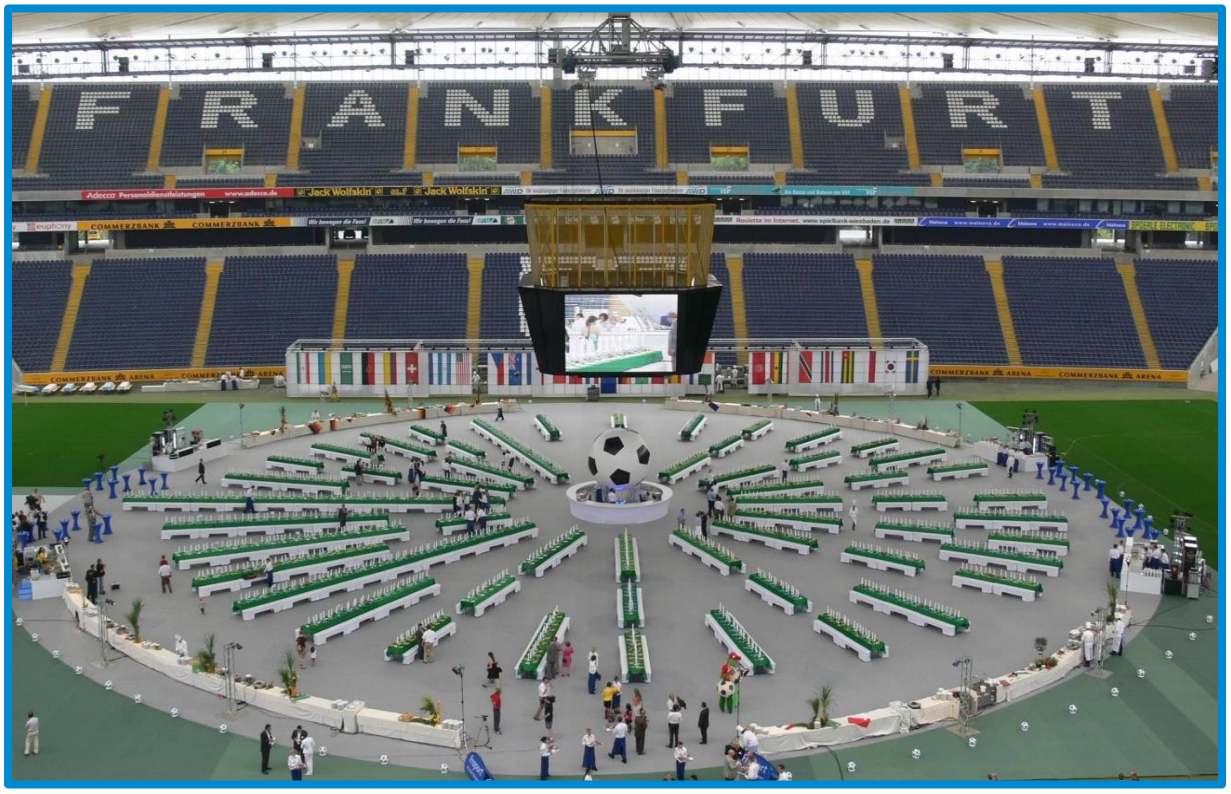


Figure 42 Infield event Commerzbank Arena Frankfurt, Germany

Figure 43 Special event Berlin Olympic Stadium, Germany

Conferences

Conferences generally take place in the hospitality and business areas, media facilities or other multi-functional rooms in the stadium. Therefore these areas should have the possibility to be partly separated from each other, to adapt this spaces to the different needs of the respective customers. There must be an adequate number of sanitary and serving counters, so that every area can be served independently. The infrastructures must take into account that nobody has to pass through an occupied area.
There are also possibilities to have smaller events in the mixed zone, the press conference room or other areas in the stadium.

Figure 44 Conference in the hospitality area Volksparkstadion Hamburg, Germany

Requirements for other users (offices)

Operating company/stadium management

The operating company is responsible for running the stadium. Therefore the staff requires offices, working areas, storage rooms, pantries and sanitary areas which can be used on weekdays. These facilities should be in a central position on the main stand, easy to reach during the week and also on a match day. Experience shows that an average of 800sqm for the operating company, including multiple storage rooms, provide ideal presettings.

Temporary staff

On event and match days there are a lot of people (e.g. security) who will be in the stadium just temporarily. For these people there must be planned a suitable lounge area, dressing rooms and sanitary facilities. The dressing rooms must be separated for male and female employees and must have lockable lockers for all employees.

Police and other safety & security organizations

Especially the police needs a view over the whole stadium. They need to control all areas in and around the stadium. Therefore the minimum requirements are:

- A control room with view on the pitch and every area on the tribunes and technical equipment (for example: video control system)
- Meeting room (1)
- Arrest rooms (3)

All the police facilities should be on the same tribune. The control room and the room of the stadium announcer must be adjacent. Other organizations will possibly require additional/joint facilities according to local regulations.

Stadium announcer / Controller video screen

There must be a separate room for the stadium announcer with an appropriate view on the pitch and direct visual and communicative connection to the police control room. An additional room for the controller of the video system, also with a view on the pitch if possible, must be planned.

Archives / storage rooms

There should be a number of storage rooms on each level. On the lowest level there should be storage for advertising materials, goals etc., power mover etc. The possibility to put the unused furniture of the hospitality and business areas into a storage room must be given. Beside that a number of storage rooms for cleaning material and machines at different central places and levels in the stadium must be planned. There are no special needs for these rooms; just the doors must be big enough to optional pass through with a pallet carrier.

1.3.4 Hospitality Areas

General access

The access to the hospitality areas starts already from the parking. A special parking area for VIP guests plus a short and guarded way to the separate hospitality entrances are obligatory. In general there should be no mix between the public spectators and the hospitality and business customers on the way of the parking to the entrance. If there are VIP areas on different parts of the stadium (which is not recommended as a starting point for the Reykjavik situation), there must be an access for every part of the hospitality areas. The parking spaces/situation should reflect the below mentioned differentiation of the hospitality and business categories, which means that the customers of the highest hospitality category (e.g. skyboxes) should have the best and closest parking spaces at the stadium, with a direct, roofed and secured entrance to the specific VIP level/area. All the other hospitality and business guests should have the parking spaces as close as possible regarding to the specific categories.

Figure 45 VIP entrance Juventus Stadium Turino, Italy

Welcome area

The so called “welcome area” serves all hospitality and business guests as access to the stadium, which is separated from other (public) spectator entrances. If there are different hospitality and business areas in the stadium on different levels, there could be a welcome area on every level. It has to be observed to have different welcome areas for the different hospitality categories, or at least different welcomes desks for all categories if these are in different stands. The recommended fitting for this area is:

- Reception desks
- Information desk
- Seating area
- Sponsoring board
- Direct access to the respective hospitality and business areas
- TV-Monitors
- Sanitary facilities
- Communication area
- Sponsoring presentations areas

The welcome area should be ideally located at the first point, where the hospitality and business customers enter the stadium. Stairways and elevators should bring the hospitality guests to their VIP category, which should be on the level with the best viewing angle to the pitch.

Figure 46 Hospitality welcome area Juventus Stadium Turino, Italy

Figure 47 VIP entrance Commerzbank Arena Frankfurt, Germany

Figure 48 Hospitality reception Emirates Stadium London, England

Figure 49 Hospitality and business reception Commerzbank Arena Frankfurt, Germany

Figure 50 VIP reception main stand Volksparkstadion Hamburg , Germany

Differentiation

There should be a separation into skyboxes and hospitality and business seats categories. A customized bundling of stadium- and federation-related rights results into desirable services packages. The advantage is that rights with different levels of attractiveness are combined into a comprehensive offer, creating additional value compared to the individual selling of those singular rights. Todays modern football stadiums hosting hospitality and business customers require a service packaging which reflects an important part of an effective hospitality concept, which ideally is further conceptionalized within a next step Design Phase). As VIP capacities lead to respective efforts in selling those dimensions, a certain standardization of packages goes along with a corresponding simplification of the sales process.

A homogeneous offer enables the standardization of all related efforts that come along with the creation of that offer and the following steps of the sales process itself. Therefore VIP packages within the same level of hospitality hierarchy have to include the exact same type of stadium- and federation-related rights (services). The defined service package reflects a fixed price keeping off customers from bargaining and/or cherry picking. As the interaction level of hospitality and business seat clients and skybox customers is relatively high, a standardization of packages secures fairness instead of enviousness. Sales employees strictly have to stick to those standardized packages.

Next to standardization, modularization is another sales tool. Likewise on compartively low sponsoring levels within small football markets (such as Iceland), single modules within (certain) sponsoring packages are being pre-conceptualized with respect to the different and individual communication focus of the sponsors (e.g. module “B2B communication” including skyboxes or business seat contingents, another module would be “national awareness” including TV-relevant billboards). Those modules are later composed into an individual comprehensive offer by the customers themselves (availability of different modules in order to reach communication targets, which are being tracked and communicated). However, the “basic elements” have to be integrated, which are predefined to guarantee the stability of the whole sponsoring structure.

Preconditions of such a concept implementation remain unhandled at this point as this is part of customized sponsoring, hospitality and catering concepts, which are ideally to be customized within a next step Design Phase. Nevertheless, it is important to mention that a conspicuous part of hospitality sales is associated with an adequate degree of modularization within the sponsoring levels of the KSI partner hierarchy.

To identify specific hospitality target groups it is fundamental to develop an idea of a specific audience demand. The target to approach new customer groups has gained more and more weight in the past as the football in modern stadia reaches more diverse spectator groups which cannot be only differentiated by sex or age but by certain lifestyle categories. Especially hospitality areas represent the see-and-to-be-seen character of social platforms where clients are less emotionally tied to the athletic performance of the respective football team. Therefore this group of clients records a more stable visitor tracking than the regular fan who is sometimes dissatisfied with his team and rather stays away from the stadium because of personal frustration.

The most important things to consider before planning the Reykjavik specific hospitality and business areas are:

- Match and event day experiences already start by approaching the stadium
- Number and kind of different categories/packages
- Number of levels in the stadium
- Allocation of the hospitality and business areas
- No necessity to have all possible capacities and categories fully furnished / connected right from the beginning / multifunctional usage (first step offices – second step skyboxes)
- Intention / need to be flexible for expansion in case for increasing market demand.

Recommended categories and capacities:

Under close consideration of international hospitality knowhow Lagardère Sports recommends a total hospitality capacity of 642 seats right from the beginning.

▪	1st category	Skyboxes	192 seats
		- KSI skybox (1 á 24 seats)	*24 seats*
		- standard skyboxes (10 à 12 seats)	*120 seats*
		- additional event boxes (2 à 24 seats)	*48 seats*
▪	2nd category:	Business Club	150 seats
▪	3rd category:	Family & Friends	300 seats
		Total hospitality and business seats	642 seats

Within a next step Design Phase (including the definition of a design and construction concept) all building related elements are ideally defined which allows for final allocation of all available areas for hospitality and business purposes in the main tirbune (option to enlarge those within a recommended full-bowl solution to the same levels of adjacent north- and south stands). This enables a possible provision of additional hospitality capacities / office space according to demand.

Operational experience shows that within a stadium lifecycle (up to 30 years) well hospitality demand is continuously increasing, subject to detailed planning and proefssional marketing & sales (resulting expansion capabalities vs. price increase strategies).

The principle of hospitality diversification rests upon the realization that the aggregation of companies and private persons interested in a certain football team is not to be considered as a homogenous group that necessarily shares the same targets precipitated through implemented hospitality, but a group of individual companies and private persons with a variety of interests and expectations resulting into an altering willingness to pay a certain price for particular (VIP) services. That variety of needs has to be served efficiently through a principle that allows bundling certain components for specific groups of clients. A specific customer-oriented differentiation of hospitality packages therefore skims off additional payment reserves. Especially coming from low numbers / non existing offer of hospitality and business capacities at the old/current stadium and therefore introducing this new concept of hospitality and business packages at the new one, the principle of diversification is mandatory.
Furthermore, all possible events, which may take place in the stadium, have to be taken into consideration, as the kind of events has an influence on the usage possibilities of the hospitality and business areas. For example, if there is a concert in the stadium, box facilities which are planned close to the corners, these areas might not be used due to the potential location of stage elements. Also if there are conferences planned in the VIP areas, it should be possible to use the different areas separately.

All hospitality and business areas should have:

- High quality interior (tables, chairs, etc.), depending on the hospitality concept
- Durable flooring
- Room divider
- Central sound system
- Air conditioning
- Catering stations for food and beverage
- TV screens/LED walls

Best practice examples for setting, configurations and fittings, for different categories of hospitality and busines areas:

Figure 51 Diamonds Club Emirates Stadium London, England

Figure 52 Bo Concept Lounge, Volksparkstadion Hamburg, Germany

Figure 53 Skybox lounge Olympic Stadium Berlin, Germany

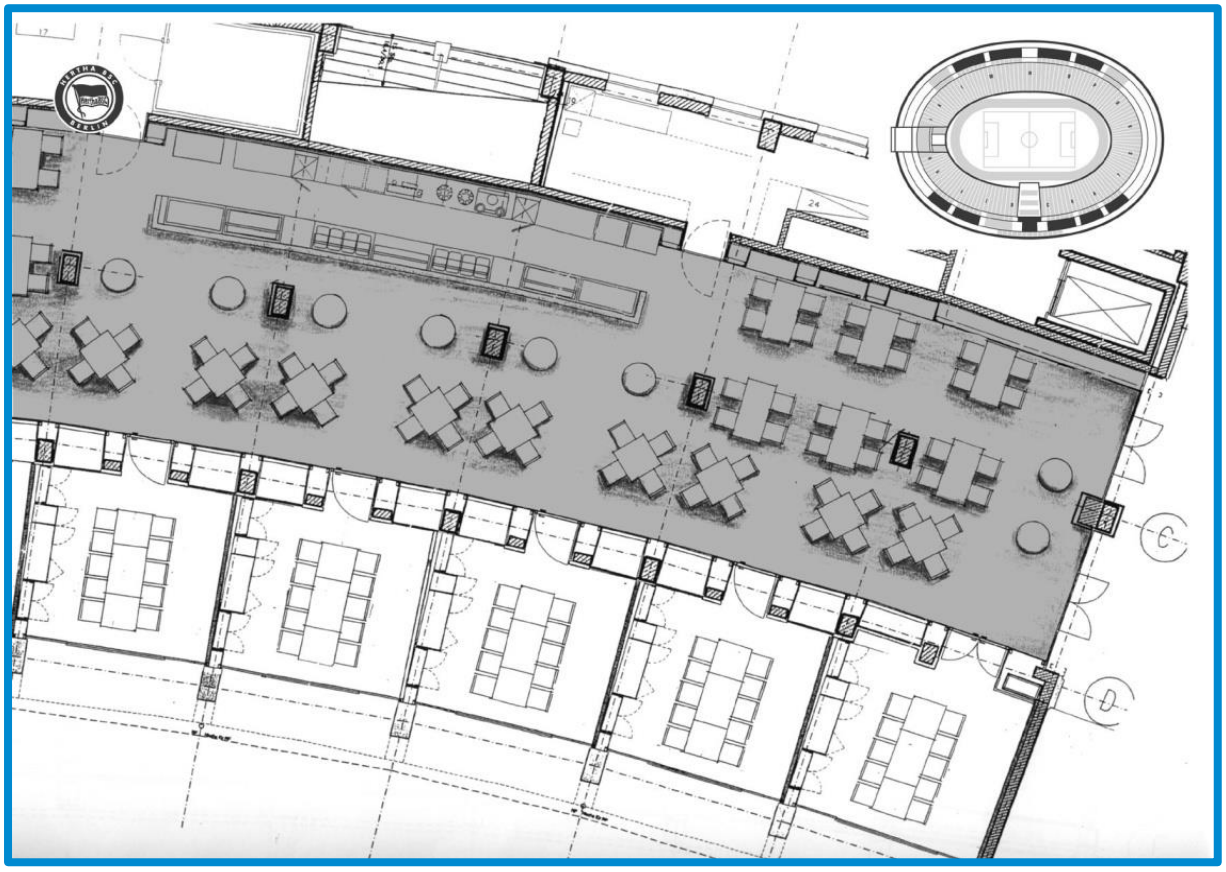


Figure 54 Plan hospitality seating area and skyboxes Olympic Stadium Berlin, Germany

Figure 55 Hospitality seating and VIP access area Allianz Arena Munich, Germany

Skyboxes

The central skybox should be planned in a bigger dimension than the rest of the box facilities demonstrating the fundamental importance of the main tenant (KSI). It should be allocated at the halfway line, merging two regular Standard skyboxes, with a possible segmentation into two parts if needed. The KSI skybox represents the centrepiece of the level and should host up to 24 persons. The interior design should be of a very highest standard in the stadium with high level quality goods which are needed.
The skyboxes are a key component of the marketing affiliates' hospitality rights. Therefore it is very important to plan and develop these areas according to the expectations of the companies and their target groups. The central selling point of the skybox packages remain to the private atmosphere within the suite. This offer differentiates to a certain extent from the rest of the business seat categories due to the individual character of the exterior and interior seating. Customers enjoy exclusive atmosphere within private rooming, to focus on invited guests. The major target group of this section accordingly represents respective companies from global players down to small and medium-sized regional companies, which to a certain extend are partners of the sponsoring hierarchy of the main tenants. From a corporate perspective both, customer relationships as well as employee incentives, the skybox level represents the highest adequate hospitality level to meet those targets. Private persons, interested in an external-inaccessible and 100% private atmosphere represent an increasing part of the sales ratio.
The total number of standard skyboxes should be 10 from the beginning, with the opportunity to extend the number of boxes by a further 4 (the market demand for this kind of hospitality offer is developing, hospitality and business products remains relatively new in Iceland). Additionally, from a operational and marketing expierence, it is highly recommended to offer a dedicated event box offering, providing larger capacities for certain companies, organizations and other groups (2 boxes for 24 people each). In order to not affect the sales process of Standard skyboxes, the number of event boxes should not be increased at a later stage (option to enlarge given capacities). The discussed dedicated KSI box holds and represents a special representative value within the hospitality hierarchy, therefore this facility has to be kept in its original status. The interior, the service and quality of the catering is adjusted to the needs and expectation of these target groups. The walls between the boxes should be from lightweight construction, so if there is a need or wish to extend the size of the boxes, it is very easy to implement. Each Standard box facility should ideally accommodate up to 12 people and must have the possibility to set tables, chairs, pantry kitchen etc. In general the superior character is reflected by the size, furnishing, fitting and catering.
Attaching skyboxes to the left and right hand side of the central main boxes represents a decreasing attractiveness towards the goal lines (halfway-line principle). The skyboxes represent a higher value due to the size of 43,2sqm each (3,6sqm per skybox guest calculated for a 12-seater). Due to the corresponding allocation of 12 seats at the stand for a Standard skybox two rows of 6 seats is recommended (with 0,60m width in two rows plus an aisle of 1m).
There should be a rearward spatial arrangement of the level that offers an intergrated and furnished B2B platform, which allows companies and private persons to intensify contacts and share common impressions of the experience during the event/matchday. The connection to other skybox owners gives additional value. Separated arrangements within this B2B area, rented out to luxury goods companies, can demonstrate a further see-and-to-be-seen-effect (e.g. champagne bar, cigare area, sushi bar). From a sponsoring perspective, companies are highly interested to get access to those skybox level customers. Skybox owners should be granted access to the B2B platforms of the central business seats (Business Club) as well as the side wings categories (Family & Friends). In order to enable corporate/ private clients designing the skybox to their respective corporate design/ private taste, basic equipment could be changed but taken back to initial conditions by the time the contract ends.

General setting of the Standard skyboxes:
Standard skyboxes need a high-quality interior regarding the catering, the service and the furnishing:

Furnishing:
- 1 conference table (even better 2 square tables for flexible usage) with 12 chairs
- Bar stools at the window front for direct pitch view
- Durable flooring (wooden or stone reflect exclusivity)
- 1 wardrobe
- 1 pantry
- 1 serving counter
- 1 refrigerator
- 1 side board (lockable)

Technical requirements:
- The basic infrastructure consists of a multi-channel data link for the communication devices as well as presentation tools. The skybox should offer the possibility to darken the room.
- Separated power connections for each skybox are recommended.
- WiFi
- 1 telephone
- Appropriate sound system
- Air conditioning
- Rig for decoration (individual sponsor branding possible)
- 1 sliding glass door to the grandstand
- Sound insulating wall
- Partition equipment / wall to next box (to enlarge the box size for more than the standardized capacities)
- Integrated skylight

Basic requirements for skyboxes consist of high-quality interior for catering, services and furnishing.

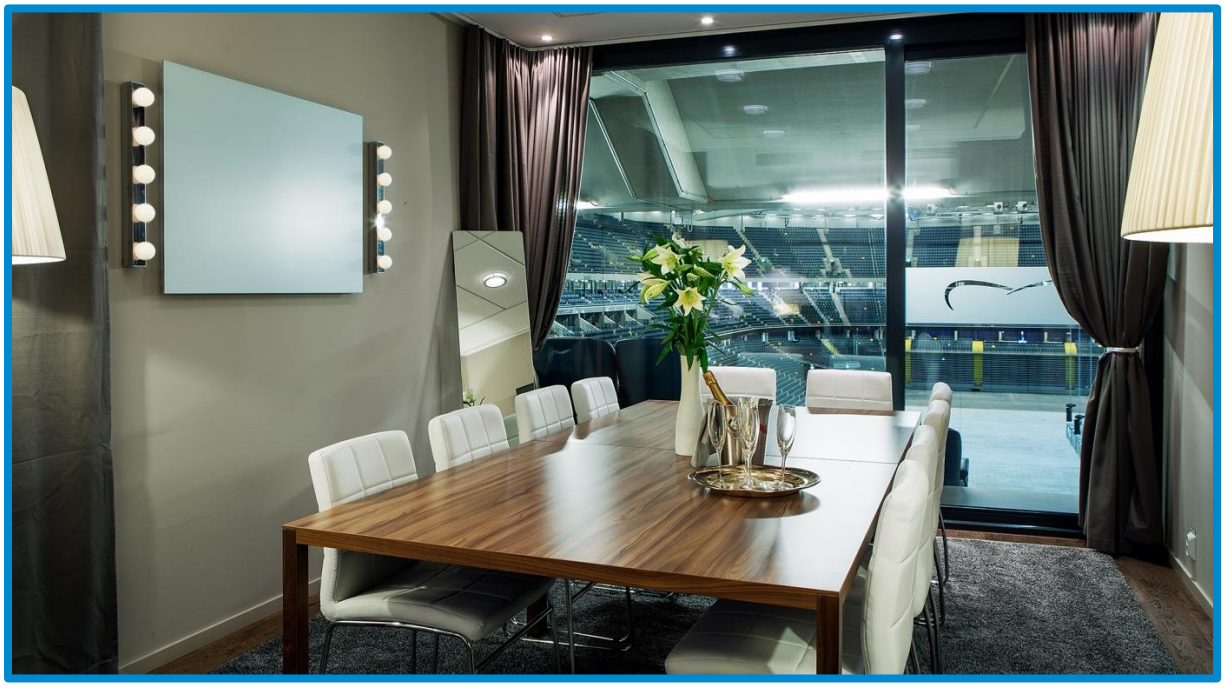


Figure 56 Skybox Friends Arena Stockholm, Sweden

Figure 57 Skybox Volksparkstadion Hamburg, Germany

Figure 58 Skyboxes Welcome Area Friends Arena Stockholm, Sweden

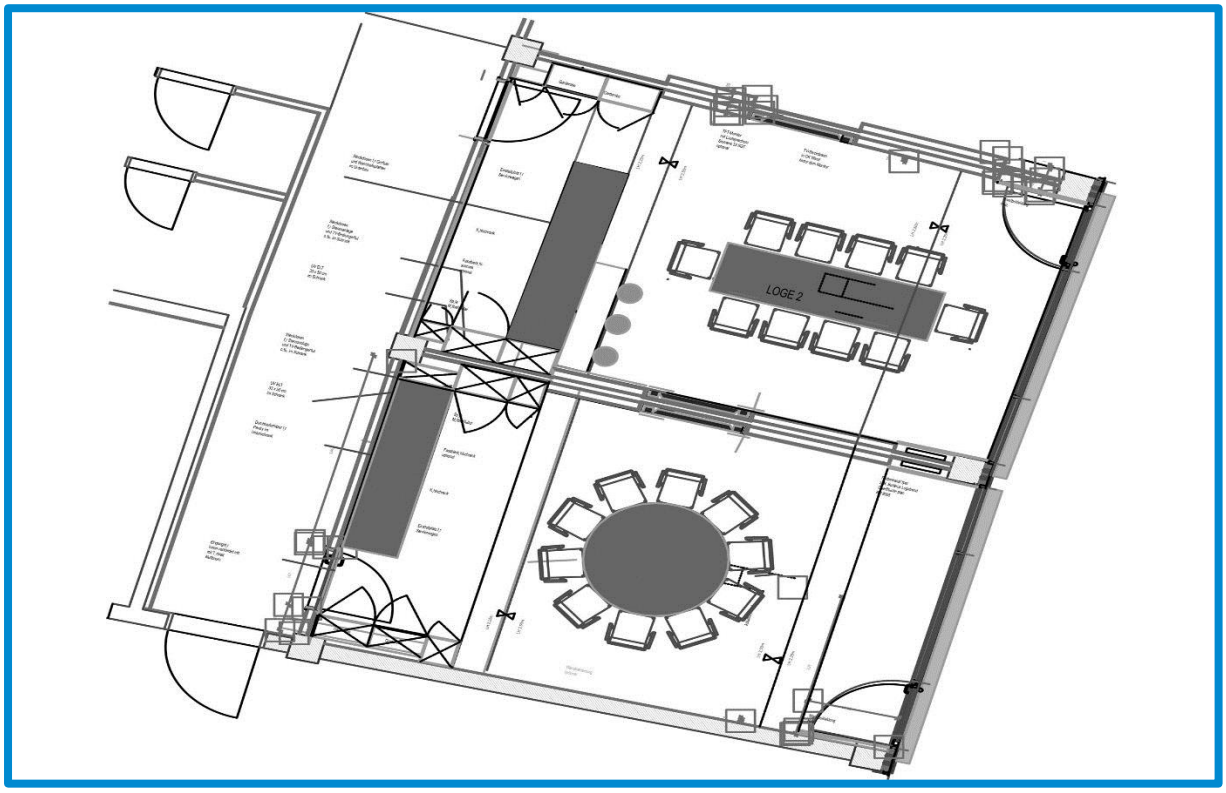


Figure 59 Plan Skybox Commerzbank Arena Frankfurt, Germany

Figure 60 Skybox corridor Commerzbank Arena Frankfurt, Germany

Figure 61 Skybox corridor Groupama Aréna Budapest, Hungary

Business Club

The Business Club includes up to 150 clients. This category represents the exclusive business seat section, aiming at the decision level business and private people, which are seeking for a very exclusive offer within the stadium, aiming to enjoy high quality of B2B platforms.
The exterior seating arrangements are located at a central seating below the skybox seating level. This seat section should be fenced off and differentiated in terms of the seat shell to the lower categories (Family & Friends). The interior seating within the Business lounge should facilitate an exclusive ambient and a comfortable route guidance as the lounge should be still on the same level as the exterior seating.
The seating arrangements represent the top priority business level, aiming at coporate and private clients which are not booked on the skybox level. The target group of this area is represented by the broad level of hospitality customers, from single seating of the private fan to combined (exterior) seating arrangements of corporate packages. The location of the exterior stadium seating should be located centrally at the halfway line. This area should be clearly separated from the lower seating arrangements (Family & Friends) and it should be different in terms of material of seat shells.

To be able to extend the number of business seats later on, as mentioned before, the infrastructure should already be installed right at the beginning, to save costs and time by implementing in the future. Lagardère Sports recommends adapting the catering concept to a standing/ seated buffet style plus flying food service incl. finger food (final Catering Concept ideally defined within a next step during Design Phase). Consequently capacities might be accordingly up- or downsized to the ticket sales within this category.

The recommended interieur space should be 1,5-2sqm per person, except traffic areas. For better communication possibilities there should be a concourse and / or an area for the hospitality and business guests to communicate and to see each other.

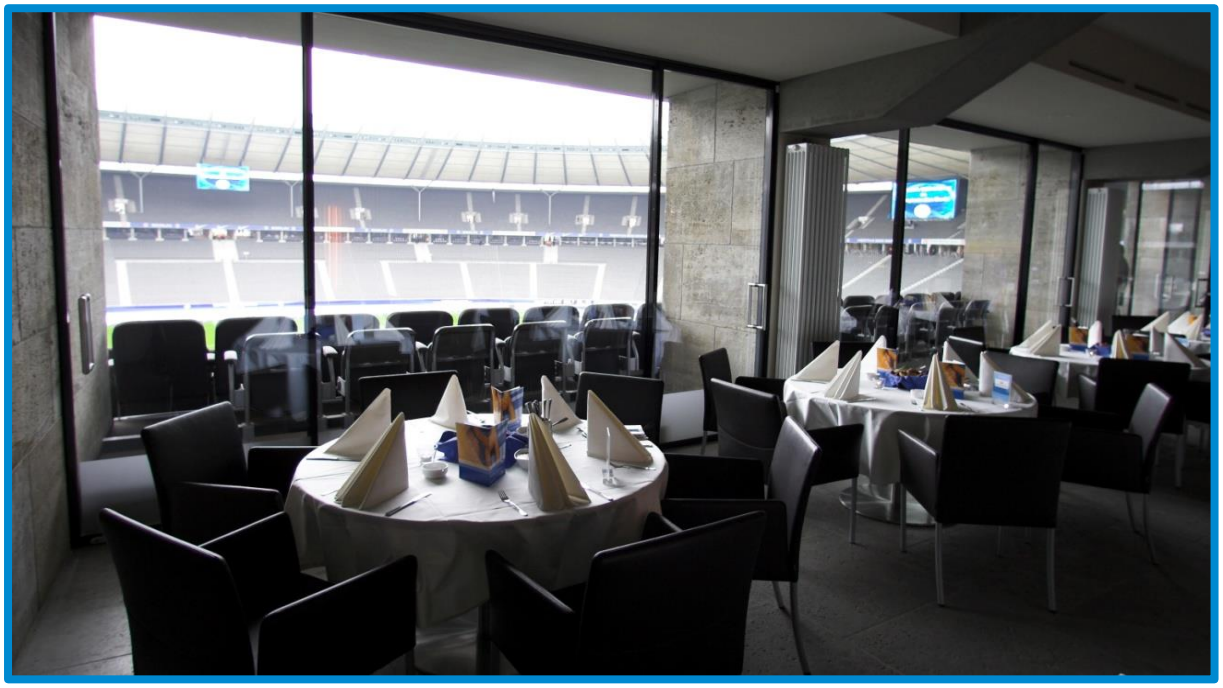


Figure 62 Business seating area Olympic Stadium Berlin, Germany

Figure 63 Business Club West Lounge Friends Arena Stockholm, Sweden

Figure 64 Business lounge Area Olympic Stadium Berlin, Germany

Family & Friends

The Family & Friends packages represent the dedicated lead-in offer to the new idea of hospitality and business conception for Reykjavik/Iceland. This VIP light category should offer the most basic but still valuable hospitality and business products, rights and services in order to draw new customers into the hospitality hierarchy and strategically transform them into future long-term VIP customers (of course with the incentive to ideally buy into the next higher categories). Therefore, this offerings are specially designed to attract an as broad as possible range of new customer groups, hence consisting of the emerging target group of families including women and children as well as the Reykjavik specific audience of emotionally attached KSI supporters willing to show their financial support. The major deliberations for such potential clients regarding stadium infrastructure represent the assurance to provide secure access to/from the venue as well as customer-friendly passageways within the facilities. This together with the customization of basic hospitality services to family- and visitor related standards are the main buying inducement for such target groups at the beginning. Therefore the outside seating arrangement as well as the interior design within the Family & Friends area need to facilitate a certain basic, however, still highly comfortable ambient. The interior positioning, seating arrangements and design have to be clearly separated from the enclosed Business Seats category in terms of quality and services. This assures on the one hand to visibly represent the higher exclusivity of the Business Seats, but also offers a significant incentive for potential Family & Friends customers to prospectively climb up within the hospitality hierarchy as a future next step. In general it has to be observed that also the Family & Friends areas inside the stadium offer a minimum of 1,5m per person (except traffic areas), however, due to the combination of several target audiences circulation and traffic ways have to be planned more elaborated. KSI supporters and friends should be definitely offered a explicitly declared and visibly marked space to meet, discuss and enjoy a joint matchday experience (e.g. supporters bar and/or crackerbarrels).

Ideally such areas are further valorized by regular visits of current players and/or officials as well as former players and legends. In order to also offer an appropriate business dedication, such areas can offer individual designed advertising materials (e.g. donator's board). Especially the tailor-made provision of family-friendly areas (childcare and playground section) as well as customized servicing and product offerings (self-made food stations and child-oriented activities/installations) play a crucial part for the positive event experience for entire households.

Figure 65 VIP light area Groupama Aréna Budapest, Hungary

Figure 66 Hospitality family area East Lounge Friends Arena Stockholm, Sweden

One of the main features for dedicated family areas which has proven highly successful at international best practice cases represents the installation of a playground for kids supervision during games within the exterior seating arrangements. The implementation of such family-related facilities as well as the respective ticket sales process have shown that a childcare area within the parent's direct line of sight during games is highly preferred to the classic positiong somewhere in the rearward areas. In order to accomdate this playground section within the exterior seating arrangements of the Family & Friends category, approx. 40 seats at the lower part of the stand (ideally within the corners) are to be rededicated for such purposes. A flexible installation is highly recommended, allowing for later adjusting according to respective demand and ticket sales of the entire VIP light category.

Figure 67 Playground area within seating stand Volkswagen Arena Wolfsburg, Germany

Sanitary areas hospitality

Regarding this area the following has to be calculated: The sanitary area is used by all hospitality and business guests of all categories. A differentiation in female / male / handicapped is obligatory. For power saving purposes motion detectors are recommended. It should be taken into account, that for third usage purposes, sufficient sanitary areas should be in every hospitality area, so the individual renting of areas is possible. It shouldn't be necessary to cross other event areas to get to a sanitary facility.

Outside seating

The seat to seat relation on the new main stand should be at least 60cm depending on the seat construction. The depth of the rank should be at least 80cm. Each hospitality and business guest gets a high-quality seat outside on the grandstand. The seating should reflect the different VIP categories.
There has to be a constructional separation to the other regular spectators and between the different hospitality categories. Each seat should allow enough space and comfort. Ideally is a cushioning, an armrest on one or two sides, a holder for beverages and should provide a head-rest (for specific Reykjavik situation heated seating is highly recommended). The seating materials should be robust, weather-resistant and comfortable. Depending on the seat construction comfort could be achieved by a seat to seat relation of about 60cm and a seat height between 43 and 45cm. The depth of the rank should be 80cm to allow an easy passage for other guests, the service staff or other personnel during emergencies.

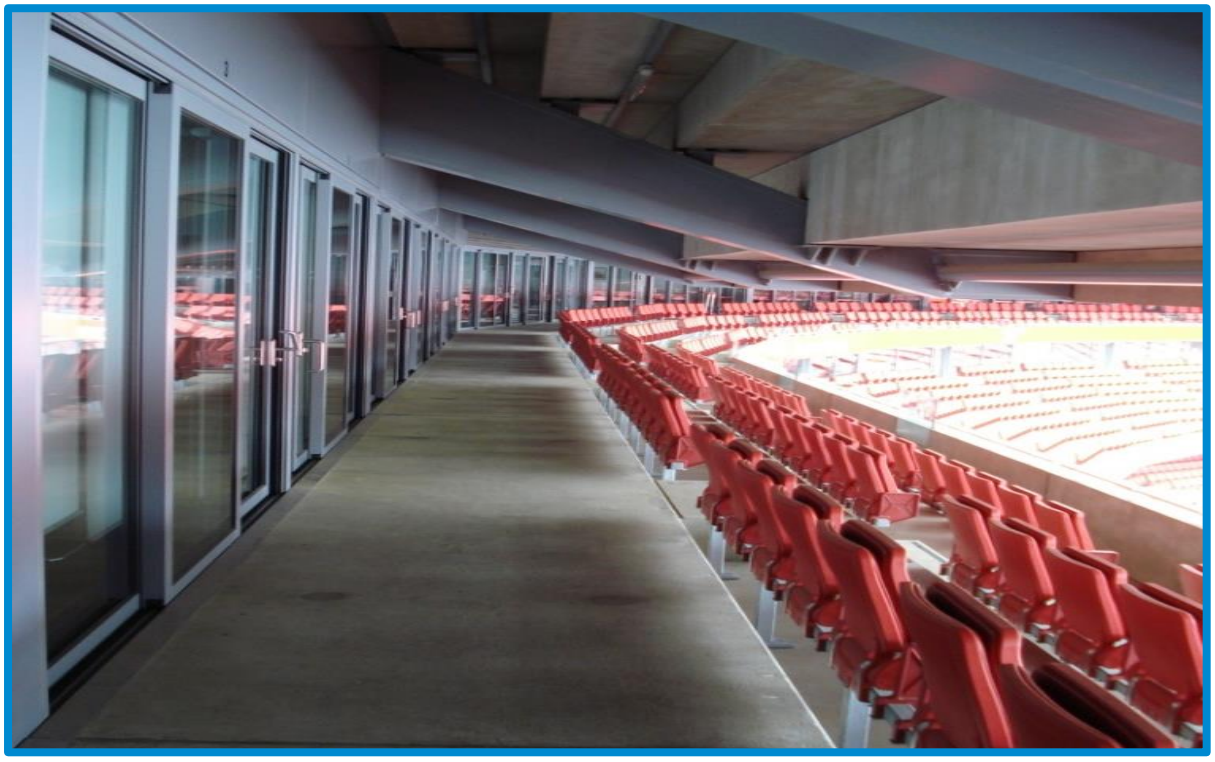


Figure 68 Hospitality outside seating Wembley Stadium London, England

Figure 69 VIP outside seats Emirates Stadium London, England

1.3.5 Catering Areas

Central requirements

An appropriate sized and equipped central logistics and storage area is required which can be reached through a separate, dedicated entry. Dedicated transportation elevators are needed to all serviced levels of the stadium for catering-related usage (no crossing with other usage groups). Receiving, handling and dispatching space for around 80 pallets per 10.000 seats / visitors is required. There should be temperature controlled storage (frozen and chilled) for around 30 pallets per 10.000 seats / visitors, dry storage of around 25sqm, equipment storage of around 25sqm and miscellaneous storage of around 25sqm. Storage / parking for logistics handling equipment (such as vehicles, carts, fork lifts and pallet jacks) are required, as is waste management space.

Decentralized requirements

There should be equipment/entire temporary concession storage or parking space external to the stadium with storage containers. At least two storage rooms are required for food and beverages to replenish temporary concessions on the level of temporary concession operations, usually the ground / stadium entry level. Alternatively, mobile stands can be positioned on each level of operations, with one storage area each for the equipment, food and beverages. For hawking, a minimum of two storage / service stations on each level of operations are required for the equipment, food and beverages.

Other requirements

Dressing rooms and facilities are needed for female and male staff (around 120 staff per 10.000 seats/visitors). This should include: a uniform room of around 25sqm; a money / security room of around 20sqm; a staff and event accounting room of around 40sqm; and office and administration space of around 40sqm.

<u>Waste management</u>
There should be a deposit / recycle bottled system or draft containers for beverages and a deposit / recycle / biodegradable bottle / cup system to serve beverages. There should be limited use of paper napkins. The use of wooden / biodegradable cutlery and biodegradable trays, bowls and plates is from a sustainable perspective recommended. Condiments used in bulk should be served by a dispenser system. Food waste collection in concessions as well as central storage and removal should be handled by a certified supplier. Waste collection should be separated by material in concessions and central storage. Transport and case packaging should be separated by material and either returned to the supplier or collected by a certified supplier. There should be a separate collection of waste oil and removal by a certified supplier.

The sizes of the general facilities depend to a large extent on the Catering Concept which is ideally defined in a next step during Design Phase and alligned with a possible caterer as early as possible / in advance. From an operational experience, Lagardére Sports recommends a positioning on ground level (level 0) due to logistic reasons with the following universal minimum sizes (appropriate sizing has to be checked with the possible caterer highly depending on a dedicated Catering Concept). The below mentioned recommendations represent benchmarked measurements:

- A main kitchen of 150sqm
- A scullery of 50sqm (next to the kitchen)
- A main refrigerator area of 100sqm
- Two storerooms of 150sqm (one for food and one for beverages)

- A delivery area of 600sqm (possibility for drive-in)
- A disposal area of 50sqm (separation of waste wet / dry. Wet waste must be refrigerated).

Apart from the catering facilities there should be offices installed next to the delivery (3 offices à 20sqm) plus sanitary units (2 à 30sqm). An accreditation area requires 10sqm and should be easily accessible on event and matchdays.

Circulation
Facilities like toilets, concessions etc. inside and outside the stadium may not be next door to turnstiles or entrances (and storage space) as well as on approaching roads. The anti-slip category for public areas should be indoor R9, stairs and concrete component R10.

Concourses
Stadium concourses must provide sufficient space in order to:

- safely evacuate the stadium in case of an emergency;
- ensure a smooth flow of people before, during and after an event;
- ensure that visitors can comfortably reach welfare facilities, particularly when spectator activity is at its busiest.

This space should be designed in accordance with current best practice and relevant documents (e.g. Green Guide, European Stadium & Safety Management Association ESSMA, International Building Code IBC, etc.). The finish of the floor should be of a non-slip surface even when wet.

Public catering facilities

The catering outlets must be evenly spread within the public sectors (as a general rule of thumb one point of sale “POS” should serve around 250 spectators) The size and configuration of the catering outlets, storage areas, etc. should be part of the next step Desing Phase within a dedicated Catering Concept for the stadium. Experience shows that particular attention must be paid to the fire strategy of the catering outlets according to international rules and local regulations.

The distribution of the selling points should ideally follow the “spectator’s stream” / traffic flow and therefore be positioned at neuralgic positions within the public sectors. Generally, the front desks have to be lockable by rolling shutters and non-slip flooring is highly advisable. Each entire kiosk needs to be a fire protection unit (observing fire, safety & security regulations), otherwise no grilled or deep-fried meal preparation is allowed. Additional Fire-fighting facilities according to the guidelines of the local authorities are a prerequisite.

In the following four facility types will be described:

- Permanent concessions
- Mobile stands
- Temporary concessions

Permanent concessions

Traditionally existing concessions should have between 4 and 6 points of sale, and a concession stand counter area is ideally around 10m in length. Permanent concessions need around 60sqm of space in order to accommodate the infrastructure such as air exhaustion, grease traps, hot and cold water, waste water, electricity, telephone (data lines) and lighting, and to accommodate working space as well.

In a concession program, there is a three-sector set-up of operations: (1) selling, payment and impulse display in the service or front area (register/till/payment terminal with display and impulse merchandise display); (2) production and presentation in the middle area (technical equipment to produce and present food and beverages); (3) storage, preparation and disposal in the back area. In general, all equipment should be mobile and modular to cater for different types and needs of events. Ideally, a stadium's concession storage holds 1,2 times the inventory of planned product sales for the event, which ideally would cater for both cold and dry storage. Product displays and signage should be positioned outside the concession stand so visitors can identify the offering before queuing. Inside the concession stand, additional menu boards should be installed with detailed product descriptions and pricing so that customers at the front of the line can still make product-choice decisions. Electronic signage systems provide high flexibility, professional branding and promotion usage, and are most environmentally friendly as when new products or pricing is established no signage needs to be discarded. Condiment and service stations are to be placed outside the concession, away from queuing lines and walk ways. This will aid the flow of customers and speed up sales.

Mobile stands/runners

Mobile stands are used to sell single products and grab-and-go items such as pretzels, hot dogs, impulse ice-cream, food snacks, sweets, promotional products and beverages. Stands are usually on wheels and can be positioned and re-positioned based on the event demand. Stands provide maximum flexibility to be moved at any time to nearly every location in the stadium / stadium perimeter. Professional equipment serving these needs is essential for the success of mobile stand operations as well as ongoing replenishment.

For every 1.000 seats / spectators, there should be one mobile stand with one point of sale, around 2m in length. Mobile stands need around 4sqm of space and may require electricity and lighting. A highly flexible and effective way to supply with and sell to public customers dedicated food and beverage offerings respresent so called mobile runners. Such catering personell is equipped with trays of small snacks (sandwiches, popcorn, brezels, ice cream, etc.) and/or beverage tanks and are able to serve public guests on the go or directly at their seat. Attention has to be given to the chosen payment method within the stadium as cash transaction could lead to reduced servicing times.

Temporary concession

Temporary concessions give flexibility in providing event-based additional services to areas with high demand, such as surroundings, plazas, entry/gathering / resting areas and fan zones. They also cater for specific event-related products such as customer group specific food (e.g. halal food). They can be country / region-related, used for promotions, be weather / season-related, or partner / sponsor-related. Temporary concessions should focus on single product categories, either beverages or food.

In order to reach the ratio of one sales point to every 250 spectators, temporary concessions can and should be foreseen whether in the stadium concourse (if there are no safety or congestion concerns) or in the stadium perimeter. Ideally, each temporary concession should have two to three points of sale and the sales counter should be of a minimum of 4m in length. Temporary concessions need a total of around 18sqm of space, electricity, water and lighting.

Normally, temporary concessions do not have a wide product offering and thus do not need to be as large as permanent concessions. Through the planning of the concessions the basic catering supply for the spectators should be secured. In an economic perspective the target should be an optimal supply within a minimum time frame. The average catering turnover per guest in Germany (German price levels) is between EUR 3,50 (approx. ISK 450) and EUR 6 (approx. ISK 800). To achieve a similar turnover a few prerequisites should be organised: First a clear and small assortment of food and beverages. Second an easy to read display, so that the selling process as such runs fast. Third the cash points should have enough staff to secure a fast serving and payment process. Last but not least: a clear working flow from behind the desk to the front desk has to be secured. Ideally the service staff should face the customer. It is also advisable to have no or less crossing points within the concession stands. Normally the opening of the stadium determines the catering supply which is from the opening onwards until one hour after the match. As rule of thumb 55% of the revenues are earned one hour before the match, 25% in the halftime break, rest spread over the time.
The return of cups should be possible at some cash points and bars, dirty dishes should never get in touch with clean dishes. Furthermore, the customer does not want to queue for a long time, possibly vendor machines are of use (takes longer, but saves labour). All drinks which are sold or distributed must be dispensed in paper or open plastic containers which could not be used in any dangerous manner.
For the public catering offer it is recommended to offer an assortment of easy to eat food like sausages, hot dogs, etc.

Figure 70 Concession stand Wembley Stadium London, England

Figure 71 Concession stand Gottlieb-Daimler Stadium Stuttgart, Germany

Within the concessions power connections for different food offers plus beverages should be planned in advance (minimum value: 50 KW; average of a German Bundesliga stadium concession)

Average connected load for 1 concession stand (equals 4 cash points / POS)[3]:

- 2 sausage fryers (à 1,2 KW)230V 2,4 KW
- 2 griddle-plates (à 10,8 KW)400V21,6 KW
- 1 freezer230V 1.2 KW
- 2 industry-air circulating-fridge230V 1,0 KW
- 2 cycles cooler (à 1,5 KW) 230V 3,0 KW
- 2 barrels cooler (à 0,5 KW) 230V 1,0 KW
- 1 combi damper400V18,5 KW
- 1 extraction hood incl. ventilator400V 1,5 KW
- 2 pizza-warming showcases (à 3,0 KW)230V 6,0 KW
- 1 electronic boiler (hot water)230V 3,5 KW
- 1 menu board 400V 2,0 KW
- Total 63,2 KW
- Simultaneousness factor (0,8)=>50,0 KW

The simultaneous factor indicates the parallel usage of the different electronic devices according to practical experiences.

[3] Subject to be determined with local experts/caterer, depending on food offer

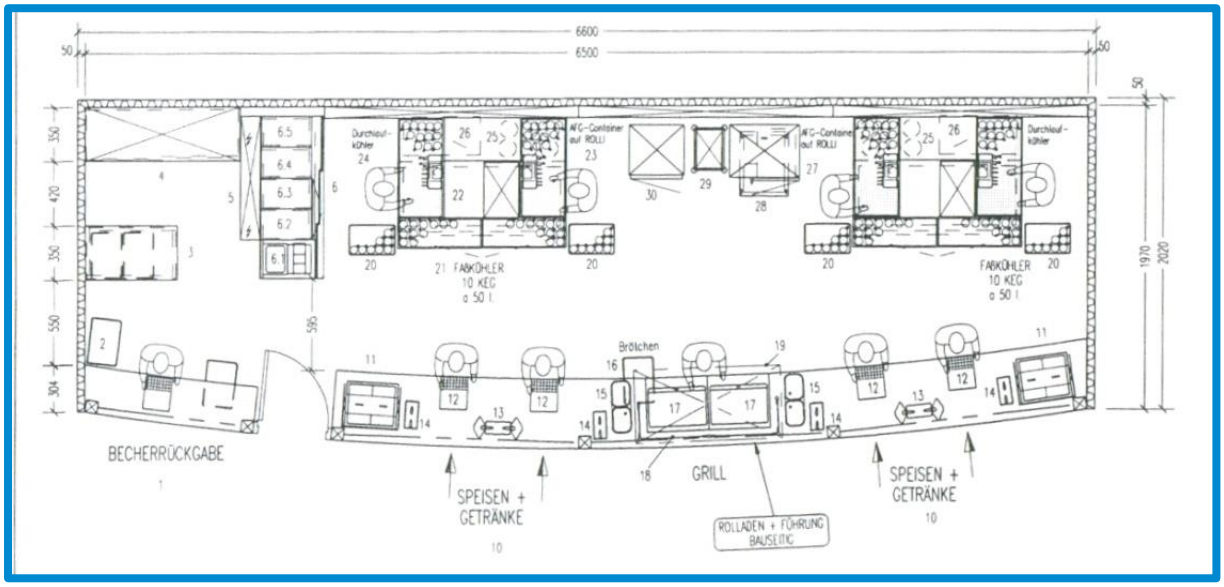


Figure 72 Example of an ideal concession stand (including a return system)

Every kiosk should be built variably, which means that the connections need to be put in, in a way that sausages as well as French fries can be sold (minimum-connection-factor per kiosk 50 KW (excl. deep fryer), it would need another 20 KW). The arrangement of the concession should be built with respect to customer demand

Restaurant

A highly recommended feature of modern stadium complexes nowadays is a dedicated restaurant within the stadium premises. However, any layout, design and concept should be done in close coordination with any additional facilities and stakeholders within the stadium surroundings.

The restaurant should be positioned inside the stadium but should be open through the week; this assumes that the access is securely beyond the internal security ring. The positioning should be next door to other facilities if planned e.g. museum and/or fan shop. The size depends on the capacity and utilisation of the stadium, but it should be at least 200 - 300sqm and should be open throughout the year according to local demand and community purposes. The operating should be handled by the dedicated stadium caterer (or any other interested/involved third party) to optimal use the stadia infrastructure like kitchens, storage, cooling areas etc. The sole operating of the restaurants without concessions does not pay / is not efficient. It should have a sitting configuration for food and beverage served by waitress personell. The interior and the catering concept should be designed in close coordination with the fans, because it ideally becomes a popular meeting point on event and non-event days. Additional events like fan club meetings, birthdays and / or company arrangements could be carried out within such a facility.

Hospitality catering

As a dedicated hospitality catering concept represents one of the major factors for a perceived positive hospitality and business experience, the catering offer should be in general fit to the different box & seat categories in terms of variety, quality and service intensity (self or half-service). For the skyboxes area the catering offer must be top level quality and all products should offter the option to be served within the facilities, whereas in the Business Seats and Family & Friends area there should be an appropriate mix of waitress- & self-service (incl. buffets, bars etc.) as well as customized offerings according to the respective category (e.g. kids food stations for Family & Friends)

Figure 73 Hospitality service station Emirates Stadium London, England

Due to the fact that the dedicated Catering Concept is not fixed yet and is ideally defined in a next step Design Phase in consultation with a final caterer as early as possible, the following recommendations only include general paramters and event/matchday related experiences. In general catering is offered before / after the match plus during the half time. Depending on this the general requirements for kitchen / pantries and serving counters are the following:

- Serving areas and small pantry kitchen in each hospitality and business area.
- Serving counters for drinks and serving counters for food equal distribution in the respective VIP area according to ground plan.
- At least one section per hospitality area where live front cooking is available.
- Variety of cold and warm dishes. This leads to special requirements regarding the fittings in terms of pantry and serving counters.
- All goods must be delivered on event/match day, goods have to be within the pantries before the start event/match.
- The delivery must take place in dedicated catering/goods elevators directly from the kitchen area into the pantries.
- For the storage of laundry, tableware, furniture etc., storeroom is needed.

Figure 74 VIP service station Allianz Arena Munich, Germany

Recommendations regarding connected load for the hospitality and business catering:

Pantry / Relay kitchen:

- 1 Steamer GN 1/1 400V 15,0 KW
- 1 grill plate (2x3 KW) 400V 6,0 KW
- 1 deep fryer (2x10 KW)400V 20,0 KW
- 1 electronic 4 hot plate cooker400V 13,0 KW
- 1 tower combination 10x1/1; 6x1/1400V 9,5 KW; 2,5 KW
- 1 microwave 230V 3,0 KW
- 1 „Salamander“230V 3,3 KW
- 1 ice cube machine 400V 1,8 KW
- 1 heating bridge 230V 1,2 KW
- 1 cold-storage room 400V 2,5 KW
- 3 fridge à 230V 1,8 KW
- 3 power-points à 230V 10,5 KW
- Total100,0 KW
- Simultaneousness factor (0,8)=> 80,0 KW

Service techniques (meals and drinks):

- 1 cold drinks station230V 2,0 KW
- 1 coffee machine400V 8,0 KW
- 1 freezer (for spirits)230V 0,8 KW
- 2 heating plates (à 5.5 KW)400V 11,0 KW
- 4 cooling plates (à 2.0 KW)230V 6,0 KW
- Total 27,8 KW
- Simultaneousness factor (0,7)=> 19,5 KW

Drinks per serve stations

- 1 glass washer400V 12,0 KW
- 2 cold drink station (à 2,0 KW)230V 4,0 KW
- 4 coffee machine (à 6,8 KW)400V 27,2 KW
- Total 43,2 KW
- Simultaneousness factor (0,8)=> 34,56 KW

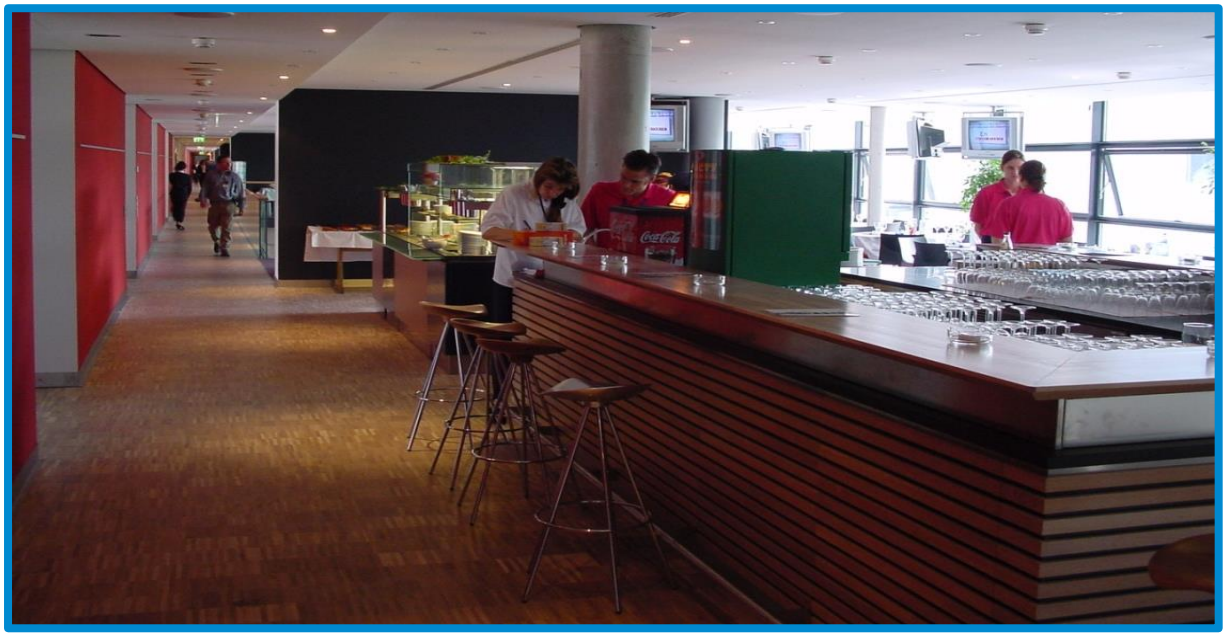


Figure 75 Business service station Gottlieb-Daimler Stadium Stuttgart, Germany

Glasses / dishes skybox

- 1 dishwasher400V 9,7 KW

Main kitchen / scullery / storage

- 2 combi damper 10x1/1 à 12,5 KW400V 25,0 KW
- 2 combi damper 20x1/1 à 27,0 KW400V 54,0 KW
- 2 elect. cooking pot 150l à 25,8KW400V 51,6 KW
- 2 elect.-tipp-frying pan à 14,4 KW400V 28,8 KW
- 1 cooling system400V 15,0 KW
- 1 cup washer400V 49,0 KW
- 1 pot washer400V 14,0 KW
- Total237,4 KW

Simultaneousness factor (0,8)=>190,0 KW

1.3.6 Media Areas

General infrastructure

Press and media representatives nowadays expect a professional standard and a top-quality equipment for their working areas. To reach this, it is necessary to know and meet the standard requirements of this important group of multipliers. Eventhough national requirements for the local Icelandic press remain at a comparatively low capacity level, modern stadium infrastructure needs to be able to host international matchday press demands (possibility to achieve via temporary solutions). Federations like FIFA and UEFA set their own standards leading to extra requirements regarding temporarily constructions like media stands, camera positions, CATV and power supply. Temporary constructions are advisable, if the size of the events and the expected media appearance exceeds the available space within the stadium. If media and TV constructions are planned within the stadium the focus should lie on flexibility and enlargement. As minimum standards the requirements and settings for the UEFA stadium category 4 are considered.

The whole media infrastructure should be on the same side of the stand as the teams' dressing room. A few basic considerations should be realised already in the stadium layout:

- The unit should be separated from the public by a well-defined barrier and limited access according to each category of press and media representatives should be given.
- In case of different levels it is recommended to have separated stairways or elevators for press and media. Every differentiation later on is cost intensive and should therefore be avoided. It should be pointed out that a split of press stand and press area could probably lead to higher building and operating cost. Therefore it is recommended to locate the whole press and media area on the lowest level, alternatively on the level of the press stand. The unit should be direct accessible from the main working area as well as from broadcasting facilities located outside the stadium or from the parking zones for media representatives.

From operational experience Lagardère Sports recommends locating the facilities for the media in total on the pitch level of the main stand and the press stand in the middle of the main stand with a perfect viewing angle to the pitch.

Press

Press stand

The press stand serves for the direct observation and communication of press and media representatives during the match. Hence, it should be located on the main stand with a free and unobstructed view on the pitch. Moreover it is compulsory to locate the seats under the roof to allow permanent working independent of weather conditions.

In detail the general recommendations for the equipment of the press seats are:

- Each seat should have a number according to security regulations and comfort.
- According to stadium requirements (category 4) the number of press seats requires at least 200 seats and at least half of them (100 seats) with desks.
- Each seat should be equipped for the purpose of working comfort; seat with desk should have either a fixed or folding desk top to allow writing.
- The seat should have at least 60cm width, 90cm depth and approx. 75cm height.
- Each desktop should be provided with sufficient devices for communication purposes, all desks should be equipped with electric power, contemporary communication interfaces and lighting for evening matches (experience shows that a minimum of 50 places should be provided for international matches).

- In order to meet an occasional increased demand of press seats, normal seats equipped with electric power, contemporary communication interfaces will provide temporary solutions.
- Power outlets should be switched not in row, but be distributed to several protections.
- Screens should have a de-central positioning to be seen from each seat (ratio: 1 screen for 4 seats)

Press conference room

This room is used by media, press and officials/players directly after the match and requires at least 75 seats (ideally 100 seats and minimum of 200sqm). This multi-purpose room is primarily intended for press conferences but is suitable also for different meetings of other kind (when not used for press functions). The positioning of the room should be in direct connection to the sporting areas and the mixed zone. Limited access is obligatory.

From an operational perspective it is recommended allocating all press and media areas together to secure short ways for everybody. Moreover this reduces the number of persons in the mixed zone area. The conference room, working area and cafeteria should be in any case planned in one unit. The size of the conference room should be 100-200sqm; ideal with a mobile wall so it is possible to react to the demands. Ideally every press representative should have his own working desk.

Obligatory is a sound system with microphone and placements for sponsors at the rear on the wall behind the podium. The podium should be flexible to enable a variable usage plus enlargement in quantity. Recommended is also a mobile positioning of the camera, plus TV and recording facilities as well as a control room at the rear. The audio and video signal from the press conference room has to be connected with the outside broadcasting van (OB-van). The usage of the audio signal should be multiplex in the press conference room through a split box.

Figure 76 Press conference room Emirates Stadium London, England

Figure 77 Press conference room Emirates Stadium London, England

Figure 78 Press conference room Allianz Arena Munich, Germany

Figure 79 Press conference room Juventus Stadium Turino, Italy

Press working area and cafeteria

The press working area is the working room for the media and press representatives before, during and after the match. Here they gather information, press hand-outs and carry out their work in writing and transmitting reports. On match days catering with a good quality of food and beverages for the media and press representatives within a cafeteria is provided next door to the press conference room and the press working area. The room can be fitted with sitting tables, stackable chairs and free-standing units. For both areas a total size of 150sqm is necessary. Moreover there should be sanitary units separated for female / male / handicapped (2 ladies, 2 men and 4 urinals plus a special needs toilett facility). Further it is recommended to provide shelves aside of a standing wall plus another storage room for further events / usages nearby (additionally lockable lockers for international media representatives can be installed). It is helpful to have extensive pin-boards on the wall for notices, general information etc.
Media and press representatives are controlled at the entrance; this means an accreditation area should be located outside.

Figure 80 Press working area Emirates Stadium London, England

Figure 81 Press working area Juventus Stadium Turino, Italy

Commentator and camera positions

As their press colleagues the commentators should also be placed on the main stand near the main TV platform. This means that at the height of the middle line a camera platform must be installed, which offers also space for the commentators.

Obligatory is free and unobstructed view to the pitch. Screens should be retractable into the desks; alternatively there should be elevated chairs. Additionally the desk should offer enough space for working materials (at least 50cm depth). If commentator boxes are required, they should be at least 2m x 3m in size and have working places for 3 persons.

As this camera position could be among the spectators seating area it has to be taken into consideration that there are disturbances possible (through jumping fans or flying flags etc.). The camera should not disturb the sightline of the spectators and vice versa. Obligatory is to secure a direct and unobstructed view to the pitch for all cameras and commentators.

Space requirements

The required space for camera positions as indicated below is a minimum requirement based on the assumption that only one set of multilateral cameras will be necessary to produce the signals for different broadcast formats (digital, 16:9, HDTV). In the event that different sets of cameras will have to be used to produce these different signals, the necessary space requirements for camera positions may have to be increased accordingly. The host broadcaster will inform the organisation in charge if additional space is required in due time.

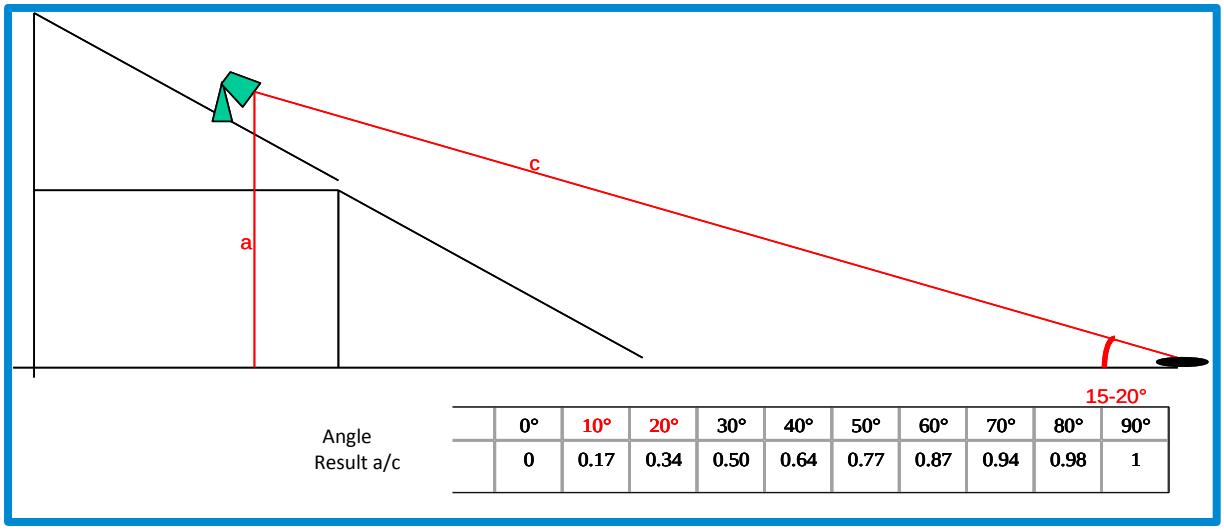
Furthermore adequate space for cameras at ground level must be available. For this purpose at least 7,5m of space shall be available between the goal lines and the first row of spectators, and at least 6m of space shall be available between the side lines and the first row of spectators. The angles specified below for camera positions in stands have to be understood as indications which the Host Broadcaster in consultation with UEFA/FIFA may have to adjust depending on the specific design of the stadiums and/or the production plan.

For the case of a double production there has to be an appropriate planning of the same parameters/positioning in the opposite stand of the stadium.

Platform

Main Cameras (MC1, MC2, MC3): in the main stand situated at the halfway line at the point of intersection between the line to the nearest touchline forming an angle of 27° to 36° with the horizontal, and that to the centre of the football pitch forming an angle of 15° to 20° to the horizontal. If it is not practically possible to install the cameras at this exact position, then they will be placed at the nearest point within the sector formed by these two lines. These cameras must face away from the sun given an afternoon or evening kick off. The overall dimensions of the space allocated for the main cameras should be a minimum of 3 x 8m, although precise dimensions may vary due to the constraints of the stadium structure and configuration.

Additionally there should be enough room for the commentator and the press colleagues plus their working materials.



Angle	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
Result a/c	0	0.17	0.34	0.50	0.64	0.77	0.87	0.94	0.98	1

Figure 82 Camera angle regarding UEFA requirements

Example Volksparkstadion (Hamburg / Germany):
a = 18m c= 70m=> 0.26 =>Angle approx. 16°
Other Examples:

a = 22m c= 77m=> 0,28 =>Angle approx. 18°
a = 19m c= 70 m=> 0,27 =>Angle approx. 17°
a = 19m c= 65 m=> 0,29 =>Angle approx. 18°
a = 17m c= 65 m=> 0,26 =>Angle approx. 16°

Figure 83 Examples for different calculation of camera angles

Figure 84 Main camera position Wembley Stadium London, England

Figure 85 Main camera position Fritz-Walter Stadium Kaiserslautern, Germany

Figure 86 Goal camera Fritz-Walter Stadium Kaiserslautern, Germany

For international matches there shall be camera positions behind the goals in the same size as the platforms at the 16m line and on the opposite stand of the main stand.

16m and 5m cameras: one camera needs to be placed level with each 16m line in the main stand at the same height as the main cameras (16HiL, 16HiR). One camera needs to be placed level with each 5m line on the main stand side, slightly elevated from pitch level, for slow motion and/or super-slow motion (5LoL, 5LoR). All four (4) camera positions will require platforms of 2,5 x 2,5m in size.

Pitch level

Atmosphere cameras of a fixed or portable type, portable to imply: hand-held, steadycam, globe or catcam rail cameras. A minimum of four (4) along the touchline on the side of the main cameras (PiL, PiR, StL, StR) and three (3) behind each goal-line (FGL1, FGL2, FGL3, FGR1, FGR2, FGR3), plus two mini cameras (miL1, miL2, miR1, miR2) at these positions. The procedure for the use of these cameras at each stadium will be agreed between the respective hosting federation (FIFA/UEFA) and the Host Broadcaster. Any fixed camera placed along the touchlines will have protective padding to be provided by the Host Broadcaster. Provision for a crane at one or both ends of the football pitch behind the goal(s) and advertising boards, provided that such equipment does not unduly obstruct the spectators' view of the pitch.

Bench cameras (Be1, Be2): two (2) radio hand held mini chip or remote controlled cameras to cover the reactions of coaches and substitute players. It is understood that the Host Broadcaster will consult FIFA/UEFA so that the impact of these cameras on the coaches/players is minimised.

Figure 87 Camera at pitch level Volksparkstadion Hamburg, Germany

Other camera positions:

Reverse positions: camera positions on the reverse side of the Stadium for substitutions, video replays and slow motion coverage as follows:

- Three (3) cameras (MCRe1, MCRe2, MCRe3) opposite the main elevated camera positions on either one platform measuring 3 x 8m or two separate platforms on the same level each measuring 2,5 x 2,5m
- Two (2) cameras (16ReL, 16ReR) elevated and adjacent to the penalty areas on platforms measuring 2,5 x 2,5m.

Multilateral flash interview zone: one (1) radio hand held camera for flash interviews where a cabled camera cannot be safely installed. This space will eventually be determined by FIFA/UEFA.

Catcam or globe camera on a rail (CATCAM): fitted along the fascia, where available, between levels of seating tiers alongside the pitch on the main camera side for tracking shots.

Beauty camera (BEAUTY): either a remote controlled mini camera fixed to the roof of the Stadium or manned on a crane positioned at a suitable location on the site, probably outside of the actual arena, offering a view over the entire Stadium. The crane would require space for the truck and stabilisers in an area of approximately 10 x 20m.

Blimp camera: operated from an airship or helicopter (BLIMP) or 75m crane (CRANE), such crane to be positioned outside of the Stadium arena, but within the confines of the Stadium. The organisation in charge shall use its best efforts to obtain from the relevant authorities permission for such airship or helicopter to over-fly the Stadium and to prevent all unauthorised aircraft from so doing.

Additional and changed camera positions: it is acknowledged and understood that the Host Broadcaster may want to identify and determine additional camera positions, such as tunnel cameras, which will enhance the quality of the International Feeds. Additional camera positions shall be make available subject to UEFA's approval.

It might be necessary that the Host Broadcaster may have to change existing camera positions in agreement with UEFA and the organisation committee, who shall make available such changes to existing camera positions at an agreed time interval prior to the match, taking into account the developments in television coverage of football and of new provisions, if any, of the Laws of the Game. Such additional camera positions may include, but not be limited to, the possibility of mini chip cameras incorporated into goalposts and the developed use of overhead cameras operated on wires or similar. In the event that additional camera positions or changes to camera positions are identified by the Host Broadcaster after the Final Draw has taken place, and such additional camera positions or changed camera positions would obstruct (or partially obstruct) the view of spectators in seating areas, the Host Broadcaster shall obtain UEFA's and the organisation committee's written consent to the suggested camera position(s).

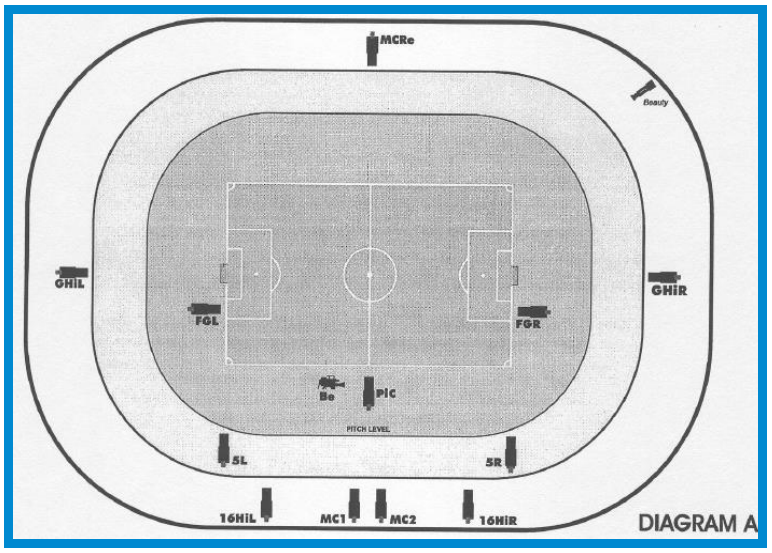


Figure 88 Different camera positions according to UEFA requirements

TV- studios

TV-studios enable (live) coverage from the stadium with a direct touch of the stadium atmosphere. The best practice is a glass TV-Studio in the corner of the main stand to offer panoramic views of the stadium. Introductions, half-time resume or summaries are often carried out here. The fitting of the TV-Studio is mostly done by the Host Broadcaster bringing their own set dressing, equipment and lighting. Next door to the Studio there should be a mask room (15-20sqm.) with 4 - 5 places. The doors to the studios should have a width of 2,20 – 2,50m (double door, totally to open).
Further requirements:

- Air-conditioning (max. temperature inside 25°C, cooling 3,5 KW)
- Thermal load max. 70% of the power supply (10 KW)
- Air exchange 4 – 5 / H
- Max. number of persons: 10
- Basic lighting 200 lux
- 230 / 400 V, 10 kVA technique net (TEC-power) for TV equipment and studio lighting
- 230 / 400 V, 10 kVA normal net (DOM-power) also for the supply of the air-conditioning
- Sound-isolating wall, so that no surrounding noise which could disturb comes in (if needed).

Mixed zone

Mixed zone is the area where players and media meet for interviews etc. Ideally this area is located on the way from the sporting areas to the pitch, so that each player is forced to pass this zone. Some competitions require open access to players by the media after a match.
The room requirement is a minimum of 200sqm (up to 300sqm recommended) and the height of the room must be at least 6m. Adequate lighting (220 lux, for TV 800 lux) and a back drop wall for sponsors (height 2,20m) is obligatory. The access to the mixed zone should be separated and watched by security staff.

The mixed zone should have the following technical fitting:

- connections to all media devices and an air-conditioning (24-26°C)
- general lighting, 200 lux
- Electric supply, 230 / 400 V TEC-Power for sound system, TV lighting, 230 / 400 V DOM-power
- Dividing wall according to the specifications of the organising committee/Federation, system Mero or similar, flame resistant according to DIN 4102/B1
- TV screens for CATV-2 (Plasma) 42”
- Telephone
- TV lighting (800 lux), responsible Host Broadcaster
- Back drops for signage, height = 2,20m, flame resistant according to DIN 4102/B1

Broadcasting truck area

This area should offer ample parking space for the trucks used by TV companies to undertake their outside broadcasts. The minimum space needed for an OB-van (outside broadcast van) and rescue vehicle is: 16,50m x 4,00m x 2,50m (85sqm), gross vehicle weight: 40 tons. This area enlarges if all hatches are unfold plus additional space for drawers, stairs etc. On the truck there are also antennas, so that a clear height of 5m is strongly advisable.
The minimum space requirements according to FIFA/UEFA regulations is 2.000sqm on the same side as the main camera. In comparison: The requested total area for a comparable German League match is at least 1.200sqm up to 1.600sqm (calculated without cars, these are located at the press parking zone (approx. 25 cars for production, technique and editorial staff are to calculate).

For security reason the following has to be realized:

- The TV compound must be fenced with a height of 2,50m.
- There has to be sufficient access gates and entrances.
- Beginning with the installation of technical equipment there has to be a safety guard around the clock.
- Sufficient lightning of the work area enabling technical work also in the evening (200 lux)
- Walkable cable bridge from the TV compound to the stadium
- Along the fence of the TV compound there should be 4 rows of cable hooks or sections with a horizontal step of 1,50m to pick up multi-lateral and unilateral cables (details see the following).

Cabling / Power Connections

From a general and technical perspective it is advisable to overall safe and short cable routes. This comes into play with broadcast cabling as this takes place only temporarily. In order to connect the broadcast compound with all relevant broadcast positions in and around the stadium, a walkable cable bridge and various cable pathways will be required.

In the whole stadium there has to be a cable channel (e.g. lockable wall bushings, 30cm x 30cm, cable grids, cable hooks), which enables the media representatives to lead their cables in a secure way to all relevant media areas. Ideally this cable routes should be straightforward to avoid that the cabling is ruined by sharp components and they should be easily accessible. Any kind of production breakdown has to be avoided in any case. The radius of the curve may not be under 50cm or at least 20 times the measure of the external diameter. If the radius of the curve is too narrow the electric properties of the cable could change. This is extremely important for coax-, triax- and fibre glass. Especially in the crossover from vertical to horizontal cable line-up the tolerable radius of curve is often below target. The same is valid for the traction load.
Moreover, the cable tube and also their intros must be protected against wetness, silting and pollution as well as vandalism. It is advisable to install cable and upside sections in an overhung position. By a vertical cable line-up in channels and tubes there has to be paid attention to a traction relief. It should be avoided to have lockable wall line-ups as well as cable tubes. On the floor is recommended to install floor channels (approx. 20cm width, 30cm depth, cable lies on the grid), which are covered after installation.
At the wall there should be cable hooks, ideally at least 3 underneath. If cable hooks are used, they should be fixed at the stadium construction to avoid dropping.The cable channel should be out of perforated steel plate and should be constructed in a hot-dipped specification. Cable ladders should also be out of hot-dipped steel plate in heavy type with a step distance of max. 300mm. It is advisable to set-up a plan to achieve optimum working conditions for the media and handle the set-up as easy and quickly as possible. Moreover the cable line-up must surround fire protecting areas.
Equally important in the planning is the separation of media and electric cables. Hence it is necessary to have sections for the later installation of electric cables. Media- and electric cables may not be installed together in one common section. It should be avoided to install fixed cabling as operational experience proves that TV stations do not use them because of a lack of guarantees in function and maintenance.

The complete linking-up of the following areas has to be realised by cable and line routes as well as sections:

- TV / radio commentary boxes and technique areas
- Press stand, press working area, press cafeteria
- Camera platforms, microphones, number and location according to TV-/ and operator requirements
- Studios and auxiliary rooms
- Areas for OB van and total media supply
- Central feed crossing
- Mixed Zone
- Press conference and Interview areas (incl. interpreter boxes)
- Catering areas
- Installation for TV-multilateral productions
- Telecommunication, Intercom (lines)
- Antenna- and radio installation
- Central control areas, especially for lighting and sound (stadium announcer, sound system)
- Video walls
- Security
- Stadium-TV with studio, producer room and camera positions etc.

Regarding the power connections there is the requirement of a “clean uninterrupted electrical power supply” (TEC-Power) on match days for the different areas of the Host Broadcaster and the TV / radio stations. In detail:

- TN-S, 230 / 400 V, 350 kVA
- Three (3) generators, gas tank
- Main distribution frame (MDF) with switch net / generator
- Sub distribution frame for OB van

On non-match days the supply of the before mentioned areas could be realized with a normal main supply.

Photographers

Photographers need a separate entrance enabling them to reach the pitch level. An accreditation is obligatory. As photographers normally do not have permission for the mixed zone, the entrance has to be organized separately (incl. organization office handing out bibs etc.). From operational perspective photographers mainly get annual accreditations, which are delivered by separate mail.
Photographers with an accreditation for a day/event/match should get this together with the media representatives. Behind the perimeter boards it is necessary to have an installation of powerful connections for the delivery of digital photos from the laptop.

1.3.7 Surrounding Areas Reykjavik Multifunctional Stadium

General

A basic strategic consideration is the general volume of surrounding usages and third use in and around the stadium. The quantity/the need of surrounding properties depend on the amount of neighbouring properties nearby and the amount of prospective customers. Surrounding usage is understood as the optimum use of the side areas in the stadium. Third usage is a subsume of every use of the stadium by third parties which is not directly connected with the classical football use.
In general it can be stated that a surrounding and third party usage a variety of benefits (monetary and/or emotional experience connected to the venue) compared to an alternative location. Another advantage is the fact that through synergies (e.g. the use of existing parking areas, other infrastructure) lower costs occur, thus achieving a competitive plus towards comparable locations outside the stadium. The following standard facilities are all closely connected to the stadium's football & multi-purpose usage character.

Museum

Museums are one of the most important surrounding properties for a new stadium, in order to ensure a large number of visitors to the stadium, especially on non-match days or as a part of an "event extension" on a match day itself. The museum should be fitted with extensive photographic displays, trophy cases, models of the stadium and moving image displays; it could also provide special tools for kids, like interactive games, video screens, audio-visual theatre showing footage and matches from the past to the present etc. The ultimate aim of a museum is to produce/transfer historical and/or match day related emotions on a non-match day.
Generally, the size of the museum should depend on KSI demands and interrelation to any other facilities (e.g. fan-shop). Due to its showing character museums mostly consist of larger sized areas (international experience reveal minimum size of 300sqm) with close proximity to fan zones and areas. Proven operational best practices show that a combination with the fan restaurant and the fan shop bring along plenty of synergies. For safety reasons the museum should only be accessible from the outside of the stadium.

Figure 89 Museum Volksparkstadion Hamburg, Germany

Figure 90 Museum Emirates Stadium London, England

Figure 91 Museum Groupama Aréna Budapest, Hungary

Fan shop

Fan shops offer additional income which is often underestimated and therefore necessary spatial needs are not planned at all or only insufficiently. The success of fan shops correlates with the nearness to the fan area in combination with the fan restaurant and the museum. Especially for the Reykjavik situation a close combination between these three is highly recommended.
In general the shop should be well accessible on match days as well as on non-match days. A high frequency should be subordinated on match days. As during a football match only one main sales time of approx. 2 1/4 hours occurs it must be the objective to induce a quick and often impulsively released transaction by the "experience shopping". The opening hours on a match day should be 2 hours before and 1 hour after the match.

Figure 92 Fan Shop Emirates Stadium London, England

Figure 93 Fan shop Borussia Park Mönchengladbach, Germany

Figure 94 Fan shop Groupama Aréna Budapest, Hungary

Others

There are some other possibilities for surrounding properties. Alternatives are limited by the demand and the area the stadium is built in.

Along with the fan area (museum, shop and restaurant) there can be planned some other sports, leisure and/or business units which create a more desirable area and atmosphere within the stadium surrounding and contribute as well as benefit from event/match day utilization. Possible and established options can include closely football/sports linked cooperations (i.e. youth academy campus, educational institutions / universities, medical centre, etc.) as well as self-sufficient facilities /business units (i.e. retail stores, hotels, etc.). A detailed evaluation can be conducted after/within a next step Design Phase covering the definition of a design and construction concept (for further information please also refer to chapter 1.1.6. Economic review on specific stadium-related building components).