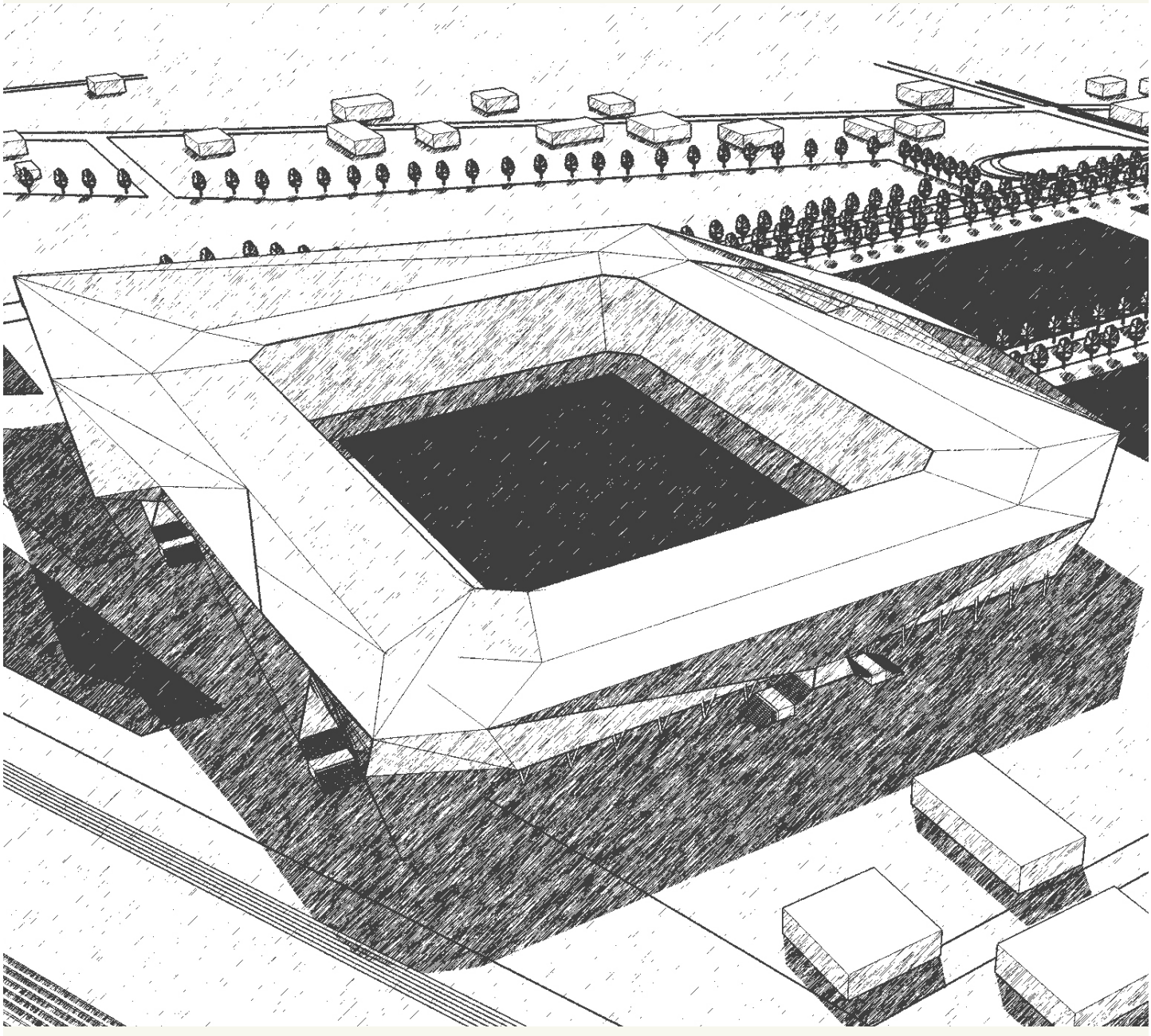


Are sports facility may have an impact
on improvingthe quality of public spaces
in neglected district?

Title:
Football stadium Raków Częstochowa.
Sports stadium and its role in the district.

Architecture & Design
Architecture
Aalborg University

10th Semester
III – VII 2009

Pages: 217
Appendix: Drawing Folder, CD
Copies: 4

Author:
ŁUKASZ ŁODZIŃSKI

……....

Metodology

Report is divided on two main parts.

Blue one is classical presentation for the investor. It shows final product and focus on advantages of chosen solutions.

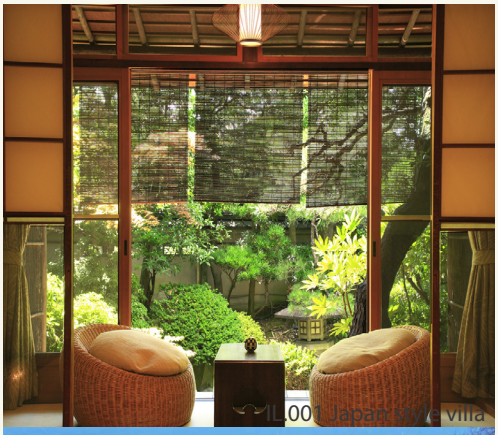
Green part shows the process. It is a presentation of the decision routs, from the analyses to the final, most optimal chose. Books has linear form, page after page so it is impossible to expose all parts of processes because we should always consider design as system of interactions between elements and details of the building in many dimensions.
To help with understanding the interconnection green part was divide in three main forms of process:
case study, analysis and design.

Content

INTRODUCTION

"Space: The final frontier. These are the voyages…" ["Star Trek", Gene Roddenberry]
Black "tabula rasa" with next object 3 millions light years away. All this only to expose yours building. Heaven for architect. Unfortunately we have to design our building on Earth. It even worst; we have to build them in the cities surrounding by other architecture. Context – hell for the architect? We can say that we don't have to think about it, and focus only on our plot and our "wonderful" creation. But could we really design something "wonderful" without consideration human needs for harmony of environmental in which he lives. I am one of the "context believers", were architecture in base on understanding the place. That way we can crate living space which is natural supply of city substance.
Context architecture is difficult but great challenge. This project is ever harder - specific function and no defined context with conclusion that surroundings do not need continuation but a new architectural value.

Every project stars with some idea. In my project it was communication – flow of people. I think that on stadium, where security and control of thousands of fans, good functional solution are key to user friendly and interesting architecture. Communication was guide line for the project from the toilets to the integration with city public transport systems.


IL.001 Japan style villa


IL.002Farnsworth House


IL.003 Hafencity

IL.004 Łukasińskiego Street, Raków

Building and surrounding.

We can say that that there are two main ways of using surrounding in buildings. East tradition (China, Japan) where building has often form of a system of pavilions and the garden is part of room space. On the West we preferred close form and protection from weather and others discomforts. Changes brought XXth century. With new technologies we could use advantages of both philosophies in most famous example "Farnsworth House" by Mies van der Rohe. My situation was different. I could not simply open building in case where I must have close structure – safety of events, noise protection, neighborhood of one family houses. I have to build context of that stadium by integration with the district urban structure.

Urban renewal.

I am from Częstochowa, but not live in Raków district. I like it because in my much more "city type" than most of the city part built as block units. Perhaps it little chaotic, poorer, post-blue collar district, but where others people see only no future I see wonderful perspective. I came to conclusion that Raków is made to be renovated.

I would like to call urban revitalization as process of reactivation, giving new life to the places where we changeling functions (HafenCity, Hamburg) or repairing mistakes (Bijlmermeer, Amsterdam).

THIS PROJECT IS NOT REVITALISATION. Revitalization should be process focused on the eco-

nomic and social aspects. Firs we should focus activate positive energy hidden in inhabitants and architecture has to help them by improving quality of space for this energy.

Urban and communication.

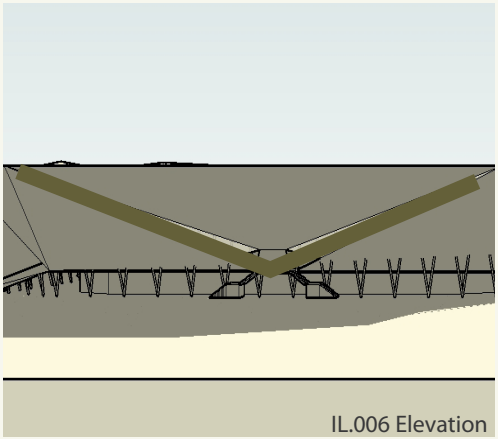
My first thought of project: "It is stadium; there will be lots of people which need transport. Cars are always problem, but mass transport is good and effective. Here is train station… ". For me Częstochowa is an axis-city, so idea of the walking passage was automatic decision. But that promenade is on the end of district, and there is not enough space for some bigger parks. Does small path will be attractive for citizen? I try to increase value of that recreation road by connection with district centum. In the end I built network of walking paths. For citizen stadium is landmark, goal of weekend walking and for stadium it means more customers in commercial part.

Multi.

We should ask, do I have to so expand one building into all district. Access is important, but changes not directly connected to building itself. Stadium would work good without all that parks and far public spaces.

All my process was base on idea (obsession) of multi-purposing. I was always choosing solution with the best perspectives to adding extra function. I was trying to maximize and optimize every detail. This is public develop so lets make as much good to the citizen we can. Stands are prefabricated so lets reduce costs and make as less of standard elements as it is possible. That column is here but why not uses it here and here, etc. We can say that I am looking architectural "holy lego brick"- one element that we can build everything with it. It is much, to much, but I my opinion interactions between form, function are constructions are basics for a good project.

IL.005 Iron works



IL.006 Elevation

Urban context.

In the project of the Raków Stadium we can find local and regional inspiration. Form of stadium as limestone rocks, expanding roof as cornice of socialistic blocs, details of elevation. However the most inspired context of that building is it urban interaction.

My passage to the train station has one interesting advantage. It is start next to the Archaeological Reserve; there is old Raków in the middle and it end with the stadium. It crates my "time line" from the past to the future. Stadium have dynamic, modern shape not because it was design now, but because it natural consequence and continuation.

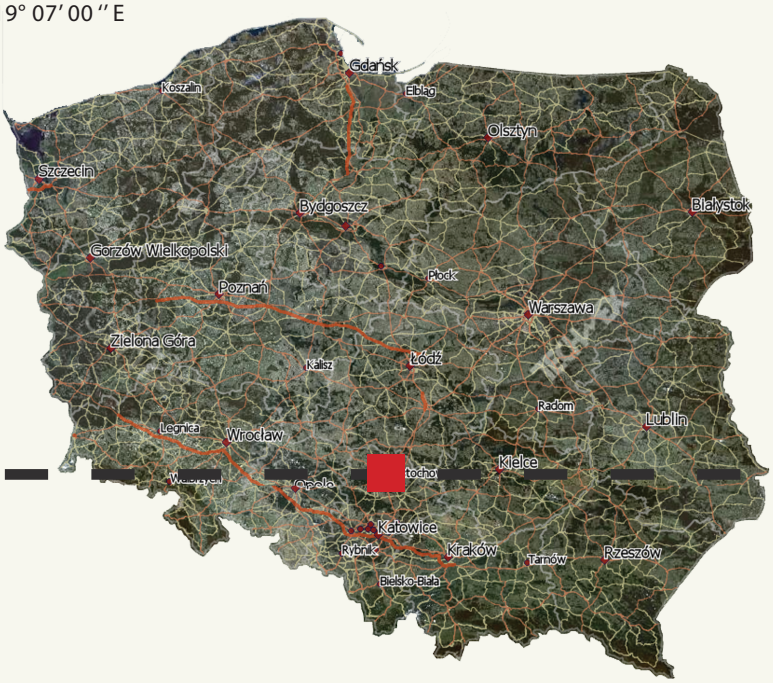
I was always scary that I will build context of building with simple quotes of local architecture. I am proud that in this project I could build metaphysic integration. I thing that together with good communication systems, both these parameters will crate really universal and good architecture.

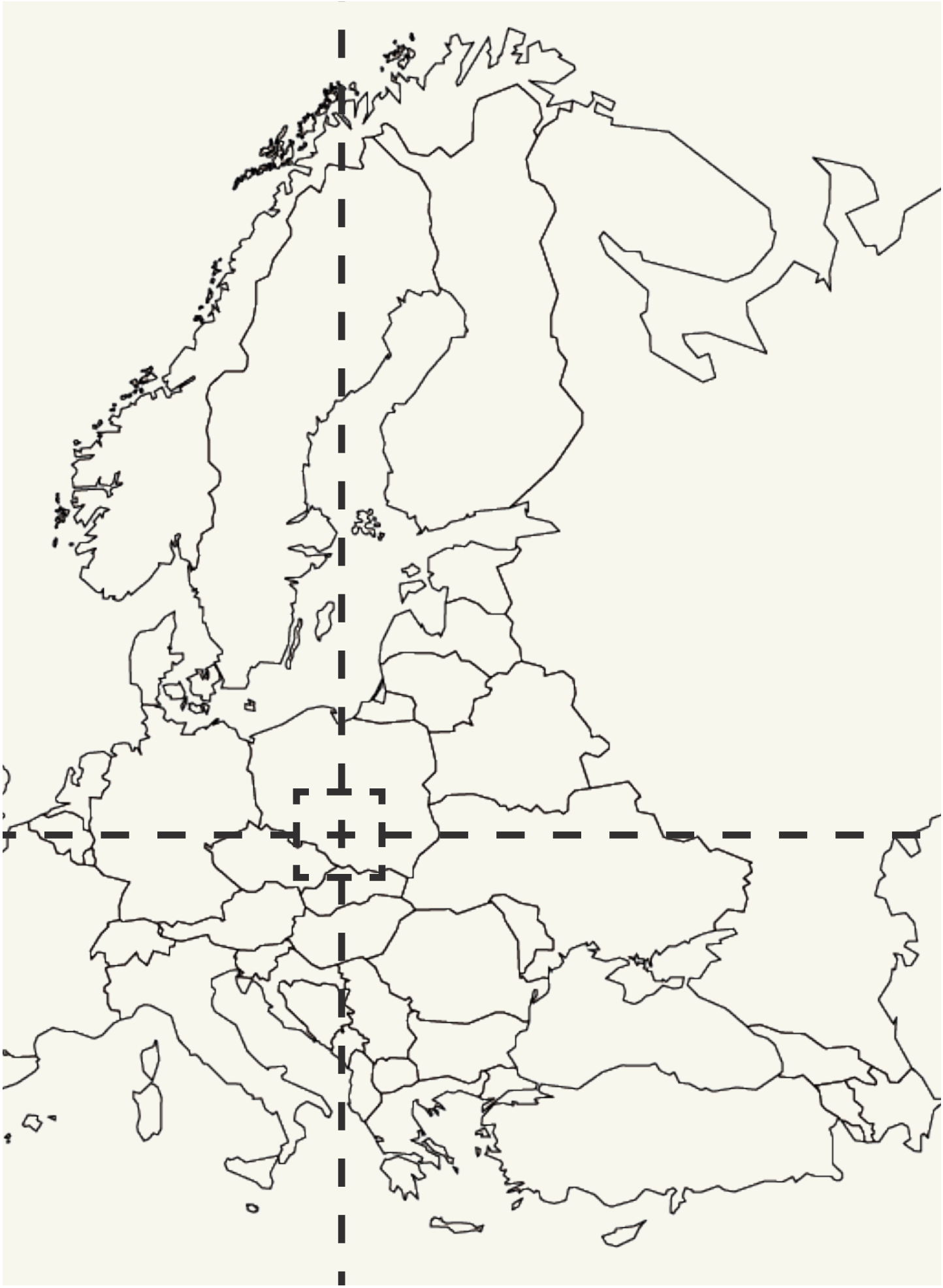
Częstochowa

Area: 160 km²

Population (2006):
- City 246 129
- Density 1 538,3/km²
- Metro 400 000

Location:
50° 48' 00 '' N
19° 07' 00 '' E



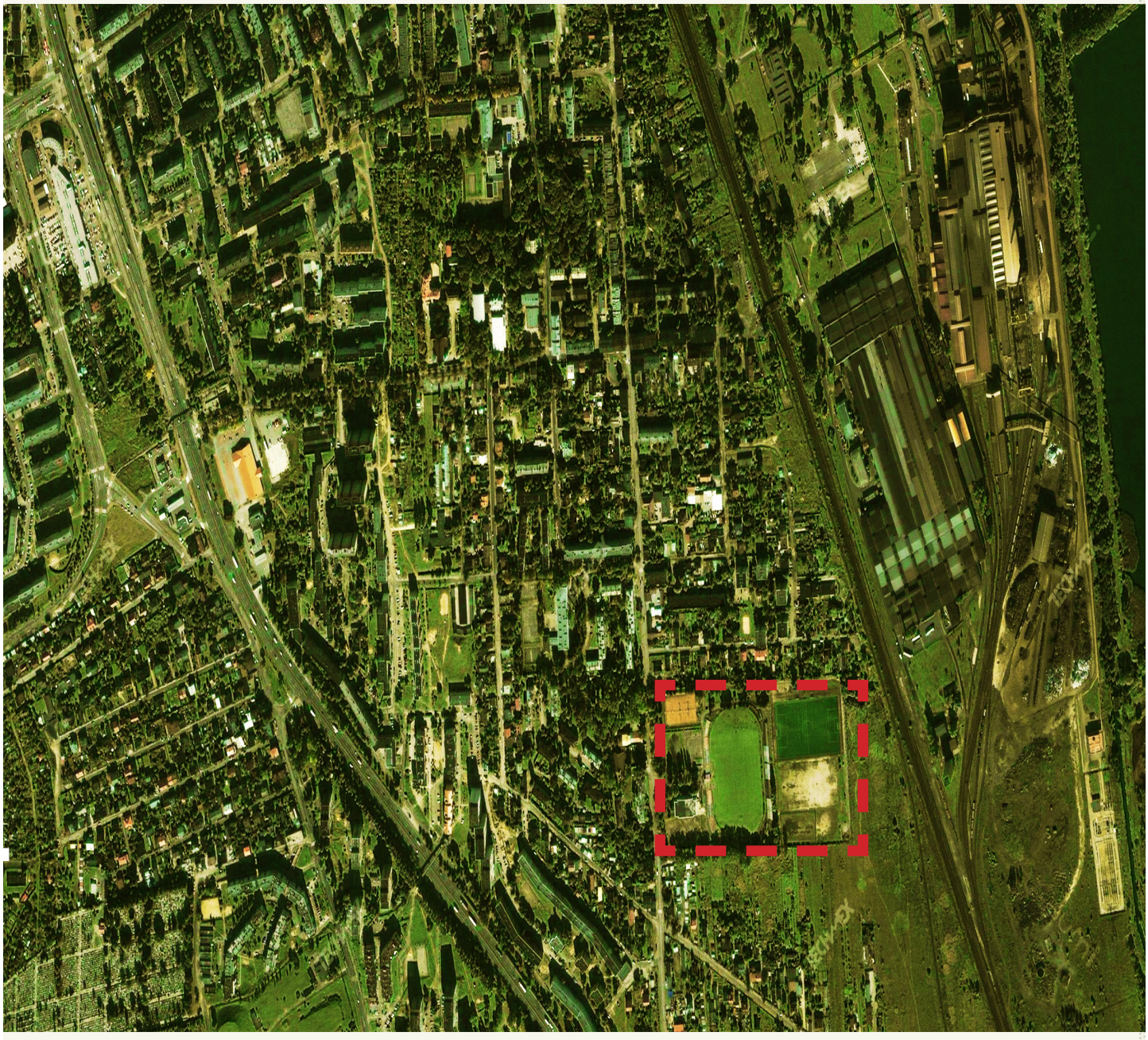


District

Raków is a district of Czestochowa, located on the south-east of the city center, on the left bank of the Warta. To the West is bordered by the national road No 1. It borders the neighborhoods Błeszno, Wrzosowiak, Last Grosz and Zawodzie-Dąbie.

On The East is closed by the central railway line Warsaw-Katowice (historic Warsaw-Vienna railway), with Częstochowa Raków Station.The prevailing building multi-housing.

The Club



RAKÓW FOOTBALL CLUB

Full name: Klub Sportowy Raków Częstochowa
Colors: red-blue
Establish: 15th March 1921 as Rakovia
Stadium: Raków Częstochowa

VISION:

Brand new stadium that not only is answer to modern sport but it is flow of fresh energy to the District.

For many peopl
is not only a sp

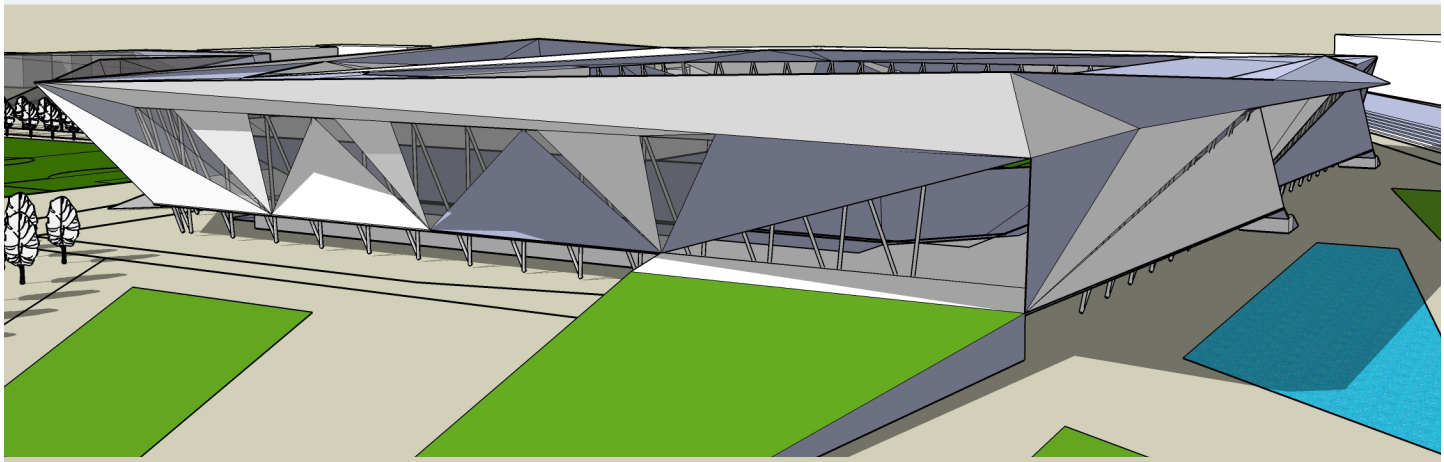
It's LOVE!

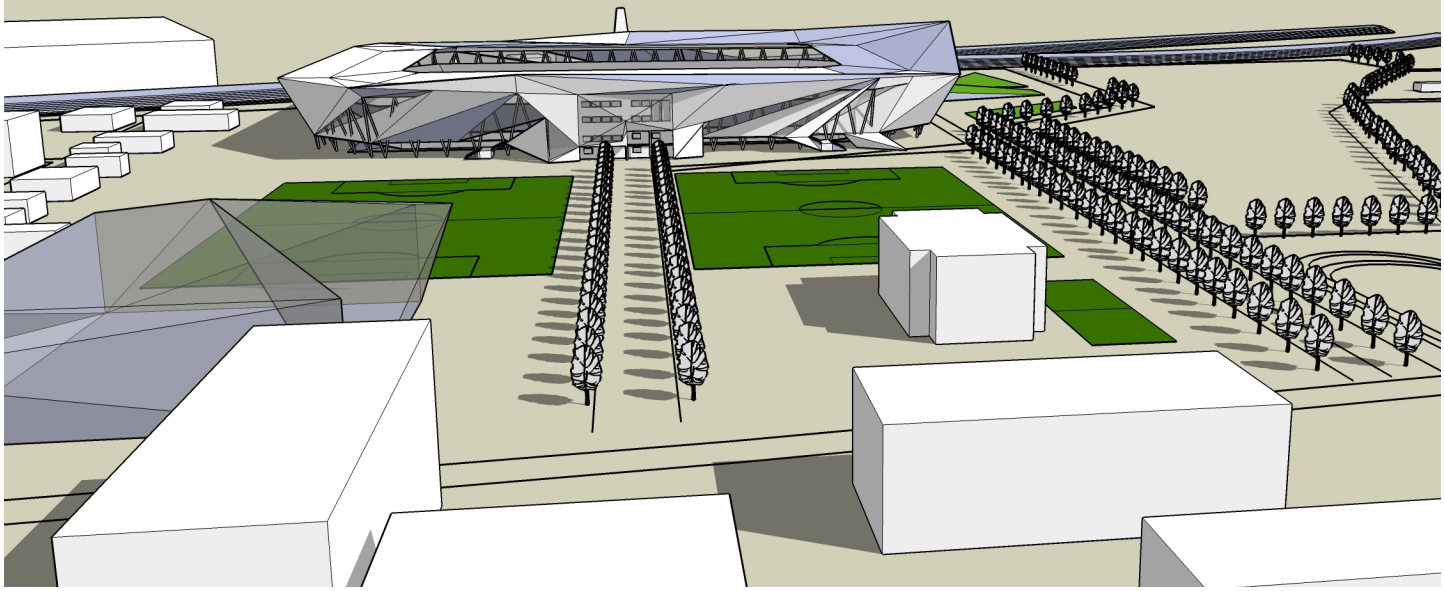
And
some

e football it
ort?

when YOU love
one YOU give...

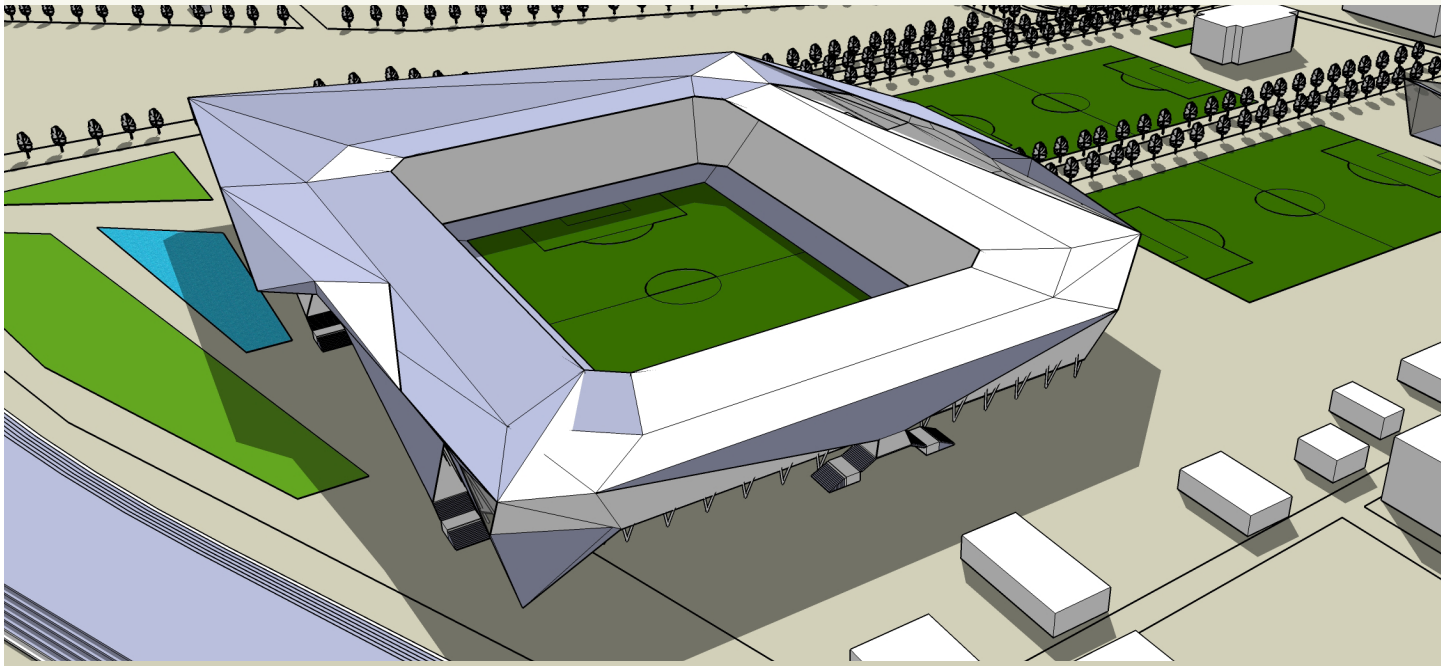
NEW RAKÓW STADIUM

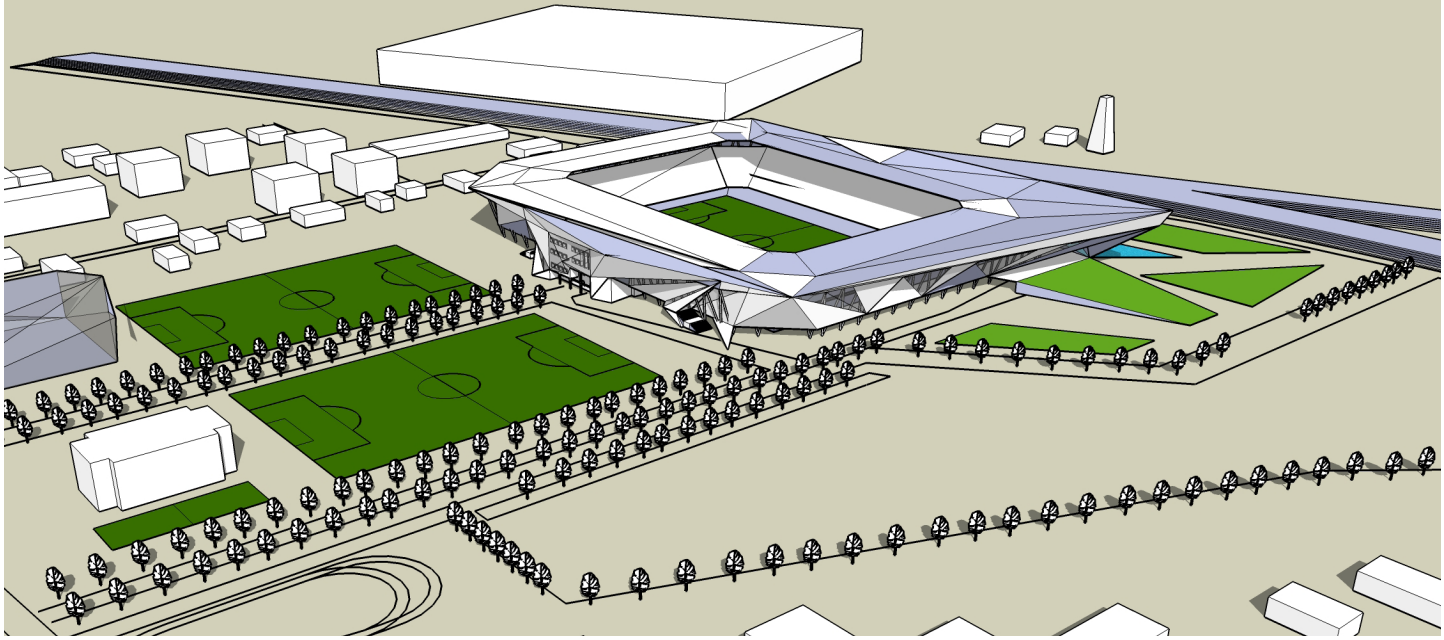


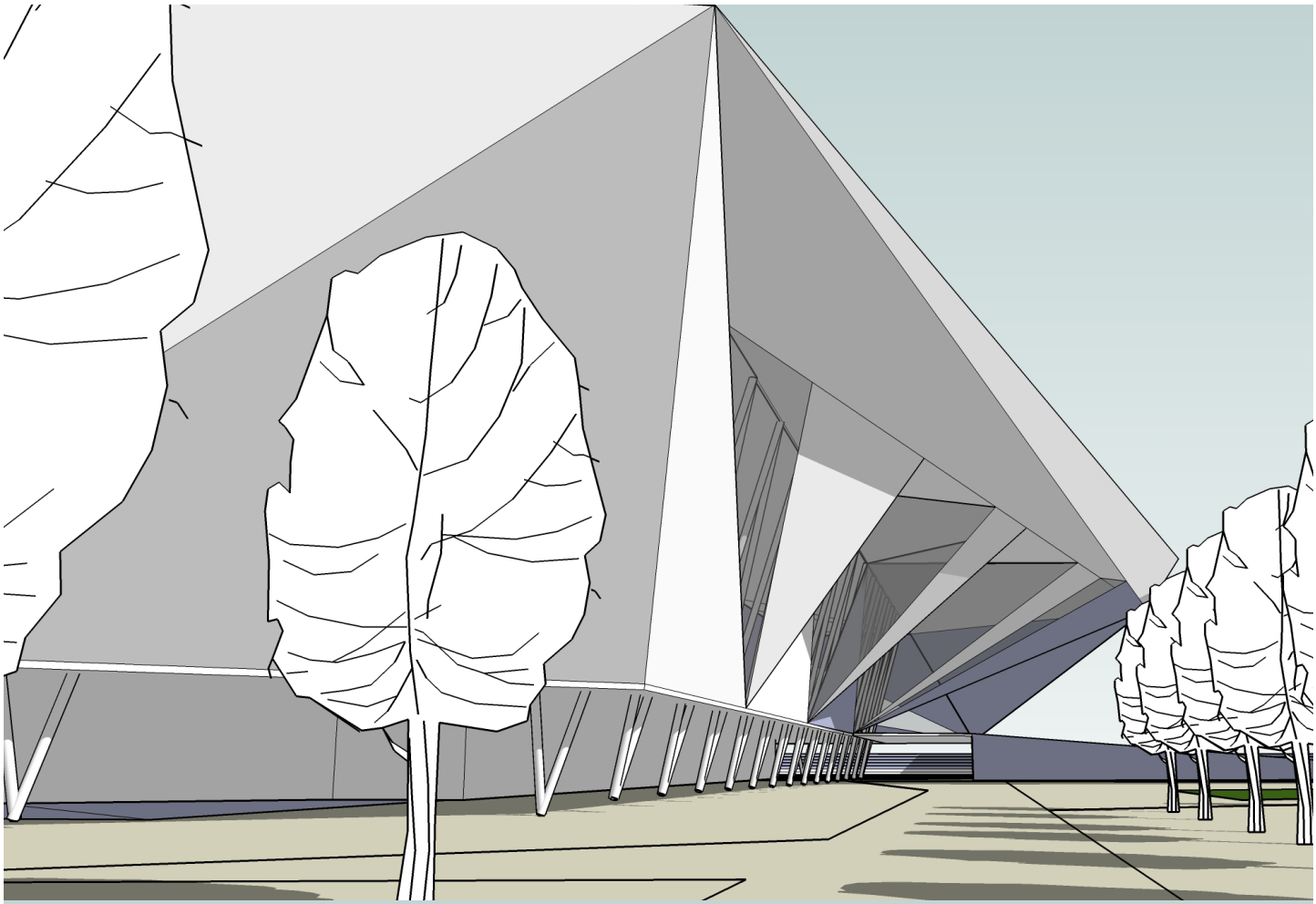


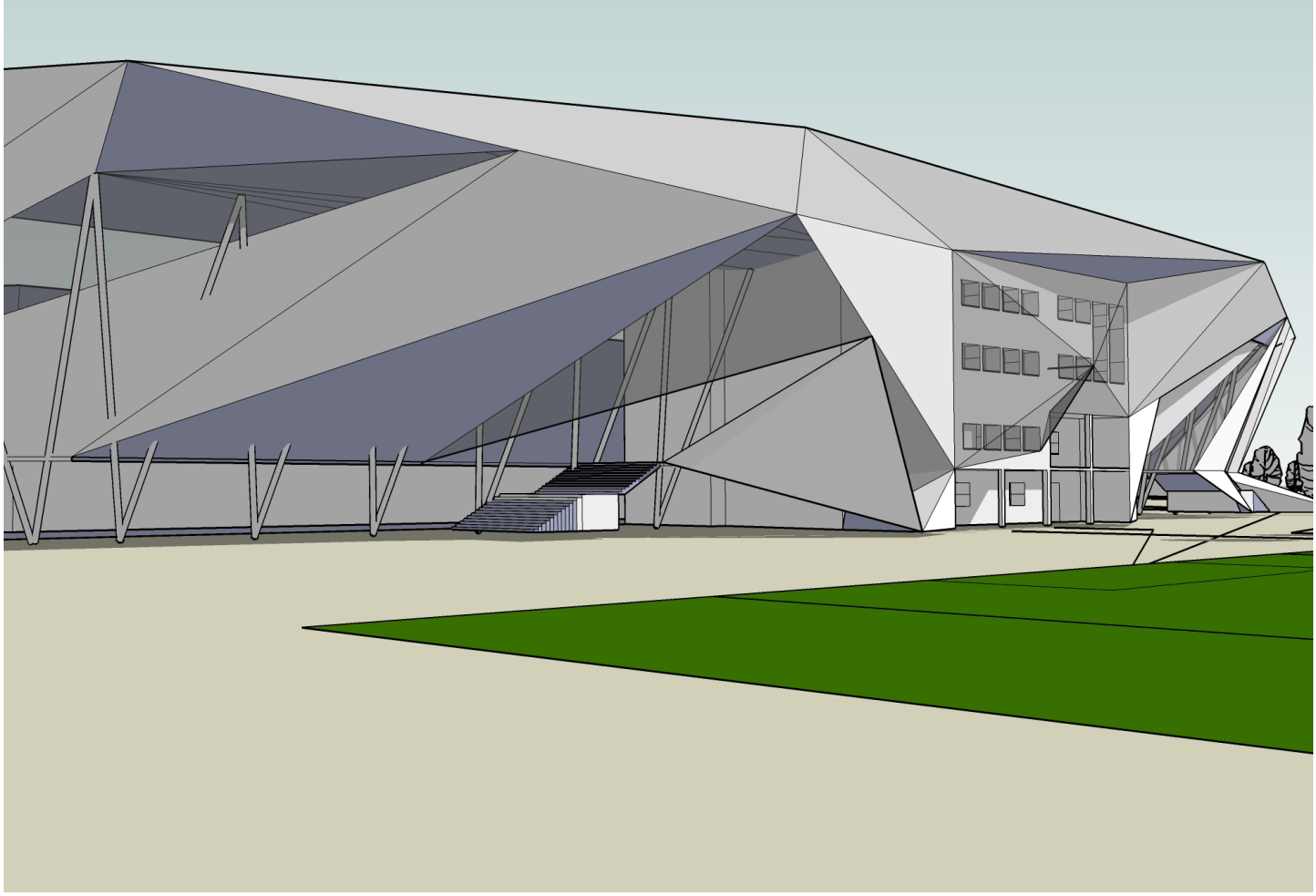
15 179 seats:

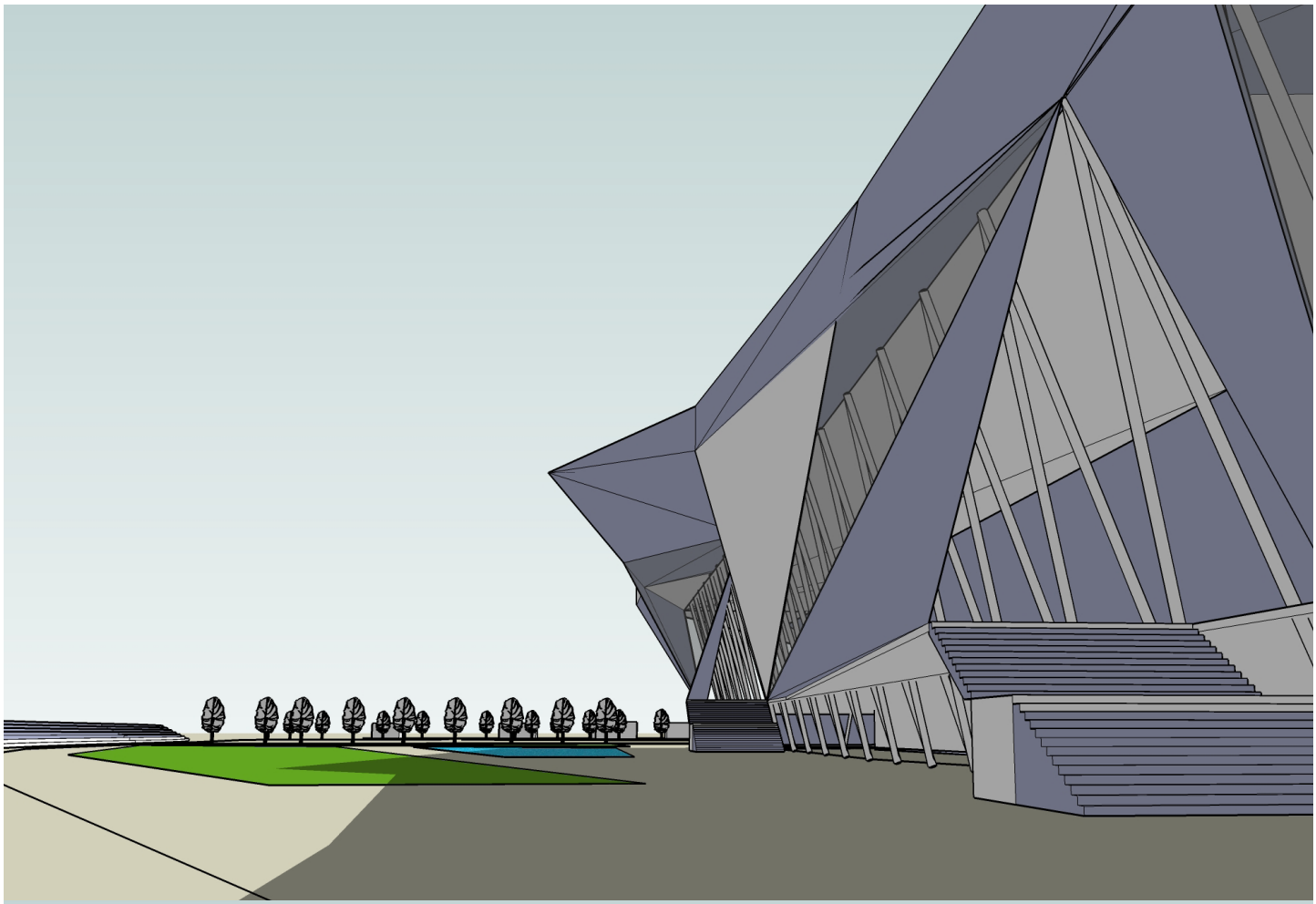
14 725 Fans
290 VIPs
124 + 32 Media
Handicaps

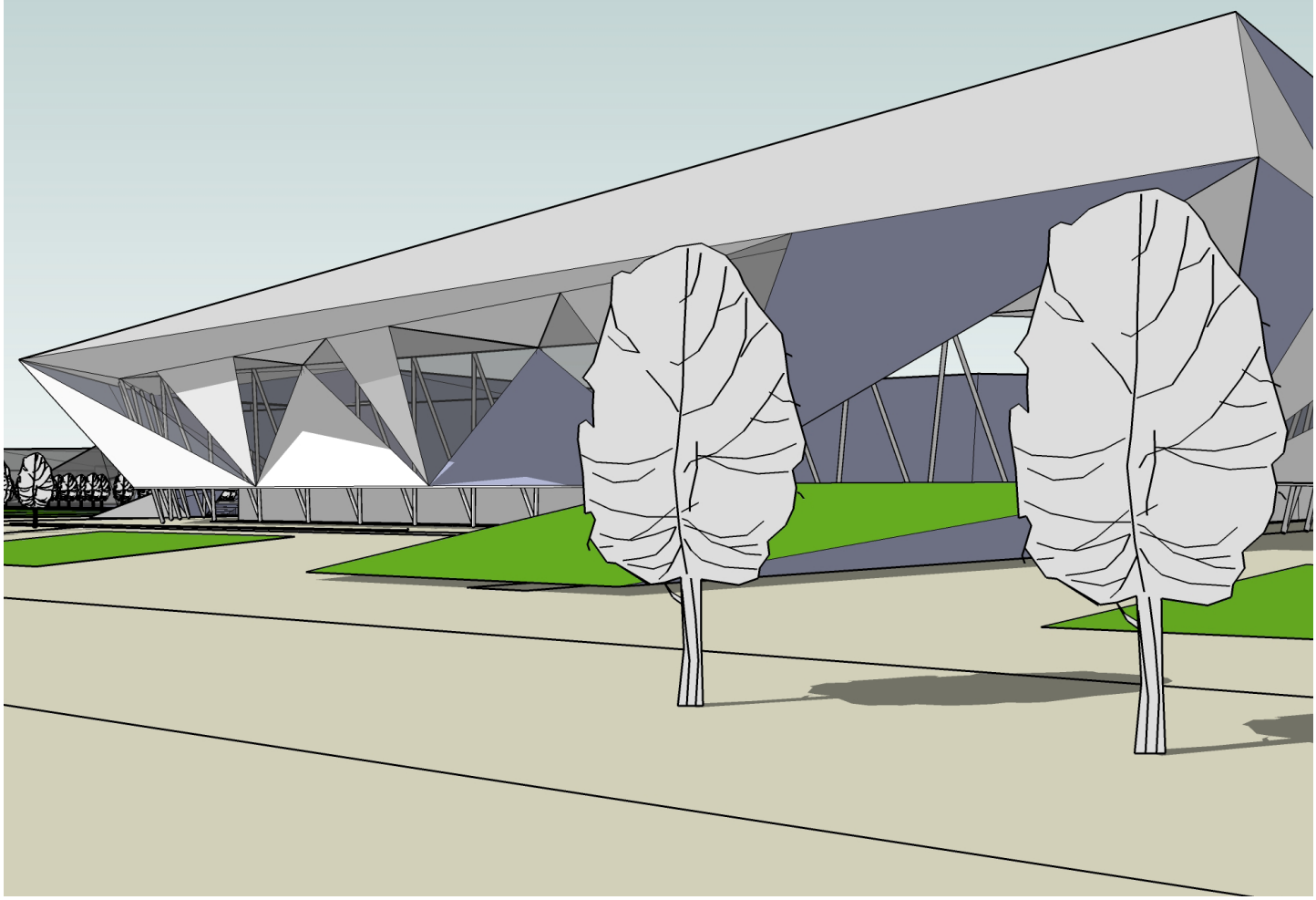




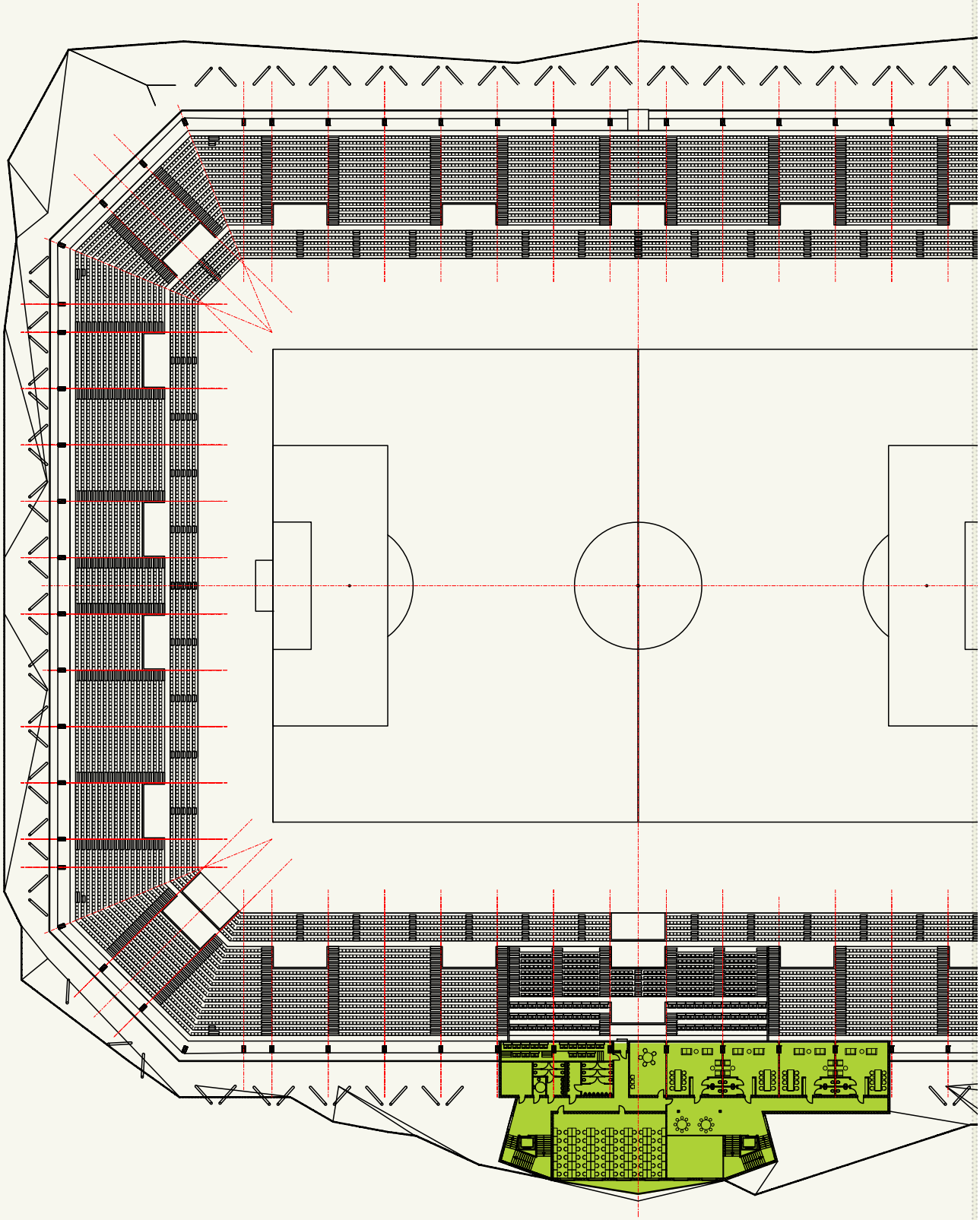


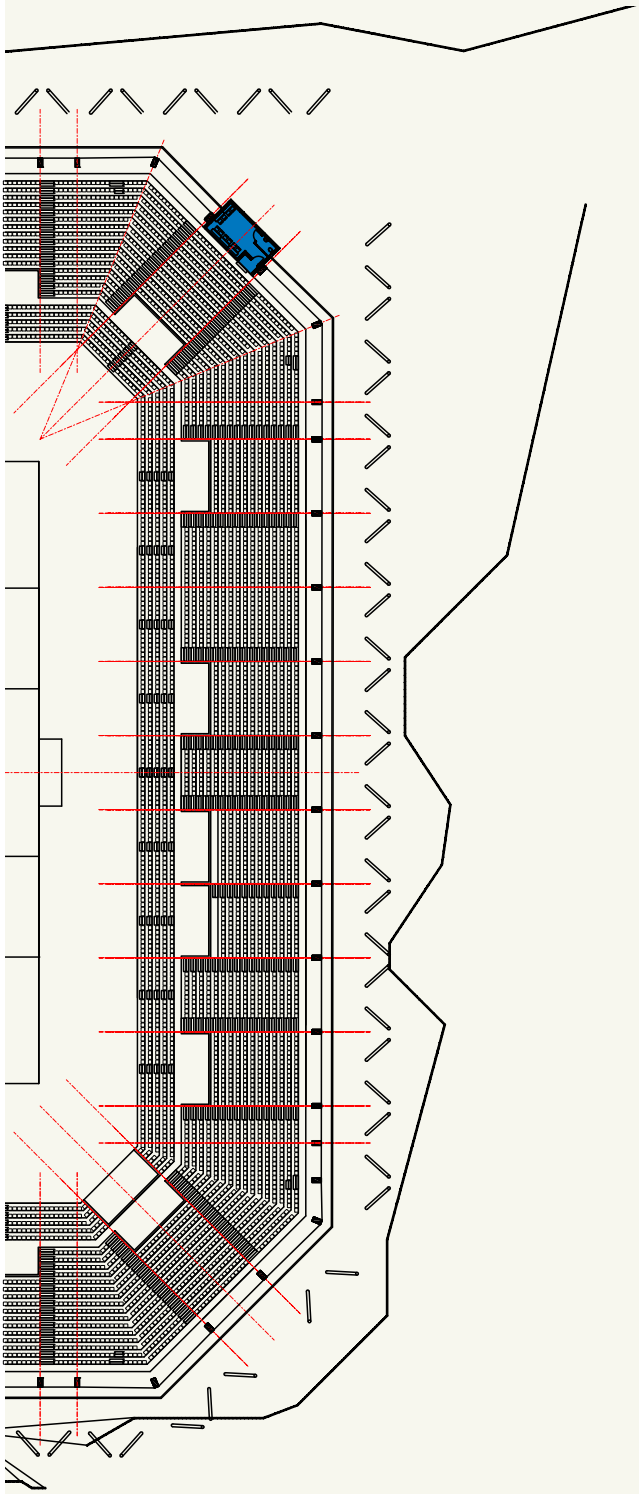






Stadium - top level

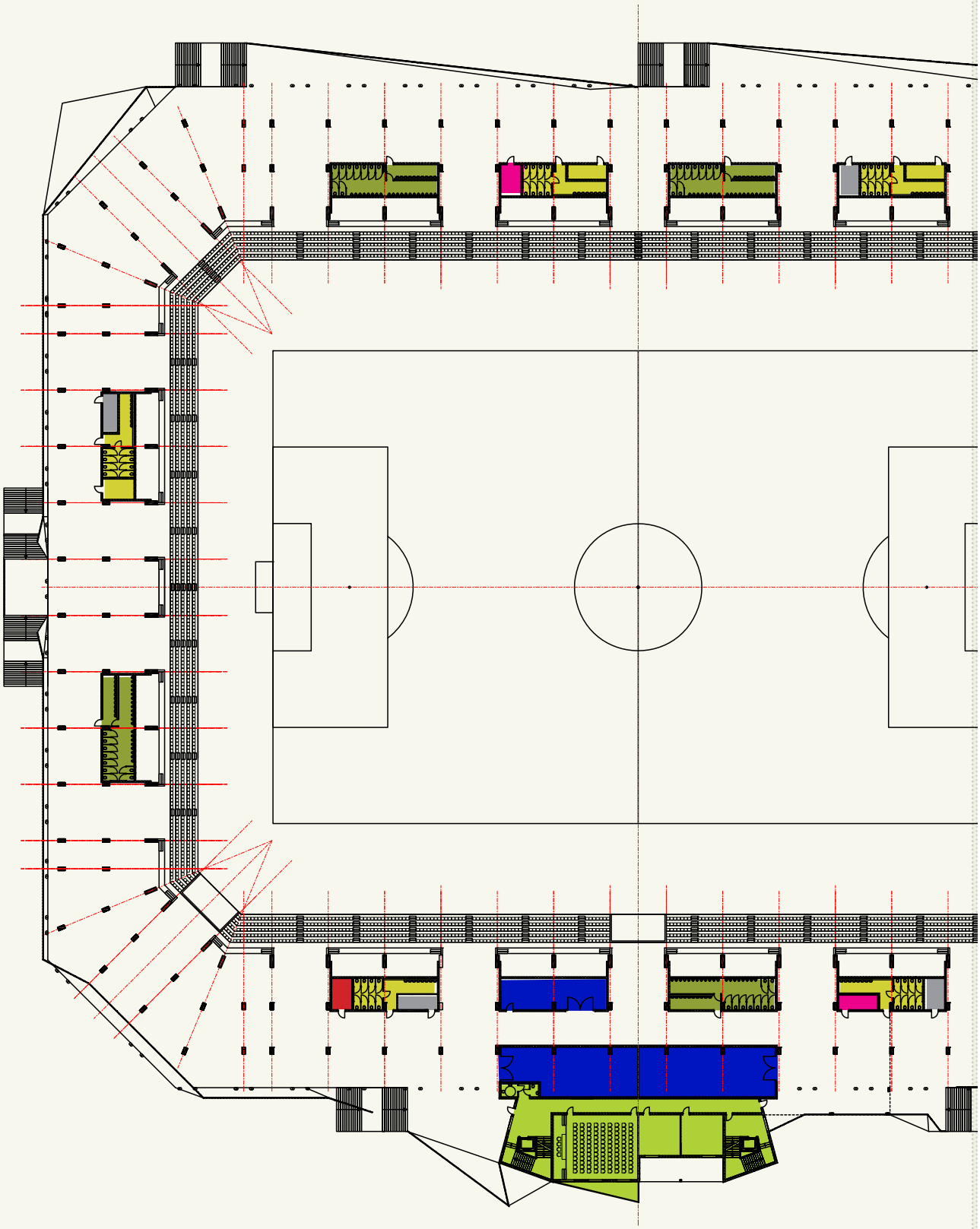


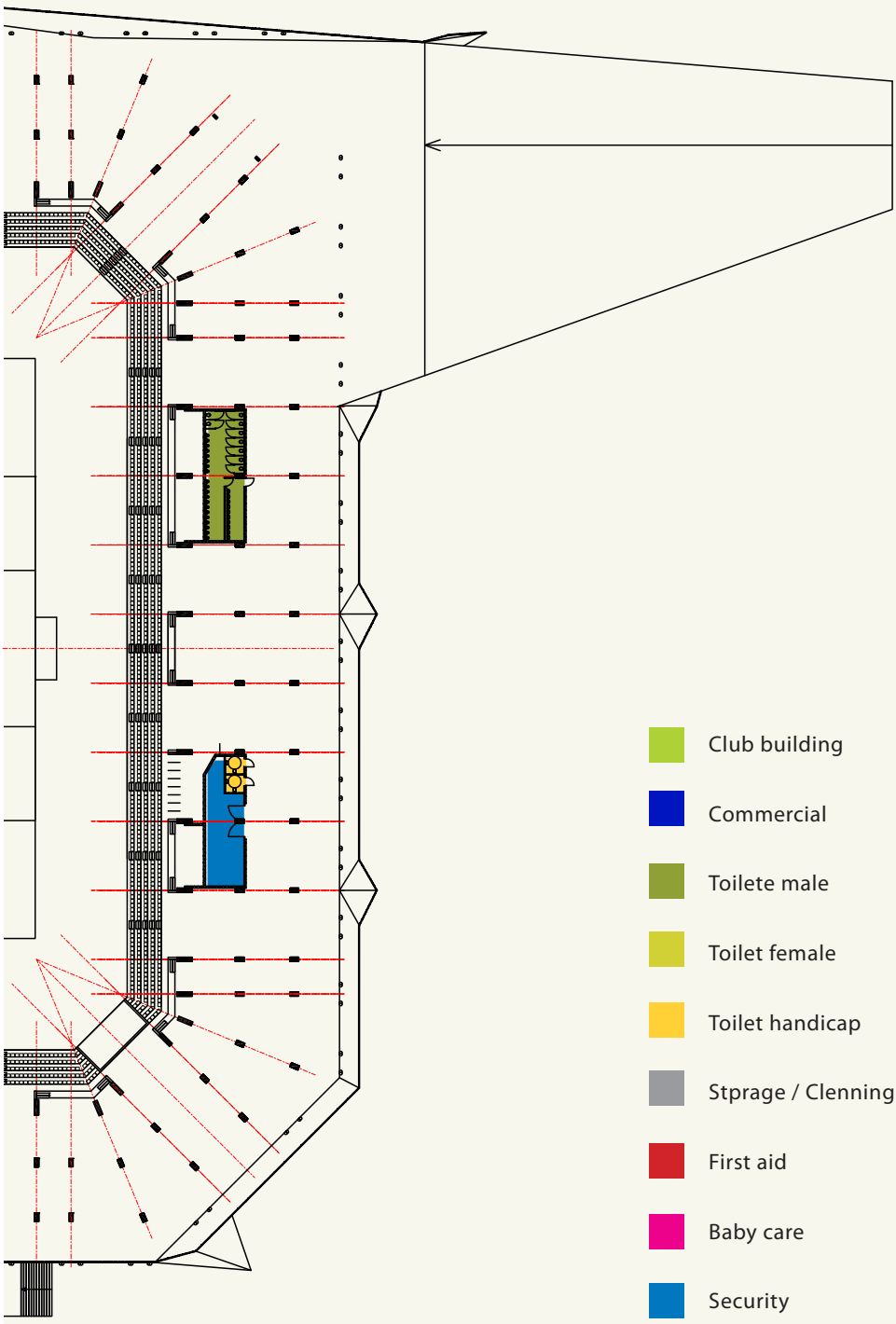


Club building

Stadium control, Security

Stadium - level 1





Club building

Commercial

Toilete male

Toilet female

Toilet handicap

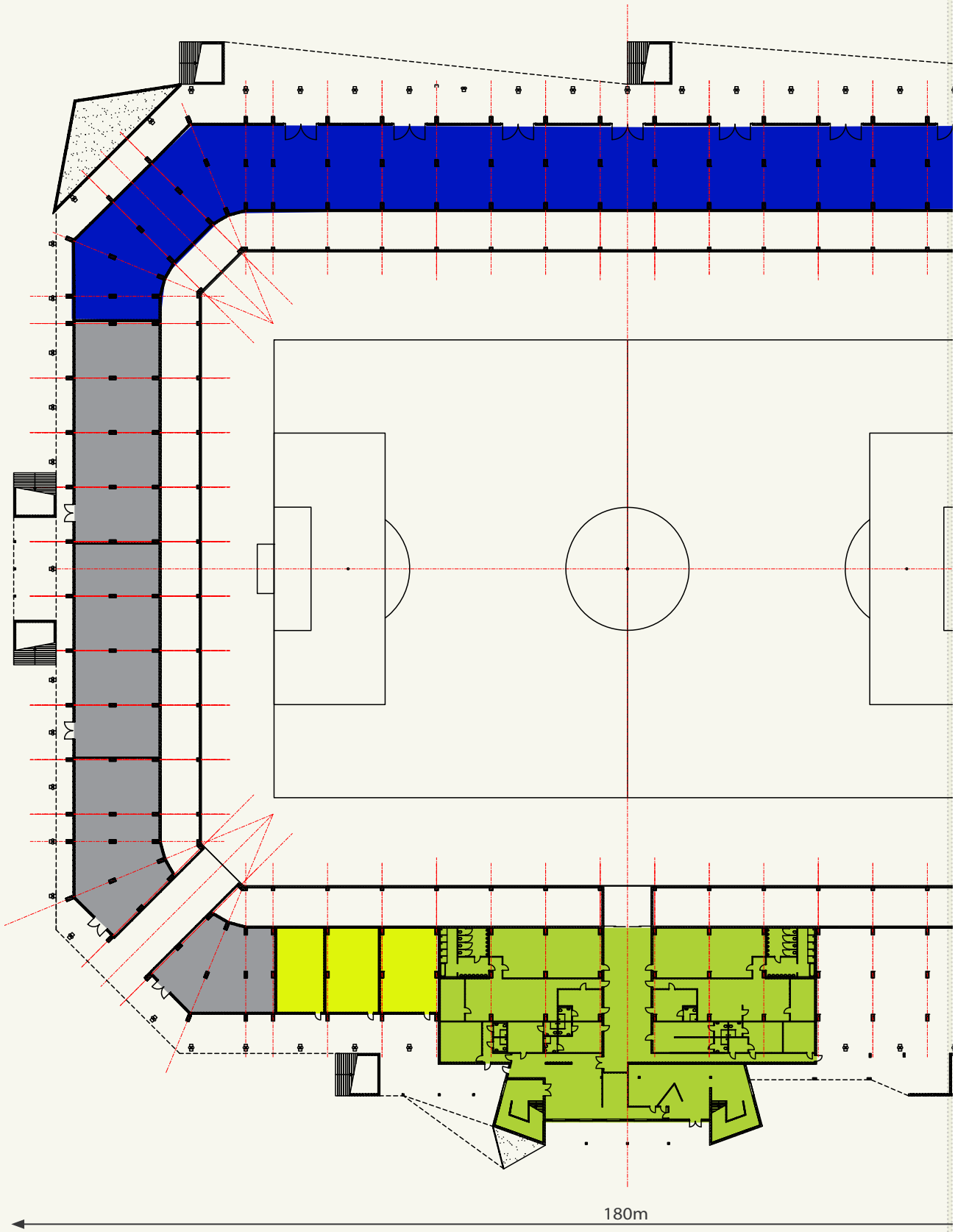
Stprage / Clenning / Other

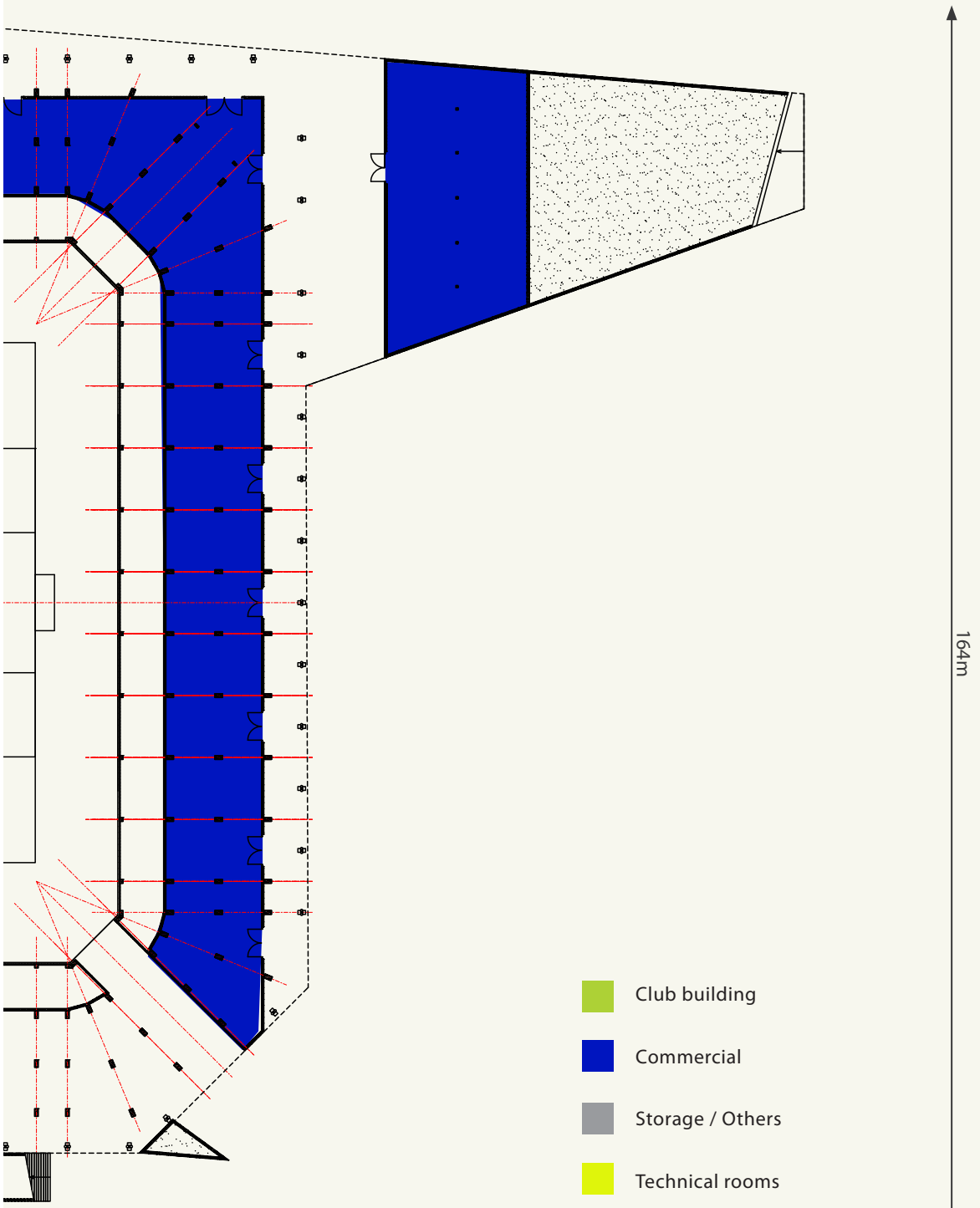
First aid

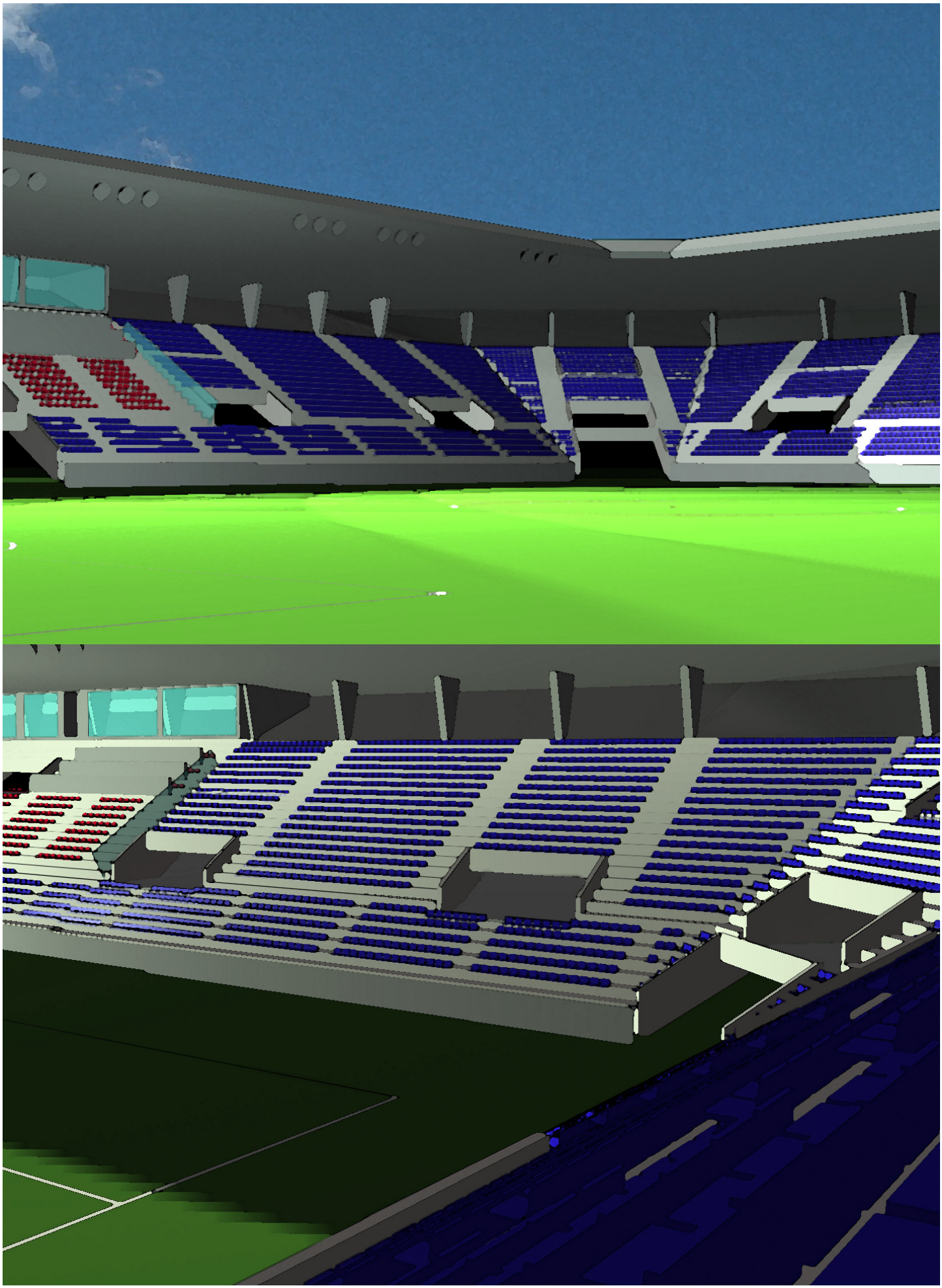
Baby care

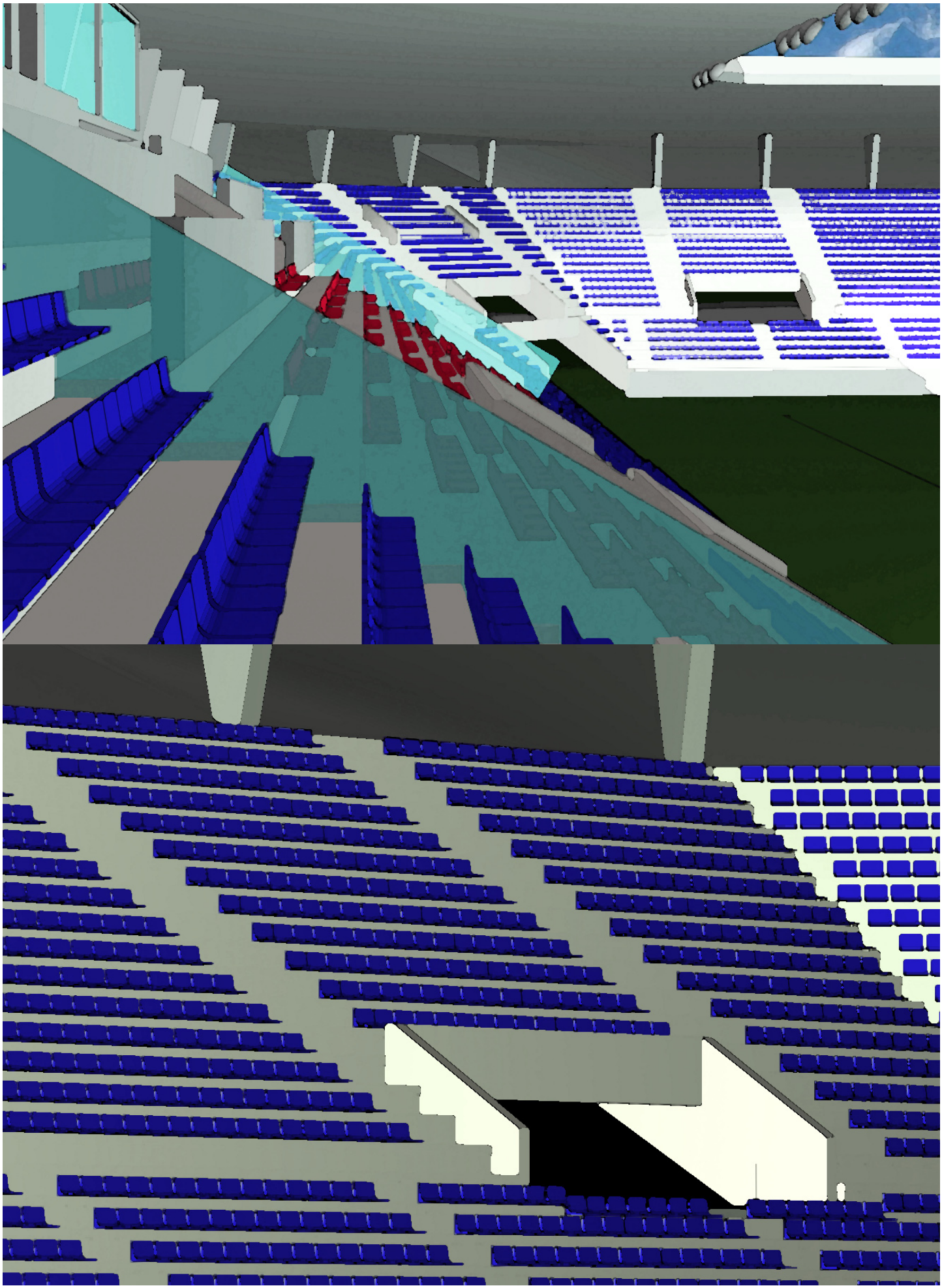
Security

Stadium - level 0

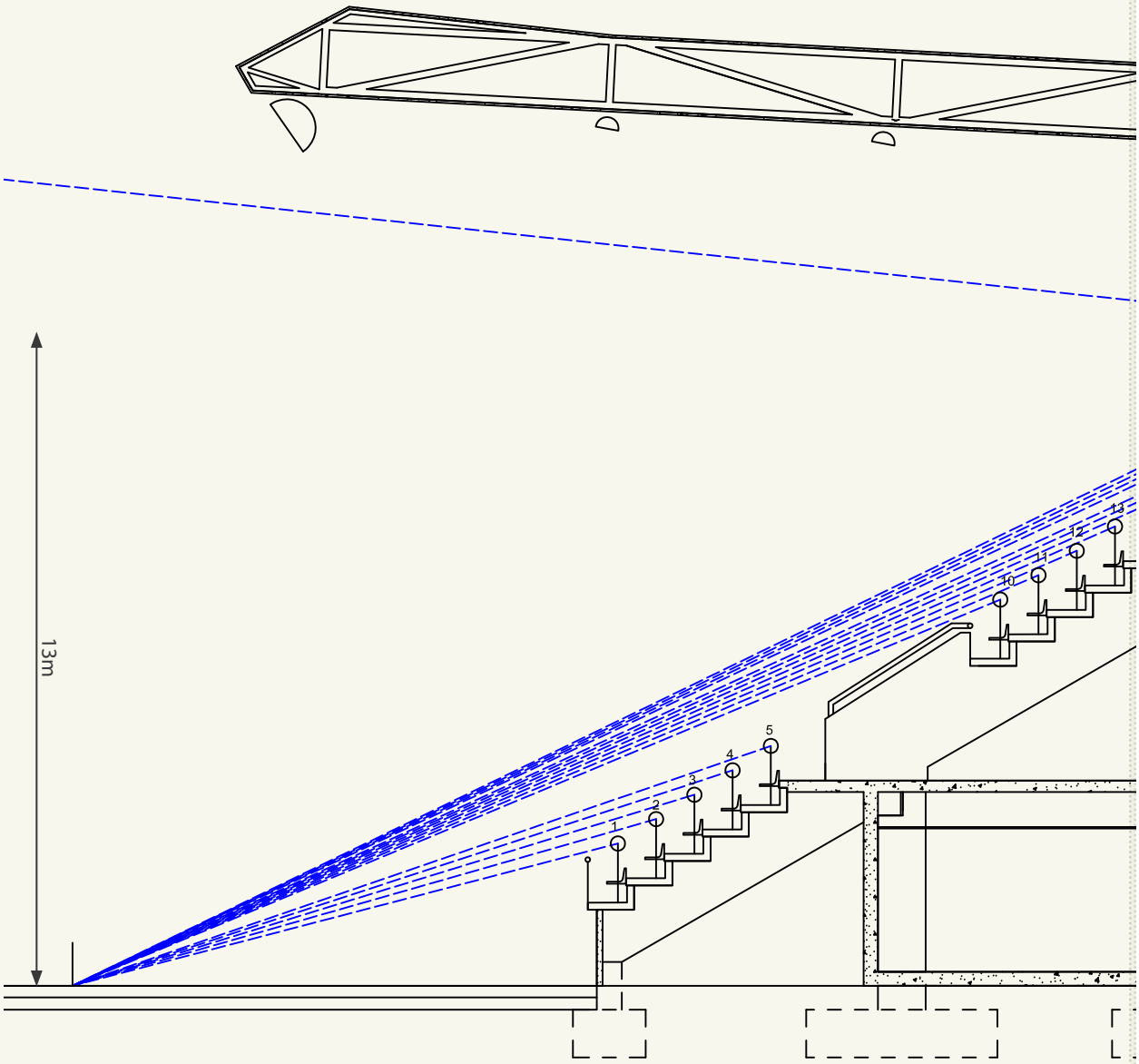


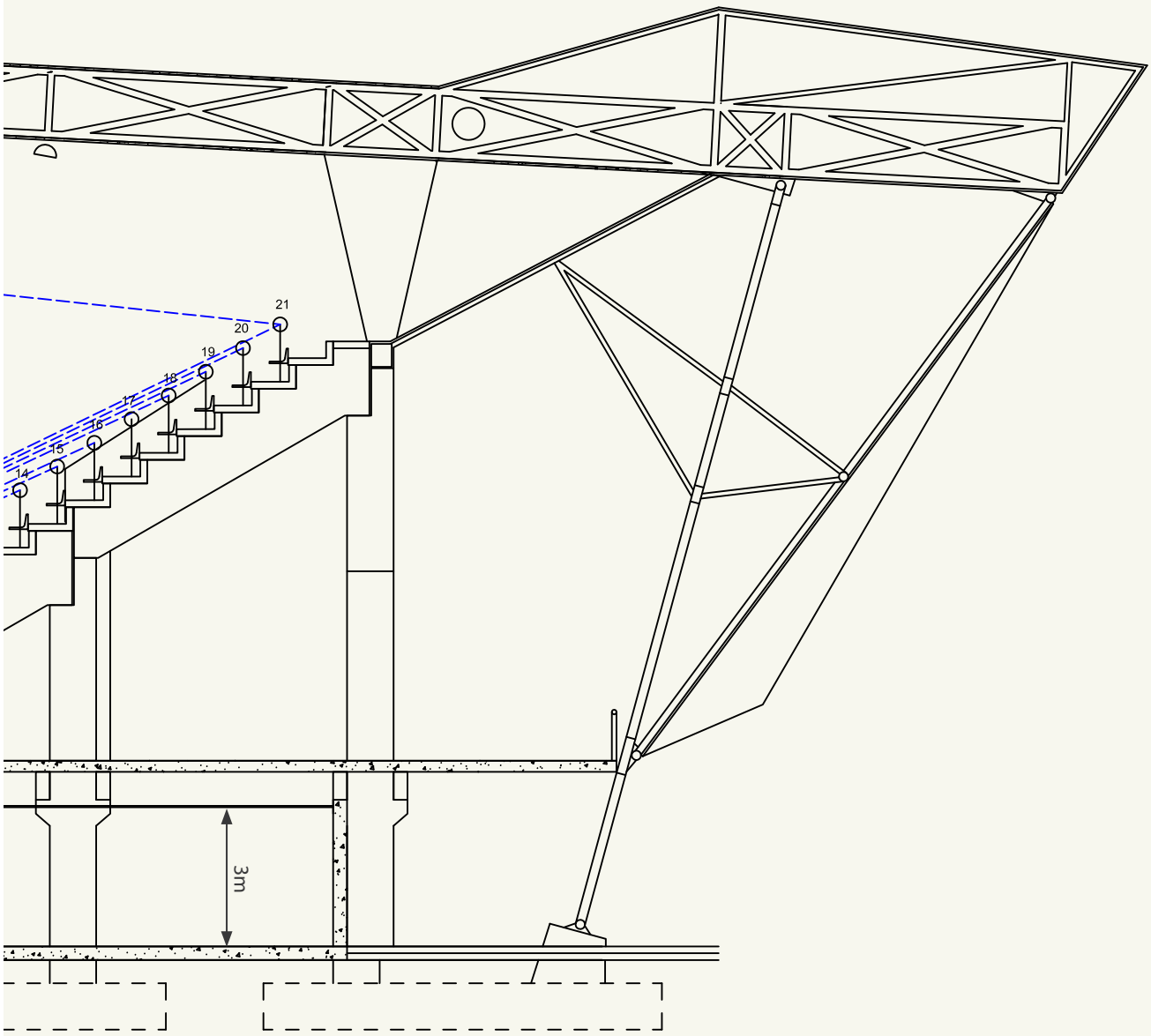

164m
Club building
Commercial
Storage / Others
Technical rooms



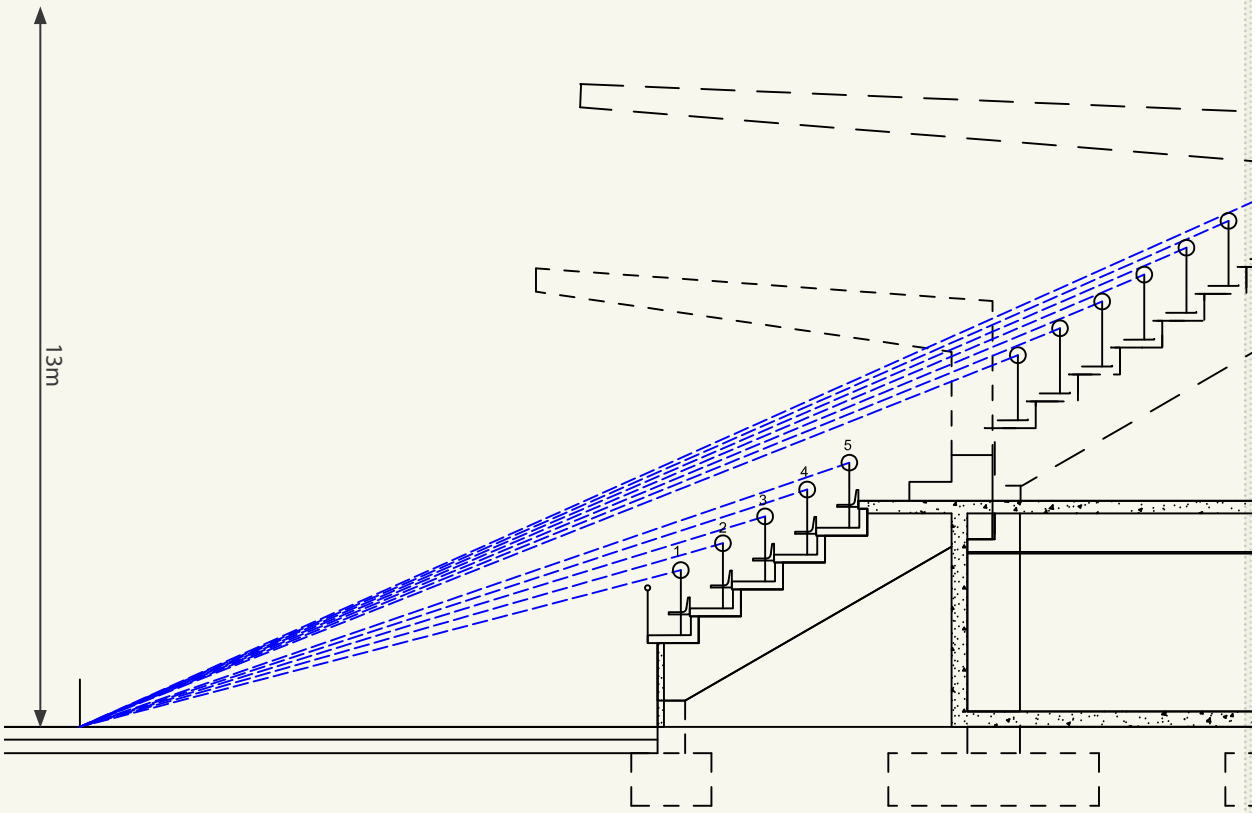


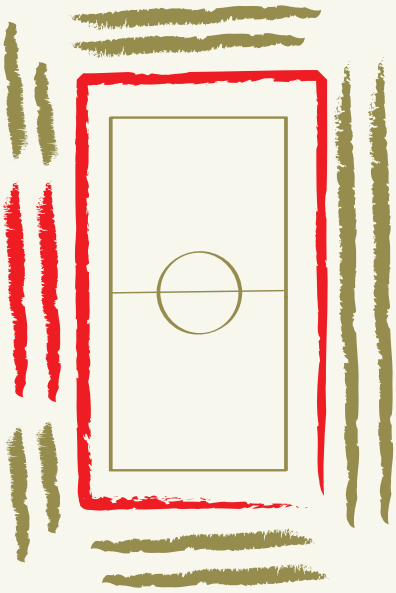
Section - Stand




21
20
19
18
17
16
15
14
3m

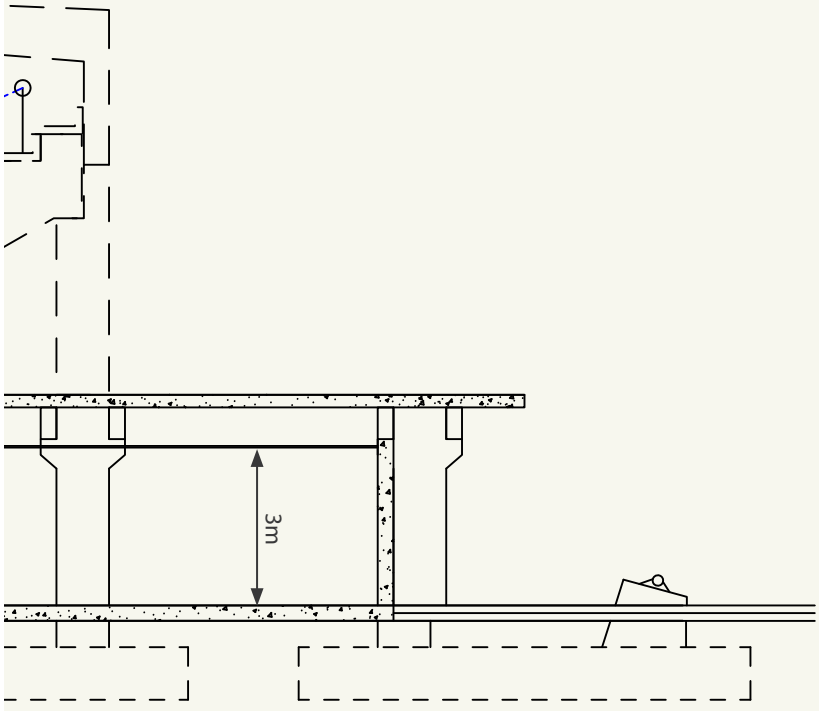
Flexibility of construction





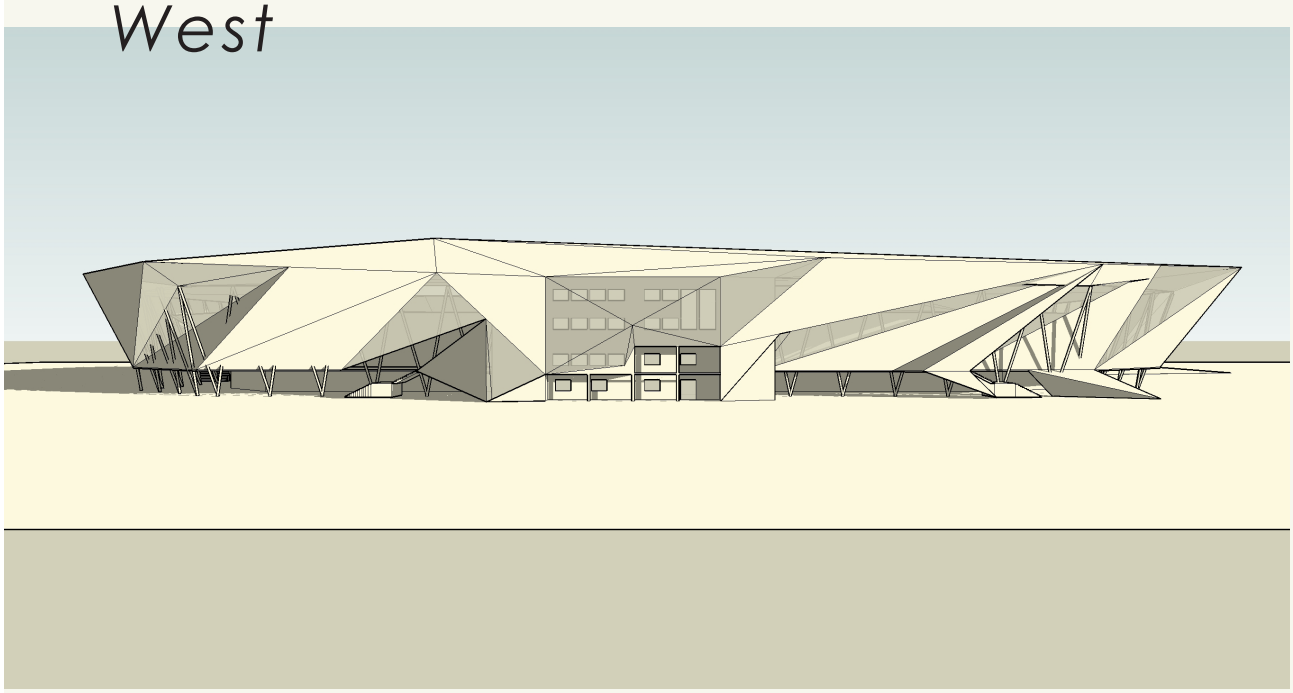
Stadium was design that it can be constructed in stages.

Basic stage includes low level of stands and tribune of honor with club building. Site stands can be build later with schedule according user needs and finance condition.

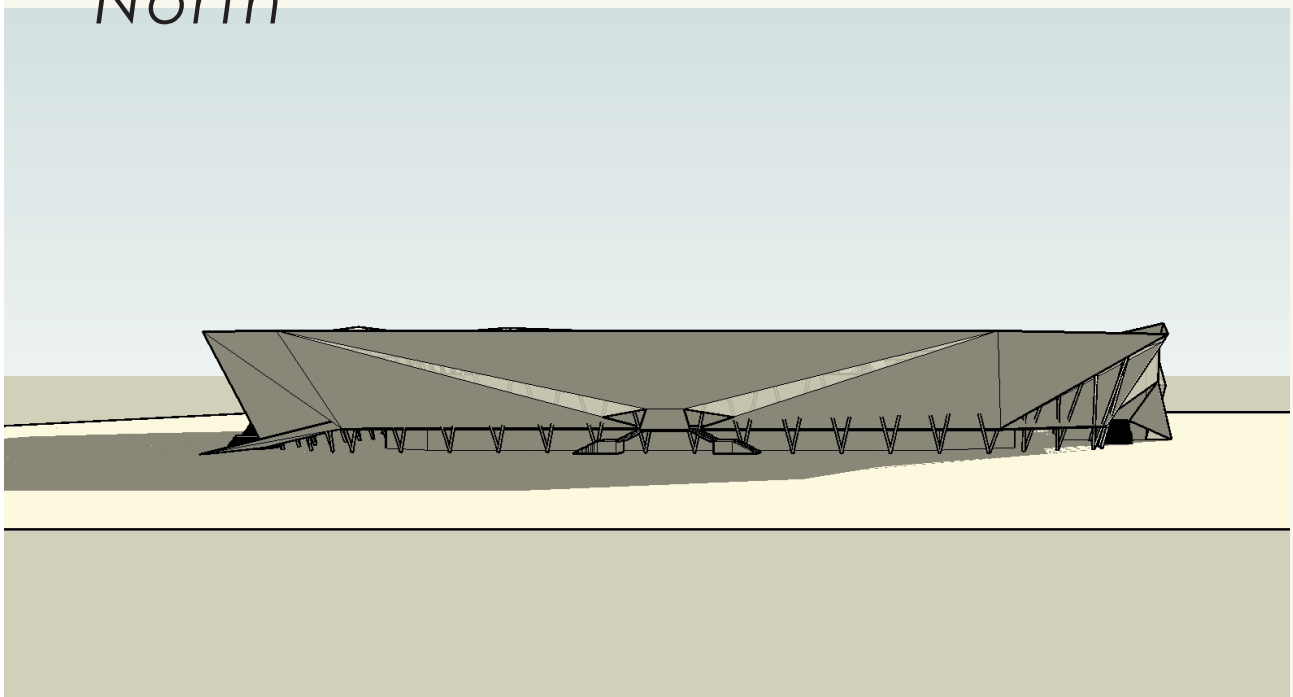


Elevations

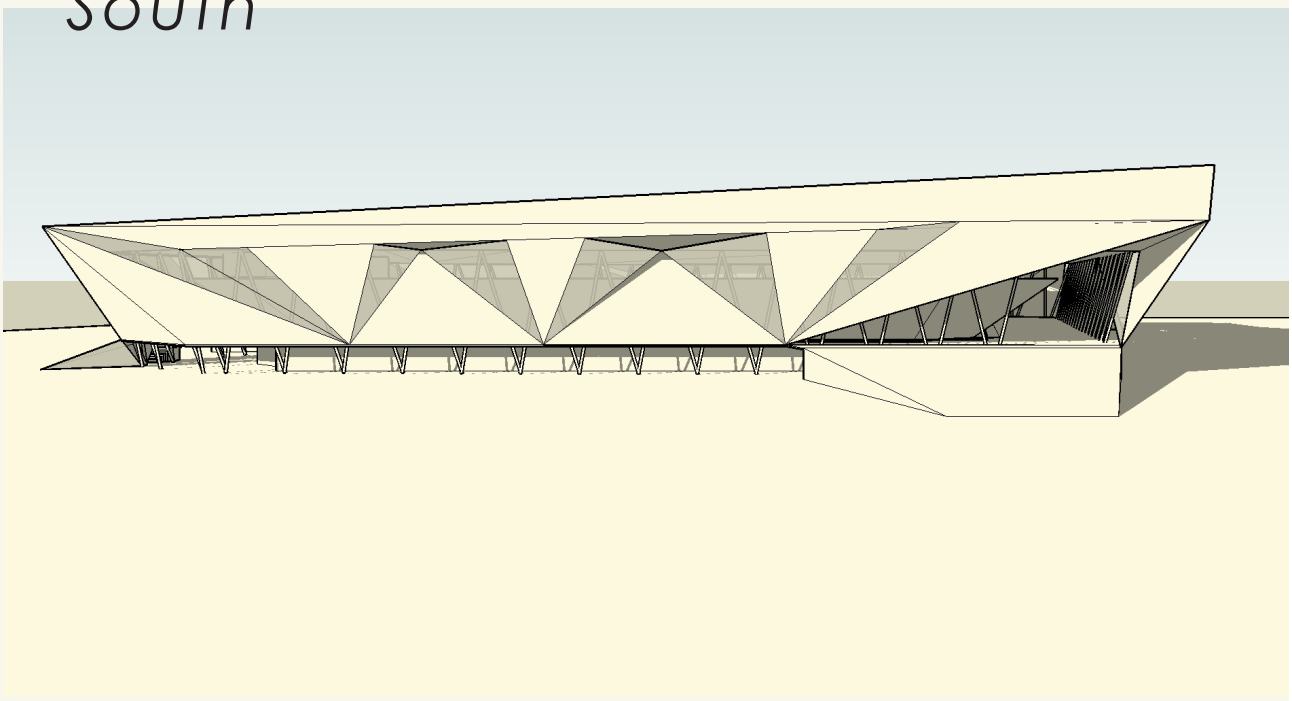
West



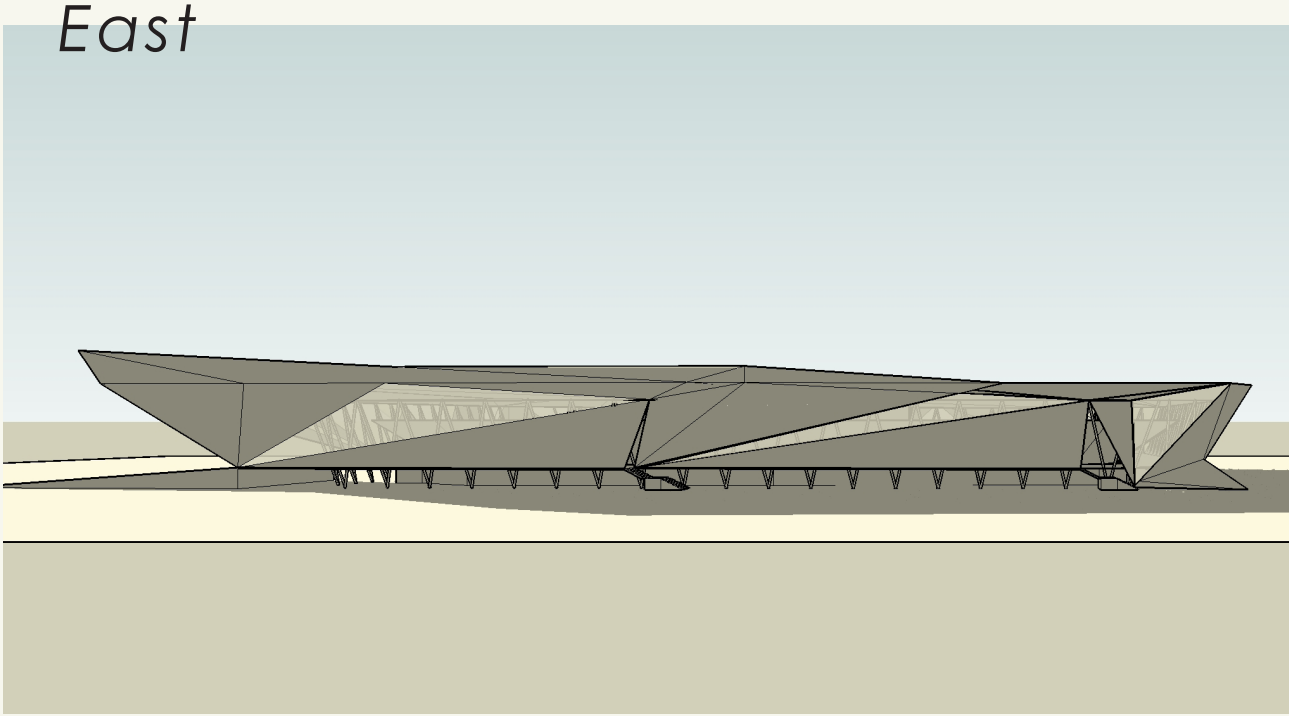
North



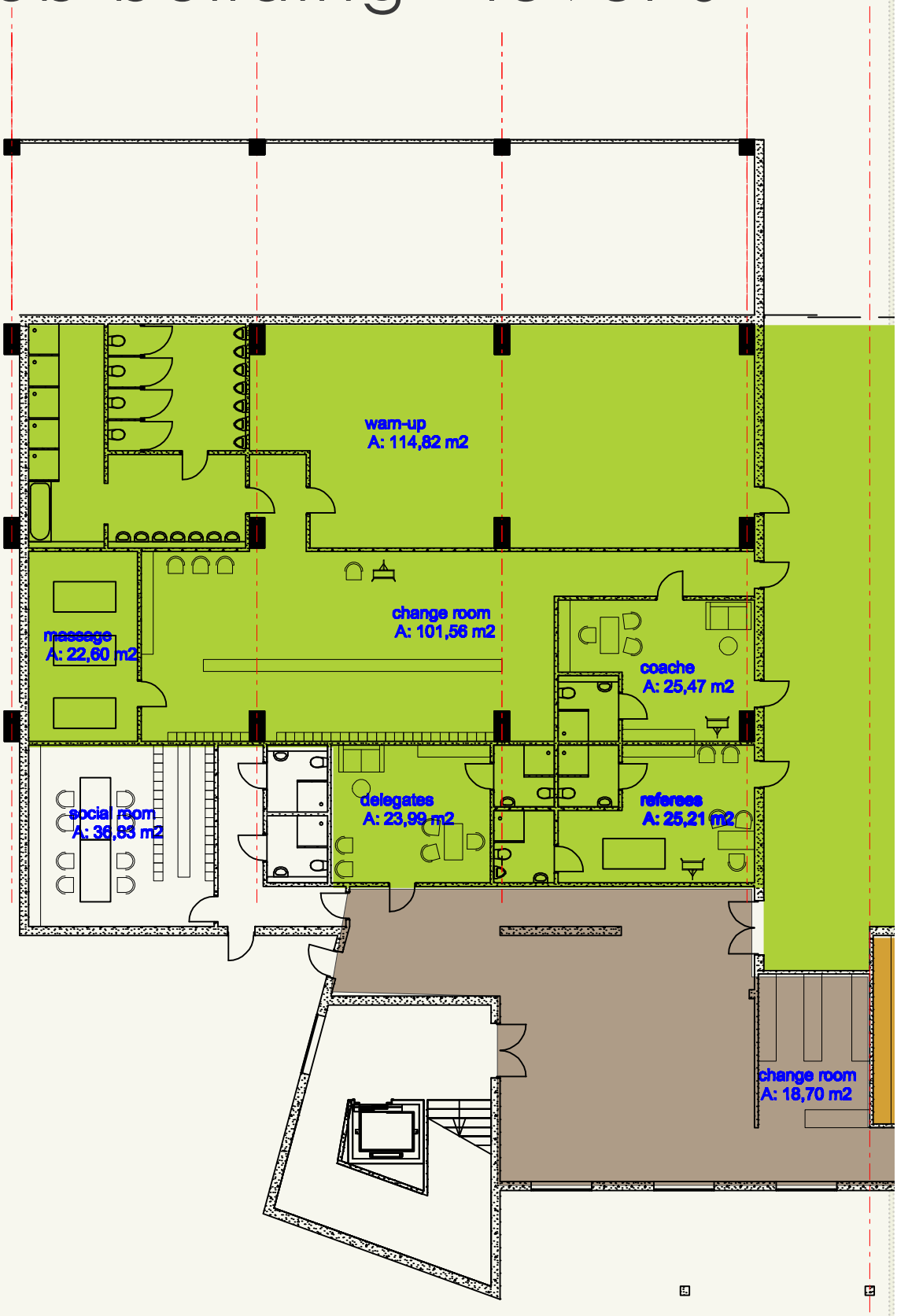
South

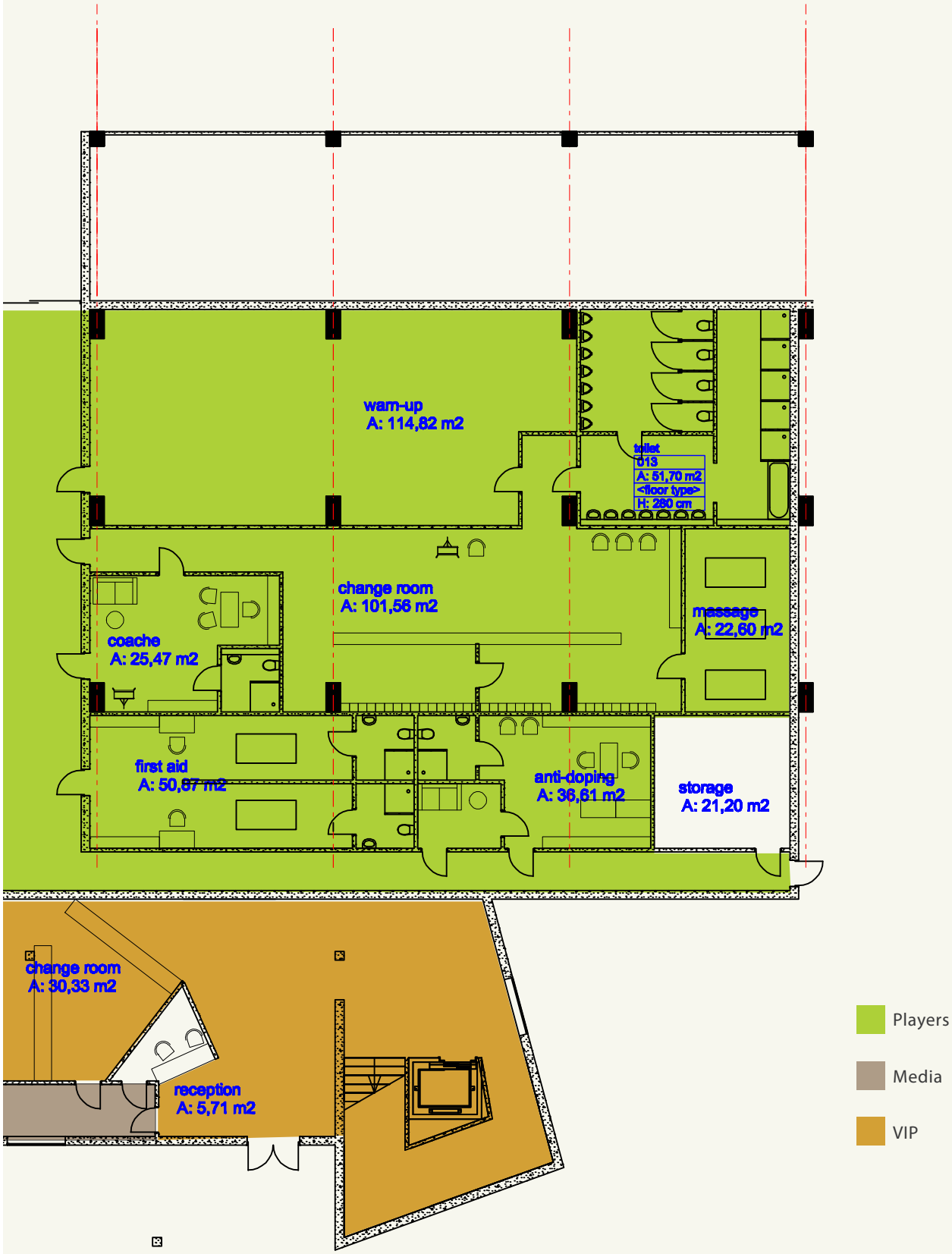


East

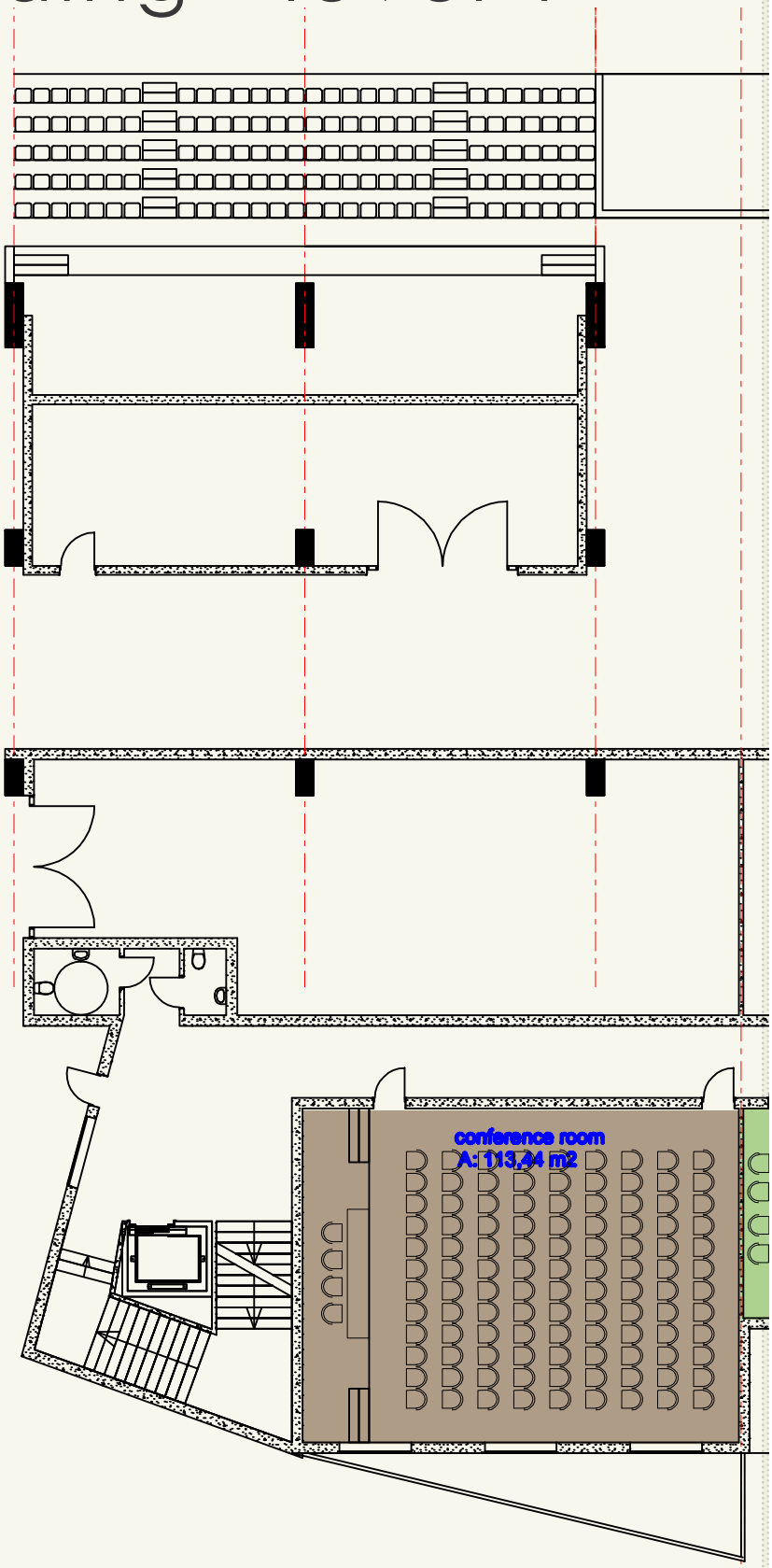


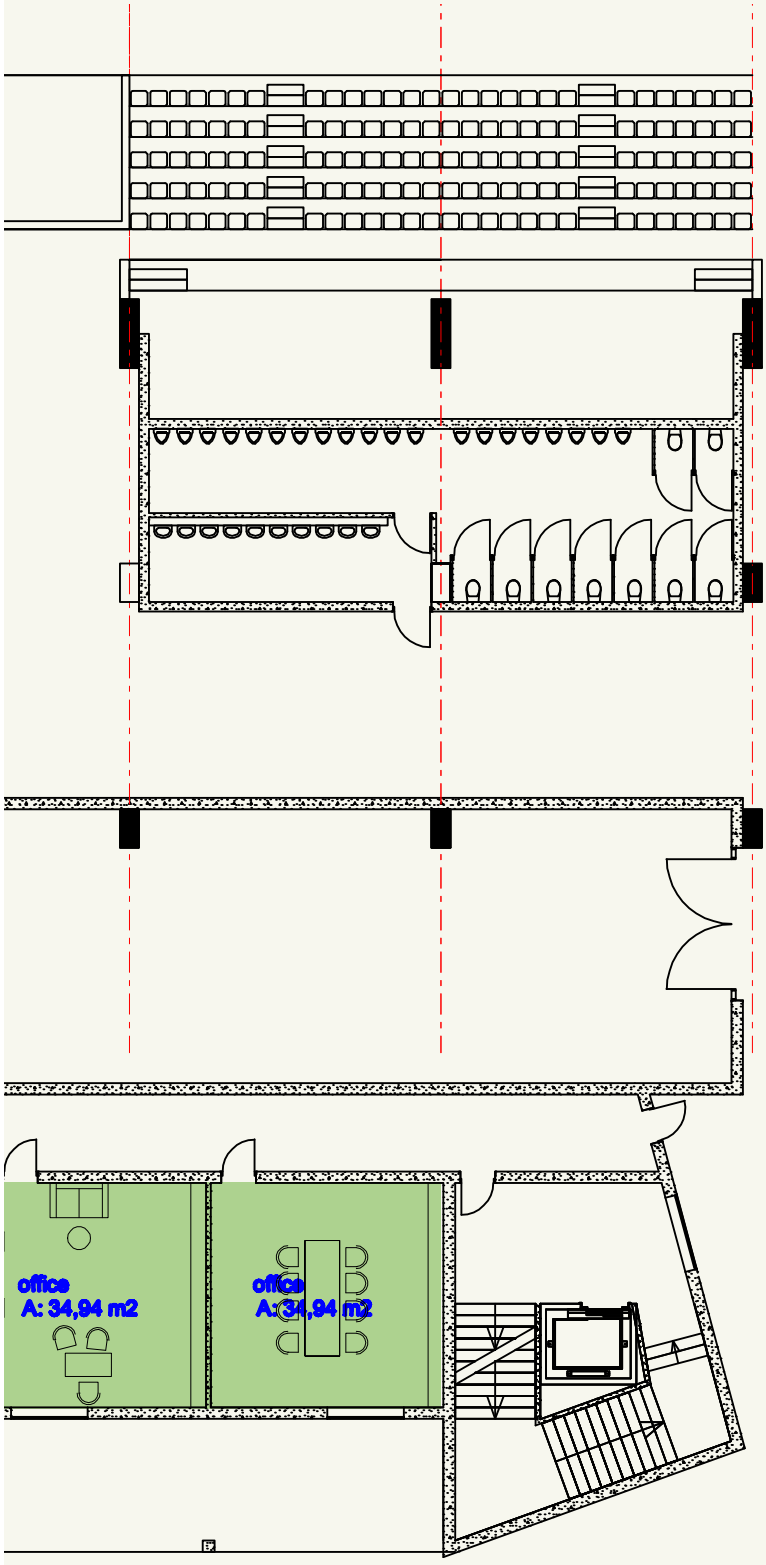
Club building - level 0




warm-up
A: 114,82 m2
toilet
013
A: 51,70 m2
<floor type>
H: 260 cm
change room
A: 101,56 m2
massage
A: 22,60 m2
coache
A: 25,47 m2
first aid
A: 50,87 m2
anti-doping
A: 36,61 m2
storage
A: 21,20 m2
change room
A: 30,33 m2
reception
A: 5,71 m2
Players
Media
VIP

Club building - level 1

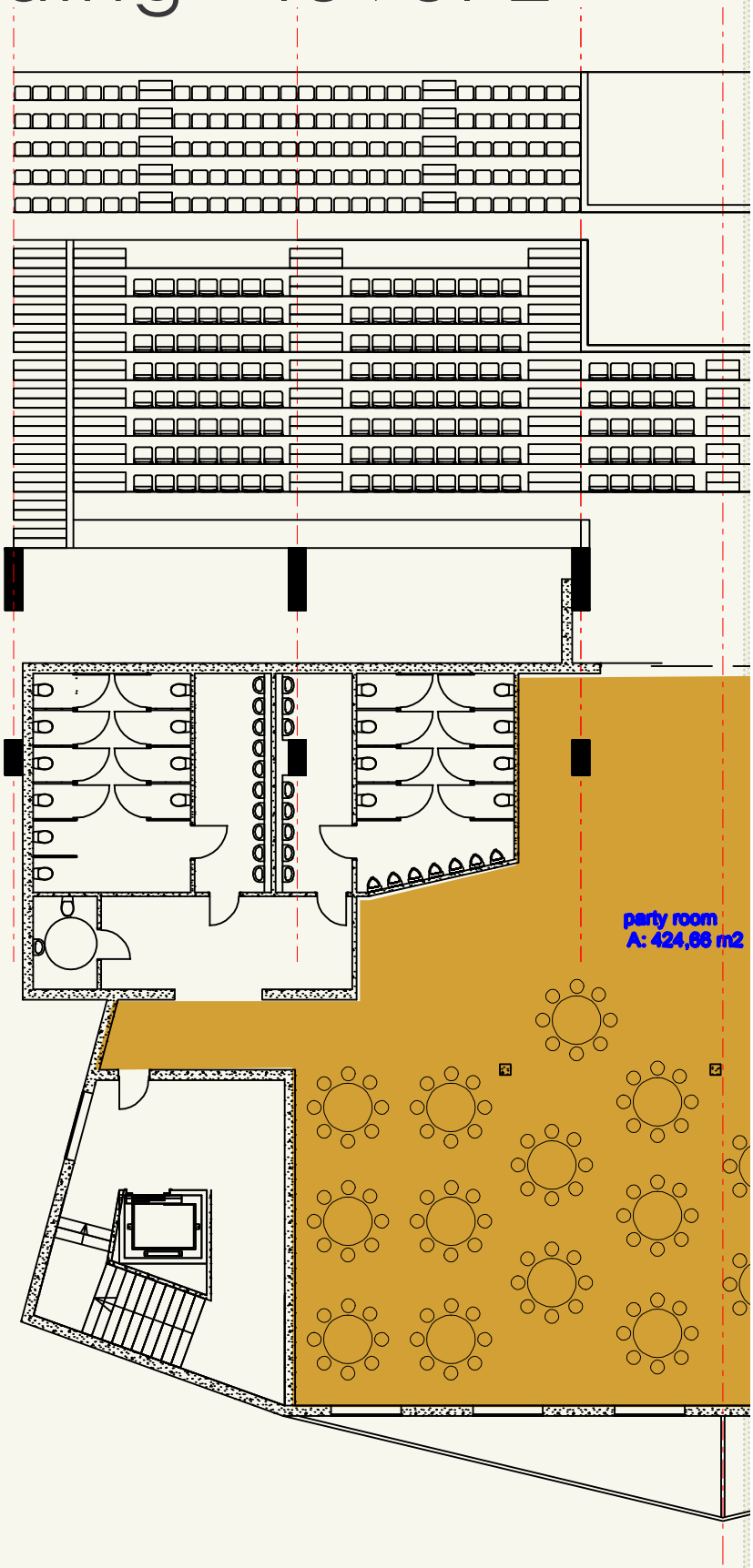


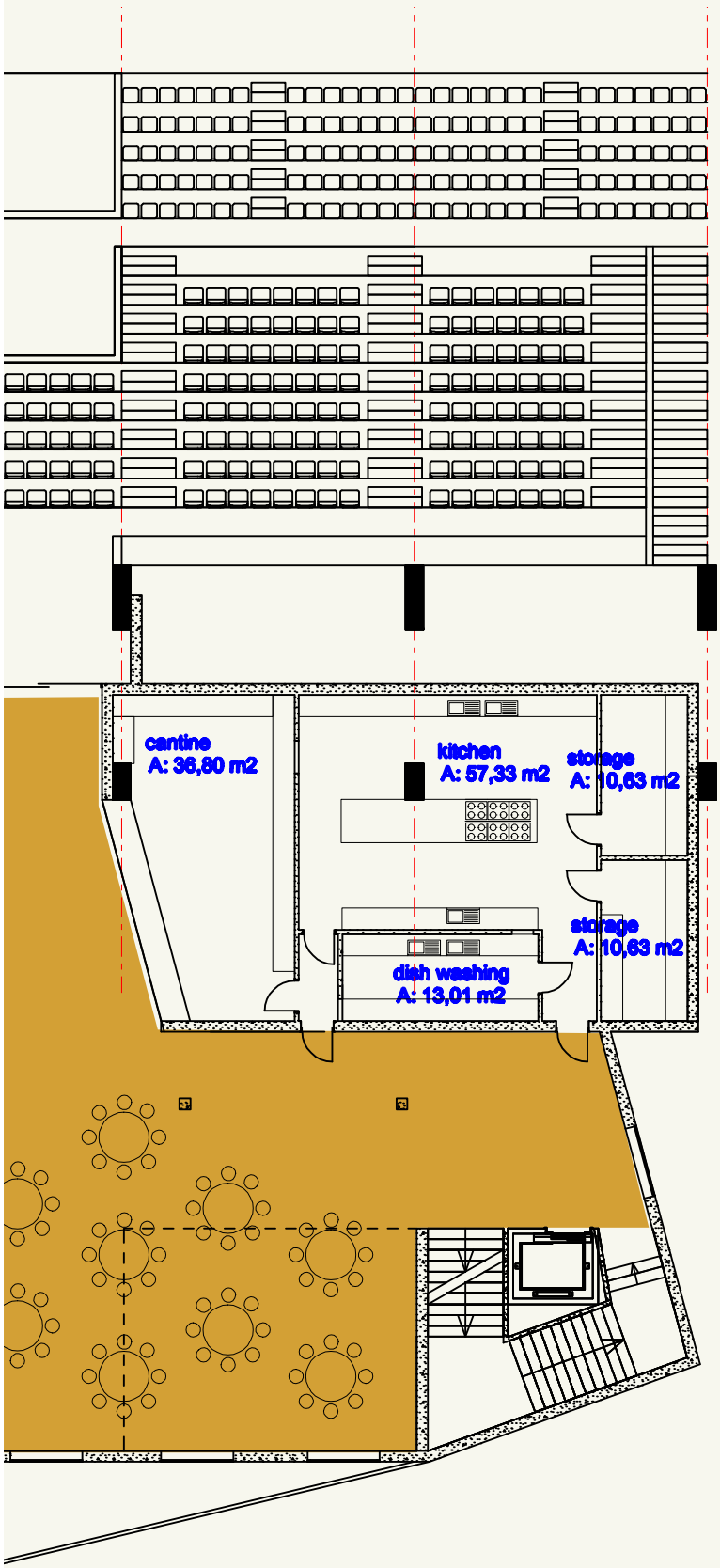


Media

Offices

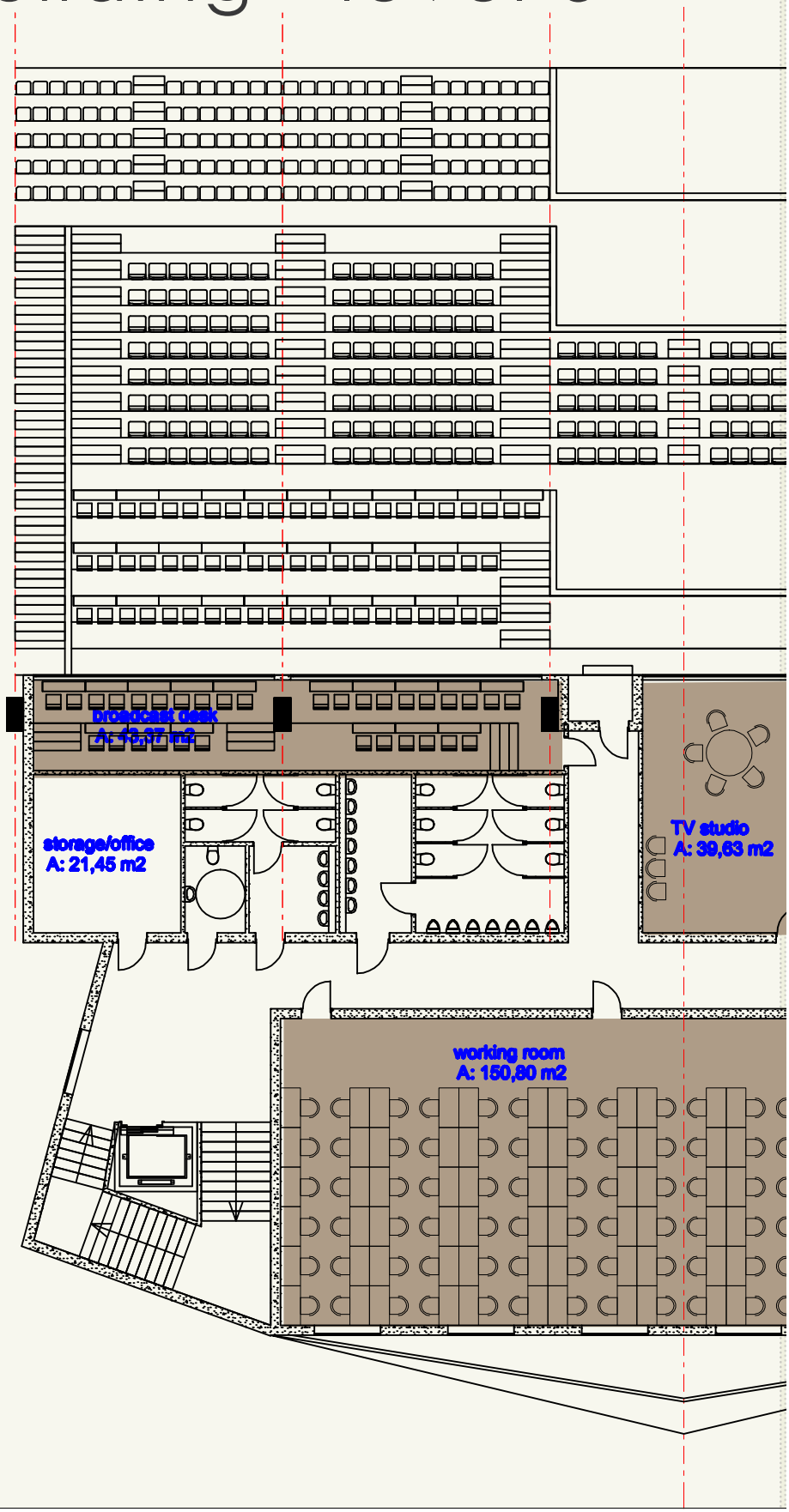
Club building - level 2

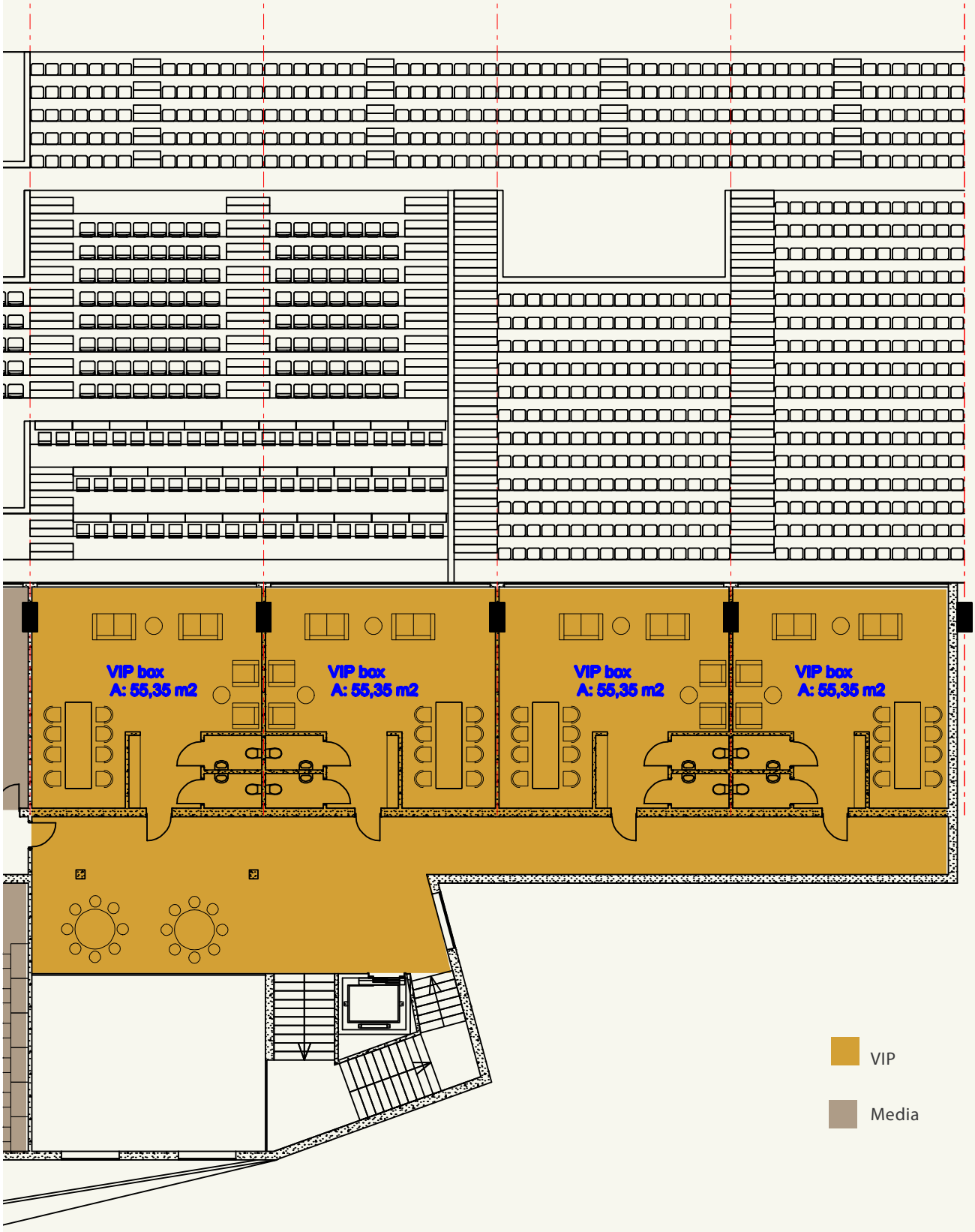



cantine
A: 36,80 m2
kitchen
A: 57,33 m2
storage
A: 10,63 m2
storage
A: 10,63 m2
dish washing
A: 13,01 m2

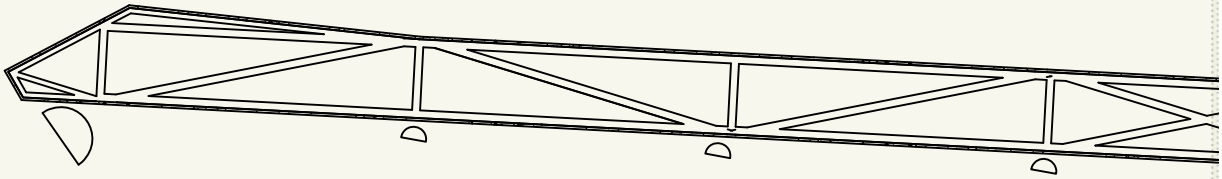
VIP

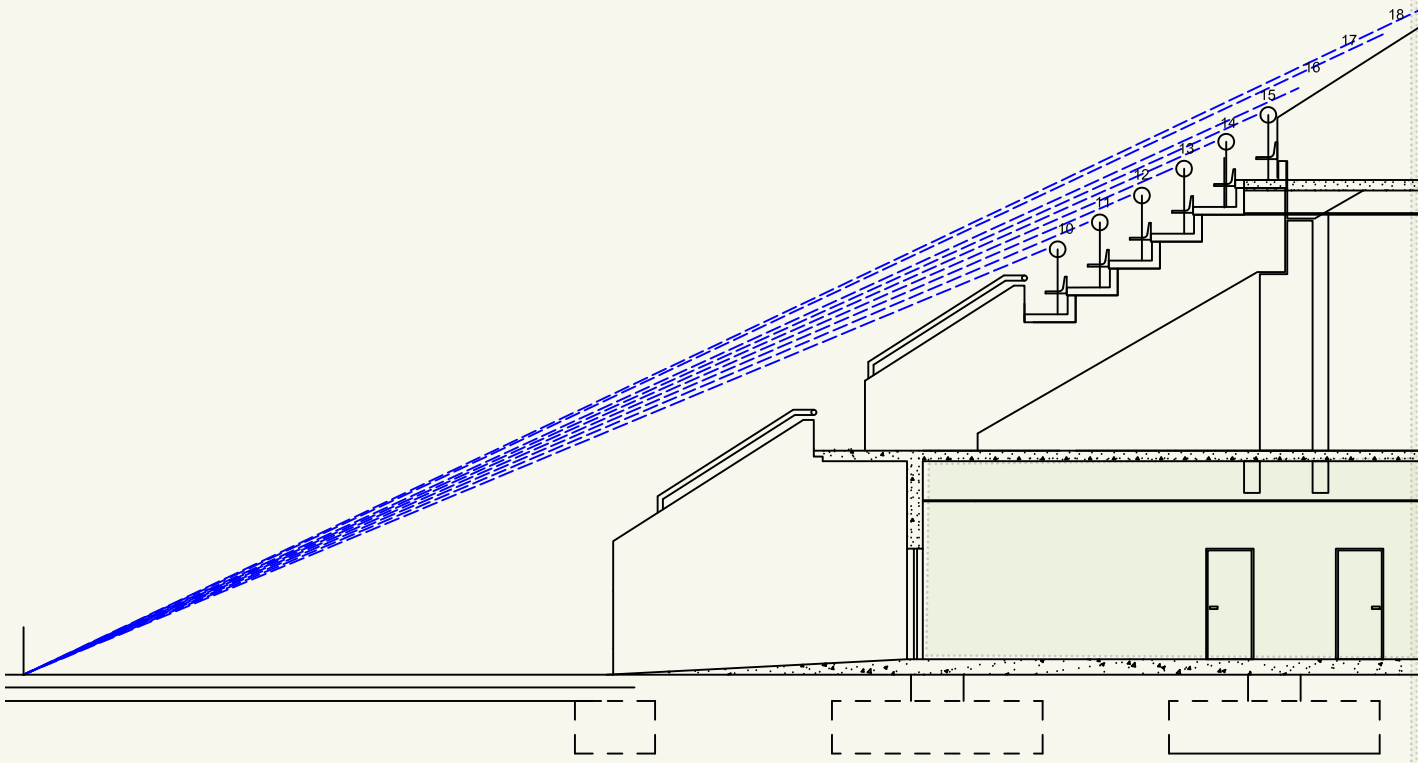
Club building - level 3

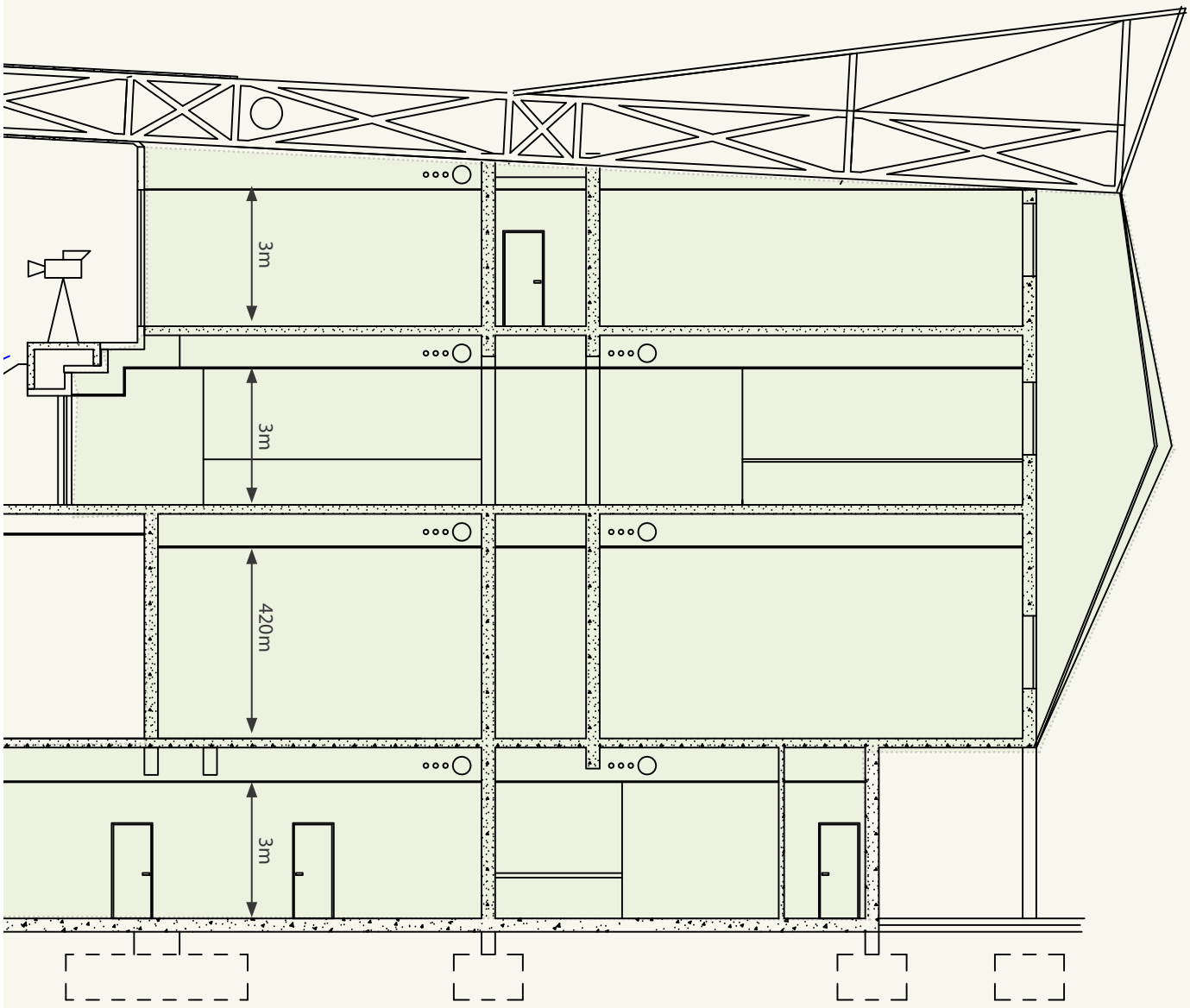



VIP box
A: 55,35 m2
VIP box
A: 55,35 m2
VIP box
A: 55,35 m2
VIP box
A: 55,35 m2
VIP
Media

Section - Club building

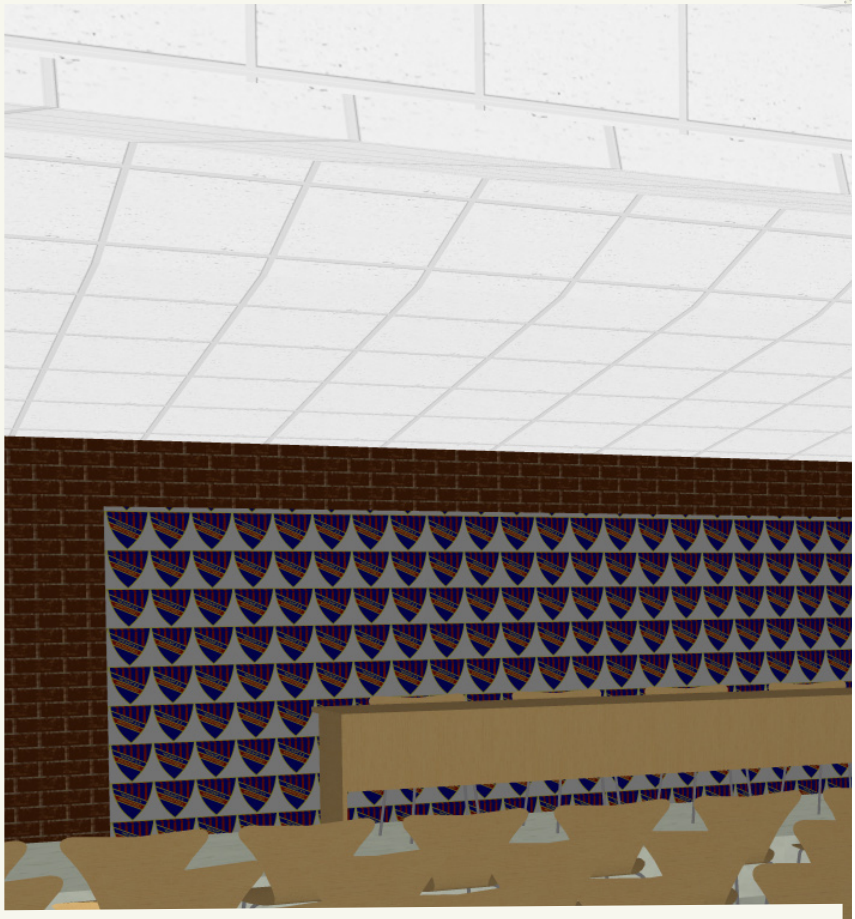




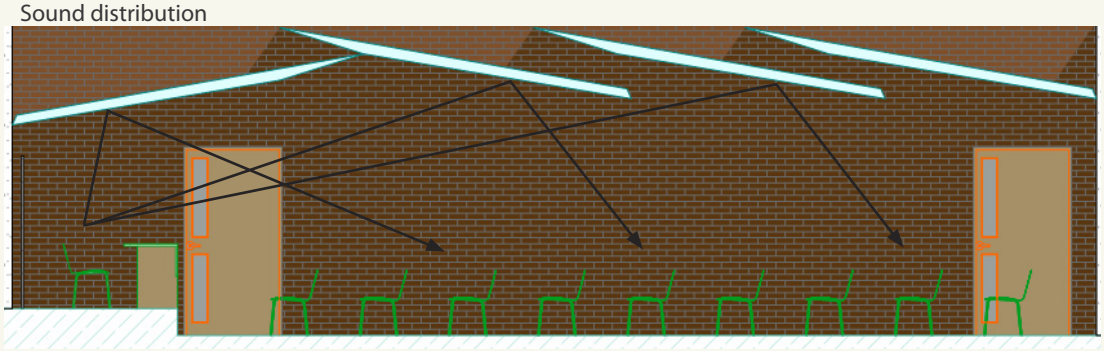

3m
3m
420m
3m

VIP BOX

CONFERENCE ROOM



Sound distribution



Site

"Iron Passage" - To the train station.

Possibility of sport hall.

Training fields

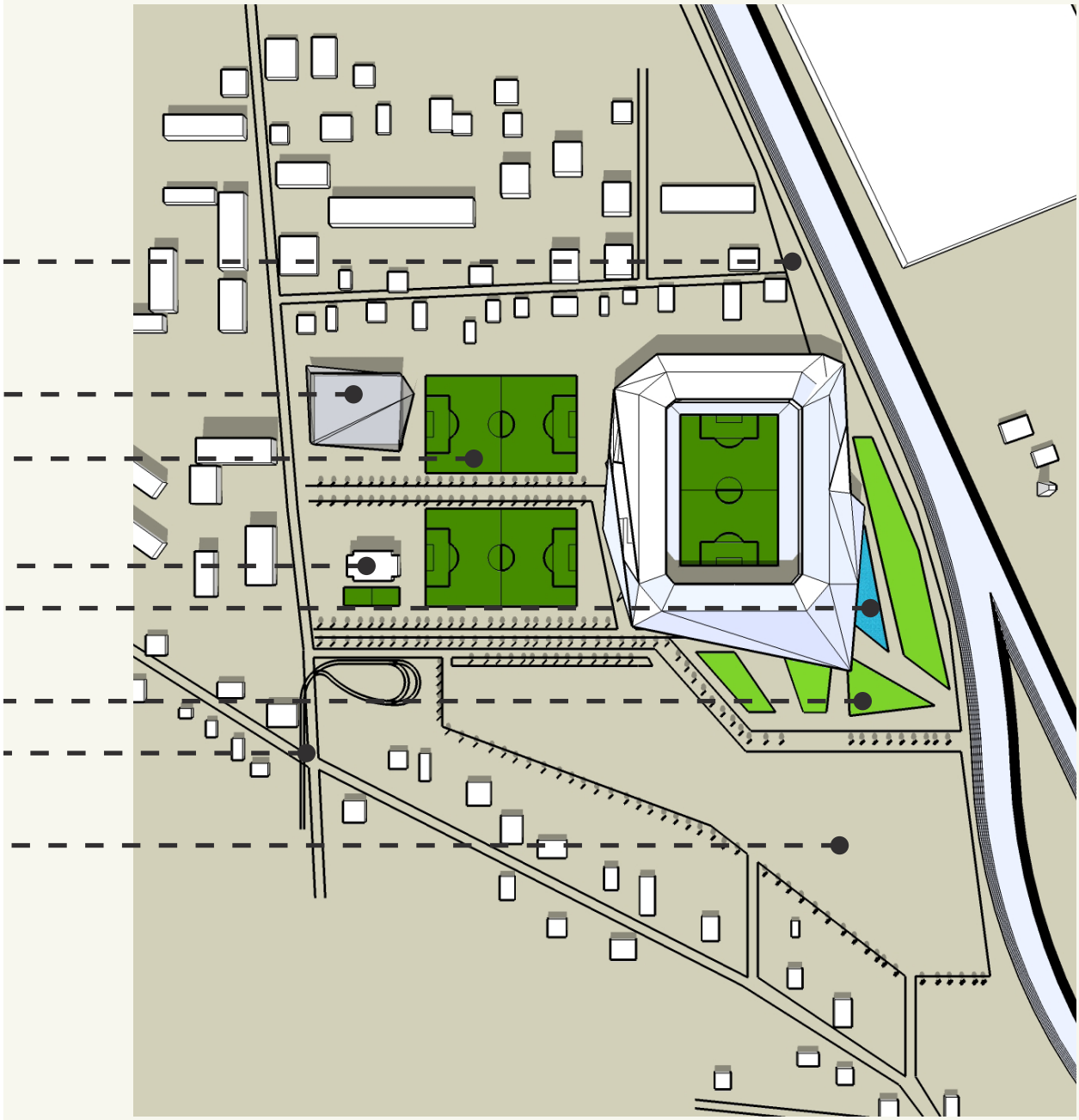
Existing club building.

Rain water basin as part of site arrangement.

New public spaces for fans and citizen.

New tram line –perfect public transport.

Parking space – design not as concrete field but multifunctional zone for many events and activities.



That Stadium.

It's not only stadium.

It's new life.

For the District.

And the City.


City centrum
Shoping
Shoping
Inter-district
Stadium Raków
Train Station
Archaelogical Reserve
Sanctuary of St. Jospeph
Youth Cultural Centre


Shoping / Caffe
Communication
Prehistoric
Work
Recreation
History
History
Recreation
Sport

Wastelands next to the rail line now became attractive park space for the fans and citizens.

Axis inspired by urban traditions of Częstochowa.

Perfect access to the Stadium.

Relaxing zone.

Change that

into...

IL.006

tradition

IL.007, 1973

and modernity

IL.008 PARC DE LA VILLETTE, Paris

City overview

Częstochowa is a city in south Poland on the Warta River. It has been situated in the Silesian Voivodeship (administrative division) since 1999, and was previously the capital of Częstochowa Voivodeship (1975-1998). However, Czestochowa historically is part of Lesser Poland not Silesia.

The name of Częstochowa means Częstoch's place and comes from a personal name of Częstoch mentioned in the mediaeval documents also as Częstobor and Częstomir. The original name was mentioned as Częstochowa, spelled Czanstochowa in 1220, or Częstochow in 1382 and 1558. A part of today's city called Częstochówka was a separate municipality mentioned in 14th century as the Old Częstochowa (Antiquo Czanstochowa, 1382) and Częstochówka in 1470-80. Częstochowa means: "często - often", "chowa - hiding (from chować - to hide)"

Częstochowa - the city known all over the world due to the presence of the Holy Virgin Mary embodied in the icon of the Black Madonna in the Monastery of the Pauline Fathers. Down through the ages Częstochowa has become one of the main pilgrimage centres of the world. For the first time ever Częstochowa was mentioned in the year 1220. In the 14th century the town was granted its foundation charter, according to the German law by King Casimir the Great, and then the town developed into an important trade centre on the route from Russia and Wallachia to Lower Silesia and Saxony. The next significant stage in the development of Częstochowa was initiated when the town was granted the privilege to excavate and smelt iron ore. The advantageous location on the Warta River and the proximity of the Monastery undoubtedly encouraged the town development. Soon another settlement began to expand, this time around the Monastery and that settlement was granted municipal rights in 1717.

The two towns became officially joined in 1826. It was then that the Holy Virgin Mary Avenue got erected and became an axis around which new houses as well as shops were built. Tree squares were designes in the Old City

in front of the church of St. Sigismund - New Market (nowadays: Daszyński Square), in the middle of the road in the direction of Jasna Gora - square St. James (with new city hall, Biegański Square), the monastery - Jasnogórski market. Closed down embankments and earthen fortifications at the foot of the monastery was founded urban parks. The most intensive development of the town took place at the time of the Industrial Revolution. The town had access to water intakes and was situated on the Warsaw Vienna Railway, hence textile factories and steelworks were built here and haberdashery and chemical industries began to thrive. Following earlier traditions, Częstochowa craftsmen manufactured goods from coloured metals, and also glass and ceramic articles were manufactured. At the end of the 19th century Częstochowa was one of the most developed industrial centers and the fourth biggest town in the Kingdom of Poland as regards its inhabitants. The significance of the city was accencuated during the Exhibition of Industry and Agriculture held in 1909. The exhibition itself was a comprehensive survey of Polish cultural and technological capabilities, the national demonstration of Polish cultural and technological possibilities as well as production potential.

The city is now a big centre with a well-developed infrastructure and a strong social and economic potential. As an important academic centre with its nine higher profile schools with over 40.000 students, the city is a centre of culture based on tradition. Częstochowa, the city open for the world from the very beginning, was the first town in Poland to be granted the Prix de'l Europe award by the Council of Europe. The award gave a special splendor to the City and its inhabitants.


IL.011

Jasna Góra

The Jasna Góra Sanctuary (Polish: Jasna Góra, English: Bright Mount, Hungarian: Fényes Hegy, Latin: Clarus Mons), situated on a plain, its belltower dominating the city of Czestochowa, is visible form tens of kilometers away. It occupies an area of five hectares. A park surrounds the monastery on three sides while the fourth opens onto a large square for crowds of pilgrims at major liturgical functions. A public park extends from the square down the valley to the city forming a natural barrier to preserve the spiritual, prayerful atmosphere of the sanctuary. The Jasna Góra complex was built over five centuries but is architecturally compact.

The Jasna Góra Monastery is the most famous shrine to the Virgin Mary in Poland and the country's greatest place of pilgrimage - for many its spiritual capital. The image of Black Madonna of Częstochowa, to which miraculous powers are attributed, is Jasna Góra's most precious treasure. Founded in 1382 by Pauline monks who came from Hungary at the invitation of Władysław, Duke of Opole. The monastery has been a pilgrimage destination for hundreds of years, and it contains the most important icon of the Virgin Mary in this part of Europe. The icon, depicting the Mother of God with the Christ Child, is known as the Black Madonna of Częstochowa or Our Lady of Częstochowa, which is widely venerated and credited with many miracles.

Holy Virgin Mary Avenes

Holy Virgin Mary Avenues is the main street of city. They have a length of 1,7km and width and 44 meters. After the two sides are roads and pavements, and the center, between rows of trees, runs for the third roadway to pedestrians.
Avenue was the link between the Old and New Częstochowa. They were designed by engineer John Bernhard in 1819.
They performs the functions of commerce, services, financial and cultural. Dominate Clasical and Late-clasical houses, less Eclectic, some modern buildings.

Although it is one street citizen as usual, from the U.S., divide it into three "avenues": (although the numbering of houses is a constant):
"First Avenue" – Daszyński Square to the railway viaduct,
"Second Avenue" - this from the viaduct to the Biegański Square,
"Third Avenue" - from the Biegański Square to the Parks, where the avenue of Henryk Sienkiewicz starts.

Henryk Sienkiewicz Avenue is approximately 700 meters in length. This is the final section of pilgrimage route leading directly to the film before the monastery. It divide parks into 3rd May Park and Staszic Park.

Ill.014 Panorama from JG tower

Geology

The Polish Jura Chain, also known as the Polish Jurassic Highland or Kraków-Częstochowa Jurassic Highland Chain (Polish: Jura Krakowsko-Częstochowska), is part of the Jurassic System of south–central Poland, stretching between the cities of Kraków, Częstochowa and Wieluń. The Polish Jura borders the Carpathian Mountains to the south, including part of the Carpathians of the Slovak Republic and the highland of Central Poland to the north, toward the Świętokrzyskie Mountains (Polish: Góry Świętokrzyskie).

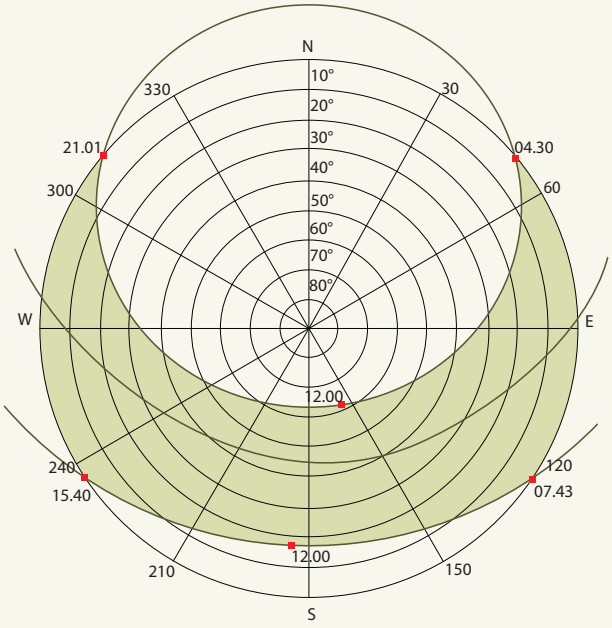
The Polish Jura Chain consists of a hilly landscape with Jurassic limestone rocks, cliffs, valleys and vast limestone formations, featuring some 220 caves. The relief of the upland developed since the Paleogene, under climatic conditions changing considerably. Its main component is a peneplain, crowned by monadnocks, rocky masses that resisted erosion, generated as hard rock on Late Jurassic buildup surrounded by less resistant bedded limestone of the same age.[The Polish Jura Chain is visited by roughly 400,000 visitors a year. Part of it belongs to the Ojców National Park, the smallest of Poland's twenty national parks, ranking among the most attractive recreational areas of the country. [wikipedia.org]

IL.15 Castle Olsztyn near Częstochowa, built with local stone

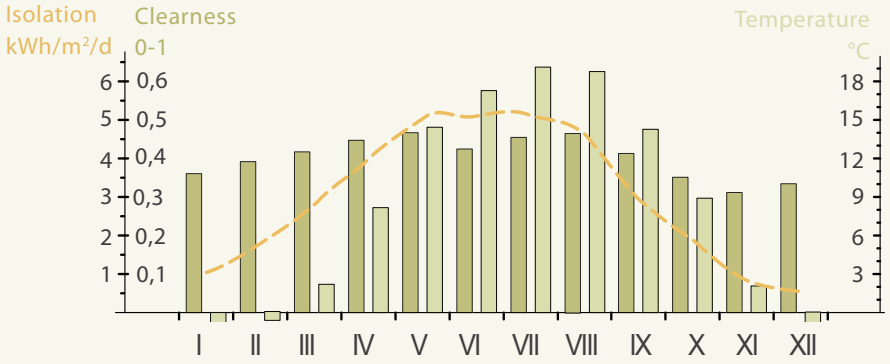
IL.16 Glove Rock

IL.17 Hercules' Bludgeon

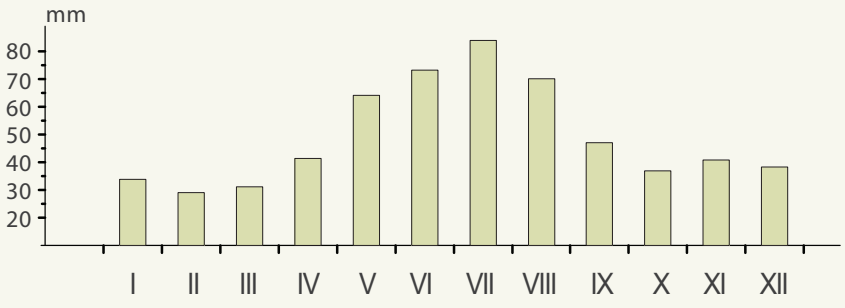
Climate



Sun diagram [gaisma.com]

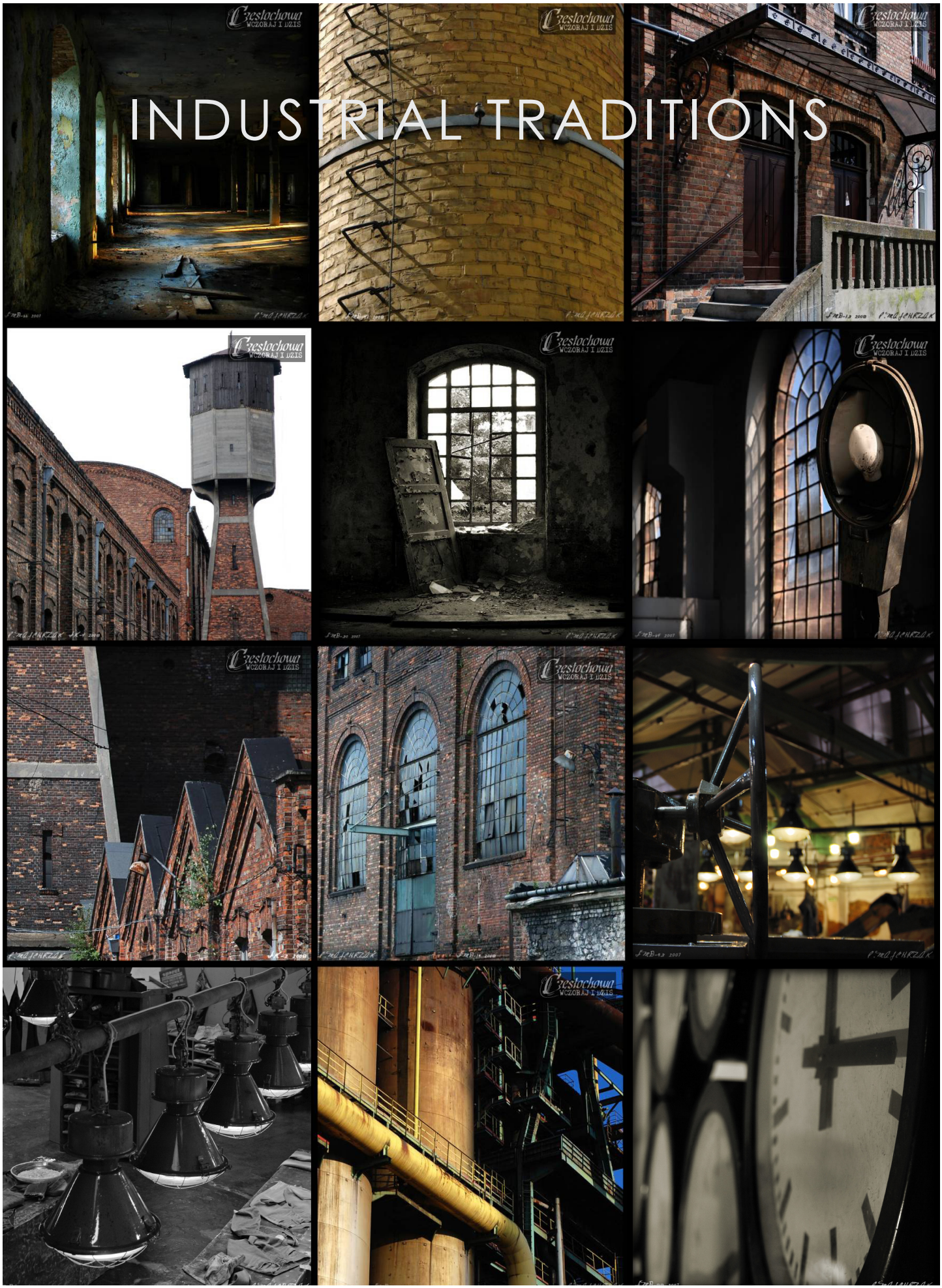


IL1.24 Insolation, Clearness, Temperature [gaisma.com]



IL1.25 Precipitation [gaisma.com]

INDUSTRIAL TRADITIONS



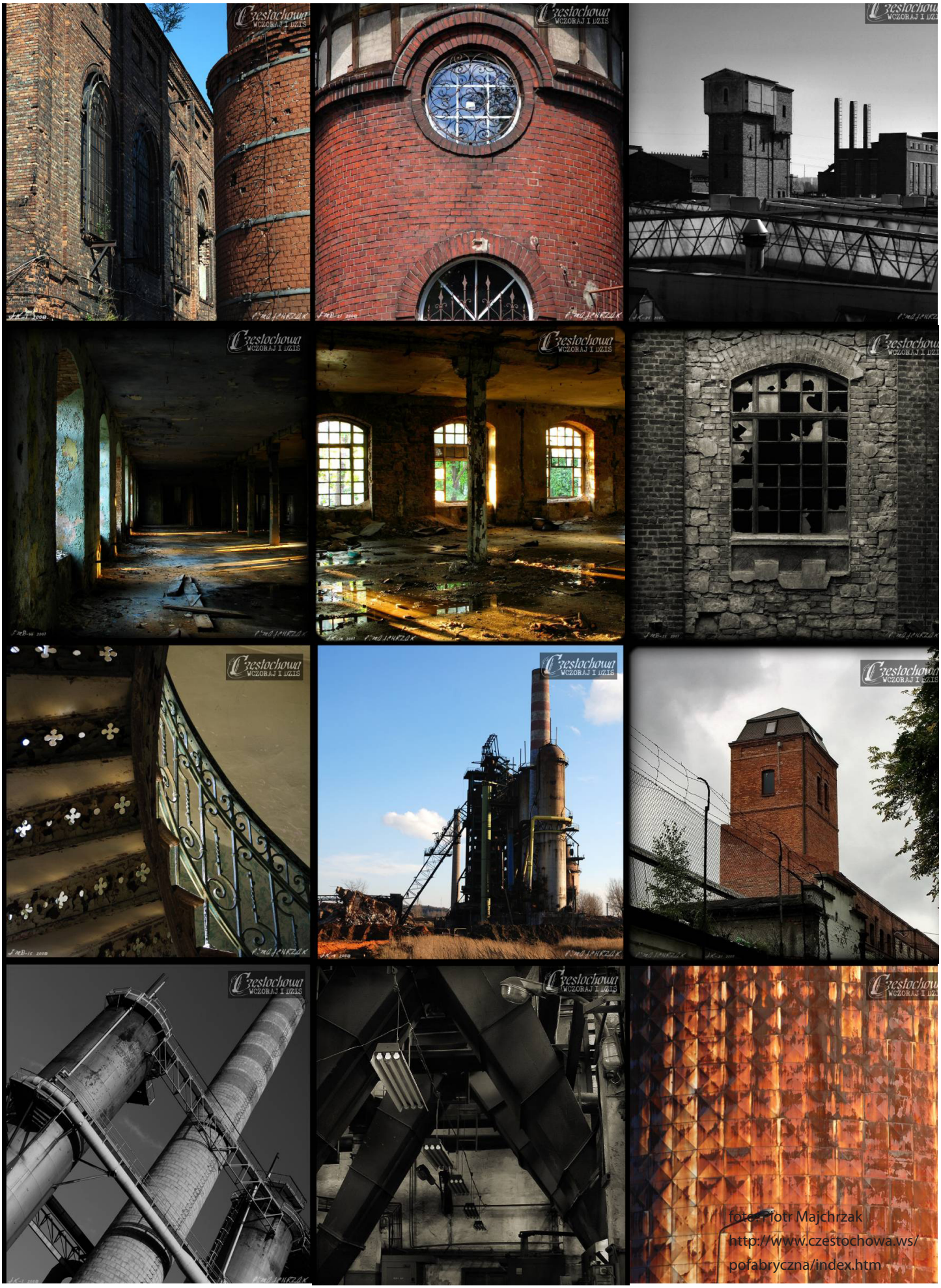
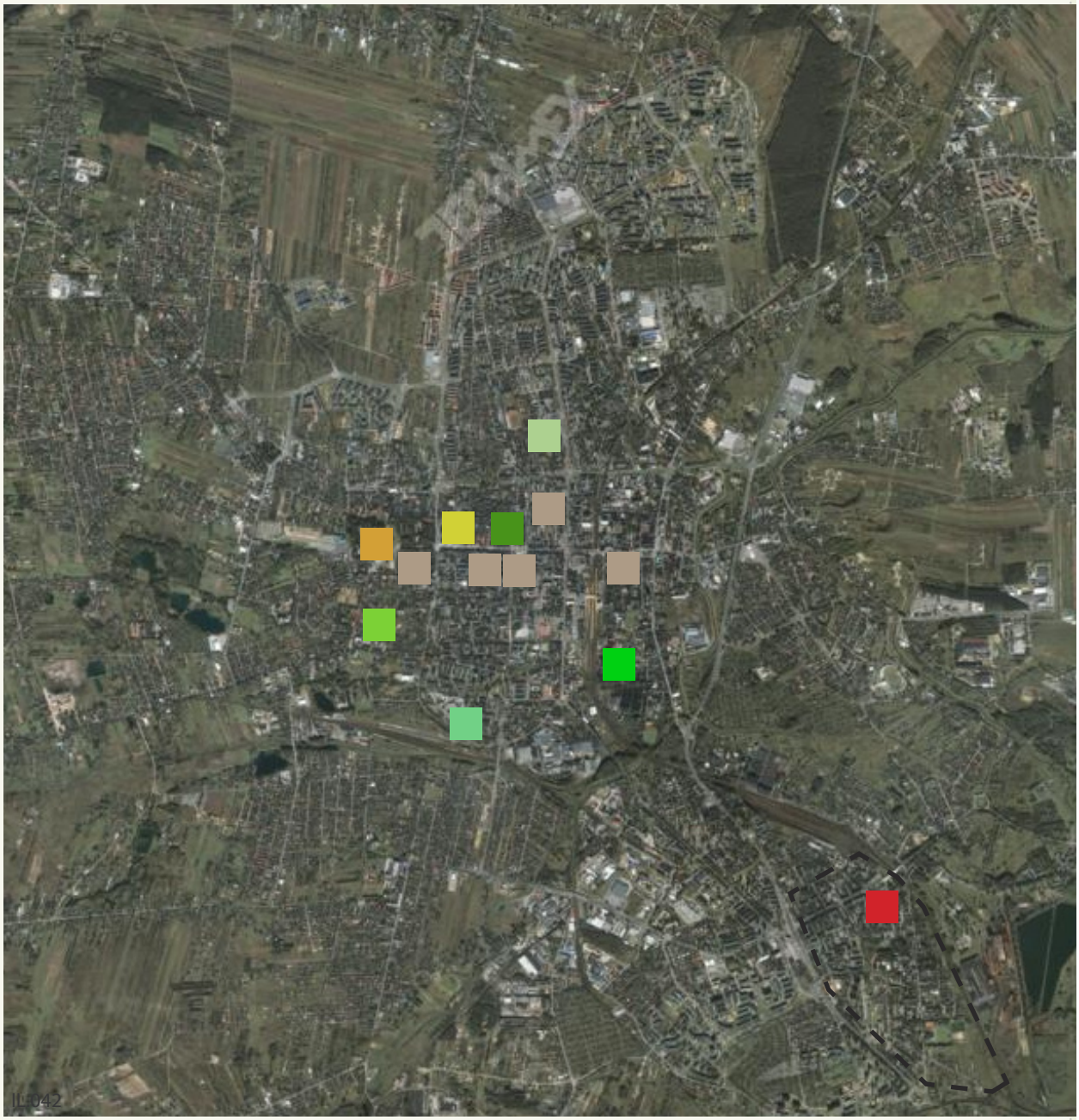


foto: Piotr Majchrzak
http://www.czestochowa.ws/pofabryczna/index.htm

Museums



The Match Production Museum

The Museum of Częstochowa Archdiocese

The City Art Gallery

The Jasna Góra Monastery Museums

The Gallery of "GAUDE MATER"

Gallery of Casting Art

Railway History Museum

The Częstochowa Museum

- Archaeological Reserve

IL.043 The Match Production Museum

IL.044 The Pilgrim Museum - The Częstochowa Museum

IL.045 Gallery of Casting Art

Parks

May 3 Park - area 6.0 ha

Narutowicz Park - area 3.9 ha

Tysiąclecie Park - area 5.6 ha

The Promenade - area 5.6 ha

Lasek Aniołowski Park - area 69 ha

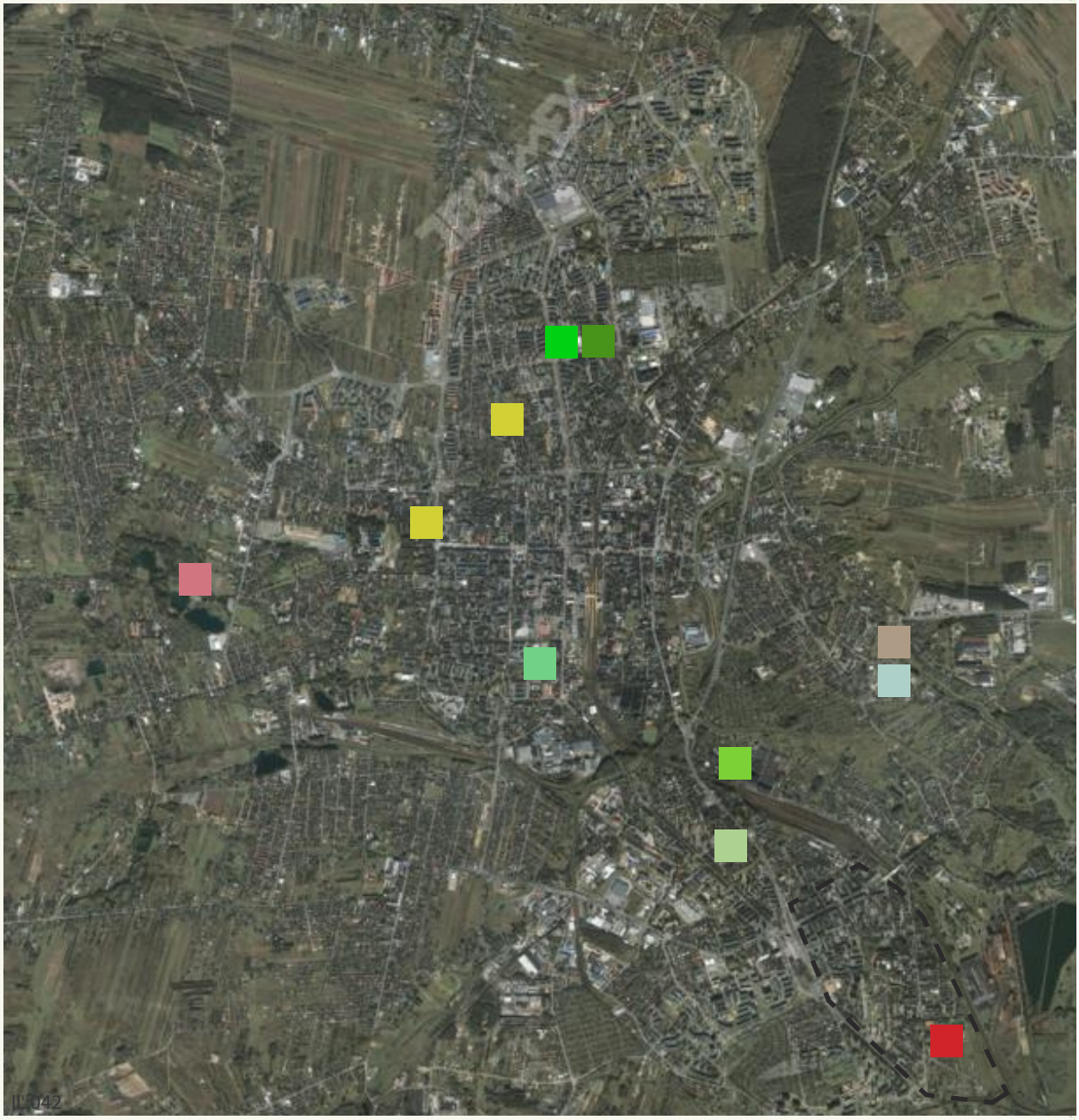
Park in Północ District - 3.5 ha

“Baltic-Adriatic” Recreation Park area of 34 ha
(Recreation Park “Lisiniec”)

Staszica Park - area 5.64 ha

IL.046 Promenade Parrk: gardens, foutain, playgrounds, skatepark, amphitheatre

Sport facilities



Objects under jurisdiction of The Municipal Center of Sports and Recreation:

Sports Hall "Polonia"
The facility provides base for camps with 16 beds. There is gym and sauna. Hall can accommodate 3,000 persons, including 1,900 seats.

Sport hall "Częstochowianka"
Basketball Court has 280 seats. There takes place mainly voleyball clubs trainings and matches on level II championship.

City Athletic Stadium
The stadium has a 6-track 400-meter run-track, and 8 sprint-tracs. Roofed stadium grandstand is made up of 11 sectors, with 894 seats.

City tennis courts
On the object is training Czestochowa Tennis Club "Victoria". There are 5 tennis courts with artificial lighting, club pavilion with a restaurant.

Summer swimming pool
Swimming pool measure 50 x 25 m, open from 1st June to 31st August each year. 2 pitches for beach volleyball, There is a restaurant located in the complex.

Recreation Park "Lisiniec"
Park is located on 40 hectares of green areas, it has 3 water tanks,
lifeguards marina and tennis courts.

Indoor smiming pool
Indoor swimming pool 25 x 12,5 depth 1,0 – 3,8m. The building equipped with
tower jumping in the water. In the swimming pool you can use the sauna, gym, solarium and fittness.

Ice Rink, Summer Swimming Pool
There is a sports shop with skates rental office and small restaurant. Swimming pool is open in June, July and August.

Sport hall- Project (2012-2113)
Estimated parameters: determining the size of the object and scope of works:
- The number of seats: 7,100 pcs
- The size of the arena: 58 m x 38 m
- The number of parking places: 490 units

Arena Częstochowa (speedway stadium)
BBuildings occupies an area of 9,655 ha. Cinder track with a length of 368 meters with stands able to accommodate 16 850 fans, club buildings, parking. The album can be carried out grasses and training games amateur football teams. The stadium is undergoing modernization. The next phase is construction of administrative facilities with the hotel and catering. After completion of the construction of indoor stadium seating capacity is expected to increase to 19 100 seats.

Raków Stadium


KÓW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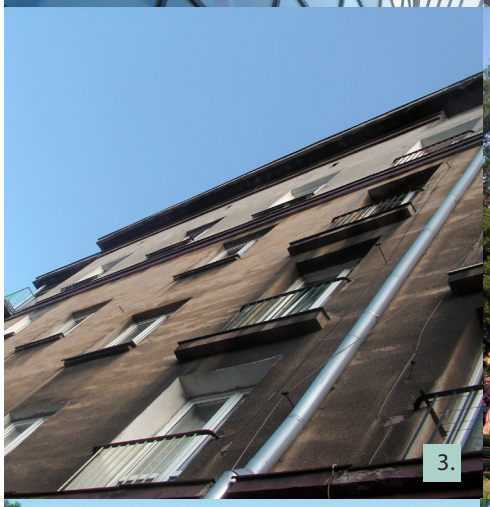
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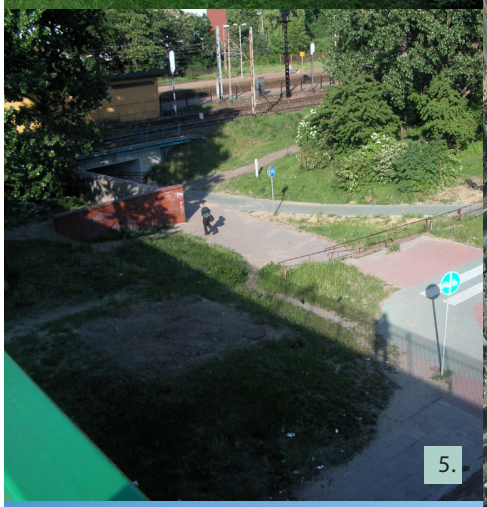
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History

First time mentioned in 1631 as the land belonging to the city. The fate of the district is location near the ironworks Huta Czestochowa. y Raków has been developed in the nineteenth and twentieth centuries, when the company was founded. In 1921 set up a football club Racovia (now Raków Czestochowa). In 1928 district has population of 7 thousand. Industrial settlement Raków was incorporated into the city.

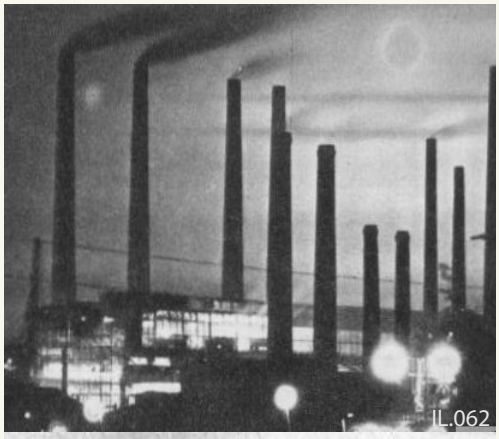
The rapid growth of the district after the Second World War, which was a response to the expansion of steel mills: Raków I settlements (in 1949), Raków II and III,. The socialist-realism Avenue of Peace (Aleja Pokoju), where trams run from 1959.

1839
Częstochowa Częstochówka (New Częstochówka), Raków separated, beginings of Holy Virgin Mary Street (not yet called Avenue), Roadline Warsow-Viena.
IL.059

1938
Structure of old Raków.
IL.060

1973
Avenue of pace, visable tramline 2, Stadium Raków
IL.061

History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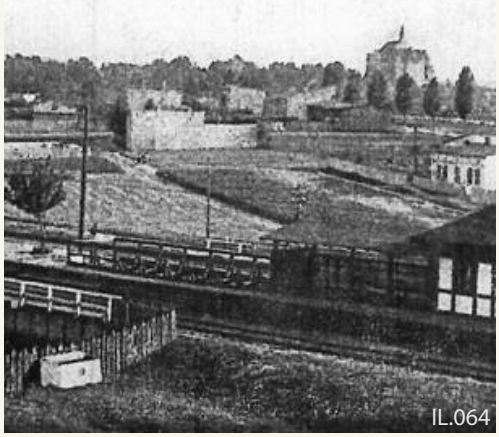
IL.063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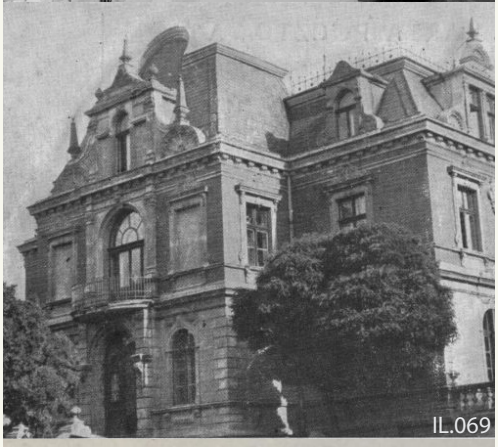
IL.065


IL.066


IL.067


IL.068


IL.069


IL.070

IL.062,63 Ironworks, 1920'.
IL.064 View to Raków, church of St. Jospeph under construction.
IL.065,67 Aleja Pokoju 1960' 70'.
IL.066 Aleja Pokoju, cinema "Relax" (now discount shop), 1960' 70".
IL.068 Łukasińskiego Street, tram line no.2
IL.069 Palace of Bernard Hantge, 1910
IL.70 Povilon ofArchaeological Reserve before reconstruction
Source: www.czestochowa.ws

Sanctuary of St. Jospeph

In the center of Raków district raises the 20 meter high rock hill. On the top of the hill there is a large Shrine and it looks like it raises on the limestone and charms with it new-baroque church. Built on the place of the old chapel between the years 1925- 1933 by architects Szyller and Komonowicz. November, 19th 2002 the Archbishop of Częstochowa issued a decree, in which the Church of St. Joseph has been raised to a Sanctuary.

Chapel of adoration of the Most Holy Sacrament is build on the octagon plan, based on eight stucco columns, covered with a dome. The other important jewel of the Shrine is the picture of St. Joseph venerated for centuries on the territory of Wieluń. The neo-Byzantine polychrome on the wall and dome upon presbytery. The baroque picture of St. Barbara is placed at the left side of the triptic.

IL 071

IL 072

IL 073


IL.074

Archaelogical Reserve

Archaeological Reserve of Lusatian culture in Czestochowa. The only discovered form cmentary of Lusatian culture.

Cemetery was discovered in 1955 in during construction of the viaduct in the Aleja Pokoju. It is permanently preserved cemetery with an area of nearly 100 hectares, with the graves of both bodyburning, and seletors.
Museum has been made available to the public in 1965.

The Lusatian culture existed in the later Bronze Age and early Iron Age (1300 BC-500 BC) in eastern Germany, most of Poland, parts of Czech Republic and Slovakia and parts of Ukraine. In Poland, the Lusatian culture is taken to span part of the Iron Age as well (it is only a terminological difference) and is succeeded in Montelius VIIbc in northern ranges around mouth of Vistula by the Pomeranian culture spreading south. [wikipedia.org]

IL.076

IL.077

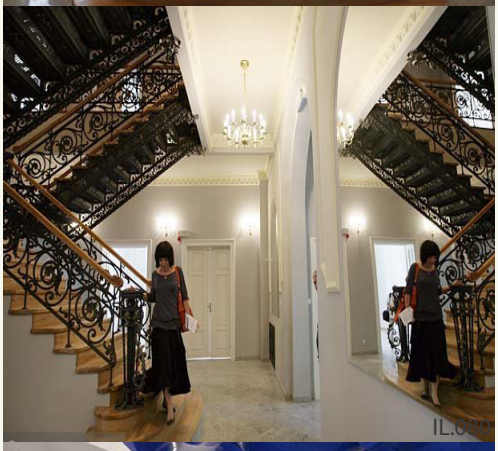
IL.078

Youth Cultural Centre

Youth Cultural Centre (MDK, Młodzieżowy Dom Kultury)
Study workshops:
- choreographic
- English Club
- music
- vocal music
- guitar
- theater
- plastic
- ceramic
- sculpture
- informatics
- radio
- cut and sewing
- modeling
- journalist
- gymnastic
- swimming pool

Erected in 1898-1902 in French neo-Baroque and funded by Bernard Ludwik Hantke over of Huta Częstochowa – one of the most modern iron works in Kingdon of Poland. The Interiors features well-preserved cost-iron stairs with neo-Baroque balustrades and lamps base with plant-like and grotesque motive.

IL.079



IL.080

IL.081

IL.082

Ironworks Częstochowa

Huta Czestochowa
Built in the years 1896-1902 by the Society for Metal Plants, Bernard Hantke on the area of 64 ha of Raków on the left bank of the Warta River near Warsaw-Vienna rail line. It was the most modern and second largest of this type of plant in Russia occupation part of Poland.

During World War II, Huta Czestochowa has been included in the group Hasag as Eisenhütte, becoming part of the Nazi armaments industry.

In the years 1952-1989 Huta Czestochowa wore name of Bolesław Bierut. In 2005 Ukrainian Industrial Union of Donbasu (Industrialnyj Sojuz Donbasa) tooks over the ironworks, in September 2006 name was changed to "ISD Huta Czestochowa"[czestochowa.ws]

Typology

Socialist realism is a teleological-oriented style of realistic art which has as its purpose the furtherance of the goals of socialism and communism. Characteristic for socreal architecture is Częstochowa is that decoration elements (sculptures, columns) are reduce to minimum (in fact in buildings we have usually only horizontal partitions by cornice). In urban aspect: axis, open block structure.

A housing estate is a group of buildings built together as a single development. The exact form may vary from country to country. Accordingly, a housing estate is usually built by a single contractor, with only a few styles of house or building design, so they tend to be uniform in appearance. Generally housing estates are monotenure and provide social housing. Buildings 4-10 floors.

Brickwork industrial houses for the workers/ engineers in Ironworks

Tenement houses. Most simply modern.

One family houses. No style.

Mix. One family houses, small tenement houses, blocs (3-5 floors).

Transport

TTrains
Raków Station. Lines: No.1 Warsaw-Katowice (historic Warsaw Vienna Railway), No.701 Częstochowa-Kucelinka. Opposite end of District.

Trams
See next page.

Bus
Bus stop for lines 12, 19, 31, 32, 35 in front of Stadium.

Cars
Near to two level crossings on the Aleja Wojska Polskiego (Polish Army Avenue). It is provide very good distribution of traffic in the city and outside. Aleja Wojska Polskiego is part on DK1 (National road No. 1 Silesia-Warsaw). In few years most of the DK1 will became part of A1 highway connecting south and north Poland.

Parkings
Only few places in front of stadium.

Conclusions:

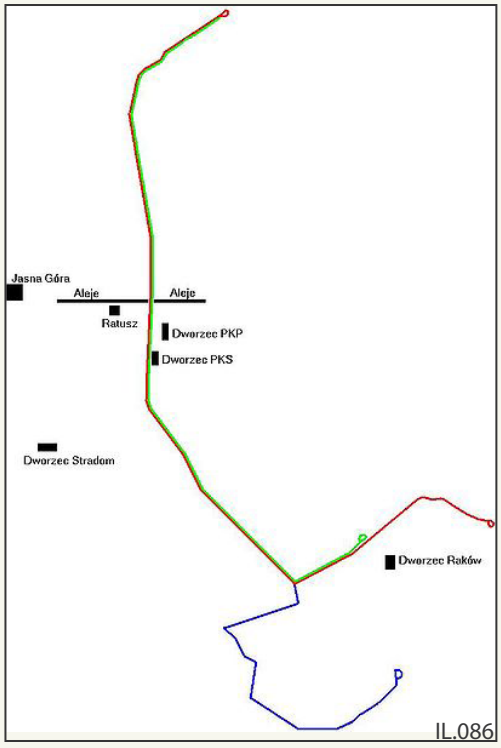
+ Good public communication for the stadium. (Including new tram line).
+ Good car access

- NO parking space
- Connection to the public communication junction (train, tram and bus loopways) around Raków Station. ( )

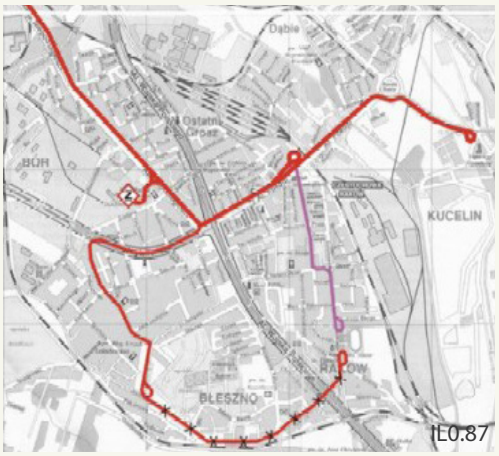
Tram

Aleja Pokoju is part of so called "Axis of Work". It is built in 1951-59 road connection between city centum and fast developing that time Ironworks. Main element of that project was tram line. It became and still is main basic structure of Częstochowa public transport. It define the direction of city urban expansion. New big living districts were build around avenues with tram line.
City is planning to build new part of line to connect with the centum blocks of Błeszno (district in west of Raków). This line should be end next to Stadium.

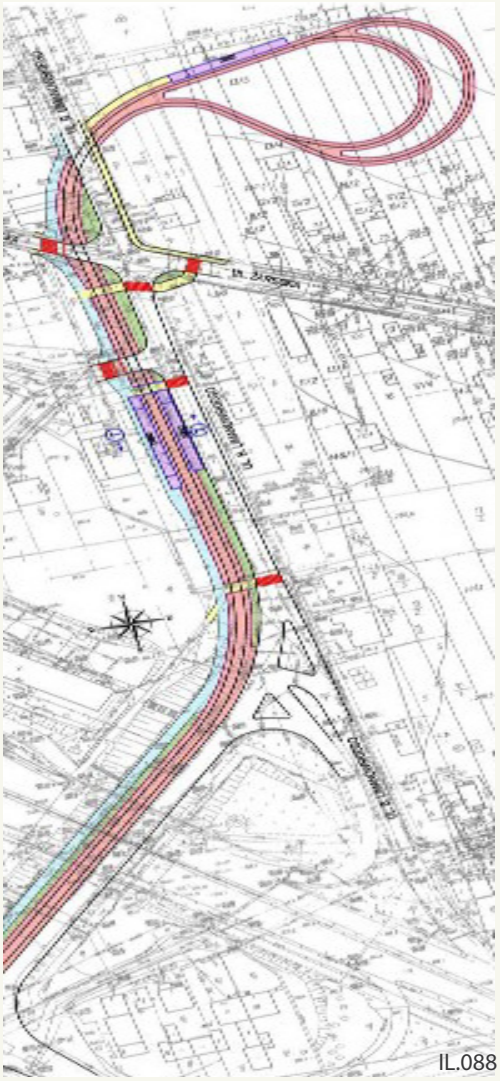
City plans make questions is it rational to design long way around south districts in case when most of the people want travel straight to the centum. More interesting can be proposal of NPO CKMKM (Fan Club of Public Transport in city Częstochowa). They suggest to make line shorter (IL.087 and to construct one from Aleja Pokoju to centum of Raków (IL.087, purpure) It would be mostly reconstruction of branch existing in years 1951-71; IL.068).



IL.086



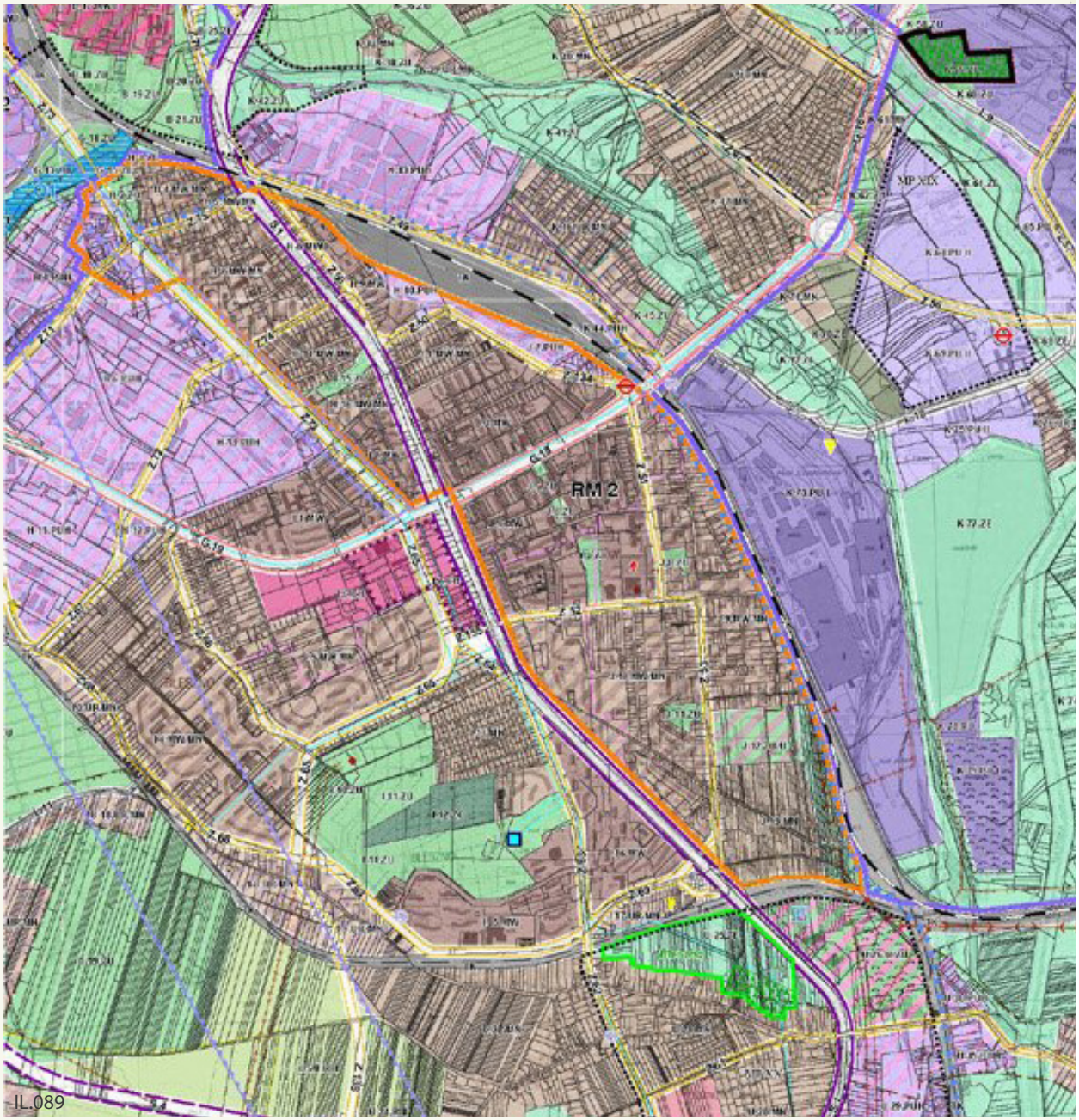
IL0.87



IL.088

Proposal of CKMKM seems to be much better, however I decide to use official plans in my project.

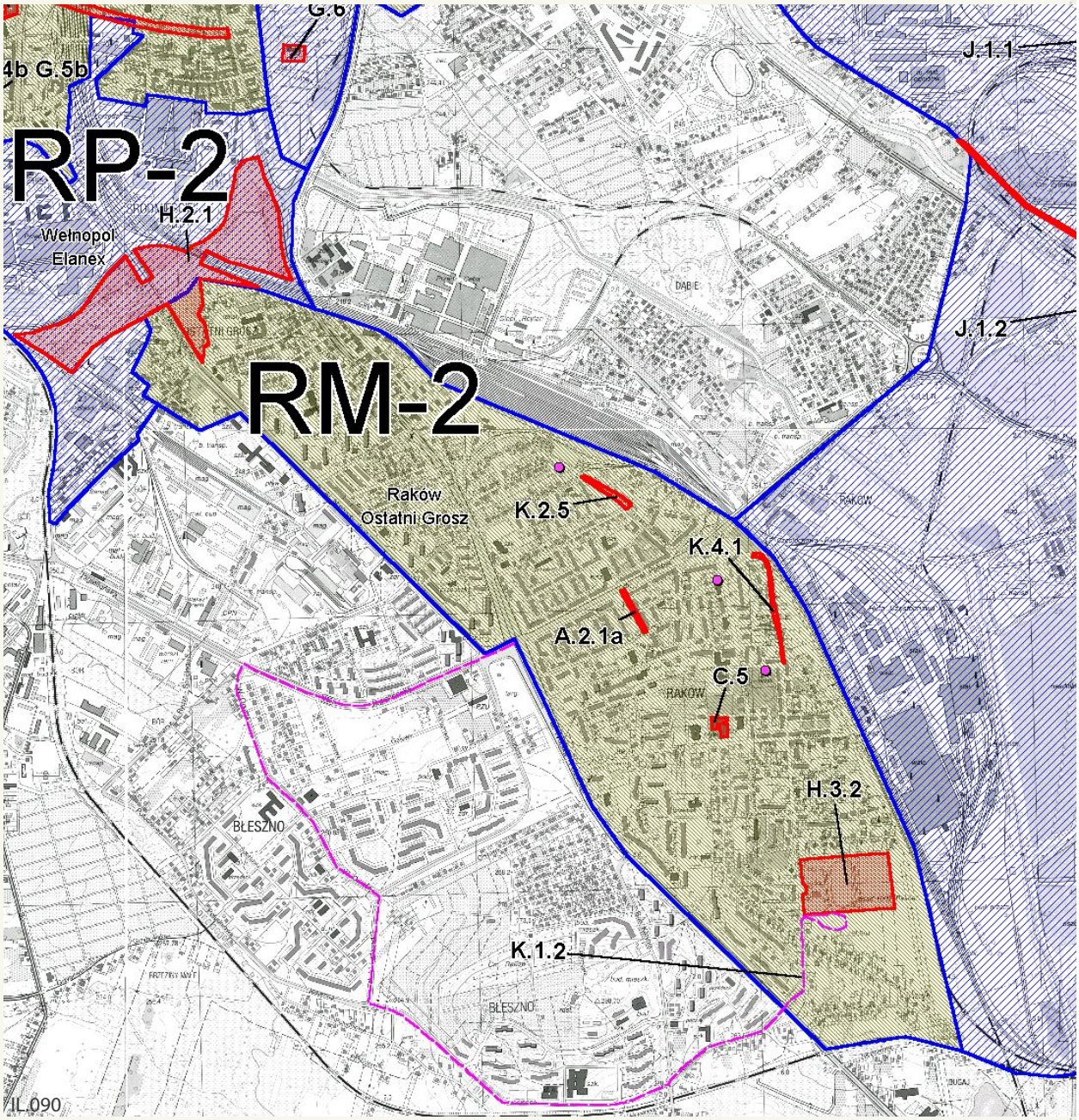
Urban planning



IL.089


Forests
Open eko-zone (rivers, etc.)
Parks
Muliti storey houses
One hamily houses
City centrum, subcentrums - comercial
City - public servises
Local - comercial
Industry
Comercial-industry
Revitalisation

Revitalization



Main actions in the renovation zone RM-2,
Ostatni Grosz – Raków.
[City Renovation Program for Częstochowa, 2008 „Miejski Program Rewitalizacji dla Czestochowy - Aktualizacja" Załacznik do Uchwały Nr 393/XXXIV/2008 Rady Miasta Czestochowy z dnia z dnia 6 listopada 2008 r.]

A 2.1a Recreation – walking passage
C 5 Building renovation - Youth Cultural Centre
K 1.2 Transport – new tram line
K 2.5 Infrastructure – road reparations
K 4.1 Infrastructure – road reparations
H 3.2 Sport infrastructure – Raków Stadium

Case Study

The Bijlmermeer district, Amsterdam

Bijlmermeer and Raków are two totally different districts. They have almost nothing common. We cannot find similarities in scale, social structure, urban, architecture, but that exactly Bijlmer was one on my primary inspirations for that project. Reason:

In my opinion many revitalization processes from Bijlmermeer are not need in Raków because district already have those elements. Raków is perfect for revitalization and only waiting for it chance.

The Bijlmermeer (Bijlmer) is one of the neighbourhoods that form the Amsterdam Zuidoost ('Amsterdam South-East') of Amsterdam, the Netherlands.
The Bijlmermeer neighbourhood, which today houses almost 100,000 people of over 150 nationalities, was designed as a single project. The original neighbourhood was designed as a series of nearly identical high-rise buildings laid out in a hexagonal grid.

Bijlmermeer was built for success, but until recently it struggled to attract many middle class families. Reasons for this can be found in numerous areas. First, following Surinam's independence in 1975, many of its inhabitants migrated to the Netherlands. The government placed these immigrants in affordable social housing in the Bijlmermeer.
The neighborhood quickly gained a reputation for being a "black" part of town. The relatively low incomes and social status of its inhabitants made for a problematic mix with the area's large scale buildings, which afforded little social control.
As a result, the Bijlmer lost its desirability to conservative middle class families. Throughout the years, claims of rising social segregation or ghettoization have been both denied, and pre-empted by local government.

After El Al Flight 1862 crashed into two Bijlmermeer buildings in 1992, it was decided that the neighbourhood needed some further change. In recent years, many of the high rise buildings are being renovated or torn down.

IL.91 Monotony

IL.94 Various Typology

IL.92Separation of trafic

IL.95 City Street

IL.93 Multilevel parking

IL.96 Housing with shoping centre

Bijlmermeer		**Raków**
Problem	Anwser	
Monotony of identical buildings	New development of different kinds of houses	Dominatin of city block or mix typology (p.094)
Bad condition of buildings, low standard	Demolition, new development	
"City highways "	Rebuild in city streets	Main road on the district border, local roads, representative avenue
social segregation, immigrations	Divide new development in privet apartments, rent, social	Separations of district according social status of inhabitants have smaller scale in Poland that in west Europe. Monolithic cultural structure.
Public space	e.g. IL.99 dynamic, interactive light system in tunel	
Crime rate	Demolition dangerous places like multilevel parking	"One level" city create less dangerous corners
Children	Mini Zoo	Youth Cultural Centre
Communication	New big train station Amsterdam Bijlmer ArenA	Raków Station
City communication	Metro	Tram
Spot	Amsterdam ArenA football stadium	**Raków Stadium**

IL.97 Amsterdam Bijlmer ArenA railway station

IL.100 [illegible] railway station

IL.98 [illegible]

IL.101 Rakow Stadium

IL.99Public Space

IL.102 Public space

Urban concept in the project

Basic parameter in case of sport stadium is good access for the users. Location of Raków Stadium have positive infrastructure of car roads and public transport. The concept from the beginning was focus on increasing accessibility by comfortable connection to the train station and tram lines 1 and 2. [1.].

The proposal is to build walking passage along rail line (temporary name "iron passage"). Road only for occasionally matches and events would create question about sense of big interference in urban structure. Is it not enough to use sometimes existing communication roads? I propose to increase "functional value of passage" by changeling it into attractive public space for citizens. It would have also direct influence on the stadium and user "shops and restaurants". [2.]

Iron passage is interesting path in North-South direction. It connects Square of Junak's [3.] with train station and Archaeological Reserve with football complex. It is impossible to crate for that area crossing West-East walking directions. It is end of district.

The option is to create iron passage as part of bigger communication structure united district landmarks and public buildings in one recreation network.

Existing walking passage between Square of Defenders of Lwów (Plac Orląt Lwowskich) [4.] in Aleja Pokoju with Sanctuary of St. Joseph [5.]. It is simply footway with bike road, far less than Promenade Park, but ever without park infrastructure like playgrounds or amphitheater already popular walking road or rest place.

The proposal is to expand passage to the existing walking viaduct [6.] over main street to the Błeszno district. It would create inter-district connection, plus include housing estate blocs [7.] into urban structure of district.

Previous passages are designed on waste land so there should be public support for changing them in attractive space. The controversy can be with corridor between main passages because it will be necessary to take part of area of school park and allotment gardens [8.]. It is needed to close recreation system and allows to include local park [9.] into it.

In the way of passages are places with more waste land. The will be use to build new squares, mini parks, playground, etc. It will:

- crate open space from fans in front of stadium.
- add new public space to old part of the district increasing value of the real estimate.
- create public space in area where they do not exist now.
- extra elements will increase recreation factor of passages themselves.


1.
4.
8.
9.
5.
7.
7.
2.
6.
7.

STAD


IUM

Stadium Raków - now

Address: Limanowskiego 83
Capacity: 8000
Playfield size: 110x75m
Playfield surface: natural grass
Lighting: no

Build: 1951-1955
Open: 22 July 1955
Clubs: KS Raków, Gol Częstochowa
UEFA and FIFA requirements: no

Owner: The Municipal Sports and Recreation Center, City Częstochowa
Modernization: in progress, training field, club building.

IL.106

IL.107

IL.108

IL.109

Concept I

Official magistrate version of new Raków Stadium.
Sits: 10 100
Light: 1 400 lux
Sport hall with 535 sits
Architect: SPAK studio Projectowe
Realization: Unknown


IL.112


IL.110

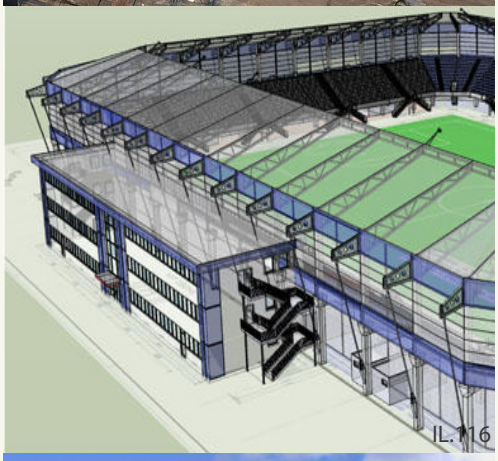
IL.113


IL.111

IL.114

Concept II


IL.115


IL.116


IL.117

Proposal from Raków Club members and administration:
Cooperation with Bremer AG company. Stadium base on "standard"solution similar to projects: Paragon Arena, Paragon, Germany and stadium in Gliwice.


IL.119

Case Study

DSB Stadion, Alkmaar, Netherlands

DSB Stadion is a multi-use stadium in Alkmaar, Netherlands. It is currently used mostly for football matches and it is the home stadium of AZ. The stadium is able to hold 17,023 people. It officially opened on 4 August 2006. Dirk Scheringa, the chairman of AZ has said the club intends to expand the stadium to 40,000 seats by August 2010.

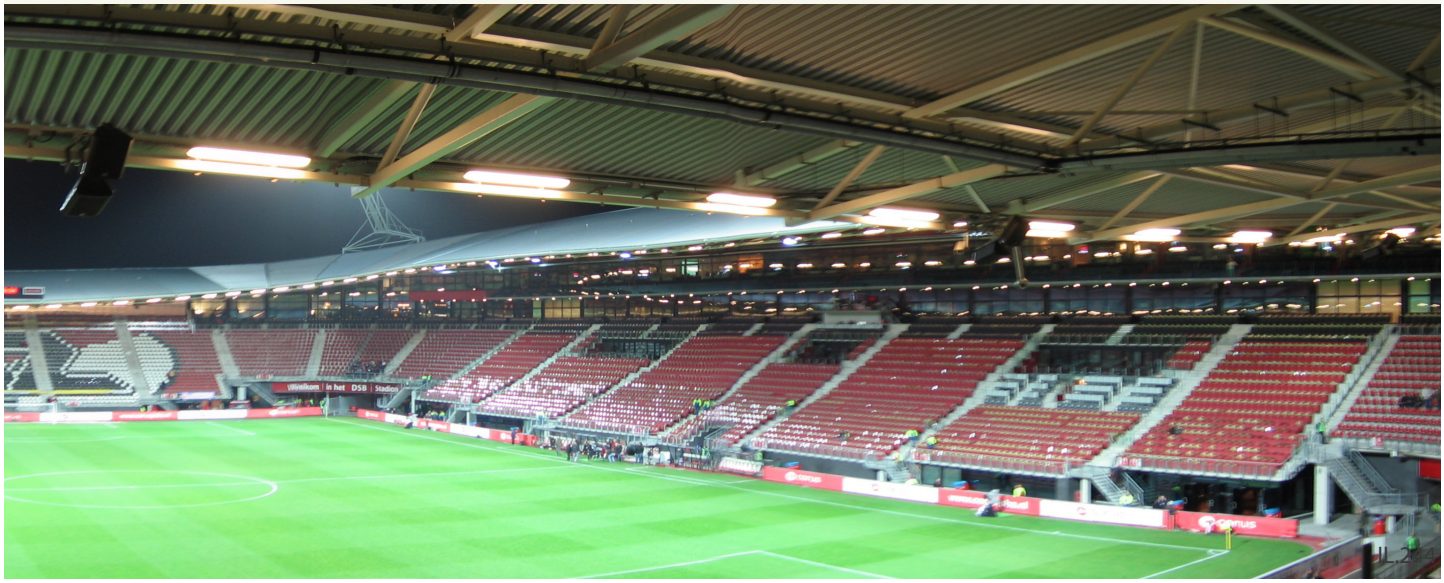
Interests:
Mix of concrete and steel construction of stands. Club building curves according shape of stadium. Access to stands from level 0.

IL.120

IL.121

IL.122

IL.123



IL.2

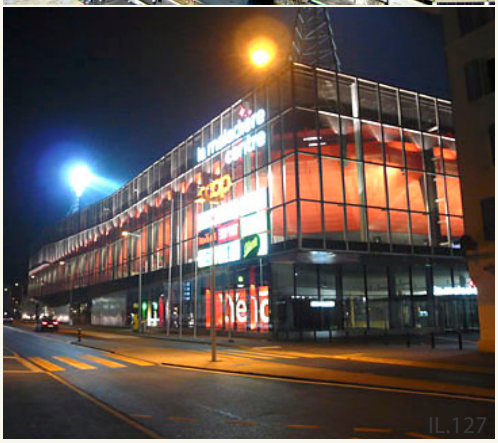
Case Study

Stade de la Maladière, Neuchâtel, Switzerland

The Besides the stadium, which belongs to the City, it houses a shopping center, a barracks for the intervention and rescue, six sports halls and an underground garage for 930 cars. complex of Maladière in numbers: 410 jobs, 54 shops, 28,000 m2 of commercial space, 930 parking places, 230 million investment, 6 gyms, 730 m2 of solar panels, a stage of 12 000 seats, a playfield at 6 meters above the road, a barracks for firefighters . The celebration of the inauguration took place on 22- 24 June 2007.

IL.125

IL.126



IL.127

IL.12

IL.130

Interests:

Stadium fill the city urban structure. Elevation solutions. Colorist conservancy in the stadium. Comercial zone.

Case Study

Playmobil-Stadion, Fürth, Germany

Between the main grandstand and Nordkurve are facilities for the business customers SpVgg created. "This is a necessary step to offer our partners even greater opportunities."

As part of the renovation work: the new comfortable grandstand, seat shells. Northern Grandstand particularly interesting is the roof to the rain protection and for a better atmosphere on the stadium.

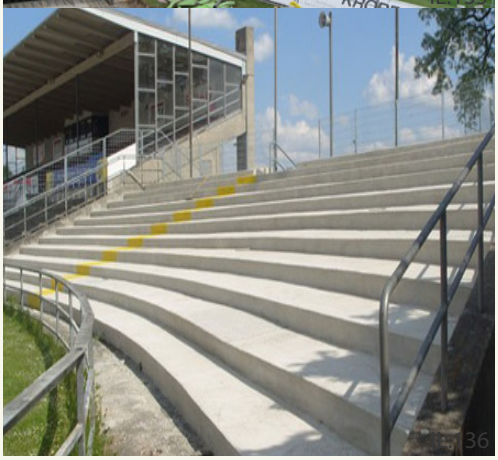
IL.131

IL.132

IL.133

IL.134

IL.135


IL.136

Interests:

Stadium form as consequence of systematic modernizations of stands. Mains stand identical to version 1 of city propose for Raków Stadium.

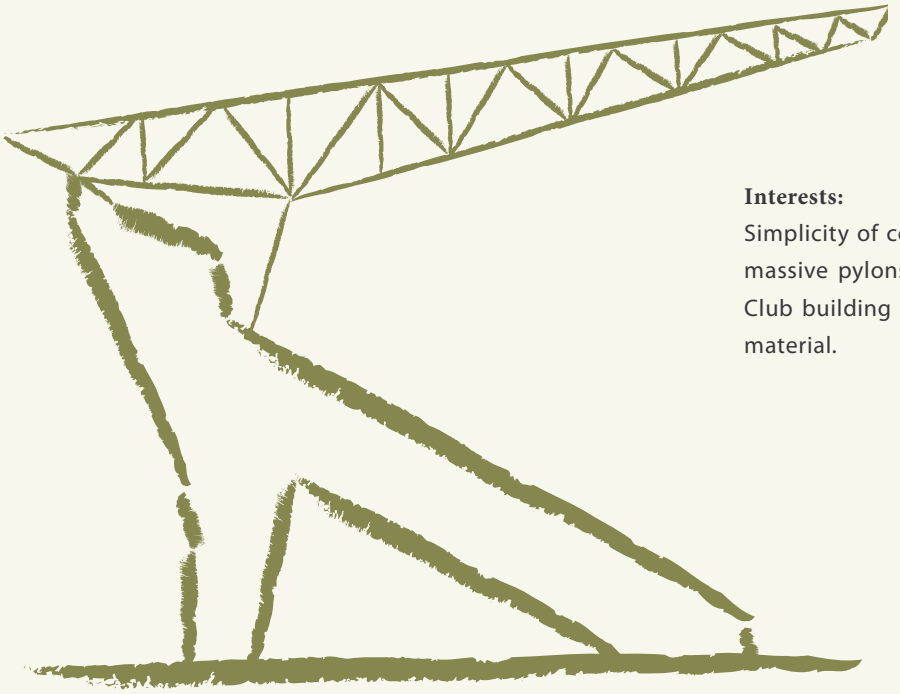
Case Study

Laugardalsvöllur, Reykjavík, Germany

Laugardalsvöllur is the national stadium of Iceland. It is located in Reykjavík, have 9,800 individual seats, another 5,200 people can be seated on concrete benches, but due to FIFA restrictions they are rarely used. The first stand was constructed in 1958, the opposite stand in 1997 and the old stand was renovated and extended in 2006. Additional capacity can be added by bringing in two temporary stands seating 1,500 each. It is mainly used for football and athletics.


IL.137


IL.113



Interests:
Simplicity of construction base on systematic massive pylons and 2-points supported roof. Club building as a separate part in form and material.

IL.139

Case Study

Osnatel-Arena, Osnabrück, Iceland

3062 seats, including 30 wheelchair seats, 36 press seats, seventeen 4-Stammtische Company and approximately 990 standing. Thus, the forecourt of the stadium redesigned, integrated in a significantly improved overall infrastructure. As part of the restructuring measures, the six VIP boxes mare added. All work will be completed by 15 August.

New two-functional building on the north side. On the ground floor are planed new changing areas for players and referees as well as facilities for doping control: on the first floor facilities for a media room for press conferences.

IL.145

IL.142

IL.144

Interests:
Functions located in club building on one side of the stadium. Access road to the field.

Case Study

Auguste-Delaune Stadium, Reins, France

22,000 spectators. The owner: City of Reims. The Auguste-Delaune stadium in the city of Reims in northeast France in the 1980s and 1990s - the absence of conservation investments. After complete demolish the current old stadium Stade Reims was constructed piece by piece, the new seat of pure stands, the pitch and the stadium infrastructure.

Interest:

Beautiful stadium, wonderful tectonic. Sometimes totally new construction is better than modernization of old structures.


IL.147

Case Study

The Wall, Doha, Qatar

"Qatar's capital city of Doha is planning one of the strangest and most inventive new stadiums the world has ever seen.

The soccer venue, called 'The Wall', will be both the first completely 'underground' stadium and the first open-air, air-conditioned stadium.

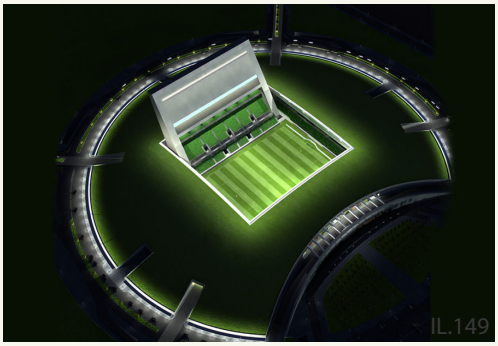
If you've ever been to Qatar, you'll known that the arid, desert climate would make sitting outside at a sports venue an absolutely miserable endeavor. That is why the unique underground design of 'The Wall' will be implemented to keep spectators and players in a cool climate. It will also save a ton of money on air-conditioning bills.

The design makes the structure resembled an opened laptop popping out from the ground. The stadium is expected to be complete in 2010, although these are just initial plans released by the architect and no actual construction has begun yet.

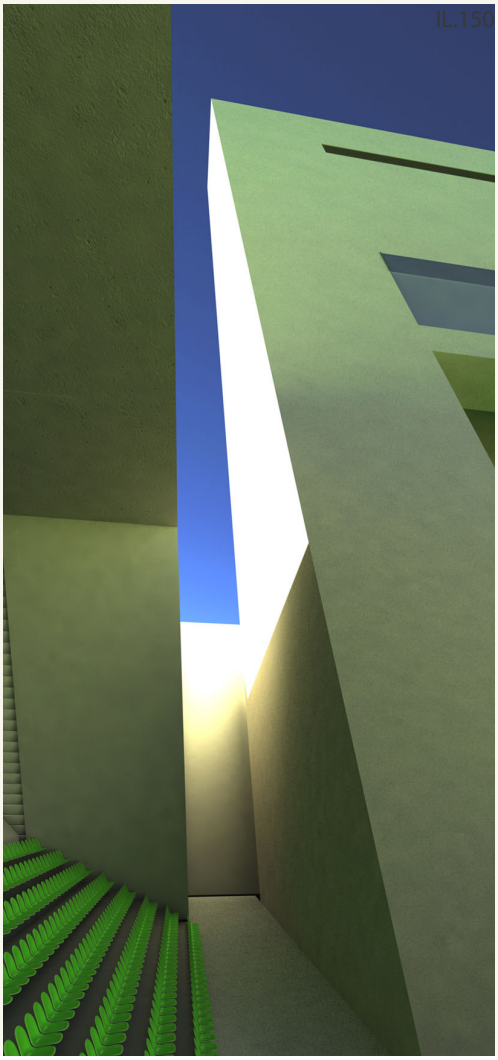
All the lights for the stadium will be embedded within the structure of the building. Meaning no unnecessary overhead floodlights.

One of the biggest drawbacks to the plan is that 'The Wall' can only hold approximately 11,000 spectators."

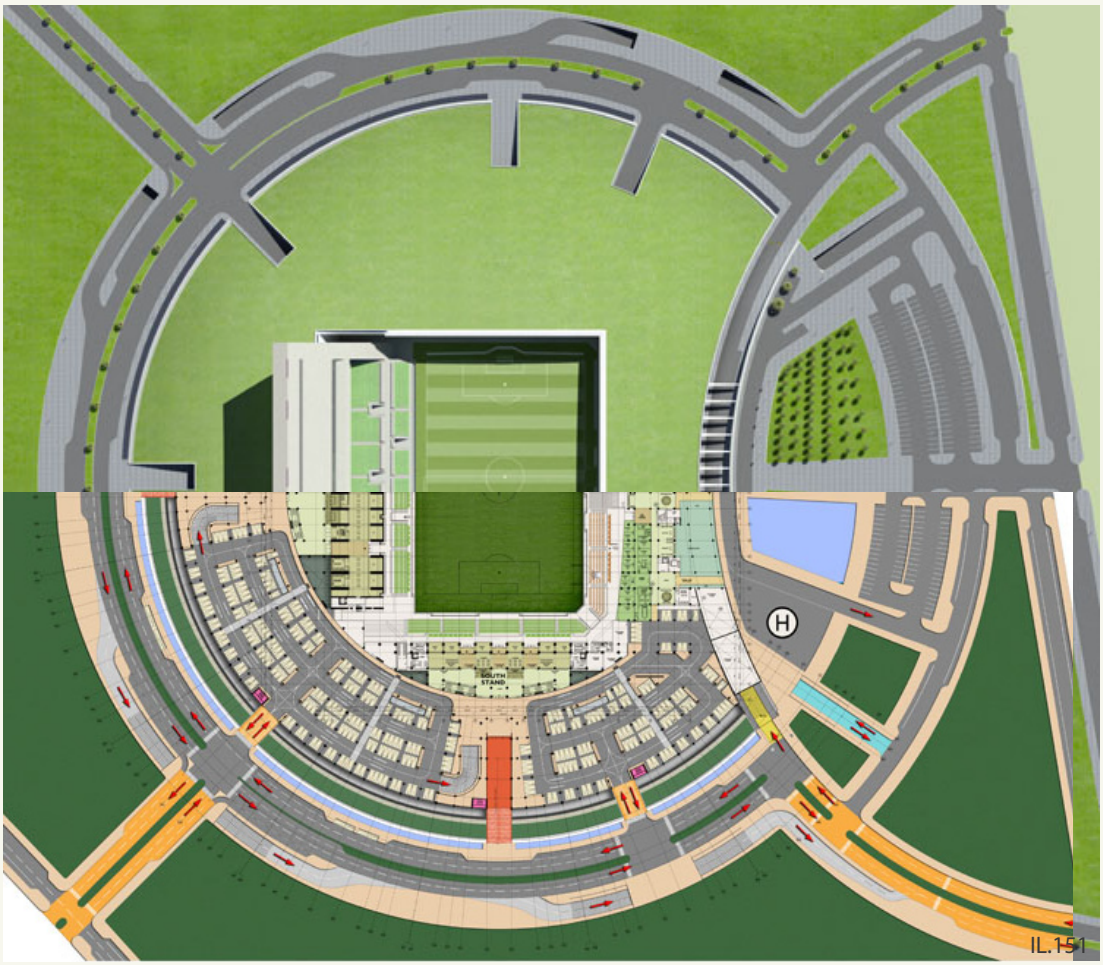
[http://www.wallstreetfighter.com/2008/09/qatar-plans-worlds-first-underground-stadium.html]



IL.149



IL.150



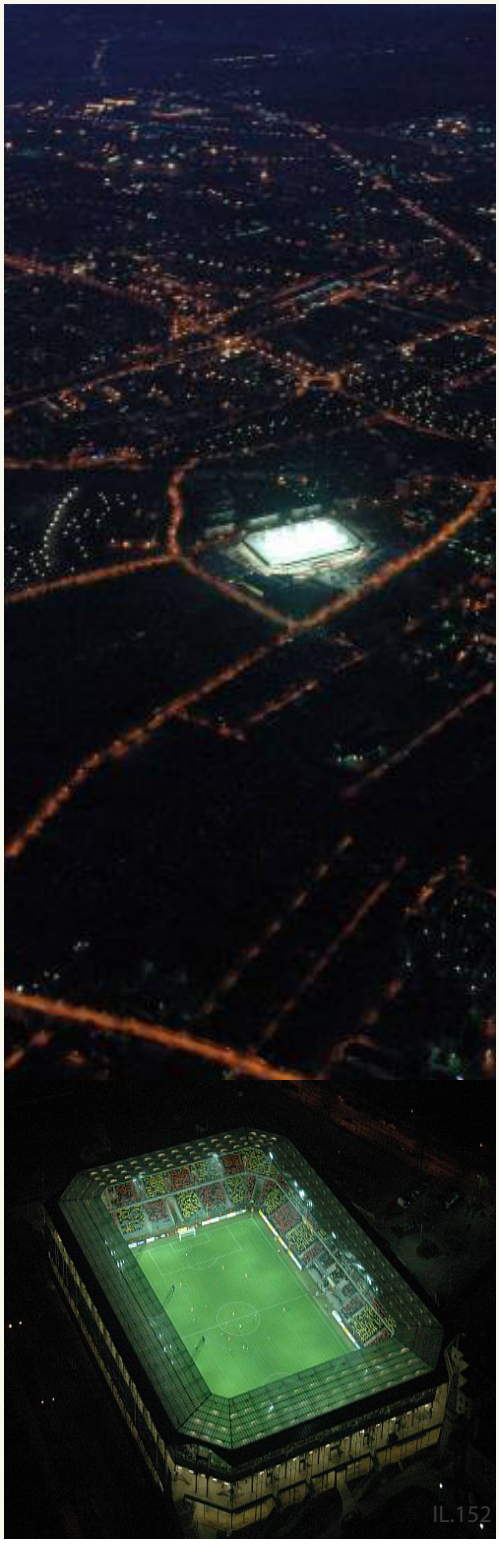
IL.151

Interest:

Searching for a now conception of the football stadium. User comfort. Remember that functionality is more important esthetic (visibility from the corner sits IL.150)

Case Study

Stadion Korona, Kielce, Poland



IL.152

IL.153

IL.154

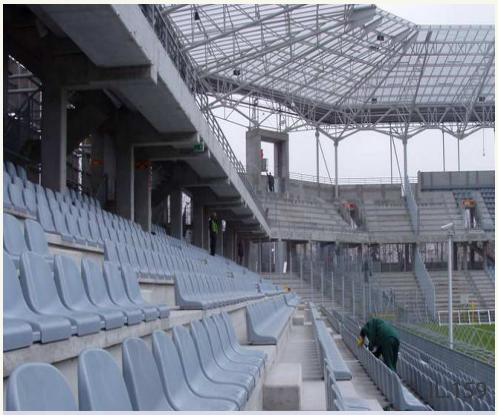
IL.155

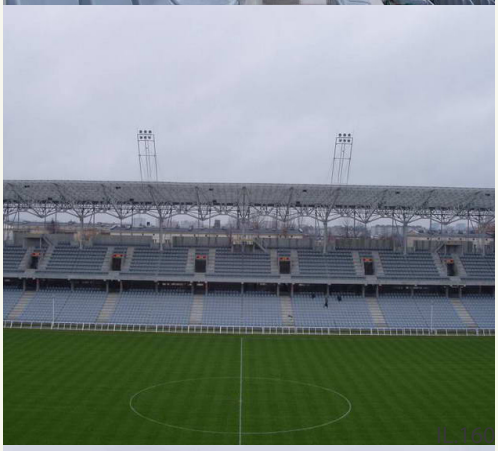
IL.156

IL.157

IL.158

The stadium has a maximum capacity of 15 550 seats (for inter-matches). During the national league or cup matches, because of restrictions from the Polish law, which imposes the security zone between the local and gests fans, on the stands may sit at the same time 13 823 people, including 777 gests fans. Stands surrounding the playground in four sides of has two floors, all are covered and divided into sectors for the guests, the VIPs (104 places), for youth teams (320 seats), the family sector (545 seats), the club card holders (320 seats). The team fan club has sector "Mill" with a capacity of 1,020 seats. The public is isolated from the players and guests on the tribune of honor.
The pitch 105 × 68 m is heated. You installed the lighting intensity of 1,411 lux for complying with the regulations of UEFA and FIFA. Architects: ATJ Architekci.





IL.161

Gests fan sector

VIP sector

"Mill" sector

Access card sector

Family sector

Family sector

IL.162 Plan of sectors

IL.163Sector on down level

IL.164 Sector on top level

Intrest:

Częstochowa (246 129 inhabitants) and Kielce (205 095) are quite similar cities. We should consider football programme of the stadium as the same.

User profile

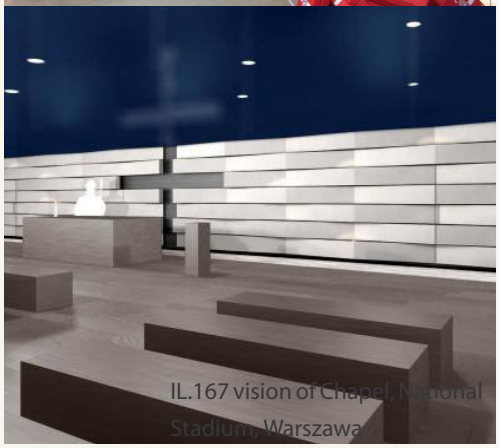
To treat stadium only as a building for football matches in the season is a mistake. It should be consider are possibilities that allow to most rational and effective use object in many ways. Stadium should earn for it maintenance cost and as the important public invitation serves to the local commune.

User	Function	To game	No game	To field
Player	Match Training	x		x
Fans				
VIP	Match	x		x
Sponsor, club owners	Match Business meeting	x	x	

No field	Expectations	Comments	Conclusion
	Quality of playfield, facilities (change groom, warn-up room, etc).		
	Visibility, comfort, communication, safety, lots of toilets.		see page 138.
x	Better service than fans.	Places of business are not only wider, more convenient and more comfortable seats on the stand, but also access to the business: the use of the restaurant, terrace and participating in club business. My place of business gives a sense of belonging and prestige of the elite group of supporters VIP. Seats in the business, the seats upholstered with textile protective coating against atmospheric influences.	
x	VIP box	Boxes provide exclusive VIP viewing conditions for the match / event, and also provides space to develop a business relationships. It should be noted that the client will be able to use the box at its discretion - not only at events taking place on the stadium, but each day as need in time (e.g. as a conference room). VIP box should be treated so well as a place for meetings with customers and trading partners. This is an added value to your business - something that distinguishes and nobilities your company. Having own box symbolize a membership in the elite club, the prestige and the business opportunity to build new existing business knowledge.	

IL.165 proposal of VIP box, Baltic Arena, Gdańsk

IL.166 Shop, Allianz Arena, Munich



IL.167 vision of Chapel, National Stadium, Warszawa

Press	Match, Press conference	x	x	x
TV	Match Events	x	x	x
Shops	Commercial		x	
Restaurans	Commercial		x	
Events	Concerts, exhibitions, other events		x	x

x	Press sits, conference room, offices.		According PZPN regulations.
	Camera position, lighting, press facilities.		To consider: Camera positions, lightening.
x	Commercial space	It that localization optimal are mostly different types of sport shops, club gadget shop.	
x	Commercial space		
x	Space (on the play field), supporting facilities		

In the city of Częstochowa events (like concerts) on the sport object will be distributed between complex around Speedway Stadium and Raków Stadium. The chosen design solutions will have an impact on the choice of an appropriate building to the event.

Speedway Stadium + Sport Hall	Football Stadium Raków
19 500 + 7 000 hall	~15 000 + field depending on function
+ better flexibility in the use of surface	- protection of the grass
- roof- stand	+ full roof
+sport hall	
- bus lines, parking	+ good private and public communication, train station
+prepared to TV transmission	+prepared to TV transmission
+ more facility space around	

User profile - fans

The audience of football games is not homogeneous. We can divide people on the stadium into groups:

The first one is called: "real customers". These are mostly people in mature age, of a stable financial and good social position.
This part of the audience comes to the stadium, to participate in good sport show. The result of the match is a secondary issue for them and their behavior in accordance with the rule of "fair play". Looking for aesthetic experiences in the game, can appreciate the effort and reward applause rival teams and their makers are free from aggression.

Second group we can called fans. What distinguishes them from the spectators is the degree of emotional involvement on the part of one of the teams fight. These are in most young people, identifying strongly with the "their" team. They come to the stadium to see the team defeating the rival. Victory of the favorite team is treated in terms of personal success or failure becomes a personal disaster.

The third group form are so-called hools. The main reason for them to h come to the stadiums is not the case in their professions or interest in show, or bond with the favorite team. The result does not really matter to them. The stadium is the place where he can meet the need of strong sensations; find themselves in a situation full of tension and risk.
[„Szalikowcy – podstawowe informacje"
kom. Piotr Sielecki,kom. Piotr Sobiech, Zakład Tatyki i Technik Interwencji, Wydawnictwo Szkoły Policji w Katowicach, 2006]

If we treat readers of thematic periodic as the statistic representation of the sports fans we get a profile:

Sex	
woman	10%
man	90%
Age	
18-45	55%
>46	45%

Readers of "Tygodnik kibica" http://www.activevmedia.home.pl/?tygodnik-kibica

Conclusions

Group 1. Target customer. Stadium condition is part of the "product quality". Family as the perfect customer.

Group 2. Is after team so surrounding is less important. Their action are very emotional so tkey make some safety risks.

Group 3. Not interested in them. Only consider in aspect of safety.

Also remember about the audience of the tv-transmision.

PROJECT PARAMETRES

Size

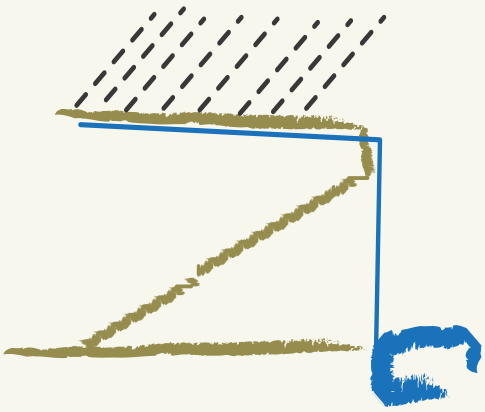
Base on similarities In city size and regional position between Kielce and Częstochowa the best option is to build building with the same amount places for fans. Number of 15 000 sits is most suitable chose in aspect of club develop perspectives (stadium will have much better standard than minimums for first league license)and organize others events.

Category	Requirements
1	Main tribune min. 200sits
2	15 000 individual sitting places
3	**15 000 individual sitting places, 2/3 under roof**
Elite	30 000 sits with min. 22 500 under roof
„Uchwala nr XIV/191 z dnia 28 listopada 2007 roku Zarządu Polskiego Związku Piłki Nożnej w sprawie niektórych wymagań technicznych dla lokalizacji i budowy nowych stadionów do gry w piłkę nożną”	

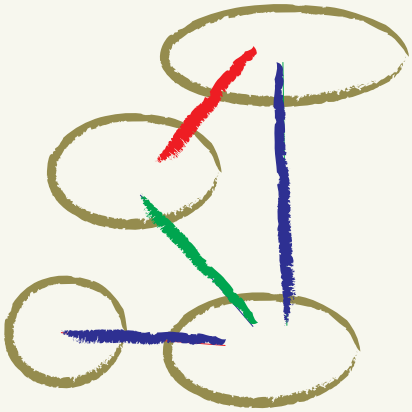
Toilets

In perspective of user „events” it was decided that male/female ratio will be not like standard for football stadium (80/20) but like multipurpose complex (1/1). However general rule will be that in that kind of building more is better.

Fans:	15 000	
	Men 1)	Woman 1)
Sex ratio	80%	20%
	50%	**50%**
Requirement: 2)		
1 WC per	200	
1 urinal per	125	
Min requirements:		
	WC	Urinal
Men	38	60
Woman	38	-
In the project:		
	WC	Urinal
Man	45	100
Woman	40	-
+2 handicap; VIP and media toilets		
1) “Stadia A Design and Development Guide” Geraint John, Rod Sheard ,Third edition, Architectural Press 2) „Uchwala nr XIV/191 z dnia 28 listopada 2007 roku Zarządu Polskiego Związku Piłki Nożnej w sprawie niektórych wymagań technicznych dla lokalizacji i budowy nowych stadionów do gry w piłkę nożną”		



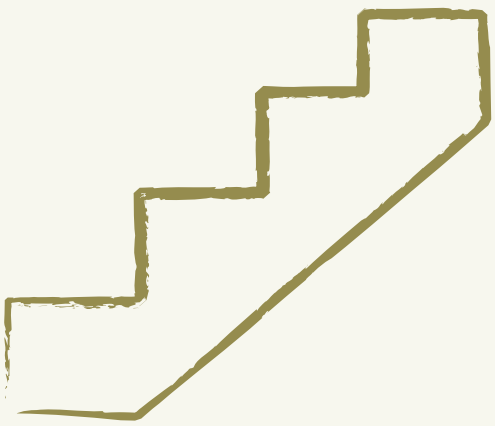
"FIFA has embarked upon an initiative to address environmental sustainability through the Green Goal programme – an initiative which FIFA fully expects its partners to embrace.
The principal goals of the programme are: the reduction in the consumption of potable water, the avoidance and/or reduction of waste, the creation of a more efficient energy system and an increase in the use of public transport to FIFA events."



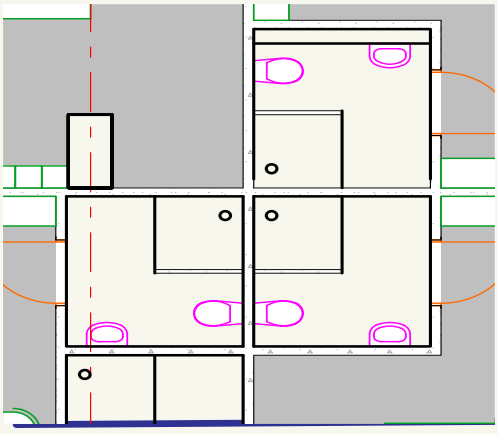
To consider idea of stadium as network of functional communication connections on the stadium and between stadium and surroundings.

To consider building in aspect of functionality. Form of elements should not base on "it is look nice" but have background in construction. E.g. sanitary accommodation should be place in blocs to supplicate future design of installations.

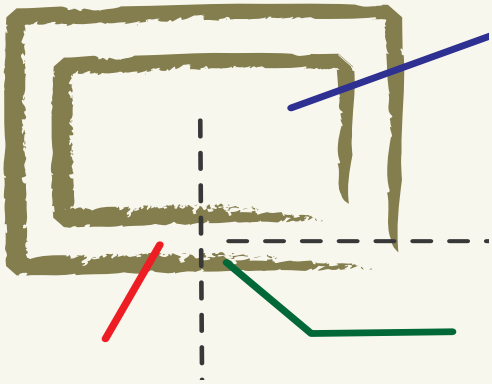
Best construction for modular systems like stadiums is prefabrication. Prefab reinforcement concrete elements are most interesting for stands as material with high strength, resistance to weather conditions and fire protection. The goal will be to reduce number of types basic elements.

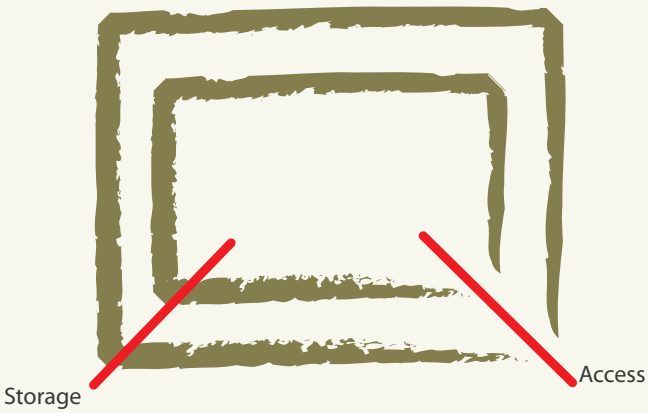


Accumulation of sanitary rooms would reduce future problems with design installation systems.

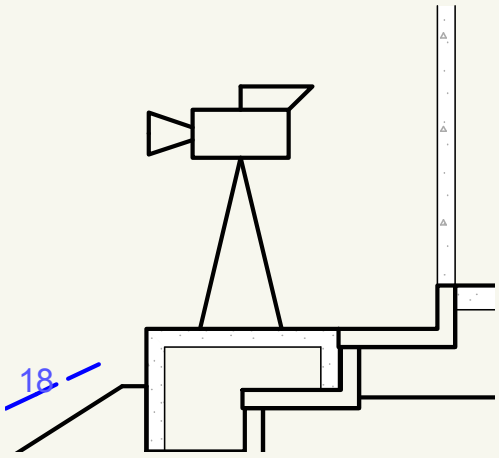


Design of building would divide it in separated functional systems for different users. I would provide comfort and security. Those systems are so located to take this separation also to outside communication (e.g. no crossing fans path with entrance for players).





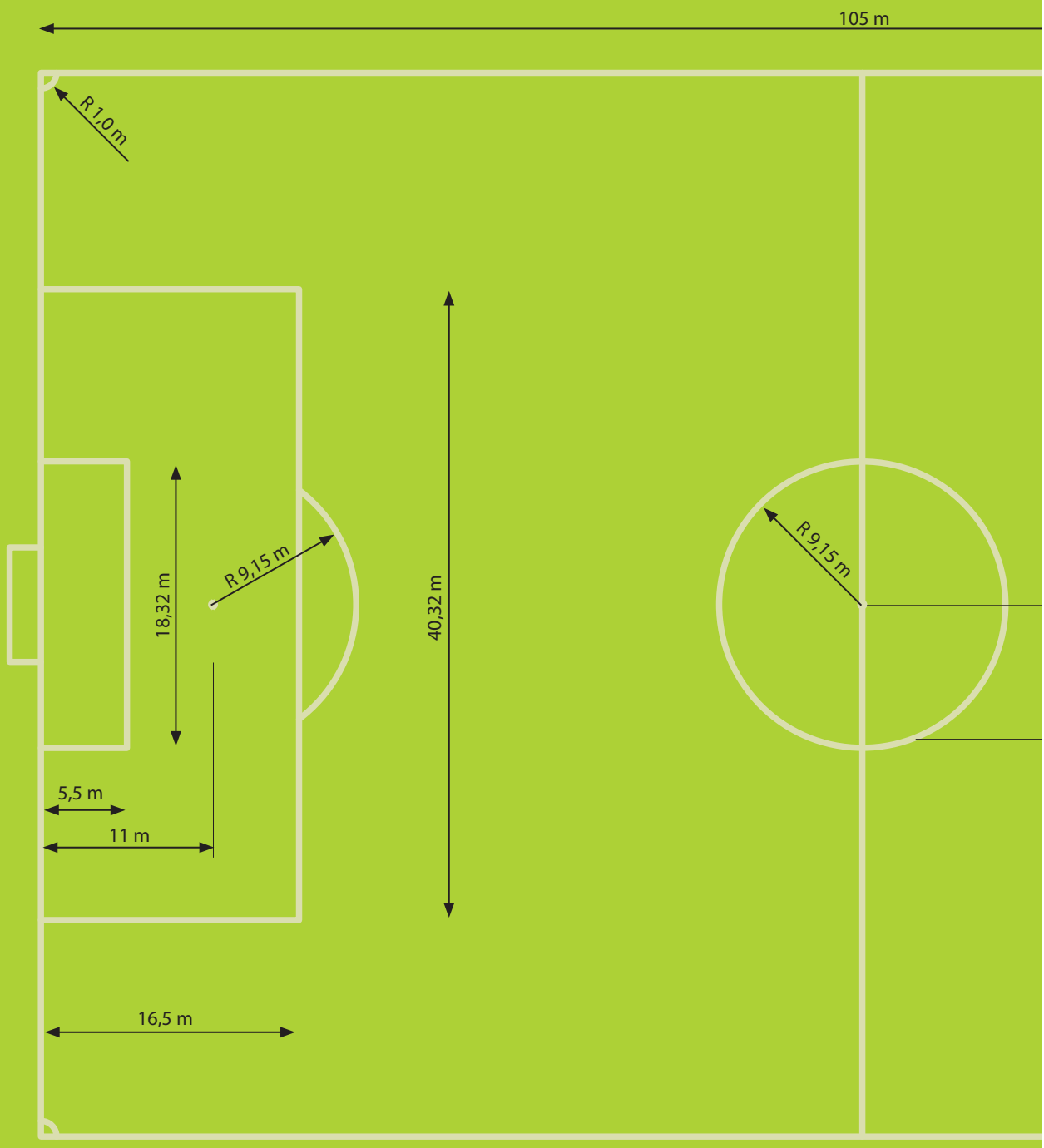
Entrance to the playfield to transport equipment for other functions (user"events"). Wide gate (e.g. IL141). Connection to the storages of the stadium; open connection to the road (external equipment, evacuation of the field).

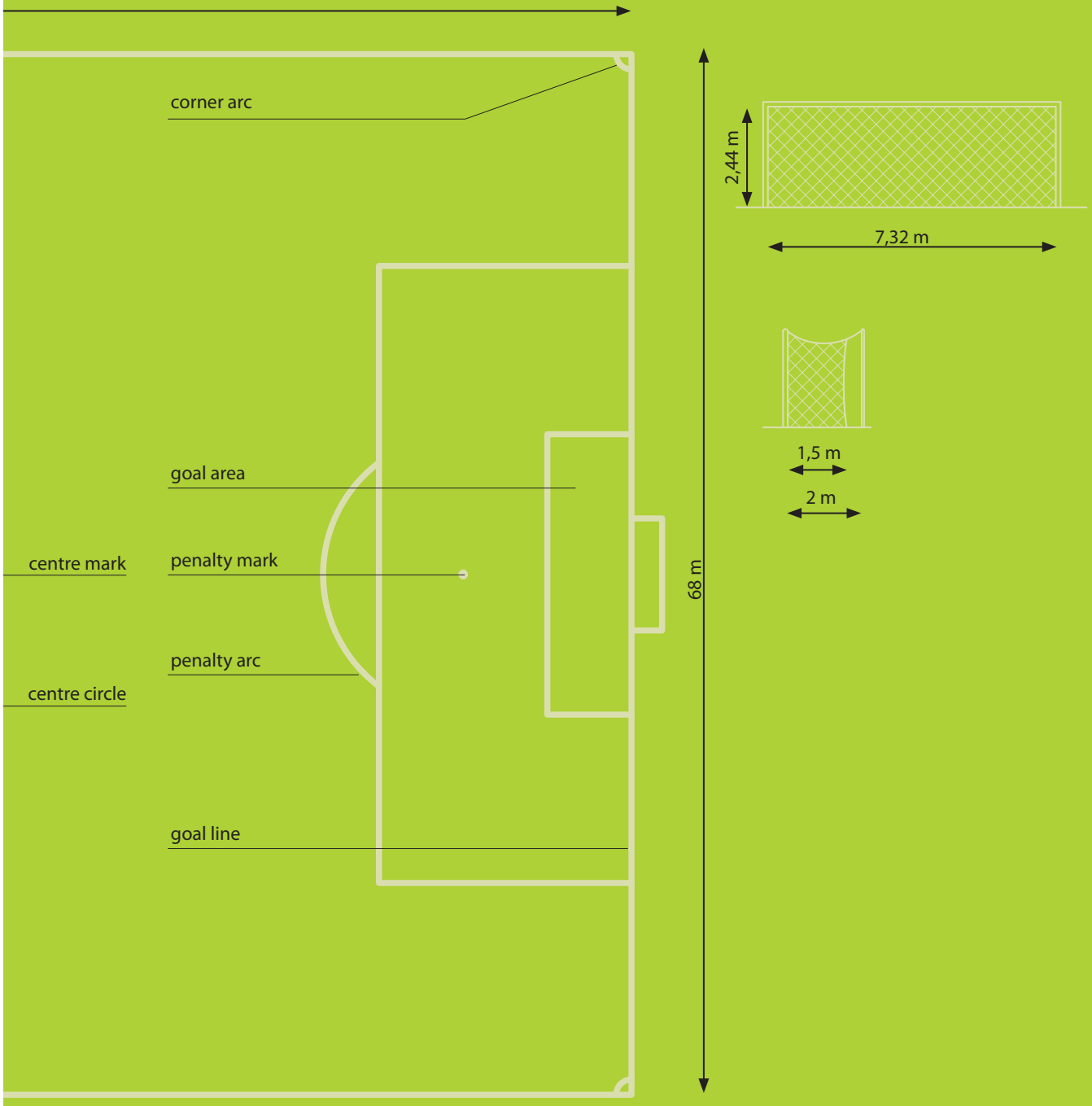


Consideration of many technical issues like location of TV-cameras or monitors as quality definition of the functionality.

Commercial space in the stadium as source of extra finance incomes. Shops, cafes would also increase interest of new public spaces around stadium.

Playing field





Playing field dimensios acording FIFA reciments

Field-grass

Natural grass playing fields

Football has traditionally been played on natural grass, which has a series of needs, as it is a living plant and changes with the seasons. Climatic conditions also vary in different parts of the world. For example, there are some environments in which grass grows all year round and others in which the seasons affect its condition. Natural grass requires light and nutrients; it must be tended and maintained and it also needs time. Particularly in stadiums, today's playing surfaces are no longer sown but are laid with instant turf. Although this saves time, the needs of the grass remain the same. Natural grass also struggles with modern stadium architecture, which deprives it of light and air. The grass also has to contend with the other purposes for which the stadium is used. With natural grass, the laws of nature cannot be circumvented.

Sports turf is now extensively cultivated and delivered as rolled or flat sod. The transplanted turf must be compatible with the substrate and the growth time mustbe monitored. The grass is susceptible to disease, wear and tear and regeneration times. Having qualified staff to take care of the grass is therefore of great importance, otherwise nature will take its own course.

Artificial turf playing fields

Artificial turf has become an acceptable playing surface for football as its development has produced a turf carpet that is especially designed for the sport. Artificial playing surfaces are now available that enable footballers to play both dynamically and safely.

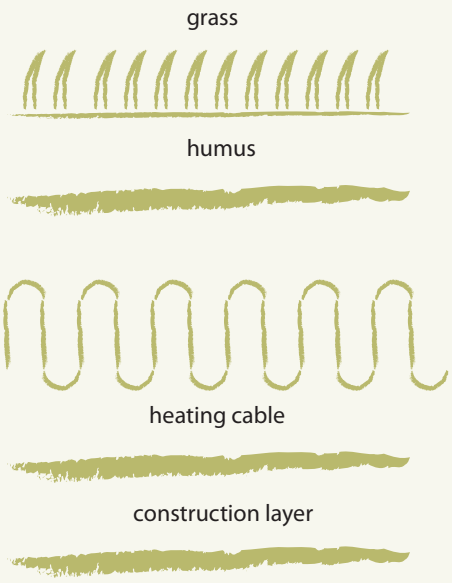
The advantages of an artificial turf playing surface are numerous. Artificial turf makes it possible to always have a green playing surface. Playing on an artificial turf carpet requires players to adapt to the surface but the evenness of the playing surface makes for a quick, precise game in which both technical and physical players stand an equal chance. In addition, artificial turf pitches can be used much more than natural pitches, increasing utilisation of both the pitch and the faci ity. Artificial turf pitches do not suffer damage due to inclement weather (e.g. rain, snow), whereas these elements can significantly affect the use of natural pitches. Regular maintenance, which is critical to keep artificial turf pitches in top shape, is less expensive than maintaining a quality natural turf pitch. For these reasons, artificial turf is a viable and attractive alternative to a natural turf pitch. and informative role with regard to the choice of a suitable turf carpet. The work should only be awarded to firms with specialist and local knowledge and specialist equipment.

Under soil heating system

In Polish climate using under soil heating in footballs fields is natural chose used on all professional football field in country.

Main benefits:
-Prolonged season
-Earlier growth of grass
-The field dries quickly after rain

Example of system:
"With deviflex™ heating cables installed in football fields or golf courses the soil can be heated and the growth of grass can start early in spring. The area will then be ready up to two months earlier than usual. Furthermore the season can be prolonged in autumn when the period until the grass stops growing can be extended by means of heating.
he heating cables are installed 25-30 cm below the surface to avoid damages to the cables in connection with use of e.g. vertical cutting but well over the drain pipes. The temperature at the root zone of the grass, i.e. approx. 10 cm below the surface, will be 6-10°C."
[http://www.devi.co.uk/solutions/sports_fields.html]



Field orientation

Great care must be taken regarding the direction of the playing field in relation to the sun. Match participants, spectators and media representatives must be protected as much as possible from the glare of the sun. However, the effect of a stadium's roof on the playing field must also be considered. When there is a natural grass pitch, it is critical that there is enough light and air movement to sustain the healthy growth of grass. All sides of the playing field must receive a reasonable amount of direct sunlight.

A north-south field orientation is often considered ideal but more sophisticated analysis has led stadium designers to choose an angle equal to the average direction of the sun at half time in a afternoon game.

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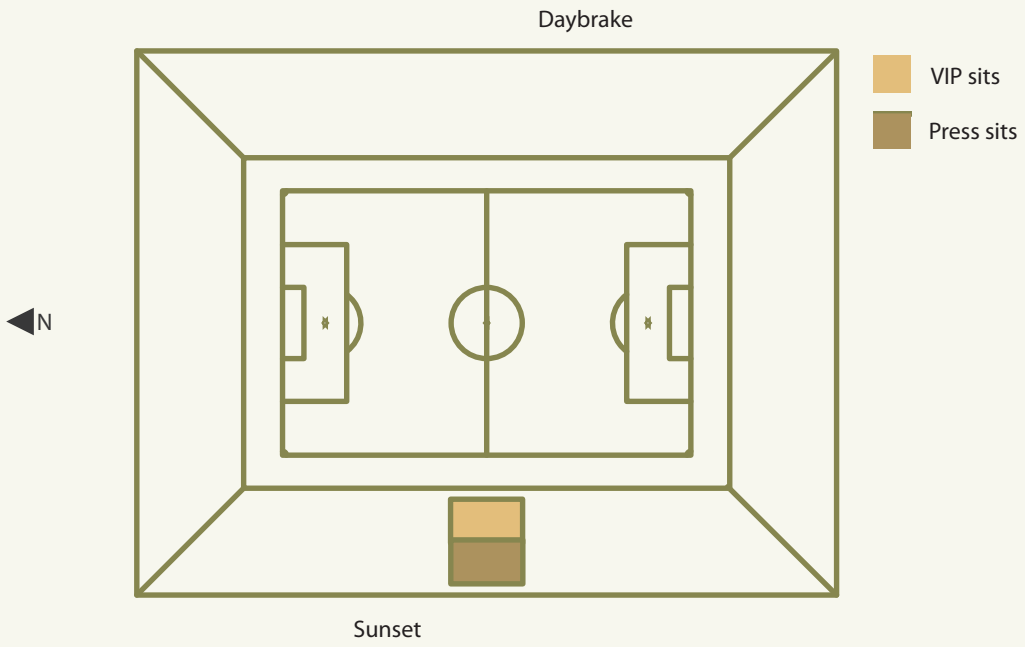


Main tribune

VIP

The VIP tribune should always be located on the main stand and has access to the dressing rooms, media facilities and administrative offices.

The VIP area should have its own private entrance from outside, separate from the public entrance gates, leading directly to the reception area and from there directly to the viewing area. There should be an elevator between floors which should be connected to both normal and emergency power supply.

PRESS

The press box must be in a central position in the main stand where the players' resting rooms and the media facilities are situated. It should be centrally located on the half-line of play field, in a position that provides a non-obstructed view, without the possibility of interference from spectators. There should be easy access to and from other media areas such as the media centre, the mixed zone and the press conference room. The permanent press seats should be equipped with desks large enough to accommodate a laptop computer and a notebook.

Playing field - auxiliary

Auxiliary area

Additional flat areas are required beside the playing field, ideally behind each goal line, where players can warm up. It is recommended that this be a minimum of 8.5m on the sides and 10m on the ends.

Grass area

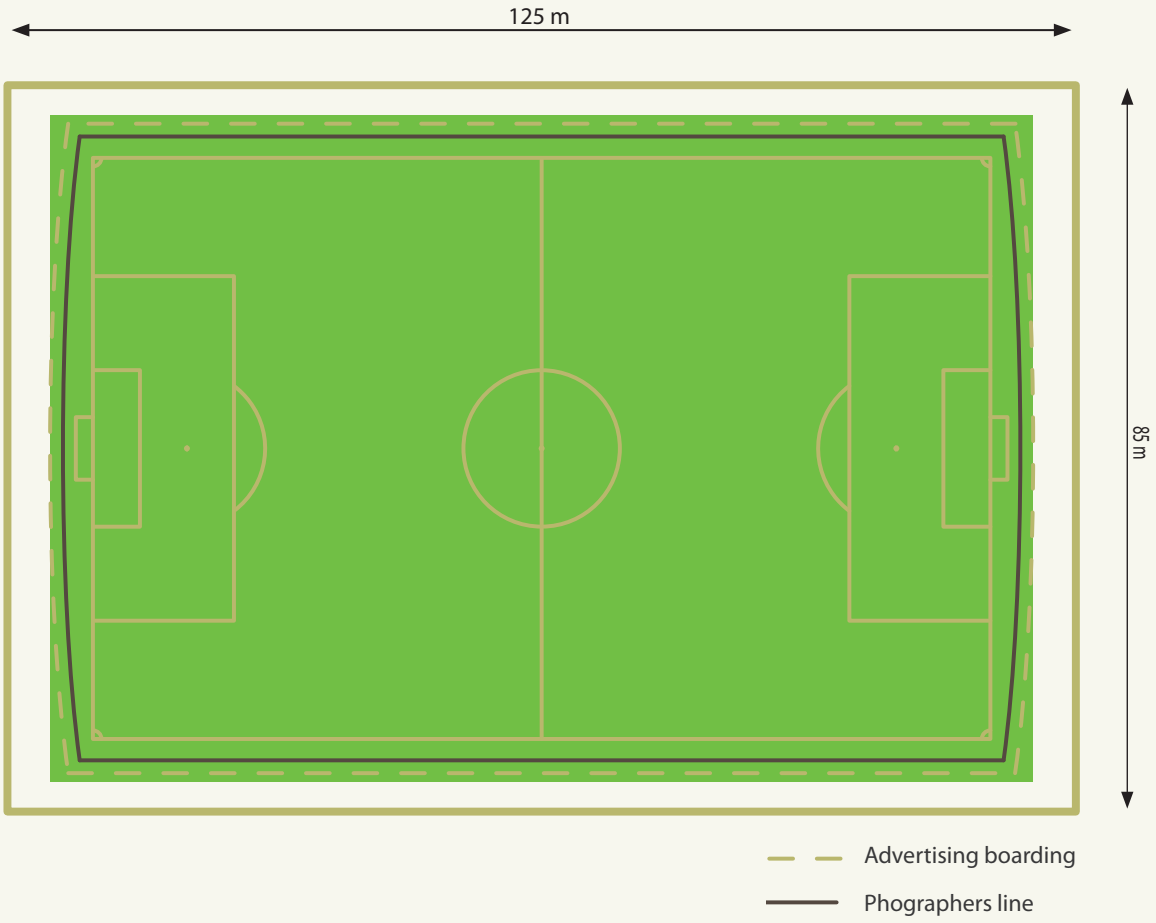
In this area, a minimum of 5m on the sides or touch lines and 5m behind the goal lines, reducing at an angle to 3m near the corner flags, must be of the same surface material as the playing field.

Advertising boards

Advertising boards around playing area have a height of 90 - 100cm. The minimum distances between the boundary lines of the playing field and the advertising boards should be: On the touch lines: 4 - 5m, behind the goal lines: 5m, reducing at an angle to 3m near the corner flags.

Substitutes' benches

There should be two substitutes' benches. They should be situated either side of the halfway line, parallel to the touch line, outside and at a distance of five meters from the playing field. The nearest point of each bench to the halfway line should be at least five meters from the point where the halfway line meets the touch line. The benches should be equidistant from the touch line and the halfway line.
Each bench should be capable of accommodating up to 22 people.


125 m
85 m
Advertising boarding
Phographers line

Stadium location

Actual orientation of the stadium is optimal to FIFA suggestions. North-east orientation of playfield should by safe. I propose to work on original "zone" of stadium. Different is changeling places between stadium and training fields, which would give lots of benefits to the stadium functions and its relation to the surroundings.

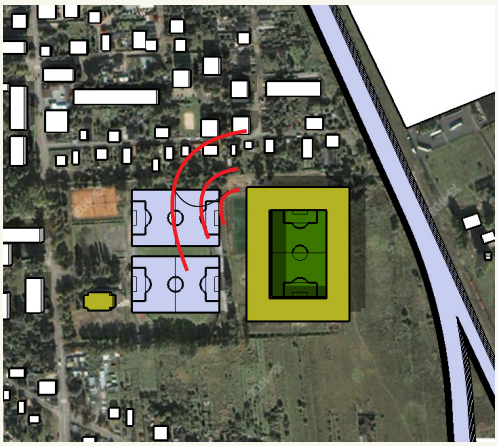

TRAIN

Access

Access for spectators to the stadium from Limanowski Street, ticket boxes are build in fence of complex so fans have to wait in narrow pavement. New position - stadium entrance to open fields. They are not attractive for housing invest (next to train line and heavy industry), but it is perfect space for interesting public square as enclose of "Iron Passage". Stadium will be open from many sites what gives many opportunities of convenient enter-gates. It also allow to design fast escape routes.

Club building

Stadium will have own preparation rooms for players so existing club building will take administration and training functions. Next to training playfield it will create one practice zone.



Sound

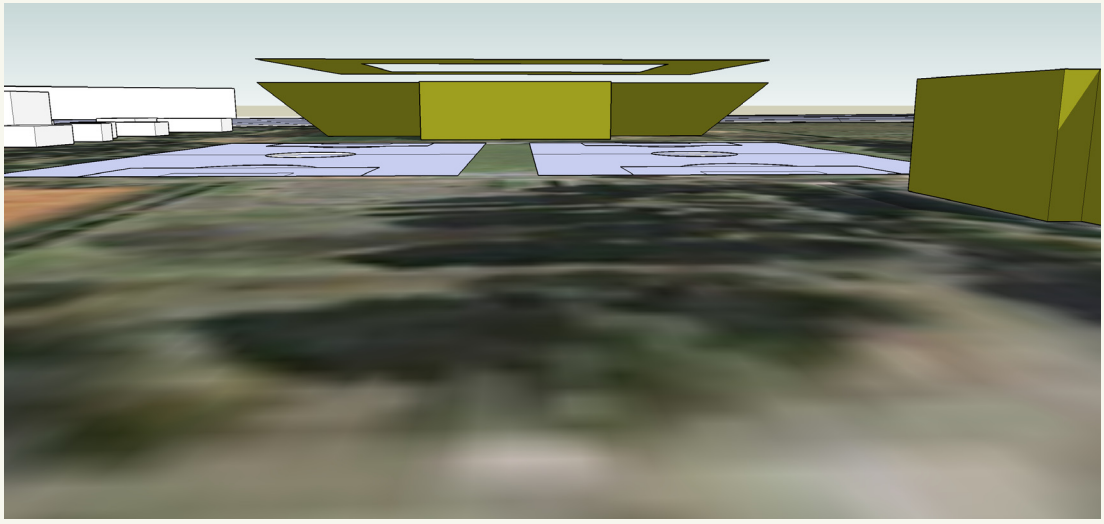
The farer distance from the stadium will cause less noise to the multi-storey buildings in West direction.

Sun

Tribune of Honor (VIP, Press) should be located on sunset site. The best option seems to be West stand. There will also be located all supporting facilities for VIPs, media and players.

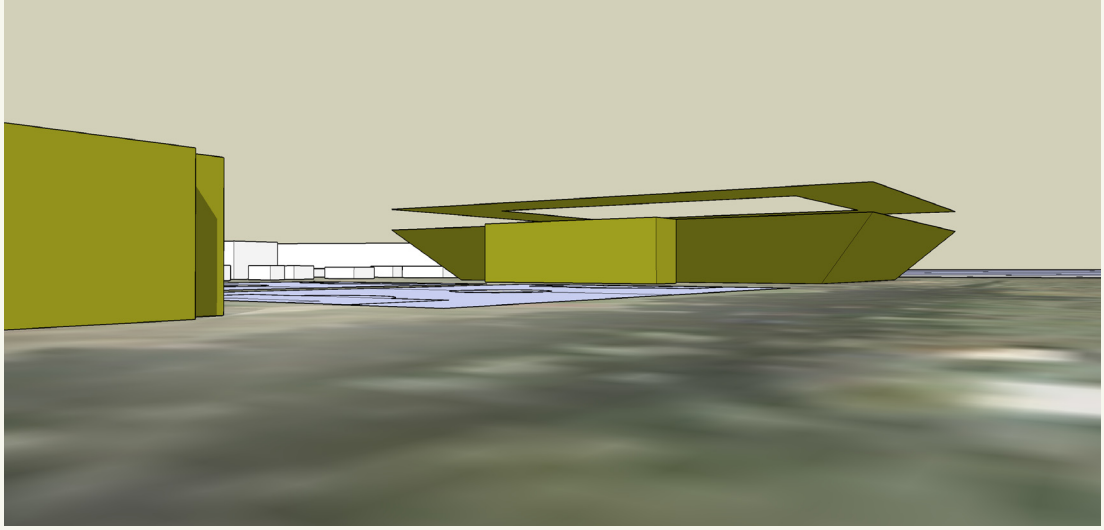
Matches are usually played in the evening, because of it can we can assumed that rooms will be used in afternoons. West windows are the best direction for the light in that time. In proposal in front of club building there will be training fields so there will be no problems with shadows, and we will have maximal use of daylight.

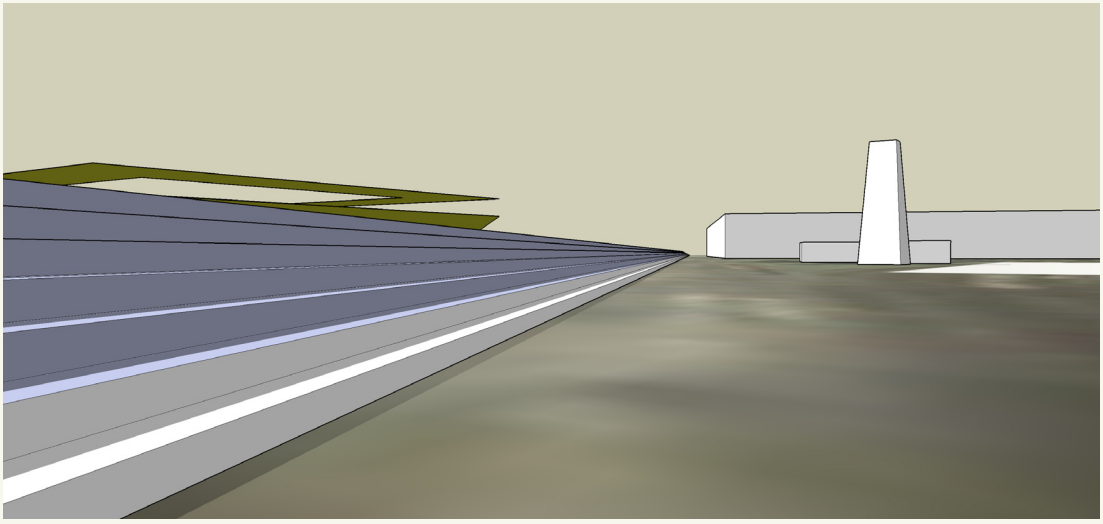
Stadium location - views



The stadium seen from the front, Limanowski Street. Representation view is accented by symmetry which is also referring to the tradition of socialist-realism club building and axial city urbanism.

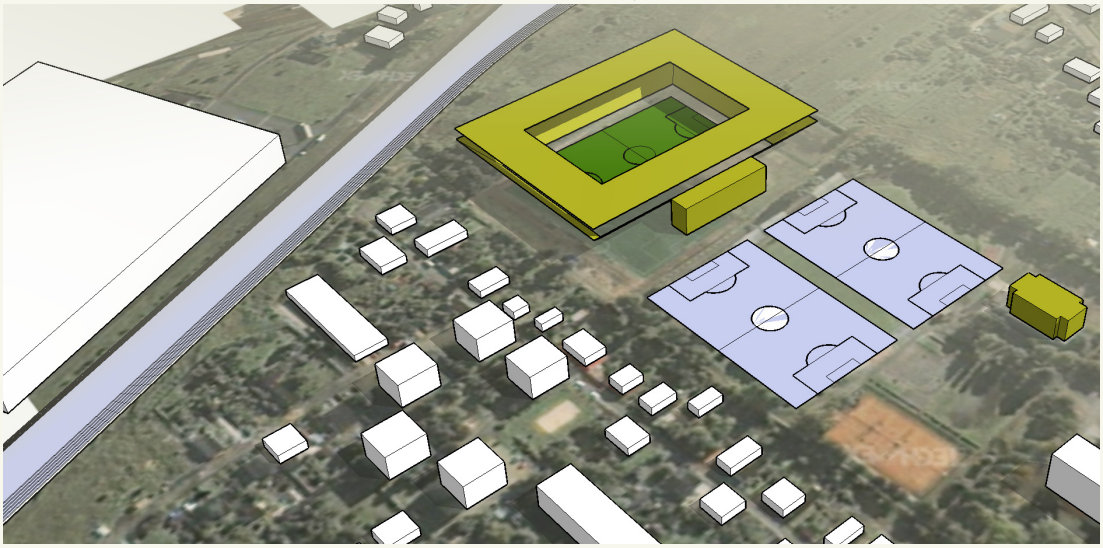
View from the tram loop. From distance we can see a whole building.





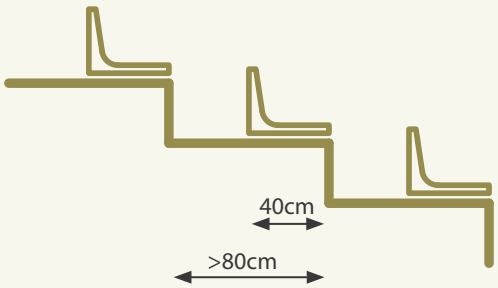
Now stadium is no visible to passages in train (only light masts). Now they could be attracted by “fragment of what building it is?”.

Sky view

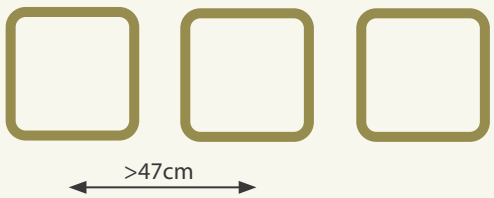


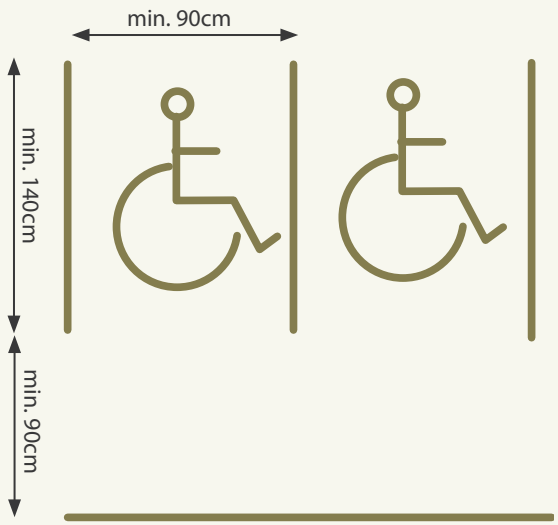
Seats

There should be sufficient leg-space between the rows of seats to ensure that spectators' knees do not touch the seat or spectator in the row in front and to make it relatively easy for spectators to move in and out of the rows even when they are full. This is an important safety factor which has not always been taken into consideration. To achieve reasonable leg-room, a minimum distance of 85cm from backrest to backrest is recommended. The width of the seat is critical for spectator comfort. An absolute minimum width should be 45cm while a recommended minimum is 47cm.



There should be a clear view of the playing field from all seats. In calculating the sightlines it should be appreciated that advertising boards of 90 - 100cm in height may be erected around the field at a distance of four to five meters from the touch lines and five meters behind the centre of the goal lines, reducing at an angle, to three meters near the corner flags. Simplified minimum criteria should be that all spectators in the stadium can see over the head of a spectator seated two rows in front in a direct line.



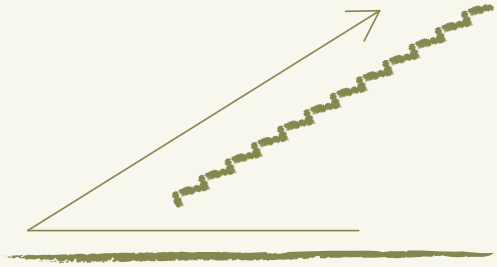


Spectators with disabilities

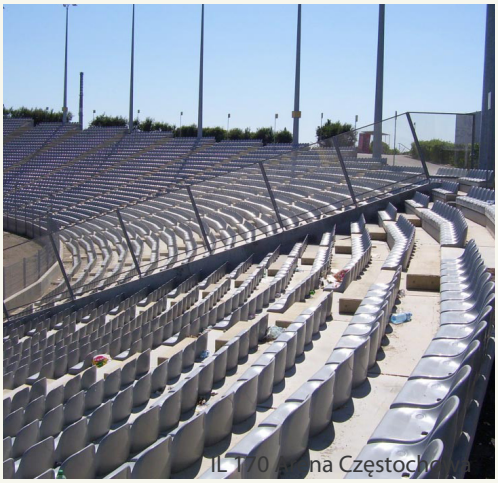
Proper provision should be made at all stadiums to accommodate spectators with disabilities in safety and comfort. This should include the provision of good, unobstructed viewing facilities and ramps for wheelchairs, toilet facilities and support services. The quality of seating positions and ticket 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 VIP, VVIP, 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.

Stands

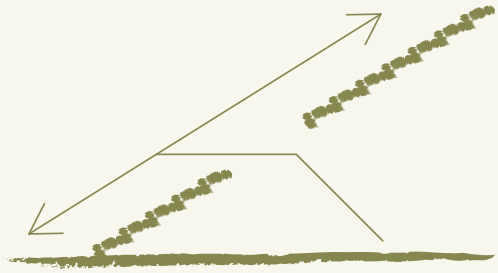
Parameters of the stands are determine by quality of visibility and requirements of seats space so in stage of basic design of stands architect have to decide access road to chairs. That depends on influence of many extra elements, like relation to range of the roof or VIP and press places, however we can mark out few general types of entrance to the stands.



In stadiums Neuchâtel or Alkmaar access to the stands is located on ground (play field) level and distributed up by steps on stands. It is very simply construction – no need extra staircase. In Alkmaar exist external staircases because of the higher level of first row of chairs but still this is easier solution that stairs under stand. The exact the same way of access to the chairs we find in every earth-stand stadium like Arena Częstochowska (IL.170). The minus is that all flow of people is in one direction. It can make communication difficulties, especially during evacuation. Probably because of this, it is use only in smaller stadiums.



IL.170 Arena Częstochowska



Entrance is move up, have form of a hole in the stand structure. There is no different that seats starts on field level or up. It is necessary to add construction supporting staircase. Communication from staircase is distributed on steps in two directions up and down. Examples of that solution are stadiums in Fürth, Osnabrück and Cape Cost Stadium in Ghana. Space under stand is used. As conclusion we can say that kind of entrance is popular in modern, middle size stadiums with beam-column construction of the stands.

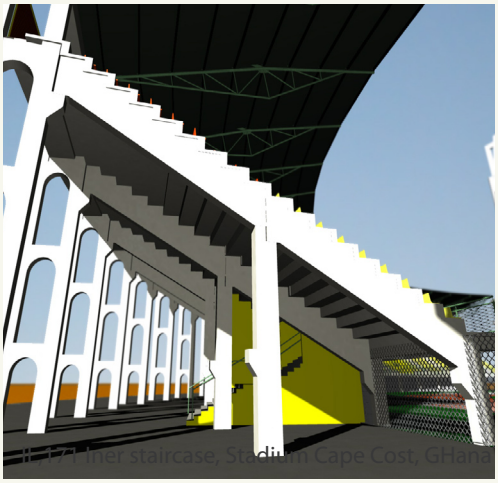
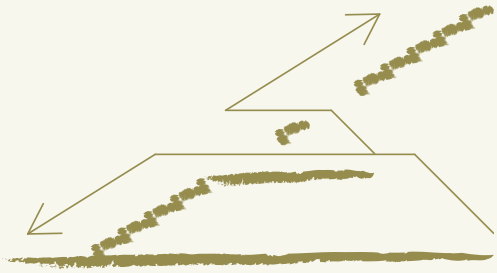
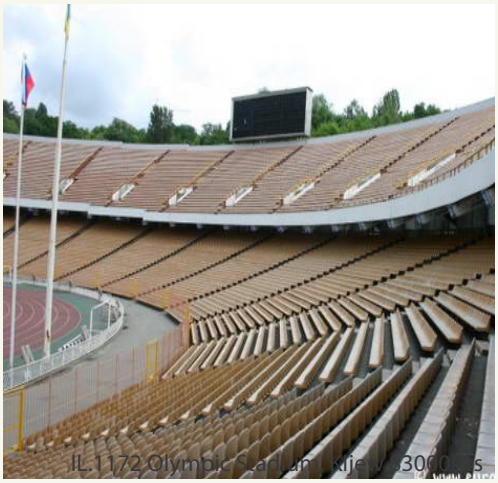


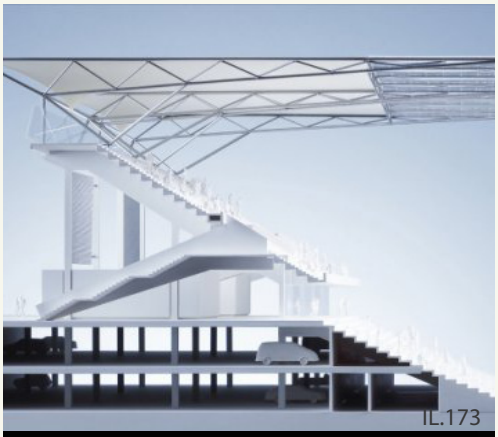
Fig. 1.21 Inner staircase, Stadium Cape Cost, GHana

This entrance is a mix of two previous. Stadium has form of two stands with communication platform between them. That separates of communication into "two" stadiums better distributes visitors flow. It is also divide stand vertical in more sectors (IL.162). because of that reasons it is popular usually use in design of big stadiums (IL.172), but examples of Korona Kielce and Auguste-Delaune Stadium shows that it is also successful proposal for middle size stadiums.

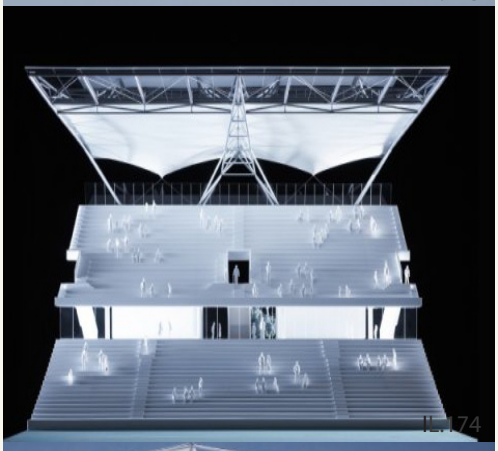




IL.1172 Olympic Stadium, Kiev, 300[illegible]s



IL.173



IL.174

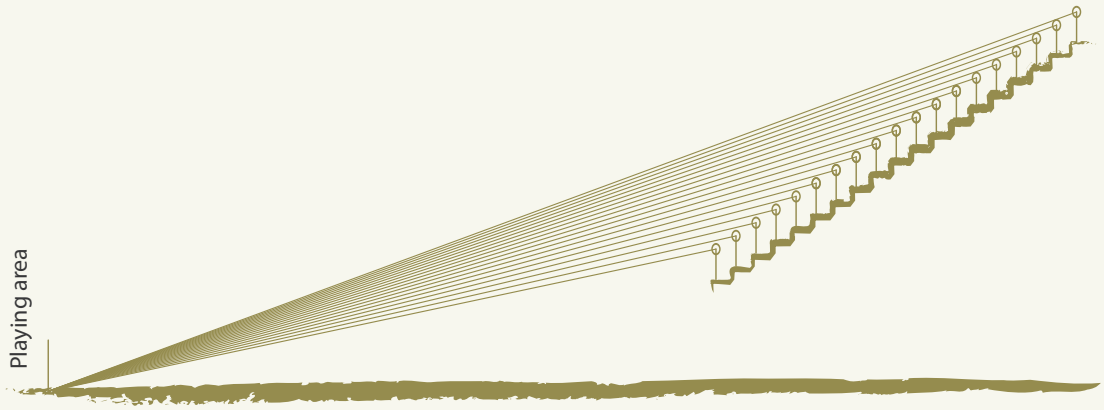
IL.175

IL.173-175 Sections of Legia Stadium (31000), Warsaw, Poland:

First level of stands as parking from outside looks as earth-bank stadium with representative stairs. Stadium look has only second level of stands. Stadium seems to be smaller (decision make to relation to local contest).

Visibility

There should be a clear view of the playing field from all seats. In calculating the sightlines it should be appreciated that advertising boards of 90 - 100cm in height may be erected around the field at a distance of four to five meters from the touch lines and five meters behind the centre of the goal lines, reducing at an angle, to three meters near the corner flags. Simplified minimum criteria should be that all spectators in the stadium can see over the head of a spectator seated two rows in front in a direct line.



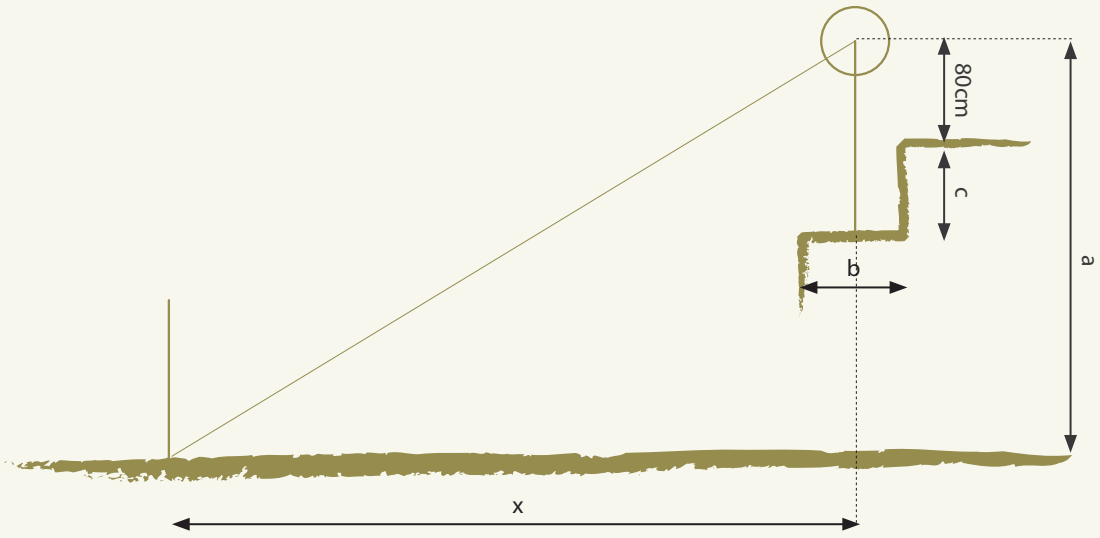
Line of visibility is calculated according formula:

x=(a*b)/(c-12)

Calculation of the visibility line (x- horizontal distance from playfield to the seat) for 21st row (see next page): [cm]

a	b	c	x
1365	85	40	4143,8
1365	85	45	3515,9
1365	85	51	2975,0
1365	**80**	**51**	2800,0

It is only football stadium so for the best visibility gives the small distance from playfield to the stands. 80cm width and 51cm height seems to be the best option of slope of the stands in aspect of regulations and user comfort.

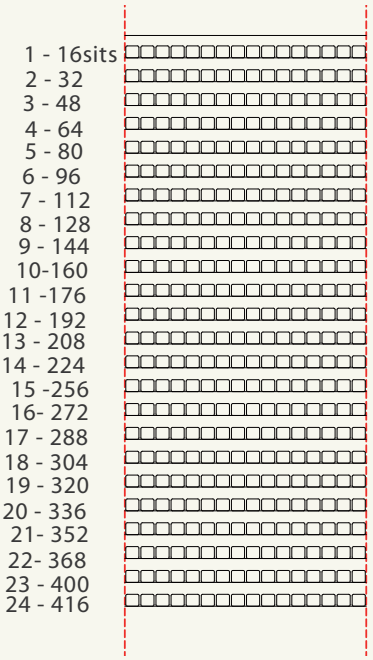


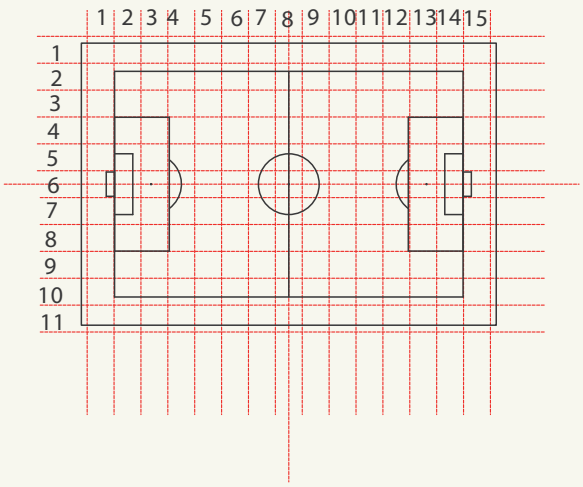
Stands design

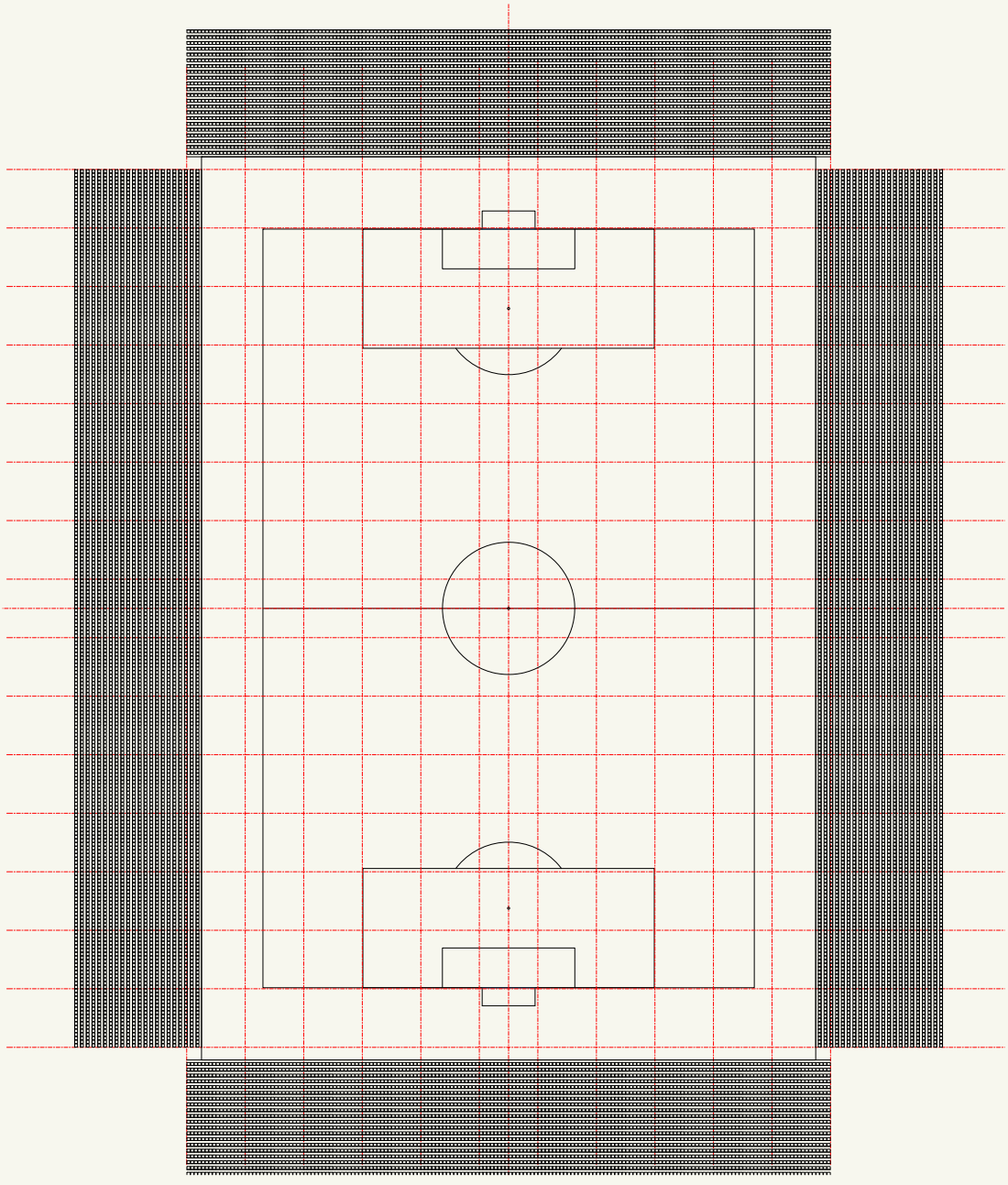
For the module unit for stands there should be consider parameters of transport (width and weight of element) and load (span between supporting beams, width/height ratio). The prefab concrete elements between 7 and 12m have best economic senses. I chose 8,1m as multiply of 3M.

With module and distance from playfield we can calculate primary number of necessary rows of sits. We have to remember that we need reserve more chairs on this stage because of the future entrances, steps, cameras places, etc

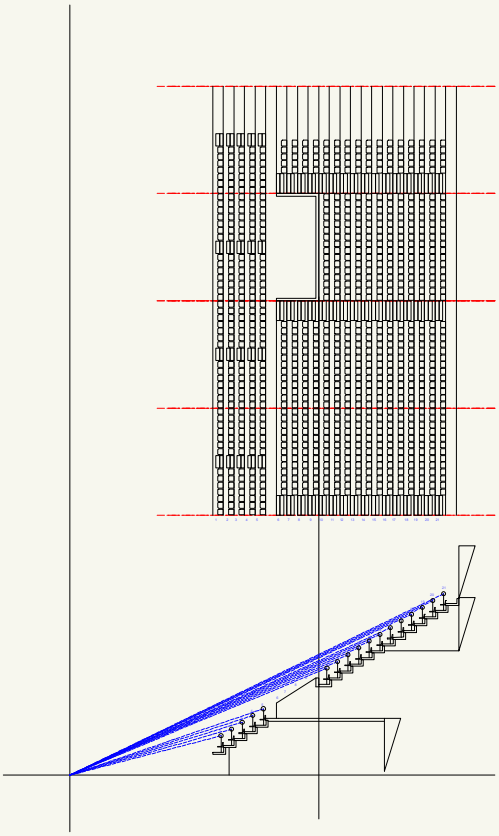
Raws	**Sits**
1	832
5	4160
10	8320
15	12480
18	14976
19	15808
20	16640
22	**18304**
24	19968





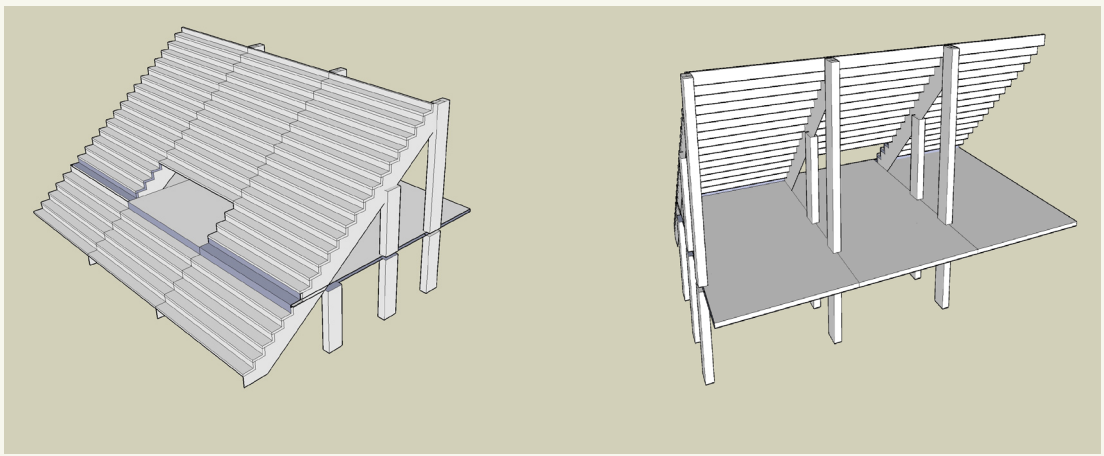


Stand - entrence



Entrances to the stands have very simple idea. Some elements are removed to make opening in stand. It is solution between stand with staircase and two levels stands. It do not have main disadvantage of them. There is no need for extra supporting constructions for staircases. All modifications in stands are made by no mounting one type of prefab beam.

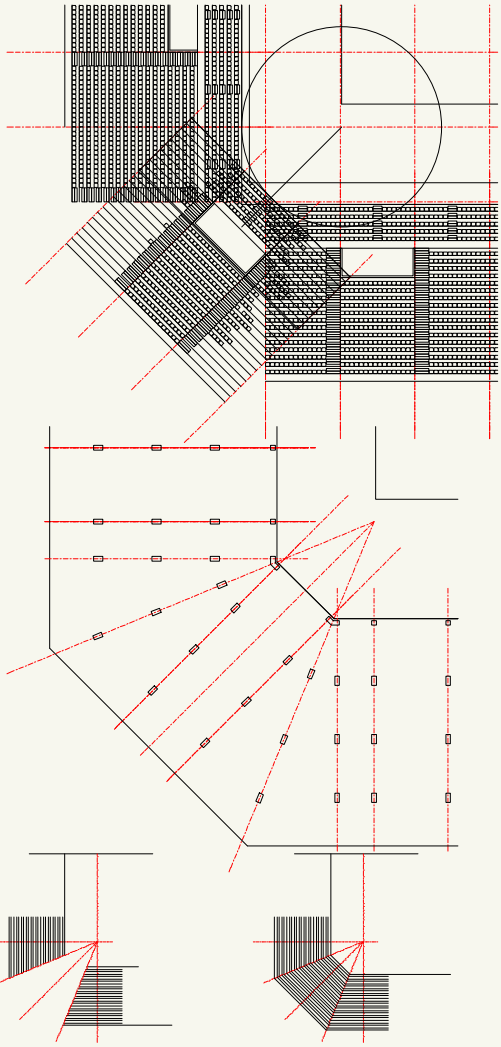
Access platorm inspires interesting solutions for communication systems where is natural vertical separation between level of shops/ storages and level of fans.

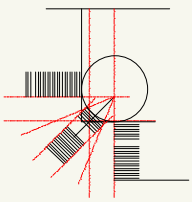


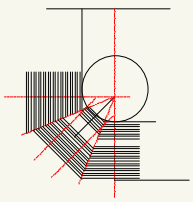
Stand - corner

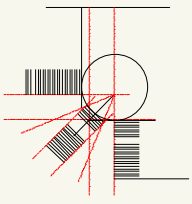
45degree chamfer corners will give simply construction and good visibility for the fans in the corners. It is effective and popular solution in the football stadiums (Il.145, 162).
Also here we see continuation of 8,1m defeat module.

Secret of good corner is hidden in good module network (small different in distance to the field between site stands, with consideration of visibility line) that bisector ax is exactly in the middle and all parts pass together perfect.

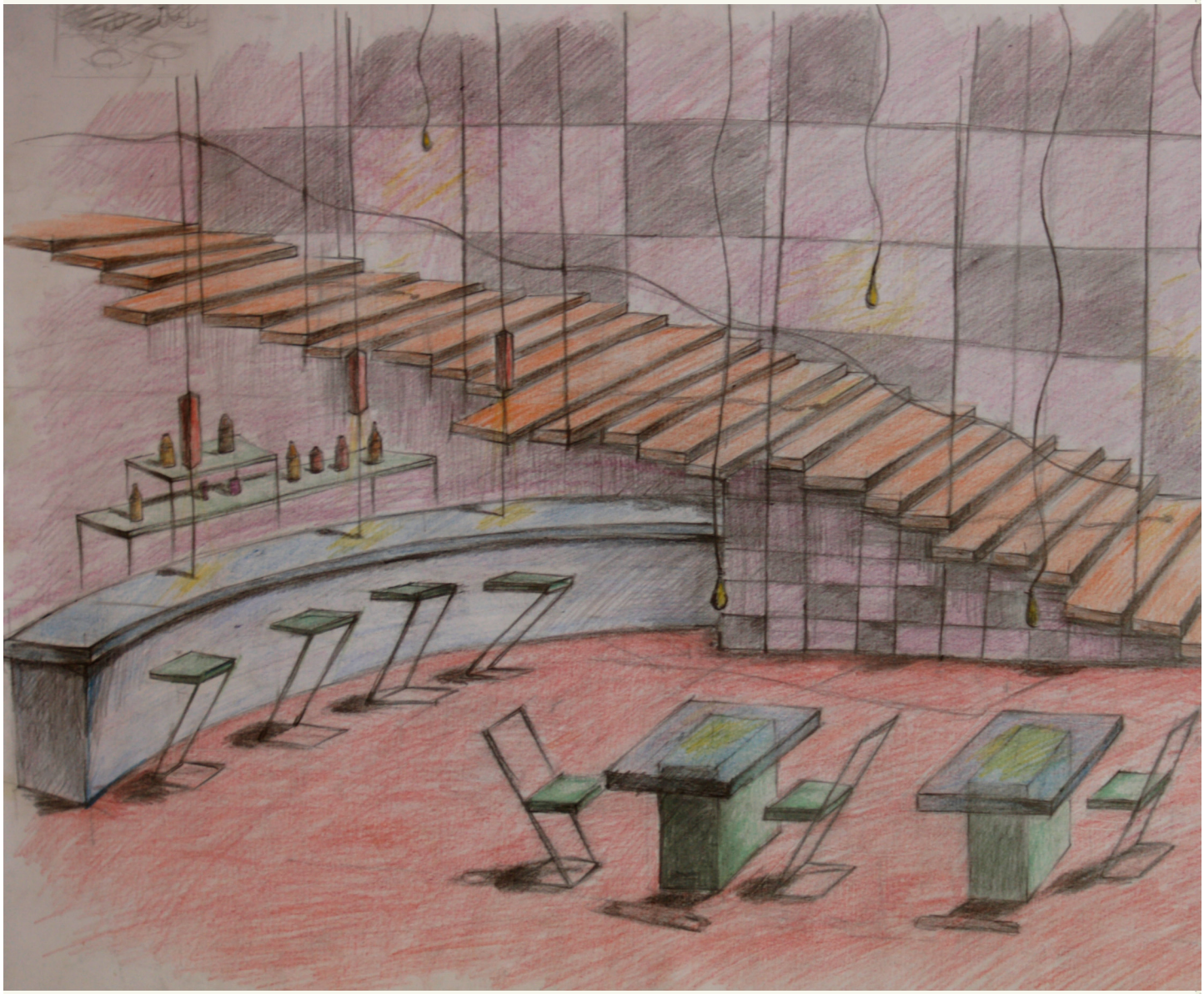


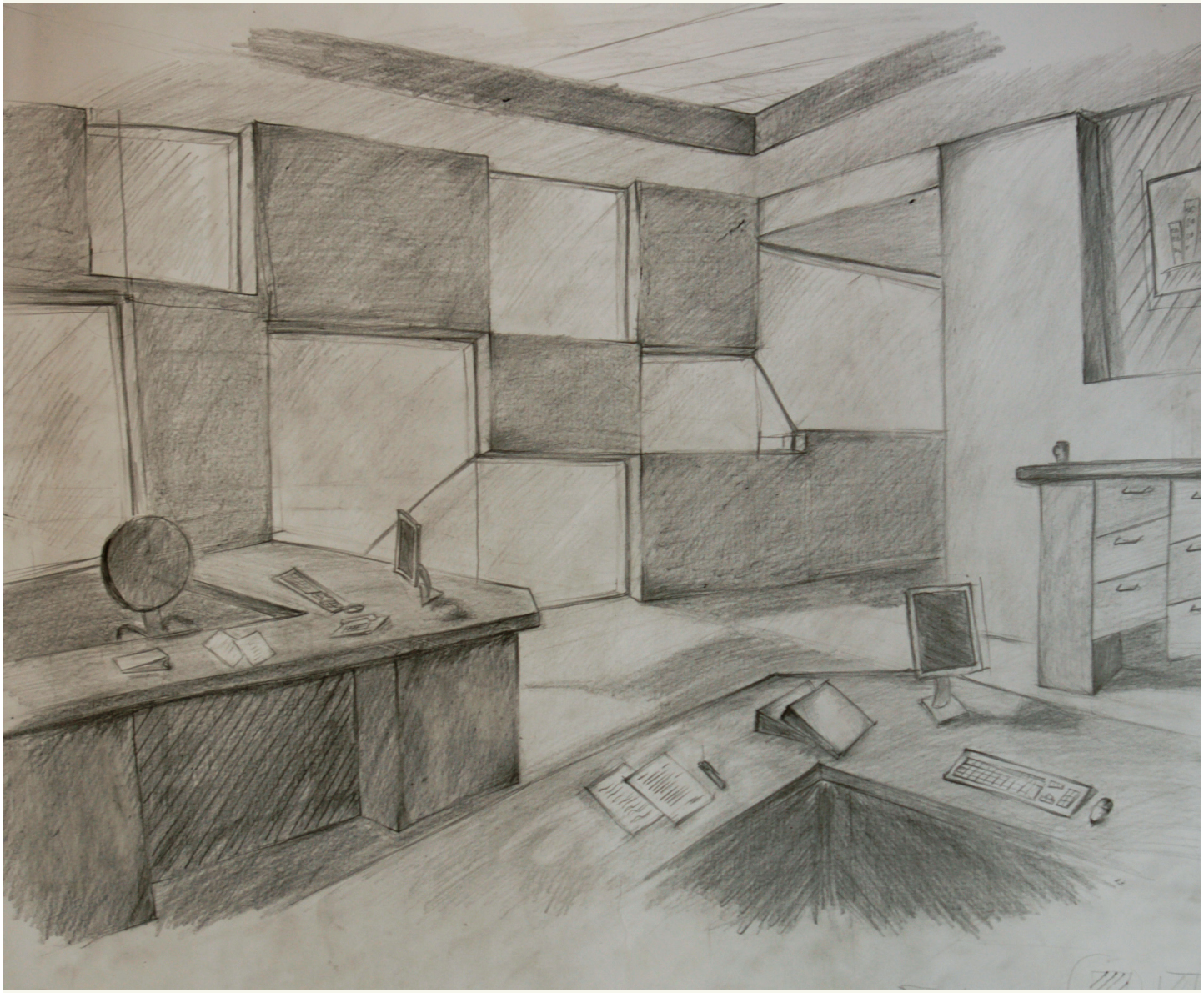






Club building





Free sketching of interior. Author: Łukasz Łodzinski

Players

PZPN 1)			FIFA 2)		
Room	**Area m²**	**Room**	**Area m²**	**Room**	**Equipment**
Change room	100	2x ,5 showers, 3 toilets, 1masagge table, 1 tactic demonstration room board	150	2x, The massage or treatment area should be separated from, the dressing space	Bench seating for at least 25 people, clothes-hanging, facilities or lockers for at least 25 people, and 3 massage tables.
Warn-up			100	2x	
Coaches' office			24	2x	shower
Referees' area		5 sits, table, shower, toilet	24	2 showers, 1 washbasin, 1 urinal, 1 WC	lockers for 4 people, 4 chair, or bench seating for 4 people, a table with 2 chairs, a massage table, a refrigerator, a tactical demonstration board, a telephone (external/internal) and a television

Match delegates' area		Have to be		1 WC and 1 washbasin	desk or table, 3 chairs, a clothes locker, a telephone, (external/internal), a fax, a photocopier and a television set
First aid and treatment room		Have to be	50	2 portable stretchers, Toilets with showers,	Medic equipment
Doping control room	24	Next to players rooms, waiting room, working room, toilet	36 total	waiting room, a working room and a washing facility with shower	a desk, 4 chairs, a washbasin and mirror, a telephone, (external/internal) and a cabinet with a lock for sample bottles.

1) „Uchwala nr XIV/191 z dnia 28 listopada 2007 roku Zarządu Polskiego Związku Piłki Nożnej w sprawie niektórych wymagań technicznych dla lokalizacji i budowy nowych stadionów do gry w piłkę nożną"
2)FIFA „Football Stadiums Technical recommendations and requirements

Media

PZPN 1)			FIFA 2)		
Room	**Area m²**	**Room**	**Area m²**	**Room**	**Equipment**
Mixed zone				The purpose of the mixed zone is to permit representatives of the media to talk to and interview the players as they pass through.	
Conference room	75		100	100 seats	sound system, chairs, podium, electric box
Press	100 sits including 50 with desks	stand	Media centre (parameters for big stadiums with important international and league plays, not to consider for Raków Stadium scale object)		
TV studio	Min 5x5x2,3m				
TV/Radio broadcast desk	25sits				
Camera position	10	Min. 1 on the main stand			
Working room	150				Tables, communication equipment

VIP

PZPN 1)			FIFA 2)		
Room	**Area m²**	**Room**	**Area**	**Room**	**Equipment**
VIP sits	200 sits		(parameters for big stadiums with important international and league plays, not to consider for Raków Stadium scale object)		
Party room	400				

1) „Uchwala nr XIV/191 z dnia 28 listopada 2007 roku Zarządu Polskiego Związku Piłki Nożnej w sprawie niektórych wymagań technicznych dla lokalizacji i budowy nowych stadionów do gry w piłkę nożną"
2)FIFA „Football Stadiums Technical recommendations and requirements"

Functional structure

Players

Media

Vip

Supporting functions

Minimum demands

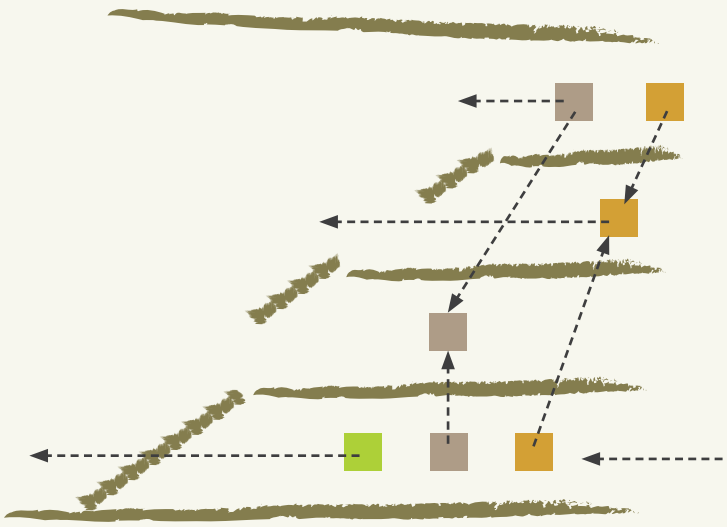
Proper functionality

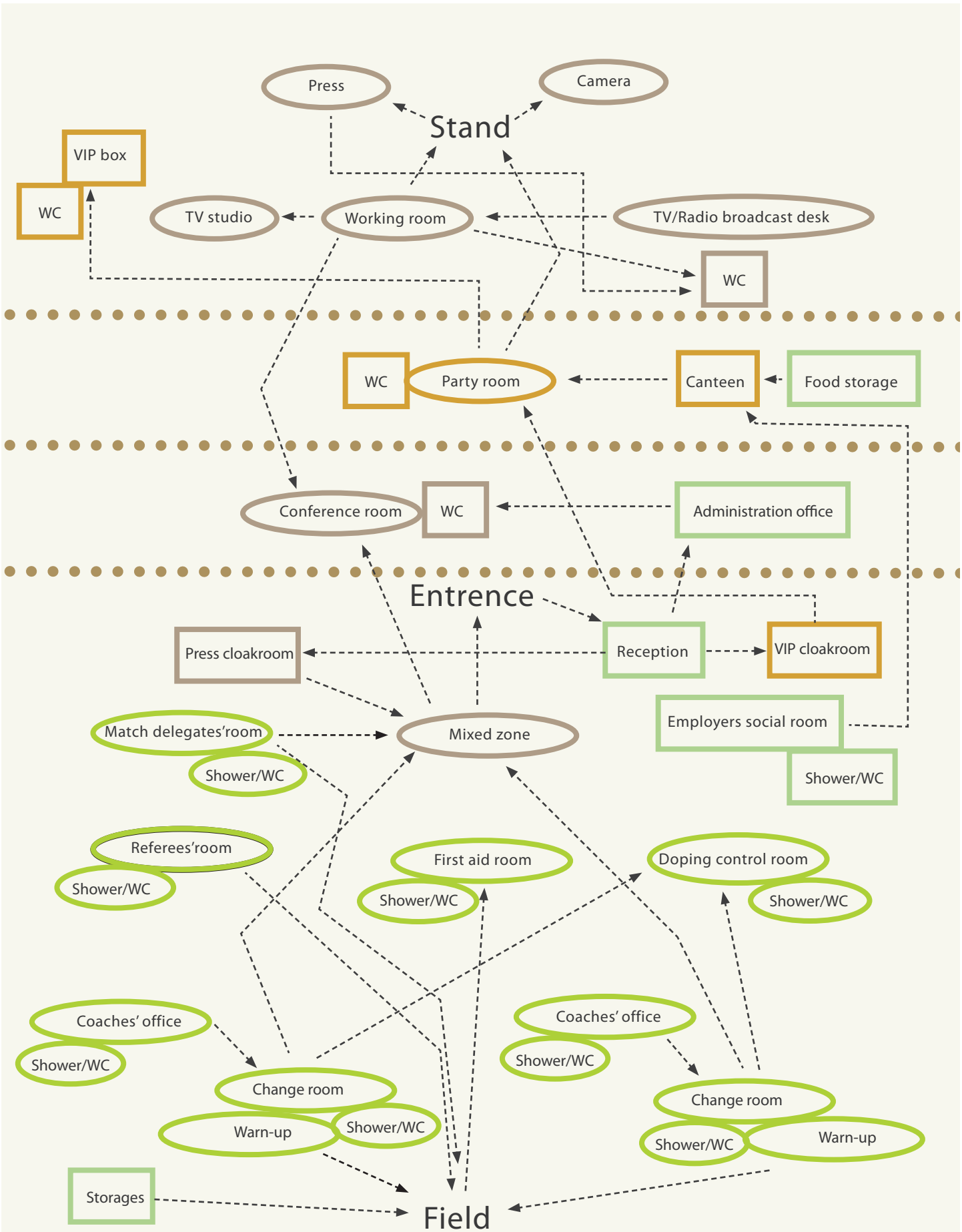
Level 3

Level 2

Level 1

Level 0




Press
Camera
Stand
VIP box
WC
TV studio
Working room
TV/Radio broadcast desk
WC
WC
Party room
Canteen
Food storage
Conference room
WC
Administration office
Entrence
Press cloakroom
Reception
VIP cloakroom
Match delegates'room
Shower/WC
Mixed zone
Employers social room
Shower/WC
Referees'room
Shower/WC
First aid room
Shower/WC
Doping control room
Shower/WC
Coaches' office
Shower/WC
Change room
Warn-up
Shower/WC
Coaches' office
Shower/WC
Change room
Shower/WC
Warn-up
Storages
Field

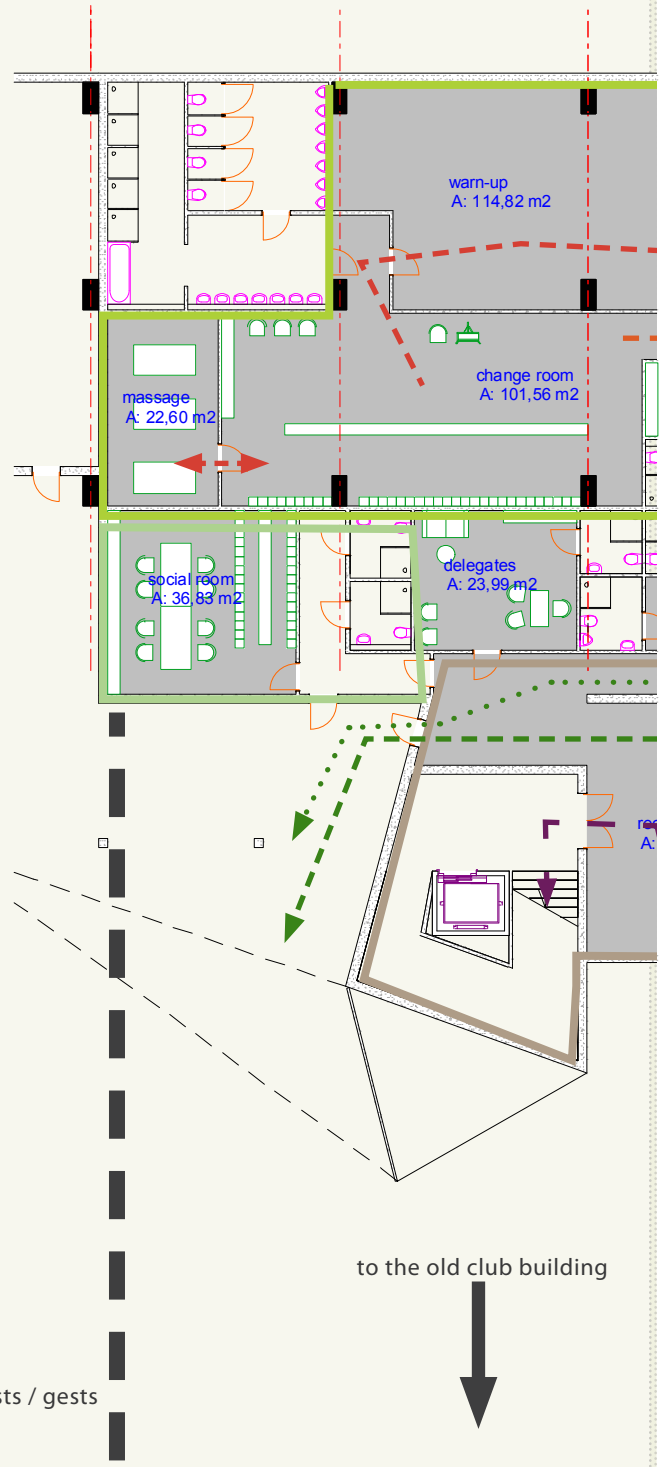
Functional structure ground floor

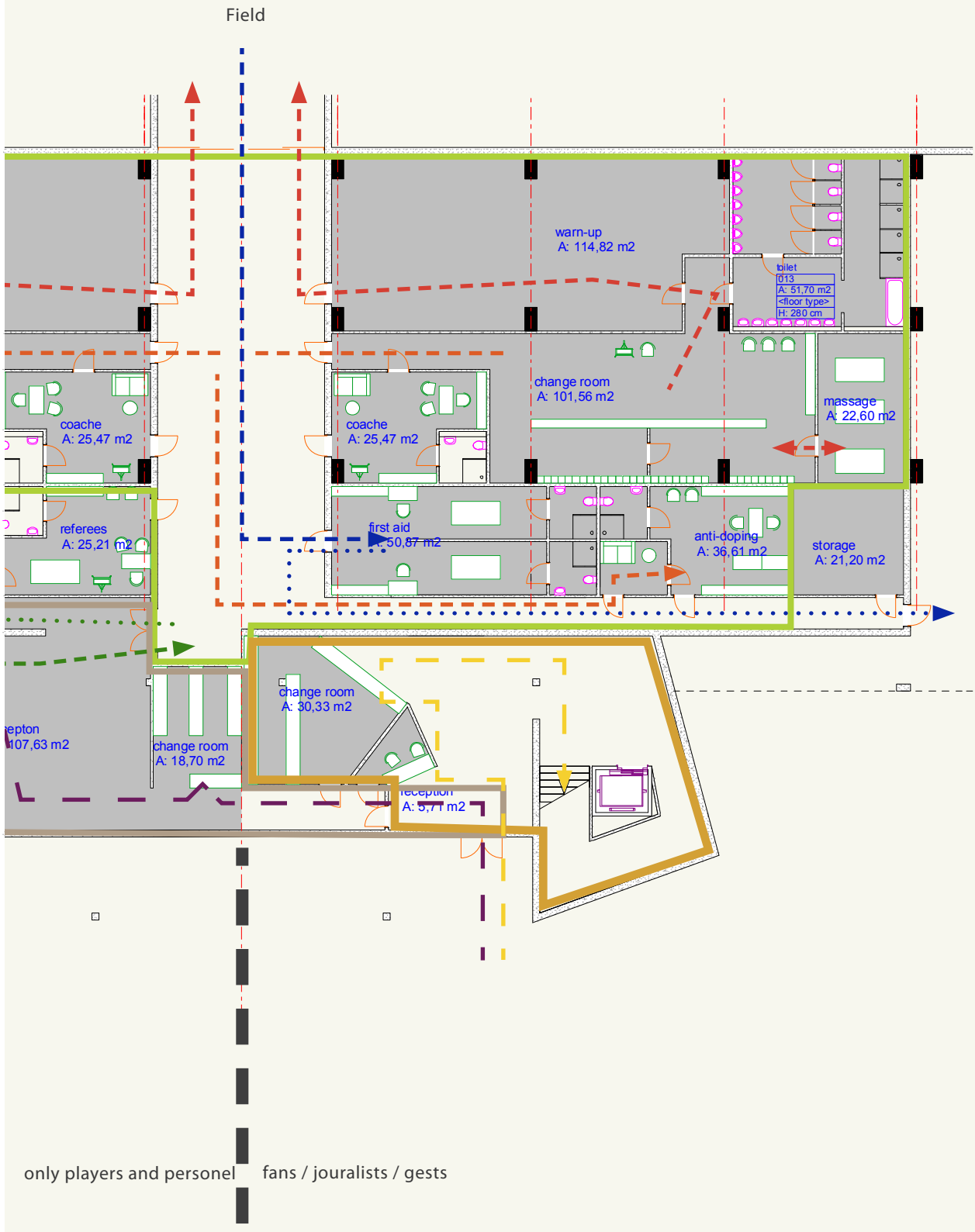
Zone Separation:

- Players
- Media
- VIP
- Employers social space
- Fans/Personel swperation

Comunnication:

- Players - match
- Players - accident
- Players-accident-ambulance
- Players-doping control
- Players-entrence
- Players-entrence-when they do not want talk to the media
- Media
- VIP

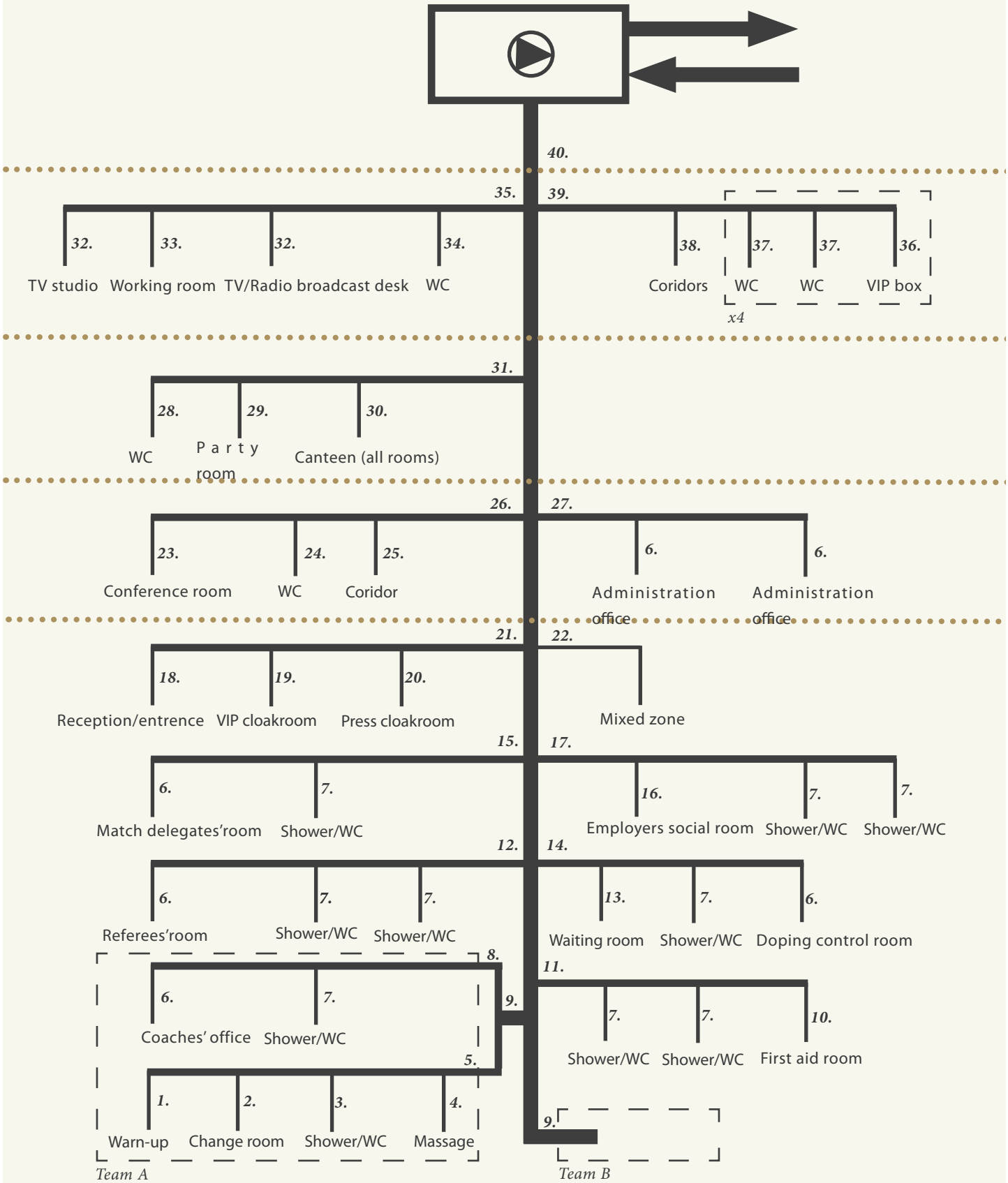



Field
warn-up
A: 114,82 m2
toilet
013
A: 51,70 m2
<floor type>
H: 280 cm
change room
A: 101,56 m2
massage
A: 22,60 m2
coache
A: 25,47 m2
coache
A: 25,47 m2
referees
A: 25,21 m2
first aid
A: 50,87 m2
anti-doping
A: 36,61 m2
storage
A: 21,20 m2
change room
A: 30,33 m2
change room
A: 18,70 m2
only players and personel
fans / jouralists / gests

Ventilation

Simply shame of ventilation system in club building. Main ventilation unit with heat exchange. Calculations of proximity sizes of ducts. This is basic shame, not design of the system.

Duct No.	Room area A [m^3]	Ventilation rate V [$l/s/m^2$] 1)	Airamount Q [l/s]2)	Airamount q [m^3/h] 3)	Air velocity v [m/s] 4)	Diameter [mm] 5)	Duct [mm] 6)
1	115	6	690	2484	4	468	**500**
2	101	10	110	3960	4	592	**600**
3	-	-	80	288	4	160	**160**
4	23	6	138	497	4	210	**224**
5	-	-	2008	7229	5	715	**800**
6	25	2	50	180	4	126	**140**
7	-	-	20	72	4	80	**80**
8	-	-	70	252	5	134	**140**
9	-	-	2078	7481	8	575	**800**
10	41	3	123	443	4	198	**200**
11	-	-	163	587	5	204	**224**
12	-	-	90	324	5	151	**160**
13	6	2	12	43,2	4	62	**160**
14	-	-	82	295	5	145	**150**
15	-	-	70	252	5	134	**140**
16	37	3	111	400	4	188	**200**
17	-	-	151	544	5	195	**200**
18	80	2	160	576	4	226	**250**
19	30	2	60	216	4	138	**140**
20	19	2	28	137	4	110	**112**
21	-	-	268	965	5	261	**280**
22	119	2	238	857	4	275	**280**
23	-	-	1050 7)	4140	4	605	**630**


40.
35.
39.
32.
33.
32.
34.
38.
37.
37.
36.
TV studio
Working room
TV/Radio broadcast desk
WC
Coridors
WC
WC
VIP box
x4
31.
28.
29.
30.
WC
Party room
Canteen (all rooms)
26.
27.
23.
24.
25.
6.
6.
Conference room
WC
Coridor
Administration office
Administration office
21.
22.
18.
19.
20.
Reception/entrence
VIP cloakroom
Press cloakroom
Mixed zone
15.
17.
6.
7.
16.
7.
7.
Match delegates'room
Shower/WC
Employers social room
Shower/WC
Shower/WC
12.
14.
6.
7.
7.
13.
7.
6.
Referees'room
Shower/WC
Shower/WC
Waiting room
Shower/WC
Doping control room
8.
11.
6.
7.
9.
7.
7.
10.
Coaches' office
Shower/WC
Shower/WC
Shower/WC
First aid room
5.
1.
2.
3.
4.
9.
Warn-up
Change room
Shower/WC
Massage
Team A
Team B

24	-	-	40	144	4	113	**140**
25	70	1	70	252	4	149	**150**
26	-	-	1160	4176	5	544	**560**
27	-	-	100	360	5	160	**160**
28	-	-	190	684	4	246	**259**
29	424	5	2120	7632	4	822	**900**
30	139	4	556	2002	4	421	**450**
31	-	-	2866	10317	5	854	**900**
32	41	2	82	295	4	162	**180**
33	151	2	302	1087	4	310	**315**
34	-	-	110	396	4	187	**200**
35	-	-	576	2074	5	383	**400**
36	54	2	108	389	4	185	**200**
37	-	-	10	36	4	56	**63**
38	117	1	117	421	4	193	**200**
39	-	-	629	2264	5	400	**400**
40	-	-	10549	37976	8	1296	**1400**

1)" Indoor climate and ventilation " Jens Peder Pedersen, Vitus Bering University Colleage

2) Q=A*V

3) q=Q*3600/1000 [l/s -> m3/h]

6) " Indoor climate and ventilation " Jens Peder Pedersen, Vitus Bering University Colleage

Main duct 8

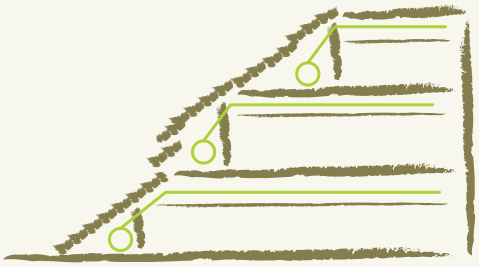
Branch duct 5

Connection duct 4

5) $$d = 1000 * \sqrt{\frac{q * 4}{360 * v * \Pi}}$$

6)Standard diameters: 63, 80, 100, 112, 140, 150, 160, 180, 200, 224, 250, 280, 300, 315, 355, 400, 450, 500, 560, 600, 630, 710, 800, 900,1000, 1120, 1250, 1400, 1500, 1600. "Domestic ventilation" Jens Peder Pedersen, Vitus Bering University Colleage

7) auditorium (100seats+5)*10l/s/person



Conclusions:

Results of calculations show that for the ventilation and others technical systems would demand lots of space. It is good to think about it already in first stage of design process what would reduce problems for architect and engineers later.

It can be consider what kind of ventilation is needed. Perhaps interesting solution can be to use two ventilation systems; one for players and one for VIPs, that we will not use energy to ventilate football facilities during "others events".

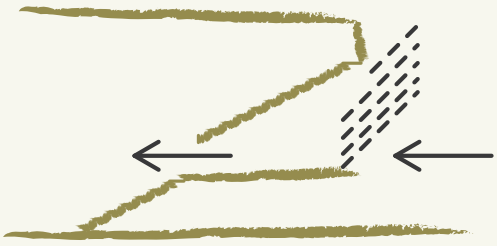
It is possible to use some kind of mix with natural ventilation, e.g. using double façade.

Project open lots of open opportunities for technical installations and for that concept it is more important that final decisions now.

Elevation

Stadiums such as the Korona Kielce Stadium or Auguste Delaune Stadium do not have the elevation, so also in the case of Raków Stadium should be considered whether facade structure is a necessary element in aspect of its functions.

The stadium is located between houses, and the industrial zone with railway line. The use of a facade in an building with a large open area in the stands slab (entry terrace) with roof would create the shell, which minimizes the noise pollution around the stadium. At the same time, isolation from external, industrial noise increases the comfort inside. Sound quality of field can be an important parameter for the attractiveness of user "Events" (p. 136).



Communications terraces on the open stadium are vulnerable to the weather conditions such as rain, wind, intense sun.

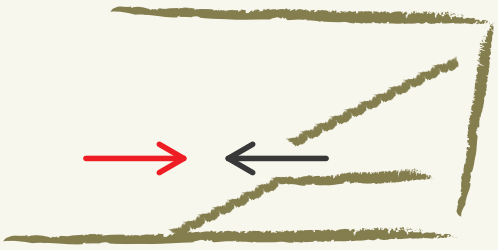
Confort

Interaction

Play

Protection

Fan



Interaction. Open terraces on stadium will have a tendency to become only the communication way, entrance<->chair<->toilet. The implementation of the façade appears to be very attractive as a component causing the inclusion activities at stadium. Instead of no interesting surrounding fans will be directed to the action field. Typical communication area will became a multifunction zone for fans activities that they can not do on places.

Conclusions

Elevation on stadium will give lots of benefits in aspects:
-technical
-environmental
-social

Original form of façade could also create a new type of user – external observer, what is valuable element of district renovation plans (famous example of Guggenheim Museum Bilbao, Spain).

Modern elevations

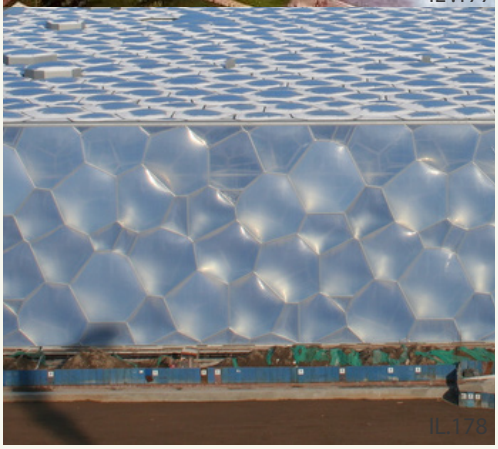
Case Study

In the modern design of the stadiums we notice several major trends in term of aesthetic idea of elevation, associated usually with the same type of roof. We can group them into certain groups:

Classic. The simplicity and repetition of symmetrical components, exposed column structure. Impression of a monumental "temple of sport." Combined with minimalist solution of the roof entirely suitable lightness. Reconstruction of IL.176 Olympic Stadium in Berlin. IL.177 One of the reconstruction of the Legia Stadium in Warsaw.

IL.176

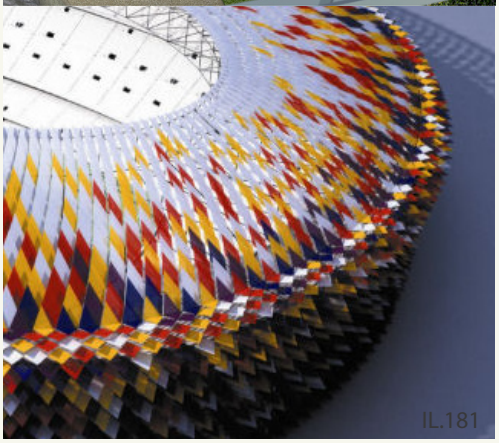
IL.177



IL.178

IL.179

IL.180

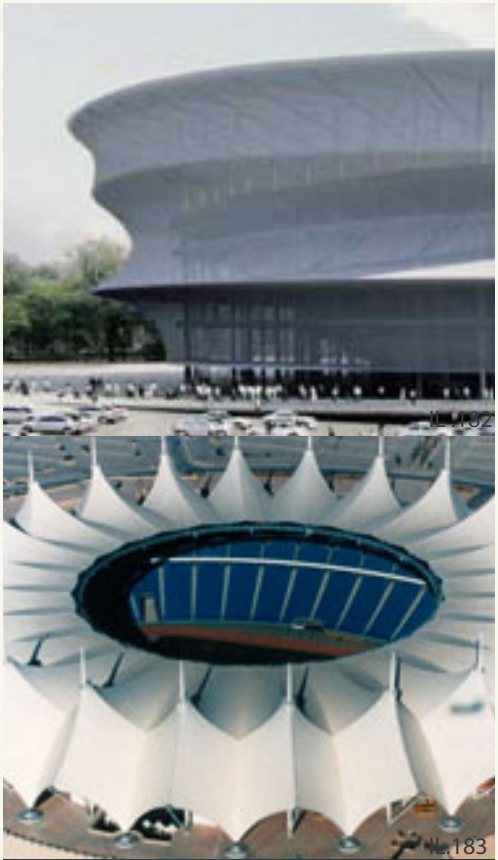


IL.181

Hi-tech. Elevation of the solutions using original technology and advanced materials. IL.179Allianz Arena, Munich. IL.178 The National Aquatic Center Beijing “Water Cube”, technical construction of elevation’s elements regulates internal microclimate.

Stained-glass window. Night illumination the stadium in Munich is now the most famous “play” of lights. There been sleeked solution to play even during daylight. IL.181 Reconstruction of Camp Nou, Barcelona. IL.180 New Olympic stadium in London.

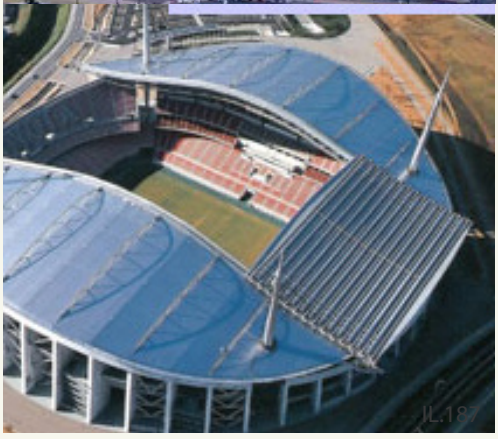
Skin. The shape of the roof and facade are defined by a structure covered with textile cloth. Sculptural effect at low cost. IL.182 Wroclaw, Poland; IL.183 King Fahd International Stadium Riyadh, Saudi Arabia



IL.183

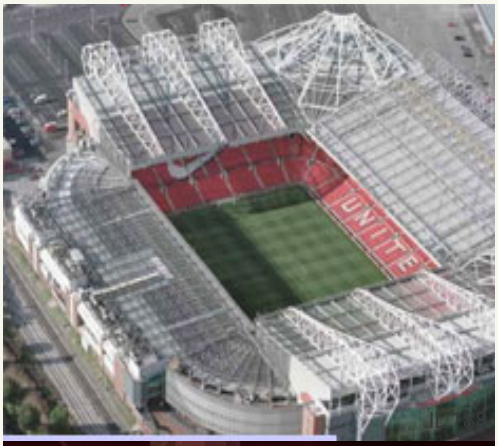
Roof support. The facade of the roof represents the structure of maintenance (usually cable construction). A typical solution for upgrading existing buildings where construction can not take the additional load. IL.184 Reconstruction of Kiev Olympic stadium, IL185 Rekonstruction of Silesia Stadium, Chorzow, Poland.

IL.184



Shell. I use this name for stadiums where the characteristic feature of the stadium is defined by arc-surface of the roof. Shape is usually related to the mechanism of closing roof. IL.186 Oita Stadium, Oita, Japan; IL187 Toyota Stadium, Toyota, Japan

Structure. Where the aesthetics of design is the result of construction decisions.IL.188 Steel trust of roof. Old Trafford, Manchester, UK. Arc as mechanism of closing roof. Wembley National Stadium, London, UK.



IL.189

IL.190

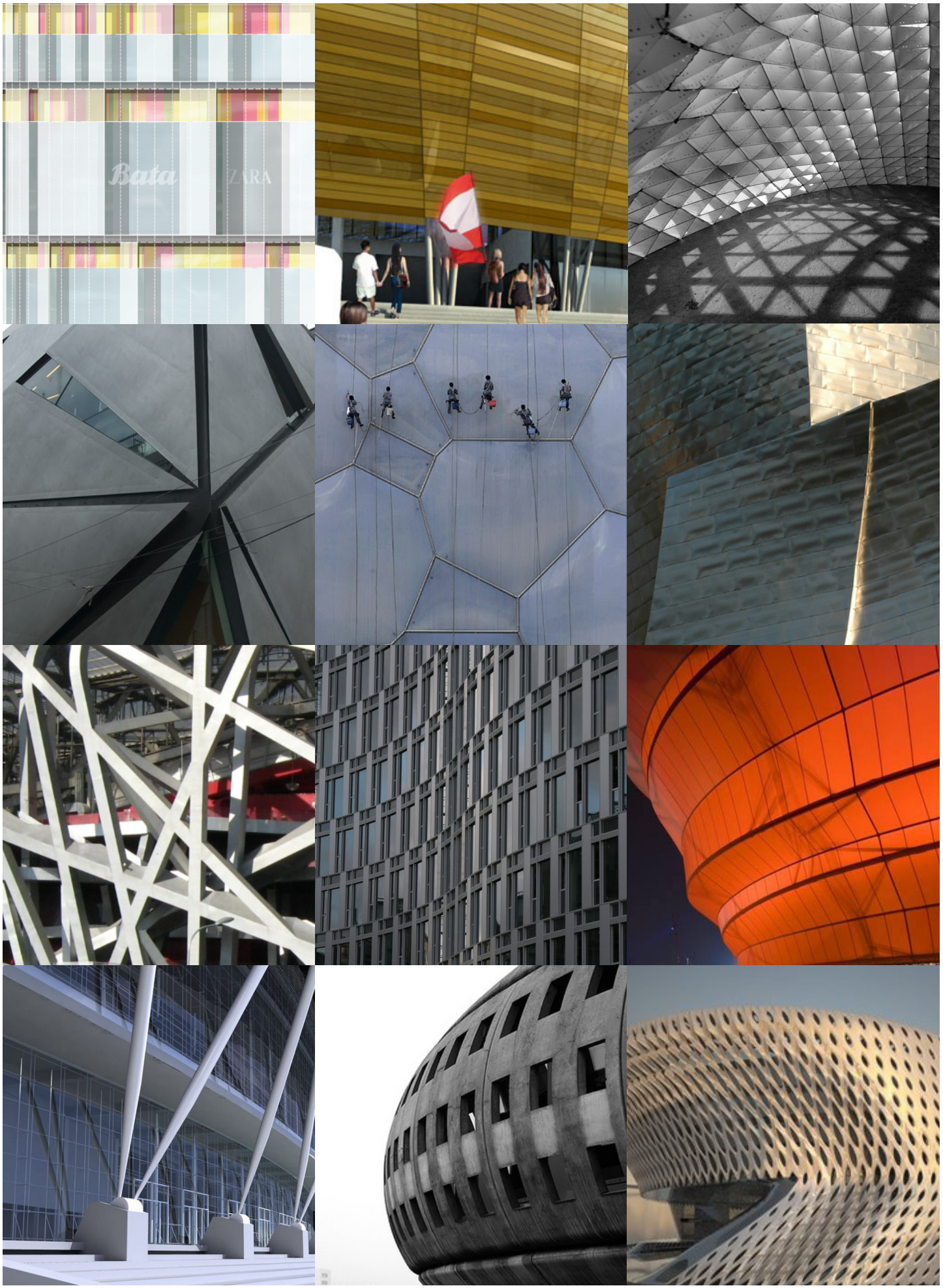
IL.191

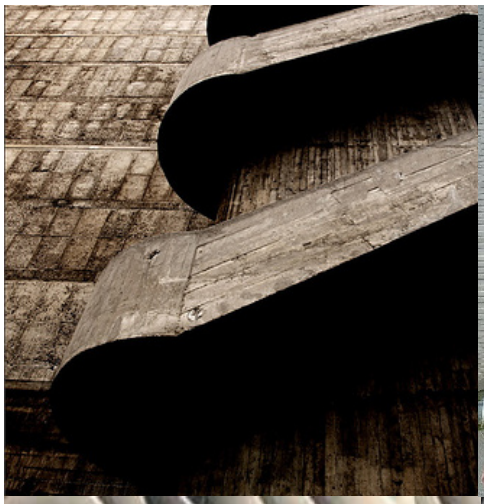
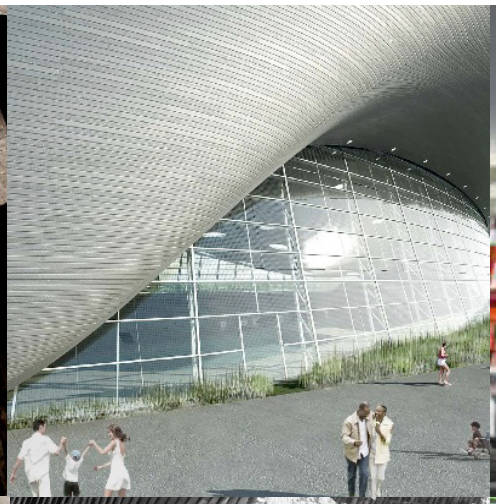
IL.192

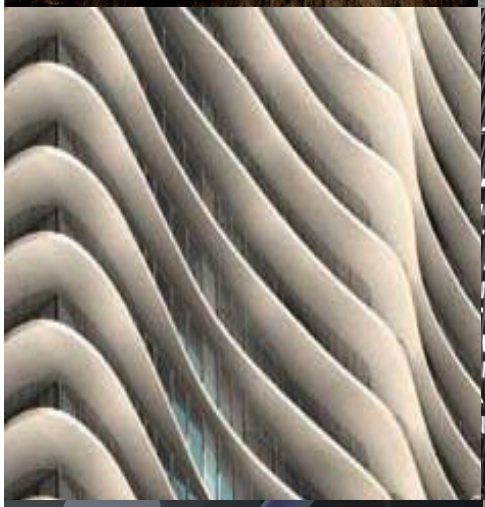
IL.193

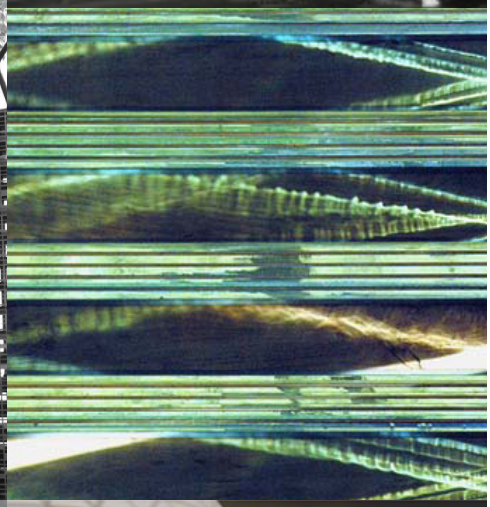
Icon. Stadiums created especially for large international events have often unique original form. Those stadiums beyond its functional remain also representative role, showing the creativity and ambitions of the organizer. IL.191 Beijing National Stadium, Beijing, Chain. IL190 One of the competition concepts for national football stadium on Euro 2112 Warsaw, Poland.

Original. There is a tendency to release the form from the classical canons of stadiums where the structure of elevation is derived by the stands (the circle or rectangle). There are solutions that try to significantly change the external form as e.g."The Wall" (p.128) or just to give more dynamism to the stadium broking systematization of elevation. IL.192 Stadion Ukrayina, Lviv, Ukaine. IL 193 Concept of new Hardturm Stadium, Hardturn, Germany.

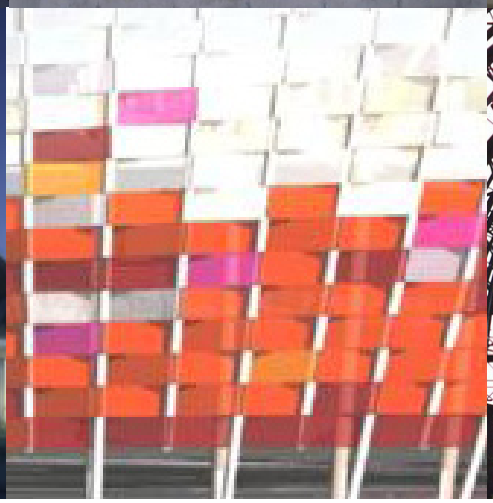

Bata
ZARA

RD 2012







Context

Architecture

Jasna Góra Sanctuary
Sanctuary of St. Joseph
Palace of Hantke

Barocco
Neo-barocco

Play of light
Decoration
Theatrical
Opera

Minimalism
Brutalism

Modern architecture

Aleja Pokoju

Socreal

Time

Communication-beginning of Journey

"Iron Passage"

Past

Old Raków

Archaelogical Reserve

XIX centry

XX centry

Aleja Pokoju

Clasic
Industrial revolution
Iron works
Rail line

Expantion
Be formed

People

Work

Communicate

Relaks

Iron works

Infrastructure

City

Culture, Sport

Stadium is not place of work
It home of art

Football as a
theater of sport

Integration with the district sructure.

Detail
Simplisity
Mass, Machina, City → Construction

Order
Classic cannons
Representative

Open Squere- new day

Future

Architectural form.

XXI centry

New Raków Stadium

Open horizons
New posibilities

Live

Nature

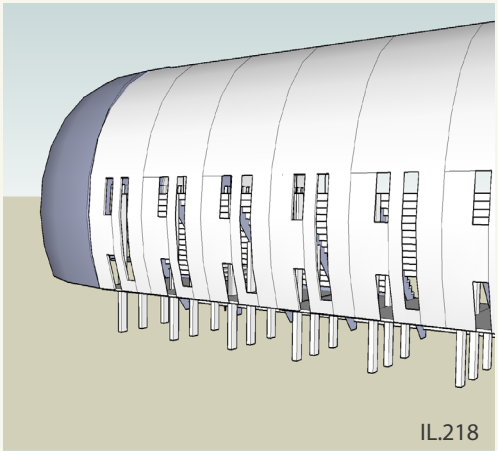
Homes, Blocs, Shools

Good servs to local and total community

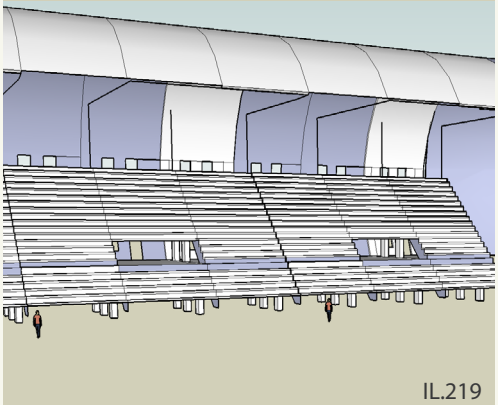
Sketch 1

Idea: Popular “tire” conception. E.g. Allianz Arena, Munich.
Very stadium-like shape. Round form good for open fields exposed to wind. Simplicity and modularity. Close expression of form. Elevation as cocoon around stands.

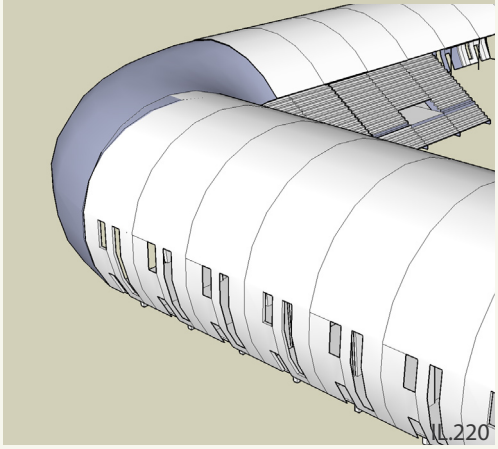
Comment:
Location of the site (middle of the city) and potential height of the building allows to not considering wind pressure as very important. Form of the elevation looks like brier between building and surroundings. Difficulties with creating context and interactions. That conception does not have interesting perspectives of more development process in that location.



IL.218



IL.219



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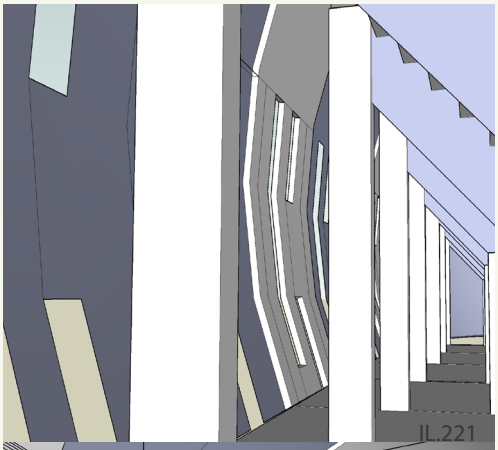

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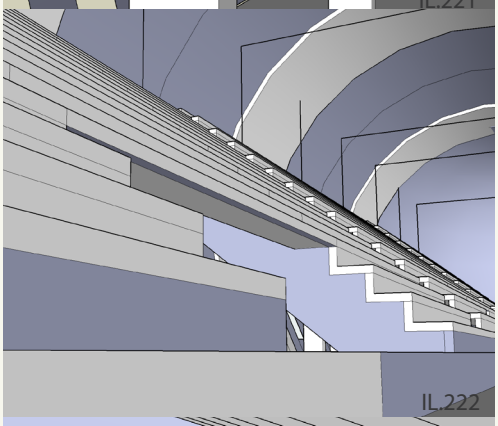

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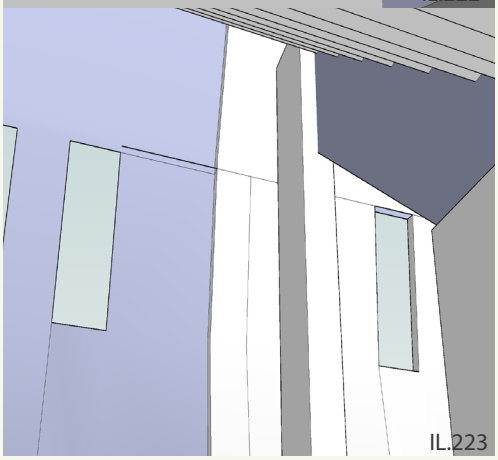


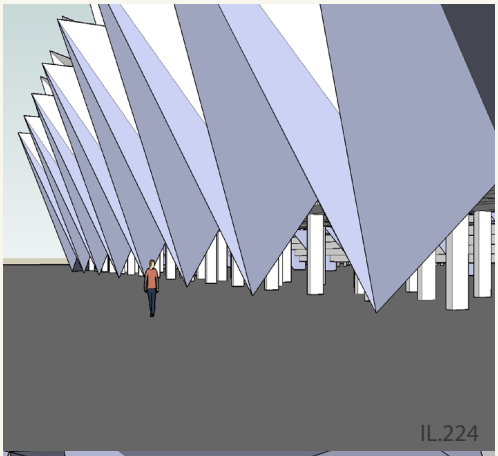
IL.223

Sketch 2

Construction base on modules of the "crystal" forms. Triangle elements should be good in case of static demands and construction aspects (straight beams). On one site very simple, on the second dynamic play of shadows on the 3D elevation surface. Attractive space under elevation. Monotony can be brake by modification of single modules (IL.229).

Comment:

"Diamonds are forever" It is interesting. With simply method we can get modern, universal and good in technical aspects elevation. It is still not enough. "Mineral" will be always considered as element "push" into a soil. Insufficient level of context integration. Big potential but also risk that project evolution will make to much modifications and original purity of concept will be lost.



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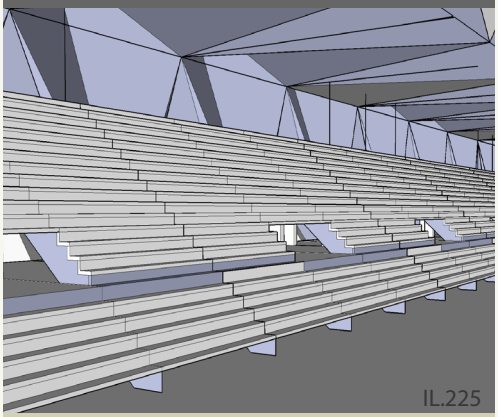

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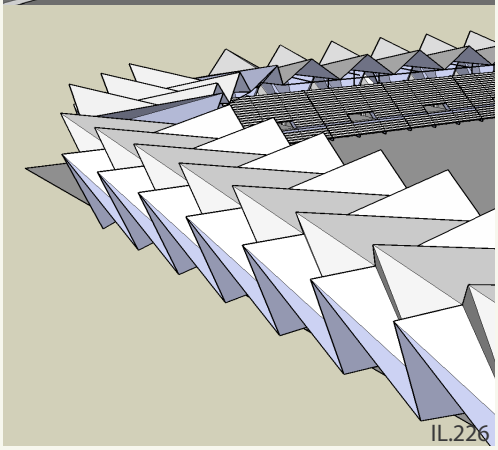

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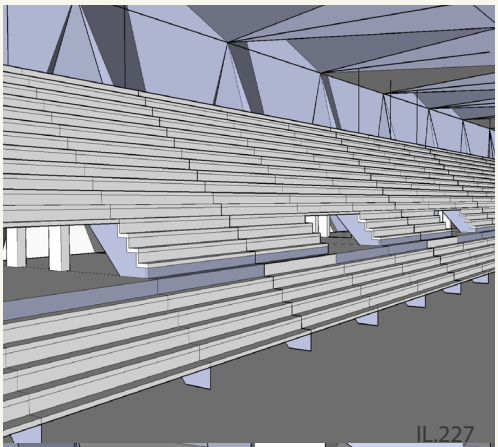
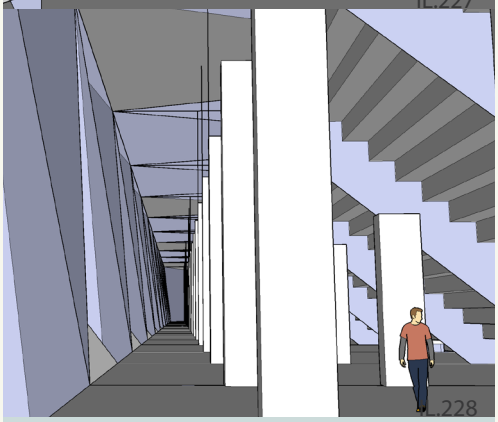


IL.227



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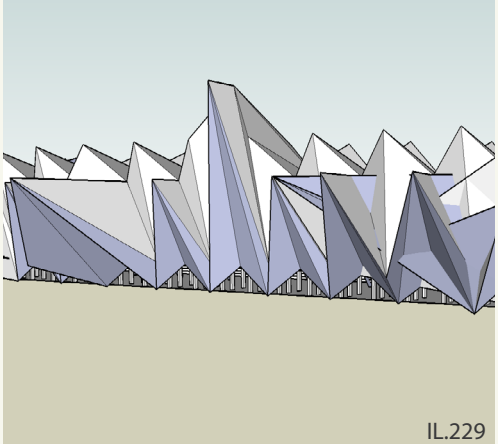
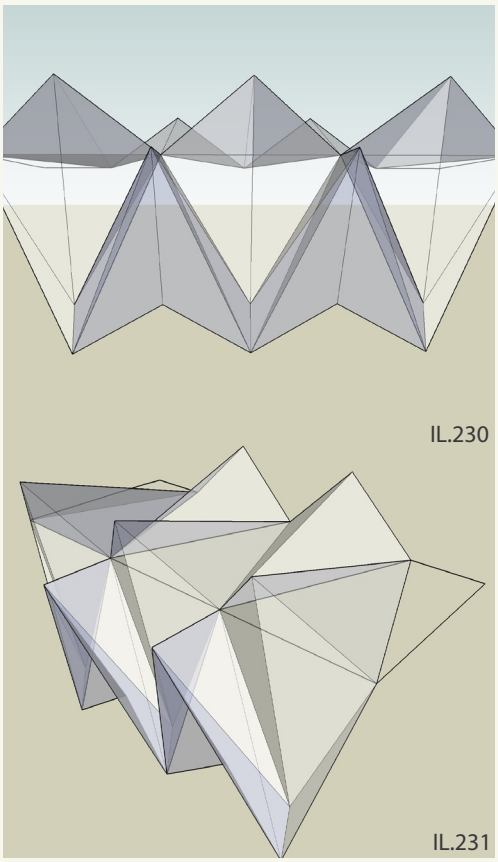


IL.229



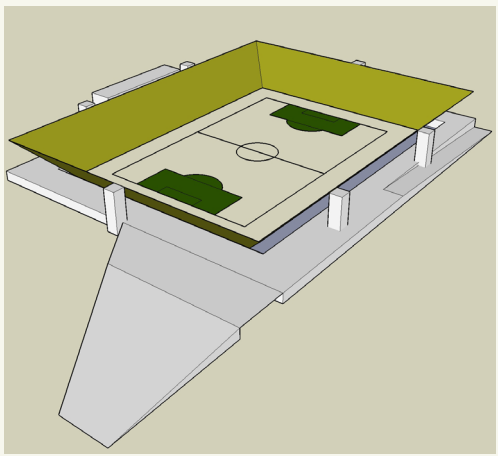
IL.230

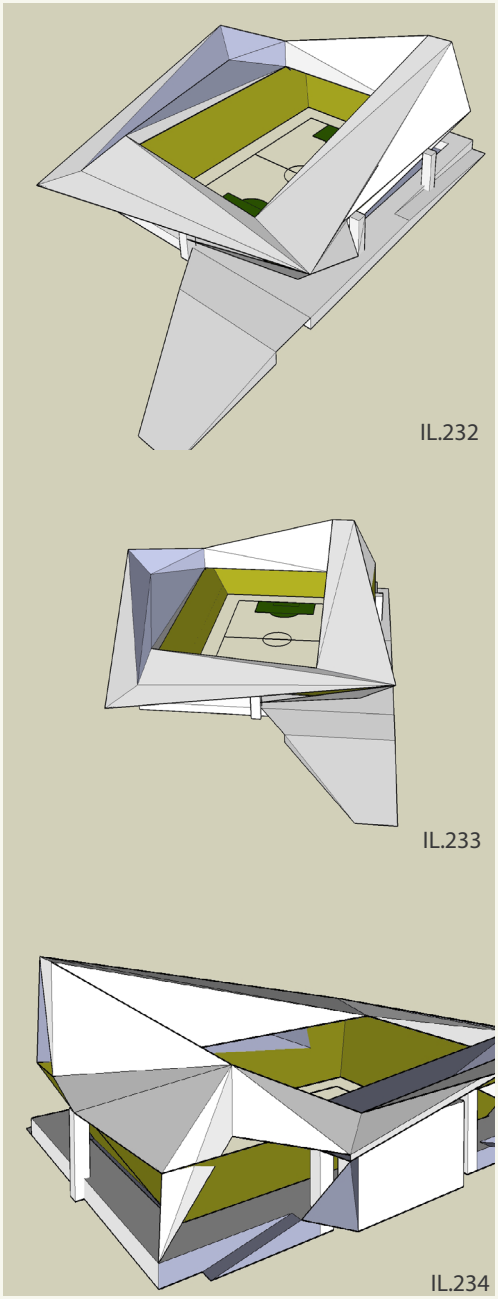
IL.231

Sketch 3

Sculpture. Elevation has most no-stadium form. Separation between construction of stands and architectural form of stadium. Triangle panels have all static advantages of "mineral". Relations to the communication network don't interfere to the architectural expression. Lots of possibilities with creating concept.

Comment:
Conception gives most freedom of design without harm to original concept. That something with most possibilities, concept to work with.

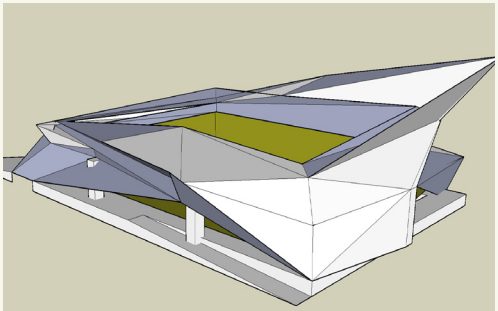




IL.232

IL.233

IL.234



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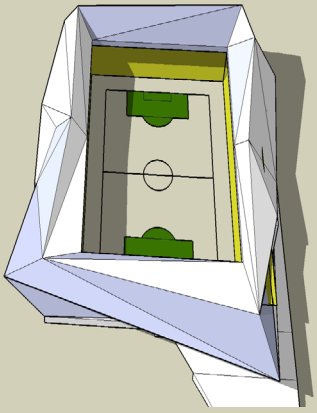

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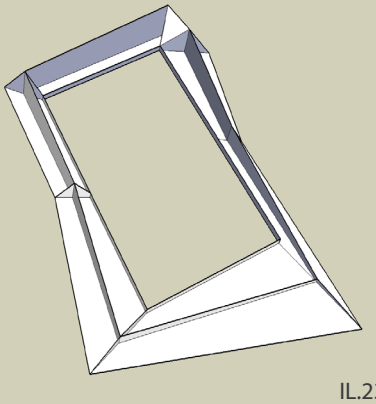

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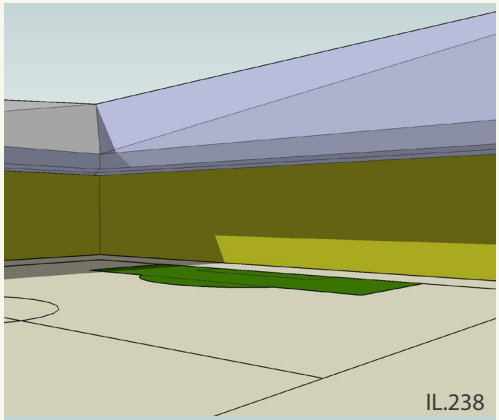
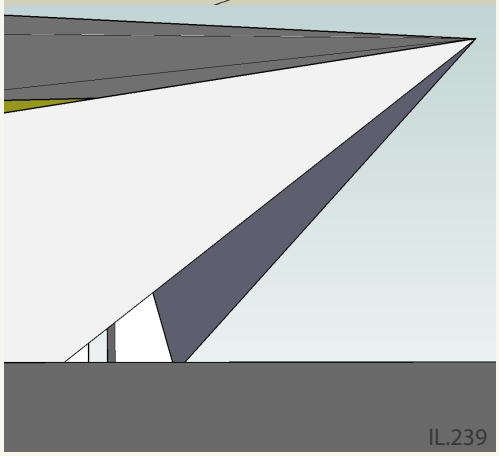
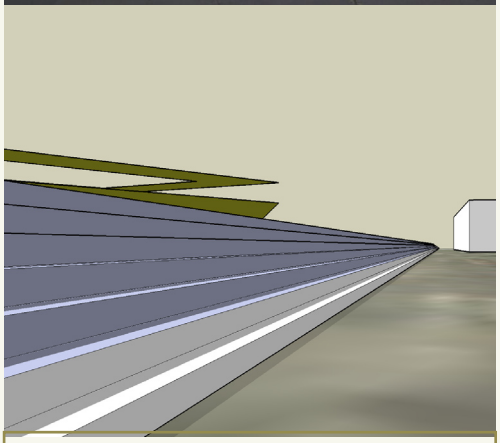


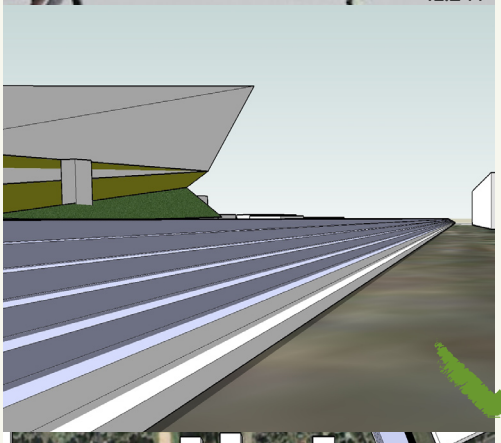
IL.238



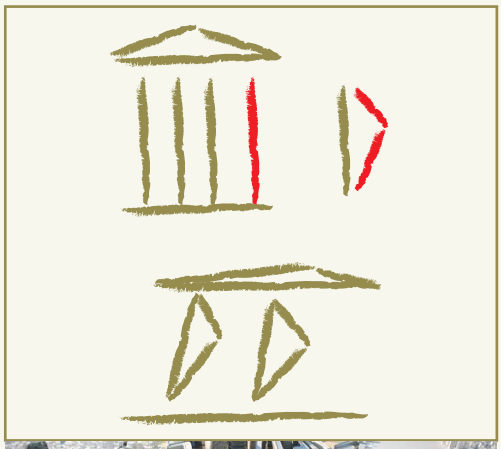
IL.239

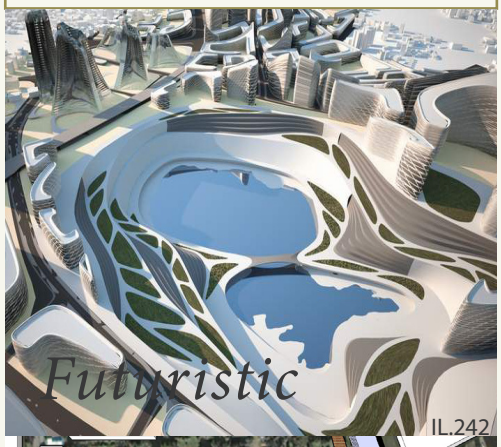
Elevation analysis

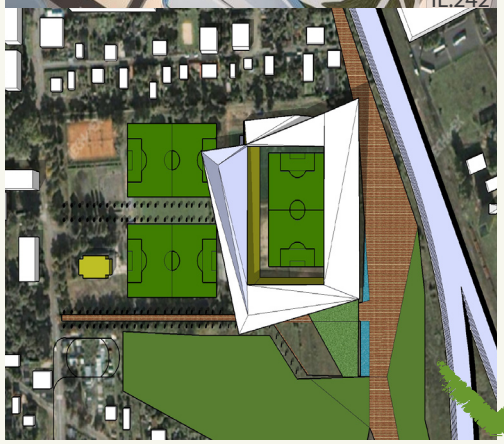


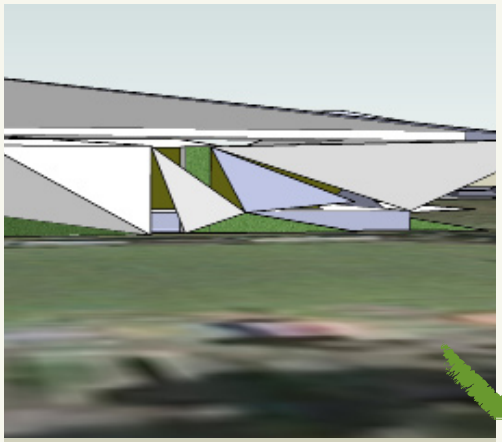


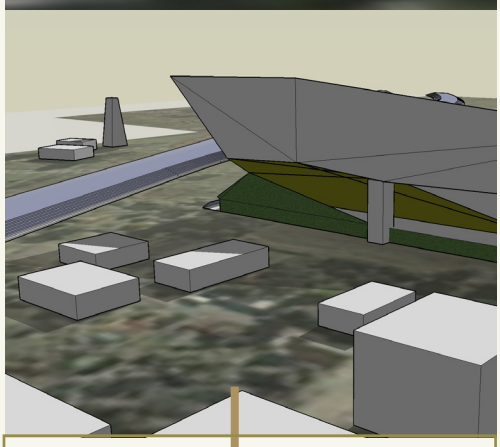
Parking
Public space
Tram
Train
City
Infrastructure
Walk

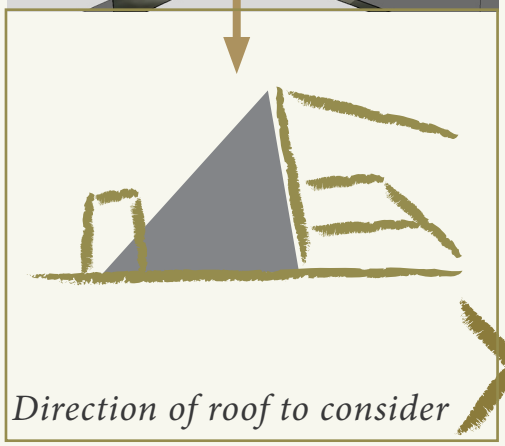



Futuristic



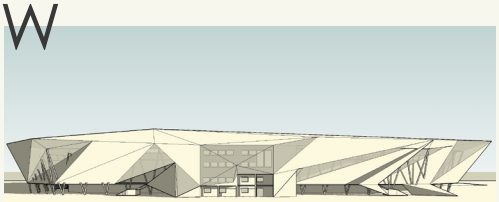





Direction of roof to consider

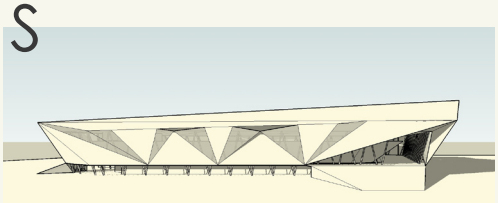
Evevation design

W



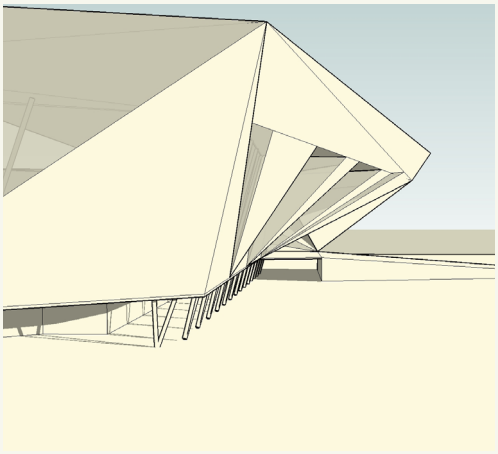
Front facade. View from Limanowskiego Street.
Most futuristic and aggressive elevation. Dynamic form inspired by sail. Club building is integrated with elevation by surfaces of glass wall.

S



Facade form parking spaces. Some systematization on the façade, allow to focus sight in the corner where is main entrance to the stadium. This site distributes fans on stands so it is full of transparent parts. This also gives good view on the multi-purpose zone in front of the stadium. Transparent elements with minus slope to reduce risk of overheating on the south site of building.

IL.243



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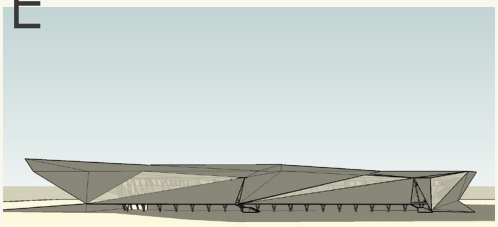

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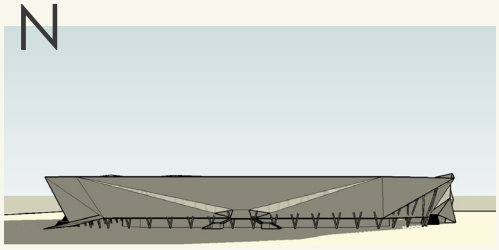
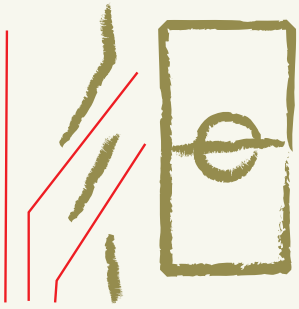
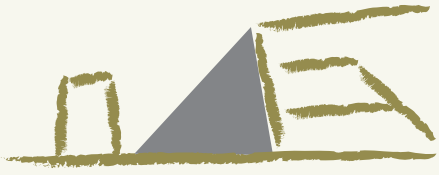
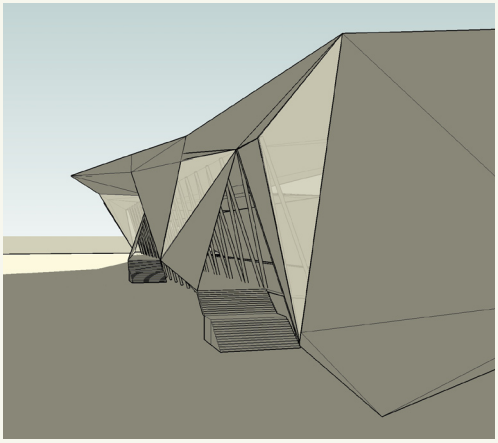


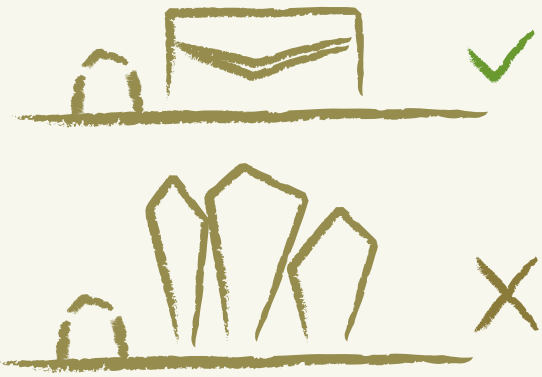
Facade formrail line. this facade will be usaly visable in angle from “iron passage“. Elevation have “introdicton form“. It direct flow of peo-ple from passage to the stadium.

Facade in front of one family houses. Low and simply form is very neutral for inhabitans. Form of elevation neutralize nagative aspects of big cubature next to small houses.









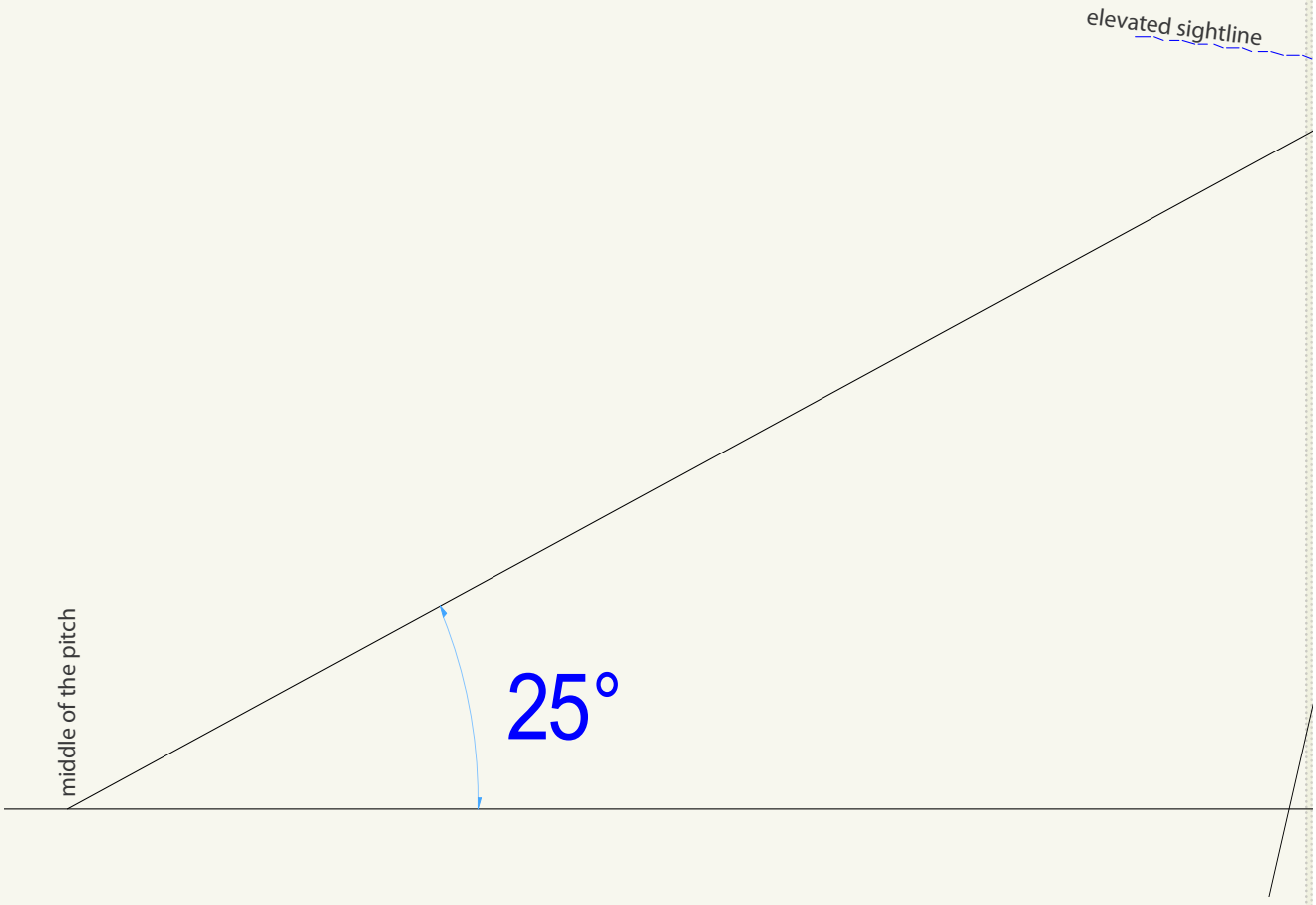
Roof

During design process of roof there should be consider:

- protection of fans from weather conditions (sun, rain, wind)
- lighting on the stadium
- construction
- interaction with other parts of structure
- architectural expression

Weather

Distance of the roof divide stands in to protection zones: expose, partial protection, medium and good. They are calculated base on 30 degree unit from edge of the roof. The edge must be also high enough that the spectators keep sight of the ball when is rise high in the sky.

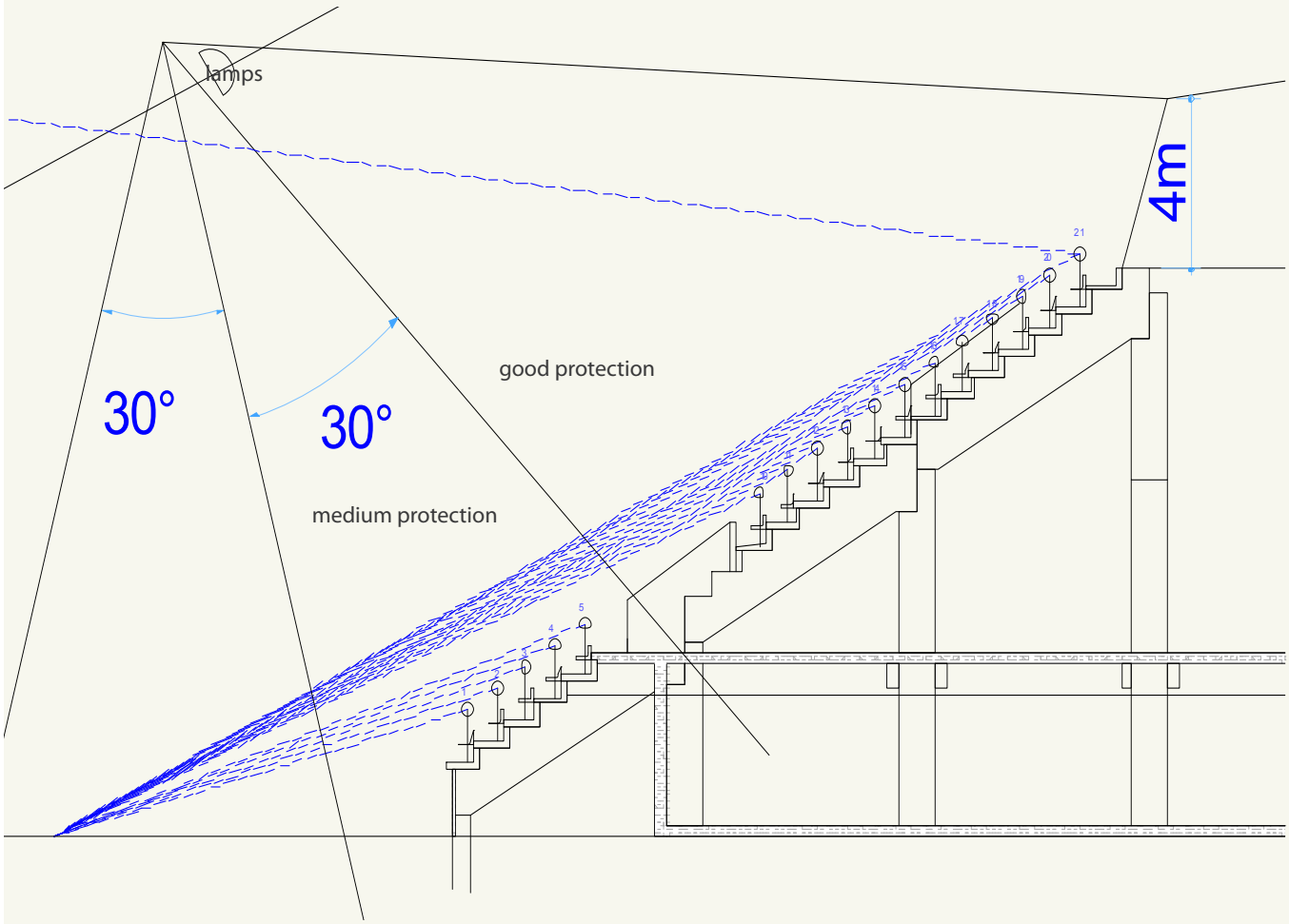


Interaction with other parts of structure

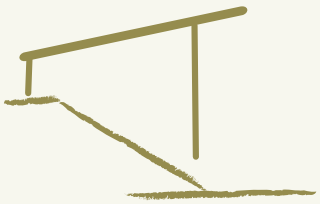
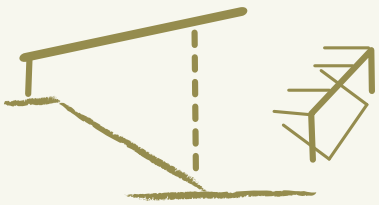
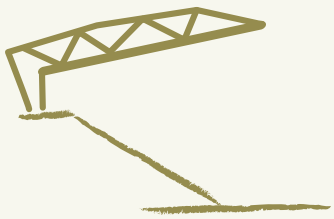
I propose that bottom point of the roof will be 4m above top of the stands. That solution wills simplicity construction in part of club building (integration roofs in one). It would also create lots of space for extra platforms for cameras and special effects (user “events”).

Architectural expression

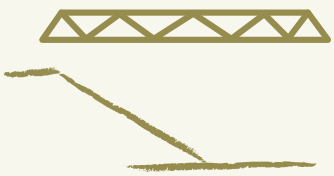
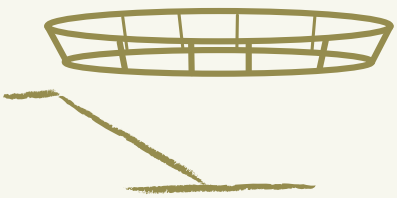
- To consider roof and elevation as one
- Dynamic
- Simplify
- Futuristic
- “Theater of sport”
- Illusion of flying



Roof - construction

Type	Description	Sheme
Post and beam structures	This structural system comprises a row of columns parallel to the pitch, supporting a series of beams or trusses which in turn carry the roof.	
Goal post structures	This is like a post and beam roof with posts only at the two ends, and none between.	
Cantilever structures	A cantilevered roof is held down by weight or otherwise securely fixed at one end while its other end, facing the playing field, hangs free and unsupported.	
Concrete shell structures	Shells are thin surface structures which are curved in one or two directions, deriving their strength from the geometric shape rather than the thickness or firmness of the material.	

Advantages	Disadvantages
The post and beam system is cheap and simple.	The row of columns along the **pitch obstructs** spectator viewing to an unacceptable degree. Seats behind such obstructions may have to be left unused or sold at reduced prices.
Unobstructed viewing, particularly if the two uprights are situated at the ends of the playing field, with the entire length of the pitch left clear of columns. Moderate cost.	The system **works best when little or no corner seating** is required. The goal post system tends, from the visual point of view, to create a boxy shed that cannot be coaxed round a curve or corner with any degree of grace, and is difficult to link smoothly with adjacent stands.
Structure can provide completely unobstructed viewing for virtually any length of stand while spanning depths of 45 m or even more, the limiting factor being cost rather than technology.	Where the rear seating rows must be very distant from the playing field the cantilever becomes markedly expensive. The reversal of forces caused by wind uplift can be particularly destructive in the case of a cantilevered roof.
Shell structures have the potential of great visual elegance. If carefully detailed, shells can be self-finished both underneath and on the upper surface. The latter requires sufficiently steep drainage falls to ensure rapid and complete disposal of rainwater.	Specialist designers must be used, as the mathematics involved are advanced. If in situ concrete is used the **form work costs will be very high** since a 'birdcage' or similar type of scaffold will be required. A pre-cast concrete solution should be considered, or a combination of pre-cast and in situ concrete.

Type	Description	Sheme
Tension structures	These are roofs in which all the primary forces are taken by members acting in tension alone, such as cables.	
Space frame	A space frame is a grid of structural members which is three-dimensional in shape and also stable in three dimensions, unlike, for instance, a roof truss, which is stable only in its own plane. Such frames can be constructed of any material but are commonly of steel.	
Compression/tension ring	Roof consists of an inner tension ring and an outer compression ring, the two being connected by radial members which maintain the geometry of the overall doughnut-shaped structure and carry the roof covering	

"Stadia A Design and Development Guide" Geraint John, Rod Sheard ,Third edition, Architectural Press

Advantages	Disadvantages
They are always more economical in material (than other forms of structure. Cable net or fabric roofs can be designed to lend an airy, festive appearance to a stadium, especially when seen from a distance. Tension structures can be adapted to many stadium layouts, and do not dictate a parti¬cular plan form.	Must be very carefully stabilized. Very sophisticated design is needed for all tension structures.
Capable of spanning large distances. Suitable for all-over roofs with only perimeter support.	A space frame is efficient and sensible only if spanning in two directions. Space frames tend to be expensive.
The inner perimeter is completely column-free, so that there are no obstructions what-ever between spectators and pitch. Very great stand depths can be spanned with. This roof type lends itself both technically and aesthetically to the problem of retro-fitting a new roof to an existing bowl stadium. Transparent or translucent roof coverings are possible.	This structural system can be used only with **bowl stadia**.

Roof - lighting

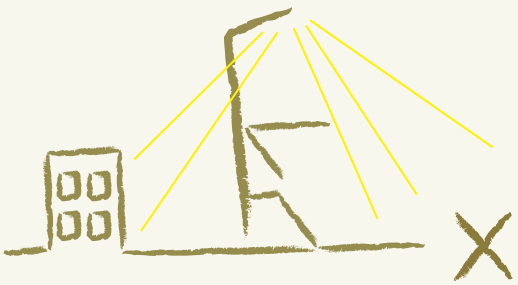
The primary goal of the event lighting system is to illuminate the event to digital video quality for the media without creating nuisance glare for the players/officials and adding spill light/glare to the spectators and surrounding environment. Permanent lighting, temporary lighting and a combination of both systems should be considered.

– Environmental
Special care should be taken to limit the spill light and glare off the field, both inside and outside the stadium.

– Players and officials
The players and officials must be able to perform to their fullest ability within an illuminated environment that enhances play.

– Spectators
The spectators must be able to view the event, scoreboard, video and all activities on the field in comfort, free from glare and excessive spill light.

– The media
The media video and broadcasts produced during an event shall be of digital quality, with balanced illumination and free from hard-line shadows and glare.



Class V	International televised	Event pitch shall be shadow free/ glare free.
Class IV	National televised	Event pitch shall be shadow free/ glare free.
Class III	National game	Event pitch shall be glare free with a minimum non-televised of eight poles (recommended).
Class II	Leagues and clubs	Event pitch shall be glare free with a minimum non-televised of six poles (recommended).
Class I	Training and recreation	Event pitch shall be glare free with a minimum non-televised of four poles (recommended).

Mounting height of light fittings

The mounting height of the light fittings is critical to the success of the sports lighting system. The mounting height geometry for sideline head frames and poles is 25 degrees above the horizon, starting from the middle of the pitch and looking back towards the stadium seating bowl. The head frame and light structure may exceed this 25- degree minimum guideline but it may not exceed 45 degrees.

Shadow control (multi-zone aiming)

Limiting hard-line shadowing on the pitch is becoming one of the biggest problems facing high-definition, digital video quality media. Multi-zone aiming is the repetitive aiming from different head frame locations at similar locations on the pitch. This repetitive aiming from separate locations limits hard-line shadows created by the players.

Lighting specifications for televised events class IV		
	Fixed camera	Field camera 1 (at pitch level)
Vertical illuminance bv cam ave lux	2000	1400
Horizontal illuminance by ave lux	2500	
Properties of lamps:		
Colour temperature K	>4000	
Colour rendering Ra	>65	
FIFA „Football Stadiums Technical recommendations and requirements		

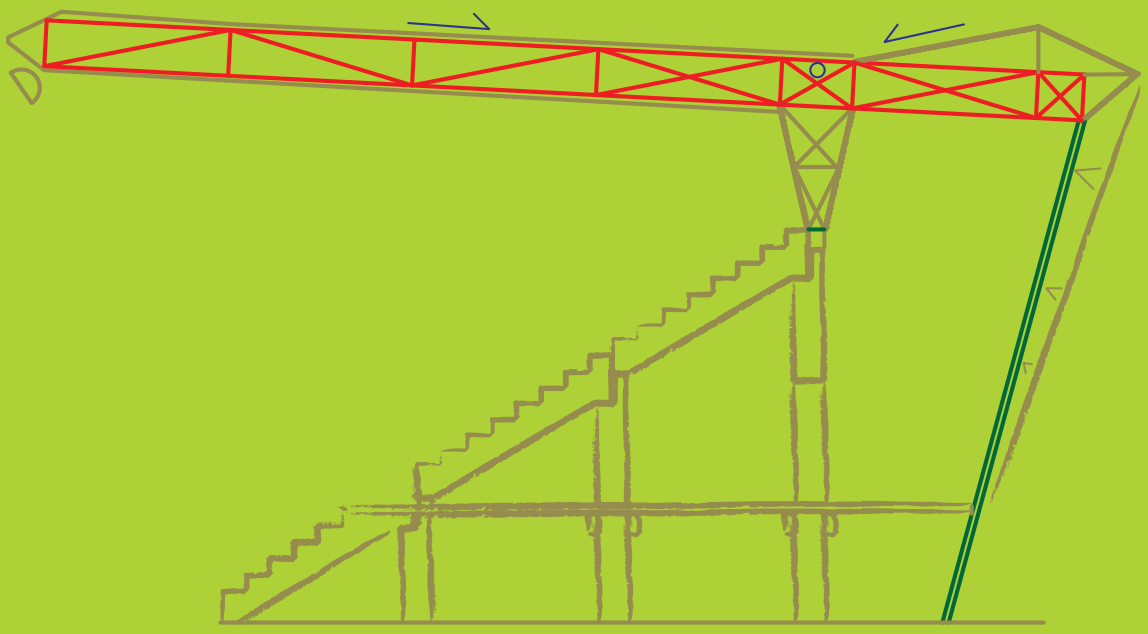
Colour temperature

Colour temperature describes the feeling or appearance of how warm (red) or cool (blue), a certain type of illumination appears to be.

Colour rendering

Colour rendering is the ability of an artificial illumination source to reproduce natural lighting. The colour rendering practical scale is Ra20 to Ra100.

Roof - Conclusions



For this stadium roof size most suitable construction bases on cantilever structures. Steel trusts is mounted to tops of stands pylons. Main element of trust is typical steel frame (red). Simplicity and multiplicity of default part of roof should reduce costs of construction.

Main trust part is supplement with steel beams which will create framework for elevation forms. Extra beams also connect main frames together as wind bracing. With it roof should have properties of steel frame structure what will stabilize it from wind forces. Trustees are mounted in angle; it is slope for the rain water to the gutter pipe in middle of roof surface. With them water will be transported to open basin to reuse in stadium toilet and irrigation system.

Roof trust is fixed to the ground with steel pipes (green). They not only stabilize roof construction (it is work like type of tension structure) but also are load bearing frame for elevation panels. They are mounted in angle creating "V" structure. That solution should be most optimal in case of wind forces on gable in façade and roof.

Construction is cover around with light material. Protection from environmental condition for steel elements and installations cable will increase they lifespan and reduce costs of maintenance.

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