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RAKOSMENTE
A VISION

DIPLOMARBEIT

RAKOSMENTE - A VISION

ausgeführt zum Zwecke der Erlangung des akademischen Grades einer

Diplom-Ingenieurin

unter der Leitung von

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eingereicht an der Technischen Universität Wien,
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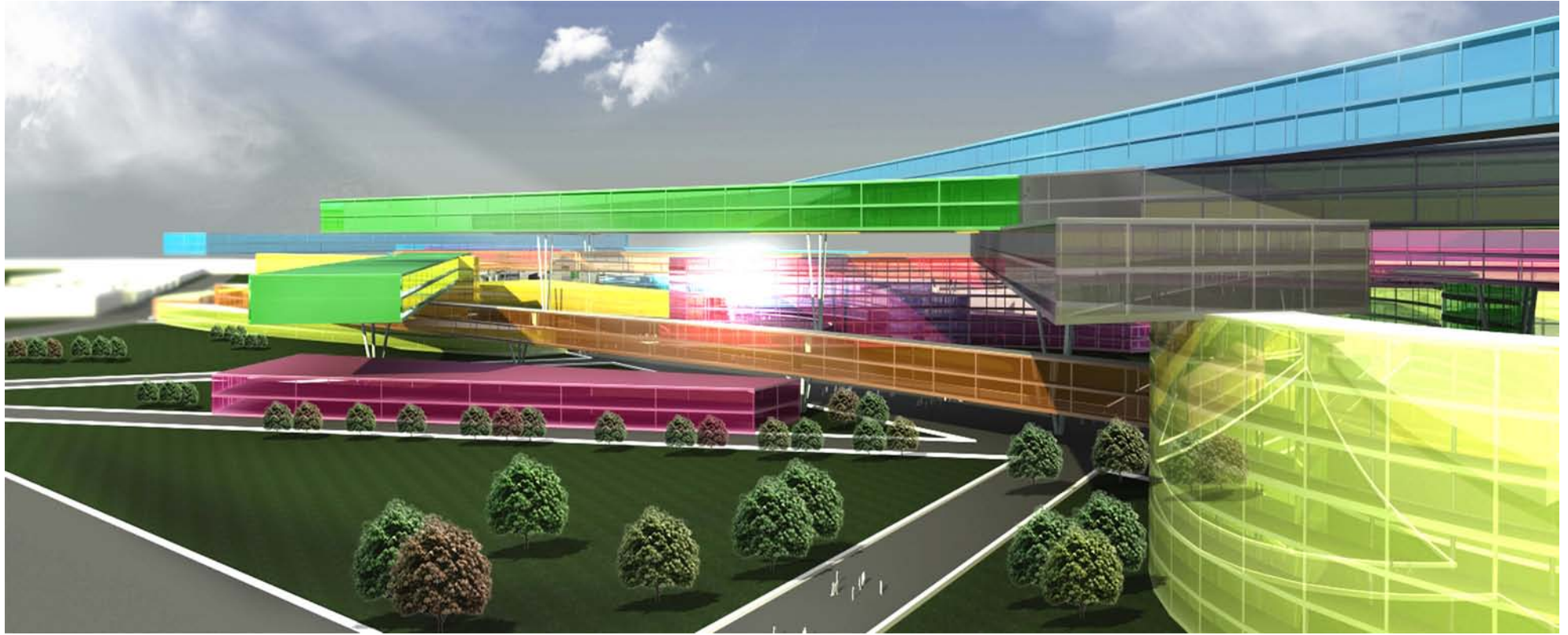
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introduction

1.1 Choice of Subject

In this study a masterplan of an urbanistic structure for a not built- up area on eastern periphery of Budapest will be developed.

The area is located between the international airport Feryhegy of Budapest and a large, suburban housing area with rurality.

This structure should connect these very different places. The selected location with more than 57 ha affords enough space to create an international centre of attraction and donate identity for the whole suburban area.

1.2 Goals of this Study

Goals of the concept are to create an international center in the suburb as a kind of opposite pole to old center in the middle of the town and a place with new and modern identity for the whole 17th district of Budapest, Rákosmente.

The core of the design and the main attraction to bring in here international public will be a large conference centre for international meetings and seminars. This would not only imply an economical improvement for the district Rákosmente, but also for the whole city of Budapest. The more so as there does not exist a building especially for this use in Budapest. There are just a few hotels, which offer the possibility for meetings, but not in appropriate dimension for big conferences.

As a consequence of this will arise infrastructural facilities like hotels, restaurants, bars, cafés and stores. A spa, recreational facilities and cultural conditions make sure more comfort for the travelers as well as for the inhabitants of Rákosmente.

There is also arranged infrastructure which is missing in the adjoining housing area like local supply, shops, educational institutions, medical facilities and offices.



Budapest Panorama

2

analysis

2.1 Hungary

capital_ Budapest

government_ parliamentary republic

head of state_ president János Áder

head of government_ premier Viktor Orbán

area_ 93.030km²

inhabitants_ 9.944.000 (2014)

inhabitants per km²_ 107,5

currency_ Forint (HUF)

national holidays_ march 15th (day of revolution from 1848 against austria)

_ august 20th (day of St. Stefan and day of constitution)

_ october 23rd (national uprising of 1956/day of proclamation of the republic in the year 1989)



coat of arms



location in EU



ensign



map of counties

2.1.1 geography

Hungary lies between latitudes 45° and 49° N, and longitudes 16° and 23° E.

The length of the external border is 2.009 km, thereof the border to Austria is 366 km, to Slovakia 515 km, to Ukraine 103 km, to Rumania 443 km, to Serbia 151 km, to Croatia 329 km and to Slovenia 102 km.

Slightly more than one half of Hungary's landscape consists of flat to rolling plains of the Pannonian Basin surrounded by East Alps, the Carpathians and Dinaric Alps.

The average mountains divide the country geographically into two parts: the Little Hungarian Plain (Kisalföld) in the Northwest with Lake Balaton, to the south of Lake Balaton the Transdanubian hill country, and the Great Hungarian Plain (Alföld) in the Southeast.

The highest mountains of the country are located in the Carpathians: these lie in the northern parts, in a wide band along the Slovakian border.

highest point: the Kékes at 1,015 m/3,327 ft

lowest point: Tisza at 78 m

ca. half of the country is lower than 120 m

According to the WWF, the territory of Hungary belongs to the ecoregion of Pannonian mixed forests.

Hungary has 10 national parks, 145 minor nature reserves and 35 landscape protection areas.

TOWNS

The biggest city is the capital Budapest with 1.729.040 inhabitants (2011). Therefore 17% of the population live in the capital. There are 10 more cities with more than 100.000 inhabitants, amongst others: Debrecen (ca. 211.000 inhabitants), Szeged (ca. 168.000 inhabitants), Miskolc (ca. 168.000 inhabitants), Pécs (ca. 156.000 inhabitants), Győr (ca. 130.000 inhabitants), Nyíregyháza (ca. 120.000 inhabitants), Kecskemét (ca. 111.000 inhabitants) and Székesfehérvár (ca. 101.000 inhabitants).



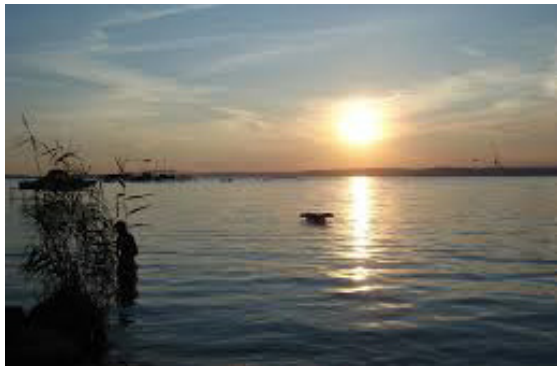
general geographic map



regions



The Danube in Budapest



View over Lake Balaton



Lake Hévíz

RIVERS and LAKES

The longest river in Hungary is the Danube (Duna, 420 km), on the course of the river are situated among other things the capital Budapest, the cities as Komárom, Esztergom, Dunaújváros, Baja and Mohács.

The second main river is the Tisza (529 km). Bigger city at the course of the river are Tokaj, Tiszaújváros, Szolnok, Csongrád and Szeged.

Further important rivers are Dráva, Hernád, Körös, Mur, Rába, Sajó and Zala.

The biggest lake in Hungary is Lake Balaton in the west of the country and at the same time it's the biggest sea in Central Europe. Lake Velencei (Velencei-tó) is situated next to Lake Balaton and bears large resemblance to it.

Lake Fertő (Fertő-tó) is just a part of Hungary. 75% of the expanse of water are owned by Austria.

The largest thermal lake in the world is Lake Hévíz (Hévíz Spa) and is located in the Pannonian Basin, there is also Lake Tisza (Tisza-tó), the biggest artificial lake in Hungary.

CLIMATE

Hungary has a moderate continental climate with warm summers, average temperature is 20°C, and mildly cold snowy winters, average temperature -2°C.

2.1.2 history

BEFOR 895

from 9 BC to the end of the 4th century Pannonia was part of the Roman Empire

after that the Huns, the Germanic Ostrogoths, Lombards and Gepids, and the polyethnic Avars had a presence in the Carpathian Basin

MEDIEVAL HUNGARY 895–1526

895 : Hungary was established, the freshly unified Magyars (Hungarians) led by Grand Duke Árpád settled in the Carpathian Basin, it is one of the oldest countries in Europe

1000 : Saint Stephen I became the first King of Hungary, establishment of Kingdom

1458–1490 : the last strong King of medieval Hungary was the Renaissance king Matthias Corvinus

1521: the Hungarian fortress in the South, Nándorfehérvár (the Hungarian name of Belgrade, Serbia) fell to the Turks

OTTOMAN WARS 1526–1699

1526 : the Ottomans won over the Hungarian army at the Battle of Mohács, where King Louis II died. Political chaos followed and two Kings, János Szapolyai and Ferdinand I of the Habsburg dynasty were elected simultaneously

1541 : the Turks conquered Buda, Hungary was divided into three parts and remained so until the end of the 17th century



Saint Stephen I



Ottoman Wars

17th century : the Habsburg Counter-Reformation reconverted the majority of the kingdom to Catholicism

FROM tTHE 18th CENTURY TO WORLD WAR I

1708 : after 8 years of war the Hungarian Kuruc army lost the last battle, the Habsburgs conquered Hungary

1867 : Austro- Hungarian Compromise; the dual Monarchy of Austria- Hungary was formed

1918 : Hungary's union with Austria was dissolved after World War I

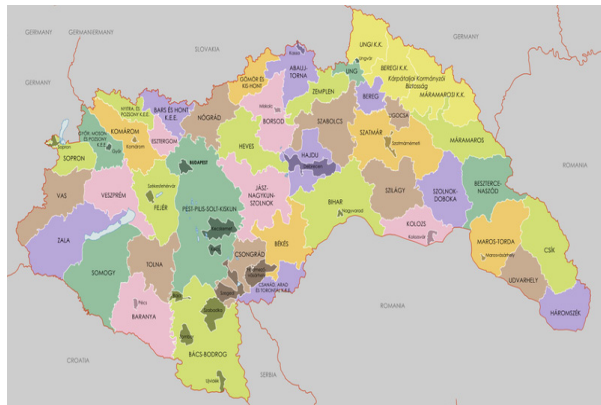
BETWEEN THE WORLD WARS 1918–1941

1918 : proclamation of democratic republic , first president was Count Mihály Károly

WORLD WAR II 1941–1945

1941 : Hungary declared war on the Soviet Union, and formally entered World War II on the side of the Axis Power

1945 : conquest of Hungary by the Soviet Army finished the fighting of WW II for Hungary



Hungary 1941 - 1944



Hungary's entry in EU 2004

COMMUNIST ERA 1947–1989

after WW II Hungary became a communist satellite state of the Soviet Union

1956 : Hungarian Revolution : temporary withdrawal from the Warsaw Pact, the multi-party system was restored by Prime Minister Imre Nagy.

Nearly a quarter of a million people left the country during the brief time that the borders were open in 1956.

THE THIRD HUNGARIAN REPUBLIC 1989– PRESENT

1989 : Opposition demonstrations in Budapest, Mikhail Gorbachev promised that the USSR would not interfere in Hungary's internal affairs

May 1989: Hungary began taking down its barbed wire fence along the Austrian border

October 1989 Declaration of Hungarian Republic

1999 : Hungary joined the NATO

2004 : Hungary became a member of the EU

2.2 Budapest

region_ Közép-Magyarország

area_ 525km²

sea height_ 102m

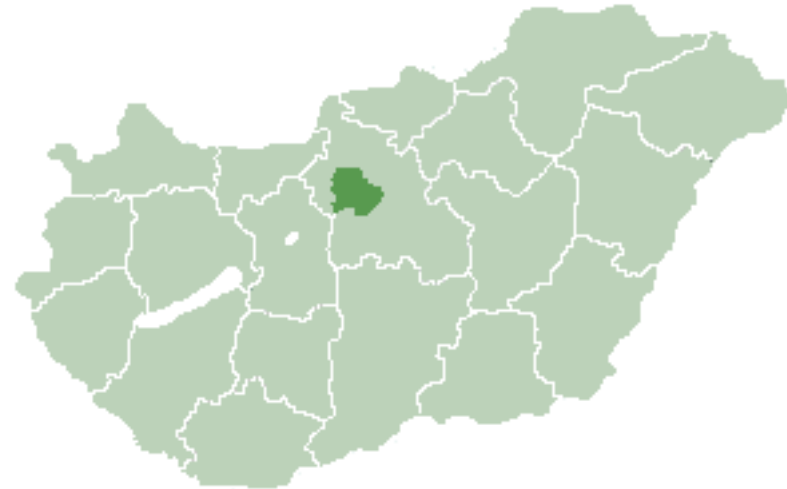
mayor_ István Tarlós (FIDESZ-KDNP)

inhabitants_ 1.740.041 (2012)

inhabitants per km²_ 3.300

districts_ 23

post code_ 1011 - 1239



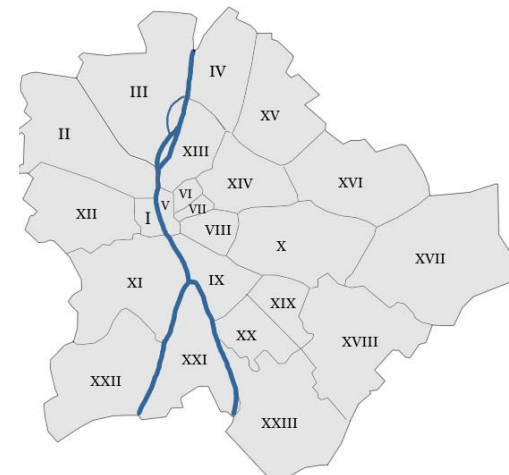
location in hungary



ensign



coat of arms



districts of Budapest

2.2.1 geography



Budapest at night



Downtown Budapest

The 525 km² area of Budapest lies in Transdanubia, central Hungary and is situated on the Danube surrounded by settlements of the agglomeration in Pest- County.

Extension: 25 km in the north-south and 29 kilometers in east-west direction.

The Danube enters the city from the north and separates the two parts of the city: Buda and Pest

PEST is located on the eastern side of the Danube, on the flat terrain of the Great Plain while BUDA extends on the western shore and is rather hilly, e.g. Gellért Hill and Castle Hill, János Hill with its 527 metres is the highest hill and the highest point of Budapest.

The lowest point is the line of the Danube with 96 metres above sea level.

The Danube encircles also two islands: Óbuda Island and Margaret Island.

Formative for Budapest are the many hot springs, in the capital are most thermal water of the world (118 fountains and springs), reason for that is the geologic character of the rocks of the Buda Hills, the water created speleothems.

2.2.2 history

1st century : the settlements from Celtic and Eravisci (Aquincum) were capital of the roman province Pannonia

5th century : Attila, King of the Huns builds a city for himself here

896 : foundation of Hungary, Árpád , leader of the Hungarians, settled in the „Town of Attila“

1248 : King Béla IV builds the first royal castle on Castle Hill, Buda, the new town adopts the name of Buda (present day Óbuda)

1458 : King Matthias Corvinus made Buda a centre of European Renaissance

1541 : Ottoman occupation, construction of numerous mosques and baths in Buda

1686 : under Habsburgs leadership Buda and Pest were reconquered, both towns were destroyed completely

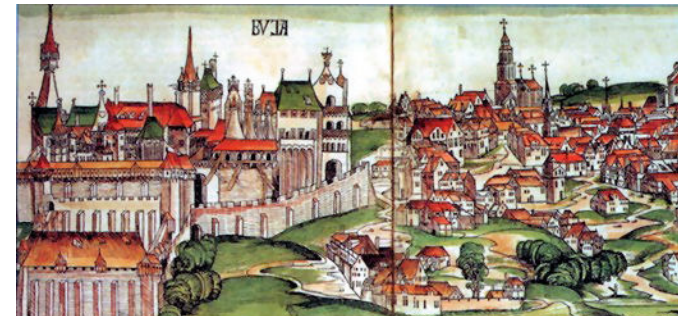
1777 : Maria Theresa of Austria moves Nagyszombat University to Castle Hill

1783 : Joseph II placed the acting government and Magyar Kamara on Buda

1825 : beginning of the Reform Era, Pest became the cultural and economic centre of the country

1849 : Széchenyi Chain Bridge was opened linking Buda and Pest

1867 : Austro- Hungarian Compromise, huge civic development, important for the style of present day Budapest



Budapest in the Middle Ages



Széchenyi Chain Bridge



Margaret Bridge



Opening Metro line 4

1873 : Pest, Buda and Óbuda were united, establishment from Budapest as capital from Hungaria

1944 : occupation by Germans

1944/45 : Germans had to retreat, the soviets occupied Pest and Buda

1960s : wartime damage is largely repaired

1970- 72 : beginning of the first phase of the East-Western Metro

1982 : beginning of the first phase of the North-Southern Metro

1990 : inhabitants 2.016.100

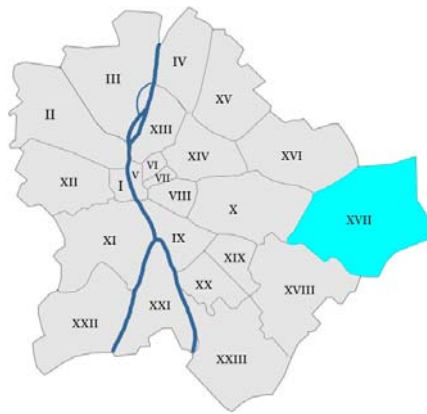
2009 : reconstruction of Liberty Bridge finished; the reconstruction of Margaret Bridge began

2010 : the tunnel of Metro line 4 was finished

2.3 Rákosmente

23 districts of Budapest

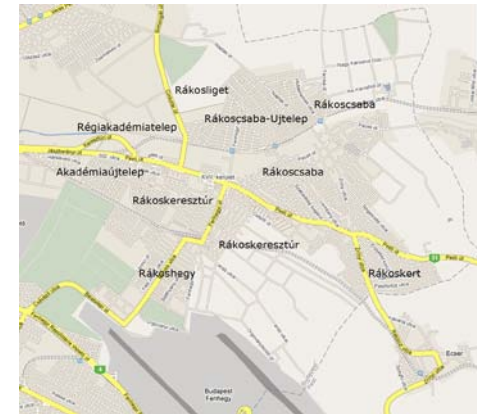
1. Budavár
2. Rózsadomb
3. Obuda-Békásmegyer
4. Újpest
5. Belváros-Lipótváros
6. Terézváros
7. Erzsébetváros
8. Józsefváros
9. Ferencváros
10. Köbánya
11. Újbuda
12. Hegyvidék
13. Angyalföld
14. Zugló
15. Kerület
16. Kerület
17. **Rákosmente**
18. Pestszentlőrinc-Pestszentimre
19. Kispest
20. Pestszébet
21. Csepel
22. Budafok-Tétény
23. Soroksár



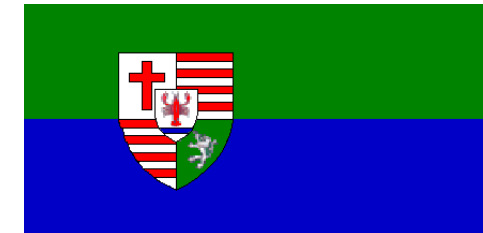
location in Budapest

quarters of Rákosmente

- Akadémiaújttelep
- Madárdomb
- Rákoscsaba
- Rákoscsaba-Újttelep
- Rákoshegy
- Rákoskeresztúr
- Rákoskert
- Rákosliget
- Régiakadémiattelep



quarters



ensign



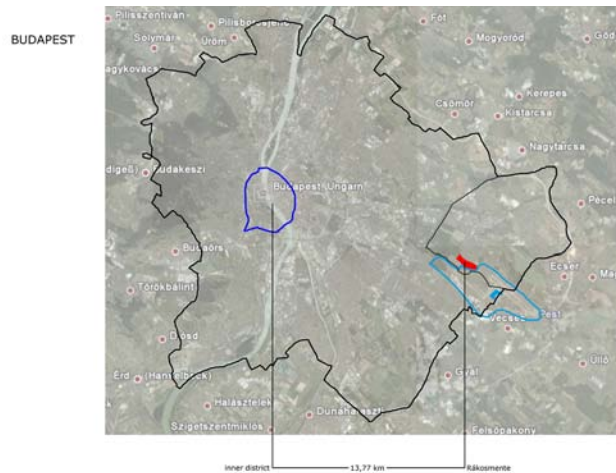
coat of arms

inhabitants_ 78.599 (2011)

inhabitants per km²_ 1.434

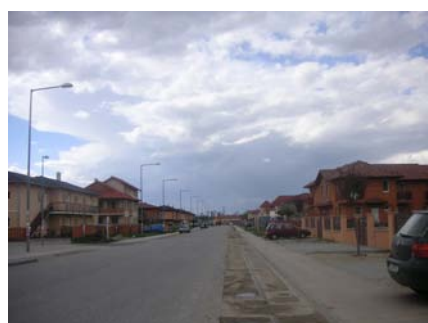
area_ 54,83 km²

2.4 Building area



the area is located in the 17th district, Rákosszentmihály, of Budapest, in the eastern suburb. It is in the periphery of the city and resides between the international airport of Budapest, Ferihegy and a built up area with small one-family houses, gardens and blocks of flat. The dimension is over 572.000 m² and the distance from the center, the 1st district Budavár, is nearly 14 km. The terrain is plane and not built-up. It's covered with bushes and trees but mostly with brushwood. There is no agricultural use or forestry, it is an entire unused ground.

2.4.2 Environment







project

3.1 Concept

The selected building area is located in the 17th district, called Rákosmente, of Budapest. It is between the international airport, Ferihegy, and a built-up area, a large, suburban housing area with rurality.

The intension of the project is:

To connect these very different places, on one hand the international airport on the other the rural housing area.

To connect the travelers, which are staying here temporarily, with the people, who live permanent in this place.

To give new space for the inhabitants, such as missing infrastructure like local supply, shops, educational institutions, medical facilities, offices, meeting rooms, recreational facilities and cultural conditions.

To give space for hotels, restaurants, international conferences and workshops.

To create an international center in the suburb as a kind of opposite pole to old center in the middle of the town.

This would mean an appreciation in economical and aesthetical way.

It will make the place more alive and more interesting, also for new people.

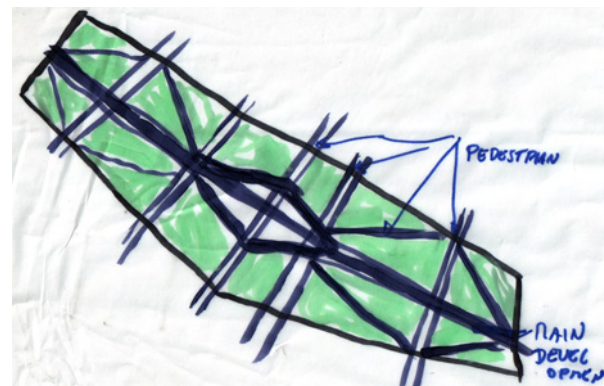
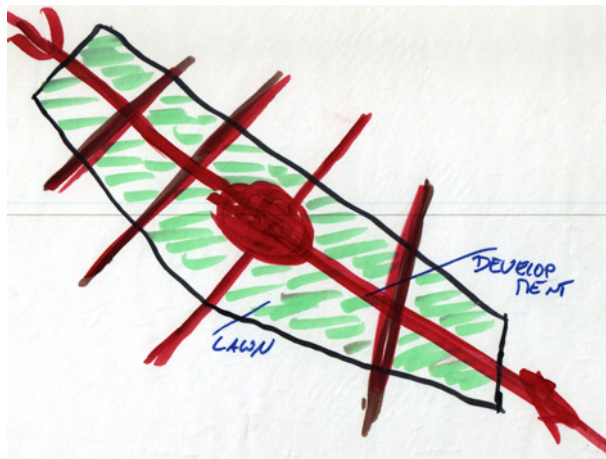
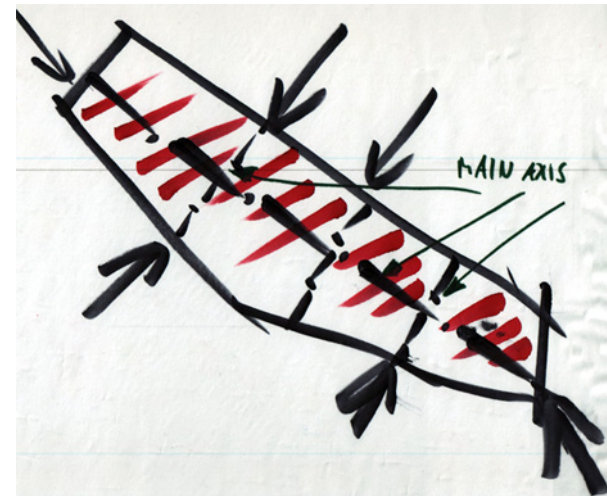
3.2 Idea of Design

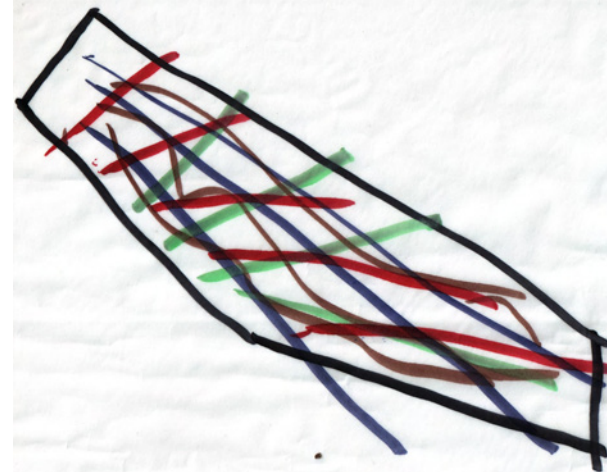
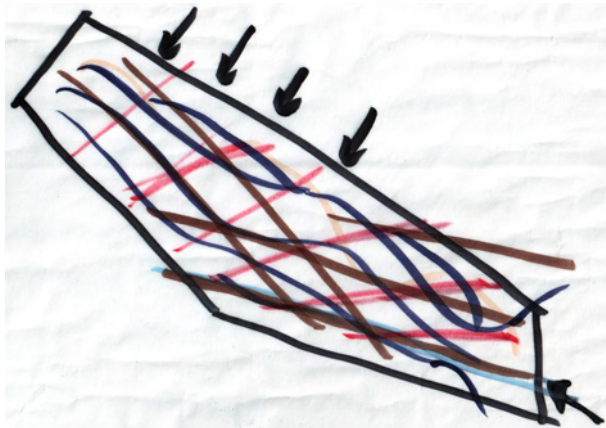
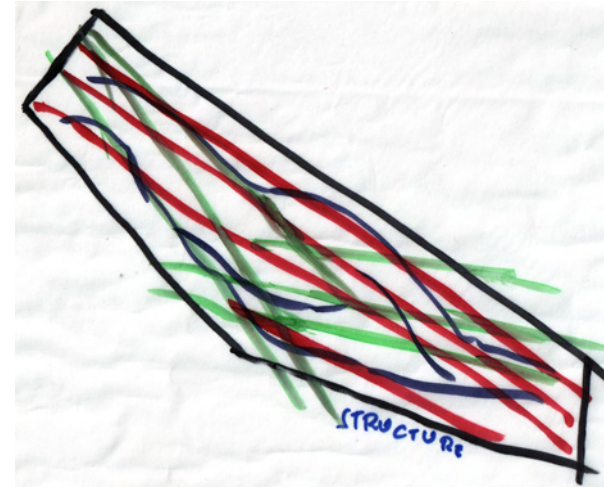
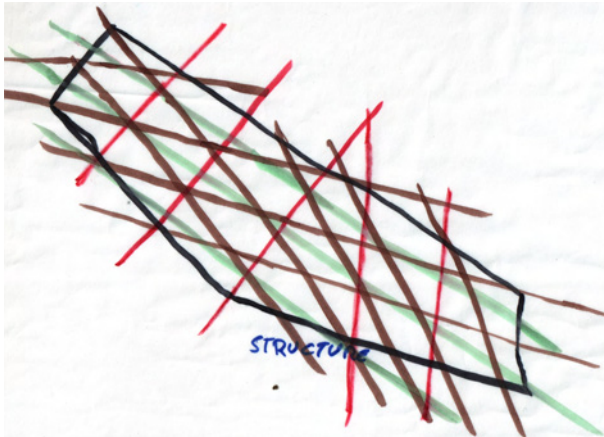
The capacity, which were generated in the space allocation plan, have been dissolved in several shapes.

Mostly in quite small and long shapes, so they emphasize the small and long building area.

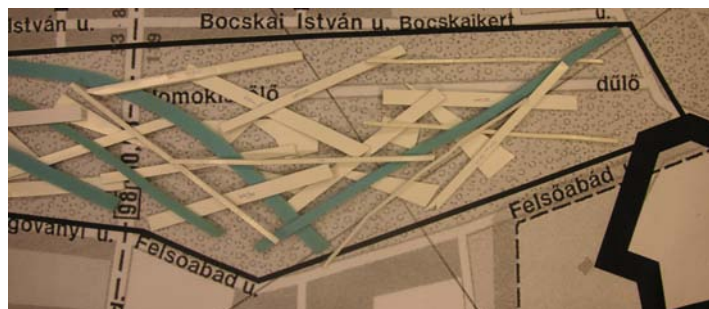
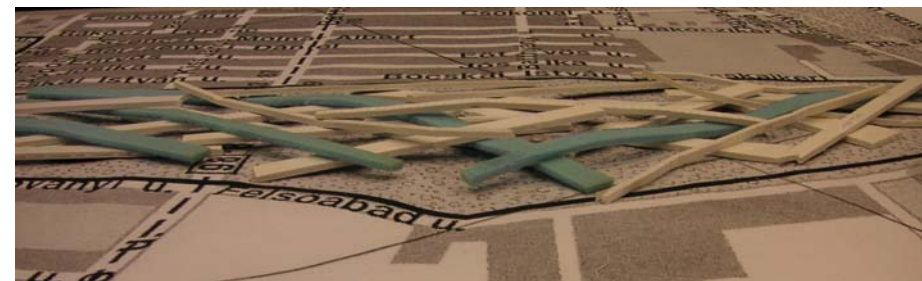
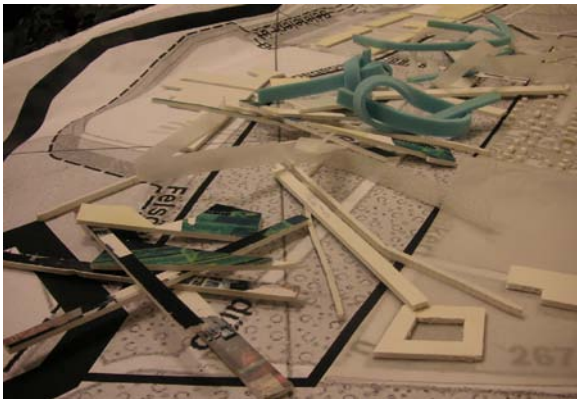
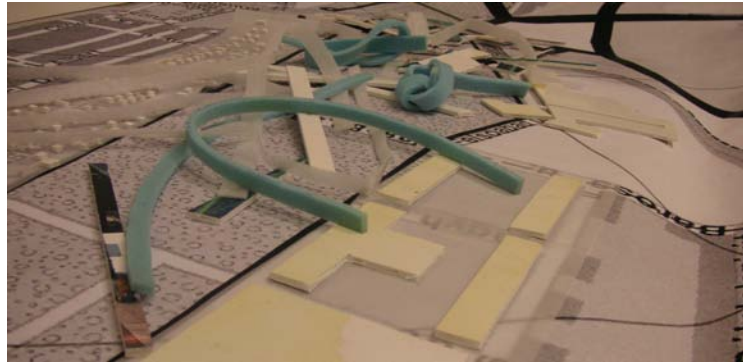
Those several shapes were joined together in form of synthesis to form the whole building structure.

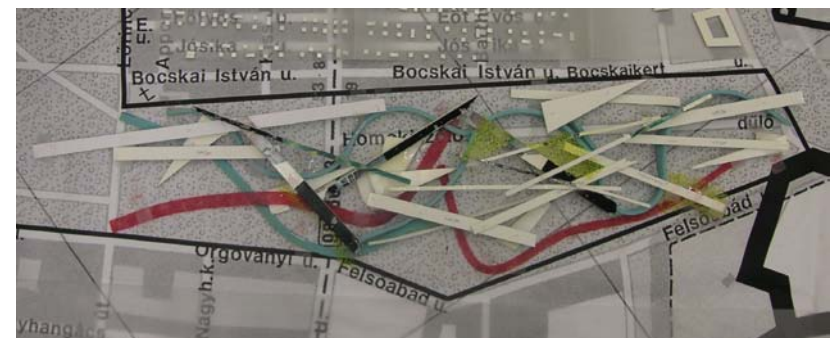
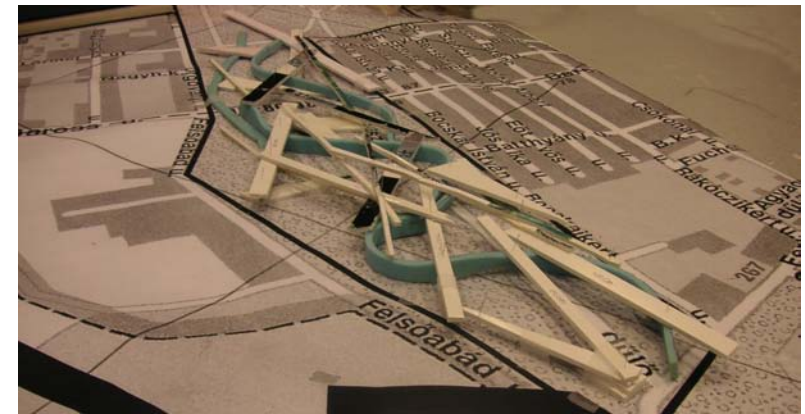
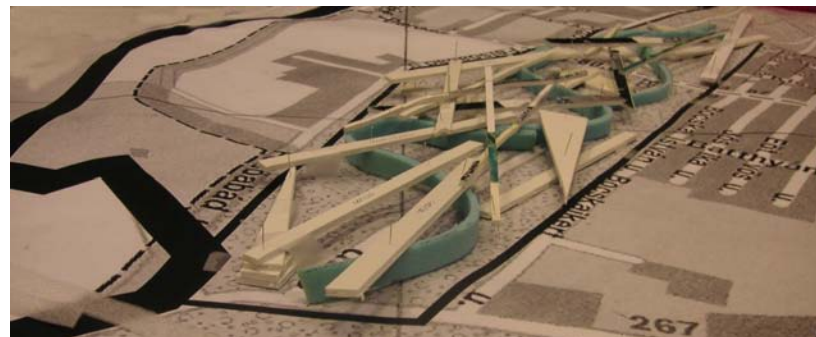
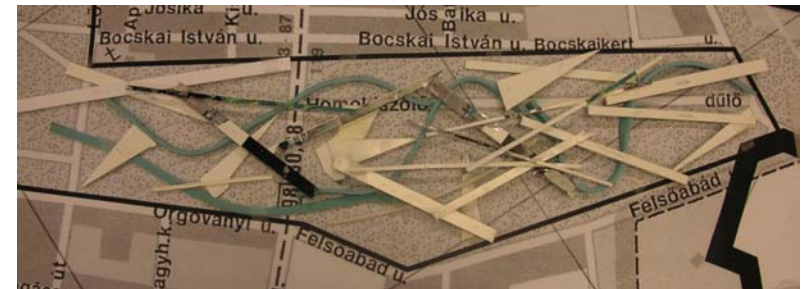
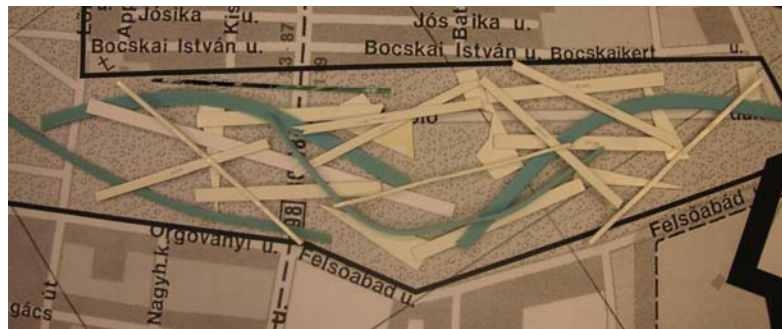
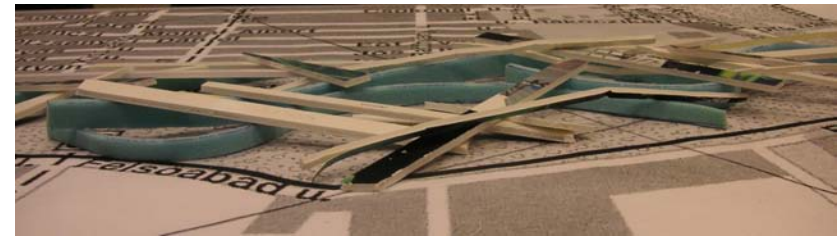
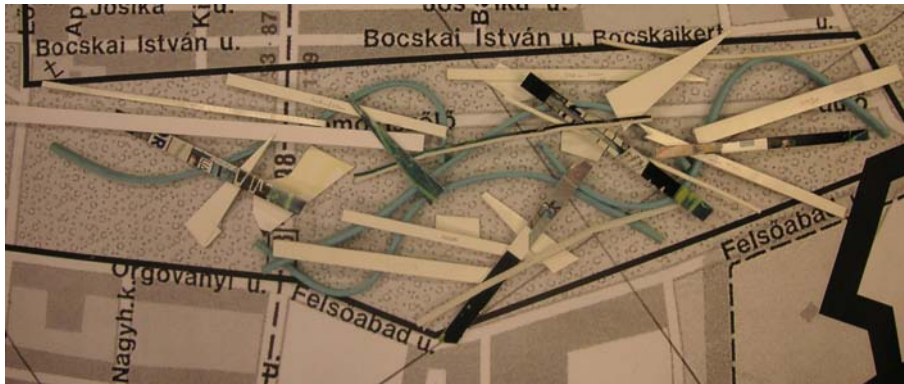
Design Delineations





Design Models



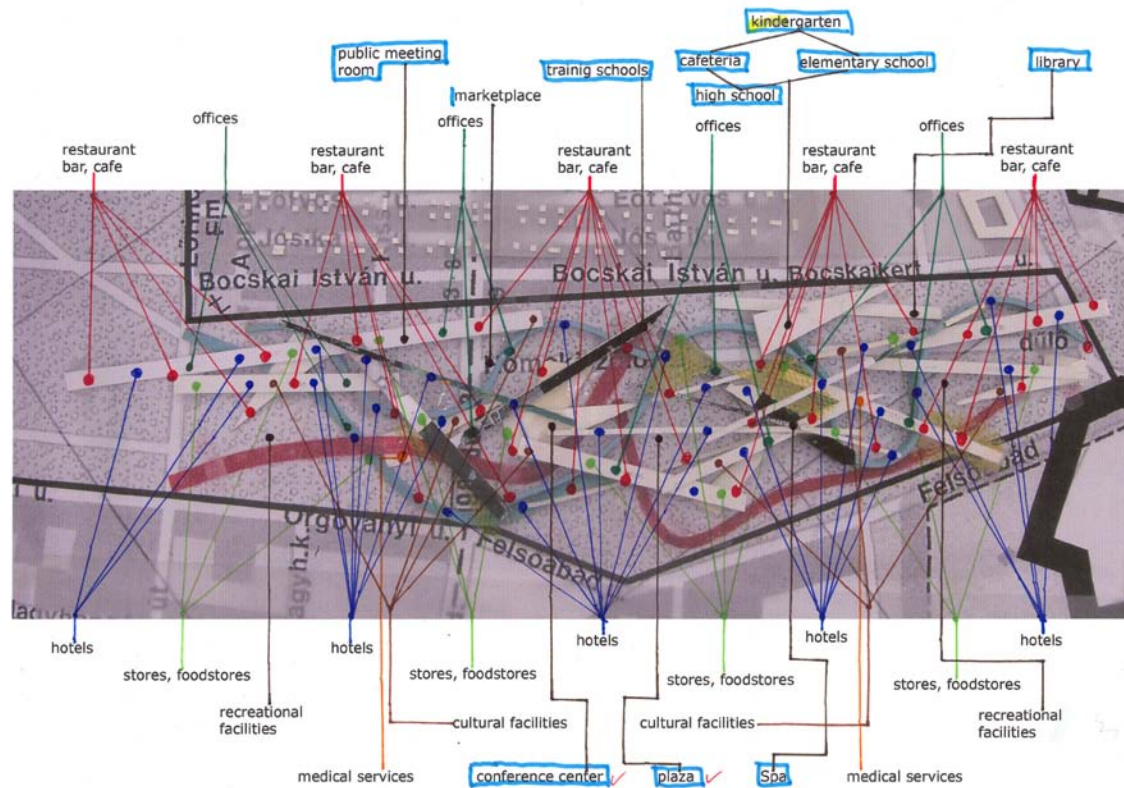






3.3 Space Allocation Plan

Kindergarten.....	1.000 m ²
Elementary school.....	3.000 m ²
High school.....	4.000 m ²
Cafeteria.....	1.000 m ²
Training schools.....	3.000 m ²
Offices.....	6.000 m ²
Public meeting room.....	1.000 m ²
Stores, foodstores.....	5.000 m ²
Library.....	2.000 m ²
Medical services.....	2.000 m ²
Public area(marketplace, plaza.....	3.000 m ²
Restaurant, bar, café.....	4.000 m ²
Cultural facilities(cinema, galleries, theater,.....	5.000 m ²
Recreational facilities(swimming bath, tennis, golfcourse,.....)	15.000 m ²
Spa.....	5.000 m ²
Conference center.....	10.000 m ²
.....	70.000 m ²
Hotels(for 5.000 people).....	200.000 m ²
.....	270.000 m ²



distribution of functions

3.4 Description of the Project

3.4.1 Description

The selected building site has a size of more than 57,2 ha (572.338 m²) and offers enough space for the intended project.

The size of the built- up total area is 270.000 m² as in the space allocation plan calculated.

The general project plan envisions for this suburban structure an intra- urban infrastructure and even more such as generous recreational and leisure facilities.

A diversity of utilisations is inherent in the project.

An important point for the design is the mixing of functions like living (temporary living), working, education, free time and culture as well as in vertical and horizontal dimension.

There is no permanent living envisaged in the total area at the moment, the structure offers the missing infrastructure for the neighbouring dwelling zone and hotels for international guests which come in here for conferences in the new conference center.

In this sense the conference center is the initial point for further design and development of this structure.

The conference center itself is a two- storeyed complex of buildings with conference hall, meeting hall, temporary exhibition, bar, restaurant, café and shops in the ground floor.

In the first floor reside two large conference halls and the lounge.

The conference center is the only building in the plan whose facade is equipped with a Media Facade. Via a dot matrix of LEDs it is possible to convey variable information to the outside.

3.4.2 Exterior Shape

The structure blends in the contour of the building site. The several elements are solitaires, most of them are very long, straight and small blocks, one-storeyed or two- storeyed.

On the base are some curved elements wich were at the beginning a closed shape, later became break open to enable the exploitation of the area and the transit to the neighbouring zones.

The single solitaires overlap or engage with each other, large bulges are stabilized with columns.

The external appearance is influenced by almost floating looking elements. The steel and glass construction of the facades arranges for easiness and transparency, different colors of the facades care for alternation.

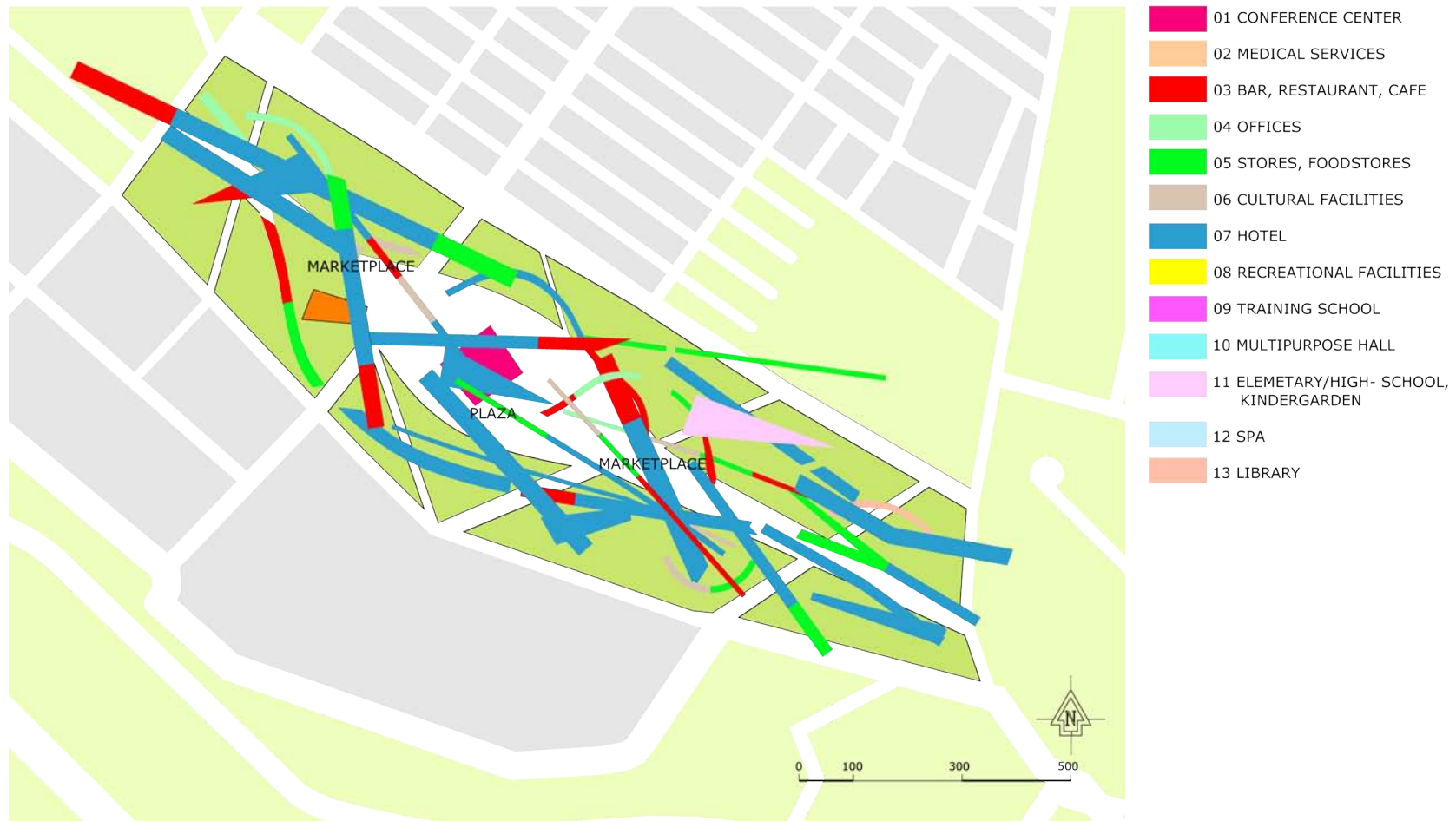
Despite the large number of built- up area provides the design for plainness and clearness, not least because of generous distribution of the elements both in horizontal and vertical dimension.

Thereby is taken care for sufficient illumination for all solitaires.

A large, light gray, stylized number '4' is positioned on the right side of the slide, serving as a background element for the section header.

building plans

4.1 Position Plan



position plan

4.2. Floor Plans



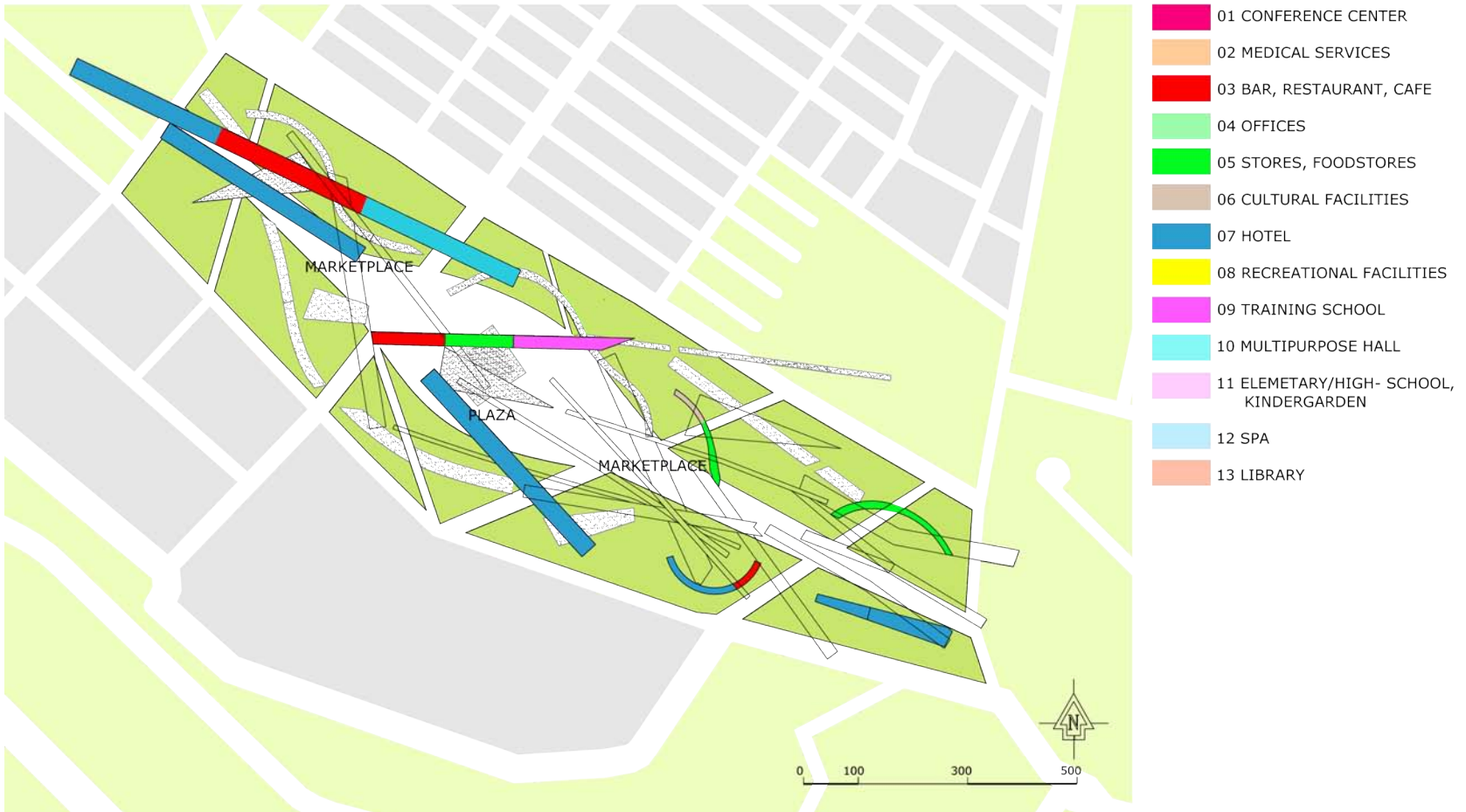
ground floor and first floor



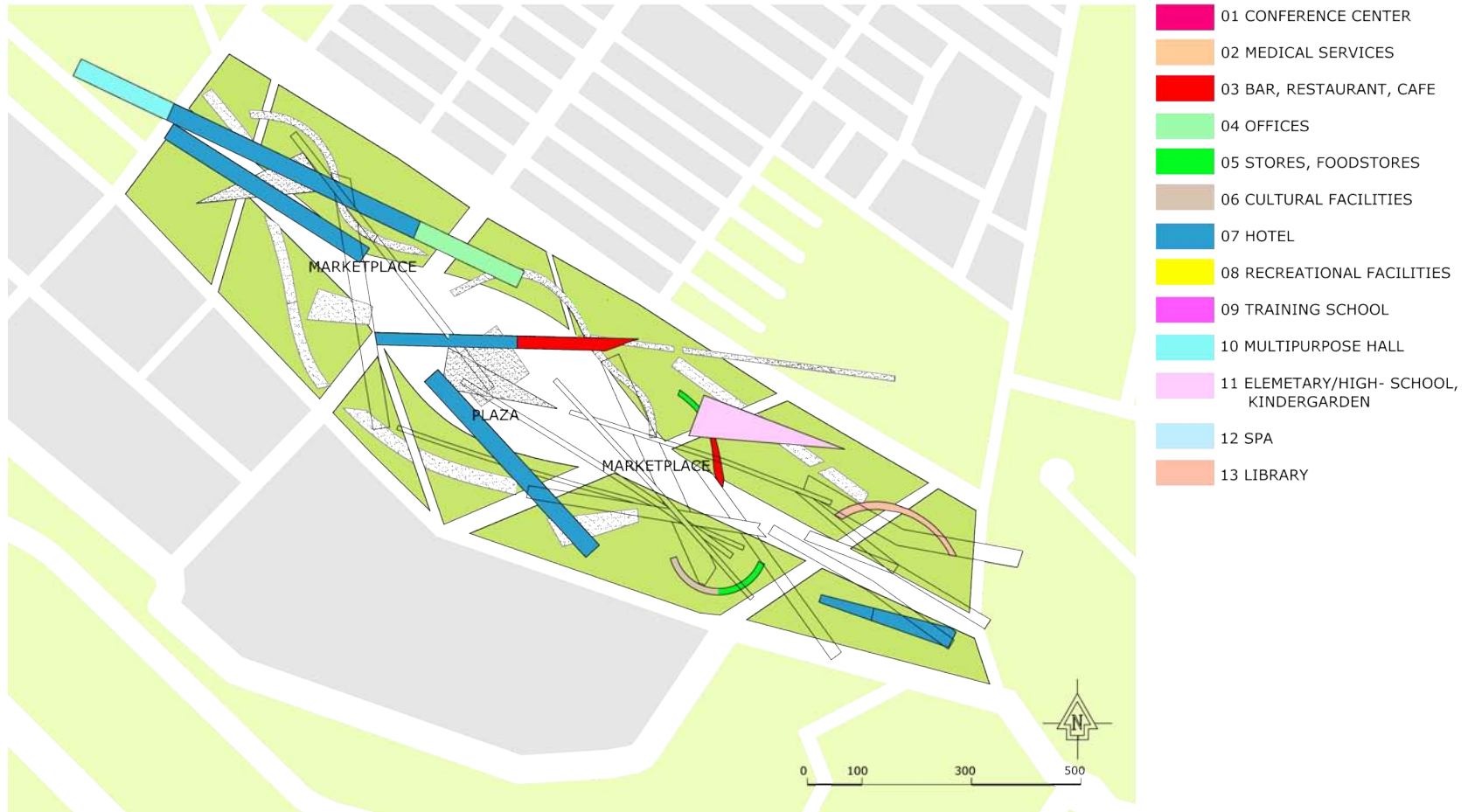
2nd and 3rd floor



4th floor



5th floor



6th floor





8th floor

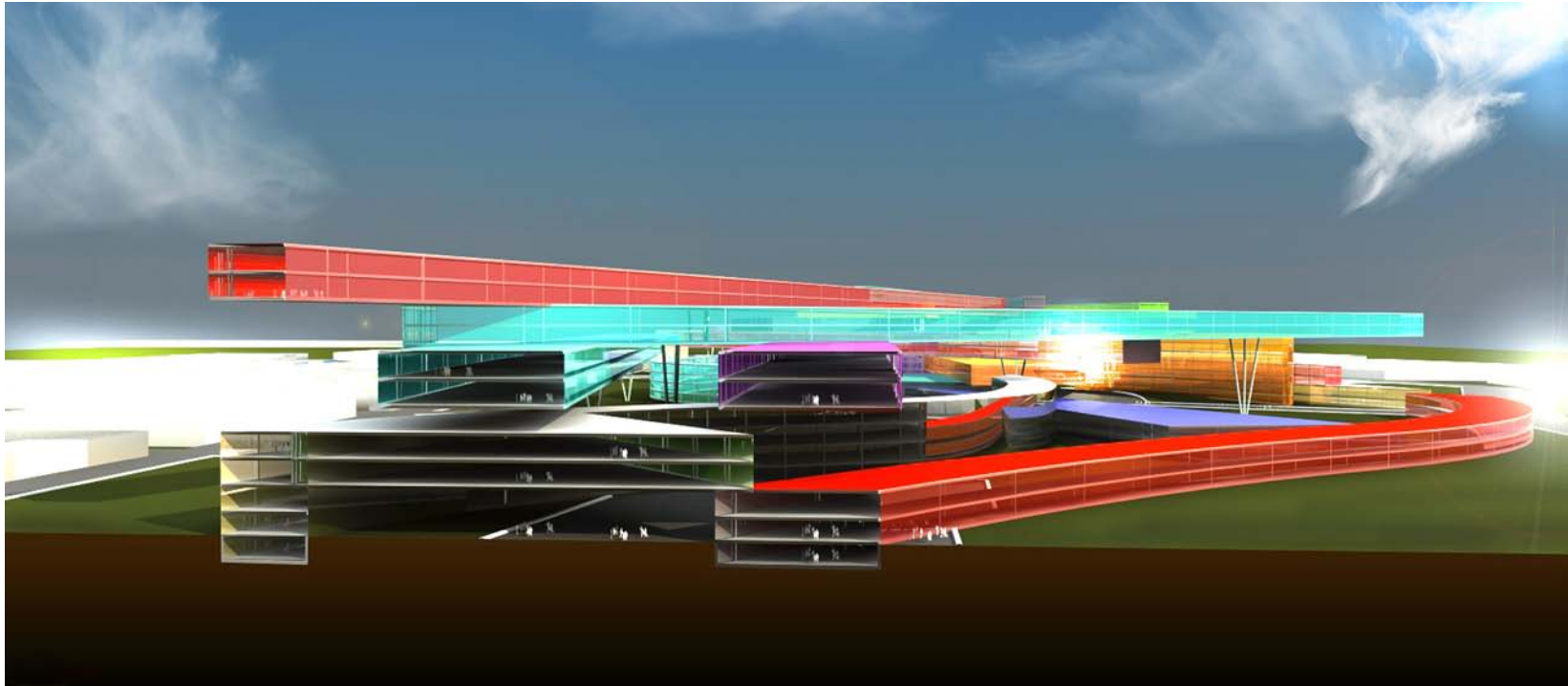


9th and 10th floor

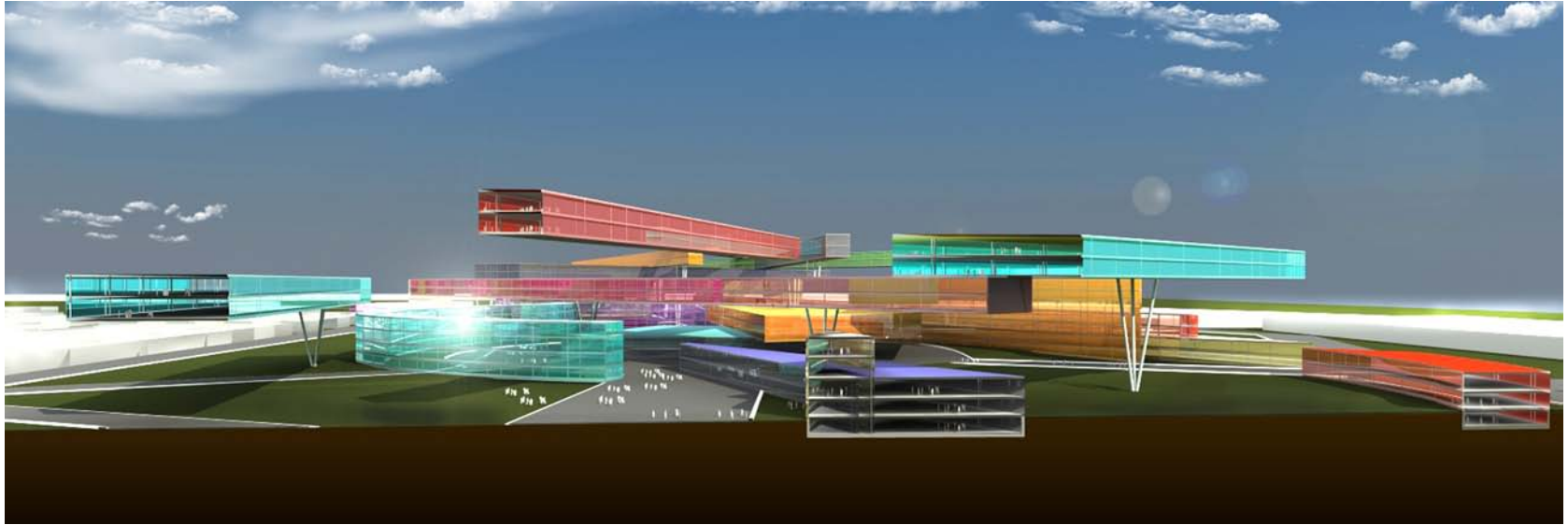


11th and 12th floor

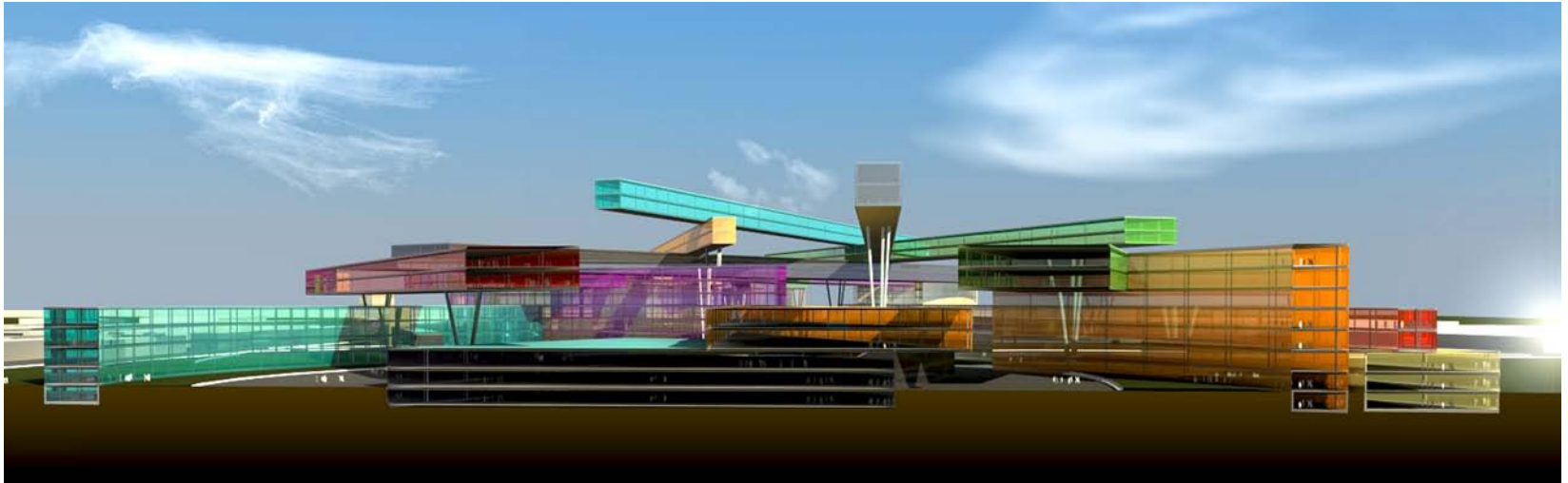
4.3. Vertical Sections



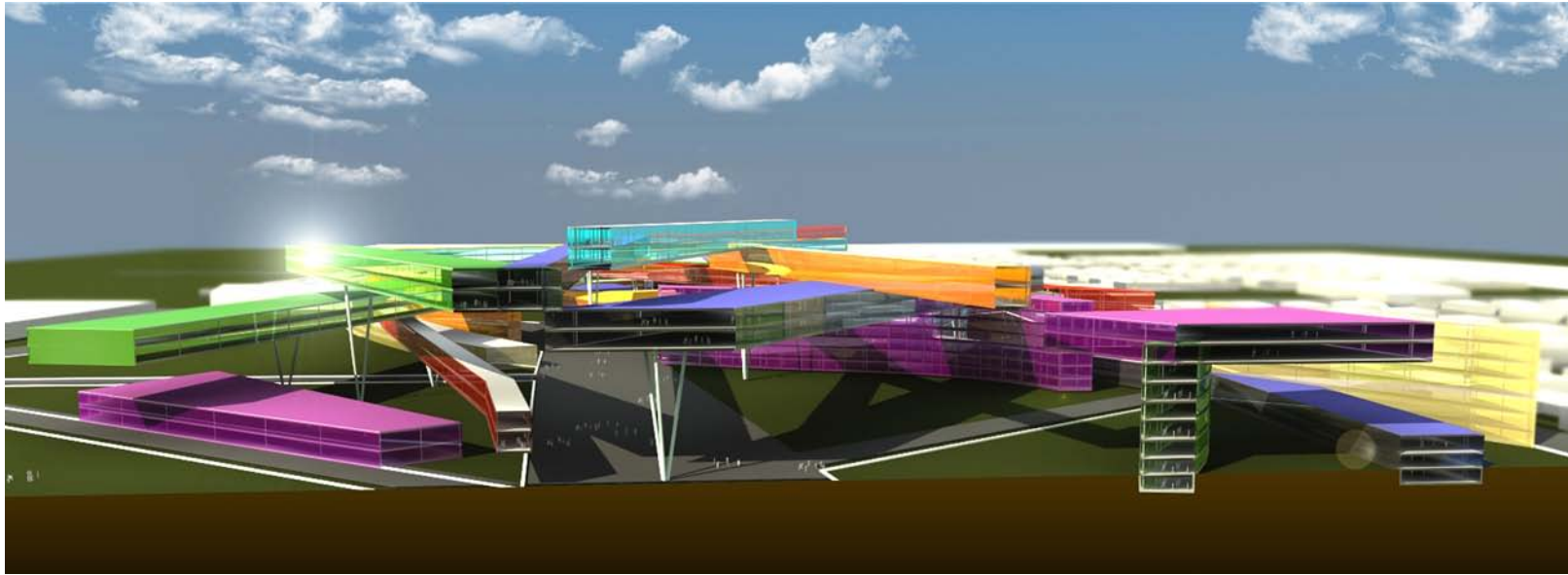
A-A



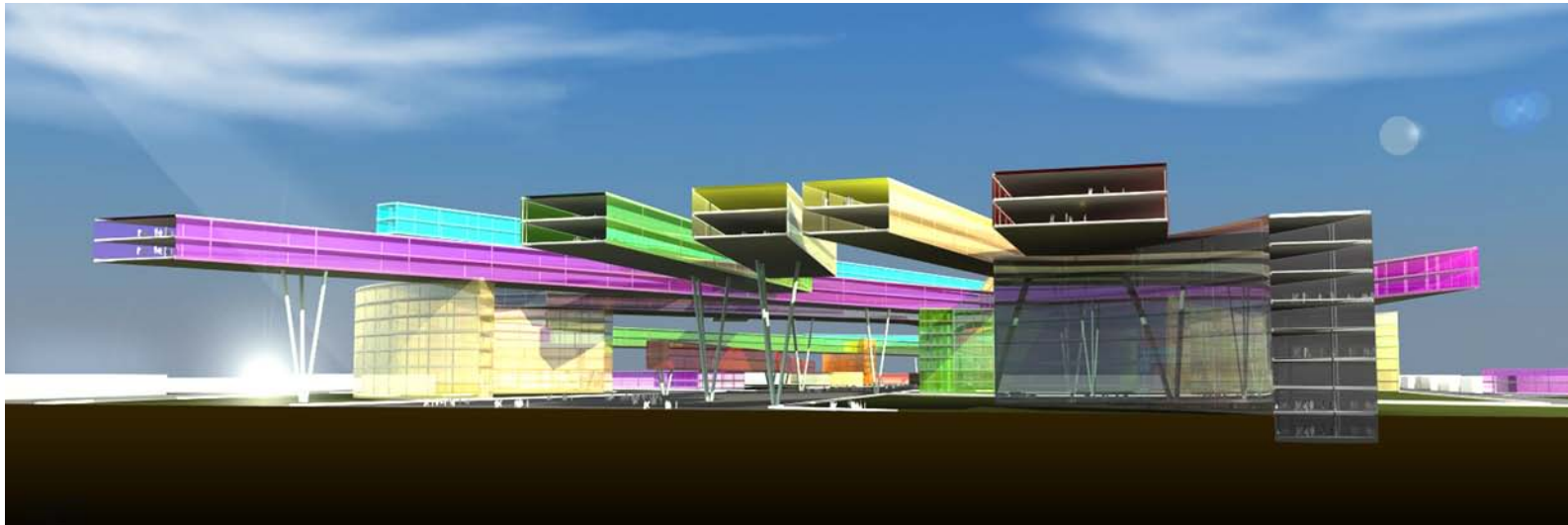
B-B



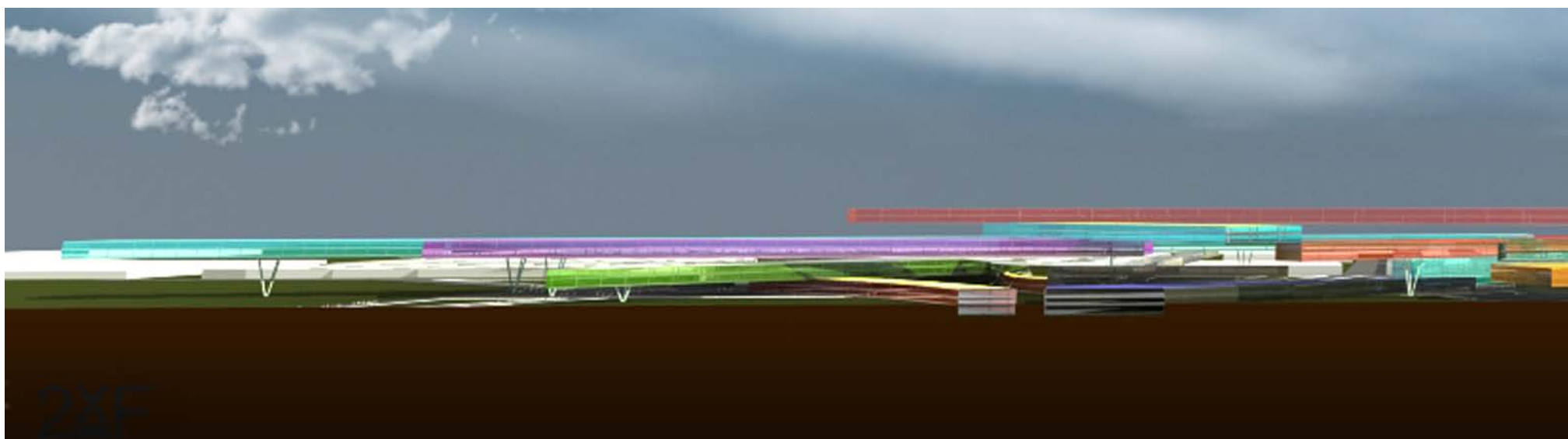
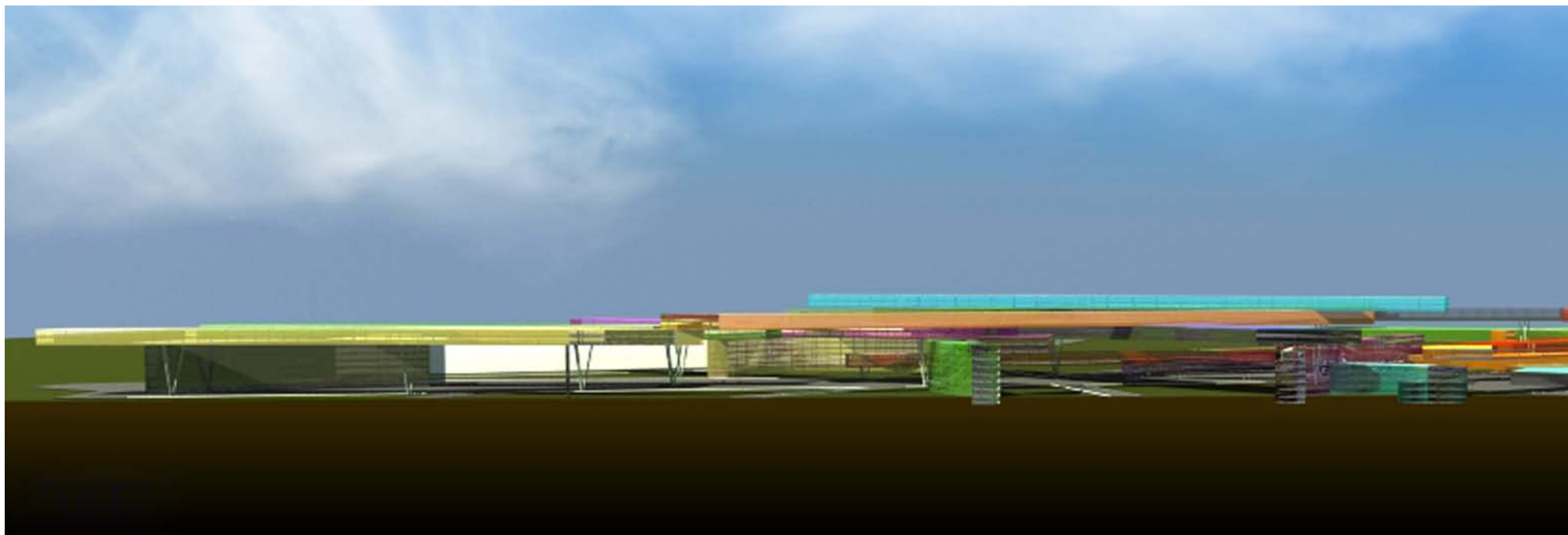
C-C

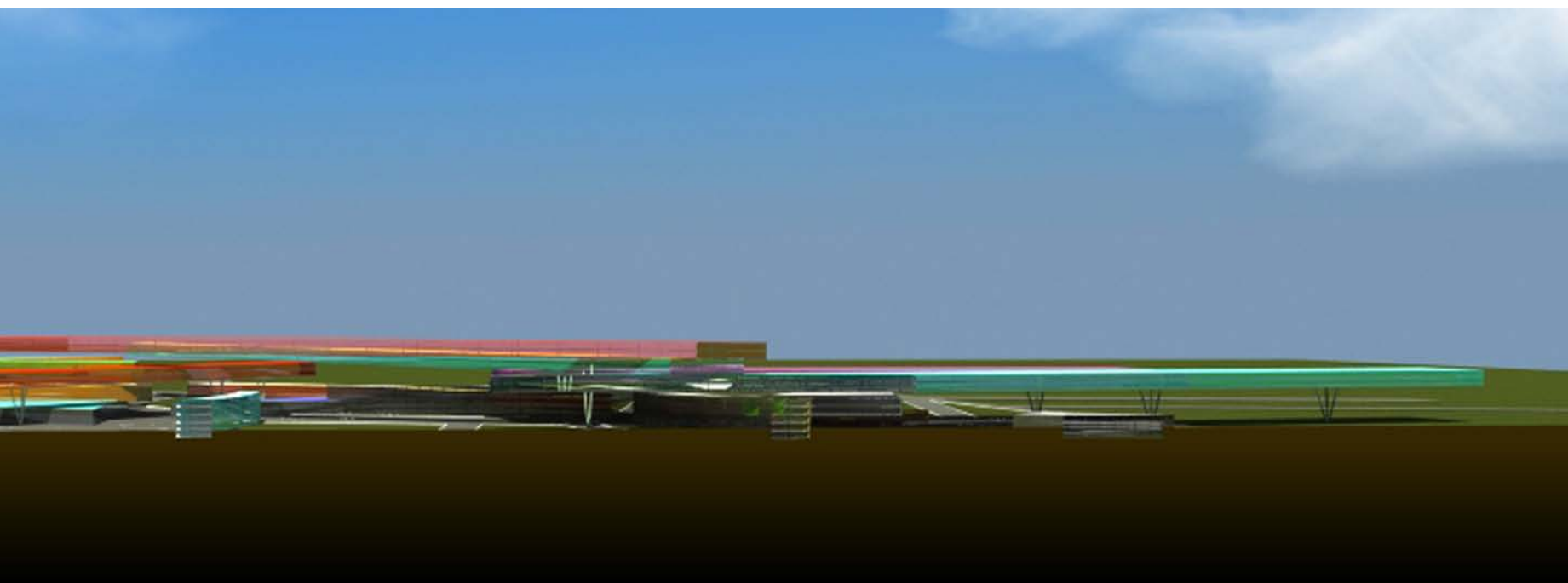


D-D

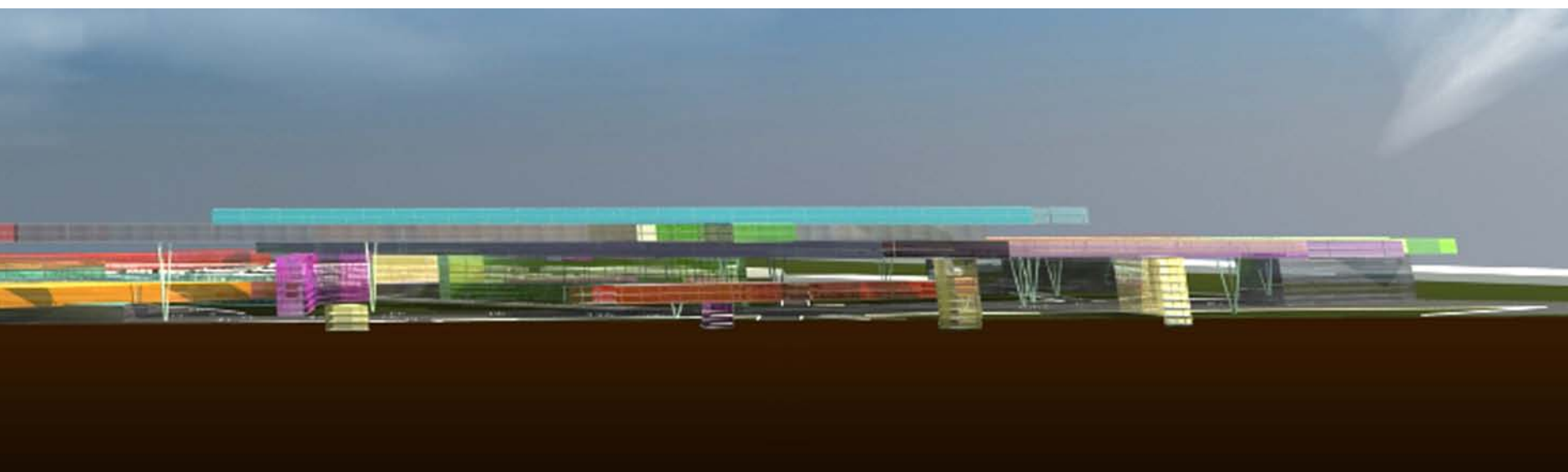


E-E



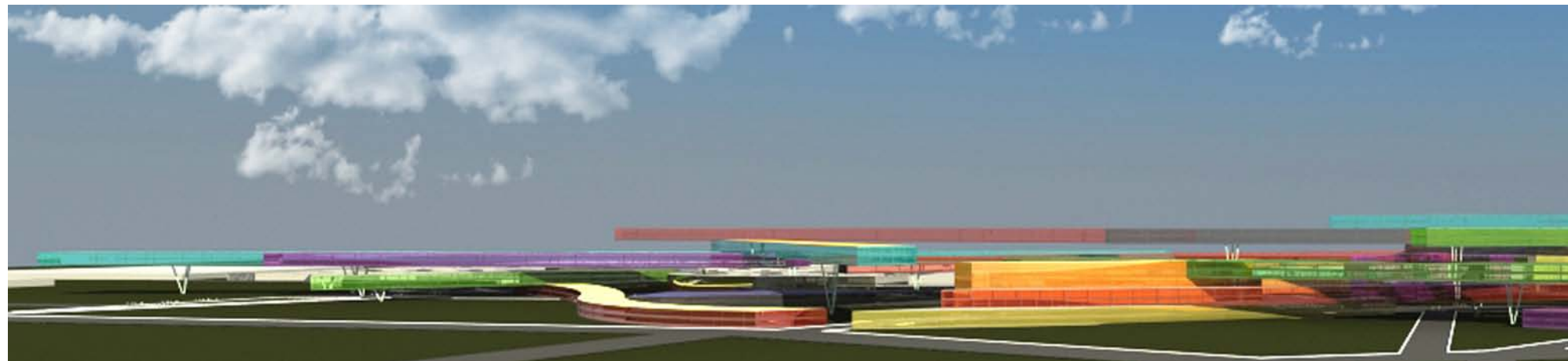


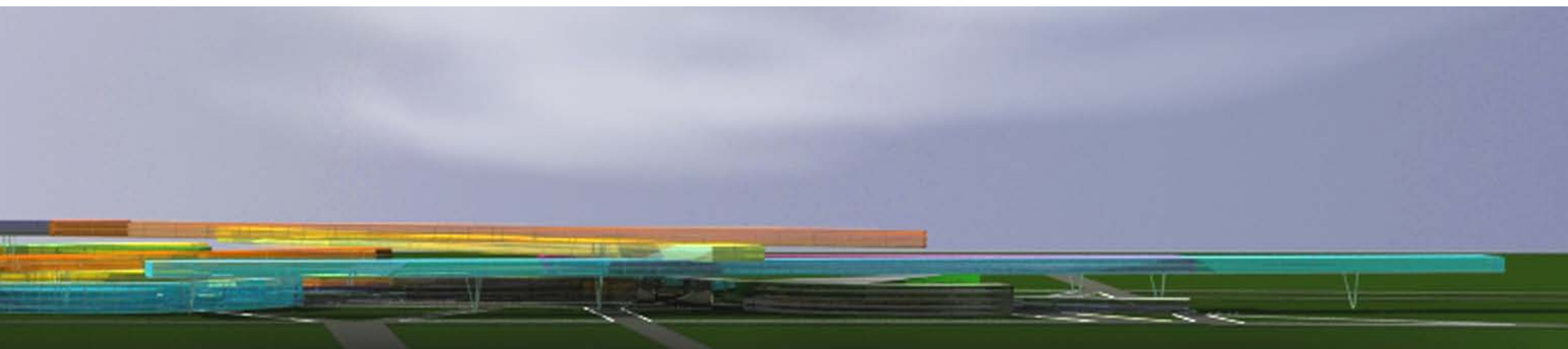
F-F



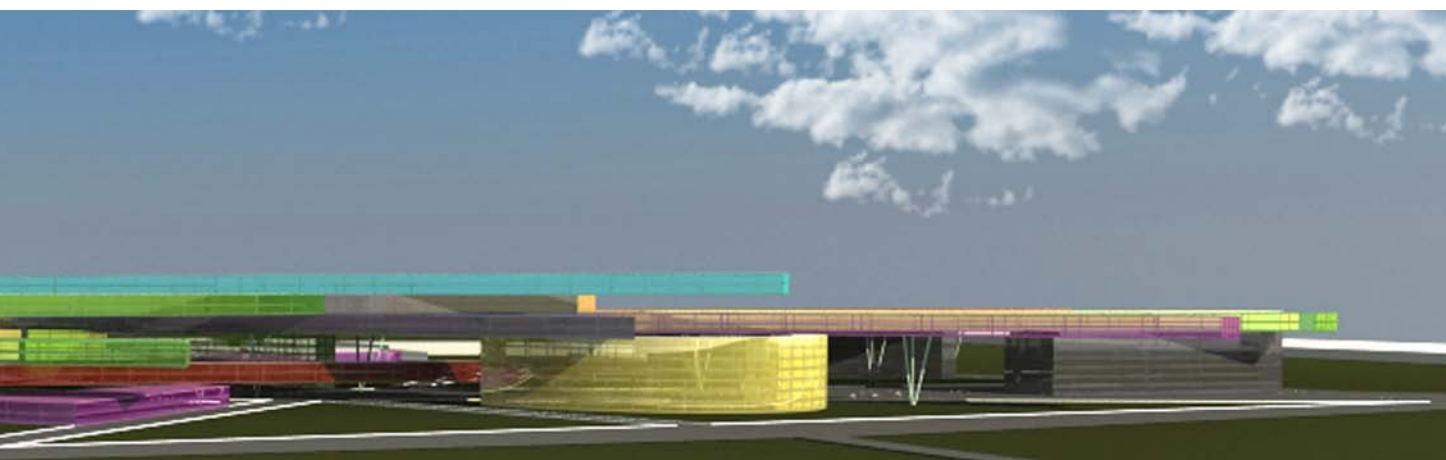
G-G

4.4 Elevations

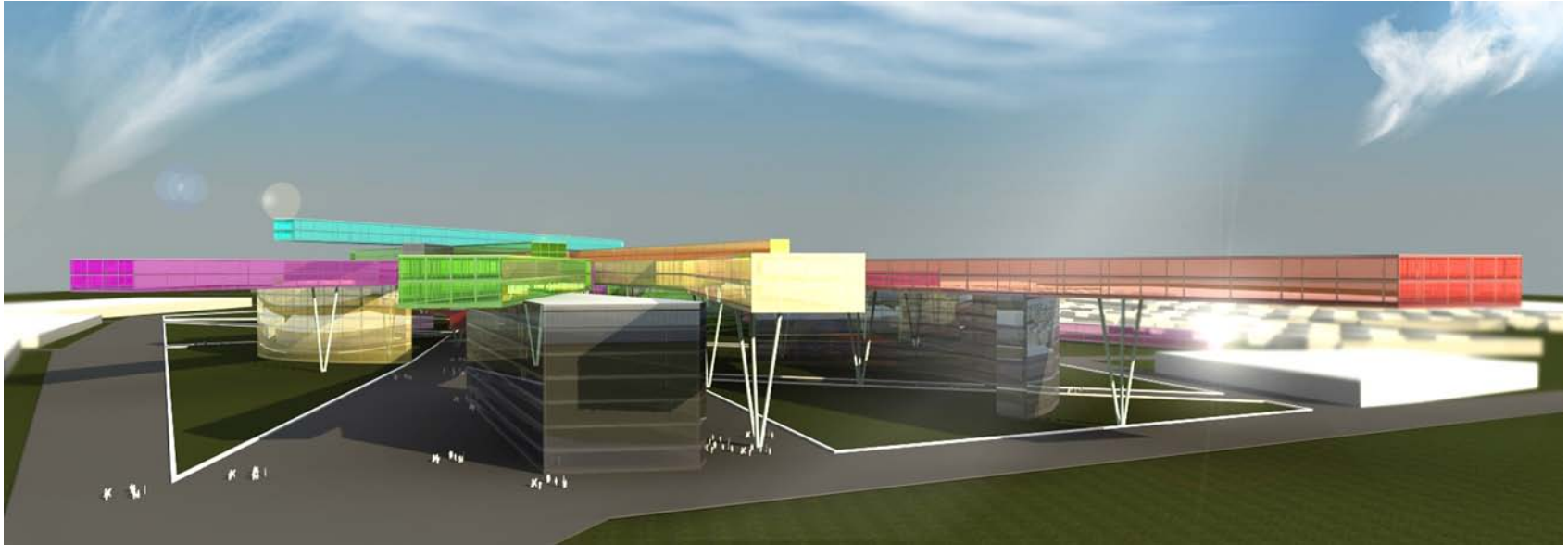




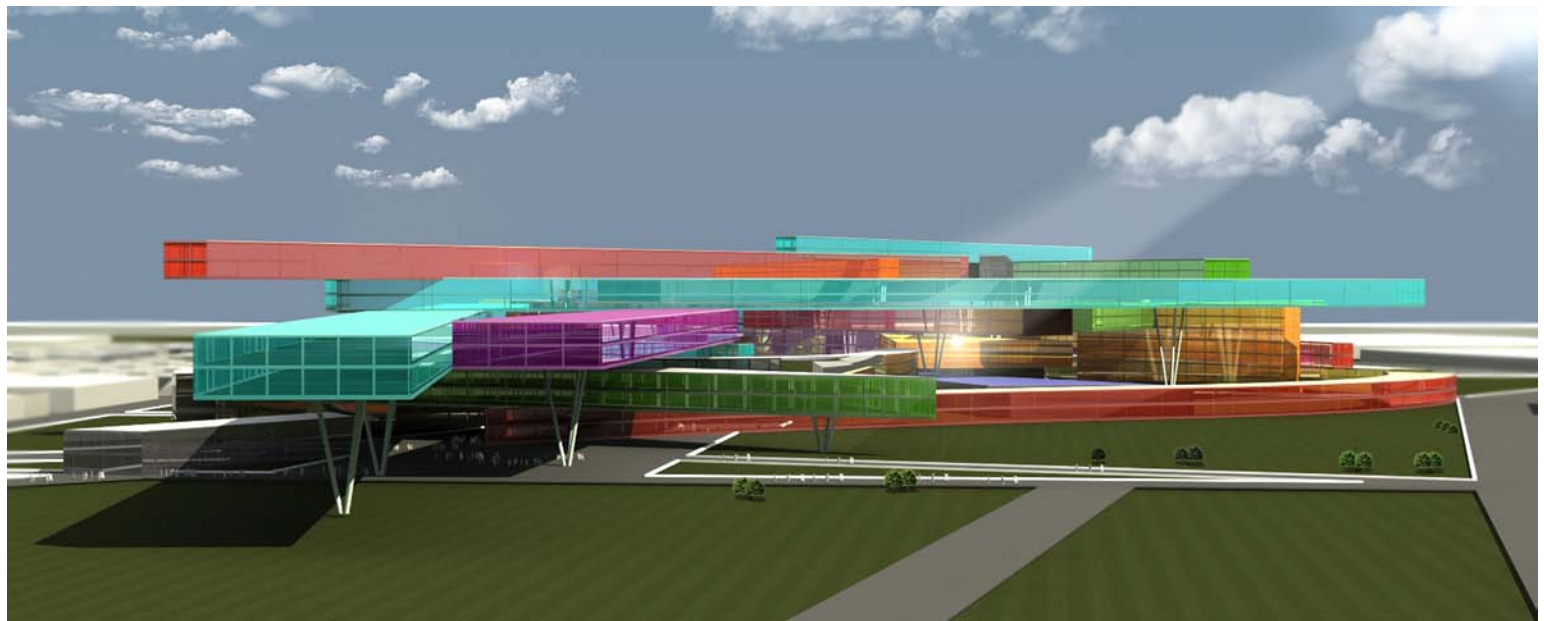
north elevation



south elevation



east elevation

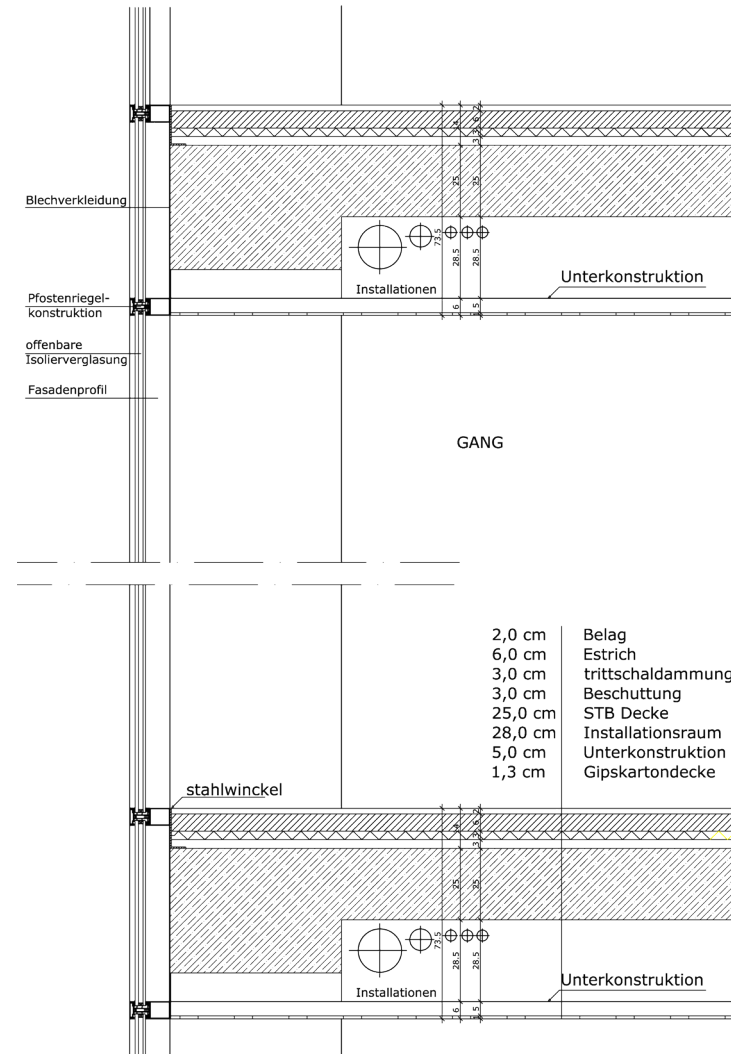


westt elevation

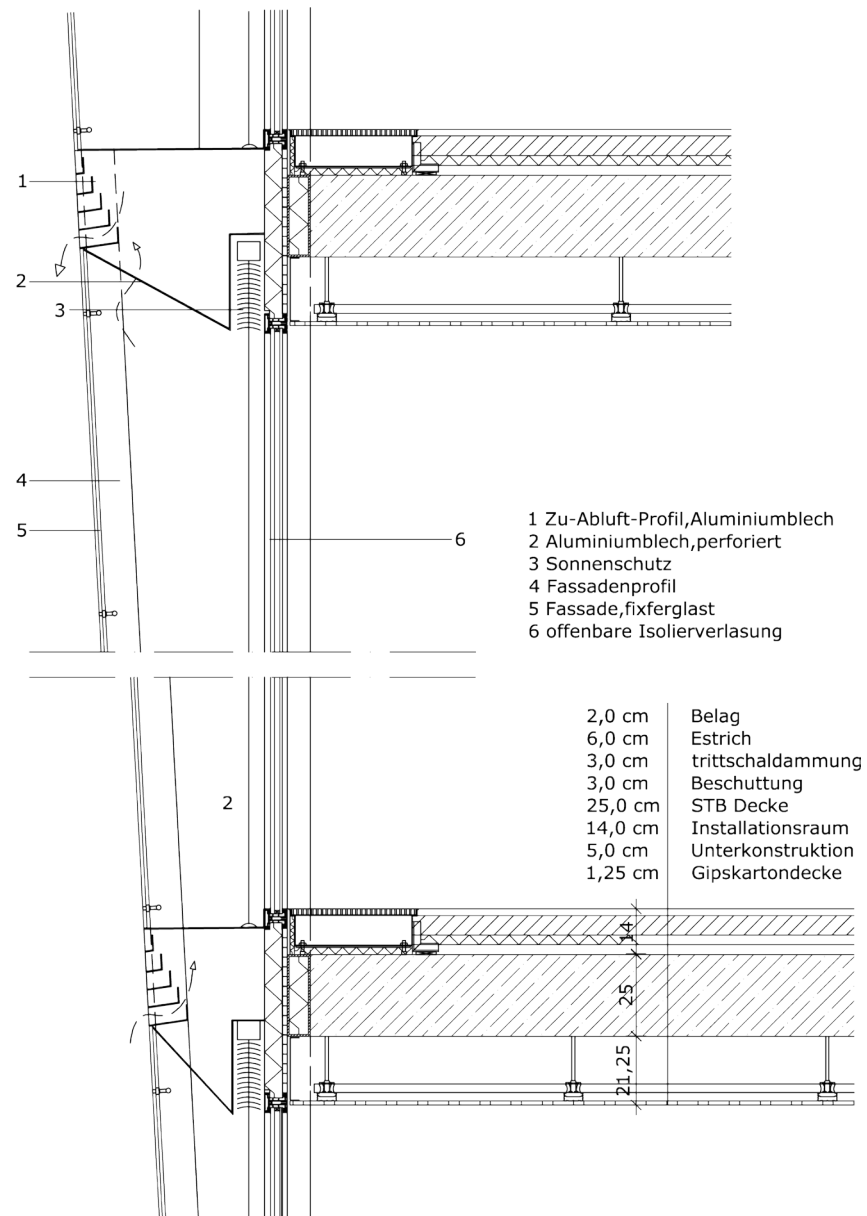
4.5 Construction

The facades of the whole structure are all steel- glass construction, ceilings and floors are made of ferroconcrete. Large bulges of some solitaires are stabilized with columns of ferroconcrete.

Details



floor construction
corridor - air space
M 1:20



section of the facade

M 1:20

4.6 Development



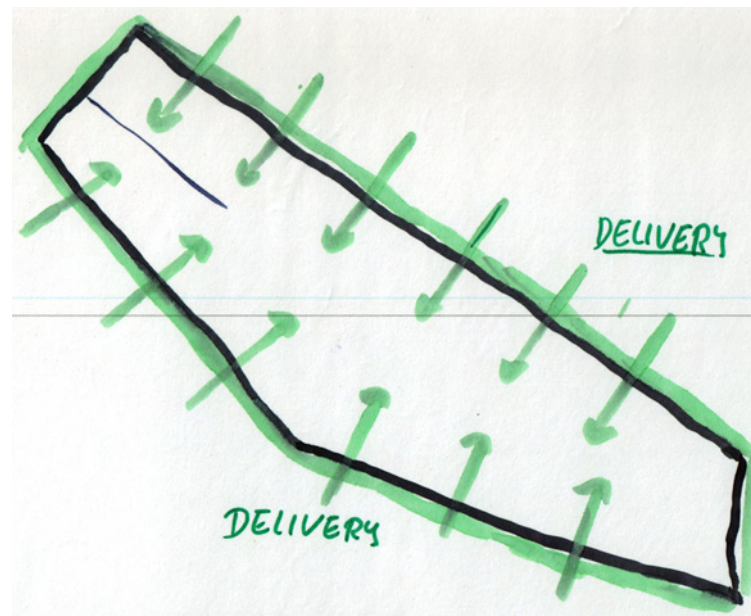
Development:

To reach the built up area there is an airport shuttle for the passengers from the airport to the area with several stops so the people can easy get to their hotels or to move inside the area, from their hotels to the conference center, to restaurants, shops, spa etc. and way back.

There is no other traffic intended in the area.

The delivery occurs from the existing streets in the north and the south of the area.

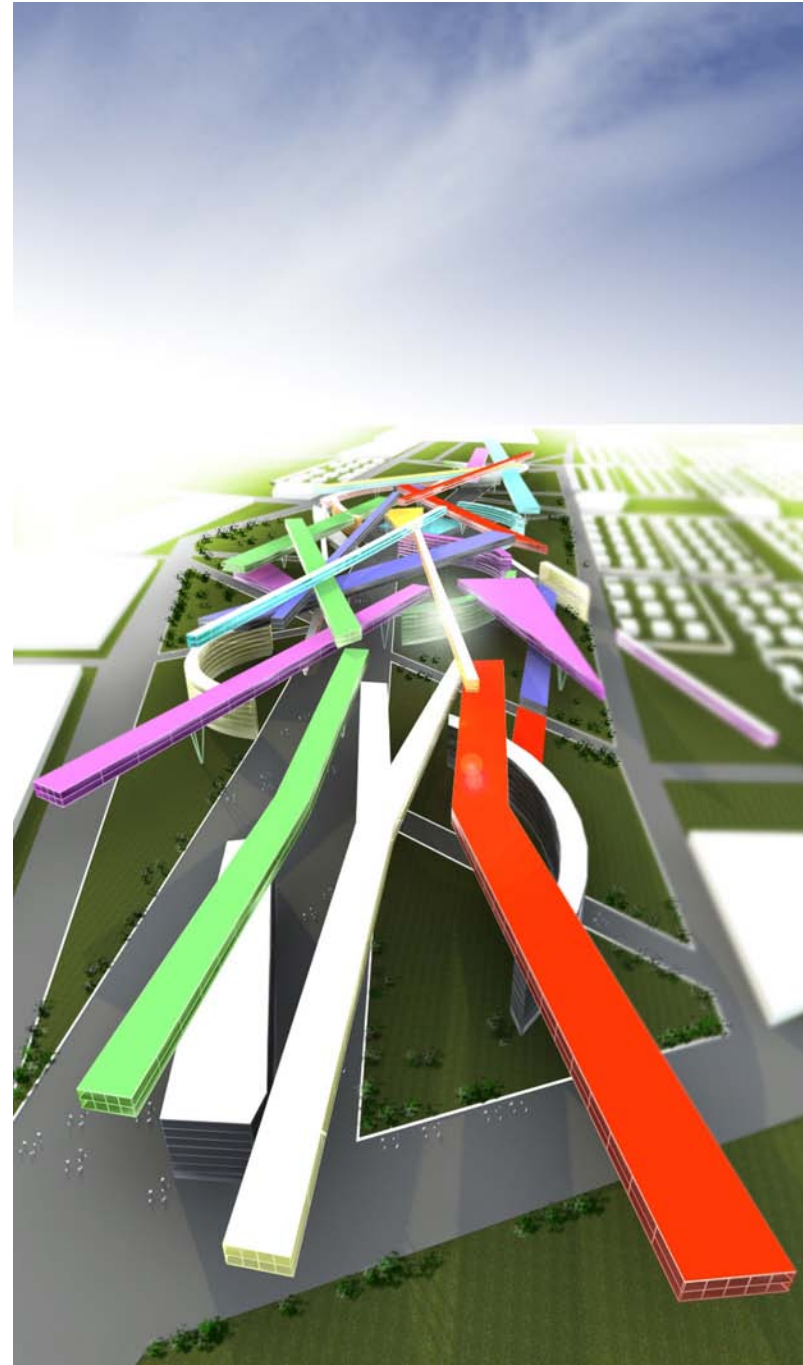
Ambulance, Police, fire brigade and other means of transport for emergencies are of course alloud to enter the area any time.



A large, light gray, stylized number '5' that serves as a background element. It has a thick, blocky appearance with a slight slant on the top horizontal bar.

renderings

5.1 Exterior Shots

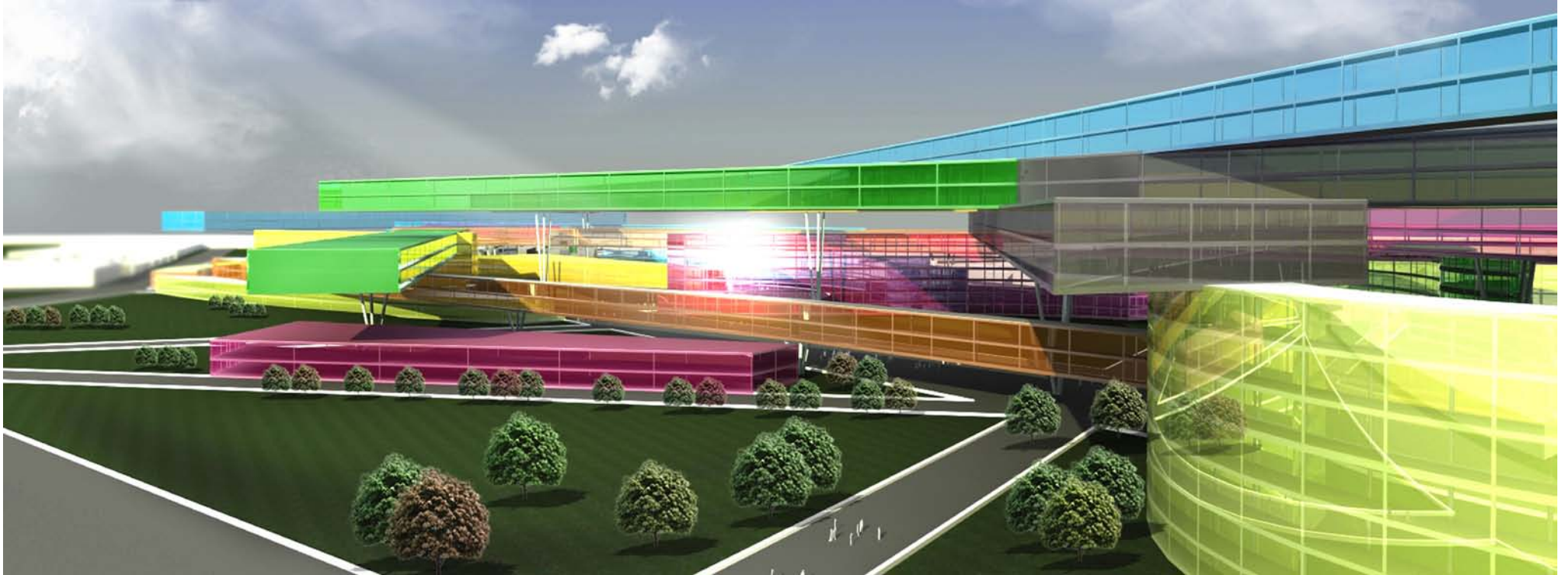


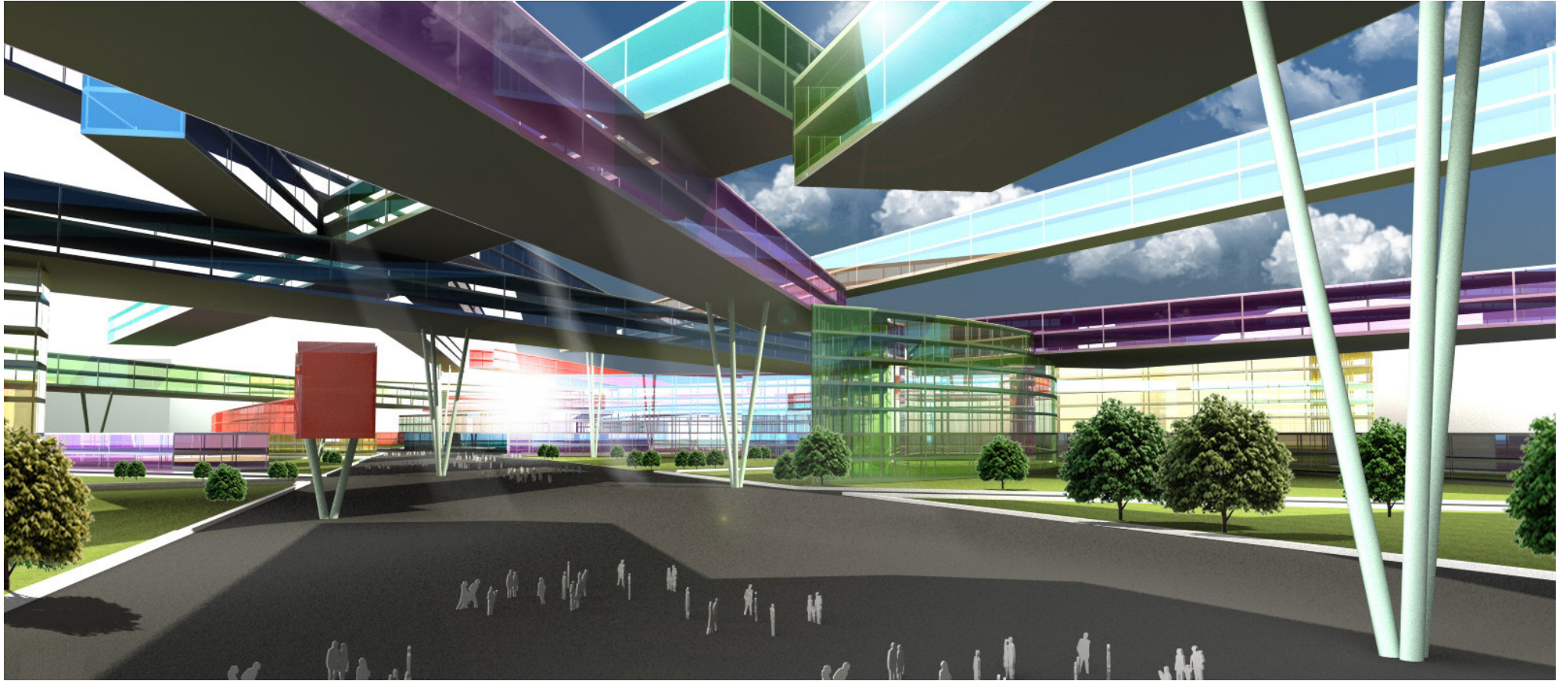












5.2 Interior Shots



conference room



office



hotel room



spa



bar



addendum

7.1 Bibliography

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7.2 List of Illustrations

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S. 14

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S. 15

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S. 16

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S. 17

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<http://en.wikipedia.org/wiki/Budapest#History>

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S. 21

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