TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

DIPLOMARBEIT

KTM Vienna - motorsports & adventure centre

ausgeführt zum Zwecke der Erlangung des akademischen Grades einer Diplom-Ingenieurin
unter der Leitung von

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Fakultät für Architektur und Raumplanung
von

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a b s t r a c t

Motorräder, Architektur, Technik und Erlebnis ... eine heimische Marke propagieren und gleichzeitig städtebauliche Impulse setzen.

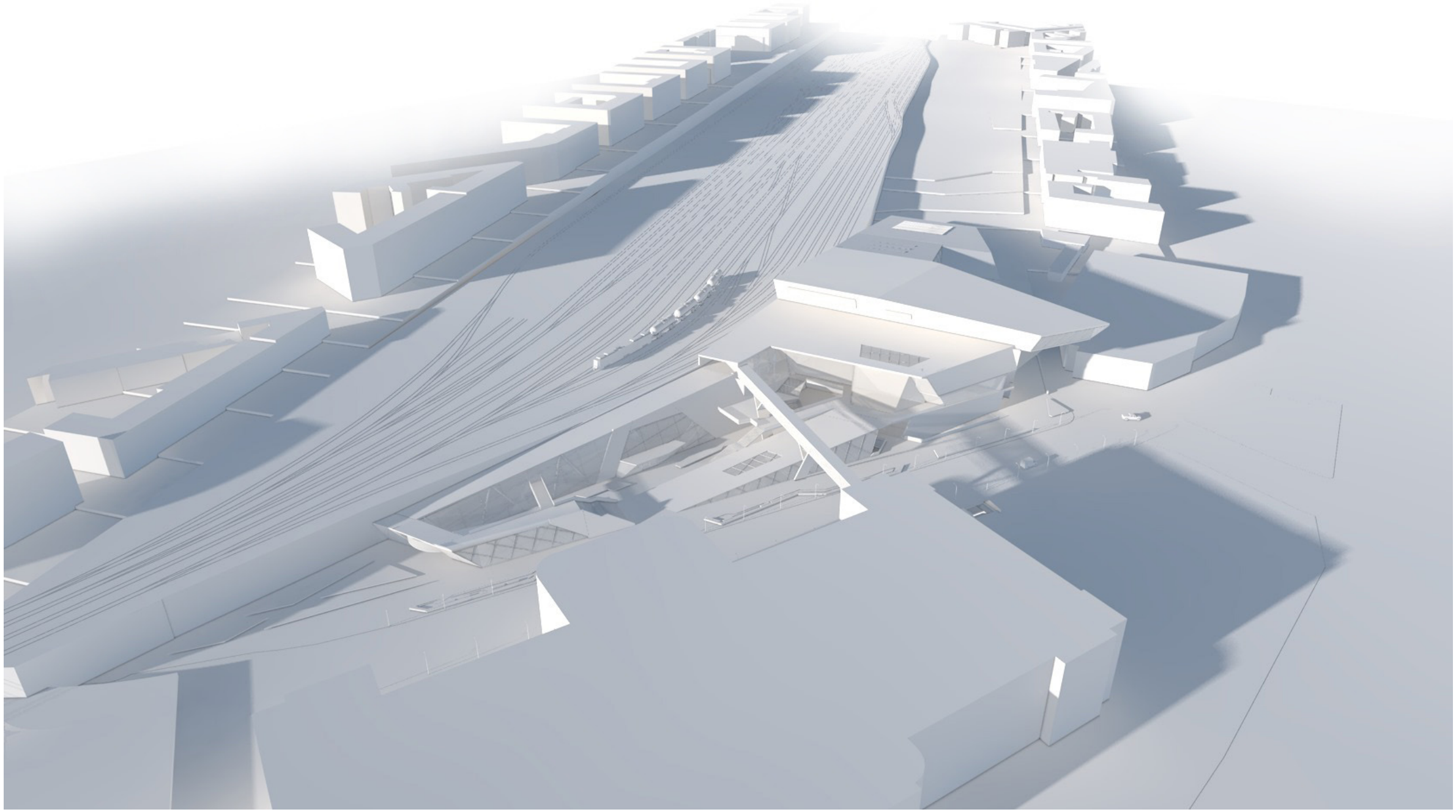
Im Fokus meiner Diplomarbeit steht ein Hybridgebäude als Erweiterung des Wiener Technischen Museums, das als Museum, Flagship–Store, Bildungs– und Forschungsstätte, Werkstatt, Indoor–Bike–Park und Aussichtsplattform zu Schönbrunn fungiert.

Unterschiedliche Funktionen verbinden, verschiedene Akteure (aktiv und passiv) zusammenbringen und dabei ein architektonisches Zeichen setzen, das ein Gleichgewicht zwischen Funktion und Repräsentanz behält, ist das Ziel. Unter anderem war mein Anliegen durch diesen Entwurf das einzigartige Lebensgefühl des Motorsports zu vermitteln und dessen Dynamik sowohl in das Gebäude als auch in den Bezirk reinzubringen.
Nicht zuletzt soll das geplante Bauwerk eine Bildungs– und Forschungsstätte für den TUW Racing Team und allentechnikinteressierten StudentInnen bieten.

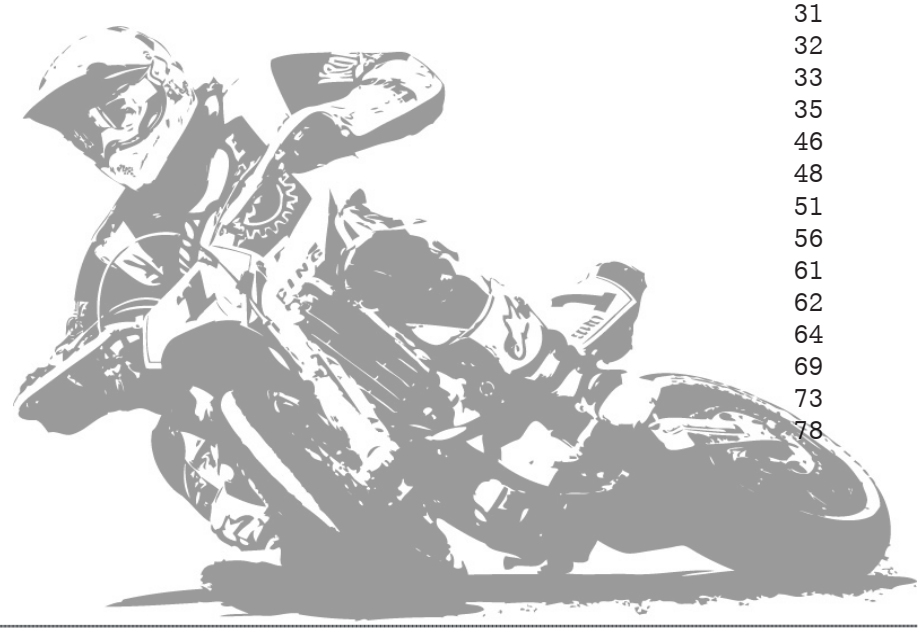
Motorbikes, architecture, technology and adventure ... promoting a domestic brand while making an urban impact at the same time.

The main focus of my diploma is a hybrid building as an extension of the Viennese Museum of Technology that serves as a museum, flagship store, educational and research institution, repair shop, indoor bike park and not at least a viewing platform to Schönbrunn.

I wanted to connect various functions, bring different protagonists (active and passive) together while making an architectural statement that keeps functions and representation in balance. My intention with this project, amongst others, was to convey the lifestyle of motorsports and to apply its dynamics in the building design as well as in the district. Not at last does the building provide an educational and research institution for the TUW Racing Team and any student interested in technology and engineering.



i n d e x



t o p i c :: i d e a :: i n s p i r a t i o n

The heart of the project is the Austrian company KTM and motorbikes in general. I chose the topic based on personal interests and observations.

The basic idea was to design an "intra-urban" motorsport centre for KTM and spice it up by adding additional functions to create a multifunctional building that lives up to the expectations of the visitors while stimulating the surroundings. These site played a significant role in the process of defining the extra functions.

After doing some research I set the following focus areas:

1. **representing KTM on 3 levels**

- **level 1: museum, history = past (connecting to the Museum of Technology)**
- **level 2: flagship store = present**
- **level 3: research & development & education = future**

2. **involving the VUT Racing Team**
3. **cooperating with VUT students and young engineers**
4. **creating a dynamic hub for bikers**

- **indoor jump park**
- **customer service and repair shop**
- **café & lounge**

5. **taking advantage of the view to the Gloriette (Schönbrunn) by placing a club & restaurant on the top**

My goal was a concept that brings bikers and engineers together, IN the city at all times and in the meantime using the power of architecture to promote a domestic brand.

The following influences were crucial for my design:

- **Vienna as a capital city and the centre of research and technology**
- **the existing surroundings and the possibility of upgrading the area**
- **the local supply of labor and aprrentices**
- **museums as city boosters**
- **corporate identity // corporate architecture**

K T M – t h e c o m p a n y

www.ktm.com

X-BOW

Year of foundation: 1953 (started out as a metalworking shop in 1934)

KTM stands for "Kronreif Trunkenpolz Mattighofen"

Factory location: Mattighofen, Mühlweg 2, Upper Austria

Branch of production (since 1991): motorcycles (incl. poewerparts, garments and accessories), bicycles, radiators and tooling manufacture

The headquarters of the company is located in the small town of Mattighofen, close to the German borders in Upper Austria. As global market leader in the off-road segment with a big range of bikes, KTM can show off an impressive collection of championship titles in various categories. The company uses racing to promote their pioneering technological innovations, is best known for its off-road bikes, but offers much more than that: street motorcycles (since the 1990s), bicycles, innovative 4-wheel machines and e-bikes. KTM is strongly involved in racing and competitions worldwide.

Recent history:

1995: acquisition of the Swedish brand HUSABERG
1999/2000: new factory building
2002: new engine assembly plant in Munderfing
2003-: KTM AG is listed on the Vienna Stock Exchange
2006: record sales
2007: world premiere of the X-BOW
2013: acquisition of the license rights and full integration of HUSQVARNA
2014: series production of the freeride e-bikes, record sales

the fastest growing motorcycle brand in the world since 2010

DAKAR

bicycles

motocross

e-bikes

travel bikes

street bikes

racing bikes

fig. 01: company domicile – Mattighofen

2014: +15,9 % employees, 28,2 % sales increase

2015: building expansion, big investments in research and development, +27 % sales increase, ... [1]

2014 employees +15,9 %

2014 revenue +20,7 %

Based on the fact that the company can chalk up a highly profitable year, now five times in a row and its goal to become the biggest global sports motorcycle producer with focus on racing, research and development, technology and innovations (hybrid sports car, expansion of e-mobility, lightweight structures,...) and design, it is a comprehensible step to make a mark and expand in the capital city.

KTM, rich in tradition, managed to make it to the top, setting an example for other domestic brands. My intention with this project is to celebrate the success by raising a new building in Vienna. I feel like the brand should be represented accordingly in the capital city by a new landmark ["brandmark"] that enhances its popularity even more, strengthens its position and corporate identity as well as underline the importance of promoting domestic brands.

In 2014 the company expanded in Mattighofen, the extension in Munderfing will be completed in 2015. Last year KTM has loaned a good deal of money to finance reasearch and development projects. [2]

The high rise of the company gives occasion to further expansion, in this particular case with focus on Vienna, the 3rd most innovative city of Europe. [3]

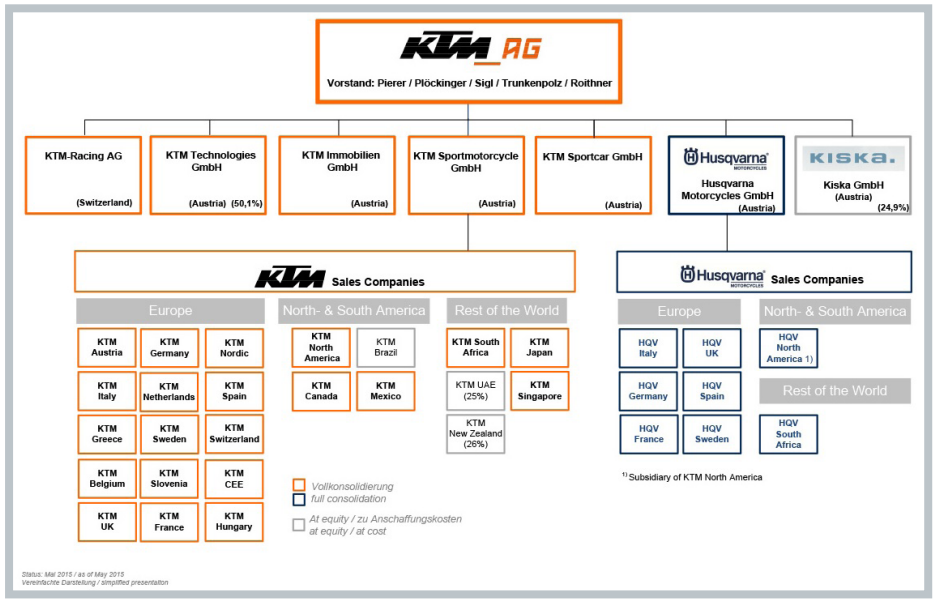


fig. 02: company structure

1 KTM annual report 2015, companyktm.com
2 KTM annual report 2015, companyktm.com
3 Innovation Cities Global Index 2014, www.wien.gv.at

Research and Technology // Vienna

Austria places great importance on research and development by building up concepts to sponsor and boost this field. It does not only mean financial support, but also the encouragement of universities and companies to collaborate. Great innovations get rewarded and promoted accordingly by the ministry. A major field of interest is traffic technology and e-mobility, where KTM was award-winner in the category „e-mobile“ with its „Zero Emission Motor Cycle – Freeride-E“ in 2011 (State Award Mobility 2011).[4]

The company could benefit from a new research facility in Vienna, that has been just proven te most innovative city in Europe. It has the needed infrustructure and all the requirements, being the main recipient of financial support when it comes to research and technology in Austria. The city also offers a great amount of skilled manpower and trainees of various fields.

The promotion of young is essential to remain competitive. KTM is aware of the importance of appropriate education and offers career training in the following fields:

- automotive engineering
- production engineering
- mechanical engineering
- CAD engineering
- industrial business management assistance
- IT
- metal works

Not only does the company provide inhouse apprentice training, but the chances of an employment after a successfull completion are very high. KTM has been recently awarded the Austrian distinction „Career`s Best Recruiter“ in the automotive/vehicle production sector. Following this, beside the employees, the managers also receive training sessions to stay updated.

My concept adapts the company`s vision as the new facility provides plenty of space and equipment for testing and research, plus offers a number of seminar rooms and offices for education purposes.
The new location in Vienna enables easy networking and collaboration with other universities and research institutes, while generating a dynamic working environment and varied areas of activity.

fig. 03: at the shop

The ministry`s strategy to improve Austria`s global position in the field of innovation and technology and to induce economic impulses involve, amongst others, the following points:

- promotion of young engineers
- taking measures to increase the number of companies active in innovation
- better offer of career chances in this field
- efficient transfer of knowledge and professional consulting

As an example, the Vienna University of Technology offers according consulting and transfer of know-how. Also it is one of the main recipients of sponsorship when it comes to research and technology, so a constant teamwork with KTM would be favorable and productive. It would mean „joining their forces“ in a sence that both parties can add their know-how while enjoying the benefits of the partner`s ideas, support system and expertise.

fig. 04: electro freeride :: environmentally sustainable driving

[4] www.bmvit.gv.at/ministerium/staatspreis/mobilitaet2011/preistrager.html

	Wien		Steiermark		Oberösterreich		Kärnten		Tirol		Salzburg	
	F&E-Ausgaben in											
Durchführungssektoren	**Mio. €**	**%**	**Mio. €**	**%**	**Mio. €**	**%**	**Mio. €**	**%**	**Mio. €**	**%**	**Mio. €**	**%**
Hochschulsektor	1.096,9	38,2	419,5	25,5	128,1	9,9	45,5	9,5	288,6	39,6	92,3	32,1
darunter Universitäten (ohne Univ.-kliniken)	848,4	29,6	349,8	21,2	102,7	7,9	38,8	8,1	216,8	29,7	79,9	27,8
Sektor Staat[1]	242,9	8,5	[4]	[4]	17,0	1,3	11,5	2,4	23,7	3,3	[4]	[4]
Privater gemeinnütziger Sektor[2]	20,7	0,7	[4]	[4]	1,1	0,1	0,5	0,1	0,2	0,0	[4]	[4]
Unternehmenssektor[3]	1.510,2	52,6	1.164,1	70,7	1.149,6	88,7	422,7	88,0	416,3	57,1	178,1	61,9
Insgesamt	**2.870,8**	**100**	**1.647,0**	**100**	**1.295,9**	**100**	**480,1**	**100**	**728,8**	**100**	**287,7**	**100**

fig. 06: research & development expenses in Austria divided in sectors and states [2011]

Within the research and development areas there`s a significant emphasis on traffic, innovation and technology. The federation investments are constantly increasing in this field.

Ressorts[1]	Erfolg				Bundesvoranschlag			
	2012[2]		2013[3]		2014[3]		2015[3]	
	Mio. €	%	Mio. €	%	Mio. €	%	Mio. €	%
Bundeskanzleramt[4]	2,125	*0,1*	2,943	*0,1*	33,091	*1,2*	39,360	*1,4*
Bundesministerium für Inneres	0,790	*0,0*	0,812	*0,0*	1,067	*0,0*	1,067	*0,0*
Bundesministerium für Unterricht, Kunst und Kultur	73,446	*3,0*	77,426	*3,0*	.	.	.	.
Bundesministerium für Bildung und Frauen	.	.	.	.	48,690	*1,8*	40,277	*1,5*
Bundesministerium für Wissenschaft und Forschung	1.780,922	*72,6*	1.870,872	*72,4*	.	.	.	.
Bundesministerium für Wissenschaft, Forschung und Wirtschaft	.	.	.	.	2.080,391	*75,9*	2.103,894	*76,3*
Bundesministerium für Arbeit, Soziales und Konsumentenschutz	6,450	*0,3*	5,854	*0,2*	5,649	*0,2*	5,462	*0,2*
Bundesministerium für Gesundheit	7,068	*0,3*	7,390	*0,3*	7,379	*0,3*	7,307	*0,3*
Bundesministerium für europäische und internationale Angelegenheiten	2,536	*0,1*	1,949	*0,1*	.	.	.	.
Bundesministerium für Europa, Integration und Äußeres	.	.	.	.	2,234	*0,1*	2,305	*0,1*
Bundesministerium für Justiz	0,125	*0,0*	-	-	0,130	*0,0*	0,130	*0,0*
Bundesministerium für Landesverteidigung und Sport	1,185	*0,0*	1,224	*0,0*	1,174	*0,0*	1,267	*0,0*
Bundesministerium für Finanzen	31,720	*1,3*	30,475	*1,2*	34,224	*1,3*	34,350	*1,2*
Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft	78,410	*3,2*	91,581	*3,5*	81,100	*3,0*	70,679	*2,6*
Bundesministerium für Wirtschaft, Familie und Jugend	114,230	*4,7*	101,965	*3,9*	.	.	.	.
Bundesministerium für Familien und Jugend	.	.	.	.	1,654	*0,1*	1,654	*0,1*
Bundesministerium für Verkehr, Innovation und Technologie	353,948	*14,4*	395,226	*15,3*	439,521	*16,1*	450,314	*16,3*
Insgesamt	**2.452,955**	***100,0***	**2.587,717**	***100,0***	**2.736,304**	***100,0***	**2.758,066**	***100,0***

fig. 07: research & development expenses in Austria according to departments [2012–2015]

Vienna = 3rd smartest city in Europe [5]

Vienna = 3rd most innovative city in Europe [6]

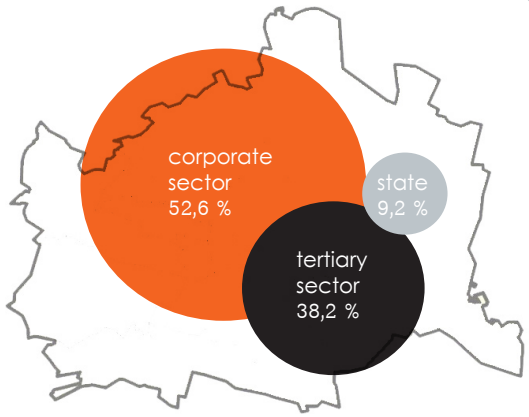
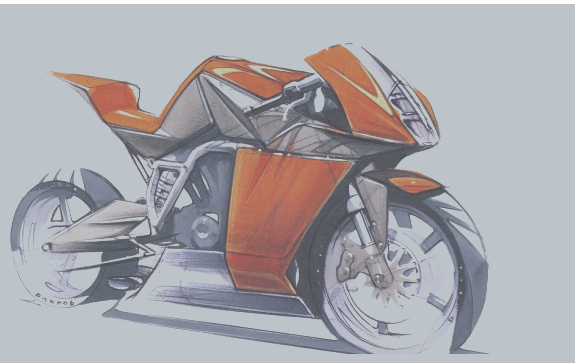


fig. 05: division of research & development-expenses in Vienna [2011]

- PURITY
- Performance
- adventure
- extreme



In 2014 Vienna improved from fourth to third place in the international „Smart City Ranking" published by the American climate expert Boyd Cohan, who noted the city`s participation in science & technology and the expansion of e-mobility.

The same year Vienna was ranked the third most innovative city in Europe (the sixth worldwide) in the well-known „Innovation Cities Global Index" by the Australian innovation agency called 2thinknow considering and comparing elements like cultural assets, human infrastructure (mobility, education, office and technology) and network marketing.

Vienna is the ideal place for the next KTM agency.

5 Smart City Ranking 2014, www.wien.gv.at
6 Innovation Cities Global Index 2014, www.wien.gv.at

V u t r a c i n g t e a m

racing.tuwien.ac.at

Year of foundation: 2007

Ambitious students of the Vienna University of Technology have founded this racing team that builds its own racing cars to then take part at the „Formula Student Event“ with a lot of success.

Currently it has over 30 members,
mainly of the following subjects:

– mechanical engineering
– electrical engineering
– industrial engineering
– computer science

The team did succesfully collaborate with KTM in the past and the company supports them as a silver partner.

This collaboration is very inspiring and couldbe even more efficient with a new KTM facility in town.

fig. 08: the race car „EDGE Mk I“

fig. 09 + 10: the team at the fields of the Formula Student

- research
- development
- internship
- new ideas

Based on these facts my concept design of the new agency in Vienna includes workshop facilities and training spaces to enable a permanent collaboration between the team and KTM to continue achieving success in the future.

m u s e u m s // c o r p o r a t e a r c h i t e c t u r e

One of the main inspirations of my project are iconic museums as public magnets with a transregional effect, in this case, with focus on museums that strengthen corprate identity.

MUSEUM–BOOM

Since the `70s, with the opening of the Centre Pompidou in Paris, the concept of museums has changed. Now they serve various purposes, function as event spaces or meeting areas.They are components of the urban development and stimulate the surrounding areas. The new typology resembles more an urban recreation centre. Since the `90s, a museum–boom made itself felt, most likely started by the famous Guggenheim Museum in Bilbao. The spectacular building achieved worldwide attention and this resulted in streams of tourists and global recognition. Not only does the tourism and economy benefit of the new museum but the city became iconic. The Bilbao effect is now used as a term for such phenomena where a city or region is being upgraded due to an architecture sensation.

It seems like there is a new wave of museums on the rise. Whilst the concept of art museums is chewed, the potential in other areas is endless. Museums of technology or industry, for example, have also undergone a change, very well visible in the rising number and popularity of „science centres“ (learning by doing) like the Phaeno by Zaha Hadid and the use of digital technology. At the beginning of the boom the museums were stylistically quite similar, but lately the concepts seem to be more varied and experimental.

Planning a museum is quite different in a way that the architect might have plenty of scope since the inner arrangement of the building isn`t that strict and any shape is possible due to the main function. There are, of course, other challenges, just as the complexity and the relation between the exhibited objects and the building itself. The correspondence between architecture and content might be a way to measure the success of the design and if the desired function was fulfiiled. Some museum lure with their modesty or simple design and play a subordinate role in comparison to the object on display. Other cases with a simple facade then surprise the visitor with their complex inside.
Some of the famous designs of Zaha Hadid, Daniel Libeskind or Frank. O. Gehry have been critisized for their dominance over the actual art. My focus was on an expressive design that correspondence with the brand the museum is planned for. Since my concept is connected to a very dynamic and modern brand, the building had to represent these qualities.

CORPORATE ARCHITECTURE

Museums are a growing sector and catalysers for an economic upswing. The marketing–factor plays a huge part in the design. The importance of branding and the potential of self–marketing wih the tool of architec–ture is by no means new. Examples like Bilbao or the great automobile museums just as Mercedes–Benz and Porsche in Stuttgart or the BMW Welt in Munich show what more a museum can offer than just exhibiting objects. WIth their expressive architecture they suggest a lifestyle and embody self–marketing.

They might create a new identity for a region in a global world or help strenthening it.

The museum as marketing factor:

– has transregional impact
– ensures the city a striking landmark
– revives neglected or peripheral parts of the city [8]

„Museums are media with admittedly low viewing figures, but with great impact of public discourse.“ [7]

This quote from Gottfried Korff points out how it`s all about the popularisation. A museum for a specific brand is a built identity that can generate discussions, gain attention so the brand grows in popularity. Buildings that represent a brand or company often resemble an expressive and expensive sculpture to enhance and project a certain value. Such museums allow us to experience a brand in real life, reconnect with its past and recognize its future potential. [9]

OLD MEETS NEW

The boom also effects existing museums that often receive a “lifting“ to be upgraded. There are quite a few examples of successful extensions of existing museums like the Nelson–Atkins Museum of Art or the Denver Art Museum. These are just as exiting as new buildings and definitely challenging. The proper handling of the existing building is a sensitive and relevant subject when it comes to adding new volume and content. Vienna is known for its great museums, they are part of the city`s charm and identity. The famous „Museumsquartier“ is a good example of an urban recreation centre (like the Centre Pompidou as mentioned above) and of an upgraded complex. My concept of the KTMW would fit the flair of the city and based on the visitor numbers of Viennese museums, in general, might be well received.

7 Gottfried KORFF: *Das Popularisierungsdilemma.* In: Landesmuseum für Technik und Arbeit (Hg.), *Zauberformeln des Zeitgeistes. Erlebnis, Event, Aufklärung, Wissenschaft. Wohin entwickelt sich die Museumslandschaft?* Mannheim, S. 51
8 Thierry GREUB, : Museen im 21. Jahrhundert: Ideen. Projekte. Bauten., *Spekulationen*, Prestel Verlag, München, 2006; S. 9
9 Christian SCHTTICH (Hrsg): *Ausstellen und Präsentieren: Museumskonzepte, Markeninszenierung, Messedesign*, Ed. im Detail, Birkhäuser Verlag, München, 2009; S. 49

Museum of Technology Vienna

While researching the company I decided to visit the Museum of Technology in Vienna that hosts the permanent exhibition "Austrian Motorsport", including references of KTM.

The museum is next to the building site I have chosen, which led me to the idea to extend the existing exhibition by adding the company`s entire history and current bike repertoire through connecting the museum to the new building.

The existing exhibition is positioned on the 4th floor facing the building site, just high enough to connect the two buildings via a bridge above the street, directly.

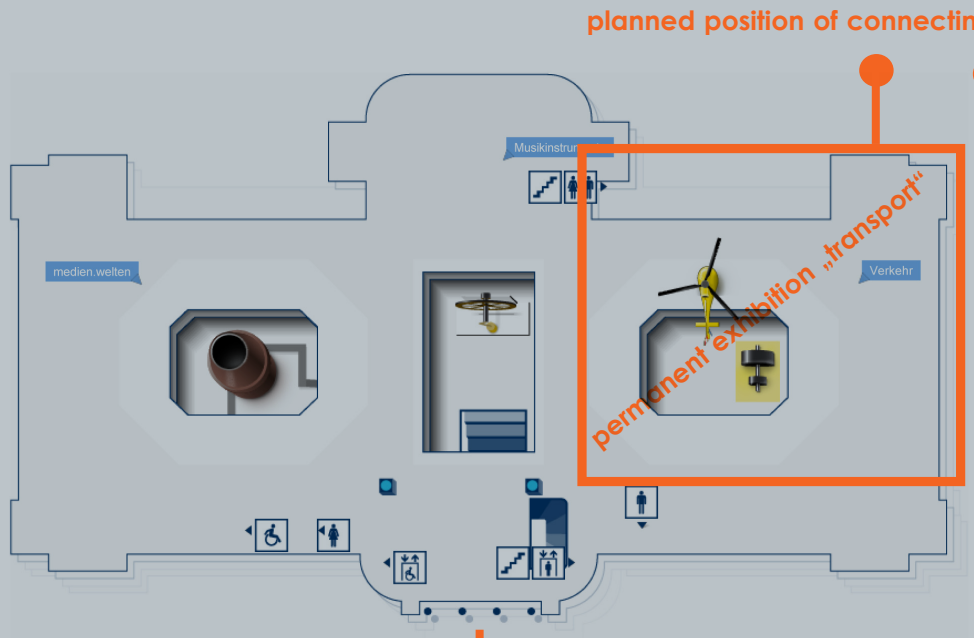


fig. 11: map :: exhibitions on level 4

This small intervention would only affect the north facade which is less representative and not open to the public.

The extension would revive this part of the city and the existing museum as well, which would benefit from the addition at this rather decentralised part of the city.

fig. 12: Museum of Technology Vienna – south facade

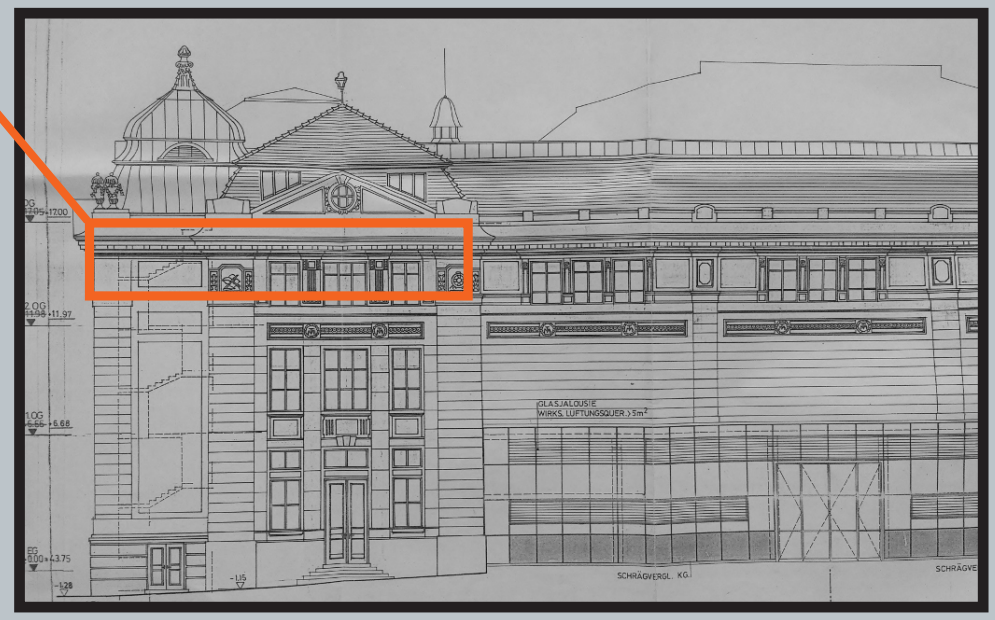


fig. 13: MTV [TMW] – north facade

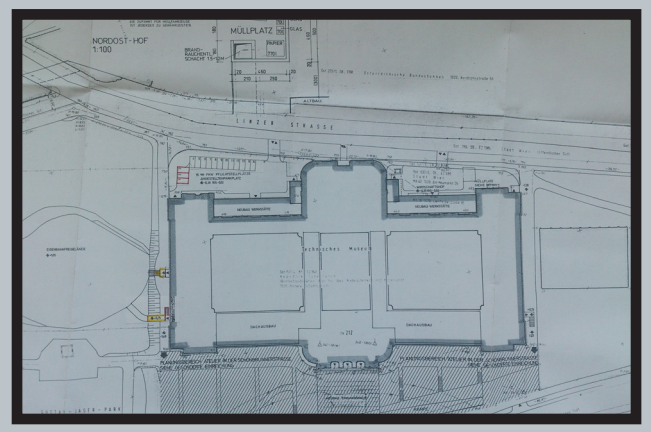


fig. 14: old site plan

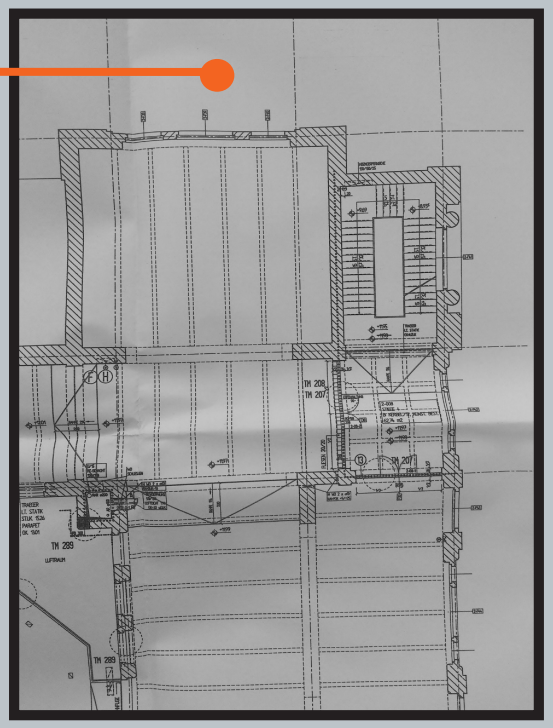


fig. 15: north-east corner :: level 4

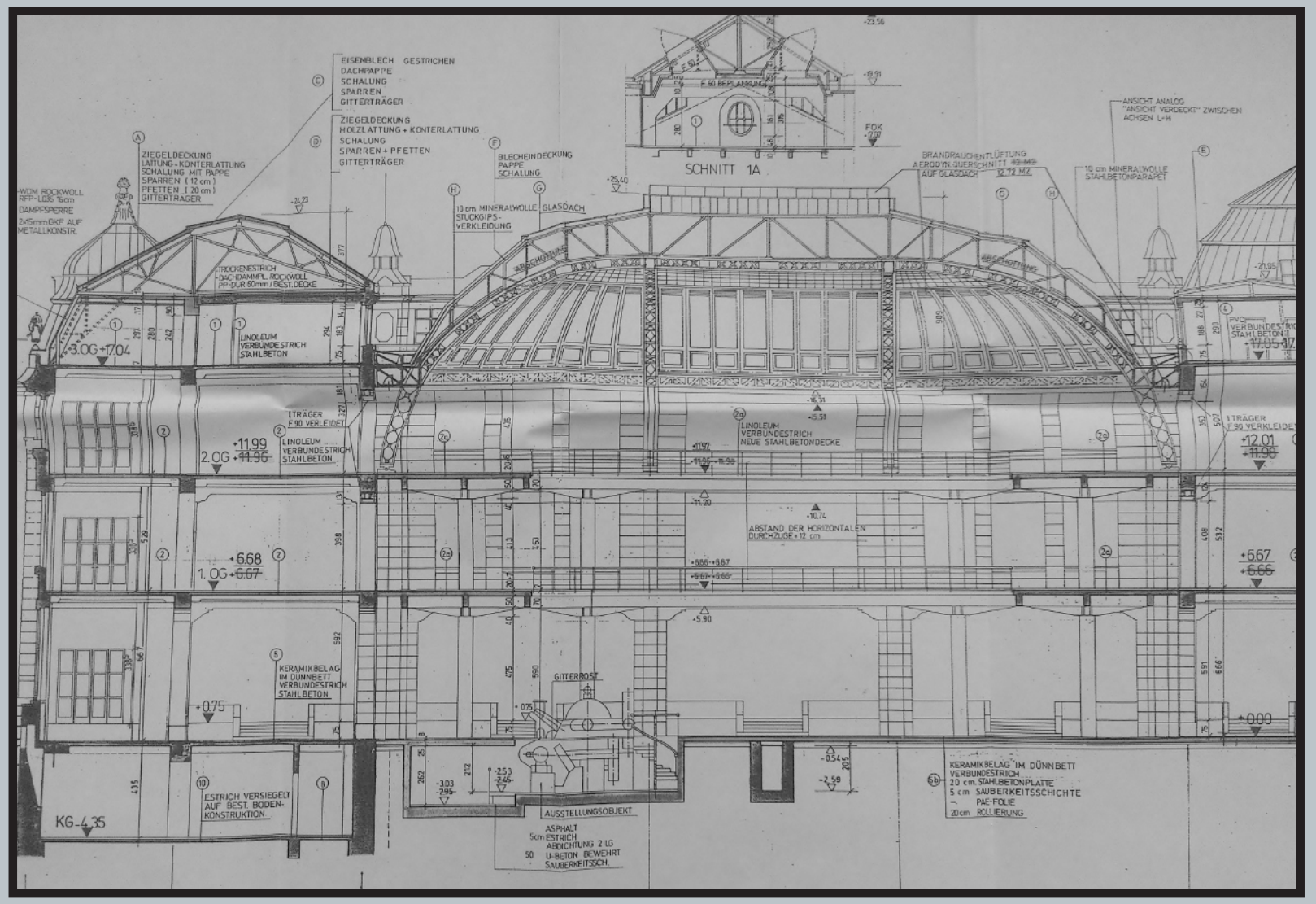
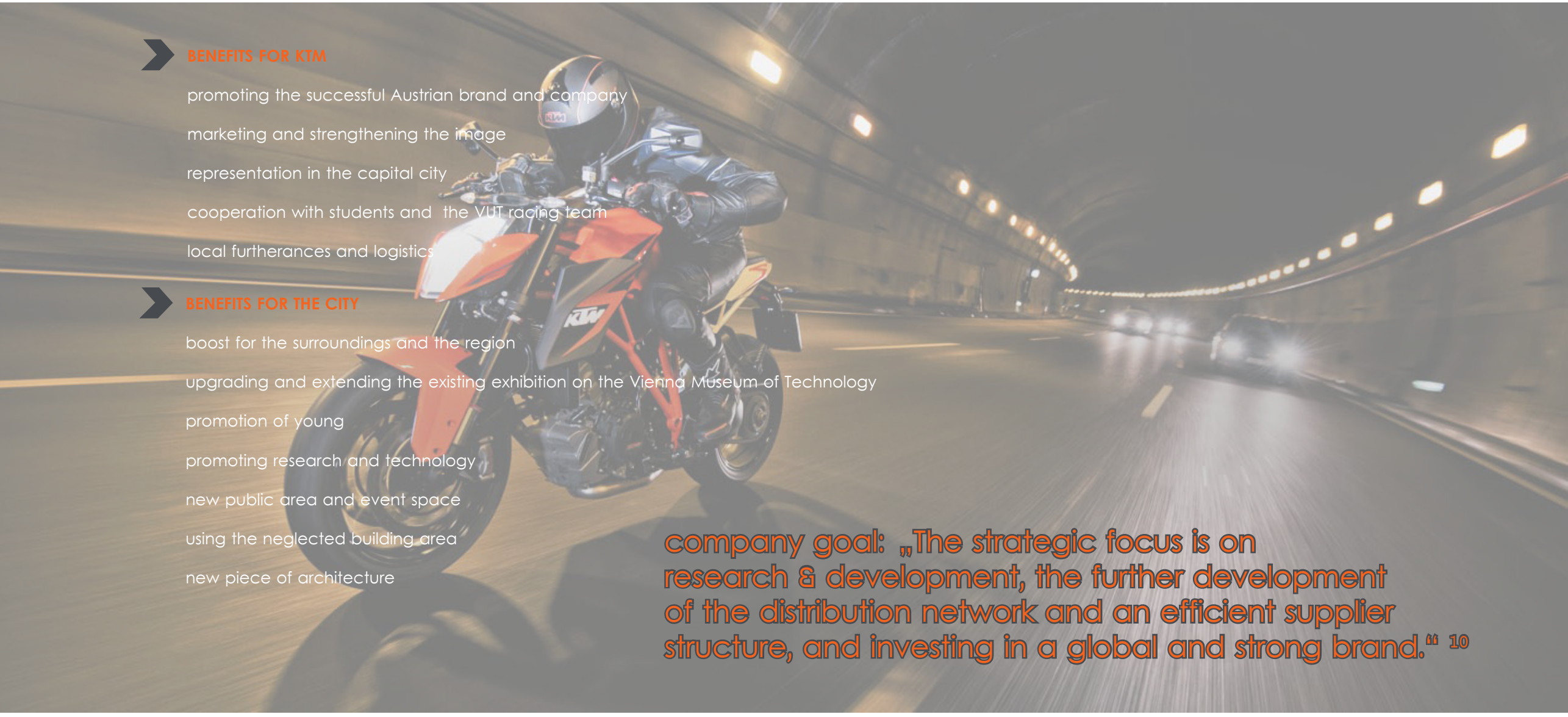


fig. 16: MTV [TMW] – section

ktm + TMW = KTMW

Research - conclusion



BENEFITS FOR KTM

promoting the successful Austrian brand and company

marketing and strengthening the image

representation in the capital city

cooperation with students and the VUT racing team

local furtherances and logistics

BENEFITS FOR THE CITY

boost for the surroundings and the region

upgrading and extending the existing exhibition on the Vienna Museum of Technology

promotion of young

promoting research and technology

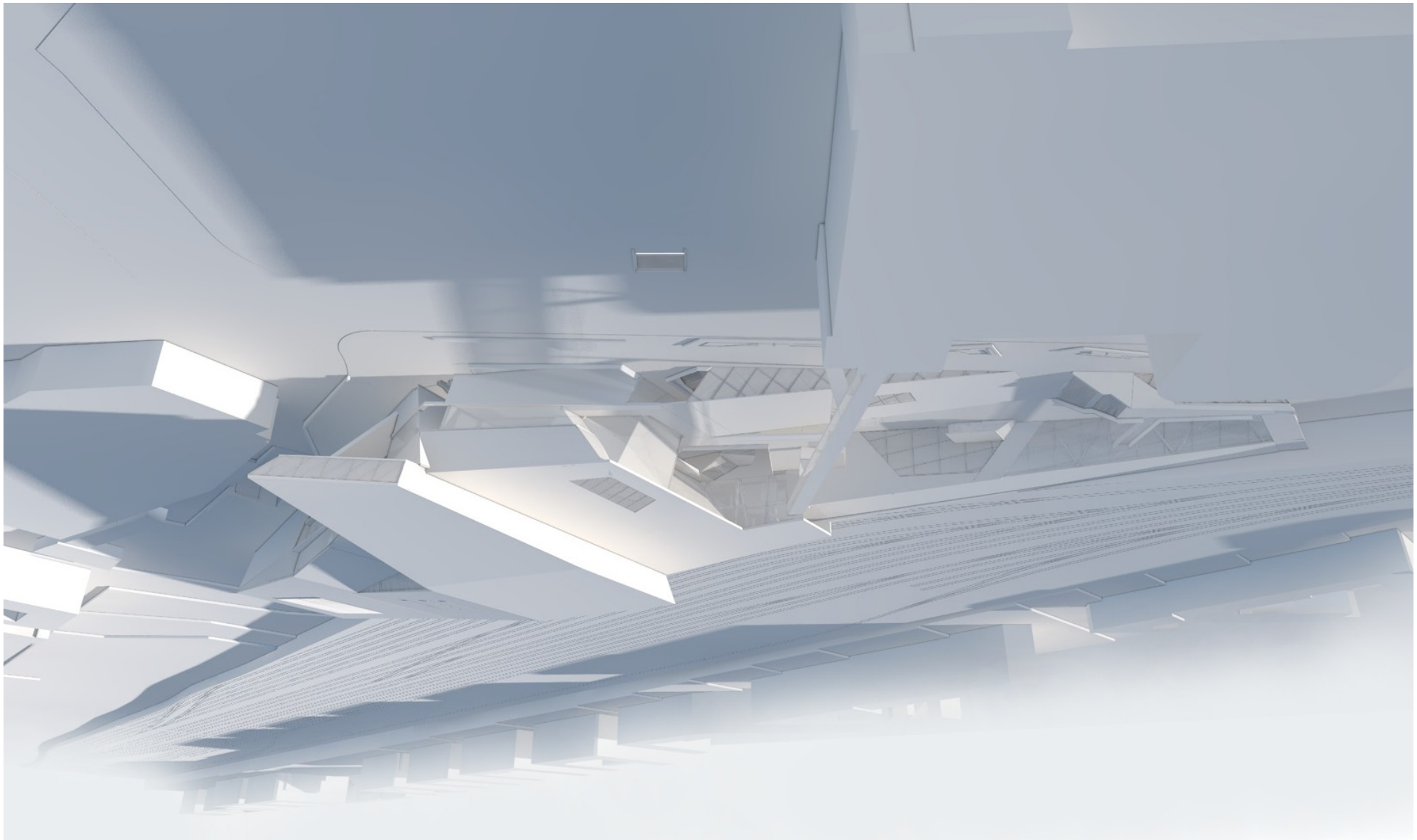
new public area and event space

using the neglected building area

new piece of architecture

company goal: „The strategic focus is on research & development, the further development of the distribution network and an efficient supplier structure, and investing in a global and strong brand.“ [10]

[10] http://company.ktm.com/unternehmen/strategie.html



the Concept // Design

Site // Location

fig. 17: Westbahnhof 2015

Railway stations are symbols of progress, mobility and dynamics. The design should reflect these qualities...

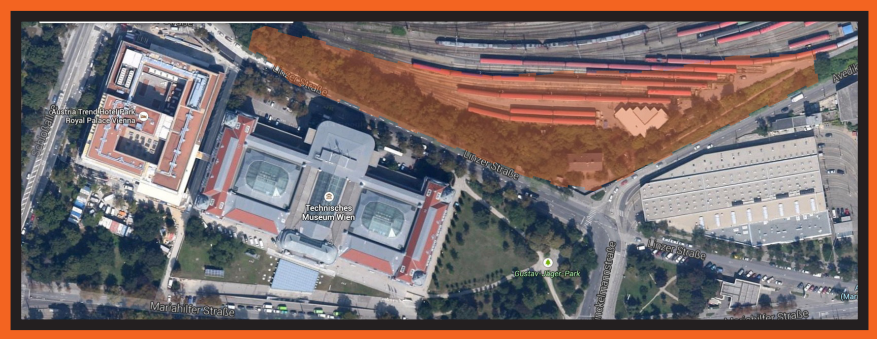


fig. 18: the building site

It is a huge area with level diifferences, approximately 11m between the terrain of the Museum and the rails of the Westbahnhof.

The site is central, quite well connected and well lit, especially from the south since there is a huge park across the street next to the museum.

The building site is located in Wien-Penzing, the 14th district of Vienna at the cross-roads of the Linzer Strasse and Avedikstrasse, between the Museum of Technology and the Western Railway Station.

The Western Railway Station has been renovated recently. New functions and volumes have been added and the infrastructure has been upgraded. The surrounding areas are in development, a continuation of the expansion is in the works.

The area including the building site belongs to the ÖBB (Austrian Federal Railways), spans over hectares with only a little development. There is a big assembling shop right next to the building site, but otherwise it`s a sloping terrain, unused and heavily vegetated that would profit from the upgrading factor of new functions.

- huge area
- level differences
- well connected
- property of the Austrian Federal Railways

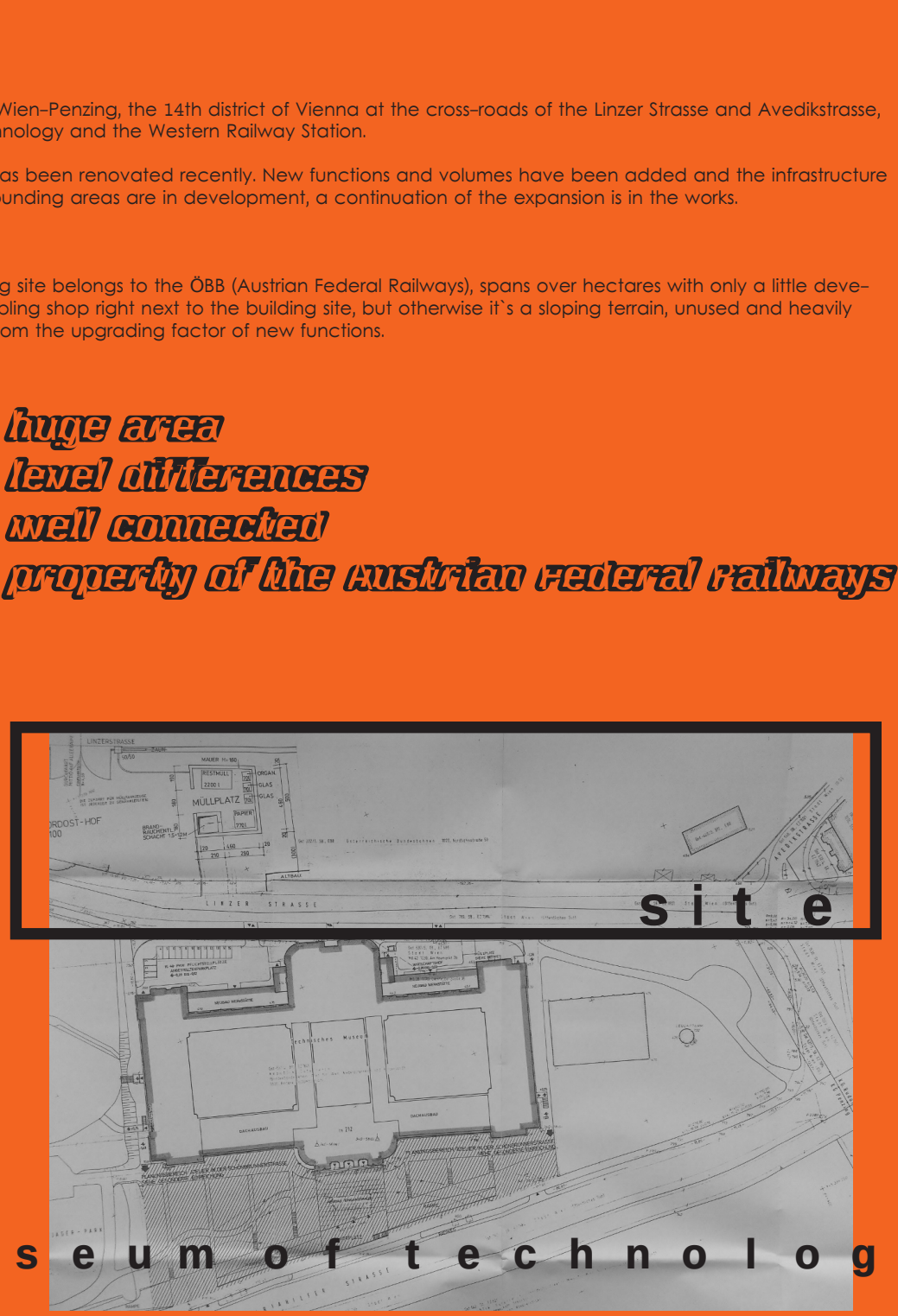


fig. 19: site plan

fig. 20: view from the park next to the museum and opposite the building site

fig. 21: the Linzer Strasse – the building site on the left

surroundings

fig. 22: the Avedikstrasse – the building site on the left

fig. 23: view from the park on the Avedikstrasse

fig. 24: the Avedikstrasse – level differences

the building site offers an exceptional view to the Gloriette

observation platform planned

The new project is an impulse that should start an urban movement and bring life to the surrounding „dead“ areas.

Important places nearby:

- the Vienna Museum of Technology
- (the recently renovated and extended) Western Railway Station
- Schönbrunn
- the outer Mariahilferstrasse (shops)
- the Auer-Welsbach park (opposite the site and next to the museum)
- the Empress Elisabeth hospital

The building site is visible from all directions: from a passenger view sitting in the train, but also from the Gloriette. It makes a perfect place for self-marketing.

fig. 25: view to the Gloriette – Schönbrunn

fig. 26: repair and assembling shops of the Austrian Federal Railways close to the building site

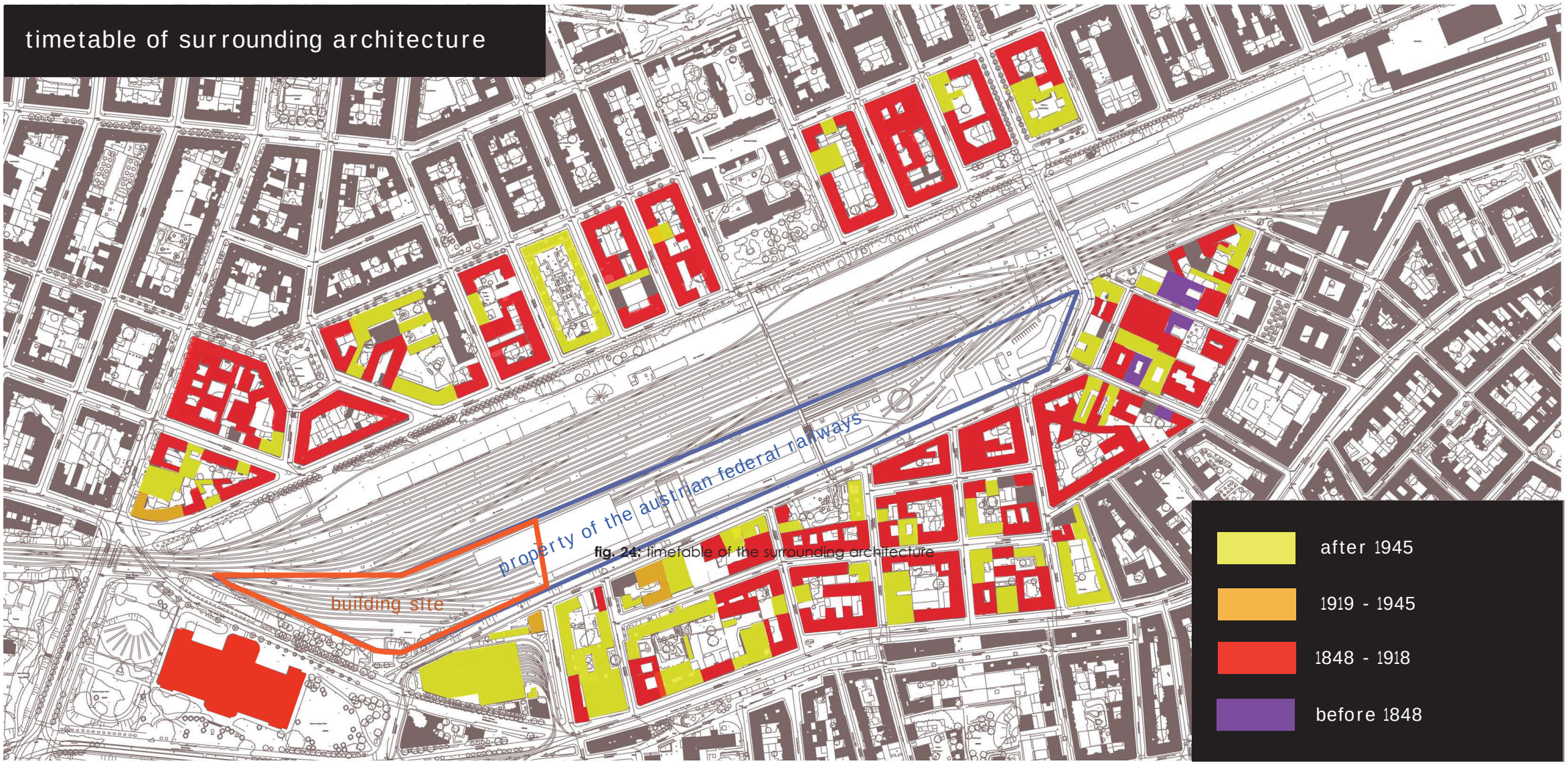


fig. 24: timetable of the surrounding architecture

fig. 27: timetable of the surrounding architecture

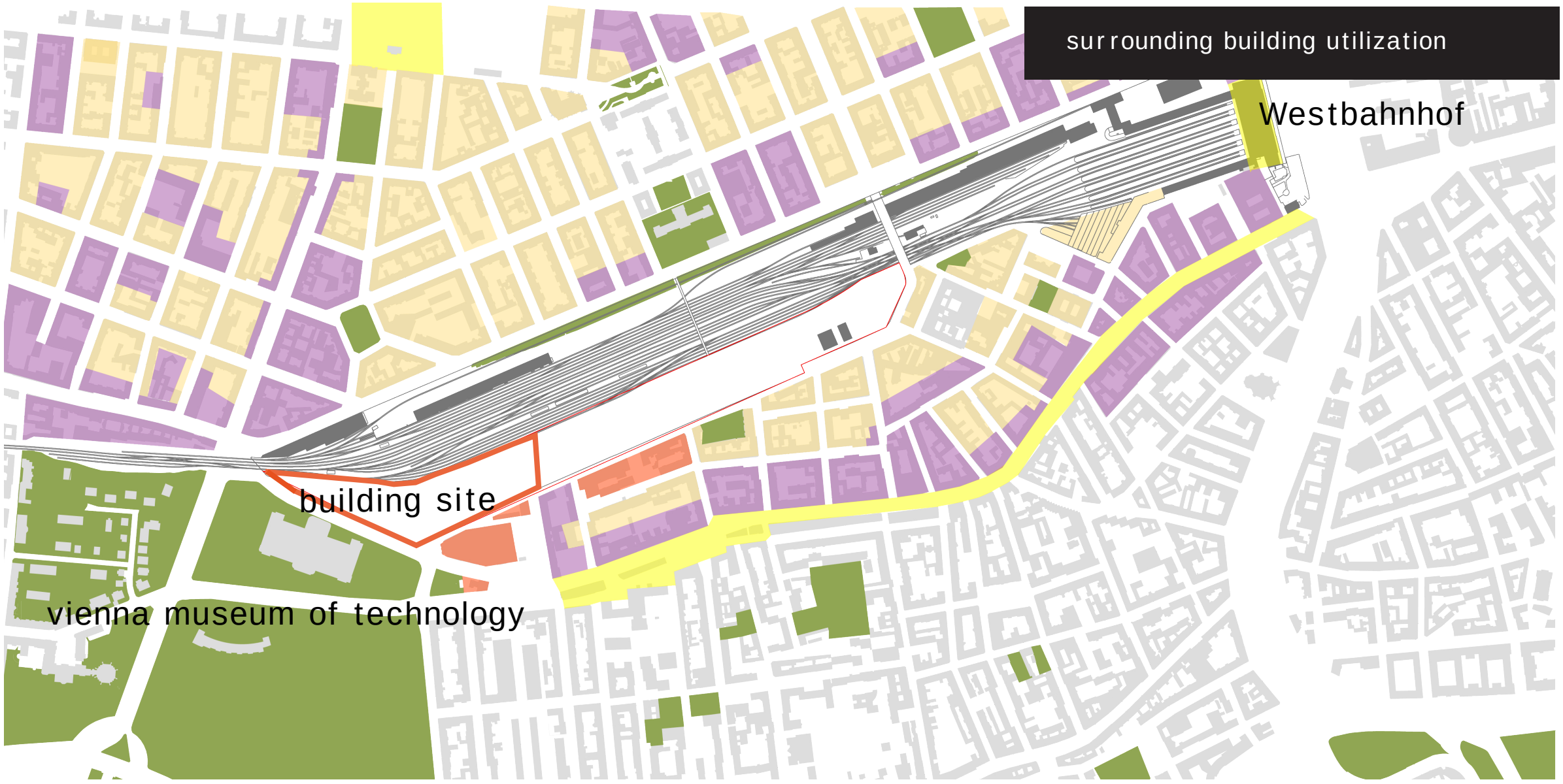
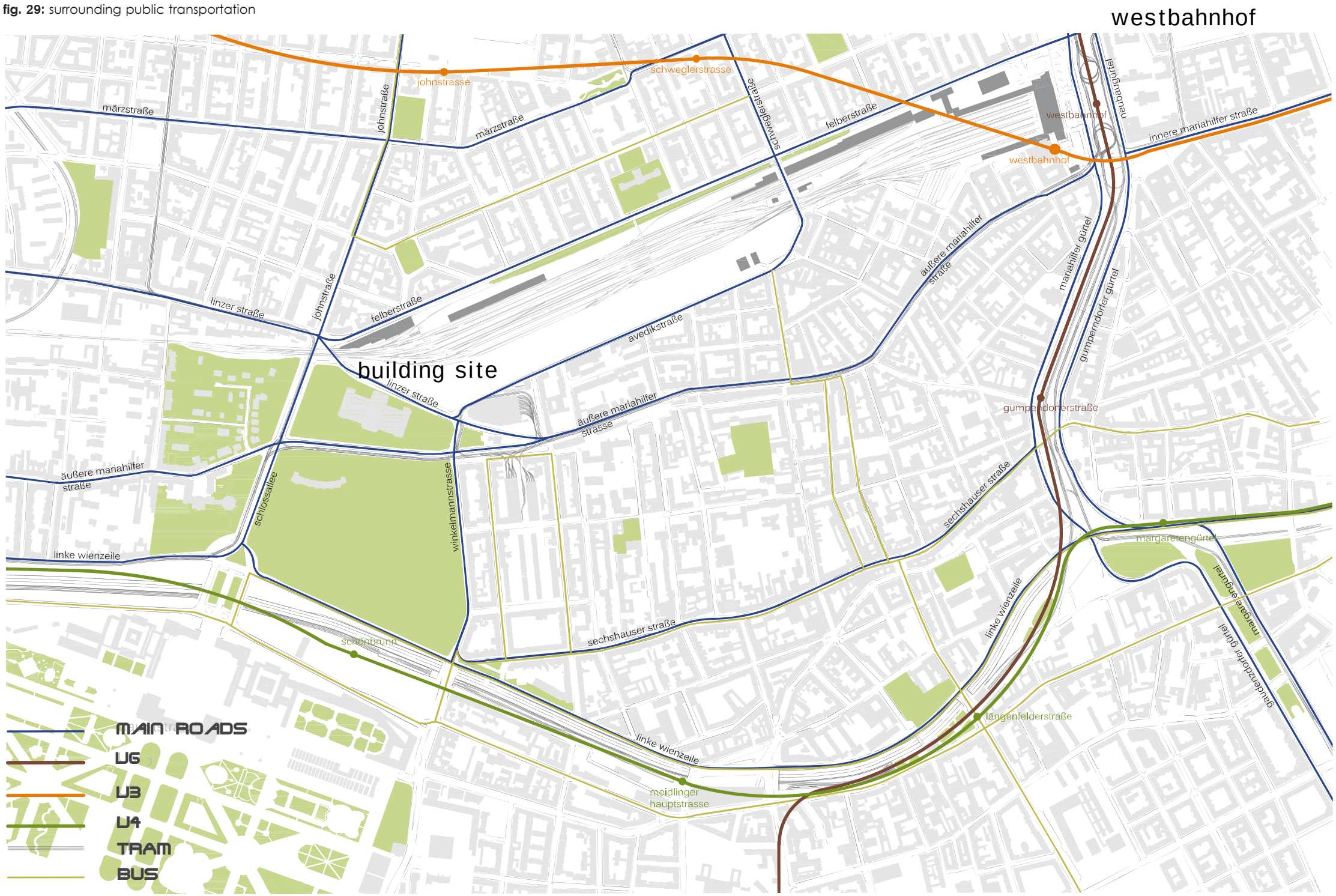


fig. 28: surrounding building utilisation

fig. 29: surrounding public transportation



The diagram on the left shows the existing public transportation options (underground, bus and train) and the main roads atpresent [2015].

The diagrams below shows the results of reacting to the surrounding structure and the planned organisation of the new building. The orange dots suggest potential urban areas and meeting points outside.

Direct rail transportation is possible due to the rails close beside the site.

FACTS:

- easy delivery
- noise factor is not so relevant since hardly any residential buildings close by
- unused and neglected space at the moment
- huge area, for other uses less convenient

a later extension to the east is possible

fig. 30: visual axis to the Gloriette

f i n d i n g t h e s h a p e

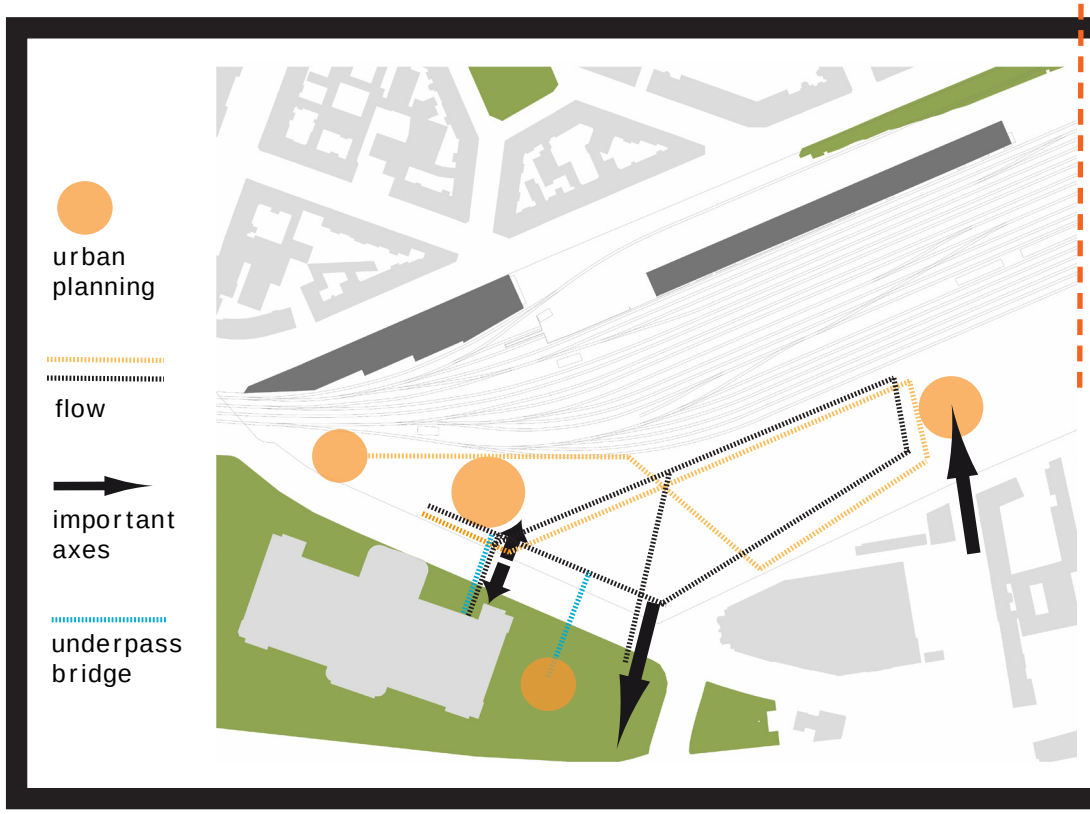


fig. 31: potential urban areas and the concept flow

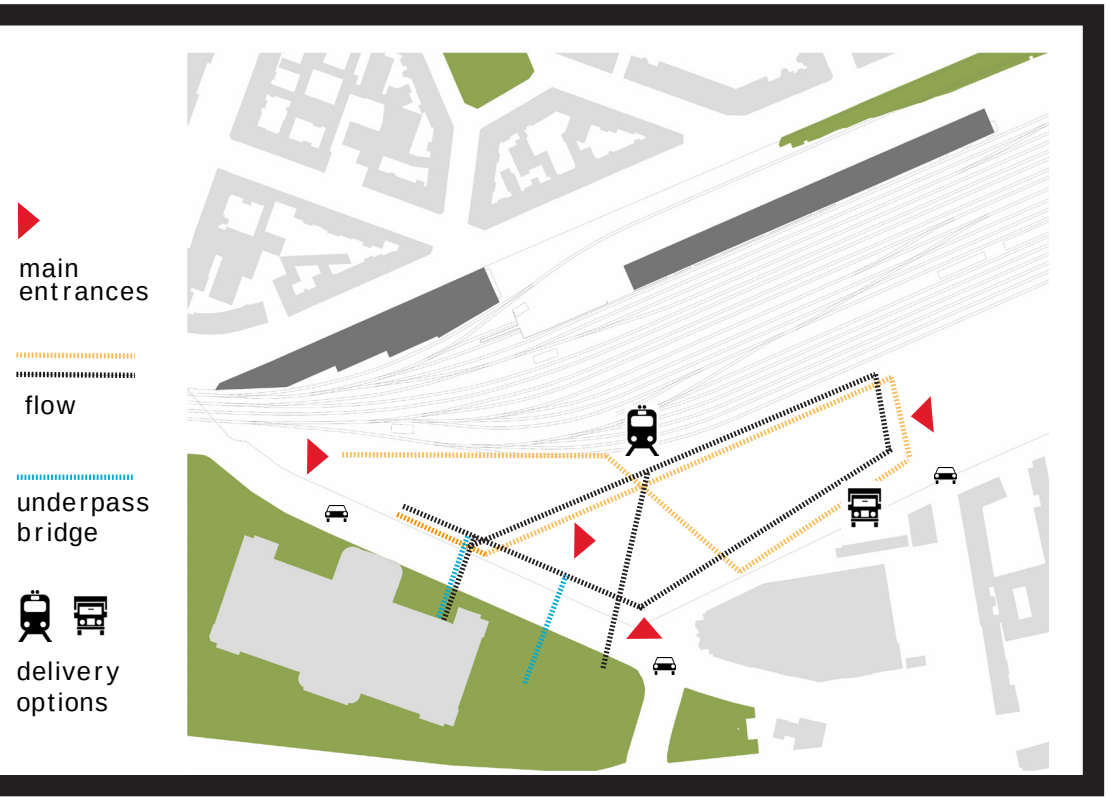
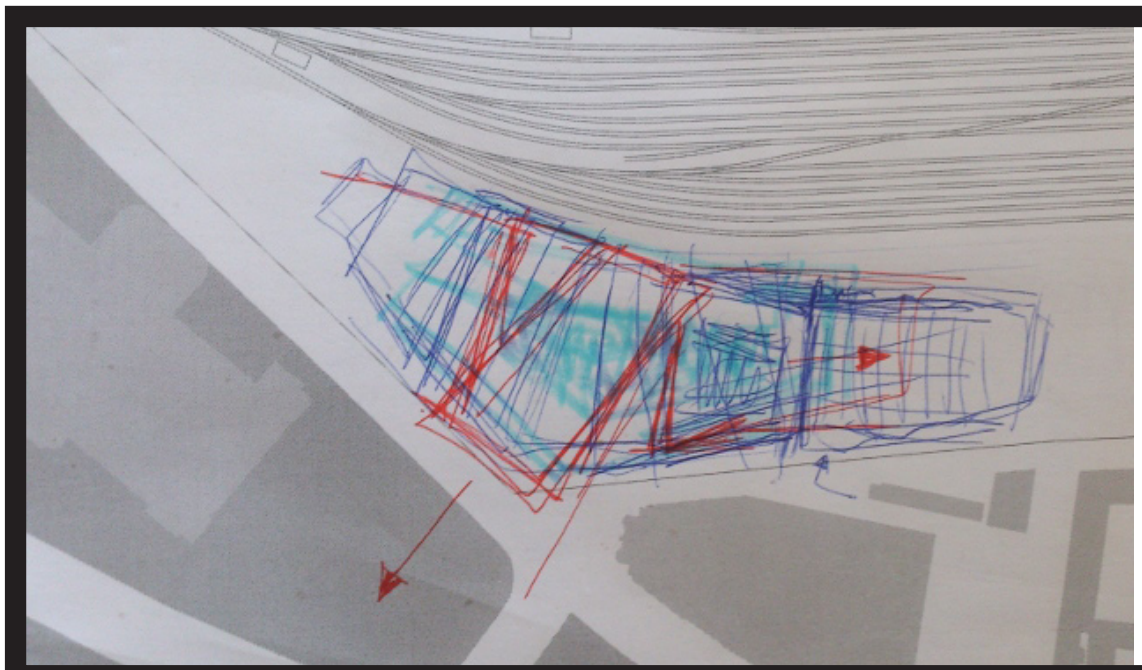
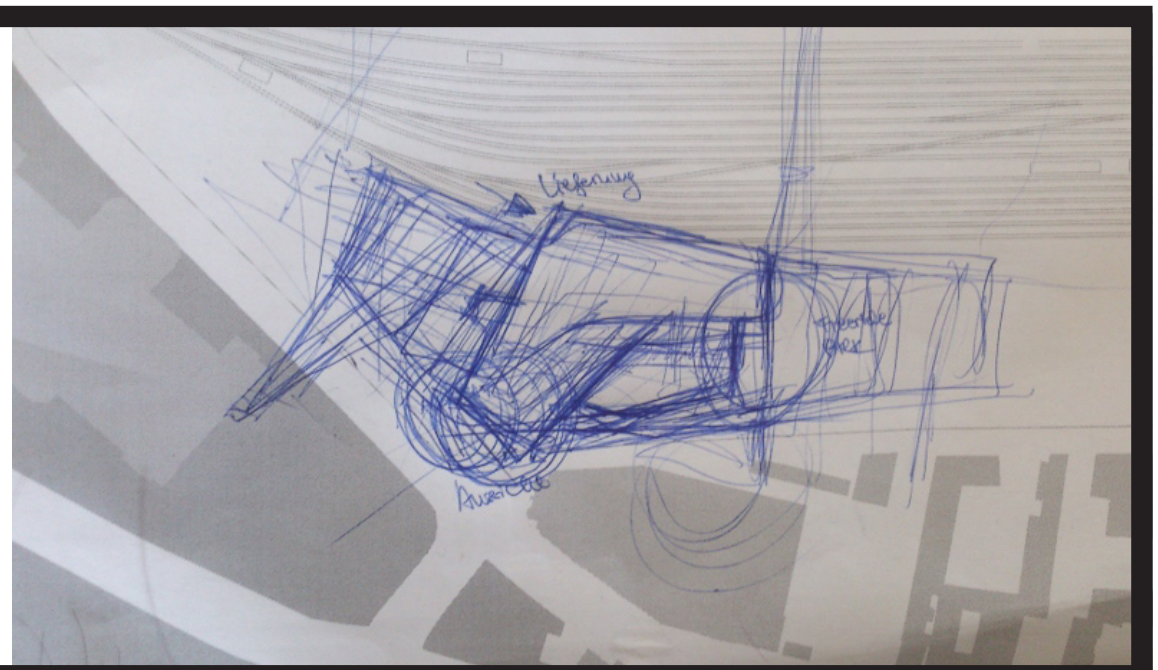


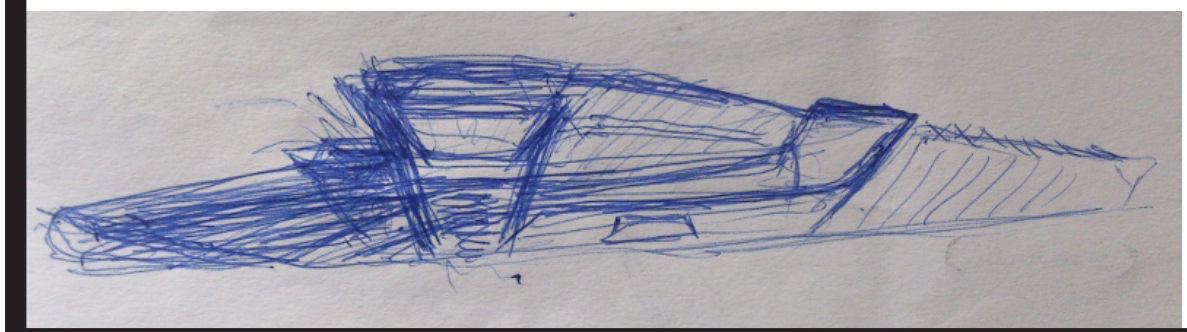
fig. 32: delivery and main entrances

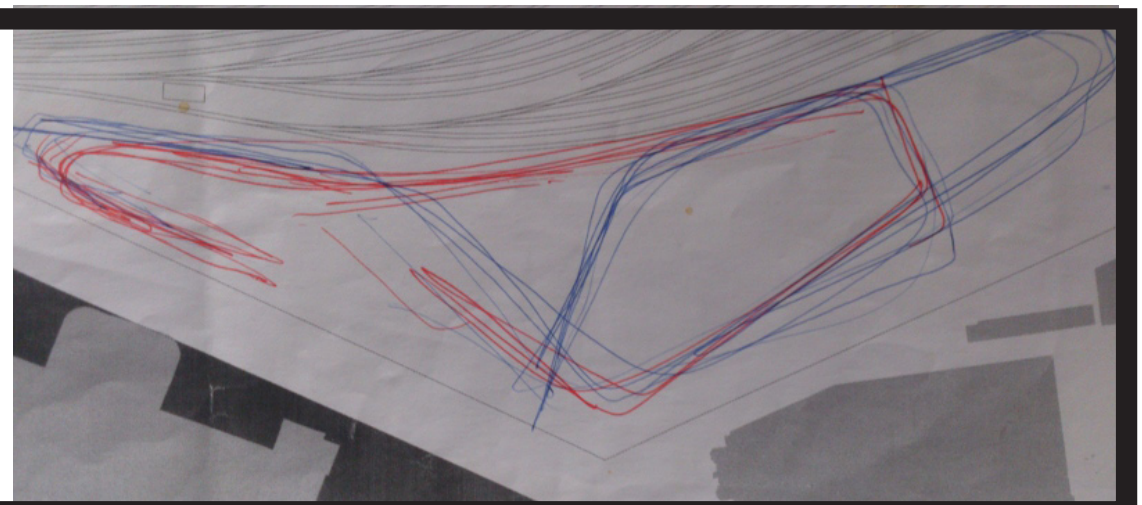




detached site => basically, any shape is possible => ample sco–

Searching for a fitting shape... a dynamic shape that represents the brand and its qualities ...





Room Schedule

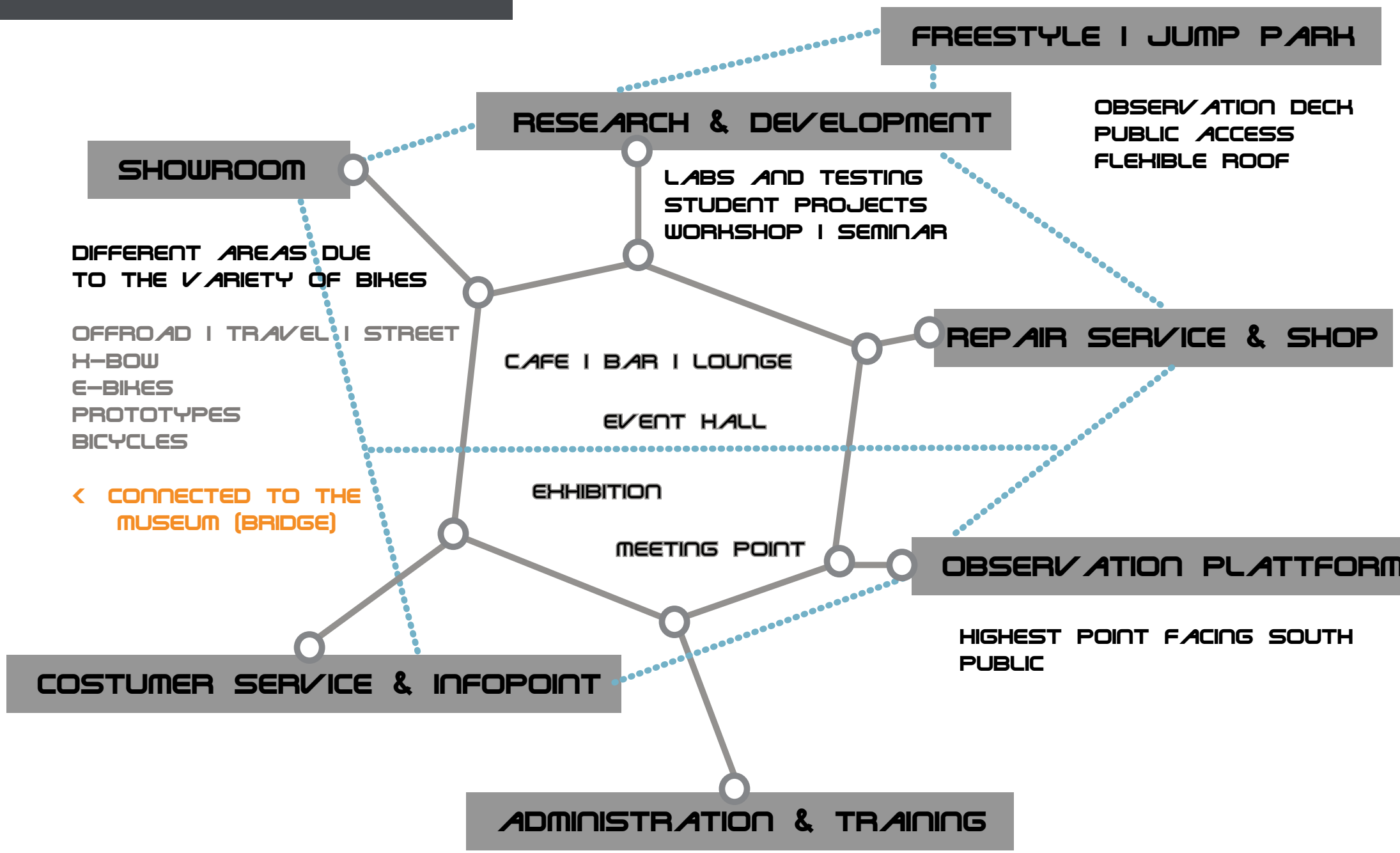


fig. 33: interlinkage of the planned programme

F u n c t i o n s

The new building offers various functions for all user types: active and passive.

KTM FLAGSHIP STORE
ground level

KTM MUSEUM
upper floors
connected to the Vienna Museum of Technology
view to the freestyle park

KTM REPAIR SHOP
downstairs

WORKSHOP and TESTING AREA (Labs, ...) incl. test route
downstairs

VUT RACING TEAM & STUDENTS` AREA
downstairs

INDOOR FREESTYLE PARK // EVENT HALL
with tribune
connected with all areas and a bike park outside

GROSS FLOOR AREA

KTM FLAGSHIP STORE
4176 m²

KTM MUSEUM
11 540 m²

KTM REPAIR SHOP + WORKSHOP + TESTING AREA
6950 m²

VUT RACING TEAM & STUDENTS` AREA
2640 m²

INDOOR FREESTYLE PARK // EVENT HALL
2100 + 1250 m²

OFFICES

SEMINAR ROOMS
with view to the club and exhibition area

OFFICES & SEMINAR ROOMS
4564 m²

CLUB & RESTAURANT
on the top with view to the Gloriette with a roof terrace

CAFE
with view to the freestyle park, flagship store and repair area

CAFE & RESTAURANT
with view to the area of the racing team
with VIP room and terrace

CLUB & RESTAURANT
1766 m² + 78 m² terrace

CAFEs & RESTAURANTs
3480 m² + 200 m² terrace

43 490 m² + 278 m² terrace

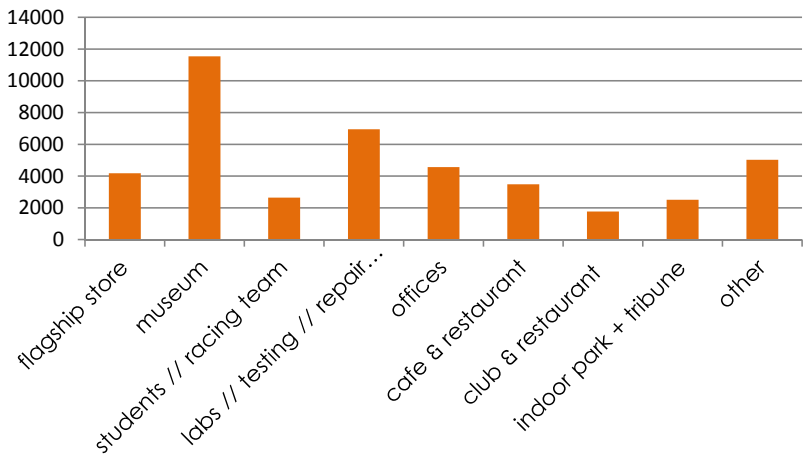


fig. 34: distribution of functions on a [m²]-basis

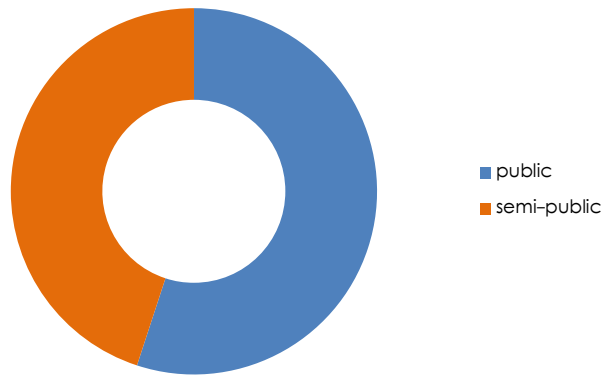


fig. 35: distribution of public / semi-public functions on a percentage basis

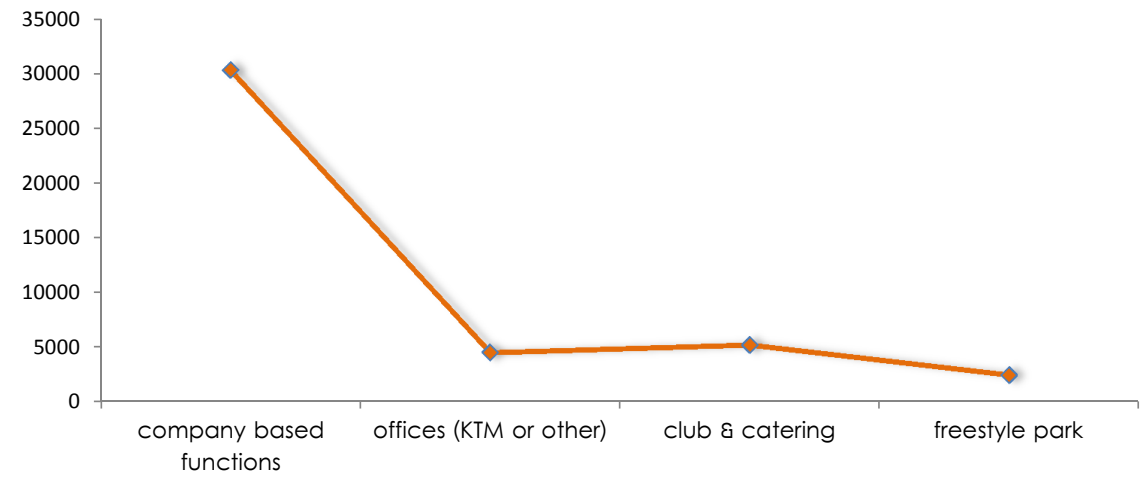


fig. 36: distribution of functions based on operator and [m²]

The functions are mixed on most of the floors, but with a structure.

The underground levels are only accessible for company employees and students. Here are the labs, repair and testing areas located.

Storing places, installation and sanitary rooms (or other) are spread on all floors.

Above ground level all the functions are public, except for secondary rooms and offices: showroom, exhibition area, cafe, club, restaurant, ...etc.

KTM RUNS 70% OF THE BUILDING (BASED ON m²):
– FLAGSHIP STORE
– MUSEUM
– LABS + REAPAIR SHOP + TESTING AREA

THE REMAINING FUNCTIONS, AS CATERING, OFFICES OR THE FREESTYLE-PARK / EVENT HALL ARE OPTIONAL, COULD BE RUN BY OTHERS.

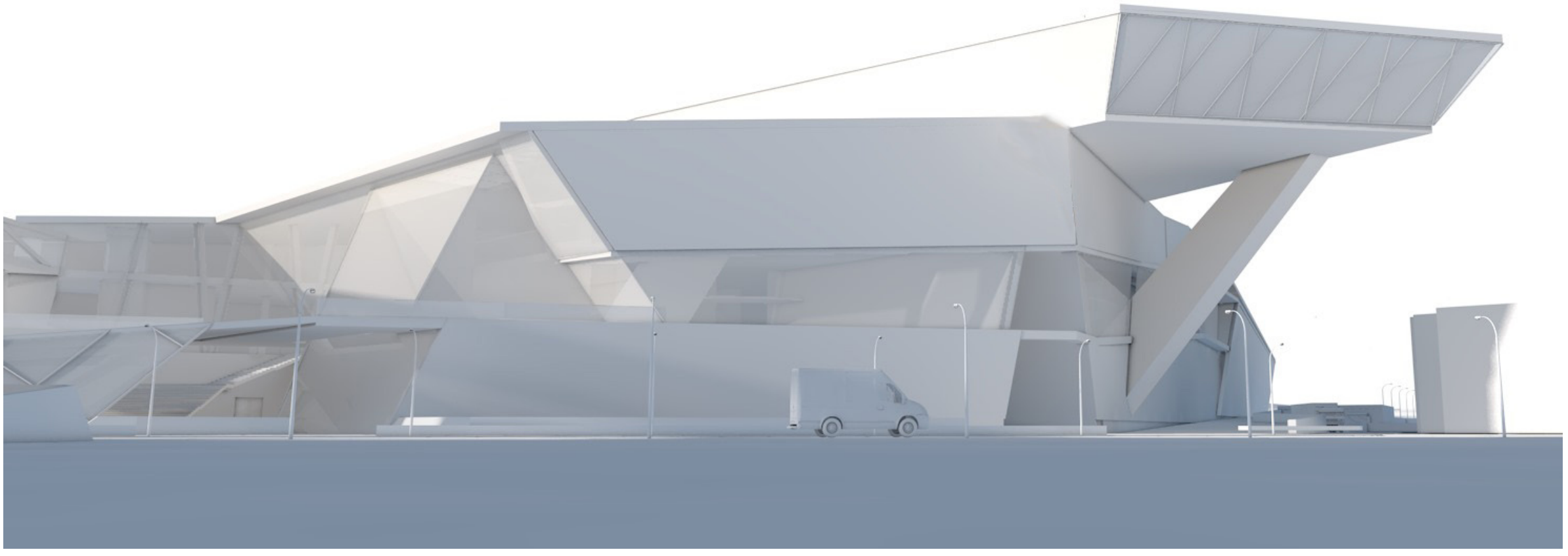


fig. 37: visualisation – view from the Auer–Welsbach–park

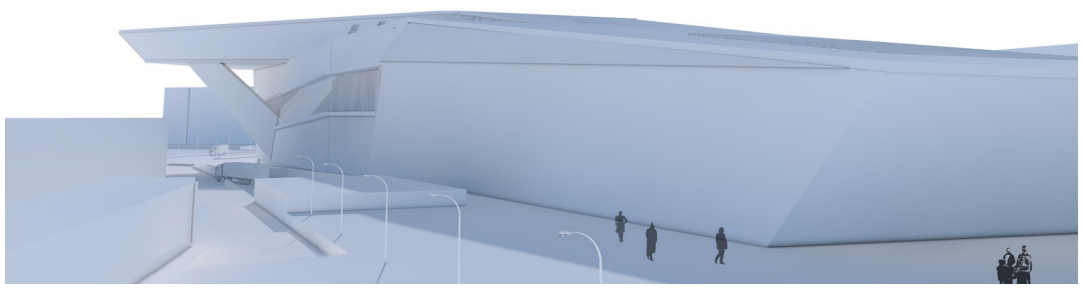


fig. 38: visualisation – view from the Avedikstrasse

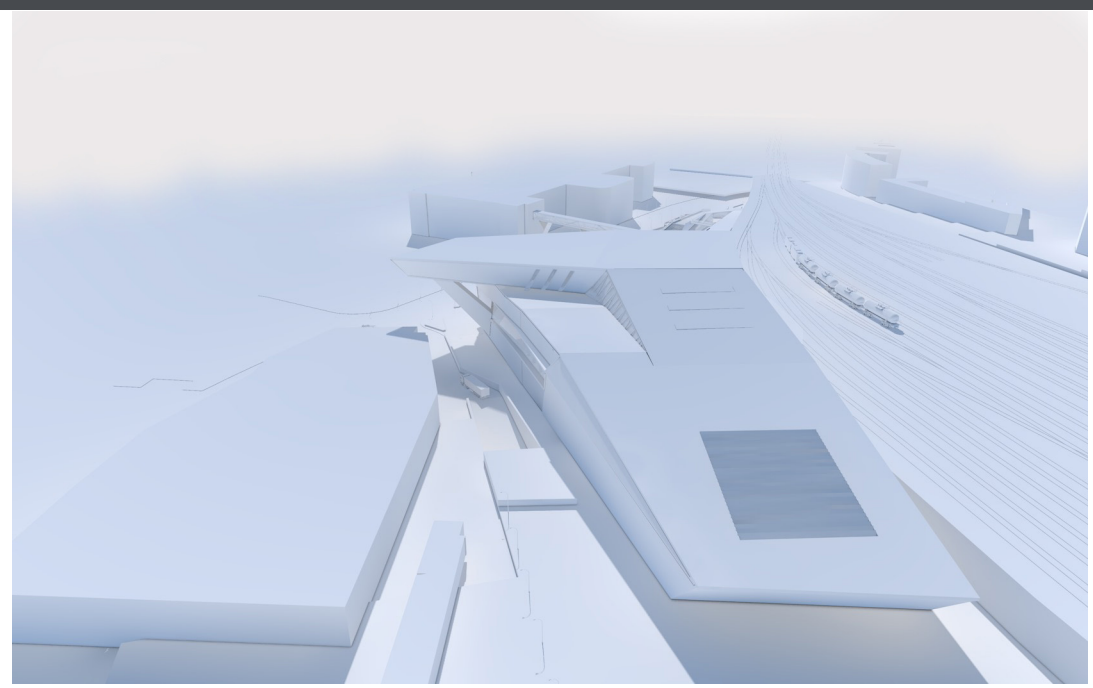


fig. 39: visualisation – bird view // east side

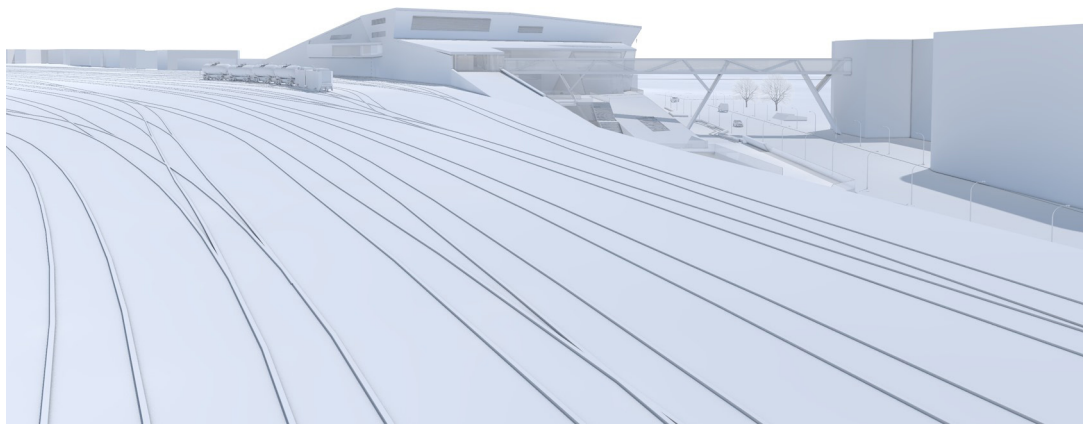


fig. 40: visualisation – view from the rails of the Western Railway Station // west side

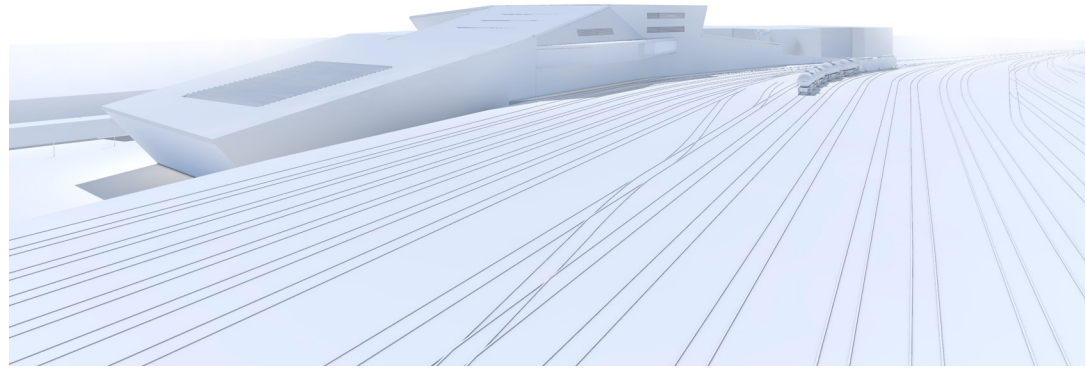
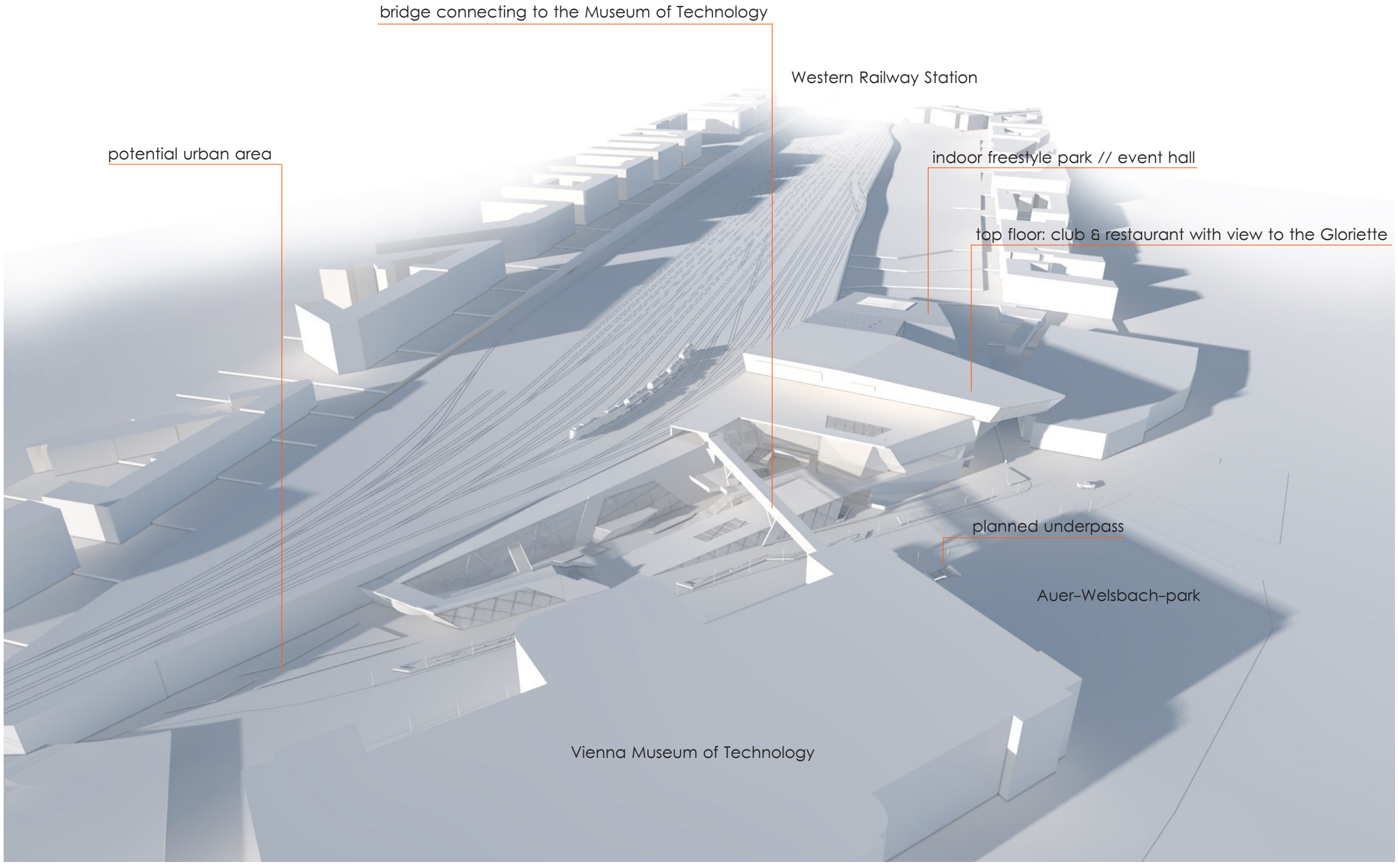


fig. 41: visualisation – view from the rails of the Western Railway Station // north-east side

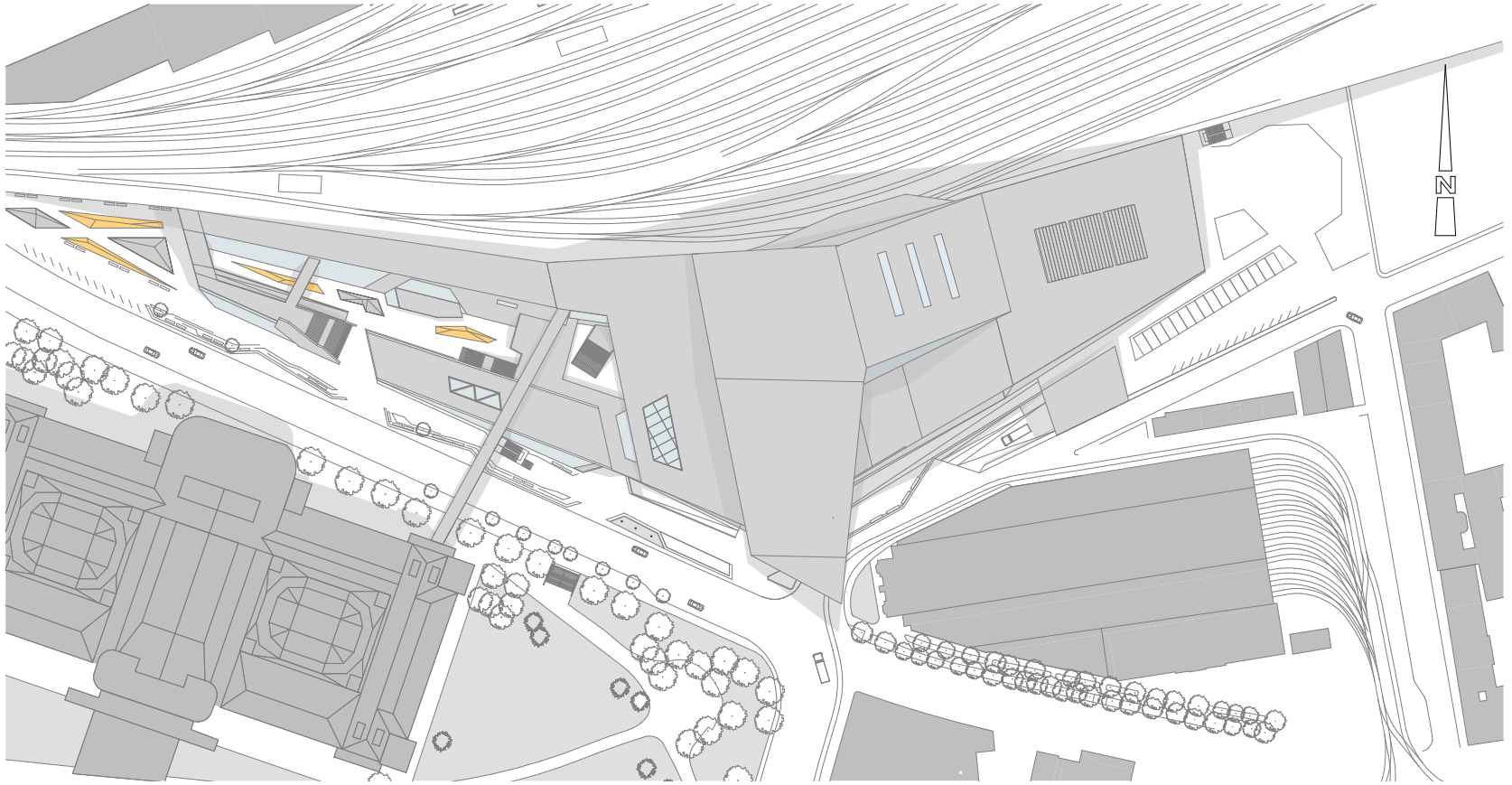

bridge connecting to the Museum of Technology
Western Railway Station
potential urban area
indoor freestyle park // event hall
top floor: club & restaurant with view to the Gloriette
planned underpass
Auer-Welsbach-park
Vienna Museum of Technology

Floor Plans

The site plan shows the orientation and proportions of the building, just as its relation to the surrounding architecture and existing development.

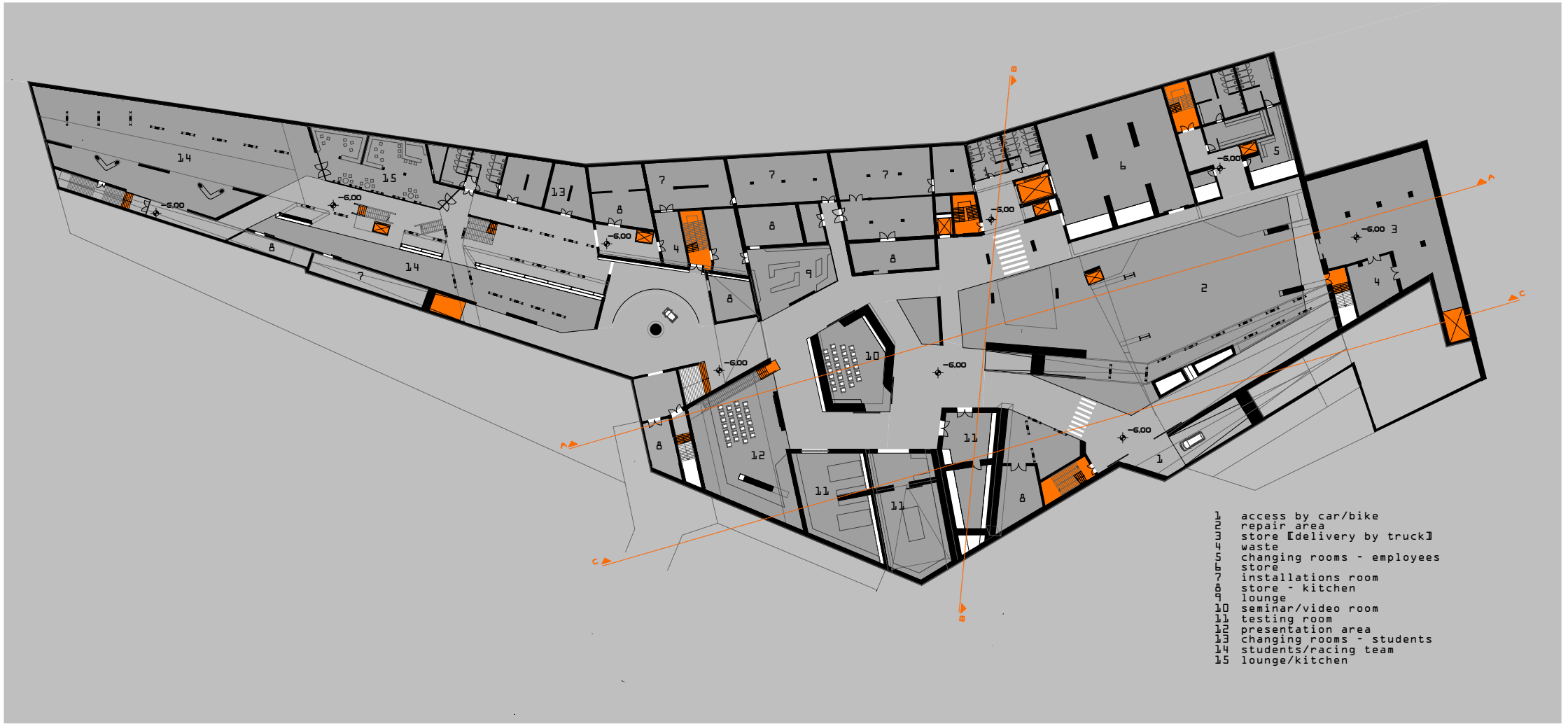
A closed bridge connects to the museum which serves as an exhibition space as well.

To facilitate pedestrian traffic an underpass between the park and the new building is planned.



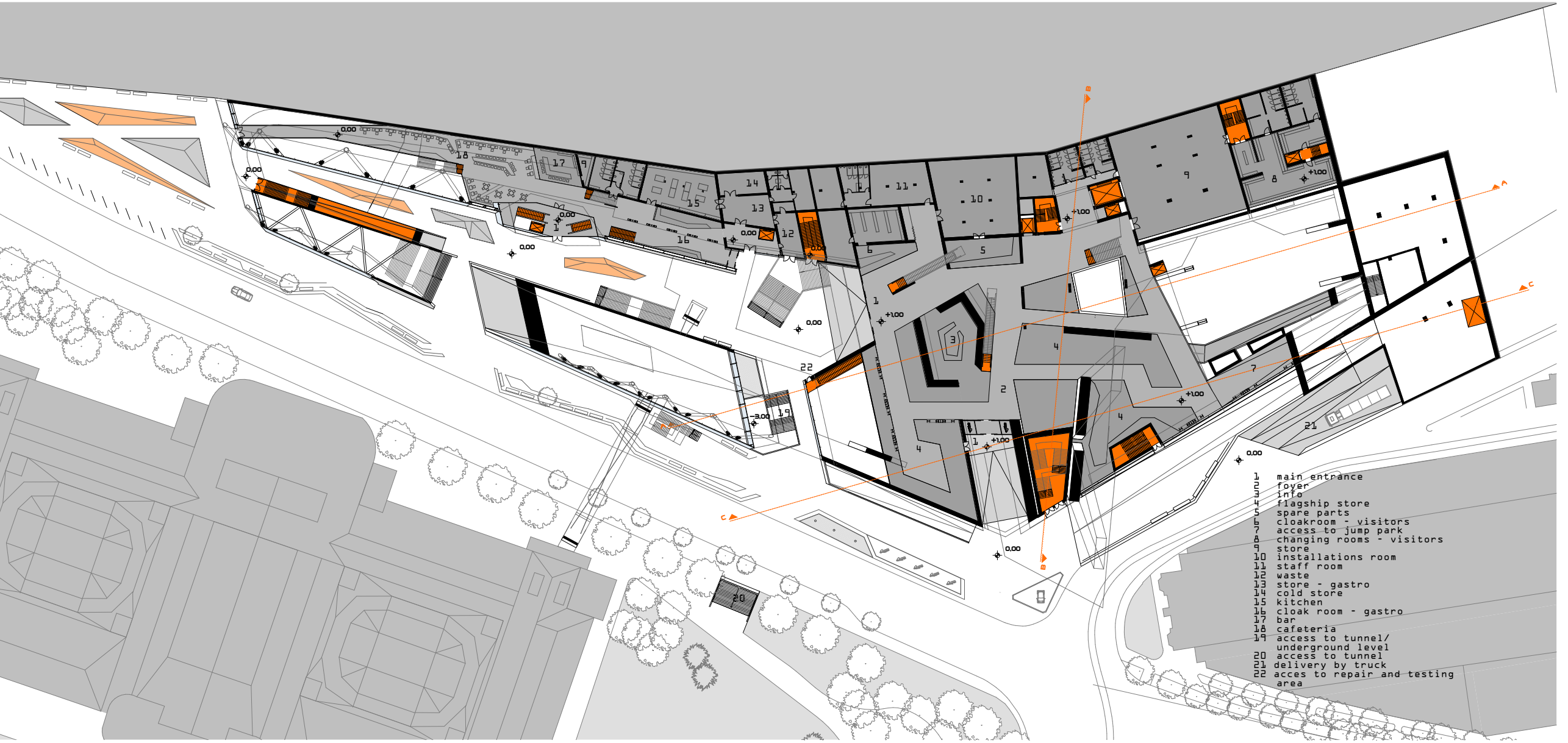
site plan 1:1000

The building develops its own dynamics and peaks in a cantilever construction where the club with the panoramic view is situated.



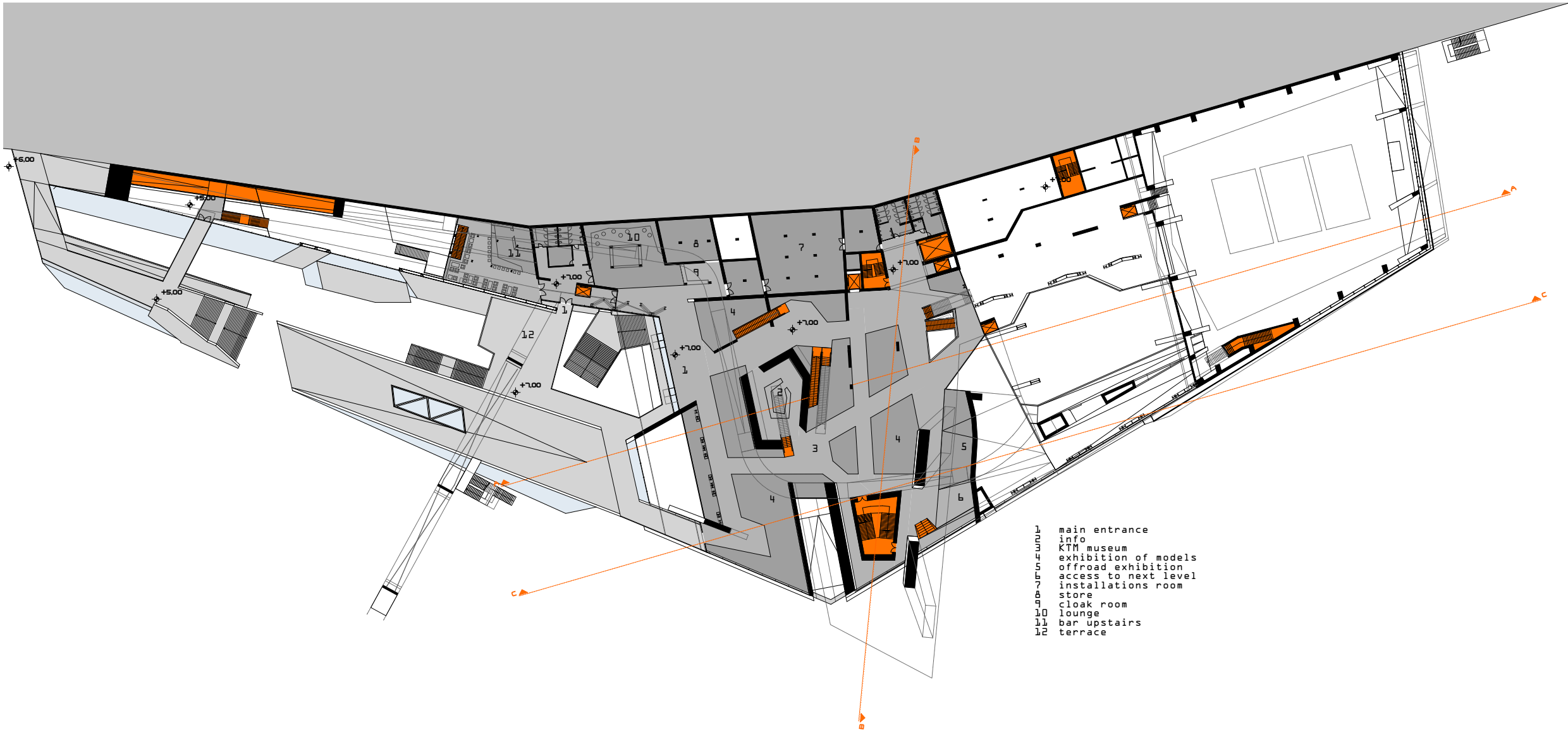
underground level –6m 1:500

underground level –3m 1:500



ground level 0m 1:500

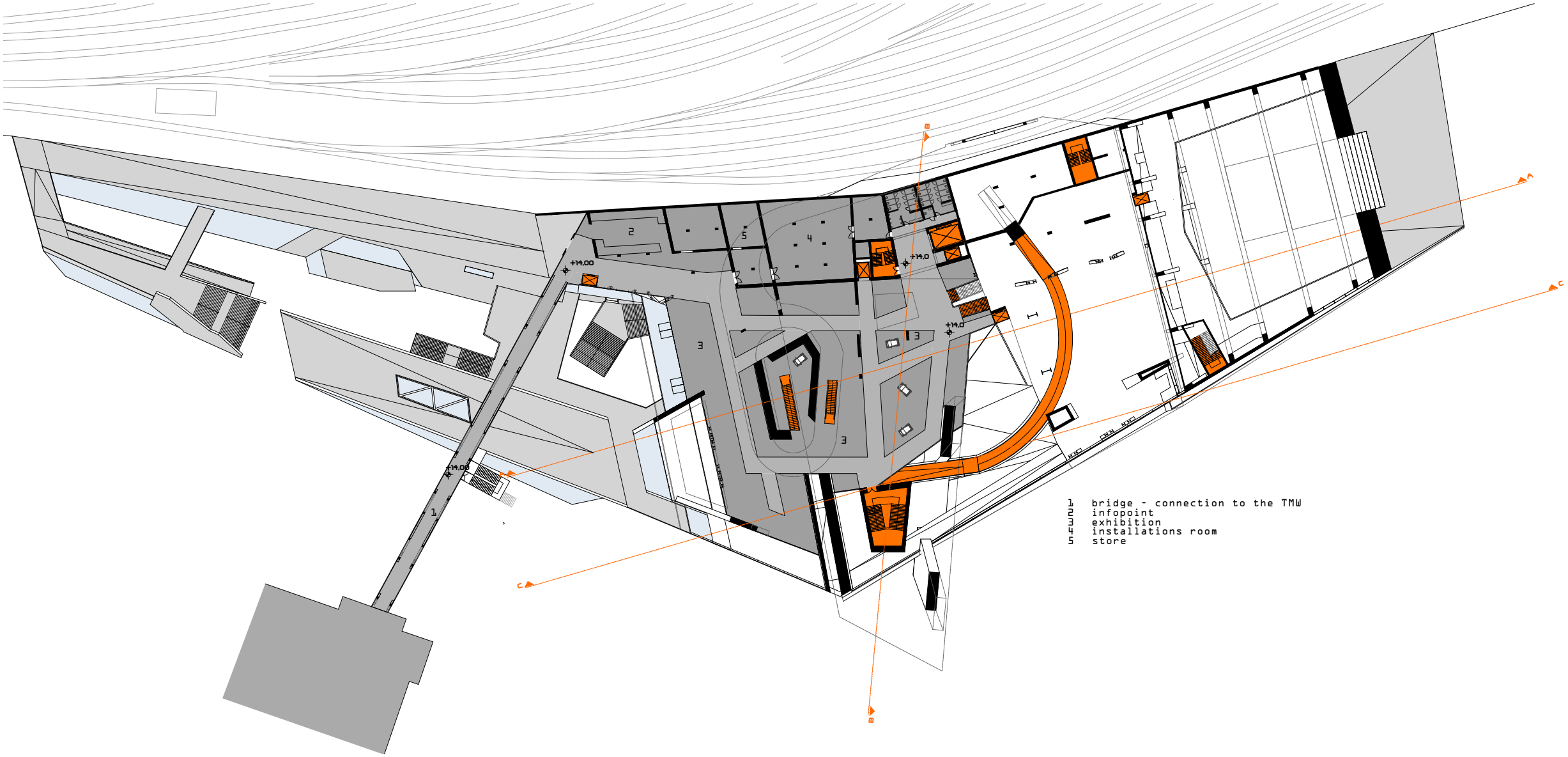
upper floor +2 / +4m 1:500



upper floor +7m 1:500

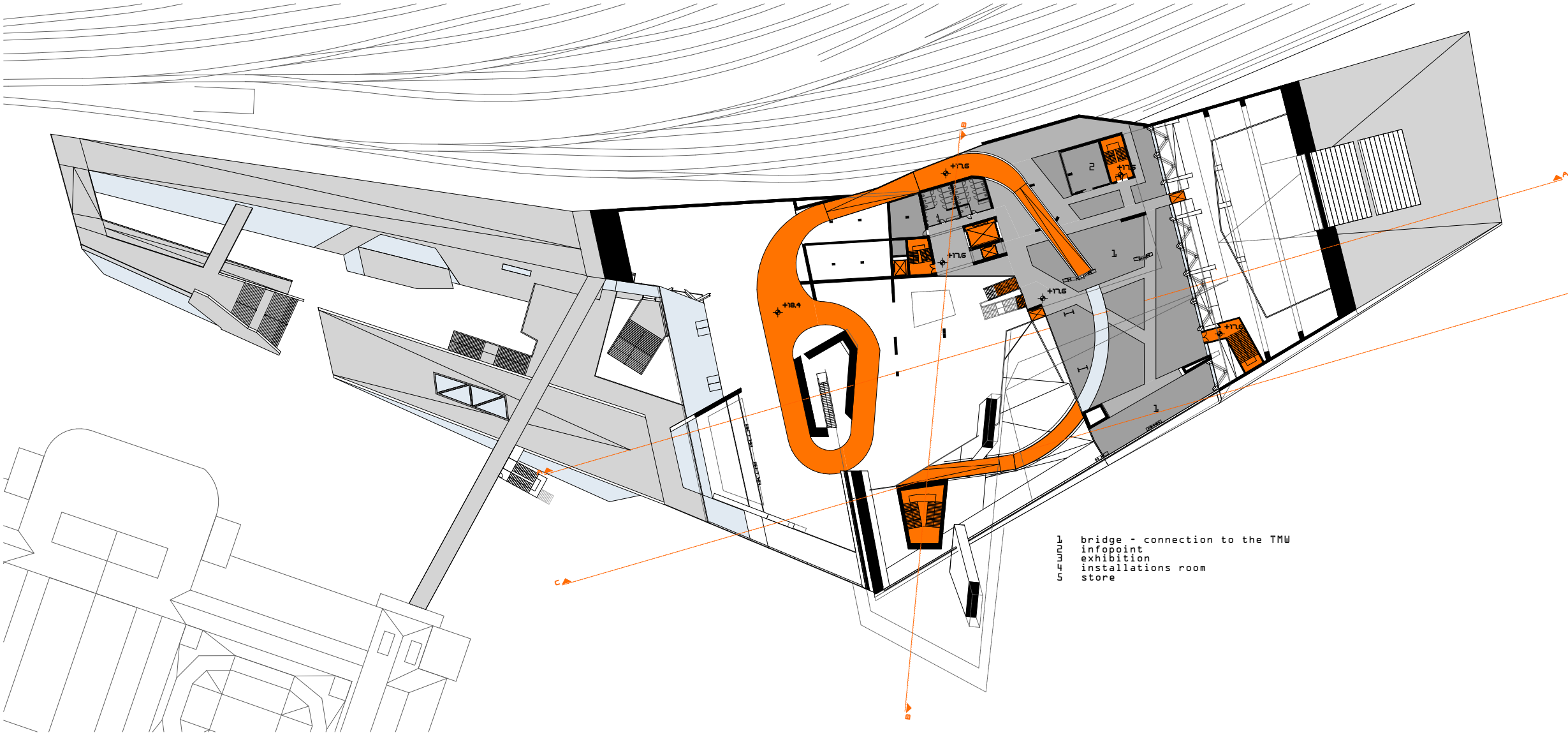
1 exhibition
2 gallery
3 store - delivery by train

upper floor +11m 1:500



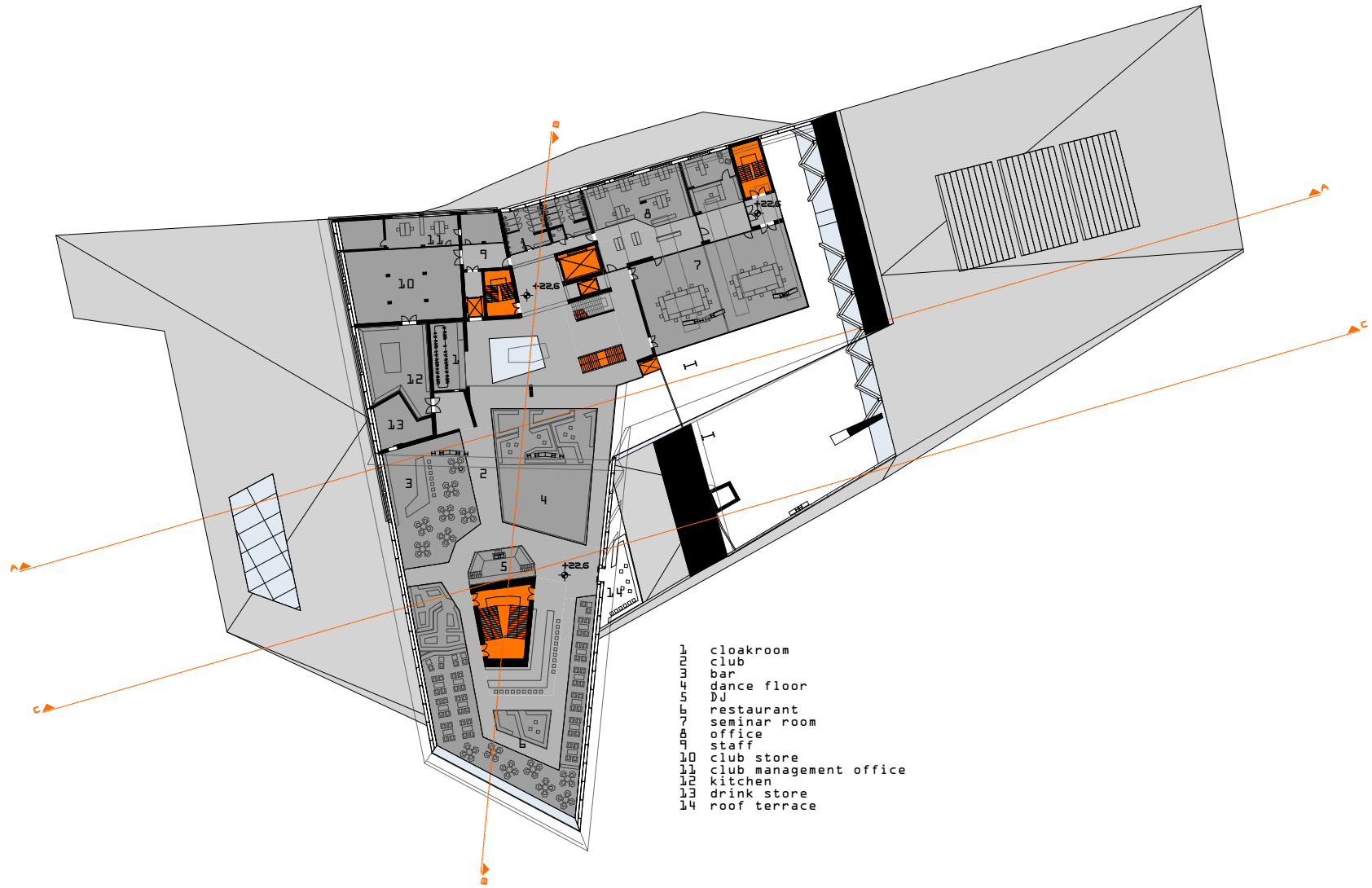
1 bridge - connection to the TMW
2 infopoint
3 exhibition
4 installations room
5 store

upper floor +14m 1:500

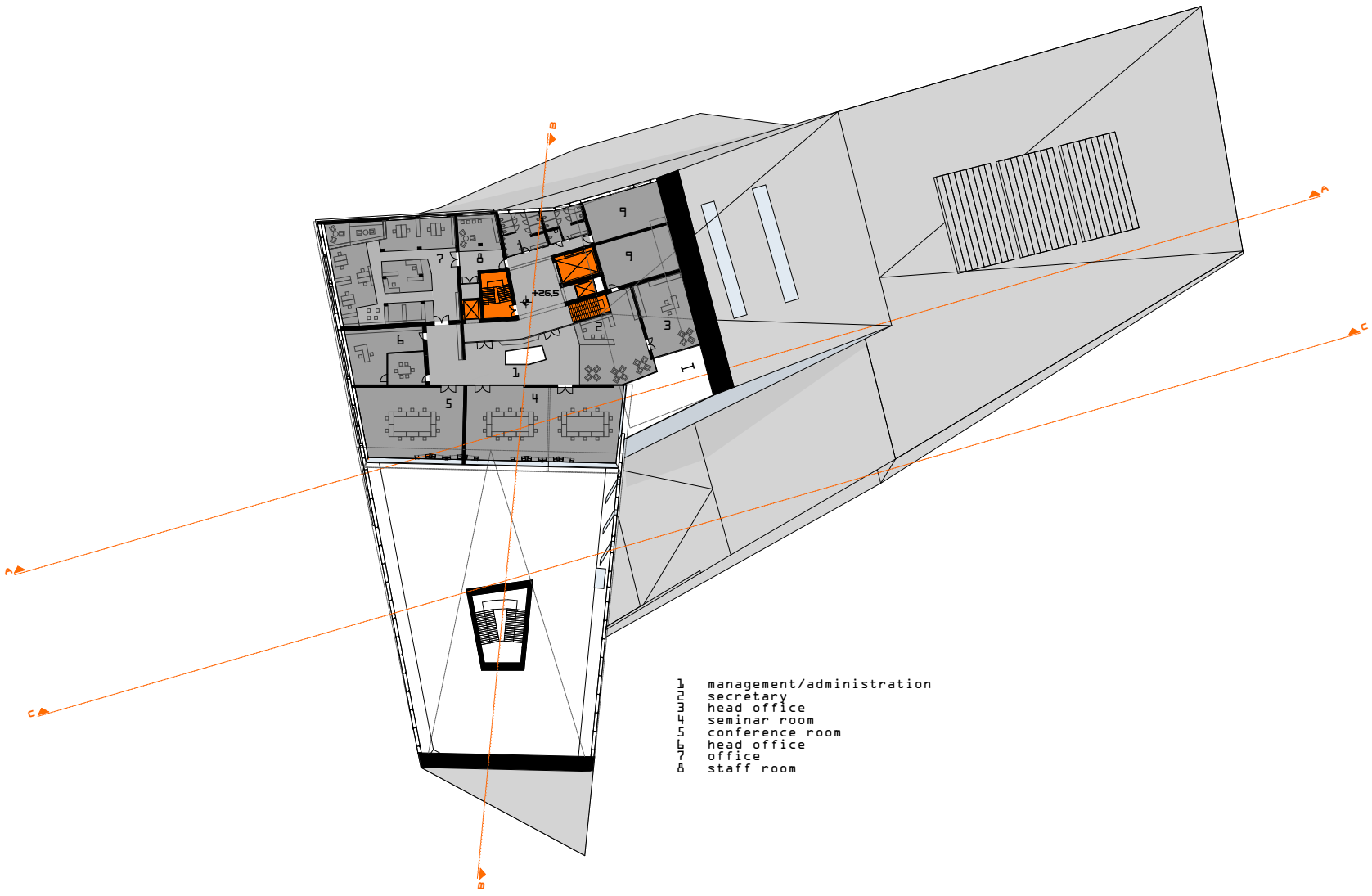


1 bridge - connection to the TMW
2 infopoint
3 exhibition
4 installations room
5 store

upper floor +17,6m 1:500

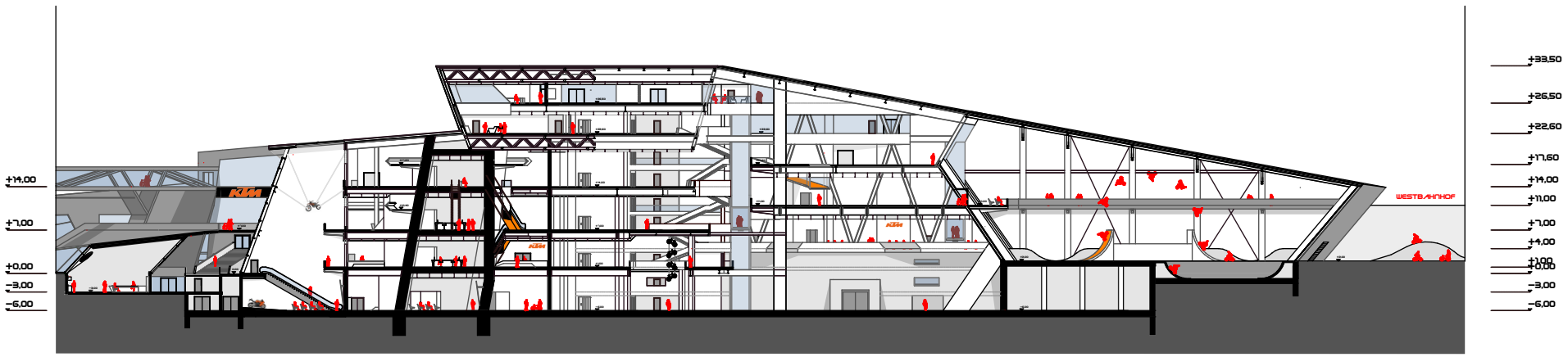


upper floor +22,6m 1:500

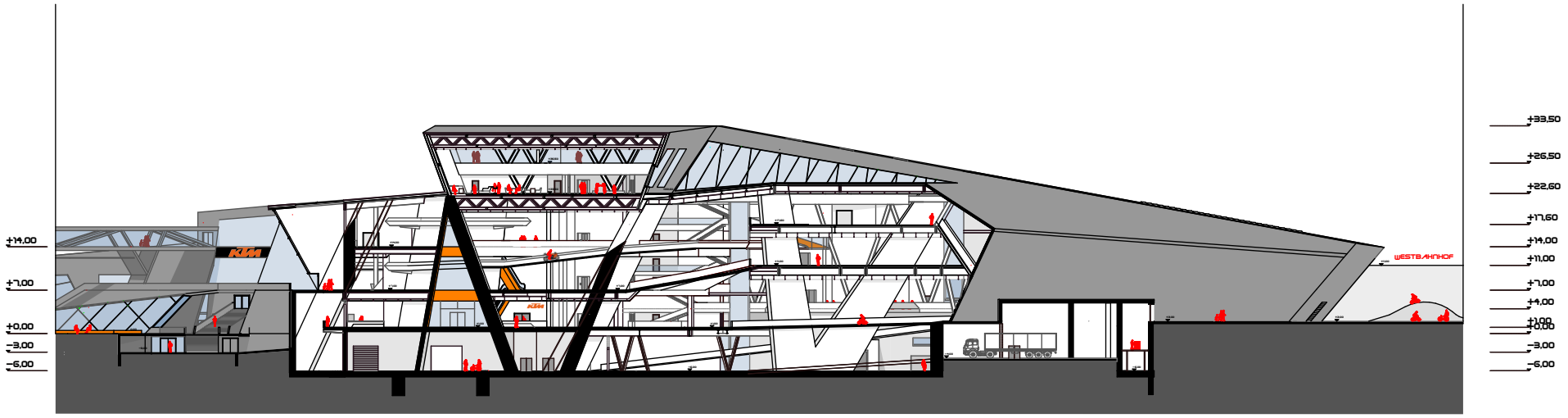


upper floor +26,5m 1:500

S e c t i o n s



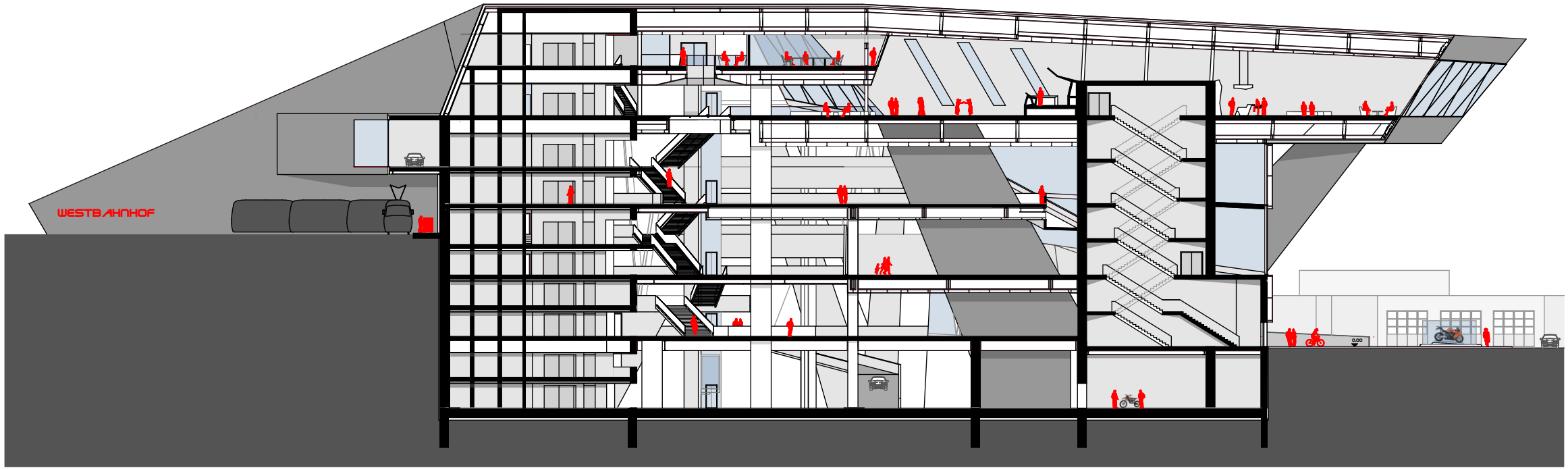
longitudinal section A–A



longitudinal section C–C

The top floor provides a great view to the club which again offers a panoramic view to the Gloriette.

fig. 42: Gloriette – Schönbrunn



cross-section B–B 1:500

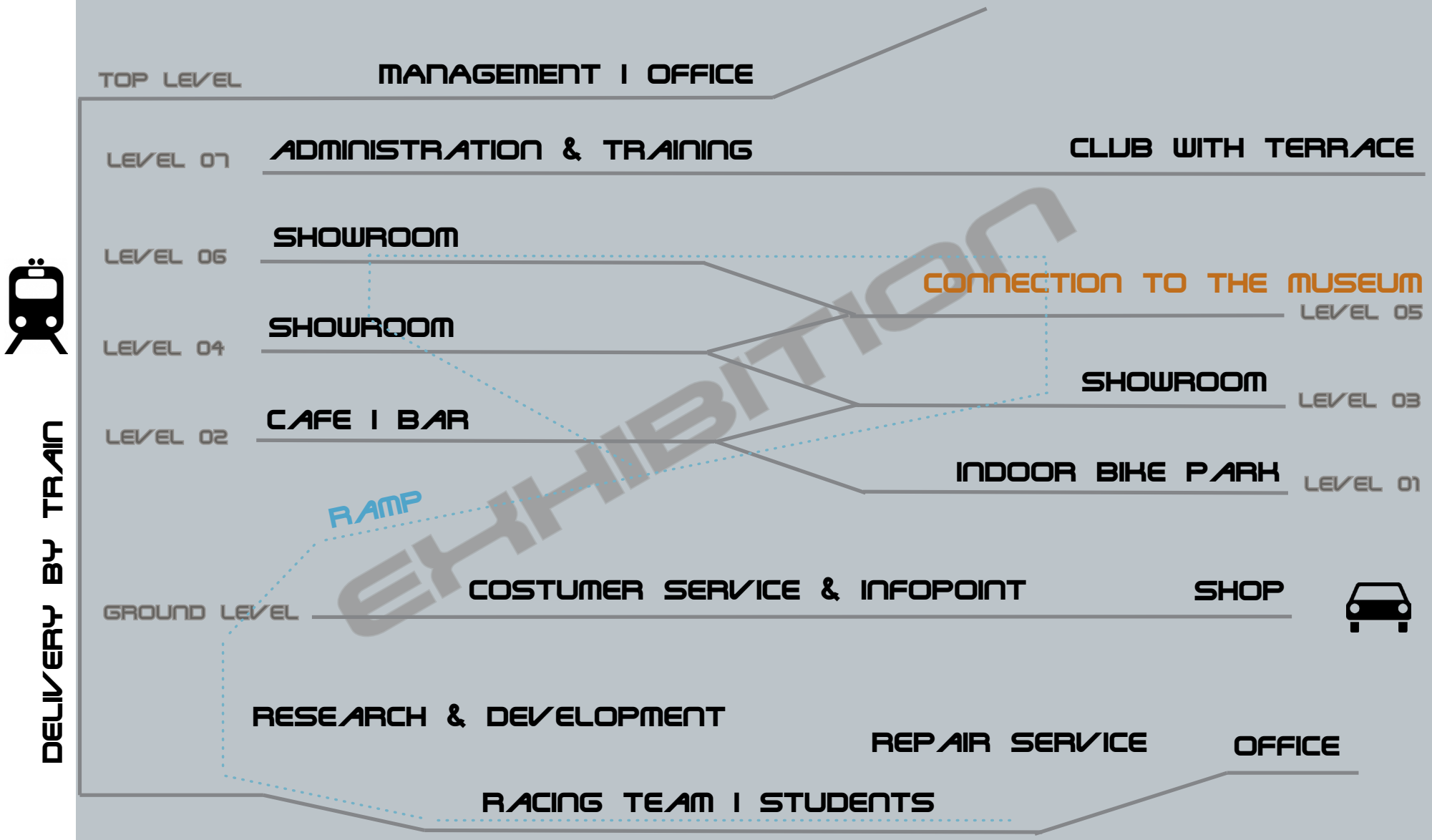


fig. 43: vertical organisation of functions

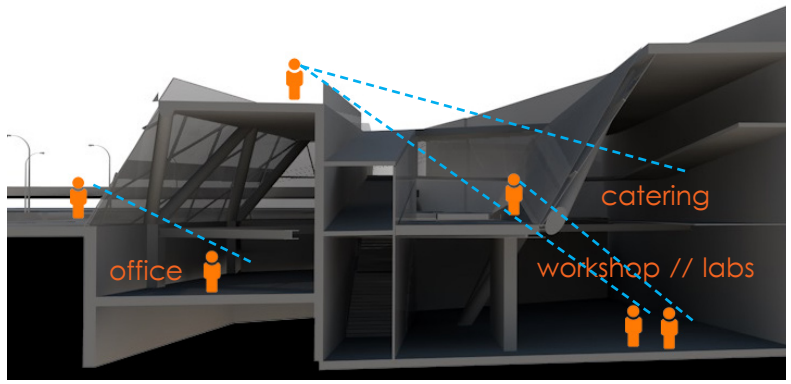


fig. 44: visual axes in the western wing

The functions are intertwined due to the split-level structure and the visual axes.

FROM THE BOTTOM TO THE TOP:

REPAIR SHOP + LABS & TESTING + STUDENTS & RACING TEAM

The underground level is non-public. This is the working area for company employees and students, who are placed on the same floor to encourage communication and cooperation. Positioning this area underground has logistical and practical reasons. The area is lit partly artificially and partly naturally from above. The skylights and galleries offer visitors a glimpse from above.

FLAGSHIP STORE

The store is slightly elevated (1m) above ground level and accessible through a ramp at both main entrances. From this level upwards the floors are arranged as split levels, offering a route through the building and a view to the other areas. Located in the eastern wing is a big public cafe and restaurant that stretches itself over 3 floors.

FREESTYLE PARK

The indoor park is accessible from in- and outside. Visitors of the flagship store can reach the park through a ramp. The freestyle hall is directly connected to the repair shop, to ensure an easy acces if necessary.

MUSEUM

The next level after the store and the park is a cafe with a great view t the repair shop downstairs and to all surrounding areas, including the freestyle park. The next floor above is the museum that spreads over 4 levels. At the level of 14m a bridge connects to the Vienna Museum of Technology. Central infopoints help the visitors find their way through the building. The exhibition area connects to the tribune of the freestyle park at the level of 11m. Situated on the same height is the delivery platform on the north side for any supplies delivered by train.

CLUB

The club is located on the top with a panoramic view and a roof terrace.

OFFICES + SEMINAR ROOMS

The 2 top levels offer office and seminar spaces with view to the exhibition area and into the club.

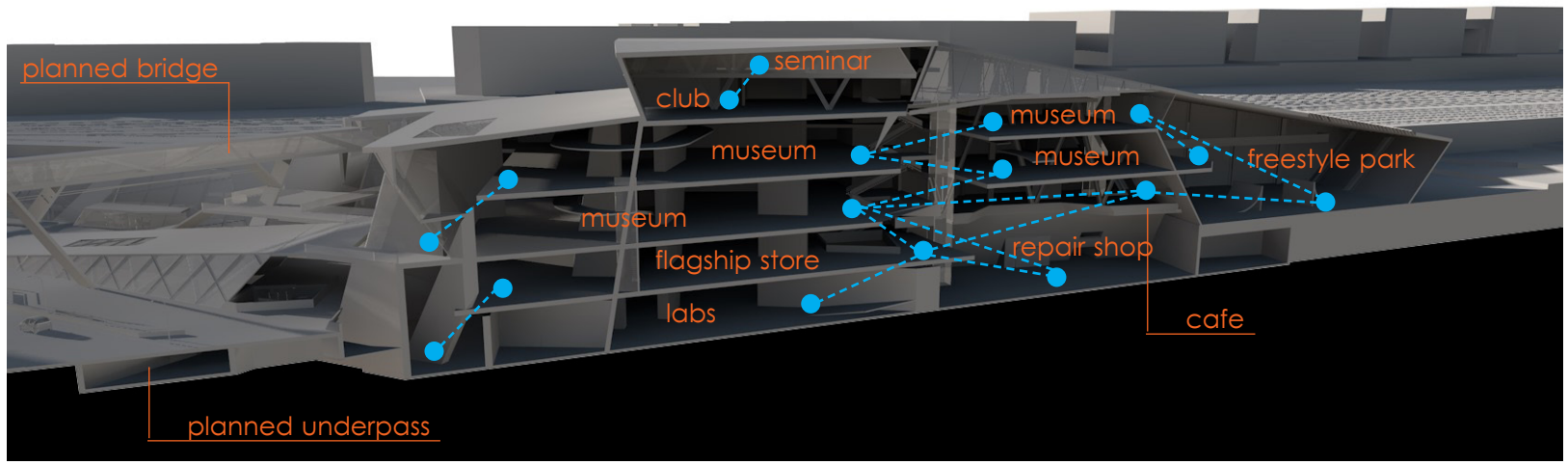


fig. 45: visual axes in the middle and eastern wing

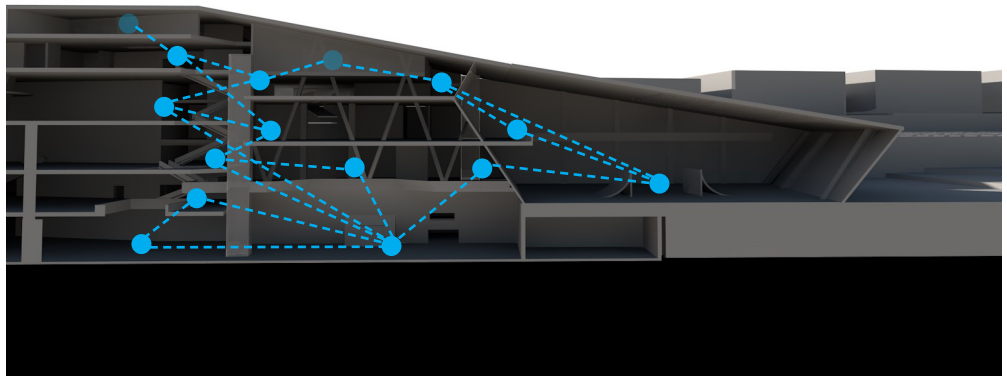


fig. 46: visual axes in the eastern wing

FREESTYLE PARK

dimensions: 50m x 50m
height: 13–23 m

The indoor hall serves as a stunt park for bikers, but can be easily converted in an event hall.
A ramp leads directly from this level to the repair shop downstairs just in case a problem emerges.
Changing and sanitary rooms are provided separately for the users of the park.

A tribune 9m above provides visitors seats and a great view without disturbing the bikers. Also the cafe next to the hall offers a great panorama through a huge window, so people can sit and have a drink while enjoxing the events.

The hall, that opens to an outdoor park on the east side, is lit through sliding roof windows which are equipped with motorised aluminium solar control louvers to block it from heating up.

RAMP – TEST ROUTE

A ramp for the purpose of test drives runs through the building starting downstairs in the testing area leading up to the highest level of the museum.
It leads through the cafe and the complete exhibition while always staying visible.

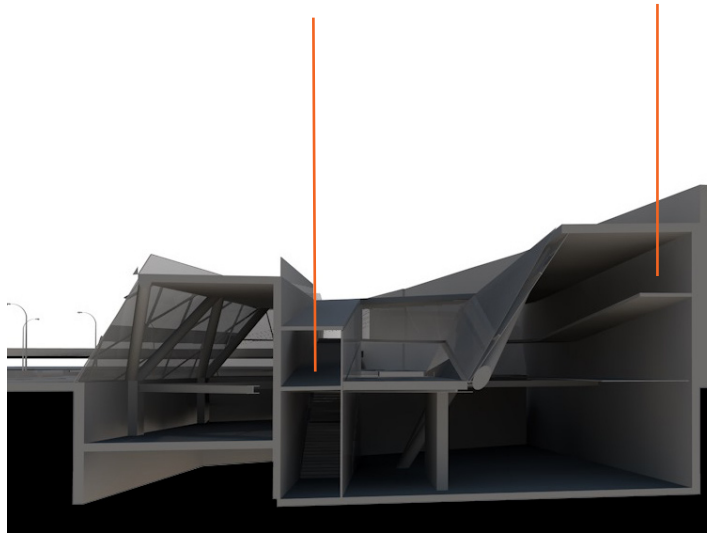


fig. 47: the cross–section through the west wing shows the test route

The diversity of the functions should reflect the diversity of the brand.

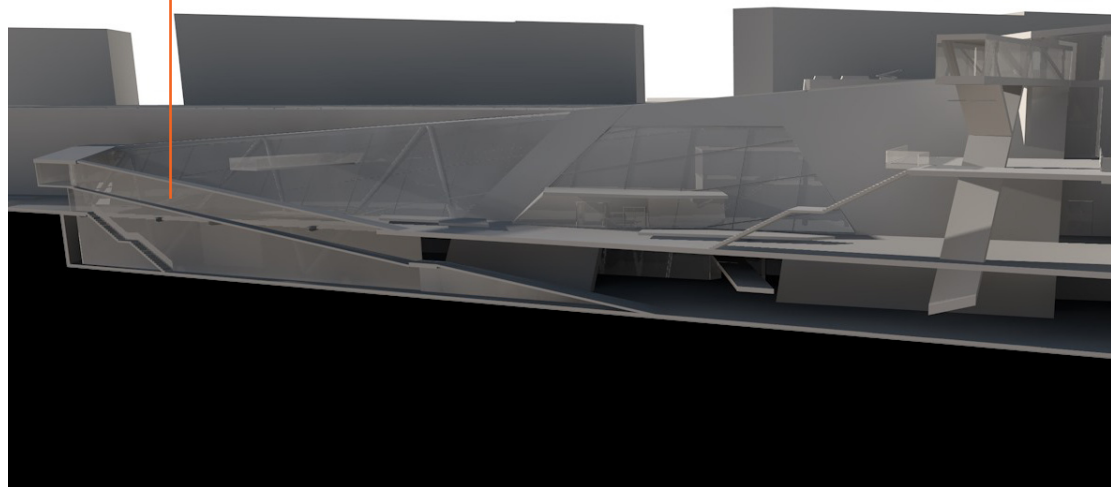


fig. 48: the longitudinal section through the west wing shows the test route

Areas of activity

The following diagrams show the functions grouped as follows:

- repair are + labs + testing
- students + racing team
- adjacent areas: storage, sanitary rooms, installation rooms, delivery areas, waste room, ...
- offices, seminar rooms
- flagship store
- museum
- catering: cafe + restaurant + club

repair area // testing // labs
racing team // students
adjacent areas
office // seminar rooms
flagship store
catering
freestyle park
exhibition

The underground levels offer office space, seminar rooms, lounge areas and in general, space for communication.

Delivery by truck is accepted in the east wing, in the Avedikstrasse.

level 0m 1:1500

The ground floor is divided in various areas on different levels.

In the western wing a bar and restaurant is located, on the same level like the terrain outside. This catering area is spread on 3 floors.

The flagship store is lifted 1m above the terrain, just to emphasize its importance. An infopoint in the centre of the foyer helps in guiding the visitors. Galleries offer various perspectives.

level +4m 1:1500

The half floor houses the stunt park and the cafe which can be considered as a meeting point in the building complex as this level is visible from a lot of angles and directions.

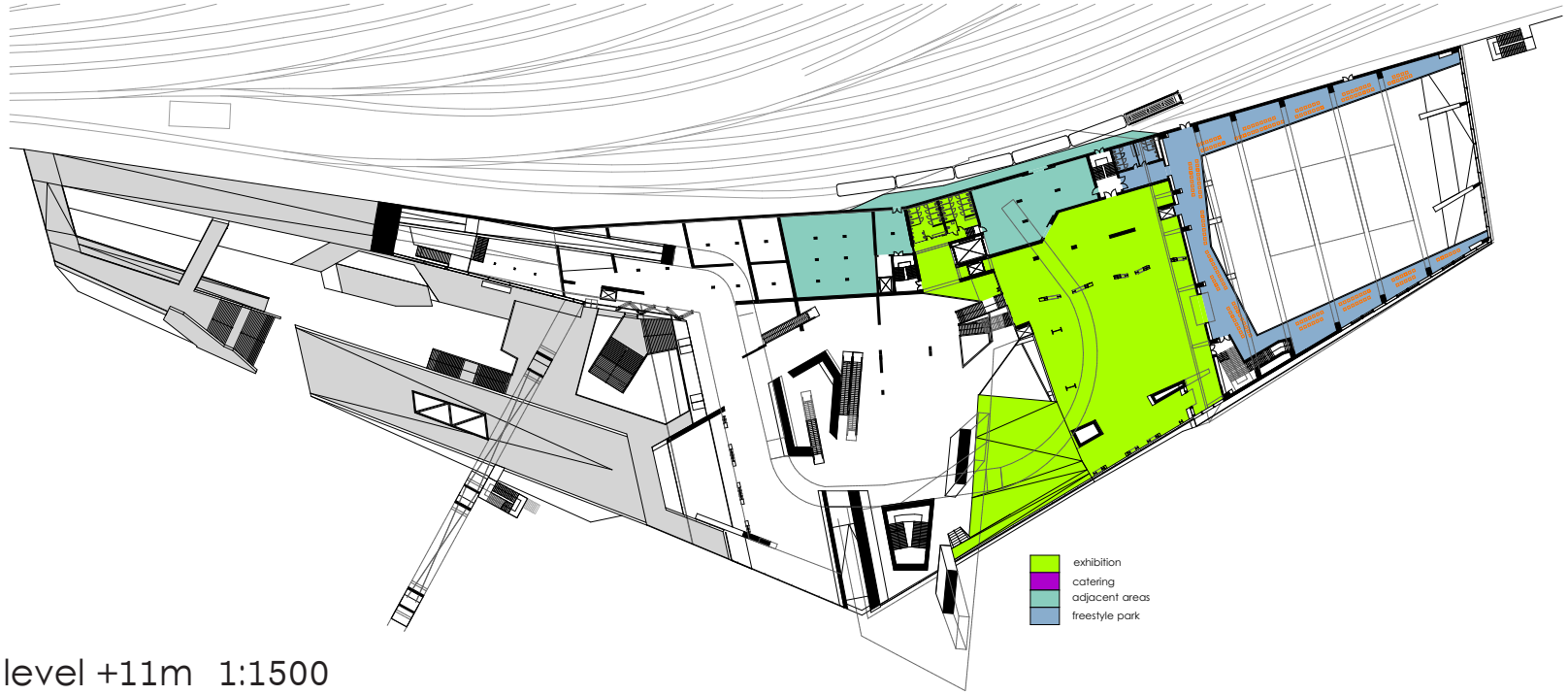
The following 4 upper floors serve as the museum, divided into the following areas:

- company history
- vintage models
- current motorbike types
- bicyles
- prototypes
- new models
- future projects and innovations
- awards, competitions

level +7m 1:1500

The delivery by rail transport is accepted on the +11m level. The items are stored either on the current floor or downstairs.

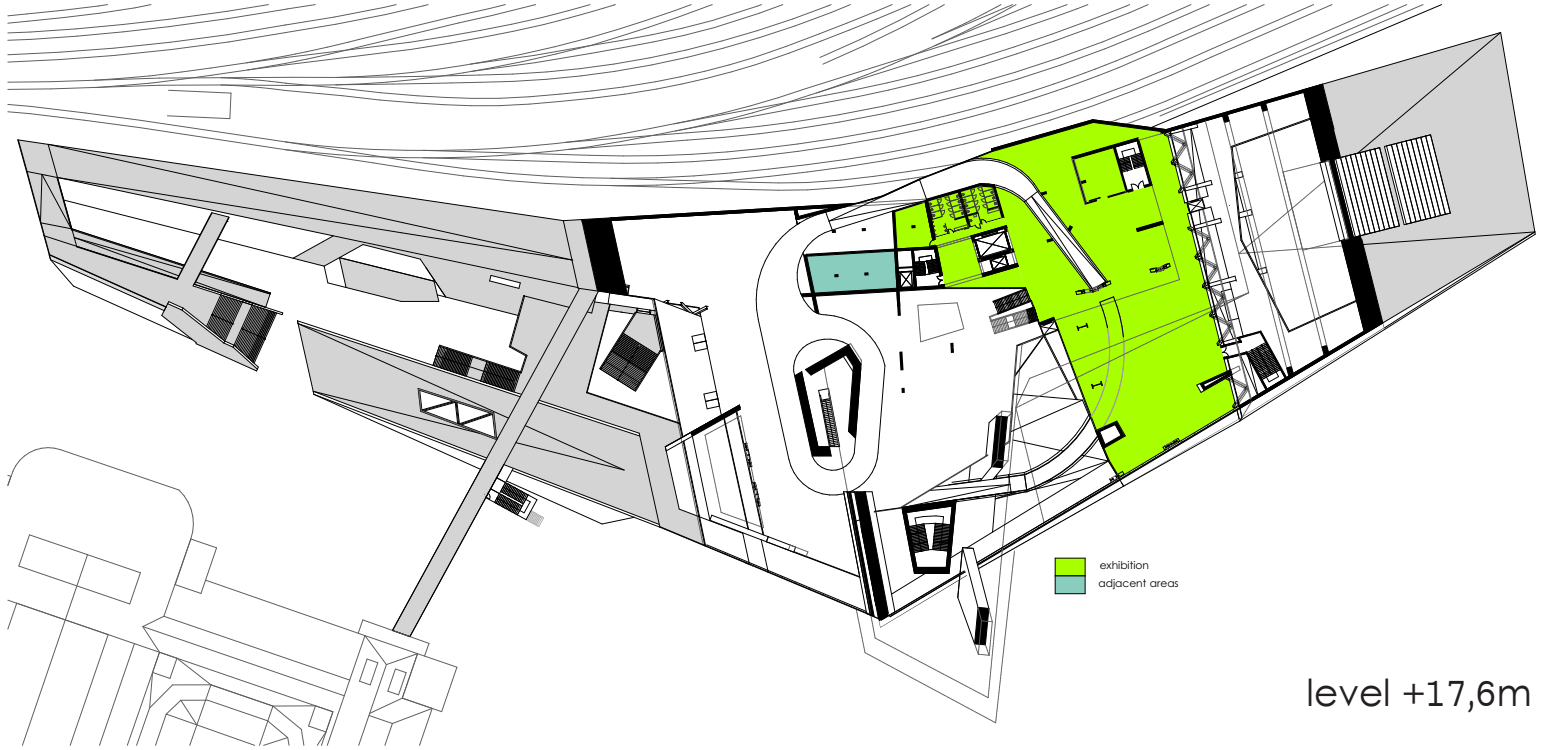
On the same level visitors have acces to the tribune above the stunt park which is acces–sible directly from the exhibition and separa–tely as well.



level +11m 1:1500

level +14m 1:1500

The following floor connects through a bridge to the Vienna Museum of Technology. This level has an extra reception desk.



level +17,6m 1:1500

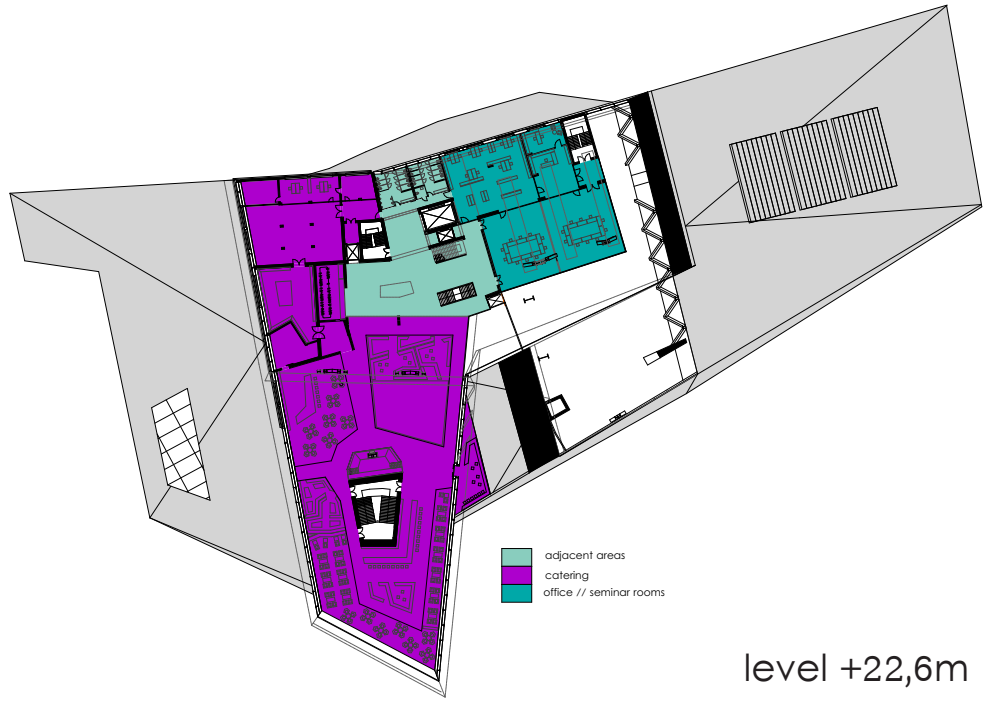
The final exhibition floor is cut in two by the test route, a ramp that ends in a loop to allow a turn for the drivers.

A glass floor above the ramp allows a continuous visual connection.

The top floors of the building house 2 functions: catering and offices space.

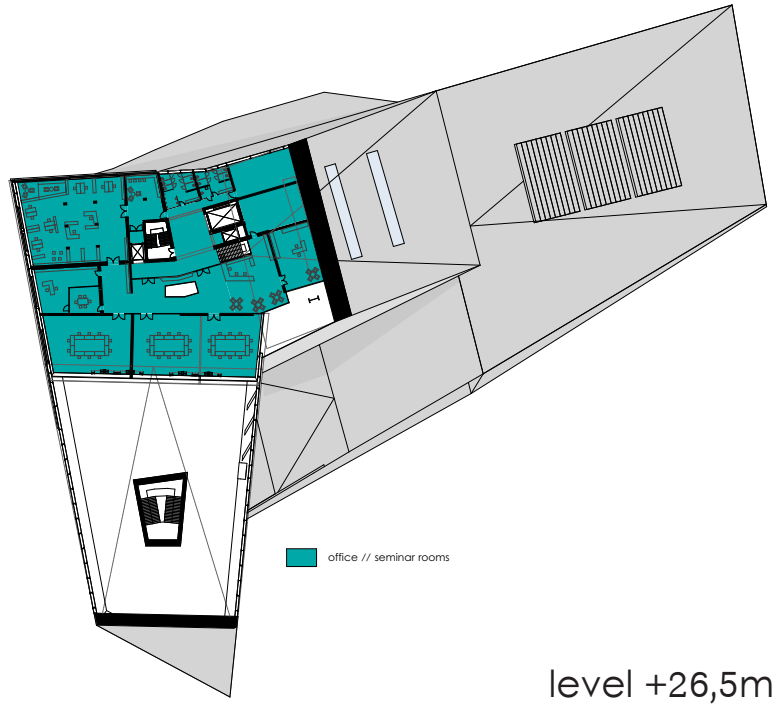
A club & restaurant with an exceptional view is located on the protruding floor, including:

– a local kitchen
– 2 bars
– a dance floor
– a roof terrace



level +22,6m 1:1500

The top floor provides exclusive office space and flexible seminar rooms, envisaged for the management of the company or for training purposes, but could be rent out if not needed for internal purposes.



level +26,5m 1:1500

Circulation

The following diagrams show the entrances and the flow of circulation in and outside the building.

flow outside

flow inside

option to change levels

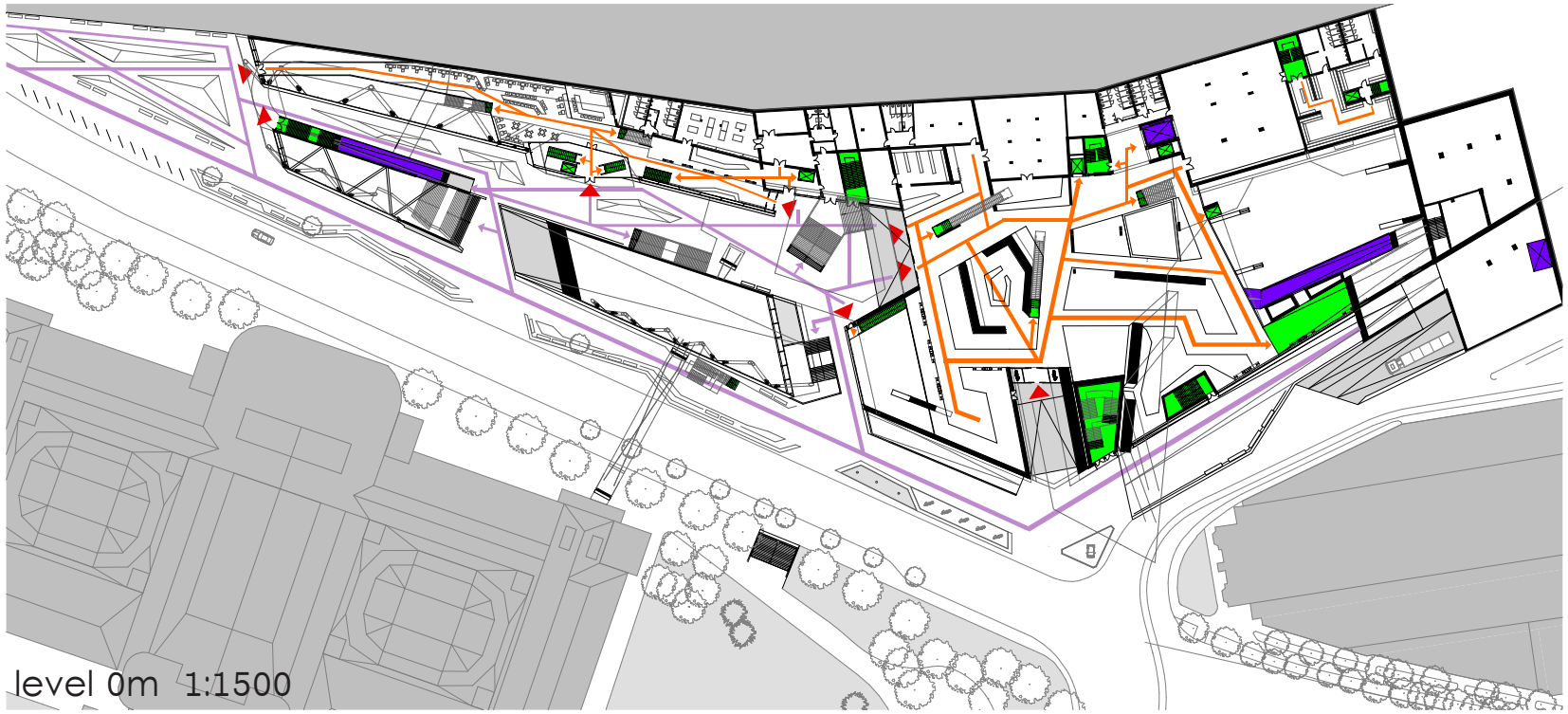
staircase // elevator // ramp

transport of goods // vehicles

entrance

There is a main entrance on the level of the underpass, but only for company members and students.

On the same level there is a bridge connecting the office area to the seminar rooms above the working area of the students.

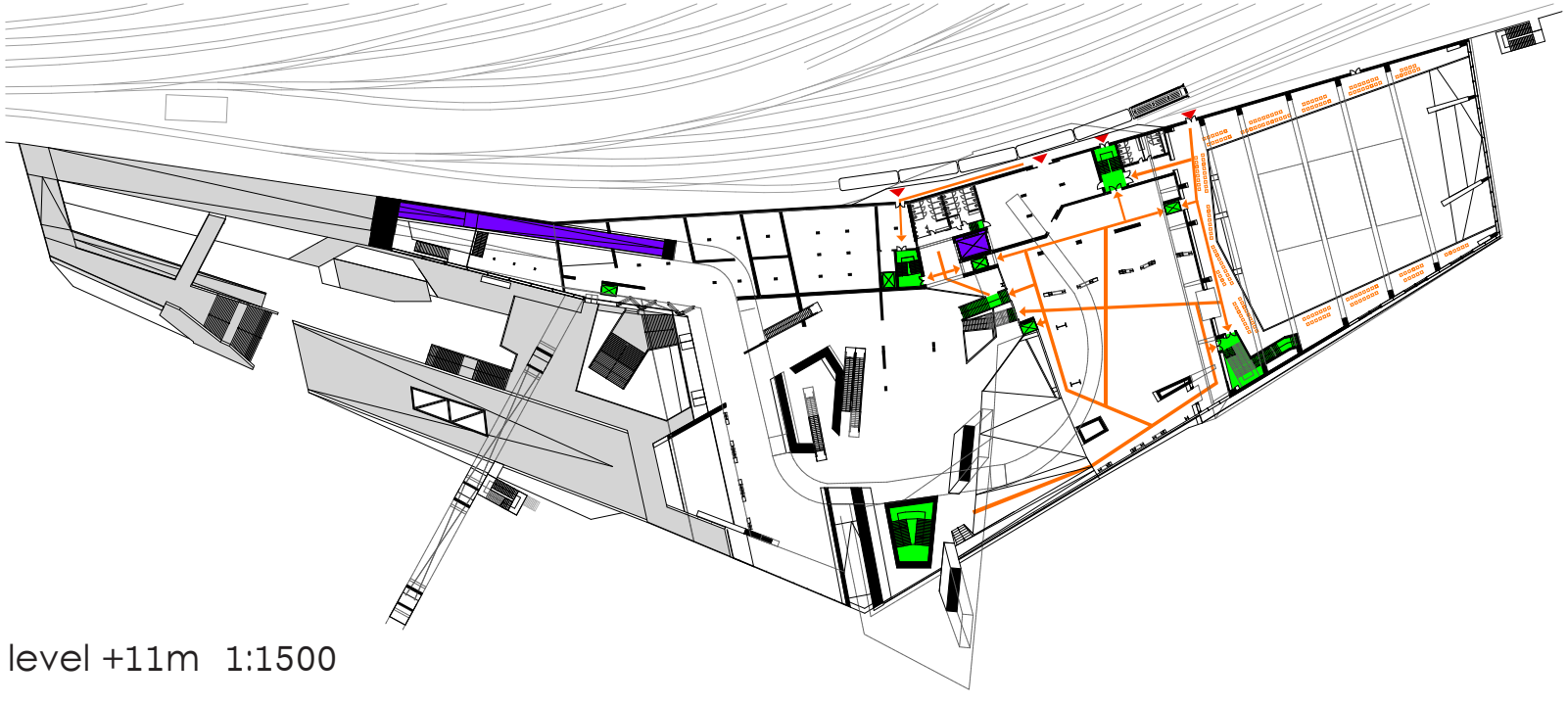


There is parking space for cars at the east end of the building.

level +7m 1:1500

The main entrances on level +7m are accessible via stairs or the big ramp.

The bar in the western wing on the same floor is accessible from the museum as well.



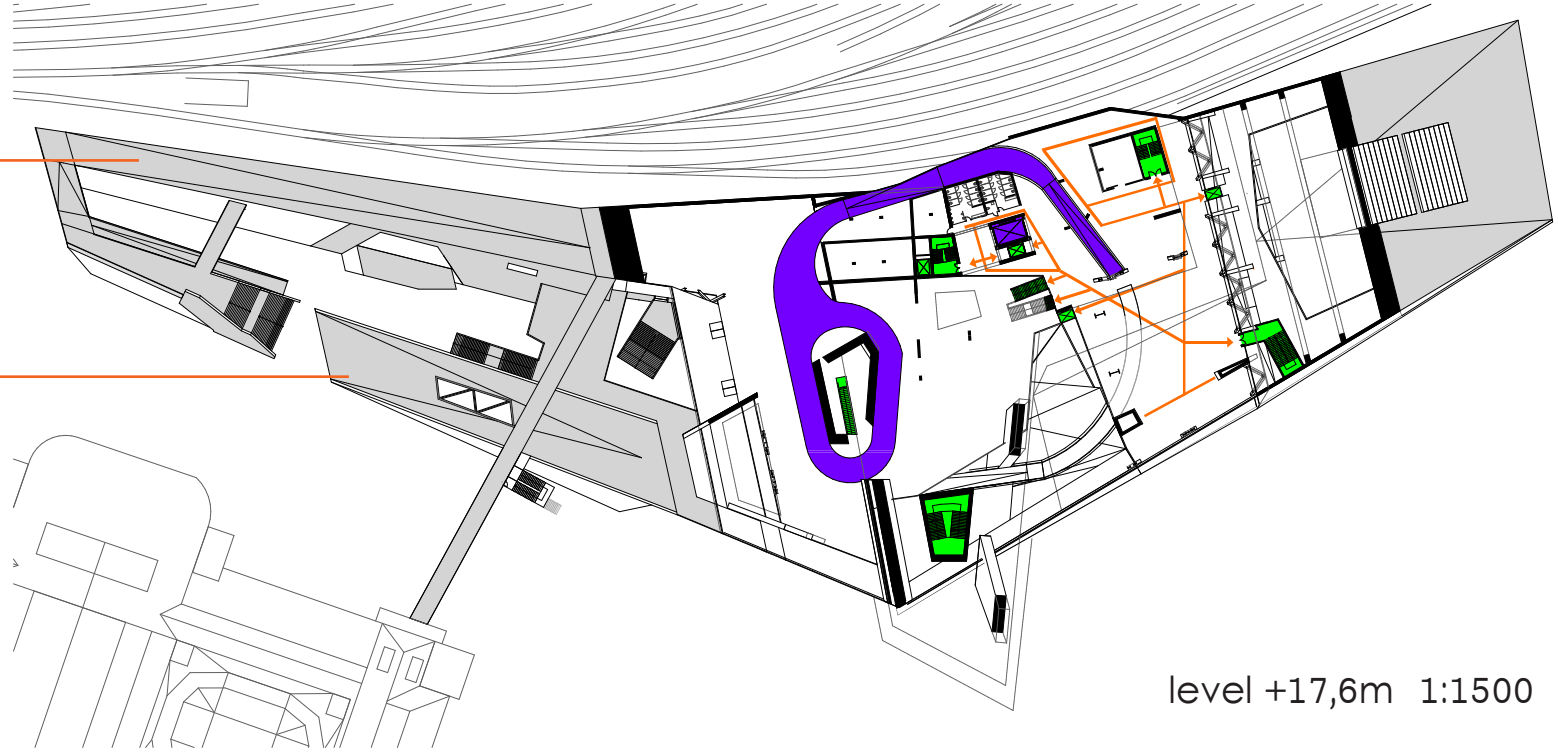
level +11m 1:1500

A small platform on the north side supports loading the delivered items. This area is mainly accessible through the building, but there is an emergency staircase at the „tail of the building“ on the east side.

On the level of +14m a bridge connects to the existing museum that serves as an exhibition space as well. An emergency staircase in the middle provides safe escape at need.

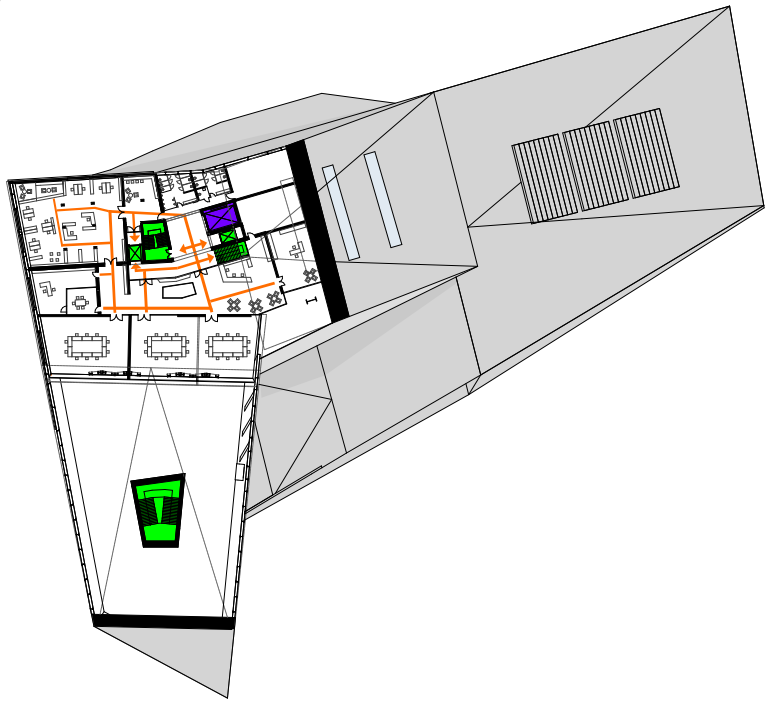
level +14m 1:1500

The low-pitched roofs serve as ramps, especially in case of emergency, since they are safe to walk on.



level +17,6m 1:1500

level +22,6m 1:1500



level +26,5m 1:1500

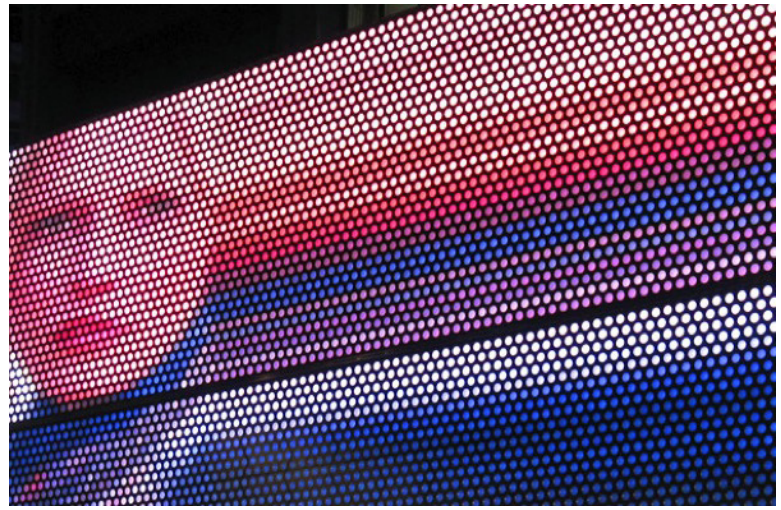


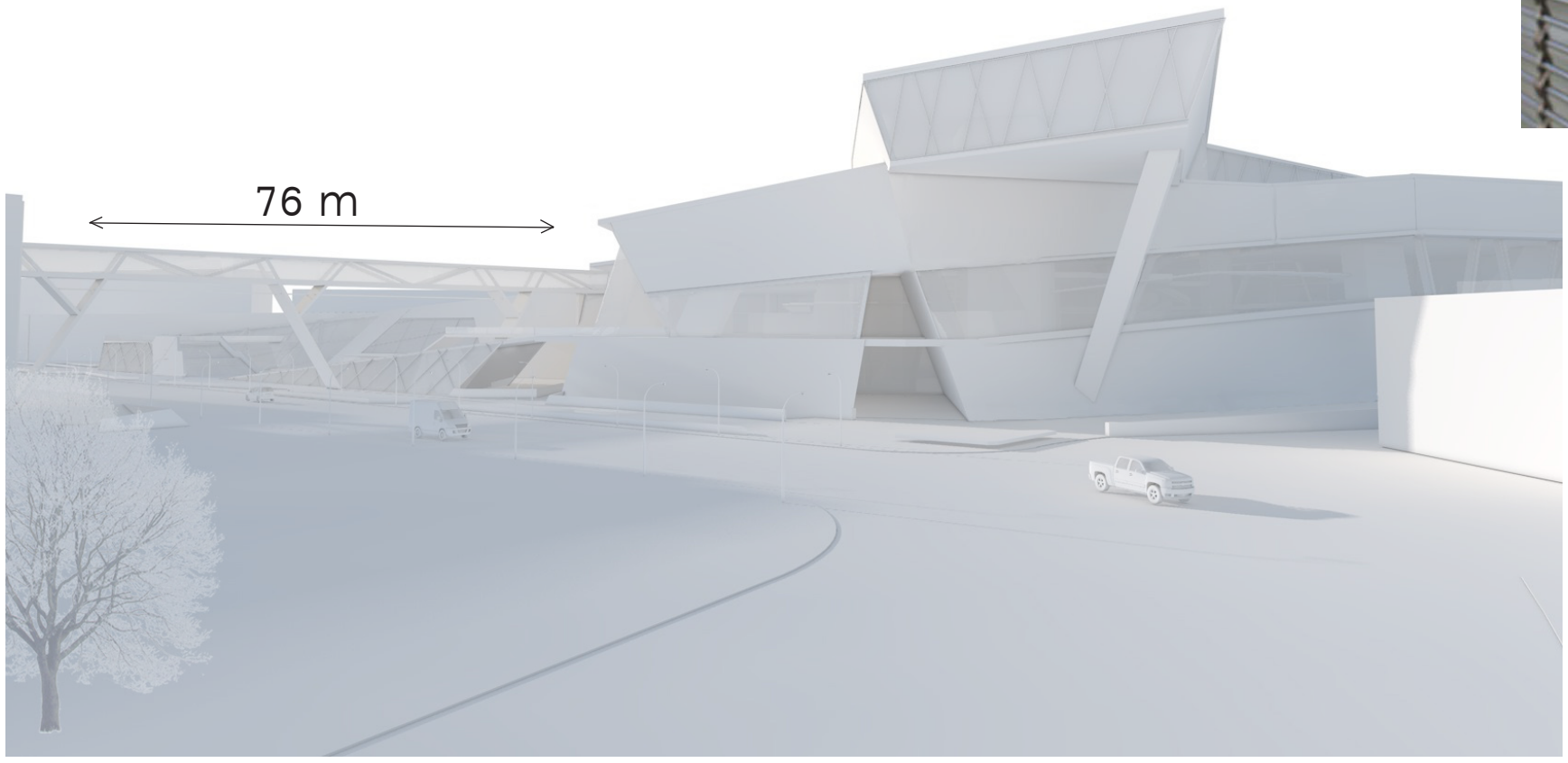
fig. 49: media facade – digital advertising surface

In this modern age we come across media facades on every corner. It is a great tool for advertising and grabbing attention .

The placement above the street is practical since it`s messaging eeryone who`s passing or driving by. The 76 m long bridge offers enough space to „play“ with the images.

LED media mesh along the bridge to inform about or advertise the company or the exhibition ...

fig. 50: LED media mesh



The design of the LED mesh ensures enough transparency for sunlight to come through while allowing visitors to look outside, since 60% of the space is open.

Rows of LED–pixels are spaced at a certain distance so that both static images and motion pictures are possible.

The mesh withstands strong wind and consumes little power.

natural lighting

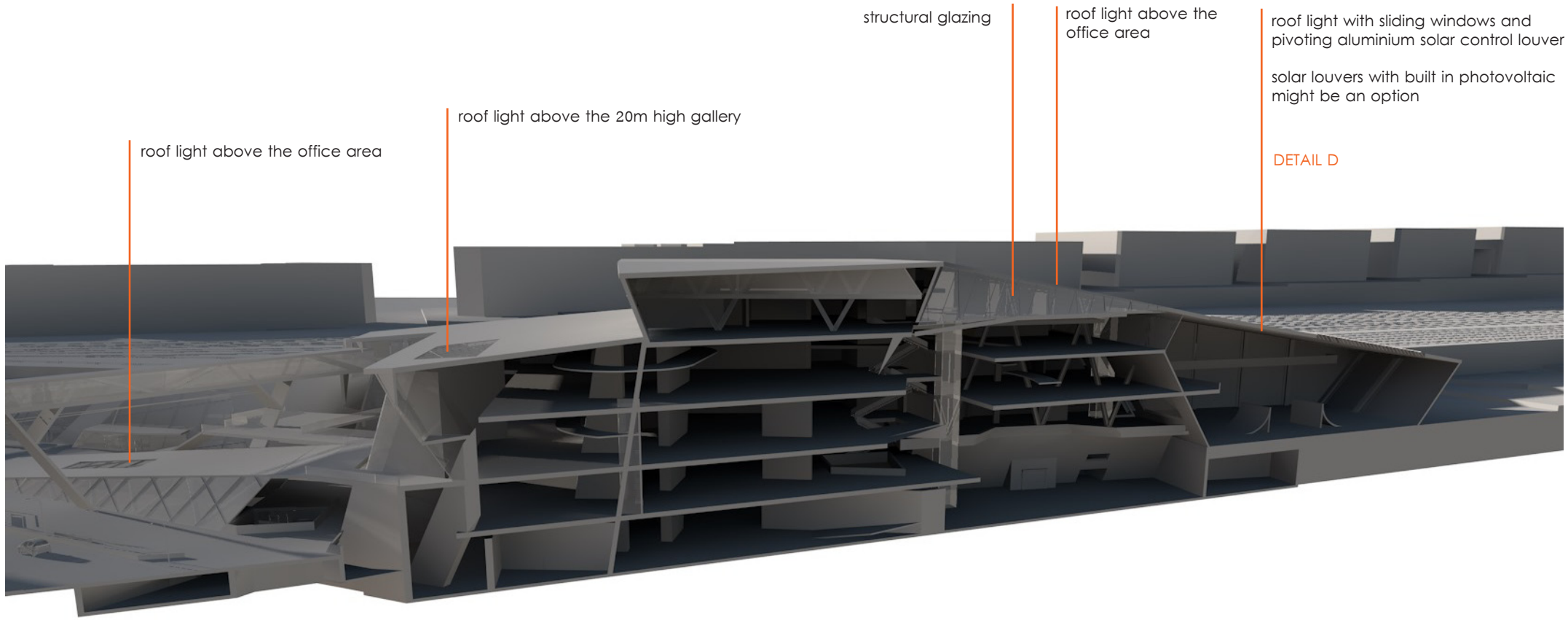
along the north side natural lighting only above +11 m

rooflights

main light incidence

biggest building volume in the middle where the lighting is the best

- biggest building surface south-oriented => big window surface (including sun protection)
- building overtowers the surrounding development
- located on the north side are mainly secondary rooms and office space
- big room depth, but open floor plans
- roof lights, above the freestyle hall: big motorised sliding roof windows
- roof lights support ventilation
- solar protection via fixed or flexible aluminium louvers and fix perforated metal sheets
- high transparency in the building



The biggest building surface is facing south. The main part of the museum is lit from this cardinal direction. A few roof lights help support the natural lighting and ventilation. Solar protection is mainly provided by flexible or fixed aluminium louvers and perforated meral sheets.

Exhibition Concept

The exhibition is spread on 4 levels and divided in various areas based on the following:

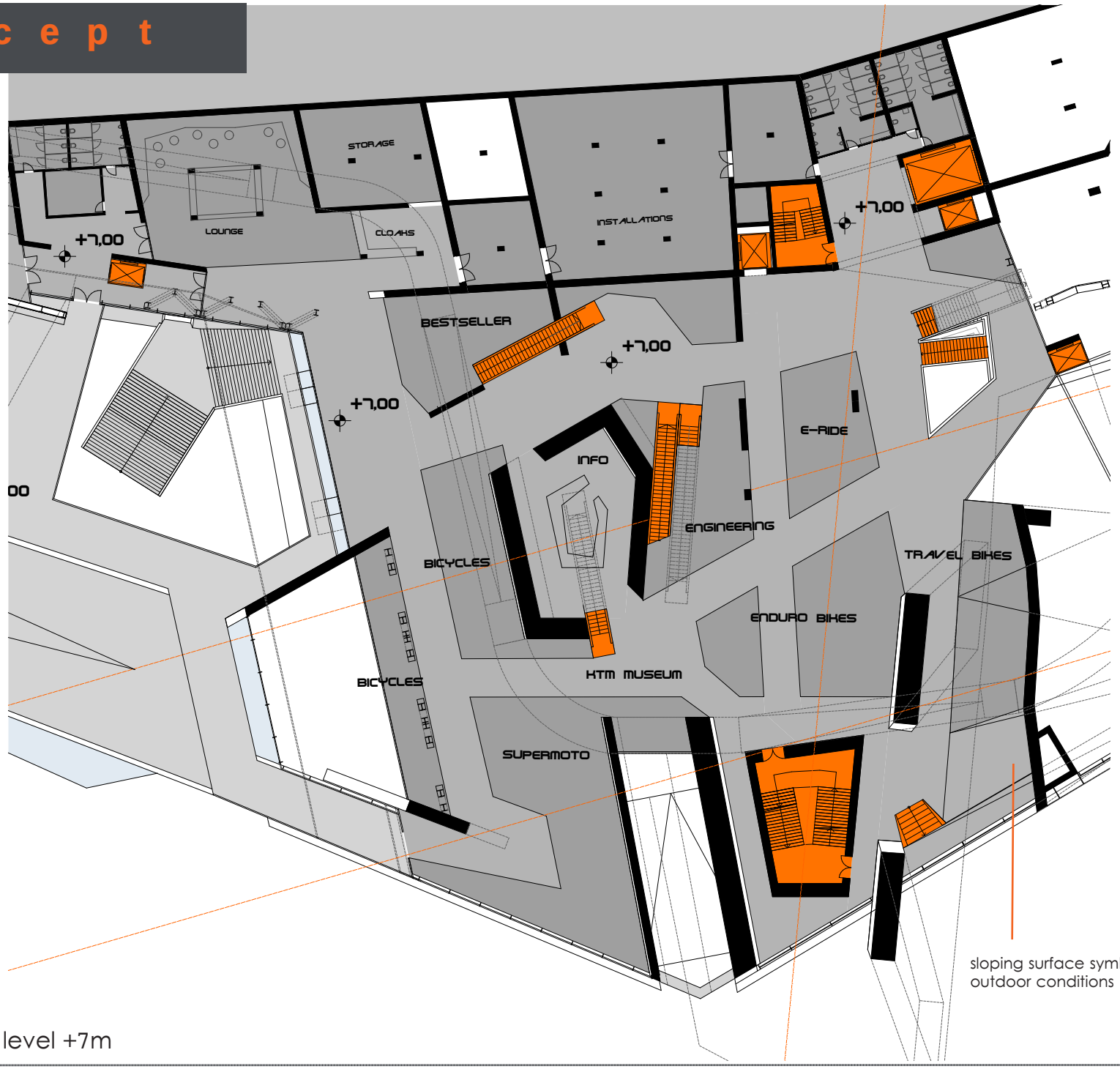
– company history – vintage models	permanent exhibition
– current motorbike types – bicyles – prototypes – new models – future projects and innovations – awards, competitions	temporary exhibition

The lower 2 levels of the museum: +7m and +11m house the offroad bikes, bicycles and the supermotos. Here is a separated area for awards that are mainly connected to these type of bikes. On the level of +11m, the visitor can enter the tribune and have a look at the bikers in the hall.

The upper 2 levels: +14m and +17,6m house the speed bikes, prototypes , X-bows, ...etc and the company history. On the level +14m the bridge connects to the Museum of Technology. Its long corridor serves as exhibition space as well.

The various areas are distinguished with the help of:

– the 3 characteristic colors of the company: orange, black and grey
– materials: abrasive / smooth surfaces
– sunlight / artificial light



level +7m

level +11m

natural light

rough surfaces

bycicles

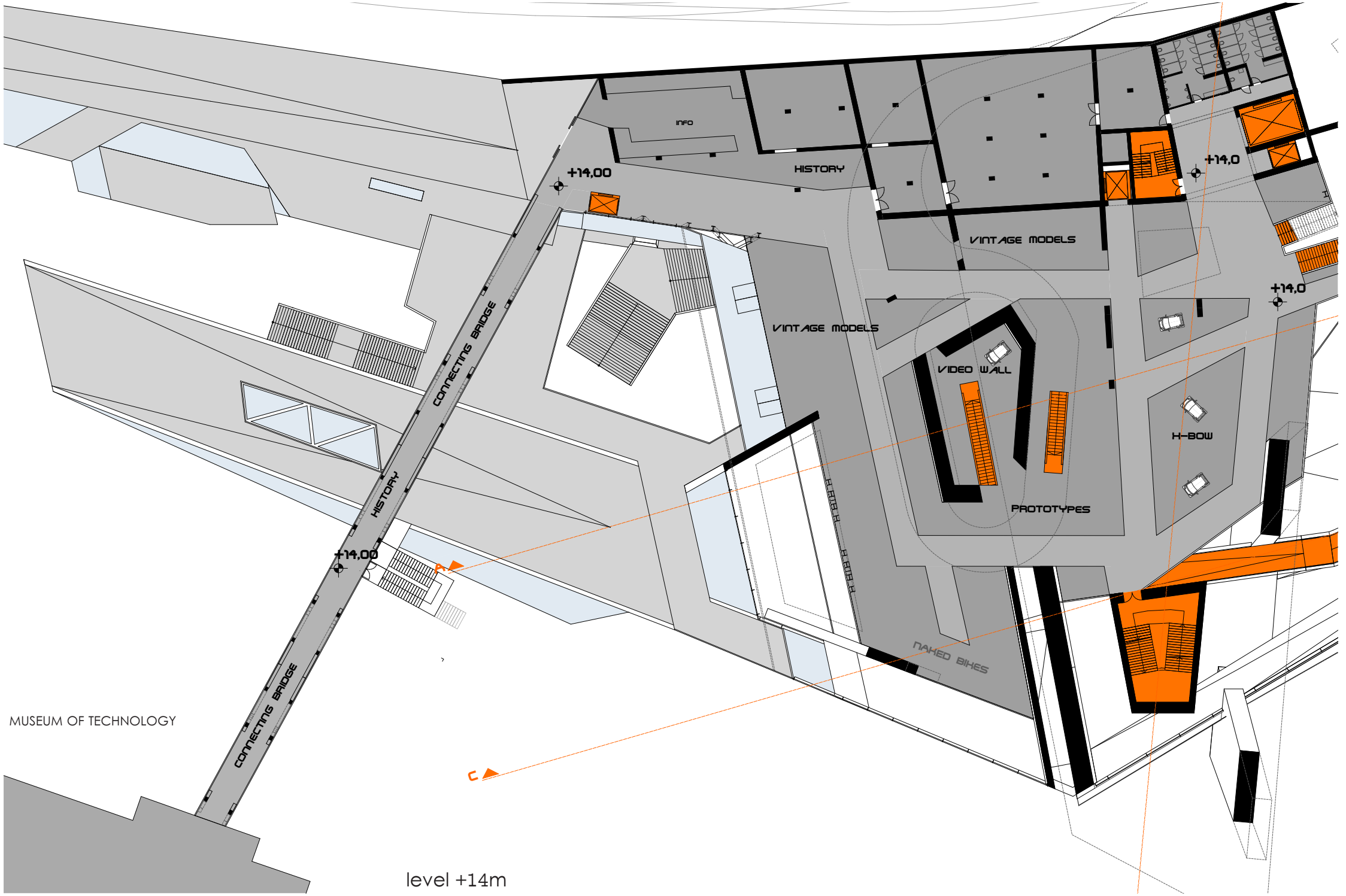
motocross

travel

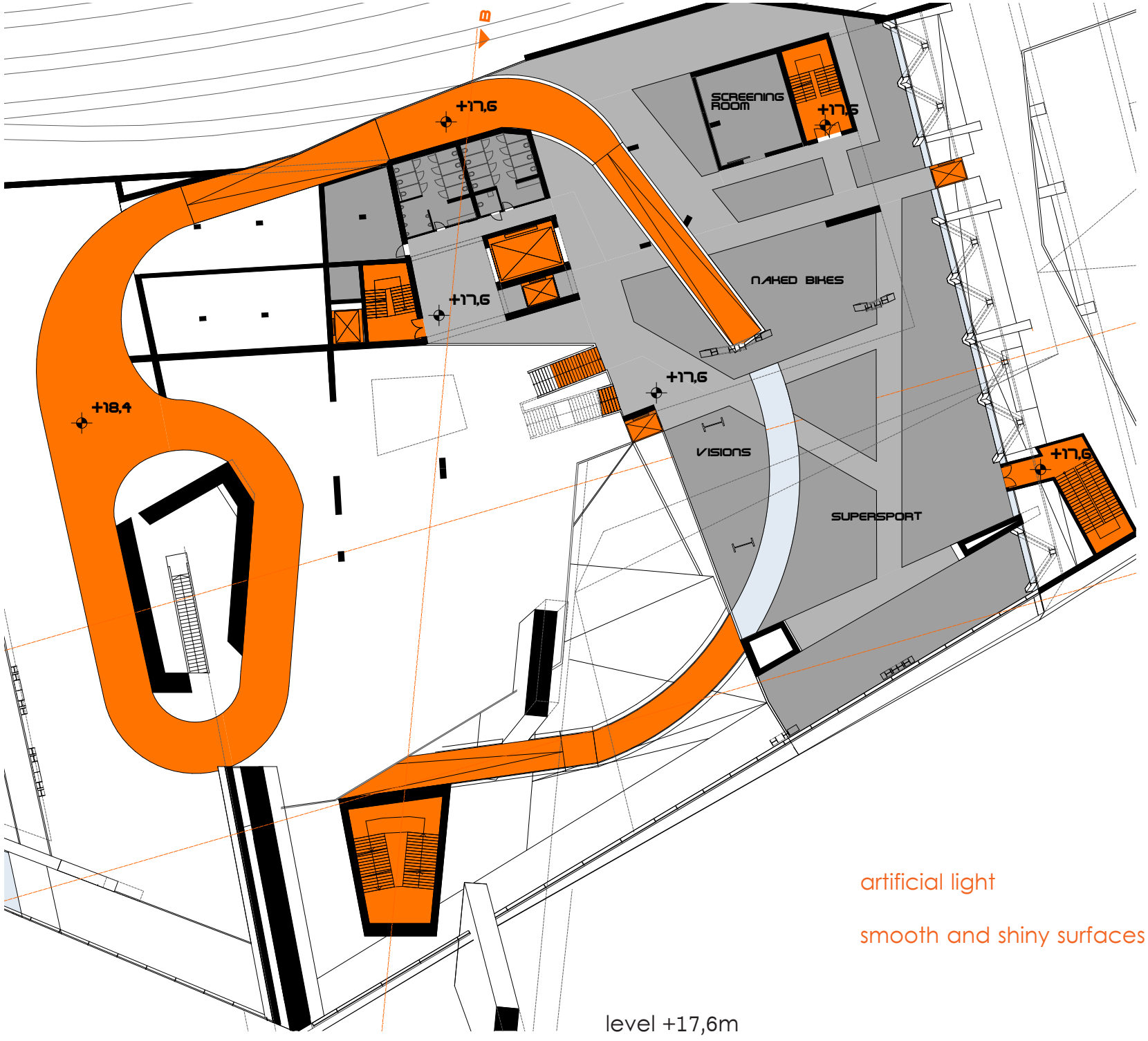
enduro

e-bike

supermoto


INFO
HISTORY
+14,00
+14,0
VINTAGE MODELS
VINTAGE MODELS
+14,0
VIDEO WALL
H-BOW
PROTOTYPES
NAKED BIKES
CONNECTING BRIDGE
HISTORY
+14,00
CONNECTING BRIDGE
A
C
MUSEUM OF TECHNOLOGY

level +14m



level +17,6m

vintage models

naked

supersport

X-BOW

artificial light

smooth and shiny surfaces

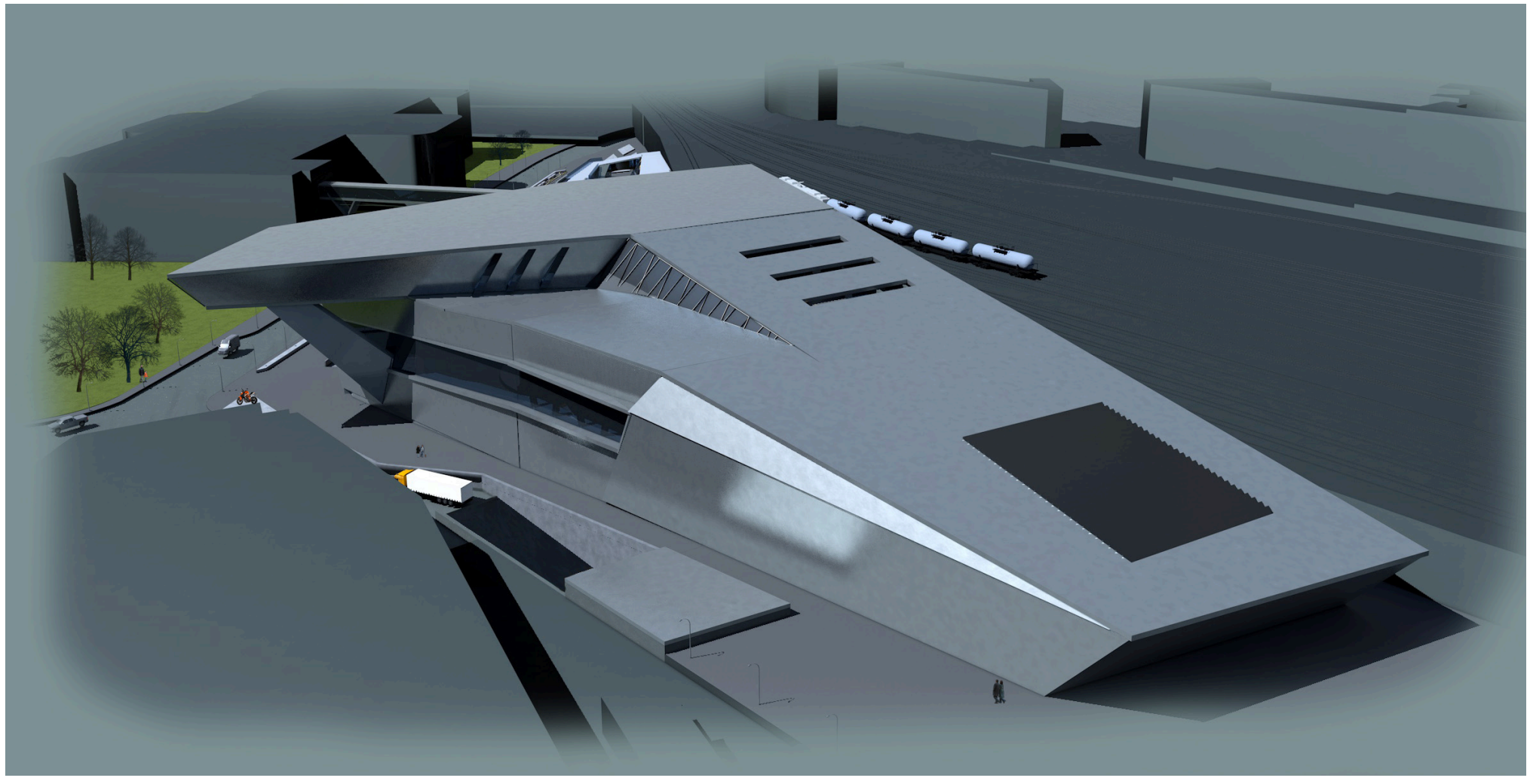


fig. 51: south-east view

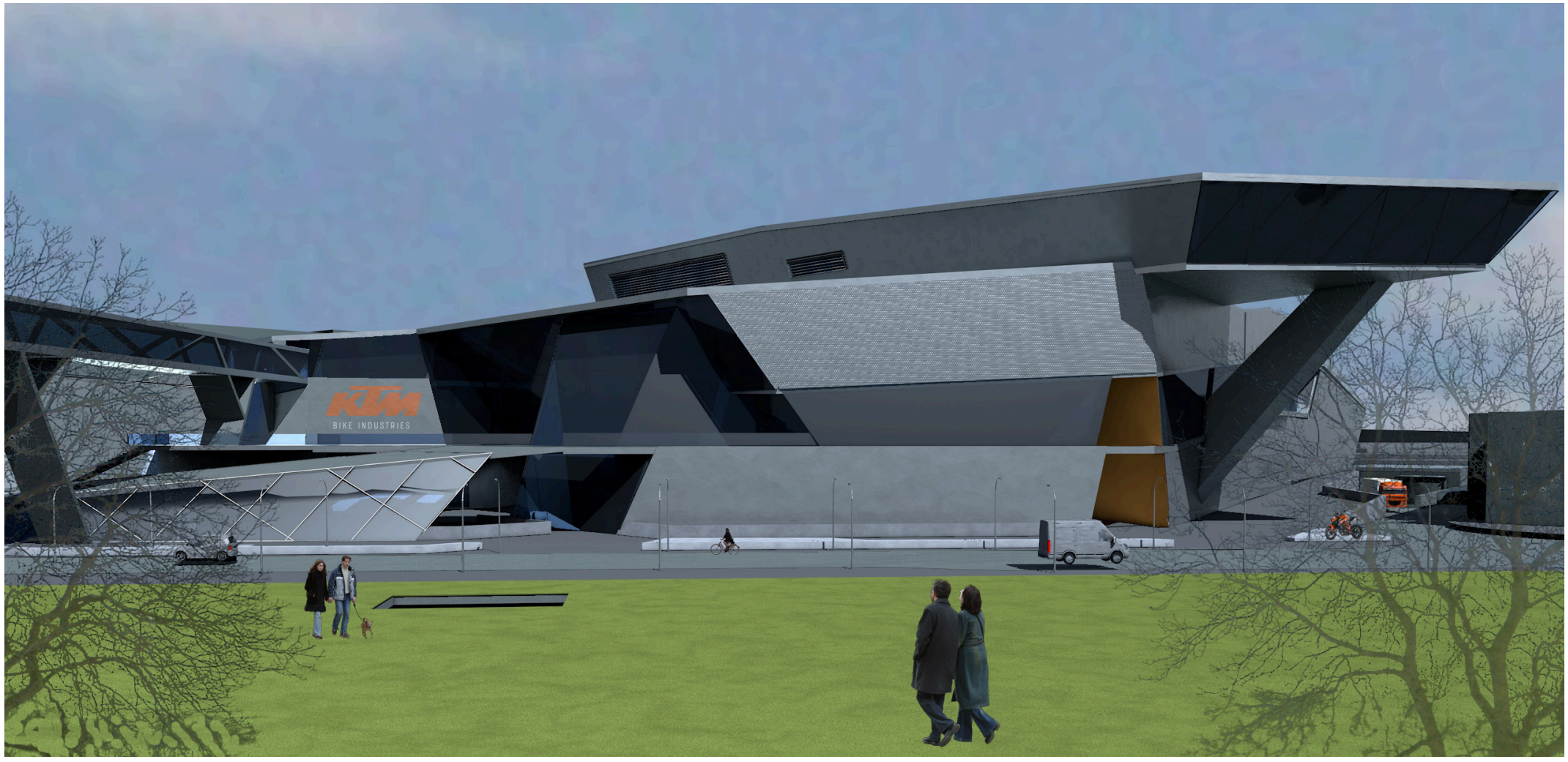


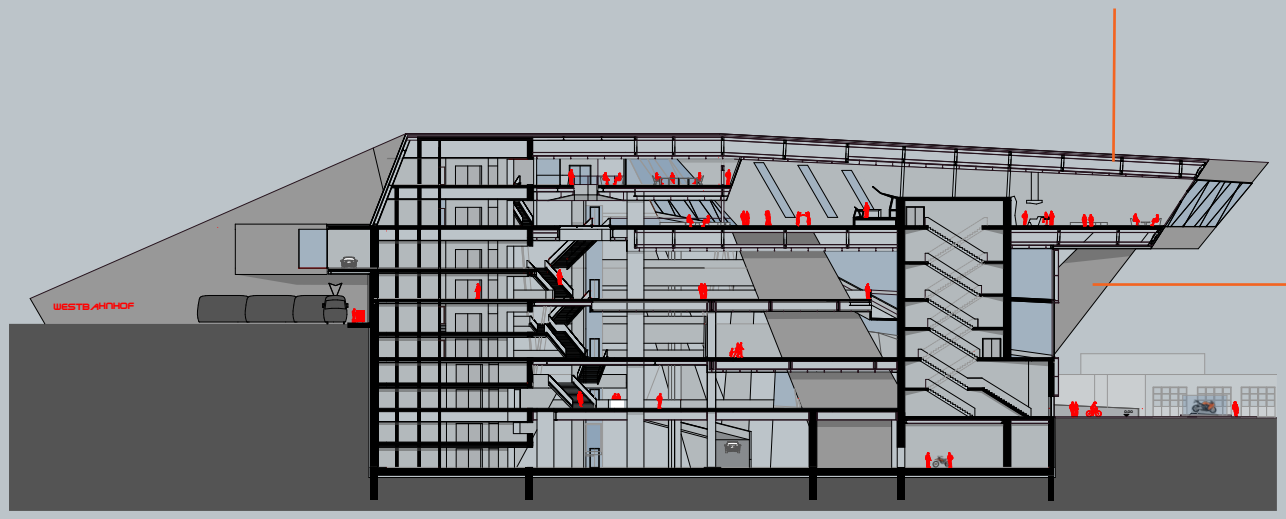
fig. 52: south–west view

SUPPORTING STRUCTURE

The supporting structure of the building is a combination of reinforced concrete and a freeform steelwork.

The underground levels, the north part of the building and the slanted ferro-concrete cores and walls in the middle provide the base to which the steel framework is attached. The slanted cores have secondary functions as well, just as housing the emergency stairs or installation pipelines. The steel construction allows great transparency and connecting in different angles just as the dynamic shape of the building requires.

The protruding part housing the club is a complex steelwork, supported by the slanted and highly stressed walls and cores.



slanted highly stressed cores ensure static stability

The bridge connecting to the Museum of Technology is a lightweght steel structure resting on 3 diagonal ferro-concrete elements that build a framework, secured with steel pulling cables.

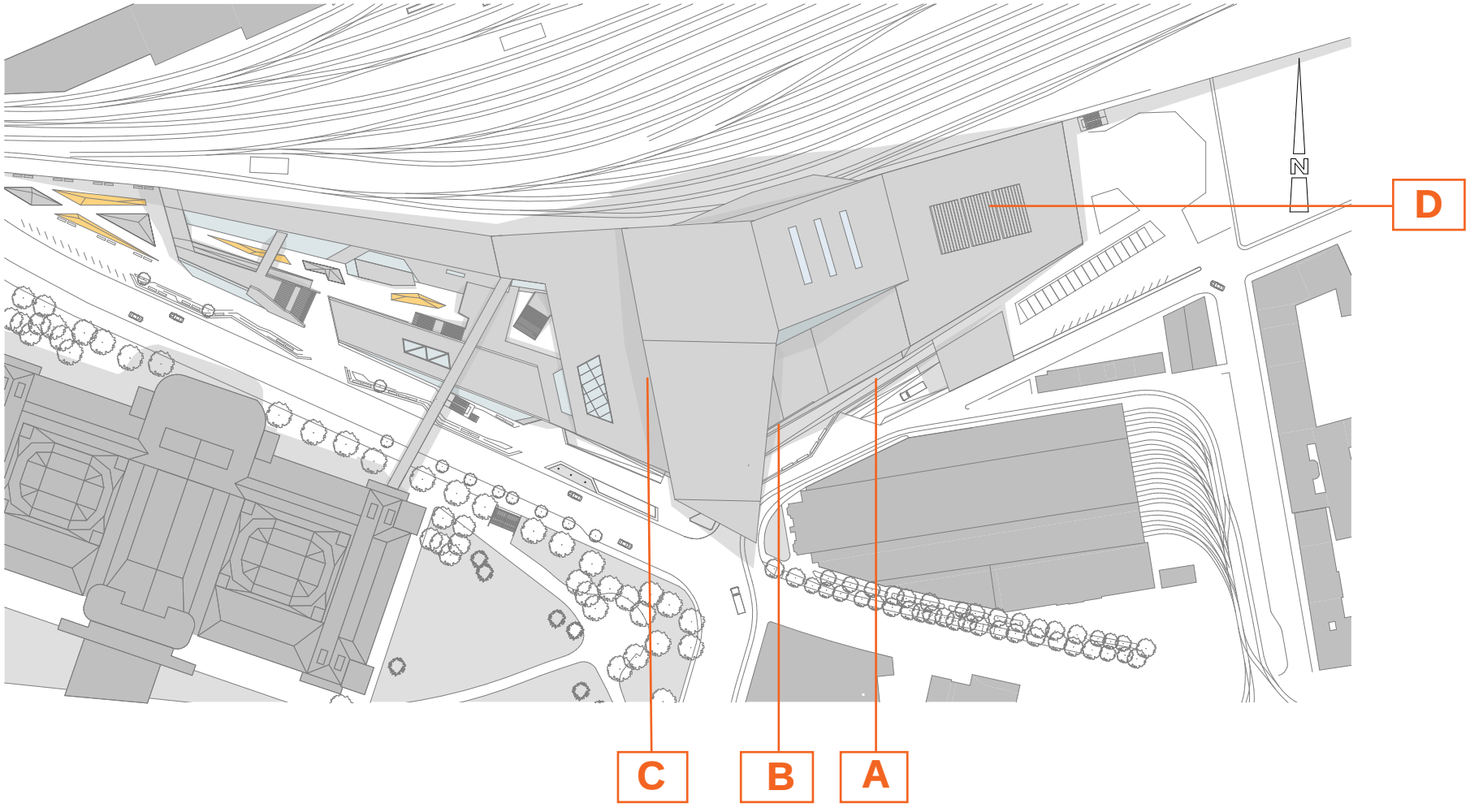
MATERIAL // FACADE // METAL

The material concept is based on the most frequently used materials in the bike industrie. The facade should reflect qualities of the product [bike] and the brand KTM as well while the material has to highlight and emphasize the dynamic feature of the building.

The goal was to create a building as if made from one piece, with a homogeneous shell. This continuous skin emphasises the dynamic shape of the building as it emerges from the ground.

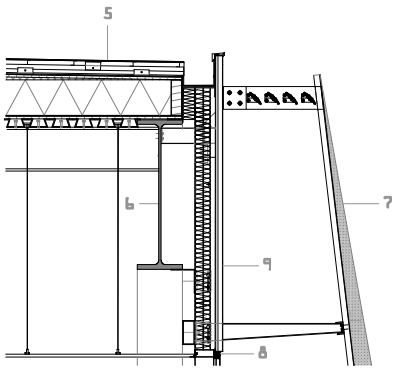
The facade including the roof is covered with aluminium composite sheets. The entrance and certain parts on and inside the building are highlighted orange, representing the characteristic color of the company.

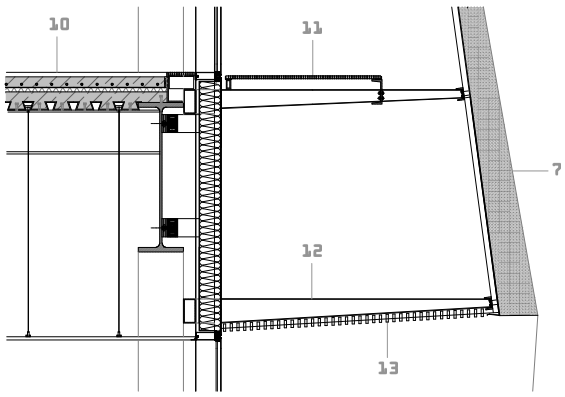
DETAILS – OVERVIEW

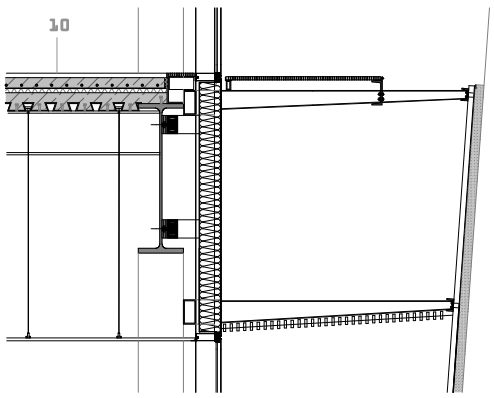


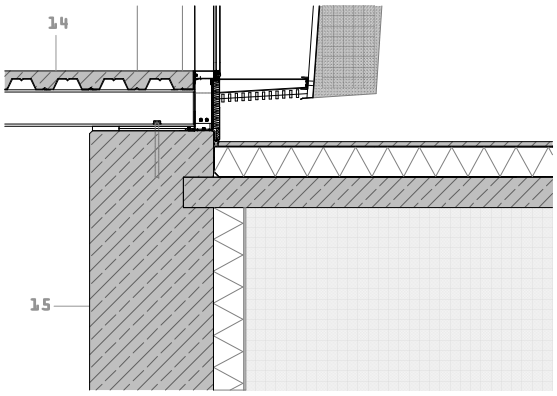
A – section of the complete south facade
B – section of the roof terrace
C – section of the steel framework of the top / window
D – sections of the roof light above the freestyle park

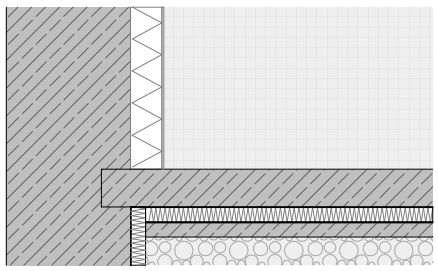
DETAIL A – FACADE SECTION 1:50

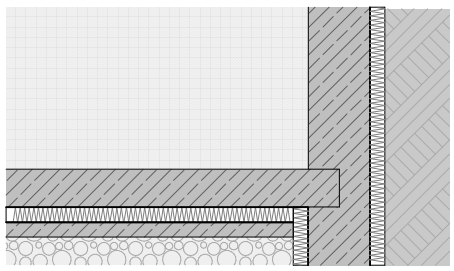


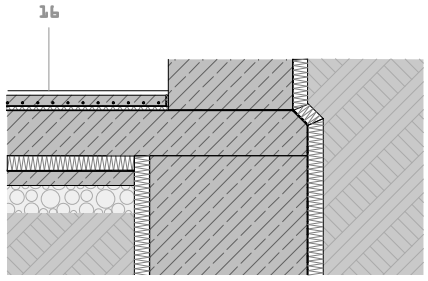


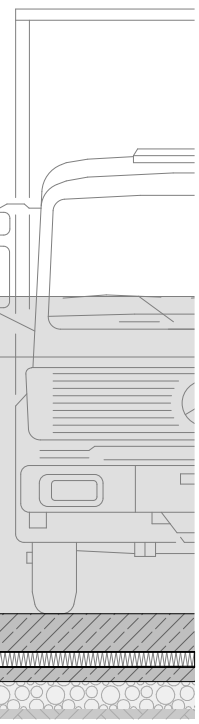












5 6 mm aluminium composite sheet
aluminium supporting structure with 55/25 mm tubular guide rail
bituminous seal, multiple layers
18 mm chipboard
70/235 mm timber beam
mineral-wool thermal insulation
vapour retarder
18 mm chipboard
holorib 51 mm corrugated metal
290 mm steel I-section
suspended ceiling

6 990 mm steel I-section

7 perforated metal panels

8 structural glazing in aluminium
post-and-rail construction

9 4 mm aluminium composite sheet

10 30 mm anhydrite screed, epoxy-resin coated
70 mm heating screed
plastic separating layer
30 mm impact sound insulation
60 mm reinforced concrete floor deck
holorib 51 mm corrugated metal
290 mm steel I-section
suspended ceiling

11 steel grating

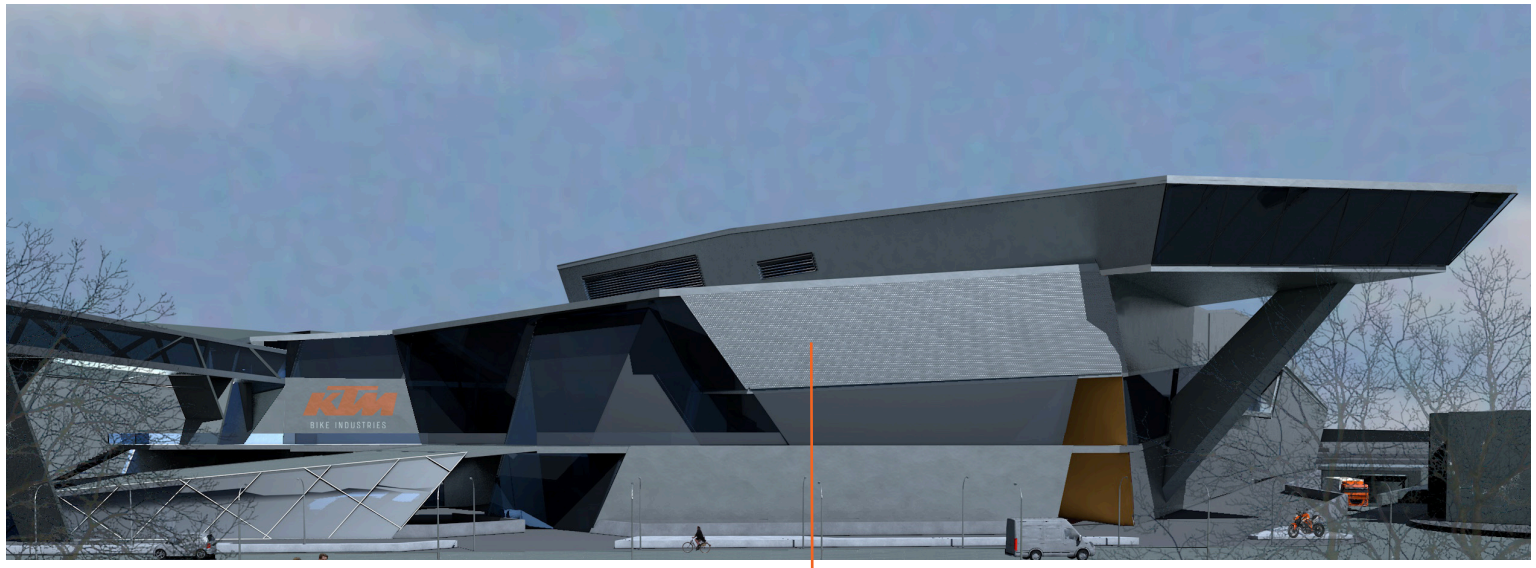
12 steel flat, galvanised

13 50/15 aluminium louvers

14 50 mm concrete floor deck
71 mm corrugated metal
240 mm steel I-section

15 reinforced concrete
200 mm extruded polystyrene insulation
rendering

16 30 mm anhydrite screed, epoxy-resin coated
70 mm heating screed
plastic separating layer
30 mm impact sound insulation
300 mm reinforced concrete sole plate
bituminous seal
100 mm extruded polystyrene insulation
plastic separating layer
blinding layer
macadam



photorastered perforated metal panels
as sun protection to the south

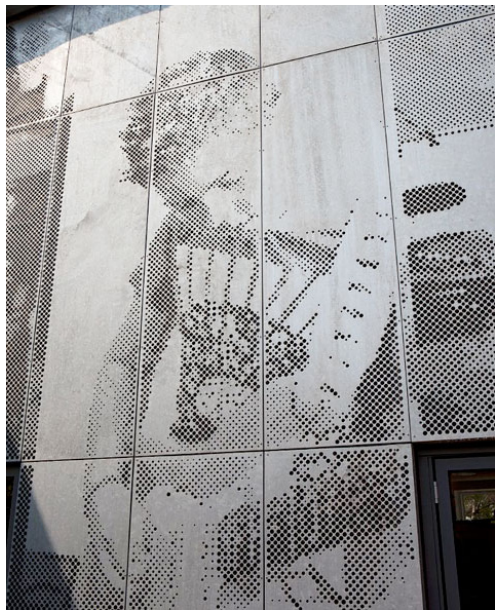


fig. 53: perforated metal panel with embossed printing

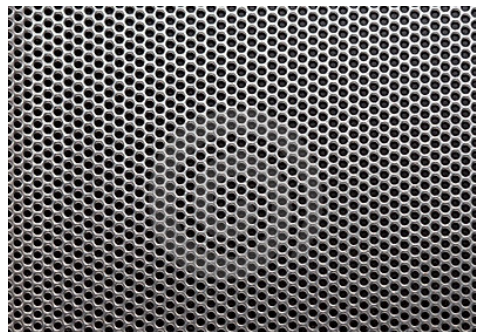
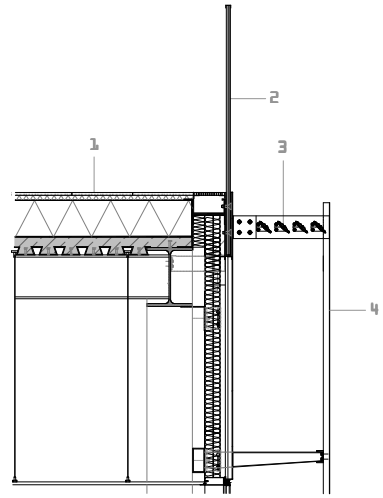


fig. 54: perforated metal panel

embossed printing of the KTM logo
or other company-related images

DETAIL B 1:50



1 **porcelain stoneware tiles**
rubber mat
bituminous seal
240 mm extruded polystyrene insulation to fall
plastic sealing layer
60 mm reinforced concrete floor deck
holorib 51 mm corrugated metal
290 mm steel I-section
suspended ceiling

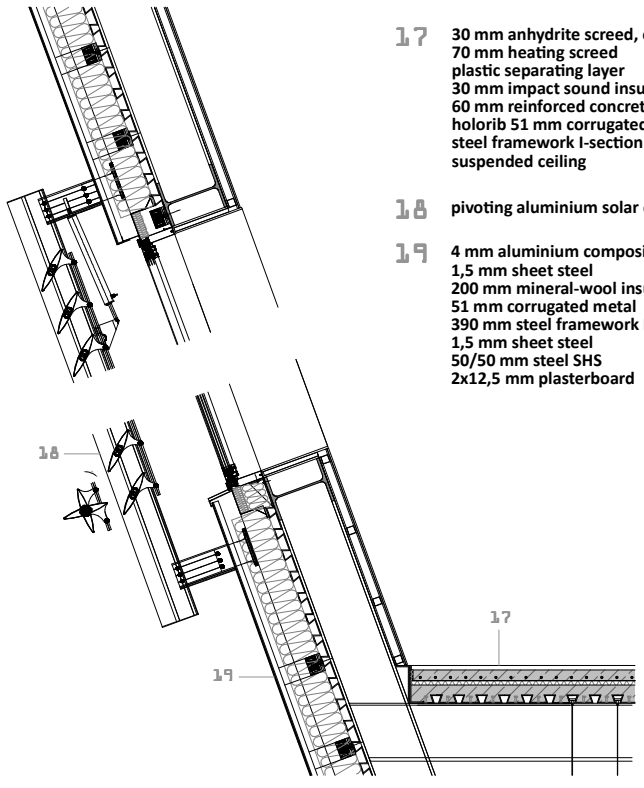
2 **railing: laminated safety glass of 2x6 mm toughened glass**

3 **fix aluminium solar control louver (Schüco ALB passive)**

4 **perforated metal panels**

The floor covering of the roof terrace has the same color shade as the metal facade to achieve a homogeneous shell.

facade: back-ventilated aluminium facade
glazing: structural glazing



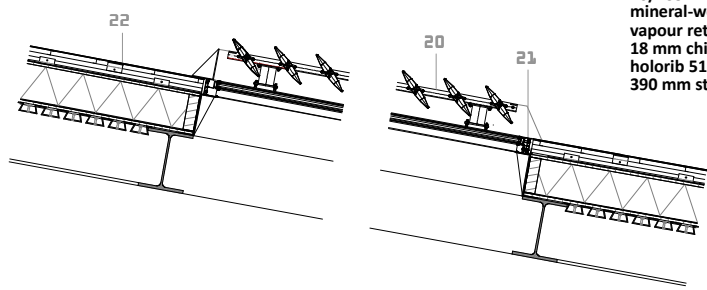
17 **30 mm anhydrite screed, epoxy-resin coated**
70 mm heating screed
plastic separating layer
30 mm impact sound insulation
60 mm reinforced concrete floor deck
holorib 51 mm corrugated metal
steel framework I-section
suspended ceiling

18 **pivoting aluminium solar control louver (Schüco ALB active)**

19 **4 mm aluminium composite sheet**
1,5 mm sheet steel
200 mm mineral-wool insulation
51 mm corrugated metal
390 mm steel framework I-section
1,5 mm sheet steel
50/50 mm steel SHS
2x12,5 mm plasterboard

DETAIL C 1:50

DETAIL D 1:50



20 **pivoting aluminium solar control louver (Schüco ALB active)**

21 **aluminium sliding roof window, motorized**

22 **6 mm aluminium composite sheet**
aluminium supporting structure with 55/25 mm tubular guide rail
bituminous seal, multiple layers
18 mm chipboard
70/235 mm timber beam
mineral-wool thermal insulation
vapour retarder
18 mm chipboard
holorib 51 mm corrugated metal
390 mm steel I-section

Solar protection: flexible aluminium solar control louvers

Photovoltaic louvers should be considered as an option due to the optimal exposure to light.

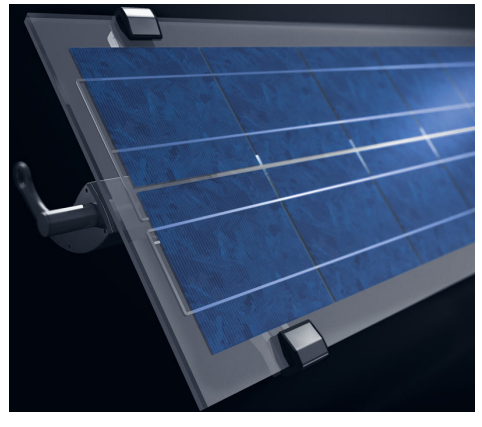
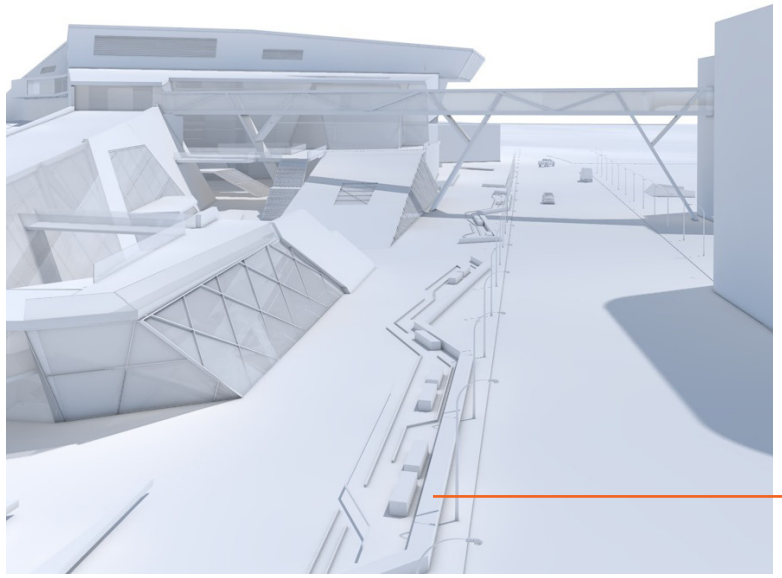


fig. 55: photovoltaic solar louvers

L a n d s c a p e



Due to the shape of the building a few urban areas are formed that serve as places of communication and recreation.

The desired landscape design is in harmony with the building and offers seats, small green areas and po-tential for activities. The steps and sloping roofs serve as seating or lying surfaces.

fig. 56: curved concrete benches

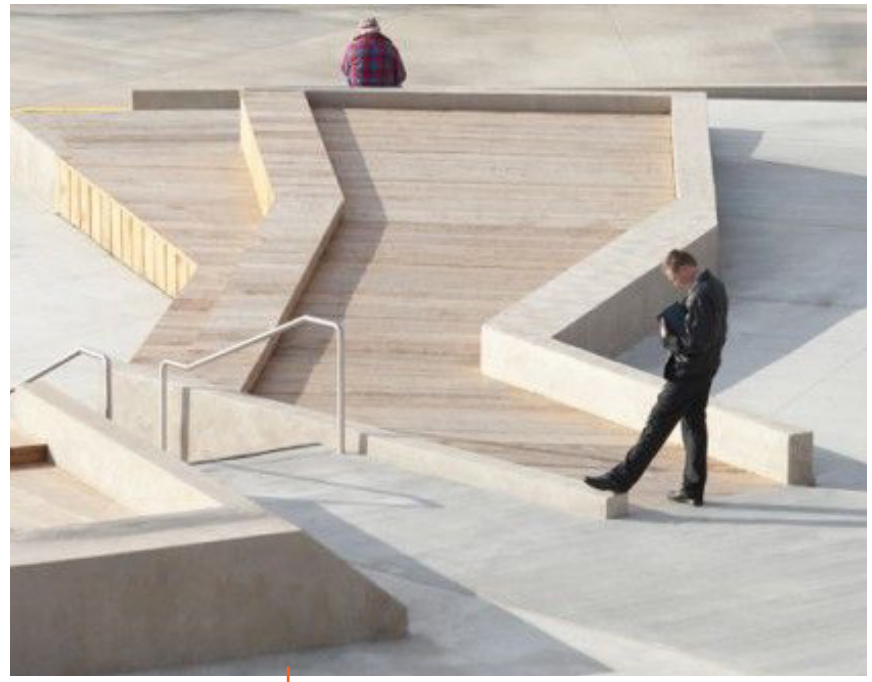
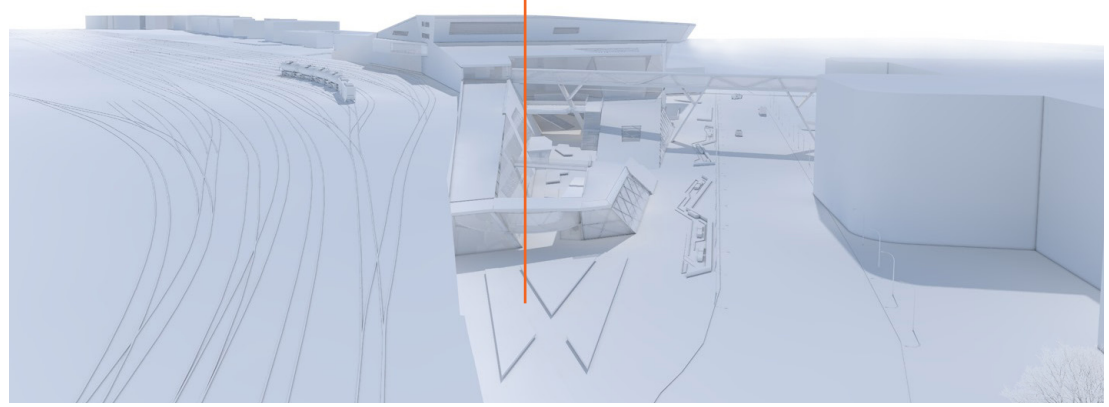


fig. 57: reference to desired landscape design

Display cabinets showcasing bikes should be spread around the main entrance as a resemblence to the headquarters in Mattighofen.

fig. 58: display cabinets



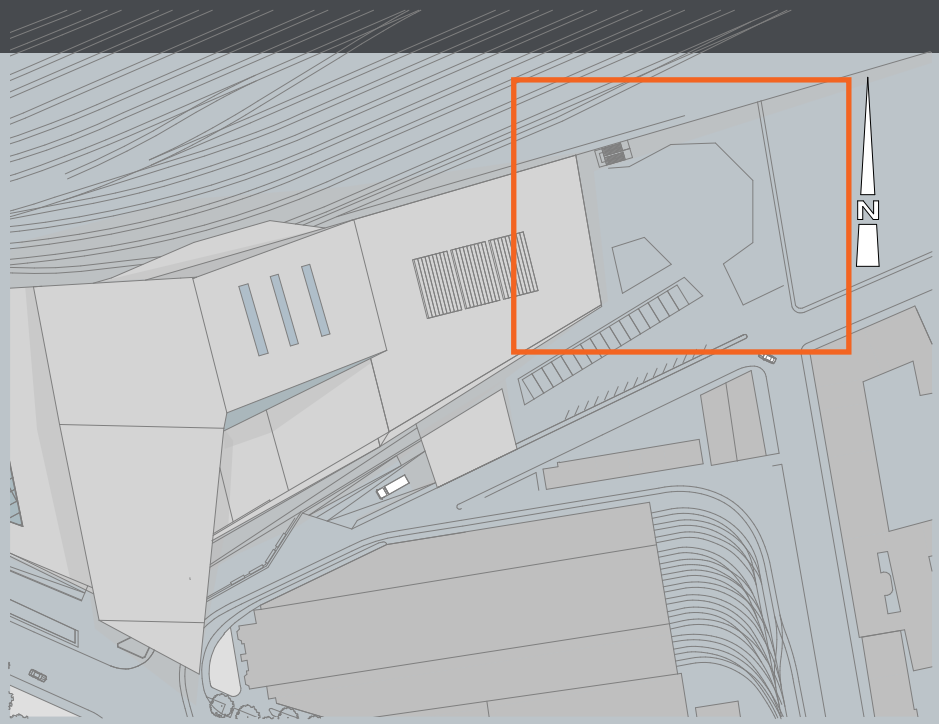


fig. 59: pump track for kids

fig. 60: pump track

Pump tracks outside as an extension of the freestyle park are planned

- pump tracks
- display cabinets
- dynamic landscape design

List of figures

fig. 54: perforated metal panel

fig. 55: photovoltaic solar louvers

fig. 56: curved concrete benches

fig. 57: reference to desired landscape design

fig. 58: display cabinets

fig. 59: pump track for kids

fig. 60: pump track

background pictures:

http://www.ktm.com/globalassets/segments/naked/01_header-pic/naked_header.jpg?width=1440

http://www.ktm.com/globalassets/model-pages/08_supersport_modelpage/1190-rc8-r/2f2g6798.jpg?width=1440&height=806&mode=crop&scale=both

http://www.ktm.com/globalassets/model-pages/05_supermoto_modelpage/_rsc4183_miho_flat.jpg?width=1440&height=806&mode=crop&scale=both

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