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White Paper of the Smart City District of Špitálka, BRNO

Stage: Project preparation

Version 1.00 – 2022/02/16

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PREAMBLE

The White Paper has been drafted in order to define the basic parameters for the future planning and construction of the Špitálka Smart City District. In addition to the current regulations, the White Paper also took into account currently apparent trends and perspectives. Even with every effort, future regulations and legislation cannot be fully predicted, nor can future financial services and subsidies, advances in new technologies including their affordability, or social sentiment. And these factors may play an essential role in the final stages of the project preparation or when construction begins. Therefore, the White Paper should be seen as a founding document with updates at each stage of the project development.

The aim of the White Paper is to define the conditions, standards and recommendations which will be required of the investor / builder in order to build the so-called “Smart City District”. The Smart City District should become a symbol of progress and modern technologies in the city of Brno. It should be environmentally friendly, where modern technologies and approaches will serve to simplify and make the stay of residents and visitors more pleasant. A place where natural resources will be managed sustainably, where renewable energy sources will be used as much as possible, and where community and individual life will develop in a socially and culturally rich and inspiring environment.

DEFINITIONS

Masterplan: an urban-volumetric study outlining the principles of the use of the site. Its scope is informative (see the file: D1_SPITALKA_200511_Optimized.pdf).

CITY HUB: transformed Špitálka premises into a single district consisting of 3 main pillars (i.e. the COWORK HUB, CULTURE HUB, and EVENT HUB) + WORK AND LIVE (see the file: D1_SPITALKA_200511_Optimized.pdf).

COWORK HUB: a transformed archive building into a shared working environment and its social facilities (see the file: D1_SPITALKA_200511_Optimized.pdf).

CULTURE HUB: a transformed building of a two-bay hall into a social centre (see the file: D1_SPITALKA_200511_Optimized.pdf).

EVENT HUB: a transformed cooling tower building into exhibition and gallery premises (see the file: D1_SPITALKA_200511_Optimized.pdf).

WORK AND LIVE: new development intended for housing, work and their mutual combination (see the file: D1_SPITALKA_200511_Optimized.pdf).

GFA: gross floor area

PV: photovoltaic power plant

Living room: a part of the apartment complying with the requirements of 268/2009 Coll. and intended for permanent living.

Ecodesign: ecodesign is a set of parameters (mainly energy efficiency) which the contractor (manufacturer or importer) of an energy-related product must comply with when placing it on the EU market or putting it into service. The intention of the legislation setting ecodesign requirements is to encourage the widespread use of the most efficient technologies and thus reduce energy consumption in the use phase of the product.

A. CONTACT DETAILS

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B. INTRODUCTION

B.1. Subject Matter of the White Paper

The White Paper specifies the basic parameters for future development. They are expressed in specific descriptions and data, quantified requirements, and broader definitions determining the project objectives. The White Paper clearly defines certain parameters which will be required in order to achieve a passive standard for new buildings and a Nearly Zero-Energy Building (NZEB) standard for refurbished buildings. In addition, it leaves room for the future developer to make innovative proposals that will lead to the common objective, i.e. developing the Špitálka Smart City District.

All buildings are to be designed and constructed in accordance with the laws and standards in effect at the time of the project preparation and implementation, unless otherwise specified. A list of standards and laws and their subject matter is not the subject of the White Paper.

B.2. Binding Nature of the White Paper

This document is expected to form an integral part of the terms and conditions for any future tender procedures.

B.3. Amendments to the White Paper

Due to the development of legislative requirements, subsidy programmes, needs of the Contracting Authority, but also with regard to the gradual refinement of the plan in individual stages, some parts may become outdated and require changes, additions, or clarifications.

Any changes or amendments to the White Paper shall be made through an updating process. This involves the parties being notified of the proposed change, commenting on it and confirming it.

B.4. Role of the Contracting Authority

The Contracting Authority determines the direction and procedure to achieve the goal, i.e. developing the Špitálka Smart City District.

B.5. Subsidy Policy

The White Paper works with known facts, however, the future developer will be allowed / required to change the assignment if required e.g. by specific conditions for obtaining subsidy funding.

The assignment will respect the current direction of the development of subsidy policy according to the European “Green Deal” guidelines. The form and level of support depends

on the selected indicators (in the case of technical solutions related to water management, this may be e.g. the amount of water retained, runoff coefficients of surfaces, permeability of surfaces, etc.). Therefore, the investor's design should assess and integrate these monitored parameters on an ongoing basis to the maximum possible extent.

B.6. Documents

The White Paper (digital annex) includes the following documents, surveys, etc.

MASTERPLAN – Špitálka Site Development, urban study – City Hub Brno 04/2020, author: A8000", file: D1_SPITALKA_200511_Optimized.pdf

Situation drawing modifying the Masterplan based on negotiations with EG.D, a.s., file: D2_Spitalka_situace_201103.pdf

Site survey register with the Masterplan – file: D3_soutisk_zamereni_masterplan_220209.pdf

Expert opinion on the technical condition of the cooling tower in the Špitálka Site, Teplárny Brno, a.s., file: D4_200207-posudek-chladící věž.pdf

Utilities drawings (validity to be verified by site survey):

- D5_celková situace Špitálka – kanalizace, vodovody.pdf
- D6_koordinační situační výkres site Spitalka.pdf

Structural and technical survey of existing buildings in the area under consideration – to be completed by the Contracting Authority

Geodetic survey – to be completed by the Contracting Authority

Geodetic survey of the collector leading through the area under consideration – to be completed by the Contracting Authority

Traffic technical study – to be completed by the Contracting Authority

Survey of environmental burden in the area – to be completed by the Contracting Authority

Water management study – water management in the area under consideration – to be completed by the Contracting Authority

C. Site and Project Description

C.1. Description – Existing State

The land on which the area in question is located is currently owned by Teplárny Brno, a.s. Its areas equals approximately 2.4 ha; see the geodetic survey.

The area in question is located on the following land plots: No. 853/1, No. 853/6, No. 853/7, No. 853/13, No. 853/14, No. 853/15, No. 855, No. 856, No. 859, and No. 888, in the cadastral territory of Zábrdovice.

Map showing the relevant part of the Špitálka site

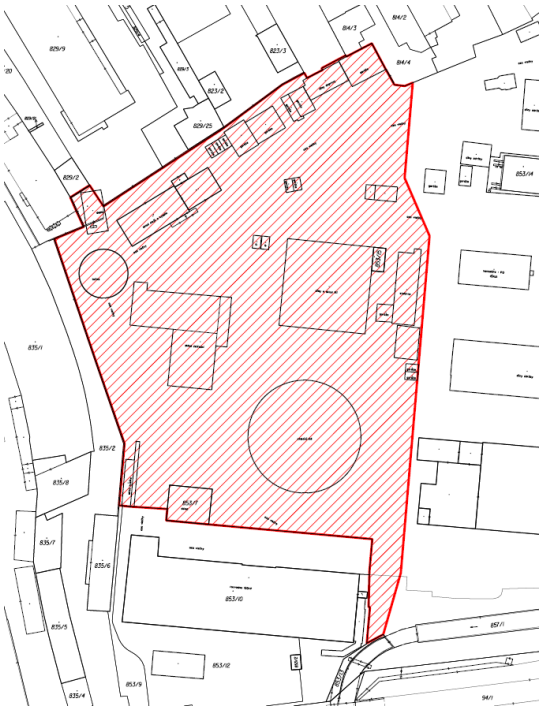
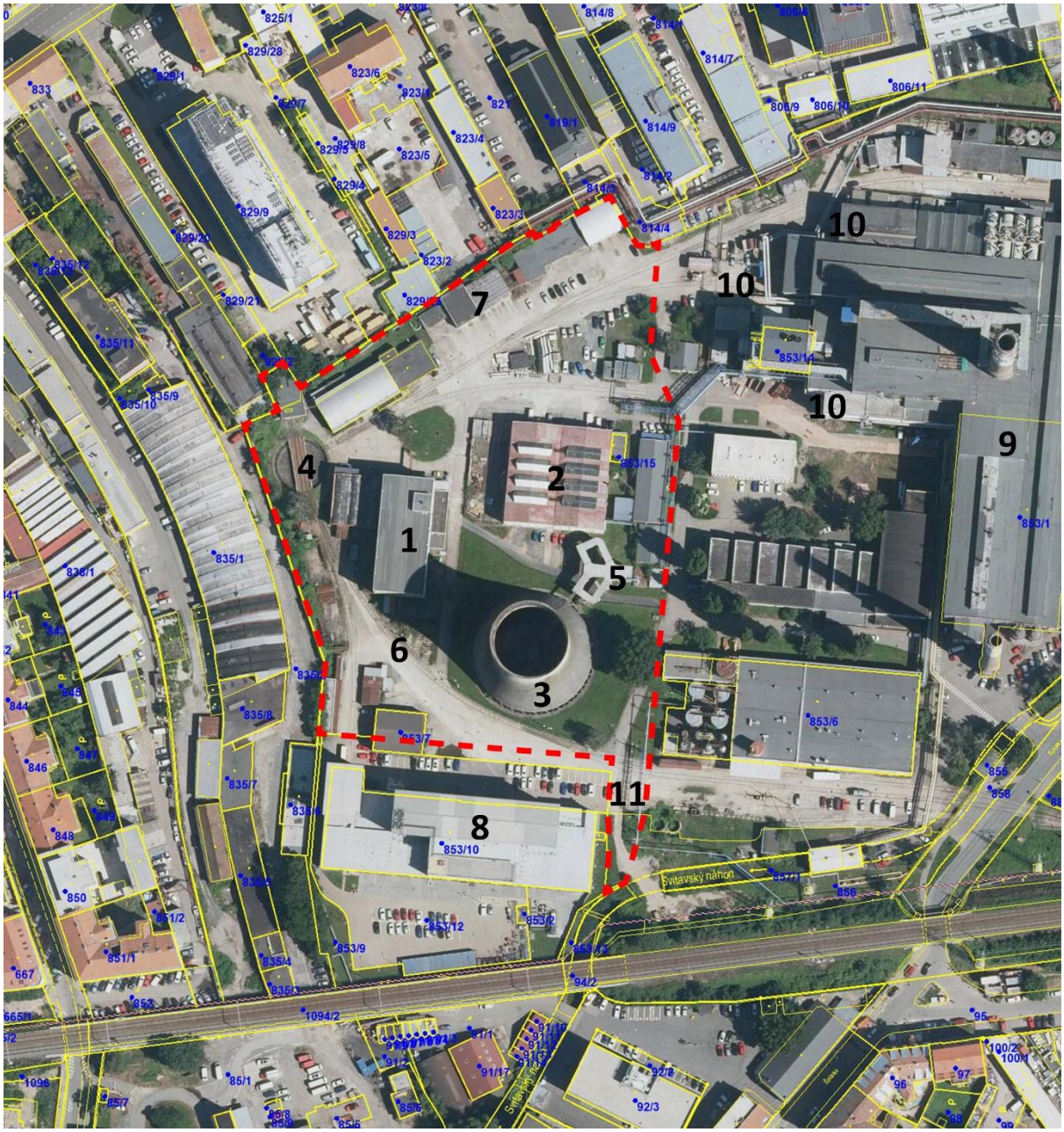


Fig. Existing state



At present, the land features the following facilities:

1 – archive, 2 – two-bay hall, 3 – concrete cooling tower, 4 – siding turntable, 5 – concrete relic of the water distribution tower, 6 – siding tracks, 7 – other small operational buildings of the heating plant intended for demolition

Surrounding buildings: 8 – building of EG.D, a.s., 9 - Teplárny Brno, a.s., 10 – excess cargo destinations, 11 – SE corner of the property

C.2. Site Limits

In the current zoning plan, the property is listed as a stabilised building area for technical facilities. A change to the zoning plan is required for the site. The draft of the new Zoning Plan of the City of Brno provides for the construction of a smart district.

Two parallel collectors run from the north of the site to the south towards the EG.D, a.s. building, with the location of all the cabling feeding and supplying the electrical power of the transmission system to/from the parent E-ON distribution system, including control cables. The site also comprises the water pipeline for the EG.D, a.s. facility. The collectors have been in service for approximately 70 years, with a ceiling approximately 1.5 m below the surface. The position and condition needs to be verified by survey (see the annex: situation of the coordination site Spitalka.pdf).

A civil defence shelter is located under the archive building (see Item 1 in the figure depicting the Existing State). The existing condition needs to be examined and, if necessary, a proposal for use within the planned development (for a smaller hall, etc.) needs to be submitted.

The building of the substation of EG.D, a.s. is located to the south of the site (land No. 853/10), a critical infrastructure element protected by a 20 m buffer zone. See the green line in the file D2_Spitalka_situace_201103.pdf. The Contracting Authority will specify the agreement / requirement to the buffer zone and the passageway to EG.D, a.s.; see also Item 8 in the Existing State figure.

The building of Teplárny Brno, a.s. is located to the east of the site, requiring a passage for the supply in the form of excess cargo of up to 40 m in length and the weight of up to 200 t (see Item 11 in the Existing State figure).

Due to the assumption of unsuitable hydrogeological conditions for rainwater absorption, it is necessary to prepare a hydrogeological survey.

Due to the possibility of the occurrence of environmental burden, it is necessary to prepare a survey to confirm or exclude it.

Site protection – conservation area
- The site is located outside the municipal conservation area of Brno.
- The site is located inside the protection zone of the municipal conservation area of Brno.

Site protection – conservation zone
- The site is located outside the conservation zone.

Site protection – specially protected area
- The site is located outside a specially protected area.

Site protection – Natura 2000
- The site is located outside the Natura 2000 area.

Site protection – flooding area

- The site is not located in the flooding area.

Site protection – undermined area
- The site is not located in the undermined area.

C.3. Additional Surveys, Studies and Verification

In addition to the mandatory surveys and studies arising from the statutory regulations, the investor is obliged to arrange the following surveys, studies, etc.:

- Geological survey;
- Hydrogeological survey;
- Exploratory boreholes and measurement of the temperature response of the rock environment – a survey serving as a basis for the design of geothermal boreholes;
- Environmental certification – an assessment of potential strategies – a study evaluating the potential of each certification (LEED or BREEAM) in relation to the proposed project;
- Verification of the existing condition of neighbouring buildings – photographic documentation of the existing condition, cataloguing of existing defects, degradations, etc.;
- A study of the heat load (overheating) and wind effects on the site in relation to the proposed project;
- A green roof study – the ratio of intensive and extensive greenery, sustainability and economic aspects of irrigation to be verified by the investor in a separate study in relation to the proposed project
- An acoustic study in the field of spatial acoustics;
- An analysis of the management of waste generated during demolition and construction of the project, and the study of the reuse of waste during construction;
- An analysis of waste management during operation of the project;
- A study of illumination and lighting of the proposed units;
- A study of illumination and lighting of the neighbouring buildings.

C.4. Description – Masterplan

The White Paper is based on the documentation entitled "MASTERPLAN – Špitálka Site Development, urban study – City Hub Brno 04/2020, author: A8000", file: D1_SPITALKA_200511_Optimized.pdf and its amendments: D2_Spitalka_situace_201103.pdf

The Masterplan forms an integral part of the White Paper. The Masterplan is at the level of an urban study developed into a material design of buildings with a specific functional content of the buildings. The Masterplan develops Brno's Špitálka industrial site with the aim of finding a viable theme for the new use of the western part of the Teplárny Brno site, without destroying the historical value of the site. The project aims at transforming the Špitálka industrial site into a vibrant, modern urban district that will set the trends for contemporary living, working and leisure, and thus kick-start the overall rehabilitation of the Brno Cejl area. With the motto "not destruction, but evolution", the so-called CITY HUB will be a location that will become a meeting place and a sustainable approach to life using current trends in architecture.

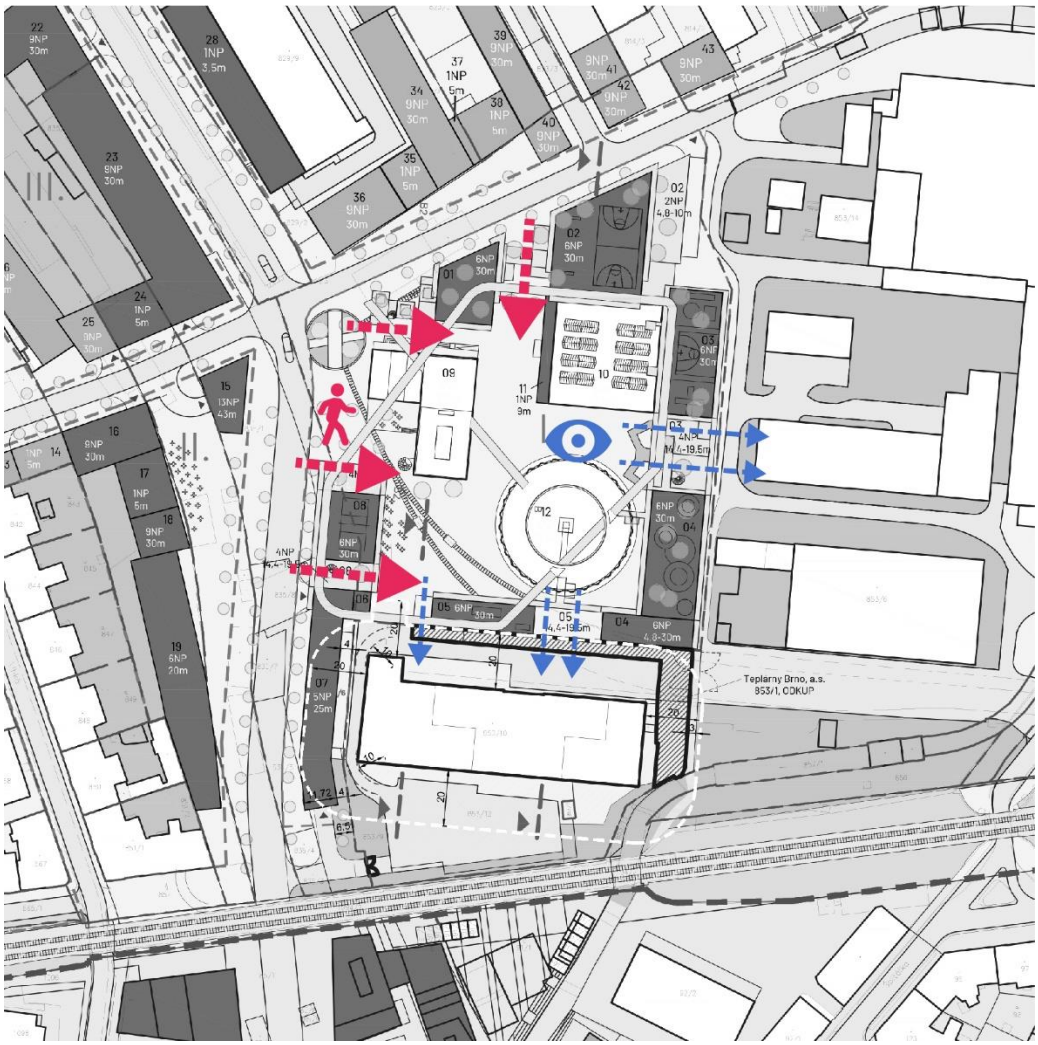
Following current housing trends, the new district should serve as a WORK AND LIVE location providing accommodation/working conditions for a minimum of 600 people in approximately 26,000 sqm of the GFA. Another part of the CITY HUB is the so-called CULTURE HUB, a renovated two-bay hall that allows for cultural and other events for about 1,000 people seated or 3,000 people standing in approximately 3,900 sqm of the GFA. Work premises will be provided by the so-called COWORK HUB, a converted existing storey building with a capacity of approx. 3400 sqm of the GFA for up to 200 workers. An integral part of the cooling tower space is the so-called EVENT HUB, which will provide presentation space of approx. 5,000 sqm of the GFA. See the table Building capacities, Chap. C.7 Basic Data.

WORK AND LIVE units are located around the perimeter of the site with a predominantly E-W orientation. The buildings form an imaginary ring with a central open space, an internal plaza, allowing for a larger number of visitors and users to meet. The buildings are designed to be deliberately "open" (non-contiguous development to the courtyard) so as to let visitors through towards the site whilst allowing for the intimacy of the internal spaces. The individual Buildings are connected at the roof by a skywalk and at the 4th storey through the neck of the units.

The WORK AND LIVE units are designed as elevated units allowing for completion by the user. They are designed in modules so that they can be freely interconnected. In the northern part of the site, large multifunctional units are designed on the upper floors behind the renovated hall and on the ground floor; there are facilities for the CULTURE HUB.

Masterplan – requirements

In the follow-up design of the Smart City District, we require compliance with the required capacities; see the table Building capacities, Chap. C.7 Basic Data. Furthermore, we require compliance with "open" development for the purpose of physical permeability towards Brněnská Avenue and also for the purpose of visual permeability to its industrial surroundings.



We request the creation of an internal plaza to allow for larger cultural and social events near the renovated cooling tower, the renovated archive and the renovated hall. We require compliance with the functional programme of the renovated buildings and new buildings. We require adherence to the 400 m running "skywalk" which will run through the tower. In the southern position towards the EG.D, a.s. building, the skywalk must be closed. In the cross-section, this will create a C profile open towards the plaza. We require that the new development does not compete in height with the cooling tower as a symbol of the entire redevelopment of the site.
We also require the installation of a water feature with greenery in the "pool" of the existing turntable, while allowing for the performance of the transport infrastructure. As

for the mobile recreational elements, we require the use of the existing track lines. We recommend using the ceiling of the concrete relic of the pipeline distribution plant towards the cooling towers as a garden / pavilion.

Masterplan – Context with the surroundings

The White Paper and Masterplan take into account the outcomes of discussions with affected owners.

Within the negotiations with EG.D, a.s., (former E.ON Distribuce), the issue of a 20-metre protection zone of the EG.D, a.s. building (110/22 kV substation), resulted in defining a new borderline (green dashed line), which affected the amendment to the "MASTERPLAN – Špitálka Site Development, urban study – City Hub Brno 04/2020", recorded in "D01_Spitalka_situace_201103". It was also agreed to blind the façade of the CITY HUB towards the EG.D, a.s. building, preventing the movement of undesirable persons into the protection zone. Similarly, it was agreed to prevent visual and any other contact from the last open floors of the CITY HUB building at the northern boundary of EG.D, a.s. or the Protection Zone. The skywalk here must be constructed in a C-shaped profile and a protective concrete wall will be erected at the edge of the site (for exact conditions resulting from the agreements - see Site Limits, agreements with EG.D, a.s.).

In the framework of negotiations with Teplárny Brno, a.s., it was examined to enable the supply of Teplárny with oversized cargo of up to 40 m in length and weighing up to 200 t to three locations at the western façade of the main building of the heating plant (see Item 10 in the Existing State figure)

In view of the anticipated future modifications to the design of the Špitálka Site and possible changes to Brněnská Avenue and its adjacent roads, it is necessary to verify and approve the supply option again.

The Masterplan was discussed with ERA studio. The results are included in the Spatial Study of the Redevelopment Zone – Špitálka and Surroundings.

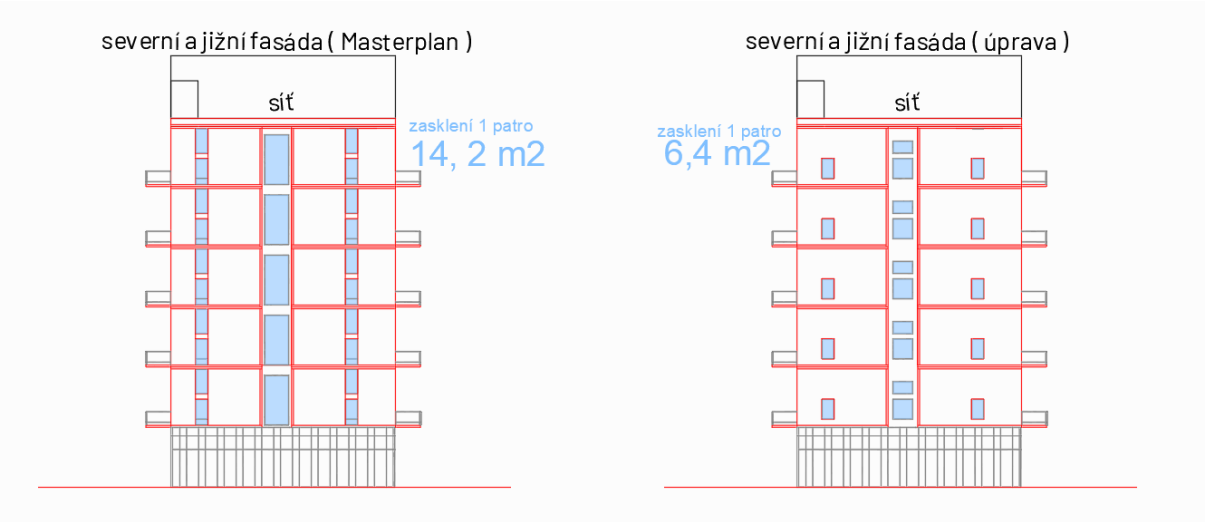
The Masterplan was discussed with the Brno City Architect's Office. The outcomes are included in the submitted amendment to the zoning plan mB B1/2020-CM.

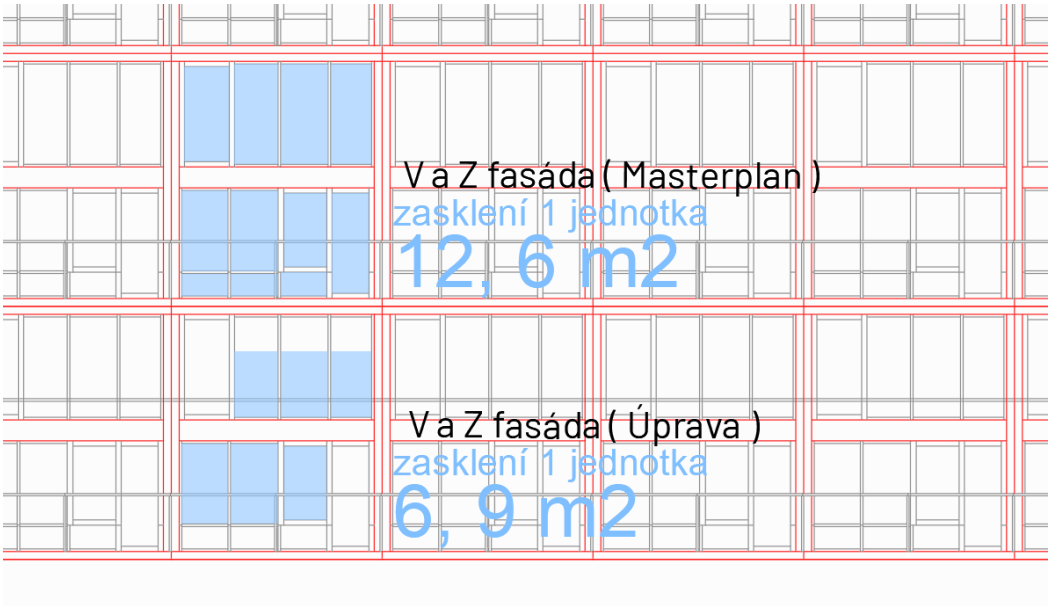
C.5. Review of the Masterplan from the White Paper's Perspective

C.5.1. Glazing of the Units

Owing to the results of the "Energy Concept Study" (Ekowatt), the glazing of the WORK AND LIVE units has been assessed as excessive and needs to be reduced to meet the passive building standard.

Concept modification of the glazing of the Masterplan design:





North and south façade (Masterplan) – North and south façade (amendment)

East and west façade (Masterplan) – East and west façade (amendment) – Glazing (1 unit) – 12.6 sqm – Glazing (1 unit) 6.9 sqm

On the basis of a new site survey carried out after the submission of the Masterplan, a change in the layout of the buildings is expected in the new design.

C.5.2. Amendment to the Buildings Layout

On the basis of a new site survey carried out after the submission of the Masterplan, a change in the layout of the buildings is expected in the new design.

The survey indicated that the situation of the cooling tower is in reality shifted more to the south and especially to the east, which will have an impact especially on Building 04, which will not be possible to build as it was designed in the Masterplan. The last two floors of Building 04 are far enough away from the tower (approx. 5.5 m) so that at least studios could be built in this space. The units close to the tower will need to be assessed in terms of lighting / sunlight and also in terms of the fire hazard space between the cooling tower façade and the units.

In addition, the position of the cooling tower foundations will need to be examined so that the underground construction of the WORK AND LIVE units can be performed in their vicinity.

It will not be possible to build the underground floor of Building 04 according to the Masterplan.

It is not possible to determine whether it will be possible to build an underground floor under Neck 05 without knowing the foundations of the cooling tower.

Register of the actual site survey and the Masterplan – file:
D3_soutisk_zamereni_masterplan_220209.pdf

C.6. Providing Sufficient Capacities for the Site "Viability" (ref. to the Masterplan)

The city district should be affordable to a wide range of people, i.e. from students to more affluent clientele.

CITY HUB development

WORK AND LIVE – The building will be composed of modular units (for the capacity, see the table of areas), which can be connected in terms of the ground plan. Owing to this, the residents will have the opportunity to develop both in terms of work and according to their requirements for living space. The modularity ensures connectivity from the first move-in phase. The size of the unit is set at 28 sqm with the possibility of an inserted storey increasing the usable area. In one unit, we assume 1-2 residents or 3-4 workers. We require compliance with the modularity, the possibility of interconnection and insertion of a storey (see the file D1_SPITALKA_200511_Optimized.pdf, pp. 58-61).

75% of WORK AND LIVE units are required to comply with the legal and regulatory requirements for permanent housing structures (apartment or an apartment block).

The CULTURE HUB is a renovated two-bay hall. The CULTURE HUB enables the organisation of cultural and other events that will benefit not only the residents of the site but also its wider surroundings. We require the reconstruction and its use in the specified capacity (see the table of areas).

COWORK HUB – While the WORK AND LIVE units will be tailored more for individual work in a home environment or small studios, the capacity of the COWORK HUB (see the table of areas) should allow for sufficient number of workspaces in a shared environment where future users can meet and make new work contacts. For the COWORK HUB, we require the reconstruction of the existing archive.

EVENT HUB – It is a necessary space for self-presentation of residents with the possibility of organising social events. For the EVENT HUB, we require the cooling tower to be reconstructed as a built-in conversion, allowing divisibility into individual exhibition / sales cells, or 1 overall spatial use. We recommend leaving the ground floor largely open with footbridges / ramps over the water area. On the top floor, we recommend creating an outdoor area usable for summer cinema, concerts, a meeting point etc.

ACTIVE PARTERRE – An integral part of an operational and functionally rich parterre which provides for the needs of the residents as well as those of its surroundings. A sufficiently lively parterre will itself also function as a safety feature. In addition to commercial units and food services, we require the providing spaces designed for community activities, such as workshops, rooms for workshops, education, or meetings.

Within the parterre, we require providing a social service area related to social and other problems of its surroundings and possibly the Špitálka Site. The type, subject and scope of the social service is to be determined by the Contracting Authority according to its needs.

It is not desirable to provide services with a negative impact on the social environment such as casinos, pawnshops, gambling halls, etc. on the site.

We require designing the capacity according to the table of areas; we also require dimensioning the parterre in sufficient height for variable use and change in time. The dimensions of the parterre must allow for the installation of technological equipment.

C.7. Basic Data

BUILDING CAPACITIES				
	CITY HUB Building			
	LIVE / WORK	EVENT HUB	CULTURE HUB	COWORK HUB
Construction type	New building	Reconstruction	Reconstruction	Reconstruction
GFA [sqm] according to the Masterplan	26,432	6,196	3,912	3,469
Number of units/people according to the Masterplan	Approx. 600 units	-	Seating 1,000 persons Standing 3,000 persons	Approx. 150-200 persons
Minimum required number of units/persons	520 units	-	Seating 1,000 persons Standing 3,000 persons	Approx. 150 persons
Minimum required number of units complying with legal and standard requirements for permanent housing (flat or apartment house)	75%	-	-	-
Rentable multifunctional spaces in the parterre (shop / gallery / services / workshops / social services [sqm]	1,740	-	-	320
Minimum number of units to be handed over to the city	15% units WORK AND LIVE	-	-	-

CAPACITIES OF AREAS						
Land area approx. 2.4 ha	Built-up area	Public space	Rooftop playground	Green roof / gardens / residential greenery	Paved areas – roof	Skywalk
Masterplan area [sqm]	9,441	9,774	1,360	2,460	1,160	1,200
Minimum required area [sqm]	9,400	9,700	1,360	2,400	1,160	1,200
Notes	-	Must allow for a larger outdoor event (30x40 m) in the inner plaza	-	Intensively used roof, planted trees, and gardens	Terraces, areas for photovoltaics	(400 m x 3 m = 1 200 sqm)

C.8. Phasing

The city district is designed as a single-phase development.

The city district may be developed after completing the transport service of the site and the connection of the technical infrastructure. Specifically, by opening the site through Brněnská Avenue, or parts of it, and other roads connected to Brněnská Avenue.

In terms of the initiation of the entire site, we require the implementation of phase 0 before the CITY HUB itself, which will make the Archive buildings and halls accessible and usable for co-working, studios and social events. Only the most necessary interventions to the buildings, making the site accessible and ensuring safety of movement on the premises are expected. The site will thus enter the mainstream and become an incubator for further development. The realisation and dramaturgy of the use of the premises will emerge from discussions between the investor and representatives of the city.

C.9. Use of the Roof Landscape for Sports and Recreational Use

For the areas, see the Chapter entitled Basic Data.

The site has no sports or recreation facilities within walking distance, therefore we require the use of roof areas for sports and recreation (see the file: SPITALKA200511_Optimized.pdf, p. 64).

This includes:

- Sports (pitches and fields: football, beach volleyball, basketball, etc.);
- Skywalk (running and sightseeing circuit);
- Growing vegetables and recreation on the green areas on the roof.

The roof landscape will be accessible both for residents and workers in the CITY HUB, as well as partially for the public via an exterior staircase and an elevator located near Brněnská Avenue, without compromising the safety and privacy of the residents.

The investor must identify and evaluate the safety risks associated with the use of the roof landscape and, on this basis, appropriately design the basic conditions of use.

C.10. Public Space

For the areas, see the Chapter entitled Basic Data. Also see the active parterre (chapter Realisation of Sufficient Capacities for the "Viability" of the Site).

The design of the public space of the inner plaza and the front of the buildings will be sufficiently variable and open, allowing for meetings and social and cultural events for the general public (terraces, seating, markets, concerts, festivals, etc.). This will correspond to the technical facilities and equipment, including the utilities connection points.

The quality public space will be designed in accordance with the manual for the creation of public space, author: the Brno City Architect's Office.

In the SE corner of the site (see Figure Existing State, Item 11), we require a space reserve at the ground-floor level to allow for a cycling connection linking Mosilana and the Smart City District.

In the vicinity of Brněnská Avenue and the COWORK building, we require the completion of ground parking spaces for bicycles. For capacities, see Chapter H: Transport.

Blue and green elements in the public space are required to be built in accordance with the manual for developing public space, author: the Brno City Architect's Office, see Chapter F.4 Green and Blue Infrastructure.

The investor is obliged to prepare an environmental study of the impact of the planned variant of the project and its landscape elements on the surrounding environment and the construction itself. The aim is to demonstrate the measurable outcomes of the projected behaviour of the project and its positive impact on the elimination of the heat island effect on the site, the green and blue infrastructure effect (shading, evapotranspiration, and thermal comfort characteristics for users / visitors), and the management of rainwater in the vicinity of the buildings and the preservation of natural ventilation corridors in the urban development. The results and recommendations of the study shall be evaluated by the investor and adequately reflected in the site design.

C.11. Underground Storey

Technical rooms, tanks, engine rooms, and similar auxiliary rooms should be located underground to the maximum possible extent:

- Car park;
- Bicycle rooms and their facilities / service (washing, compressed air, and maintenance);
- Technical rooms and energy centres;
- Rainwater storage tanks including provision of irrigation technology for intensive green roofs;
- Air-conditioning units;
- Battery storage;
- Premises for water treatment technologies;

Etc.

D. STRUCTURAL AND PHYSICAL REQUIREMENTS

D.1. Thermal and Technical Parameters

The requirements are specified in Chapter F.2.9 Thermal and Technical Parameters – building envelope.

D.2. Structural Acoustics

Requirements for the assessment of protected outdoor space, protected outdoor space of buildings and protected indoor space of buildings

WORK AND LIVE

The work/live spaces will be assessed as residential building, i.e. **living quarters**. Noise with a tonal component (music, singing, or spoken word) will be considered as a noise source.

The retail and service areas (cafés or services) at the parterre level will be treated as **workplaces.**

COWORK HUB

The COWORK HUB premises will be assessed as a **workplace** where attention and concentration-intensive work is performed and a workplace designed for creative work.

Requirements for the soundproofness of partition structures

WORK AND LIVE

WORK AND LIVE spaces will be assessed as **residential buildings**.

COWORK HUB

The COWORK premises will be assessed as **offices**.

CULTURE HUB and EVENT HUB

The design of the CULTURE HUB and EVENT HUB shall be addressed in order to minimise or eliminate undesirable noise propagation in the outdoor spaces and minimally impact the WORK AND LIVE and COWORK HUB facilities. Legal and standard noise requirements shall be met within the protected areas of the WORK AND LIVE and COWORK HUB facilities.

In the next phase of the project, an acoustic assessment of the existing CULTURE HUB and EVENT HUB envelope must be prepared

In the next phase of the project, an acoustic (noise) study must be carried out to design and assess measures to comply with legal and standard requirements in the WORK AND LIVE and COWORK HUB protected area.

Expected noise source in the CULTURE HUB

The CULTURE HUB is planned for multiple uses. In terms of noise assessment, the most stringent use is a concert (e.g. rock).

The equivalent noise level inside the building is assumed to equal 90 dB. The noise source is assumed to continue after 10:00 pm.

For the EVENT HUB, the permissible equivalent noise level will be determined in the next phase by a noise study, as well as measures to comply with the legal and standard requirements in the protected areas of the surrounding buildings.

Expected noise source of Brněnská Avenue

Traffic will be brought to the immediate surroundings of the area within the construction of Brněnská Avenue and adjacent roads. In the future, this will lead to an increase in noise pollution on the site. The investor is obliged to determine the equivalent noise levels of this source and to implement such measures to protect the buildings against this future load.

It is not permissible that as a result of the construction of Brněnská Avenue, it will be necessary to implement protective measures, such as noise barriers, replacement of existing fillings of openings, etc.

The estimated traffic intensity after the completion of Brněnská Avenue will be provided by the Municipal Authority of the City of Brno.

D.3. Spatial Acoustics

The CULTURE HUB, EVENT HUB, and COWORK HUB buildings will be designed to create favourable acoustic conditions in an enclosed space, suitable for music production, conferences, work and business meetings, etc. It is envisaged to be designed in cooperation with experts in spatial acoustics.

An acoustic study in the field of spatial acoustics will be carried out in order to verify the design.

In order to ensure optimal spatial acoustics parameters in individual rooms, the project will propose suitable acoustic modifications of the rooms, such as the design of suitable floor coverings, wall coverings and possible suspended ceiling elements, including the determination of absorption and thickness of the proposed materials.

D.4. Lighting and Sunlight

The investor is required to verify the impact of the proposed mass on the existing surrounding / newly designed buildings, both in terms of the amount of daylight and sunlight. The aim is to avoid issues caused by undesirable impact on the surrounding buildings.

WORK AND LIVE units can be used as flats, so they must comply with the daylight and sunlight requirements pursuant to the applicable legislation. It is required that 75% of WORK AND LIVE units meet the legal and standard values for lighting and sunlight for permanent dwellings.

The number of compliant units must be compared and evaluated with representatives of the Municipal Authority of the City of Brno. The compliant units will be used as residential units. The remaining units will be used as workplaces or studios.

Workplaces and studios are by their nature working environments and are therefore subject to assessment of daylight and artificial lighting on the basis of Government Regulation 361/2009 Coll., ČSN EN 12464-1 and ČSN EN 17037.

E. REQUIREMENTS FOR BUILDING STRUCTURES AND PRODUCTS

E.1. Materials

Principles

Local resources
Sustainability
Recyclability
Renewable materials

Local resources

Use sources of materials located as close as possible to the construction site. 100% of materials and products (calculated on a cost basis) should not be imported from locations more than 800 km away.

Sustainability, recycling, and renewable materials

Required construction materials

Use recycled aggregates for backfill, base layers, materials with recycled content, use concrete with recycled aggregates, or recycled materials for thermal insulation (glass wool or foam glass).

Use EPD certified materials.

Use wood with sustainable management certificates, e.g. PEFC, CITES, FLEGT or FSC.

Final floor surfaces

Preferred materials include natural materials with an emphasis on sustainability and recyclability i.e. wood, terrazzo, stone, natural linoleum, cork, natural fibre carpets, recycled synthetic fibre carpets, ceramic tiles, or glass tiles.

Textiles

Avoid the use of synthetic fibres and textiles. Prefer to use natural and recycled fibres, i.e. cotton, linen, wool, cashmere, silk, mohair, alpaca, bamboo, hemp, tencel, or recycled PET.

Paved areas

The materials which will be used will naturally allow water to seep into the subsoil: i.e. concrete paving, grass paving, etc. The investor will also take into account the possibilities of seepage on the site in the event of higher amounts of rainwater during heavy rainfall

and will propose appropriate measures to improve the seepage capacity of the subsoil, e.g. seepage tunnels.

E.2. Load-Bearing Structures and Foundations

The construction and foundation of the buildings and the footing of the construction pits will be designed in order not to affect other buildings in the area.

If necessary, the existing buildings will be supported by new foundation structures (micropiles, jet grouting, etc.).

Optimise the load-bearing structures – avoid uneconomical spans of the ceiling structures.

Due to the need for internal variability of the space (WORK AND LIVE), it is necessary to adapt the load-bearing system to this need, e.g. a skeleton system with linings or lightweight prefabricated partitions. A wall load-bearing system (limiting the variability of the space) is not allowed.

It will be necessary to perform the rehabilitation of the cooling tower load-bearing structure.

E.3. Perimeter Jacketing

With regard to the recycling of materials (e.g. thermal insulation) at the end of the life of the building, ventilated façade systems or lightweight envelopes are required. Contact insulation systems are not allowed.

The glazed areas of the perimeter cladding will consist of triple glazing. The required resultant U_w shall be less than 0,6 W/sqmK. The use of glass with $U_g \leq 0,5$ W/sqmK is foreseen.

Backlighting, illumination, etc. of the building envelope is not permitted in order to minimise visual and light smog. Similarly, it is necessary to minimise advertising surfaces, banners, or displays.

E.4. Shading Elements

Exterior shading elements

South, east and west façades – exterior active shading of the facade and glazed roofs is required. Motor control, controlled by the MaR system. Controlled according to sun position and wind intensity. Divided into smaller, logically arranged individually controlled units.

The actively used roofs will need to be protected with shading elements for the expected social interaction during the summer months.

Interior shading elements

North façade – motor control, controlled by MaR system (user controlled).

E.5. Roofs

The roofs will be designed primarily as vegetated roofs with intensive greenery with shrub and tree floor supplemented by extensive greenery. The optimised ratio of intensive and extensive greenery is approximately 55:45. The ratio of intensive and extensive greenery, sustainability and the economic aspect of irrigation will be verified by the investor in a separate study, which will take into account the specific solution and the possibilities of the site.

For the purpose of irrigation of green roofs, it is recommended to use uncontaminated water from the atrium area of buildings. Intensive green roofs will require irrigation for at least the entire growing season.

The recommended option may consist in a roof ratio of 55:45 in favour of the intensive green roof option. This scenario maximises the efficient use of green roofs with regard to their long-term maintenance. In particular, it provides better opportunities for redistribution of rainwater in favour of intensive roofs, while maintaining the largest possible share of roof plane space. The selected roofs (see Chapter F.3.4. Photovoltaics) will be equipped with PV. The roofs under the PV will be designed as vegetated roofs with extensive greenery.

Green roofs will prevent the so-called heat island effect.

Roof drainage will be designed to minimise the need for electrical frost protection. Roof drain heating is not permitted for the entire system.

Vegetated roofs will be artificially irrigated. Rainwater will be used primarily for irrigation. Rooftop irrigation is discussed in more detail in Chepter F.4 Green and Blue Infrastructure.

E.6. Floors

Reconstruction – it is preferred to have a floor solution where the floor within one floor is in one plane without height jumps and levelling steps and ramps.

New buildings – the required floor composition is such that the floor heating, power and communication cables, water distribution and possibly waste connection pipes may be installed.

F. TECHNICAL FACILITIES OF BUILDINGS

Technical rooms, tanks, engine rooms, etc. should be located in underground spaces as far as possible. Maximise roof space for active use by the public, users, green roofs, etc.

F.1. Energy Concepts

The requirement for new buildings is to achieve a passive building standard. The criterion is a specific heating demand value of 15 kWh/sqm/year.

In order to verify the requirement for new buildings, the Study of the Energy Concept Brno – Špitálka" was carried out (see annex), where calculations were made using the methodology for the Energy Performance Certificates for Buildings (version 01/2022). Model values of energy balances directly related to the operation of buildings were performed for two building types or building use types. Variant calculations were made for the WORK AND LIVE building:

V1: LIVE – Residential building

V2: WORK – Office building

In the following options:

i. Baseline option = to comply with the legal requirements of the PENB according to law (near-zero energy buildings);
ii. Passive option = what needs to be done (and is realistic) for a passive standard.

For full details, see the "Study of the Brno Špitálka Energy Concept".

The requirement for renovated buildings is to achieve the Nearly Zero Energy Building Standard (NZEB).

F.2. Heating and Cooling

F.2.1. Objectives

Maximum use of renewable energy sources
Minimising heat loss in the building envelope
Equipment and products comply with Ecodesign
Maximising equipment efficiency
Achieving a passive building standard
Use of thermal energy storage to the maximum technically justified extent

F.2.2. Principle

The high concentration of buildings predicts an efficient management of sources and distribution of heat/cooling not only in terms of the actual use of resources but especially in the transfer of waste heat/cooling between different parts of the buildings.

This principle may be achieved by centralising heat/cooling sources with mutual transfer of surpluses with an efficient distribution system. This means one common energy centre within the area under consideration (heat/cooling source). Heat/cooling is generated in the common energy centre and redistribution of heat/cooling according to the needs of the individual buildings. There is only heat/cooling consumption in the buildings and no sources or storage. The energy centre will be located in the underground space of the premises with one machine room, one control room, one access, and one operator.

The alternative includes a primary hot water loop with basic temperature adjustment and connection to boreholes and connected heat/cooling sources in individual buildings. However, this solution appears to be less cost-effective but also less efficient in terms of operation.

The diagram is provided in Annex-3_Orientacni_schema_TZB (Orientation Scheme of the BSE).

F.2.3. Heat Sources

Primary	Geothermal borehole system with a heat pump (recommended refrigerant charge medium: more environment-friendly, natural refrigerants)
Secondary	Two-pipe connection to the return branch of the heating network (plus a spare connection to the supply branch) with a heat exchanger station
Supplementary	Heat recovery from wastewater and heat recovery from air conditioning
External	Use of waste heat from a nearby data centre (the issue of contractual guarantees)
Accumulation	Short-term water accumulators and long-term geothermal boreholes

F.2.4. Cooling Sources

Cold production by means of a heat pump in a common technology core with waste heat discharge to a system of geothermal boreholes or directly to the heating system.

F.2.5. Heating System

For heating, a low-temperature heating water distribution system will be used. The base temperature for heating will be at a level of 40/30 C (floor/ceiling/wall heating considered). Higher heating temperature only in rare justified cases (radiant panels, hot air units, etc.) while maintaining the overall energy efficiency of the low temperature system. For DHW, a separate distribution system will be built at the required temperature level (up to 80 °C in the short term for system disinfection).

Culture HUB – it is a hall-type building – it will be heated primarily by hot water radiant panels and HVAC units.

F.2.6. Cooling System

The system will be designed with a higher cooling temperature obtained from the ground boreholes by direct extraction without using the compressor operation of the heat pump. The use of large-scale end-cooling elements (i.e. chilled ceiling and floor structures, chilled beams, etc.) is considered. Each unit must be provided with cooling options.

F.2.7. Accumulation

The balance of energy flows between the buildings will be assessed and according to the results, the use of short-term accumulation using water accumulators or geothermal boreholes for log-term accumulation will be proposed.

F.2.8. Air-Conditioning

The air-conditioning units will primarily be located in the underground spaces. This is due to the retention of the ground floor, roof and sub-roof areas of the buildings as exclusive areas for civic use, i.e. cafés, shops, VIP areas, roof landscaping, sports use, etc.

The position of the intake points for the air-conditioning system will be selected so that the roof area is maximised for leisure use. It is thus possible to locate the intake points at the parterre or on the façades of the buildings, and to integrate the roof exhausts appropriately into the roof landscape.

The design of air-conditioning units must take into account the operating units, the divisibility of the buildings and the operating times (night and weekend operation).

The system must allow night pre-cooling of buildings in the summer period.

Heat recovery and control of heat transfer between buildings will be used to the full extent in the air-conditioning system.

F.2.9. Thermal and Technical Parameters – Building Envelope

New Buildings

The thermal and technical design of the buildings will be in the **passive standard.** The requirement for values lower than $U_{PAS,20}$ according to ČSN 73 0540-2 applies to the structures. The specific solution will have to be discussed after the submission of the design of the building envelope.

Reconstructions

The thermal and technical design of the reconstructed buildings will be in the standard with **near zero energy consumption (NZEB**) – the buildings must comply with the PENB valid after 2022.

F.3. Electricity Grid

F.3.1. Objectives

Use of renewable energy sources – photovoltaics
Promoting electric mobility
Smart power management system
Purchase of electricity from RES/non-emission sources
Minimising the need for electricity

F.3.2. Principle

Apply the concept of energy balance for the whole smart district in management rather than partial management on a building-by-building basis.

F.3.3. Sources

Primary	Distribution network, external electricity supplier in the form of commercial contracts with RES/non-emission sources owners
Secondary	Photovoltaic panels
Accumulation	Battery storage

F.3.4. Photovoltaics

Location of photovoltaic panels

Estimated (required) area for PV panel installation – 3,000 sqm

- Roof of Building 04
- Cooling tower - from the 4th floor of the neighbouring buildings
- South façade of Building 04 and 05 – to be discussed with representatives of EG.D, a.s., the owner of the neighbouring building)

The energy obtained from the PV plant will be used for the needs of the site. According to the energy study, it is obvious that the demand of the site will be higher than the maximum installed capacity of the PV plant on the site.

When designing the spatial location of the PV plant vs. public spaces (green roofs, etc.), it is necessary to give priority to public spaces for use by the users of the site (people take priority over technology).

In cases where the intention is to shade public spaces, preference will be given to shading elements integrating photovoltaic panels and connected to the electric grid. We recommend that the investor consider the use of “biosolar roofs” (a combination of green roof and transparent panels). The transparent panels must be installed according to a clear concept so that the green roof benefits and the PV can be used to generate the appropriate power at the same time. The design of the biosolar roofs should be assessed by a radiation study, defining the optimal rotation of the panels and supporting the correct function of the green roof. Another appropriate place to use transparent panels is e.g. the parterre screening, possibly in relation to Point E.4.

F.3.5. Promoting Electric Mobility

Each parking space must be prepared from the point of view of energy infrastructure to be equipped (at least cable trays, DTS, etc.) with slow charging stations for electric vehicles (e.g. wallboxes).

The installation of fast chargers for electric vehicles is not required.

In association with the promotion of electric mobility, it is necessary to ensure sufficient and suitable space for the installation of the DTS / transformer and at the same time to consider sufficient power capacity to equip all parking spaces with this type and nature of electric vehicle chargers.

Similarly, charging of electric bikes, scooters, etc. must be ensured.

F.3.6. Minimising the Need for Electricity

It is required to install equipment with the highest energy label class, e.g. LED luminaires, ecodesign compliant equipment, etc.

F.3.7. Battery Storage

The battery storage will be used to improve the smart district's DDS as a whole, e.g. through peak shaving, in order to positively impact the overall reserved power capacity of the smart district.

The battery storage will be used to store cheaply purchased energy (off-peak); then the energy will be used on site during peak times.

The central battery storage facility will be located underground in the technological core of the site.

F.3.8. Smart Consumption Management System

The site will be equipped with a smart energy management system. Power consumption from major appliances will be automatically shifted to off-peak hours (cheaper energy rate).

The system will be equipped with identification of low and high rates, including feedback to users, e.g. warning of excessive consumption during peak hours.

Full installation of smart metering / smart meters on the site. The deployment of smart meters is also assumed in the knowledge that the consumption of the individual consumption sites will be standard due to their planned nature, i.e. will be low compared to the consumption of 6 MWh/year.

Smart LED public lighting with automatic dimming and brightness control depending on time of day, amount of natural light and ambient traffic.

F.4. Green and Blue Infrastructure

Objectives of design and implementation of water supply and sewerage systems:

- Minimising drinking water consumption
- Energy recovery from wastewater
- Reuse of grey wastewater
- Maximising rainwater storage and use

F.4.1. Minimising Drinking Water Consumption

Providing outlet fittings with perlators. Use of smart taps with the possibility of switching on the water saving mode.
Taps in public areas – automatic with sensor.

Do not use drinking water for flushing, but purified grey water. Toilets with adjustable water quantity for flushing.

F.4.2. Energy Recovery from Wastewater

Energy recovery from wastewater is required in the WORK AND LIVE and COWORK HUB buildings. Recovery will be central (for each building separately). The system consists of a heat recovery exchanger where energy from waste hot utility water is transferred to clean cold water from the drinking water source using heat-exchanging surfaces.

F.4.3. Reuse of Grey Wastewater

Reuse of grey wastewater is required in the WORK AND LIVE and COWORK HUB buildings. Grey water from showers, baths, and washbasins will be treated, sanitised and used for flushing toilets and urinals. It is not necessary for the treated grey water to be completely purified (clear). The degree and technology of purification will be determined in the next phase of the project. The grey wastewater will not be used for watering of greenery.
The system will be fed by rainwater and drinking water (backup).

F.4.4. Maximising Rainwater Storage and Use

It is necessary to capture the maximum volume of rainwater and store, treat and reuse it. The principle of convergence to zero rainfall runoff from the area. Excess rainwater will be absorbed. A hydrogeological assessment must be prepared in the area under consideration in order to verify the possibility or conditions of rainwater absorption on the site. Discharge of rainwater to a receiving water body will be placed at the end of the rainwater management system.

It is expected that the underground spaces will be used for the location of storage tanks and water treatment technologies.
It is necessary to separate rainwater from the roofs of the buildings from water from paved areas at the parterre level.
The principle of rainwater harvesting and distribution:

- From the roofs, it will be used for irrigation of green roofs or green façades;
- Rainwater from the parterre
  a) The parterre areas are to be suitably sloped to the greenery, without raised kerbs; it is necessary to create openings in the greenery for natural rainwater absorption and accumulation;
  b) Will be used for irrigation of greenery at the level of the public parterre.

F.4.5. Greenery Irrigation

The parterre areas are to be suitably sloped towards the greenery, without raised kerbs. It is necessary to create openings in the greenery for natural rainwater absorption and accumulation.
The irrigation of roofs, possible green facades and the parterre will be artificial with the possibility of programming, monitoring in the control room and zoning. The control system will include temperature and humidity sensors. The irrigation will be designed as absorption irrigation, drip irrigation with underground installation or a combination of both.
Water source – rainwater accumulation with backup drinking water replenishment.

Approximate water balance for irrigation

- Ideal rainfall for irrigation (needed April-September) 586 mm/sqm
- Average rainfall Brno 2010-2021 (April-September) 357 mm/sqm
- Total average precipitation in Brno (January-December) 520 mm/sqm

In the next phase of the project, it is necessary to perform an accurate calculation of the water requirements for irrigation and the volume of storage tanks, all taking into account the relative areas of intensive/extensive greenery/paved areas, their location, height, size, etc.

F.4.6. Blue Infrastructure

Misters – misting showers are to be installed at the parterre level. Source: drinking water. The location, number and type will be proposed by the investor in the next phase of the project.

Non-freeing outlet valves – to be located in green roof areas (community gardens), roof level play areas, public spaces (for maintenance), terraces, private balconies, or recreation features.

The outlet valves must be fitted so that:

- Green roofs are served throughout the area with a 20 m long hose;

- Each separate community garden has at least 1 outlet valve;
- Public areas served throughout the area with a 20 m long hose;
- Each terrace and recreation element has at least 1 outlet valve (drinking water);
- Private balconies, rest and recreational elements have at least 1 outlet valve (drinking water).

Drinking water connection points – outlet valve, hidden e.g. in a box in the paved area – used for connection of e.g. event stands, bars etc. To be installed in public areas, in the EVENT HUB. The location, number and type to be proposed by the investor in the next phase of the project.

Drinking fountains – drinking fountains will be installed in the public space, with the possibility of filling drinking water into a bottle, etc. The location, number and type will be proposed by the investor in the next phase of the project.

F.4.7. Water Area

The existing railway turntable will be converted into a water area, while enabling the construction of transport infrastructure. The water area will be provided with access – bringing users closer to the water – recreational functions.
Water source – accumulated rainwater. Water purification must be provided in the reservoir.

F.5. Intelligent Control and Data

It is required to provide intelligent building management with the possibility of data evaluation and its reverse application. Among other things, this will apply to metering of all media with evaluation in relation to current prices, evaluation of the prediction of the development of the profitability of consumption in time zones, communication outputs for customers enabling automatic control of consumption, etc. Due to technical and legislative developments, significant advances are expected in the capacity to manage the electricity consumed (even fed back). The detailed solution will be a matter for the next phases of the project.

All low-current systems from security, CCTV, Internet, TV, WiFi, etc. will be covered in the next phases of the project.

Fire protection system according to the applicable legislation.

G. WASTE MANAGEMENT

Waste generated during construction

The construction will be carried out in such a manner as to eliminate any waste generation. In the case of waste generation, its further effective utilisation on the project and possibly ecological processing will be proposed. All waste must be recovered. The investor is required to document how the waste has been utilised.

Before starting the design work, it is necessary to verify the material composition on the site and decide on the possibility of recycling and upcycling.

It is primarily required to recycle and upcycle waste from demolition works in the existing area during the construction of the new buildings and reconstruction of the existing buildings.

Waste generated from the operation of the building

The investor will prepare an analysis of waste management during the operation of the project and, based on the results of the analysis, design the waste management, optimise its size, etc.

Emphasise waste minimisation and waste management.

Designate sufficiently spacious, accessible and high-capacity waste collection sites.

In addition to commonly separated waste (plastic, glass, or paper), define sufficient capacity for the collection of metal, bio-waste, electrical waste, oils, and textiles.

Design underground containers at the parterre level in sufficient quantity with smart indication of filling. Equip the parterre with a sufficient number of bins.

H. TRANSPORT

Cycling

The design and realisation must aim to support cycling in the area and to connect the area to the city centre and to the EV9, GW Krakow – Moravia – Vienna cycle route.

A sufficient number of bicycle racks (inverted-U type) must be designed in the area at the parterre level. The estimated capacity of 80 bicycles. It is expected to be used for private bicycles as well as for shared bicycles or electric scooters.

Place bicycle parking spaces under individual buildings:
- 2 places per unit in the WORK AND LIVE building;
- 1 place for 5 job positions (COWORK, retail, etc.).

At the SE corner of the site, we will require a ground floor space buffer to allow for a bicycle connection linking Mosilana and the Smart District.

Stationary transport

Place parking spaces in underground spaces. The number must be designed according to the actual composition of the functional areas.

Parking spaces will not be allocated locally to specific users. The system will operate on the principle of “whoever arrives parks in the nearest available space”.

Free parking spaces will be signalled by an electronic system, with the possibility of linking the system to a smartphone app.

Promotion of shared mobility – 4 parking spaces for shared cars should be designed at the parterre level. Parking spaces must be highly visible and accessible.

At least 6 visitor stands and 2 K+R stands must be designed at the parterre level. The investor will verify the numbers according to the valid regulations of the Municipal Authority of the City of Brno.

Transport during construction

The transport during the project execution will be organised in such a manner as to minimise the negative impact of traffic on the construction surroundings, especially with regard to noise and dust. All mechanical means will be of minimum EURO 7 class and above.

I. BARRIER-FREE USE OF THE BUILDING

General principle – all spaces must be suitable for barrier-free use of the building. This includes the roof landscape, which must be accessible from the parterre.

The design must be prepared in accordance with Decree No. 398/2009 Coll., on general technical requirements ensuring barrier-free use of buildings, as amended.

In this case, this applies to the following structures:

Section 2 (1) (a) roads and public spaces

Section 2 (1) (b) civic amenities in parts intended for public use

Section 2 (1) (c) the common areas and home furnishings of a residential building containing more than 3 flats (hereinafter only as a "residential building"), an adjustable flat or a special purpose flat

Section 2 (1) (d) for the performance of work by a total of 25 or more persons, if the operation of such buildings permits the employment of persons with disabilities or buildings for the performance of work by persons with severe disabilities[5]) (hereinafter only as "buildings for the performance of work")

Roads and public spaces

Paved areas are designed at the prescribed slope; asphalt or paving must be smooth and therefore easily passable. Pedestrian routes shall be designed within the designed public space in a barrier-free manner. In accordance with the requirements of the Decree, guide lines, signal, guide and warning strips in the pavement, including visual differentiation, are designed in the parts where required, i.e. in accordance with Annex 1 and 2 to Decree No 398/2009 Coll.

Parking

Parking of passenger vehicles, including parking for persons with reduced mobility and orientation, is designed in an underground car park in accordance with Decree No. 398/2009 Coll. When addressing parking spaces, an adequate number of reserved parking spaces must be designed.

Access to buildings

The access to the building to all buildings and the roof landscape must be designed in a barrier-free manner, according to the requirements of Decree No. 398/2009 Coll.

J. SITE CERTIFICATION

It is required to obtain a certificate assessing economic, social and environmental sustainability. Due to the wide range of possible certifications and the complexity of the site, the exact certification is not predetermined. It will be a matter for the developer to undertake a study at the outset of the design to evaluate the various certifications and propose a certification model appropriate for the new Špitálka City District. Informatively, it is possible to mention the BREEAM COMMUNITIES (campuses) and BREEAM NEW CONSTRUCTION certifications for buildings.

K. ANNEXES

Annex 1 - Study of the Energy Concept of Brno Špitálka; EkoWATT CZ s.r.o.

Annex 2 - Indicative BSE Balance

Annex 3 - Indicative BSE Diagrams

The documents listed in Chapter B.6 Documentation are provided as a digital annex to the White Paper:

D1_SPITALKA_200511_Optimized.pdf

D2_Spitalka_situace_201103.pdf

D3_soutisk_zamereni_masterplan_220209.pdf

D4_200207-posudek-chladící věž.pdf

D5_celková situace Špitálka – kanalizace, vodovody.pdf

D6_koordinační situační výkres site Spitalka.pdf