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Cadastral area:	Dolní Břežany (628794), parcel no. st.1096
Developer:	The Extreme Light Infrastructure ERIC, ID No.: 109 749 38

Name of construction:

Construction of USERLABS laboratories at the ELI Beamlines research center

Partial section designer:

Building:

D.1 - LB Hall

Date:	08/2025	Paré number
Level:	DPZ	

Name

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Arch. No. **2025_60_B**

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B.1. General description of the area and of the building

a) Basic description of the construction; in the case of a change to the construction, information on its current state, conclusions of the structural-technical or, where applicable, structural-historical survey and the results of the static assessment of load-bearing structures,

The existing and completed LB hall is part of the complex in Dolní Břežany. The hall has a rectangular floor plan measuring approximately 48 x 18 m. The hall has two underground and three above-ground floors. The construction work will be carried out on the first basement floor of this building. The load-bearing structure of the building consists of a reinforced concrete skeleton.

b) Characteristics of the area and building plot, current use and development nd of the area, location in relation to floodplains, mined areas, etc.

The plot in question, no. 1096, is located in the municipality of Dolní Břežany [539210]. It is located in a built-up area, as it is part of the ELI Beamlines research center complex. The ownership right belongs to Extreme Light Infrastructure ERIC (ELI ERIC), Za Radnicí 835, 25241 Dolní Břežany.

Currently, the LB hall is located on plot no. 1096. It is a building without a number.
The land is listed in the land registry as a built-up area and courtyard and is used as such.

The building is located outside of flood and mining areas.

Characteristics of the parcels:

parcel no. 1096 - built-up area and courtyard, area 8902 m^2 , LV 2706

c) Information on the compliance of the construction with spatial planning documentation and spatial measures or with the objectives and tasks of spatial planning, and with the requirements for the protection of cultural, historical, architectural, archaeological, and urban values in the area.

According to the zoning plan valid from July 2024, the location in question is located in the

OV.1 – public civic amenities – science and research
Main use:
educational and administrative facilities, science and research facilities
Permitted use:

- congress facilities
- showrooms, exhibition halls, studios, studios
- other types of non-commercial civic amenities (e.g., for sports), provided that the relevant hygiene standards are met
- commercial facilities (as a supplementary function of science and research facilities, e.g., commercial facilities, public catering, services, accommodation, and small businesses)
- public spaces
- roadways, parking spaces
- green areas, playgrounds

- related technical infrastructure
- apartment(s) for the caretaker

Prohibited uses:

- family and apartment houses
- manufacturing, wholesale, and storage activities
- any other use not related to the main or permitted use Spatial layout conditions:

(applies to newly proposed areas):

- building coefficient – max. 50%, at least 30% of the land area will not be built on and will be used for utility or ornamental greenery (landscaped)
- for special-purpose buildings (laser halls), a lower greenery coefficient and a higher building coefficient are possible, subject to individual assessment during the zoning procedure
- height restriction: four above-ground floors, including a technical ground floor, attic, or recessed floor (max. ridge height 14.0 m) in exceptional cases for selected buildings in accordance with the zoning study, five above-ground floors, including an attic or recessed floor (max. ridge height 17.0 m)

The existing building complies with the municipal zoning plan. The proposed project will not result in any change in terms of compliance with the zoning documentation.

d) List and conclusions of nd surveys

An inspection of the site of the future laboratory extension was carried out. The building structure and technical equipment are in good technical condition and correspond to their age. They are suitable for the given project.

No further surveys are necessary for the project.

e) Information on the need for an exemption from building permit requirements,

No exemptions or relief solutions are required for the construction.

f) Existing protection of the area and buildings under other legal regulations, including the scope of restrictions and conditions for protection,

The construction is not located in a protected area, a heritage reserve, or a specially protected area.

g) Impact of the construction on surrounding buildings and land, protection of the surrounding area, impact of the construction on drainage conditions in the area, requirements for remediation, demolition,

The construction work will be carried out inside the existing building and will not affect the surrounding area or have any impact on surrounding buildings and land. The drainage conditions will not change as a result of the construction work. The proposed construction work does not require any remediation, demolition or tree felling.

h) Requirements for maximum temporary and permanent occupation of agricultural land or land designated for forestry purposes

The project will not result in permanent occupation of agricultural land.

i) Proposed and emerging protection and safety zones, scope of restrictions and conditions of protection under other legal regulations, including a list of land according to the real estate cadastre on which the protection or safety zone will be established, safety distance of the ammunition storage facility with the risk of shrapnel effect determined according to another legal regulation,

The construction project will not create a protective or safety zone. There is no ammunition depot in the vicinity of the site.

j) Proposed construction parameters – e.g., built-up area, enclosed space, floor area according to individual functions (apartments, services, administration, etc.), type of proposed technology, expected operating and production capacities,

The proposed extension:

Total built-up area:	227.36 m^2
Enclosed space:	556.4 m^3
Floor area:	227.36 m^2

The planned extension will not increase staff capacity or parking space capacity.

k) Limit balance of the construction – needs and consumption of utilities and materials, management of rainwater , total amount produced, types and categories of waste and emissions, etc.

The construction work will not increase the overall energy balance of the existing building. All connections to energy and utilities will be made from existing reserves.

Energy and media consumption:

- Electricity 155 kW
- Heating water 60 °C/40 °C 153 kW
- Cooling water 7 °C/12 °C 185 kW

Total amount and types of waste and emissions produced

The operation of the facility will not generate any hazardous waste; ordinary municipal waste will be disposed of by transporting it to designated containers and handing it over to a specialized company for disposal. If necessary, material leaving the Radiobiology Support Lab will be decontaminated in a decontamination autoclave. In the event of an accident, the operator will have an SOP in place to deal with this atypical situation.

Energy performance class of the building

The energy performance class of the building remains unchanged and is not covered by this project documentation.

The implementation of the plans will not result in any changes to the envelope of the heated space or to the existing energy and media sources.

l) Requirements for the capacity of public communication networks and the capacity of the electrical communication equipment of public communication networks.

Given the nature of the construction, there are no requirements for the capacity of public communication networks and electronic communication equipment of the public communication network.

m) Basic construction requirements – time data on the implementation of the construction, division into phases, material and time links of the construction, conditional, induced, and related investments.

The construction will be carried out in one stage.

Expected start date of construction	02/2026
Expected date of completion of construction	08/2026

However, not before a valid building permit is issued by the relevant building authority.

n) Basic requirements for early use of buildings and trial operation of buildings, duration in relation to completion and use of the building

Due to the nature of the construction, there are no requirements for early use or trial operation.

o) List of surveying results according to other legal regulations, if, according to the project, the surveying results are to be created in connection with the building permit .

Not addressed due to the nature of the construction.

B.2. Urban planning and basic architectural design

Urban planning – spatial design and basic architectural design.

The construction project has no impact on the urban planning of the given location. The implementation will take place inside the building in the space reserve on the 1st basement level without affecting the spatial or architectural design of the existing building.

B.3. Basic structural, technical, and technological al design

B.3.1. Overall concept of the structural and technological solution

The construction and technical solution consists of creating new spaces in the form of a lightweight prefabricated structure within the existing building.

Two laboratory units will be built into the extension:

- LASER lab;
- Radiobiology support lab;

As part of the construction work, the existing TPS systems will be modified or expanded. This will involve modifying the existing ventilation system, heating and cooling distribution systems, and expanding the electrical and low-voltage systems.

B.3.2. Overall solution for accessibility conditions

a) Overall accessibility solution with specifications of individual parts subject to accessibility requirements, including the impact of premature use and trial operation and the impact on the surrounding area.

Not addressed due to the nature of the construction.

b) Description of proposed measures – in particular access to the building, building spaces, and systems intended for public use.

The construction modifications to the existing building will not affect accessibility. The building is not intended for public use.

c) Description of the impact on accessibility in terms of the application of serious territorial-technical or construction-technical reasons or other public interests.

The construction has no impact on accessibility.

B.3.3. Safety principles for the use of the building

The construction modification of the DS is designed to meet the safety requirements for the use of buildings in accordance with Decree No. 146/2024 Coll. on construction requirements. Due to the operation and use of the building, there are no requirements for risk reduction, safety zones, or escape routes. The evacuation of persons from the building to open space is ensured by unprotected escape routes in accordance with the requirements of ČSN. The safety and correct implementation of the equipment associated with the use of the building will be confirmed by inspection reports from professionally qualified persons.

Safety during the actual use of the building after its commissioning will be defined by safety regulations drawn up by the user. These will take into account the basic safety rules with regard to the nature of the work and the technology used at individual workplaces.

LASER lab

The LASER lab space will be divided into two parts:

- Preparation area;
- Area for working with the LASER;

A chemical fume hood will be installed in the preparation area for handling chemicals.

The LASER work area will be divided into two separate parts, which will also be separated from the preparation area by a physical barrier. This will provide protection from the laser beam.

A Class 4 LASER will be used in the laboratory. Safety measures and laboratory working procedures must correspond to this. In particular, the following safety measures will be implemented:

- LASERs will be secured against being started up by an unauthorized person;
- The area will be marked with safety signs and unauthorized persons will be prohibited from entering;
- The LASER work area will be separated from the preparation area by a physical barrier that meets LASER safety requirements;
- The area will be equipped with optical signaling of LASER operation. This must be visible even when wearing protective goggles;

For details, see Government Regulation No. 291/2015 Coll. and related regulations.

Radiobiology support lab

A chemical fume hood is designed for handling chemicals in this section.

Two Class II Type A2 microbiological laminar boxes are designed for working with samples to protect the product and personnel from particle and bacterial contamination.

From a biological safety perspective, this laboratory is classified as UTZ2 (BSL2) and GMO1. The premises are treated with a fresh air forced ventilation system with HEPA filters.

List of chemicals and sanitizing agents used in the LASER lab

Group	Substance	Quantity [l, kg]	Storage	Handling
Alcohols	ethanol	1	chemical cabinet	Chemical fume hood
	methanol	1	chemical cabinet	chemical fume hood
	isopropanol	1	chemical cabinet	chemical fume hood
Hydrocarbons	hexane	1	chemical cabinet	Chemical fume hood
	cyclohexane	1	chemical cabinet	chemical fume hood
Chlorinated hydrocarbons	dichloromethane	1	chemical cabinet	Chemical fume hood
Solvents	acetone	1	chemical cabinet	Chemical fume hood
	toluene	1	chemical cabinet	chemical fume hood
Other	paraformaldehyde	1	chemical cabinet	chem. fume hood

Radiobiology support lab

Group	Substance	Quantity [l, kg]	Storage	Handling
Alcohols	ethanol	1	chemical cabinet	Chemical fume hood
	methanol	1	chemical cabinet	chemical fume hood
	isopropanol	1	chemical cabinet	chemical fume hood
Acids	sulfuric acid	1	chemical cabinet	chemical fume hood
	hydrochloric acid	1	chemical cabinet	chemical fume hood
	nitric acid	1	chemical cabinet	chemical fume hood
Principles	sodium hydroxide	1	chemical cabinet	Chemical fume hood
Solvents	acetone	1	chemical cabinet	Chemical fume hood
	toluene	1	chemical cabinet	chemical fume hood
	xylene	1	chemical cabinet	chemical fume hood
Other	paraformaldehyde	1	chemical cabinet	Chemical fume hood

Sanitation

Standard sanitation agents and procedures will be used in clean areas. This means that individual surfaces will be sanitized by wiping with a sanitation solution. Fumigation will not be used for sanitation and decontamination of clean areas.

Individual sanitizing solutions will be stored and prepared outside clean rooms in existing areas of the building designated for this purpose.

Sanitizing agent	Concentration
Glutaraldehyde	2
Formaldehyde	4
Chlorine (SAVO)	
Quaternary ammonium compounds	4
Incidin (isopropanol=2-propanol)	80
Phenol	2 - 5
Hydrogen peroxide	5–10
Peroctic acid	15
Isopropyl alcohol	70–99

Solutions are used to sterilize surfaces, used glassware before washing, and biological material before disposal.

If it is necessary to disinfect the laboratory, agents specific to particular microorganisms will be used. Currently, the following are used in the existing premises:

- Incidin Oxyfoam;
- Incidin Active;
- Skinman foam;
- Skinman Soft;
- Bacilol Sensitive;
- Savo.

Disinfectants are changed every 3 months to prevent microorganisms from developing resistance to the disinfectant used.

Surfaces in laboratories must be resistant to alcohol solutions, acids, alkalis, oxidizing agents (hydrogen peroxide), quaternary ammonium compounds (benzalkonium chloride, didecyldimethylammonium chloride).

In general, laboratory surfaces must be:

- Chemically resistant (especially to pH 2–12);
- Non-reactive and non-porous (so that they do not absorb substances and microorganisms);
- Easy to wash and free of microcracks;
- Mechanically resistant to scratches and abrasion;

B.3.4. Basic technical description of the building

a) Description of the current

The supporting structure of the hall consists of a reinforced concrete skeleton. The non-load-bearing structures are brick partitions. Both vertical load-bearing and non-load-bearing structures in the space in question are coated. The floor covering in rooms LB.01.32 and LB.01.31 consists of a screed. In room LB.01.29, the floor covering is a concrete screed.

The spaces contain electrical, HVAC, and pipe distributions that are not covered.

b) Description of the proposed structural and constructional solution

The existing non-load-bearing partition between rooms LB.01.32 and LB.01.31 will be demolished. After demolition of the partition, the existing floor structure will need to be repaired. These modifications will create a single space that will continue to serve its original purpose.

In room LB.01.29, partition walls will be erected to divide the existing space into seven rooms, which will be used as laboratories. New floor coverings and cassette ceilings will be installed in these rooms.

Partitions

Vertical non-load-bearing structures (partitions) will be constructed from a steel structure clad with gypsum fiber boards with a total thickness of 100 mm. The joints will be filled and sanded. The partitions will be painted in RAL 9010 and coated with ceramic interior paint.

Some of the partitions will be acoustic. Acoustic insulation with a thickness of 60 mm will be inserted into these partitions.

Floors

The wear layer will be made of antistatic PVC. The electrical resistance of the wear layer will be $5x10^4$– $5x10^8$ Ω.

Suspended ceilings

Suspended ceilings in rooms with a defined cleanliness class will be made of lightweight metal cassette ceilings allowing for the integration of lighting fixtures and ventilation elements.

Suspended ceilings in rooms without a defined cleanliness class will be made of mineral

cassettes. Technical rooms will have no suspended ceilings.

Interior doors

These are single-leaf or double-leaf interior doors, solid or partially glazed.

The door leaves will be rebated, made of galvanized sheet metal filled with mineral wool. The door leaves will be powder coated in RAL 9010. The door leaves will be fitted with stainless steel kick plates. The door frame will be steel, suitable for installation in a prefabricated partition.

Surfaces

All surfaces must be resistant to cleaning agents and procedures.

B.3.5. Technological solution – basic description of technical and technological equipment

a) Description of the current technological and equipment status

The space for the future laboratory is currently listed as reserve space.

Adjacent to the reserve space is the air conditioning machine room, which consists of two rooms. The air conditioning machine room contains existing technical equipment and media distribution systems. These will be partially dismantled and modified for the needs of the newly proposed solution.

b) Description of the

proposed solution

Technological solution

There is a separate entrance from the common corridor to the new laboratory space, which is designed on the
1st floor in the existing space reserve and will consist of two separate units:

- LASER lab;
- Radiobiology support lab;

The entrance to the laboratory space will be shared from room LB.01.16 to the corridor, from which there is access to the individual sections and the existing air conditioning machine room.

LASER lab

It consists of one room, which is accessed via an airlock that serves as both a personnel and material passage. From the main room, there is an exit to the emergency staircase.

Required indoor environment parameters:

- Temperature 22–± –1.0 °C
- Humidity 50± 5%

Radiobiology support lab

The laboratory space is classified as UTZ2 (BSL2) and GMO1.

The animal facility itself is accessed via a preparation room, which serves as a support room for the animal facility. The following activities will take place here:

- Handling of animals;
- Preparation of feed;
- Washing breeding containers and equipment;
- Waste collection and preparation for transport;
- Decontamination of waste in a decontamination autoclave;

The animal facility will house experimental laboratory animals. These will be mice kept in IVC boxes, which will be placed in separate mobile cabinets. Fish (zebrafish) will also be kept here in a separate breeding system. Both species of animals will not be kept in the animal facility at the same time.

The laboratory facilities consist of two rooms, namely an entrance room for preparation and inverse fluorescence microscopy and the main laboratory area, where the cultivation and monitoring of irradiated human cells in oxic and hypoxic conditions will take place.

In the laboratory rooms, cells will be cultivated in CO_2 incubators with controlled temperature, humidity, and CO_2 levels. In addition, irradiated human cells will be monitored under oxic and hypoxic conditions. The actual irradiation of cells will be carried out in the main part of the research center, where conditions are specially adapted for this purpose.

Required internal environment parameters:

- Temperature 22–± –2.0 °C
- Humidity 45–± 15%

Main technological equipment

LASER lab

Location / facilities	**Number**
LASER lab	
LASER 1	1
LASER 2	1
LASER 3	1
Chiller for samples	1
Pressure cylinder cabinet	1
Chemical fume hood	1

Radiobiology support lab

Location / equipment	**Number**
Animal facility	
Preparation	
Steam sterilizer 160 l	1
Animal enclosure	
Fish breeding system	1
Breeding system for mice	2
Laboratory facilities	
Microscopy laboratory	
Chemical fume hood	1
+ PC inverted fluorescence microscope	1
Main laboratory	
Source of DEMI water	1
Centrifuge	1
Microwave	1
Water bath	1
+ inverse microscope PC	1
Refrigerator	2
Class II microbiological laminar box	2
CO_2 incubator	2
Cabinet for CO_2 pressure cylinders	1
Cryogenic storage system	1

LASER lab equipment

The laboratory will be equipped with optical tables with the necessary technology for laser operation

lasers. Work tables, cabinets, and wall cabinets will also be installed. A table with a sink will also be installed.

The individual elements will be suitable for placement in clean rooms.

The exact specifications of the individual elements will be addressed in separate documentation, which is not part of this project.

Radiobiology support lab

These will mainly be laboratory tables and chairs, supplemented by storage cabinets and wall cabinets. Each laboratory will also include a table with a sink and an eye wash station.

In the animal room, in the Preparation room, there will also be a washing table with a sink for washing breeding containers and equipment.

Movement of personnel and materials

The layout does not address the separate entry/exit of personnel and materials. If airlocks are part of the layout, they serve both personnel and materials. Airlocks are designed to be bidirectional.

Access to the renovated areas is from the existing room No. LB.01.16 to a common corridor, from which there is access to individual sections:

- Animal facility;
- Laboratory areas;
- LASER lab.

Building services Health technical

installations

In the adjacent space, adjacent to the space in question, there are two systems existing backbone distribution systems for internal water supply from the water main, fire water distribution, and drinking water distribution.

New distribution systems for the space in question will be connected to these lines by installing branches with shut-off valves, routed under the ceiling and connected to the height of the individual fixtures, equipment, and fittings. Sectional stainless steel shut-off valves with drainage will be installed on the branches from the backbone distribution systems.

There is an existing fire hydrant cabinet in the built-in space.

The existing fire hydrant cabinet in the area in question, which is in an unsuitable location, will be moved to a new location.

In the adjacent area, adjacent to the area in question, there is an existing gravity sewer system, to which the proposed sewer system will be connected by installing a branch.

The proposed washbasins and sinks will be drained using local compact

floor-mounted pumping stations, which will be connected by discharge pipes under the ceiling in the installation space to the existing gravity sewer system located in the adjacent space.

Ventilation

The ventilation and air conditioning concept for the space is designed to ensure the prescribed values for hygienic air exchange and the required temperature and humidity parameters.

Air conditioning units located in the ventilation machine room on the 1st floor and in the technical room will ensure thermal and humidity control of the air. Air intake and exhaust to the outside will be handled via existing concrete ventilation shafts that extend above ground level.

Ventilation and air conditioning of rooms is designed as follows:

- with 100% forced air exchange;
- with air circulation with a defined proportion of fresh air.

From an operational point of view, the ventilation equipment is divided into three separate units:

- Unit No. 21 – air conditioning and ventilation of laser laboratories on the 1st and 2nd floors
    - Minimum proportion of fresh air 15%;
    - Minimum air exchange according to the performance of the existing AHU1 equipment;
- Equipment No. 22 – air conditioning and ventilation of analytical laboratories on the 2nd basement floor;
    - Min. fresh air ratio 35-45%;
    - Minimum air exchange in rooms 8 x/h;
- Equipment No. 23 - air conditioning and ventilation of the animal facility and microbiological laboratory on the 1st floor;
    - Fresh air system, 100% fresh air;
    - Minimum air exchange in rooms 8 times/hour.

Ventilated and air-conditioned areas will be equipped with 3-stage supply air filtration, the first two stages of filtration will be located in the air conditioning units, and the final third stage of filtration, a HEPA filter, will be installed in the supply air ducts, which will be located in the metal suspended ceilings of the individual rooms.

The ventilation system will be designed to ensure a permanent cascade system of air overpressure/underpressure in individual rooms. Digital pressure gauges will be installed for visual inspection of pressure conditions between individual rooms.

Heating and cooling water

This involves the use of existing central sources in the building, from which backbone distribution systems are connected to the existing ventilation machine room.

The existing distribution system in the HVAC machine room will be optimized to free up space for the newly installed equipment.

New pipe nodes will be installed for individual HVAC equipment.

Building electrical installations and lighting

A new switchboard will be designed for the new premises, from which individual consumption points (sockets, fixed technology connections, lighting, etc.) will be connected.

New cable distribution will be carried out exclusively with CXKH-R and CYKY cables, laid freely in SDK partitions, in the space above the suspended ceiling, and in exposed cable storage systems.

LED lights in the appropriate design and protection class are proposed for artificial lighting in the laboratories.
The lights will be installed in lightweight cassette ceilings (mineral cassettes, metal cassettes).

Appropriate types of luminaires will be used in clean rooms.

In the event of a main power failure, the rooms will be illuminated by emergency lighting. Luminaires with a built-in battery with an operating time of 1 hour will be used.

Low-voltage

From the point of view of low-voltage distribution, this will involve the extension of the building's existing systems.
This will involve:

- Door status signaling
- Structured cabling (data and telephone network) – SCS
- Camera system
- Access system, attendance
- Measurement and control
- Electric fire alarm
- Evacuation radio

c) Energy- nd calculations

Energy calculations from the perspective of energy and heat savings are not part of the project. Energy calculations for the needs of individual professions are part of the relevant section of the project documentation.

B.3.6. Fire safety principles

a) Characteristics and criteria for determining the building according to the requirements of other legal regulations – height of the building, built-up area, number of floors, number of people for whom the building is intended, or other building parameters, in particular the clear height of the floors or the length of the tunnel, etc.

Fire safety solutions are part of sub-section D.3 of the project documentation.

b) Criteria – class of use, presence of hazardous substances or other risk factors, declaration of the structure as a cultural monument.

Fire safety solutions are part of sub-section D.3 of the project documentation.

B.3.7. Energy savings and thermal protection of the

The implementation of the project will not increase the overall energy balance of the existing building.

B.3.8. Hygienic requirements for the building, requirements for the working and communal environment

Principles for determining building parameters (ventilation, lighting, sunlight, shading, water supply, protection against noise and vibrations, waste, etc.) and the impact of the building on its surroundings (vibrations, noise, shading, dust, etc.).

Ventilation

Ventilation and air conditioning of rooms is designed with 100% forced air exchange.

Lighting

The laboratory spaces will be lit by artificial lighting. LED lights are proposed for the artificial lighting of the laboratories. The lights will be installed in cassette ceilings (mineral and metal cassettes).

Special lighting requirements

M.č. LB.01.29.7 Laser Lab:

- Color temperature 5400 to 6500 K with Ra≥ nd 85 (min. 80);
- For optical spectroscopy, the lights will be dimmable in the range of 1% to 100% with continuous adjustment;
- Maintained illuminance min. Em= ,800 lx at a reference level of 0.85 m above the floor;
- Flicker – Flickering light and stroboscopic effects must be eliminated (in accordance with Commission Regulation (EU) (EU) 2019/2020 (https://eur-lex.europa.eu/legal-content/CS/TXT/?uri=CELEX:32019R2020)), according to which the supplied light sources should meet the relevant criteria (Pst LM ≤ 1.0, SVM ≤ 0.4). The criteria must be met across the entire dimming range (i.e., 1%–100%).

Other laboratory spaces:

- Maintained illuminance min. Em= nd 800 lx at a reference level of 0.85 m above the floor;
- Flicker – Light flicker and stroboscopic effects must be eliminated (in accordance with Commission Regulation (EU) (EU) 2019/2020 (https://eur-lex.europa.eu/legal-content/CS/TXT/?uri=CELEX:32019R2020)), according to which the supplied light sources should meet the relevant criteria (Pst LM ≤ 1.0, SVM ≤ 0.4).
- Supplementary lighting with LED strips installed as part of the laboratory furniture delivery;

Water supply

New distribution systems for the spaces in question will be connected to the existing distribution systems by installing branches with shut-off valves. They will be routed under the ceiling and connected to the height of the individual fixtures, equipment, and fittings.

Noise

As part of the technological equipment of the building, sources of noise and vibration are located in designated areas – the HVAC machine room.

Government Regulation No. 272/2011 Coll. sets permissible limits for noise and vibration. The technological equipment in the laboratories does not generate noise above these limits.

Vibration

The construction does not cause vibrations in the surrounding environment during operation.

B.3.9. Principles of protecting the building from the negative effects of the external environment

Flood protection measures, protection against radon penetration from the subsoil, stray currents, technical and natural seismicity, aggressive and pressurized groundwater, noise and other effects – the impact of underground mining, the occurrence of methane, etc.

Flood protection measures are not necessary because the building is not located in a flood zone.

The proposed building is not threatened by stray currents, natural or technical seismicity, aggressive or pressurized water. Due to its nature, the building does not require special measures against noise, as noise from the building will be absorbed by the perimeter structures.

The construction is not threatened by any other harmful influences.

B.4. Connection to technical and infrastructure

Not subject to discussion. The existing solution remains unchanged.

B.5. Transport infrastructure solution

Description of the transport solution, connection of the area to the existing transport infrastructure, relocations, including pedestrian and bicycle paths, stationary traffic, accessibility and barrier-free use solutions.

Access and entry to the building in question is via the existing entrance to the site from the local road. The road is suitable for the entry of vehicles providing for the construction in terms of its technical and capacity characteristics. There will be no need to increase the capacity of the access roads.

The traffic situation will not be affected by the implementation of the project.

Walking and cycling paths will not be affected. There will be no need to increase parking capacity

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B.6. Vegetation and related terrain nd landscaping solutions

No such work is anticipated.

B.7. Description of the impact of the construction on the environment and its protection

a) Impact on the environment and measures to minimize negative impacts – especially nature and landscape, Natura 2000, limiting the undesirable effects of outdoor lighting, the presence of asbestos, noise, vibrations, water, waste, impact on the climate and air, including the classification of stationary sources and assessment of compliance with the measures set out in the relevant air quality improvement program under other legislation([3])) ,

The implementation of the project concerns only the interior of the building. The outdoor area will not be affected in any way, not even by waste production and emissions from the new laboratory operations. The proposed construction work will be carried out in accordance with Act No. 201/2012 Coll. on Air Protection and Decree of the Ministry of the Environment No. 201/2012 Coll. on the determination of emissions from stationary sources and on the implementation of certain other provisions of the Air Protection Act.

The construction is designed in accordance with the zoning plan. The operation will not worsen the existing noise pollution. The actual construction and technical solution will be implemented in such a way as to meet the requirements of the applicable legislation, in particular Government Regulation No. 272/2011 Coll. on the protection of health against the adverse effects of noise and vibration, and the applicable related standards.

The operation of the facility will not generate any hazardous waste; ordinary municipal waste will be disposed of by collection in designated containers and handed over to a specialized company for disposal. If necessary, material leaving the Radiobiology Support Lab will be decontaminated in a decontamination autoclave. In the event of an accident, the operator will have an SOP in place to deal with this atypical situation.

The construction will not affect nature or the landscape. There is no protected fauna or flora on or near the site.

The construction has no impact on the Natura 2000 network of protected areas.

The construction itself is not located in any protection zone of significant technical equipment or networks. The construction does not affect any protected areas. The construction does not require the establishment of new protection zones.

b) The manner in which the conditions of the binding opinion on the assessment of the impact of the project on the environment ( ) are taken into account, if applicable.

The nature and location of the construction do not require this.

c) Description of the compliance of the project with the project notification pursuant to the Act on Environmental Impact Assessment, if the preliminary investigation was concluded with the conclusion that the project is not subject to further assessment under this Act.

Not required due to the nature and location of the construction.

d) In the case of projects falling under the Integrated Prevention Act , the basic parameters for implementing the conclusions on best available techniques or integrated permits, if issued.

Not required due to the nature and location of the construction.

B.8. Overall water management solution

In particular, the water supply to the construction, the method of wastewater disposal, and the use and management of rainwater.

Drainage conditions will not be affected by the construction.

B.9. Protection of the population

Compliance with basic requirements in terms of fulfilling civil protection tasks

a) Method of warning and informing the population of an impending or actual emergency

This is ensured by a unified warning and notification system in the Czech Republic.

b) Method of ensuring the sheltering of the population

The sheltering of the population in the event of a non-military threat will be carried out using improvised shelters in accordance with the instructions of the Fire and Rescue Service of the Czech Republic. In the event of a state of war, the sheltering of the population will be carried out in permanent civil protection shelters.

c) Method of ensuring protection against the hazardous effects of dangerous substances in buildings in emergency planning zones

Not addressed due to the nature and location of the building.

d) Method of ensuring protection against nd floods,

The building is not located in a flood zone. In the event of flooding, protection will be provided in accordance with the instructions of the Fire and Rescue Service of the Czech Republic.

e) Method of ensuring the self-sufficiency of the building in the event of a power failure in the event of a disaster or flood in buildings providing public amenities.

Due to the nature of the building, this is not addressed.

f) Method of ensuring the protection of existing civil protection structures in the area affected by the construction or construction site, their list, location, and description of the possible impact on their function and operability.

The proposed construction will not endanger existing civil protection structures.

B.10. Principles of construction organization and management

a) Connection of the construction site to the existing transport and technical infrastructure,

Access and entry to the building in question is via the existing entrance to the site from the local road. The road is suitable for vehicles providing for the construction in terms of its technical and capacity characteristics. There will be no need to increase the capacity of the access roads.

The traffic situation will not be affected by the implementation of the project.

b) Protection of the construction site surroundings and requirements for related remediation, demolition, , dismantling, deconstruction, and tree felling, etc.

The proposed construction work does not require remediation, demolition, dismantling, deconstruction, or tree felling.

c) Entry and access to the construction site, access to the construction site during construction, or access routes, including requirements for bypass routes for persons with limited mobility or orientation, and methods of ensuring traffic safety.

Access and entry to the building in question is via the existing entrance to the site from the local road. The proposed construction does not require the construction of bypass routes for persons with reduced mobility or orientation.

d) Maximum temporary and permanent land use for the construction site ( ),

Not subject to discussion.

e) Environmental protection requirements during construction – in particular measures to minimize the impact of construction on the environment, description of the presence of hazardous substances during construction, waste prevention, sorting of materials for recycling for material recovery, including a description of measures against contamination of materials, the building and its surroundings, measures for handling asbestos, measures to reduce noise from construction activities, and measures against dust,

The implementation of the project concerns only the interior of the building. The outdoor area will not be affected, not even by waste production and emissions from the new laboratory operations.

f) Occupational health and safety principles at the construction site,

The construction will be carried out by a construction company. All work must be carried out in compliance with all safety regulations, technological rules, and applicable standards in accordance with Act No. 309/2006 Coll., including Government Regulation No. 362/2005 and Government Regulation No. 591/2006 Coll. on occupational safety and technical equipment in construction work. Basic provisions on general obligations, rights, possibilities, and tasks related to occupational safety and health protection at work

are generally stipulated in the Labor Code. This issue is described in detail primarily in the following regulations and decrees:

- MSV decree on training and registration of construction machine operators

- Hygiene regulations on hygiene requirements for the working environment

- MSV Directive No. 1/85 on the provision of protective work equipment

- ČUBP decree on the recording and registration of occupational accidents and reporting of operational accidents

- OHS guidelines for work on water management facilities

Occupational health and safety is an equal and integral part of the preparation, planning, and performance of production or work tasks. Special OHS requirements

occupational health and safety apply in the protection zones of other engineering networks,

especially energy networks. The following technical standards must be observed in

particular:

- ČSN 733050 – Earthworks

- ČSN 341010 – General regulations for protection against contact voltage hazards.

Minimal dust and noise levels must be ensured. Existing roads will be used for access to the construction site.

g) Earthworks balance, requirements for the supply or disposal of soil ,

No earthworks are expected to be carried out.

h) Limits for the use of high-altitude mechanization,

The use of high-altitude machinery is not anticipated.

i) Requirements for the gradual commissioning (use) of the building, requirements for the course and method of preparation and implementation of construction, and other specific requirements,

The construction will be put into operation (use) by a final approval decision issued by the building authority.

j) Proposed construction phases for the purpose of conducting inspections.

Inspections are expected to take place once a week throughout the entire construction period, unless otherwise agreed.

k) Temporary structures,

The use of temporary structures is not anticipated. They are not covered by this solution.