EDUCATIONAL PURPOSE BUILDING (7.11), M. MARCINKEVIČIUS ST. 72, VILNIUS,
ARCHITECTURAL OPEN PROJECT COMPETITION

ŠLAITE

CONTENT

1. MAIN PLOT AND BIULDING INDICATORS

	Name of the project	Educational purpose building (7.11), M. Marcinkevičius st. 72, Vilnius, architectural open project competition"
	Main parameters of the plot, building and solutions:	
1.1.	Tipe of building	Free planning construction
1.2.	Building density	22%
1.3.	Construction intensity	0,40
1.4.	Area of green plots	10684 m^2 50,5%
1.5.	Total area of biulding	8452,76 m^2
1.6.	Usable area of the biulding	8452,76 m^2
1.7.	Building voliume	50127 m^3
1.8.	Floor count	2 + ground floor
1.9.	Maximum absolute alitute	164,60m
1.10.	Number of parking spaces for vehicles (including bicycles)	16 car parking spaces 5 kiss and ride spaces 60 bicycle parking spaces
1.11.	Total area of sports fields on the plot	1980 m^2
1.12.	The total area of hard surfaces on the plot	6386,81 m^2
1.13.	Maximum biulding hight	12,00 m

2. DESCRIPTION OF THE IDEA

2.1. Urbanistic idea and landscape architecture

The purpose of the project is to design a school. Not just a building, not just a plot of land with engineering structures, but a whole that would be inclusive, human, with a tangible connection between nature and man, open to everyone, inviting to develop and discover, see and experience.

The task we have set ourselves is to integrate the future objects into the existing environment, changing as little as possible and adapting more.

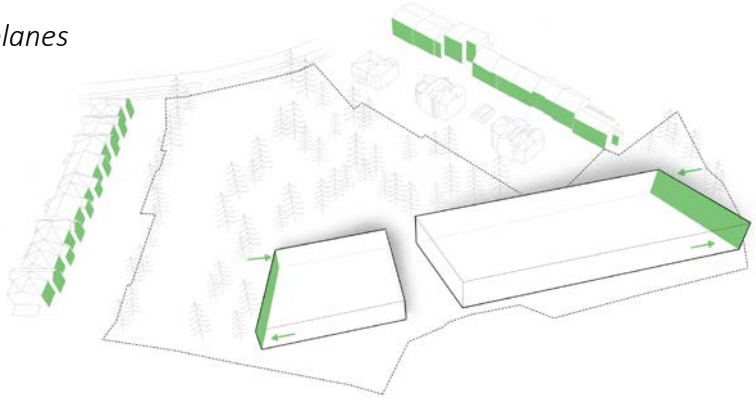
The leitmotif of the project – **šlaitas**.

Axils of compozition. Existing biuldings.

The existing houses in the block are built perpendicular to the axis of the street, which is curved in this place, which is why the composite axes of the building are radii. The project refuses to continue such composition of volumes, because uncomfortable spaces between buildings, unresponsive to the existing environment, a natural framework are formed.

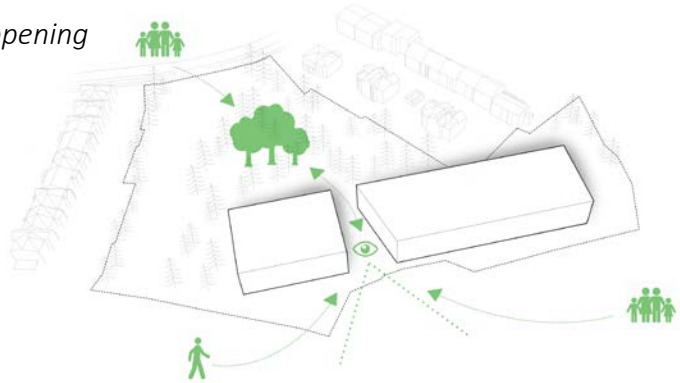
The slope is chosen as the main compositional axis, the building volume is oriented along it, and the axis of the rays is reflected in the voids of the volume, in the structure of the paths. With such construction composition, it is possible to form a green yard/park space, and it also responds to the environment and the surrounding construction.

Interaction of facade planes



The school building is being designed in the southern part of the plot, and due to the existing relief, it is partially inserted into the slope. Also, the volume is divided into two parts, with a passage between them - a terrace. Such composition and division of the volume allows preserving the massifs of valuable trees growing on the plot, reacting to the existing and planned structure of paths and opening views of the city panorama both from the plot and from the building.

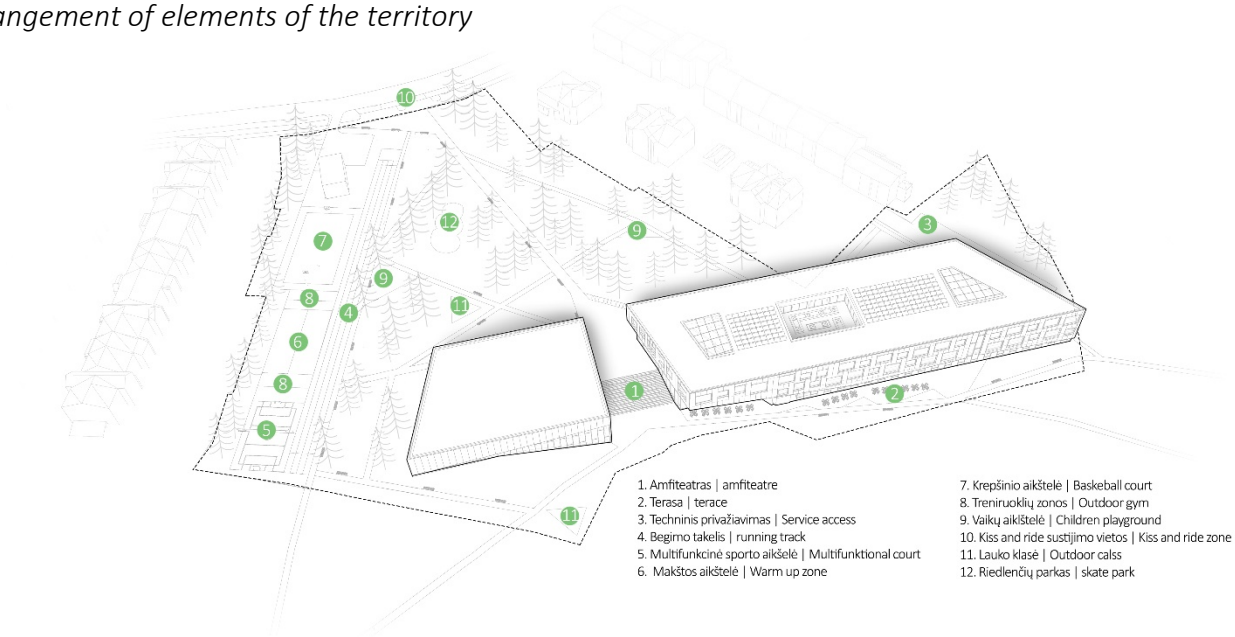
Volume partitioning and opening



The existing relief of the plot and the slope in the southern part of the plot, the groups of protected greenery influenced the layout of the playgrounds and other elements necessary for the functioning of the school, and the formation of functional spaces.

The territory is clearly divided: a park is formed in the middle of the plot, providing outdoor classes, botanical expositions, children's playgrounds, etc.; the sports zone is installed in the western part of the plot, closest to the gymnasium, taking away the illegally fenced area; on the front side, an inner courtyard is formed - a terrace, with an amphitheater and cozy rest and viewing areas.

Arrangement of elements of the territory



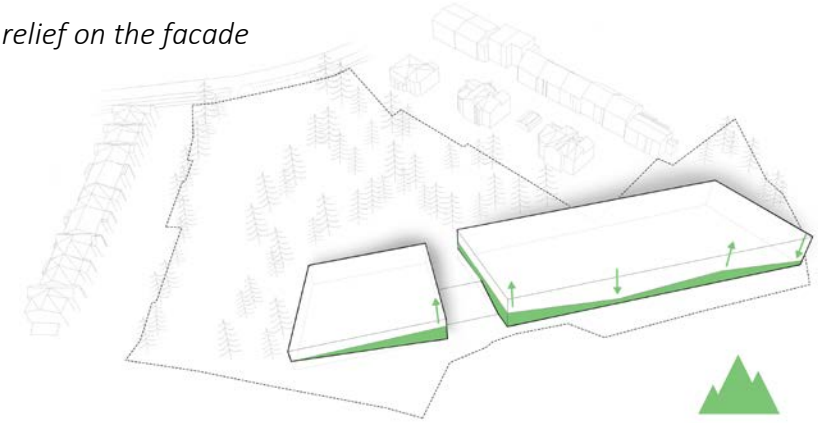
According to the valid general plan of the city of Vilnius, a detailed plan of the territory will have to be prepared for the implementation of the project, regulating the construction zone and height on steep slopes. It is also appropriate to provide for the lifting of the existing electricity transformer.

2.2. Architecture ant interior idea

Following the principle of adapting, not changing, and continuing the main leitmotif, the school building is built into the plot on a slope. Since the volume is partially buried, the former relief of the plot is recalled in the facade - the lower part of the building reproduces the contours of the former relief in a stylized manner. The facades of the building are designed in such a way that there are as many transparent barriers to the outside as possible, therefore the spaces of the first floor and the hall are designed with glass facades, and the upper floors are designed with large

windows in the facades of cross galvanized metal mesh. This creates a "living" facade that will reflect the surrounding nature and change not only during the day, but also with the changing seasons. Also, growing climbing plants will give life to the facade of the galvanized cross mesh.

Replication of the relief on the facade



The school building is divided into two volumes - sports and education, with a square between them - an amphitheater intended for both school and community events. Closest to this square, a common space is designed in the educational building - the hall. The square with the amphitheater and the hall is the axis of the school, which unites the whole life of the school during and after classes. From this axis, you can access all mass gathering spaces - sports and assembly halls, canteen. These spaces are designed to open up a panorama of nature and the city to both passers-by and students. Also, such an axis solution allows events to be held both outdoors and indoors at the same time.

The building is designed to have three floors, with the first floor partially sinking into the slope. On the first floor, an auditorium, a sports hall with accessories and an assembly hall (these spaces are designed over two floors), a canteen with a kitchen, art classes, and an administration building are designed. A terrace has been designed outside the canteen, where you can not only eat, but also read books in the rest areas and enjoy the panoramic views of the city.

On the second floor, a lounge/hall (connecting all floors), classrooms, a library with a reading room, and common spaces are designed. Spectator stands are designed in the sports building on the second floor (with direct access from the field).

On the third floor are there are education classrooms, common spaces, as well as a terrace formed on the roof of the second.

Two atriums are designed in the educational building - one for the auditorium, passing through three floors, the other near the library, passing through the second and third floors.

The classrooms and classrooms are designed to be functionally close to each other, and the building's large windows let in as much daylight as possible and create an immediate connection between the interior and exterior.

2.3. Educational purpose building identity and fulfillment of its needs

The main gathering space of the school community is the auditorium. It is designed in the center of the building, connects all floors of the building, and all the most important functions of the school are designed around it. Next to it there are recreation, game areas, sports and assembly halls, canteen, etc. It is a living space that has visual connections with the amphitheater, the courtyard park and the city skyline.

Another important space is the library atrium. This is the quiet part of the educational building, with classrooms and laboratories located around it. The library and reading room itself is designed with natural lighting from above, and its function does not end with the walls of the room. It is intended that the book taken can be taken to read in the quiet relaxation area in the atrium or on the terrace on the south side.

The assembly hall is designed in such a way that it is possible to divide it with mobile acoustic partitions for different activities - dance, theater, singing, etc., and during the events of the whole school community, it can be opened by combining it with the auditorium and dining area. Art classes are designed closest to the hall, which makes it easy to move classes.

The cooking class is designed as a part of the school kitchen, where students can watch the food being prepared by professional staff while in their class - this way communication is encouraged not only between students, but a connection is established with the school staff.

The sports complex is designed in such a way that it is possible to exercise it after school without going to other school premises.

An important part of the school is its surrounding environment. Therefore, glass facades are provided for the main gathering spaces. Large classroom windows are also designed to allow nature to enter the classrooms. Outdoor classrooms are designed on the plot, around which botanical displays, raised beds, etc. are planned to be planted.

3. OTHER PARAMETERS

3.1. Cauculation of students and building plot ratio

In total, the school is expected to educate up to 480 students. The volume of the building is 50127 m3. Thus, the part of the volume of the building per educated student is 50127/480=**104 m3**. The total area of the building is 8452.76 m2. Thus, the part of the building per student is 8452.76/480=**17.60 m2**. Calculating the ratio of the main area to the pupil, we get 7660.76/480=**15.95 m2** per pupil.

3.2. Universal design solutions

The solutions provided in the project were chosen taking into account not only the needs of people with disabilities, but also parents with babies. The territory is planned in such a way that all persons can freely enter the entrances of the plot and move around the plot itself. Places for people with disabilities (PWD) are provided near the building and in the nearest parking lots. Here, a hard surface of concrete pavers is planned to be inserted. All footpaths are also designed with hard surfaces, convenient transverse and longitudinal slopes are provided, and convenient widths of the walkways are ensured. Height differences are not solved by ramps, but by reducing the slope of the path. Pathways lead to all playgrounds as well as other spaces. The area avoids the design of stairs. On hard surfaces, warning surfaces are provided at intersections and other necessary places, and guiding surfaces indicate the way to entrances.

For convenient access to the designed building, the zero altitude of the buildings coincides with the altitude of the roofs of the access roads (low plinth). Corridors, common areas, groups and workplaces are designed with such parameters as to be convenient for use by persons with mobility disabilities. An elevator is provided for navigation on high floors. Each floor and each group of children has a bathroom. Knots are also adapted for the disabled. The undressing area groups also have such parameters that people in wheelchairs can move in them. The stairs in the multifunctional hall are designed in such a way that the space below them includes elements that protect visually impaired people from being hit. All information boards will also have tactile writing.

3.3. Description of the internal spaces and/or facilities of the building that ensure the formal and informal education of students

The school is dominated by multifunctional spaces. The main hall is intended not only as a representative space, but also as an event and recreation space, which connects to the multifunctional hall in the center of the building and the canteen next to it through sliding walls. All these spaces can serve different functions and change quickly as needed. The library premises are planned in the eastern, quieter part of the building near the recreation area, which can also be used as a reading room.

Around the multi-purpose hall, kitchens with bar tables are planned in order to humanize the corridor and stimulate students' curiosity during different events in the hall. Also, this hall serves as a source of second light, as skylights are provided in its ceiling.

The sports hall is planned with a multipurpose field that can be adapted for different sports. Above the pitch, there are planned stands for spectators, which, when pushed towards the wall, the balcony can be used as an exercise or running area. This part of the building can function independently from the main building by closing the access through the corridor on the basement floor, which allows it to be rented as desired without mixing different visitor flows.

The school's laboratories and large classrooms are planned with two entrances and the possibility of division with sliding walls. Also, the step of the building with columns allows you to easily transform the premises as desired without touching the building's load-bearing structures

3.4. Other structures (sports fields, number of parking and bicycle spaces, etc.) purposes, indicators and calculations supporting them

There are 15 parking spaces in the area (1 space for 30 students). Kiss and ride places are also planned along Marcinkevičius street. There are 60 bicycle parking spaces on the entire site (1 space for 8 students), 36 of which are planned at the entrance of the building, the others are distributed throughout the territory in order to maximize the accessibility of different areas of the site.

In the territory there is an estimated 1980 m2 sports field, which is 4.12 m2 per student. Two children's playgrounds with a total area of 250 m2 and a skateboard park with an area of 220 m2 are also being designed..

Two outdoor classrooms are planned on the south side of the plot with a panorama and on the north side near the tree.

3.5. Description of fire safety solutions (fire fighting and rescue vehicle approach, planned structure solutions))

The building is designed for I degree of fire resistance. Multifunctional lounges are separated from other rooms by EI45 partitions. From the rooms on the basement and first floor, it is planned to escape directly to the outside. Evacuation from the second floor is provided through staircases, the number of which and the distance between them meet the requirements for evacuation. In most cases, there are not 2, but 3 possible evacuation routes.

Building construction solutions, materiality, sustainability, innovativeness. Building engineering solutions, measures to reduce energy resource needs and losses.

3.6. Building construction solutions, materials, sustainability, innovativeness. Building engineering solutions, measures to reduce energy resource needs and losses

The supporting structures of the building are planned as a combination of monolithic and prefabricated reinforced concrete structures. The main supporting structures of the building are designed from prefabricated reinforced concrete structures, which allows to reduce construction costs and optimize construction. Diagonal forms of the building are made of monolithic structures. The sports hall is formed from monolithic constructions and beams

supporting the roof of glued wood. The facade of the building is expected to be ventilated from a tight network, such a solution allows you to protect the building from overheating and reduce cooling costs.

The school is designed for A++ class. Most of the classrooms are designed with windows raised from the grids. In the common areas there are provided kettles. These rooms will be protected from overheating by double-glazed windows with solar control and a ventilated facade with a tight mesh. LED lighting is used for indoor lighting. The main multifunctional hall and other rooms are designed in such a way that natural lighting is sufficient during the day.

Each room will have microclimate management, because according to the orientation of the building, part of the facades will be on the sunny side at certain times of the day, and part will be in the shade. Separate branches for rooms with different temperature regimes or functions (swimming pool, sports halls, etc.) are provided at the heating point. High-efficiency recuperators with hygroscopic heat exchangers are used for room ventilation. A solar power plant is planned on the roof of the building, with a possible area of ~1000 m2, power ~100 kw. The solar power plant would produce about 100,000 kWh of electricity per year. The solar panels on the roof are placed so that they are not blocked by growing trees, nor are they visible from human eye level. It is expected that the operation of the heating, ventilation and air cooling systems of the building will be monitored and controlled by the installed unified building management system (PVS,BMS).

ELECTRICITY AND WEAK CURRENTS

In order to facilitate and optimize the maintenance of the building, we recommend installing a higher level of building management system (BMS), which allows to connect to the management system remotely and can centrally control the main engineering devices/systems. All designed lighting fixtures should be provided with LED light sources. Luminaires should be controlled by the DALI protocol. In general-purpose rooms (e.g. stairwells), presence sensors with DALI control should turn on zone lights at 100% intensity, and in the absence of movement after 10 minutes. reduce the illumination level leaving 10% illumination. In the absence of movement 30 min. the lighting is turned off completely. To protect against lightning, an active lightning protection system is installed on the roof.

VENTILATION

Separate independent mechanical ventilation systems are provided for different functional parts of the building. Corrosion-resistant equipment is used for the pool. It is possible to provide a separate local recuperation system for each group of children, thus reducing the amount of trunk ducts. The HVAC system management logic and the task of creating it must be based on the logic of the systems functioning during the day and the year. It is expected that the operation of the heating, ventilation and air cooling systems of the building will be monitored and controlled by the installed unified building management system (PVS, English "BMS"). All meters must have pulse outputs or serial interfaces to record the amount of heat/energy in the building management system ("BMS"). Ventilation systems are disconnected during a fire.

The devices of all designed ventilation systems are equipped with:

– with heat recovery (with rotary hygroscopic heat exchangers, $\eta rec > 80\%$);

– heated air intake and air exhaust valves with electronic gears;

– air filters;

– Certain spaces can be equipped with freon direct evaporation VRF type cooling sections with heat pump function (operates up to -25 °C outdoor air temperature, SPF ≥ 4.0) and droplet separators; external condenser units are provided on the roof;

– supply and extraction fans (EC motors);

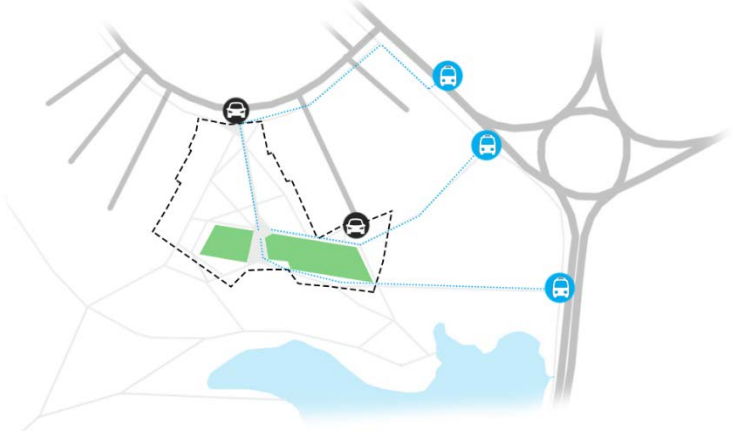
– noise suppressors.

3.7. Conection with plot ant engineering networks development or reconstruction. Project related public infrastructure development and integration solutions

Two "Kiss and ride" sites are planned - one on M. Marcinkevičius Street, the other after entering the property. Relocating the electrical substation could create a Kiss and ride site with separate entry and exit, ensuring smooth traffic and safe drop-off of children.

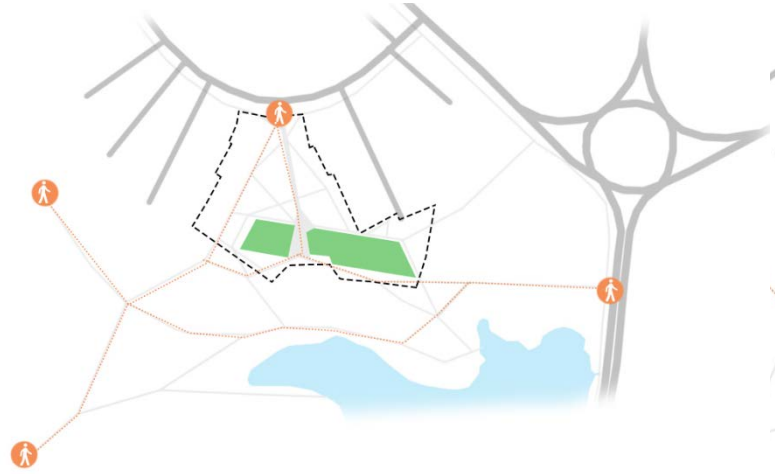
There are three stops closest to the project plot - Molėtai highway (on both sides of the street) and Zhaliių lakes.

Current bus stops and estimated Kiss and ride locations

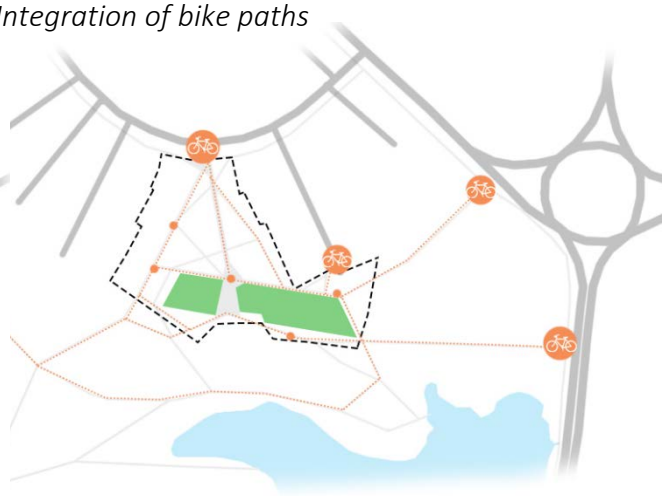


Pedestrian and bicycle paths on the plot are designed in such a way as to integrate and ensure the solutions of the projects being prepared "The project for the improvement of the territory near the Jeruzalė pond and the weeping manor homestead between Jeruzalė, Loksininkai, Mykolas Marcinkevičius and Baltupias streets in Vilnius" and the educational route "Santariškės - Baltupiai - Ozas - Neries senvagė". Classrooms and transit paths are designed so that passers-by do not disturb the lessons.

Integration of footpaths



Integration of bike paths



3.8. Duration of construction, estimated construction price, which would include all environmental management and other costs related to the construction of the object.

The preliminary duration of construction is about 18 months, after the preparation of the work project, the term is adjusted with a specific one contractor. The preliminary construction estimate is EUR 20,109,594.27 including VAT. See the expanded estimate in the school estimate pdf folder.