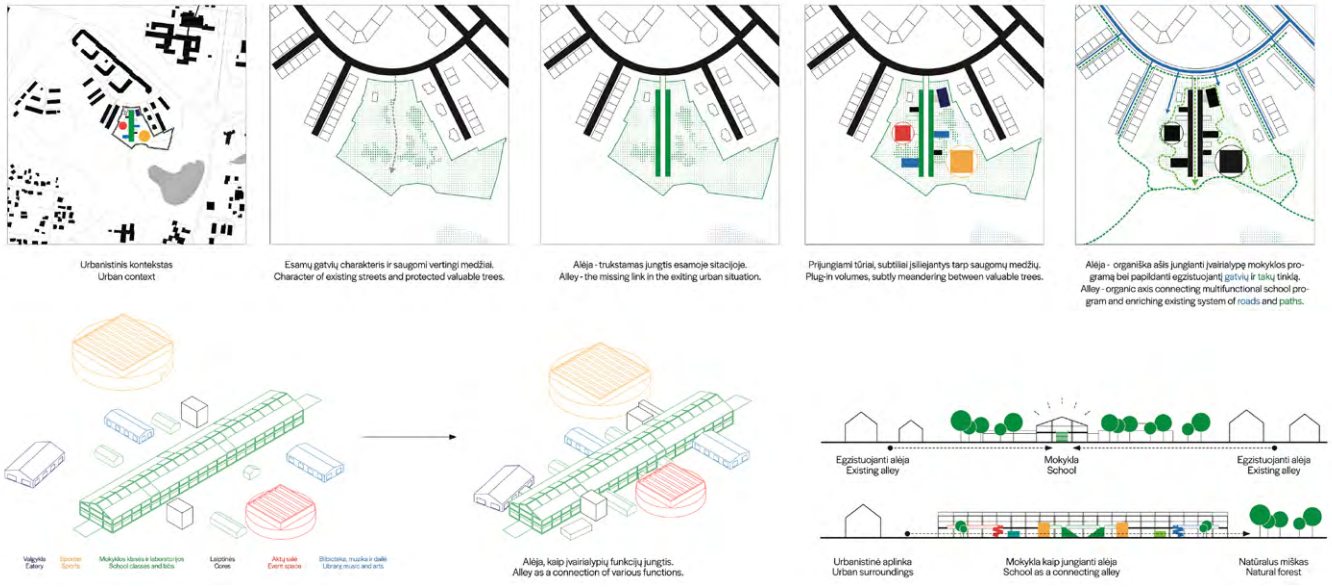
Explanatory note
Educational building (7.11) in Marcinkevičius str. 72, Vilnius,
open architecture competition

1. MAIN PLOT AND BUILDING DATA



Nr.	Title	Amount / Data	Notes
1.1.	Building type	Free planning typology	According to competition technical requiremen
1.2.	Build-up density	30.2%	Possible building density 40%
1.3.	Build-up intensity	8034 m2/ 21132m2=0.38	Possible building intensity 0.4
1.4.	Vegetation/greenery area, percentage	14616m2 (69.2%)	Minimal greenery area 50%
1.5.	General area of the building	8034 m2	Alley, sports hall, event space, canteen, labs, art-rooms, library
1.6.	Usable area of the building	7934 m2	
1.7.	Building volume	42 659m3	Alley, sports hall, event space, canteen, labs, art-rooms, library
1.8.	Number of floors	2 floors	From 1 to 2 floors + basement under canteen
1.9.	Maximum absolute altitude (m)	+166.15m	(+-0.00m (+155.65m) zero altitude)
1.10.	Transport vechiles (including bicycles) parking places	16 car parking places 24 bicycle parking places	1 car parking place for 30 students (480/30=16 places) Including 2 places for disabled people, 2 places for electric car power stations 1 bicycle parking place for 20 students (480/20=24 places)
1.11.	Cumulative area of sports field	1090m2 (100 running track, outdoor volleyball, outdoor gym, athletic field); Seasonal natural ice-skating rink (water pond) - 265m2	Minimal requirement - 1000 m2
1.12.	Cumulative area of the hard surfaces	Clinker tiles - 205m2 Granite siftings- 1072m2 Grass honeycomb net - 896m2 Rubber granule coating - 1090m2 Asphalt - 127m2 Cumulative area - 3390m2 Permeable: 3263m2 /15.4% Non-permeable: 127m2 /0.6%	Permeable entrance to the Alley Organic pathwalks in the pine-forest Car parking, accessibility routes Sports field Servitude
1.13.	Designed number of classes, students	16 classes (4 for each gymnasium year), ~ 480 total amount of students, 30 students in each class; 8034m2/480stud. = 16.7m2 for each student	41 specialised classrooms (humanitarian sciences, nature sciences, labs, social sciences, arts)

2. IDEA

2.1. URBAN CONCEPT - ALLEY

2.1.1. Context - street character - missing link

The plot located in M.Marcinkevičius Street, Verkiai, Vilnius, is distinguished by a very pronounced structure of adjacent streets. In the northern part of the plot, the projected territory is bordered by an expressive curved M.Marcinkevičius Street, which on the western and eastern sides of the plot, perpendicularly connects with more calm slow-traffic alleys lined with residential low-rise buildings, clearly distinguishing the hierarchy of existing streets. To the south, the site is bordered by the newly reconstructed Jerusalem Park, thus clearly framing the site between the city and nature.

Taking into account the existing street structure, the plot proposes an akin typology of development, following the existing street structure and pedestrian network. The project site is designed to form another alley, following the existing natural people-walked path, which becomes the axis of the whole project and an urban argument that harmoniously integrates into the existing built context by forming a missing street - an alley that radially connects to M. Marcinkevičius street. The newly formed 'Alley' organises the clear movement of students, arranges classrooms around the perimeter according to the needs, and incorporates the functions of the larger required volumes by connecting them to the main building. .

2.1.2. Existing value - Protected tree areas

Fundamental principle of the design of the gymnasium in the existing context is the positioning and shaping of the buildings in order to responsibly preserve as many of the existing valuable trees as possible. The functional volumes of the building are positioned to be filled in with daylight, to harmoniously embrace the existing valuable pine trees and to provide views of the natural environment along the entire perimeter of the building.

2.1.3. Symbiosis between the city and the nature

The newly designed gymnasium building becomes a link between the city and nature, generating a wide variety of spaces that promote learning, stimulate healthy lifestyle and being in harmony with nature.

2.2. LANDSCAPE DESIGN CONCEPT - NATURAL PINE FOREST

2.2.1. Preserved natural pine forest

The design proposal aims to improve and reinforce the current natural landscape by highlighting its identity as a pine forest. To conserve the majority of the existing pine forest, our goal is to preserve mature pine groves and relocate individual trees that cannot remain in their original location. To create a harmonious landscape, we recommend using grass that thrives in acidic soil and incorporating shrubs like alder buckthorns, rowans, junipers, and wild blueberry bushes, which would constitute approximately 5% of the overall planting. These selected species are native to the area, reducing the need for extensive maintenance.

2.2.2. Connectivity

The entrance to the parking area and parking spaces, will be integrated seamlessly into the natural landscape of the western section of the plot. The parking lot will be paved in grasscrete with planting beds interspersed between the parking spots. A total of 16 car parking spaces are planned as part of the design. For bicycles and scooters, a designated parking area will be provided within the secure premises of the school complex, conveniently located near the main entrance. Additionally, a "Kiss and ride" zone will be established on Marcinkevičiaus Street, adjacent to the proposed pedestrian crossing. To ensure convenient access for maintenance purposes, technical service driveways are planned from both the western and eastern sides of the plot.

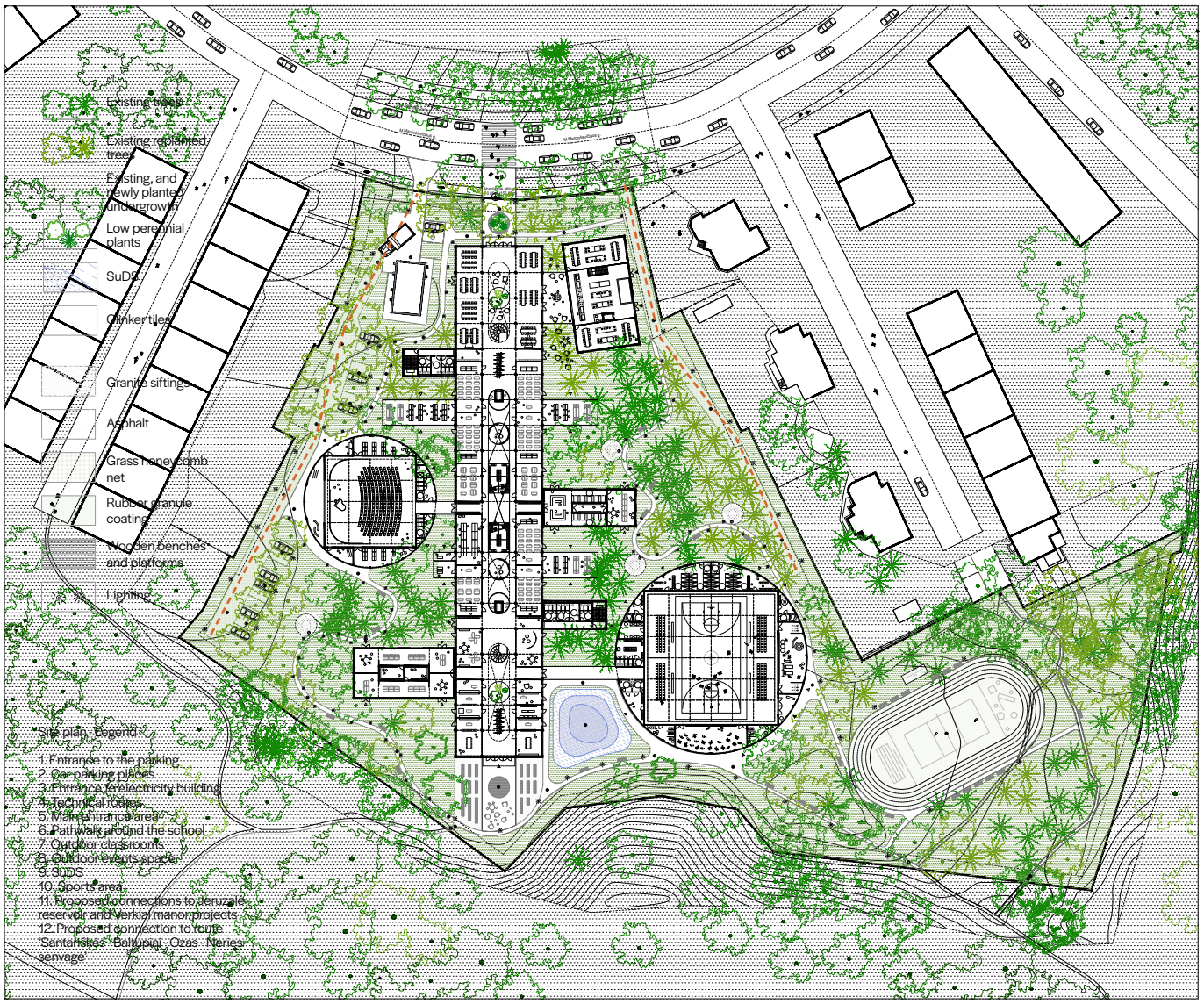
2. 2. 3. Main school functional zones

Representative entrace and arrival zone

The entrance area of the school welcomes visitors at the beginning of the 'Alley' axis, offering a pedestrian path that connects to the nearby sports complex. The starting point of the representative alley is marked by lime and pine trees, along with a circular planting bed that features a wooden bench encircling it.

Outdoors events and gathering zone

The designated area for outdoor events is situated at the end of the 'Alley' axis. Within this zone, there is a wooden podium specifically designed for hosting various events overlooking panoramic views of the Jeruzalės Reservoir, which is visible from the elevated terrain.



Multifunctional sports zone

The sports field is located in the southeastern section of the plot, adjacent to the school complex. It incorporates outdoor fitness equipment, an athletics track, and running paths as part of the sports complex. The surrounding area of the multifunctional sports field is designed by utilizing a combination of existing and relocated trees.

2. 2. 4. Circular route for pedestrians

An organicly shaped self binding gravel path forms a circular route around the school, connecting the designated pedestrian paths of the surrounding areas into a unified network. Additionally, path connections are proposed to the Jerusalem Reservoir and Verkiai Manor, as well as the educational trail "Santariškės - Baltupiai - Ozas - Neries senvagė". Educational outdoor classrooms, wooden benches, and lighting are planned along the circular pedestrian path.

2. 2. 5. Sustainable drainage system (SUDS)

Sustainable urban drainage is implemented along the pedestrian paths to preserve and enhance natural ecosystems. This system serves as both a natural drainage solution and offers aesthetic beauty and educational opportunities for students. Furthermore, the system also collects rainwater from the school's roof. The selected paving materials for the project are designed to be porous, facilitating on-site water runoff.

Existing trees: 305 (100%)	Replanted: 105 (34%) Retained: 200 (66%)
Vegetation/greenery area	14616m2 (69.2%)
SuDS area and volume	265 m2, 165 m3
Cumulative area of permeable surfaces	3263m2 (15.4%)

Street furniture


Wooden benches


Wooden benches

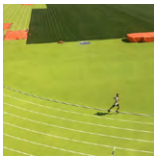

Outdoor classrooms


Lighting elements

Hard surfaces


Clinker tiles


Granite siftings


Rubber granule coating


Green parking

Planting


Juniper


Alder buckthorns


Wild blueberry


Rowans

Central entrance from the street - Alley

2.3. ARCHITECTURAL IDEA - TYPOLOGIES

2.3.1. Intuitively shaped volumes

The newly formed volumes of separate yet interconnected buildings subtly indicate their functions by their scale and recognisable forms. The universally distinctive and familiar house-shaped volumes symbolise more comfortable places for learning, concentration and socialising. Larger, rounded volumes with accordingly designed square boxes inside symbolise public spaces for sports or cultural events. The buildings are up to 2 storeys high, thus leaving space for the foliage of valuable, replanted and newly planted trees.

2.3.2. Contextual materiality

For the different volumes and functions of the designed gymnasium, site-specific materials are selected to meet the needs of each function in the context.

2.3.3. Alley - central axis - translucent multifunctional space

The main house-shaped volume, which is composed of specialised classrooms, communal areas and administrative spaces, forms a central atrium with a partly glazed roof that lets in and distributes natural light in the central part of the building.

The alley is formed by a structural network of concrete columns and beams, which is filled with an envelope of glazing or timber on the facades. This part of the 'Alley' serves as a place for connection and accommodates other functions such as elevators for the movement of people with disabilities, multi-sensory rooms, bicycle and scooter parking, nature oasis as well as an amphitheater-shaped 'Discussion Valley' in the central part of the building. Discussion space not only forms a connection between the ground and first floor, but also functions as a comfortable amphitheatre with a cloakroom under it.

The 'alley' becomes a lively and central axis of movement in the building with direct access to the classrooms and other connections to the supplemetary functions in an individual volumes.

Direct access to the forest and outdoor paths is created on the east and west sides. At the end of the axis, in the southern part, the 'Alley' culminates in an outdoor terrace with an event area offering panoramic views of Jerusale Park and the pond.

2.3.4. Canteen - red bricks

Canteen is formed in a separate volume adjacent to the street, creating a convenient connection for service. Well-connected basement of the canteen building serves as a storage, while the ground floor is used for production and training kitchens. The canteen area for catering and informal socialising is formed in the 'Alley' at the front of the street, in a representative area of the building for the gathering of students and visitors. In betwen the school and the canteen volumes, roof covered terrace is foreseen allowing to eat in nature.

2.3.5. Event space - translucent polycarbonate

The event space is formed in the western part of the site and is conveniently accessed via a glazed corridor, with students entering through the central axis of the 'Alley' that is fitted with cloakrooms. The event space can also be used individually, serving needs of the wider community with separate access from the outside. The event space is formed in a higher volume surrounded by a lower circular volume with complimentary storage and backstage facilities. Whole volume is set back from the main school building in order to avoid the dispersion of noise during lessons. The interior of the hall is covered with natural wood acoustic panelling. The shedded roof is enabling natural diffused light to come in though the North-facing windows, while the South-facing sloping rooftop is covered with solar panels. The facades of the building are covered with a matt/semi-transparent polycarbonate material that blends in subtly with the existing trees and enables daylight in to the interior spaces.

Preserved pine forest

2.3.6. Sports hall - translucent polycarbonate

A similar principle of design is applied to the sports hall in the eastern part of the site, which is also accessed via a glazed corridor with students entering through the central axis of the 'Alley'. The gym can also cater for a wider community need and has a separate outdoor access via newly formed pathways on the site. The gym is formed in a higher volume surrounded by a lower circular volume, which houses equipment storage, changing rooms, a fitness room and a dance hall, with spectacular panoramic views. The gym is also set back from the main volume of the 'Alley', avoiding noise dispersion during classes. At a convenient distance from the gym complex, an outdoor sports field with a 100-metre running track, an outdoor volleyball court, and an outdoor fitness area is formed on the site. A wetland is also formed at the end of the axis of the 'Alley', which can be used as an ice-skating rink in the winter season. The roof of the gym consists of skylights letting in natural diffused light from the north and is covered externally with solar panels on the south side of a shedded roof. The facade of the building is covered with a matt/ semi-transparent polycarbonate material that blends in subtly with the existing nature, at the same time allowing daylight to the interior.

2.3.7. Wooden classrooms

According to the brief and the needs of the school, all the different typologies of classes in the gymnasium are located in the main volume of the 'Alley' on the east and west sides, grouping the types of classes according to the humanitarian, natural or social sciences. All types of classrooms ar not more than 6m deep and are provided with natural light transmission through the exterior facade and windows above the doors from the interior atrium. The partitions between the classrooms are made of timber panels and the spaces can be easily adapted if needed.

2.3.8. Labs - greenhouses

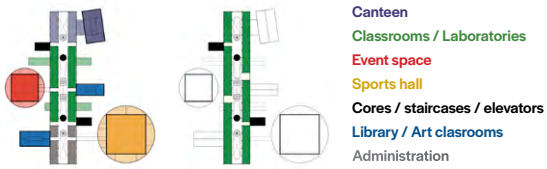
Shaped as a greenhouses, volume symbolises growth, exploration, proximity to nature and experimentation. Laboratories are directly connected tocoupled science classrooms of the same type - chemistry, physics and biology. The laboratoriesare positioned on the ground floor and are ensuring the safe and pleasant working environment by enabling direct access to the outdoors.

2.3.9. Library - wooden volume

Library is comfortably set back from the main school volume in order to provide quiet and calmness for the students. Natural surroundings are creating a cozy space and relaxing views that are enabling facility users to concentrate easier. The facades of the human scale volumes are clad with natural wood panels. The library reading room can also be used by the wider community outside of school hours and is accessed separately from the outside.

2.3.10. Art classrooms - wooden volume

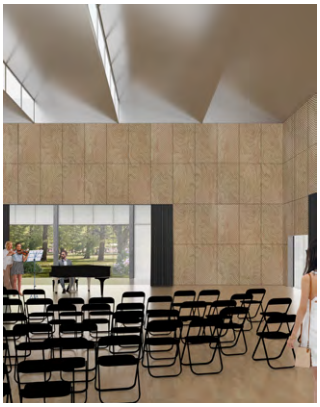
Music and art classes are formed in a separate volume in the western part of the site and are based on a similar design principle as a Library. Design is allowing for the expansion of the art disciplines to outdoor spaces and for the organisation of an open air workshops in the picturesque nature serving as a source of inspiration. The facades of the human-scale volumes are covered with natural wood panels to fit the forested nature environment.



Entrance hall - Alley

Aula - Valley of Discussions

Dance studio



Event space

Classroom

2.4 INTERIOR IDEA - INTUITION

Contextual materials
Interior spaces are filled with natural local materials - compressed wood pannels in between the spaces.

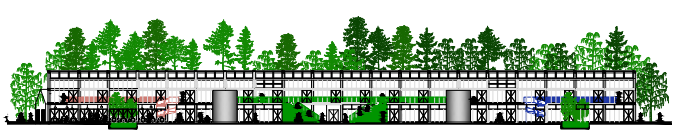
Intuitive flow of movement
The organisation of interior spaces is designed in a way to fill in as much natural light into the main axis of movement, enabling visual connection between two floors as well as establishing the natural and intuitive flow of circulation in the building, with smaller pocket spaces on the sides, closer to the nature.

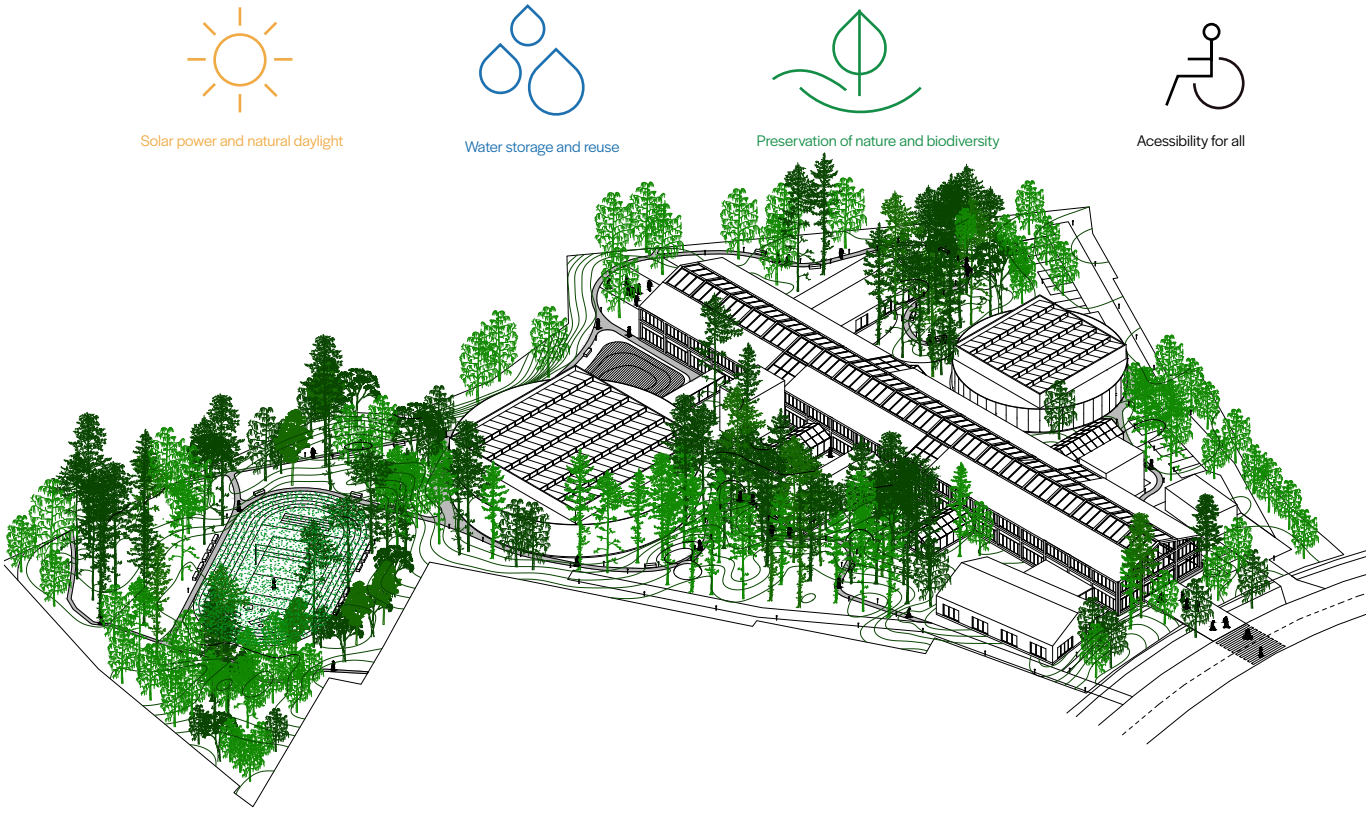
Color codes
Several vertical connections are formed along the length of the building for a smooth and pleasant movement between the two floors of the building by choosing the appropriate color codes according to the location of the connections, creating clarity inside the building and directions of movement.

Pink of the bricks- the closest to the urban context, the vertical connection formed by the existing buildings is highlighted by the prevailing pink brick color in the urban settling.

Green of the valley - the hall in the center of the building - the valley for discussions is highlighted by a natural green color, which creates a wide movement not only between the two floors, but also between the building and the outside.

Blue of the water - closest to nature and the newly formed water body on the plot - the pond, and the vertical connection formed by the direction of the Jeruzale reservoir is highlighted by the blue water color.






Solar panels mounted on shedded roof


Adjustable shading of the sunroofs


Local and contextual materials


Bioclimatic green zones in the interior


Preserved clusters of wild forest


Sustainable drainage system (SUDS)


Natural and organic system of pathways

2.5.FULFILLING THE IDENTITY AND NEEDS OF AN EDUCATIONAL BUILDING

2.5.1. Identity

The identity of the school is shaped by the uniqueness of the environment. The site is adjacent to the Verkiai Reservate, with its picturesque panorama and urban environment, enriched with a vast resource of valuable tree clusters. All these elements lead to the creation of a democratic and easy-to-use design - 'Alley'.

The designed building does not only connect the urbanised area with the natural reservate, but also allows for different perspectives of nature with the semi-translucent volumes, positioned amongst the protected tree clusters. Nature-friendly approach to design creates identity by linking the inside and the outside, making the architectural design of a building inseparable from its surroundings.

2.5.2. Diversity of spaces

The 'Alley' is characterised by a variety of science and leisure spaces. The central axis is enriched with natural oases, lounges, a discussion valley (aula) and multi-sensory rooms. Classrooms are arranged in parallel, easily accessible through monumental staircases, as well as an amphitheatre-like discussion valley (auditorium), which functions not only as a space for learning but also as a vertical link between floors. Each type of a classroom has its own different needs and character, which is why the natural science laboratories are designed as an annexes. This creates a possibility not only for different spaces to meet the different needs of the students, but also allowing for the creation of separate bioclimatic zones if required. All students are indviduals and have different needs as well as different learning processes, which is why this school project is also rich in cosy learning spaces that encourage concentration and allow them to escape from the activity areas into dedicated studying areas, positioned amongst the protected forest clusters.

2.5.3. Inclusive spaces for all

Proposed building of the school is designed in a way to include people with dissabilities. Majority of the spaces are organized on the ground floor with smooth and direct access. Spaces on the first floor are easily accessible via elevators.

2.5.4. Flexibility of the area and the building

The design of the school spaces promotes transparency and lightness, not only in terms of visual connections, but also for people with reduced mobility. Elevators are strategically positioned in convenient locations, allowing easy and comfortable access to all points of the building. The principle of easy accessibility is not limited to the school building itself, but is applied to the surrounding nature that can as well be explored by all, using adapted paths that also provide easy access to outdoor classrooms.

2.5.5. Transparency

The clear and intuitive planning and spatial system is also reflected in the facade. The exterior facade reveals unique views of nature, but like the interior facades, creates the necessary curtain for privacy and concentration.

2.5.6. Engagement

Brighter colours are used only in the active zone of the central

axis, employing them as tools to create intuitive landmarks in the space that encourage gatherings and communication. The classroom spaces are covered with natural materials and calm colours that are not distracting thus encourage concentration.

2.5.7. Naturalness
A school is composed of a wide range of programmes and functions. These functions are also reflected in the architectural elements, the different common spaces, classrooms, and laboratories are designed for optimal work or recreation. These spaces also allows for temperature and light adaptability and, if needed, enables the creation of zones with different lighting, temperature or climate.

2.5.8. Economic, social and environmental sustainability
The newly designed school building becomes a link between the city and the forest, generating a wide variety of spaces that promote learning, stimulate healthy lifestyle and feeling of a community when living synchronised with nature.

2.5.9. Community center
The organic connections between the school facilities and the paths linking them to the neighbourhood, makes it possible to use the facility's functions even not during operating hours of the school, thus fostering a sense of community and creating a new address of community center.

3. OTHER DATA

3.1. Calculation of designed ratio between the amount of students and general area of the building
The ratio of the volume of the building to the number of students: 42 659m3/ 480 = 88.8 m3/mok.
The ratio of the total area of the building to the number of students: 8034 m2 /480 = 16.74 m2/mok.

Planned number of students ~ 480 (30 students per class), number of teachers ~ 25, administrative staff ~ 10, service staff ~ 15.

Typical classroom sizes: Chemistry - 74m2, Physics - 74m2, Biology - 74m2, Laboratories - 80-100m2, Moral education - 58m2, Arts - 108m2, Mathematics - 58m2, Informatics - 50m2, Geography - 75m2, Lithuanian language - 58m2, Foreign languages - 40m3 - 43m2, History - 58m2, Social Sciences - 58m2

The area of classrooms is determined in accordance with HN 21:2017 „Mokykla, vykdanti bendrojo ugdymo programas. Bendrieji sveikatos saugos reikalavimai".

3.2. Universal design solutions
The gymnasium building and the territory of the plot meet all the requirements of universal design. The main movement and functions are organized on the first floor at ground level, elevators are designed to access the second floor. 2 parking spaces for people with disabilities are provided. Sanitary units and changing rooms are installed according to ISO standards.

The functional planning of the building is rational and intuitive, movement directions are marked with tactile surfaces, other relevant orientation information is marked on informational hanging stands and Braille script at a convenient height.

3.3. Explanation of building interior spaces, guaranteeing the formal and informal education development
The planning of the central axis creates a clear direction of movement in the building although is broken up into smaller and more democratic spaces for informal communication.

3.4. Other buildings (sport fields, number of car and bicycle parking places, etc.) purposes, data argumenting the calculation of their amounts
16 parking spaces - 1 parking space for 30 students (480/30=16 spaces). Of these, 2 parking spaces are for disabled and 2 spaces with electric car charging function.

24 bicycle parking spaces - 1 bicycle parking space for 20 students (480/20=24 spaces)
The minimum requirement for a sports field is 1000m2. In order to preserve the values of the plot - keeping as many trees as possible, a sports field of the minimum required area (1090m2) is integrated into the plot, meeting all the expected needs.

3.5. Fire safety regulation solutions (fire fighting, accesibility of fire brigade, building planning system solutions, escape routes
Around the school from the east and west sides, parallel to the boundary of the plot, 3.5 m wide fire brigade routes with a grass honeycomb surface are planned.

Evacuation inside the building is planned directly from the first floor to the outside via the provided roads, for evacuation from the second floor two evacuation staircases are planned directly to the outside. Fire hydrants are expected to be installed on the plot (permissible distance to the hydrant is 200m).

According to the requirements, fireproof windows and doors are installed. Only compliant materials are used.

3.6. Structural principles of the building, sustainability, materiality, innovation
The structure of the 'Alley' building - prefabricated reinforced concrete frame, natural wood partitions are used to create sustainable spaces in the interior, canteen building - brick masonry, event space and sports hall - polycarbonate panels, library and art classrooms - wood frame and cladding.

3.7. Engineering solutions of the building, methods to optimise/minimise demand for energy resources and loss
The roofs of the sports and event halls are used as solar panels, the total planned area is 1485m2 for solar panels, remaining area of the roofs of the sports and event halls is planted with greenery (878m2).

The location of the project in the forest provides natural shade, it is planned to cover skylights in case it would be need. Natural ventilation is expected during the summer. Heating/cooling is planned using the heating networks of the city of Vilnius. Rainwater from the roofs is collected for irrigation, SuDS are planned to manage excess rain.

When preparing the technical project of the building, the most modern and efficient engineering systems will be selected, aiming for the lowest operating costs.

3.8. Connections and engineering routes expansion or reconstruction solutions. Poject-related public infrastructrure development and intergity solutions
When forming a new central axis, the project proposes to form a new pedestrian crossing on M.Marcinkevičius street and to install 'kiss and ride' zones for safe exiting of students from the car and entering the gymnasium.

The main pedestrian access to the 'Alley' is connected to the existing footpaths in M.Marcinkevičius Street, the nearest bus stop is 200m. away - 'Molėtų Plentas', Mokslininkų st. , and 400m. away - 'Akademija st.' at Baltupio str.

The building is partially designed on existing engineering networks, it is proposed to slightly relocate them. In general, engineering networks are conveniently connected to the plot in the northern part.

3.9. Timeframe of construction works, approximate building construction budget including all territory and landscape and other construction site related expenses
Estimated duration of construction with installatio is 18 months. The set price of the project is 20000000,00 € incl. VAT.