

M. MARCINKEVIČIAUS 72

MIŠKO GIMNAZIJA



Explanatory note



CONTENT OF PAGES

1. INDEXES 3
 2.1 URBAN IDEA AND LANSCAPE DESIGN 4
 2.2 ARCHITECTURAL IDEA 6
 3. OTHER INFORMATION 8
 4. MEETING THE CLIENT NEEDS 13

1. INDEXES

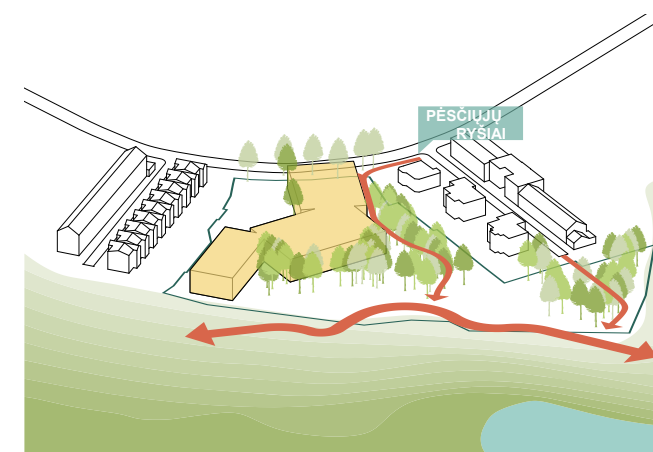
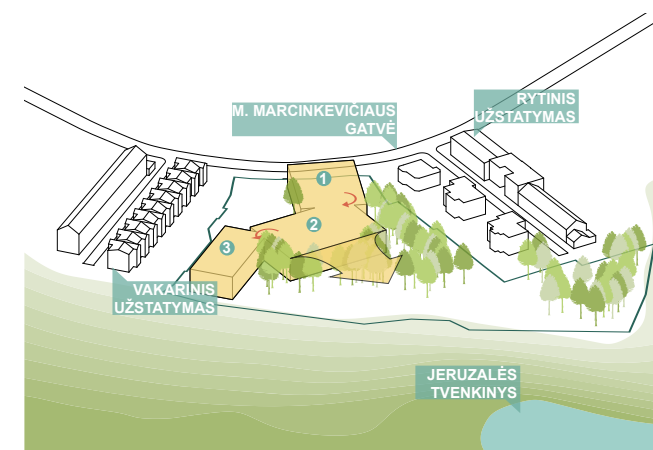
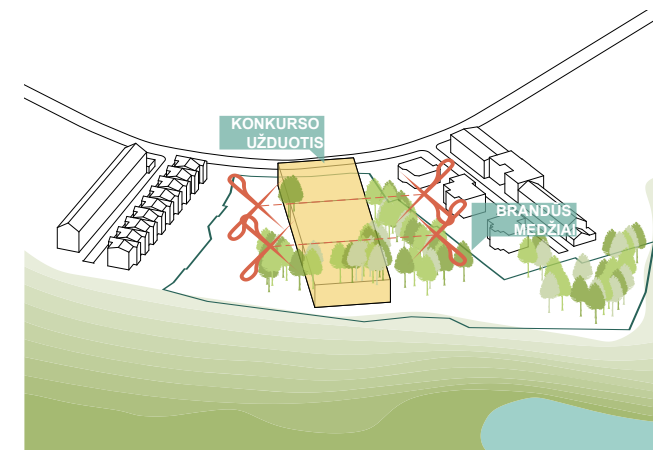
No.	Name	Quantity / Index	Comments / Calculations
1.1	Built type	Free planning	
1.2	Density	0.20	
1.3	Intensity	0.32	
1.4	Green space percentage	10 647.10 m ² / 50 %	
1.5	Gross area	6 655.96 m ²	Terrestrial area - 6 620.15 m ² Underground area - 1 115.81 m ²
1.6	Netto area	7138.40 m ²	
1.7	Volume	42 930 m ³	
1.8	Floors	3 floors and basement	
1.9	Maximum altitude (m)	absolute 168.10	Maximum height 12 m
1.10	Number of Parking places (including bicycle parking)	16 cars 60 bicycles	1 universal design parking place, Type A 480 / 30 = 16 car parking places 480 / 20 = 24 bicycle parking places
1.11	Gross area of sports fields	1452 m ²	1452 / 480 = 3.025 m ² / student. Running track (117 m lenght)
1.12	Gross area of hard pavement	5 748.38 m ²	
1.13	Number of Classrooms and Students	39 classes (incl. laboratories) 4 workshops 480 students	



2.1 URBAN IDEA AND LANDSCAPE DESIGN

The school site is located in the northern part of Vilnius - Santariškės, bordered to the south by a natural corridor, including the Jerusalem Pond. The project site is located in a moderately densely populated curved street in the vicinity of the Santaros Clinic, named after the therapist Mykolas Marcinkevičius, which was developed in a consistent manner between 1990 and 2005, characterised by townhouses, terraced houses and single-family houses with a large gross floor area. The site, at the corner of the street, was planned for a prospective educational establishment in the city's no-longer-valid master plans, labelled as a kindergarten or primary school. This provision has been carried over into the new master plan, which is the basis for this competition proposal. However, on the site reserved for the future municipal plans, the natural environment has taken root and the site has become an important community link to the adjacent natural area near the Jerusalem pond. The site is richly planted with trees of different maturity. The main goal is to preserve as many valuable trees as possible in the new development, and in the case that it might not be possible to preserve an individual tree, by planting an appropriate number and species of new trees on the plot.

The main urban and landscaping conceptual idea is to form a link between the urbanised residential area and the natural landscape - the new Forest Gymnasium. The aim is to create a natural environment for the students by preserving nature. On the street side, the development will continue the built line of the street and will include a small school plaza. In order to blend in with nature, the heights of the terrain near the trees will not be altered, resulting in the design of wooden terraces for the main square, the students outdoor activities, the outdoor classrooms and soft surfaces for the paths in the forest. Community walking paths shall be created in the locations of the soft paved paths, providing convenient connections to the Jerusalem pond. The site will provide 16 parking spaces, covered with a lawn and a bicycle shelter (60 spaces). A sports field with a 117 m running track and a basketball court in the south-eastern part of the plot.



PROGRAMME

The size of the functional programme requested in the task is divided into three parts:

1. The educational premises with the Events hall
2. Educational facilities with the main auditorium, canteen and library
3. Gym, with its own annexes

BUILT COMPOSITION

The position of the volumes on the site is not only determined by the trees - each of the three school volumes is aligned with the neighbouring development.

1. The first volume is parallel to the building line of M. Marcinkevičius Street.
2. The second volume is parallel to the development of the eastern neighbours and opens towards the slope of the pond.
3. The third is aligned with the western development.

CONNECTIONS

In the eastern part of the site, the natural pedestrian connections of the community to the Jerusalem pond are ensured:

1. the connection from M. Marcinkevičius Street naturally meanders around the trees maintained on the plot
2. Connection from the cul-de-sac on the eastern side of M. Marcinkevičius Street towards the Jerusalem pond.



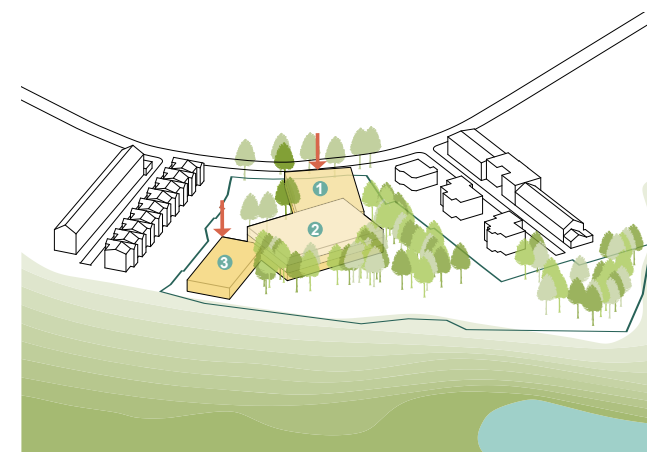
2.2 ARCHITECTURAL IDEA

In order to blend harmoniously into the residential neighbourhood, the school volume is divided into three functional volumes. Two educational volumes are designed closer to the street, where classrooms surround the centres of the school's common spaces - the main auditorium hall with the canteen and the library. This architectural solution allows for a residential-like architectural complex of school buildings. These volumes, like the dwellings on the street, are dominated by walls with large windows: on the ground floors, the windows with terraces create a strong connection with nature and vitality in the school's interiors, and on the second and third floors, the classrooms have windows with windowsills for greater privacy of students. The third, gym volume, is separated into a separate pavilion-type volume, located in the south of the site, closest to nature, and therefore with a continuous ring of windows around the entire façade and the main gym lowered to the subterranean level, thus reducing the height of the gymnasium volume, mitigating the relationship with the southern and protected slope of the Jerusalem pond, as well as creating the volume of a park. The three volumes are joined at the corners, in positions that preserve the maximum number of mature trees on the site and integrate them into the architecture of the building. The composition of the Marga windows complements the dynamic arrangement of the forest trees.

Fulfilling the identity and needs of a science building

By architectural and interior details - we create a democratic school with lots of natural light, distinctive structure, natural local interior finishes, oriented towards the nature around the school and science, seamlessly integrated into the urban fabric. A variety of learning spaces are being created.

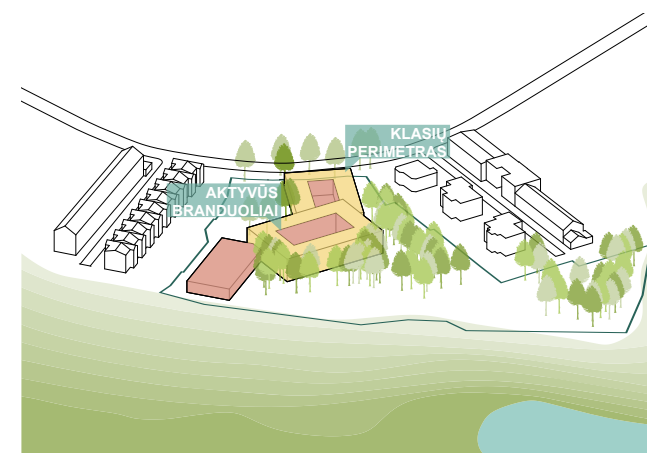
Classrooms are designed with large windows, including corner windows, and transparent high doors in the interior. Natural materials such as wood, concrete and aluminium are used in both the facades and the interior.



HEIGHTS OF VOLUMES

Each of the three volumes is designed at a different height.

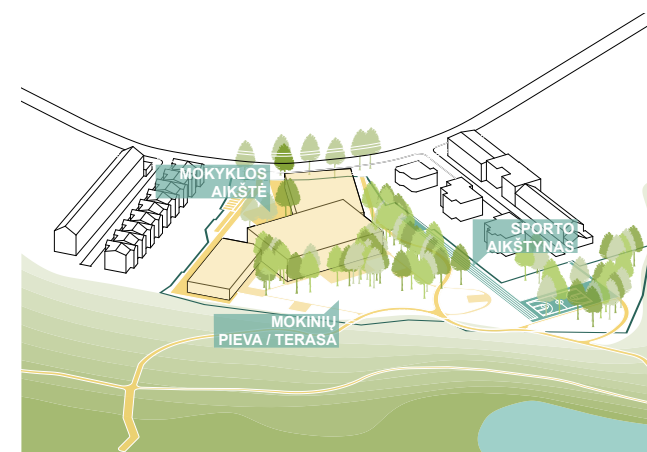
1. The Northern one - closest to the street - 2 floors, 8.5 m high, like the neighbouring dwellings.
2. The Central one, 3 floors, 12m, set back into the plot, thus reducing the impact of height.
3. The Southern volume, gym, recessed into basement, resulting in a 2 floors volume, 5.3m high from ground level.



FUNCTION

Educational spaces (classrooms and workshops) surround the common spaces in volumes adjacent to the street. This functional scheme allows the building to be architecturally integrated in a coherent way into the residential area, with similarly scaled windows on the facades.

The sports facilities are foreseen in a pavilion volume, closer to nature.



SITE PLAN

From M. Marcinkevičius Street, an entrance plaza is placed, ensuring the vitality and functionality of the school, as well as preserving the pine trees in front of the main entrance. To the south-east, a terrace for pupils and a meadow. A sports field is designed on the eastern perimeter of the site in order to seamlessly integrate the common needs of the school and the community for pedestrian connectivity and sports activities.



3. OTHER INFORMATION

3.1 Projected student-to-building ratio and calculations

Ratio of student population to the total floor area of the building: $7\ 735/480 = 16.11\ \text{m}^2/\text{student}$.

The total number of students in the school is 480;

Total number of students in the school -

16 klasių po 30 mokinių

Total number of teachers - apie 25

Total number of managing personal - approximately 10

Total number of staff - approximately 15

Sizes of main classrooms and spaces:

Typical classroom: 51 m²

Foreign language classes: 31 m²

Information technology classrooms: 35 m²

Workshops/Laboratories: 73-94 m²

3.2. Universal design solutions

The project has been designed to meet all the requirements of universal design. The building entrances are designed from ground level, with the necessary slopes. There are two lifts in the central part of the school, one of which is accessible for people with stretchers. In the evacuation staircases, space is provided for people with disabilities. Movement is intuitive and spaces are well lit. All circulation routes are easy for people with reduced mobility to pass and turn around. Toilet and changing facilities are provided in accordance with HN STR 2.03.01:2019 'Accessibility of buildings' and ISO 21542:2011, and each toilet is designed to be separate in order to minimise bullying and to provide maximum privacy.

The pathways on the site are designed without stairs, with tactile surfaces for slopes steeper than 1:20.

3.3 Description of the building's internal spaces/facilities providing formal and non-formal

education for pupils

Formal education: the school's two education blocks are designed around a main ring of classrooms on the second and third floors. Workshops and laboratories are designed with built-in or potential entrances from street level in the two-storey volume closest to the street. All classrooms are grouped.

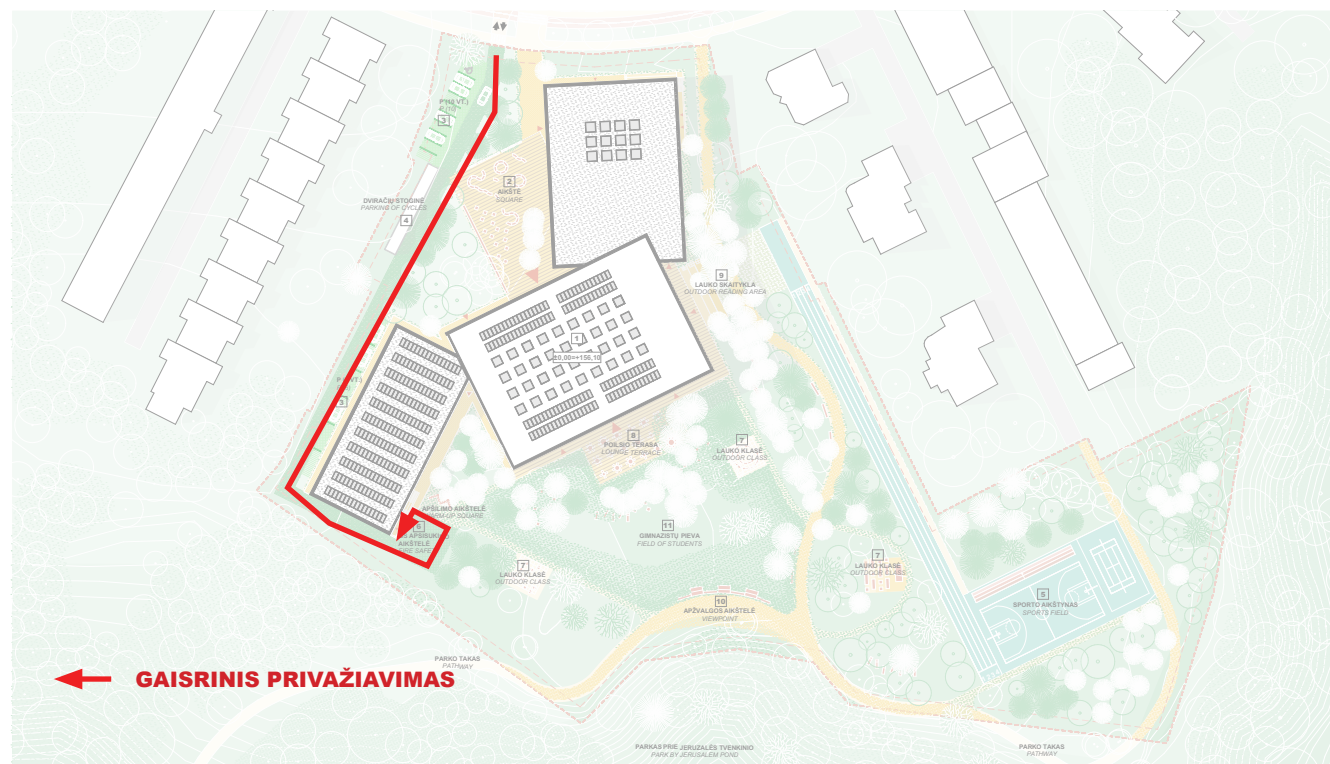
Informal education: Common spaces are designed around the classrooms, with different sound levels for pupils' recreation: a main assembly hall, a canteen with an outdoor terrace for informal and formal group work after school and during breaks. For quiet study, there is a library reading room and quiet rooms in the gallery spaces. For informal education, there is an additional student council room. Other shared functions may be open to the community: gym, choreography and fitness rooms, assembly hall.

3.3. Purposes, indicators and supporting calculations for other structures (number of sports pitches, parking spaces, bicycle spaces, etc.)

See chapter 1. Basic plot characteristics, calculation.

3.5 Description of fire safety solutions (fire-fighting and rescue vehicles access, layout)

In accordance with the Basic Fire Safety Requirements, the height of the building does not exceed 15 m, therefore a 3.5 m wide fire engine access is provided on the west side of the building at a maximum distance of 25 m from the buildings and a turning area of 12 m x 12 m. A pedestrian walkway may be used on the eastern side.



5 fire staircases shall be provided, with direct access to the outside. The distances from the furthest places of work or education to the staircases shall not exceed 50 m.

3.6 Structural design, materiality, sustainability, innovation

For the main structures and finishes of the building, the use of locally produced materials such as prefabricated reinforced concrete, CLT and thermowool could be used, a solution that would be sustainable, as it would not encourage the excessive use of transport, and at the same time time rational in terms of time consumption. Prefabricated, prefabricated reinforced concrete elements are foreseen for the construction of the building's main column network and lintels. For the overlapping of the larger spaces, glulam structures are planned. In the interior spaces, the reinforced concrete column network is overlapped with the internal partitions of the classrooms, thus allowing for easy modification of the classroom network if required. Lightweight blockwork and prefabricated reinforced concrete lintels are to be used for the non-load-bearing facades of the building. Ventilated façades with vertical finishes, low maintenance natural grey thermowood cladding and concrete window frames are foreseen.

3.7 Engineering solutions for the building, measures to meet the energy resource needs and to reduce losses

The building is designed to be the class A++. Therefore, in order to reduce energy resources, photovoltaic power plants are planned on the main body of the school and on the volume of the sports hall, the exact number of which will be evaluated in the energy calculations of the building. The building is designed on a heavily treed site, which means that the large shop windows on the ground floor will relatively receive less direct sunlight. On the upper floors, the windows are to be of a rational height of up to 2.4 m.



The proposed architectural solution of large windows in the classrooms, skylights over the common areas and shop windows on the ground floor ensures maximum natural daylight in the school. This reduces electricity consumption and efficient LED lighting is planned for the internal lighting.

Depending on the wishes of the client, additional energy saving solutions would be selected in the technical design, such as an intelligent resource consumption monitoring system, a rainwater harvesting system and the selection of the most suitable heating and cooling systems.

3.8 Solutions for the development or reconstruction of transport and engineering networks. With the project Solutions for the development and integration of public infrastructure related to the project

In accordance with the conditions of connection to the communication network, the project solutions propose a change of profile of M. Marcinkevičius Street, which would comply with the requirements of the Vilnius street standard. A two-lane (2x2.75) D-category street with calm traffic (30km/h) and no public transport is planned. The street profile between the red lines shall provide for parallel parking spaces (maximum 8 K+R spaces), planting strips (with minimal narrowing on both sides, without damaging the existing trees), pedestrian paths and a cycle path, the route of which would connect with the planned route of Mokslininkų St. in the general plan of the City of Vilnius (2021). We would suggest designing the cycle path from the main Mokslininkų Street to the school, thus encouraging pupils to cycle to school. The two nearest public transport stops are about 350 m away, and it is proposed to maintain the existing pavement widths, but only to upgrade the pavements and to install the paths of the project prepared by the Vilnius Plan for the management of the area near the Jerusalem pond. The detailed



design of the project is shown on the site plan.

3.9 Construction duration, lumped construction cost including all environmental management and other costs associated with the construction of the facility

Estimated construction time is about 18 months.

Estimated construction cost - EUR 20 259 000 including VAT. This amount includes all environmental management and other costs related to the construction of the facility, including the furnishing of the interior of the building(s), the purchase of furniture, surveys, expertise on the project(s) and maintenance.



MEETING THE NEEDS OF THE CLIENT (BUILDING FUNCTIONALITY)

Auditorium (Lobby)

The main entrance leads to an auditorium that connects the spaces in the central school unit. Designed over three floors, designed to accommodate multifunctional spaces and easily accessible from many parts of the building, the auditorium is the core of the whole school building and provides access to other spaces. There are no long and narrow passageways, instead classrooms are accessed by galleries around the auditorium and atrium. Following the Lean methodology, the galleries and the amphitheatre in the centre of the building provide shelves for teaching materials, storage for teaching aids, as well as lockers for pupils and individual small group seating areas for learning. The spatial design of the hall concentrates the modern educational functions into a coherent communal system that shapes the vitality of these spaces. These spaces will be used for gatherings, self-education and for gathering the external community. The auditorium interior design solutions create an environment for group work, collaborative and individual learning, recreation, teacher collaboration and parental involvement in school life. The character of a democratic, modern, open and evolving institution. This space is functionally and visually integrated into a single system with other important spaces for communication and education: the canteen, the library, the assembly hall, the sports hall, the classroom ring on the second and third floors, and the laboratories on the ground floor of the building, which are the closest to the street and have their own entrance. A direct connection to the courtyard through the façade of the canteen shall be formed - an outdoor terrace shall be provided in the courtyard, facing the forest.

Library

The library and reading room space is envisaged as an axial space for contemporary educational activities - stimulating learning, thinking and creativity. A separate but transparent holo-reading room is planned, with direct access to the outside and an amphitheatrical outdoor terrace. The library (book storage and lending) part must be

able to be partitioned off to maintain security requirements.

Classrooms

Classrooms are provided with ample natural light, and easily movable furniture allows for easy transformability and adaptability to different shapes. Classrooms are grouped according to the science clusters in the assignment. In some classrooms, clusters of spaces with laboratories are provided, using folding partitions.

Workshops

On the ground floor, in a block adjacent to the street, laboratory, technological or other specialised teaching/ learning activities are planned, including the FAB LAB. The provision of ground level windows with doors, creating a separate access from the whole school, allows for a more active and convenient use of these spaces for extra-curricular activities or non-formal education, and creates an opportunity for community members to make use of the school's infrastructure.

Event Hall

The design of the event hall is adaptable to a wide range of activities, and the design of the auditorium complements the amphitheatre of the auditorium in terms of quality, providing an acoustically and visually enclosed space with a mobile amphitheatre structure and mobile chairs that can be easily stored. The space will be suitable for performing arts activities and multimedia video and sound screenings (projector, screen, sound equipment, control panels) screenings and community meetings. A backstage area and dressing rooms are foreseen behind the stage. Storage space is provided on the other side of the corridor, next to the auditorium. For a more qualitative functional change of the space and to ensure aesthetic expression, the auditorium shall be provided without excessive windows and light absorbing curtains shall be provided for the necessary windows. The pupils' cloakroom is provided adjacent to the main entrance, so that the cloakroom will also be available for spectators.

Gym

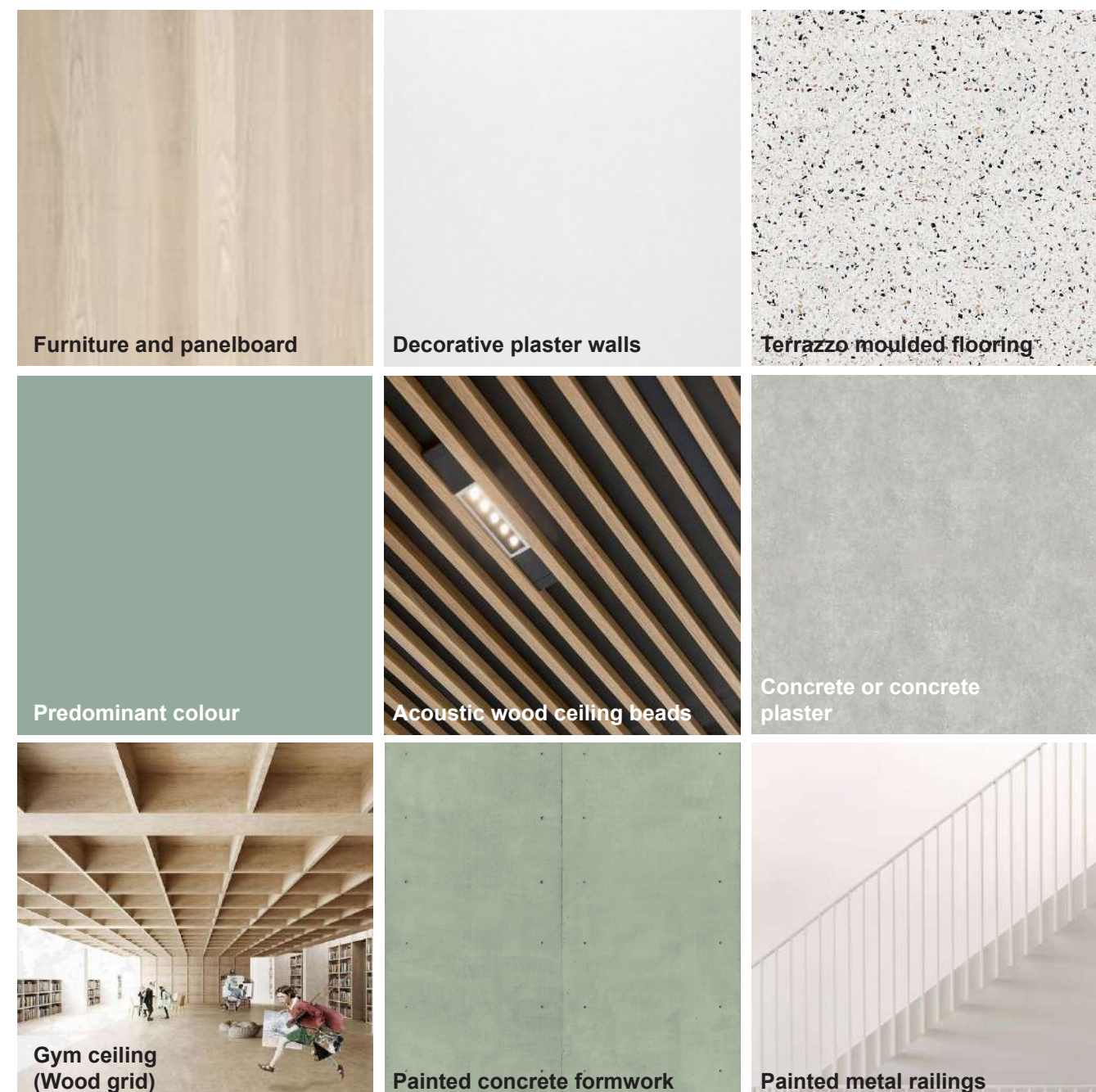
The gym can accommodate 2 classes (up to 60 students) at the same time. The design of the spectator areas of the sports hall is based on the use of mobile transformable amphitheatres. Spatial separation with curtains is foreseen, forming separate safe areas for active pursuits. A comfortable and sufficient number of changing rooms adjacent to the sports hall, with sanitary facilities and showers, serving both the choreography and the fitness rooms simultaneously, which are provided on the ground floor, overlooking the sports hall. There will be convenient separate access to the sports area via a staircase with a lift, creating access to the space outside school hours and for disabled people to use for extra-curricular or community activities. Additional convenient access to the outdoor sports field is provided from the changing area. The Sports halls are planned to have compliant flooring, equipment for a variety of sports activities, adequate and safe artificial and daylight lighting. The gymnasium shall be equipped with a modern multimedia system to motivate physical activity.

Canteen

The canteen area will be a comfortable space for gatherings, formal and informal activities when the canteen kitchen is closed. The good orientation of the building towards the natural environment, the large display windows, the direct exits to the outdoor terrace and the direct connection to the entrance/outdoor areas ensure continuous functional and visual connections to the adjacent spaces (lounges, multifunctional spaces) by forming an open access. A folding (armonica-type) glass partition is provided between the canteen and the common area. A snack bar with a warming area for takeaway food is planned for the bar, which will be transformed into a snack bar after school hours. A training area for cooking technology is provided next to the canteen kitchen.

Technical modular electrical transformer

The existing modular electrical transformer with a total area of about 64 m² is proposed to be relocated to form a non-attached technical room in the basement of the school block closest to the street, with separate access for service companies directly from the street. Given the topography, the most rational location for such a solution is



the basement floor of the north-eastern block.

Lighting

A combination of natural and artificial lighting is used to illuminate all rooms. In classrooms, learning spaces shall be designed to a depth of 6m (HN 21:2017, p. 48.3) - with large windows and natural light on one side. The common areas shall be lit with skylights in the roof and designed with artificial lighting. The lighting of all workplaces shall be designed in accordance with the applicable hygiene standard (HN 21:2017).



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