COOL2B

EXPLANATION NOTE

1 ARCHITECTURAL IDEA

Our overarching objective is to revolutionize the traditional concept of schools, transcending them from mere educational institutions to pivotal community centres that play a fundamental role in nurturing the upcoming generation. We're not just focusing on academic excellence; rather, we're placing a significant emphasis on the school's integration within the broader community fabric.

Our approach involves implementing a diverse array of innovative solutions that aim to enrich the social and communal aspects of the school environment. These solutions encompass everything from architectural design considerations to curricular enhancements, as well as fostering partnerships with local community organisations. By prioritizing the holistic development of students and fostering a sense of belonging within the community, we believe we can create a blueprint for Schools of the future.

At the heart of our mission is a steadfast conviction that schools should be at the forefront of progress, embodying the very best practices across all domains.

We strongly believe that all the best solutions and flagship technologies must be implemented in educational spaces, as schools are basically moulding future generations. School is a place of learning in the world, and we are responsible for what standards and values we instil in our children. What will they respect? What will they consider as normal? What will they tolerate or reject immediately?

The school must be recognized as a crucial investment in everyone's future so far.

Through our efforts, we aim to establish a new benchmark for educational institutions, one that meets and exceeds our society's evolving needs and expectations.

2 CONSIDERING POSSIBILITIES FOR ADAPTING AND MODIFYING THE ARCHITECTURAL IDEA

Community - Centric flexible design

Traditional single-building school structures often lack the flexibility to accommodate evolving educational needs and community dynamics.

By embracing a more modular and adaptable approach to school design, we can create spaces that are responsive to the changing needs of students and educators alike.

Imagine a school where stakeholders have the ability to customize functional elements and integrate cutting-edge technologies to enhance learning experiences. This flexibility not only ensures that schools remain relevant in the face of future challenges but also fosters a sense of ownership and belonging within the local community.

By empowering communities to shape their educational environments, we can create schools that truly reflect the values, aspirations, and diversity of the people they serve.

School Design within Urban Settings

Schools play a vital role in the urban landscape, yet designing them within the confines of urban planning regulations presents significant challenges.

Urban areas often have strict guidelines regarding building orientation, setbacks, and overall scale, as stipulated by national standards in Ukraine. These regulations limit the flexibility of school designs and hinder their adaptability to diverse urban contexts.

While schools traditionally thrive in spacious, open environments, accommodating them within existing urban areas presents numerous barriers, from limited available space to the need for careful integration with surrounding infrastructure and amenities.

Overcoming Repetitive Design Patterns

As a post-Soviet country, Ukraine has a history of utilitarian architecture characterized by repetitive, standardized designs.

While these designs may have been economically viable, they have contributed to a perception of monotony and lack of creativity. Many existing school buildings conform to these repetitive patterns, resulting in a landscape where educational facilities often blend into the background, devoid of unique identity or consideration for their surroundings.

Breaking away from this pattern is essential for creating engaging, contextually relevant educational spaces that reflect the diverse communities they serve

Accessibility of premises

In the contemporary Ukrainian context, ensuring accessibility in educational spaces is paramount.

Accessibility goes beyond physical considerations to encompass inclusivity for individuals of all ages and abilities, including those with diverse health conditions.

Designing schools that are universally accessible promotes equal opportunities for learning and fosters a supportive environment where every student can thrive.

Incorporating features such as ramps, elevators, tactile signage, and sensory-friendly spaces enhances the overall accessibility and inclusivity of educational environments.

3 CRITERIA OF ADAPTABILITY

➔urban context-friendly

➔an anchor for the local community

➔rational use of available building technologies

➔address stakeholder's needs

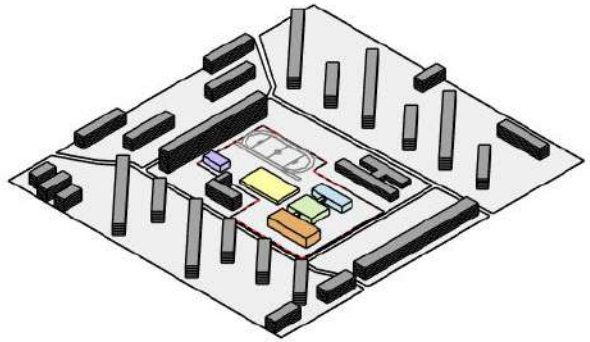
➔address aesthetic culture identity

➔general flexibility

CRITERIA
OF ADAPTABILITY

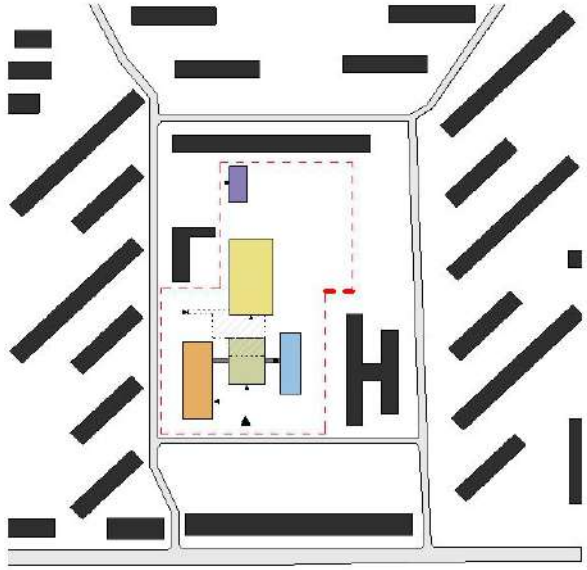
➔ urban
context-friendly

Instead of adhering to a single monolithic structure, our approach involves breaking down the large school building into a series of smaller, interconnected buildings. This transformation creates a campus-like environment that is better suited to medium-sized cities, where a mix of residential and commercial zones characterizes the urban landscape. By distributing functions across multiple buildings, we can better integrate
the school complex into its surroundings and create a more harmonious relationship with the existing urban fabric.



Urbanization tends to be less intense in medium-sized cities than in larger metropolitan areas. To ensure that our school complex is contextually appropriate, we propose mirroring the scale and density of the surrounding built environment. This approach avoids creating an imposing presence that feels out of place in the cityscape, instead fostering a sense of continuity and belonging within the neighbourhood.

One of the key features of our design concept is its adaptability to different sites.
By allowing for the creation of various compositions tailored to each individual site, we ensure that each campus within the school complex is unique. This flexibility not only enhances the overall development's aesthetic appeal but also allows for a more nuanced response to site-specific challenges and opportunities.



An essential aspect of our design philosophy is its inherent adaptability to changes in site conditions. By modularizing the architectural concept, we create a framework that can be easily modified or expanded in response to evolving needs or unexpected developments. This future-proofing ensures that the school complex remains relevant and functional over time, even in the face of shifting urban dynamics or unforeseen challenges. Whether it's accommodating changes in enrolment integrating new educational programs, or responding to emerging trends in pedagogy, our design concept provides the flexibility needed to adapt and thrive in a rapidly changing world

CRITERIA
OF ADAPTABILITY

➔ an anchor for the local community

Recognizing the pivotal role of schools as focal points of community life, particularly in medium-sized cities, we aim to transform the school campus into a vibrant social hub that remains active year-round. Beyond serving solely as educational institutions, schools can become multifunctional spaces that enrich the lives of residents beyond school hours and days.

Our proposed solution involves strategically placing key facilities within the school complex, such as sports and events centres, the central block housing the library and canteen, and optional dormitory buildings. By designating these structures as independent entities open to the local community, we aim to encourage their frequent use and integration into the fabric of daily life. Through effective management models, these facilities can not only meet the needs of students but also serve as valuable resources for residents, potentially generating income to sustain and enhance the campus environment.

Understanding that the need for dormitory accommodation may vary among communities, our approach allows for flexibility in its provision. In instances where a dormitory is deemed unnecessary, its absence does not compromise the architectural integrity of the complex. Alternatively, the dormitory can be repurposed to serve as a hotel facility, catering to visitors and generating additional revenue for the campus. This adaptability ensures that the school complex remains responsive to the evolving needs and preferences of the local community.

Central to our design philosophy is the concept of an open and inviting campus environment that fosters interaction and engagement with the surrounding neighbourhood. By maximizing the site's functionality and organization, we aim to create a welcoming space that serves as a local attraction rather than an isolated enclave. Through thoughtful landscaping, pedestrian-friendly pathways, and inclusive amenities, we seek to encourage residents to utilize the campus as a place for recreation, socialization, and community building, thereby reinforcing its role as a cornerstone of neighbourhood life.

We offer access to the territory from several directions: from the street, from the existing community centre, and from the existing playground. Around 60% of the entire territory is open to the local community.

CRITERIA
OF ADAPTABILITY

➔ rational use of available building technologies

Wood construction stands out as a preferred technology for several compelling reasons.

it aligns with sustainable practices by utilizing renewable resources.

Unlike finite materials such as concrete or steel, wood can be replenished through responsible forestry management practices, ensuring that future generations will also have access to this vital building material.

growing and harvesting trees reduces carbon dioxide in the atmosphere.

Trees act as natural carbon sinks, absorbing CO2 during their growth phase, which persists even after they are harvested for construction purposes. This carbon sequestration process helps mitigate greenhouse gas emissions and combat climate change, making wood construction an environmentally friendly choice.

wood construction offers significant economic advantages

Ukraine ranks among the top wood exporters with its vast forests and rich timber resources. Leveraging this abundant natural resource for construction reduces reliance on imported materials and stimulates domestic production.

By investing in the development of wooden construction technologies, Ukraine can enhance its manufacturing sector, adding value to its timber resources and generating employment opportunities across the supply chain. From forestry and logging to processing and construction, the growth of the wooden construction industry would create a ripple effect, bolstering economic growth and fostering a sustainable, resilient economy.

CRITERIA
OF ADAPTABILITY

➔ rational use of available building technologies

COOL2B also proposes exterior adaptability through the possibility of using various cladding options. Our main idea is to have a clear frame system that can be assembled using various technologies, depending on local resources. The preferred technology is an assembled wooden frame. However, depending on local availability, brick, metal, concrete, or a mix of exterior materials could also be used, without any damage to the main idea and scenario.

Here are several AI suggestions for possible facade appearance:

Wood

Metal panels

Bricks

Concrete panels

CRITERIA
OF ADAPTABILITY

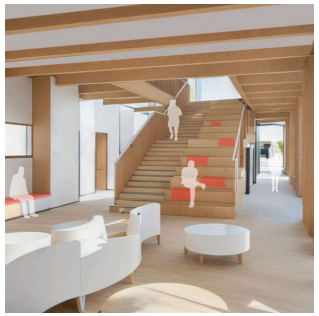
➔ rational use of available building technologies

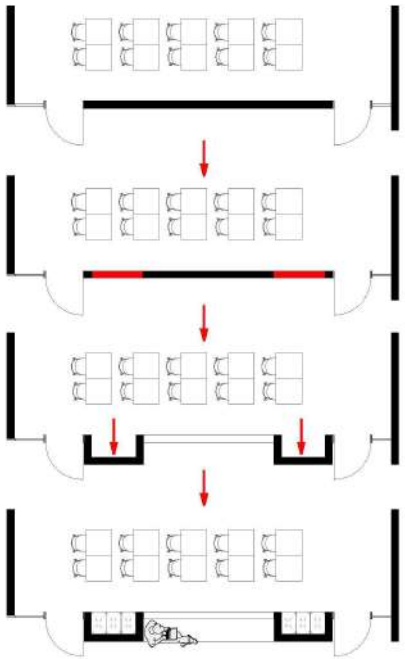
Functional partitions
We have expanded the functionality of partitions between classrooms and recreations to increase sitting areas in recreations without cluttering the space and keep the geometry of classrooms clear without storage units.

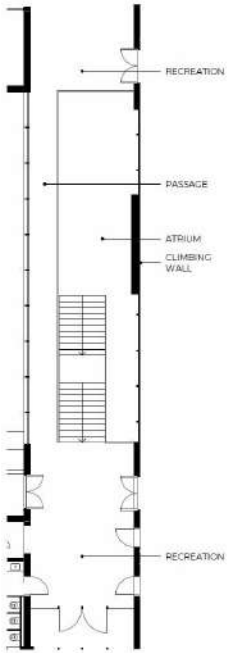
On the classroom side, niches hold storage units, while on the recreational side, they are used as seating spots. Also, these walls can host utility shafts without damage to the visual appearance.

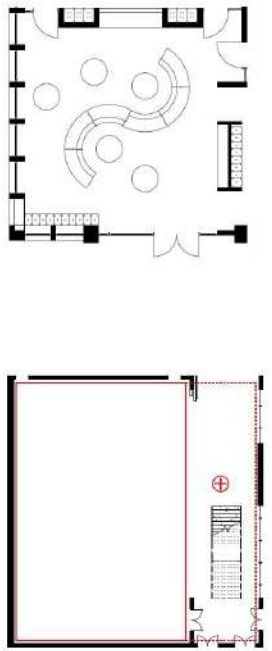
Active recreations
Recreational zones are multifunctional spaces that not only provide opportunities for relaxation but are also tailored for educational activities.

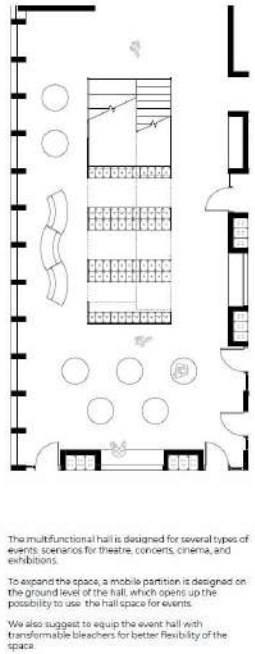
Stairs serve two purposes: vertical connection and as seating areas. This allows for optimal space utilisation and adaptation for various activities.











CRITERIA
OF ADAPTABILITY

➔ rational use of available building technologies

Projects of wood structures are gaining popularity due to the significant sustainability of the resource and, of course, easy and fast installation.
Here are some stunning examples from our European colleagues.

Herresta school
by Liljewall Arkitekter, Sweden

Modular School Built of Wood by gmp · von Gerkan, Marg and Partners Architects
Frankfurt, Germany

CRITERIA OF ADAPTABILITY

➔ **address stakeholder's needs**

We created individual questionnaires for actual stakeholders and gathered **around 100 responses** from pupils, teachers and parents. We analysed the answers and used the data to inform our solutions. Below, you can find some of our analytics.

teachers

(29 respondents)

93.1% of respondents are spending 5-6 hours or more a day at school.

78% claimed that they do not have a personal space, and only 35% rated their workspace comfort 7 out of 10 and higher.

89.3% of teachers would like to make changes in classrooms.

65% spend their time at school beyond class hours
86% preparing for the following classes
62.1% are communicating with kids
48% are communicating with colleagues at that time.

kids

(34 respondents)

61.8% of respondents are in middle school (gymnasium equivalent)

38.2% attend high school (lyceum equivalent).

61.8% of respondents are spending more than 5-6 hours a day at school

70,6% of pupils would like to bring some changes to the classrooms

45,5% of respondents do not spend time at school beyond classes, others do it regularly or occasionally.

Their top activities are communicating with friends, doing sports and working on homework.

parents

(34 respondents)

87.5% of parents said, that they would feel more comfortable if their kids could stay at school after classes.

23.5% of cases, parents bring their kids to school by car
35.3% of kids use a school bus
58.8% of kids go to school by themselves

12 out of 24 rated schools as safe places for their kids to stay, but 9 do not feel safe (primarily because of a lack of shelter)

50% expressed their desire to attend school activities with or without their kids, while 29.4% were unsure.

The most popular activities are sports, dancing, fitness, swimming, and applied arts

CRITERIA OF ADAPTABILITY

➔ address stakeholder's needs

Feedback from students and teachers reveals a common desire for more spacious, modern, and technologically equipped learning environments. Many prefer minimalist furniture arrangements that optimize space and facilitate collaborative activities. There is a strong demand for integrating modern interactive equipment, such as interactive screens and projectors, to enhance teaching and learning experiences. These tools not only facilitate dynamic presentations but also encourage active participation and engagement among students.

Key priorities for enhancing the learning environment include reliable internet access, essential for conducting research, accessing educational resources, and collaborating on projects. Students also desire comfortable and versatile furniture that promotes ergonomic support and flexible seating arrangements. Creating more sitting areas throughout the school, both indoors and outdoors, can accommodate different learning styles and foster collaborative workspaces.

Students emphasize the importance of having access to modern equipment and technology to enhance their learning experiences and prepare them for the digital demands of the 21st century. Despite efforts to maintain continuity during air raid alerts, teachers encounter significant challenges due to inadequate zoning and equipment in shelter spaces. This poses a serious safety concern, underscoring the need for comprehensive emergency preparedness measures within the school infrastructure. Implementing proper zoning protocols and equipping shelter spaces with essential resources and communication systems are crucial to ensure the safety and well-being of students and staff during emergencies.

Feedback regarding the school yard highlights a clear desire for transformation and enhancement. Respondents overwhelmingly agree on the need for more green spaces, recreational areas, and facilities for active games. Equipping the school yard with sports courts and bike parking facilities not only promotes physical activity and healthy lifestyles but also creates a more inclusive and vibrant outdoor environment. The current state of the school yard falls short of meeting the diverse needs and preferences of the school community, emphasizing the importance of revitalization efforts to create a more inviting and functional outdoor space for all stakeholders.

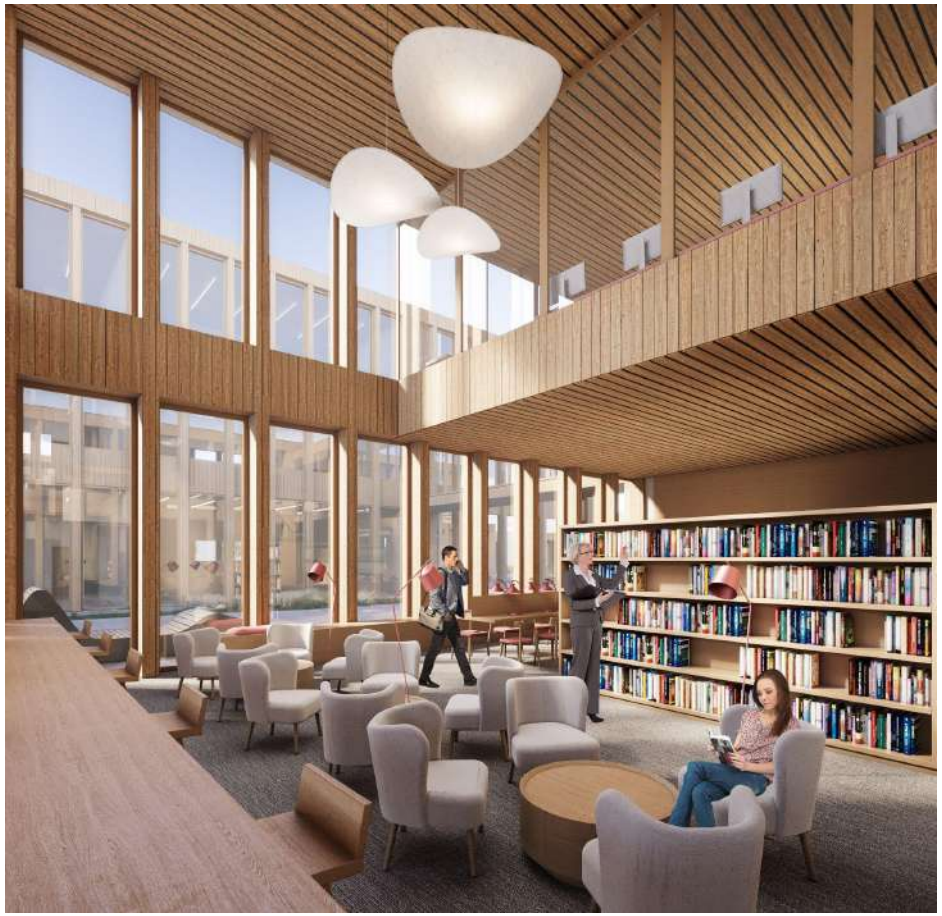
Reflecting the broader community's aspirations, students also advocate for revitalizing the school yard to better meet their recreational and social needs.

Green zones provide aesthetic appeal and opportunities for relaxation and connection with nature. Recreation spaces, including designated areas for leisure activities and games, contribute to a vibrant and active school environment that promotes physical well-being and social interaction. Equipped sports courts offer students opportunities for organized sports and physical fitness activities, promoting a healthy lifestyle.

The inclusion of bike parking facilities supports sustainable transportation options and encourages environmentally friendly habits among students. Importantly, students also desire spaces to socialize and communicate with friends during breaks and free time, underscoring the importance of creating inclusive and inviting outdoor areas that foster positive social connections and community engagement.

CRITERIA
OF ADAPTABILITY

➔ **address aesthetic cultural identity**



COOL2B's aesthetic cultural identity blends modernity and functionality, with sleek, minimalist architecture.

The design integrates innovative technologies like interactive screens, digital projectors, and smart classroom systems, positioning the school as a beacon of progress and preparing students for future challenges.

The school's educational philosophy values creativity, collaboration, and critical thinking, reflected in flexible, adaptable spaces that promote exploration and interdisciplinary learning. This approach fosters curiosity and equips students to navigate an increasingly complex world.

Inspired by Western European analogue schools, Ukraine's School of the Future combines timeless design principles with contemporary innovations. Its architecture features clean lines, functional spaces, and natural light, while integrating sustainability, technology, and community engagement, reflecting Ukraine's cultural context and aspirations.

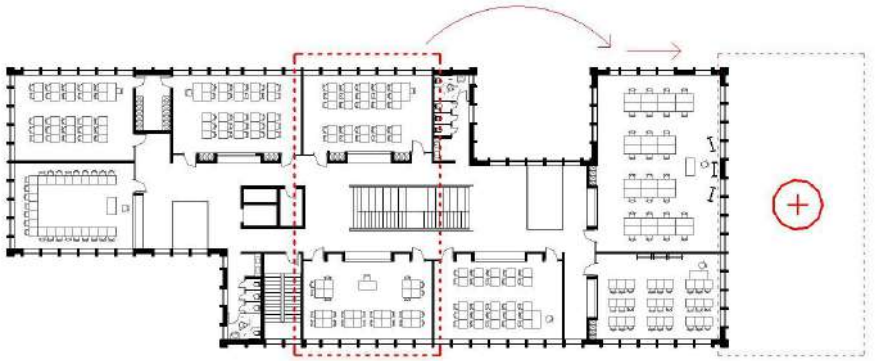
Characterized by transparency and openness, the school’s design includes transparent facades, light-filled interiors, and open floor plans, fostering connectivity and visibility. This transparency extends to its values of openness, inclusivity, and accountability, setting a standard for integrity and collaboration in education.

CRITERIA OF ADAPTABILITY

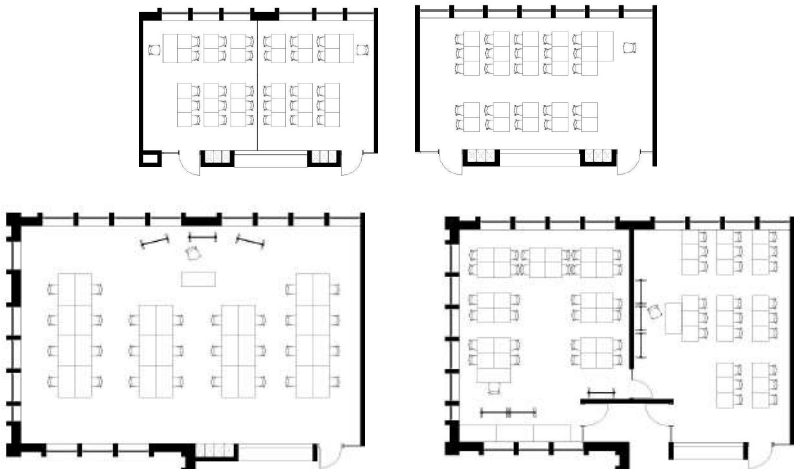
➔ general flexibility

In addition, COOL2B also provides several multifunctional solutions for the everyday use of educational premises: major premises like sports halls, concert halls, library and dormitories are available to be used primarily for education and local community needs. While the first can host various local events, the second can operate as a fully independent facility (co-living or local hotel).

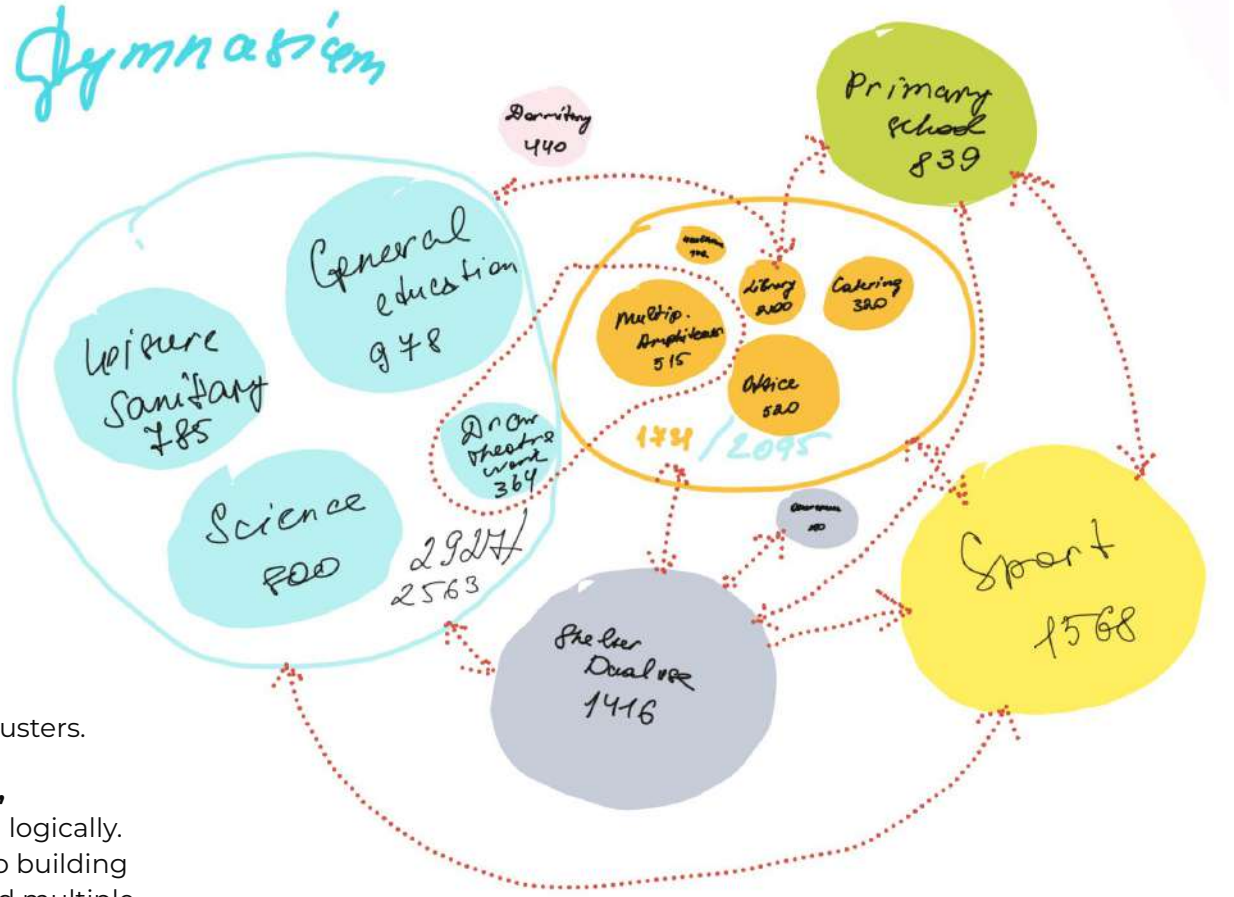
The structural organization of the buildings is modular and flexible to add more space when needed. More than half of educational rooms allow rearrangement of their inner spaces according to each particular request



We designed modular spaces with wide possibilities for transformation. Some classrooms are standard, but most of them are transformable. One classroom can be converted into two smaller ones or, on the contrary, two classes can be connected into one bigger space.



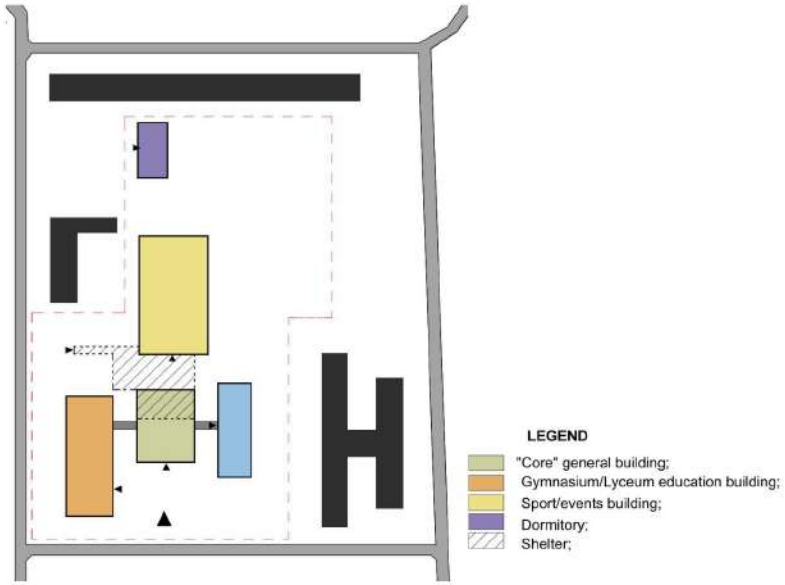
4 FUNCTIONAL SOLUTIONS



We have analysed the project's program
and grouped all the premises into logical functional clusters.

We have developed a system of 6 functional blocks,
separated into independent structures but connected logically.
The system also allows integrating outdoor spaces into building scenarios (yards, outdoor classes, etc.). We have formed multiple educational and recreational zones outside, which are easily accessible and connected to indoor premises

FUNCTIONAL SOLUTIONS



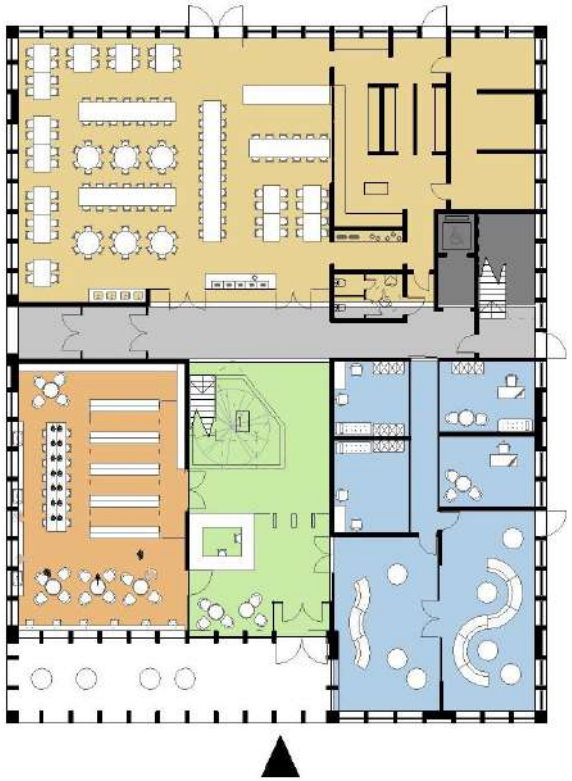
Each block also is fractionally divided into subelements, organised around the connecting spaces (recreations and vertical communications.

FUNCTIONAL SOLUTIONS

Block 1 - the core

This block is the heart and brain of the campus. It contains the library, administration office, teachers' coworking space, healthcare facilities, and canteen. All the spaces are designed as open plans inside, logically arranged, and accessible for all categories of visitors (teachers, pupils, and guests).

Visitors may access the playrooms for children with special needs or the canteen through the main hall. To reach the first floor, people may use the front stairs, an accessible lift, or a secondary staircase, which also leads to the dual-use shelter facilities.



FUNCTIONAL SOLUTIONS

Block 1 - the core

Next to the main entrance, there is a lobby and a reception point, where visitors can comfortably wait for their access or to use the library.

The library is aligned to the main entrance so that anyone can come in to pick up and drop off the books or to work inside if allowed to do so by the receptionist. Parents will no longer feel bored and lose time while waiting for their kids.

The working premices for teachers are designed as an open space co-working space with various zones, including a room foe rest and a separate coffee point.

FUNCTIONAL SOLUTIONS

Block 2 - primary school

Following the general logic, this block is dedicated to youngsters and their needs.

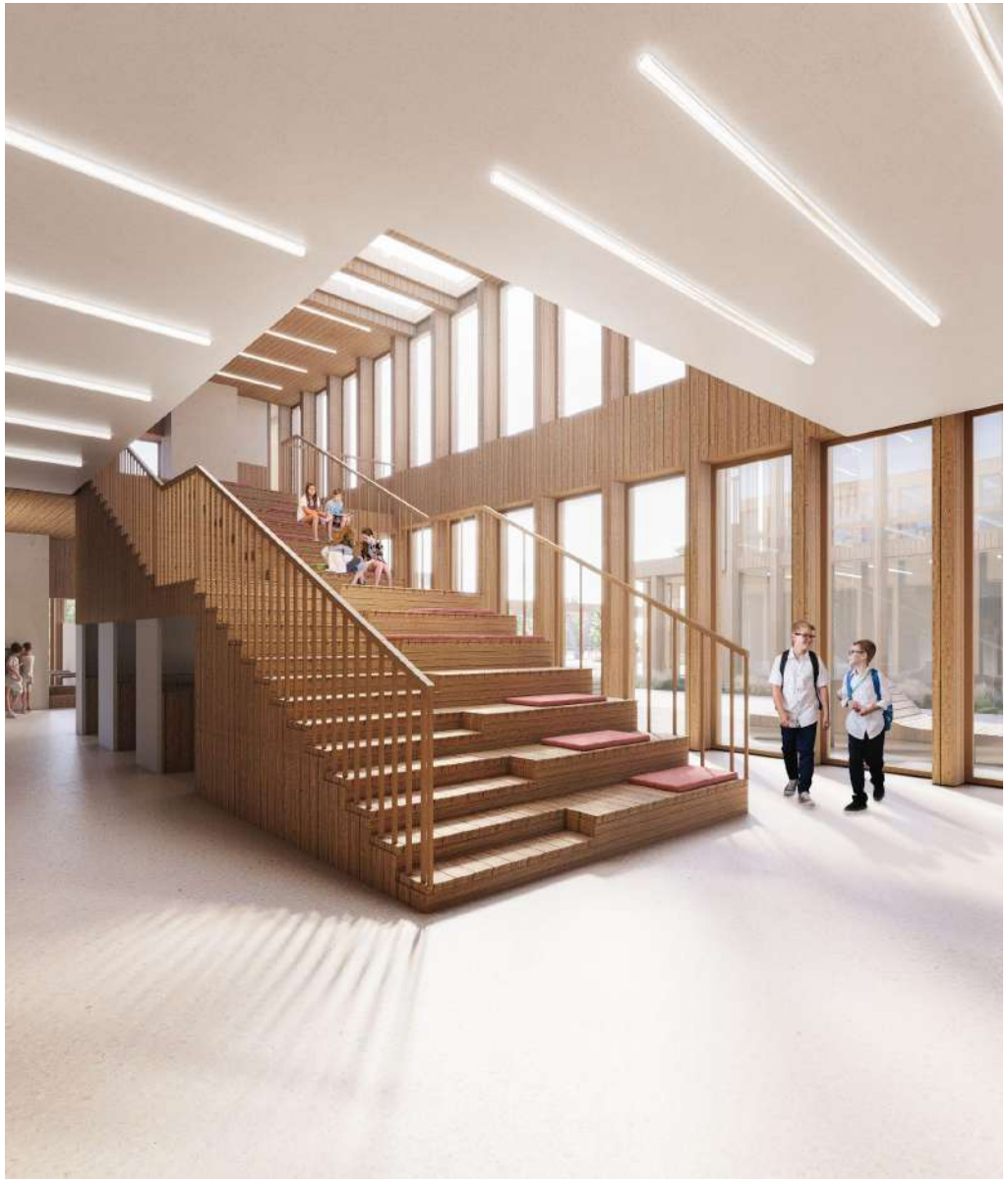
It is a two-storey building, subdivided into two sections: 1st-graders on the ground floor and classes 2-4 on the ground and 1st floor.

FUNCTIONAL SOLUTIONS

Block 2 - primary school

The second section is represented by spacious recreation, surrounded by educational classrooms.

There is also a working office for primary school teachers on the second floor and a connection gallery to the core.



FUNCTIONAL SOLUTIONS

Block 3 - lyceum & gymnasium

This is a separate building, connected on the first level (above the ground level) through a gallery with the Core. Nevertheless, it has its own entrance with controlled access by teachers and pupils only.

The building contains educational spaces, recreation areas, and sanitary facilities for the lyceum and gymnasium.

FUNCTIONAL SOLUTIONS

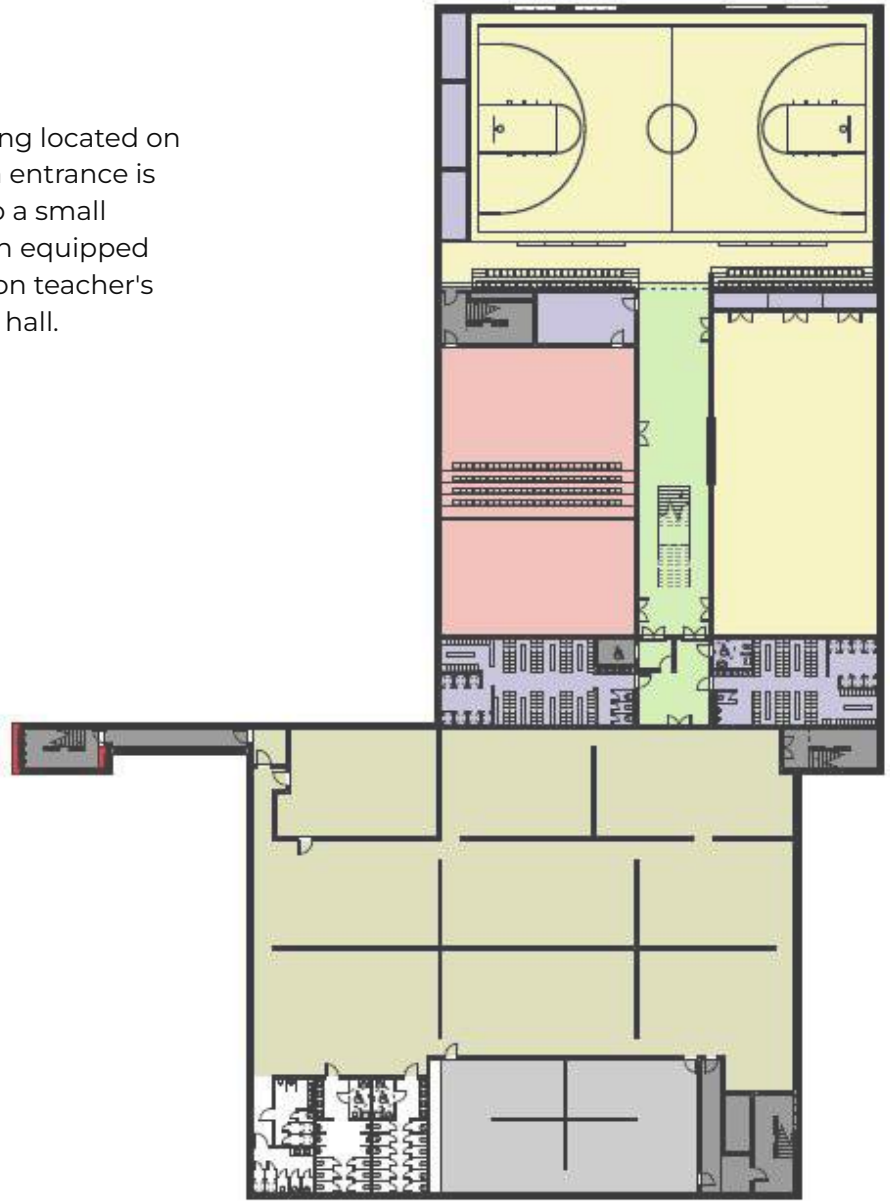
Block 3 - lyceum & gymnasium

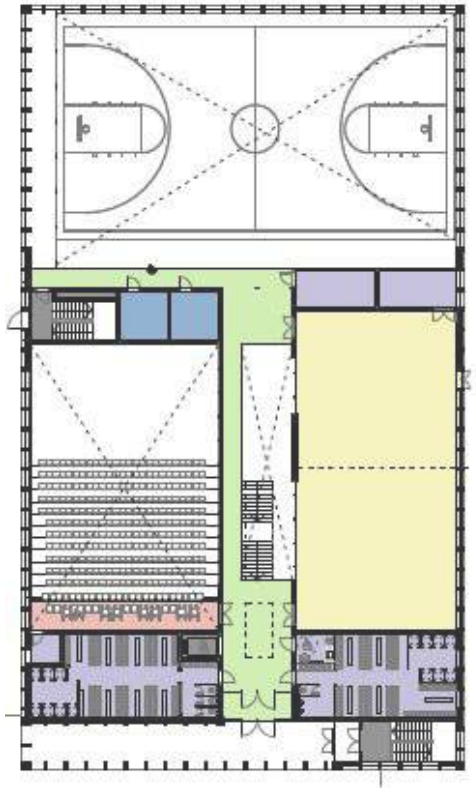
Classrooms are arranged around recreational spaces, avoiding narrow corridors. On the ground floor, there is direct access from classrooms to aligned outdoor educational spaces. There is a possibility to hold some classes outside in the warm season.

FUNCTIONAL SOLUTIONS

Block 4 - sports & events

This block is a semi-underground building located on the ground level and -1st floor. The main entrance is located on the ground level and leads to a small sports hall, which we suggest making an equipped gym, changing rooms, physical education teacher's rooms and a balcony of the main sports hall.





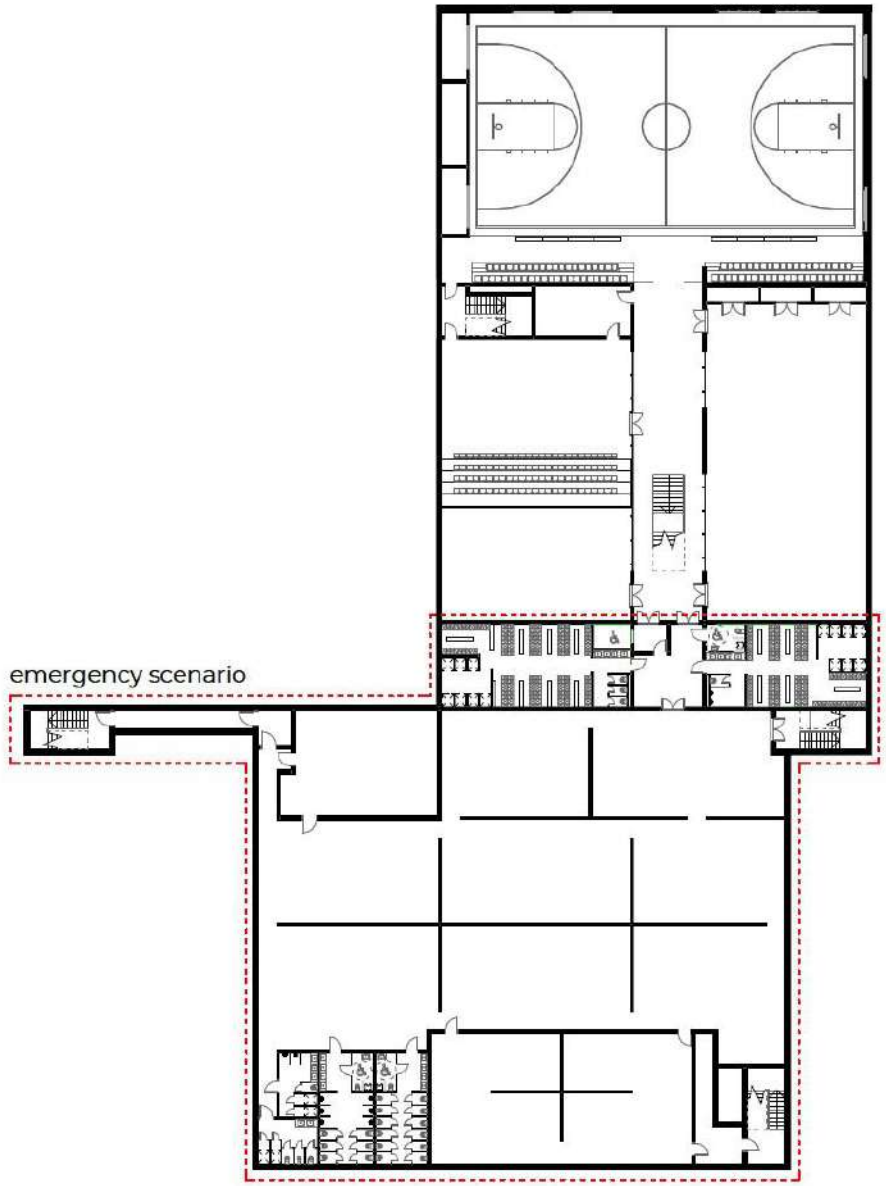
FUNCTIONAL SOLUTIONS

Block 5 - dual use shelter

Due to the Russian aggression in Ukraine, shelters are necessary for the safe educational process. However, we all hope for the shortest final of the tragic circumstances and suggest making the significant spaces double-functional and adaptable to the peaceful needs.

COOL2B propounds a dual-use shelter as an underground structure connecting the core administrative block with sports and events facilities. This solution allows easy access to the premises and also opens the possibility for more efficient use of sanitary spaces.

Under general conditions, the shelter may serve as a nice ancillary space for events and sports and host activities such as homeland defence classes, workshops, or other social community events, depending on the stakeholders' needs



FUNCTIONAL SOLUTIONS

Block 6 - dormitory

The dormitory block is totally separate and autonomous, located in a separate zone.

We suggest organizing residential rooms into modular blocks, which can be added when necessary to expand the facility.

Rooms are grouped in blocks for 2 or 4 people, whether a separate bathroom for each block. Considering the impact of the war, we have designed several bedrooms (both single and double), accessible for wheel chaired people.

On the ground floor there is a common kitchen and dining room, and a separated lounge zone alongside the residential rooms.

On the 1st floor there is also a coworking place and a caretaker's room.

5 SECURITY MEASURES

Two principal scenarios for the security facilities of the complex: peaceful and military.

In terms of military threats, we have designed a dual-use underground shelter,
which can host students and staff of the school as well as people from the neighbourhood.
The access to the shelter is free, and open outside educational spaces.

However, in the peaceful time security still matters and for that purpose we suggest further solutions:

- **Separation of the functional flows**
  Each group of stakeholders has its own dedicated buildings and intersects in common controlled spaces.
- **3 different levels of access to campus to ensure comfortable but secure use of the school's facilities.**

LEVEL 1

Access is free and controlled by video surveillance systems only

This level covers the school yard, lobby, library, and shelter when required.

LEVEL 2

Access is limited for school stakeholders and the local community

This level covers sports and event facilities, canteen and dormitory. The access can be provided by card of a local or similar system.

LEVEL 3

Daily access is limited for school stakeholders and the local community

This level covers sports and event facilities, canteen and dormitory. The access can be provided by card of a local or similar system.

6 SUSTAINABILITY SOLUTIONS

COOL2B chases the Active House approach with 3 main categories: comfort, energy and environment. Active house approach focuses on long-term performance, well-being and environmental impact.

The Active House key principles are as follows:

Comfort

- a building that provides an indoor climate that promotes health, comfort and sense of well-being
- a building that ensures good indoor air quality, adequate thermal climate and appropriate visual and acoustical comfort
- a building that provides an indoor climate that is easy for occupants to control and at the same time encourages responsible environmental behaviour.

Energy

- a building that is energy efficient and easy to operate
- a building that substantially exceeds the statutory minimum in terms of energy efficiency
- a building that exploits a variety of energy sources integrated in the overall design.

Environment

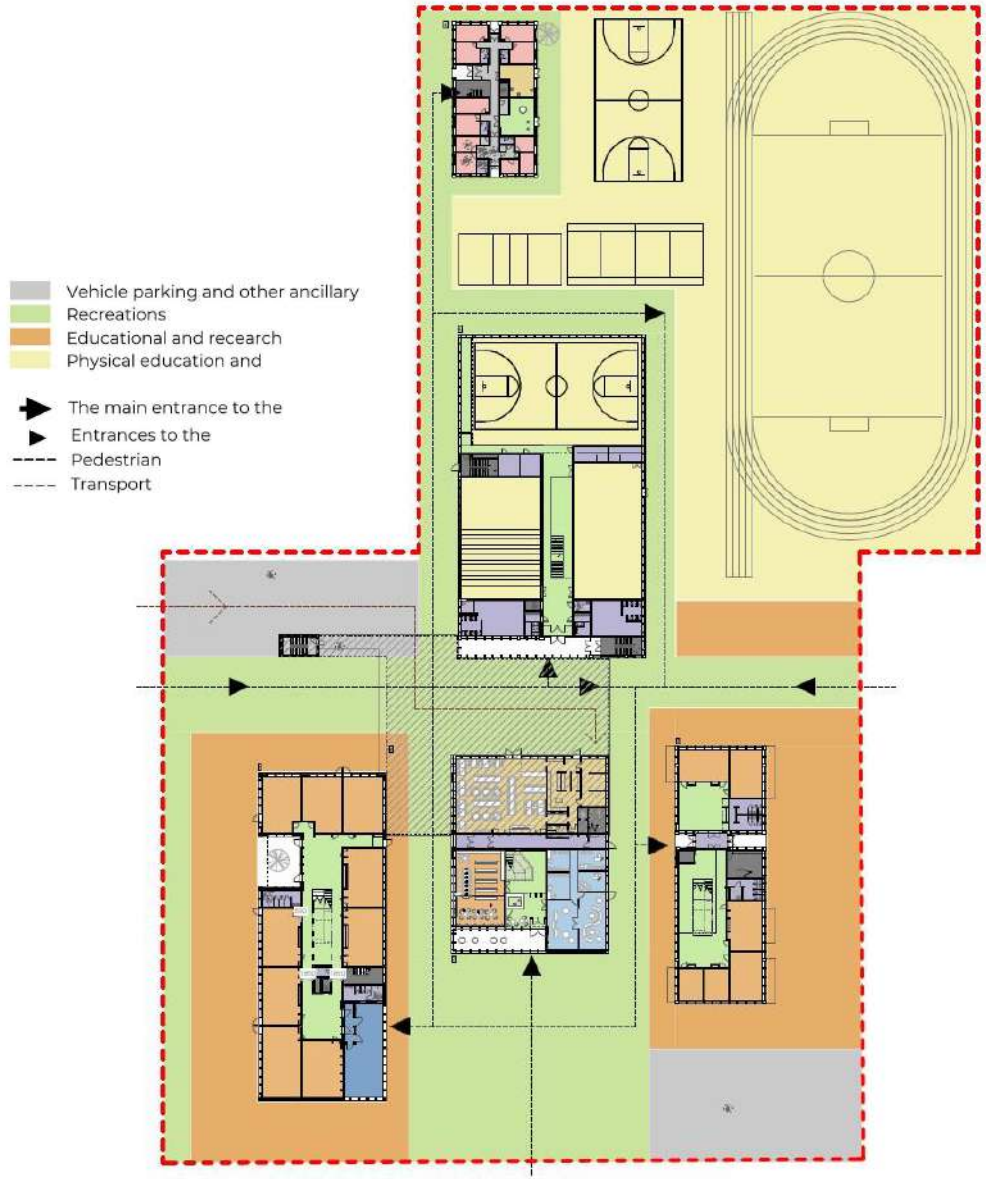
- a building that exerts the minimum impact on environmental and cultural resources
- a building that avoids ecological damage
- a building that is constructed of materials with focus on re-use.

We are convinced that a holistic approach like that enables us to create a truly high quality environment for raising future generations. Therefore, COOL2B addresses the criteria with the following solutions:

activehouse

SUSTAINABILITY SOLUTIONS

Building design program



Maximizing daylight usage

The system of separate blocks and the frame structure allows us to maximize the total area of windows, whereas vertical elements of the frame help to reduce overheating in the peak season

Active roofs

We suggest using flat-top roofs for solar panel fields.
We also suggest using the green roofs over the ground floor, adjacent to the working and educational premises. This may upgrade visual comfort, reduce overheating, and compensate for the development area

Integration of outdoor spaces into everyday use

COOL2B Integrates indoor and outdoor facilities seamlessly and encourages use of external spaces for education, therefore promotes physical and mental well-being

Instead of creating a single building in the middle of a large site, we propose to spread separate blocks and integrate outdoor and indoor facilities

SUSTAINABILITY SOLUTIONS

COOL2B prioritises the use of natural materials such as wood, prefab panels of wood and straw, lime, and recycled rubble blocks

Timber frame structure as a primary technology for the project
Unlike finite materials such as concrete or steel, wood can be replenished through responsible forestry management practices, ensuring that future generations can access this vital building material.

To increase its effectiveness, we suggest a modular system using prefab elements (panels, trusses, etc.), e.g., straw and wood fibre prefab panels. This method reduces construction time and allows components to be swapped out or upgraded as needs change or new technologies become available.

Recycled concrete for roads and underground parts
Concrete debris, including ceramics and bricks, can be recycled to build roads and serve as filler for new concrete walls, reducing the need for new materials like sand and gravel.

Recycling suitable rubble helps conserve resources and supports environmental sustainability.

Recycled pavement blocks
This technology can be used on the sites, further reducing the need for new raw materials. There are analogues and examples of how other countries recycle pavement. For example, The Hygroscopic Mortar is composed of 85% reused crushed ceramics with recycled stone and 15% stabilized white cement as a low-impact binder. Due to its hygroscopic properties, the resulting product functions as a water filter and regulates the[illegible]s by environment's humidity. Loop Disseny

SUSTAINABILITY SOLUTIONS

Energy-efficient materials and technologies are the priority.
Renewable recourses as a milestone of the project

Insulation panels
The panels we suggest offer exceptional insulation properties, helping to regulate indoor temperatures and reduce energy consumption. They are lightweight and durable, making them easy to transport and install on-site. The panels are also breathable, allowing moisture to escape and preventing mould growth.

Solar batteries
panel fields to maximize solar energy use and compensate for the complex's energy demand

Usage of the heat pumps
We highly recommend using heat pumps for climate control. The tandem of heat pumps and solar batteries has proven its efficiency widely. These technologies are easy to add to our architecture at any stage of the construction.

7 COMFORTABLE ACOUSTIC ENVIRONMENT

The future school must be an institution where every detail is thoughtfully designed based on the latest scientific research and practice.

Planning acoustics at early design stages is essential to creating a healthy, attractive, and productive learning environment.

Creating an appropriate classroom acoustic environment allows teachers to avoid straining their voices. Children do not suffer additional stress and can concentrate on gaining knowledge. Both groups do not get too much tired and perform much better.

This enhances the learning process and protects the health of teachers and students, making them feel more comfortable and less stressed. It also reflects the institution's sense of responsibility and commitment to creating a functional and healthy educational space.

Good acoustic design starts from the early architectural planning stages and encompasses several key elements that provide psychological acoustic comfort in classrooms and common areas.

➔appropriate room proportion determination

➔acoustic materials

➔noise reduction by segmenting the school into sections

COMFORTABLE ACOUSTIC ENVIRONMENT

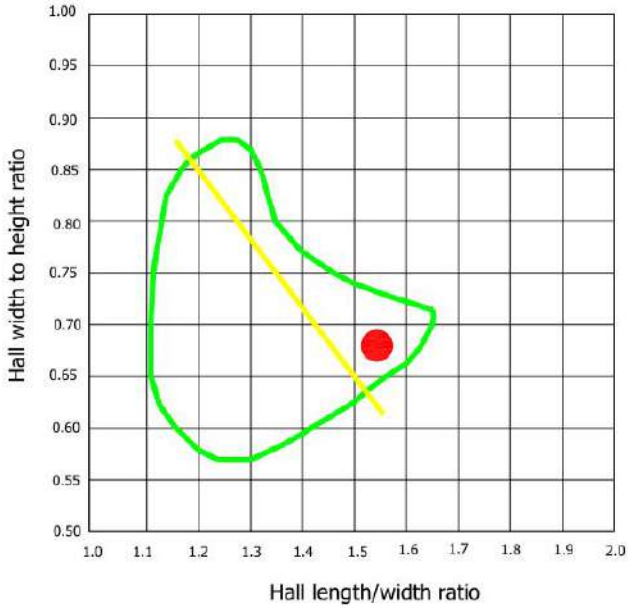
➔ appropriate room proportion determination

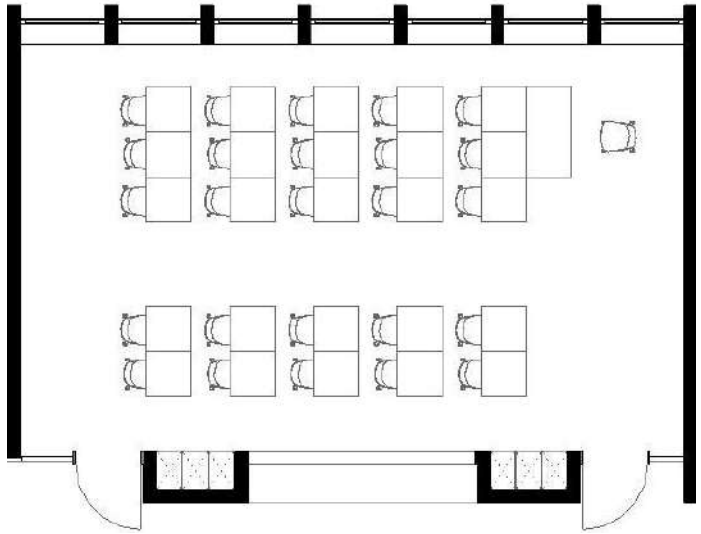
One of our goals is to create a productive and psychologically suitable acoustic environment for learning. When designing classrooms, we paid special attention to determining the proportions of the rooms.

Properly determining the length and width of the room improves its acoustic parameters from the initial design stage. The classroom proportions are designed based on the "Boldo" principles. .

The Boldo principle formula helps reduce the impact of echo in the room and provides better distribution of the sound waves within the room's proportions.

This affects the health of both teachers and students. Therefore, we suggest considering these aspects from the initial design stage, where essential aspects can be planned





COMFORTABLE ACOUSTIC ENVIRONMENT

➔ acoustic materials

To create a proper acoustic learning environment, it is essential to include sound-absorbing materials in the rooms.

It is recommended to cover approximately 80% of the room's area with sound-absorbing materials to ensure acoustic comfort in common areas.

spray materials

plates

panels

COMFORTABLE ACOUSTIC ENVIRONMENT

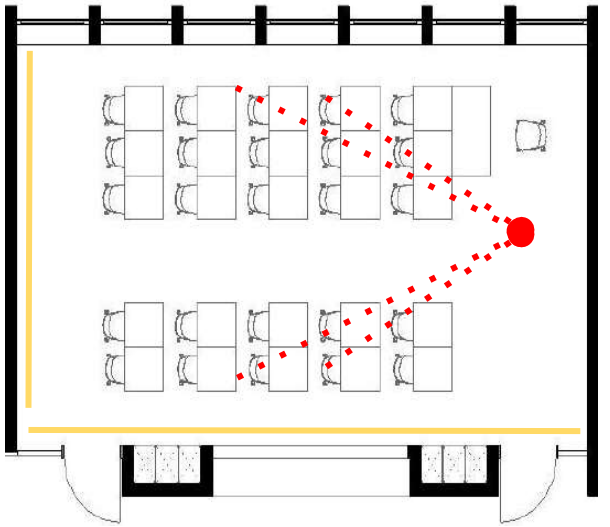
➔ acoustic materials

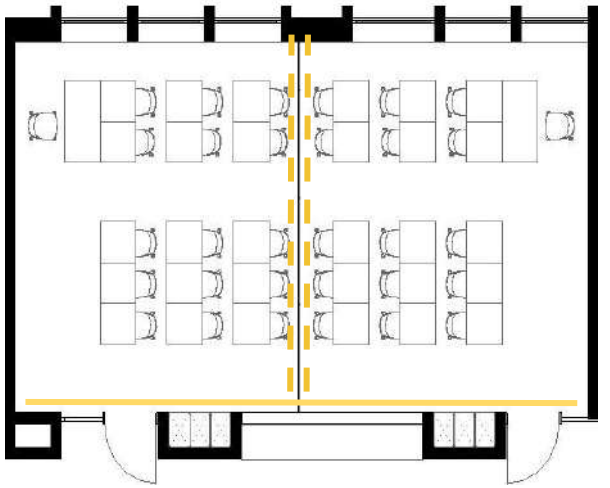
At least two walls in the rooms should be covered with sound-absorbing materials. Ideally, these should be arranged in an "L" shape.

We designed spaces that are multifunctional with vast possibilities for transformation.

Some classrooms are standard, but most of them are transformable.

One classroom can be converted into two smaller ones, and it is necessary to ensure good sound insulation and a suitable working environment in separated spaces.





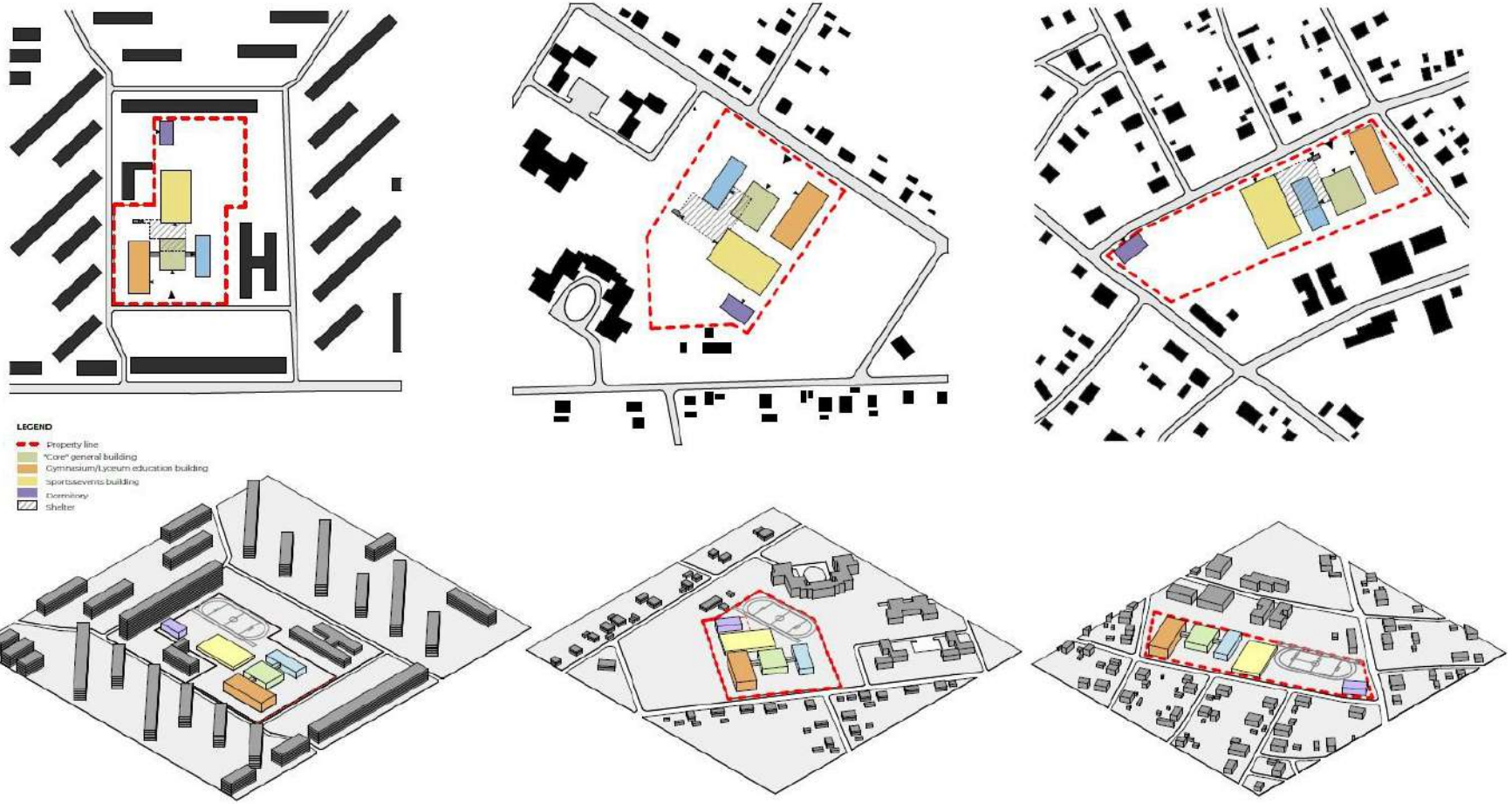
we recommend to:

- Use partitions with good sound insulation parameters, Rw > 40dB
- Increase sound absorption in the rooms and include partitions with
  additional acoustic curtains in both classrooms.
- Ensure the curtains have sufficient density;
- The ceiling area must be utilized to the maximum extent, and acoustic sound-absorbing materials, such as cement-bonded wood wool panels, are installed wherever possible
- Aditionally, it is useful to use eco-friendly spray materials to cover ceiling surfaces and engineering installations.

COMFORTABLE ACOUSTIC ENVIRONMENT

➔ **noise reduction by segmenting the school into sections**

Dividing the complex in different buildings is another advantage for noise control management.
We have grouped the processes with various noise levels and placed them in different buildings.



8 SUMMARY & CONCLUSION

Revolutionizing Schools into Community Centres

Vision and Objectives

Our goal is to transform traditional schools into vibrant community centres. This shift emphasizes academic excellence and the integration of schools into the broader community, fostering a sense of belonging and holistic development for students.

Innovative Solutions

We implement diverse solutions including architectural design, curricular enhancements, and partnerships with local organizations. By creating multifunctional spaces, schools can serve as active social hubs year-round, enriching community life beyond school hours.

Campus Design

Key facilities such as sports centres, libraries, and canteens are strategically placed within the school complex and made accessible to the community. Potential dormitory buildings can be repurposed as hotels if needed, ensuring flexibility and additional revenue streams.

Community Integration

The campus is designed to be open and inviting, with thoughtful landscaping and pedestrian-friendly pathways. Around 60% of the territory is open to the community, promoting interaction and engagement with the surrounding neighbourhood.

Acoustics and Learning Environment

Planning for acoustics is essential to create a healthy and productive learning environment. Good acoustics prevent teacher voice strain and reduce student stress, enhancing overall performance and well-being.

Modular and Adaptable Design

Instead of a single monolithic structure, the school is broken into smaller interconnected buildings, creating a campus-like environment that integrates well with medium-sized cityscapes. This modular design allows for flexibility, adaptability to different sites, and future-proofing against changing needs and urban dynamics.

Commitment to Excellence

We believe in implementing the best solutions and technologies in educational spaces, instilling high standards and values in future generations. Our approach ensures that schools remain relevant, functional, and at the forefront of progress, meeting society’s evolving needs and expectations.

Conclusion

Our efforts aim to establish a new benchmark for educational institutions, creating a space that supports academic achievement, community integration, and sustainable development. Through thoughtful design and innovative solutions, we envision schools as pivotal centres of learning and community life.

9 SUMMARY & CONCLUSION

AREA LAYOUT FOR THE SITE OF THE COMPLEX (HYPOTHETICAL SITUATION A)

Site (in hypothetical situation A)		
	Unit of measure-ment	Quantity
Site surface area	sq.m.	22,8
Site development intensity (3402,24m2: 22800m2) =0,1492*100=14,9%	%	14,9
Site development density (9467,04 m2: 22800m2) =0.4152*100= 41,5 %	%	41,5
Green portion of the site (5592,06 m2: 22800m2) =0.2453*100= 24,5 %	%	24,5
Building(s) / part of the building(s)		
General data of the building(s) / parts of the building(s)		
Total floor area	sq.m	9467.04
Usable floor area	sq.m	9213,27
Dual-use area in the civil protection structure	sq.m	1331,14
Volume	cubic metres	48650,4
Number of floors	pcs.	1-3
Building height	m	8.400

Primary education		
Total floor area	sq.m.	1007,4
Usable floor area	sq.m.	941,44
Volume of the building / part of the building	cubic metres	5371,08
Number of floors	pcs.	1-2
Height of the building / part of the building	m	8,7
Gymnasium, Lyceum, Shared education and community spaces		
Total floor area	sq.m.	6437,17
Usable floor area	sq.m.	6280.01
Volume of the building / part of the building	cubic metres	35060.77
Number of floors	pcs.	1-3
Height of the building / part of the building	m	4.400-12.812
Accommodations. Dormitory		
Total floor area	sq.m.	674,25
Usable floor area	sq.m.	660.68
Volume of the building / part of the building	cubic meters	2974,5
Number of floors	pcs.	2
Height of the building / part of the building	m	7.50
Civil Protection. Dual-use shelter		
Total floor area	sq.m.	1348,21
Usable floor area	sq.m.	1331.14
Volume of the building / part of the building	cubic meters	5244,05
Number of floors	pcs.	1
Height of the building / part of the building	m	-3,5