

# MOMENTUM

*Explanatory note*



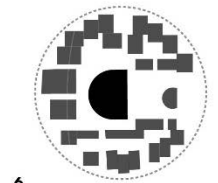
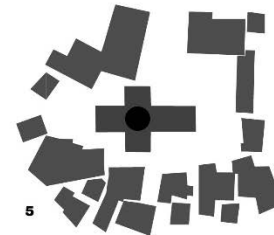
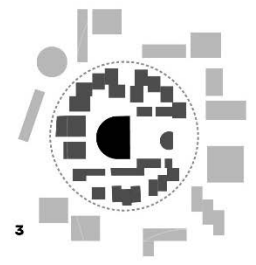
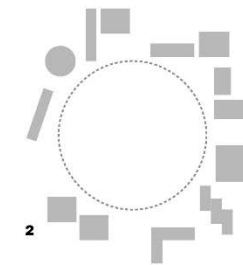


## Context

### A. War Recovery

After the devastation caused by conflicts of different kinds, nations employ various processes and strategies to rebuild their infrastructure, economy, and social fabric. This often includes **Physical Reconstruction** (Rebuilding damaged or destroyed buildings and infrastructure); **Economic Revitalization** (Stimulating economic growth through education, policies and programs aimed at restoring existing and creating *new* industries as well as creating jobs); **Social Healing** (Addressing the psychological and social impacts of war on communities, applying for instance education and programs for trauma recovery and creation of community cohesion).

## RECONSTRUCTION

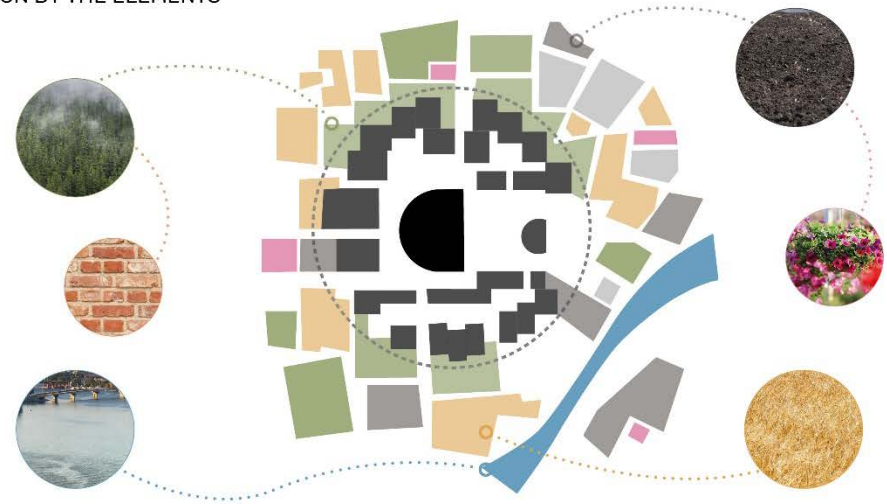


## BUILDING the CITY again

## B. Landscape and National Identity

An educational institution as part of the public sphere and often as a notable physical appearance, with its landscaping, plays a key role in shaping and reflecting national identity. This can entail symbolic landscapes, different old and modern cultural landscapes as well as the overall urban planning and architectural design applied. The design of cities and buildings should reflect national values and historical narratives, adhering to regulations but aiming at innovation and the interplay between old and new, aesthetic and functional, stimulating and tranquilising.

A DESIGN BY THE ELEMENTS

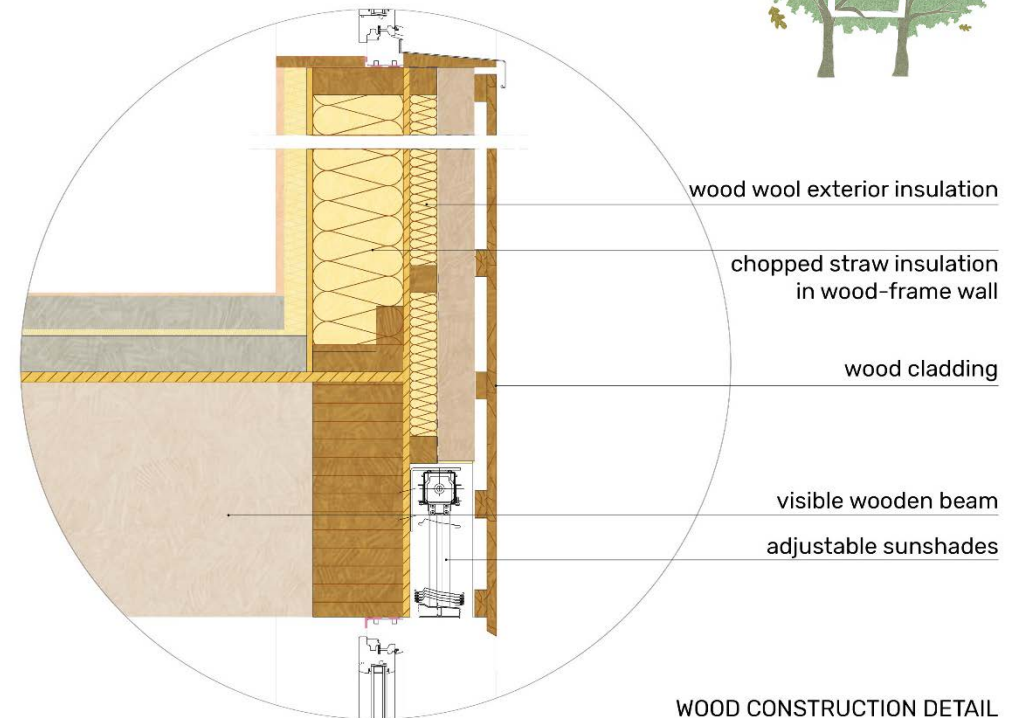


## BUILDING WITH WOOD



### C. Materials and Local Resources

Utilising locally sourced materials and workforce in construction and production, along the lines of adaptive reuse, is both an economic and environmental strategy. It promotes **Sustainability**: Using locally sourced materials reduces transportation costs and environmental impact, enhancing sustainability. This includes the integration of vernacular, local architecture, which uses materials readily available in the local environment. The strategy has **Economic Benefits**: Supporting local industries and reducing dependence on imported materials. An added value, through the use of wooden structures and advanced techniques in wooden architecture, is the creation of new competencies and industrial possibilities in the local communities. This can help stimulate local economies and create jobs. Not least, the strategy has **Cultural Relevance**: Materials often carry cultural significance and historical value. Textures, colours, materials and the combination of them carry meaning that ties the built environment in the local context and enables the creation of a sense of belonging.

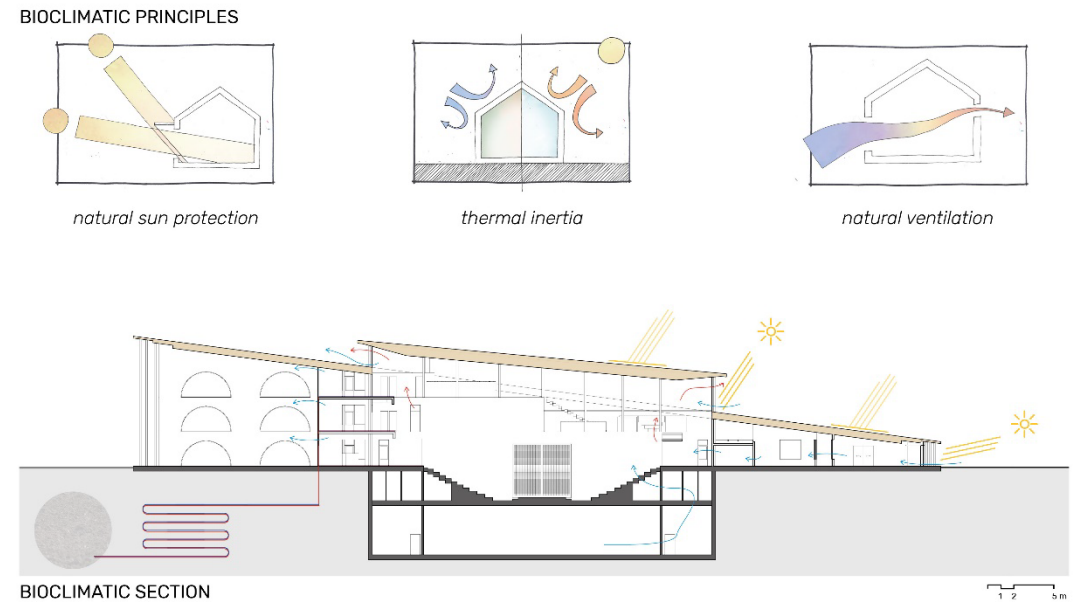


WOOD CONSTRUCTION DETAIL



#### D. Skills: Traditional Skills and New Technology

For the emergence of new skills and competences, the merging of traditional skills with new technologies is essential to promote innovation yet balancing it with cultural preservation. **Craftsmanship, Technological Integration** and **Education and Training** are vital for this trajectory, not forgetting the integration of vocational training in the overall educational landscape. The school and the construction process leading to it can work as a landmark for respecting the traditional while immersing oneself with the idea of what *could* be.



### E. Cultural Heritage: Literature, Painting, Sculpting

The fabric of a nation's history and its roots translates as cultural heritage. This entails **Historical Writings and Artefacts**: Literature, paintings and ceramics serve as historical records that capture many of the essential aspects of a certain place, space and time. These amount to **Cultural Expression** of values, beliefs, and narratives. The school premises and the educational landscape, not only museums and other cultural sites, are key players in fostering **Awareness** and **Belonging** through education, training and meaningful activities that promote learning.





## Architectural Idea

# MOMENT∩M

## Whole-Day School – Whole-Community School

MOMENT∩M aims to transcend the most obvious designs by creating spaces that are emotionally resonant and functionally adaptable. The goal is to rebuild not only the educational infrastructure, but also the spirit of the community, offering a place and a time that supports learning, growth, and emotional well-being. Through the integration of sustainability, digital technologies, and community-focused design, the future is created in the spaces, places and time that compose education and learning.

The design incorporates nostalgic elements, such as repurposed materials from local sites, sparking curiosity and interest. There are certain design principles that add to accessibility, flexibility, perceptibility, approach and use.

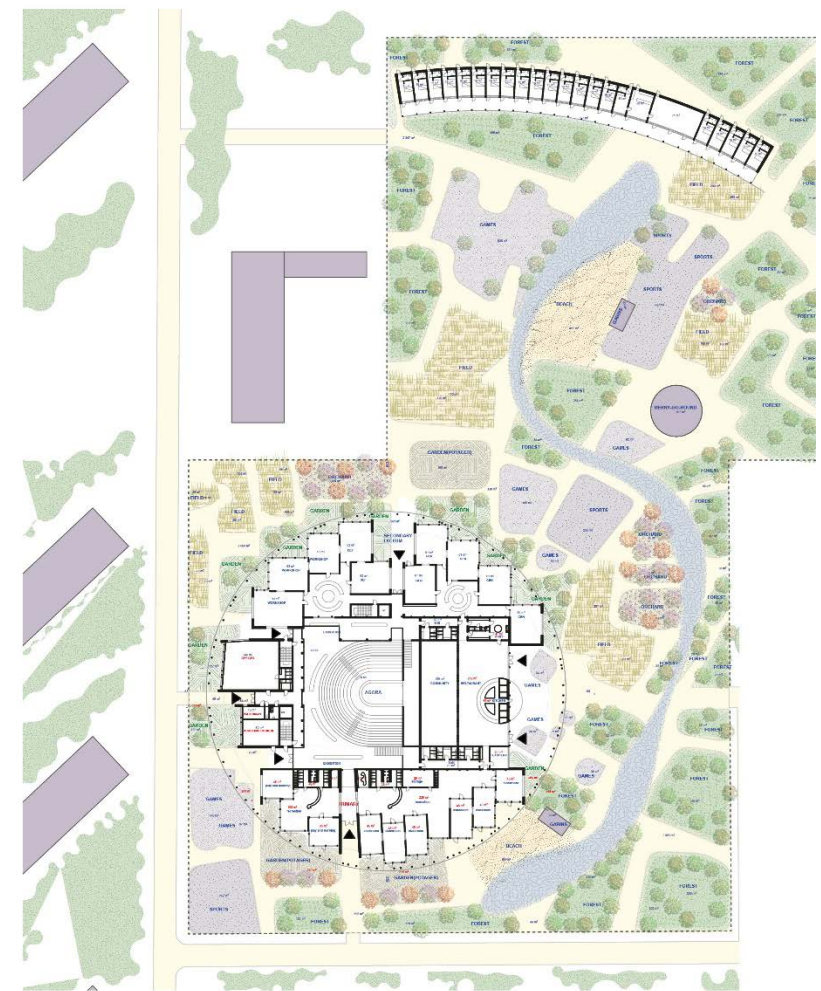
- ◇ Educational Enrichment and Emotional Engagement
- ◇ Emotional Safety and Comfort
- ◇ Community Connection and Belonging
- ◇ Tranquility and Trust
- ◇ Integrity and Generosity

The layout is designed to be non-linear and dynamic, forming around the idea of an old city with its vital and vibrant centre and plaza. There is a certain sensible simplicity that is gained through materials and natural elements. The design encourages exploration and continuous learning through elements that are not immediately obvious. In MOMENT∩M, *the meaning is in the use*. The future is created in the now.



## A. Reconstruction of a Destroyed City Centre

The core architectural idea focuses on the reconstruction of a destroyed city centre, aiming to restore its historical significance while incorporating modern elements that are both culturally and pedagogically relevant. This approach involves **Heritage Preservation** by the restoration of key historical landmarks to retain the city's cultural identity. Using advanced techniques that combine material qualities (bricks, wood) ensures that the architectural integrity of these landmarks is maintained while usurping and re-using the best qualities of all materials and their junctures. Different elements of **Modern Infrastructure** are blended seamlessly with the historical. This includes sustainable designs and materials, energy-efficiency adapted to the local conditions, and the integration of smart technologies both in the construction process and post-hand-over in the actual use and maintenance of the building. A quintessential part of the architectural idea, founded in the pedagogical vision of MOMENTUM, are **Community Spaces**: public spaces that foster community activities and cohesion and engagement. Parks, plazas, and leisure zones become focal points for social activities and cultural events. Mixed-use developments combine residential, commercial, and recreational spaces to create vibrant urban life, encouraging local businesses, entrepreneurs and events to stimulate the economy, thus feeding towards **Economic Revitalisation**.



SITE PLAN A

1:5 25m SITE



SITE PLAN B

1:5 50m



SITE PLAN C

1:5 50m



## B. The Hierarchy and Organization of an Old (European) City

The design builds on the traditional hierarchy and organisation characteristic of old (European) cities. **Urban Grid**: there are narrow streets and alleys, in a dynamic interplay with public squares. This grid reflects the essence of the **Zoning**: various zones, resembling residential, commercial, and civic areas, meander in the landscape, ensuring that each serves its intended purpose while contributing to the overall “urban” fabric. There are sightlines to the **Landmarks and Axial Views**. These landmarks help navigating organically, making the landscape understandable. Squares, markets, and gardens compose the natural and aesthetically appealing **Public Spaces**.



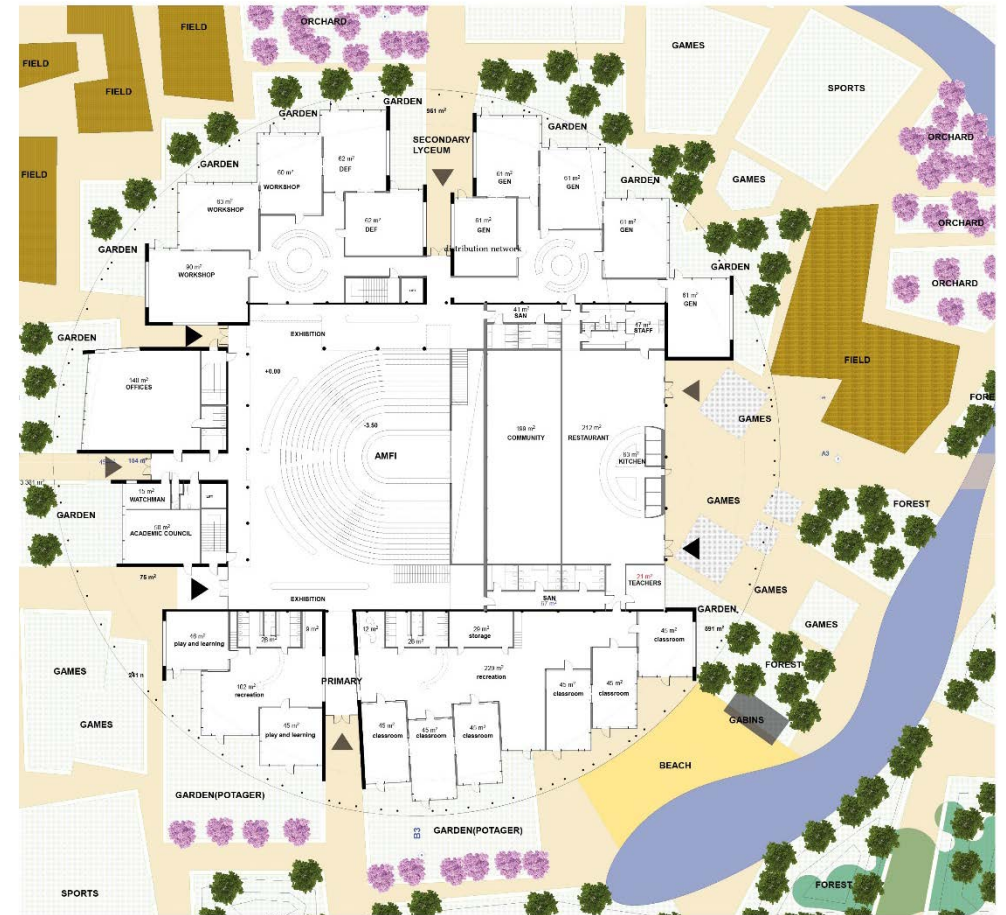
SITE B AXONOMETRICAL VIEW



SITE C AXONOMETRICAL VIEW

### C. The Hierarchy of Common-Private and Big-Small as a School Community

Applying the principles of hierarchy within a school community, the design considers the balance between common and private spaces – imperative in well-functioning educational facilities - as well as the scale of different elements. **Common Areas:** Creating shared spaces such as auditoriums, libraries, and cafeterias that encourage collaboration and social interaction among students and staff. **Private Spaces:** Private and semi-private areas such as classrooms, study rooms, and offices offer quiet, focused environments for studying and work. Larger **Communal Spaces** are balanced with smaller, intimate areas. This includes creating cozy corners within larger halls and providing breakout spaces adjacent to main areas. There is a clear idea of spaces that are accessible to all, promoting inclusivity and ensuring that every member of the school and local community can participate fully in pertinent activities, academic and extracurricular.



FLOOR PLAN - GROUND FLOOR - 1/250



#### D. Open, Transparent, and Flexible

The architectural vision promotes openness, transparency, and flexibility, essential for creating a dynamic and adaptable learning environment and surrounding landscape. **Open Spaces** are placed to enhance airflow, natural light, and visibility. This includes open-plan layouts, and outdoor areas that are organically linked with the interior. **Transparency** is obtained not only by the usage of glass but also through visual connection from the core area through the modules so that there is always an axial view to the outdoor landscape. Interior partitions allow for visual continuity and interaction, but also simultaneously create a sense of privacy where needed. **Multiplicity in use** comes about by spaces that can be easily adapted to various uses and activities. Movable partitions, modular furniture, and multi-purpose rooms ensure that the buildings can evolve with changing needs. **Sustainability** is incorporated using green building practices and sustainable materials to reduce environmental impact. Recycled and adaptive reuse materials, rainwater harvesting systems, and energy-efficient technologies contribute to the overall sustainability of the project. MOMENTUM is **Easy to Use** and navigate.



## Site plans A, B and C

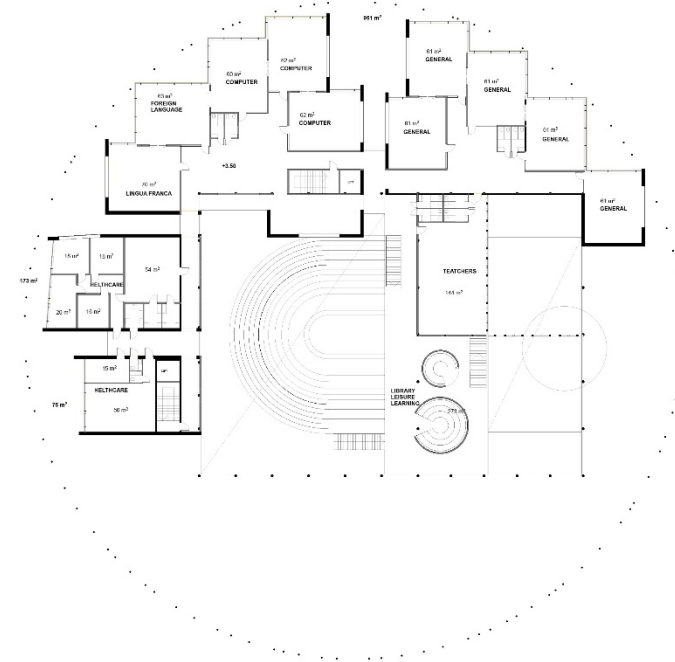
By embracing evolving digital technologies MOMENTUM enhances the learning environment, ensuring it remains relevant and future-ready.

### Adaptability

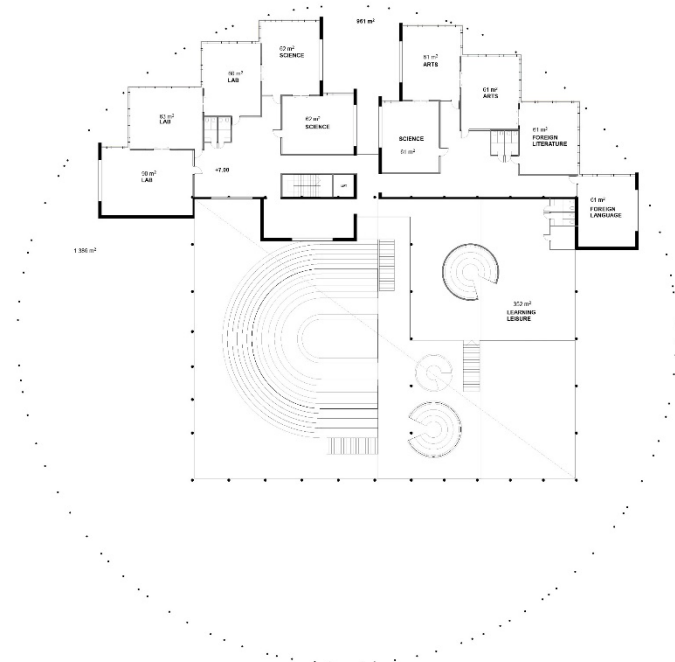
The design's fundamental principles are adaptability and scalability, tailored to fit the specific site, program, and readiness of the local and school community. Modular units and an indeterminate central area enable the spaces to evolve with changing needs, ensuring the school remains functional and relevant. This flexibility allows the building to transition seamlessly between educational use and community activities, fostering a dynamic and inclusive environment.

### Sustainability

The building is designed to be energy net positive, incorporating geothermic heating and cooling, natural ventilation, and solar panels. Sufficient insulation using wood fiber or straw minimizes energy loss, ensuring the building's environmental footprint is minimal. The structural design combines concrete foundations with a vertical structure of wooden posts and CLT walls, while the horizontal structure features wooden beams and hybrid concrete-wood slabs. This hybrid approach not only enhances sustainability but also emphasizes structural integrity and longevity.



FLOOR PLAN - FLOOR+1 - 1/250



FLOOR PLAN - FLOOR+2 - 1/250

## Economy of Construction

The economic viability of the project extends beyond initial construction costs to include long-term operational efficiency. By utilizing local resources and fostering new skills, the construction process supports the local economy and promotes sustainable development. Advanced technologies are integrated to streamline construction and ensure the building meets modern standards of efficiency and resilience. This holistic approach ensures that the project not only provides a functional educational space but also stimulates local economic growth and innovation.

This design and the boundaries serve not only formal education but also integrates the local community by providing spaces for leisure, sports, and cultural events. Embracing the latest digital technologies, the school fosters a dynamic and resilient learning environment.



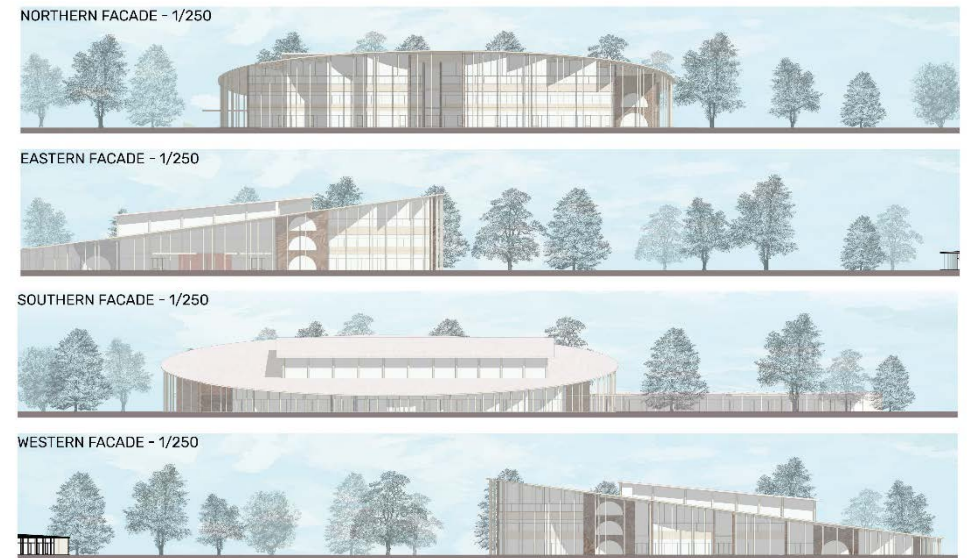


## Exterior Areas

**Continuity and Integration:** The exterior areas are seamlessly integrated with the building, as organic continuums of it, drawing inspiration from the character of the site and reminiscent of an old town structure. This continuity extends to the surrounding Ukrainian landscape, reflecting the fields, forests, and rivers, creating a familiar and comforting environment.

**Activity Zones:** Activities are thoughtfully distributed across the exterior, catering to various needs and ages. For the youngest children, dedicated areas ensure safety and engagement. The design includes spaces for physical activities, educational pursuits (such as cultivation, research, and nature studies), and social activities (like games, markets, festivals, and communal care).

**Private and Common Spaces:** The exterior design balances communal and private spaces, offering a range of environments from shared areas to intimate, private spots. This approach promotes community interaction while respecting individual privacy.



## Sustainable and Natural Environment

**Natural Materials and Ecosystems:** The exterior areas utilise natural materials, creating a self-sufficient ecosystem rich in biodiversity. This not only fosters a healthy environment but also serves as a living laboratory for students to learn about sustainability and ecology.

**Permeable Surfaces and Water Conservation:** All surfaces are designed to be permeable, ensuring that rainwater is preserved on-site, promoting groundwater recharge and reducing runoff. This sustainable approach aligns with the principles of water conservation and environmental stewardship.

**Common Care and Modification:** The design encourages community involvement in maintaining and modifying the exterior spaces. This shared responsibility fosters a sense of ownership and pride among students and the local community.

**Equity and Inclusivity:** Ensuring equality is a cornerstone of MOMENTUM. The exterior spaces are accessible and usable by everyone, regardless of age or ability, promoting inclusivity and shared experiences.



SECTION AA - 1/250



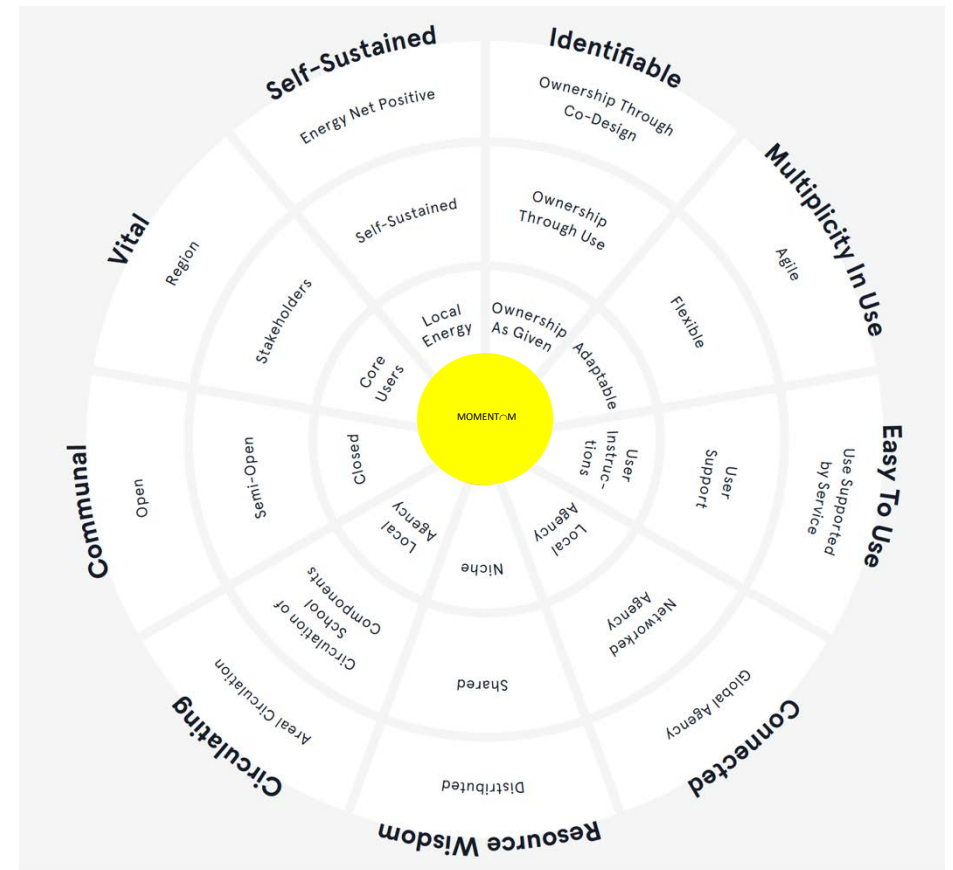
SECTION BB - 1/250

## Adaptability to All Conditions

**All Seasons, All Weathers, All Hours:** The exterior areas are designed to be functional and welcoming in all seasons, weather conditions, and times of day. This adaptability ensures that the spaces are always available for use, providing year-round engagement and activity opportunities.

The school reflects the local landscape and culture while providing versatile and resilient spaces for education and community activities. Through the thoughtful incorporation of natural materials and sustainable practices as well as a balance between brain-friendly spaces and spaces for enhanced, immersive use of digital technologies, MOMENTUM offers a nurturing and future-ready environment for all learners and community members.

The pedagogical concept of MOMENTUM translates into the design and architectural elements.





## Pedagogical Concept

Even when education leaps from page to screen, the tangible remains. MOMENT∩M entails sustainable elements, nature, and movement. It also pays attention to the private, the individual, the tranquil. In the library and overall, chalk meets artificial intelligence. Both elements are needed for accessible and empathic learning. The echoes of history and nostalgia with signs of tomorrow create meaning, and the meaning is in the use. Meaning is made in the now, together and collaboratively in the school, in its activities, in the communal use, in the daily flows and moments and frictions that produce learning. They *ARE* learning. Where we cannot design the unknown – we can make a best guess.

### School = Community = School

MOMENT∩M sets out to remove the concrete and metaphorical barriers that isolate schools from their communities. Viewing the entire community as an interdisciplinary environment transforms it into a pond of learning opportunities and educational resources. Parks and rural landscapes impart knowledge about nature, ecology, stewardship, and science. Local businesses provide skill development and diverse content through apprenticeships. Systems thinking is embedded in the infrastructure.

Public schools and communities coexist in a mutually beneficial relationship that is fundamental to democracy and a free, open society. A democratic spirit of openness encourages public engagement and lifelong learning, which should be reflected in school architecture. MOMENT∩M avoids the temptation of fortified

isolationism - it is connected. This way, it honours and reflects local culture while incorporating it with contemporary design, thus becoming an identifiable landmark for the community or centers of communal life. The school is part of, not outside of, the surrounding community and landscape.

A guiding principle in MOMENT∩M is the absolute necessity to provide learning environments for all kinds of teaching: teacher-led lectures, students studying in pairs, small groups, big groups, and more than one teacher and student group during co-teaching. The spatial typologies offer possibilities on a trajectory from silent individual to noisy communal. The library is both a traditional library and a learning centre, a hotspot for co-quiet study and co-creative sessions using digital technologies to support the cognitive process. The pedagogical shape-shifting is designed to be smooth and natural: within a short distance from the classroom there is a more communal space that can be used by groups or teams of students.

Teachers' facilities are situated not only in a centralised way in administrative spaces, but also within the learning communities in the different areas of the school. This presence of adults promotes a safe environment.

The principles of Universal Design also support quality pedagogy: the spaces promote intuitive use, access for all, perceptible information and clear lines of sight.

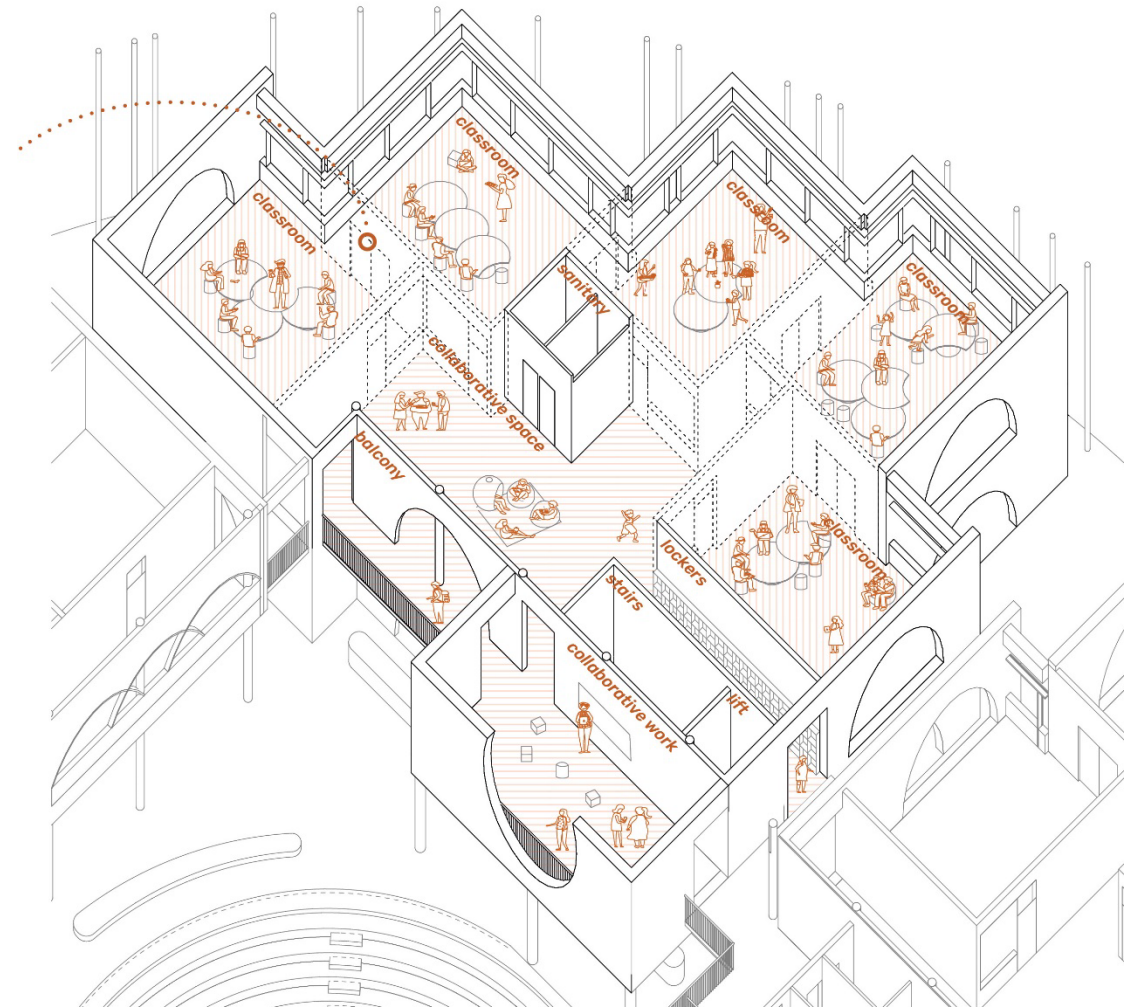
The pedagogical principles outline various elements to foster curiosity, surprise, emotional safety, sense of belonging, and natural tranquility.

## 1. Educational Enrichment and Emotional Engagement

**Nostalgia, Curiosity, Interest :** The design incorporates nostalgic elements, such as repurposed materials from local heritage sites, sparking curiosity and interest. The layout is designed to be non-linear and dynamic, encouraging exploration and continuous learning through elements that are not immediately obvious.

**Surprise and Paradox :** Incorporating unexpected design features and even paradoxical elements, like modern structures integrated with traditional forms, creates moments of surprise and stimulates intellectual curiosity and learning.

**Amusement and Hope :** Playful architectural features, vibrant color schemes, and interactive spaces evoke amusement and joy. Natural light and green spaces foster an atmosphere of hope and positivity, crucial for rebuilding a sense of normalcy.



## 2. Emotional Safety and Comfort

**Avoiding Embarrassment and Guilt:** Inclusivity and accessibility are at the forefront of the design, ensuring every individual feels welcome and valued. Clear signage, intuitive navigation, and universally accessible spaces help promote feelings that support individual and community growth.

**Space for Compassion, Space for Security:** Quiet, contemplative areas provide space for grief and compassion, offering solace and support. Some of these areas feature soothing elements like water features to create a comforting environment.

**Empathy and Boundaries:** The design balances personal space with communal interaction, respecting boundaries while fostering empathy. Semi-private alcoves and flexible seating allow for both social engagement and personal retreat.

## 3. Community Connection and Belonging

**Security and Sense of Safety:** The design prioritises clear sightlines, and secure entrances, fostering a sense of security without being intrusive.

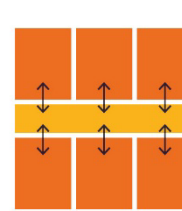
**Belonging, Connection, Fitting In:** Communal spaces are designed for authenticity and connection, featuring multipurpose halls, a kitchen also used by the community, and flexible seating arrangements to encourage gatherings and foster a sense of belonging.

**Love, Joy, and Gratitude:** Attention to detail and high-quality materials reflect care and love, creating spaces that inspire joy and gratitude. The warm and inviting atmosphere promotes a sense of community and mutual respect.

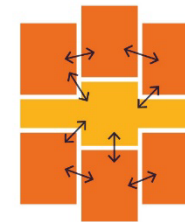
## EDUCATION PRINCIPLES

**Interaction is the key of the learning process.**

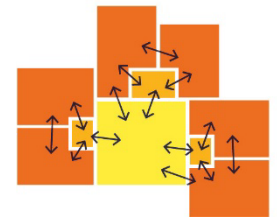
**Space shape and organization has a deep influence on interaction level and possibilities.**



**A:** classical classroom and corridor organization: level of interaction is poor



**B:** in-between space and porosity between classes. Some connections are born.



**C:** hierarchy of spaces from common to private. Connections between each part thanks to transparency and openings. Architectural interpenetration maximizes interaction level here.



#### 4. Tranquility and Trust

**Calm, Contentment, Relief, Tranquility:** The design incorporates tranquil elements such as gardens, water features, and quiet zones, promoting calm, contentment, and relief from the external pressures.

**Trust and Reliability:** High standards of craftsmanship and reliable materials ensure that the spaces are dependable and enduring, building trust within the community.

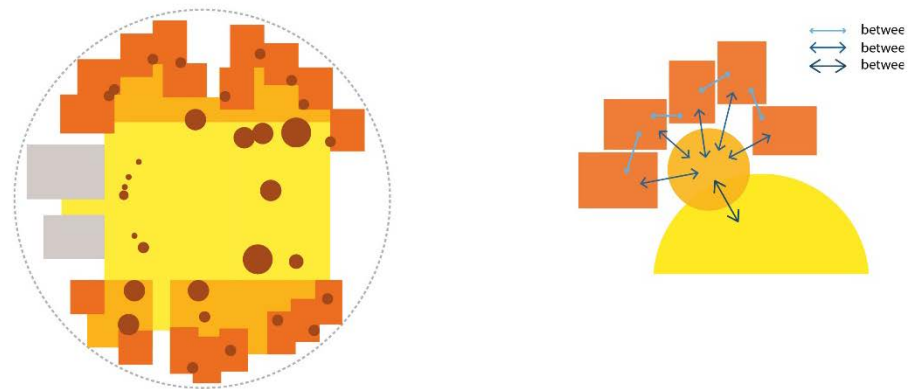
#### 5. Integrity and Generosity

**Boundary, Integrity, Generosity, Accountability:** The design respects the integrity of the local culture and environment, demonstrating generosity through community-centered features. Accountability is maintained through sustainable practices and transparent design processes.

#### Emotional and Educational Enrichment

MOMENTUM enriches the educational experience by creating spaces that evoke a range of emotions and support various learning approaches. Nostalgic elements and materials spark curiosity and interest, while unexpected design features introduce moments of surprise and delight. Quiet, contemplative areas offer space for reflection and emotional support, ensuring the school addresses both educational and emotional needs. The design also takes into account the need for brain-friendly areas and moments, and provides a technologically-enriched studio that makes it possible to regulate when and how much to use mobile phones and other

devices, and when to have offline sessions that are important for growth, concentration, and learning.



## As a conclusion

**Diverse Learning Environments** MOMENTUM provides spaces for all types of teaching, from teacher-led lectures to small group studies and co-teaching. The design includes silent individual areas and noisy communal spaces, ensuring versatility and adaptability.

**Innovative Library and Learning Centre** The library serves as both a traditional library and a modern learning center, facilitating quiet study and co-creative sessions with digital technologies. This dual function supports a wide range of cognitive processes. It blends old with new. Chalk meets AI and other advanced technologies. This blend ensures accessible and empathetic learning experiences.

**Integrated Teacher Facilities** Teacher spaces are not only centralized but also embedded within different learning communities. This strategic placement enhances safety and ensures continuous adult presence throughout the school.

**Universal Design Principles** The design promotes intuitive use, accessibility, perceptible information, and clear lines of sight. These principles foster curiosity, surprise, emotional safety, a sense of belonging, and natural tranquility.

**Sustainable and Tangible Design** Our design integrates sustainable elements, nature, and movement, emphasizing the importance of tangible, physical environments even as education transitions to digital platforms.

**Creating Meaning Through History and Innovation** By incorporating elements of history and nostalgia alongside contemporary design, the school fosters a sense of meaning and continuity. Learning is seen as a collaborative, ongoing process rooted in daily interactions.

**Focus on Privacy and Tranquility** Attention to private, individual, and tranquil spaces ensures that students have areas for personal reflection and quiet study, complementing the more dynamic, communal learning environments.

**Emotional and Educational Enrichment - Nostalgia and Curiosity:** Repurposed materials and non-linear layouts spark curiosity and continuous exploration.

- **Surprise and Delight:** Unexpected design elements, such as modern structures integrated with traditional forms, create stimulating learning experiences.

- **Joy and Hope:** Playful features and natural light-filled spaces foster a positive, hopeful atmosphere, crucial for rebuilding a sense of normalcy.

## **Table of indicators**

### **Site:**

Site development intensity 30 %; site development density 17 %

### **Primary education:**

Total floor area 870 m<sup>2</sup>; usable floor area 710 m<sup>2</sup>; volume 4 400 m<sup>3</sup>; 1 floor ; height 6 m

### **Secondary education, lyceum, shared area:**

Total floor area 7 585 m<sup>2</sup>; usable floor area 5 830 m<sup>2</sup>; volume 51 600 m<sup>3</sup>; 4 floors ; height 12/21 m

### **Dormitory:**

Total floor area 527 m<sup>2</sup>; usable floor area 410 m<sup>2</sup>; volume 2 050 m<sup>3</sup>; height 3,7 m

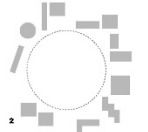
### **Civil protection, dual-use shelter:**

Total floor area 1 800 m<sup>2</sup>; usable floor area 1 600 m<sup>2</sup>; dual-use floor area 1 600 m<sup>2</sup>; volume 12 650 m<sup>3</sup>

## **General data of the buildings**

Total floor area 9 900 m<sup>2</sup>; usable floor area 8 550 m<sup>2</sup>; dual-use area in the civil protection structure 1 600 m<sup>2</sup>; volume 70 700 m<sup>3</sup>; 5 floors ; height 3,7/12/21 m



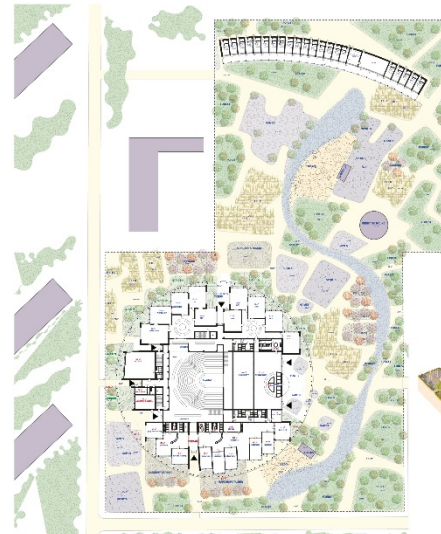
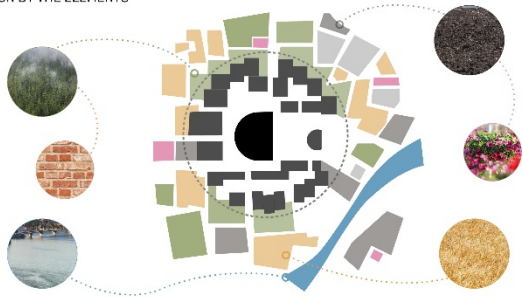


RECONSTRUCTION

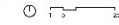


BUILDING the CITY again

A DESIGN BY THE ELEMENTS



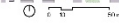
SITE PLAN A



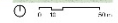
SITE A AXONOMETRICAL VIEW



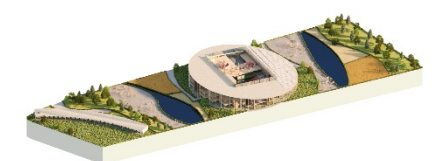
SITE PLAN B



SITE PLAN C

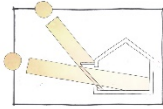


SITE B AXONOMETRICAL VIEW

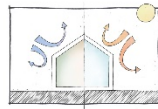


SITE C AXONOMETRICAL VIEW

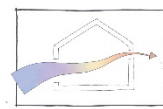
**BIOCLIMATIC PRINCIPLES**



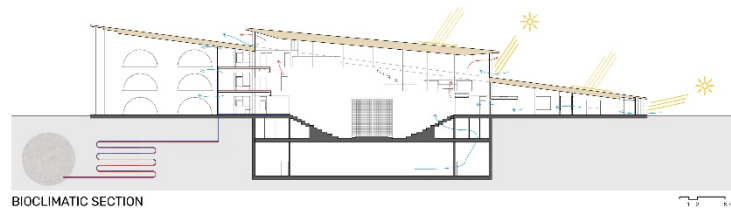
natural sun protection



thermal inertia

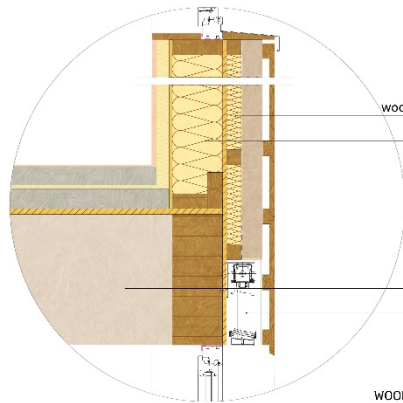


natural ventilation



**BIOCLIMATIC SECTION**

**BUILDING WITH WOOD**



wood wool exterior insulation

chopped straw insulation in wood-frame wall

wood cladding

visible wooden beam

adjustable sunshades

**WOOD CONSTRUCTION DETAIL**

**EDUCATION PRINCIPLES**

**Interaction is the key of the learning process.**

**Space shape and organization has a deep influence on interaction level and possibilities.**



**A:** classical classroom and corridor organization. level of interaction is poor



**B:** in-between space and porosity between classes. Some connections are open.



**C:** hierarchy of spaces from common to private. Connections between each pair thanks to transparency and openings. Architectural transparency maximizes interaction level here.

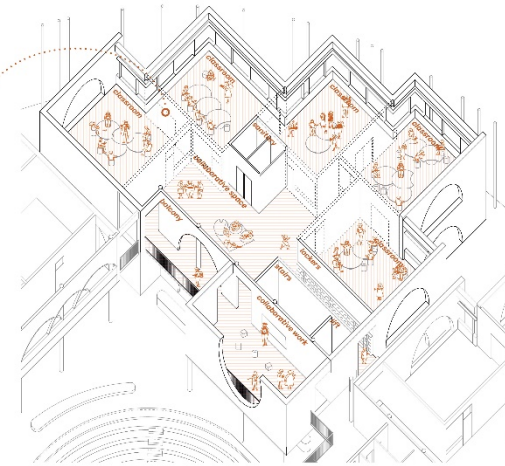


**In-between classes interaction:** two classes can easily merge for a group of 50 pupils instead of 25.

Bathroom and lockers are **private cells** accessible from the semi common areas.

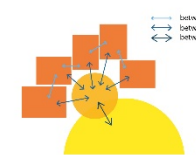
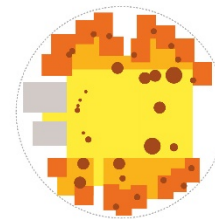
The **classes** are linked to the **collaborative space**.

The **collaborative space** is linked to the **common area**.



The importance of an **open space**: walls between classes are only a possibility. Open space creates maximal interaction. These partitions are not bearing walls. The structural conception allows openings of any kind.

**Modular furniture:** its a **low** **different kinds of gathering**, according to class development and learning process.



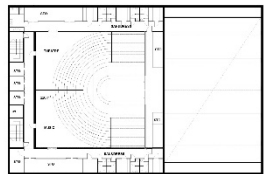




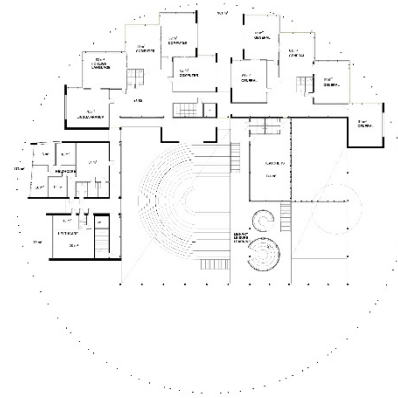
FLOOR PLAN - GROUND FLOOR - 1/250



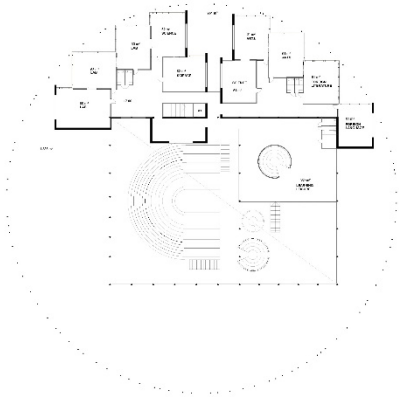
FLOOR PLAN - FLOOR-2 - 1/250



FLOOR PLAN - FLOOR-1 - 1/250



FLOOR PLAN - FLOOR+1 - 1/250



FLOOR PLAN - FLOOR+2 - 1/250



SECTION AA - 1/250



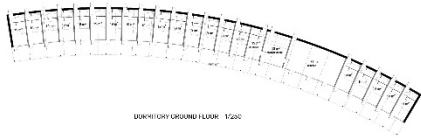
SECTION BB - 1/250







DORMITORY NORTHERN FACADE - 1/250



DORMITORY GROUND FLOOR 1/250



DORMITORY SOUTHERN FACADE - 1/250

SOUTHERN FACADE - 1/250



WESTERN FACADE - 1/250

