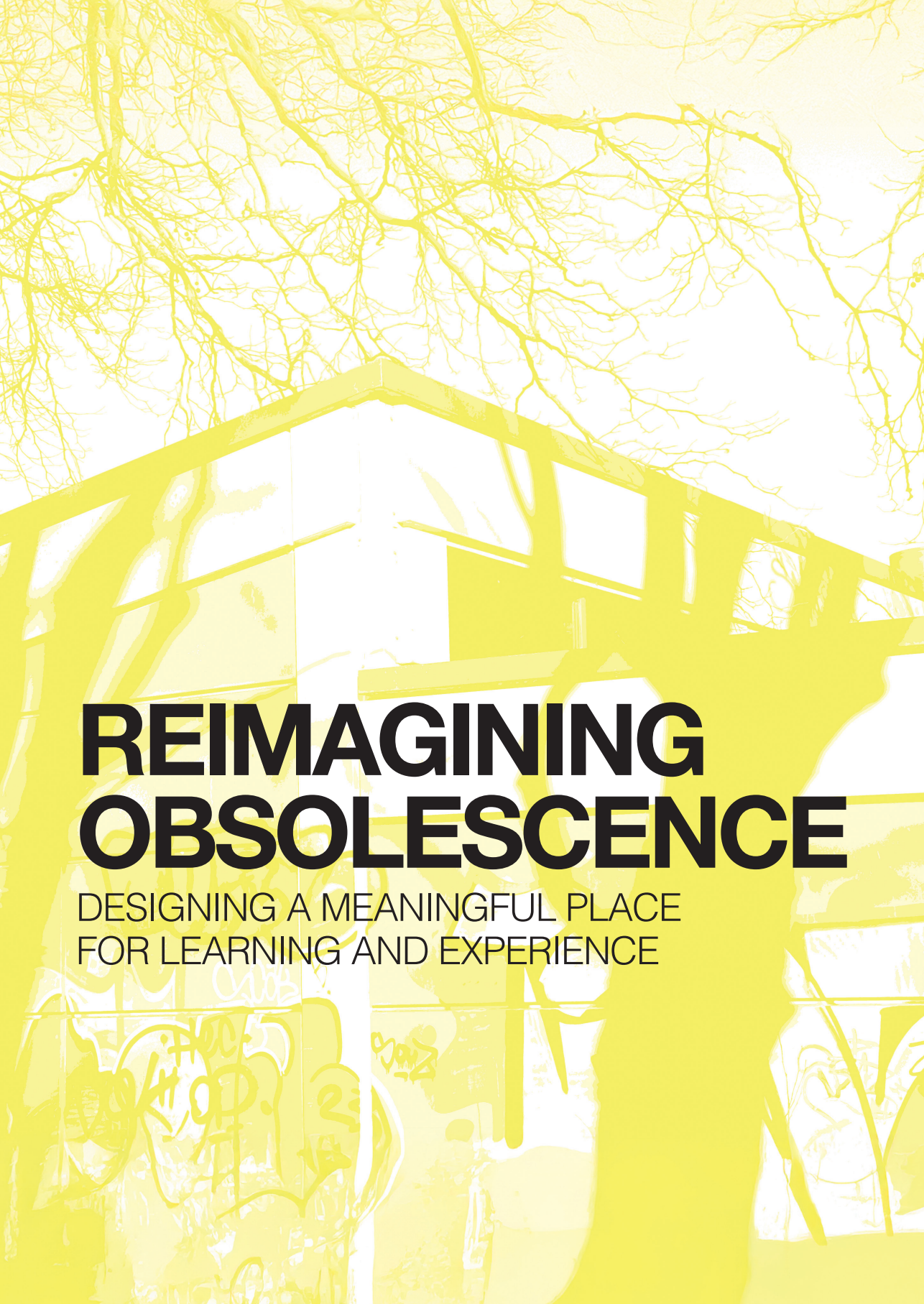




REIMAGINING OBSOLESCENCE

DESIGNING A MEANINGFUL PLACE
FOR LEARNING AND EXPERIENCE

REIMAGINING OBSCOLESCENCE

DESIGNING A MEANINGFUL PLACE
FOR LEARNING AND EXPERIENCE

QUALITIES OF SPACE, MAT-
TER AND SCALE ARE MEA-
SURED EQUALLY BY THE
EYE, EAR, NOSE, SKIN,
TONGUE, SKELETON AND
MUSCLE.

JUHANI PALLASMAA

Project name: Reimagining Obsolescence: Designing a Meaningful Place for Learning and Experience

Department: Department of Architecture, Design and Media Technology

Semester: MSc04, Architecture Aalborg University

Module: Master Thesis

ECTS: 30

Project period: 01.02.2025 – 20.10.2025

Group number:

Supervisor: Mads Brath Jensen

Pages report - part 1: 89

Student:

ABSTRACT

This thesis project is motivated by two main challenges: On one side, numerous public buildings are left empty or sold, risking being ultimately demolished, despite their potential as cultural, architectural and material resources. Meanwhile, new public buildings are rising to accommodate the same functions as those left empty. On the other side, Danish daycare facilities are influenced by standardised solutions, creating a uniform aesthetic, compromising sensory experience, and the importance of creating memorable places. Furthermore, daycare facilities are under increasing pressure due to staff shortages, poor staffing ratios, and a heavily structured, learning-focused agenda. These factors negatively affect the well-being of both children and staff, compromising the quality of pedagogical work. This thesis challenges this tendency by asking:

How can the reuse of existing buildings contribute to reconceptualising the aesthetic and physical standardisation of Danish daycare facilities, as well as establishing healthy and sensory-rich environments for staff and children?

The project takes its departure in the former school at Østre Allé 91 in Aalborg, Alléskolen, which has been vacant for more than 10 years. The buildings are an example of mid-20th-century architecture that faces demolition despite their historic, architectural and material value. The existing building, even though considered obsolete, will be investigated and adapted to accommodate a daycare facility. This thesis employs a phenomenological research methodology, supported by the integrated design process and mixed methods, including literature review, case studies, site analysis, interviews, and simulations. This approach enables theory and practice to inform each other through iterative design explorations. The final design proposal demonstrates how adaptive reuse is applied as a meaningful strategy, where the existing buildings' layers of time and sensory qualities serve as the foundation for a sensory-rich and meaningful place for learning and experience.

• acknowledgements

I would like to express my gratitude to all those who have contributed to the development of this thesis. Your guidance, insights, and knowledge have been essential throughout this process.

First, to my supervisor Mads Brath Jensen, thank you for your guidance, constructive feedback, and support throughout this project.

I would also like to thank the four day-cares i've visited. The leaders and their co-workers, for letting me observe and generously shared their time and perspectives. Your reflections on pedagogy in practice have provided me with valuable insights to use in my design.

A special thanks goes to Line Buer Bjerre, Senior Consultant from EVA, for offering a broader perspective on how to ensure quality in daycares.

And thanks to professor Charlotte Ringsmose for sharing her expertise on pedagogy and spatial frameworks, which has been of great inspiration to my theoretical foundation.

This thesis would not have been possible without your contributions.

Thank you.

• readers guide

Through three thematic explorations this thesis aim to reimagine an obsolete school building, and transform it into a sensory-rich daycare, where adaptive reuse, pedagogy, and sensory design merges into the creation of a meaningful place.

PART 1

The Introduction outlines the design approach and methods. The design process itself is framed as inquiry, guided by a phenomenological and iterative design process orientation. The Introduction also explains how the thesis is organised into three main chapters.

Chapter 1: Examines the theme of transformation. Site and building are analyzed as the point of departure, followed by an investigation of sites decline over time. Continuing with material auditing, the concept of a material bank, and strategies for preserving the buildings history and architectural value.

Chapter 2: Addresses the social and pedagogical dimensions of learning. It presents A national study on daycare facilities, the Danish pedagogical framework and how the conditions of space is influencing pedagogical work. The design process explores how architecture can support pedagogical work, and how

its adapted into the existing building, and its context.

PART 2

Chapter 3: Investigates how body and mind experience its surroundings and introduces a framework centered on coherence, complexity, legibility, and mystery, culminating into the final design proposal, which synthesizes insights from the three thematic explorations into a single architectural outcome.

And last an Epilogue with final thoughts on the project.

INTRO

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INTRO



INTRO

Demolition of buildings remains the easy, inexpensive, and quick solution to creating something new that meets contemporary aesthetic, programming, and function. The construction industry is responsible for over 35% of Europe's total waste, and uses around 50% of all extracted materials. (European Commission, 2025) Tremendous amounts of resources can potentially be saved if we are willing to change the way we build. With new perspectives, new possibilities arise. Even when buildings do not meet contemporary standards, they still contain valuable materials and historical, cultural and architectural value. As Louis Kahn's famous quote goes, "Even a brick wants to be something", emphasis is placed on the inherent qualities of the material. (Kahn, 2003) The material itself is just a resource, but its properties and provenance contain historical, cultural, aesthetic, and functional value. These layers in our buildings remind us of what was, and who we were. Juhani Pallasmaa points out here, "Architecture is the art of reconciliation between ourselves and the world, and this mediation takes place through the senses." This view describes how we, as humans, perceive ourselves in the world we create through architecture and how we interact with it.

However, the physical environments in today's daycare facilities is characterised by uniform institutional architecture, lacking sensory quality and identity of place, overruled by economical and regulative influence. The result is a form of architectural standardisation, which does not meet children's need for variation, immersion and embodied interaction. The Danish Evaluation Institute (EVA) and The Danish Center for Social Science Research (VIVE) are behind a national study on the quality of daycare facilities in Denmark. According to the study, which was finished in 2025, 35% of the group rooms in the 100 childcare centres that were assessed had a "physical indoor environment" rating of "insufficient". These problems indicate that how we built daycare facilities is not performing as it should be. This thesis will address these questions by examining one of the most controversial buildings in Aalborg, the former school building Alléskolen at Østre Allé 91, and transforming it into a daycare facility. The building was completed in 1954 and has been approved for demolition by Aalborg Municipality this year.

To answer the overall problem statement: *How can the reuse of existing buildings contribute to reconceptualising the aesthetic and physical standardisation of Danish daycare facilities, as well as establishing healthy and sensory-rich environments for staff and children?* This thesis project is explored in three thematic lenses, in which each illustrates different aspects regarding reuse, pedagogy, and sensory architecture, further explained in detail in the respective chapters.



Chapter 1:

Investigates how a condemned and publicly criticised building is transformed so that its inherent sensory, architectural, historic and cultural values are emphasised?

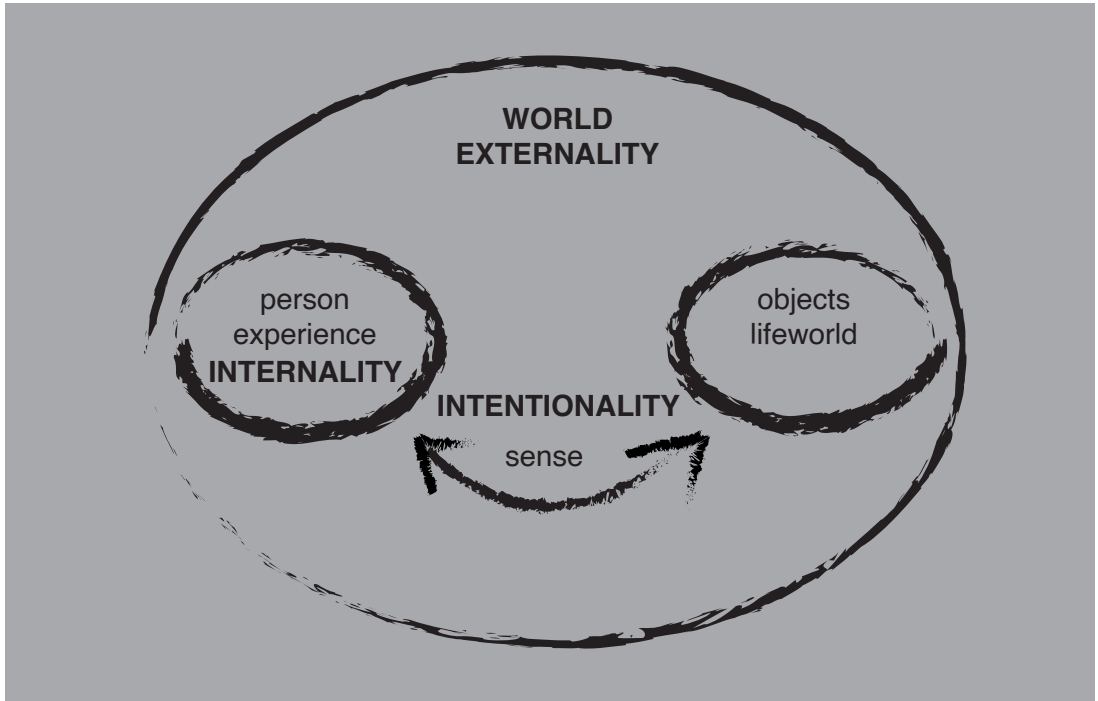
Chapter 2:

Explore how architecture can support learning environments, community and well-being for staff and children, through spatial organisation, flow and zoning?

Chapter 3:

Explore how sensory design is translated to specific design solutions, that strengthen the relation between function of space and how it is perceived.

APPROACH

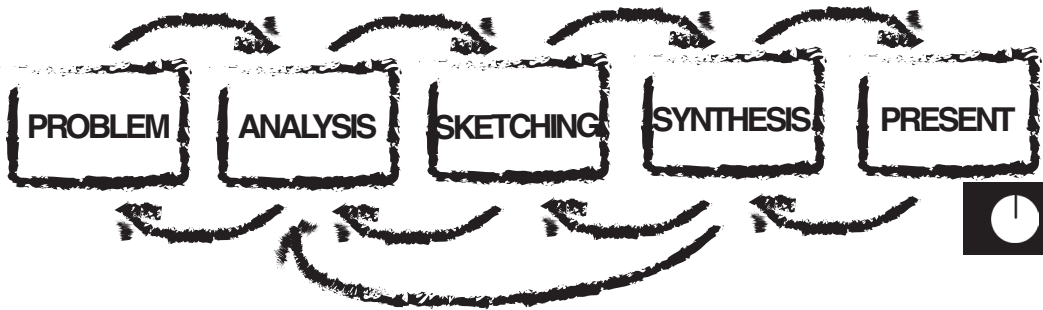


III. 002; Intentionality and experience

The philosopher Edmund Husserl (1859-1938) founded the philosophical tradition of phenomenology by posing the fundamental question: how people experience, perceive, and form consciousness. The phenomenological approach seeks to understand life and the world from the human perspective, exploring how we subjectively experience and perceive the world around us. When questions cannot be answered with objective truth, they must be approached through subjective experience and perception. (Guldager, 2015/2018) The illustration above figuratively describes how we, in our world - where everything takes place (externality), and we humans experience (internality) the objects within our lifeworld, are always experienced intentionally and not passively. The conscious mind of a human being gives meaning to the object (sense); this meaning is not in the object, but co-created in experience. This applies in architecture as well, spaces we create are our lifeworld, and people using the spaces will experience and engage with it, in this case, sense would be how to act in a room, or the atmosphere in a place, how we read the room. This intentionality is the active bridge between subject and object.

In this thesis, adopting a phenomenological approach means acknowledging architecture as something physical that humans first and foremost interact with through lived sensory experiences. In this thesis, the phenomenological approach is to be combined with Mary-Ann Knudstrup's integrated design process (IDP), a more ho-

listic approach to design, to ensure an iterative and integrative process as well. The integrated design process is a design approach focusing on integrating complicated problems from different fields of science. (Knudstrup, 2005) The integrated design process is divided into five phases: Problem, analysis, sketching, synthesis, and presentation.



III. 003; Integrated design process

First, a problem or an idea needs to be formulated in order to start the analysis phase. When the problem is described, the initial knowledge about the site, its context and its stakeholders needs to be analysed before starting the sketching phase. During the sketching phase, the criteria generated in the analysis phase must now be developed into design solutions for evaluation. This is a very complex phase where numerous ideas and solutions converge to form architecture. It is not a singular linear process; between every phase, the process is iterative and fluent. The synthesis phase is where the final design is created by combining all the solutions from every aspect into a unified form. It all culminates in a presentation that demonstrates how the final design meets the project's aim, design criteria, and target values.

The phenomenological lens, combined with the integrated design process, will create a strong foundation for this thesis to ensure that both human experience is considered while structuring complex interdisciplinary design methods.

The integrated design process will be utilised to ensure an iterative process capable of integrating interdisciplinary findings from both quantitative and qualitative studies. This involves context mapping, acoustic and daylight performance and glare studies, which have influenced spatiality, materiality, and landscaping. Qualitative data from social studies, interviews and observations have given insights into the intended users and their needs. Through interdisciplinary studies, insights from various research fields were carefully integrated in modelling, sketching and testing, to make sure the design would respond to both technical and human needs.

CHAPTER 1



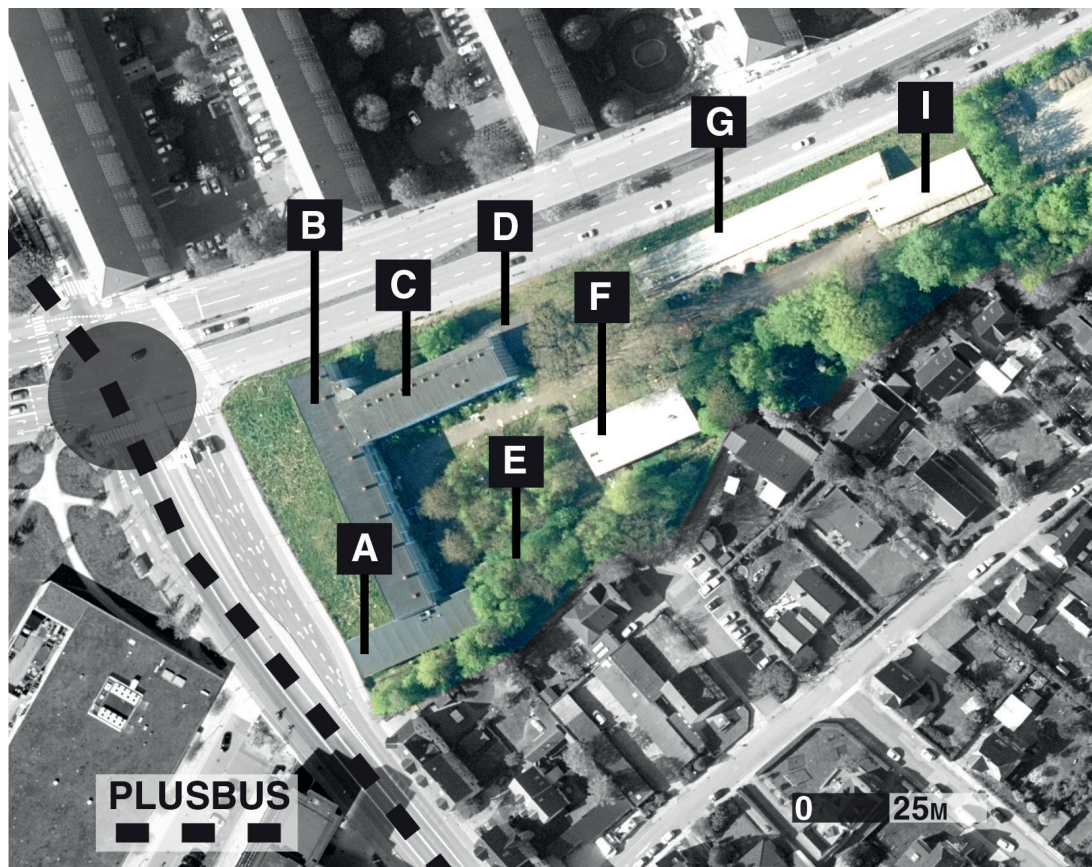
POINT OF DEPARTURE

The project case is situated in Aalborg, Denmark, in the transition between the neighbourhoods Ø-gade and Vejgård. This area is part of the designated urban development area, around a new transportation infrastructure (Plusbus), part of the strategy towards urban growth and densification, shown in the illustration. (ill. 004.) The plan is to create a city with metropolitan character, focusing on sustainable densification, to secure future residency. (Aalborg Kommune, 2025)

The property, which is owned by a private developer, was initially built as a new school in Aalborg East back in 1954, accommodating grades 1 through 9, two gymnasiums, a caretaker's residence, playgrounds, and other spaces essential for a Danish public school. The school has been vacant for more than ten years and is now seen by many in the local community as a building that should be demolished: "Den er bestemt ikke et kønt syn. Vi glæder os til, at der kommer til at ske byudvikling på den grund. Det har vi bestemt set frem til," stated Ann Kinly Klinge, spokesperson for the tenants' association Karnervej. (Christiansen, 2022)

Now, initial steps towards a new settlement are close. The new project wishes to demolish the existing structures to make way for a mixed-use multi-storey development. Along with new functions, new bike lanes and parking spaces. (Aalborg Kommune, 2025) The plans are feasible, sustainable and considerate in terms of their context and their history; a significant advancement compared to numerous deteriorated buildings that are left vacant. So, despite a considerable gain, what is lost?





ill. 006; Map site

• the road toward decline

Østre Allé 91 covers nearly 17.000 square metres, and the built area is north of 7000 square metres. (Bygnings- og Boligregistret, 2025) In the original drawings, the development was subdivided into building A, B, C, etc., as shown in the illustration above. (ill. 006.)

Nevertheless, since then, Alléskolen have undergone some changes, first in 1979, when some minor alterations were undertaken in building G to comply with fire regulations. Including new escape routes and fire-rated doors according to building regulations. The same applies to wall and ceiling finishes. (Aalborg Kommune, 1981) Then, in 1991, the buildings use for building G were altered from early childhood classes to a centre for adult education for various courses. In conjunction, new interior walls were added, and several structural interior walls were removed to facilitate those activities. (Aalborg Kommune, 1992) Soon after, in 1998, buildings G, H, and I underwent a significant transformation. The projecting windows on the southern facade were removed, and the floors were broken up; furthermore, building H was removed entirely. The interior alterations from the prior conversion were reconstructed almost entirely back to its original layout from 1954. Moreover, build-

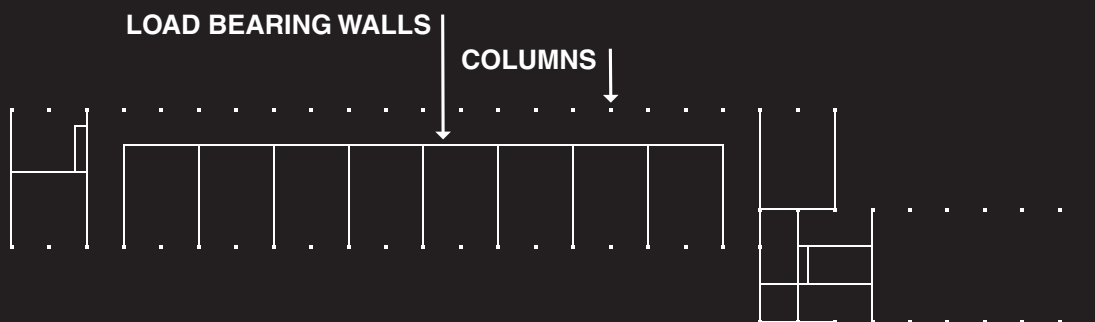


III. 007; Building I declining

ings G and I were retrofitted to prevent thermal bridges and improve thermal insulation. In addition, new extensions were added to both buildings: a circulation route on the southern facade for building I, and small triangular extensions on the southern facade for building G, mimicking the previous projecting windows that were part of the original design. Furthermore, projecting windows were also installed on the northern facade of building G and on the western facade of building I. (Aalborg Kommune, 2000)

Despite the improvements invested by the municipality to modernise the building, it sold it to a private developer in 2003. In the coming years, the private developer applied for building permits for buildings B, C and F to convert the buildings into residential use. (Aalborg Kommune, 2004) However, for building G and I, no applications were made. This testifies that the physical decline of buildings G and I simply occurred because the buildings were unused and unprotected against vandalism that persisted for more than a decade. So, what led to the functional, social and symbolic decline in the first place? Why were the buildings no longer necessary for the municipality to begin with?

TRACING DECLINE



ill. 008; Structural layout

The plan depicted above is the structural layout of buildings G and I. The columns are repeated along the northern and southern facade, thereby enabling continuous windows without the need to consider load-bearing walls. However, the load-bearing walls are constraining the flexibility of the floor plan. Thus, troubling future programs to be realised, furthermore, the structural components are prefabricated concrete elements and cast-in-place concrete, making it even harder to reorganise. Unfortunately, the 'free plan' has met its antithesis, 'free of flexibility', almost as a resistance to Le Corbusier's modernism. This might be the root of the decline in the first place, as its **functional decline** may have led to its **economic decline**, rendering it too expensive to transform. The property was then left vacant, resulting in **physical decline**, as the buildings were vandalised, the buildings became unhealthy, unsafe and aesthetically displeasing to the community, which led to its social and cultural decline, and eventually culminates in a symbolic decline, where the buildings become a symbol of failure, which then fuels a political and social momentum against it.

ill. 009; Ripple effect

FUNCTIONAL DECLINE

ECONOMIC DECLINE

PHYSICAL DECLINE

SOCIAL DECLINE

SYMBOLIC DECLINE

DEMOLITION

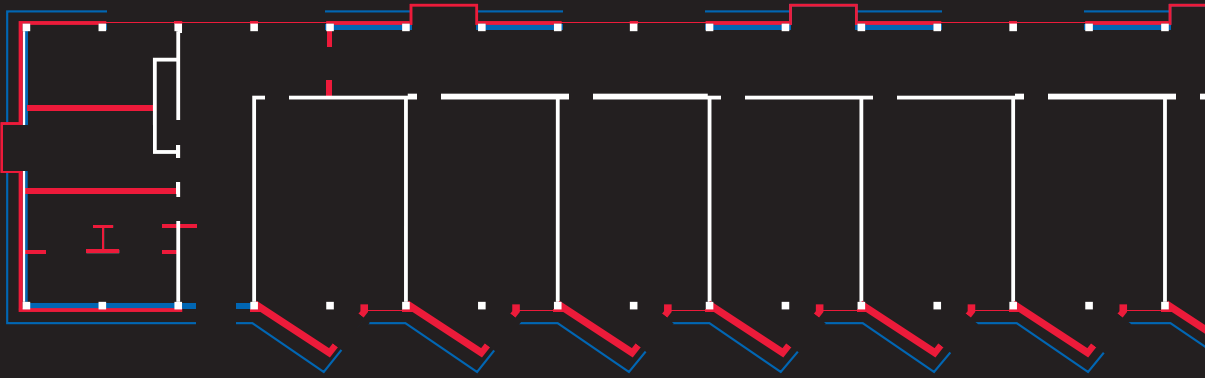




III. 011; Decay 2-8



• decay mapping



ill. 012; Decay mapping

Shifting from the impressions of ruin, this section will break down the mechanisms that occur when buildings are exposed to water ingress and unfavourable moisture conditions, thereby formulating a series of theoretical assumptions.

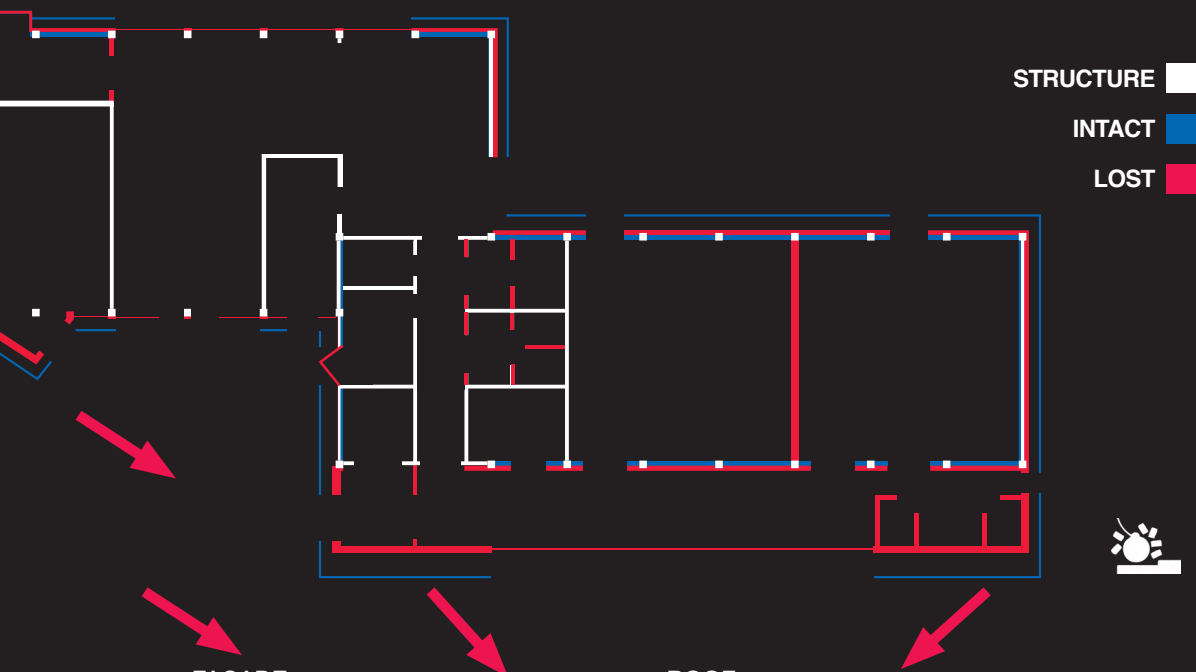
Since the structural elements are obscured, it is assumed in this thesis that all structural elements are intact. However, this is not the case for the building envelope, as illustrated earlier; numerous windowpanes were broken, and doors were damaged, resulting in water ingress and greater temperature fluctuations, as well as increased relative humidity inside the buildings. Under such circumstances, components and materials are at risk of mould and fungal growth, corrosion, deformation, salt efflorescence, freeze–thaw damage, and shrinkage and swelling. (Brandt et al., 2022) Based on these documented mechanisms, the prolonged neglect, and observations on site, it is possible to presume which materials and components are reusable and which are lost.

The plan above demonstrates which building components are reusable and which are not.

The white elements are the structure, as noted earlier, considered intact; this equally applies to all **the blue elements**, which include the facade elements, roof modules, and aerated concrete used as insulation material when the buildings were initially built.

The red elements are considered lost and are mostly insulation, as well as gypsum boards, windows, surface finishes, timber elements, and steel components.

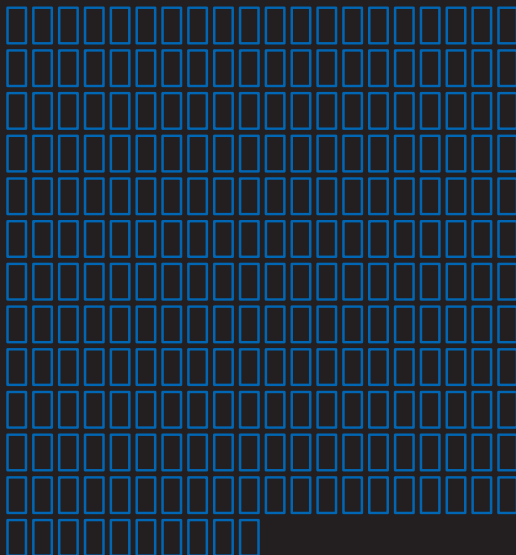
Due to its damage, the extensions from 1998 are considered lost except for the roof and facade. This includes the hallway in Building I, along the southern facade, and all the projecting bay windows. Facade and roof components that are intact are stored in the material inventory, ready to use in the upcoming design intervention.



FACADE
100 sq. m



ROOF
125 sq. m



INTERVENTION STRATEGY

Adaptive reuse as an architectural practice redefines the potential of existing structures, balancing between preservation and transformation. It is used as a conscious strategy to preserve architecture and conserve resources virtually, as the building stock is seen as a mine, filled with resources, history and meaning. Within adaptive reuse, there are two primary approaches, depending on whether the building is considered a monument or a palimpsest/breccia. Approaching a monument involves conservation and preservation to the highest degree. If interventions are made, it is considered good practice that the intervention is reversible, allowing the monument to return to its original state. A palimpsest or breccia, by contrast, represents a more open approach to heritage, allowing new layers of time to coexist. (Plevoets & Van Cleempoel, 2019)

breccia /brɛtʃə, 'brɛtʃiə/: “rock consisting of angular fragments of stones cemented by finer calcareous material.” (Oxford Languages, nd.)

palimpsest /palɪm(p)sɛst/: “a manuscript or piece of writing material on which later writing has been superimposed on effaced earlier writing.” (Oxford Languages, nd.)

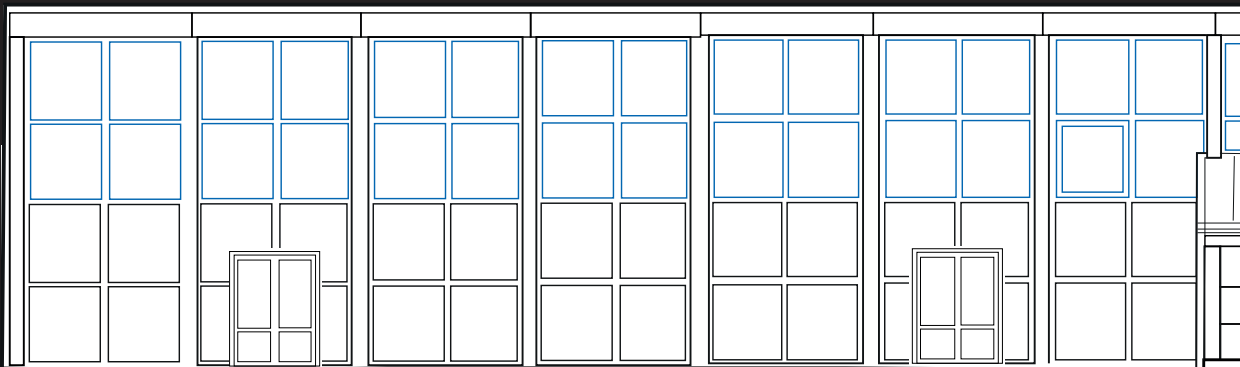
Thus, the definition of breccia in this context are buildings that are composed of multiple layers without chronological order, and a palimpsest is when the layers are superimposed. (Bartolini, 2014, as cited in Plevoets & Van Cleempoel, 2019) Since the 1970s, various authors have formulated different strategies for adaptive reuse, which Plevoets & Van Cleempoel (2019) divide into two systems:

The physical interventions include building within, over, around, and/or alongside, recycling materials or vestiges, adapting to a new function; intervention, insertion, installation; additions, transformations, conversions; modernisation, adaptation, replacement, corrective maintenance; reprogramming, intervention, superuse, artifice, installation, on/off site, insertion. (Robert, 1989; Brooker & Stone, 2004; Jäger, 2010; Cramer & Breitling, 2007; Brooker, 2017, all as cited in Plevoets & Van Cleempoel, 2019)

The aesthetic relationship between the old and the new include; building in the same style; contrast and analogy; correspondence, unification, junction, and delineation; narrative. (Robert, 1989; de Sola-Mozales Rubio, 1985; Crimson, 1995; Cramer & Breitling, 2007; Brooker, 2017, all as cited in Plevoets & Van Cleempoel, 2019). In the following subchapter, this thesis will address the initial intervention strategies as possible suggestions for this project towards adaptive reuse.



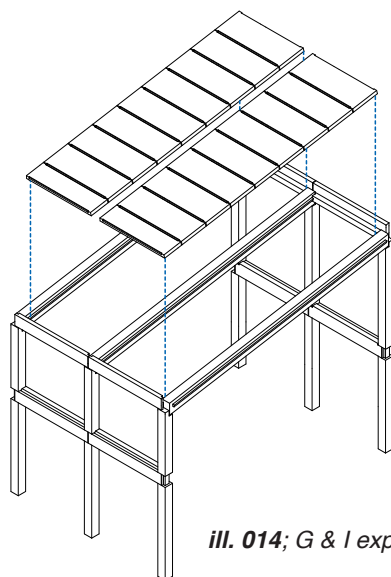
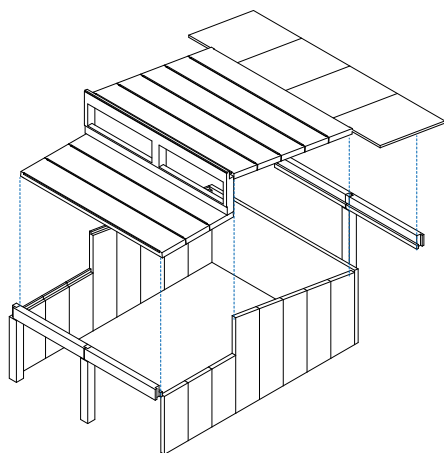
ill. 013; Breccia (Conceptual Illustration)



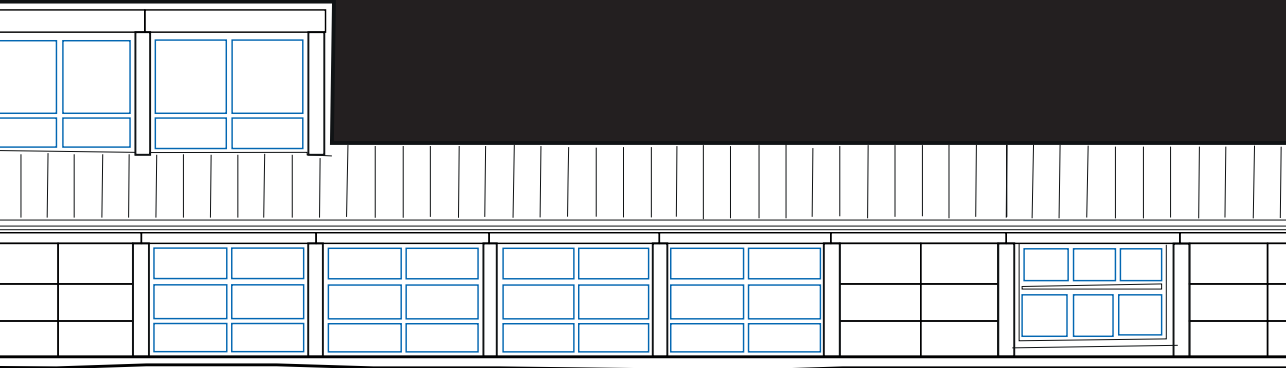
• layers of time

The structural system in building G has its strengths and weaknesses. The strengths lie in its aesthetic values and durability; there are various unique elements, and it is all made of concrete, at least in the original system from 1954. Thus, the system is very rigid, making it nearly impossible to change the plan without also considering the structure.

Building I, in contrast, is more flexible due to its fewer load-bearing wall elements. These structures would provide a distinct feel and experience within the building, conveying a sense of solidity or monumentality if they were present and not obscured by surface finishes. However, exposing all structural elements would present a few challenges in terms of acoustics and maintaining a continuous envelope without thermal bridges, particularly in creating a visible structure from the outside. Exposing the structure would strengthen the experience and



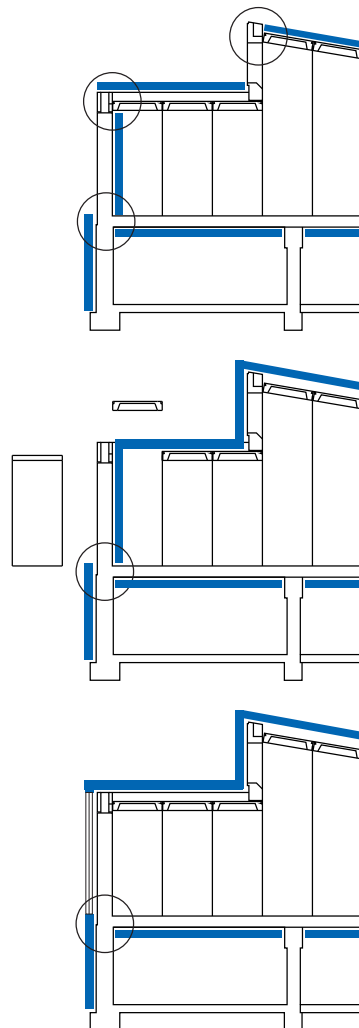
ill. 014; G & I exploded



the legibility of the building's different layers. Revealing not only concrete but also potentially brick walls and structural steel elements traces from other time periods that would stand out as well. To ensure that the layers are legible, we must be able to see them.

To make the structure visible from the outside would involve a few technical constraints, as illustrated in ill. 016 retrofitting is most efficient and practical from the outside, minimising thermal bridges and allowing the insulation to flow continuously around the structural elements.

The most compliant strategy to achieve a high-performance envelope and create a visible structure outside the building is to install windows that allow the structure to be seen. This intervention strategy would additionally necessitate decisions about the relationship between old and new.

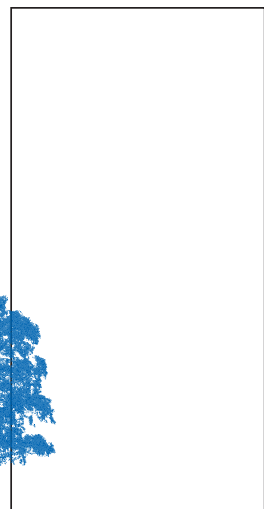
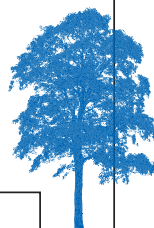
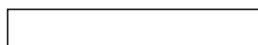


ill. 016; Thermal bridges



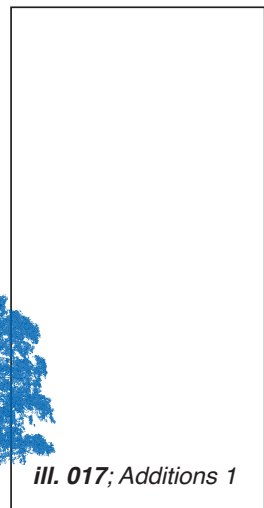
• additions

The illustration depicted at the top of this page demonstrates the extent of the facade. The facade towards Østre Allé spans 70 meters straight, which is equivalent to 5 buses in a row. Compared to other buildings, it is not that far; however, it is perceived differently, as the building, from foundation to roof, is approximately 2 meters tall.

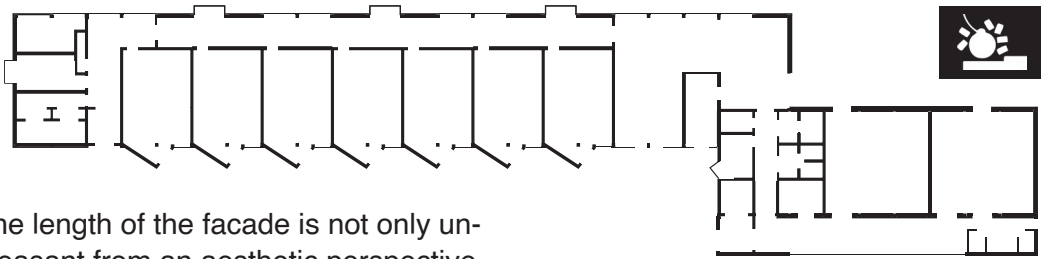
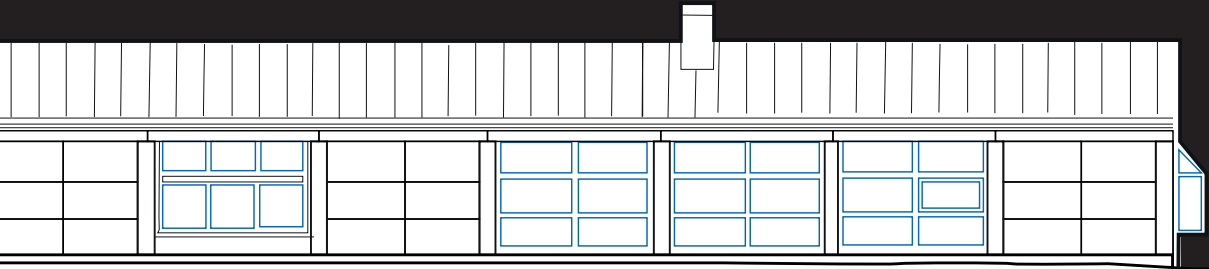


However, this can be remedied seamlessly with additions that break the rhythm and introduce more complexity to the structure. Additions may differ from the existing building to visually create contrast between the new and old, or conversely, they may correspond to scale, direction, and other properties to unify the old and new.

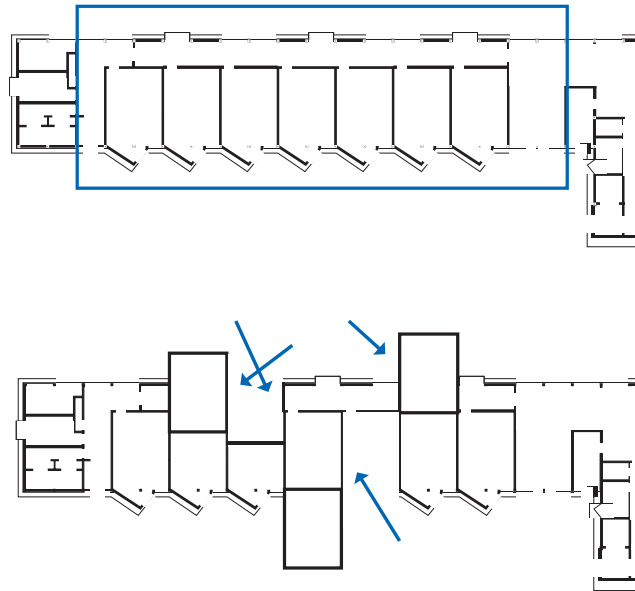
Breaking the length of this build can also be done by removing the structure; nevertheless, this design study will be further investigated in Chapter 2.



ill. 017; Additions 1



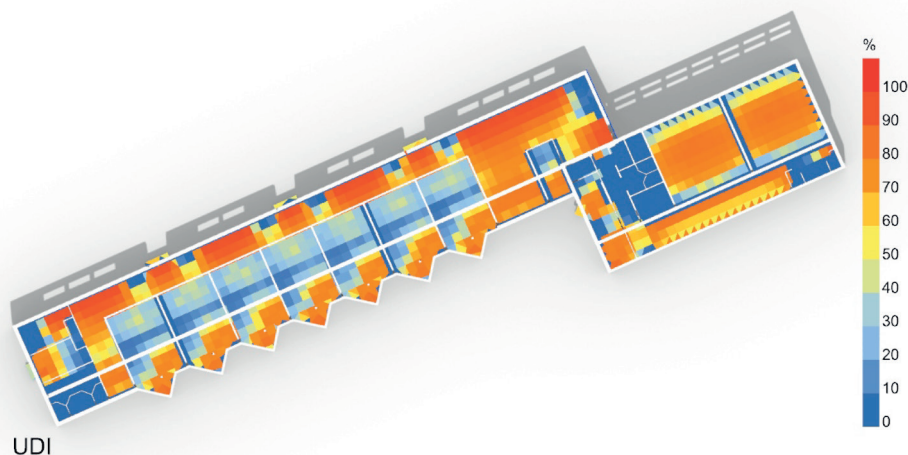
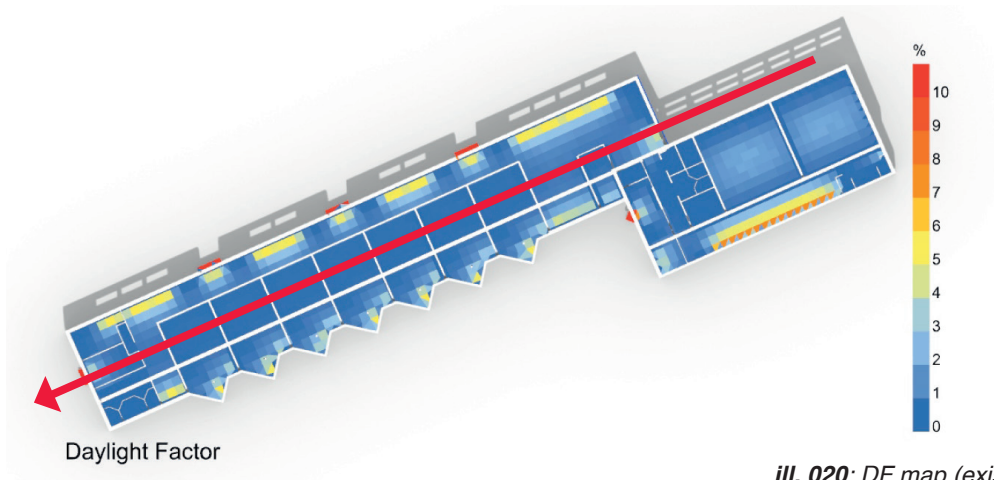
The length of the facade is not only unpleasant from an aesthetic perspective, but it also presents functional challenges related to daylight. Since the only path from building G to I is through the hallway along the northern facade, the hallway is filled with plenty of pleasant daylight from the north; however, the classrooms dedicated to the identical rooms just south of the hallway can only receive daylight from the south and from a clerestory window. The same applies for the hallway in building I, going through the extension along the southern wall; plenty of daylight fills the hallway, and restricts the rooms north of it to receive daylight only from the north. Moreover, the extent of the facade leaves a significant amount of space in the middle of the span, with only north and south windows to admit daylight inside the building.



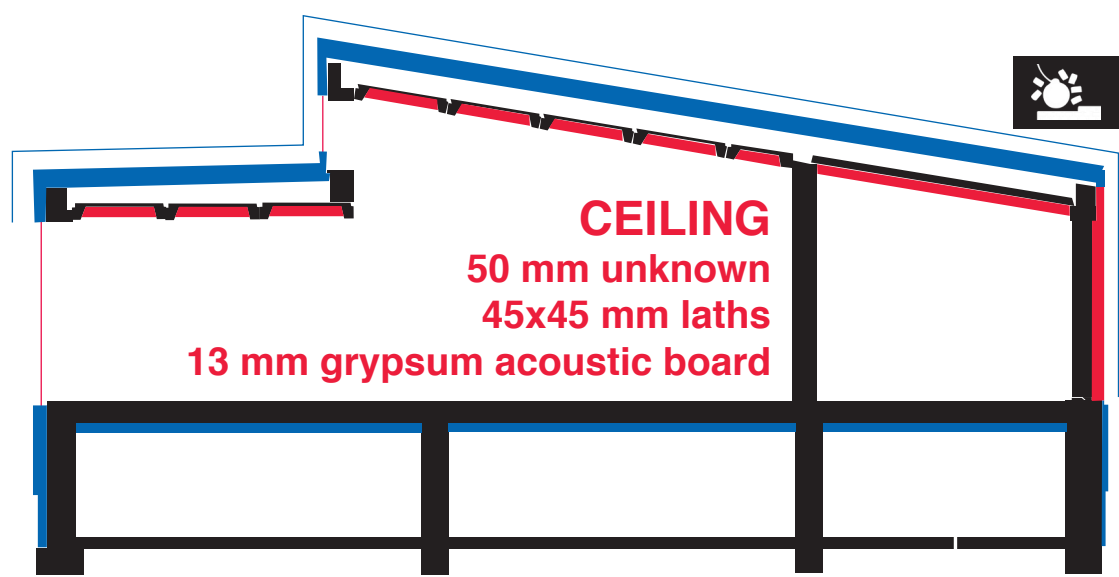
iii. 019; Additions 2

ENVELOPE PERFORMANCE

The daylight simulation of the existing building, demonstrates the absence of light particularly all the way through building G. When it comes to daylight factor, the building does not receive enough daylight to be a pleasant work environment, which makes the spaces dependent on artificial lighting. As demonstrated at the ill. xx the daylight is mostly between 0-2 % and near the window 2-7%. Nevertheless, the UDI map shows that the percentage of useful daylight illuminance between 100-2000 lux is mostly 70-80 % of the time.



The illustration below depicts a section of building G (see ill. 022). All in blue is intact, and all in red is considered lost. the u-values for each building part is compared with contemporary building regulations. The roof, the exterior wall and the foundation wall is within br18 requirement, however the floor separation above the crawlspace does not comply with todays standards



FOUNDATION WALL	ROOF	FLOOR SEPERATION	FACADE
8 mm fibre-cement board 150 mm mineral wool floor insulation	1,0 mm alu-zinc roof, module 500 mm 200 mm mineralwool, kl. 39 vapor barrier	100 mm mineral wool 200 mm concrete deck bonding layer 2,5 mm linoleum	1,5 mm alu façade cassettes 25 mm ventilation 125 mm ventibatts som rockwool
U-VALUE: 0,243 w(m²k) = within BR18 requirement	U-VALUE: 0,180 w(m²k) = within BR18 requirement	U-VALUE: 0,337 w(m²k) = outside BR18 requirement	U-VALUE: 0,286 w(m²k) = within BR18 requirement

ill. 022; U-values (existing)

CHAPTER 2



QUALITY IN DAYCARE

Daycare facilities in Denmark face challenges in recruiting new staff, struggle with the staff-to-child ratio, and there is a rising debate about an overly structured learning agenda, which heightens pressure and stress for educators, managers, and other staff, ultimately having negative consequences for the quality of their work. According to a study conducted by Danmarks Evalueringsinstitut (EVA), recruitment is particularly challenging in cities. The study reveals that all managers in the survey reported finding it challenging to some degree to recruit new staff, and 64% of the managers indicated that they found it very hard to recruit. This is primarily a problem because well-educated and competent staff are vital to the children's well-being and development. Unfortunately, the outlook suggests that it will become increasingly demanding in the future, due to declining interest in the field. Moreover, a national study on quality in public daycare institutions for 3 to 5-year-olds. Evaluations indicates that 1 out of 10 daycare institutions is of good quality, and 3 out of 10 are considered inadequate. Similar results were found in a national study on quality in public daycare institutions for 0 to 2-year-olds. The quality is evaluated on different

parameters: Relationship, play & activities, and physical environment. The key problems are the lack of uninterrupted play, thematic play areas, and opportunities for rest and contemplation. The report recapitulates their key findings in 6 national development areas: (EVA, et.al, 2025)

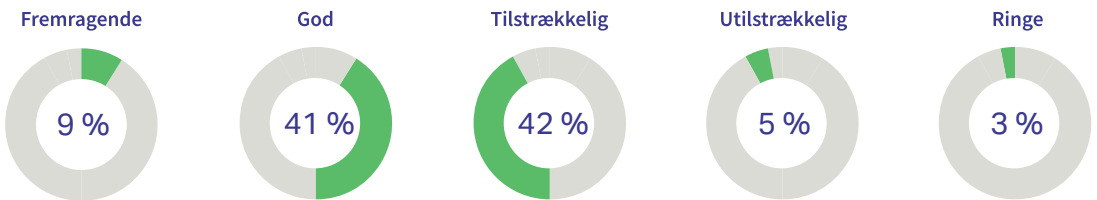
1. validation-based and sensitive interaction and relationships between staff and children.
2. The support to children's reciprocal interactions, relationships and communities.
3. Children's play opportunities.
4. Attention to children's perspectives and engagement in the educators' activities.
5. Opportunities to participate for children in vulnerable positions.
6. An indoor physical environment that encourages play, rest and contemplation.

This study points to where improvements are necessary. In this thesis, the

Resultater for kvaliteten af de fysiske omgivelser indendørs



Resultater for kvaliteten af de fysiske omgivelser udendørs



III. 023; Physical environment - results

challenge is to explore how architecture can provide effective solutions. Before attempting to answer this question a more in-depth review of the pedagogical foundation and the six learning themes are necessary. The pedagogical foundation formulates a set of values that characterise how we work with children in the Danish daycare system: It states that children have a right to play and have influence in their own lives, and learning is a central part of their development as humans and should be encouraged through play, relations, and other activities. Their environment must

be safe, inclusive, and stimulating. The pedagogues must support the children in relating, communicating, and playing with each other so they develop their understanding of being part of a community. Collaboration with parents is vital for their children's well-being and development, enabling them to transition smoothly from daycare to preschool. (Børne- og Socialministeriet, 2018)

The following pages describes and presents the six learning themes, and how spaces under certain circumstances either are beneficial or counterproductive.

THE 6 THEMES

Versatile personal development

The first goal implies that the environment must support children in expressing themselves, regardless of their background, and also foster play and relationships among the children. The learning environment must include every child and make them feel like they belong and are taken care of in a safe and caring environment.

Social development

The learning environment should be designed to help children feel safe and promote their engagement in play and other interactions, fostering a sense of belonging.

Communication and language

An effective learning environment encourages meaningful conversations between children and educators, motivating them to explore books and storytelling experiences.

Body, senses and movement

Body movement and sensory experiences stimulate body and mind contributing to their well-being. The learning environment should empower children to take charge of their movement and engage actively in physical activities.

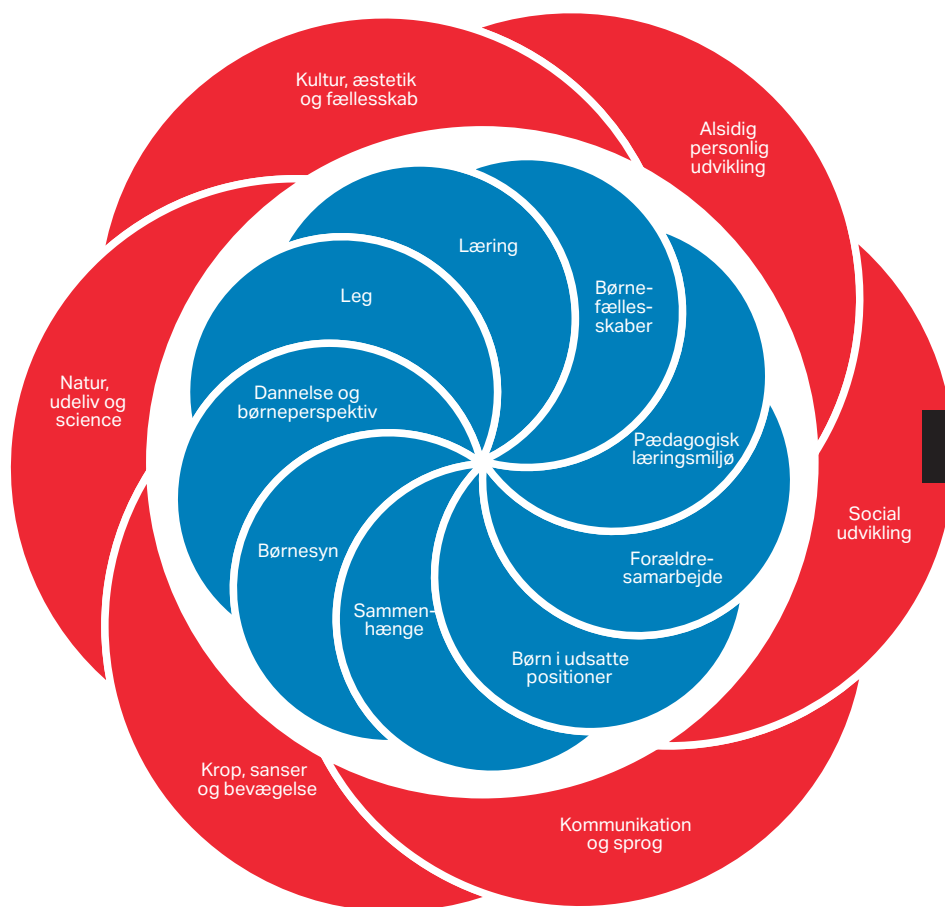
Nature, outdoor life and science

Despite the daycare centre's location, children must be able to experience and learn about nature, natural phenomena, and living organisms.

Culture, aesthetics and community

The daycare must support a learning environment where art is something the kids experience not only passively but actively by engaging themselves in singing, or other aesthetic activities.

Every private and public daycare centre in Denmark must develop a pedagogical learning plan based on the pedagogical foundation and the six learning themes. In each institution, the manager is responsible for implementing and evaluating their methods to integrate the curriculum. (Børne- og Socialministeriet, 2018) Children confronted with a corridor, they will feel like running, and when confronted with an enclosed space, they will feel more relaxed. The surroundings are crucial for the educators to provide the best care. The following subchapter a space within a space, will present the results from a study based on observations by Benedicte Bernstoff.



Den styrkede pædagogiske læreplan

Det fælles pædagogiske grundlag

Og de seks læreplanstemaer

a space

According to Benedicte Bernstorff, the physical environment is significant for children's play. Children understand how a space invites interaction differently from adults. (Bernstorff, 2019)

Children do not perceive or interpret space in the same way as adults do. Child-initiated play can emerge anywhere, and children naturally create spaces within spaces. However, these spaces can be fragile if there is no

shared understanding among children about where the play area is and who has claimed it.

Benedicte Bernstorff highlights the significance of space throughout the activity and emphasises the importance of institutional choreography—referring to the layout and materiality of the space. She identifies five characteristic types of spaces within spaces.

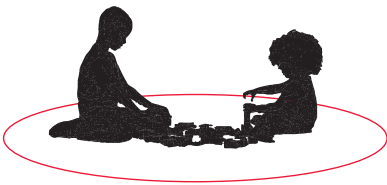
The Fragile Space

According to Bernstorff, the fragile space emerges when the boundaries of play are unclear, increasing the risk of disruption. The location of play and the physical environment are crucial to whether play can succeed. For example, play in the middle of a hallway is much more fragile than play in a designated area specifically intended for that type of activity.



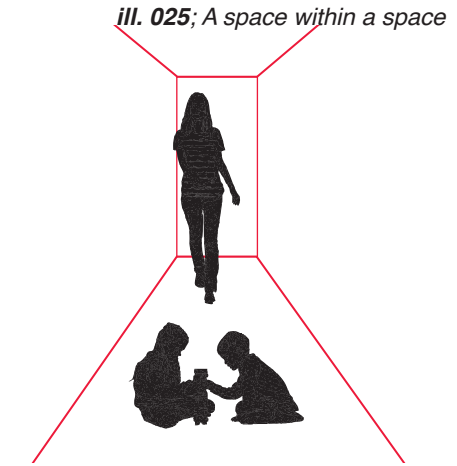
The Conflict-Filled Space

The conflict-filled space is unique but does not explicitly invite a specific type of play. As a result, it becomes a space worth conquering and defending, making it a source of potential conflict.



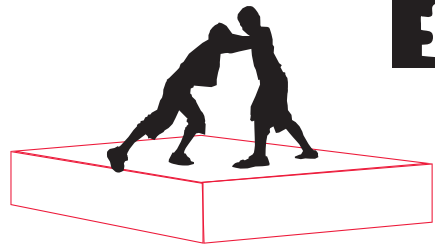
The Private Space

Duration is particularly significant in this type of space. Play itself is not the primary focus; rather, it is the time spent in the space that allows children to establish a sense of privacy and engage in meaningful, close conversations with one another. (Bernstorff, 2019)



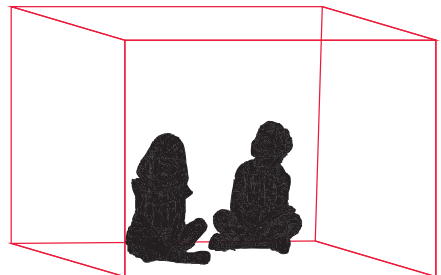
The Wandering Space

The wandering space is in motion. This space often appears outdoors on the playground, but it can also occur inside.



The Considerate Space

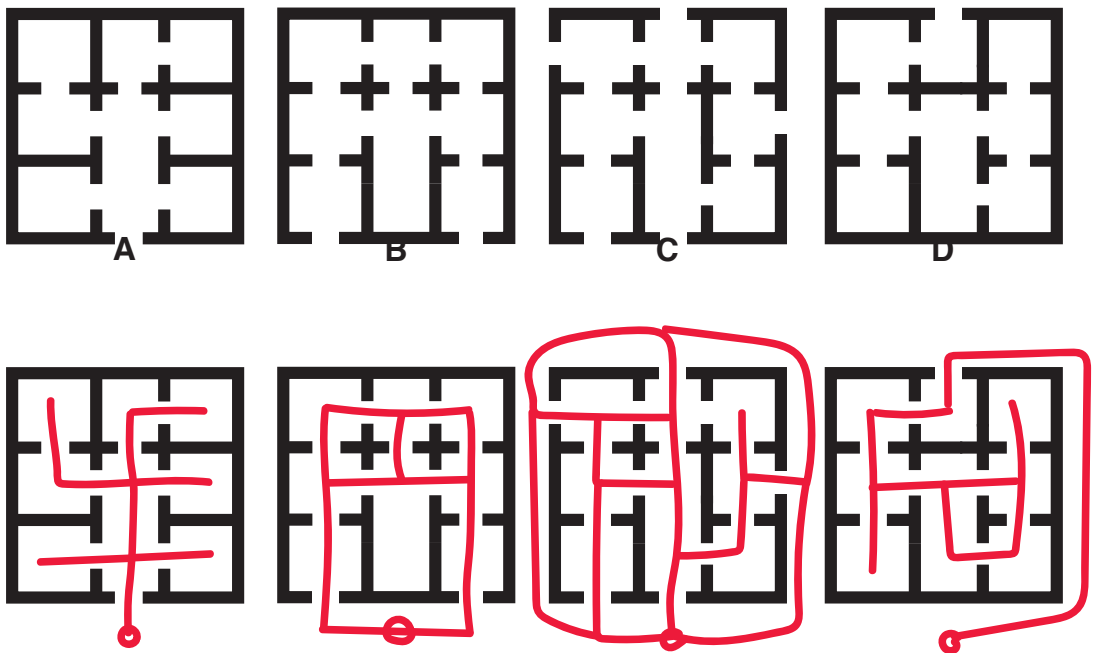
The considerate space provides the best conditions for sustained play. The physical surroundings are essential for this space to exist. Bernstorff observes that children create this space themselves, and it rarely requires the presence of an educator.



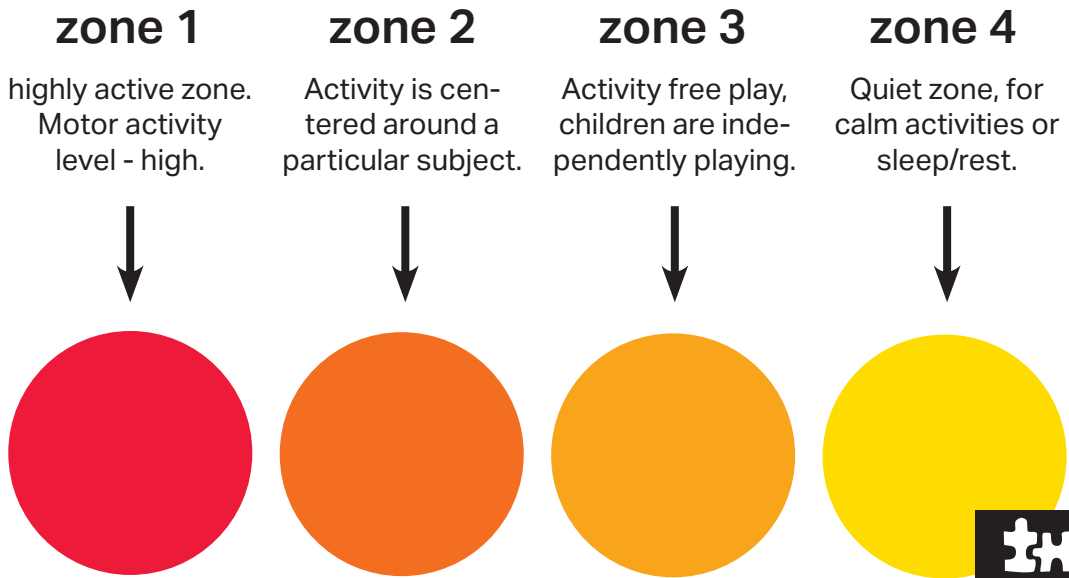
• conditions of space

Pierre Bourdieu described how humans instinctively act in different types of spaces with his concept of habitus, which refers to the way people internalize norms and values from their surroundings, influencing their actions and behaviour in specific situations and spaces. (Bourdieu, 1979) The daycare institution and its various rooms, in their design and furnishing, reflect a specific purpose. Nevertheless, the interpretation of a space does not necessarily meet the designer's intentions. For example, a given space may indirectly invite physical activity, which can be beneficial in some situations but undesirable in others (Gulløv & Højlund,

2005). In this context, it is crucial to discuss the space's function, requirements, and purpose of a space to design it appropriately. Marjanna de Jong uses a theoretical example with four identical floor plans that have different openings between rooms to demonstrate how movement patterns can significantly impact a space's functionality. Jong illustrates how movement patterns in a building are crucial for determining functions a space can support (see ill. 026). In this example, Jong points out that a quiet room would be impractical in Figure 1, C - but more suitable in Figure 1, A (Jong, 2005).



ill. 026; Flow matters



• activity levels

A further important consideration lies in zoning. To make room for play and learning it is crucial how the room is organised, to make sure playing can be continued uninterrupted. (Ringsmose & Staffeldt, 2012) Ringsmose and Staffeldt proposes 4 different zones divided in activity levels; zone 1 is a highly active zone, this is designated play areas for high level of physical activity, also including the entrances and primary circulation paths. Zone 2 is an active zone where the educator is present in the activity, and its usually evolved around a shared activity as a mediating element. Zone

3 is dedicated to free play, without educator-directed activities; and zone 4 is the quiet zone, for rest and contemplation, children alone or with educator, for storytelling, relaxing music/sounds. (Ringsmose & Staffeldt, 2012) The zones establish spaces suitable for any activity level, which give the children spaces that match their energy level, which prevents disturbance between the different active zones.

In the following subchapter a case study of Børnehuset Vrå's daycare facility is made to better understand the fundamental spatial configurations, and how this case responds to literature.

BØRNEHUSET

**Location**

Vrå, Danmark

Client

Hjørring municipality

Architect

AART, JAJA architects

Engineer

Søren Jensen

Entrepreneur

NCC

Status

Built 2021

Area

10.000 sqm

Prises

School building of the year 2022
Hjørring Municipality's architecture prize in 2023

III. 028; Børnehuset Vrå

Børnehuset in Vrå follows a concept that combines daycare facilities and primary school under one roof. Nevertheless, this case study addresses the daycare facility independently, to analyse how an example, considered state-of-the-art, is organised. This study serves to inform the design process in this thesis as a method to derive lessons from what works and what fails to work. This study analyses the organisational structure and evaluates the facility based on how

the six learning themes are integrated and how different activity levels are supported with the 4 zones.

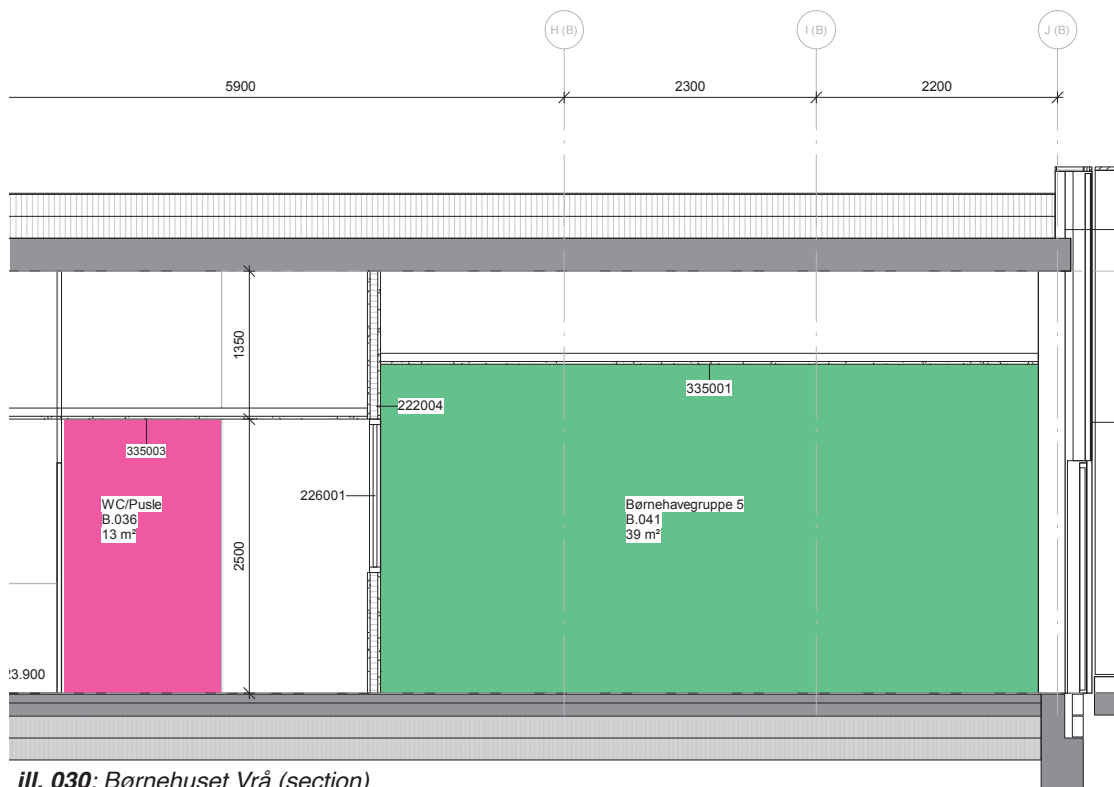
The facilities are organised in clusters for children aged 0 to 6 years. Cluster 1 is within the age group of 0 to 3, Cluster 2 is within the age group of 3 to 5, and Cluster 3 is the last cluster before school, between the ages of 5 and 6 years old. (Om Os I Børnehuset Vrå, n.d.) All areas marked in yellow are des-



iii. 029; Børnehuset Vrå (plan drawing)

ignated shared spaces, including hallways, common room, reception, a workshop and a music studio/dance room, which facilitate different learning environments that support the six learning themes. Areas marked green are group rooms that are approximately 40 square meters, providing space for at most 16 children if they fall within the age range of 3 to 6 years old, and 12 if they are within the age group of 0 to 3 years old. The pink spaces are assigned bath-

rooms for each group room, as well as a couple of bathrooms for children playing outdoors. The area marked in red is a quiet space for the youngest children taking naps during the day, located near the nursing groups. Areas marked blue are cloakrooms, where children store outerwear, personal belongings, and extra clothing. They are also referred to as the transition area between the clean spaces and the outside, to prevent dirt. Outerwear should be kept from contami-



ill. 030; Børnehuset Vrå (section)

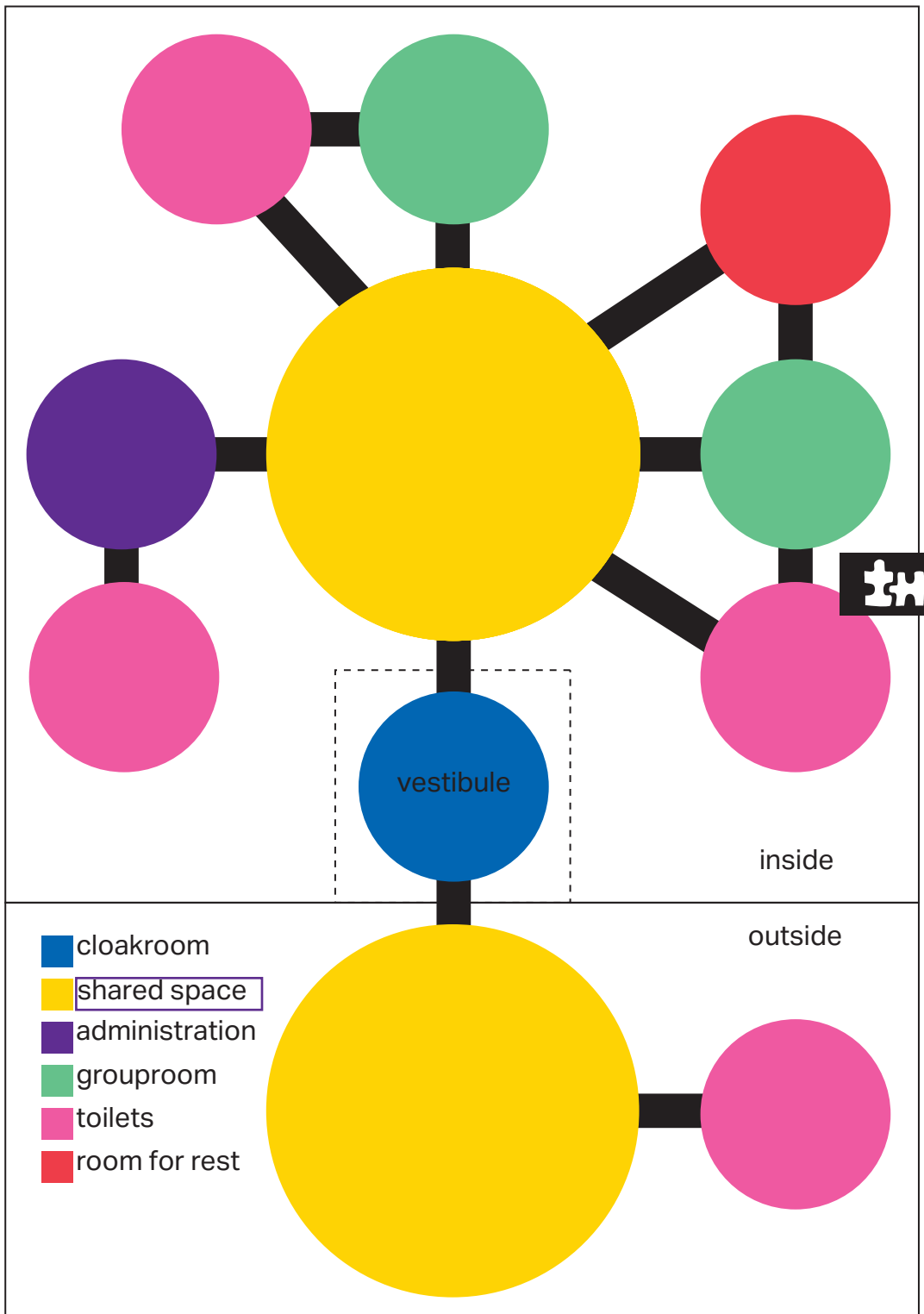
nating the clean areas. The purple areas include the administration, staff area/cloakroom, bathroom, storerooms, and other areas, located between shared spaces to be easily accessed by everyone at any time, in the layout, positioned as centrally as possible, where no daylight or outside view is required.

The spatial organisation is demonstrating one aspect of how the physical environment is the third educator, through the way it is organised. (see ill. 31) It functions as a supporting tool for the educators to manage the children with ease. For instance, some children prefer to say goodbye accompanied by an educator. This farewell happens in the reception, which is tied together with the common area, which is connected to the

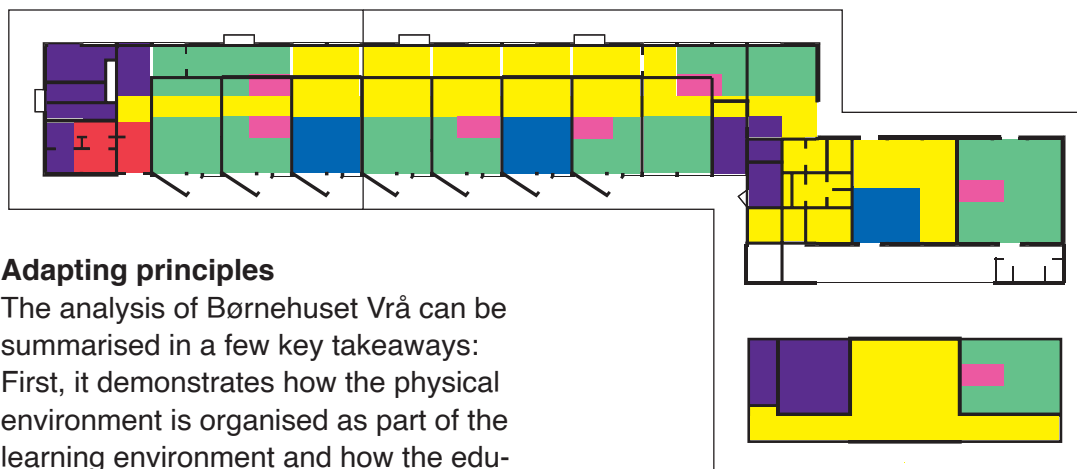
cloakroom where the parents exit, and connected to the group room where the children will enter as soon as they have said goodbye. The section (see ill. 030) showcases the group room and its nearby toilet, providing a sense of the scale of this project and how much is required for potential HVAC systems.

To be carried forward

The spatial organisation of this daycare facility is Børnehuset Vrå's strength, along with the circulation system, connecting everything that is shared between educators and children, and separating the staff area as a more private area, so the children won't enter. They also have the benefit of access to the rest of the house, which provides the daycare extra facilities such as gymna-



ill. 031; Børnehuset Vrå (spatial organisation)

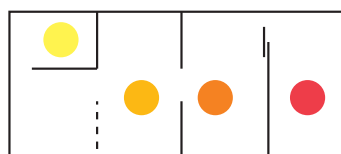
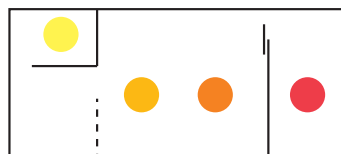
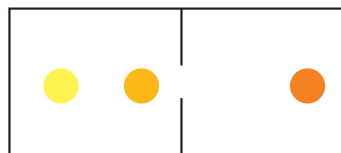
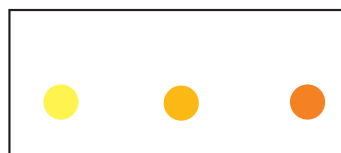


Adapting principles

The analysis of Børnehuset Vrå can be summarised in a few key takeaways: First, it demonstrates how the physical environment is organised as part of the learning environment and how the educators manage and structure their work with children; furthermore, it gives an indication of staff and children's needs. Secondly, it exemplifies the scale of different spaces. These points provide the foundation to develop new strategies for building G and I, including insights on scale, essential functions and their interconnectivity and the link to context as well.

Reflection on limitations

Børnehuset Vrå is compact in its form, and it measures almost 30 meters from the southern wall to the northern wall. This creates a lot of space without nearby views to the outside or daylight if skylights are not integrated. How does this affect staff and children's well-being? Moreover, it is reasonable to reflect on how a group room is best served to be structured, to create a fulfilling and inclusive learning environment for the children and give the best supportive environment possible to the educator. Do we need a more subdivided group room, or is it best with an open space?



III. 034; Active zones 1-4 inside grouproom

EXPERT PERSPECTIVES

Within the framework of this project, semi-structured interviews were conducted with Charlotte Ringsmose, a professor from Aalborg University, at the Institute for Learning and Philosophy, and Line Buer Bjerre, Chief Consultant, from the Danish Evaluation Institute (EVA), regarding learning environments in daycare facilities. To gain perspective from both research (Charlotte Ringsmose, AAU) and practice-based insights (Line Buer Bjerre, EVA) to understand the potentials and challenges characterising contemporary daycare facilities. Insights are not analysed as general conclusions, but as themes to clarify the connection between the physical environment, pedagogy, and child development and well-being. These topics underpin the further development of the design process.

On the matter of scale

Ringsmose: Highlights that quality is not solely dependent on size, but rather how the space is organised. Partially open spaces and interior partitions help balance activity and tranquillity.

Buer Bjerre: Emphasises that large spaces catalyse bigger gatherings, which compromises the quality of interaction. Small, clearly defined spaces give the best conditions for immersion.



Exegesis

These insights indicate the importance of clearly defined spaces. Spaces must be designed with the educator's goal in mind to establish uninterrupted learning environments through subdivision.

Flow

Ringsmose: Critique the idea of a primary path passing through the group room, creating traffic and interrupting children trying to immerse themselves in an activity or free play.

Buer Bjerre: Stresses the importance of establishing small corners and niches, where children can play uninterrupted.



Exegesis

Circulation as a central design parameter. Flow must be organised, so the main circulation is separated from the essential play space.



Sensory stimuli

Ringsmose: Diverse physical environments for different activity levels create a foundation for the educator to build on.

Buer Bjerre: The importance of niches, nooks, and corners for kids to hide and retreat.



Exegesis

It is necessary to establish spaces for different activity levels and purposes, including spaces that support both high activity levels and tranquillity, as well as spaces that support both to play, learning, and children's need to regulate themselves.

Summative evaluation

The statements from the experts consistently point towards the fact that the quality in daycare facilities is not primarily dependent on square meters, but on how the spaces are organised and designed. Four design criteria are especially pronounced:



1. Variation of scale and zones.
2. Controlled flow protecting the play area.
3. Variation in types of play.
4. Nooks, niches, and corners where 2 or 3-4 can play uninterrupted.

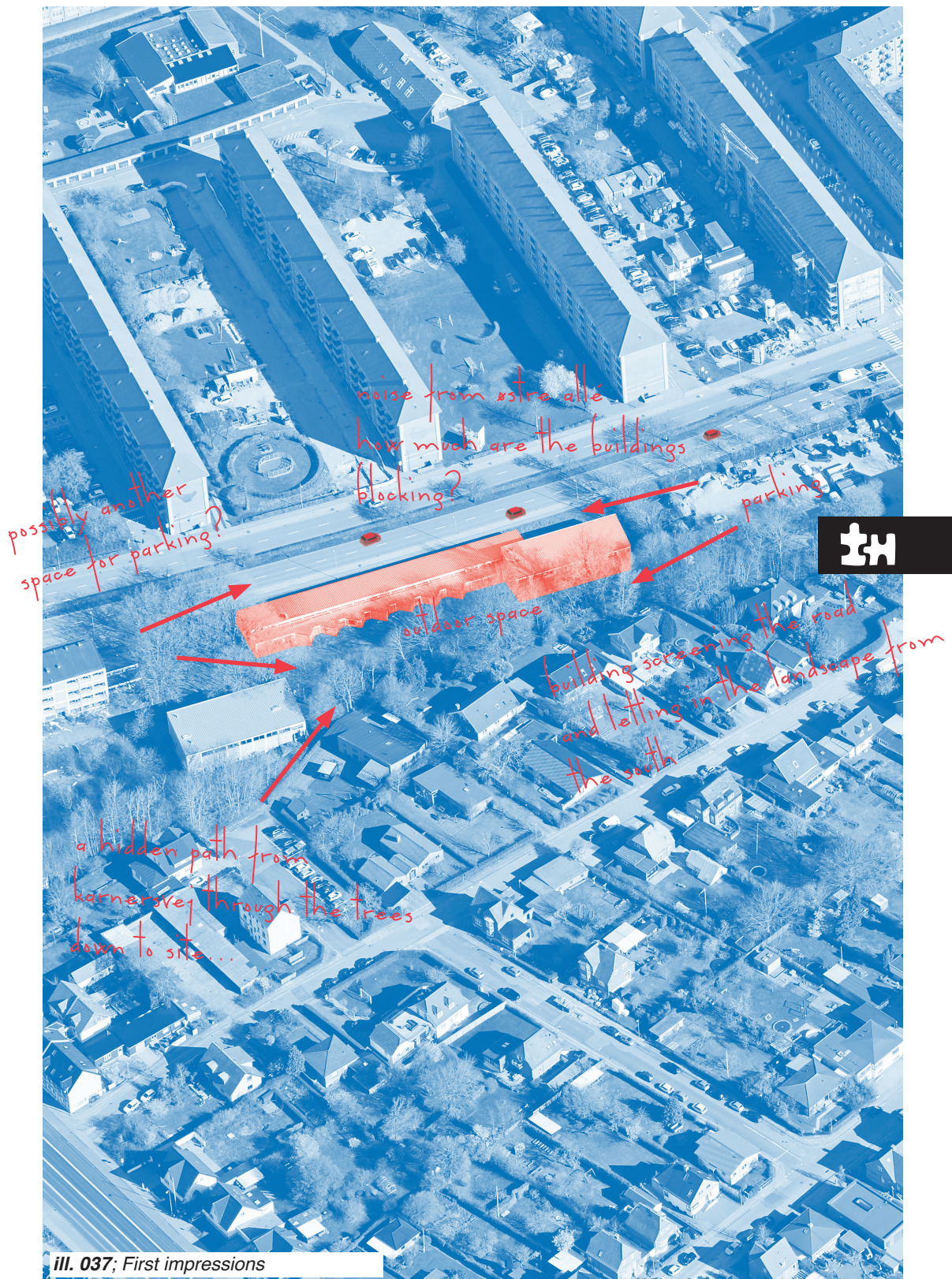
FIRST IMPRESSION

The preceding subchapters have established a foundation of knowledge through literature, expert interviews, and case study analysis, providing various insights. These insights emphasised a set of recurring topics: spatial organisation, circulation and flow, activity levels (zoning), daylight, and acoustics. In this subchapter, these topics will be translated into design explorations.

The first impressions of the project site include how green the outdoor space is, filled with tall trees growing from the 5-meter elevation in the terrain, which makes the garden appear valley-like between the building and the hill. The buildings G and I are stretching along the site, mitigating intrusive road noise in the outdoor space. The outdoor space is accessible from the western and eastern facades, as well as a small path down the hill from Karnersvej.



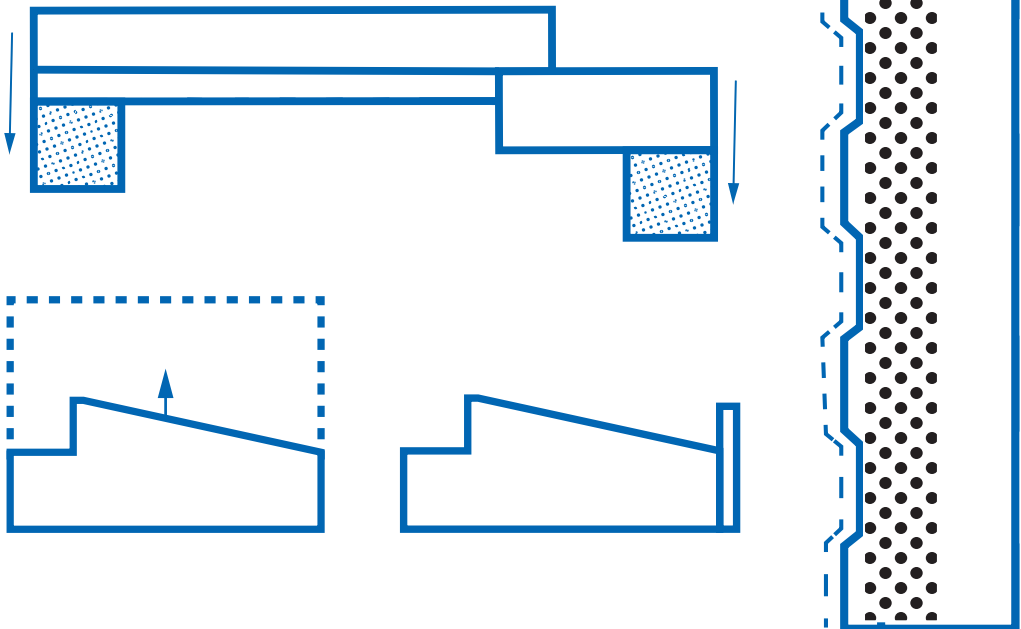
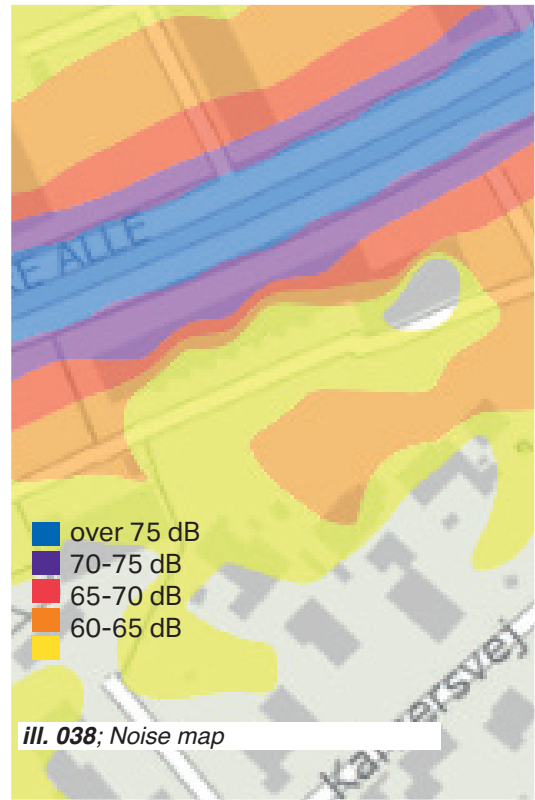
III. 036; Project site



III. 037; First impressions

• noise mapping

Østre Allé generates frequent traffic, which results in noise levels exceeding 75 dB. The sounds permeate the buildings and extend into the outside space, with a noise level ranging from 55 to 60 dB. To reduce noise levels, the suggested strategy is to elevate the facade or building, which would create a larger barrier, thereby reducing noise even further in the outdoor space. Another strategy is to add a new extension on the side to reduce noise at the western and eastern ends, and lastly, to install an absorbing wall as a facade to further reduce the extraordinarily high levels of noise. This is critical to make sure the Day-Evening-Night Level is below or equal to 33 dB. (BR18, 2025) These strategies will serve as suggestions later in the design process.

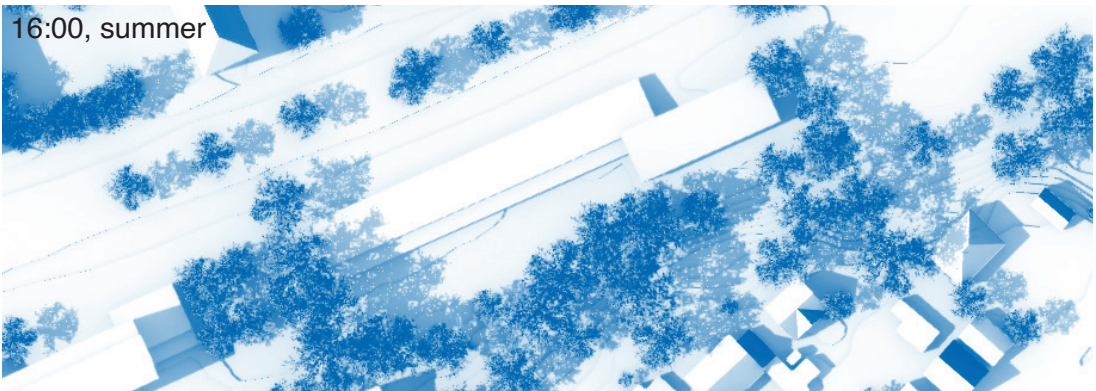
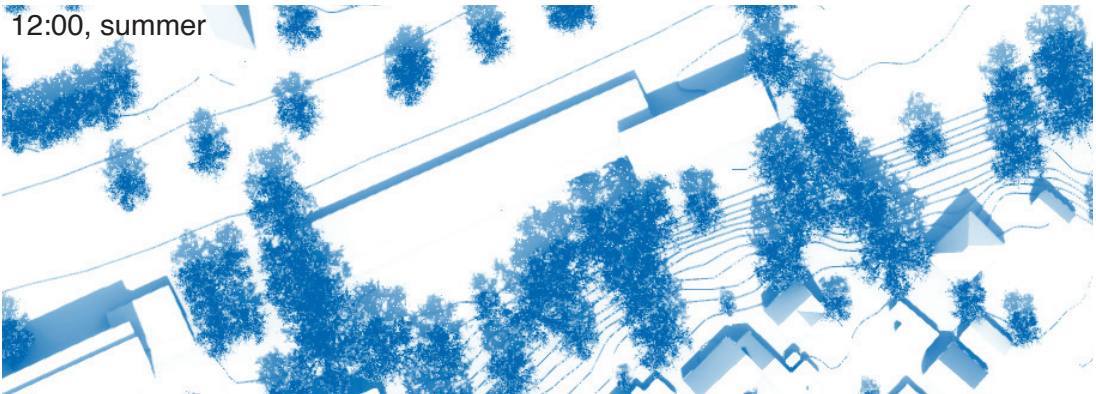
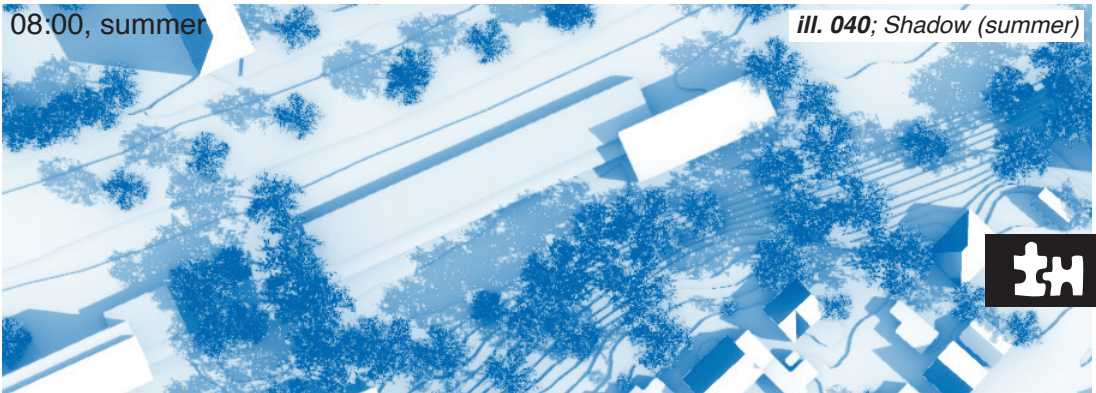


ill. 039; Managing noise

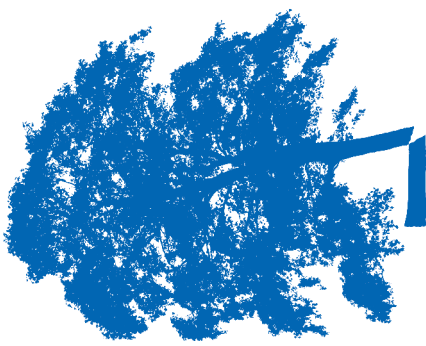
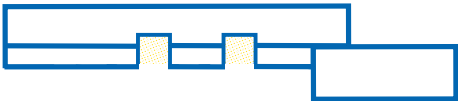
• shadow simulations

During the summer, the ratio of sunlight to shade is well balanced in recreational outdoor spaces, thanks to trees on the slope casting shadows into the area. Along the southern facade, there is continuous direct sunlight from 08:00 to 16:00, which may cause overheating

in south-facing spaces if not prevented with passive strategies. However, it will also create pleasant spots in colder summer periods and in the morning, when the temperature is substantially lower.



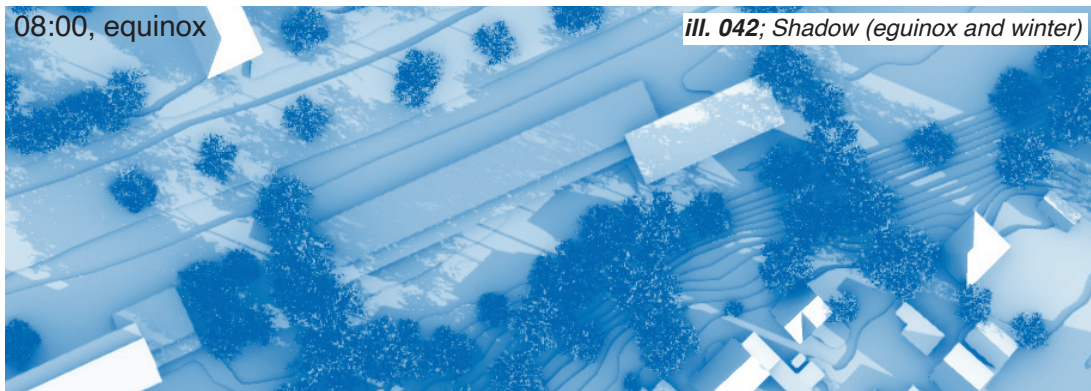
Shifting to the outdoor spaces during the equinox (see ill. 042), shadows now extend further, so the larger area filled with sun during the summer is now more fragmented, and the area has decreased significantly. During the equinox, more direct sunlight along the southern wall would create better conditions for the outdoor space. In winter, beams of sunlight will hit the southern wall, and the roof a few hours midday. In this simulation, the trees are the same from summer to winter. However, the trees on site are deciduous, so they will not cast as much shade as depicted. (see, ill. 042, 12:00, winter) The two options for creating more space with sunlight are either cutting down trees or subtracting volume from the existing structure to create courtyards. There are other ways to achieve more sun by utilising elevated outdoor spaces, for example, utilising the roof as an outdoor space; however, this would not be suitable for a daycare facility located near a busy road and exposed to intrusive noise. These two options will be considered in the subsequent design process.



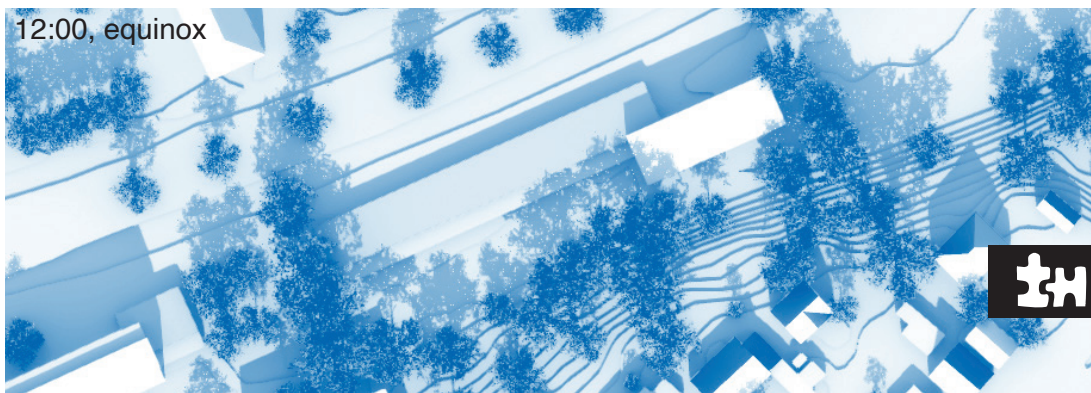
ill. 041; Strategies for sunlit spaces

08:00, equinox

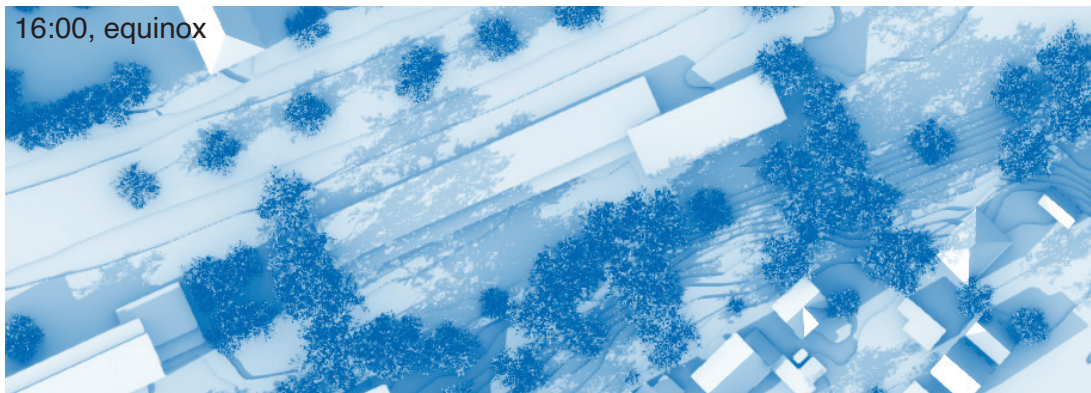
III. 042; Shadow (equinox and winter)



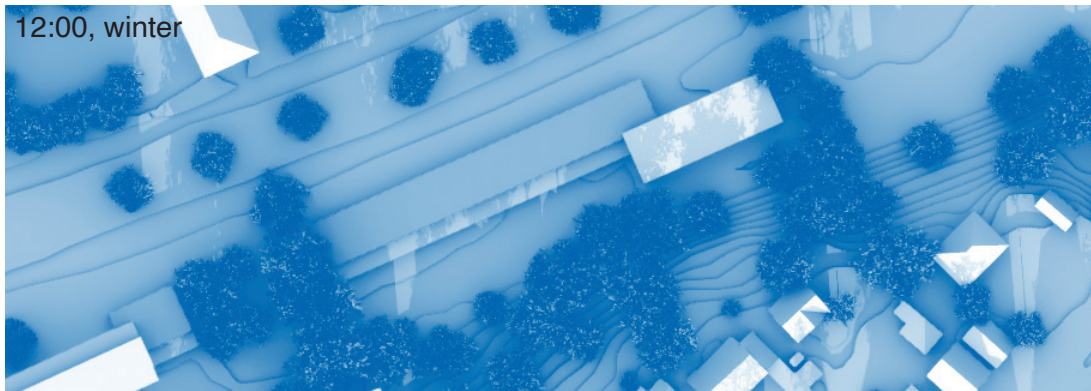
12:00, equinox



16:00, equinox



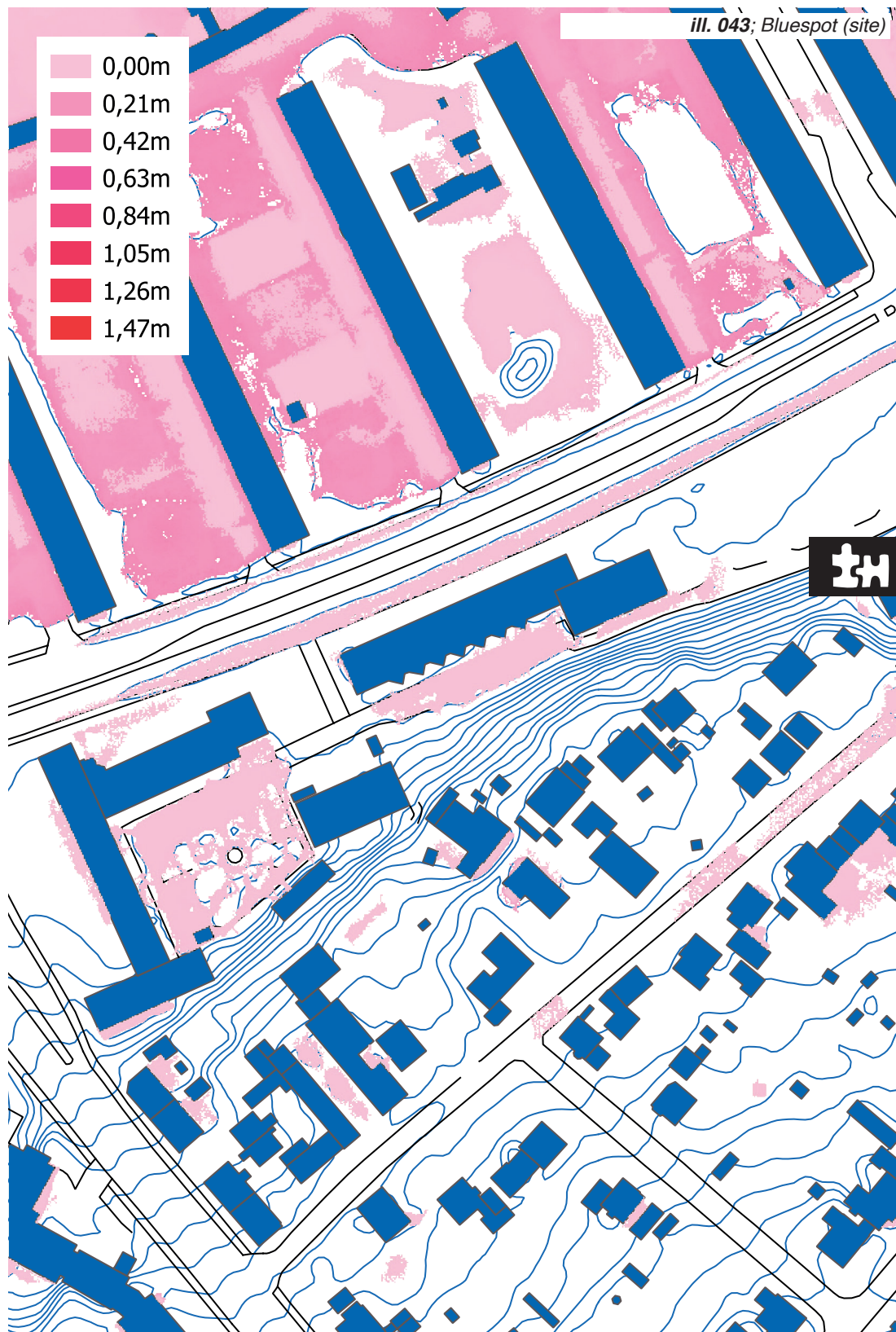
12:00, winter



- **bluespot mapping**

Bluespot screening is utilised in this project as a tool to identify depressions and water accumulation in the terrain. As depicted on the map (see ill. xxx), along the southern facade, there is a slight depression. To prevent water accumulation right next to the facade, where it can potentially create flooding in the basement, water management can mitigate this issue. Strategies designed to manage rainwater include infiltration and retaining water developed through either rain gardens/permeable surfaces, and/or retention basins. These suggestions are preliminary strategies and serve to inform future studies.

ill. 043; Bluespot (site)

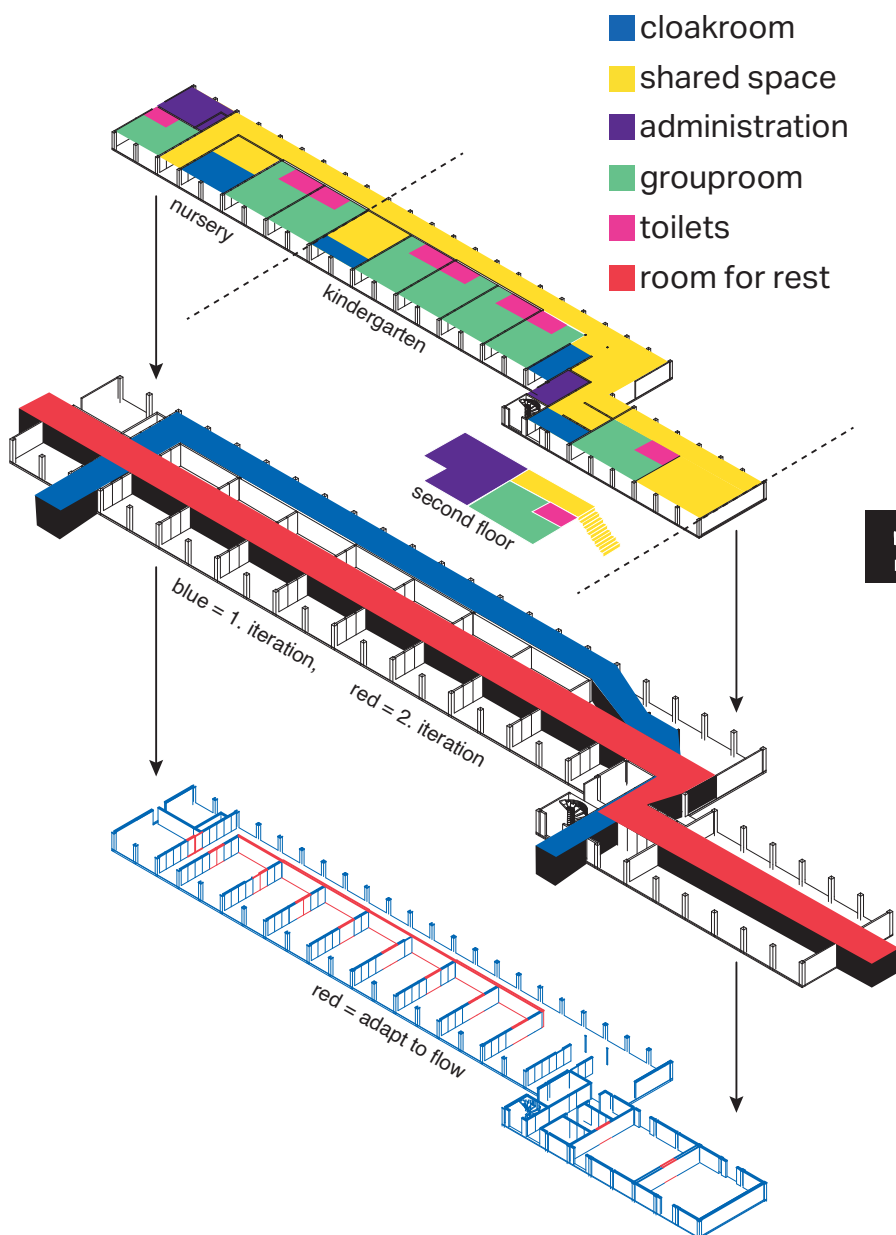


THE FRAME

The frame defines how space can be organised and will characterise how children, parents, and staff navigate their physical environment, as well as set the procedural conditions for the educators. Adapting the existing building into a day-care facility entails numerous constraints advancing the process in emergent directions. In this subchapter, circulation, distribution of functions, challenges with the existing structure, and how to organise the group room will be examined through design studies.

•circulation

The diagram on the right (see ill. 044) illustrates the first iteration where functions are distributed following the premise of the existing layout. This leaves a long hallway along the north perimeter, which causes group rooms and cloakrooms to move towards the south perimeter, which does not leave much space left for functions that require direct exit to the playground; such as cloakrooms.



ill. 044; 1. iteration (problem, exploration, side-effect)

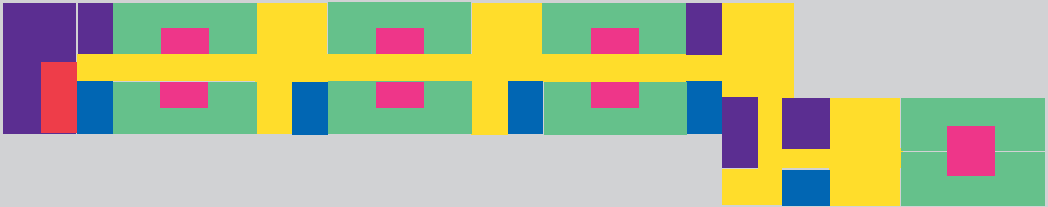
**“The entrance to the institution is best placed where there is also access to the playground.”
(Ringsmose & Staffeldt, 2012, p. 108)**

Another manifestation of this is that daylight and outside views are inefficiently utilised. So what if the circulation system were centrally placed?

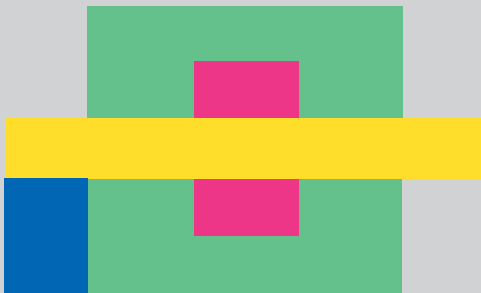
In the second iteration, the north perimeter is also utilised for group rooms. This influenced the shape from being stretched into the building to being shaped along the building, enabling the possibility to have more glazing in the facade pr. square meter. Moreover,

daylight coming from windows in the facade will relatively reach deeper into the group room than in iteration 1. The movement from one function to another remains consistent, following the same logic as in the casestudy, from playground to cloakrooms, to reception in a common area that connects the rest of the different spaces in the facility.

2. iteration



2. iteration



1. iteration



■ cloakroom

■ shared space

■ administration

■ grouproom

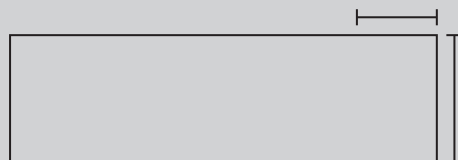
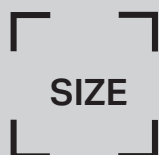
■ toilets

■ room for rest

• sizing, zoning and flow

From structural conditions i the broader aspect we are now zooming in on the group room. When deciding how much space is needed for each child in a day-care facility 3 quality rates are suggested from Statens byggeforskningsinstitut (The Danish Building Research Institute, SBI). Quality rate C is the minimum requirement according to The Danish Building Regulations (§ 229) specify that daycare institutions must provide at least 3 sq. m. of free floor area per child in nurseries and 2 sq. m. in kindergartens. (Bygningsreglementet, 2018)

The group room, common rooms and rooms for rest and sleep are taken into account when calculating how much space is provided for each child. In this project the group room is calculated it self to provide 4.5 for each child in nursery and 3.5 for each child in kindergarten.



quality rate c

nursery: min. 3 sq. m. pr. child

kindergarten: min 2 sq. m. pr. child

quality rate b

nursery: min. 4.5 sq. m. pr. child

kindergarten: min 3.5 sq. m. pr. child

quality rate a

as b supplemented with activity room

quality rate a

as b supplemented with activity room

nursery: 24 children

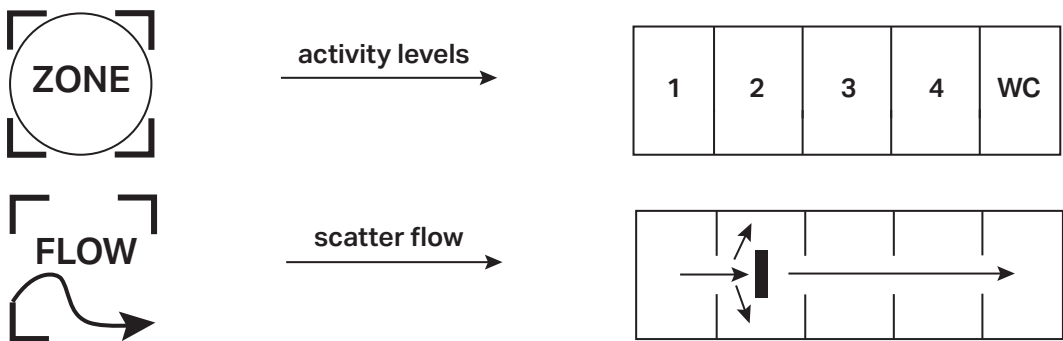
24 x 4.5 = **108 sq. m. + activity room(s)**

kindergarten: 80 children

80 x 3.5 = **280 sq. m. + activity room(s)**



PROGRAM	BØRNEHUSET VRÅ	area of total in %	ØSTRE ALLÈ
cloakroom	150 sq. m.	13.1 %	145 sq. m.
shared space	291 sq. m.	25.5 %	282 sq. m.
administration	124 sq. m.	10.9 %	120 sq. m.
grouproom	401 sq. m.	35.1 %	388 sq. m.
toilets	124 sq. m.	10.9 %	120 sq. m.
room for rest	53 sq. m.	4.6 %	51 sq. m.
total area	1143 sq. m.	100 %	1106 sq. m.



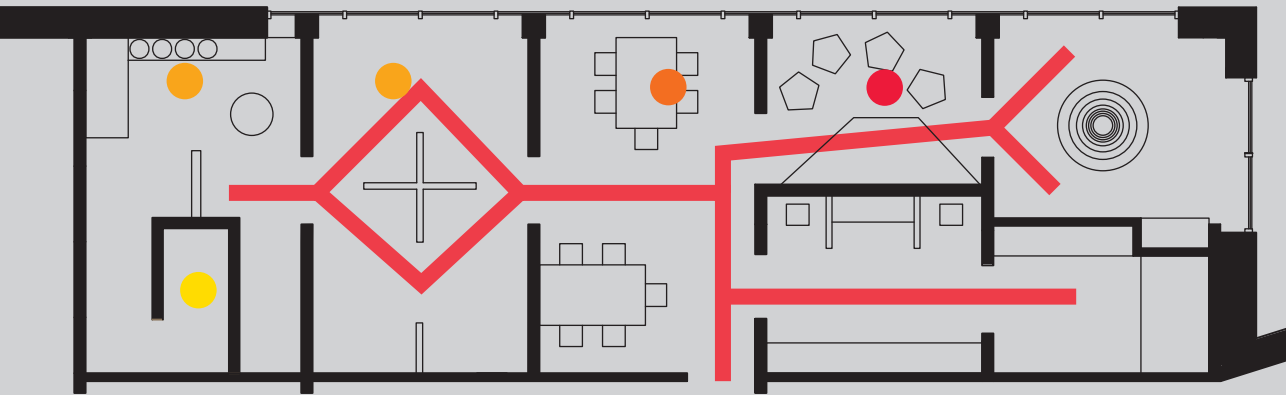
ill. 047; Zoning and flow strategy

The group room is divided in 5, to assure each activity level has its own zone and a bathroom designated for the specific grouproom. By doing so, play in higher activity levels will not disturb play in lower activity levels, which is highly important for children in order to remain focused in their play or activity. To also prevent flow from disturbing play, primary routes must be scattered. Primary routes can be prevented with doors located in the center of the wall, and avoiding interior installed exclusively along the walls (see ill. 047). (Ringsmose & Staffeldt, 2017)

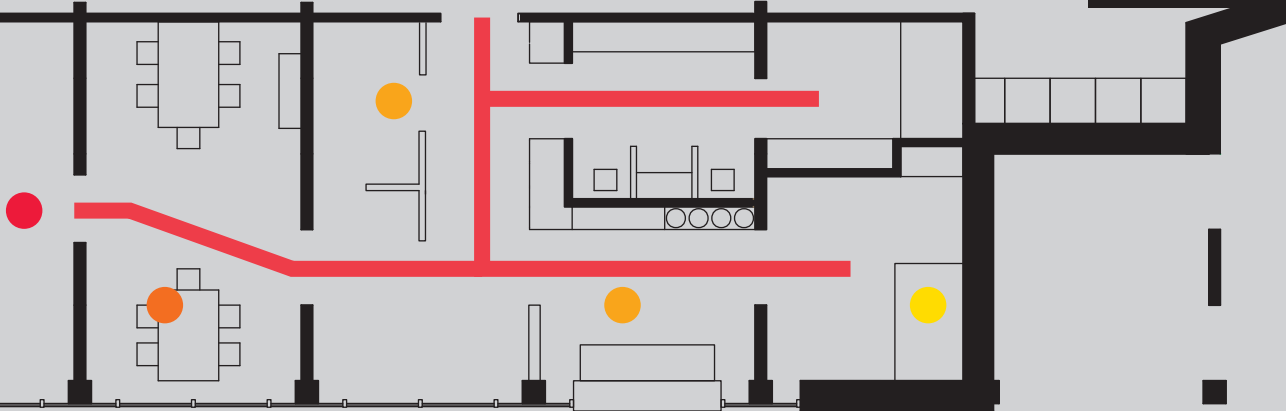
with flow lines and activity zones to predict if play and activity will be disturbed. The first iteration is more based on a primary route structure, whereas the second iteration is dividing flow and keeping traffic away that is not related to the zone's function. For example zone 3 and 4 is the most fragile spaces; zone 3 is where children play independently alone or with others, and zone 4 is the quiet zone for rest/contemplation or storytelling. Traffic between zone 2, the entrance, and the bathroom must be as short as possible. (Ringsmose & Staffeldt, 2017)

In the illustration above two iterations of group rooms are demonstrated layered

2. ITERATION



1. ITERATION



— flow

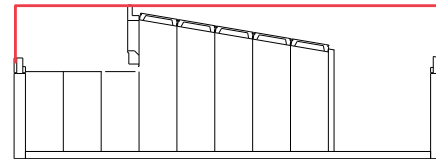
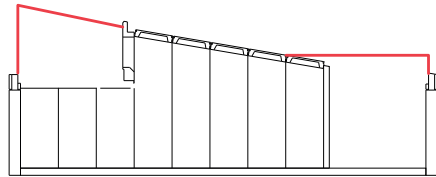
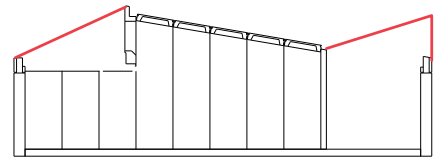
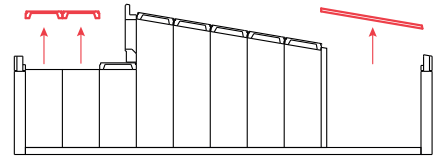
■ zone 1

■ zone 2

■ zone 3

■ zone 4

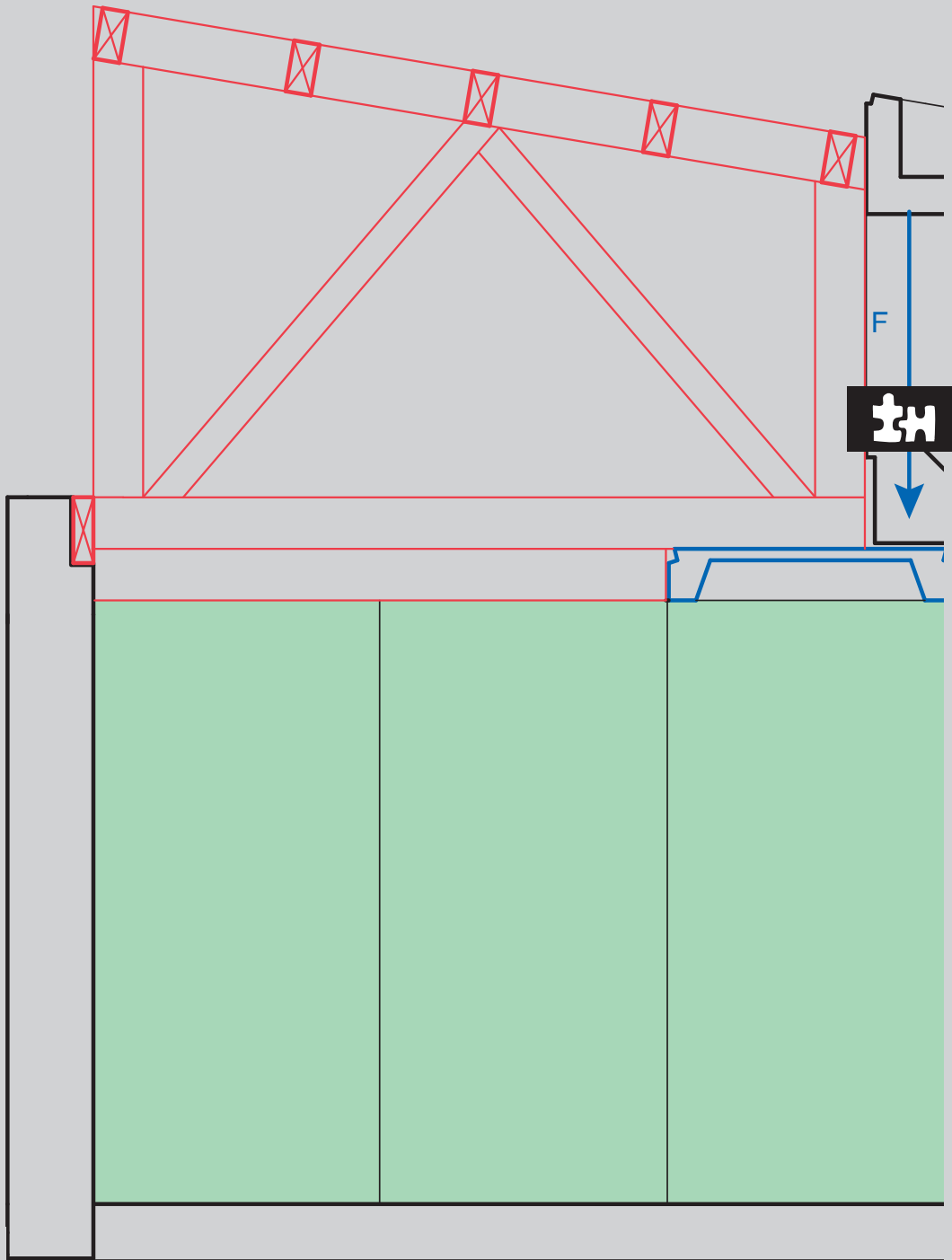
1:100



• structural intervention

According to the Danish Working Environment Authority, working spaces should have a minimum height of 2.5m (Arbejdstilsynet, 2025). As shown in the diagram at the top (see ill. 0xx), the concrete roof structures in red are suggested for removal to address low-ceilinged spaces around the building. The diagrams below show a few explorations of how the roof design could be reassessed. This intervention can either serve as a coherent structure or as a contrast to existing elements, or be positioned in between, for example,

cohesive in form but contrasting in material. The illustration depicted above (see ill. 0xx) is an example of how the roof design could be modified with minimum intervention to create more space. The concrete roof element, in blue, supports the frame structure above; if removed, a new supporting element would need to be installed in its place. It is therefore suggested that it be kept as a straightforward narrative of how the building is structured. In the next subchapter, studies on daylight, acoustics and passive strategies will be presented.



DAYLIGHT

This study will explore the possibilities when utilising these strategies for daylight purposes, with an overall objective to ensure a healthy work environment for staff and a healthy environment for the children. According to the World Green Building Council (2023), research indicates that daylight, when measured correctly, has a significant impact on our mood, energy levels, quality of sleep, and other general health benefits. (World Green Building Council, 2023) Daylight, therefore, not only serve as a visual quality, but is also a physiological resource that supports thriving environments for humans.

The original structure from 1954, in terms of window placement, was hardly changed compared to its present design. As earlier discussed, daylight is poorly utilised for three main reasons; one being the hallway solely utilising the northern perimeter. Secondly, the former classrooms are 10 meters deep, with projecting windows in the south facade and clerestory windows that reach the back wall in depth, but only serve as a source of quality light, not entirely replacing the need for electrical lighting. Moreover, third, the planar and unarticulated facade, which is for a large span, only allows daylight from two directions without the use of skylights. In response, this study will enhance daylighting through architectural interventions, such as articulating the facade and roof design to allow daylight from multiple

directions, which allows staff to fill the room partitions and other play-related objects without blocking the only source and furthermore, exploring optimal window placement and size. The aim is to reach LEED v4 standard for spatial daylight autonomy (sDA), which is a minimum of 300 lux 50% of the time at 55% of regularly occupied floor area. To prevent overheating and glare, annual sunlight exposure (ASE) should not exceed 1000 lux or more for more than 250 hours a year, for more than 10% of the total area. (U.S. Green Building Council, n.d.)

The study was simulated in Grasshopper using the plugin HoneyBee. The material settings were set to correspond to typical educational or daycare environments: white ceilings and walls, and coloured linoleum floors. The red line shows the area exceeding ASE, and the black lines are interior walls.

Material settings:

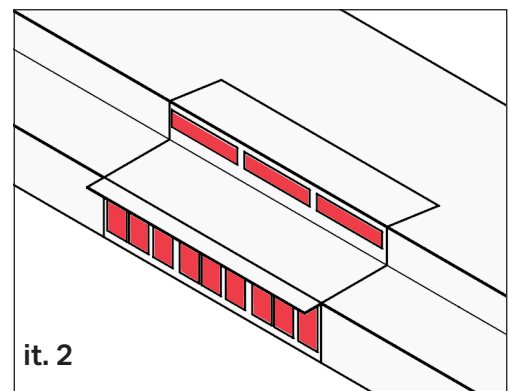
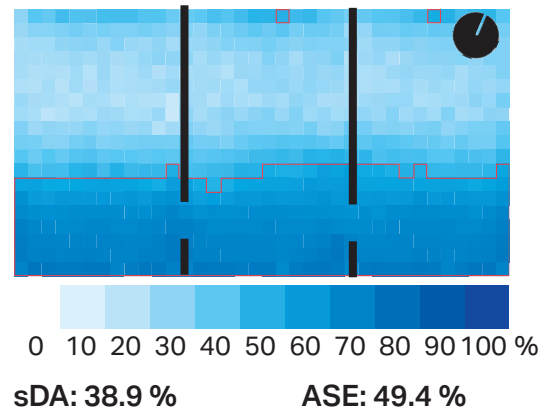
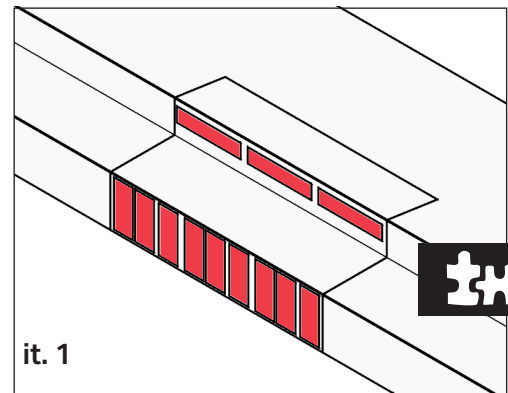
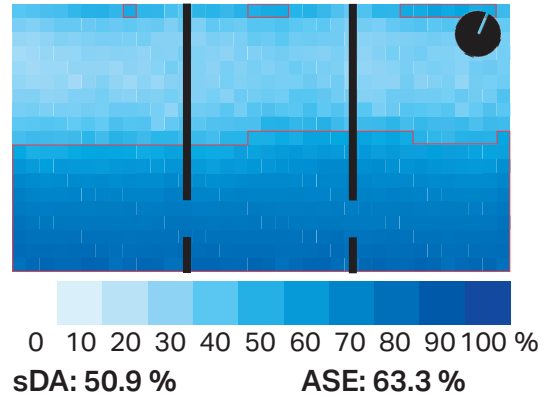
Ceiling: white paint on plaster 0,8

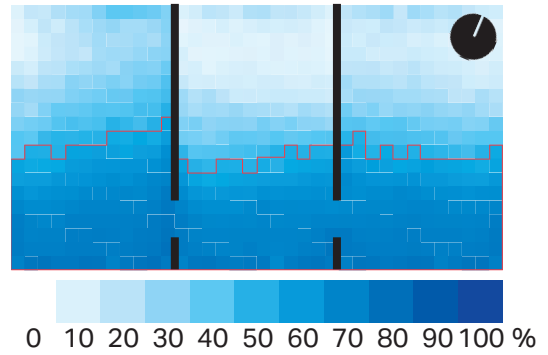
Walls: white paint on plaster 0,8

Floor: linoleum, light colour 0,45

The first iteration explores how much daylight the group room towards south gains with the original roof structure, clerestory window placements, and as much glazing as possible in the exterior south wall. In this example, daylight from clerestory windows can not reach deep into the room, fulfilling its purpose because of the proximity of the northern interior wall. The glazing in the exterior wall facing south provides sufficient daylight, but is potentially vulnerable to direct sunlight, which heightens the risk of glare and overheating. The second iteration demonstrates the effect of shadowing interventions, specifically a 0.7-meter overhang installed directly above the southern wall.

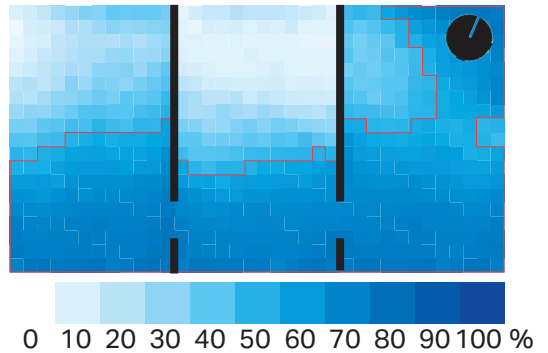
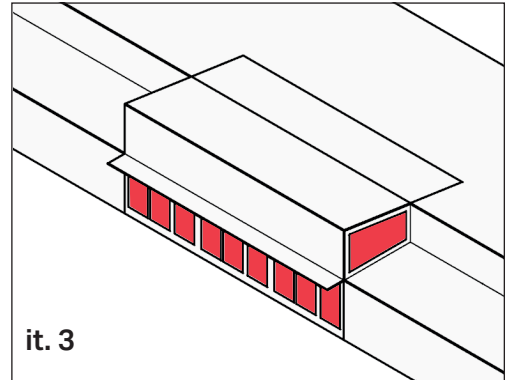
ill. 051; Daylight iteration 1-2





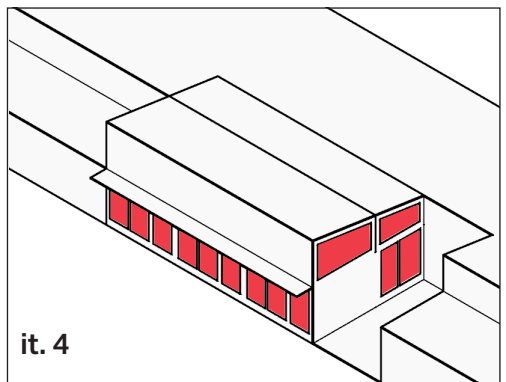
sDA: 45.3 %

ASE: 47.8 %

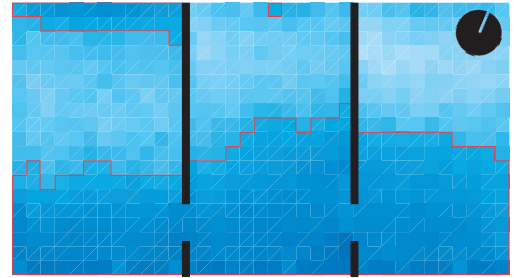


sDA: 56.0 %

ASE: 56.9 %



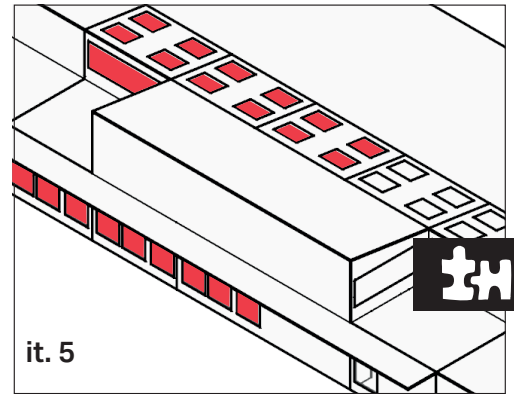
The previously suggested roof designs dealing with low-ceilinged spaces were later investigated through a variation of iterations, introducing windows from west and east to allow daylight from more than one direction. In iteration 4, a void was made in the existing structure to explore even more glazing. This strategy works well to allow sunlight near the back wall in this scenario, though the openings are too large and cause ASE to rise.



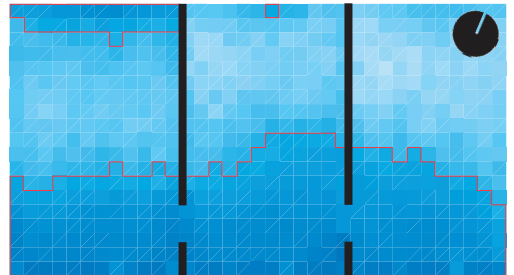
0 10 20 30 40 50 60 70 80 90 100 %

sDA: 49.6 %

ASE: 42.9 %



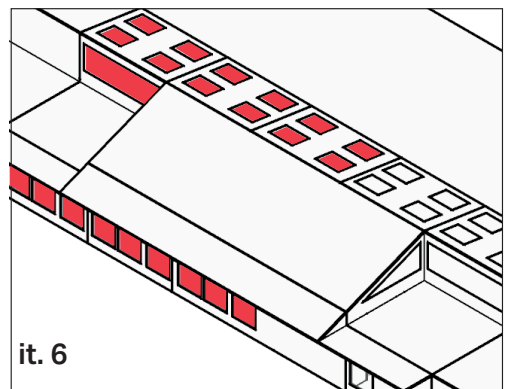
it. 5



0 10 20 30 40 50 60 70 80 90 100 %

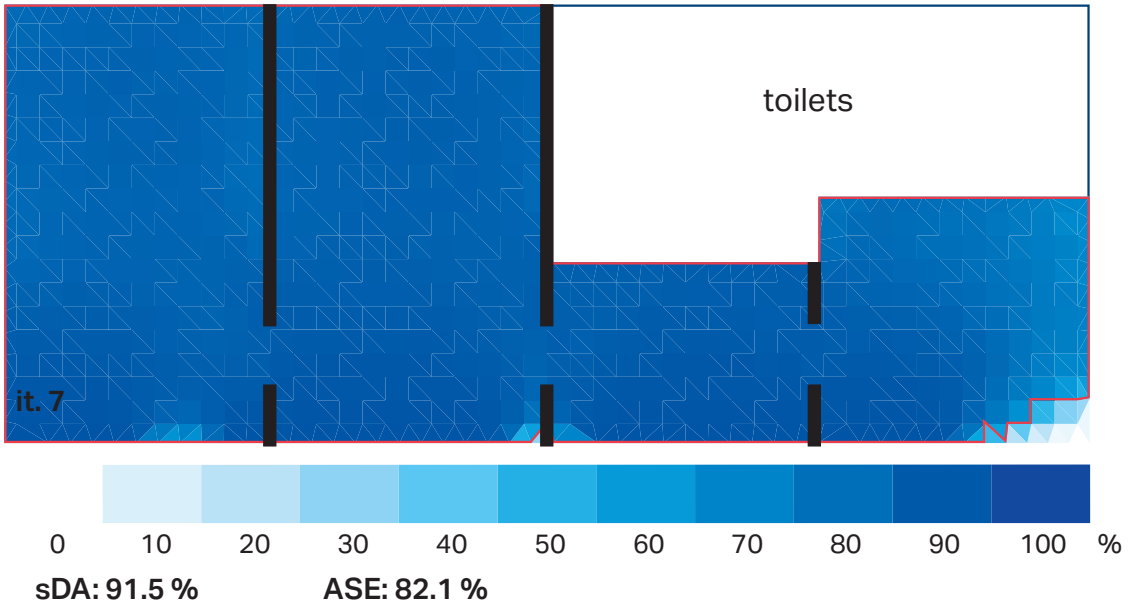
sDA: 44.8 %

ASE: 38.2 %

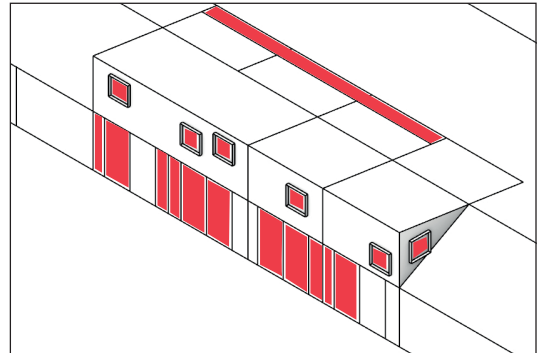


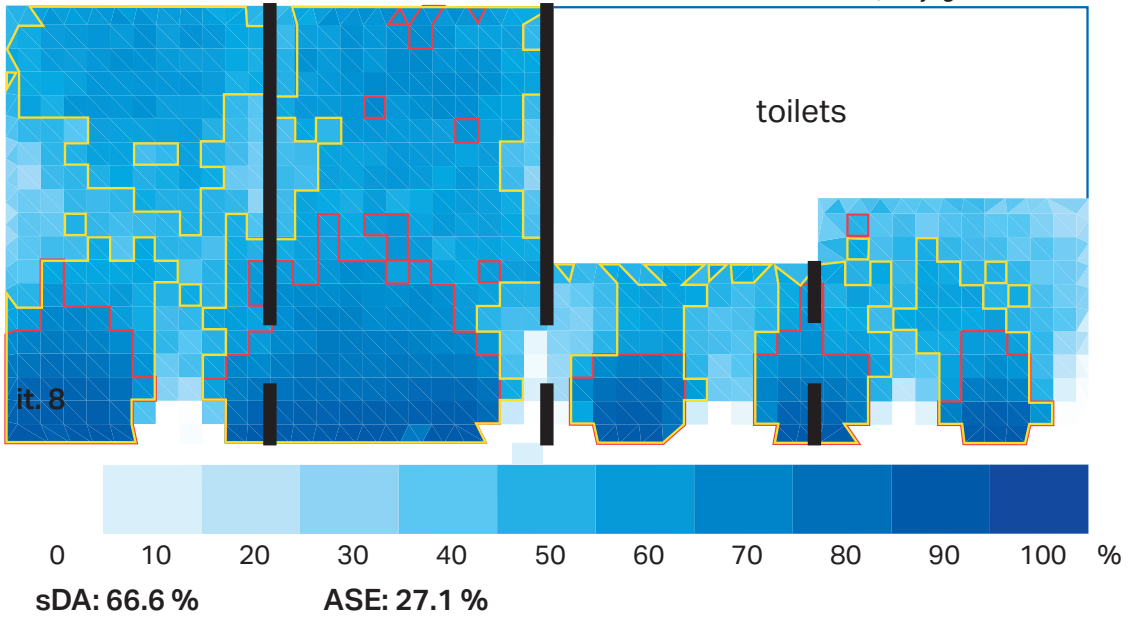
it. 6

In iterations 5 and 6, skylights and an overhang of 1 meter were introduced. In this scenario, the skylights did not contribute enough to reach above 300 lux for more than 50% of the time.



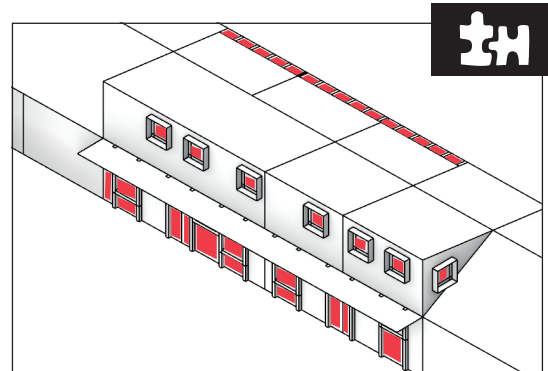
As the design process was proceeding in other aspects of the project, the layout for the group room was developed, and new iterations were simulated. In this scenario, the skylight is running right across the back wall, so direct sunlight is reflected and spread out in the back end of the group room. Clerestory windows were introduced as well to admit sunlight deeper into the plan. In this case, sDA and ASE skyrocketed, due to not only the combination of skylights and clerestory windows, their placement and sizing, but also because this iteration was stripped of windowframes and overhang.





The final iteration is a follow-up from iteration 7, adjusting clerestory windows, and openings in the exterior wall towards the south, and adding frames to block sunlight horizontally and vertically, and an overhang of 1 meter. The material settings were also adjusted from materials with a high light reflectance to a scenario with raw concrete walls and plywood without any surface finishes. ASE is still a lot higher than 10%, but considering that these simulations were limited, without any automatic shading and glare control, which is the standard procedure for calculating ASE, and that simulations were done without trees and just the surrounding buildings as context, ASE is assumed to be lower.

Iteration 8 was the best proposal among the iterations, scoring lowest in ASE and also above the goal in sDA.



Material settings:

Ceiling: plywood 0,4

Walls: concrete 0,2

Floor: linoleum, colour (blue, red other.) 0,2

ACOUSTICS

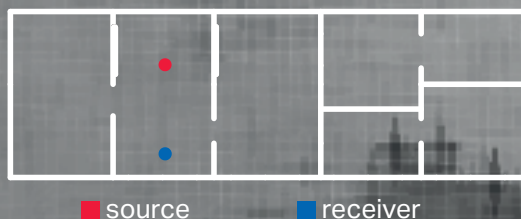
SIMULATION-BASED EVALUATION

This subchapter presents an acoustic analysis conducted to evaluate how different materials and their configurations influence the acoustic environment inside the group room. The simulations were carried out in Grasshopper using the plugin Pachyderm_Acoustics, which enables room acoustics simulations based on geometrical acoustics. In the simulations conducted, one source and one receiver were used. The aim of this analysis was not to map the acoustic variations across the whole group room, but to examine how different materials affect acoustical parameters such as clarity and reverberation. The simplicity of this configuration allows a consistent comparative basis between iterations.

In order to analyse how the group room performed with different material setups, a digital model inside Rhino was the basis for the Grasshopper simulations. Inside the model, floors, walls, and ceilings were applied with different materials with various acoustical properties to test a series of iterations with different combinations of material configurations, to evaluate which material combination would give the best sound environment for this context.

Reverberation time (R60), clarity (C80), definition (D50) and early decay time

(EDT) were calculated across multiple frequency bands (125 Hz - 4000 Hz) to give a nuanced impression of the room acoustical performance. The simulated results were then compared with the advised limit thresholds for daycare facilities specified by the Danish Building Regulations (BR18).



ill. 056; Acoustic model (plan)



Model → Material setup → Simulation → Result analysis → Design refinement

MATERIAL SETUP	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
5mm plywood on battens, 50 mm aitspace filled	0,40	0,36	0,20	0,46	0,06	0,06
metal ceiling, 32.5% perforated, backed by 30 mm rockwool	0,12	0,45	0,87	0,98	1,00	1,00
linoleum or vinyl stuck to concrete layer	0,02	0,02	0,03	0,04	0,04	0,05
cork board, 25 mm, 2.9kg/m2, on battens	0,15	0,40	0,65	0,35	0,35	0,30
rough concrete	0,02	0,03	0,03	0,03	0,04	0,07

ill. 058; Material setup (absorption coefficients)

•material setup

The material setup for the analysis attempts to balance both acoustic and sensory experience. The original concrete structure is suggested to be exposed to reveal the layers of time within the building. The sensory cues of concrete, visual, thermal, auditory, olfactory, and tactile engage the body in a multilayered dialogue with material and space. When visible, concrete communicates its physical properties and cultural memory, from industrial architecture to modernist optimism to post-war reconstruction. New layers of today, as an extension of the building’s story, must represent how we build today, and also act as a contrast to the original structure, in its physical presence, sensory qualities and acoustic properties.

The table above (see ill. 0xx) demonstrates absorption coefficients across frequency bands for different materials and material configurations (Akustik.ua, n.d.). The materials in the table represent the selected materials in the iterations. This combination of materials forms the basis for the simulations, where each iteration attempts to meet the requirement regarding a reverberation time of 0.4 seconds or less as stated in BR18, as prescribed for daycare facilities (BR 18, n.d.).



III. 059; Material presentation

•simulation & results

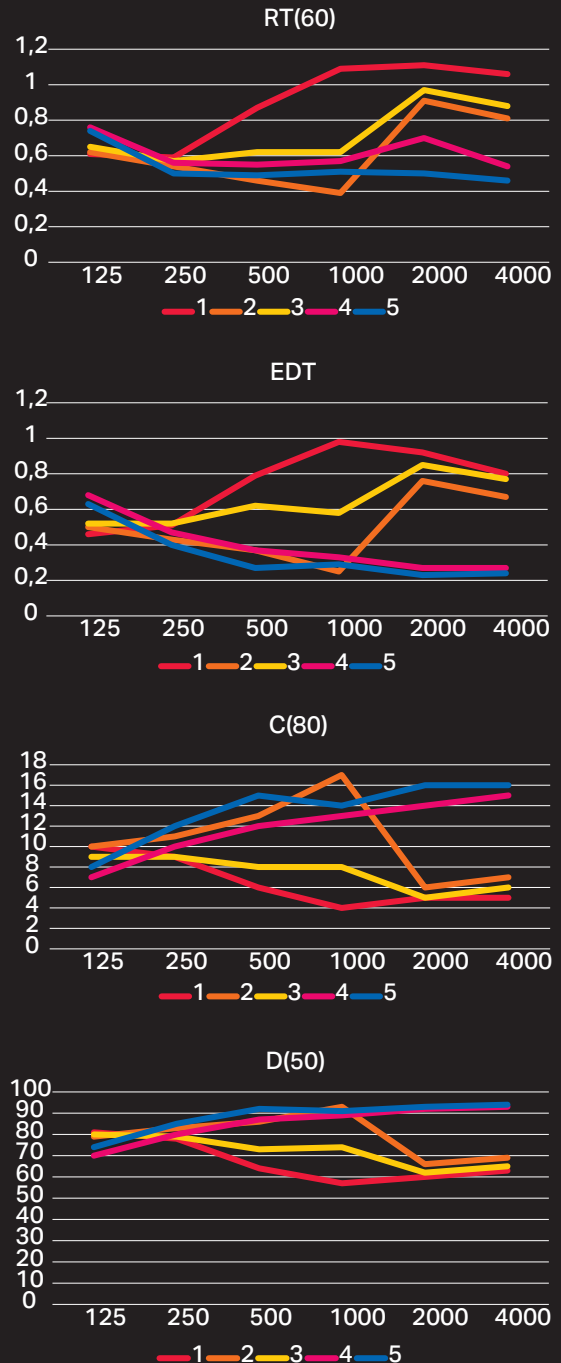
The four acoustic parameters demonstrate how the material configuration influences the acoustic environment in the group room.

The results for RT(60) show improvement from iterations 1-5. Iteration 1 has the highest values up to 1.1 seconds, which is too much reverberation for this scenario and 0.7 seconds too long compared to the BR18 requirement. However, iteration 5 is getting closer to values around 0.5-0.6 seconds across the spectrum of frequencies.

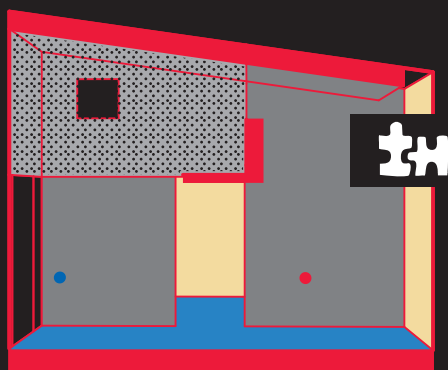
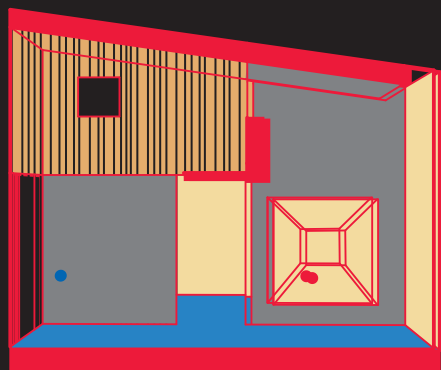
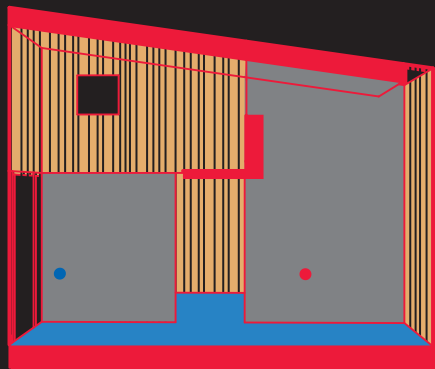
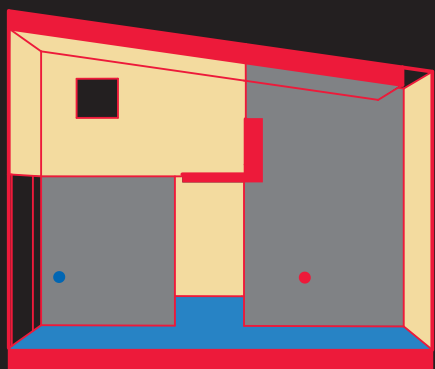
EDT is following the same patterns as RT(60), with values lower than RT(60), which implies a fast decrease of early reflections. For iteration 4-5, especially the early decay time is below 0.4 seconds between 500 Hz and 4000 Hz, which indicates high speech clarity.

C(80) values rise from iteration 1-5, most noticeable in the frequency bands critical for speech (500-4000 Hz). Iterations 1 and 3 are between 4-10 dB, and iterations 4 and 5 are between 8-16 dB. Values above 10 dB could indicate too much absorption too close to the speaker, which can result in an overly dry sound environment. This is probably due to porous absorbers being too close to the source.

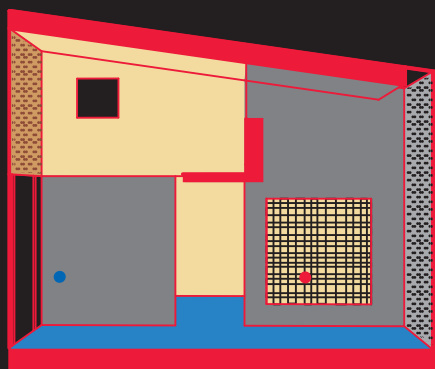
The D(50) values in iterations 4 and 5 show the best distribution across mid frequencies. With values above 80%, indicating that most of the acoustic energy reaches the listener within the first 50 ms.



III. 060; Graphs



Overall assessment of the findings indicates that Iteration 5 are performing best acoustically. Iteration 5 almost reach the threshold limit 0,4 seconds across mid frequencies, and D(50) is indicating high speech clarity. The material configurations are not only balancing absorbing and reflective surfaces but also suggests a contrast between old and new material and a balance visually and in tactility.



ill. 061; Iterations 1-5 with materials

find

CHAPTER 3

EPILOGUE

in “part 2”



REIMAGINING OBSOLESCENCE

DESIGNING A MEANINGFUL PLACE
FOR LEARNING AND EXPERIENCE: PART 2

REIMAGINING OBSOLESCENCE

DESIGNING A MEANINGFUL PLACE
FOR LEARNING AND EXPERIENCE: PART 2

Project name: Reimagining Obsolescence: Designing a Meaningful Place for Learning and Experience

Department: Department of Architecture, Design and Media Technology

Semester: MSc04, Architecture Aalborg University

Module: Master Thesis

ECTS: 30

Project period: 01.02.2025 – 20.10.2025

Group number: 18

Supervisor: Mads Brath Jensen

Pages report:

Pages appendix:

Student: Oliver Hartmann

- **acknowledgements**

My deepest gratitude goes out to Sangill Grafisk for their expertise and for making the hard copy of my thesis project (PART 1).

I also express my thanks to Vester Kopi for helping with the second part of this thesis report on such short notice.

Sincerely, thank you.

- **use of artificial intelligence**

In this thesis project, artificial intelligence was used as a tool to translate and improve general English formulation, as well as generate illustrations in Photoshop with Adobe Firefly.

CHAPTER 3



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EPILOGUE



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CHAPTER 3



SENSORY DESIGN

How would our physical environment feel and look if architecture were designed for all of our senses and not just the eye? This question is the basis for Jay Monice Malnar and Frank Vodvarka's book *Sensory Design*. The authors argue that modern architecture is dominated by what we perceive with our eyes and not our whole body, and this has resulted in a form of static and sensory-poor architecture. Malnar and Vodvarka therefore seek a new design paradigm, where sound, touch, smell, and spatial sense are just as important as sight in architectural design.

They break down the privileged status of vision in architectural history. However, our joy of architecture through vision is often experienced at a distance, whereas our other senses can make us engaged with our bodies and make us feel present. Our eyes allow us to view and observe architecture, but not necessarily to engage in it.

These experiences and how we perceive space are not universal, argue Malnar and Vodvarka, but are shaped culturally and from prior experience. How a space "feels" is determined by our past experiences, expectations and social background. The authors write: "We thus maintain that it is sensation-mediated by experience and culture that shapes our response to spaces."

Therefore, meaning is not something that can be added to a space, but only exists in the relation between space and human sensation.

A central theme for Malnar and Vodvarka is the role of materiality in the sensory experience. They argue that materials, details and textures are not merely decorative elements, but essential components of how a space is experienced and perceived together with physical objects in architecture; furniture, plants, art, etc. (Malnar & Vodvarka, 2004)

In the illustration Integrated Place Schematic (see ill. xxx), Malnar and Vodvarka present a model illustrating how the perception of place emerges as an interrelation between sensory modes, memory and spatial qualities. Sensory modes and memory are the central components in the perception of place; these two components are connected through four spatial and experiential dimensions.

1. Coherence

The degree of order and coherence in the environment determines whether sensory impressions are perceived as connected and structured. This is space that is direct and easy to decode. For example, in a classroom, it is important that students quickly understand the room's purpose, direction and atmosphere.

2. Complexity

The richness of elements and variation in the environment, the amount of sensory stimuli a space offers. A complex room will capture one's attention, with different sounds, textures, light conditions or perspectives, as in a forest.

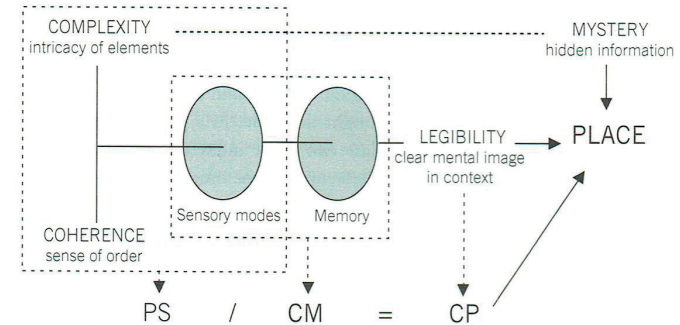
3. Legibility

Clarity in terms of how the place is understood and how memorable it is. It is about cognitive clarity, our ability to create a mental image.

4. Mystery

When presented with a space with unforeseen or hidden elements, it evokes curiosity and invites exploration.

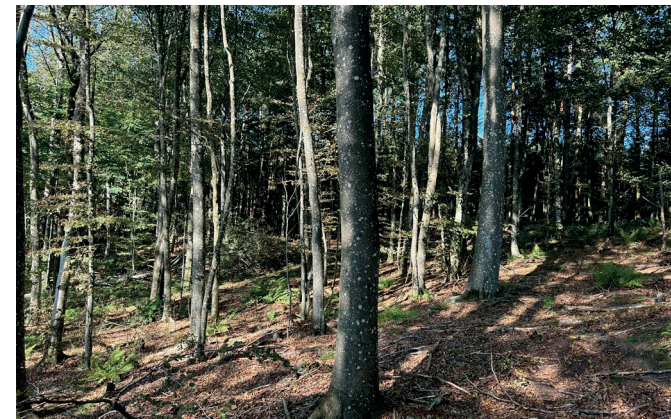
According to Malnar and Vodvarka, it is the balance between these four factors that creates the identity and atmosphere of a place. When coherence and complexity are balanced, the experience of a space feels organised and logical, but is still stimulating, because there is enough variation and stimuli to create interest. The same applies to legibility and mystery; when balanced, a space is cognitively interpreted as familiar and safe, but also exciting because there is still more to explore. Coherence and complexity are about how our senses perceive our environment, whereas legibility and mystery are about how we cognitively and emotionally interpret a space. (Malnar & Vodvarka, 2004)



ill. 062; Integrated Place Schematic (Malnar & Vodvarka, 2004)



ill. 063; Classroom, CREATE



ill. 064; Forest in Aalborg

SENSOUS REAWAKENING

The local view and impression of the building is marred by the vandalism and vacancy that have been taking place for more than a decade. This is the current view on Østre Allé 91, but when it was built in 1955, it was a project that praised modern building methods and represented a school with all that it entailed at that time. Many residents of Aalborg have had their schooling there, and Alléskolen have over the years become a piece of history culturally and architecturally for Aalborg, which should be protected. Therefore, the vision in this project is to tell a new story, with sentiment for its original structure, and the traces that became a part of its narrative over time: the pre-

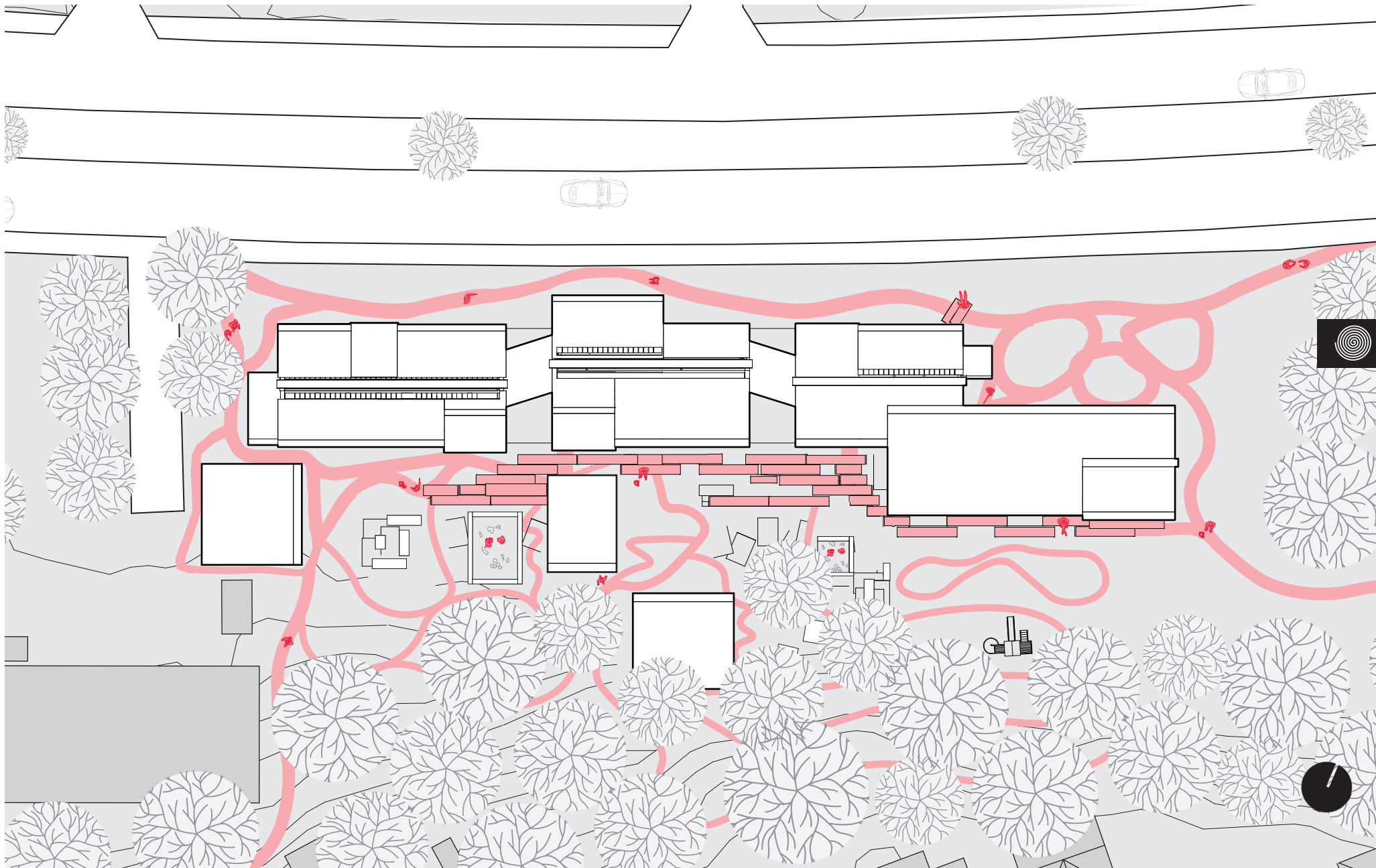
cast concrete elements, the in-situ cast elements, its shape, and steel and brick from earlier alterations. In parallel, the building shall undergo a significant transformation to repair damage from its vacancy and adapt contemporary architectural standards and accommodate a large public daycare facility. It is intended to evoke the existing buildings' embodied sensory, architectural and cultural qualities, utilised to create a daycare facility that provides a safe and exciting place with a story that is worth exploring. Moreover, the transformed building must be able to co-participate as an active support to the pedagogical work.



iii. 065; Render, hallway



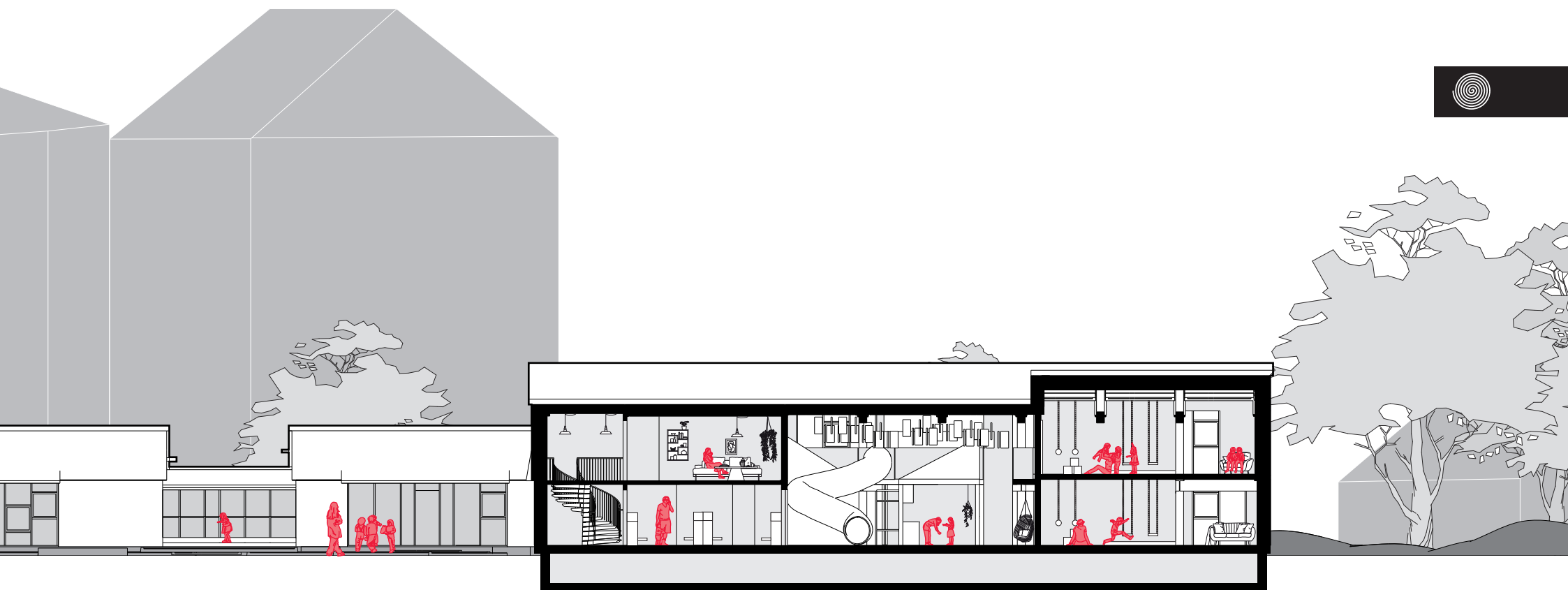
The masterplan of the transformed Østre Allé 91 shows how the static shape of the building has evolved into a dynamic expression with new additions and voids creating courtyards and allowing sunlight into the building from multiple directions. New paths in the garden and along the northern facade are established as part of the new spatial arrangement, incorporating reused concrete roof elements.



iii. 066; Masterplan



III. 067; Render, north facade building I



ill. 068; Section, building I

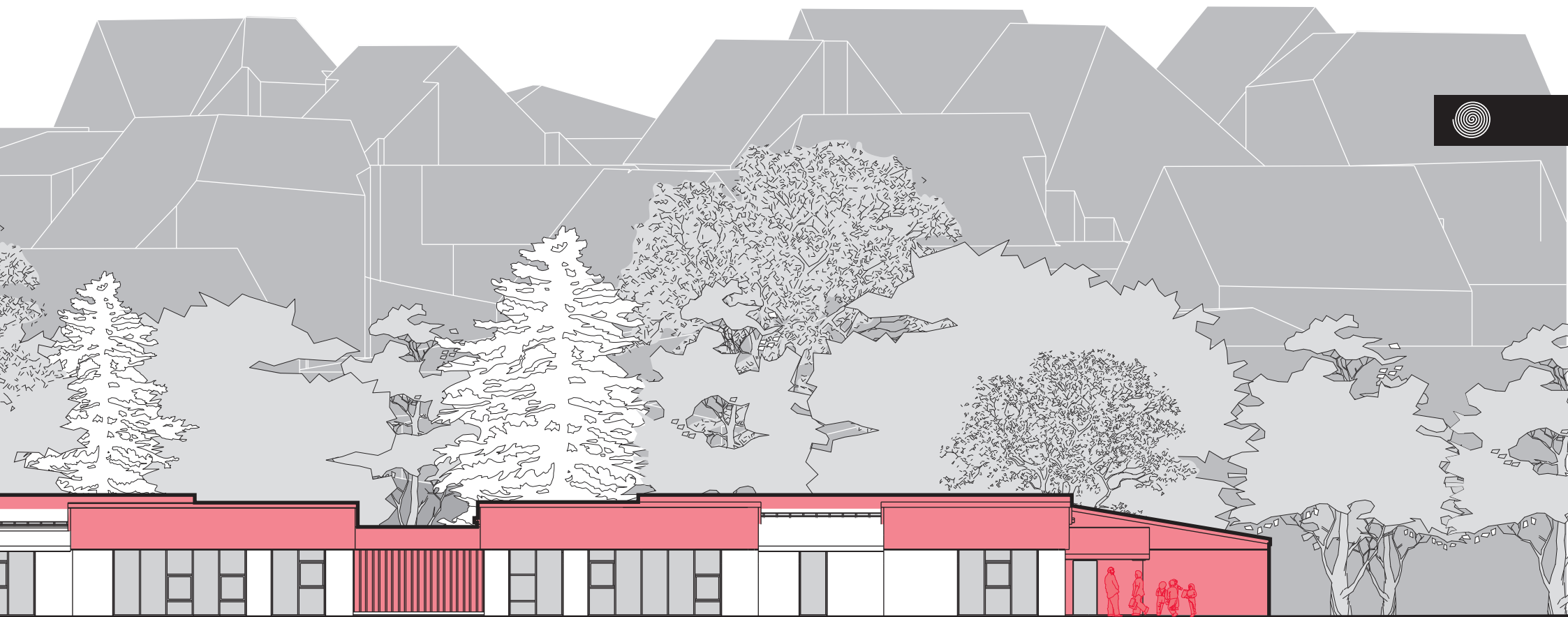






1:200

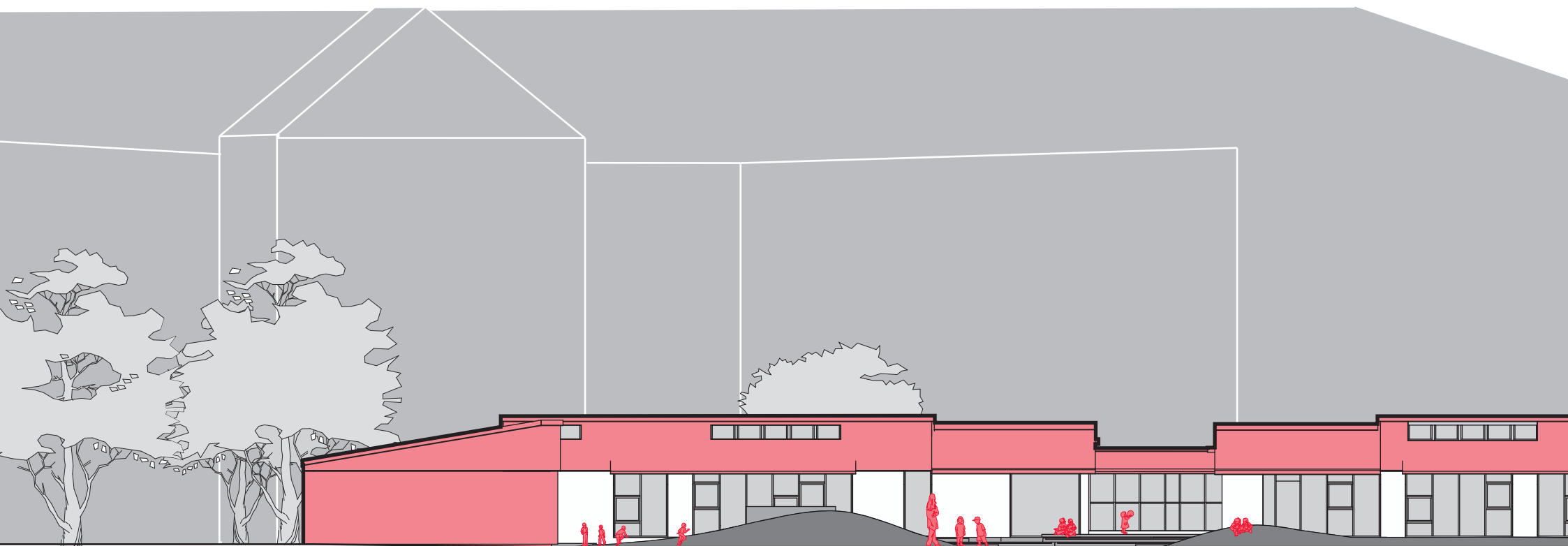
■ additions



1:200

■ additions

ill. 070; Elevation, north facade



1:200

■ additions

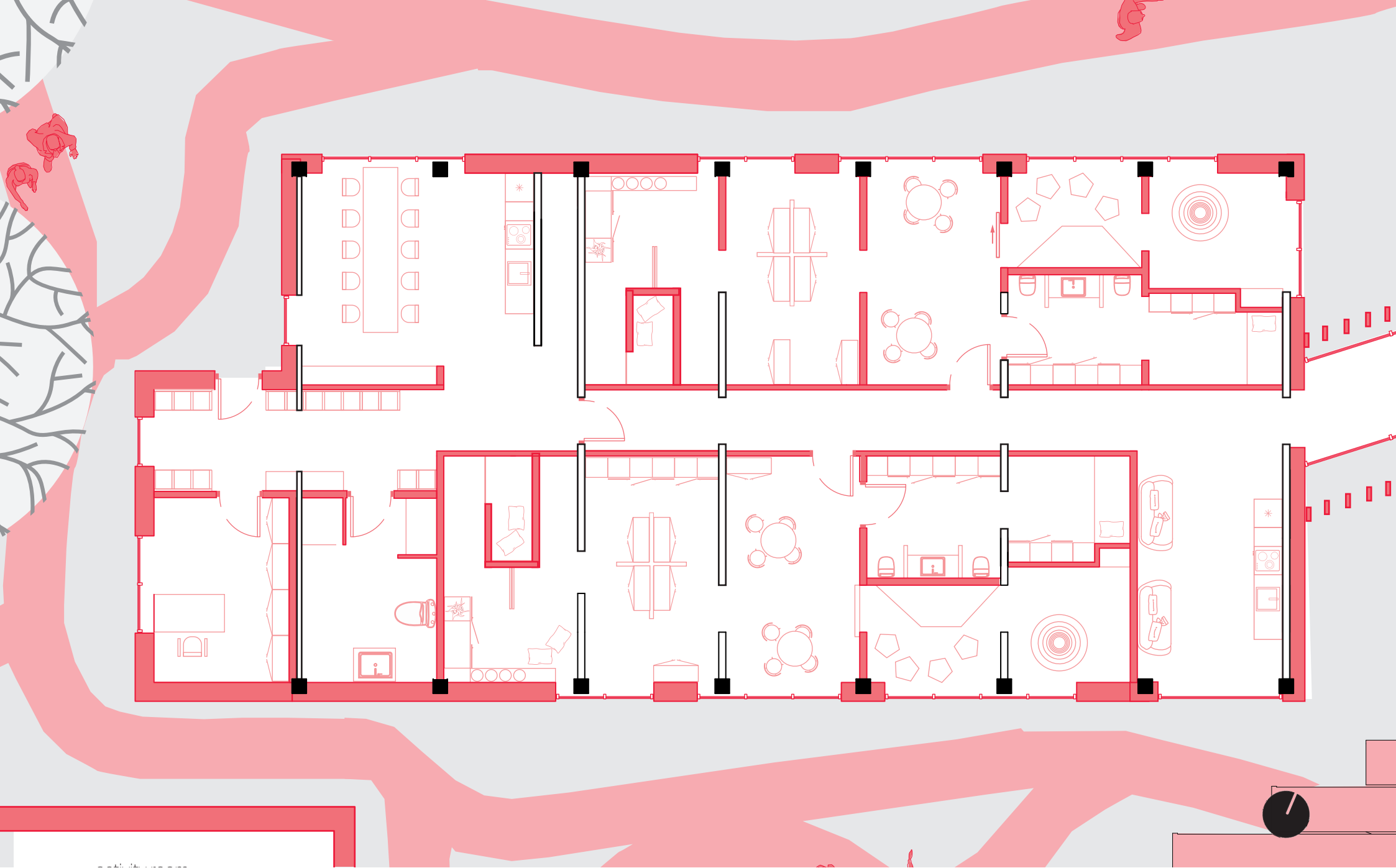


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■ additions

iii. 071; Elevation, south facade

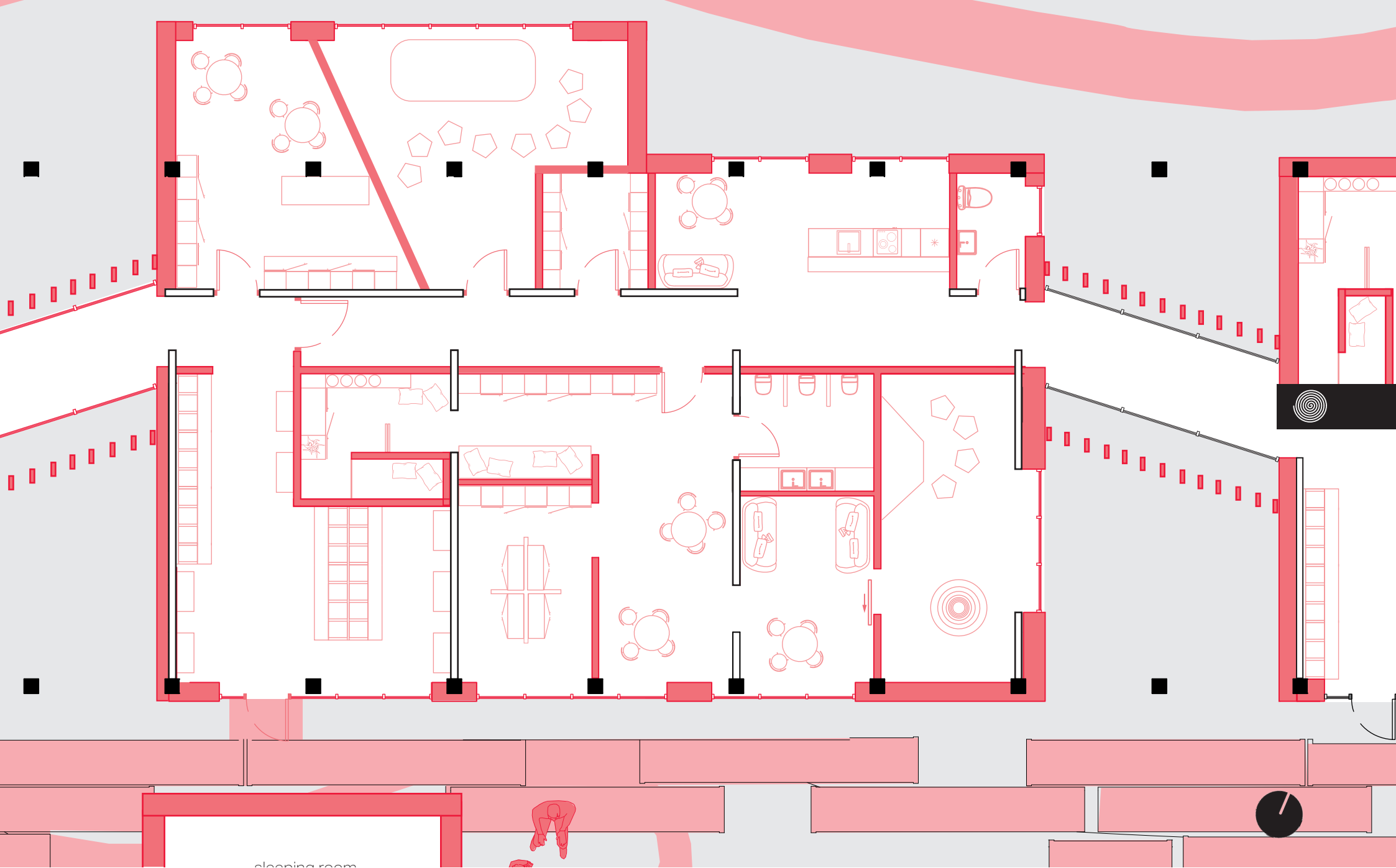




1:100

existing walls

new walls



1:100

cleaning room

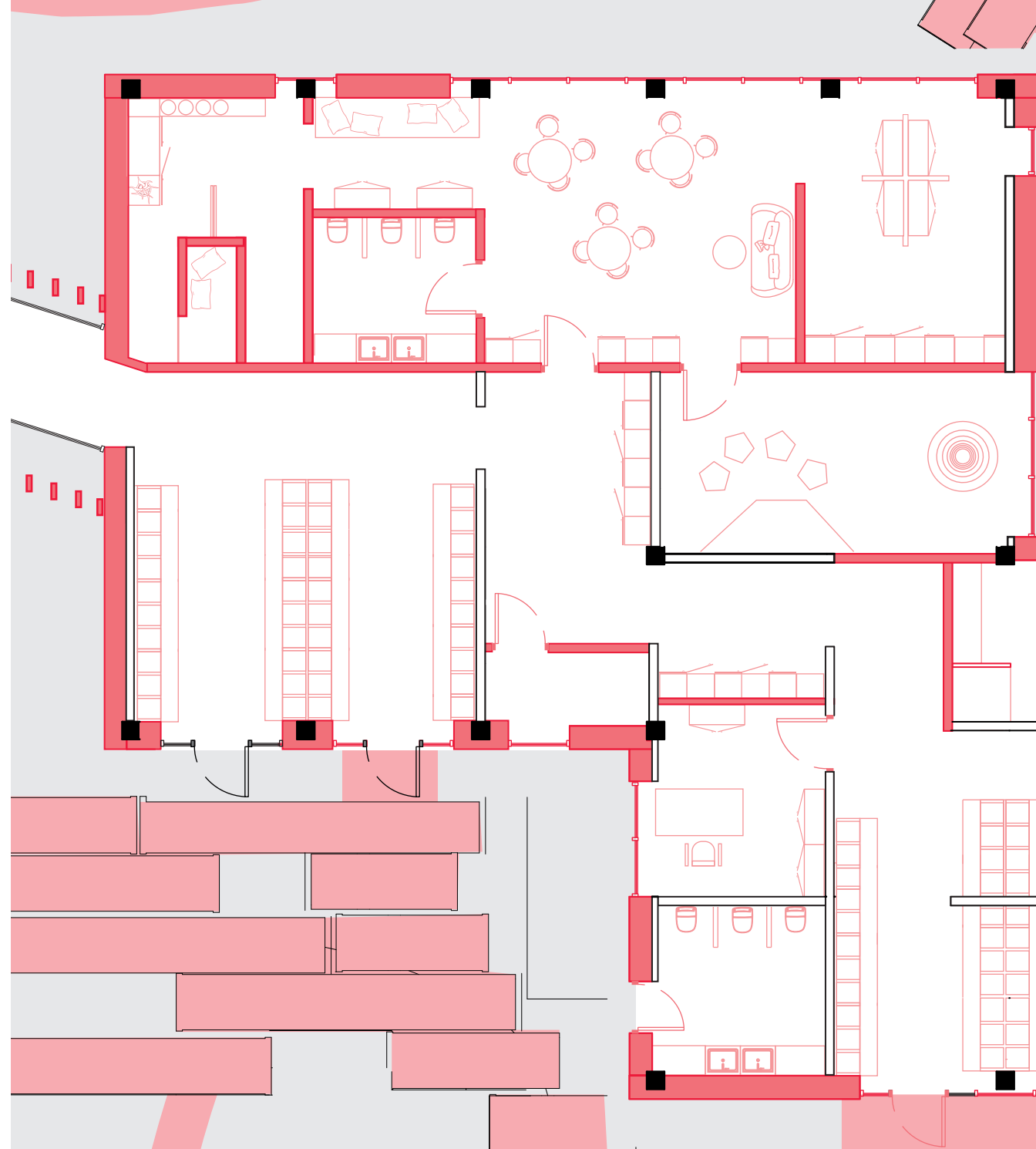
□ existing walls

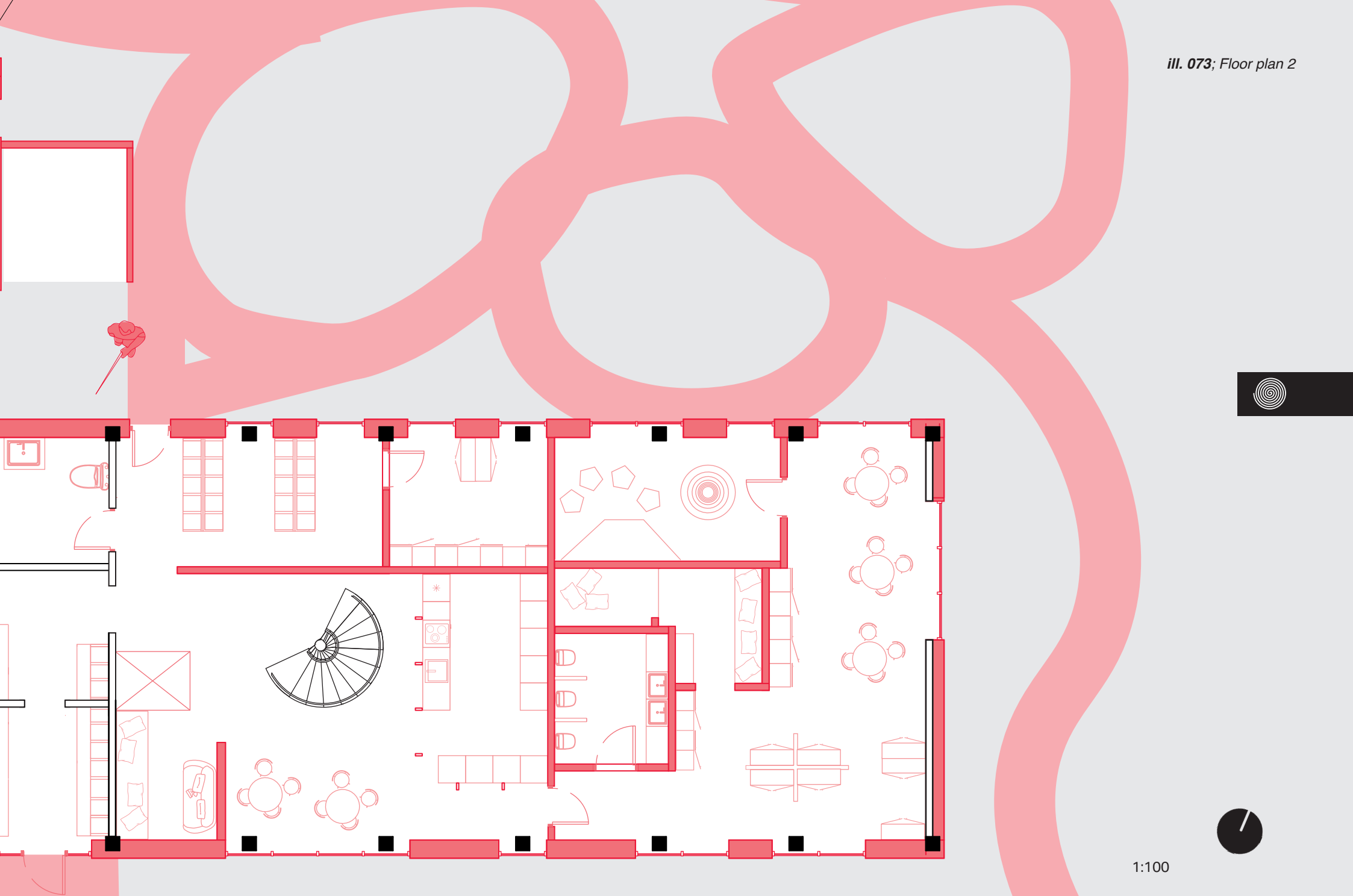
■ new walls

ill. 072; Floor plan 1

The group rooms are organised in activity levels. By the entrance, the activity with staff is located, due to its ability to withstand interruptions from flow in and out of the group room, the high activity room and the bathroom. The quiet zone is located in its own pocket, secure from interruptions, as well as the individual playroom on the other side.

The cloakroom is placed in direct connection to the garden, avoiding dirt from spreading around the facility. The building's circulation system is intentionally led around the cloakroom to minimise dirt from spreading, and thereby secure a cleaner and healthier environment.





1:100



III. 074; Render, grouproom

This visualisation of the group room illustrates how play unfolds. The view captures the individual play zone that gradually extends to the quiet zone. The different zones accommodate shifts between high and low activity. The group rooms' niches enable privacy and uninterrupted play zones. This view also captures the balance between coherence and complexity in the old and new structures.

The materiality of the new walls introduces a warm and tactile contrast to the existing concrete walls. Wood, textile, cork and warm colours are creating a balance that makes the room's atmosphere more engaging and humane.





iii. 075; Render, playground/garden



The render illustrates a morning in October, shortly after all the children arrived with their parents. The garden is lit up briefly by the morning sun from the east. Different pavements and coverings create a dynamic path changing in structure and tactility to activate their awareness of their bodies and make them engage with all of their senses.

EPILOGUE



REFLECTION

This subchapter brings together key reflections on my work with this thesis project, with the purpose of pointing out academic insights achieved during the design process, and discussing the project's strengths and limitations. Furthermore, the reflection seeks to highlight what along this process have contributed to my professional development and understanding of architecture's influence on pedagogical work and how it is perceived through the human body and mind.

Design process and method

Working with three themes in one project has required a continuous evaluation to prioritise focus and develop a deep understanding of how each theme could support the others. During the process, it was necessary to streamline specific theoretical inputs to maintain a cohesive project. Streamlining the process made it clear how significant it is to prepare a well-defined methodological structure when working in an interdisciplinary environment.

Through my work, I have become more aware of the importance of defining the fundamentals of a project from the start, as guidance for subsequent design decisions. Moreover, during the process working with three themes: transformation, pedagogy, and sensory design has contributed to a deeper understanding of how spatial concepts can support learning environments and sensory experience.

Although the project does not equally explore each theme, the process has contributed to a holistic understanding of how an interdisciplinary theoretical framework can be integrated in a design project.

Limitations

A key limitation in this project is the ability to evaluate the actual effect of the design proposals. For example, how the project balances sensory design parameters, whether this can be perceived as a success or not. When it has not been measured, it relies on my own subjective opinion.

Raising the question of whether there is a balance between the architectural coherence and its complexity, as well as the balance between legibility and mystery, is not possible to answer unambiguously without empirical verification. A more precise evaluation would require a user survey, where children or staff experience the design proposal and evaluate the design in practice.

Pedagogical aspects

The design proposal suggests design solutions addressing the challenges presented in the national study on quality in Danish daycare, developed using a framework and theory on zoning and flow. The variation in room types offering different activity levels is supported by a clear spatial zoning, preventing high activity zones from disturbing zones with lower activity levels. The zones are also supported by flow plans designed to be absent in the most fragile zones.

However, the project is not investigating questions on flexibility, which is a central parameter for the development of optimal daycare facilities. A thorough study on how architecture can be designed to accommodate changes in group size and its adaptability to a changing pedagogical practice could have added a significant dimension to the overall outcome of this project.

Architectural reflections

During the design process, there is an in-depth research on the architectural qualities and challenges within the existing building. The design proposal manages to emphasise the qualities in the existing structure's aesthetic and tectonic expression, both from the inside and outside of the building. Hereby emerges a strong narrative about the building's history and its qualities to give sensational impressions. This approach could have benefited from being supplemented by a study on how new structural elements meet and are integrated to relate to existing ones. Such a study could have strengthened the technical and tectonic connection in the project.

Professional development

During this thesis project, I have developed an understanding of how architecture can communicate and influence sensory and pedagogical experienc-

es. I have experienced how complex themes such as transformations and sensory design require a well-defined methodological structure to maintain the project's cohesiveness and intended path.

Through the process, I have become aware of the importance of letting ideas be grounded in specific material- and spatial-related decisions. This insight has strengthened my ability to work analytically and reflectively with architectural concepts, as well as provided me with a deeper understanding of how theory and practice are met in the design process.

Lessons learned

Altogether, the work with the thesis project has been a study on how architectural concepts can support pedagogical and sensory experiences and their application to a transformation process. The project has shown that the interdisciplinary field between architecture, pedagogy and sensory design embodies a great potential, but also requires clear prioritising and methodological discipline. The experience has strengthened my understanding of how architecture is an active co-participant in learning environments, and has given me insights into how architecture can support the structural premise for pedagogical work.

CONCLUSION

This thesis project has investigated how an existing criticised and deteriorated building can be transformed, so its embodied architectural, cultural and sensory qualities are emphasised and developed. Through this transformation of Østre Allé 91, the proposal demonstrates how exposing the existing structure and framing its tectonic expression can form the basis for new spatial experiences. The process has shown that intentionally activating the existing building traces through time can give architecture a narrative that opens a meaningful dialogue between old and new.

Moreover, the investigation has shown how architectural strategies such as spatial organisation, zoning, and flow can support pedagogical challenges related to learning, uninterrupted play and well-being. The design proposal establishes a spatial hierarchy, which includes different activity levels, while protecting the need for calm and immersive zones. This approach highlights that architecture can function as an active pedagogical tool to shape behaviour, community and sensory mindfulness.

Finally, the project has explored how the framework from sensory design can be translated into concrete architectural solutions. Through considerations about lighting, materiality, acoustics, spatial concepts and balancing the four pillars in Malnar and Vodvarka's framework, the connection between function and the way it is perceived is strengthened. The sensuous dimension is thus integrated as part of an architectural concept instead of merely an aesthetic addition.

Furthermore, the design proposal shows that flexibility and adaptation are central factors in future daycare facilities, and that these aspects require further research. Overall, this project contributes to an understanding of how architecture can be applied as a tool to support learning environments and how transformations of existing buildings can create new qualities with respect for the existing.

And finally, this project argues that interdisciplinary perspectives - where architecture, pedagogy, and sensory design meet - can provide the basis for both aesthetic and functional innovation in institutional building. This process witnesses that transforming obsolete buildings' most considerable potential is shown when existing structures are not merely reused, but reinterpreted with care for their stakeholders and the activities they will accommodate in the future.



ill. 076; Render, entrance from east



ILL. LIST

- III. 001, Østre Allé 91, building G
- III. 002, Edwin Creely's Intentionality and experience
- III. 003, Mary-Ann Knudstrup's Integrated design process
- III. 004, Map Aalborg
- III. 005, Map city center
- III. 006, Map site
- III. 007, Building H declining
- III. 008, Structural layout
- III. 009, Ripple effect, AI-generated illustration of water ripples, created by the author using Adobe Firefly (via Adobe Photoshop), 2025.
- III. 010, Decay 1
- III. 011, Decay 2-8
- III. 012, Decay Mapping
- III. 013, Breccia (Conceptual Illustration), created by the author using Adobe Firefly (via Adobe Photoshop), 2025.
- III. 014, G & I exploded
- III. 015, 1998 elevation (first half)
- III. 016, Thermal bridges
- III. 017, Addition 1
- III. 018, 1998 elevation (second half)
- III. 019, Addition 2
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- III. 024, The pedagogical foundation, (Børne- og socialministeriet, 2018)
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- III. 027, Zone 1-4 (Ringsmose & Staffeldt, 2012)
- III. 028, Børnehuset Vrå (AART, n.d.)
- III. 029, Børnehuset Vrå (plan drawing) (AART, n.d.)
- III. 030, Børnehuset Vrå (section) (AART, n.d.)
- III. 031, Børnehuset Vrå (spatial organisation) (AART, n.d.)
- III. 032, Børnehuset Vrå (zones) (AART, n.d.)
- III. 033, Østre Allé 91 (functions forced into the layout)
- III. 034, Active zones 1-4 inside grouproom
- III. 036, Project site
- III. 037, First impressions
- III. 038, Noise map
- III. 039, Managing noise

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III. 044, 1. iteration (problem, exploration, side-effect)
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III. 066, Masterplan
III. 067, Render, north facade building I
III. 068, Section, building I
III. 069, Render, north facade
III. 070, Elevation, north facade
III. 071, Elevation, south facade
III. 072, Floor plan 1
III. 073, Floor plan 2
III. 074, Render, grouproom
III. 075, Render, playground/garden
III. 075, Render, entrance from east



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APPENDIX A



Interview - Charlotte Ringsmose

(scan for full transcription in PDF)

Professor, Institute of Learning and Philosophy, AAU

This appendix contains selected extracts from an expert interview with Charlotte Ringsmose. The interview was conducted by the author as part of the thesis research. It was transcribed using web.descript.com, and later shortened, edited, and translated into English with the assistance of ChatGPT (OpenAI). The extracts are thematically organised to improve readability. Only direct quotes from Ringsmose are included in this appendix. (OpenAI, 2025)

Question: On the architect's role in daycare institutions

Charlotte Ringsmose: "When we talk about quality in daycare institutions, we divide it into structural parameters, process conditions, and outcome conditions. The architect is involved in both structural and processual quality. The structural conditions are the framework within which the pedagogue works. The more well-thought-out the building is in relation to the pedagogical work, the easier it becomes for the pedagogue."

Question: On examples of poor architecture

Charlotte Ringsmose: "Sometimes institutions are built less appropriately. For example, you have to walk through a group room and down to a dead end. That creates a lot of traffic lines and makes it hard for pedagogues to create a good environment."

Question: On group sizes and scale

Charlotte Ringsmose: "There are research-based recommendations on staffing and group sizes, but you cannot simply build a room for that number of children. It also depends on how the square meters are used. In Denmark, we are quite low on square meters per child."

Charlotte Ringsmose: "If there were an ideal type, institutions could be built on an assembly line. It is about combining disciplines. For infants, it is important to be in smaller groups with consistent adults, to use their bodies, but also to have places for immersion. Semi-open rooms and flexible partitions can balance rest and activity."

Question: On sensory stimulation

Charlotte Ringsmose: "Variation makes it easier for pedagogues. There should be areas with high sensory stimulation and others that are calmer. Through design, you can set whether a room is meant for high or low arousal."

**Question: On visual noise**

Charlotte Ringsmose: “In some places, there are things everywhere so that the eyes never rest. It is also about creating quiet areas.”

Question: On good examples

Charlotte Ringsmose: “Susanne has been involved in institutions where principles work well. One sees all levels of the scale, but I can always tell if it works when I enter. Traffic lines are a big problem.”

Question: On aesthetics

Charlotte Ringsmose: “In the past, institutions had to look like homes. Today the focus is on learning conditions. There is fantastic architecture in our society, just not in daycare institutions. I wish you had the same experience as in cultural centers and libraries – that here are children, here is play.”

Question: On materials

Charlotte Ringsmose: “It doesn’t have to be expensive. Plywood and simple solutions can work well. It is about thinking from the child’s perspective and creating exciting playrooms.”

Question: On group rooms in future institutions

Charlotte Ringsmose: “It is almost impossible to have 22 kindergarten children in the same room and meet all needs. It works best if other rooms are close by. A table-and-chair room can be supplemented with adjacent play areas for low, medium, and high activity.”

Question: On flexible solutions

Charlotte Ringsmose: “Sliding doors and flexible partitions are good. One should work from the center outwards, not only from the walls inward.”

APPENDIX B

Interview - Line Buer Bjerre

(scan for full transcription in PDF)



Chief Consultant, Danmarks Evalueringskonstitut - EVA

This appendix presents a selection of quotes from Line Buer Bjerre, Chief Consultant at the Danish Evaluation Institute (EVA).

The quotes were extracted from an interview conducted by the author. The interview was recorded, the audio transcribed by goodtape.io, and subsequently summarized and translated into English by ChatGPT. (OpenAI, 2025).

It is not so much about the size, but about how you design the rooms. It is not just about the square meters.”

“Rooms and the arrangement of materials have an enormous impact on children’s possibilities for well-being and participation.”

“Large rooms encourage children to gather, and adults to gather in larger groups. And we know that this has a negative impact on quality—on the quality of interaction.”

“The way institutions have been built in recent years is a challenge, because the focus has been on relatively small group rooms and some very large, beautiful, open, bright common spaces.”

“The more you can create rooms within the room, the better... we know that this has a positive impact, as it allows greater focus on the children you are with.”

“All the children in the group must be able to spread out. When you are a nursery child... you typically play in pairs. In kindergarten, it is more often 3–4 children.”

“That is the big challenge in institutions if it is missing. It has a significant impact on children’s opportunities for participation, especially for children in vulnerable positions.”

“The rooms that clearly have this structure and clearly invite, actually help children who struggle, and in fact all children.”

“It can actually take up to 20 minutes to establish play among kindergarten children. And they are extremely disturbed by people going in and out, or by other children playing on top of them.”

“So every little nook you can create is extremely important.”

“A place where you can build dens and hide... that way of shielding oneself



and creating a universe is something that has enormous significance.”

“It is really difficult for children to find places where they can withdraw and find peace.”

“Even very young children begin to play with dolls, and that is also role play... it starts already there.”

“Relationships are among the most important things, with the greatest significance for children’s well-being, and relationships are built over time.”

“Sometimes there is an adult efficiency mindset, which in reality does not fit very well with a child’s life.”

“One can simply say that the way Danish day care institutions are organized, the group room is extremely important.”

“It is important that adults can go out and spread out with the children.”

“Make sure there are enough play areas that are clearly demarcated... so that children have the opportunity to be together and immerse themselves in small groups without being disturbed.”

“Clarity... something that in some way makes it clear: what is this place for, and what can you do here? Because that is something that affects children’s participation.”

“The staff’s work to support children’s communities... that happens in the smaller groups.

