Designing a method for the senses: How can an observational study inform an architectural design process?

A case study at Sligo Sudbury School

Design Research Folio

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Designing a method for the senses: How can an observational study inform an architectural design process?

A case study at Sligo Sudbury School

A dissertation submitted to the Technological University of Dublin in part fulfillment of the requirements for the award of Master of Architecture.

by

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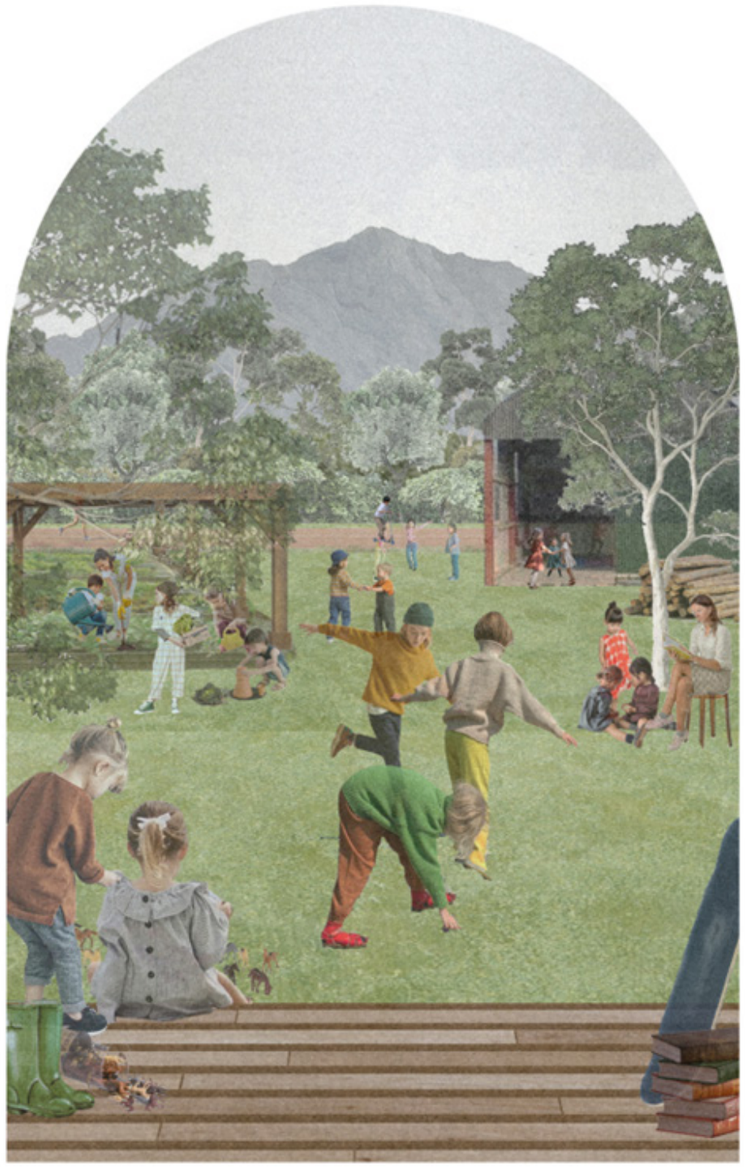
Declaration:
I hereby certify that the material submitted in this dissertation toward the award of Masters in Architecture is entirely my own work and has not been submitted for assessment other than part-fulfilment of the award named above.
Signature of candidate:

Date: 18th of January 2023



Opposite:
fig. 1 Collage, Sligo Sudbury School. Author, 2022.

Abstract

This project aims to examine how a combined methodology of observational study and phenomenological analysis can inform the architectural design process. Using Sligo Sudbury School as a testing ground, an observational study recording both material and atmospheric qualities in the existing school building is undertaken. The data gathered is then analysed through the lens of phenomenological concepts of light, heat, sound, comfort and social interaction and represented graphically. This analysis will go on to inform the architectural design process of a number of interventions of various scales throughout the school. The intention is that this research will introduce a new perspective on the combined use of observed qualitative data and iterative and imaginative drawing as a methodology for conducting architectural design research.

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1. Introduction

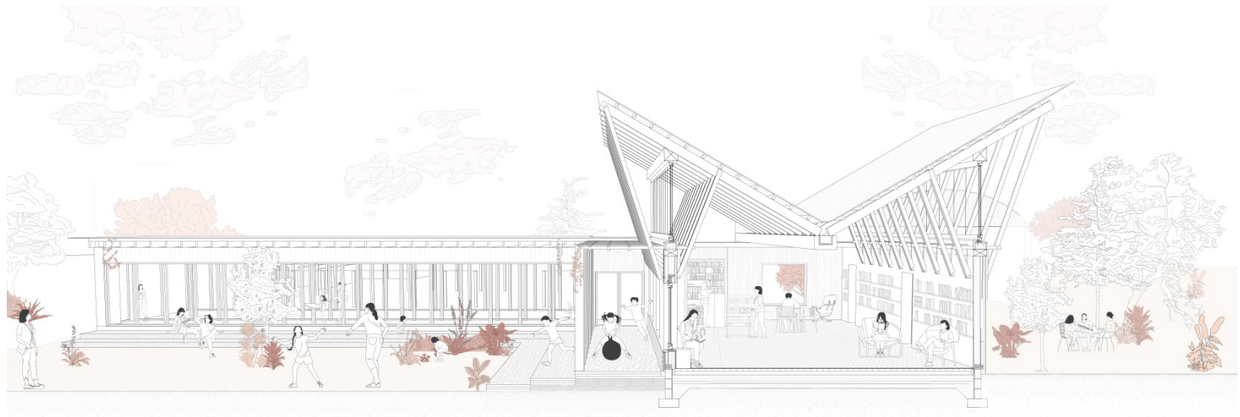
"I enter a building, see a room, and – in the fraction of a second – I have this feeling about it."
(Zumthor, 2006, p.13)
In his seminal work Atmospheres: Architectural Environments – Surrounding Objects, Zumthor describes how an understanding of qualities ranging from materials, light, sound, and temperature, to tension, intimacy and presence can lead to a deeper connection between buildings and their surroundings, and evoke an atmosphere to be experienced by those who inhabit the space. My research area of interest is in how these intangible qualities may be experienced in an existing building, and how these experiences may be recorded through observational study and the analysis of qualitative data.
In previous semesters, my researched focussed heavily on the fields of architectural ethnography and anthropology. The work of Ray Lucas (2016) and Atelier Bow Wow (Hays, 2017) in applying ethnographic methods in research and the drawing process were influential in my semester II project. Through undertaking some short observational studies of activity at Sligo Sudbury School last semester, I was able to identify issues within the school, and in turn used these findings to design a large extension to the existing school building, based on the concepts of natural ventilation and thermal comfort.

Upon completion of my semester II project, and realising its scale and ambitiousness, I reflected on my design and research process and asked myself how this project could be refined to respond more closely to the needs and resources of the school, focussing instead on smaller interventions to make the existing facilities more sustainable and fit for purpose.

I returned to the initial quasi-ethnographic studies I completed in my early visits to the school. Though these were helpful as a starting point, they lacked rigour and structure, due to the absence of a focussed methodology and the short timespan in which they were completed. In my subsequent visits to the school, I realised that whilst the recording of the tangible ('things' such as objects, furniture, and how people move through the space throughout the day) is useful, many of the qualities in the school I was most interested in did not relate to activity or objects – for example heat, light and sound. The observations were missing a sense of those 'intangible' qualities which may give a deeper understanding of the space itself, especially in the case of Sligo Sudbury School, where in particular, thermal comfort was a constant, both through my own observation of how students interacted around heat sources, and from questions and comments from students when presenting my work to them.

I decided to conduct another observational study at the school, this time using a structured methodology which could be analysed in a more considered way. I chose Dr Ray Lucas's sensory notation method, first outlined in Designing a Notation for the Senses (Lucas, 2009) due to its specific focus on sensorial qualities in space. I undertook a day long study at the school in order to record both material and phenomenological qualities in the school building – features of the physical building, objects, furniture, and human activity were collected, along with intangible or atmospheric properties, including light, sound, and in particular, heat and thermal comfort.

The data gathered was then analysed and graphically represented to highlight any issues or opportunities within the spaces. The second stage of the research method uses the results of this study to inform a design process for interventions to the existing school building. My intention is to test how this methodology of collecting qualitative data and representing it graphically may assist in the design process, helping to de-mystify the "imagining of human situations" (Pallasmaa, 2014, p. 81) required in designing for a specific group or culture. Once designed, these minimal-approach style interventions will sit in contrast to my traditionally-designed semester II project, allowing for a critical reflection of both projects and methodologies used.



2. Semester II project, author 2022

3. Method 1: Observational Study

The observational study took place over the course of a school day on the 17th of October 2022.

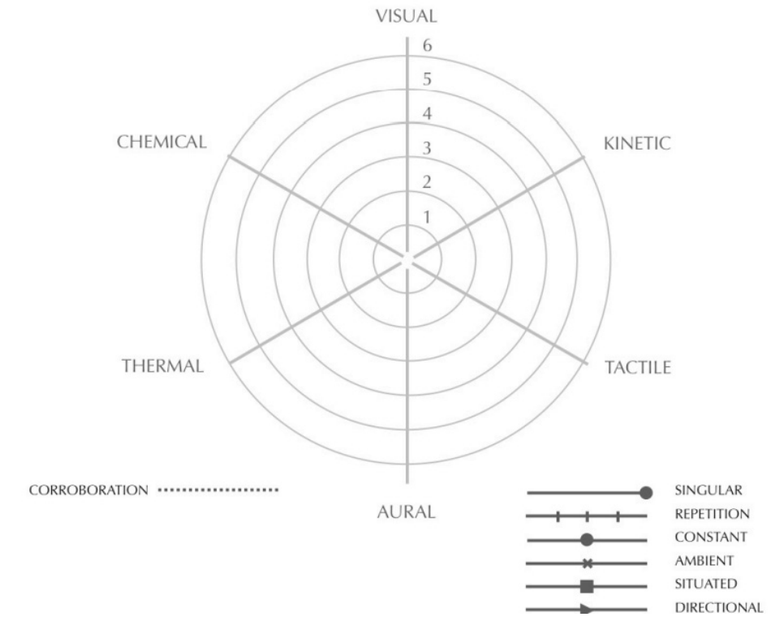
Due to ethical concerns surrounding the use of children as research subjects, I applied to the TU Dublin Ethics Committee for approval for study in advance of the visit. The project was given clearance by the ethics committee during the summer between Semester II and III. Specifically, permission was given for: “

an observational study of Sligo Sudbury School. The methods used will be informal interviews and observation of participants over the course of a day, to research how users of the building and grounds interact with their surroundings, specifically outdoor spaces, thresholds and heat sources. The data will be collected in the form of notes and sketches, which will then be used to inform an architectural design project.”

(Brady, 2022)

3a. Methodology

The sensorial qualities of Sligo Sudbury School were recorded both through an adaptation of Dr. Raymond Lucas’s Sensory Notation methodology which is described in 2020’s Anthropology for Architects. The method aims to ‘work against the visual and geometric bias in architecture’ (Lucas, 2020, p. 192) and consists of a recording tool combined with text, drawings and photographs which work together to record key elements of the sensory experience of a place. Once analysed, the notations can ‘be used either to diagnose issues with a site, such as a deficit in the stimuli for one sense over others, or to aid in describing engaging multisensory environments as precedents for future design projects.’ (Lucas, 2020, p. 192)



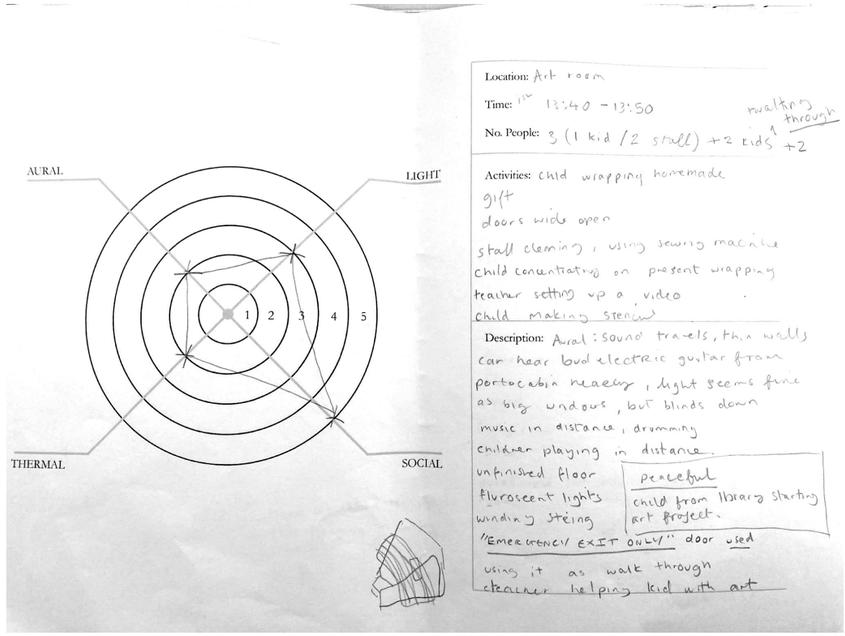
3. Sensory Notation Template. (Lucas, 2020, p. 194)

3a. Methodology

Lucas notably applied this methodology to a study of various restaurant types in Tokyo, in which he recorded six different sensorial categories, adapted to be more appropriate to the built environment from James Gibson's Six Perceptual Systems: visual, aural, olfactory/gustatory, tactile, thermal and kinaesthetic. (Gibson, 1966). For the purposes of this study, I have further adapted the categories, removing olfactory/gustatory (listed as 'chemical' in Lucas's method) due to personal limitations, replacing Kinetic with 'Social', and adding a category for Light. The method consists of the recording of the following elements: the radar chart, photographs, orthographic drawing, and a descriptive and narrative piece of text about the space and activities (Lucas, 2020, 192 – 194).

3b. Process

Between the hours of 12pm and 2.30pm I recorded four atmospheric qualities in the school building in six different areas, spending 15 minutes in each room at a time, visiting each room a total of three to four times each. The rooms to be studied were chosen in advance, based on casual observations I had made on previous visits to the school, particularly pertaining to my previous interest in heat loss and thermal comfort in the school, though this interest had since broadened to include a wider range of sensorial qualities.



4. Fieldwork notes from study, author, 2022

3b. Process

Six spaces in the school were chosen to be observed over the course of the day. These were the most occupied spaces, and therefore the most sensorially significant. There are two other rooms in the school, but these are often empty or have one student engaged in activity alone. These rooms are meditation or calming rooms (known colloquially in the school as 'The Sanctuary').

The observed spaces were:

The kitchen: a central space in the original school building, used for a variety of purposes throughout the day.

The library: another larger space in the original school building. Used for teaching, socialising, and school meetings.

The gaming room: a small space in the original schoolmaster's house.

The art room: a prefabricated hut to the back of the school building attached by a small atrium. Currently used as an art room, and on previous visits used as a music room, the teachers at the school change this room's function often to promote different hobbies and activities among the students.

Circulation/threshold/cubbies: This category comprises of the front and back external doors, the hallways, and the cubby (student storage) spaces within the school.

3b. Process

The four sensorial categories observed and recorded for each space were:

Thermal Comfort: This pertains to how comfortable the room is in terms of how hot or cold it is. Observations were based on the principles of Adaptive Thermal Comfort as outlined in the book of the same name. The approach takes into account that "people are not passive with regard to their thermal environment, but actively control it to secure comfort". It *"incorporates not only the heat exchange between the person and environment, but also the physiological, behavioural and psychological responses of the person and the control opportunities afforded by the design and the construction of the building."* (Roaf et al, 2012).

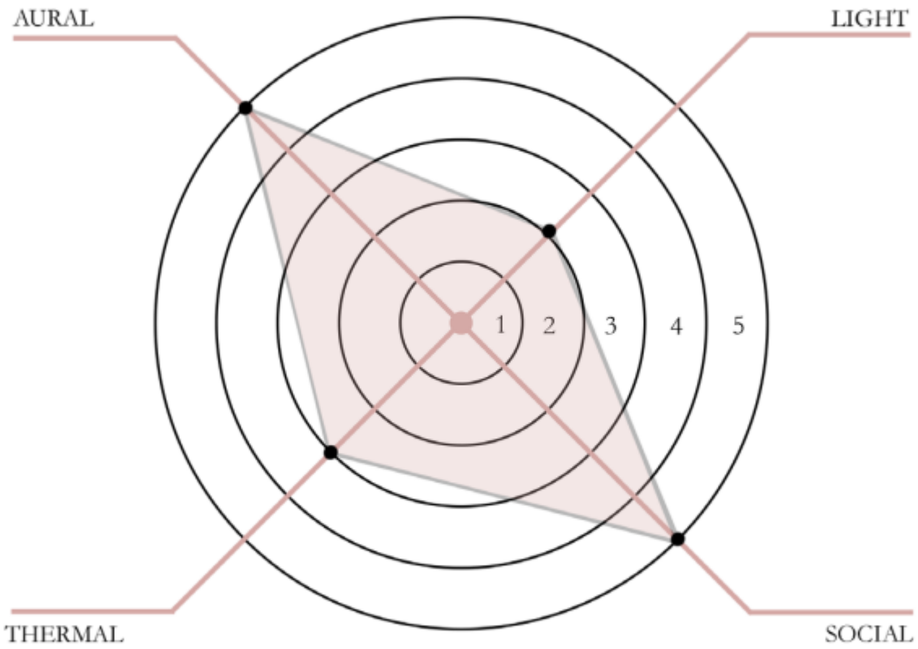
Therefore, observations were based on not just the objective temperature, warmth or coldness of the space, but the response of myself, as the researcher and the inhabitants of the space to the perceived temperature to gain a deeper understanding of comfort levels. These observations included variations in clothing type (e.g. are inhabitants wearing coats indoors? Do I feel comfortable in this space in a t shirt or a jumper?), noting whether windows and doors had been opened or closed in response to the temperature, and any other perceived warmth or cold-seeking behaviours in inhabitants.

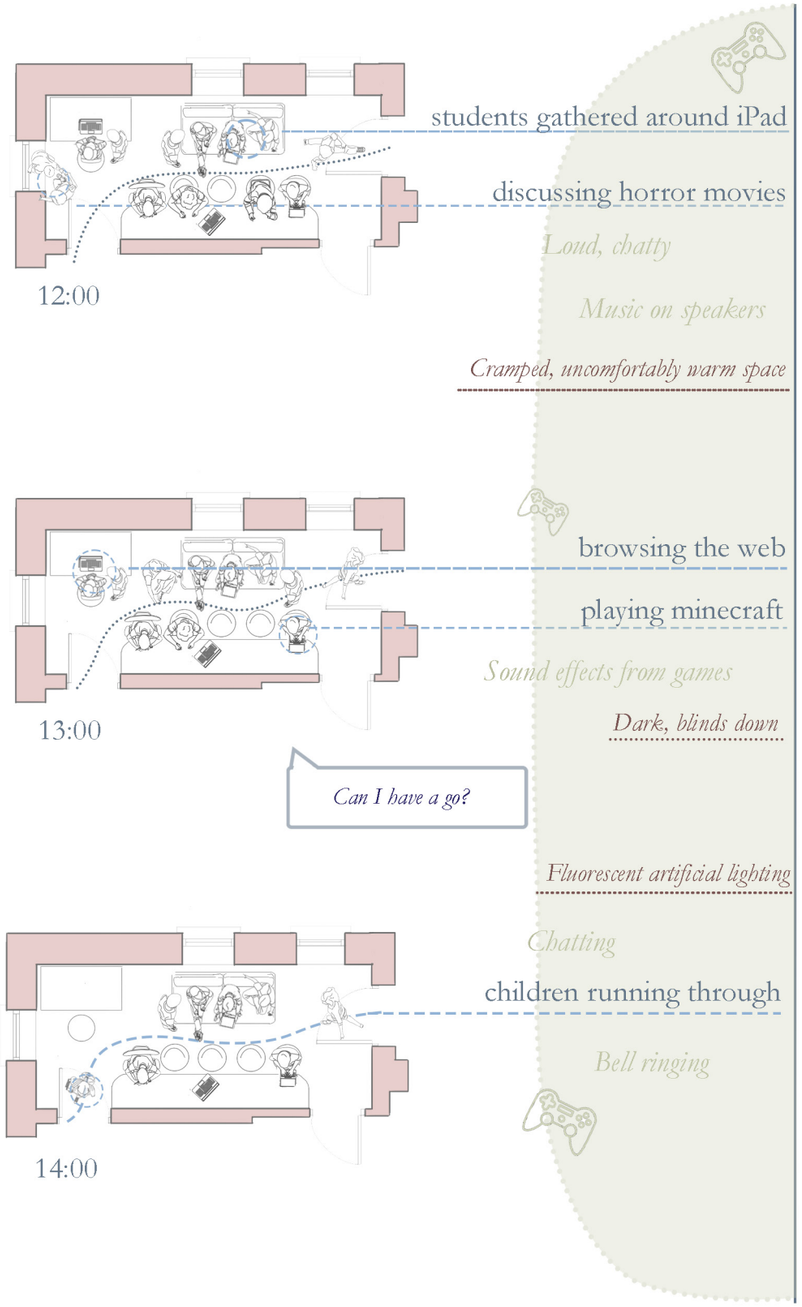
Aural: I recorded the aural quality in each space, noting the appropriateness of the sound quality with regards to the function of the space. Observed sound included any noise produced within the room, as well as travelling noise from any part of the school that was audible within the space.

Light: Both natural and artificial lighting was observed in each space, as was the inhabitants' response to light and how lighting may impact their activities. Observations included the comfort level and appropriateness of the light/darkness in each space, and whether or not blinds had been drawn.

Social Activity: In this aspect of the study, I observed the number of inhabitants in each space, their approximate age range, and their undertaken activities with the intention of gaining a deeper understanding of the flux of the spaces and how well they serve their social functions throughout the day.

Observational Study
Gaming Room





Transcription of field notes:

People: 13 of estimated age range 6 -11

Activities: Child playing on laptop. Children gathered on couch around ipad. Two children sit on a windowsill chatting to seated friend about horror films. Two children play with a spray bottle of window cleaner. Some children are browsing online shopping. Smaller students are running in and out of the room.
Description:
Fluorescent lighting, loud chattering, it is uncomfortably warm in here – due to the amount of people? Beeping and gunshots coming from the computer games. All the blinds are down to stop glare on their screens.

5. Graphic Taxonomy and description of space, author, 2022

3c. Analysis

During the study, notes were taken by hand for each space, recording the location, time, number of inhabitants, ongoing activities and a written description of the sensorial qualities to elaborate on the rating given on the radar chart diagram. A diagram was also filled out for each room. Each quality is given a value of importance on a scale of 0 to 6, with lower numbers indicating a weaker sensation (Lucas, 2020, p. 194). Photographs were also taken of each space.

These notes were then analysed through the production of a series of drawings which aimed to graphically represent the findings, through overlaying the aforementioned categories, and give further spatial information about routes and activity within the spaces. Galen Cranz's 2016 book Ethnography for Designers proposes the production of graphic taxonomies in organising qualitative data for use in ethnographic design projects. These drawings can range from a simple list to a more complex drawing, categorising and making explicit the data recorded. The graphic taxonomies allowed me to then analyse each space, through identifying repetition, similarity and difference. Making the findings graphically explicit allowed me as the researcher to extract inductive themes, directly from the data, rather than a priori themes from fieldwork notes and photographs alone. (Cranz, 2016, p. 76)

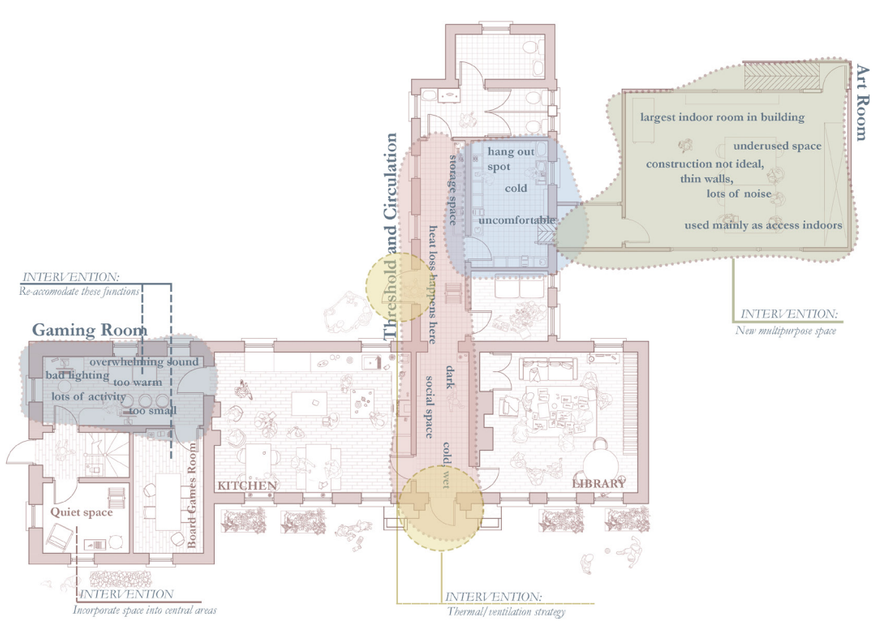
3d. Results

The study resulted in the identification of four areas for intervention in the school building. The sensorial qualities of both the library and kitchen were found to be comfortable and appropriate for the activities in the rooms, allowing both spaces to function well, both for self-directed learning, teaching, and social activity. Other analysed spaces were found to have sensorial qualities that could be improved upon. The drawing below highlights the targeted spaces, listing the issues observed over the course of the study. These spaces each have specific sensorial issues, and are where the interventions will be proposed.

The first of the areas for intervention is the hallway and cubby spaces. These not only function as a circulation space but as a social space – this is where children meet in the morning when they arrive and where they say goodbye in the evening. In the cubby room, the same students played a game for the entire duration of the study. However, the thermal and lighting properties of the space could be greatly improved upon. It is cold and wet due to the external doors constantly being open.

The next space is the art room. This space is a prefab with an external door which is used as an access point for children to enter the main building. The room appears underutilised, and though there were a small number of students in there engaged in silent work, the walls are thin and loud music and shouting is carried in from other parts of the school grounds. The principal's comment on how this space is pivotal to the interests of children in the school due to its changing yearly function further suggests that a design intervention is appropriate here to provide a more permanent more multifunctional, dynamic space.

Finally, the gaming room, a tiny room off the kitchen, is very popular among the students, much too full, not enough space, and very loud. The number of students and laptops in such a small room impacted the thermal quality of the space. It was very hot, and was lit by fluorescent lighting as the blinds were down. It was quite an overwhelming space.



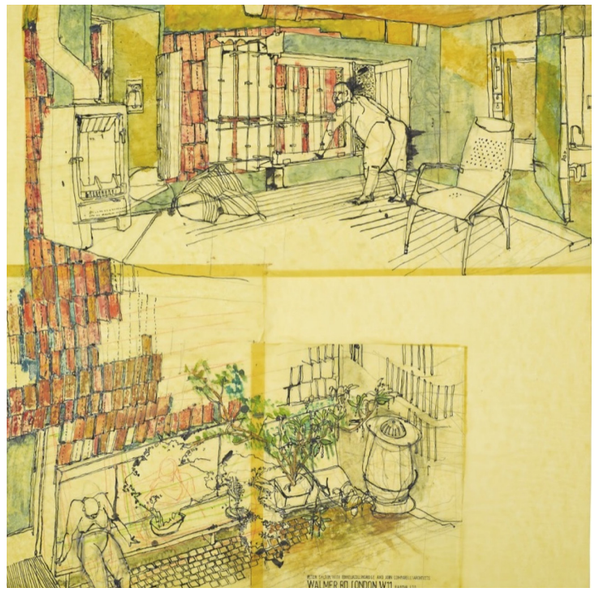
6. Plan of proposed spaces and interventions, author, 2022

4. Method 2: Imaginative Design Practices

The sociologist Daryl Martin, whose work focusses on the intersection of architecture and care, describes how drawing as a methodology *"offers so much scope for evoking a nuanced understanding of the intangible and emotional qualities of our social worlds."* (Martin, D et al 2020, p. 64) Using the qualitative data gathered from the observational study as a basis, the second half of this research project is to design a series of interventions at various scales within the school. To do this, drawing will be used as a method to imagine and explore possible ways in which the four sensorial qualities can be accommodated in the proposed designs for the school in tangible ways, for example, through form, materiality, lighting, structure or heat strategy.

The work of a number of architectural and philosophical thinkers in the realm of phenomenology help to influence this stage of the research process. In Peter Zumthor's Atmospheres (2006), the architect outlines a series of qualities, some of which overlap with the categories observed in the first part of this research, that make up his concept of architectural atmospheres, a "singular density and mood, this feeling of presence, well-being, harmony, beauty ... under whose spell I experience what I otherwise would not experience in precisely this way". The work of Juhani Pallasmaa has is particularly influential, beginning with his critique of 'the world of the eye' in 1996's The Eyes of the Skin. Pallasmaa's writing on the designing of experiences, proposes the idea that 'a sensitive designer is one who places herself in the role of the anonymous user, and tests the validity of her ideas through personal projection.' (Pallasmaa, 2014, p. 83).

In the case of this research project, I decided to create four such anonymous users, each representing one of the sensorial categories used in the previous research stage's sensory notation study. These users were then each centred in the design process – designs were produced with the imagined user in mind, and therefore that sensorial quality at the forefront. The intention of this is to provide a framework for myself as the researcher to define the "imagining of human situations". (Pallasmaa, 2014, p. 81) Drawings with strong sensorial qualities include the details of Carlo Scarpa, Peter Salter's Walmer Yard drawings (Salter et al, 2019), as well as in the work of Atelier Bow Wow.



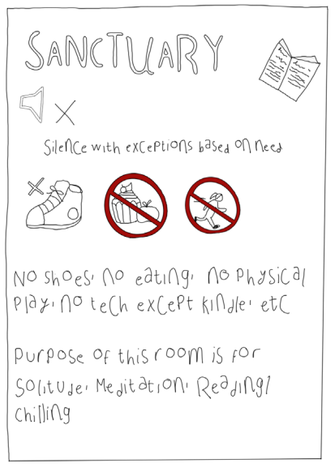
7. Peter Salter, Walmer Yard

4. Method 2: Imaginative Design Practices

I decided that my four anonymous users: Light, Aural, Thermal and Social, should each represent a student at the school who experiences a sensitivity to sensorial extremes. This seemed appropriate, as a 2019 study into the experiences of children in Wicklow and Sligo Sudbury School students by psychology students in UCC found that the majority of students attending the Sligo school had previously been in mainstream education and faced emotional and psychological difficulties there, and noted that a number of the students at the school had special needs, in particular, conditions such as dyspraxia, autism, and other autism spectrum disorders such as pathological demand avoidance (O'Brien, 2019, p. 45). These conditions are neurological developmental disorders which cause anxiety and affect social, communication and behavioural skills. It is estimated that between 68% and 93% of children with autism spectrum disorders also experience sensory symptoms (McCormick et al, 2016).

In light of this, I met with a colleague and her 11 year old daughter who suffers from Sensory Processing Disorder, who explained that she is extremely affected by sensorial qualities in a space like light, temperature and noise. The child spoke about how she thrives in orderly, calm situations, while sensory extremes make her feel upset and overwhelmed. I mentioned that the Sudbury School provides quiet rooms where children can isolate themselves when feeling overwhelmed, policed by a traffic light system on the doors. This system allows the child to effectively lock other students and teachers out of the room for up to an hour at a time.

The parent made the point that while these spaces are useful, they are removed from the overall activity of the school. If a child has a condition and frequently experiences negative sensory reactions, they may spend much of the school day in isolation and excluded from their peers. This sentiment is echoed by sensory design consultant Angharad Davies, who is mother to an autistic child. She developed a calming pod for schools, hospitals and public spaces as a safe space for someone to retreat to (University of the West of England, 2022). Unlike a typical Special Education Needs or sensory room in a school or hospital, Davies's design is a modular timber structure that can be dismantled in a matter of minutes that can be placed in the corner of a room or in a public space, allowing the individual to quickly find a safe space when necessary, while simultaneously not excluding or isolating them from public life. In response to this, the design process became based on incorporating 'safe' spaces that provide a calming presence into the heart of school activity, rather than forcing those who may need a break from visual, thermal, aural or social stimulation into isolation.



8. Poster and privacy system on door of 'Sanctuary', author, 2022

4a. Design Process

The resulting design consists of a number of proposed interventions to the existing school, which range in scale from very minor to the construction of a new small building. Each intervention accomodates a sensorial need or opportunity that was identified in the study. The interventions are intended to be feasible, sustainable and of low cost for the school to implement. The smallest proposal is the replacement of the front door with a window to increase thermal comfort in the hallway, and the largest is the construction of a new timber built multipurpose space on the site of the existing art room.

Each of the proposals is centred driven by the analysis of the observational study, and the subsequent research into the sensory needs of the personified users. A number of sensory 'pods' are proposed throughout the building, along with reading nooks and deep window seats.

Key:

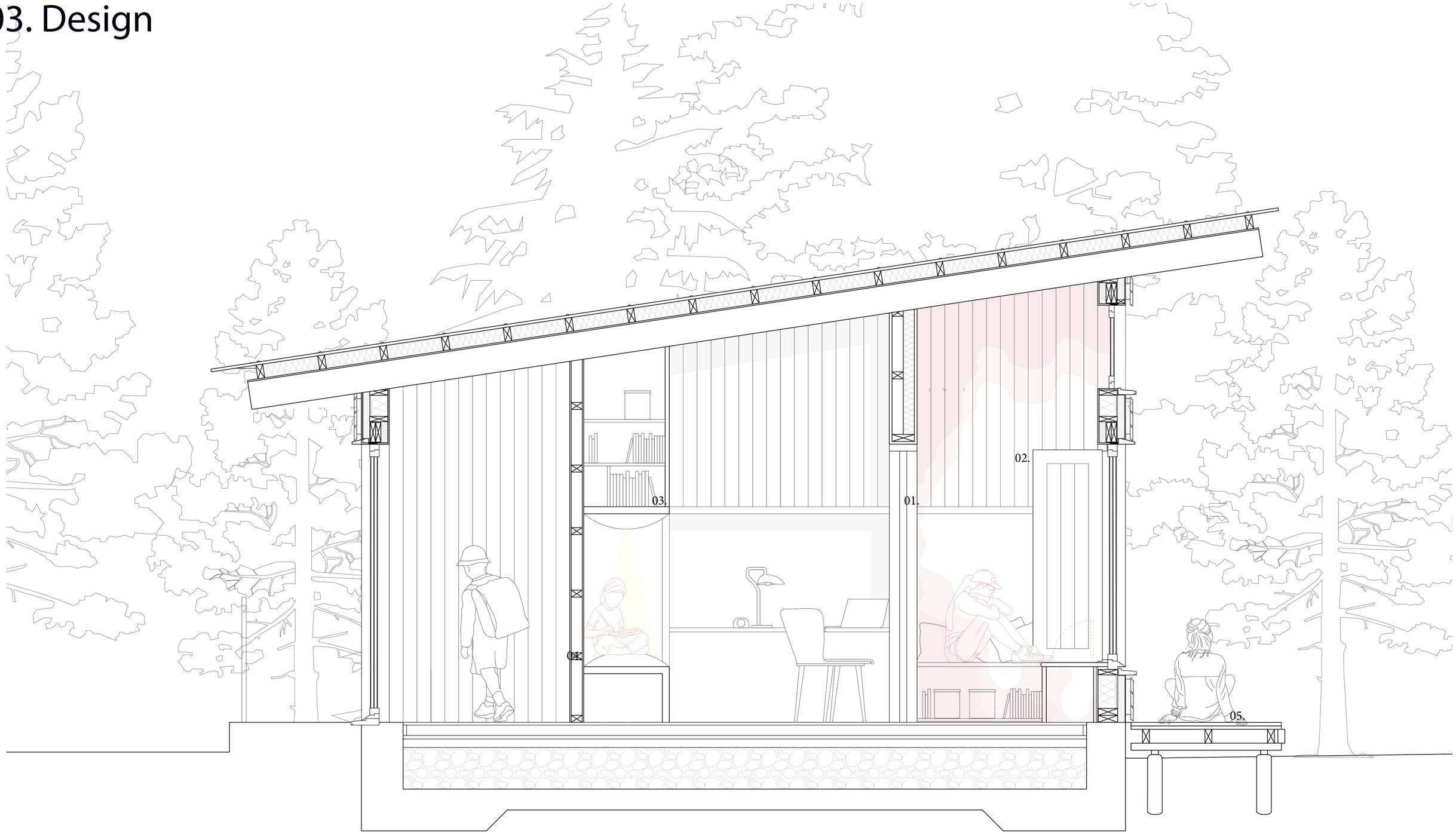
Existing

Proposed

9. 1:100 Proposed Elevation, author, 2023

Key:
01. Proposed removal of front door and replacement with glazing for heat retention and daylighting.
02. Proposed timber-frame multipurpose room and decking.

03. Design



Areas for sensory comfort

8. 1:20 Proposed Sensory Section
New timber structure: multipurpose room
on existing raised foundation, author, 2023

Features:
01. Sensory pod: Southfacing Light/Thermal
02. Operable Louvers
03. Sensory pod: Visual/Light
04. Reading/Gaming nook
05. Proposed deck

6. Conclusion

The result of this research project is that the detailed design of a number of sustainable and economical interventions for the Sligo Sudbury School, informed specifically by the two methodologies explored: the sensory notation and its subsequent analyses of activity and phenomenological properties, and the drawing design process based upon the imagining of an anonymous user with sensory needs,

The intention is that this research has introduced a new perspective on the combined use of observed qualitative data, in this case, an adaptation of Dr. Ray Lucas's Sensory Notation method; and iterative and imaginative drawing as a methodology for conducting architectural design research. I hope I have evolved a method that may be useful in architectural practice in connecting the measurable and quantifiable with the qualitative and experiential.

This project also serves as a response to and reflection on my semester II project. Both projects aimed to prioritise sensory qualities in the design process though they differed in research methodology and ultimately in scale and focus. On reflection, the qualitative observational study and its subsequent analysis allowed for a deeper understanding of the needs of the user when designing sensory spaces. Using such methods in the architectural design process, though subjective, was still very useful, and can aid an architect in taking a more careful and considered approach with the end user at the forefront of all decisions.

The dissemination of this research, through this dissertation and through illustrated portfolio, may be of particular interest not only to architectural researchers, but to researchers in the fields of anthropology, ethnography, and environmental pyschology.

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Designing a method for the senses: How can an observational study inform an architectural design process?

A case study at Sligo Sudbury School

Design Research Folio

Gabriella Brady

00. Background
01. Research Study
02. Analysis
03. Design

00. Background

The semester II project comprised of a traditional architectual design method, designing a large extension for Sligo Sudbury School based on the concepts of passive solar gain and thermal comfort. Semester III allowed me to critically reflect on this work and design a methology to explore thermal comfort and other sensorial qualities of the school building in a more rigorous way.

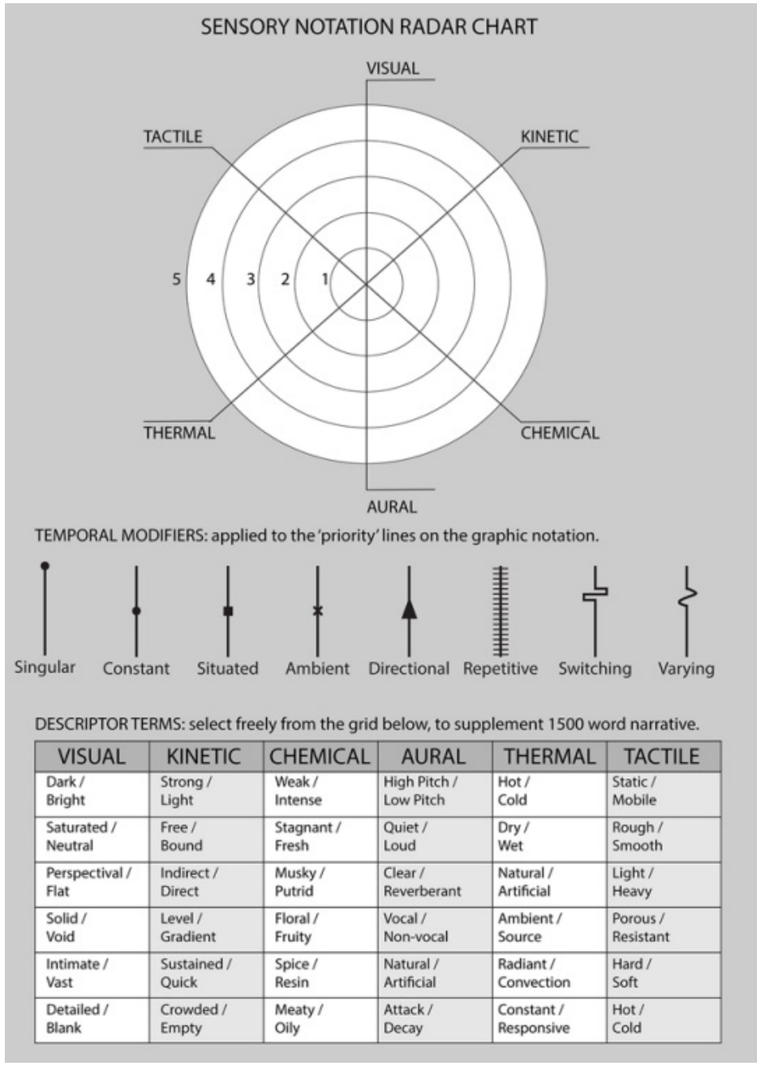
My interest in architectural ethnography led me to Dr. Ray Lucas's method of sensory notation, a qualitative observational research method in which the phenomenological qualities of a space are recorded and analysed.

Employing this method, in which each quality is rated on the basis of its intensity, gave me deeper insight into the aural, thermal, light and kinetic qualities of spaces in the Sligo Sudbury School. The focus in the methodology of measuring 'intensity', coupled with my observation of existing 'calming spaces' in the school for children to withdraw to when feeling overwhlemed, sparked my interest in a potential user's sensitivity to intense noise, light, temperature or interaction.

The resulting design project is a number of interventions at various scales, based on an analysis of the sensory notation study, all with the intention of improving sensorial qualities, and accomodating users with sensorial sensitivites.

Semester II Project: Extension based on principles of passive solar gain and heat retention

01. Observational Study



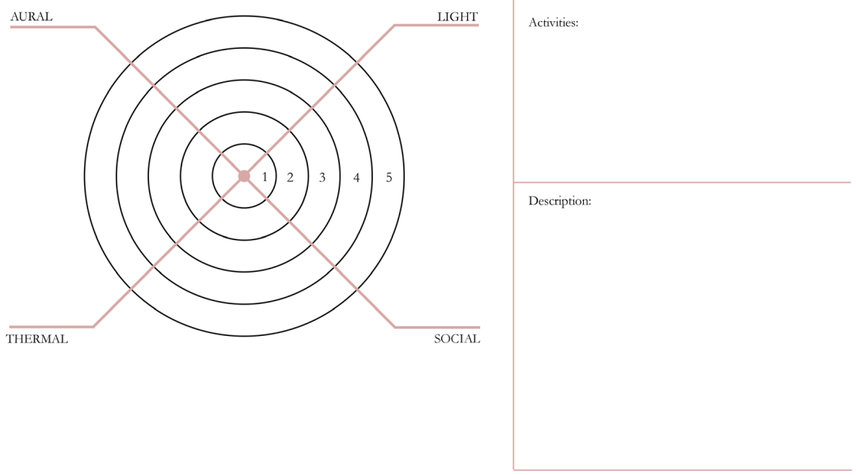
SENSORY NOTATION RADAR CHART

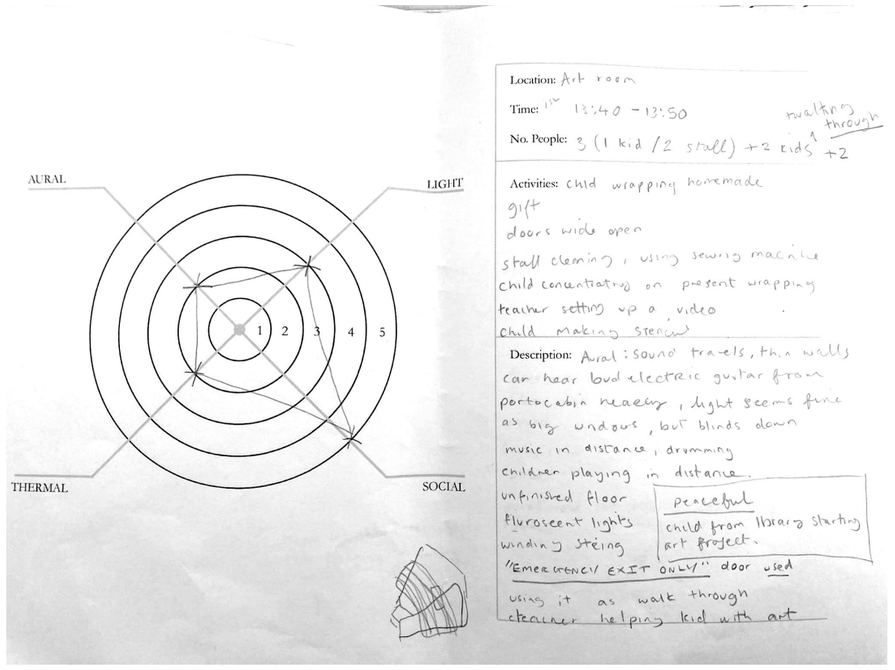
TEMPORAL MODIFIERS: applied to the 'priority' lines on the graphic notation.

DESCRIPTOR TERMS: select freely from the grid below, to supplement 1500 word narrative.

VISUAL	KINETIC	CHEMICAL	AURAL	THERMAL	TACTILE
Dark / Bright	Strong / Light	Weak / Intense	High Pitch / Low Pitch	Hot / Cold	Static / Mobile
Saturated / Neutral	Free / Bound	Stagnant / Fresh	Quiet / Loud	Dry / Wet	Rough / Smooth
Perspectival / Flat	Indirect / Direct	Musky / Putrid	Clear / Reverberant	Natural / Artificial	Light / Heavy
Solid / Void	Level / Gradient	Floral / Fruity	Vocal / Non-vocal	Ambient / Source	Porous / Resistant
Intimate / Vast	Sustained / Quick	Spice / Resin	Natural / Artificial	Radiant / Convection	Hard / Soft
Detailed / Blank	Crowded / Empty	Meaty / Oily	Attack / Decay	Constant / Responsive	Hot / Cold

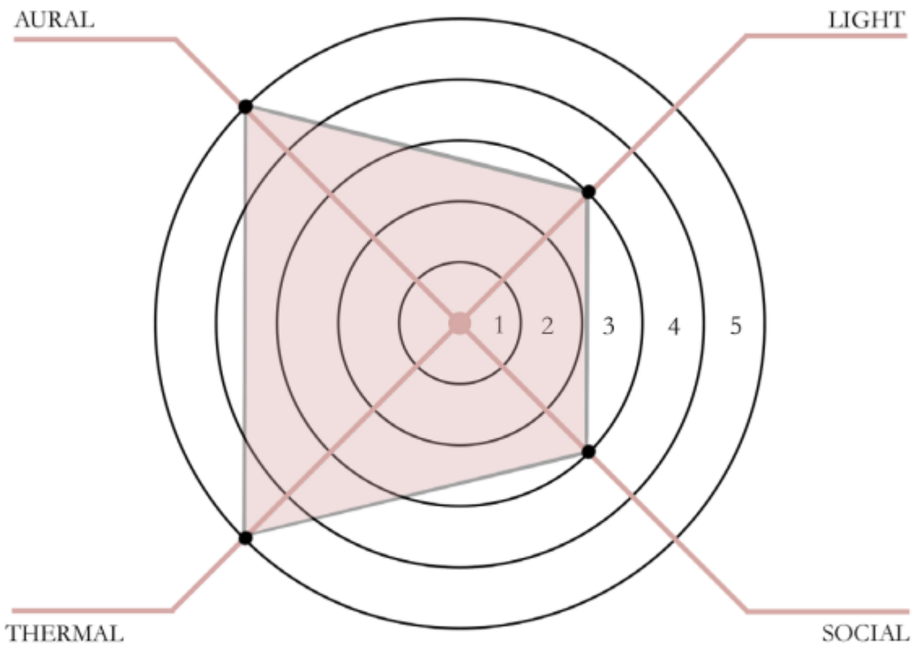
Sensory Notation Method.
From Anthropology for Architects by Dr Ray Lucas

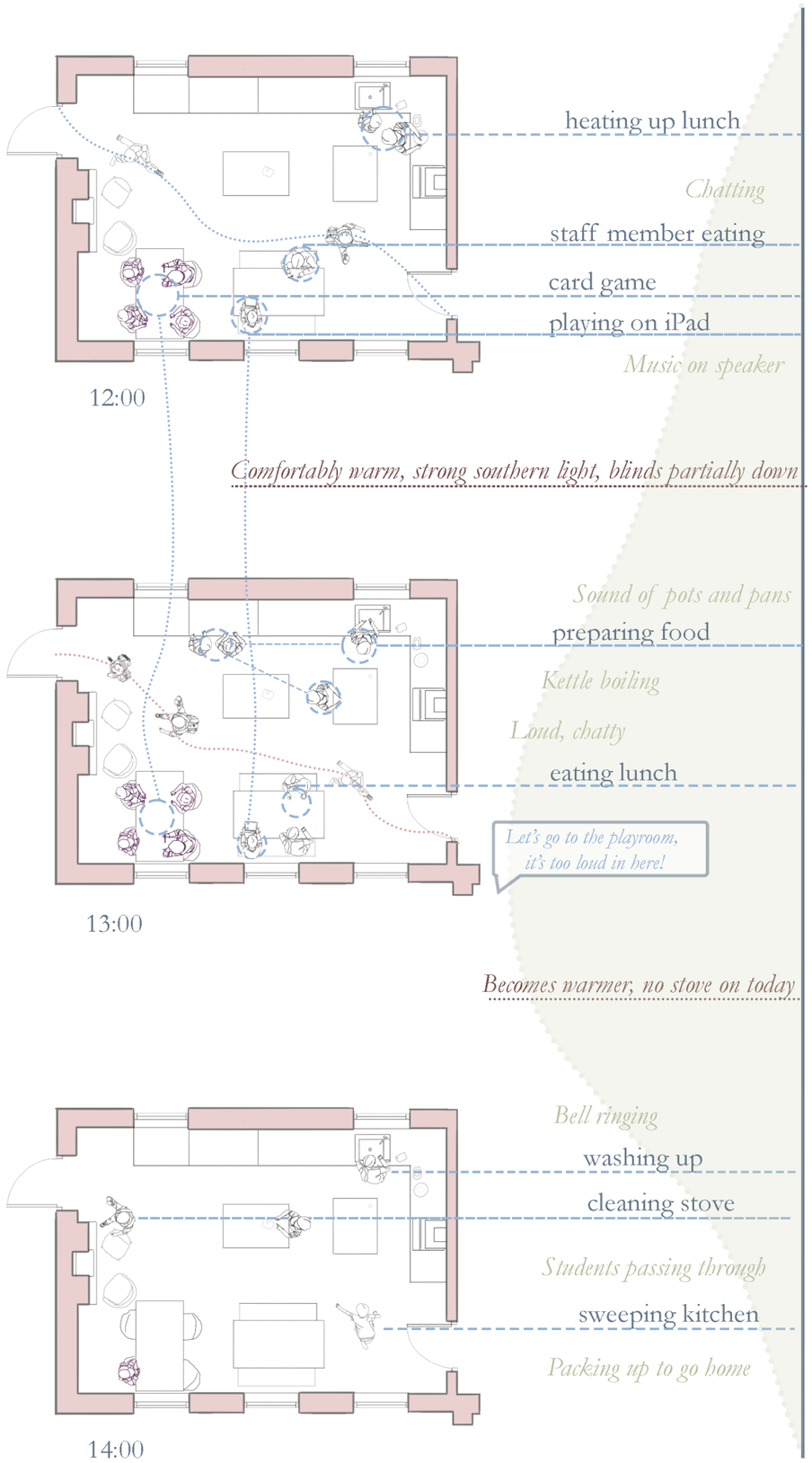




My adapted Sensory Notation method:
Field Notes from observational study.
The method requires the researcher to record the intensity of the sensation on the radar chart and write a descriptive piece of writing about the activity and sensation of the space. Notes may also be taken in the form of drawings.

01. Observational Study
Kitchen

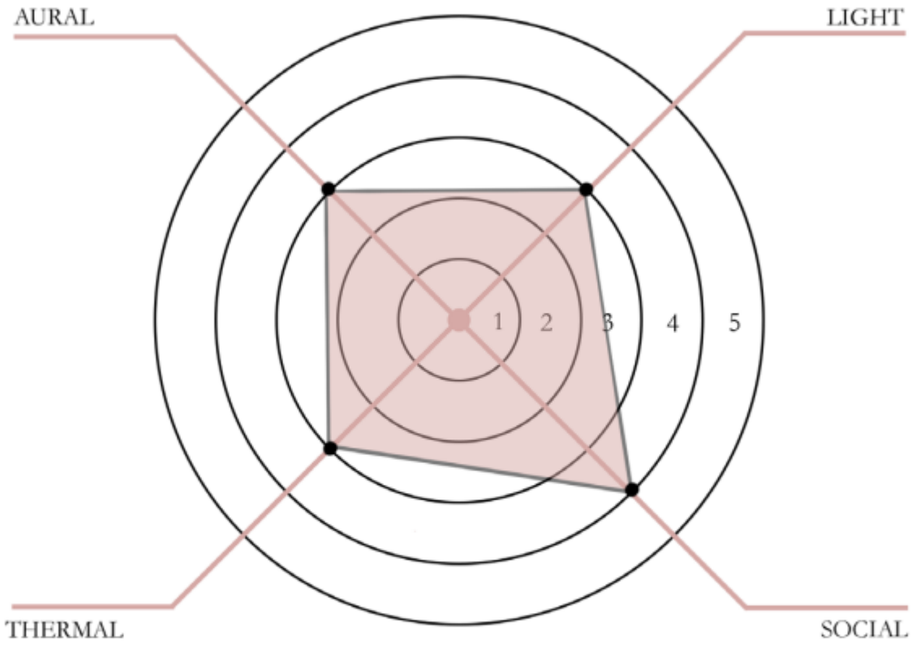




Transcription of field notes:

People: 16 people between age of 4 and 16. Two staff members.
Description: teenagers playing card games, staff member eating lunch, children heating up their lunch, child playing on ipad, teenagers loudly playing music, noisy, sounds of microwave, kettle boiling, banging pots and pans. It is comfortably warm and people are not wearing coats in here. Well lit space. Children walking through the room in wellingtons. Later there is a glare from the windows, it becomes too sunny. Staff member telling children to clean up.

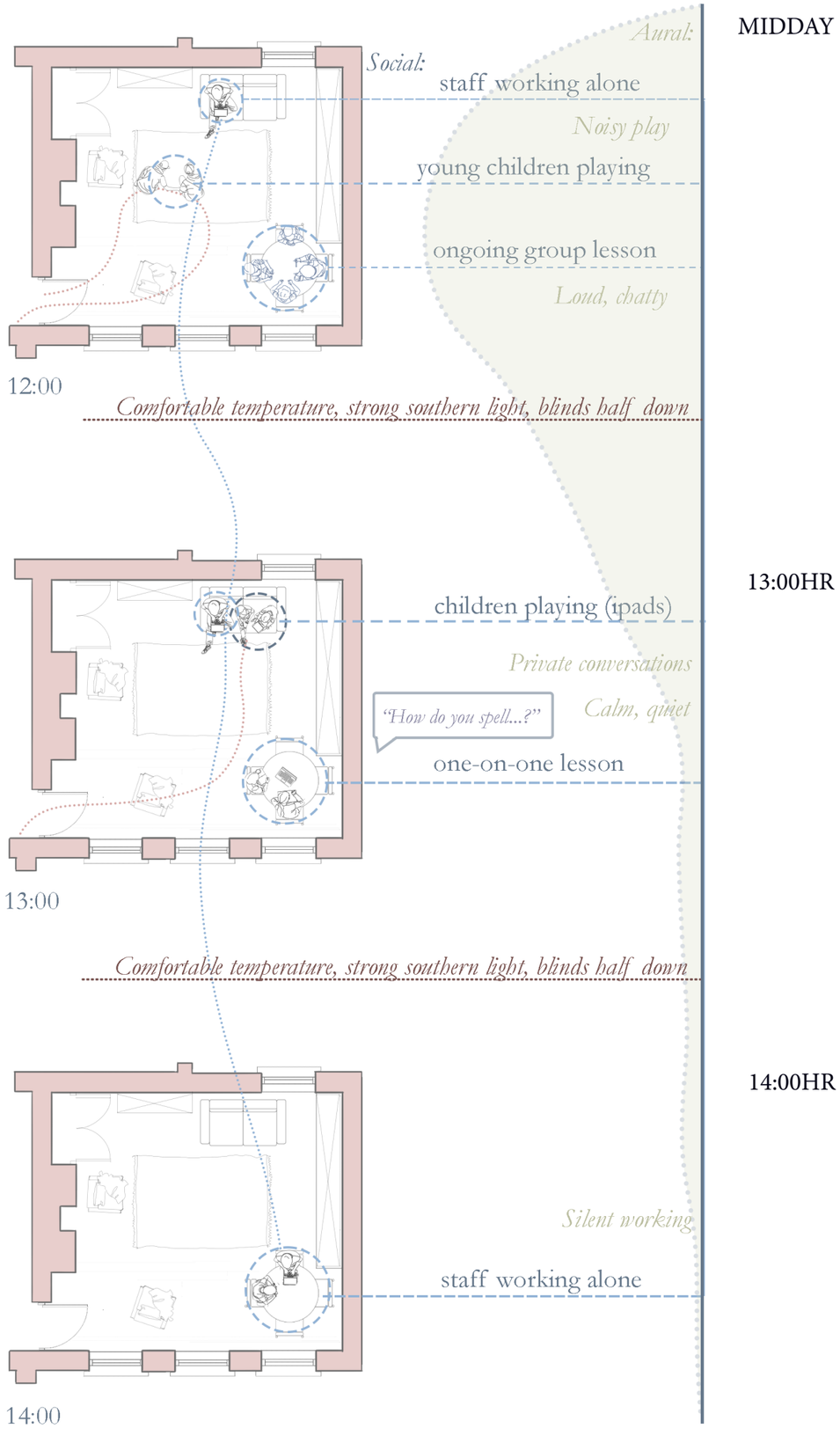
01. Observational Study
Blue Room (Library)



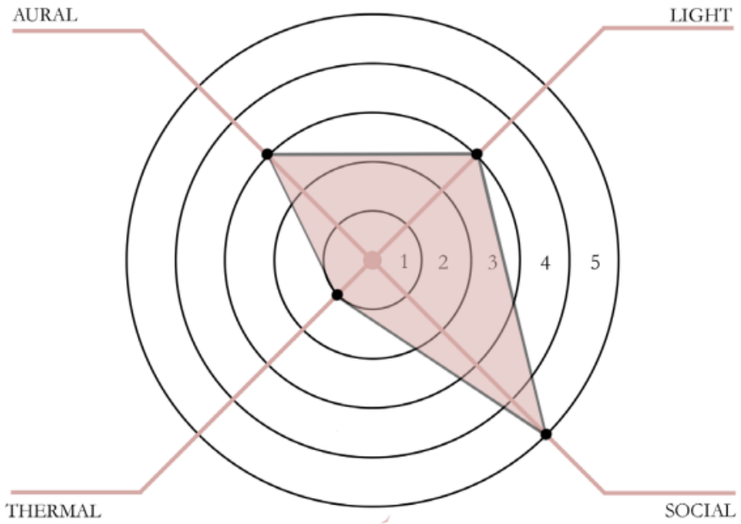
Transcription of field notes:

People: 2 staff, 13 children.
Activities: staff member teaching a lesson to four small children, two students on ipad together. Staff member working alone on a laptop. Kids in hats and coats chatting.

Description: Sound quality good, went from loud and chatty to nice and calm for one-on-one class with child. Fluorescent lighting makes little difference in room as it is well lit. The temperature is comfortable.

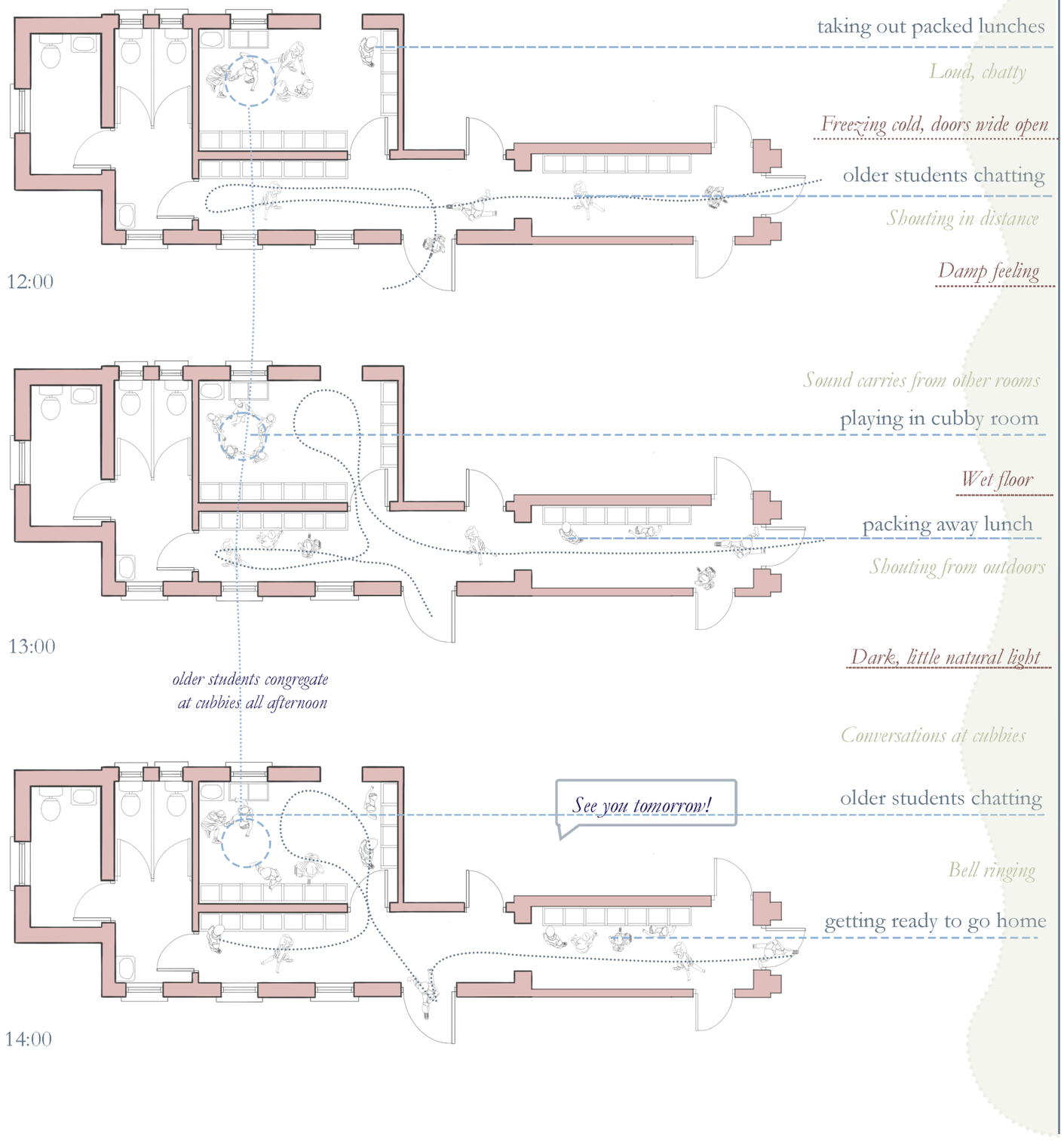


01. Observational Study
Hallway, Cubbies, W.C

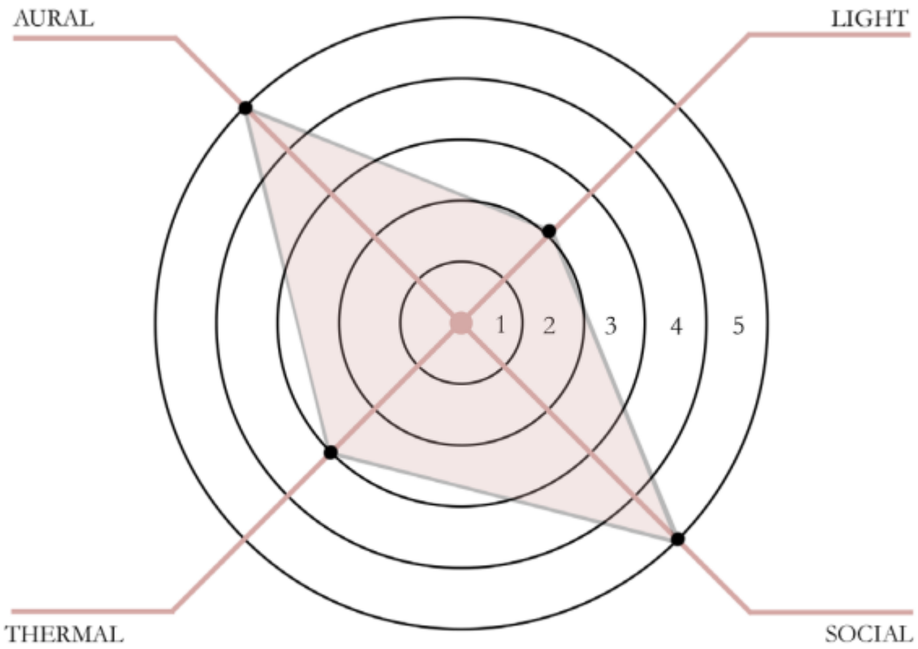


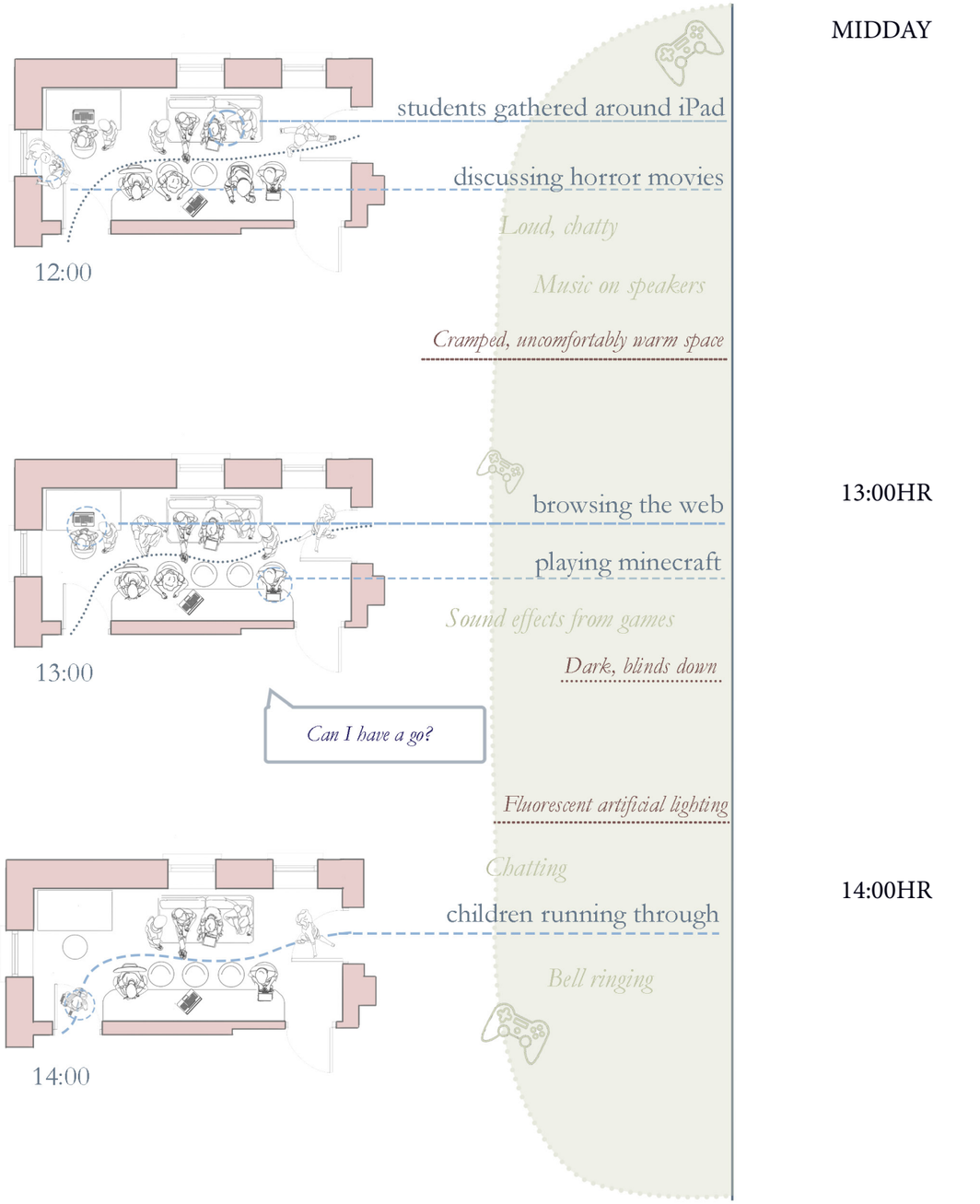
Transcription of field notes:

People: dozens, this is a transient space. 3 or 4 linger.
Activities: Kids getting lunch from their cubbies and putting it back, three boys in cubby room kicking stones around, small children running in and out in the rain. People wearing a range of clothes, some just in t shirts others wrapped up in coats and hats.
Noise spilling out from kitchen, freezing cold as door is wide open. Floor is wet and slippy, dusty, bits of plaster falling off wall on the floor. The cubby room is constantly a social space and a transient space. It is loud, but the noise is mainly coming from other rooms.



01. Observational Study
Gaming Room



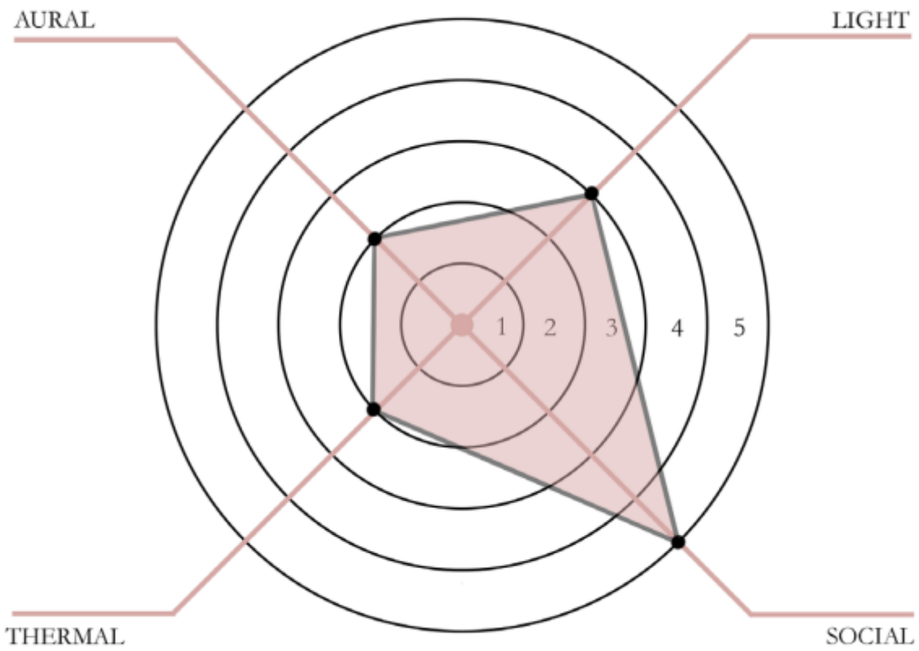


Transcription of field notes:

People: 13 of estimated age range 6 -11

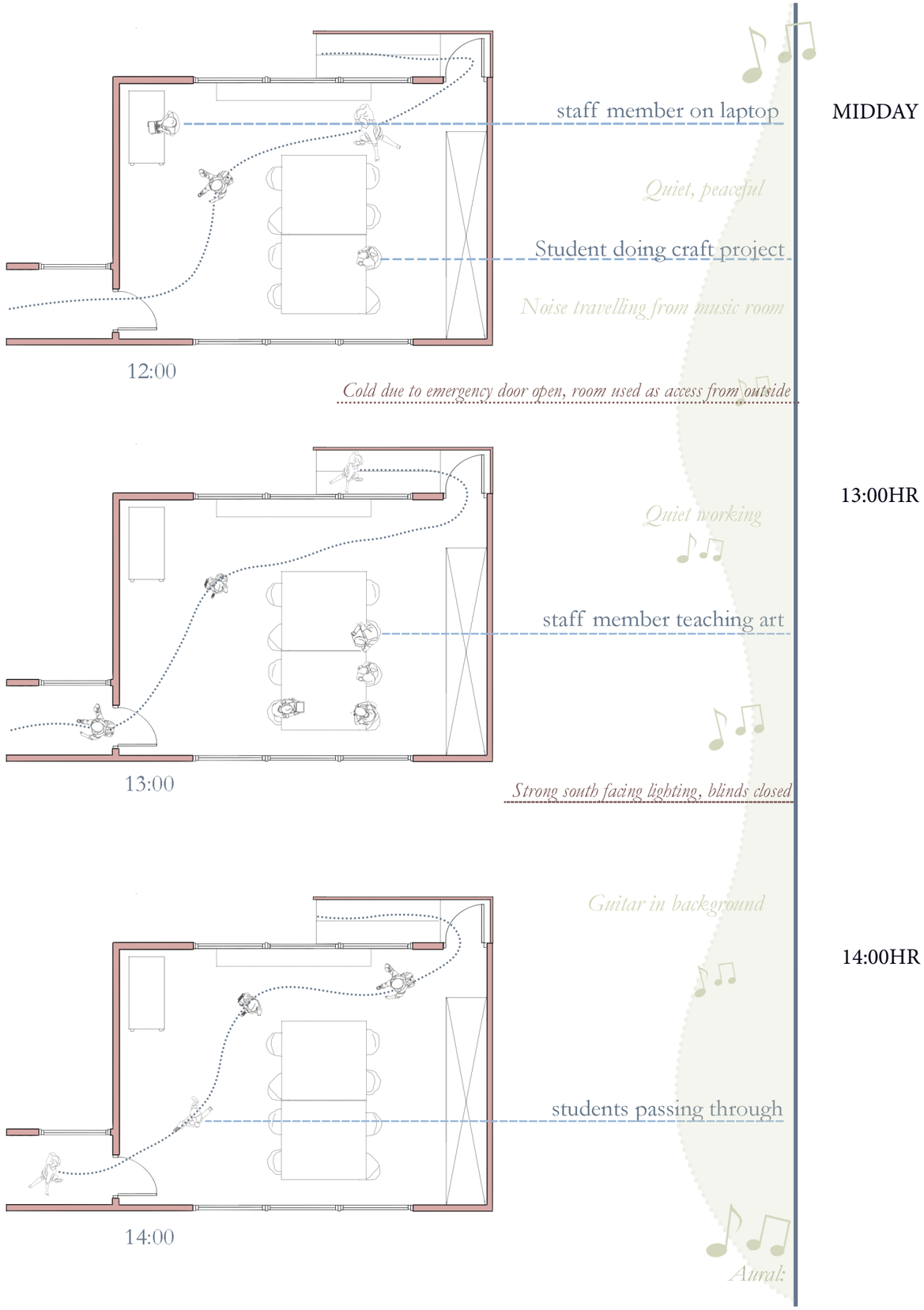
Activities: Child playing on laptop. Children gathered on couch around ipad. Two children sit on a windowsill chatting to seated friend about horror films. Two children play with a spray bottle of window cleaner. Some children are browsing online shopping. Smaller students are running in and out of the room.
Description:
Fluorescent lighting, loud chattering, it is uncomfortably warm in here – due to the amount of people? Beeping and gunshots coming from the computer games. All the blinds are down to stop glare on their screens.

01. Observational Study
Art Room

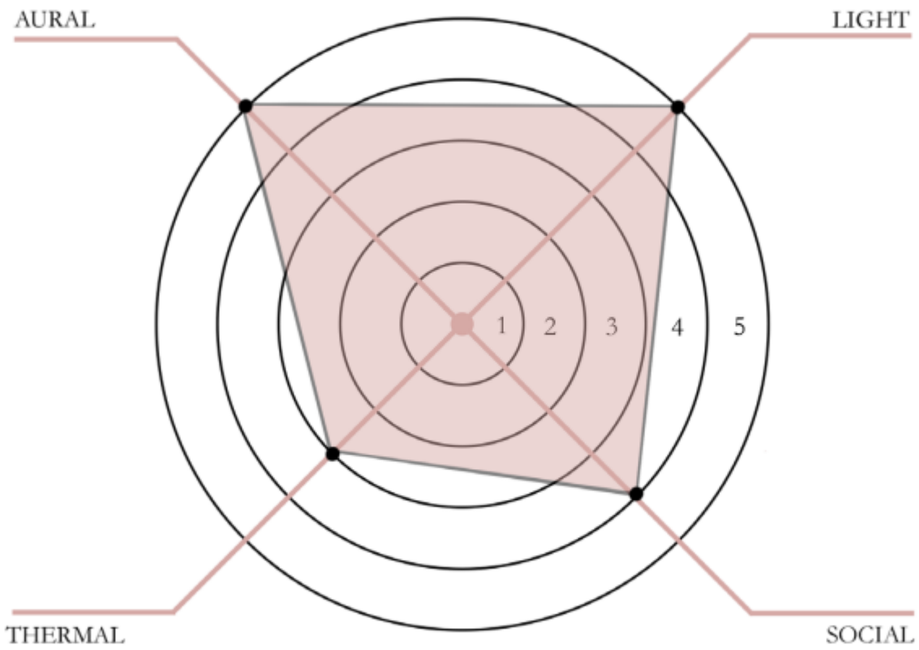


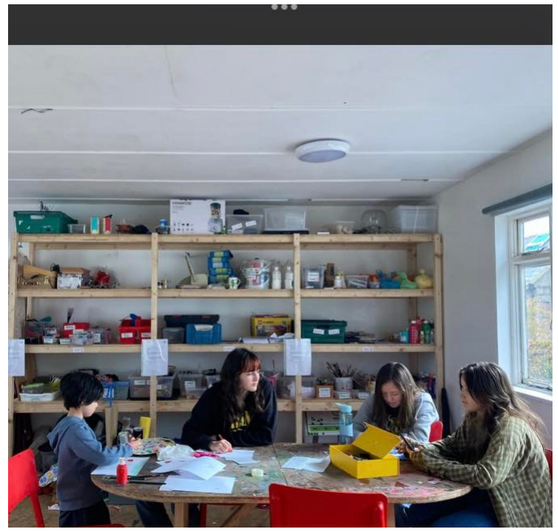
Transcription of field notes:

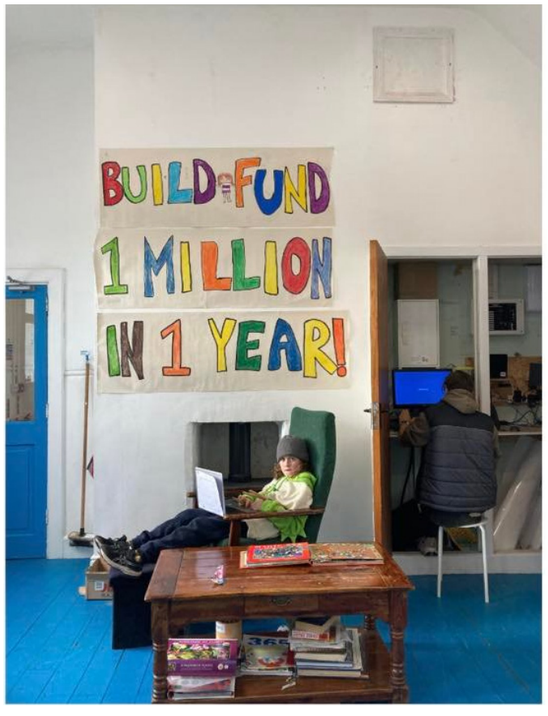
People: 2 staff, 4 students.
Activities: Child concentrating wrapping a gift. Doors wide open. Staff cleaning up, using sewing machine. A staff member setting up a video on a screen. Child I saw earlier in the library making a painting with stencils and staff member helps.
Description: The walls are very thin. I can hear children playing in the yard and hear loud electric guitars and drumming in distance from prefab close by. Light quality good due to large southfacing windows, blinds partially down. The floor is unfinished and cold. Artificial lighting is fluorescent too. 'Emergency exit only' door wide open and being used as an access point into the whole school. Despite external noise, this room is peaceful.



01. Observational Study
Threshold: Front Door



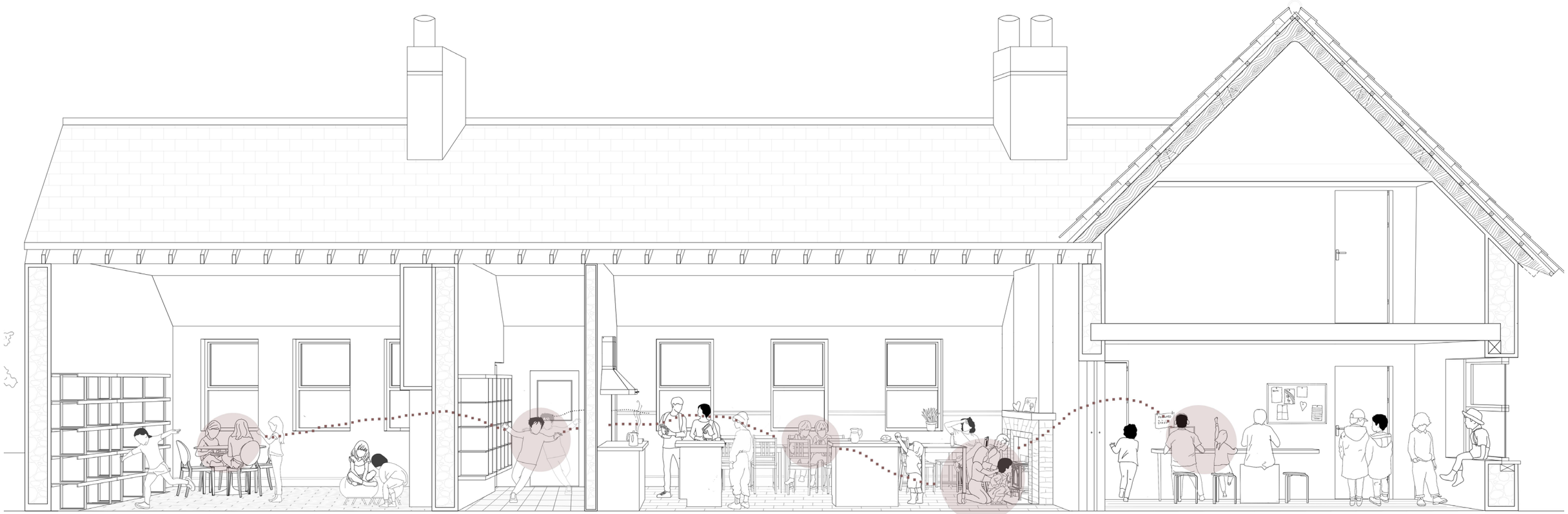




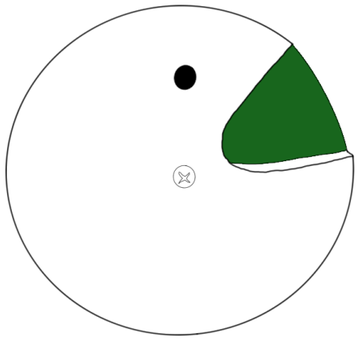
Transcription of field notes:

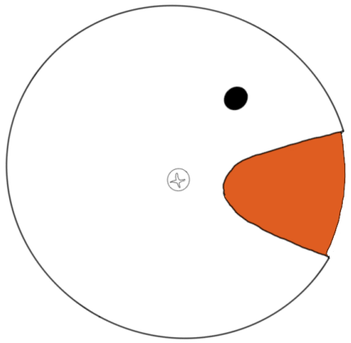
People: 4
Activities: child sitting under picnic bench watching videos on phone. Child eating lunch. Children constantly running around and in and out. Child rings a bell to signal a school meeting. Children on rope swing shouting in distance.
Description: Noise of teenagers singing and playing their electric guitars in the distance from the prefab is prominent. Cars passing in the road is very prominent too. It is nice and sunny due to southfacing aspect. A bell rings at 2 o'clock, and children go inside to clean up. A child collecting firewood and puts in bucket, sweeping.

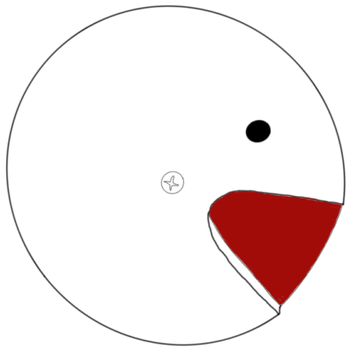
01. Observational Study
Activity Drawing



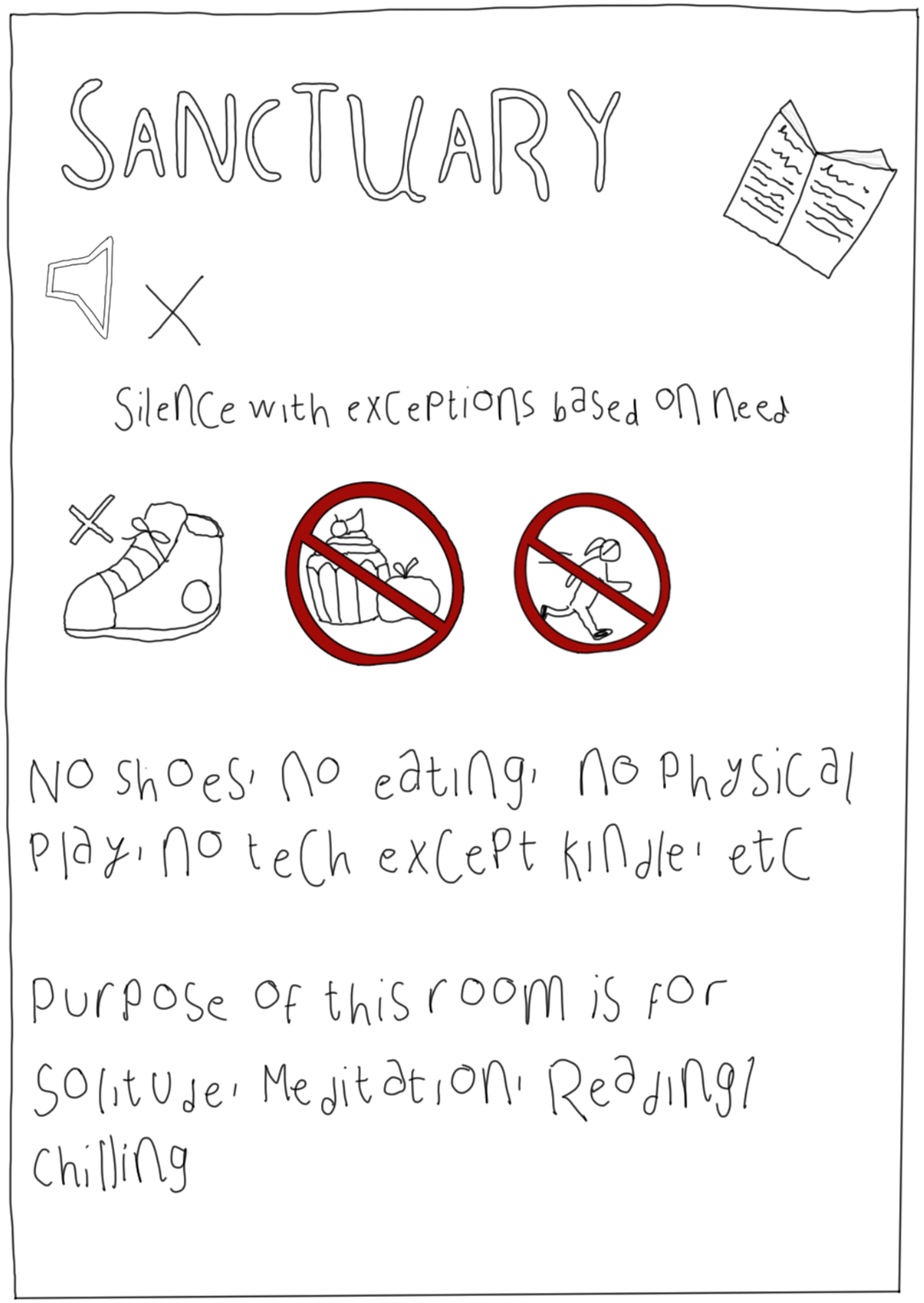
02. Analysis



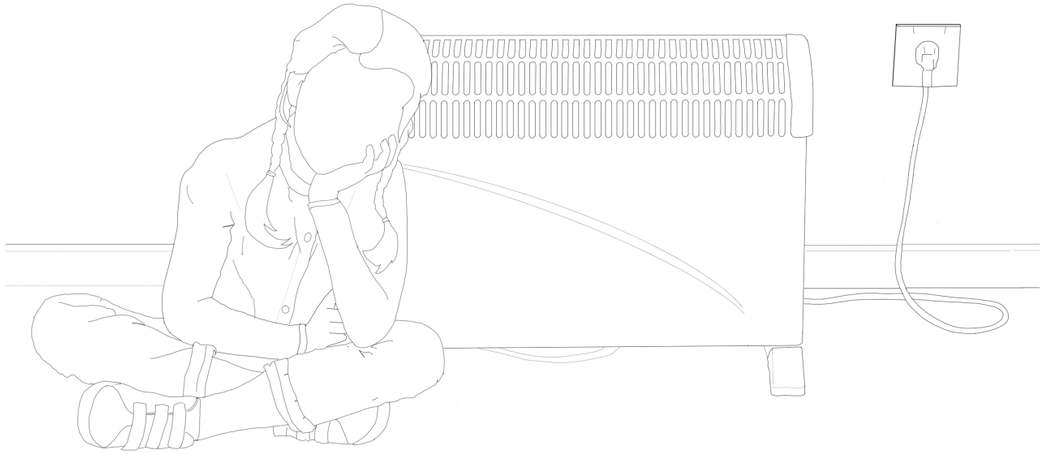




Existing Areas of Comfort:
AURAL
The sanctuary is a room in the Sudbury School where children can isolate themselves when feeling overwhelmed.



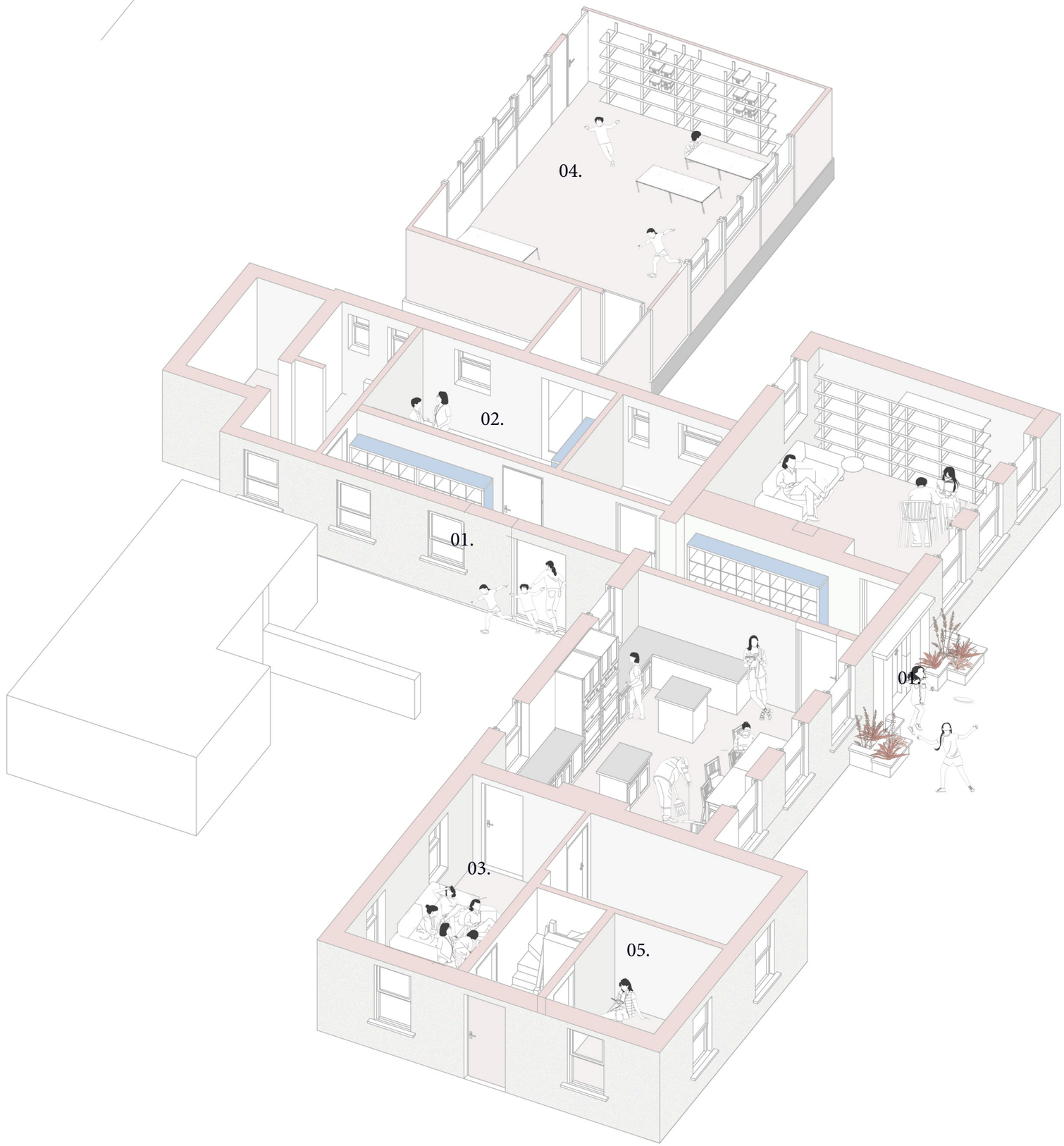
02. Analysis



Existing areas of comfort:
THERMAL
Observational sketch of student keeping warm
by electric heater

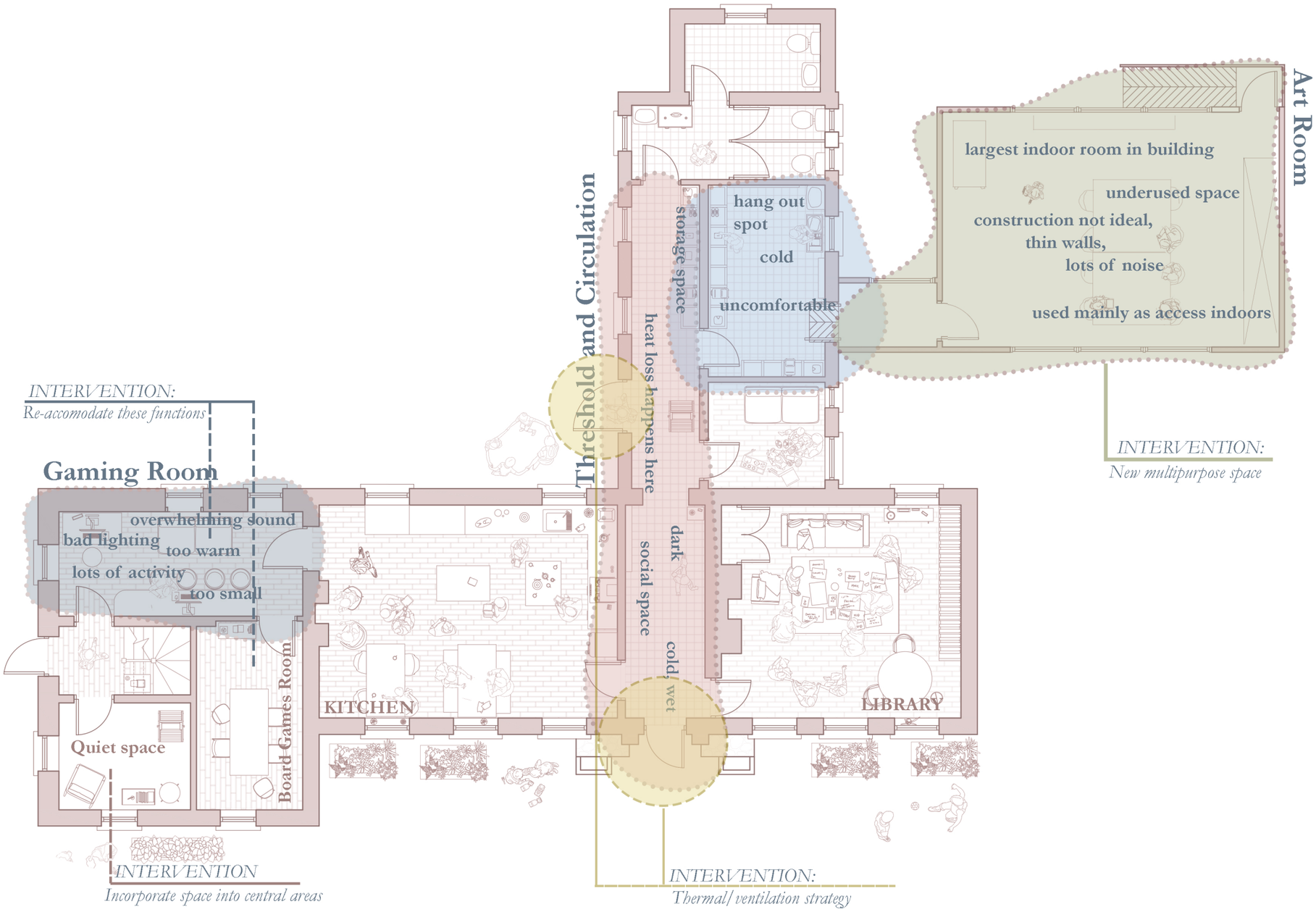
Existing areas of comfort:
THERMAL
The stove is a central hearth in the school.
Children constantly gather around it to keep
warm.

01. Analyssis
Areas of proposed intervention



KEY:
01. Thresholds: Front and back doors
02. Cubby room
03. Gaming room
04. Art room
05. Sanctuary (Meditation/Calming space)

02. Analysis

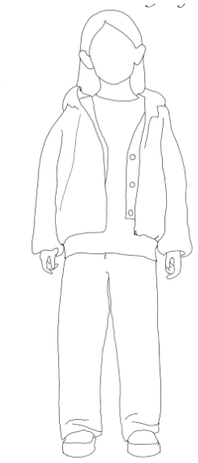


Proposed areas for intervention
1:100

03.Design
Anonymous users

Light

Thermal



I would like a space that is bright and spacious, with plenty of natural light and windows that can be opened for fresh air and ventilation. I would also like a comfortable and durable floor. For the seating areas, I would like comfortable and inviting chairs and sofas that are upholstered in warm and cozy fabrics, such as wool or velvet. I would also like low tables or ottomans that I can put my feet up on, and throw blankets or cushions that I can snuggle up with.
or the nooks, I would like small, cozy nooks where I can retreat to when I need some quiet time or solitude. These nooks should have comfortable seating, warm lighting, and plenty of soft cushions and blankets.

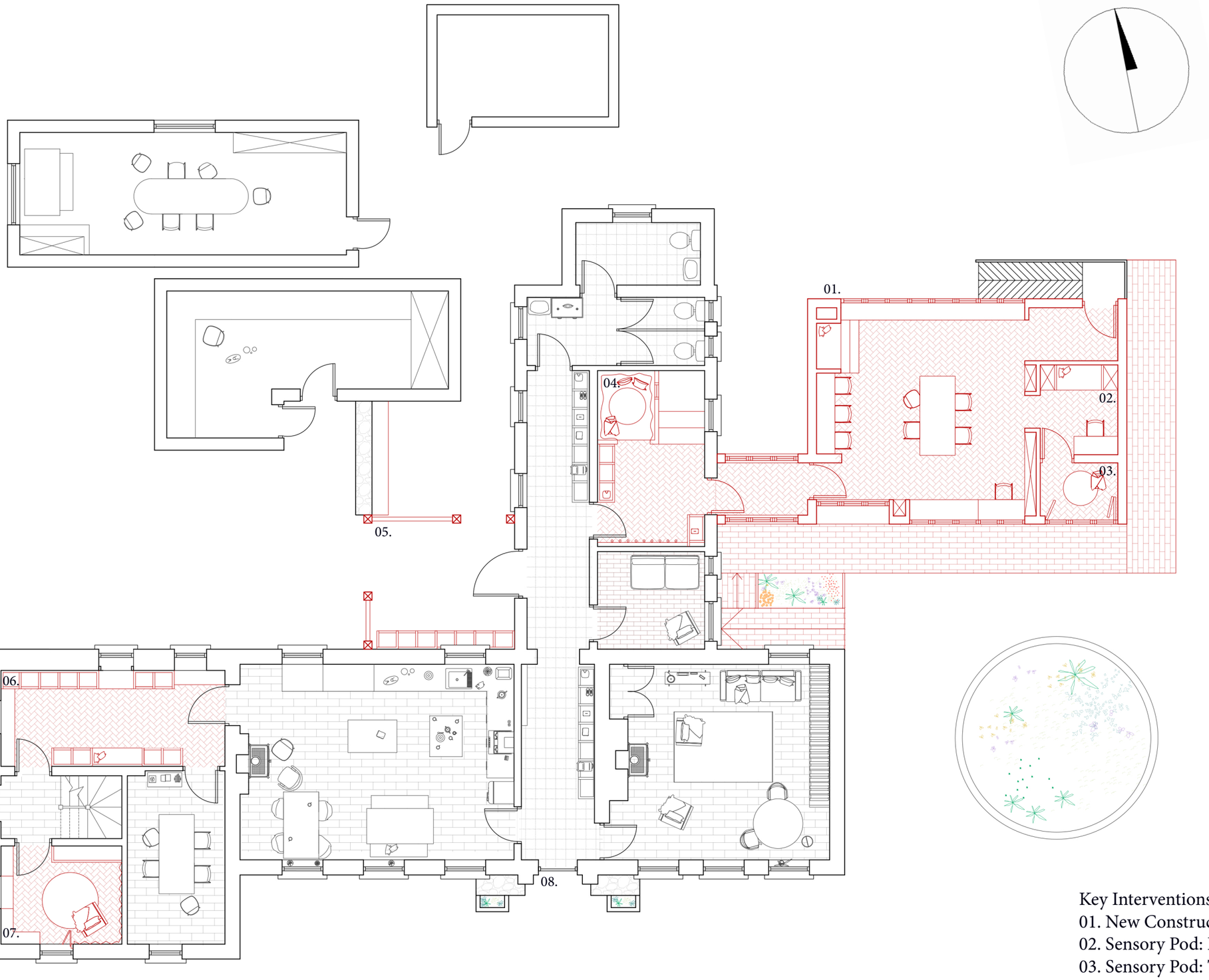
Social

I would like a space that is flexible and adaptable, with plenty of open space for running and playing, as well as some enclosed areas for quieter activities, such as reading or drawing. I would also like some childlike elements, such as slides, ladders, and circular windows, to add a sense of fun and playfulness to the space.
For the seating areas, I would like comfortable and durable seating, such as benches or stools, that I can use to sit and rest, or to perch on while I play or explore. I would also like some tables or desks where I can do my homework or draw and write. Additionally, I would like some natural elements, such as plants or rocks, that I can touch and explore, and that provide a sense of connection to the outdoors.

Aural

I would like a space that is secluded and private, with thick walls and doors that block out noise and provide a sense of enclosure. I would also like comfortable seating, such as bean bag chairs or cushioned benches, that I can sink into and relax. Additionally, I would like some noise-canceling headphones or other sound-dampening features, such as acoustic panels or sound-absorbing materials, to reduce the amount of noise in the space.
I can sit and relax without being overwhelmed by the noise of the school. warmth. I would like some sound-absorbing materials, such as carpets or acoustic panels, to reduce the amount of noise in the space.

03. Design



Key:

Existing

Proposed

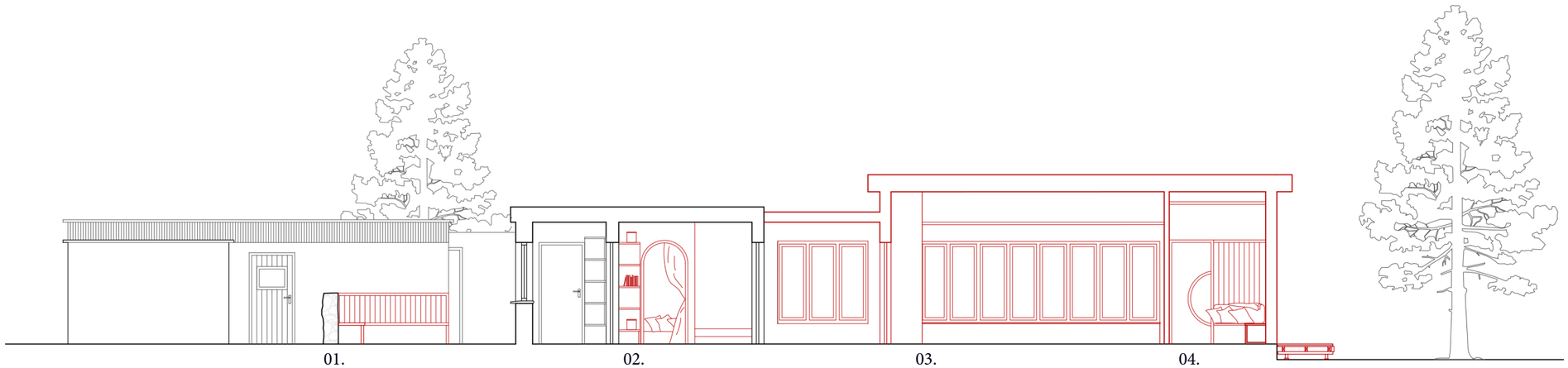
1:100 Proposed plan
Proposing various spaces throughout the school to accomodate sensory needs

Key Interventions:
01. New Construction: Multipurpose room
02. Sensory Pod: Light
03. Sensory Pod: Thermal
04. Sensory Pod: Aural
05. New Construction: Shelter
06. Cubbies and Seating
07. Sensory Room
08. Front door replaced with glazing

03. Design

1:100 Proposed Section

Key:
01. New construction: Shelter
02. Proposed storage/seating area
03. Proposed workspace/acoustic room



Key:
01. Proposed seating
02. Sensory pod: Aural
03. Proposed multipurpose room
04. Sensory pod: Thermal

Key:

Existing

Proposed

1:100 Proposed Section

03. Design

1:100 Proposed Elevation

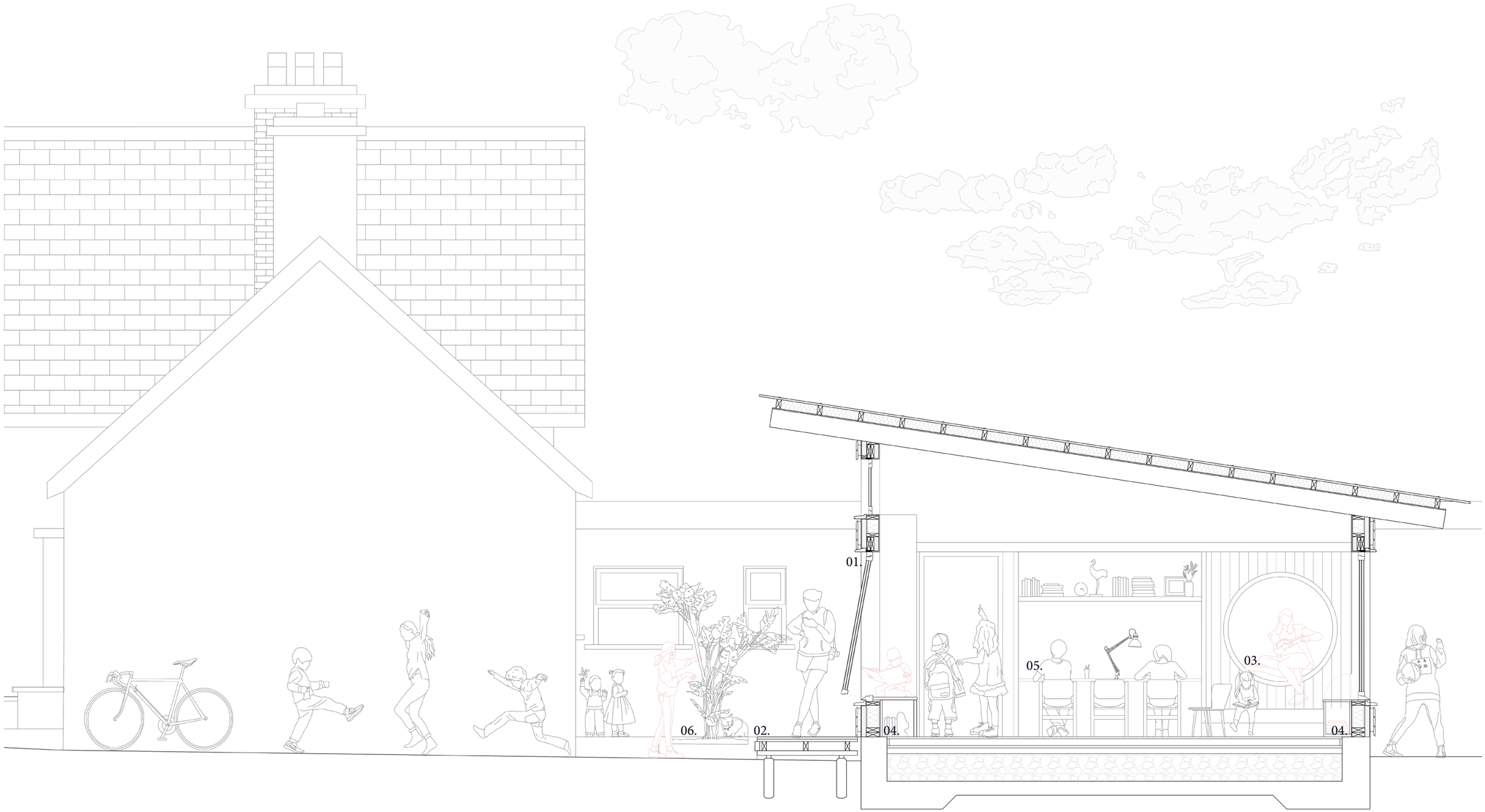
Key:

Existing

Proposed

Key:
01. Proposed removal of front door and replacement with glazing for heat retention and daylighting.
02. Proposed timber-frame multipurpose room and decking.

03. Design

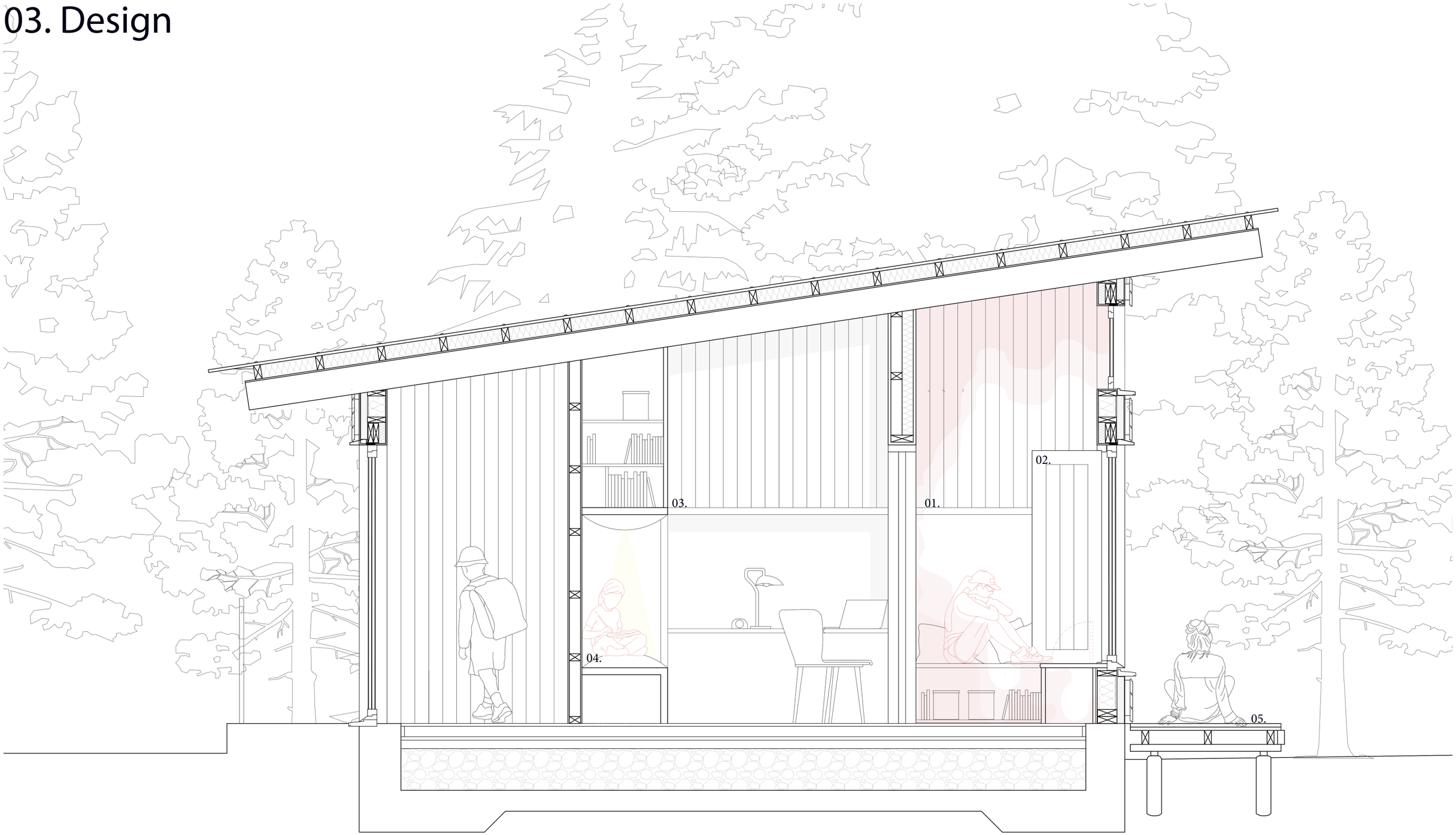


Areas for sensory comfort

1:20 Proposed Section
New timber structure: multipurpose room
on existing raised foundation

Features:
01. Operable windows allow students autonomy over their own thermal comfort levels
02. Proposed decking
03. Reading/gaming nooks
04. Window seats/desks + storage
05. Workspaces
06. Planting

03. Design



Areas for sensory comfort

1:20 Proposed Section
New timber structure: multipurpose room
on existing raised foundation

Features:
01. Sensory pod: Southfacing Light/Thermal
02. Operable Louvers
03. Sensory pod: Visual/Light
04. Reading/Gaming nook
05. Proposed deck