

Project Aim

This project's core mission is to combine traditional library services with art workshops and community spaces to strengthen community connections and provide shared public spaces to bring residents together. This library combines reading and hands-on art practice for local residents located within the historic Gracemount Mansion through an environmentally sensitive approach to the interior through material specification and use of natural light.

This Project responds to social inequality in knowledge access and climate sustainability challenges by adaptively repurposing the historic Gracemount Mansion into an inclusive, climate-responsive community library. By addressing the inequalities in educational resources and the digital divide within local neighbourhoods, the design transforms an 'at risk' heritage building into a vibrant public space that delivers improved learning opportunities and creative empowerment for residents of all ages whilst working with the opportunities afforded by local climatic conditions.

Rather than implementing destructive renovation, the design adopts a strategy for protecting historical heritage, which preserves the building's original architectural fabric, inherited material colour palettes and structural characteristics. It seeks to re-use the existing building structure and adds only local or sustainably sourced materials to minimise construction waste. Working with the local climate and daylighting characteristics it provides a thoughtfully developed lighting strategy to maximise sunlight and daylight for reading and art activities whilst adapting to reduced daylight hours in winter. This lighting intervention strategy reduces energy load and provides an enhanced biophilic experience for the users to enjoy activities all day within the building whilst connected to the outdoors.

This library mainly serves local residents living in the Gracemount neighbourhood. Local demographic research shows the area's population is dominated by young adults aged 20 to 39. The space is also designed to accommodate a notable number of family groups with young children, students and older visitors.

Residents Age

Aged 20 to 39	39%
Aged under 20	28%
Aged 40 to 59	26%
Aged 60 to 79	7%
Aged 80 and over	2%



AGED 20 to 39
39%

Household Type

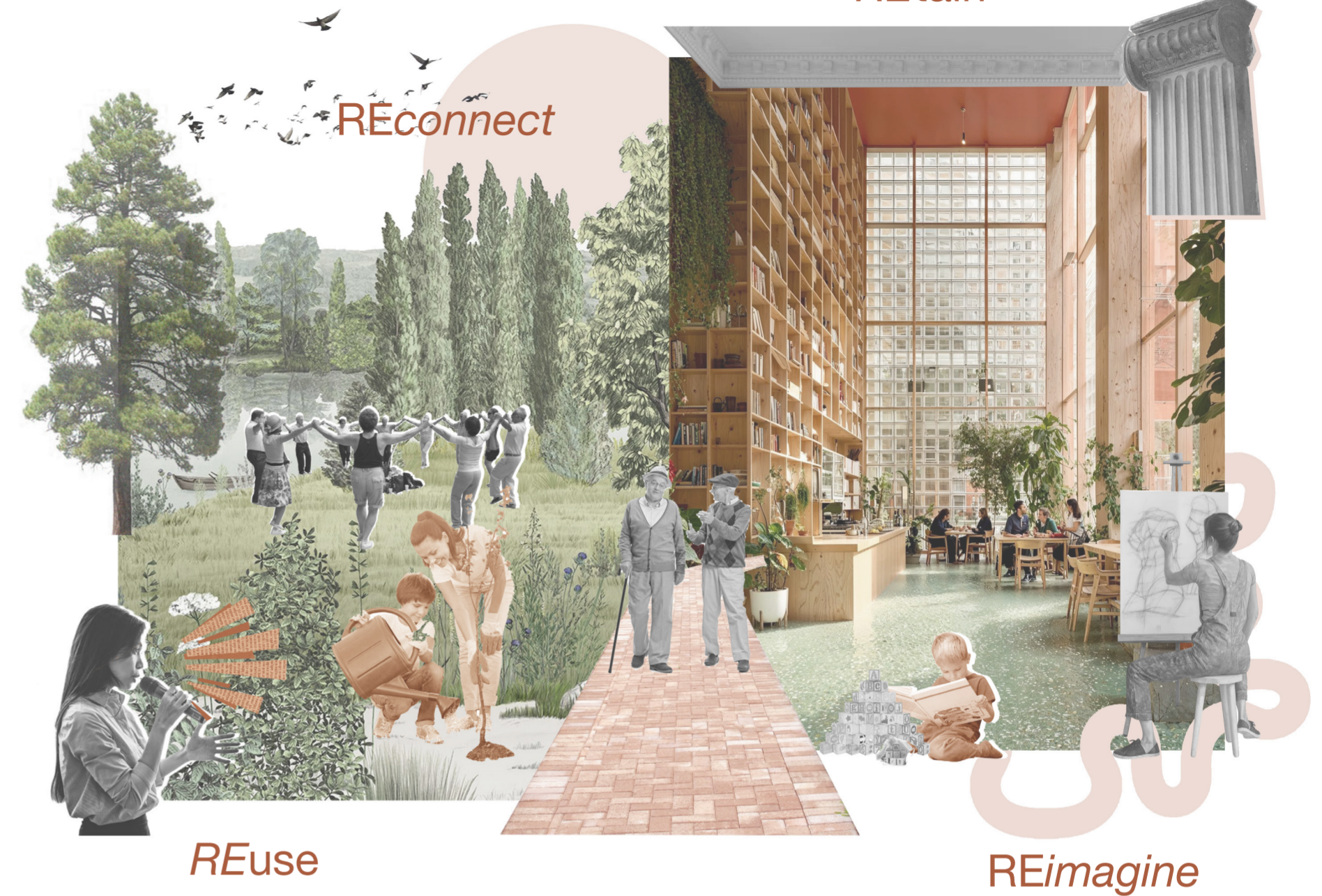
Families with young children	49%
People living alone	25%
Families with adult children at home	12%
Families without children	11%
Extended families or unrelated people	7%
Families aged 66+	4%



FAMILIES with Young Children
49%

REpurposed

REtain



Site

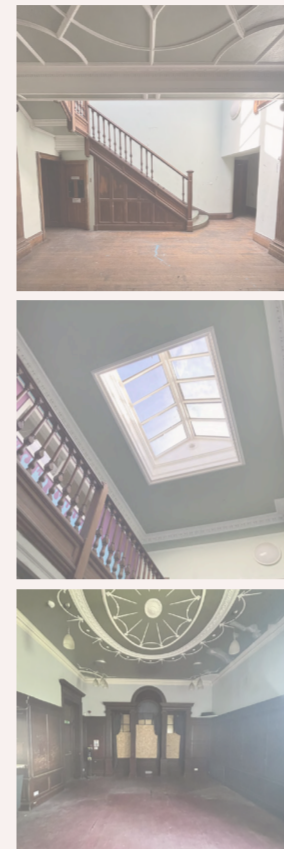
SITE INFORMATION



GRACEMENT MANSION

Address: 47 Gracemount House Dr, Edinburgh
Completion: 1780
Architectural Status: 'B' listed building
Original Function: Rectory for St Catherine's chapel.

Current Function: Community Hub
Number of Floors: 3
Facade Material: Ashlar, Rubble Built
Interior Material: Plaster, Timber

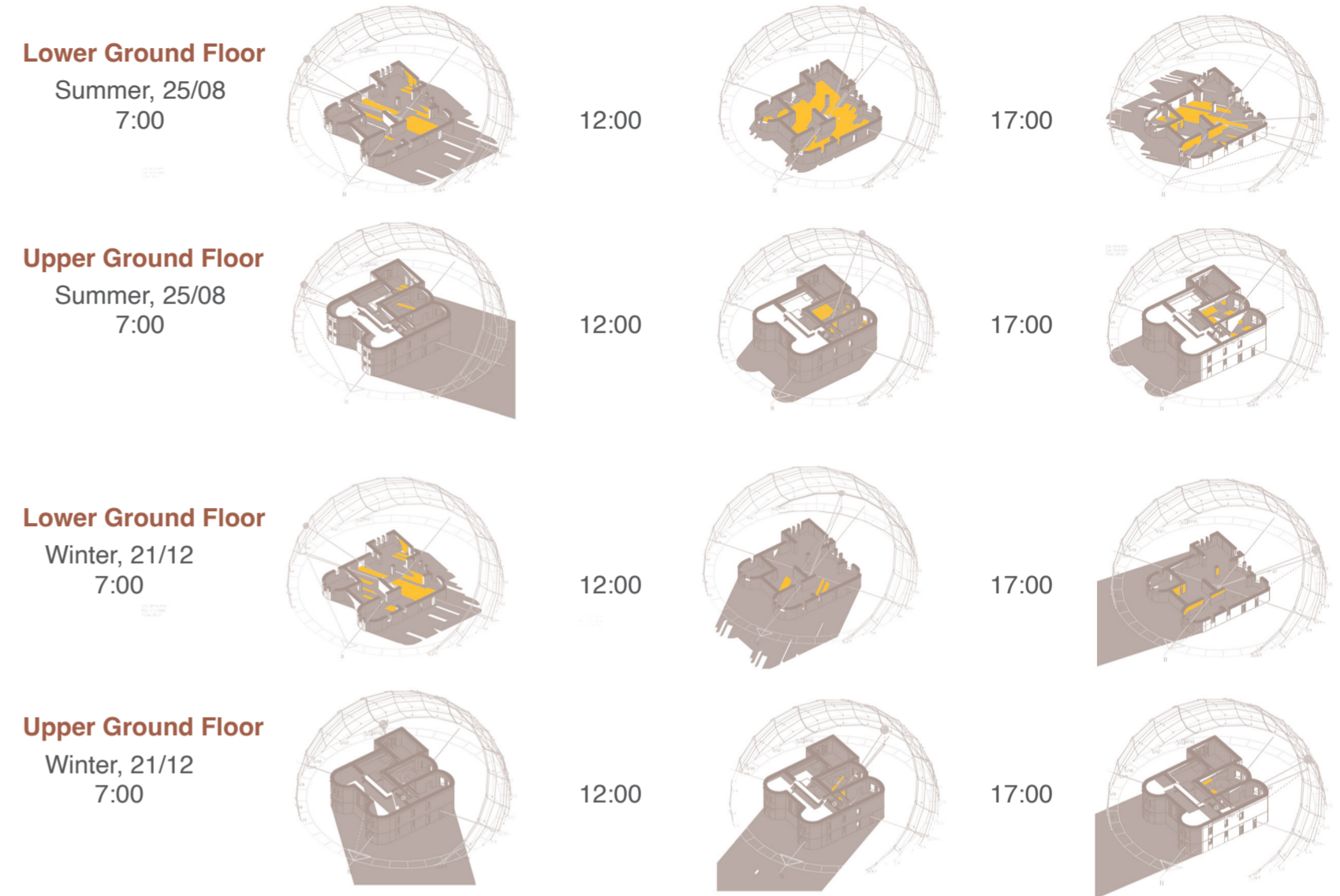


Interior Feature

1. Main staircase
2. Skylight
3. Existing wall decorative

SHADOW ANALYSIS

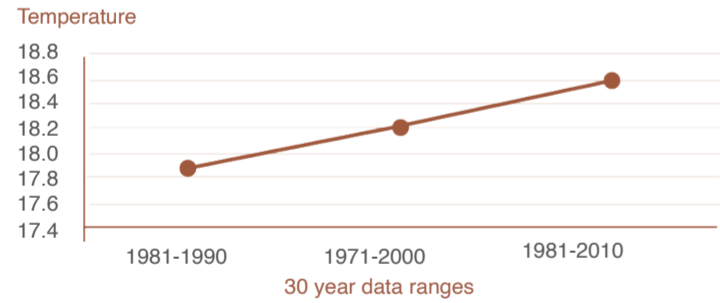
In summer, the rear lower ground floor offers the best daylight, and upper-level rears provide moderate light. In winter, the upper ground and first floors do not receive enough natural light. For this reason, these levels must be designed with supplementary electric lighting to provide basic illumination.



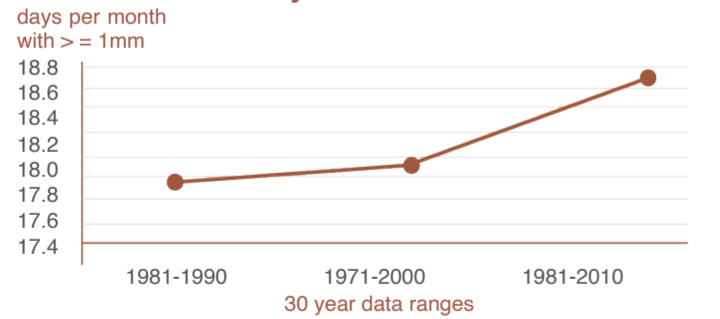
CLIMATE CHANGE ISSUES

Edinburgh has a typical temperate maritime climate, with mild temperatures and year-round rainfall. However, the city is now facing increasingly serious climate issues, rising temperatures, more extreme rainfall, and increased flood risks.

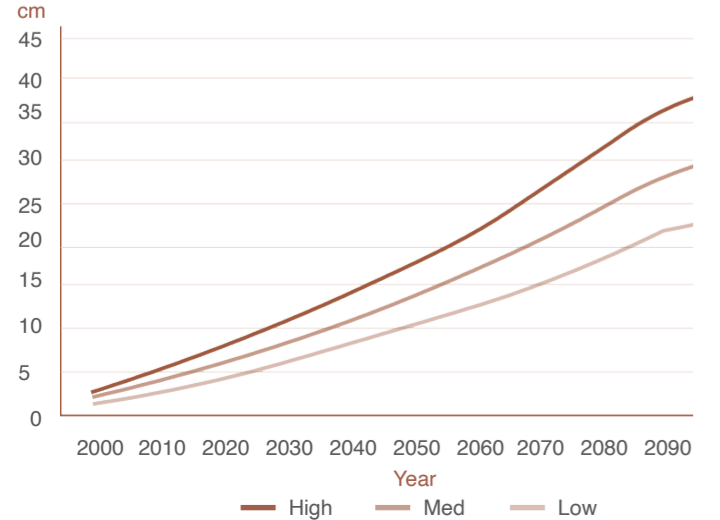
Summer Average Maximum Temperature



Incidence of Heavy Rainfall



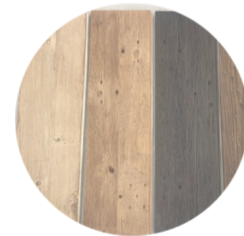
Sea Level Rise



LOCAL MATERIAL RESEARCH

I choose the local material that both support sustainable interior design and reflecting local identity. Edinburgh sandstone is used as a decorative wall finish, providing durability, natural texture, and a strong connection to the city's architectural heritage. Sheep wool insulation improves thermal efficiency and indoor comfort, while Scottish wych elm offers a renewable and low-carbon for interior applications. These materials contribute to reducing environmental impact and creating a more sustainable interior environment.

Scottish Wych Elm



Category: Hardwood
Colour: Brown
Origin: Scotland and other parts of northern Europe
Uses: Furniture, Cabinet, Interior decoration.
Typical Size: 50x150mm, 100x100mm

Properties
 Dense, Durable, Renewable, Fire resistance, Stability, Natural

Sheep Wool Insulation



Category: Fibre
Colour: Natural cream
Origin: Ireland
Uses: Building Insulation, Heritage building retrofits
Typical Size: Thickness, 50, 75, 100, 150mm

Properties
 Natural, Light Weight, Sustainable, Durable, Recycle

Sandstone



Category: Stone
Colour: Grey
Origin: Edinburgh
Uses: Wall, Floor, Fireplace, Staircase
Manufacturing Process:

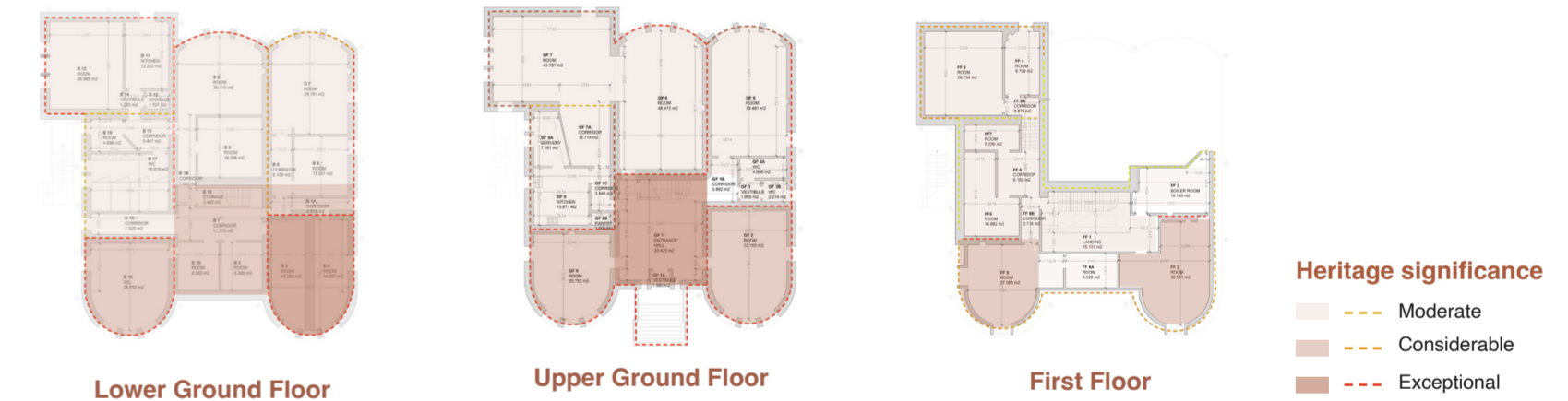
1. Sandstone is a natural sedimentary rock formed over millions of years.
2. Large sandstone blocks are extracted from quarries.
3. Factories cut blocks into varied building stone pieces.
4. Finishing stone surface for different visual.

Properties
 Natural, Fire Resistance Sustainable, Durable, Store Heat, Hardness, Long Lifespan, Reused

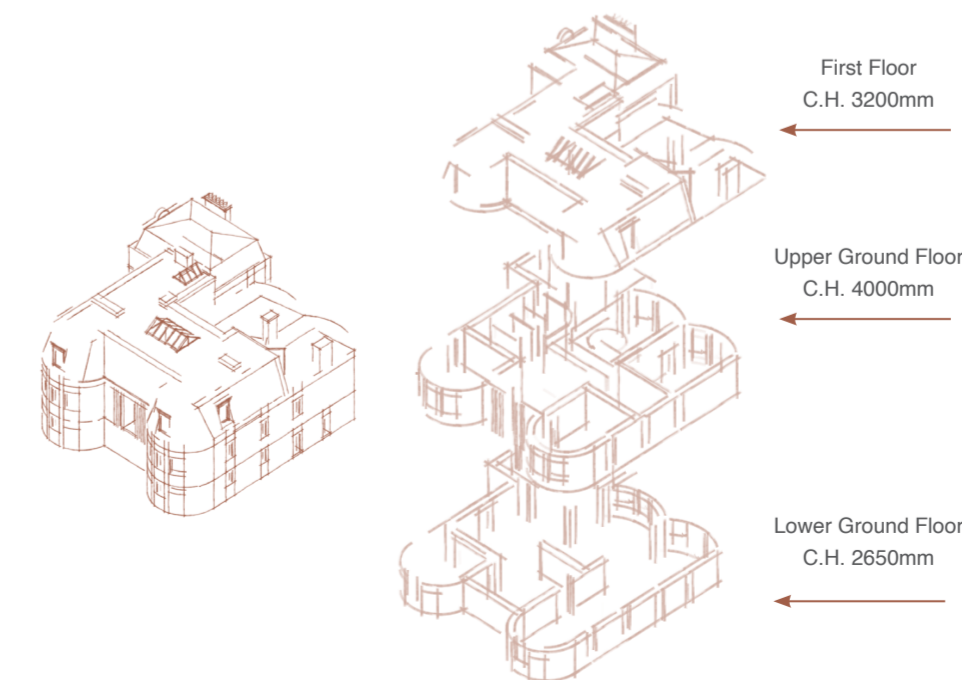
Typical Size
 1200 x 500-600mm x 300mm

CONDITION OF THE EXISTING BUILDING INTERNAL

This is a building of significant heritage value, and all original architectural features must be preserved as a core design principle. The design is guided by the principle of heritage protection, with all fixtures installed with minimal intervention to the historic fabric, in order to preserve the original character of the space.



BUILDING PROBLEM CONCLUSION



- 1 Varying Floor Levels
- 2 Limited Natural Daylight Penetration
- 3 Inadequate Thermal Insulation
- 4 Heritage and Planning Constraints
- 5 Existing Structural Degradation
- 6 Fire Safety
- 7 Accessibility

Final Design

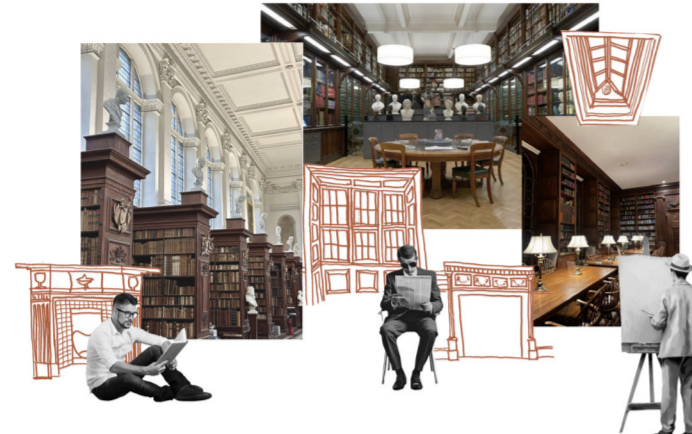
DESIGN STRATEGY

All original interior features in the existing are preserved and designed with modern furniture, blending historic character with contemporary use. The clear experiential contrast between the different areas serves as a guide to behaviour supporting both community activity and quiet study.

Public & Community Zone



Quiet Library Zones



DESIGN OBJETIVE

These design objectives preserve the heritage of Gracemount Mansion while delivering an adaptable, eco-friendly community solution. Minimal structural intervention retains the building's historic feature and creates a space responding to climate and community needs.



Utilise Natural Daylight



Sustainable Lighting

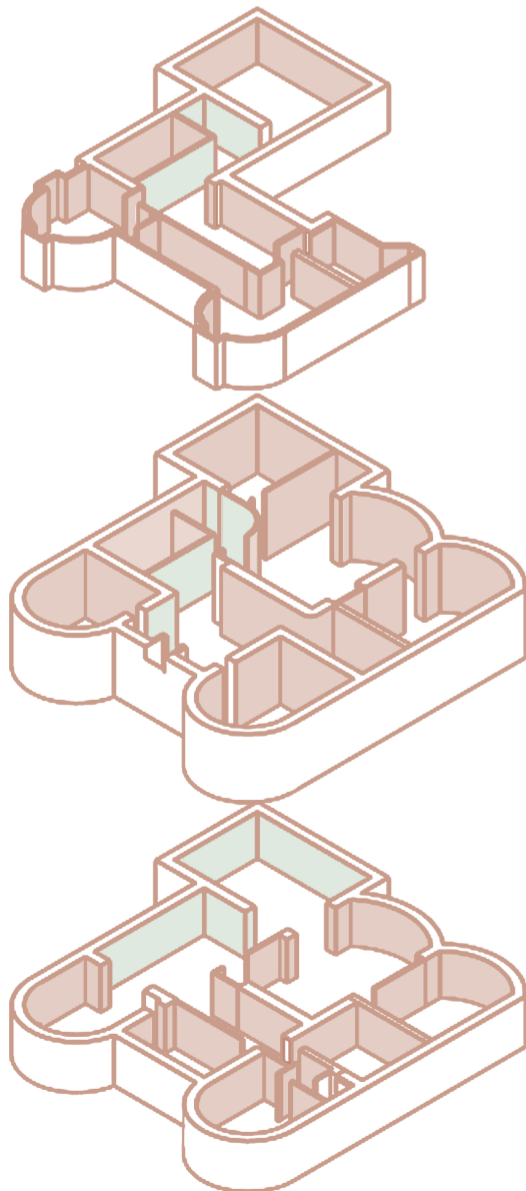


Local Sustainable Material



Reuse of Building Construction

WALL MATERIAL



Lime Plaster

Lime plaster is adopted for interior wall finishes to preserve the building's original interior characteristics, including its existing cornices and skirting details. As a highly sustainable material, lime plaster features excellent flexibility, outstanding durability. It is commonly used in the historic building restoration and modern sustainable construction.



Original Wall Decoration

Sandstone

The exterior of this building is covered with natural stone. To maintain consistent visual language, stone material is continued throughout the internal spaces.

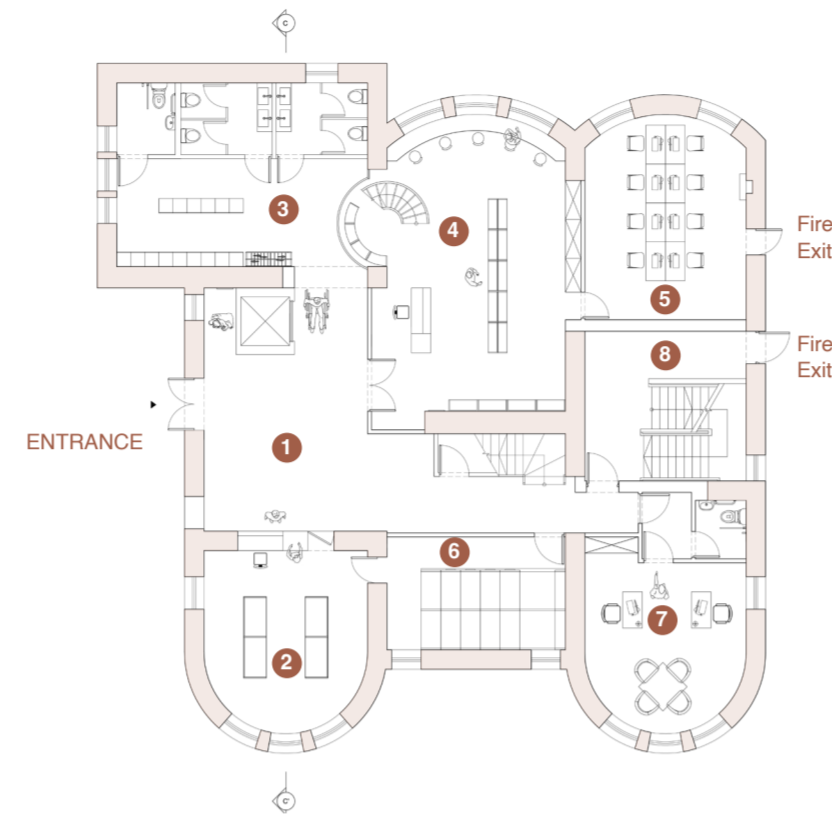
Sandstone is applied to public zones, the lobby, corridors and locker areas.



Building Facade

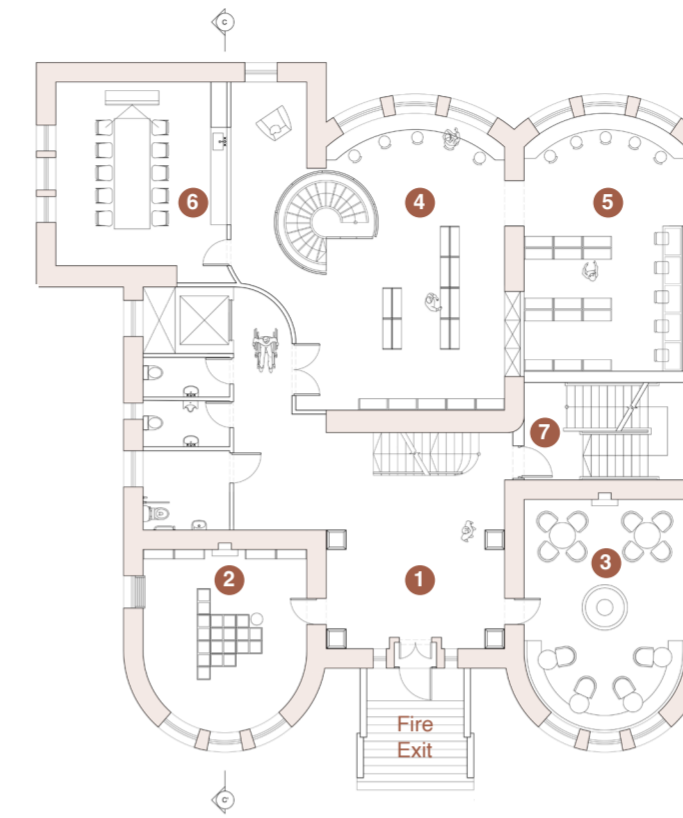
Lime Plaster
 Sandstone

PROPOSED LAYOUT PLAN (NTS)



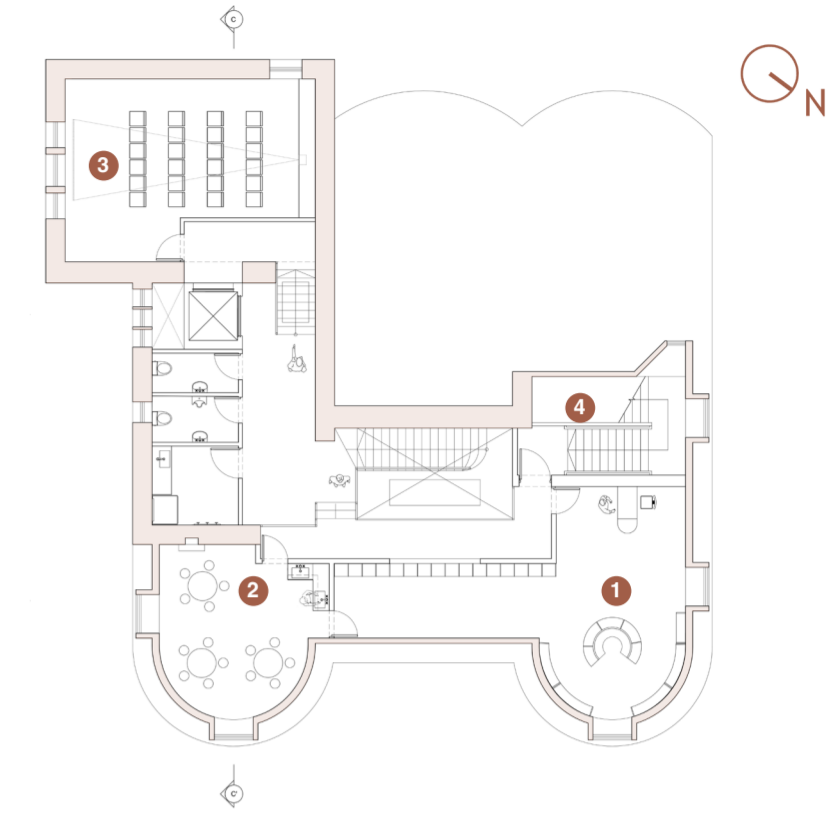
Lower Ground Floor

- 1. Lobby
- 2. Reception
- 3. Locker Area
- 4. Lending Library
- 5. Computer Room
- 6. Book Storage
- 7. Staff Room
- 8. Fire Escape



Upper Ground Floor

- 1. Exhibition Space
- 2. Magazine Lounge
- 3. Maker Space
- 4. Lending Library
- 5. Reference Library
- 6. Adult Workshop
- 7. Fire Escape

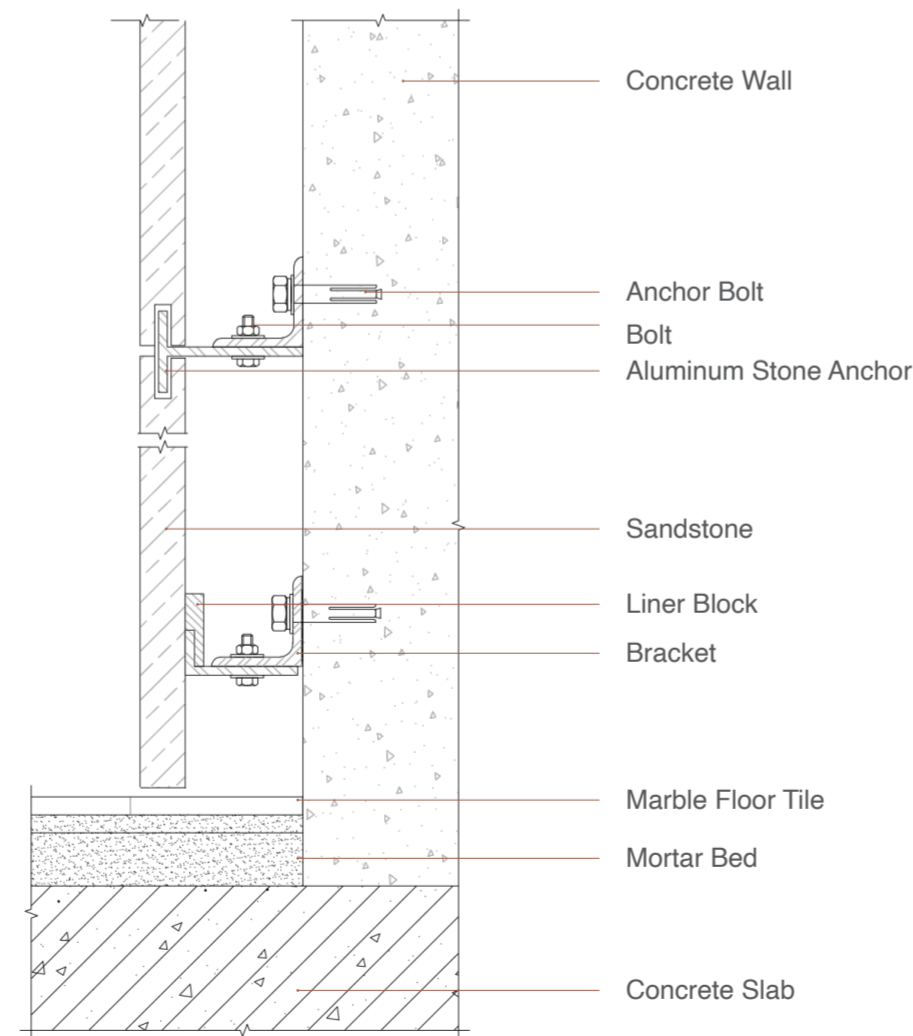


First Floor

- 1. Children's Library
- 2. Children's Workshop
- 3. Conference Room
- 4. Fire Escape

Existing Structure
 New Structure

Construction Detail (NTS)



DETAIL
NTS @ A2

Section (NTS)

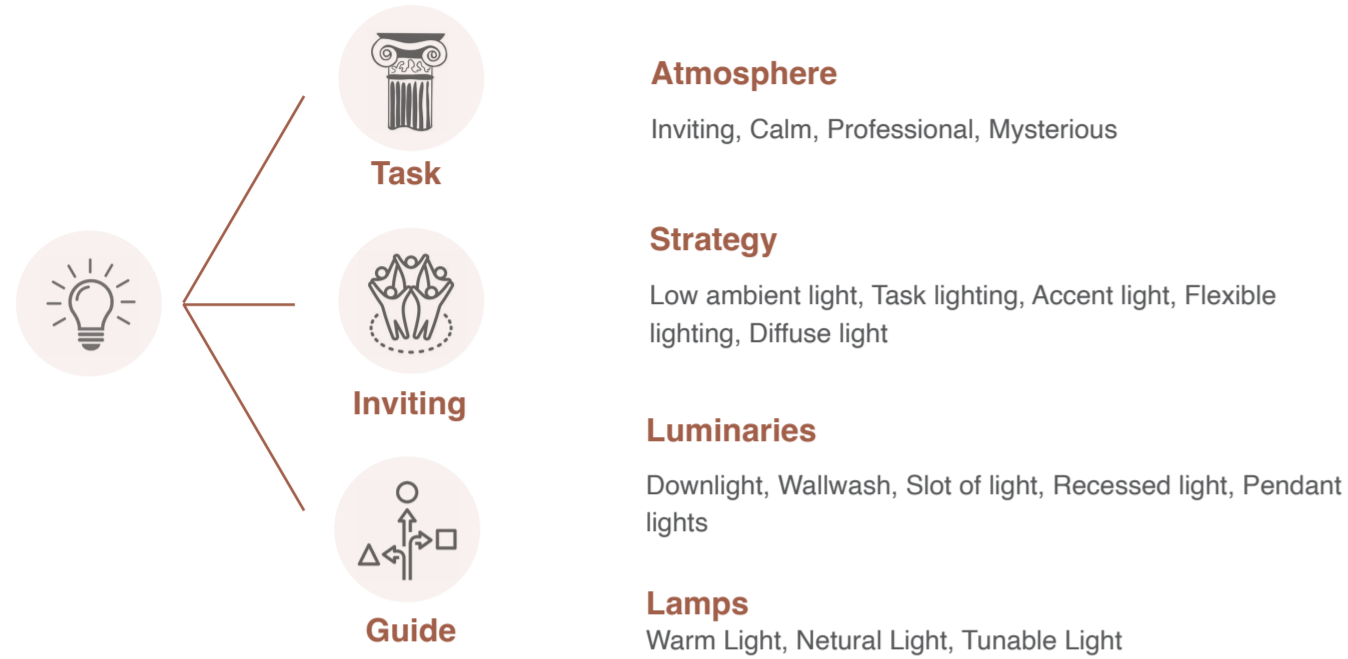


Section CC'

Lighting Design

LIGHTING STRATEGY

This lighting strategy integrates low ambient light, flexible lighting, and diffuse light to serve both functional illumination and visitor guidance. It supports reading, book and sculpture display, and circulation flow. From the bright entrance to the dim reference library and finally to the naturally lit window seats, the design creates a cohesive sensory journey that guide visitors behaviour.

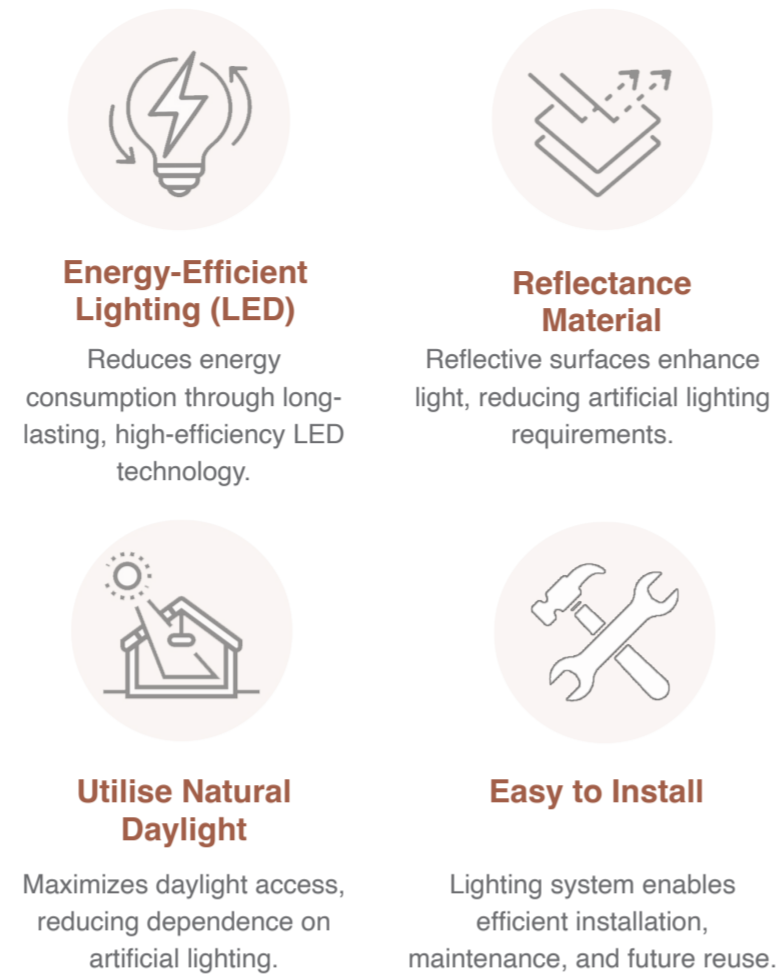


UTILISE NATURAL DAYLIGHT



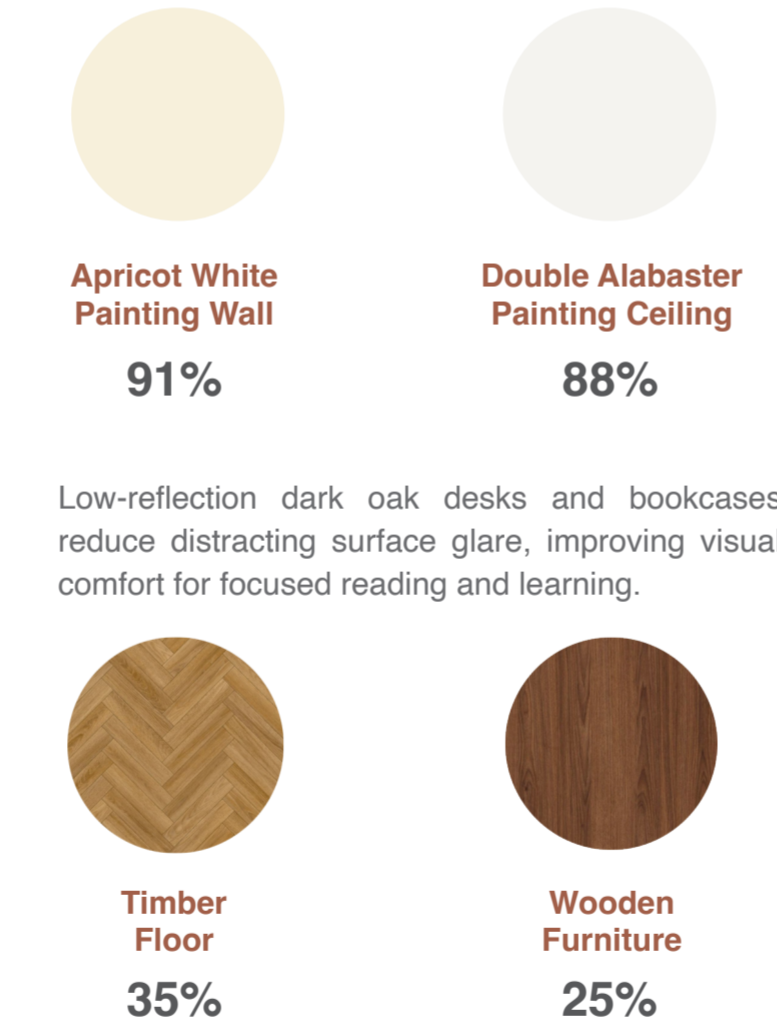
Natural daylight provides soft, even lighting that reduces eye strain and improves reading clarity. It creates a calm, focused atmosphere for study and enhances overall comfort (Fjeld, 2025). I focused on the lighting arrangement within reading zones. All reading areas are positioned adjacent to windows, allowing users to enjoy exterior views and receive natural daylight. In terms of artificial lighting design, table lamps are installed as task lighting for reading activities. This layout achieves a balanced integration of natural and artificial light. The overall lighting environment creates a comfortable, functional and visually pleasant atmosphere for long-term reading.

FJELD, P.O. (2025). *DAYLIGHT & ARCHITECTURE*. [online] Daylightandarchitecture.com. Available at: <https://www.daylightandarchitecture.com/inside-the-light-phillips-exeter-academy-library/>.



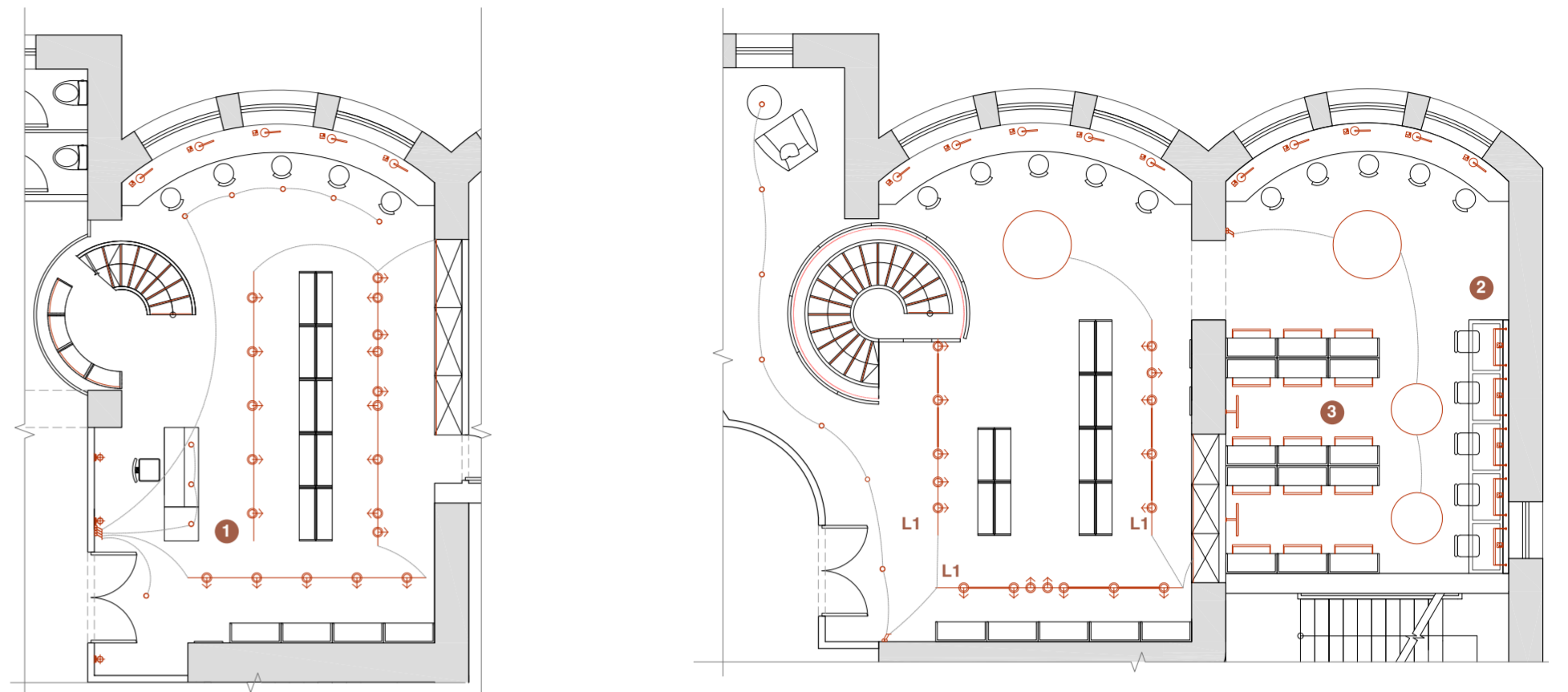
MATERIAL REFLECTANCE RATE

High-reflective walls and ceilings maximise natural and LED light spread across the room, reduce extra lighting demand.



LIGHTING PLAN - READING ROOM (NTS)

Due to the different ceiling height of this two level. I install recessed light strips inside track fixtures on the upper ground floor for the ceiling wall washing, balancing brightness across two floors with the same base lighting layout.



Lower Ground Floor - Library (C.H. 2650mm)

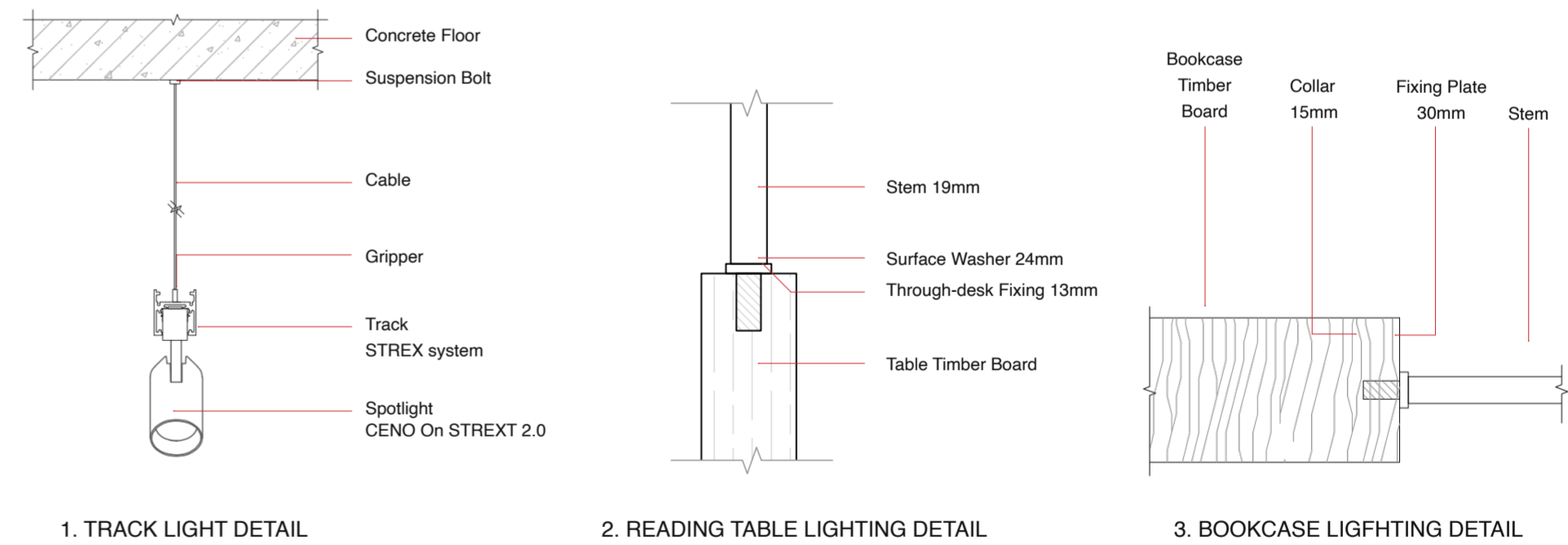
Upper Ground Floor- Library (C.H. 4000mm)

LEGEND



CONSTRUCTION DETAIL (NTS)

Suspended luminaires are adopted to avoid drilling or damaging the listed building's original fabric. The modular fitting enables easy disassembly and reassembly, avoiding construction waste.



Lighting Specification

The lighting used in the space are all LED. LED lighting reduce operational energy demand while providing durable, low-maintenance illumination that supports the library's long-term used. Compared with traditional light sources, LED generates minimal excess heat. This keeps indoor temperatures stable and improves the room's overall thermal environment.



Materiality & Physical Model

SECTIONAL MODEL 1:50



Locker Area



Spiral Staircase

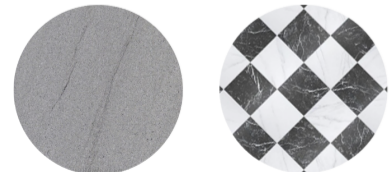


Retained Room - Magazine Lounge

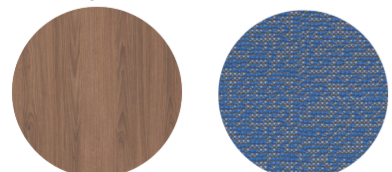


MATERIALITY

Public Area



Library



Functional Room



I use locally sourced sandstone for public area walls alongside black-and-white chequered marble flooring. Sourcing stone locally can significantly reduce carbon emissions related to transportation and integrate the interior space with the surrounding environment of the city. These durable and sturdy stone can also reduce long-term maintenance costs.

The library features pale yellow walls paired with furniture and bookcases made of recycled oak. The carpet suppresses background noise for focused reading.

For the functional room, original mint-green patterned wall and historic oak flooring are retained to preserve the original colour scheme of this building. Every specified surface material is fully recyclable and reduce ecological impact.

FURNITURE



Source: <https://huxlo-workplace.com/products/lekplats-bleachers-focal-point-seating-bundles>

I retain the existing reception room and repurpose it into a magazine lounge. Inspired by the existing ceramic tiles on the fireplace, I have chosen green and earth tones as the main colour palette, establishing visual cohesion between retained heritage fabric and new insertions.

I select stackable modular seats for practical and eco-friendly reasons. These lightweight movable pieces allow flexible space rearrangement, making it adaptable to different uses. The room have sufficient sunlight, so it reduces daytime lighting use and creates a comfortable lounge space and improve long-term sustainability.