

# THE SPATIAL MEDIATOR

*A Hybrid Public Building for the Mediation of Conflicting Flows at Ter  
Apel*

## Graduation Report



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## Abstract

Contemporary public buildings are increasingly required to mediate between competing spatial demands rather than to serve a single fixed programme. Ter Apel, a small Dutch village that functions simultaneously as the national asylum-registration hub and as a Cittaslow heritage-tourism destination, presents this challenge at exceptional intensity: permanent residents, transient asylum seekers, and prospective slow tourists generate triadic spatial friction at a documented scale. This graduation project, *The Spatial Mediator*, proposes a hybrid public building at the future Nedersaksenlijn station node that mediates these conflicting flows. The design is grounded in primary, data-driven research: a participatory workshop conducted with twenty-four asylum-centre residents across five language groups, supported by a purpose-built digital tool that allows the resulting programme-preference data to be filtered and compared by country of origin. The building applies Habraken's Open Building support-infill principle through a permanent steel cruciform structural grid serviced by an overhead crane, within which infill modules are reconfigured across a five-phase transformation spanning 2027 to 2075. A parametric roof of pyramidal photovoltaic modules drives the building toward a carbon-negative hundred-year lifecycle. The project demonstrates a transferable methodology for designing adaptable civic buildings in high-friction spatial contexts.

## Foreword and Reading Guide

This report documents the graduation project *The Spatial Mediator*, developed within the Public Building Graduation Studio (AR4AP120) at the TU Delft Faculty of Architecture and the Built Environment. The project follows a research-by-design approach in which empirical research and design decisions developed in continuous parallel. In keeping with this approach, the report foregrounds the primary research (the participatory workshop and the digital analysis tool built on its data) as the evidentiary foundation from which the design proceeds.

The report follows the four-part structure of the AUBS Graduation Report. Part 1 introduces the problem, relevance, objective, research questions, and scope. Part 2 sets out the approach, leading with the primary research methods before the theoretical framework and precedent research. Part 3 presents the results, opening with the workshop and digital-tool findings before the design explorations and the final design. Part 4 concludes by answering the research questions, discussing the implications for the profession, and reflecting on the process.

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# Part 1. Introduction

## 1.1 Research Introduction

Contemporary public buildings face a fundamental recalibration. Rather than functioning as passive containers for predetermined programmes, these structures must now actively mediate between competing spatial demands. This shift responds to persistent failures in traditional architectural approaches: separation, defensive design, and fortress-like configurations have consistently proven inadequate when addressing spatial coexistence. Physical infrastructure itself can become a segregating force; barriers, impermeable facades, and fragmented circulation operate as instruments of social division with effects comparable to explicit legal exclusion, a dynamic that scholars term architectural exclusion (Schindler, 2015; Osayimwese, 2017). The alternative requires integrating data-driven spatial analysis with health-centric design, flexible programming, mediation of flows between user groups, and phased identity restoration.

Ter Apel provides an extreme testing ground for these principles. This small Dutch village experiences spatial tensions at an intensity rarely documented in architectural literature. As both a refugee registration hub processing thousands of asylum seekers annually and a rural community positioned within Westerwolde's Cittaslow tourism framework, the village manages conflict between fundamentally incompatible user groups: permanent local residents who seek stability, transient asylum seekers who experience enforced waiting, and the aspirational slow tourists that the municipality now actively pursues. This produces triadic friction at exceptional scale. If architectural intervention can mediate these conflicting flows while restoring spatial dignity, urban legibility, and civic coherence, the resulting design principles become transferable to other polarised contexts.

## 1.2 Problem Statement

Spatial coexistence in high-friction areas destabilises communities through disrupted social cohesion, increased segregation, and incompatible spatial rhythms (Schindler, 2015). Defensive architectural responses operate as instruments of segregation precisely because they address symptoms rather than underlying spatial and programmatic causes. Barriers, impermeable facades, and fragmented circulation do not resolve conflict; they entrench it.

Ter Apel manifests this crisis at exceptional intensity. National research demonstrates that standard asylum centres generate no crime increase in most Dutch municipalities; however, Ter Apel represents a documented exception where friction runs structurally higher than regional averages (COA, n.d.; Noyon et al., 2025). Recorded crime reached 70 per 1,000 inhabitants in 2024, significantly exceeding neighbouring towns such as Musselkanaal at 27 per 1,000 (Noyon et al., 2025; Politie.nl, 2025). The underlying driver is enforced waiting: the prolonged uncertainty and loss of agency that pushes asylum seekers into unstructured public space, a condition associated with PTSD rates exceeding one-third and depression in approximately half of all cases (Côté-Olijnyk et al., 2024; Steel et al., 2011).

An identity collision compounds this crisis. Ter Apel developed around monastic hospitality traditions (Klooster Ter Apel, founded 1465), establishing a centuries-old identity as a place of refuge and care (Stenvert et al., 1998; Ozinga, 1940). Over recent decades this identity transformed as the village became a registration hub. Westerwolde now holds Cittaslow certification, awarded 19 June 2014 (Cittaslow Nederland, n.d.), positioning itself as a slow-

tourism destination emphasising heritage routes and monastic sites. Media coverage has so thoroughly associated Ter Apel with asylum reception that Google Trends data shows AZC as the most-searched term associated with the village. Read through Lynch's theory of urban imageability, Ter Apel's mental image shows paths functioning as danger corridors, edges creating fear zones, and disconnected landmarks (Lynch, 1960). A critical knowledge gap exists regarding how architectural intervention can function not as a barrier but as a mediator.

### **1.3 Relevance**

This research addresses an urgent architectural and humanitarian challenge while aligning with broader regional development. The project positions itself within the Nij Begun agenda, a thirty-year Dutch government initiative targeting economic and social regeneration in Groningen and North Drenthe following decades of gas-extraction damage. Nij Begun allocates EUR 200 million specifically for tourism and leisure to transition these regions toward sustainable development. Within this context, the Spatial Mediator functions as an architectural gateway to Westerwolde for slow tourists, providing tourism infrastructure to support post-gas economic transformation while simultaneously addressing the humanitarian challenge of dignified asylum reception.

The research contributes to architectural knowledge through methodological innovation emphasising genuine user consultation. Space Syntax spatial analysis (Hillier, 1996) and participatory research with asylum seekers as co-designers combine with precedent analysis and structural feasibility assessment to establish a replicable methodology. The evidence-based approach represents a transferable framework applicable beyond asylum reception to other architectural challenges involving spatial conflict and fragmented identity.

### **1.4 Objective and Motivation**

The primary architectural objective is a hybrid public building that serves as a spatial mediator between four distinct user groups: permanent local residents, transient asylum seekers, slow tourists, and municipal service users. The building's design ambition is to demonstrate that a single structural framework can accommodate four incompatible institutional logics through a deliberate, multi-phase transformation strategy tied to the staged restoration of Ter Apel's identity.

This ambition is operationalised through a five-phase Open Building transformation spanning half a century. In the 2027 phase, the building combines municipal functions and a selection of asylum-reception functions across roughly half of its area, with the remaining half configured as a large hall for community festivities and events, the first instrument of image rehabilitation. The 2030 phase retains the municipal and reception core and converts the remaining area into three bookable event halls for the surrounding community, together with a restaurant, a barber and beauty salon, and a kiosk. The 2035 phase, coinciding with the planned completion of the Nedersaksenlijn, is the fully elaborated configuration of this project: it integrates the asylum, tourist, local, and municipal programmes across approximately ninety percent of the building, retaining ten percent as unassigned breathing room for future demand. The 2050 phase develops the building into a full tourism terminal on the basis of the 2035 configuration, and the 2075 phase introduces dwellings into the structure as a demonstration of long-term adaptability.

Across all five phases, the permanent support layer (the 14.4-metre cruciform steel column grid, the MEP distribution, and the underground tunnel corridor to the railway platforms) remains unchanged, and is designed to remain in service for well over a century while the infill is renewed. Only the infill configuration is reconfigured per phase, operationalising Habraken's support-infill separation (Habraken, 1961/1972) as the mechanism that enables transformation without structural demolition. The conviction that humanitarian reception and tourism development are not mutually exclusive, but can be mediated through strategic architectural intervention, provides the personal motivation for this project.

## 1.5 Research Questions

Main research question: How can a strategic architectural intervention in Ter Apel support the transformation of local identity from a landscape of crisis to a place of dignified reception and community function, by spatially mediating the conflicting flows of locals, refugees, and tourists through data-driven design and agile architecture with flexible programming?

Sub-question 1 (Missing Links): How can a data-driven analysis of user needs expose the specific spatial and programmatic missing links that currently separate the communities, in order to inform the design of a public building?

Sub-question 2 (Architectural Interventions): What architectural interventions can improve flows between user groups, support health and well-being, and enable programmatic transformation over time?

Sub-question 3 (Tourism Integration): What tourist demographic should the Spatial Mediator serve, based on a critical analysis of Westerwolde's tourism strategy and comparative case-study precedents, and what spatial and programmatic requirements does this demographic demand?

## 1.6 Scope

The design of the Spatial Mediator in Ter Apel constitutes the focus of this graduation project. The intervention is positioned along the N366 national road at the crossing between the interlocal connection to Emmen and Stadskanaal and the local historical canal street toward the village centre, the Klooster Ter Apel, and the Ruiten Aa. The site sits approximately ten minutes' walk from the COA asylum reception centre, directly on the route asylum seekers use when moving between the facility and the village centre, at the intersection that constitutes the future station node for the planned Nedersaksenlijn.

The studio brief defines the programme as a New Impulse Hub of 2,000 to 2,500 square metres serving as a future station on the Nedersaksenlijn, with mandatory functions comprising the station, guest accommodation, a theatre, a café, and municipal services. The research process (combining the participatory workshop findings, the tourism-infrastructure requirements of Westerwolde's Cittaslow strategy, and the civic-programme requirements of a municipal satellite office) established that a brief of this scale is insufficient to mediate between four user groups with conflicting spatial rhythms and institutional logics. The design therefore expands the programmatic scope to 5,204.08 m<sup>2</sup> gross floor area across three levels (Basement, Ground Floor, and First Floor).

This expansion is grounded in research rather than designer preference. The inclusion of municipal functions responds to a concrete failure in the current situation: asylum seekers

presently travel approximately 1.5 hours each way by bus to reach municipal services, a journey that is unworkable for people who speak neither Dutch nor English, and which routes them directly through the contested retail centre that constitutes Ter Apel's principal zone of friction. Locating municipal services within the building removes both the journey and the friction. The guest accommodation comprises twenty two-person rooms across two floors (forty beds), an infrastructure scale calibrated to Westerwolde's ambition of attracting some 100,000 annual visitors as the region transitions toward post-gas tourism. The project focuses on the design of this hybrid building system as a phased transformation framework following Open Building principles, wherein the permanent structural support accommodates five distinct programmatic configurations without structural modification.

## Part 2. Approach

### 2.1 Methods

The methodology follows a research-by-design approach (Cross, 1982; Groat & Wang, 2013): design decisions and research findings developed in continuous parallel, with each spatial iteration generating new investigative questions and each analytical result immediately influencing configuration decisions. In line with the project's evidence-based ambition, the primary research instruments (the participatory workshop and the digital analysis tool built upon its data) are presented first, as the foundation from which the theoretical framework, precedent research, and design proceed.

#### **Primary research: participatory workshop**

A participatory workshop was conducted on 4 March 2026 at the COA asylum reception centre in Ter Apel with twenty-four residents across five language groups. Following ethical principles for research involving refugee populations (Clark-Kazak, 2017; Refugee Studies Centre, 2007), participation was voluntary and conducted in participants' native languages using printed booklets prepared in Arabic, Farsi, Tigrinya, Spanish, and Turkish (Van Dongen, 2026). The workshop employed a scarcity-constraint block-allocation method in which participants distributed sixty-four blocks across indoor and outdoor programme grids, producing quantitative spatial-preference data that directly informs the building's programmatic configuration. Full methodology and findings are reported in Section 3.1.

#### **Primary research: digital comparative analysis tool**

To extend the analytical reach of the workshop data, a purpose-built web application was developed as a second primary-research instrument. The tool encodes the complete workshop dataset and allows the programme-preference results to be filtered and cross-tabulated by participant attributes: country of origin, household composition, age group, and function. This makes it possible to compare, for example, the programme priorities of participants from Iran against those from Syria, revealing the heterogeneity of needs within a population too often treated as monolithic. The tool was used throughout the design process to test programmatic assumptions against the disaggregated data; its findings are reported in Section 3.2.

#### **Literature research and theoretical framework**

A systematic literature review formed the analytical foundation of the research. Seven spatial-theory frameworks were reviewed, synthesised, and operationalised into concrete dimensional, positional, and relational design decisions: Space Syntax configurational theory (Hillier, 1996; Hillier & Hanson, 1984), Gehl's conditions for optional and social activity (Gehl, 2011), Hertzberger's polyvalent space and thickened edges (Hertzberger, 2016), Boettger's threshold-space phenomenology (Boettger, 2014), Van Eyck's twin phenomena and the in-between (Van Eyck, 1966), Appleton's prospect-refuge theory (Appleton, 1996), and the Open Building framework of Habraken (1961/1972) as extended by Brand (1994) and Kendall and Teicher (2000).

#### **Precedent research**

Seven built and unbuilt precedents were examined across two investigative clusters. The first addressed hybrid civic infrastructure (Delft Railway Station and City Hall by Mecanoo, Price's

Fun Palace, and the Sydney Fish Market by 3XN/GXN and BVN); the second addressed adaptive construction systems (Patch 22 by FRANTZEN et al architecten, S'lowtecture by Broma, the Respace box-in-box system, and the Natural Pavilion at Floriade Almere by DP6 and ABT). Cases were selected for their relevance to hybrid-programme integration, support-infill separation in practice, and crane-assisted modular assembly. Findings are reported in Section 2.2.2.

### **Open Building support-infill separation**

Open Building theory (Habraken, 1961/1972; Brand, 1994) was applied as the primary organisational methodology. The permanent support layer (the cruciform steel column grid at 14.4-metre primary intervals, the MEP distribution network, and the underground pedestrian corridor) was established as a framework designed to remain in service for more than a century. Within it, the infill (interior partitions, programme-specific modules, and fit-out) is designed to be reconfigured across the five phases without any intervention in the support layer.

### **Privacy gradient as spatial-zoning instrument**

Hertzberger's articulation principles (Hertzberger, 2016) were applied through a four-tier privacy gradient from fully private through semi-private and semi-public to fully public. Municipal back offices, guest accommodation, and consultation rooms occupy topologically deep positions, while café functions, tourist information, the theatre foyer, and refugee learning spaces occupy the most accessible perimeter zones. The central courtyard constitutes the convergence zone accessible to all user groups simultaneously.

### **Structural feasibility and parametric design**

The primary structural system was verified through engineering calculations establishing the column profile (cruciform steel section 400 × 400 × 50 mm, S355), primary glulam beams (GL28h, 1,000 × 500 mm primary; 750 × 300 mm secondary), overhead-crane specification (Demag V-girder, 5-tonne capacity, 14.4-metre span), and façade connection system (standardised container corner castings with automatic twistlock connectors); a fully fitted module is estimated at approximately 3,645 kg. Parametric design in Grasshopper and Rhino 8 served two roles: an early bubble-packing system (incorporating Kangaroo physics and spatial hashing) used to test programmatic relationships during exploration, and the generative system for the pyramidal roof modules, whose geometry was optimised against Ter Apel weather data to maximise photovoltaic yield (see Section 3.4.3).

### **Process timeline**

Between the A1 kick-off and this A3 submission, the work progressed from the early parametric form study, through the development of the crane-serviced modular system and the support-infill framework, the participatory workshop and its digital analysis, the theoretical and precedent research, and the resolution of structure, façade, roof, climate, and phasing into the final design documented in Part 3. The reflection in Section 4.3 accounts for the key turning points in this process.

## 2.2 Theoretical Framework

### 2.2.1 Spatial Theory

The design draws on seven interconnected theoretical frameworks, each contributing a distinct analytical lens to the central challenge of spatial mediation. These frameworks inform decisions at three scales: the urban scale of movement and integration, the building scale of programme organisation and threshold conditions, and the component scale of adaptive construction.

Space Syntax (Hillier, 1996). Hillier's configurational theory holds that the geometric structure of a spatial network is the primary driver of pedestrian movement: people navigate toward spatially integrated spaces because the network makes them reachable from many directions with few changes of direction. For the Spatial Mediator this governs the building's positioning to intercept the existing asylum-seeker route, and the internal configuration that prioritises the central courtyard as the highest-integration node, ensuring all four user groups encounter a shared convergence point as a natural consequence of movement.

Life Between Buildings (Gehl, 2011). Gehl's empirical work shows that social activity is a secondary phenomenon, emerging wherever optional activities already exist, and that voluntary occupation clusters at boundaries where back protection and frontal view coincide: the edge effect. This governs the design of the courtyard perimeter, where seating, shelter, and material quality are concentrated at the boundary rather than the open centre.

Polyvalent space and thickened edges (Hertzberger, 2016). Hertzberger argues that durable spaces commit fully to a specific form that invites several incompatible modes of occupation simultaneously, distinct from neutral flexibility. The thickened edge expands the meeting of two programmes into a zone with its own identity. This governs the threshold zones between the shared civic core and the user-group programmes, dimensioned to afford dwelling, display, waiting, and passage at once.

Threshold spaces (Boettger, 2014). Boettger distinguishes thin thresholds (a door, a material change) from deep thresholds: volumetric zones that provide the physical distance required for psychological reorientation, a decompression chamber. The covered outdoor terrace and the extended roof cantilever function as decompression chambers mediating between the N366 environment and the courtyard interior.

Twin phenomena (Van Eyck, 1966). Van Eyck rejected resolving spatial problems by choosing between opposites, locating the richest possibilities in the in-between where both conditions are simultaneously present. The central courtyard is designed as such an in-between: neither enclosed interior nor exposed exterior, accessible to all user groups and belonging exclusively to none.

Prospect-refuge theory (Appleton, 1996). Appleton's evolutionary account explains why people almost never choose positions in the open centre of a room, preferring edges with a wall behind them. For asylum seekers experiencing heightened threat perception (Côté-Olijnyk et al., 2024), this governs courtyard and threshold seating: a slight elevation above circulation, a position clear of active flow, and a minimum seating depth of 40 to 45 cm.

Open Building (Habraken, 1961/1972; Brand, 1994). Habraken's support-infill theory organises buildings into layers of differing temporal cycles; Brand refined this into site, structure, skin, services, space plan, and stuff. For the Spatial Mediator the support layer (the

14.4-metre grid, MEP distribution, and tunnel corridor) is designed for a hundred-year lifespan and remains constant across all five phases, while the infill layers are reconfigured on ten-to-twenty-five-year cycles without structural intervention.

### 2.2.2 Precedent Research

Cluster I: Hybrid civic infrastructure. The Delft Railway Station and City Hall by Mecanoo (2017) is the most direct built precedent: a 28,320 m<sup>2</sup> building integrating high-throughput rail infrastructure with formal municipal civic functions in a single unified volume, replacing a brutalist viaduct that had severed Delft's fabric since 1965 and thereby demonstrating that transport infrastructure can repair rather than divide. It validates the integration of municipal services with railway infrastructure as operationally viable (Mecanoo, 2017). Cedric Price's Fun Palace (1961–1972), though unrealised, is the foundational conceptual precedent for architecture as an adaptive, indeterminate framework, in which permanent service towers define reconfigurable zones assembled from standardised components (Price, 1964); its conception of the building as a system responding continuously to user data resonates directly with this project's data-driven methodology. The Sydney Fish Market by 3XN/GXN and BVN (2026) demonstrates computational optimisation of a continuous canopy over a long-span grid with twelve-metre cantilevers, creating a sheltered field in which programme and circulation can be freely rearranged, directly validating the strategy of a neutral long-span grid supporting reconfigurable infill (3XN/GXN & BVN, 2026).

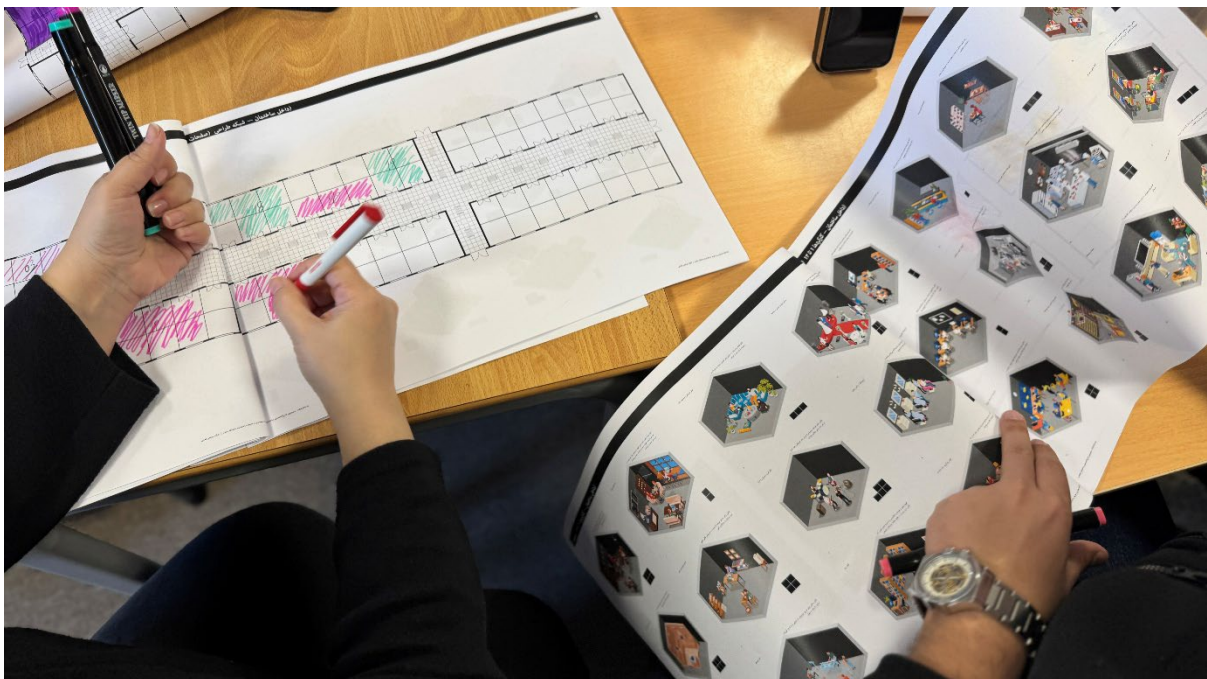
Cluster II: Adaptive construction systems. Patch 22 in Amsterdam by FRANTZEN et al architecten (2016) is the most thoroughly documented built implementation of support-infill separation: a Slimline floor with a 400 mm service cavity carries all services horizontally across roughly nine column-free metres, allowing residents to design their own layouts so that no two apartments are identical (Frantzen & Kruit, 2025; RE-DWELL, 2023), a principle directly applicable to the 14.4-metre bay. S'lowtecture by Broma (2018) proposes a rule-based, self-organising cellular system whose logic mirrors physics-simulation engines such as Kangaroo, enabling the translation of qualitative preference data into quantitative spatial configurations. Respace (2020) operationalises support-infill through a digitally integrated box-in-box system with QR-coded material passports and reversible Japanese joinery (Respace, 2024). The Natural Pavilion at Floriade 2022 by DP6 with ABT (2022) employs the HoutKern system of 3.5-metre timber cube modules joined by some 800 identical recycled-steel nodes, achieving 95% bio-based content and demonstrating adaptive reuse after the event closed (ABT, 2022; DP6 Architectuurstudio, 2022).

## Part 3. Results

### 3.1 Participatory Workshop: Research Findings

The participatory workshop served as the primary data-collection instrument, designed to circumvent the limitations of conventional architectural surveys that rely on abstract spatial vocabulary inaccessible to participants without architectural training. Five language editions of the booklet (Arabic, Farsi, Tigrinya, Spanish, and Turkish) ensured linguistic accessibility across the principal language groups in the Ter Apel facility (Van Dongen, 2026). Twenty-four participants completed the workshop across five language groups: Arabic (n = 8), Spanish (n = 5), Farsi (n = 4), Tigrinya (n = 4), and English (n = 3).

The scarcity-constraint method asked each participant to design their own "dream mall": an ideal version of the building assembled from a library of twenty-four indoor and twenty-four outdoor functions. Participants first identified their most pressing unmet spatial needs, then allocated exactly sixty-four blocks (each representing 25 m<sup>2</sup>) across printed indoor and outdoor grids to compose their preferred configuration. Because the full library of functions amounted to ninety-one blocks while only sixty-four could be placed, participants were forced to solve a genuine prioritisation puzzle, trading desirable functions against one another rather than simply listing preferences. All twenty-four booklets were digitised and encoded into a relational database by the researcher without automated extraction tools.



*Figure 1. Workshop session*

The survey reveals a hierarchy of unmet needs that diverges substantially from the assumptions embedded in Dutch asylum-reception infrastructure. A place to study or work and access to music and art are jointly the most frequently identified missing provisions, each cited by fourteen of twenty-four participants (58%). Learning Dutch ranks third (54%), followed by safe childcare (38%) and access to green or quiet space (33%). Notably, a place to pray is identified by only one participant (4%), and internet and computers by only three (13%), directly contradicting assumptions prevalent in standard reception-centre design.

In the indoor block allocation, the Dutch Learning Space and Barber/Salon are the two most-selected functions (each 79%). This pairing is analytically significant: the Barber/Salon operates as a culturally embedded social infrastructure of conversation, routine, and dignity, while the Dutch Learning Space responds to the highest-ranked learning need. The Indoor Play Space ranks third (71%), reflecting the family-dominant composition, followed by a coherent second tier: Café/Tea House, Music Room, Reading and Writing Support, and Teen Zone (each 67%). The Community Hall for ceremonies and the Meditation/Quiet Reflection Room rank among the least selected (29% each). Outdoors, the Café Terrace (54%) and Exercise/Fitness Area (50%) lead, consistent with evidence on the therapeutic value of structured physical activity for asylum seekers (Gerber et al., 2021; McKeon et al., 2024), while the Prayer/Meditation Garden receives the lowest selection (8%).

Qualitative responses converge on a consistent affective vocabulary: for outdoor spaces, calm, green, welcoming, and safe; for indoor spaces, safe, warm, social, and without prejudice, the last appearing across multiple language groups as a spatial aspiration toward freedom from discrimination. Functions requested but absent from the library include a library, an ATM, a supermarket, therapeutic support spaces, and a school for children with special needs, confirming the breadth of programmatic deficit in the current facility.

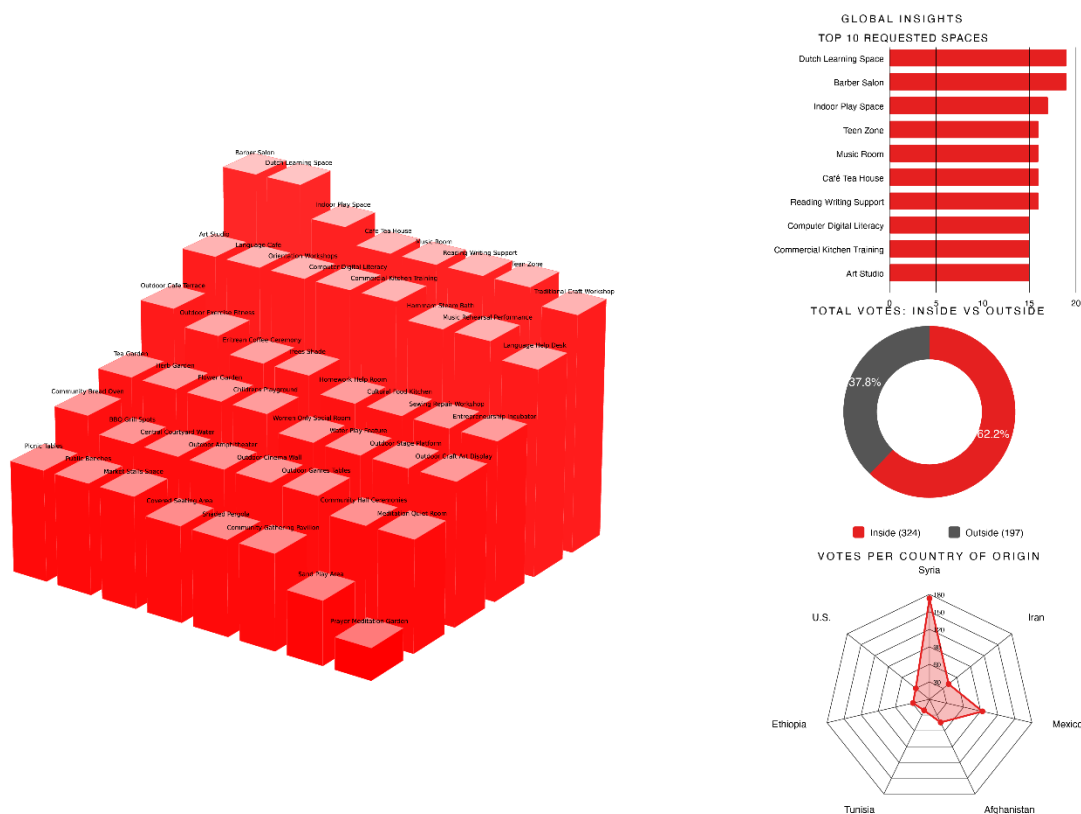


Figure 2. Participant demographics infographic

### 3.2 Digital Comparative Analysis Tool

The web application built on the workshop dataset transforms a static survey into an interrogable evidence base. By filtering the results on participant attributes, the tool exposes patterns that an aggregate reading conceals. Comparing programme preferences by country of origin, for instance, shows that participants from different national backgrounds weight





Figure 4. Site analysis diagram: N366 talud, COA pedestrian route, railway alignment, wind direction, and site ground level relative to the N366.

### 3.3.2 Form Concept and Multiple Entrances

The building form is not derived from a figurative source but generated directly from the programmatic logic of the research. The  $14.4 \times 14.4$ -metre structural module, the primary bay of the Open Building support grid, is the generative unit from which the volume is assembled. Programme accumulates in discrete clusters along the assembly (the studio and service functions, the municipal satellite office, the central convergence core, the refugee-facing community programme, and the tourist accommodation), with two further bays held as unassigned breathing room, a direct application of the principle that the support should exceed the immediate infill.

A decisive refinement since the midterm is the move away from a single continuous corridor toward multiple entrances distributed along the building. Rather than channelling all users through one spine, the building now offers several points of entry, generating multiple overlapping flows, an approach informed by movement-logic studies of public buildings (BETA office for architecture and the city, 2016). This produces a livelier, less institutional building in which encounters between user groups occur across several thresholds rather than at a single controlled point, while the central courtyard remains the shared convergence node through which movement between any two zones passes.

All clusters share one continuous roof plane, establishing the building as a unified civic object rather than a collection of institutional fragments. The roof geometry is developed parametrically (see Section 3.4.3) into a field of photovoltaic modules, connecting architectural expression directly to the carbon targets established in the design.

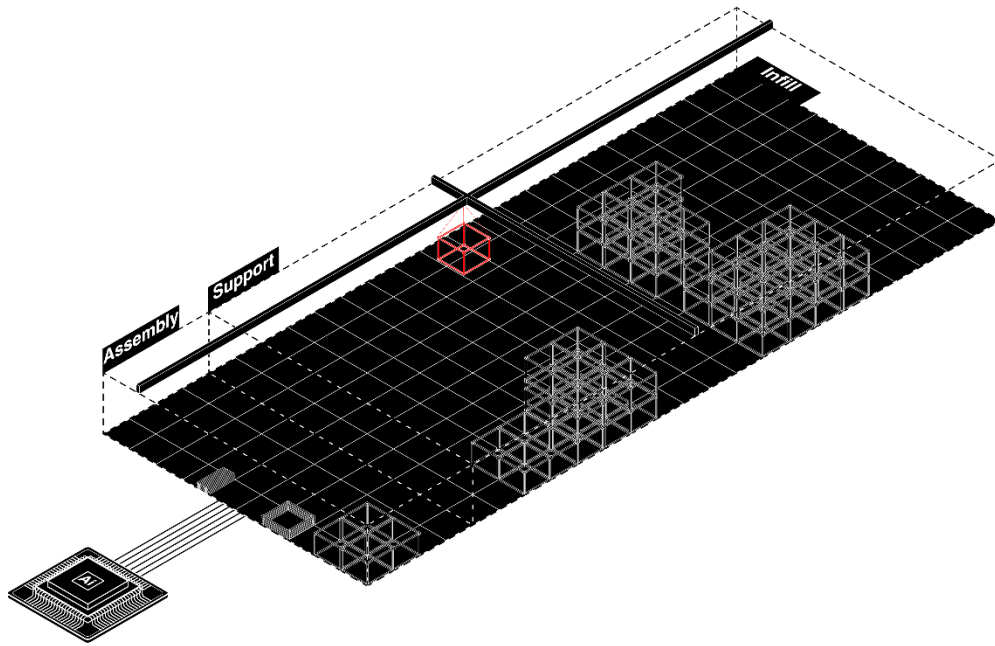
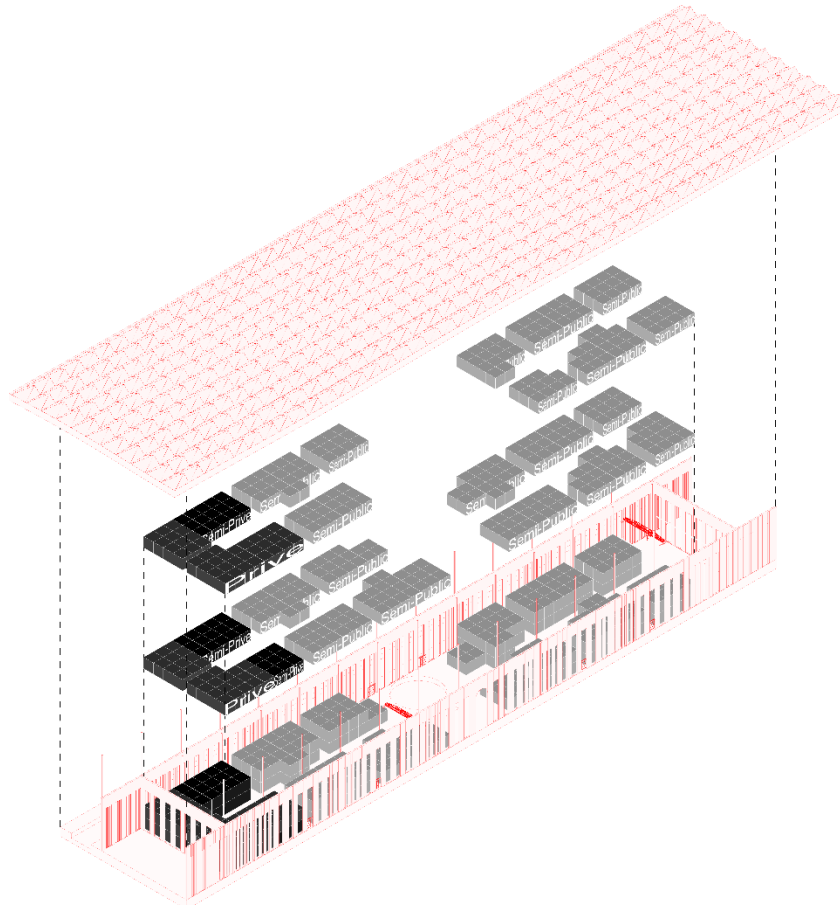
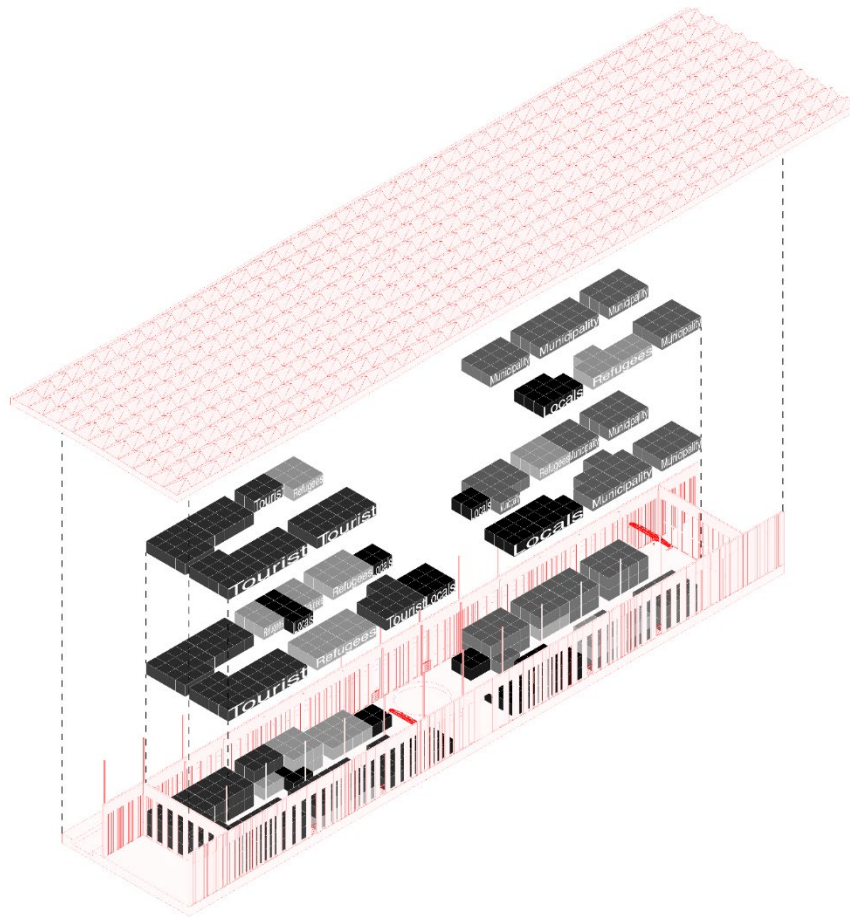


Figure 5. Support vs Infill concept..

### 3.3.3 Programmatic Distribution Strategy

The four user-group zones are organised along three intersecting logics: east-west zoning, vertical differentiation across floors, and the Hertzberger privacy gradient from fully public at the southern perimeter to progressively more private toward the north and upper levels. The municipality and refugee zones occupy the western portion; the tourist and locals zones occupy the eastern portion. The central courtyard constitutes the highest-integration node, positioned so that movement between any two zones passes through or around the shared convergence space. The courtyard staircase descends to the basement, connecting the bicycle storage and the underground pedestrian tunnel that runs beneath the railway to Platform 2 and continues to the northern nature park, allowing users to reach the landscape and platforms without crossing the N366 at grade.



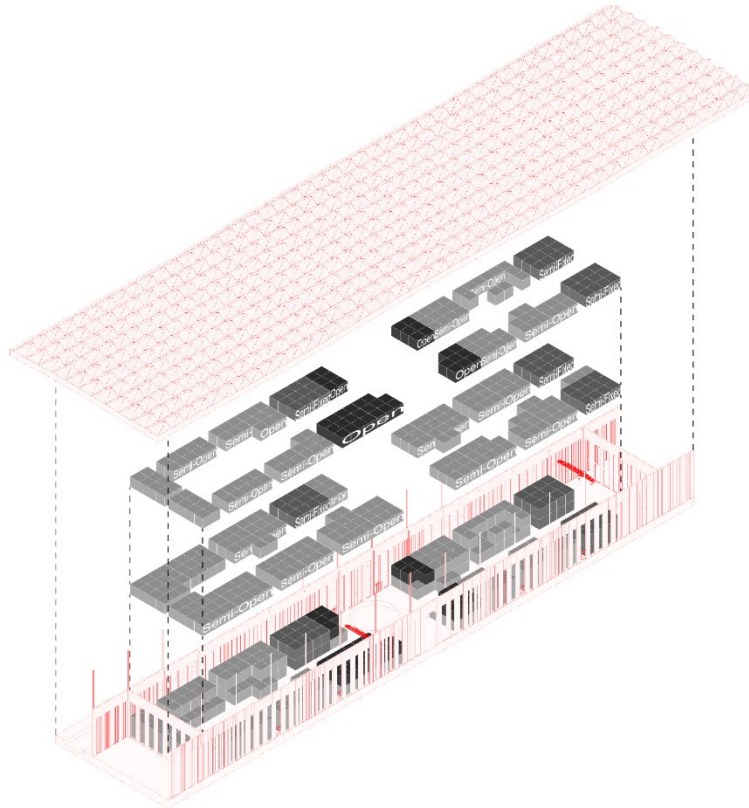


Figure 6. Programmatic distribution axonometric showing the four user zones, the private-to-public gradient, and fixed versus unfixed functions.

## 3.4 Final Design

### 3.4.1 Structural System

The primary structure employs cruciform steel columns (400 × 400 × 50 mm, S355) on a 14.4-metre primary grid, with a subdivisional hierarchy at 7.2, 4.8, 3.6, 2.4, and 1.8 metres enabling flexible infill at any modular interval. The choice of steel for the columns, in place of the timber-dominant strategy initially explored, was determined by the dimensional-precision requirements of the overhead-crane module system: the cruciform profile provides four corners into which the module edges register precisely, reducing the gap between adjacent modules to a minimum and achieving tolerances that timber columns could not consistently deliver. The primary beams remain glulam GL28h (1,000 × 500 mm) spanning the 14.4-metre intervals, with 750 × 300 mm secondary beams across the subdivisions, preserving the project's bio-based ambition. The sunken courtyard is structurally enabled by the grid's continuity across the void perimeter, allowing the crane to operate across the full building width.

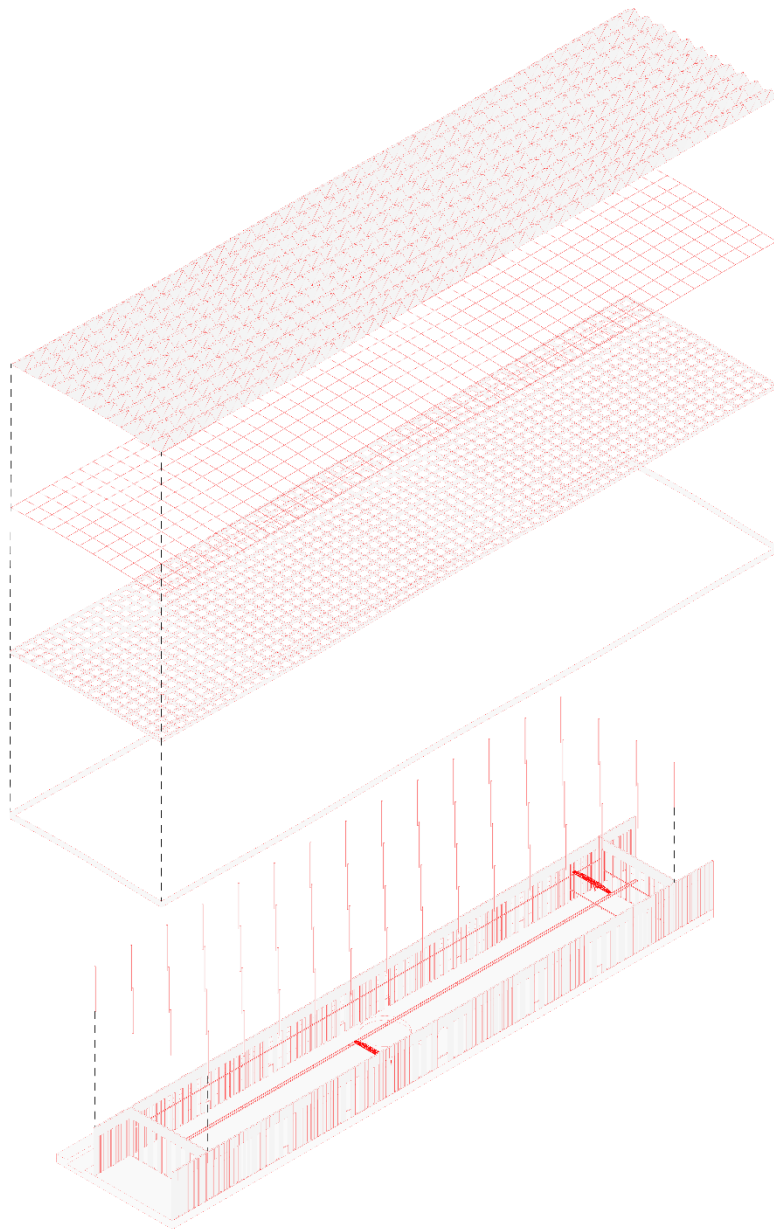


Figure 7. Structural grid diagram (14.4 m primary grid and subdivisive hierarchy) and the cruciform column detail (400 × 400 × 50 mm, S355).

### 3.4.2 Crane and Module System

The building's adaptive capacity is operationalised through a Demag V-girder double-rail top-running overhead crane with a 5-tonne lifting capacity and a 14.4-metre span. The crane runs on rails at the structural perimeter, enabling module placement and replacement across the full floor plate without ground-level access; a minimum hall length of eleven to twelve metres is required for the operational turning radius. A fully fitted module is estimated at approximately 3,645 kg, within the crane's capacity. Structural connections employ standardised container corner castings with automatic twistlock connectors, enabling full connection through crane movement alone. Two structural typologies accommodate different requirements: a column-grid typology for flexible open-plan spaces, and a wall-module typology for column-free volumes such as the theatre.

### 3.4.3 Roof Modules and Climate Concept

The roof is resolved as a field of parametric modules developed in Grasshopper and Rhino against Ter Apel weather data. Each module takes the form of a pyramid carrying building-integrated photovoltaic (BIPV) panels on its east, south, and west faces at their optimal inclinations for solar yield, while the north face is glazed with operable windows that admit daylight and enable natural ventilation. Ventilation grilles are integrated beneath the windows on the north, east, and south faces so that, in summer, cool air can be drawn in low while warm air rises and is exhausted through the roof modules, driving passive stack ventilation. The roof therefore performs three roles simultaneously: it is the building's primary energy generator, its principal daylight source, and the engine of its passive-cooling strategy, integrating architectural expression, energy performance, and climate comfort in a single repeating component.

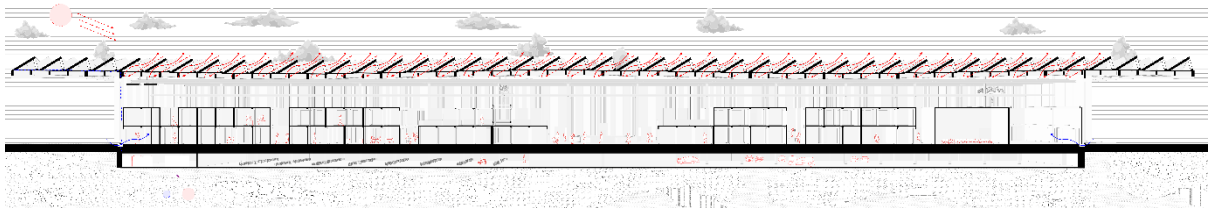
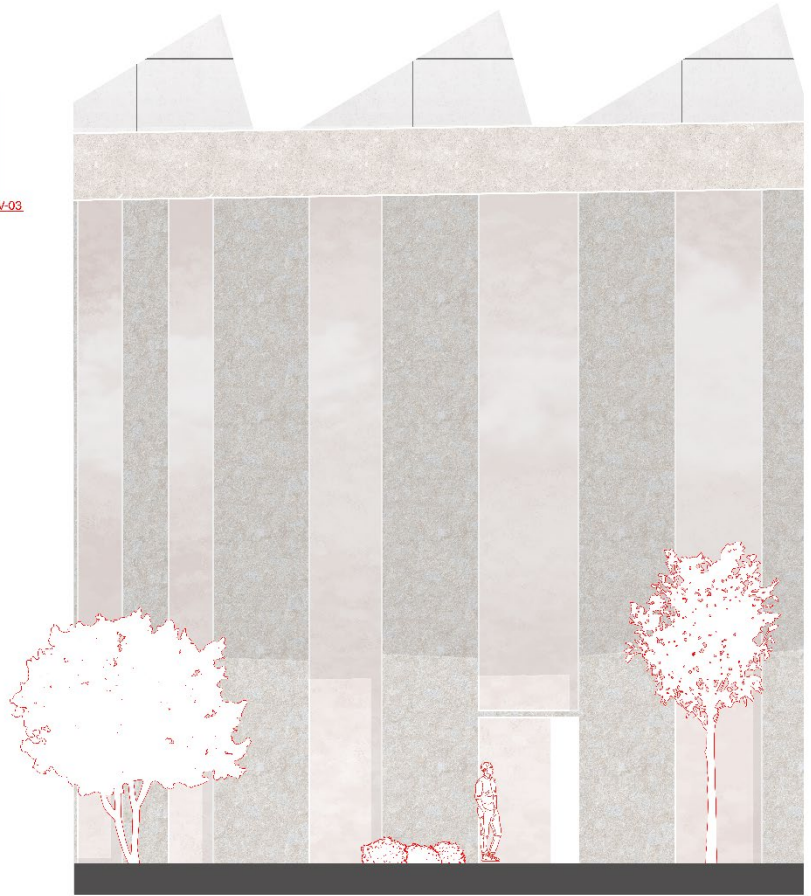
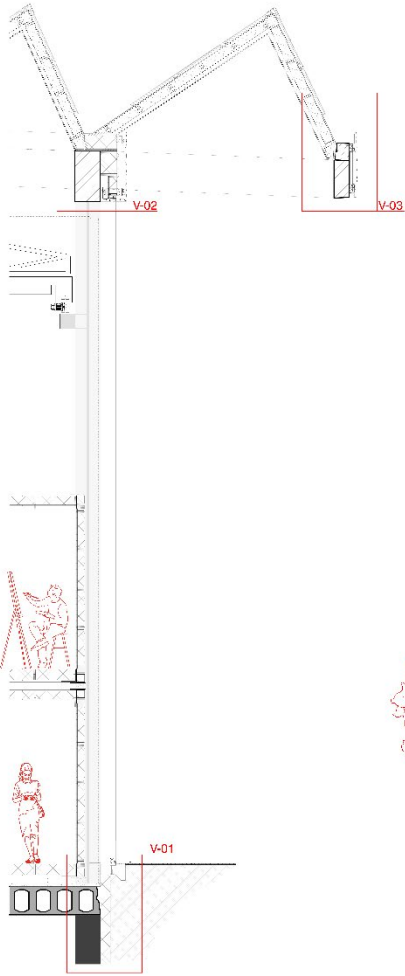
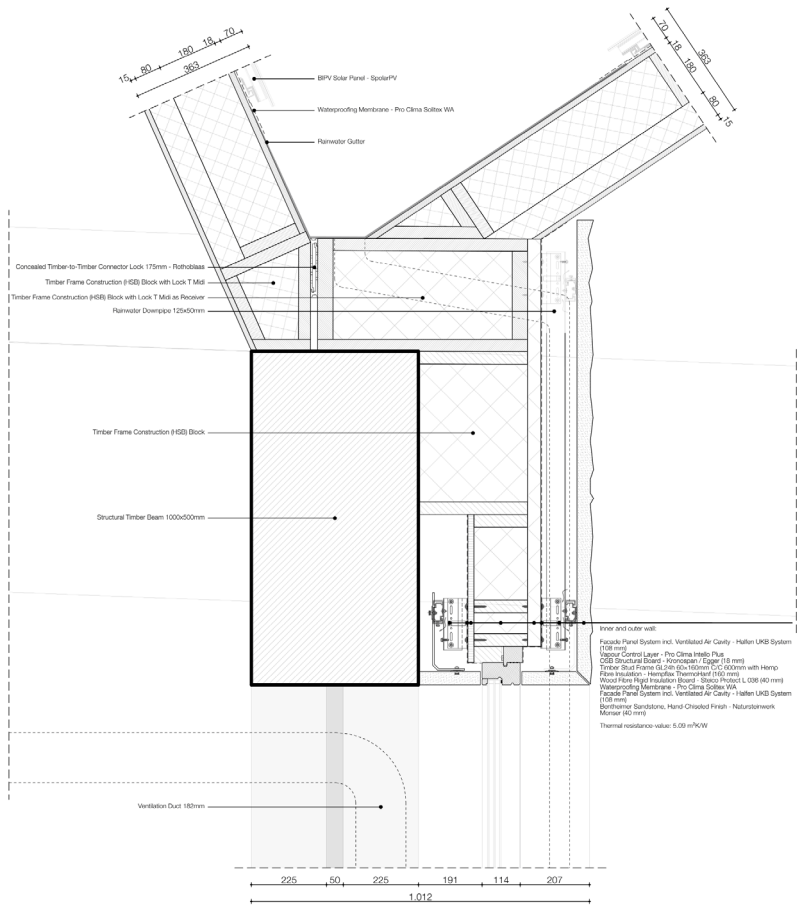
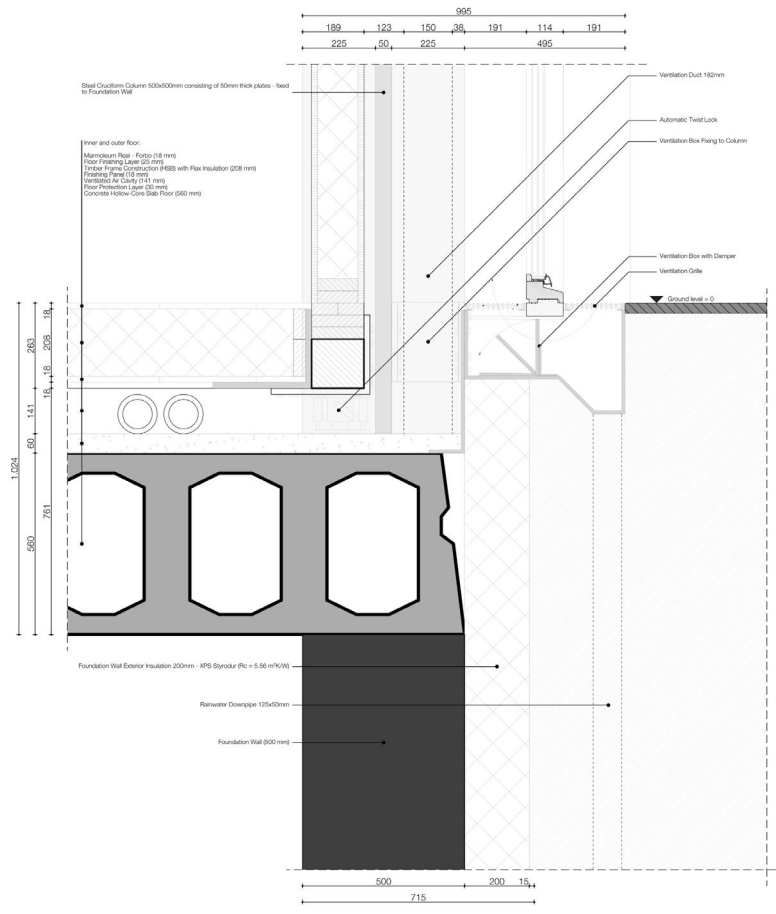


Figure 8. Climate concept diagram: daylight, and natural ventilation through the roof modules.

### 3.4.4 Façade and Floor Systems

The façade employs the same standardised container corner-casting connection used for the structural modules, establishing a unified connection logic across scales: façade panels can be replaced or reconfigured using the same crane operation that services the modules, without separate scaffolding. The floor is the Rothoblaas Lock Floor, a prefabricated timber-composite panel system compatible with the grid's subdivisional hierarchy. Interior demountable partitions use the Knapp Gigant system, enabling reconfiguration without structural intervention. The monolithic undulating roof cantilevers beyond the southern and eastern perimeters to create covered threshold zones functioning as decompression chambers in the sense described by Boettger (2014).





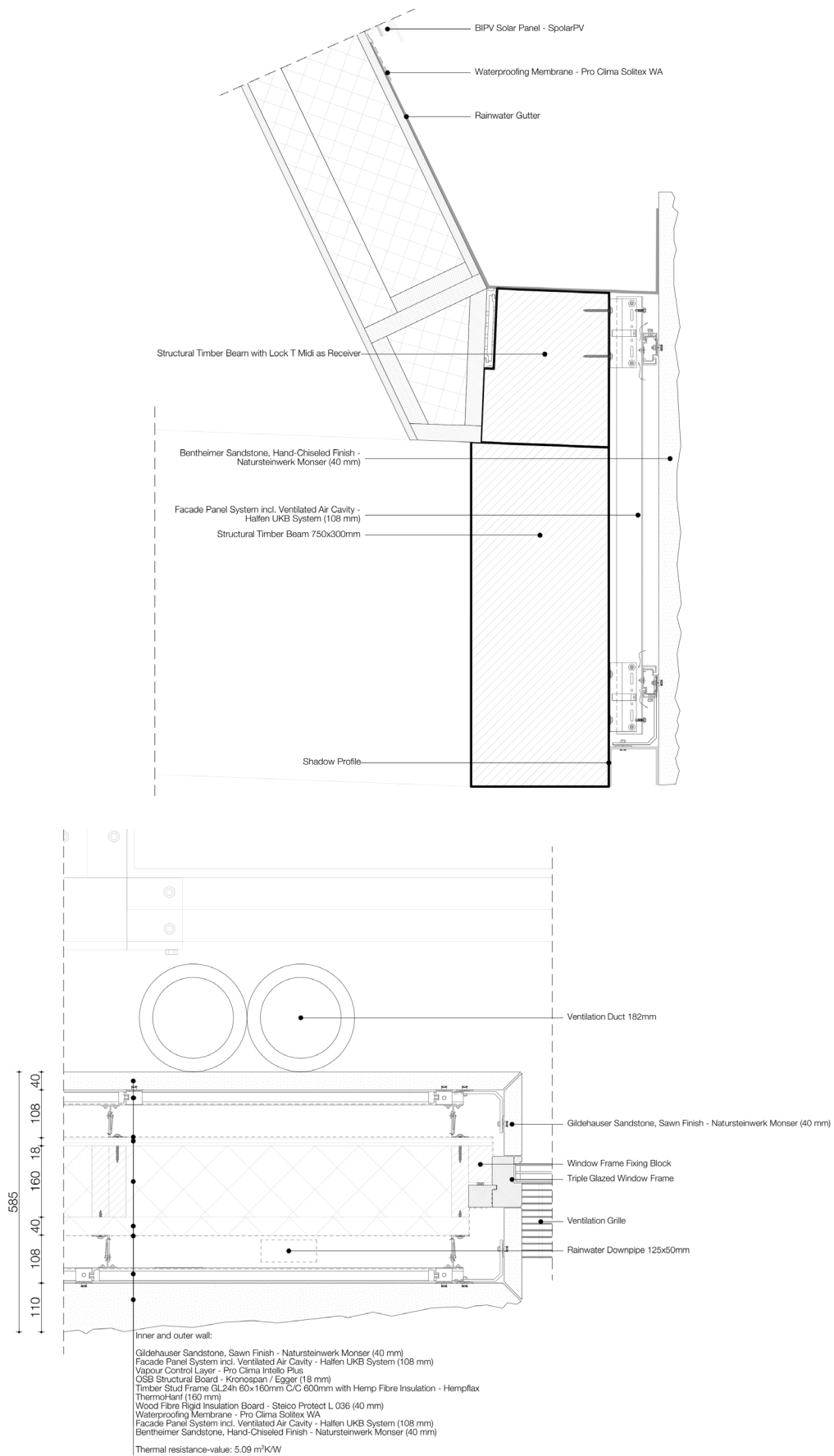


Figure 9. Façade fragment 1:20 (corner-casting and twistlock connection) and significant detail 1:5.

### 3.4.5 Programme

The confirmed programme distributes 5,204.08 m<sup>2</sup> across three levels and four zones. The Ground Floor (3.30 m ceiling height) contains all four zone programmes at the primary public level: the municipality zone (citizens' affairs counter, civil-registry ceremony room, chamber of 149.04 m<sup>2</sup>, open-plan workstations, and back-of-house); the tourist zone (café/restaurant 111.09 m<sup>2</sup>, accommodation reception and restaurant, outdoor shop 196.17 m<sup>2</sup>, tourist information, luggage lockers, and ten ground-floor guest rooms, 231.80 m<sup>2</sup>); the refugee zone (barber/salon 73.15 m<sup>2</sup>, Dutch learning space 149.56 m<sup>2</sup>, indoor play 149.56 m<sup>2</sup>, language café 73.15 m<sup>2</sup>, music room 60.19 m<sup>2</sup>); and the locals zone (café/restaurant 97.20 m<sup>2</sup>, kiosk/shop 73.15 m<sup>2</sup>, local business 73.15 m<sup>2</sup>, theatre/kino 149.04 m<sup>2</sup>, and public toilets). The First Floor contains the municipality workstation cluster, ten further guest rooms (304.88 m<sup>2</sup>), the accommodation lounge (196.26 m<sup>2</sup>), nature library, regional-products shop, interpretive threshold space, and the refugee art studio (149.56 m<sup>2</sup>), teen zone (149.56 m<sup>2</sup>), and craft workshop (98.13 m<sup>2</sup>). The Basement contains the bicycle rental and service workshop (188.84 m<sup>2</sup>), bicycle washing (73.78 m<sup>2</sup>), mudroom and boot cleaning (75.13 m<sup>2</sup>), and the technical room (408.96 m<sup>2</sup>).

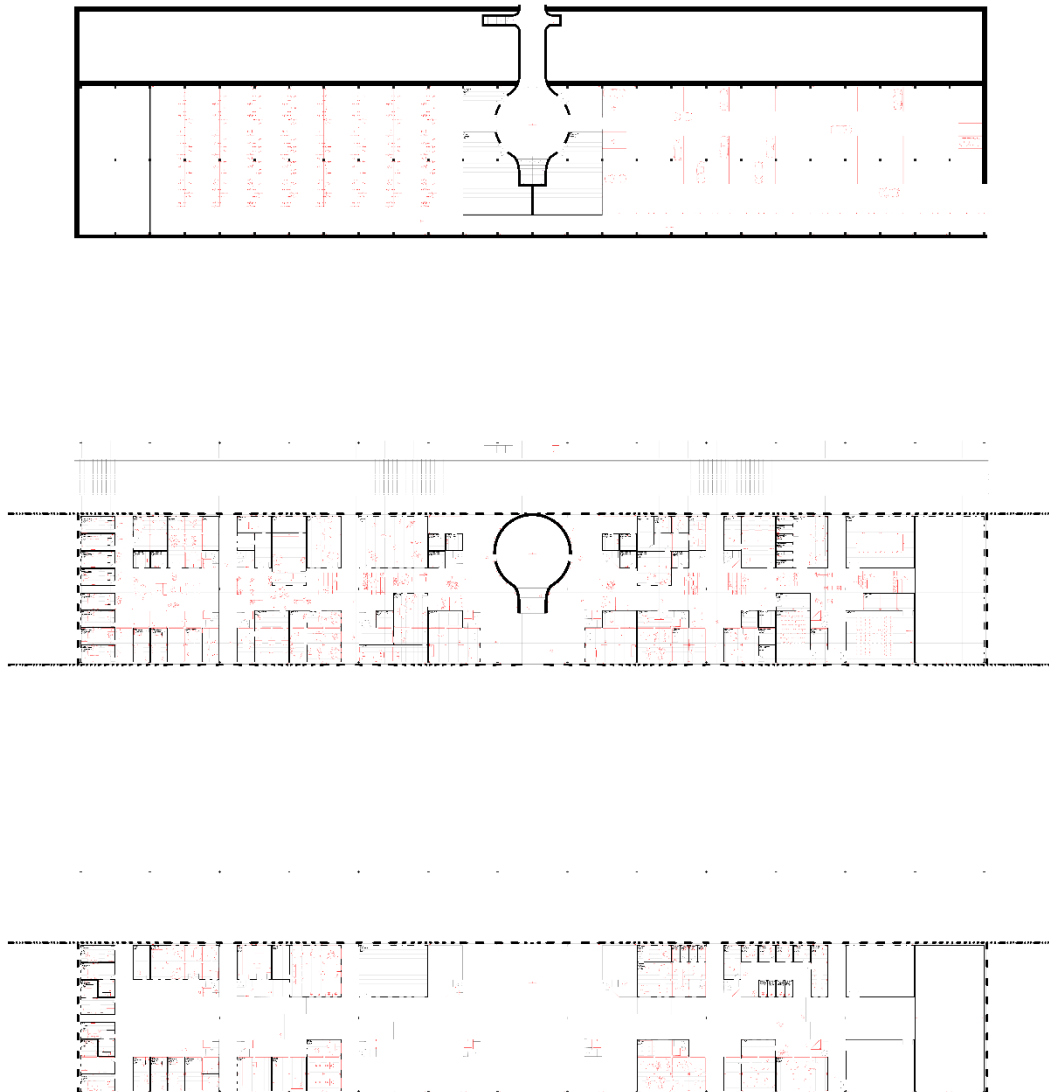


Figure 10. Floor plans 1:100 (Basement, Ground Floor, and First Floor) and the zone schedule.

### 3.4.6 Open Building Phasing Strategy

The transformation follows the Open Building separation of permanent support from reconfigurable infill across five dated phases. In 2027, municipal functions and a selection of asylum-reception functions occupy approximately half of the building, with the remaining half configured as a large hall for community festivities and events, the first instrument of image rehabilitation, drawing local residents into the building. In 2030, the municipal and reception core is retained while the remaining half is converted into three bookable event halls for the surrounding community, a restaurant, a barber and beauty salon, and a kiosk. In 2035 (coinciding with the Nedersaksenlijn) the building reaches its fully elaborated configuration,

integrating the asylum, tourist, local, and municipal programmes across approximately ninety percent of the floor area while retaining ten percent as unassigned breathing room for future demand. In 2050 the building develops into a full tourism terminal on the basis of the 2035 configuration, and in 2075 dwellings are introduced as a demonstration of long-term adaptability. Throughout all five phases, the permanent support layer remains unchanged; only the infill is reconfigured.

### 3.4.7 Embodied Carbon and Lifecycle Performance

The embodied-carbon assessment establishes the building's minimum scenario at 740 kgCO<sub>2</sub> per m<sup>2</sup>: building services 45%, foundation 29%, primary structure 16%, and façade and roof 10%. Benchmarked against BREEAM Outstanding (600 kgCO<sub>2</sub>/m<sup>2</sup>) and DGBC Paris Proof 2030 (450 kgCO<sub>2</sub>/m<sup>2</sup>), the minimum scenario exceeds both targets in embodied terms. However, when on-site photovoltaic generation from the roof modules is included in a hundred-year lifecycle analysis, the net balance reaches minus 2,068 kgCO<sub>2</sub> per m<sup>2</sup>, establishing the building as carbon-negative at the centennial scale. Solar coverage of energy demand is estimated at approximately 262%, generating a substantial net export surplus; photovoltaic energy payback occurs at approximately year 6, and full embodied-carbon recovery at approximately year 27. The hundred-year window reflects the assessment horizon; the permanent support structure itself is designed to remain in service well beyond it.

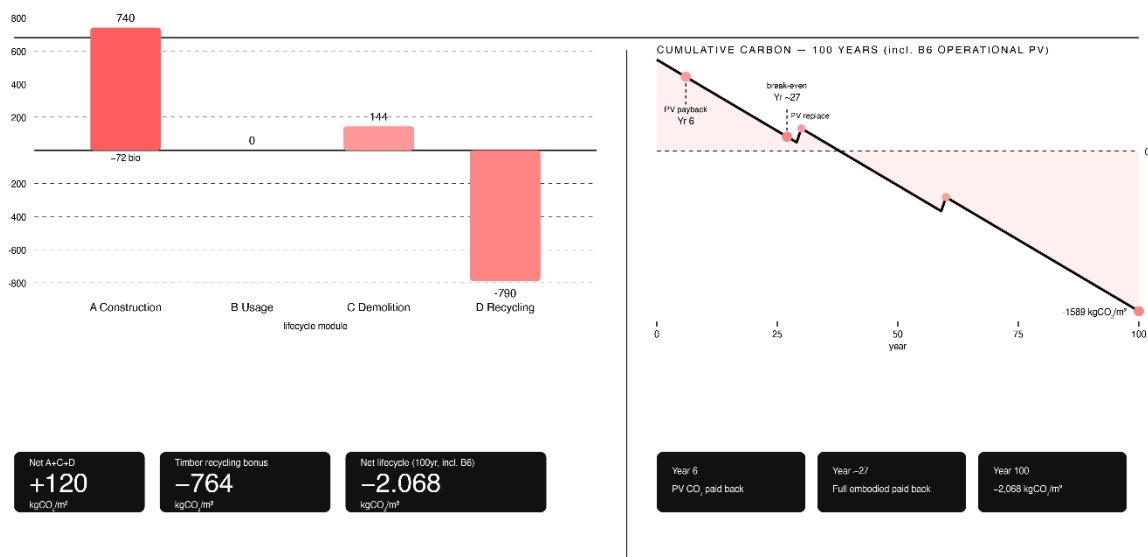


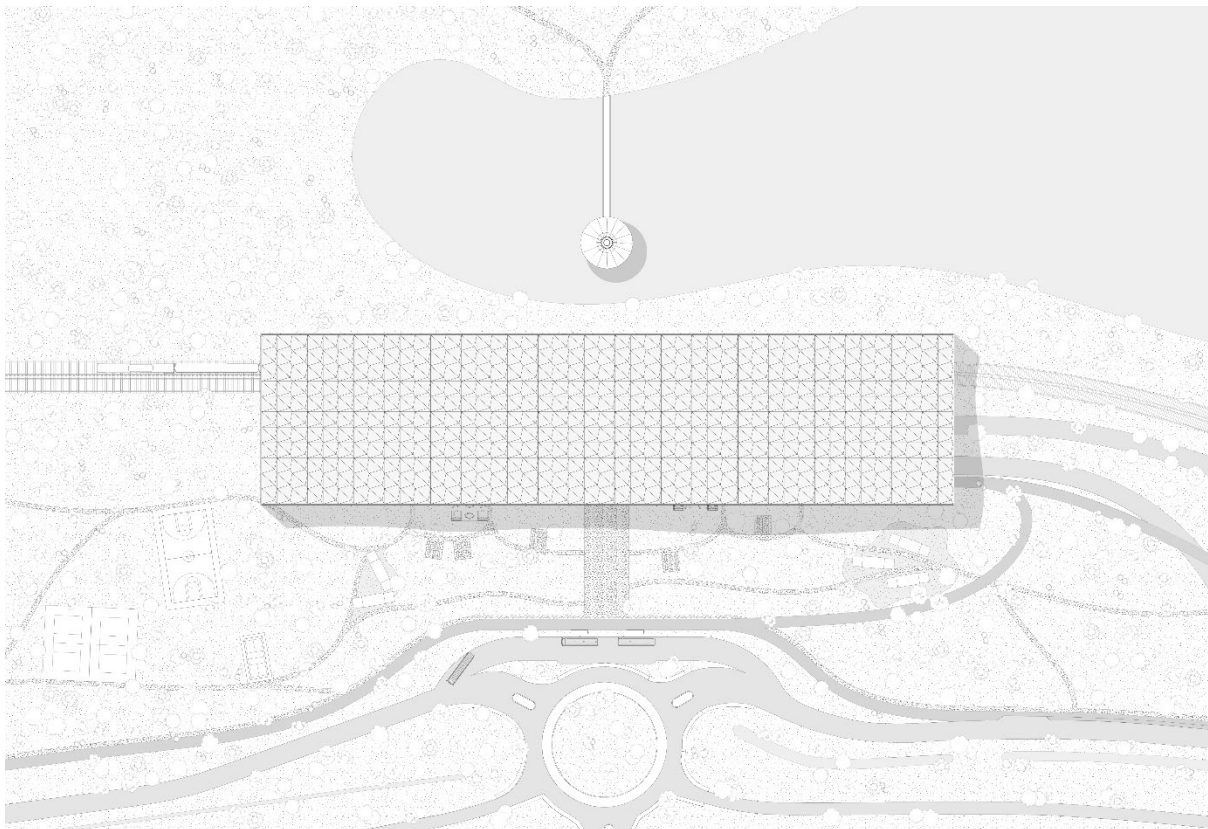
Figure 11. Embodied carbon breakdown and the 100-year lifecycle balance including photovoltaic generation.

### 3.4.8 Target Tourist Profile

The tourist that the Spatial Mediator is designed to serve is the slow tourist of Westerwolde's Cittaslow strategy: the heritage- and culture-oriented visitor, the walking and cycling nature tourist, the slow-food enthusiast, and the monastery and pilgrimage visitor drawn to the Klooster Ter Apel. These are visitors who come to experience and move through the landscape rather than to consume high-volume attractions, and for whom the building functions as the gateway to the Westerwolde region. They come for multi-day stays, served by the twenty-room accommodation, and arrive by train via the future Nedersaksenlijn, by

bicycle, or by car, principally from the Netherlands and Germany but from across Europe more widely.

Programmatically, this demographic is served by functions that distinguish the offer from mass tourism: a nature library through which visitors come to understand the Westerwolde landscape before entering it, a shop for local and regional products, bicycle rental and washing facilities, a tourist information point, and the accommodation itself. The design extends this ambition into the site. The farmland directly behind the building is reimagined as a restored peat landscape that visitors can walk through, and because this terrain sits on the border with Drenthe, the route deliberately stitches the two provinces together, positioning the building not as an isolated destination but as the threshold to a wider slow-tourism territory rooted in the Ruiten Aa, the Klooster Ter Apel, and the Cittaslow heritage of the region.



*Figure 12. Tourist landscape strategy: the building as gateway to Westerwolde, the restored peat landscape behind the building, and the hiking and cycling routes connecting Groningen and Drenthe.*

## Part 4. Conclusion and Discussion

### 4.1 Conclusion

This graduation project set out to determine how a strategic architectural intervention in Ter Apel can support the transformation of local identity from a landscape of crisis to a place of dignified reception and community function, by spatially mediating the conflicting flows of locals, refugees, and tourists through data-driven design and agile architecture with flexible programming. The Spatial Mediator demonstrates that this transformation is achievable not through a single fixed building but through a permanent structural support that hosts a sequence of reconfigurable programmatic states across a fifty-year horizon, beginning with community and civic activation and arriving at full tourism and, ultimately, housing, with each phase calibrated to the staged restoration of the village's identity. Crucially, Ter Apel is a test case rather than a singular solution: the crane-and-module support system and its phased transformation logic are not site-specific, and the building is designed to remain standing for well over a century while its infill is renewed.

In answer to sub-question 1, the data-driven analysis exposed the missing links directly. The participatory workshop and its accompanying digital tool revealed that the most acute unmet needs (places to study and work, access to art and music, Dutch-language learning, and safe childcare) diverge sharply from the provisions embedded in standard reception infrastructure, while assumed priorities such as prayer facilities and internet access ranked low. The tool's filtering capability further showed that programme preferences vary by country of origin, allowing the design to respond to a heterogeneous rather than a monolithic user group.

In answer to sub-question 2, the architectural interventions operate at several scales. The multi-entrance configuration replaces the single-corridor scheme with several points of entry, generating multiple overlapping flows and a livelier, less institutional building, while the central courtyard, positioned as the highest-integration node, ensures all four user groups converge as a structural consequence of circulation geometry. Prospect-refuge seating, thickened thresholds, and decompression chambers support health and psychological reorientation, and the crane-serviced modular system enables programmatic transformation over time without structural demolition.

In answer to sub-question 3, the analysis of Westerwolde's Cittaslow strategy and the precedent research established the slow tourist (the heritage-oriented, low-impact visitor) as the appropriate demographic, introduced only in the later phases once the building has established civic legitimacy. This demographic demands modest, high-quality accommodation, connection to the landscape and heritage routes, and integration with the railway node, rather than high-volume tourist infrastructure.

The final design relates directly to the ambitions formulated in the introduction: a single structural framework accommodating four incompatible institutional logics, a carbon-negative lifecycle measured over a hundred years, and a phased transformation grounded in the staged restoration of Ter Apel's identity.

### 4.2 Implications and Recommendations

The significance of the Spatial Mediator for the architectural profession lies less in its specific programme than in the transferable methodology it demonstrates. The project establishes a

replicable framework in which participatory, data-driven research with the actual users of a building (including those most often excluded from design processes) directly generates programmatic and spatial decisions, which are then made durable through Open Building's separation of permanent support and reconfigurable infill. This framework is applicable well beyond asylum reception to any architectural challenge involving spatial conflict between incompatible user groups, contested or fragmented identity, and the need for a building to remain useful across decades of changing demand. In this sense, the Ter Apel project should be read as one worked example of a transferable principle rather than a one-off solution: a building able to move through phases by means of the crane and the modules can be placed in any context, not only in Ter Apel, and the design presented here is a demonstration of how that system can be applied.

The crane-serviced modular construction system, combined with standardised container-corner-casting connections, offers a concrete demonstration that genuine adaptability can be built rather than merely diagrammed. The recommendation arising from this project is that public buildings in contested or transitional contexts should be conceived not as finished objects but as supports for change, with their initial programme treated as the first of several deliberately planned states.

A limitation to acknowledge is that the workshop sample (n = 24), while rich, represents a single moment in a continuously changing reception population. The digital analysis tool partially mitigates this by allowing the data to be re-interrogated as it is updated, but longitudinal engagement would strengthen the evidence base in any real commission.

At the societal scale, the most significant contribution of the Spatial Mediator is the staged repair of Ter Apel's social fabric and the regional regeneration that this repair makes possible. The village currently carries a recorded crime rate far above its neighbours and an identity reduced, in the public imagination, to asylum reception. The building addresses this not through a single gesture but through a deliberate sequence. The 2027 events hall and the 2030 community amenities draw local residents into a shared civic space before tourists arrive, dismantling the perception of the asylum population as a threat and offering an alternative to the contested retail corridor as the village's defining encounter. Each phase widens the circle of people who use the building together, so that by 2035 locals, asylum seekers, tourists, and municipal users share one civic ground, and the architecture works as a slow instrument of social cohesion that restores dignity and legibility to a place defined by friction. This restored legitimacy is also what allows the building to operate as an instrument of regional regeneration rather than one serving its immediate users alone. Positioned within the Nij Begun agenda, the thirty-year programme that allocates substantial public investment to tourism and leisure in the post-gas economies of Groningen and North Drenthe, the building gives that ambition a physical anchor. Its phased development is calibrated to release this value gradually: the 2035 station node connects Ter Apel to the Nedersaksenlijn network, and the later tourism phases channel Westerwolde's target of roughly 100,000 annual visitors through a single dignified gateway. By restoring the farmland behind it as a publicly accessible peat landscape on the Drenthe border, the project further stitches two provinces together, extending its impact well beyond the village itself.

### 4.3 Reflection

The research-by-design process underpinning this project evolved substantially between the A1 kick-off and the final design. At A1, the building form was generated through a parametric bubble-packing system in Grasshopper, producing an organic volume derived from programmatic adjacencies. While computationally interesting, both the supervisory team and I concluded that this approach was too simple for the central ambition: a building capable of genuine transformation across decades through an open, reconfigurable design system. The organic form resisted the disciplined, repeatable logic that long-term adaptability requires.

The decisive turn came after A1 with the development of the crane-serviced modular system combined with Habraken's support-infill separation. This resolved the tension between formal expression and adaptive capacity: a regular structural grid serviced by an overhead crane allows infill modules to be placed, replaced, and reconfigured across the five phases without structural demolition. The accompanying switch from a timber-dominant structure to steel cruciform columns was equally consequential. Steel permitted the fabrication of cruciform profiles into whose four corners the module edges register precisely, minimising the gap between adjacent modules and delivering the tolerances the crane guidance system demands; the primary beams remain glulam, preserving the project's bio-based and carbon ambitions while gaining the precision only steel columns could provide.

The expansion of the programmatic scope from the brief's 2,000–2,500 m<sup>2</sup> to the final 5,204 m<sup>2</sup> was the most contested decision of the process and required careful justification. The argument rests on two research-grounded convictions. First, the image of Ter Apel must be rehabilitated before tourism can responsibly be introduced; a building that activates community and civic life in its early phases earns the legitimacy that a tourism terminal alone could not. Second, the inclusion of municipal functions responds to a concrete failure in the current situation: asylum seekers presently travel approximately 1.5 hours each way by bus to reach municipal services, a journey that is unworkable for people who speak neither Dutch nor English, and which routes them directly through the contested retail centre that constitutes the village's principal zone of friction. Locating municipal services within the building removes both the journey and the friction.

The participatory workshop was the most valuable and formative component of the entire process. The original research design proposed an AI-assisted website as the primary data-collection instrument. The pivot away from this toward a physical workshop using printed booklets in five languages, prompted in part by the HREC approval process and the Data Management Plan's move away from AI-assisted processing of vulnerable participants' data, proved decisive on every dimension. Participants understood the tactile block-allocation method far more readily than a screen-based tool would have allowed; laptops or computers would have been impractical in the reception-centre setting; and, most importantly, the physical encounter allowed me to build a genuine relationship of trust with the participants. What began as a methodological constraint became the project's richest source of insight and its most humanly meaningful experience. The website was subsequently retained, but repositioned as an analytical instrument built on the workshop data rather than a collection tool.

Ethical considerations were central throughout. Working with asylum seekers, a population classified as vulnerable under the GDPR, demanded HREC approval, which was initially demanding to obtain, and a Data Management Plan revised to keep data pseudonymous and

to avoid AI-assisted processing. The experience reinforced my conviction that, in architecture addressing human vulnerability, the method of engagement is itself an ethical and architectural act, not merely a means to an end. In retrospect, the close coupling of research and design (letting the workshop data drive the programme, and letting design questions sharpen each subsequent round of analysis) was the methodological strength of the project, and it is the approach I would carry into practice.

## Appendix A. Data Management Checklist

As required by Appendix VI of the Graduation Guide (Master AUBS 2025-2026), the Data Management Checklist was completed prior to the A1 assessment. The research involves the processing of data from human participants (Section A, question 3: yes). Because the workshop participants are adult asylum seekers residing at the asylum seeker centre (AZC) in Ter Apel - a population classified as vulnerable under the General Data Protection Regulation (AVG/GDPR) - Section B of the checklist was completed and the project was made subject to the ethical review requirements of TU Delft's Human Research Ethics Committee (HREC). The completed checklist is reproduced below.

No.	Question	Answer	Remarks
<b>Section A. General considerations</b>			
1	Is the graduation project conducted as part of an internship (at a company), or as part of a research project at TU Delft?	No	Conducted as an individual MSc graduation studio project.
2	Does the project involve conducting (part of) the research outside the Netherlands?	No	All research was carried out in Ter Apel, the Netherlands.
3	Will the research involve processing data from humans (e.g. survey, interviews, workshops, social media, re-using third-party datasets)?	Yes	Participatory workshops with residents of the AZC in Ter Apel (March 2026).
<b>Section B. Extended risk factors (completed because question 3 is yes)</b>			
4	Will the project involve participants who may be considered vulnerable (e.g. asylum seekers, refugees, ethnic minorities)?	Yes	Adult asylum seekers residing at the AZC Ter Apel.
5	Will the project involve participants who cannot themselves give informed consent (consent via a legal guardian)?	No	All 24 participants were adults who gave their own informed consent.
6	Will the project involve processing special categories of personal data (e.g. race, ethnicity)?	Yes	Region of origin, collected at an aggregated regional level (e.g. Middle East, Sub-Saharan Africa, Ukraine) and processed under Art. 9(2)(a) AVG on the basis of explicit consent.
7	Will the project involve processing other sensitive personal data (income, employment, school/work performance, addiction, poverty, etc.)?	No	The instrument was not designed to collect such data; free-text responses were minimised to avoid identifying or sensitive information.
8	Will the project involve processing video-recordings or photographs of participants?	No	No identifiable photographs or video-recordings of participants were processed as research data.
9	Will the project involve sharing or transferring personal data between multiple partners or organisations?	No	Data is held solely by the researcher within the TU Delft environment.
10	Will the project involve deception or covert observation of participants?	No	Participation was transparent and consent-based.
11	Will the project involve working with social media data?	No	Not applicable.
12	Will the project involve using learning algorithms or other AI to process data from participants?	No	Not applicable.

No.	Question	Answer	Remarks
13	Will the project involve participants based in a country outside the EU?	No	Participants were residing in the Netherlands during the research.

Because questions 4 and 6 were answered yes, the project was classified as an extended-risk project. Accordingly, the Data Management Plan was reviewed by the Faculty Data Steward via DMPonline and the TU Delft Privacy Team was consulted. Privacy Officer Henk Ameling confirmed on 15 June 2026 that a Data Protection Impact Assessment (DPIA) is not required, as the research does not present a high risk to the privacy of participants.

## Ethics and Privacy

This research involved human participants from a vulnerable population - adult asylum seekers residing at the asylum seeker centre (AZC) in Ter Apel - and was therefore subject to the ethical review requirements of TU Delft's Human Research Ethics Committee (HREC). Ethical approval for the research was obtained from the HREC in accordance with the TU Delft Regulations on Human Trials, on the basis of the HREC checklist, informed consent materials, and the project Data Management Plan (DMP).

Participation in the workshops, held in March 2026, was entirely voluntary. Prior to engagement, all 24 adult participants provided informed consent through a digital interface hosted at [helpwithterapel.nl](http://helpwithterapel.nl). The consent procedure consisted of three explicit checkboxes: one confirming willingness to participate, one consenting to the processing of personal data for research purposes, and one acknowledging awareness of participants' rights under the General Data Protection Regulation (AVG/GDPR). The consent interface also specified how data would be processed, the retention period (until the end of 2026), and participants' rights to access, rectify, and delete their data, as well as the right to withdraw consent at any time. Withdrawal is possible by contacting the researcher and referencing the booklet number, which participants were asked to retain.

The legal ground for processing personal data is consent under Article 6(1)(a) AVG. The booklet data includes a category of special data - region of origin - which is processed under Article 9(2)(a) AVG on the basis of explicit consent. This field was deliberately designed at an aggregated regional level (e.g. Middle East, Sub-Saharan Africa, Ukraine) rather than collecting specific countries of origin, in order to minimise the risk of participant identification while still allowing for culturally relevant analysis.

All participant data is classified as pseudonymous rather than anonymous. Each booklet was assigned a unique number linked to the participant's signature on the consent form; no names were collected. While the research instrument was not designed to elicit identifying information, the combination of demographic fields and open-ended responses carries an inherent risk of indirect identification. The pseudonymous classification reflects this reality and ensures that AVG protections apply throughout the research process. Data is stored securely on TU Delft OneDrive and access is restricted to the researcher and the graduation supervisory team.

On 15 June 2026, Privacy Officer Henk Ameling of the TU Delft Privacy Team reviewed the project and confirmed that a Data Protection Impact Assessment (DPIA) is not required, as the research does not present a high risk to the privacy of participants. His review also identified that earlier versions of the consent materials and DMP incorrectly described the data as anonymous. This has since been corrected throughout all documentation, with pseudonymous terminology applied consistently.

It must be acknowledged that the participatory workshops took place prior to the granting of formal HREC approval. This represents a limitation of the research process. However, all substantive ethical safeguards - including informed consent, pseudonymisation, data minimisation, and secure storage - were in place before participants were approached, and the formal documentation has since been reviewed, corrected, and brought into full compliance with TU Delft requirements.

It must be acknowledged that the participatory workshops took place prior to the granting of formal HREC approval. This represents a limitation of the research process. However, all substantive ethical safeguards - including informed consent, pseudonymisation, data minimisation, and secure storage - were in place before participants were approached, and the formal documentation has since been reviewed, corrected, and brought into full compliance with TU Delft requirements.

## References

- 3XN/GXN, & BVN. (2026). *Sydney Fish Market*. <https://www.3xn.com>
- ABT. (2022). *HoutKern: Natural Pavilion, Floriade 2022*. ABT Consulting Engineers.
- Appleton, J. (1996). *The experience of landscape* (Rev. ed.). Wiley.
- BETA office for architecture and the city. (2016). *Beweeglogica in gebouwen* [Inspiratieboek]. Gemeente Amsterdam.
- Boettger, T. (2014). *Threshold spaces: Transitions in architecture*. Birkhäuser. <https://doi.org/10.1515/9783038214007>
- Brand, S. (1994). *How buildings learn: What happens after they're built*. Viking.
- Broma, T. (2018). *S'lowtecture: Experimental housing prototype WUWA2 Zerniki*. Wrocław University of Science and Technology.
- Centraal Orgaan opvang asielzoekers (COA). (n.d.). *Is het waar dat een asielzoekerscentrum altijd voor overlast zorgt?* <https://www.coa.nl/>
- Cittaslow Nederland. (n.d.). *Certificering*. Retrieved January 13, 2026, from <https://www.cittaslow-nederland.nl/certificering/>
- Clark-Kazak, C. (2017). Towards a code of ethics in refugee research. *Forced Migration Review*, 54, 94–97.
- Côté-Olijnyk, C., Greenaway, C., Azoulay, L., Cox, J., Tran, V. A., Steele, L. S., Salvalaggio, G., Gracie, S. K., Thomson, E., & Hannigan, T. (2024). Mental health outcomes among asylum-seekers and undocumented migrants in situations of indefinite waiting: A meta-analysis. *Journal of Migration and Health*, 9, Article 100218. <https://doi.org/10.1016/j.jmh.2024.100218>
- Cross, N. (1982). Designerly ways of knowing. *Design Studies*, 3(4), 221–227. [https://doi.org/10.1016/0142-694X\(82\)90040-0](https://doi.org/10.1016/0142-694X(82)90040-0)
- DP6 Architectuurstudio. (2022). *The Natural Pavilion, Floriade Expo Almere*. DP6.
- Frantzen, T., & Kruit, J. (2025). *Patch 22: Open Building in practice*. FRANTZEN et al architecten.
- Gehl, J. (2011). *Life between buildings: Using public space* (6th ed.; J. Koch, Trans.). Island Press. (Original work published 1971)
- Gerber, M., Philipp, A. B., Bahall, I., & Schindler, C. (2021). Effects of an exercise and sport intervention among refugees: A quasi-experimental study. *International Journal of Sports Medicine*, 42(8), 706–714. <https://doi.org/10.1055/a-1346-1989>
- Groat, L. N., & Wang, D. (2013). *Architectural research methods* (2nd ed.). Wiley.
- Habraken, N. J. (1972). *Supports: An alternative to mass housing* (B. Valkenburg, Trans.). The Architectural Press. (Original work published 1961)
- Hertzberger, H. (2016). *Lessons for students in architecture* (7th ed.). nai010 publishers.

- Hillier, B. (1996). *Space is the machine: A configurational theory of architecture*. Cambridge University Press.
- Hillier, B., & Hanson, J. (1984). *The social logic of space*. Cambridge University Press.
- Kendall, S., & Teicher, J. (2000). *Residential open building*. E & FN Spon.
- Lynch, K. (1960). *The image of the city*. MIT Press.
- McKeon, G., Lawrence, P., & Jansen, K. (2024). Co-designing a physical activity service for refugees and asylum seekers. *Healthcare*, 12(2), Article 123. <https://doi.org/10.3390/healthcare12020123>
- Mecanoo. (2017). *Delft railway station and city hall*. Mecanoo Architects.
- Noyon, S. M., Barsegyan, V. M., Vink, M. E., & Pluymaekers, T. P. N. (2025). *Incidenten en misdrijven door bewoners van COA- en tgo-locaties 2017–2024* (Cahier 2025-04). WODC. <https://repository.wodc.nl/handle/20.500.12823/3460>
- Osayimwese, I. (2017). Architecture, migration, and spaces of exception in Europe. *Journal of Refugee Studies*, 31(4), 1–20.
- Ozinga, M. D. (1940). *Oost-Groningen*. Staatsdrukkerij.
- Politie.nl. (2025, November 16). *Geregistreerde misdrijven en overlast: Data portaal dataset 47018NED*. <https://data.politie.nl/>
- Price, C. (1964). The Fun Palace. *Architectural Design*, 34, 443–446.
- Provincie Drenthe. (2025, October 6). *Nieuwe fase voor de Nedersaksenlijn: Het startbesluit is getekend*. <https://www.provincie.drenthe.nl/>
- RE-DWELL. (2023). *Patch 22 case study: Open Building residential*. RE-DWELL Research Consortium.
- Refugee Studies Centre, University of Oxford. (2007). Ethical guidelines for good research practice. *Refugee Survey Quarterly*, 26(3), 162–172.
- Respace. (2024). *Box-in-box building system*. <https://www.respace.nl>
- Schindler, S. (2015). Architectural exclusion: Discrimination and segregation through physical design of the built environment. *Yale Law Journal*, 124, 1934–2024.
- Steel, Z., Liddell, B. J., Bateman-Steel, C. R., & Zwi, A. B. (2011). Global protection and the health impact of migration interception. *PLoS Medicine*, 8(6), Article e1001038. <https://doi.org/10.1371/journal.pmed.1001038>
- Stenvert, R., Kolman, C., Olde Meierink, B., Broekhoven, S., & Alma, R. (1998). Ter Apel (gemeente Vlagtwedde). In *Monumenten in Nederland: Groningen* (pp. 297–301). Rijksdienst voor de Monumentenzorg; Waanders Uitgevers.
- Van Dongen, J. B. (2026). *Workshop The Spatial Mediator* [Unpublished workshop booklet]. TU Delft, Faculty of Architecture and the Built Environment.
- Van Eyck, A. (1966). The interior of time. In C. Jencks & G. Baird (Eds.), *Meaning in architecture* (pp. 170–213). Braziller.

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