Thesis Dossier
ARB301 Project Thesis

The Berlage Center for
Advanced Studies in Architecture
and Urban Design

The Sensatorium

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Contribution Abstract

The sensatorium is a healing clinic located in the city of Geel, BE — connecting the Gasthuis and Sint-Dimpnakerk—for residents and sixty borders to be engulfed in spaces of the six senses for a calming immersion of the body and engaging interactions as a response to the aftermath of COVID-19.

The Netherlands is internationally recognized as one of the world's largest food exporters due to its excellent connectivity throughout Europe and is home to world-class research institutions. It is—in effect—feeding the world. Driven by the anticipation for a renewable future, the country's journey towards optimization, sustainability, and health requires a paradigm shift in the food industry.

As the COVID-19 pandemic has reshaped the retail market in unprecedented ways, consumers shifted around lifestyle and value. This demanded new spatial configurations of the supermarket, transitioning between a pre-COVID-19 and a post-COVID-19 society. Resting within its etymology—where "super" alludes to supremacy concerning size, quality, and quantity, while "market" refers to trading in goods of value—the supermarket, selling food and household goods, first originated in the 19th century with the novel concept of a self-serve store. As a platform of recurring successful innovations, their profits increased during the COVID-19 pandemic, underscoring that supermarkets are now an essential service - representing a new civic presence.

The collective project on the spatial implications of the food industry in the Netherlands and beyond seeks to redesign the supermarket—currently occupying the most densely used square meters in a city—to implement developments within the meticulously designed sales floor via craft, reshoring, protectionism, automation, and extinction—for an immersive consumer experience—and the concealed back of house through the notions of tastemaking, scarcity, sensorialism, inclusivity, and trade—associated with the product's supply chain—ensuring a frictionless future for shoppers.

These ten contributions explore the architectural and urban design possibilities within the future of the food industry across sites within the Blue Banana—the European Megalopolis—transporting products and radiating back to the Albert Heijn shelves in Delft. They collectively form a project for the design of a future supermarket on the current site of the Albert Heijn XL on Martinus Nijhofflaan in Delft. These contributions provide modifications in the supply chain, product distribution, and store planning, in relation to the products, their associated building types, and their extensive territories. The collective design of this Albert Heijn XL will raise issues of scenography, product flow, human interaction, digital technology, and consumer experience, in an attempt to address the future of the food industry.

At a time when the world is pulling through the COVID-19 pandemic, faced anew with the impending environmental crisis, the collective project raises questions about the ever-changing relation of architecture and the food industry in the Netherlands and beyond.

fig. 1
Exterior view from north of Purkersdorf Sanatorium designed by Josef Hoffmann in Purkersdorf, Austria.

fig. 2
Interior view of the altar from the main entrance door of Sint-Dimpnakerk in Geel, Belgium.

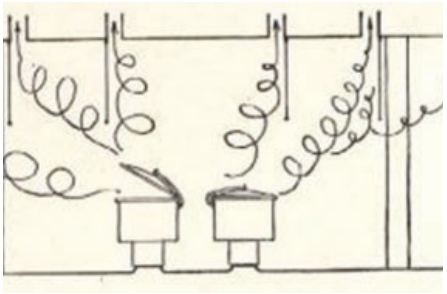


fig. 3
Sketch of ventilation system within kitchen in the Paimio Sanatorium designed by Alvar Aalto in Paimio, Finland.

fig. 4
Interior view of the Scent Suspended installation within the Illuminum fragrance store designed by Antonino Cardillo in London, England.

fig. 5
Interior view of the chapel towards the altar from the patients' viewing area in Gasthuismuseum, Geel, Belgium.

fig. 6
Exterior view of Zonnestraal designed by Jan Duiker and Bernard Bijvoet from the southeast corner in Hilversum, Netherlands.

fig. 7
Interior view of patients' room in the Paimio Sanatorium designed by Alvar Aalto in Paimio, Finland.

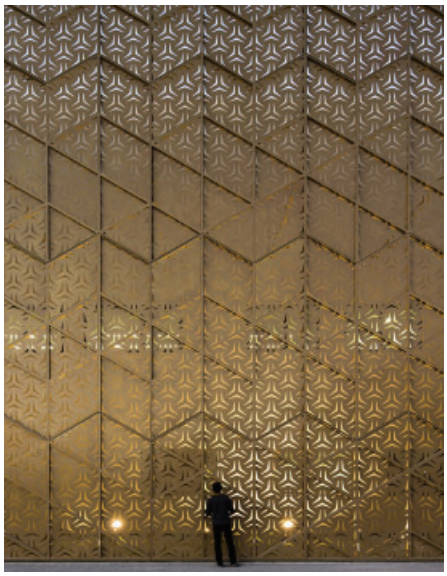


fig. 8
Exterior perforated metal panels on exterior facade of the Ali Mohammed T. Al-Ghanim Clinic designed by AGi architects in Kuwait.

fig. 9
Reception area of Paimio Sanatorium designed by Alvar Aalto in Paimio, Finland.

fig. 10
Exterior courtyard view from west of Salk Institute designed by Louis Kahn in La Jolla, CA, USA.

Up to 86% of people who have contracted COVID-19 suffer from short- or long-term loss of taste and smell.[1] In a post-pandemic society, a shift towards focusing on healing and aftercare is needed for those that are isolated by partial or complete loss of one of the senses. Heightening the senses can form multisensory coalescences or singular intensified engagements that shape different atmospheric spaces through "sensorialism" to enhance the healing process. The five senses—smell, sight, touch, sound, and taste—are each important for the human body's well-being and its awareness in time and space. Sensorialism stimulates the five senses to create a deeper connection to the human body and its surroundings.

Architecture theorist Mark Wigley regards modern medical facilities facades' relationship to architecture as a "health garment, a therapeutic outfit," not as a hard boundary but a thin transparent skin.[2] If early twentieth century sanatoriums and their modern, white, open-air spaces were built to cure the global spread of tuberculosis and nervous ailments (see fig. 1), then what would a new building type look like to help people recover from the loss of senses in the wake of the COVID-19 pandemic? This paper will provide a historical and contemporary account of architecture's relation to each of the senses structured through monastic development, modern advancements in hygiene, and current clinical progress.

Beginning in the mid-fifteenth century, the Catholic Church was the primary caretaker for the sick as patients were deemed to be sinners. This caused sickrooms—similar to the one added to Sint-Dimpnakerk in Geel, Belgium—to be attached to churches and monasteries.[3] A thurible (or incense burner) would be used during daily mass, filling the air and congregants' lungs with the smell of frankincense for reverence, blessing, and sanctification (see fig. 2). In contrast to such a powerful interior scent, the sense of smell was centered around the clarity and purity of the outdoors during the early twentieth century. A lung treatment in Alvar Aalto's Paimio Sanatorium in Finland involved the inhalation of the fresh cold air and pine tree scent that entered through large ribbon windows and rest terraces onto which patients' beds could be wheeled. Aalto was also one of the first to intentionally use ventilation systems in the kitchen to remove unwanted odors, installing four zones that decreased in percentage of extracted air so that the last zone only eliminates the remaining odors, thus removing the necessity for doors between kitchens and dining rooms (see fig. 3).[4]

In the last decade, architecture has begun to strip visual associations from scents. With smell as the only sense that has direct and immediate access to where one's emotions and memories are processed, aromas in architecture create strong connections of one's past that influence how space is perceived. The Illuminum fragrance store in London, for example, was designed by Antonino Cardillo to create a more physical and intuitive experience of scent (see fig. 4).

In the seventeenth century, the awareness and treatment of the sick expanded into abbeys—as in Sint-Dimpnakerk—that utilized daylight and shadow in the interior spaces to help with the passing of time for long-term patient care (see fig. 5). With healthcare and technology advancing in the modern era, architects like Jan Duiker and Bernard Bijvoet used a nearly invisible clear glazing for horizontal windows in their Zonnestraal Sanatorium in the Netherlands. The windows were oriented at 45 degrees for sunlight and an uninterrupted view of the surrounding forest (see fig. 6). In Aalto's Paimio Sanatorium, inside spaces were carefully set up for varying atmospheres of artificial lightning per individual preference, task, and mood, preventing glare when lying and sitting down (see fig. 7). The previous smooth white walls of sanatoriums are now giving way to exterior materials incorporating advanced technology to diffuse daylight with different reflective finishes, such as the perforated metal panels applied in the Ali Mohammed T Al-Ghanim Clinic in Kuwait by AGi architects. Such panels allow light in, give privacy to patients, and integrate modern interpretations of cultural connections (see fig. 8). With vision perceived as the chief sense in architecture since the late sixteenth century, post-pandemic architecture needs to transition to embody the other senses while still appealing to the eyes.

Churches throughout history have had multiple tactile elements, from textured stone surfaces underfoot to the polished wooden pews brushed by centuries of hands, bringing human scale and decaying time into architecture.

Later in the twentieth century, healing spaces in architecture have shifted to combine soft walls for comfort and hard walls for cleanliness. Sanatoriums went as far as incorporating curved edges with no material joints—as in Alto's Paimio Sanatorium—for less dust collection and more psychologically comfortable forms for the body to experience (see fig. 9). Aalto also considered patients' temperatures by directing heating towards the feet—not head—and the intake of cold outside air as far from the patient as possible.

Throughout time, many architectural programs have utilized water and the human touch—such as the Purkersdorf Sanatorium in Austria by Josef Hoffmann—adding mineral baths, physical therapies, therapeutic massages and physiotherapy surrounded by varying tiles, fabrics, and coatings all in white for a relaxing and hygienic environment. Alternating finishes of natural materials can initiate the desire to touch and feel the temperature of the material in buildings, such as in the Salk Institute in California by Louis Kahn (see fig. 10). Kahn created smooth concrete frames and filled them with textured wood inlets that disintegrate at a much faster rate to depict permanency and temporality.

Sint-Dimpnakerk and other typical Catholic churches are designed to radiate the sounds of preaching, singing, and organ music through their barrel and domed ceilings so that each inhibitor can understand the form and cavities of the space while being engulfed by internal thought.[5] Silence and tranquility for individual reflection have evolved into sound isolation designs in architecture, such as the shape of the sinks in Aalto's Paimio Sanatorium, designed so that two streams of water from the faucets meet at an acute angle on the porcelain bowl, reducing noise and splashing down in order to prevent waking a roommate from rest (see fig. 11). The sanatorium's service areas were separated from the patients' rooms to prevent disturbances during maintenance and daily tasks.[6] Today, sensations of depth, transparency, opacity, and flow through material sound vibrations are used in the Speech Clinic in Portugal by MMVARQUITECTO to isolate the rhythm of sound and the voice (see fig. 12).[7] Sound in architecture can either amplify the feeling of isolation or that of being part of a community, both equally vital in a post-pandemic society.

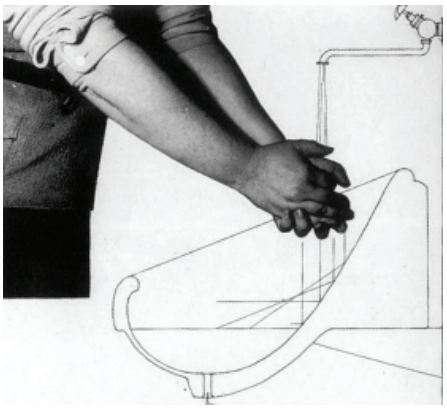


fig. 11
Collage of two lavatory basins within the patients' room in the Paimio Sanatorium designed by Alvar Aalto in Paimio, Finland.

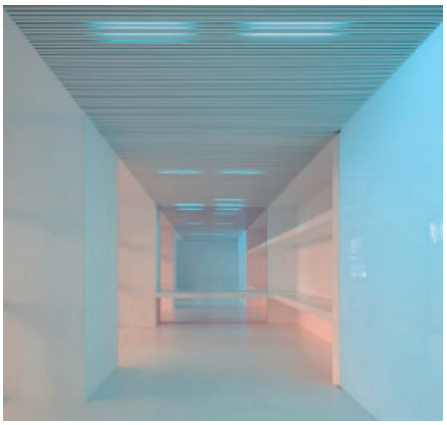


fig. 12
The interior entrance hallway with the acoustical ceiling infrastructure containing light, climatization, and security in the Speech Clinic designed by MMVARQUITECTO.

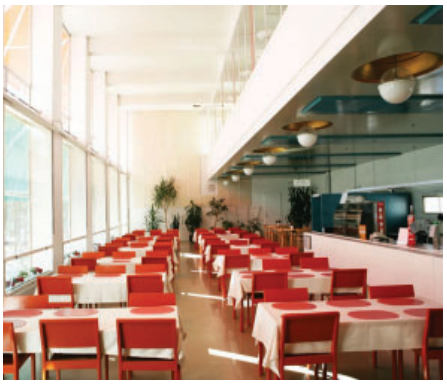


fig. 13
Interior view of the dining hall adjacent to the kitchen on the right side within the Paimio Sanatorium designed by Alvar Aalto in Paimio, Finland.

The sense of taste has been used pragmatically in the early beginnings of healthcare—as in Sint-Dimpnakerk, where they relied on their own gardens and animals to serve nuns in their order from their private dining room. Patients were served food from local residents for comfort and necessity, and food preparation continued to be seen as a service area throughout architecture—even in sanatoriums—where communal dining facilities were designed as a relief from the patient's room (see fig. 13). Nowadays, tasting centers across North America and Europe focus on the five taste buds—umami, sweet, sour, salty, and bitter—by isolating food in sterile lab settings away from the consumers.[8] With the loss of the sense of taste from COVID-19, architecture needs to embrace more inclusive ways to integrate taste, similar to the ways in which the other senses have been applied.

By isolating and incorporating the five senses into architecture, a post-pandemic society can look inwardly for a more spiritual connection to its body and its surroundings in order to create more meaningful memories in day-to-day life. From small details within a room to large building facades, architecture can impact one or more of the senses without one even being aware. The solutions to the crises following the COVID-19 pandemic need to have a more experiential and disembodied correlation with senses in the built environment as well as a critical response to help with healing and isolation. Taste and smell can be used to evoke memories—especially with food—that those affected by COVID-19 are trying desperately to relive. With the senses being so personal, architecture calls for adaptability between the individual and the community to form spaces that everyone can use and heal in. All spaces call for varying moments—whether a sniff of lavender, the sight of the golden afternoon sun, the touch of a ceramic bowl, the sound of a familiar voice, or the taste of a sour fruit. These could be integrated into architecture for those sensitive to sound, with acute vision, skin-touch pressure problems, and those affected by a loss of taste and smell from COVID-19. The opportunity for the enhancement of the five senses in architecture can engender a post-pandemic society using different combinations of forms, materials, systems, and details for a new sensorialism.

Endnotes:

1. R. Lechien et al., "Prevalence and 6-Month Recovery of Olfactory Dysfunction: A Multicentre Study of 1363 Covid-19 Patients," Journal of Internal Medicine 290, no. 2 (January 5, 2021).
2. Paul Meurs, Marie-Thérèse van Thoor and Andrew May, "Architecture and 'Spiritual' Economy," in Sanatorium Zonnestraal: History and Restoration of a Modern Monument (Rotterdam: NAi Publishers, 2010).
3. In the first century CE, Saint Dymphna fled to Geel in Belgium after refusing to marry the king, her mentally ill father. She was found and executed at the location on which Sint-Dimpnakerk now stands, becoming the patron saint for the mentally ill. In the seventeenth century, the abbey became a hospital where citizens of Geel would bring the patients food as their only source of nutrients. Today, citizens of the town take mentally ill patients into their home for a better healing environment than a hospital setting.
4. Karl Fleig, "Tuberculosis Sanatorium at Paimio," in Alvar Aalto (Zürich: Girsberger, 1963).
5. Steen Eiler Rasmussen, "Hearing Architecture," in Experiencing Architecture (Cambridge, MA: MIT Press, 1964)
6. "Tuberculosis Sanatorium at Paimio/ Paimio Hospital," in Alvar Aalto: Points of Contact (Jyväskylä: Alvar Aalto Museum, 1994).
7. Cristian Aguilar, "Speech Clinic / Mmvarquitecto," ArchDaily, accessed October 4, 2021, https://www.archdaily.com/778509/speech-clinic-mmvarquitecto.
8. "Sensory Testing of Food," Tentamus, accessed August 5, 2021, https://www.tentamus.com/lab-services/sensory-testing/.

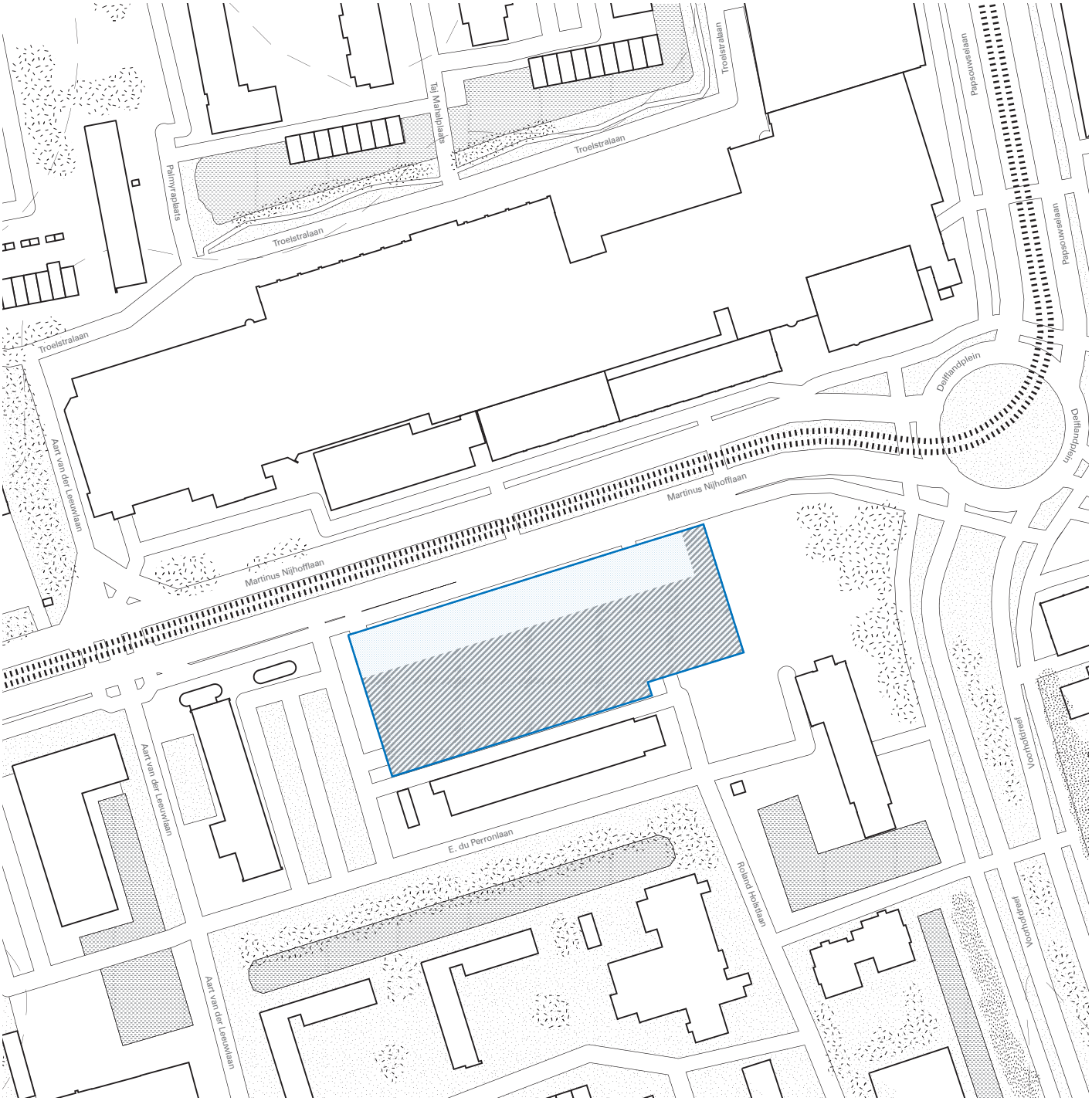
The Blue Banana—a term coined in 1989 by a group of French geographers—is a name used to describe a European corridor of almost continuous urbanization. Home to 110 million people, the corridor contains metropolitan areas, industrial sites, and major economic centers, stretching all the way from Manchester to Milan, connecting the Irish Sea to the Mediterranean.

Ten contributions speculate upon the spatial implications of the food industry across the Blue Banana—the European Megalopolis—responding to the specificity of the sites, while, at the same time, providing modifications throughout the supply chain in relation to their respective products that radiate back to the supermarket shelves in Delft.

1 Lab Oratory
2 Whole Milk
3 Pink is Not a Color
4 The Tastemaking Estate
5 Aardket
6 Sensatorium
7 Domus Leo
8 Food Utility Network
9 Fresh Forword
10 Crafted with Care
11 Albert

Albert Heijn XL

The collective project for the design of a future supermarket is located on the current site of the Albert Heijn XL on Martinus Nijhofflaan in Delft. Amidst a densifying residential area, with a variety of stores on the ground floor and social housing above, multicultural demography, proximity to the parking garage, and excellent connectivity to road infrastructure and public transport, the location of the Albert Heijn XL provides the opportunity to reciprocate with its adjacent and peripheral territory.


Troelstralaan
Tel Mahalplaats
Troelstralaan
Troelstralaan
Papsouwselaan
Palmyraplaats
Troelstralaan
Papsouwselaan
Delflandplein
Delflandplein
Aart van der Leeuwlaan
Martinus Nijhofflaan
Martinus Nijhofflaan
Aart van der Leeuwlaan
E. du Perronlaan
Roland Holstlaan
Aart van der Leeuwlaan
Van Vollenhovelaan
Van Vollenhovelaan

0 10 50 m

The collective research—focused on the food industry in the Netherlands and beyond—commenced with the typological analysis of a supermarket. Analysing a local Albert Heijn, it examined the relation between products, their associated building types, and territories, from raw materials to supermarket shelves.

While a supermarket operates within a highly efficient tailored space, how do design decisions vary between intervening in an existing canal house and a purpose-built suburban supermarket?

Transitioning from the mimicry of local markets to promotions on digital screens, what role does scenography play in the design of a supermarket's storefront?

How does the prediction of supply and demand through data-driven decision-making and automation affect the organization, product distribution, and design within supermarkets and the ever-changing future of retail?

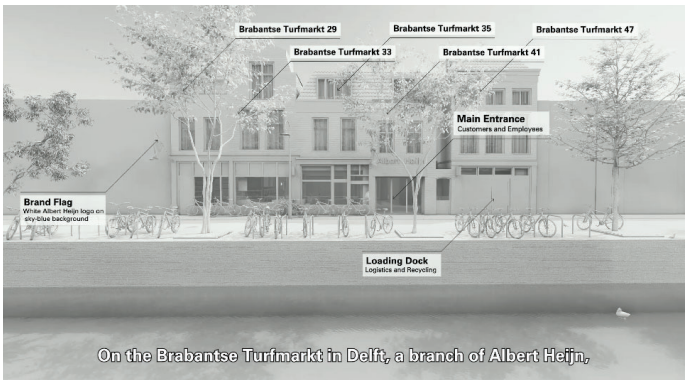
How does the incorporation of a supermarket reciprocate with its adjacent and peripheral demography, real estate, and territory and in turn affect land appreciation?

How does the design of the layout of the concealed back of house relate to the meticulously designed sales floor?

With a constant flow of products, what spatial consequences are posed by the standardized packaging sizes, product distribution, and store planning on the supply chain of a supermarket?

With ever-increasing reliance on e-commerce and perpetually improving digital experiences, what will the future hold for supermarkets in the Netherlands?

The annotated analysis of Albert Heijn reveals the dichotomy within the functioning of a supermarket, between the meticulously designed sales floor for an immersive consumer experience and the concealed back of house associated with the product's supply chain.



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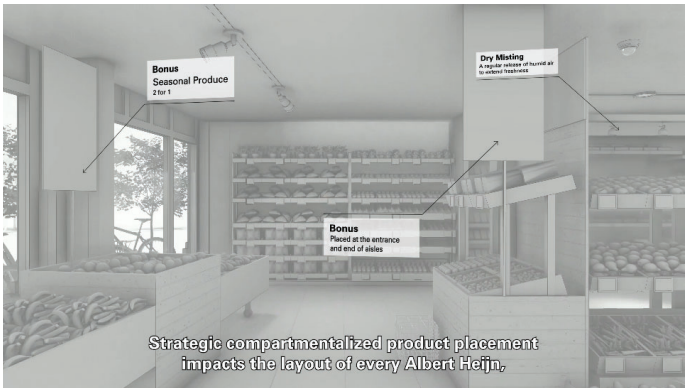

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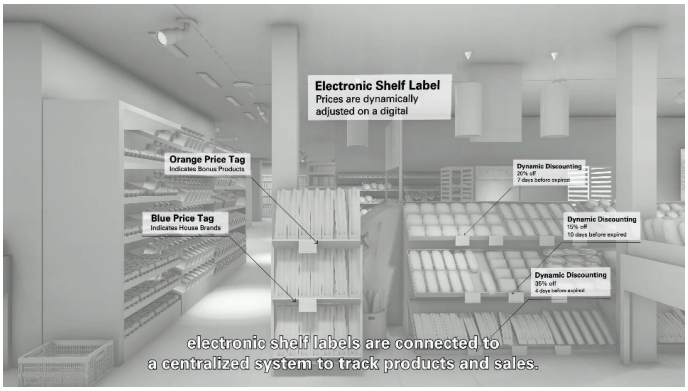

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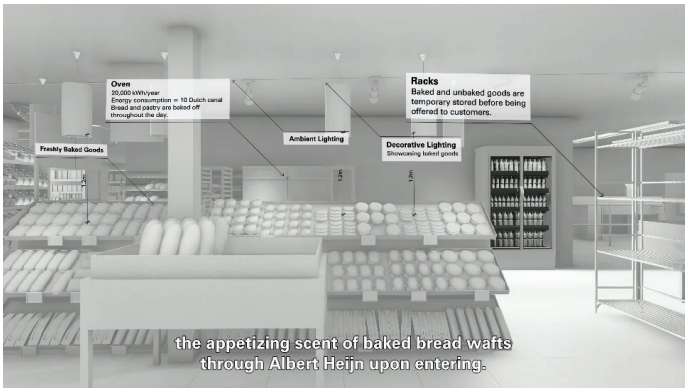

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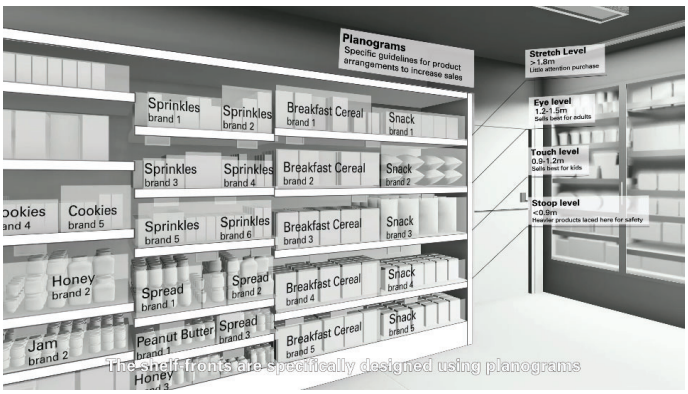

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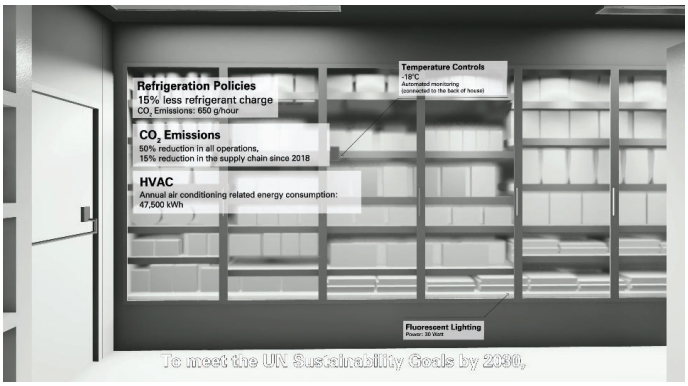
Scenes from annotated analysis of
Albert Heijn



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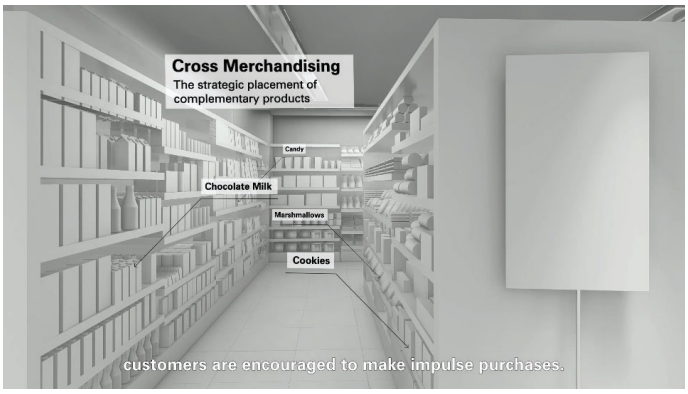

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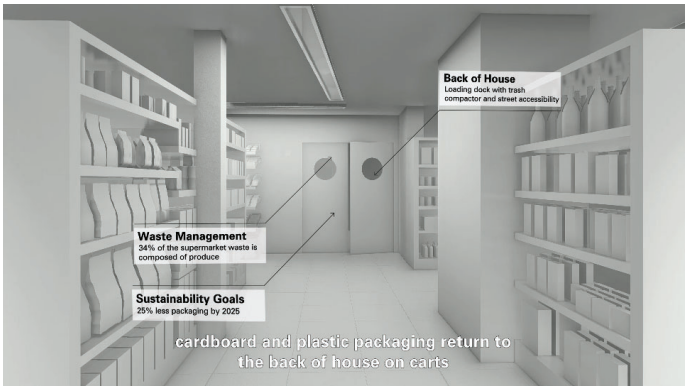

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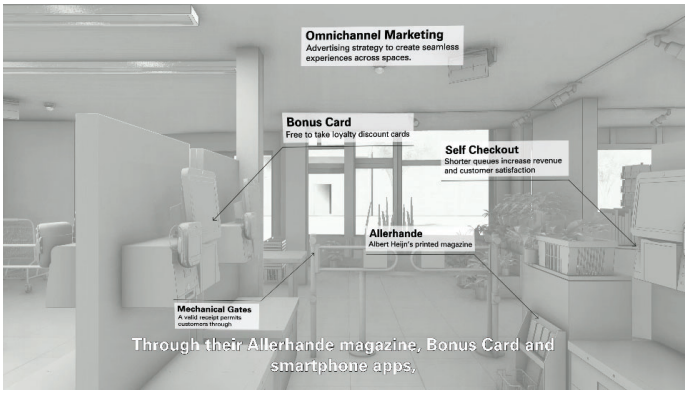
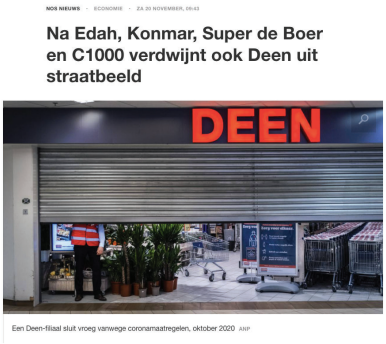


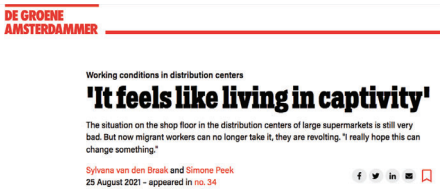
11

1 Facade
2 Fresh Produce
3 Fresh Produce
4 Bakery
5 Bakery
6 Condiments and Spreads
7 Refrigerated Section
8 Back of House
9 Confections
10 Loading Dock
11 Point of Sale

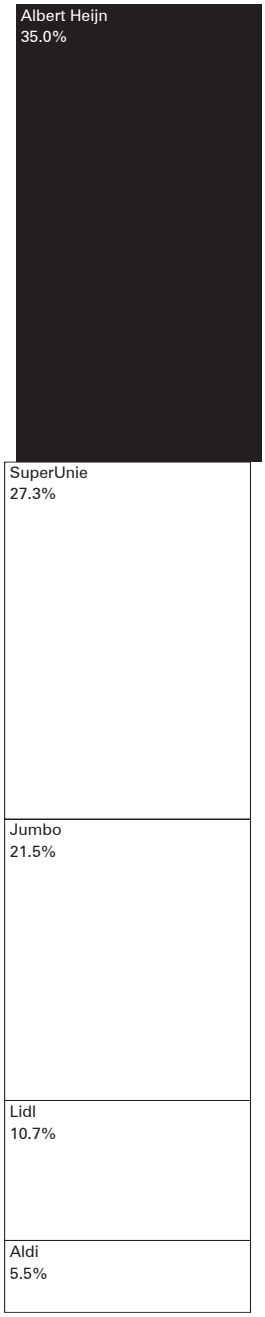
The Supermarket Reconstructed.

On sensorialism- The supermarket's scenography is amplified for the adoration of pineberries.

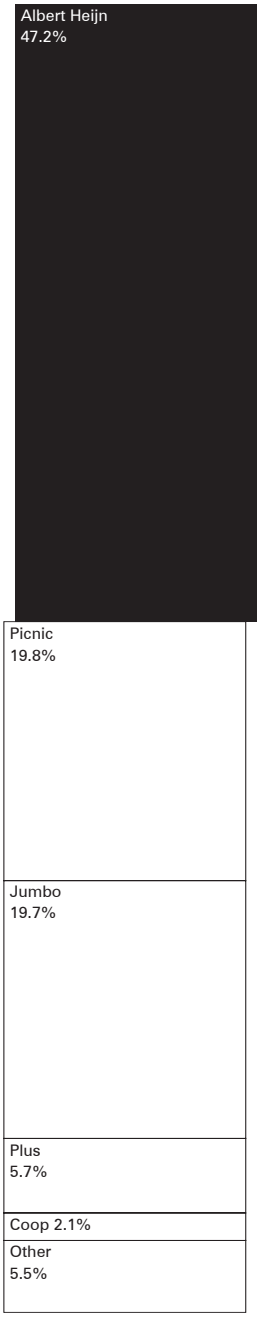




Recent headlines describe the supermarket and its distribution network in the Netherlands as a highly competitive sector, with questionable working conditions, while unregulated competitors are set out to disrupt the market.

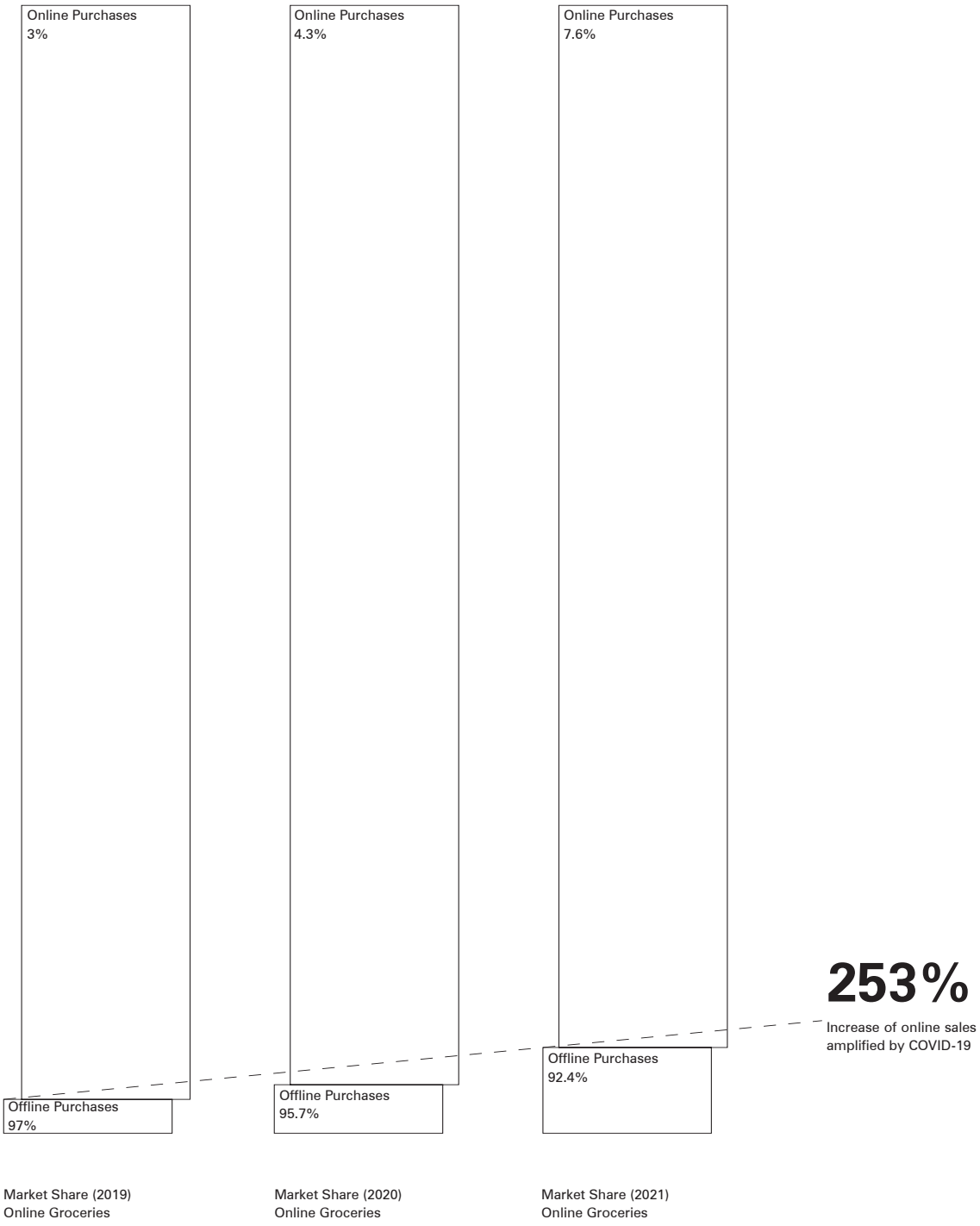


Market Share (2020)
Supermarkets



Market Share (2020)
Online Groceries

The “supermarket war” in the Netherlands, has led to a consolidation of companies and a seemingly oligopolized landscape of grocers, in which Albert Heijn has the greatest market share in both physical and digital stores.



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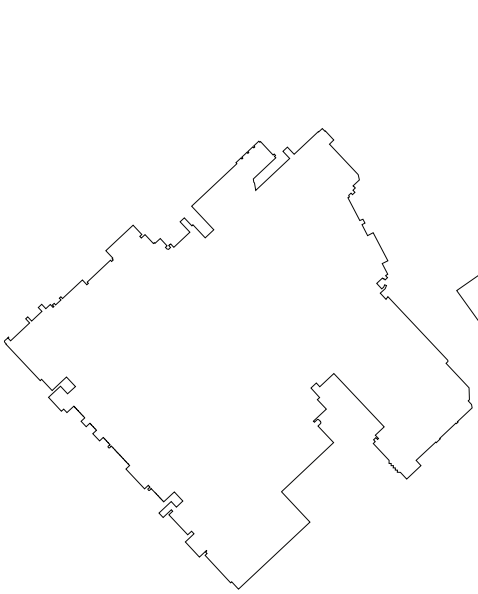
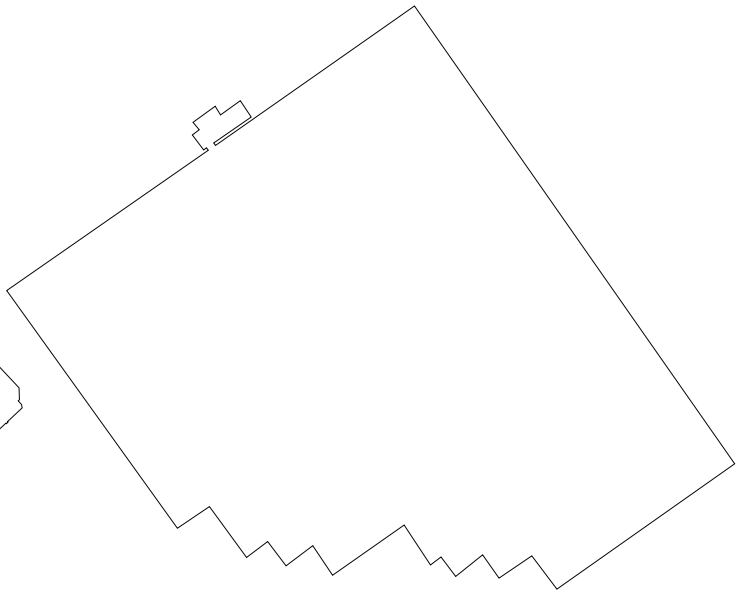
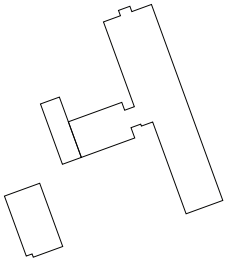


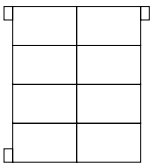
Royal Flora Holland
Aalsmeer
433,000 m²



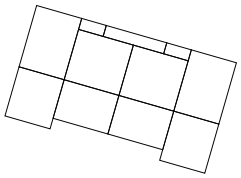
Royal Pride Holland BV
Wieringermeer
1,010,000 m²



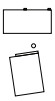
Ahold-Delhaize DC
Delfgauw
62,750 m²



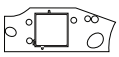
Coolblue DC
Tilburg
90,000 m²



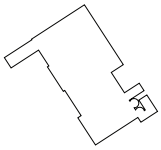
Zalando
Bleijswijk
140,000 m²



Amazon
Heerlen
9,000 m²

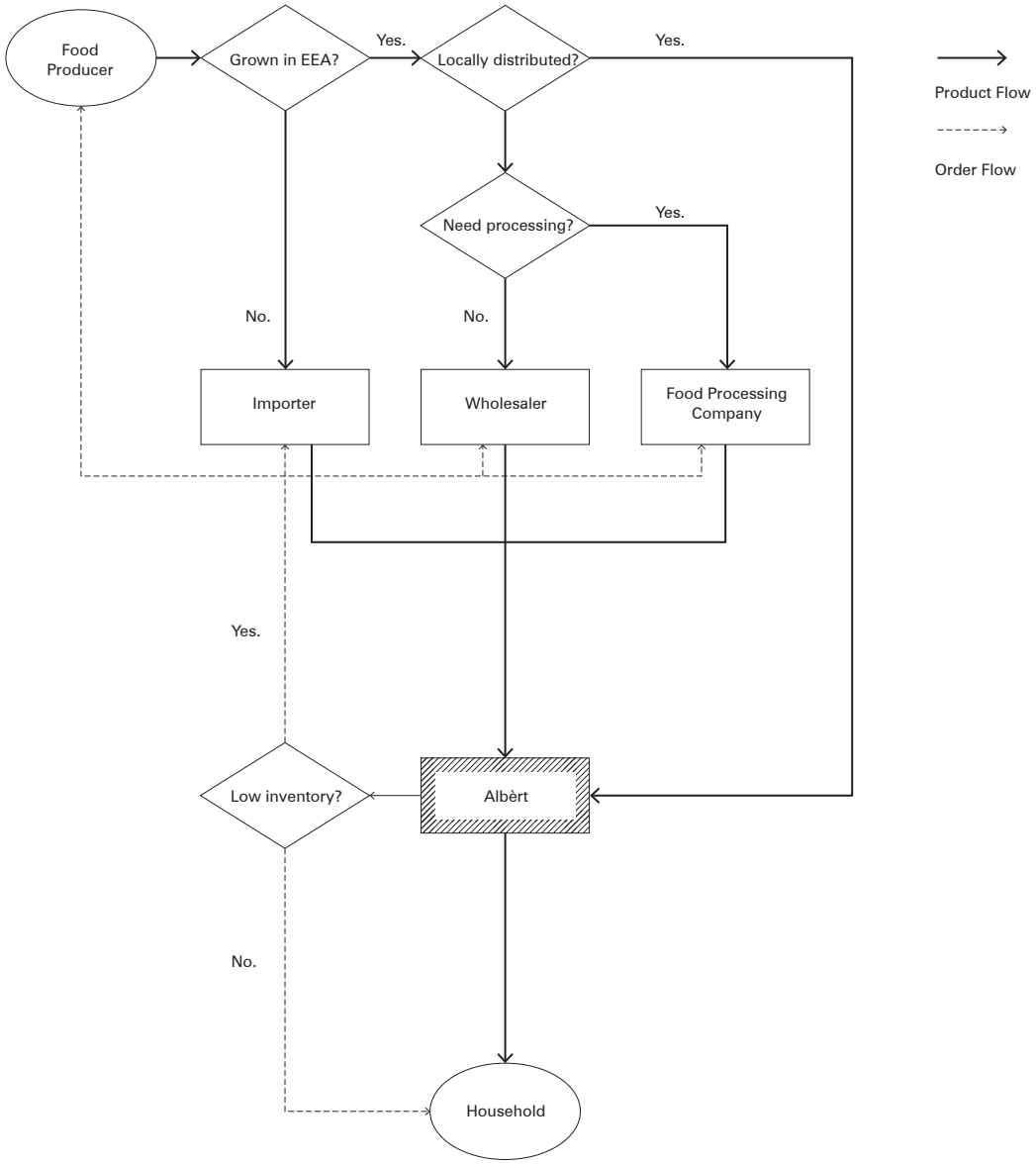


Albèrt
Delft
18,600 m²



IKEA
Delft
40,000 m²

The concealed back of house extends to the peripheries of the Dutch urban areas, taking upon a variety of spatial dimensions, accommodating different quantities of workers, and serving a range of regions.



Producers and suppliers respond to complex market dynamics through just-in-time production, relying on automation, logistics, and infrastructure within the Blue Banana, allowing supermarkets to optimize their stocking to shopper's demand.

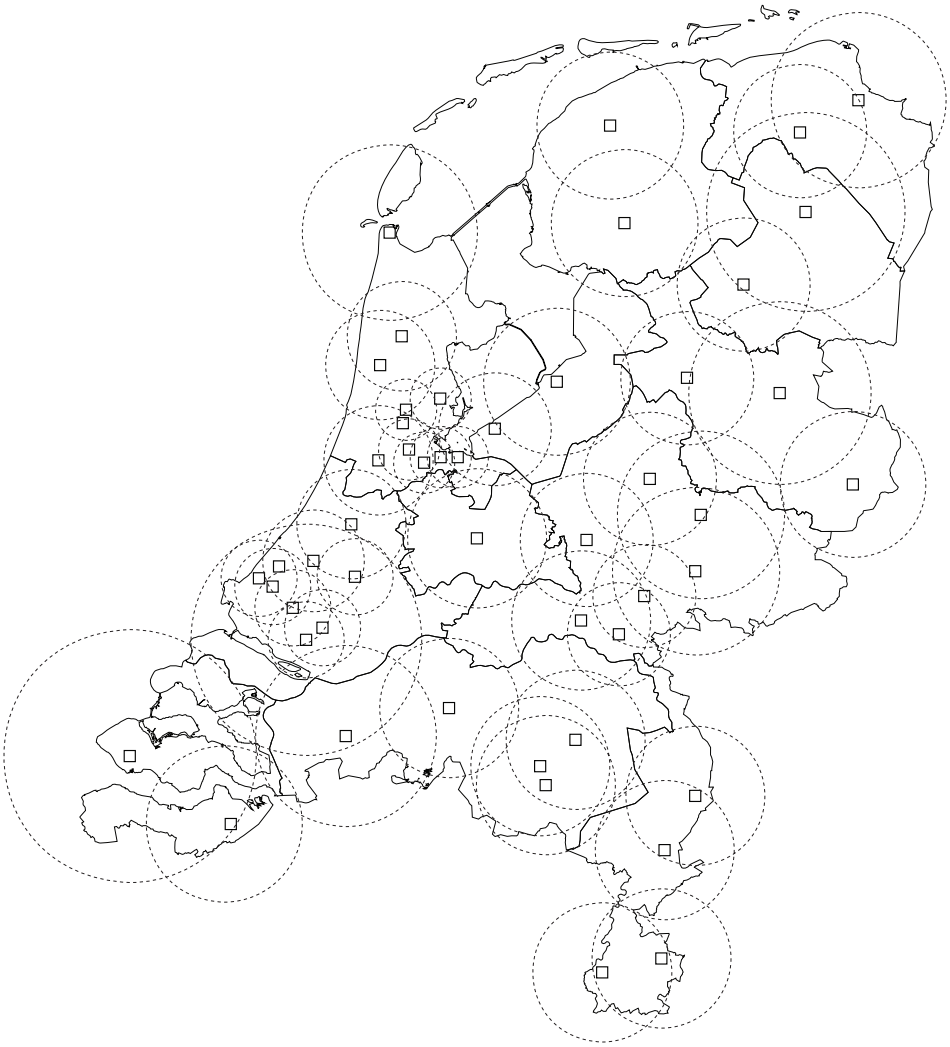
Employees keep track of just-in-time arrivals of products, while their prices are informed by market conditions and proximity.

2022

In an effort to break open the centralized and concealed distribution network of the supermarket, the role of the distribution centers is shifted to large-scale supermarkets such as Albert Heijn XL—now Albèrt—with a floor area of at least two thousand square meters, ready to serve a larger region through e-commerce.

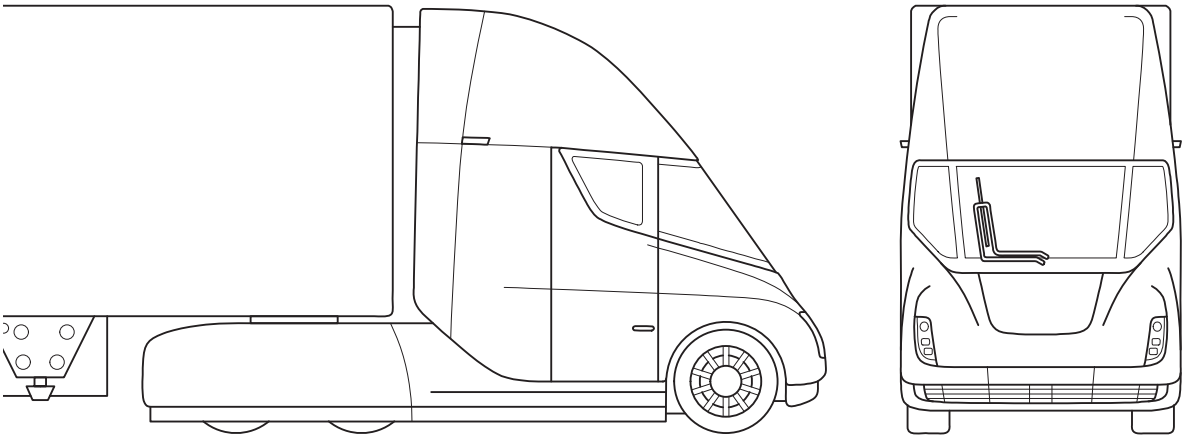
2030

Albèrt

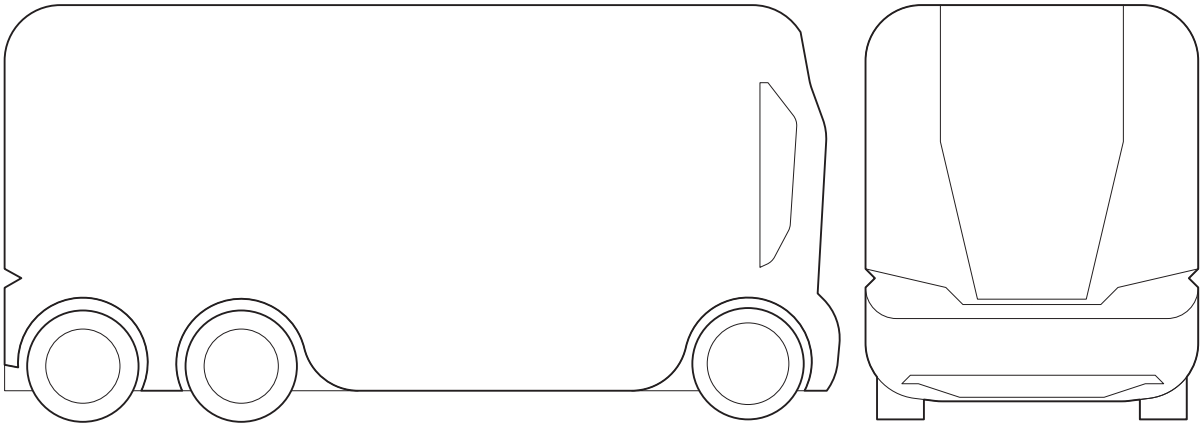


The number of supermarkets and their siting are regulated through municipal planning, leading to an even distribution over Delft's urban expansion areas. Delft's historic center, however, exhibits a high density of supermarkets and speed delivery hubs, responding to valuable shoppers in their proximity. This informs the future distribution of Albèrt and smaller-footprint Albèrtjes.

The essential products in these multiple Albèrtje stores within each city are fed by the distribution centers integrated within each Albèrt, while also having products directly sourced from local suppliers within the city, with the choice of having fine quality products and essential goods at the same place.



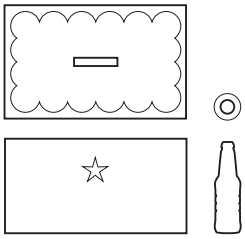
Freight-truck



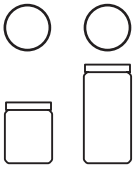
Albèrt truck

By distributing the supply chain from centralized warehouses to large supermarkets in the vicinity, electric semi-trucks with shorter roundtrips take care of transport between producers, supermarkets, and homes.

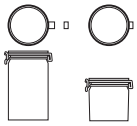
PET Bottle 1.5 l



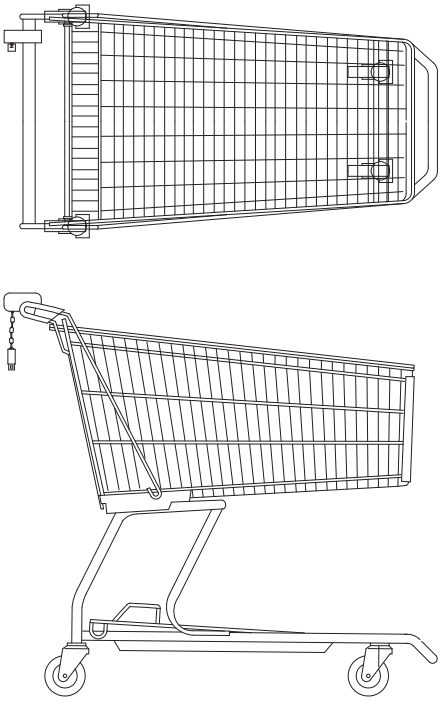
Crate and Glass Bottle, 33 cl



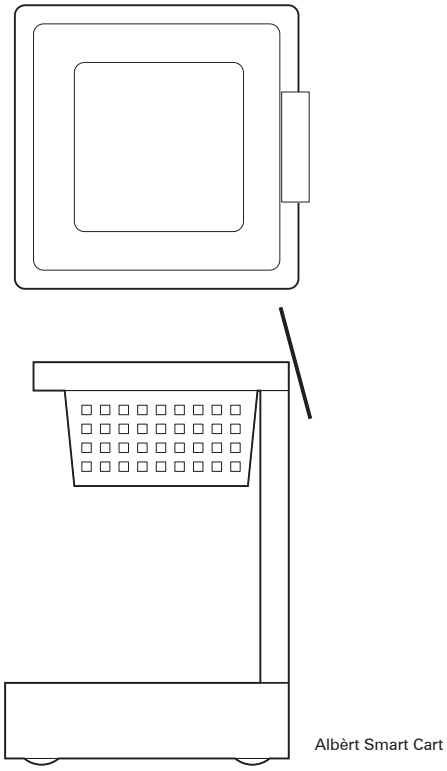
Albèrt Smart Cart



Pieter Pot Reusable Glass Jars, various volumes

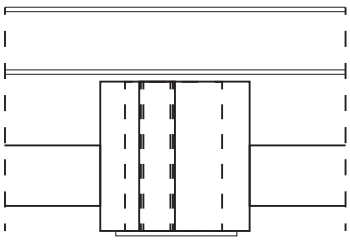


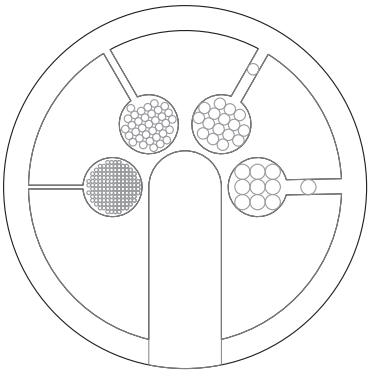
Supermarket shopping cart and shopping basket

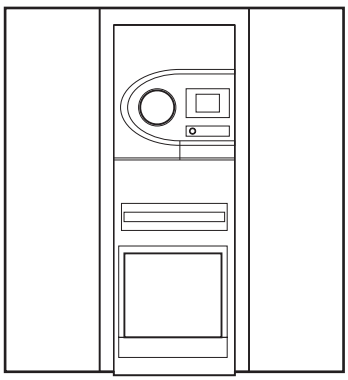


Albèrt Smart Cart

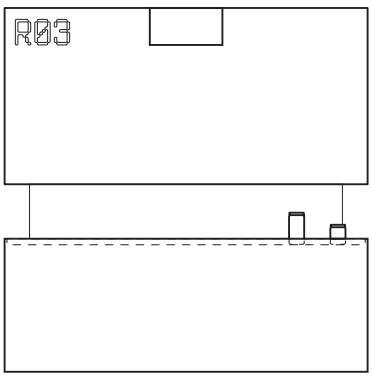
To eliminate single-use packaging and optimize logistic processes, a unified container-deposit system is introduced, limiting the variety of product dimensions in Albèrt. Displays on the smart cart and supermarket hosts guide shoppers in finding their products.





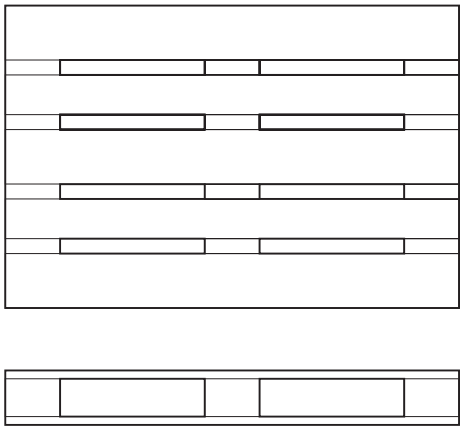


Container-deposit machine

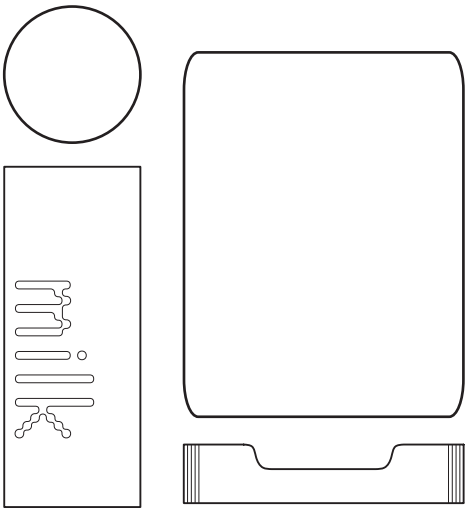


Albèrt Container Return Point

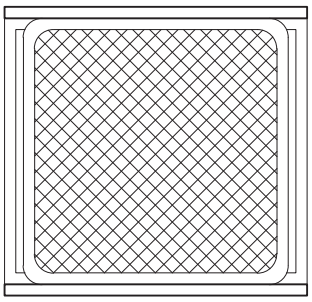
Albèrt's container deposit system utilizes the shopper's existing familiarity with return points for used bottles and crates.

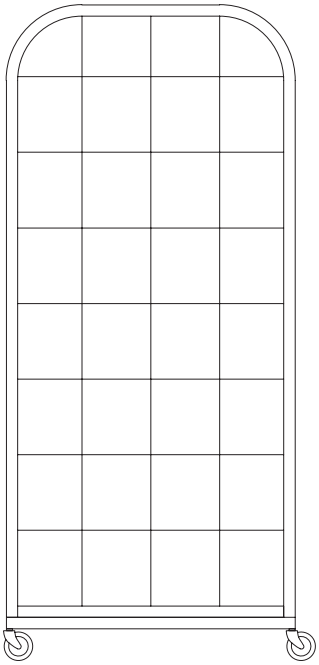


EPAL-Pallet

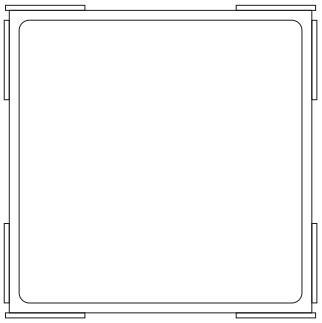


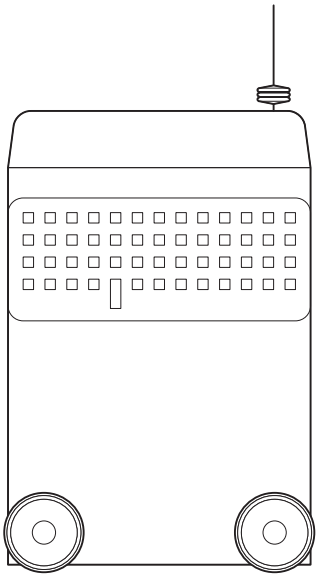
Albèrt Bulk Containers and Crates





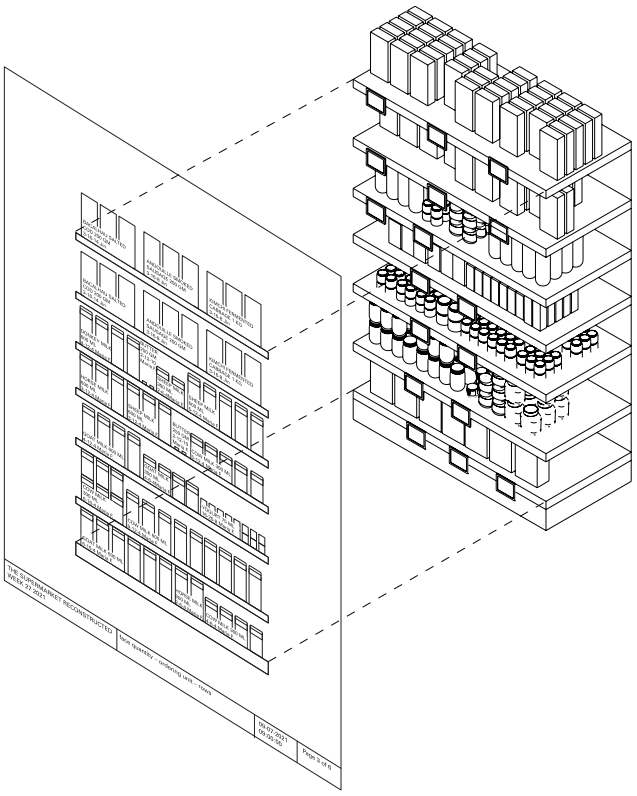
Stocking Cart

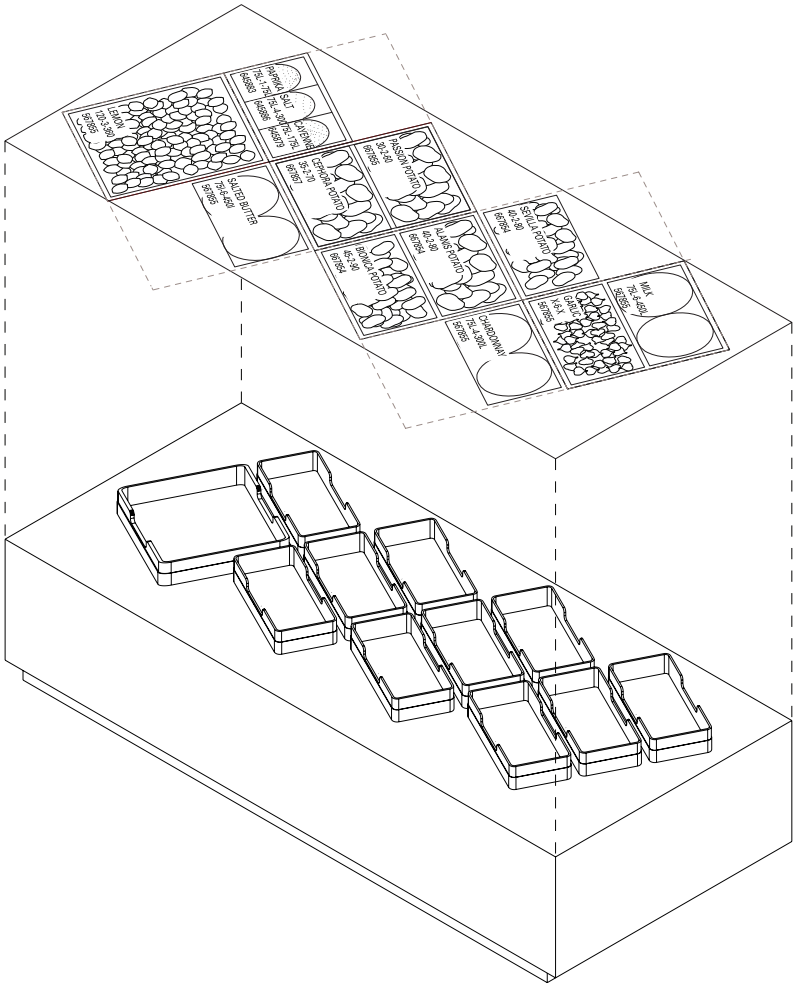




Ocado Robot

Albèrt's automatized warehouse, making use of Ocado robots, considers legacy dimensions based on the EPALpallet, by adhering to an 80 x 80 cm grid.



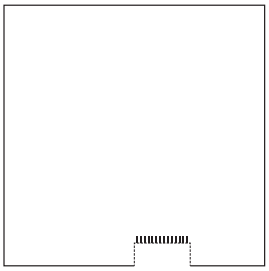


Planograms are an elevational system to optimize the relation between shoppers and the grocer's shelves, in order to maximize sales and minimize wasted space. By introducing a flexible automatized stocking system, the planogram is transformed into a planar organization, in which the retail experience can be dynamically adjusted to market conditions and seasonality.

1970
Thermal printed price label with European Article Number and unit price
120 x 100 mm

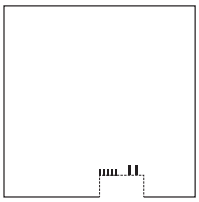
Self-service store with checkout counters
~170 m^2

1936
Self adhesive price label
21 x 12 mm



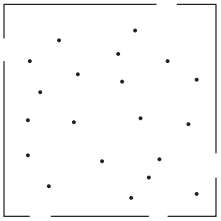
Hypermarket with checkout counters
~6000 m^2

2020
Electronic Shelf labeling system with dynamic display
70 x 36 mm



Modern Supermarket with omi-channel checkouts
~3000 m^2

2030
NFC tag embedded in the crate
Ø3 mm



2030
Albèrt with smart carts
Ø3 mm

The introduction of the fixed price—attached to a product through a sticker—has allowed the grocer to develop into self-service stores, informing the architectural type of the supermarket. Technological developments such as thermal printing, e-ink, NFC tags, and computer vision reintroduce dynamic pricing while offering novel spatial solutions for the supermarket, such as the elimination of the physical check-out point.

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4. Diana Holland, "From Land to Mouth: Interview with Brewster Kneen", *Share International*, accessed August 15, 2021, https://www.share-international.org/archives/economics/ec_dhfromland.htm

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An interview with the CEO of Ahold Delhaize about the financial positioning of supermarkets after COVID-19.

6. Executive Summary: Global Status of Commercialized Biotech/ GM Crops 2011, *International Service for the Acquisition of Agri-biotech Applications*, 2011

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7. Frank Viviano, "This Tiny Country Feeds The World", *National Geographic*. (September, 2017).

An overview of the food industry in the Netherlands addressing production, research, and export.

8. Franziska Bollerey, *Setting the Stage for Modernity: Cafés, Hotels, Restaurants, Places of Pleasure and Leisure* (Jovis Verlag GmbH, 2019).

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11. Lia Ryerson, "Bigger Hauls, Fewer Choices: How the Pandemic Has Changed Our Grocery Shopping Habits Forever," *The Washington Post*, September 1, 2020.

An article cataloguing new market trends in the American supermarket after
COVID-19.

12. Marcus Case and Ember Smith, "Automation From Farm to Table: Technology's Impact on the Food Industry," *Brookings*, November 23, 2020.

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13. Marten Kuijpers and Ludo Groen, "Automated Landscapes and the Human Dream of Relentlessness," *Strelka Mag*, March 3, 2020.

An article about large automated production spaces in the Netherlands and their effects on people and land.

14. Melissa Repko, "Grocery Shoppers Trade Up From Dried Beans and Rice to Premium Foods as Covide Cases Rise," *CNBC*, November 12, 2020.

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Four human-interest stories about the impacts of rising food costs after COVID-19.

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An article claiming the significance of biodiversity in urban areas.

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A case study on the use of Microsoft's data and AI technology for Albert Heijn.

22. Thibaut Marie Tardieu, *Potential Greenwashing At Dutch Supermarkets* (Wageningen University & Research May 11, 2020)

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Supermarket is a collective project on the spatial implications of the food industry in the Netherlands and beyond, redesigning this now considered essential architecture to entail a paradigm shift in its journey towards optimization, sustainability, and health consciousness. It imagines a future supermarket that integrates retail experiences with distribution, supply chains, and product display to ensure a frictionless future for conscious consumers; while, at the same time, creating a new civic presence for the city and its residents.

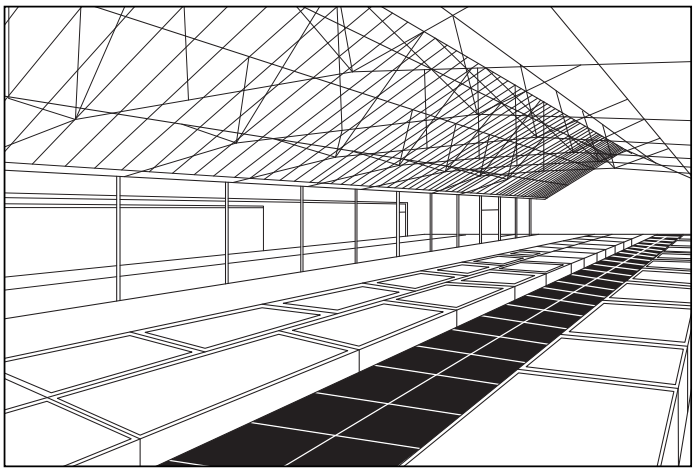
The envisioned supply chain for the future supermarket commences with the Blue Banana, enhancing the position of the Netherlands— one of the world's largest food exporters and home to world-class research institutions—in this urbanized trade corridor. From Genoa to Delft, and from the supermarket's back of house to the sales floor, Supermarket addresses multifaceted aspects of the food industry— scarcity, trade, inclusivity, sensorialism, tastemaking, craft, reshoring, protectionism, automation, and extinction—through ten architectural and urban design contributions.

Ten products, along with their associated building types and territories demonstrate how a modified food distribution network converges at the future supermarket—Albèrt—on Martinus Nijhofflaan in Delft. Albèrt seeks to display products and their supply chain by integrating the once stand-alone and distant distribution center with an automated Ocado grid system, asserting itself as the generator of a just-in-time production system—thereby disrupting the seriality of infinite supermarket aisles. With all Albèrt supermarkets operating as distribution centers for multiscalar Ahold Delhaize branches—such as Albert Heijn and Albertje—the supply chain, and its resultant territories, are condensed and reconfigured.

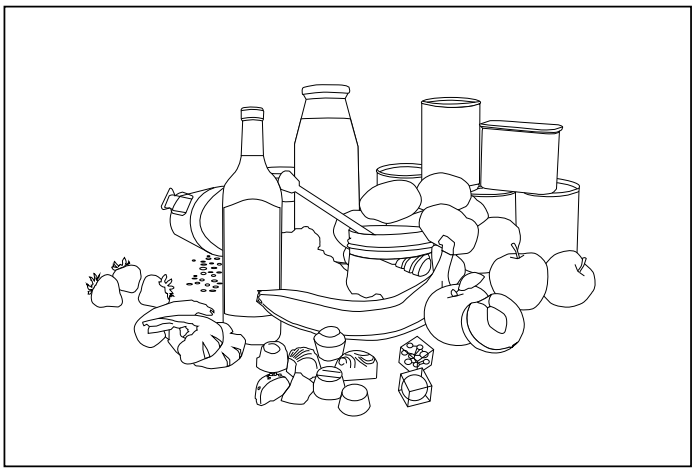
Albèrt offers an omni-channel consumer experience in both physical and digital forms. It reflects on the traditional supermarket's backstory, effectuating sustainability goals throughout a reimagined supply chain. The supermarket assures optimization in unison with the country's circular economy by implementing reusable packaging for all Albèrt products, extending shelf-life from data-driven decision making, offering digitized scanners informing conscious consumers of product particularities, and by providing dynamic pricing for food security.

Along with a flexible open-plan allowing various iterations of product displays to maximize profits and render a unique shopping experience, Albèrt 's business models are diversified, generating revenues from branded products staged in shop-in-shops and electric car-sharing facilities to encourage consumer traffic.

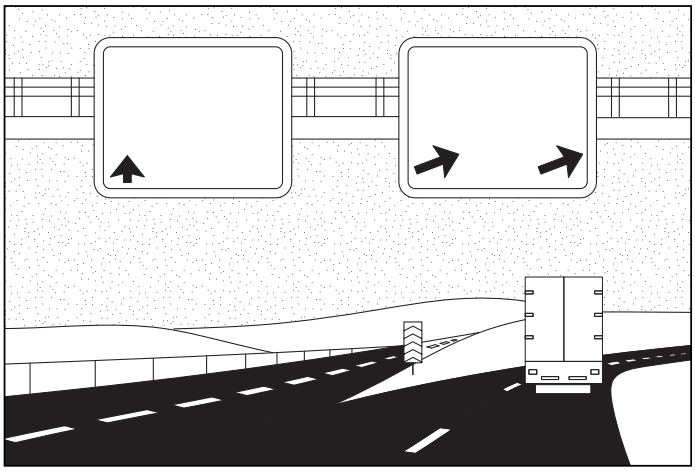
The supermarket—previously conceived as a destination—incorporates a pathway to meet the constant movement of divergent consumers with the conjunction of fast-paced pick-up zones—promoting cycling, delivery, and e-commerce—and slow-paced demonstration zones offering novel tasting experiences along with the green public spaces on the periphery. Albèrt demonstrates an innovative retail experience beyond the technology of the new integrated distribution center, extending its perimeter toward the Delft city center to establish a new civic presence.



The Netherlands is internationally recognized as one of the world's largest food exporters due to its excellent connectivity throughout Europe. Home to world-class research institutions, it is—in effect—feeding the world. However, food production and consumption are responsible for around 25% of the total emission of greenhouse gases and for 60% of the terrestrial loss of variation in plant and animal species. When it comes to the food industry, the country's journey towards optimization, sustainability, and health requires a paradigm shift.



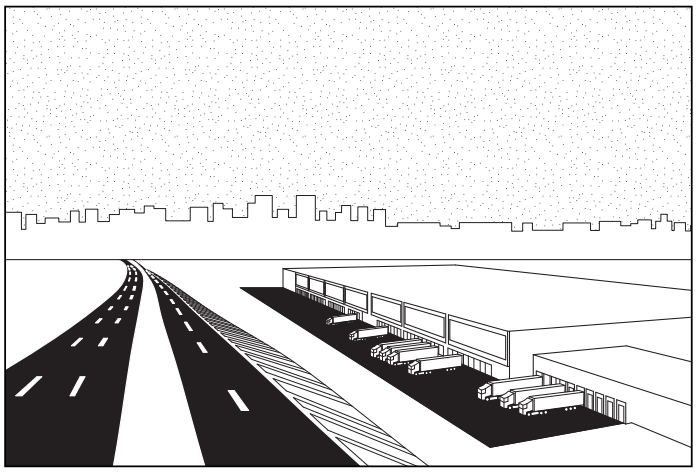
Ten architectural and urban design contributions sited within the Blue Banana—a European corridor of almost continuous urbanization—originating from supermarket products, <<<redesign the future supermarket of 2030.



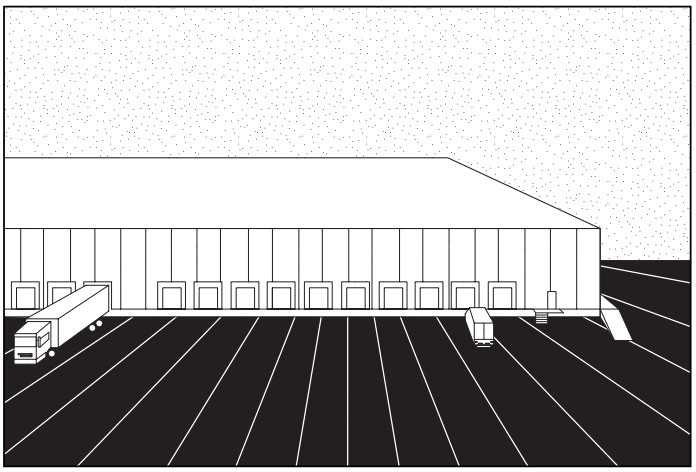
A continuous supply of products and materials, to and from the current supermarket, is made possible through a vast network of roads, rails, and waterways, connecting it to various infrastructural nodes and European trade routes within the Blue Banana.

Supermarkets occupy the most densely used square meters in a city. Resting within its etymology—where «super» alludes to supremacy concerning size, quality, and quantity, while «market» refers to trading in goods of value—the supermarket, selling food and household goods, first originated in the 19th century with the novel concept of a self-serve store.

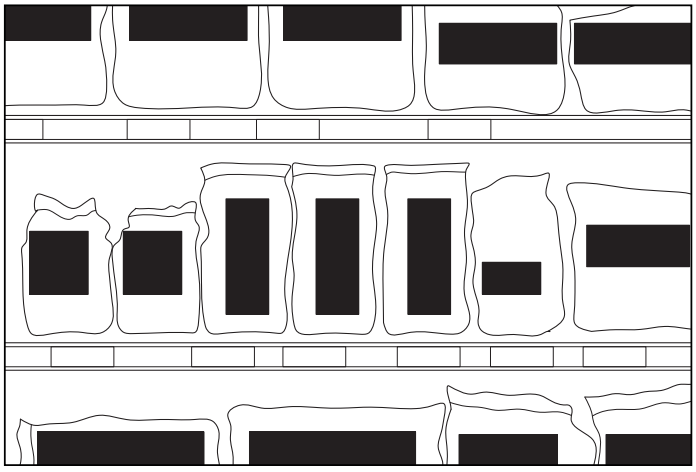
Presented in a set of spatial narratives, the collective project addresses multifaceted aspects of the food industry and its distribution network commencing with the Blue Banana's urbanized trade corridor to reconfigure at the future supermarket—Albèrt—on Martinus Nijhofflaan in Delft.



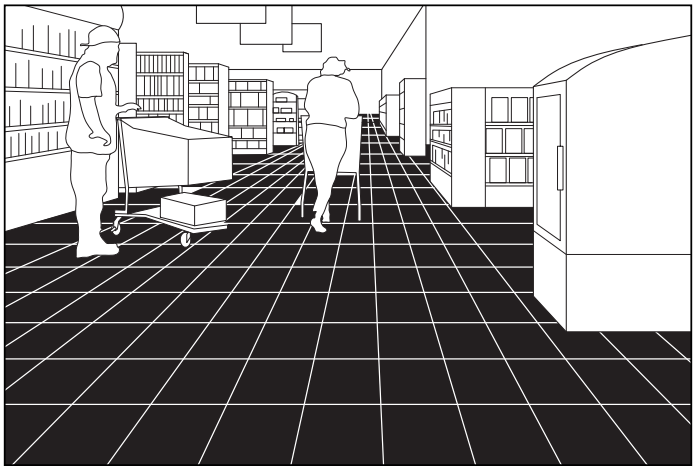
These ten contributions provide modifications to the supply chain, product distribution, and store planning, in relation to the products, their associated building types, and their extensive territories through a vast network of transportation nodes.



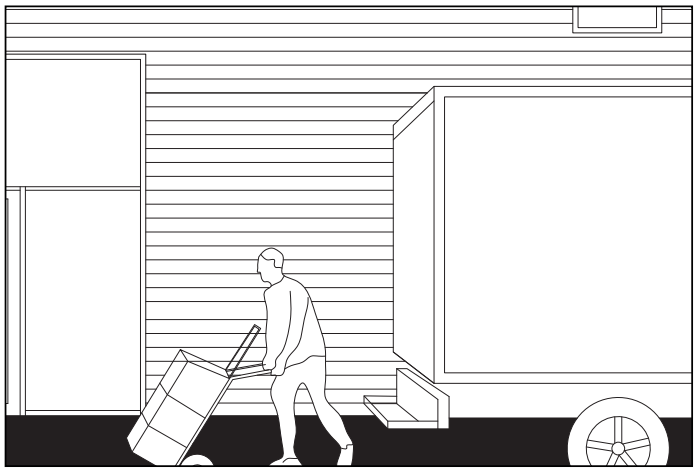
For this purpose, distribution centers currently serve as the epicenter, exploring the resultant spatial characteristics, and linking these ten contributions with the future supermarket.



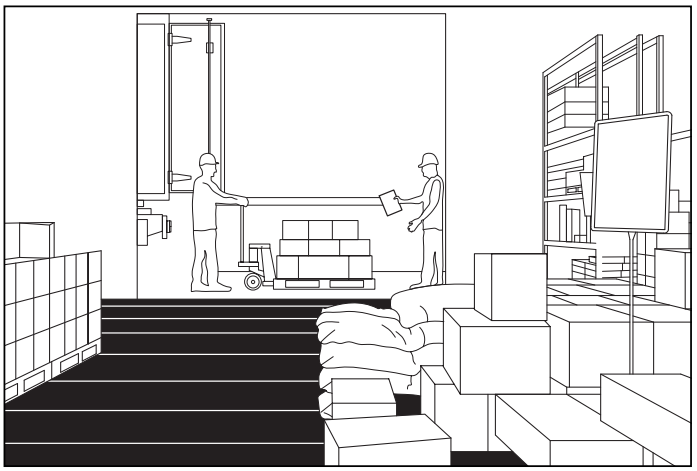
Fixed prices that originated in order to accelerate grocery sales had a huge impact on consumer experience. From standardization of price tags to uniformity of products, and from barcodes to electronic shelf labeling, the improved logistics, shorter employee training periods, a monitored supply system, and efficient shelf organization.



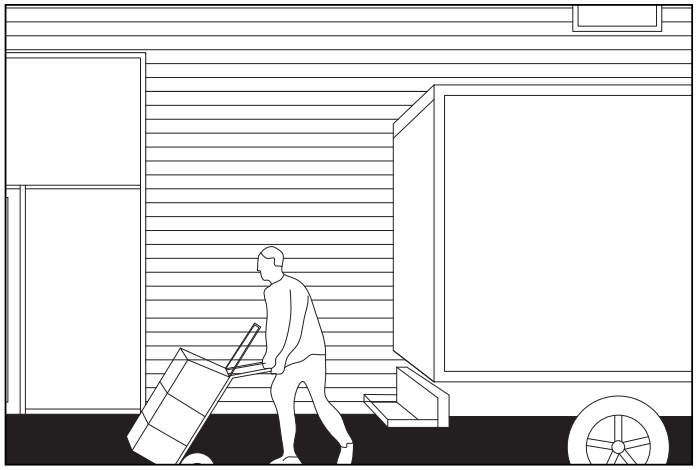
As the COVID-19 pandemic has reshaped the retail market in unprecedented ways, consumers shift around lifestyle and value. Its profits increased up to 40% and physical stores overflowed with people seeking to maintain a sense of normalcy, underscoring it as an essential service, one that represents a new civic presence. This demands new spatial configurations of a supermarket transitioning between a pre-COVID-19 and a post-COVID-19 society.



Home delivery and e-commerce businesses grew up to 5 times faster than before the pandemic, giving rise to an online distribution center that offers the convenience of a digital supermarket.



The supermarket analysis reveals its functional logic through the concealed back of house that is associated with the product's supply chain. Regarded as the employee's domain, the back of house is concerned with product flow, supply, and demand through data-driven decision-making, standardized packaging sizes, and product distribution via tastemaking, scarcity, sensorialism, inclusivity, trade, and biodiversity.



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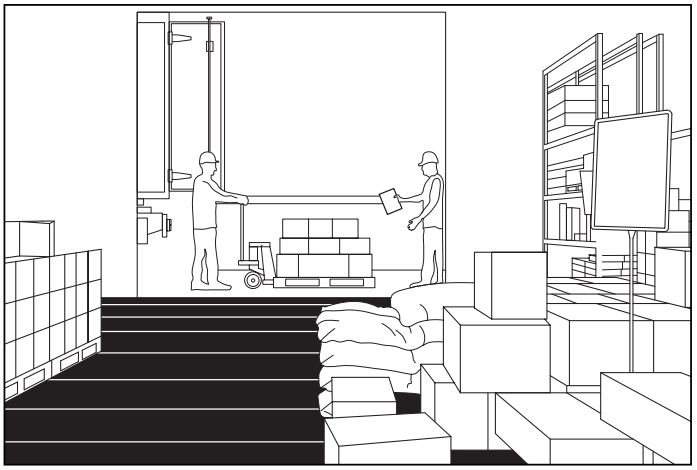

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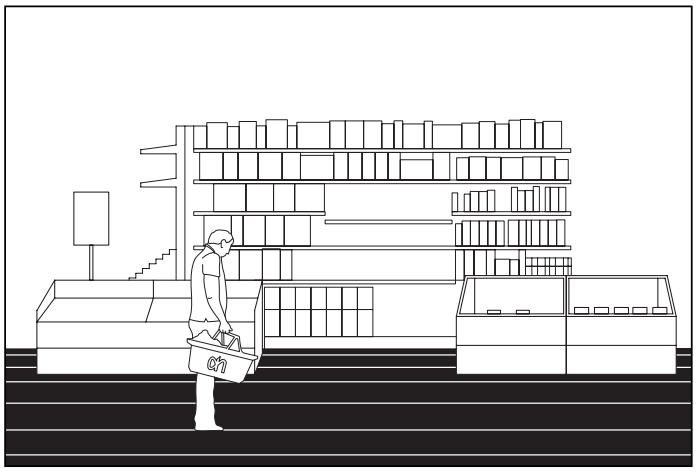
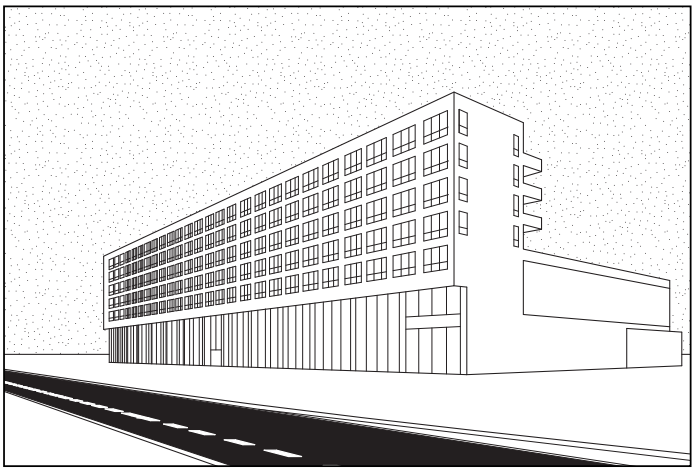
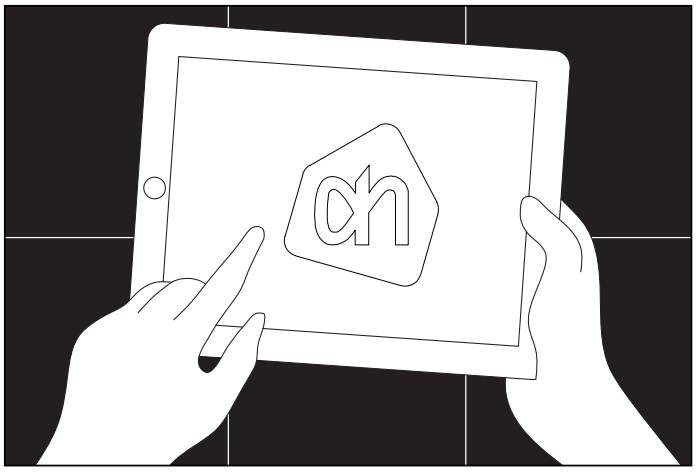


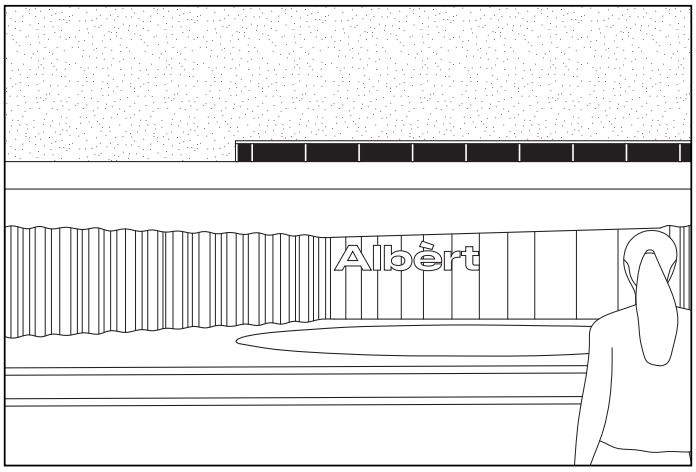
Secondly, the meticulously designed sales floor provides an immersive consumer experience. The sales floor raises issues of scenography, human interaction, digital technology, and the organization of supermarkets within the ever-changing future of retail through the notions of craft, reshoring, protectionism, automation, and extinction.



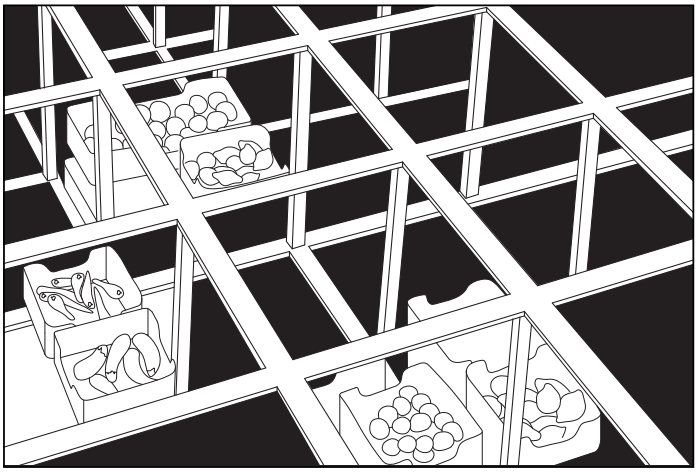
The collective project on the spatial implications of the food industry in the Netherlands and beyond redesigns a future supermarket on the current site of the Albert Heijn XL on Martinus Nijhofflaan in Delft, implementing developments on the sales floor and the back of house ensuring a frictionless future for shoppers.



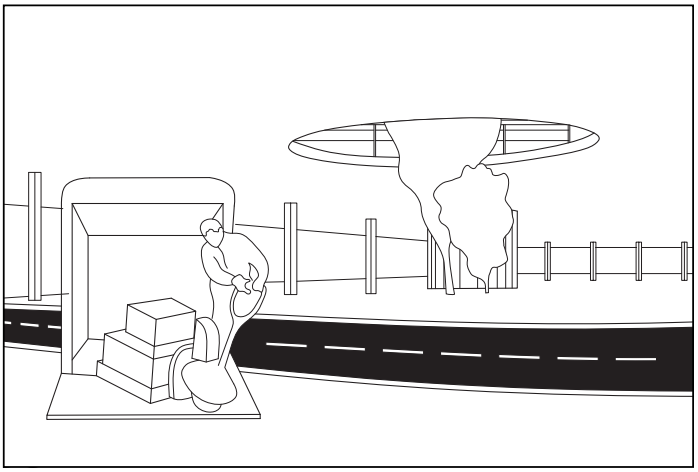
Situated in a densifying expansion area of Delft, a forecasted demography of (international) students, families, and elderly will make use of this supermarket and its e-commerce services.



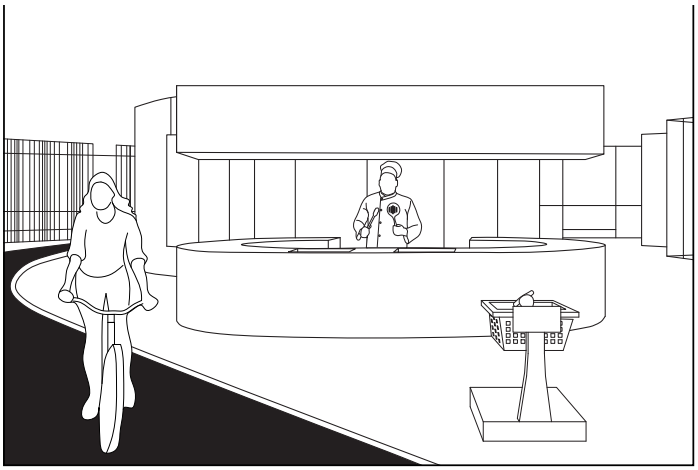
Responding to technical, environmental, and societal demands from the Blue Banana's urbanized corridor to the new Albért, and from the supermarket's back of house to the sales floor, new spatial propositions redefine the future supermarket of 2030.



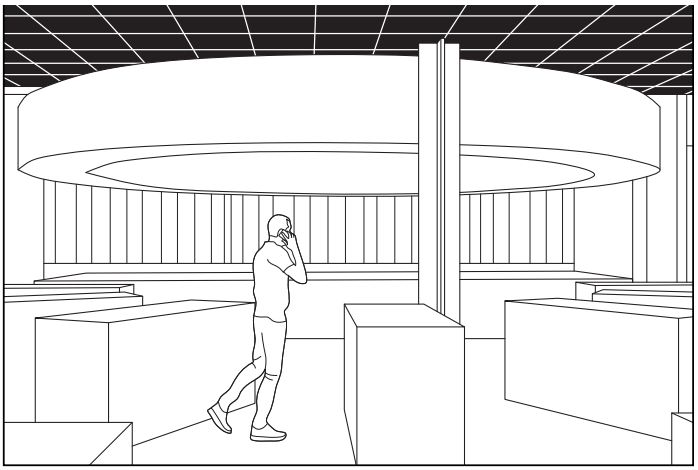
The reimagined supermarket—Albèrt—seeks to display both the product and its supply chain, in turn, the sales floor and the back of house, by integrating the distribution center with an automated Ocado grid system, asserting itself as the generator of a just-in-time production system.



With all Albèrt supermarkets functioning as distribution centers for multi-scale Ahold Delhaize branches—such as Albert Heijn and Albèrtje—the supply chain, and its resultant territories are condensed and redefined. Product distribution within each network thus densifies within smaller radii, becoming open to more local suppliers frequenting small-batch deliveries, while also providing proximity to consumers in the city.



The storefront of the supermarket moves beyond blocked-off rows of checkout lanes and security gates to designated slow-paced zones with product demonstrations, workshops, and exclusive shops that entice consumers into the supermarket.



The automated Ocado system in the distribution center above allows for the diversion of labor in the supermarket towards hospitality and social interaction through various host stands—strategically placed to encounter pedestrian flows—offering a tailored shopping experience.

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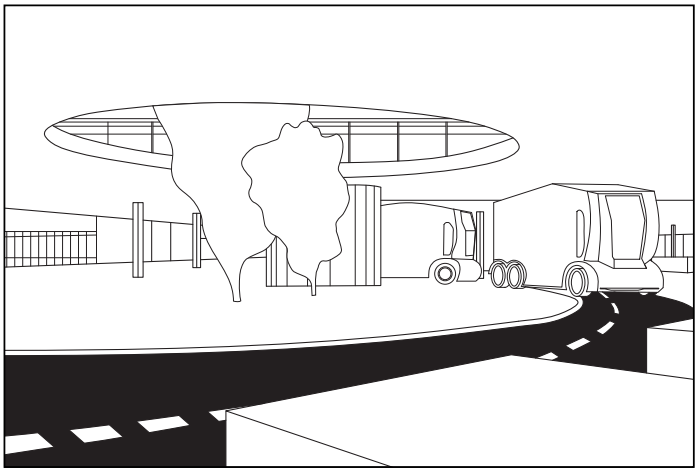
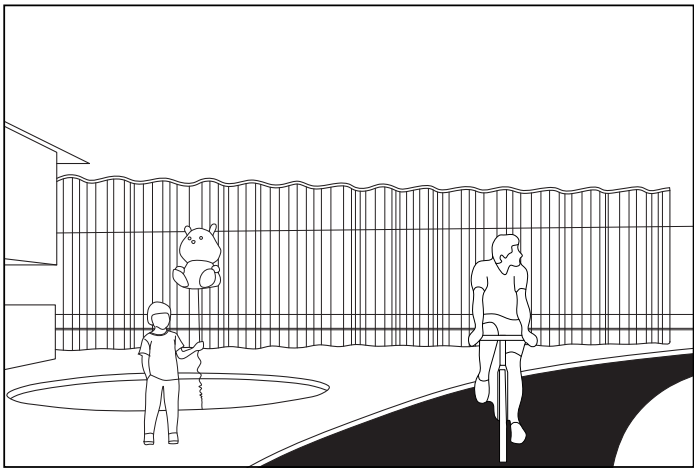
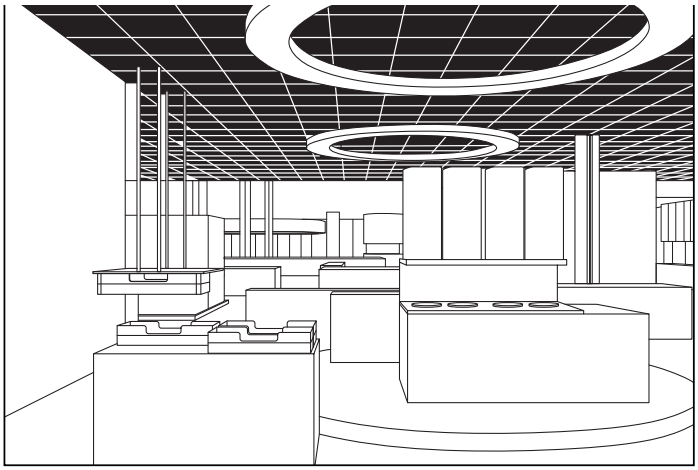


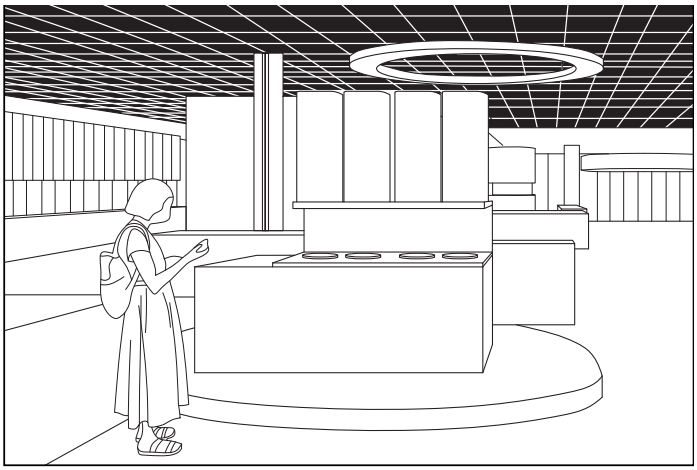
The relationship between the supermarket and the city changes with a modified transitional system that showcases the dynamic loading dock and its functioning on the sales floor, diverts private vehicular flow, e-trucks, and car-sharing services towards the Albèrt parking on the site, and promotes cyclists by providing access on the sales floor through the incorporation of a pathway for fast-paced pick-up zones with an increase in delivery and e-commerce.



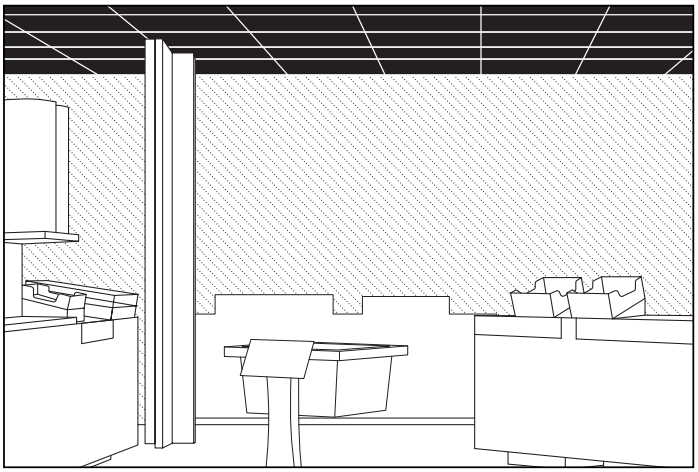
The supermarket provides several entrances—strategically located near high traffic zones—to move away from a one-directional circulation path to a multi-directional circulation pattern within the organic layout of the facade that is designed in response to the surrounding context.



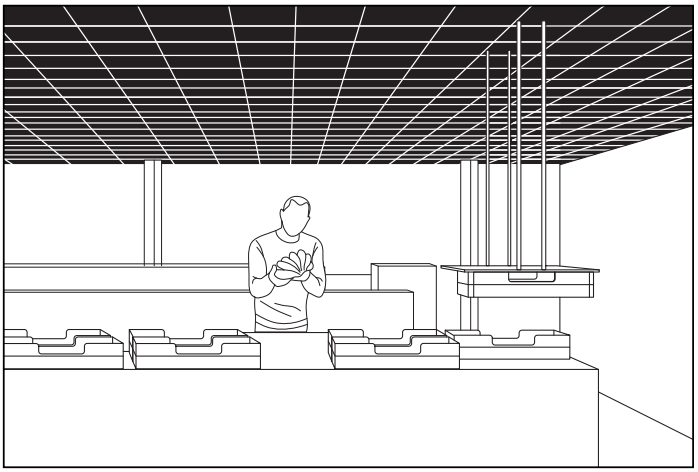
The supermarket is reorganized according to the central high yield automated distribution center within a static grid ceiling that offers dynamic robotic movements, allowing various iterations of product displays in reaction to seasonality and specialties, to render an open floor plan shopping experience.



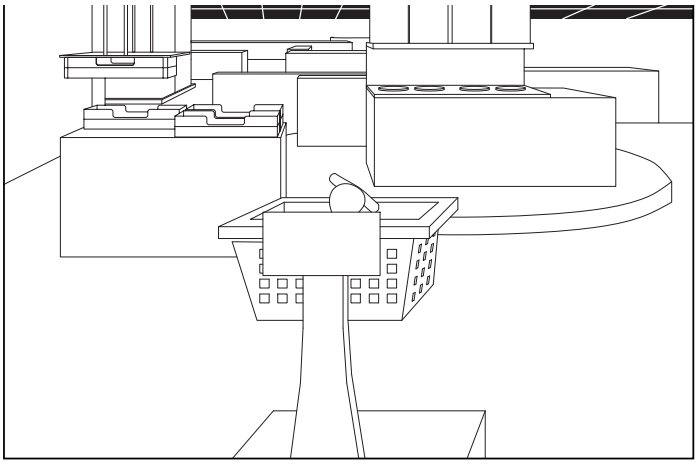
Stores will continue to use planograms, working on existing principles of increasing sales. From bulk shelves to fresh produce crates, shelving systems within the open plan generate new episodic formats of planograms, while accommodating changes in circulation with the incorporation of electronic signage to guide the consumers.



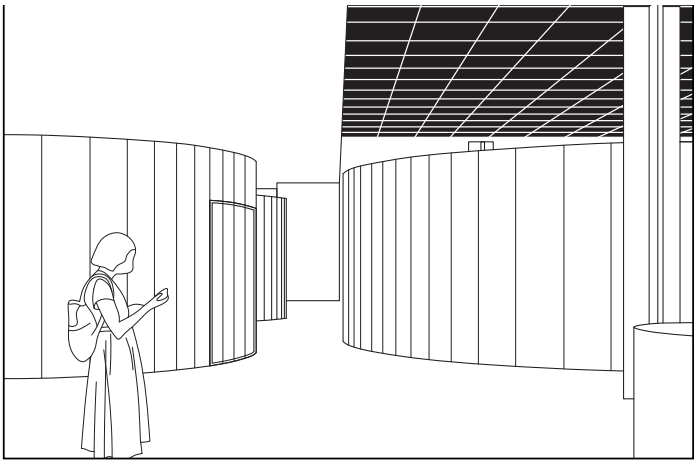
Responding to the supermarket's visibility of the supply chain, vertical experiential walk-in refrigerators represent the ripening rooms and recreate the conditions of refrigerated trucks to extend the distribution center to the sales floor with a convenient product flow, allowing consumers to momentarily enter the varied environments of the food supply chain.



All new shelves, carts, packaging, and delivery methods work within the 800mm x 800mm grid to ensure full standardization within the supply chain system starting from the cargo pallet itself.



Once an item is delivered, the screen on the smart cart displays other useful items, or the next item on the shopping list while still incorporating key supermarket sales concepts and experiences like cross-merchandising and impulse buys.



Business models and real-estate strategies—introduced through independent areas defined for peripheral store-in-stores—promote collaborations with exclusive brands and local entrepreneurs by bringing in highly curated experiences, catering to the experimental and diverse tastes of Delft residents.

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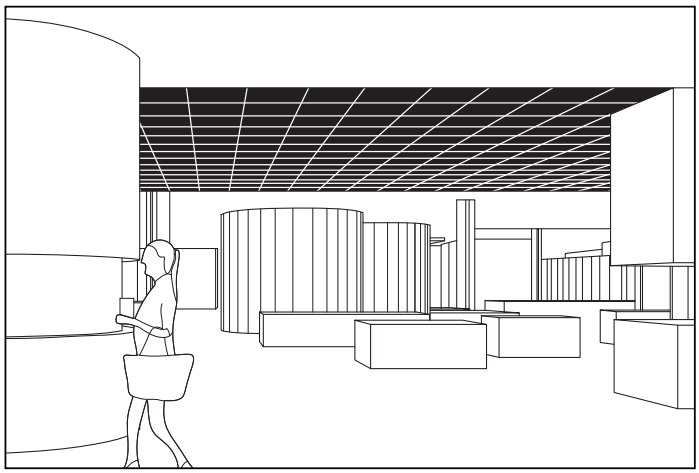
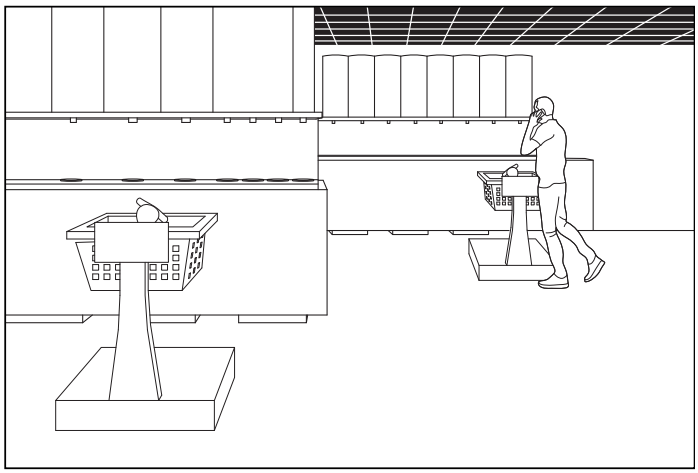
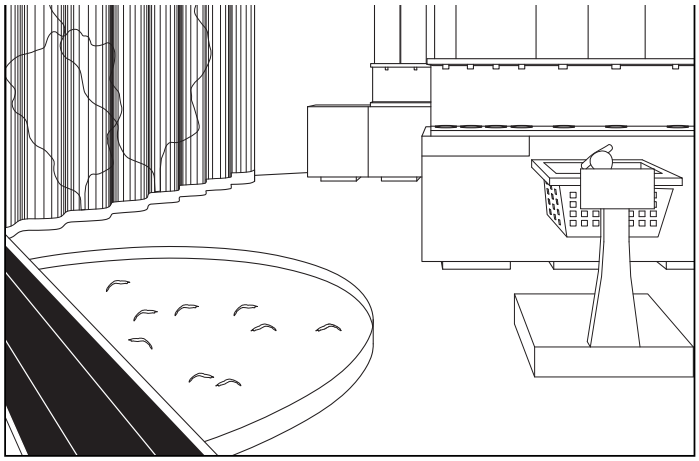


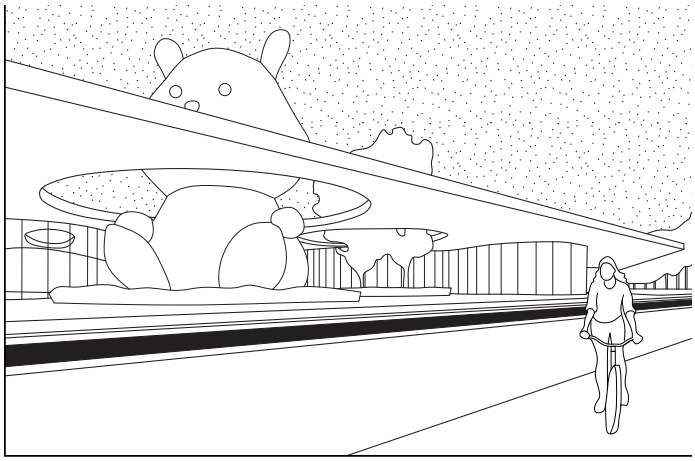
The future supermarket addresses sustainability goals through a reimagined supply chain with reusable packaging for all Albèrt products that are collected, cleaned, and redistributed on site in various return points, cleaning stations, and end-cap gondolas respectively, that remain scattered throughout the sales floor.



Smart carts with digitized scanners react to the particularities of the product on the shelf with information on the provenance of products for conscious consumers. Electronic displays are connected to expiration dates, supply, and demand through dynamic pricing monitored by data-driven decision-making.



As an essential service, the supermarket's design incorporates several public green zones amidst the sales floor to entice the consumers to spend more time inside, while at the same time providing a healthier working environment, through biodiverse farming solutions, integrated agriculture strategies, and a green roofscape.



Albèrt offers a new retail experience open to Delft by putting both the product and its supply chain on display. A flexible open plan within and beyond the high yield automated distribution center—now a part of the supermarket—extends its perimeter towards the city and its residents, establishing a new civic presence.

The introduction of fast-paced zones in the supermarket spreads along the bike lane, featuring a demonstration kitchen and pick-up points.

Live shrimps and small-batch milk deliveries demonstrate freshness and reusable packaging within a just-in-time production system.

Permaculture as a new farming method inside the supermarket boosts biodiversity and rewards the cultivation of GMOs

View of the automated Ocado grid system and the distribution center on the ceiling from the concierge desk on the sales floor.

The smart cart eliminates the boundaries of the supermarket's sales floor while dynamic pricing and digitalized labels inform the consumers about the product's supply chain and provenance.

Dynamic robotic movement above the open sales floor allows for various iterations of product displays, according to seasonality, discounts, and specialties.

Free food is no longer shameful, facing the luxury products of the Hermès store-in-a-store.

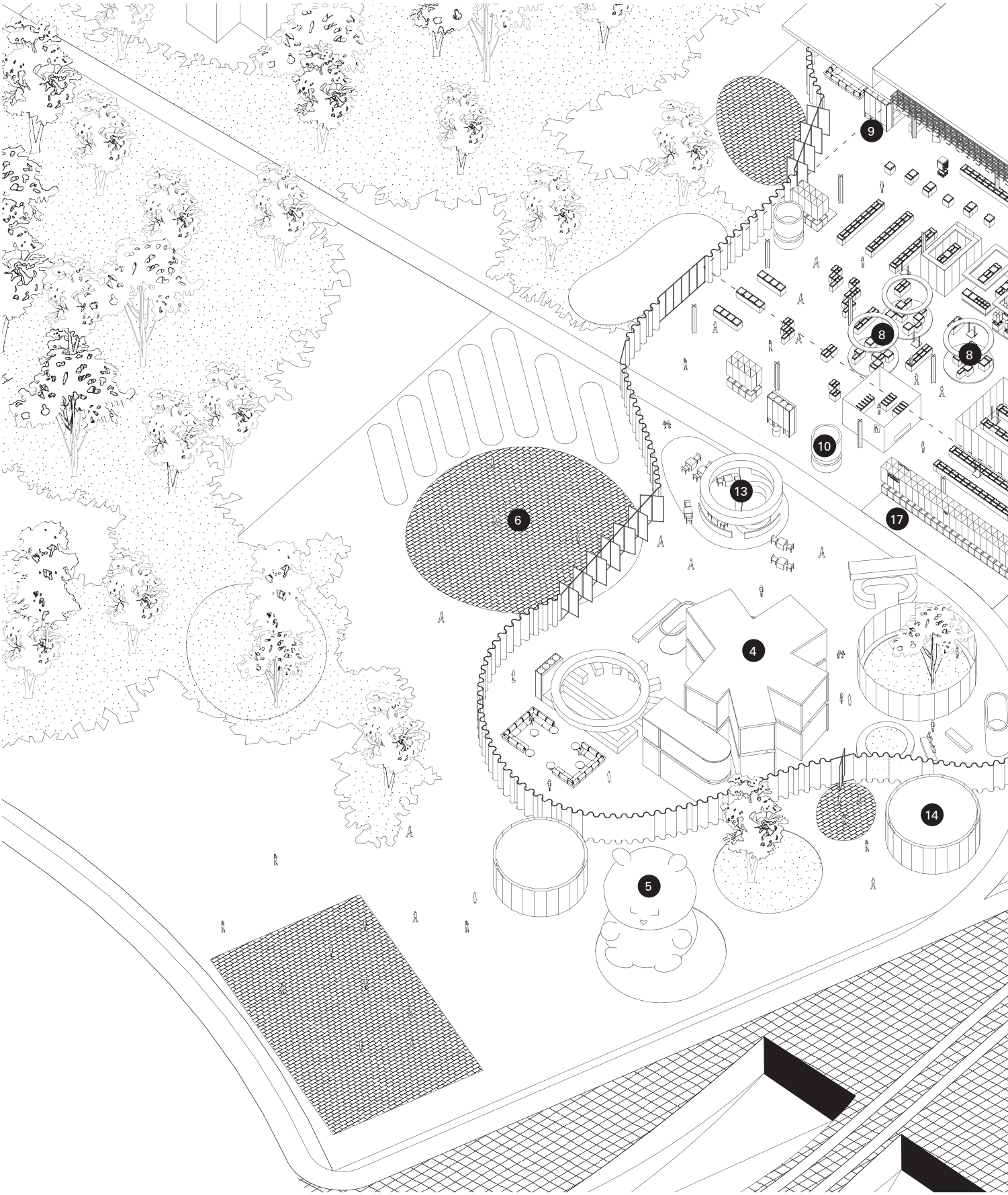
The walk-in refrigerator extends the distribution center to the sales floor, offering a momentary experience in the varied environments of the food supply chain.

A wine bar next to an automat restaurant are part of the slow-paced zones of the supermarket, introducing a novel tasting experience next to a public green terrace.

Beyond the internal core, Albèrt offers an innovative retail experience, opening up the supermarket's perimeter towards the city.

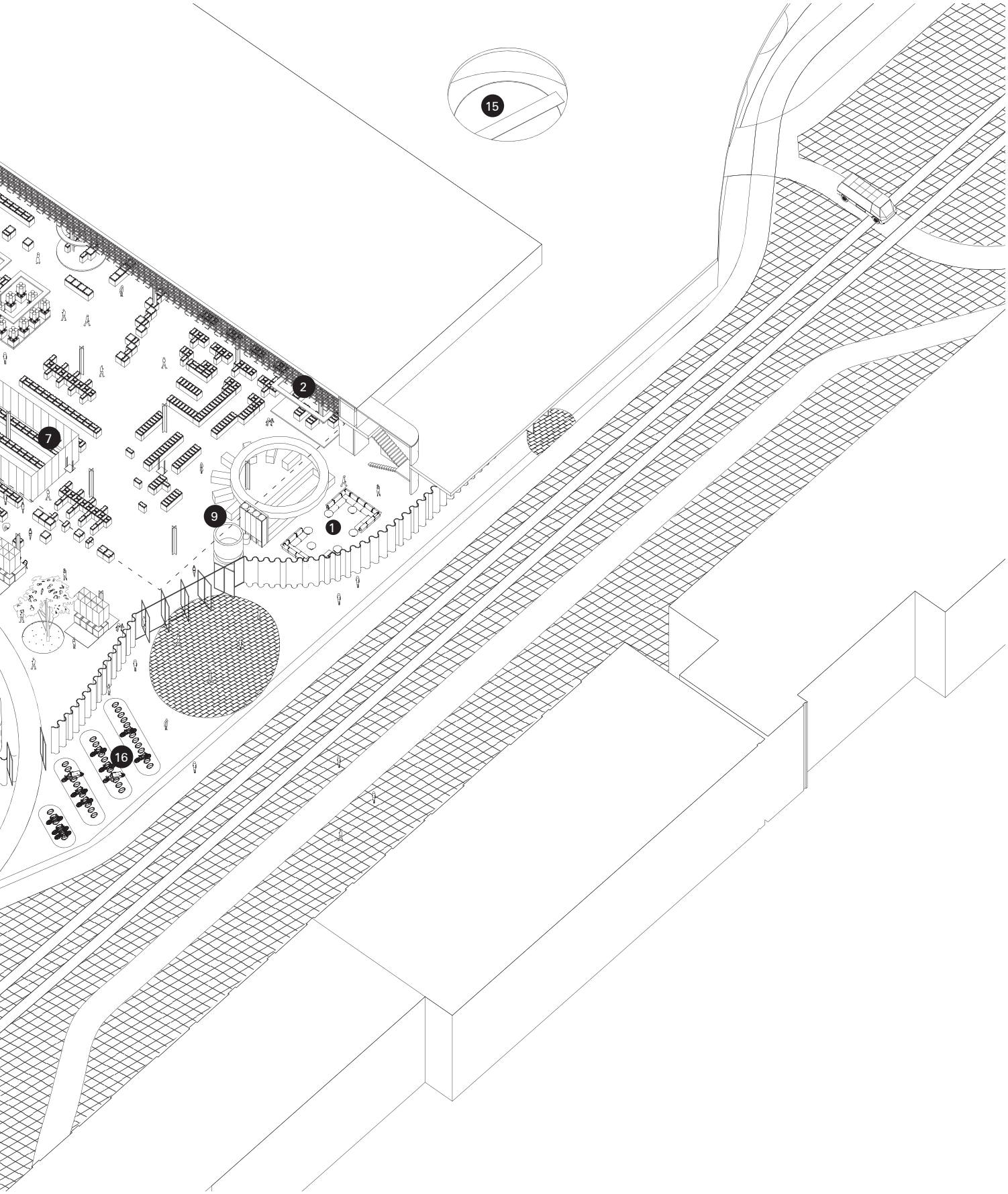
View of the loading dock on the sales floor from the automated distribution center on the ceiling.

A green roofscape amidst the residential neighborhood, provides a healthy working and living environment.

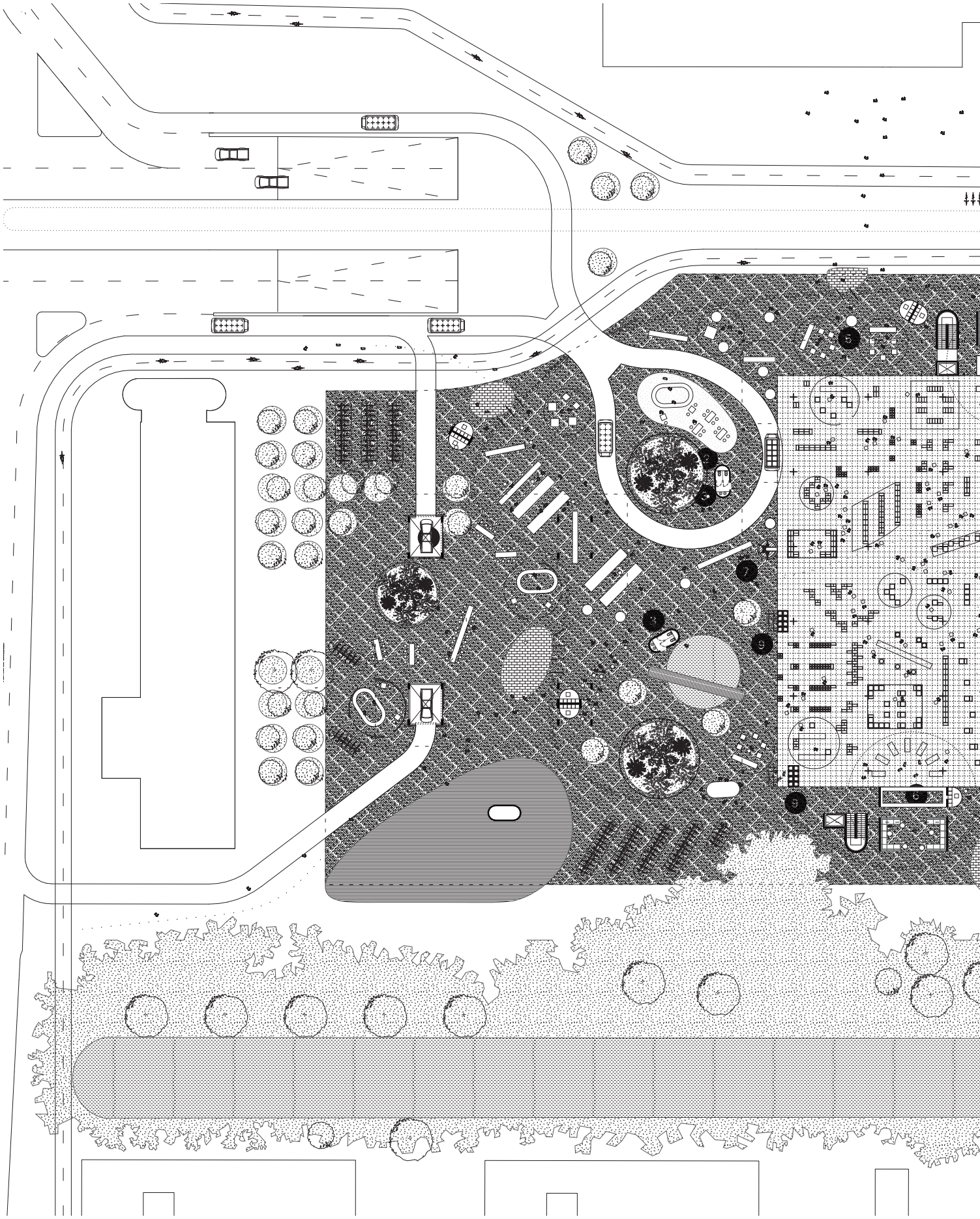


A cut-out axonometric exposing the blurred boundaries between the supermarket, the landscape, and the city of Delft.

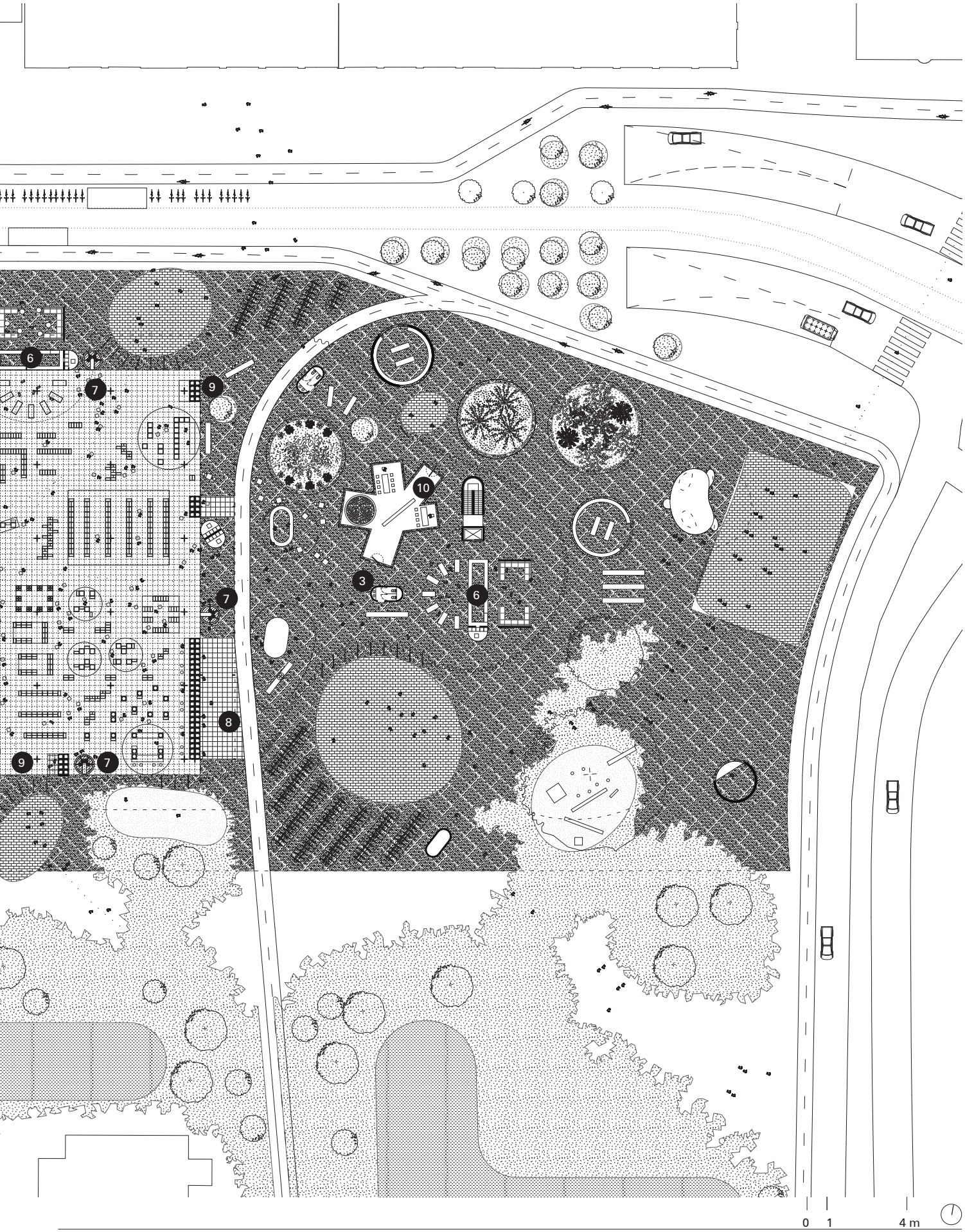
1 Concierge
2 Automated Ocado grid
3 Vertical circulation core
4 Kindergarten
5 Sculpture of Albèrt's mascot
6 Entrance
7 Refrigerated area
8 Specialty displays



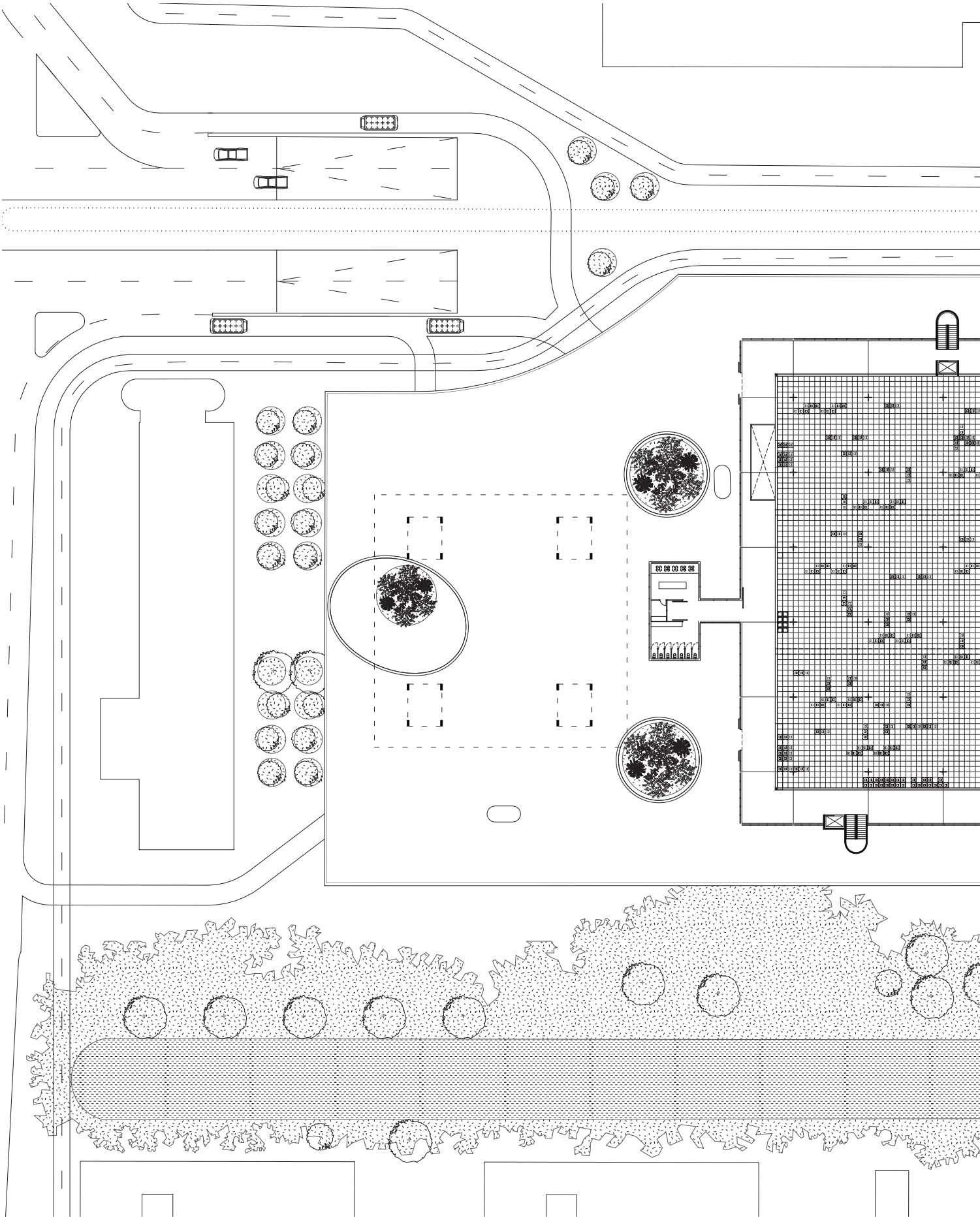
9 Smart cart station
10 Return points
11 Pick up points
12 Cycle track
13 Demonstration kitchen
14 Shop-in-shops
15 Shrimp pond
16 Bycicle parking
17 Automat



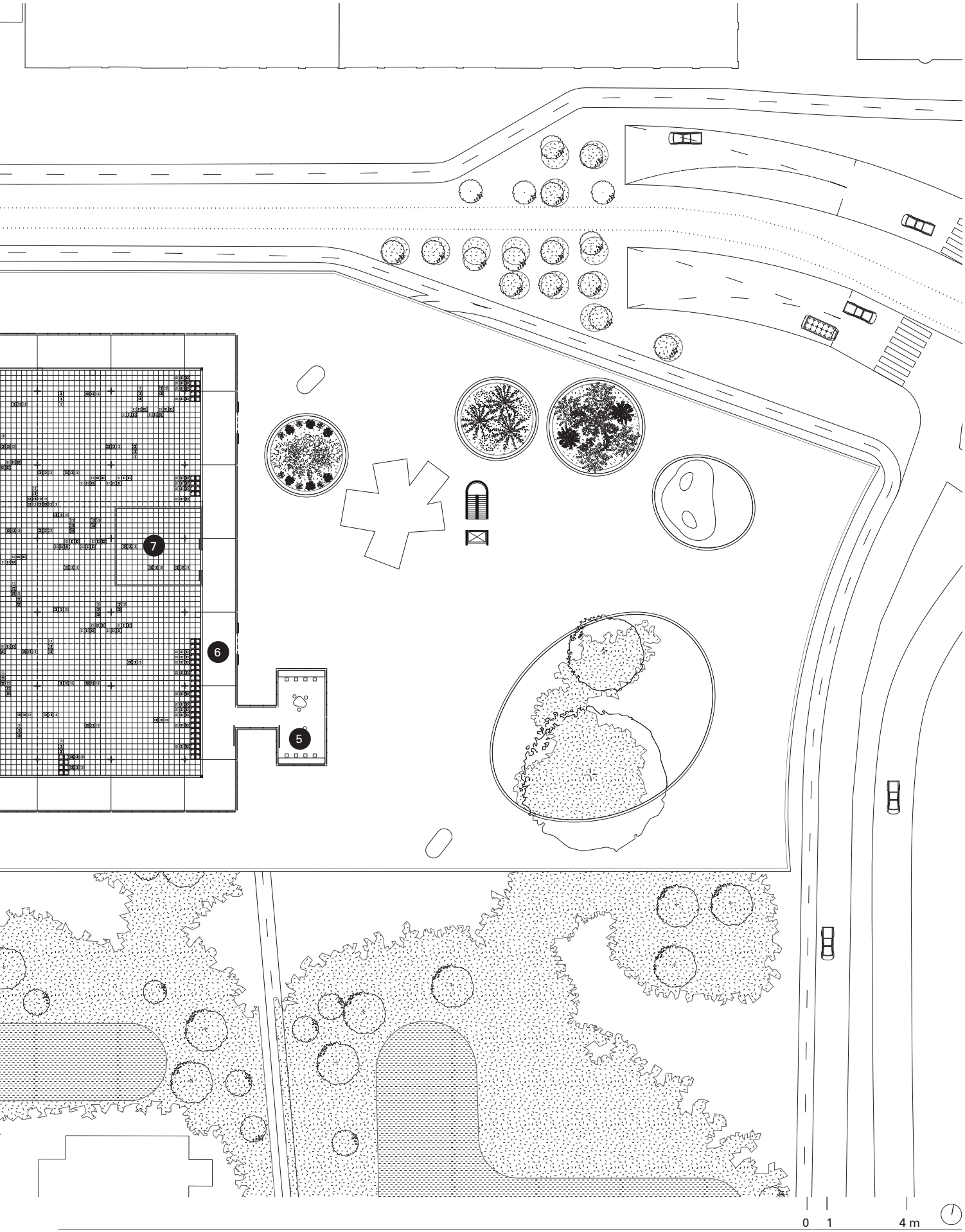
Albèrt offers a new retail experience with a flexible open plan within and beyond the high yield automated distribution center to display both the product and its supply chain. The supermarket is organized in three different zones, consisting of the central high yield core, the interior periphery of the glass facade, and the outdoor facilities covered by the cantilevered roof.



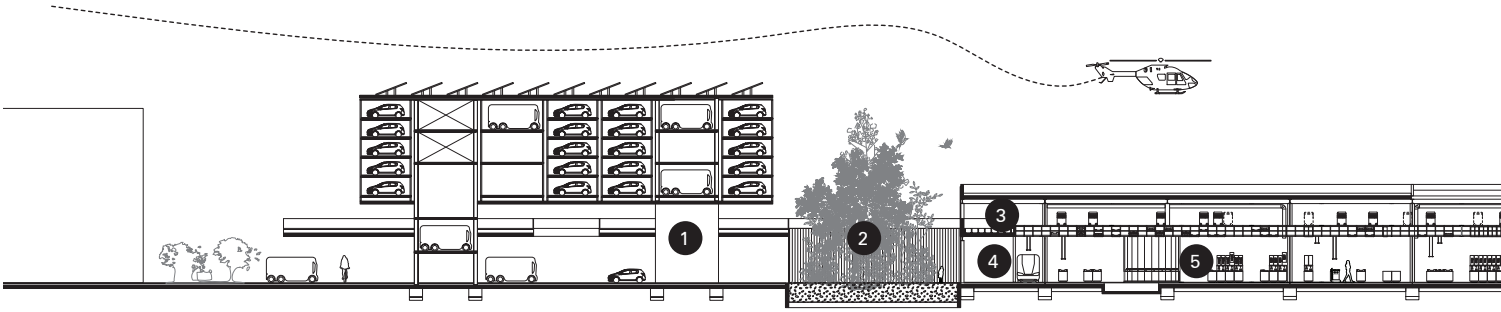
1 Access to Parking
2 Loading dock
3 Estructural cores, toilets, HVAC
4 Shrimp pond
5 Shop-in-shop
6 Concierge
7 Return point
8 Automat
9 Pick up points
10 Kindergarten

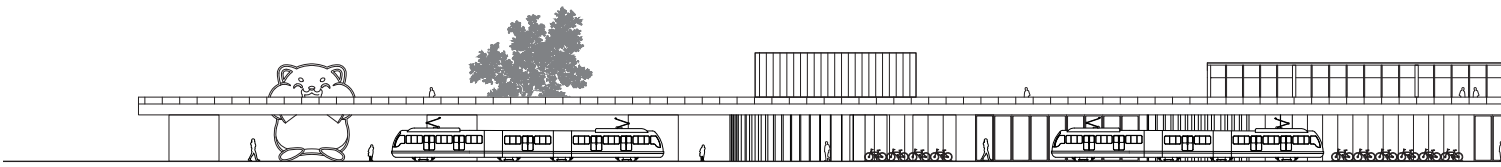


The back of house operates as a distribution center above the sales floor, consisting of the automated Ocado system in the static grid ceiling core that offers dynamic robotic movements.

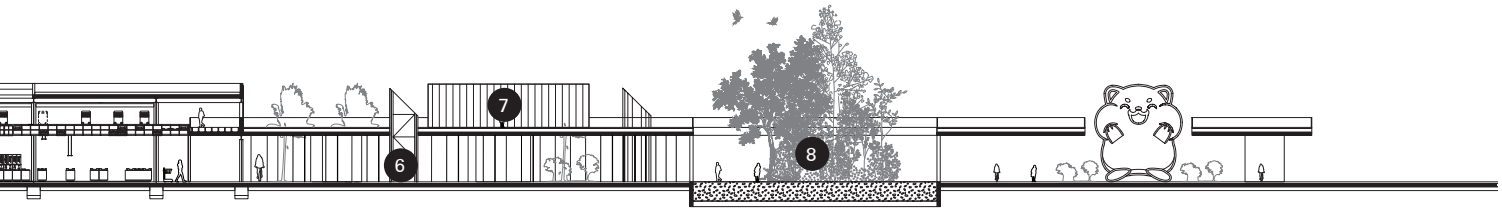


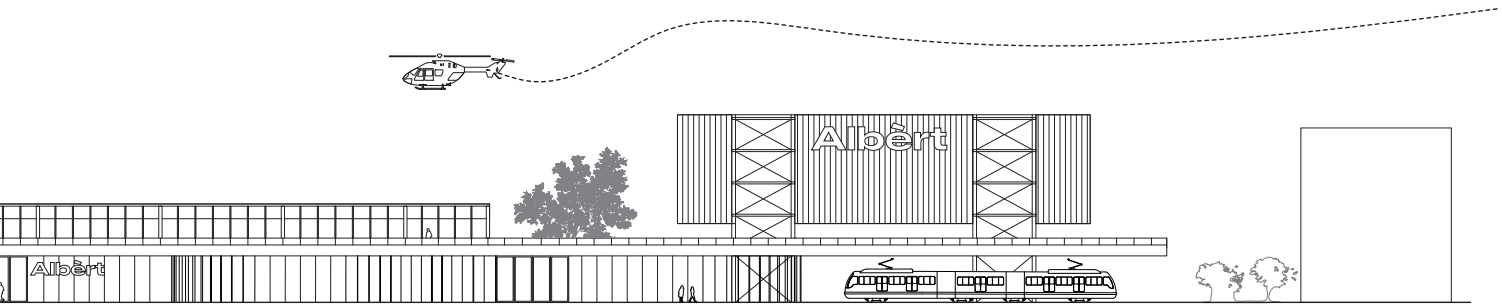
1 Maintenance point
2 Toilets
3 Automated Ocado grid
4 Vertical core
5 Offices
6 Perimeter for humans
7 Refrigerated area





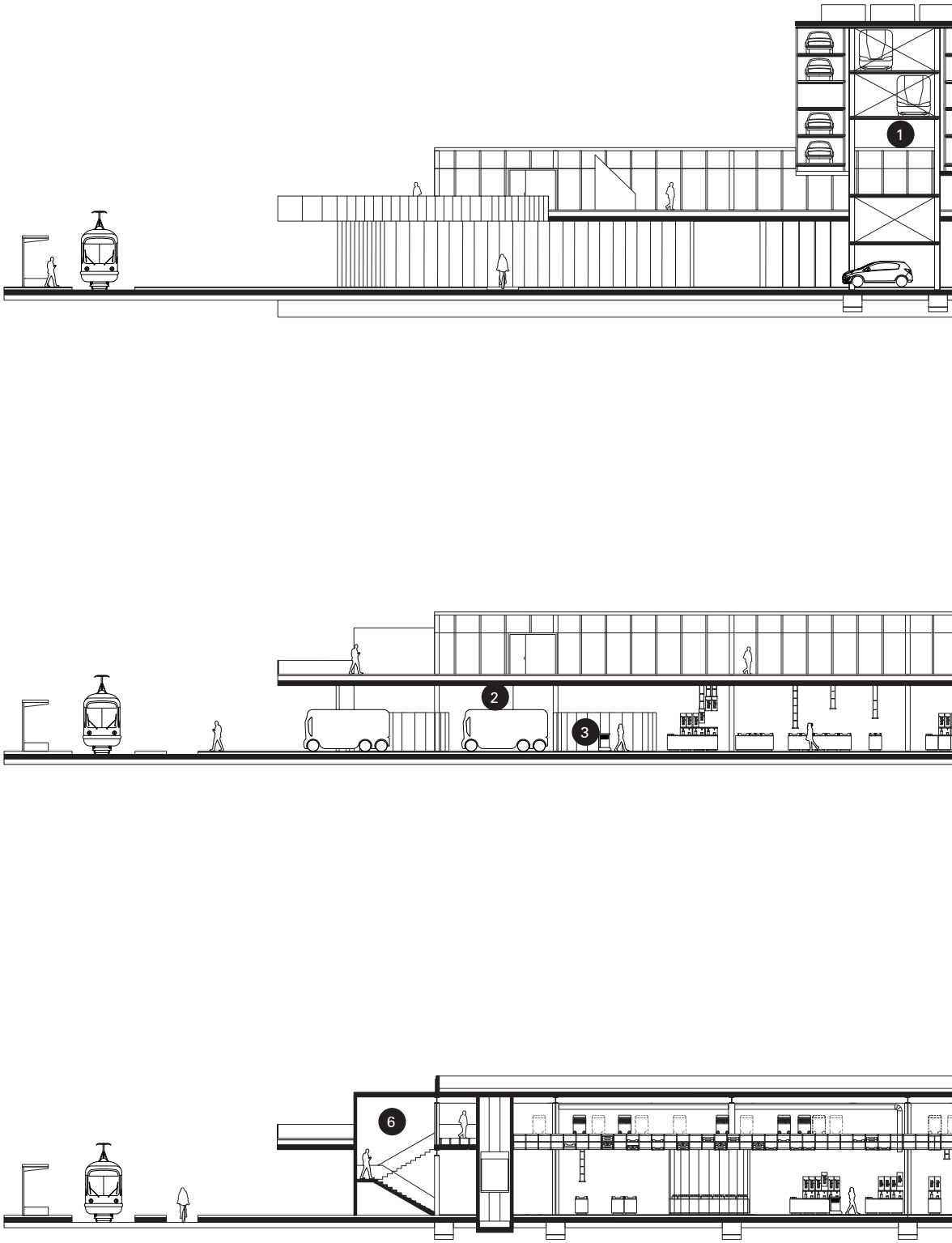
The reimagined relationship between the supermarket's sales floor and back of house is vertical, juxtaposed with the additional Albèrt car-sharing facilities and parking on the site that caters to the supermarket's customers, e-trucks, and the neighborhood's needs.



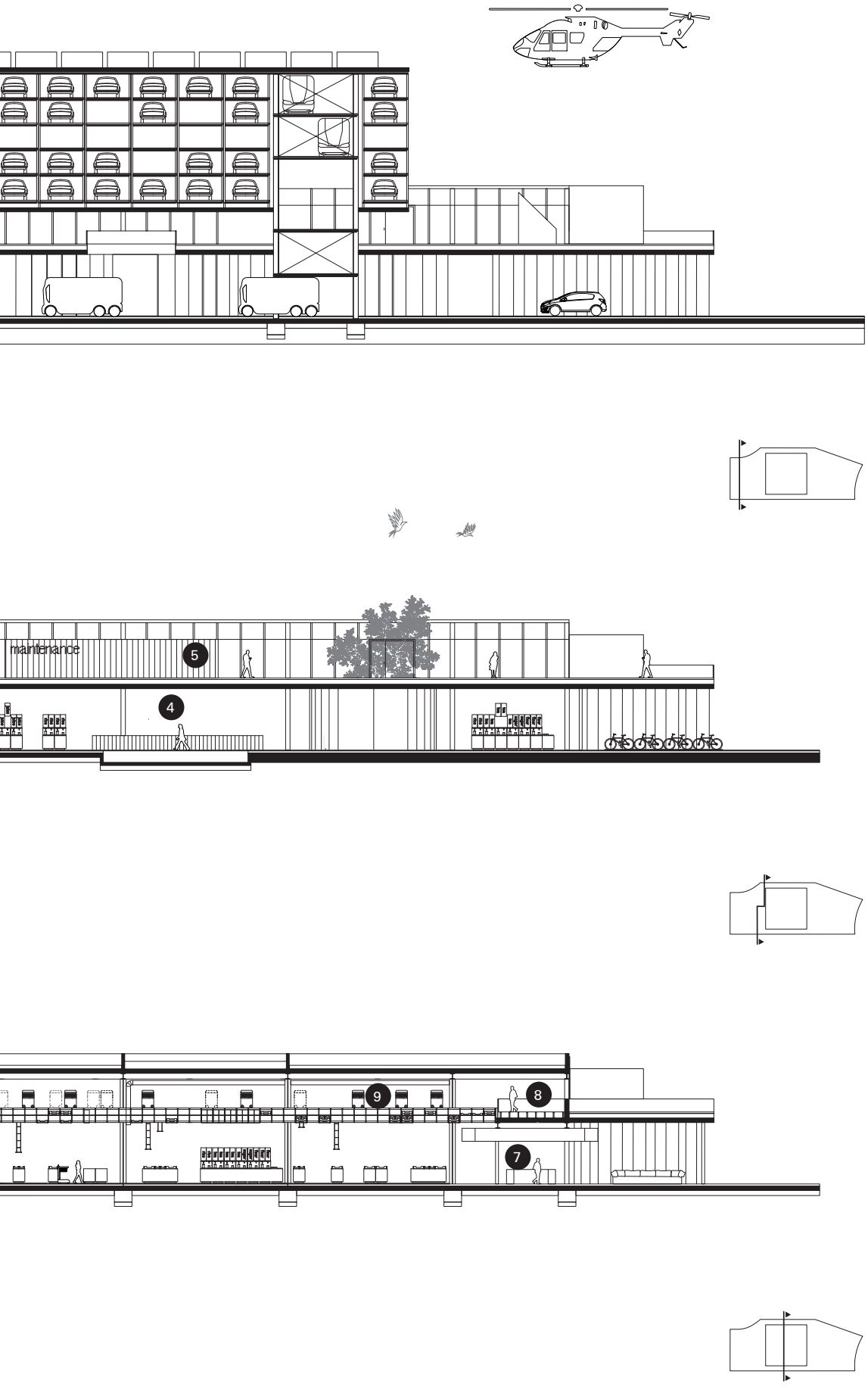


0 1 4 m

1 Maintenance point
2 Toilets
3 Automated Ocado grid
4 Vertical core

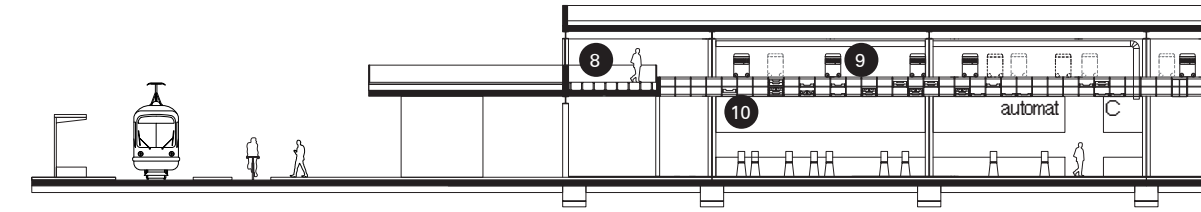


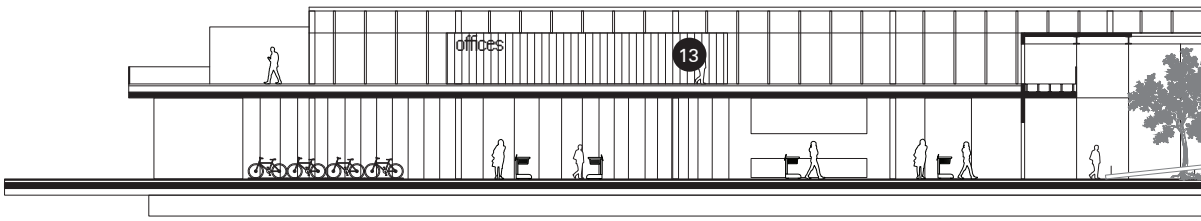
The organization of the building around the central high yield distribution center allows for various iterations of product displays on the sales floor, disrupting the infinite seriality of the supermarket aisles.



0 2.5 10 m

1 Automated parking
2 Loading dock
3 Shop-in-shop
4 Shrimp pond
5 Maintenance point
6 Vertical core
7 Concierge
8 Perimeter for humans
9 Automated Ocado grid





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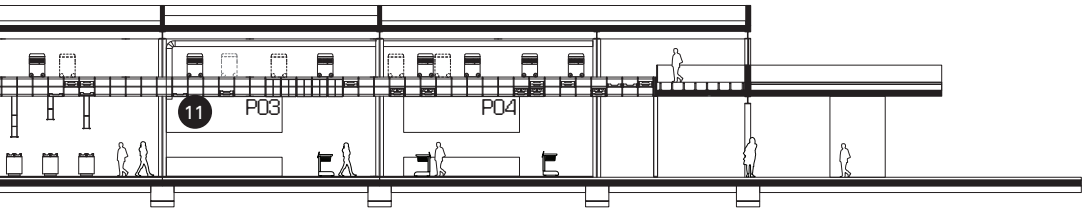
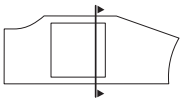
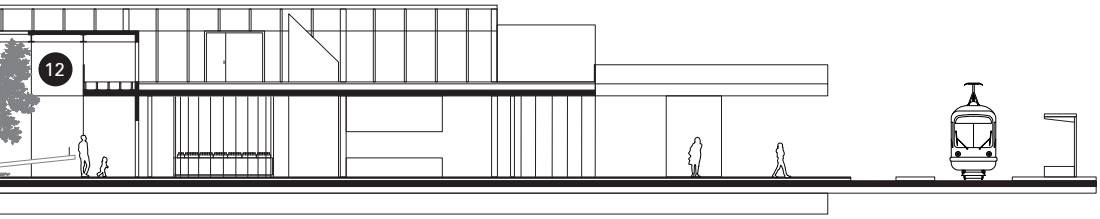
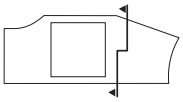
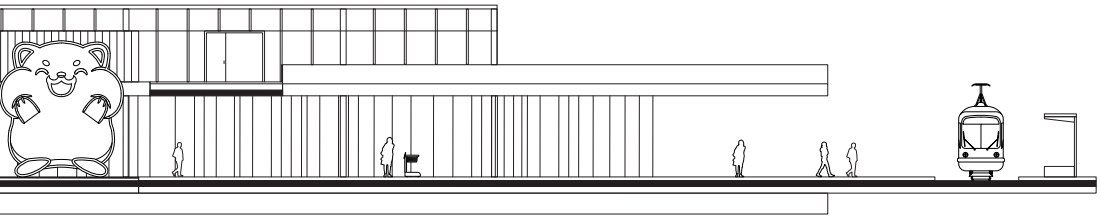
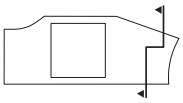






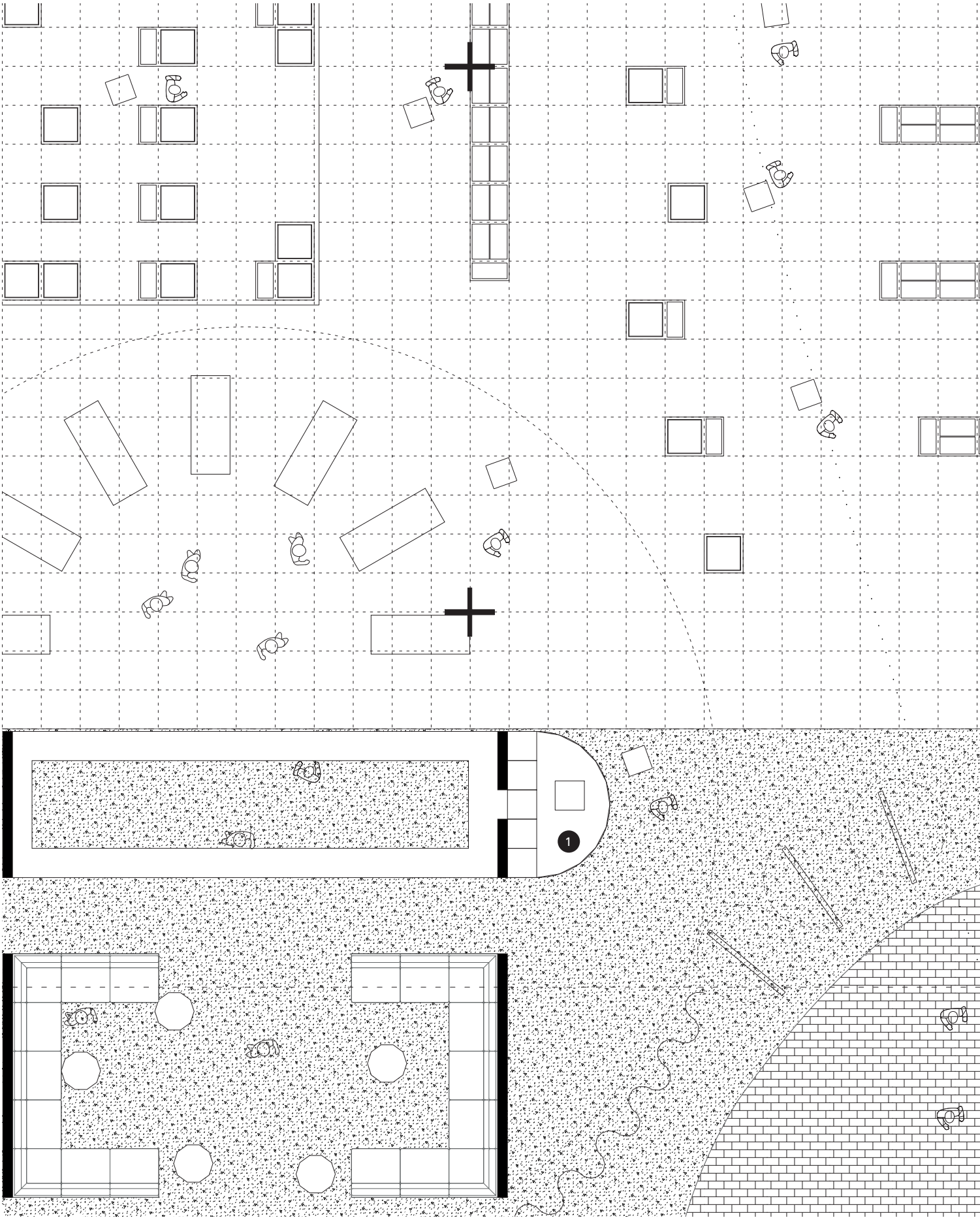




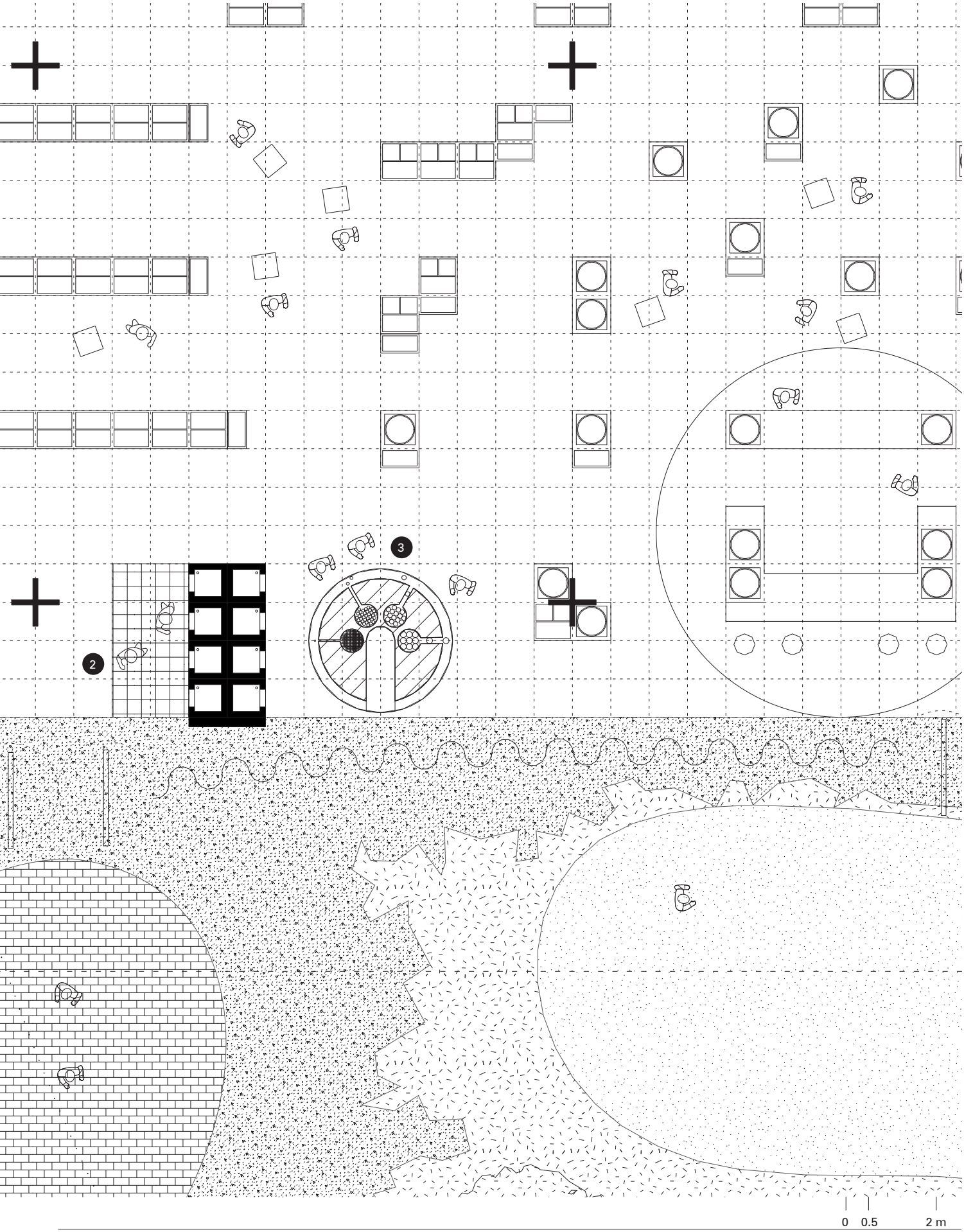


0 2.5 10 m

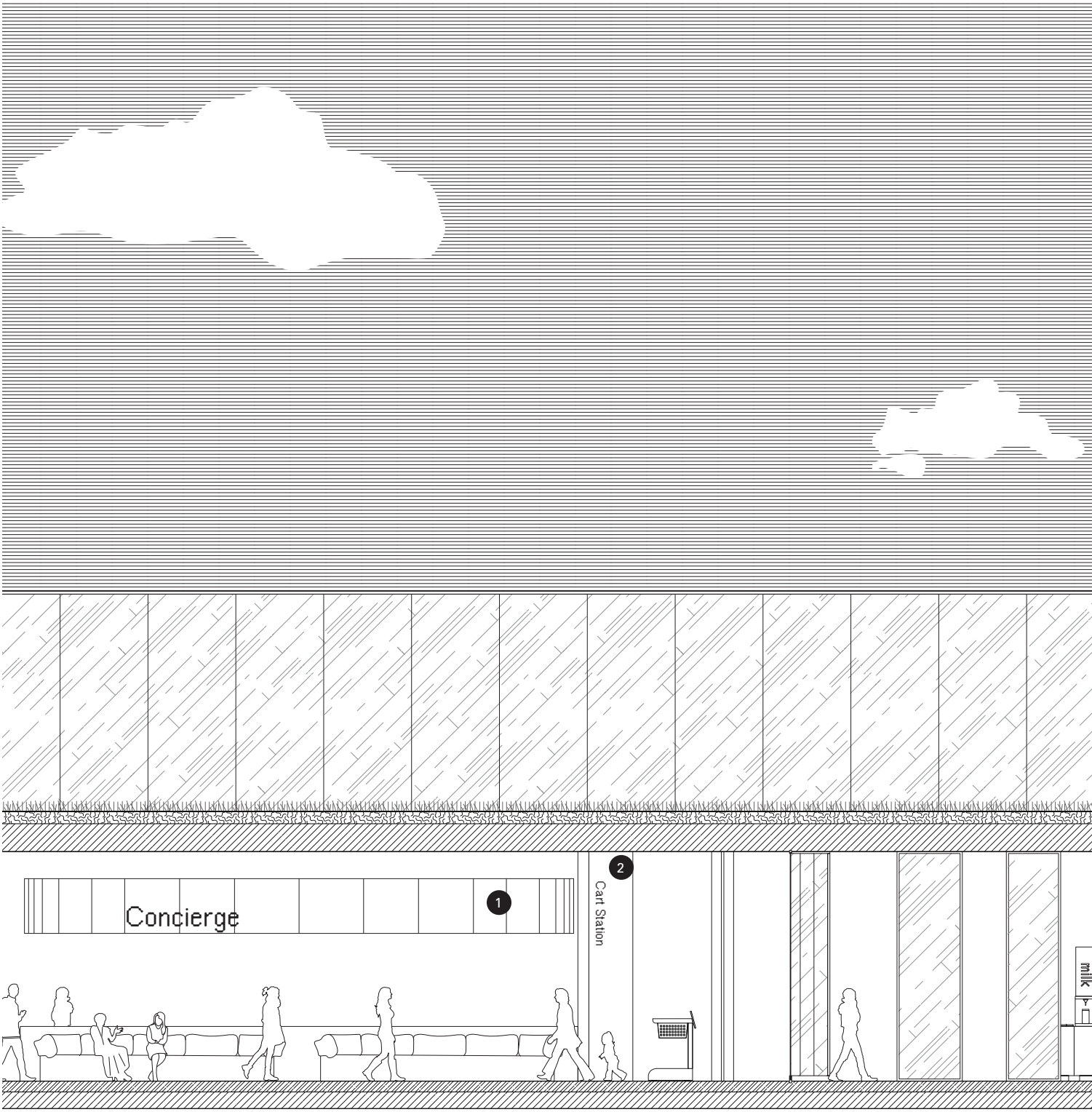
1 Automated parking
2 Loading dock
3 Shop in shop
4 Shrimp pond
5 Maintenance point
6 Vertical core
7 Host
8 Perimeter for humans
9 Automated ceiling
10 Automat
11 Pick up points
12 Kindergarten



The dynamic robotic movements allow for the reconfiguration of the supermarket shelves in reaction to seasonality and specialties, rendering a unique shopping experience.



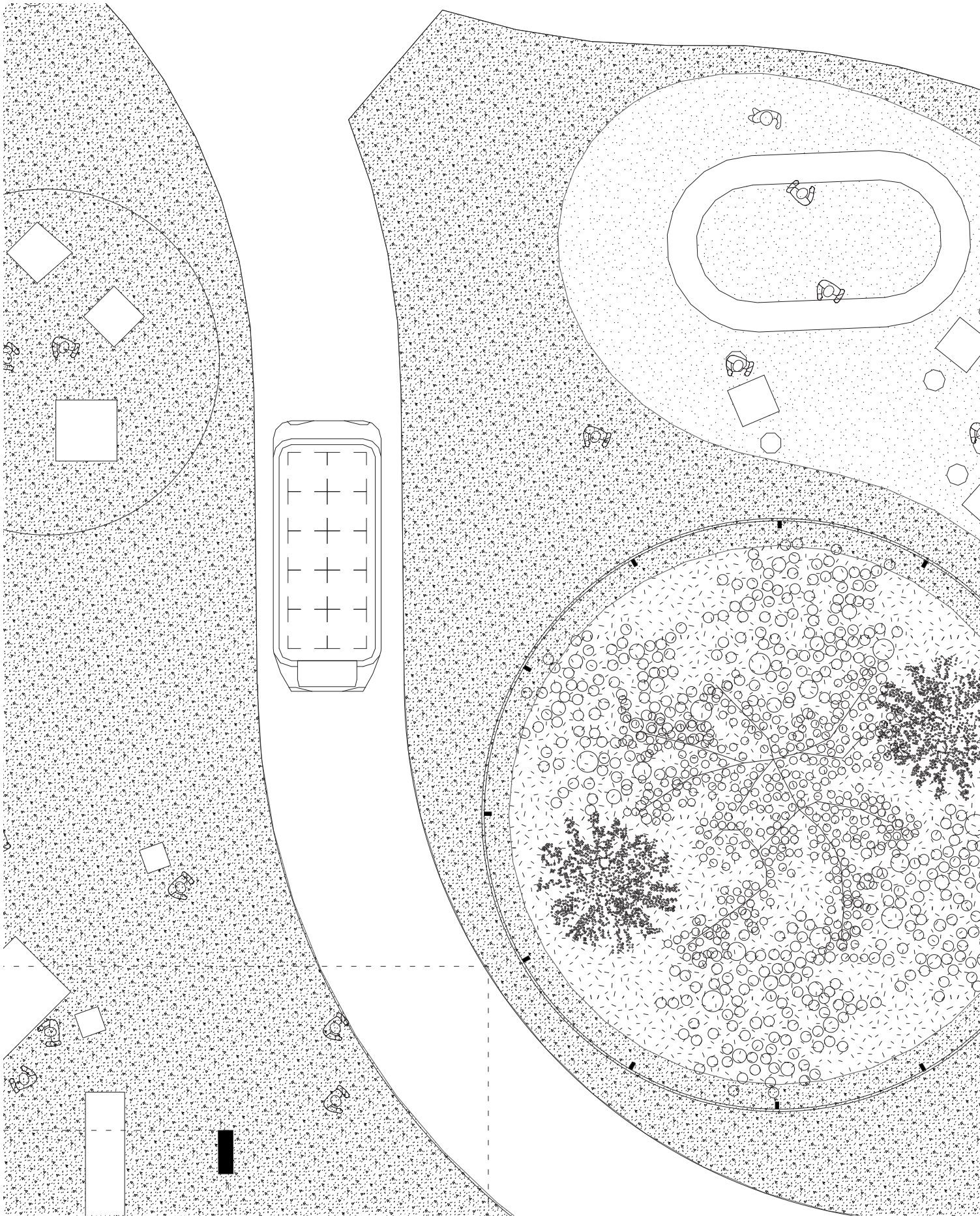
1 Concierge
2 Pick up points
3 Returning point



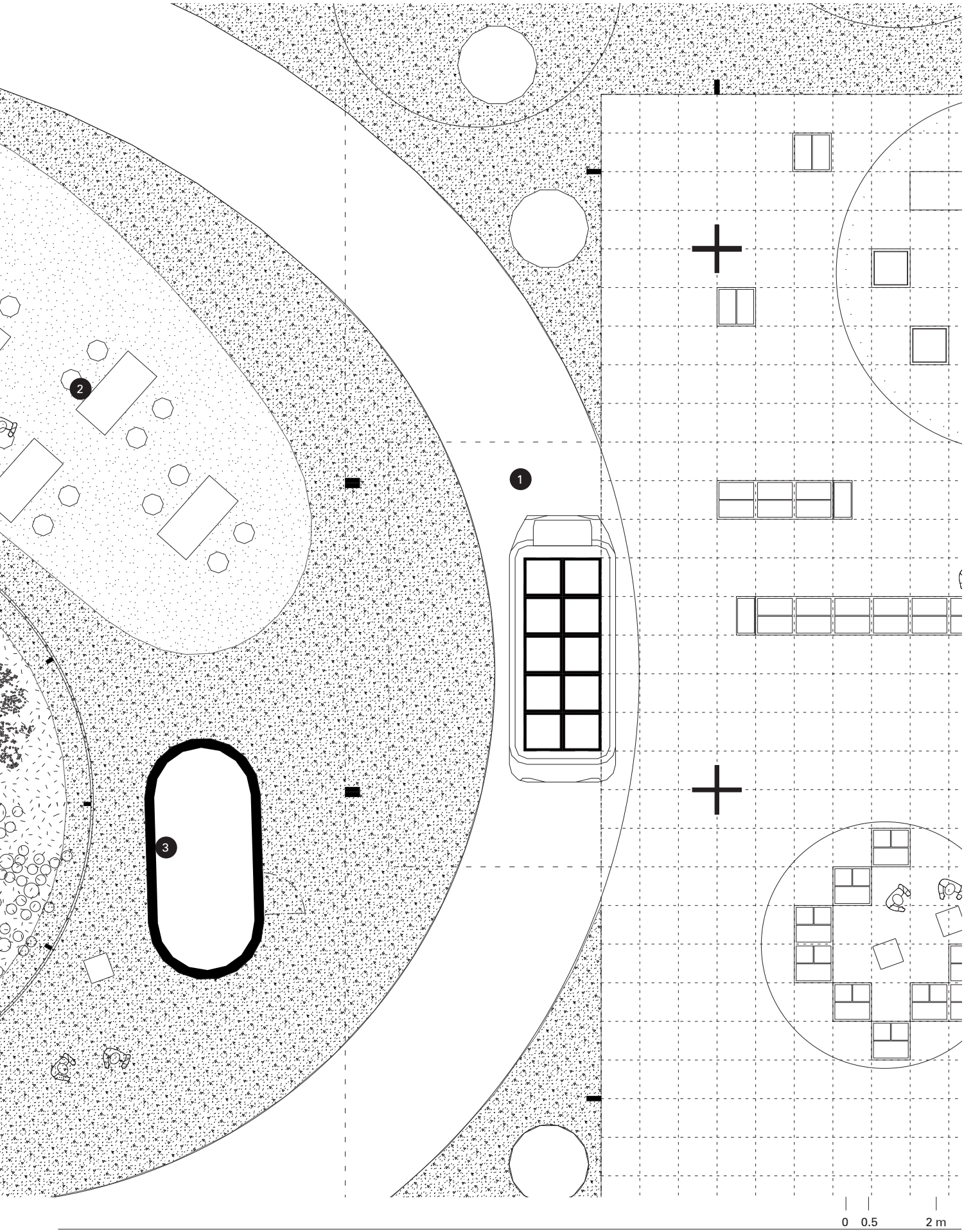
The dynamic robotic movements allow for the reconfiguration of the supermarket shelves in reaction to seasonality and specialties, rendering a unique shopping experience.

0 0.5 2 m

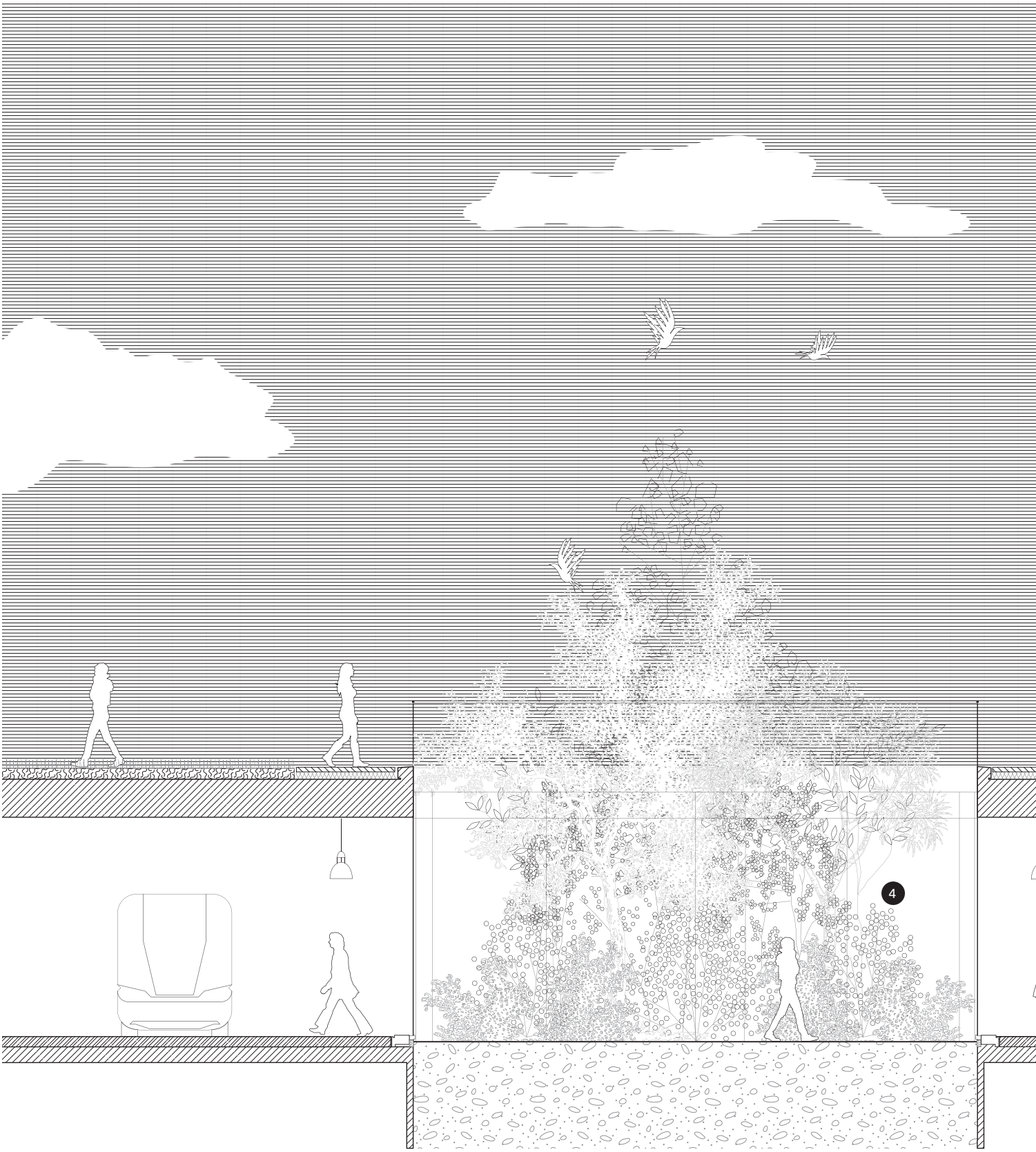
1 Host
2 Cart station



A ritual of loading and unloading is experienced on the sales floor, exposing the supermarket's supply chain to the conscious consumers.



1 Loading dock
2 Bar
3 Structural core and HVAC
4 Permaculture



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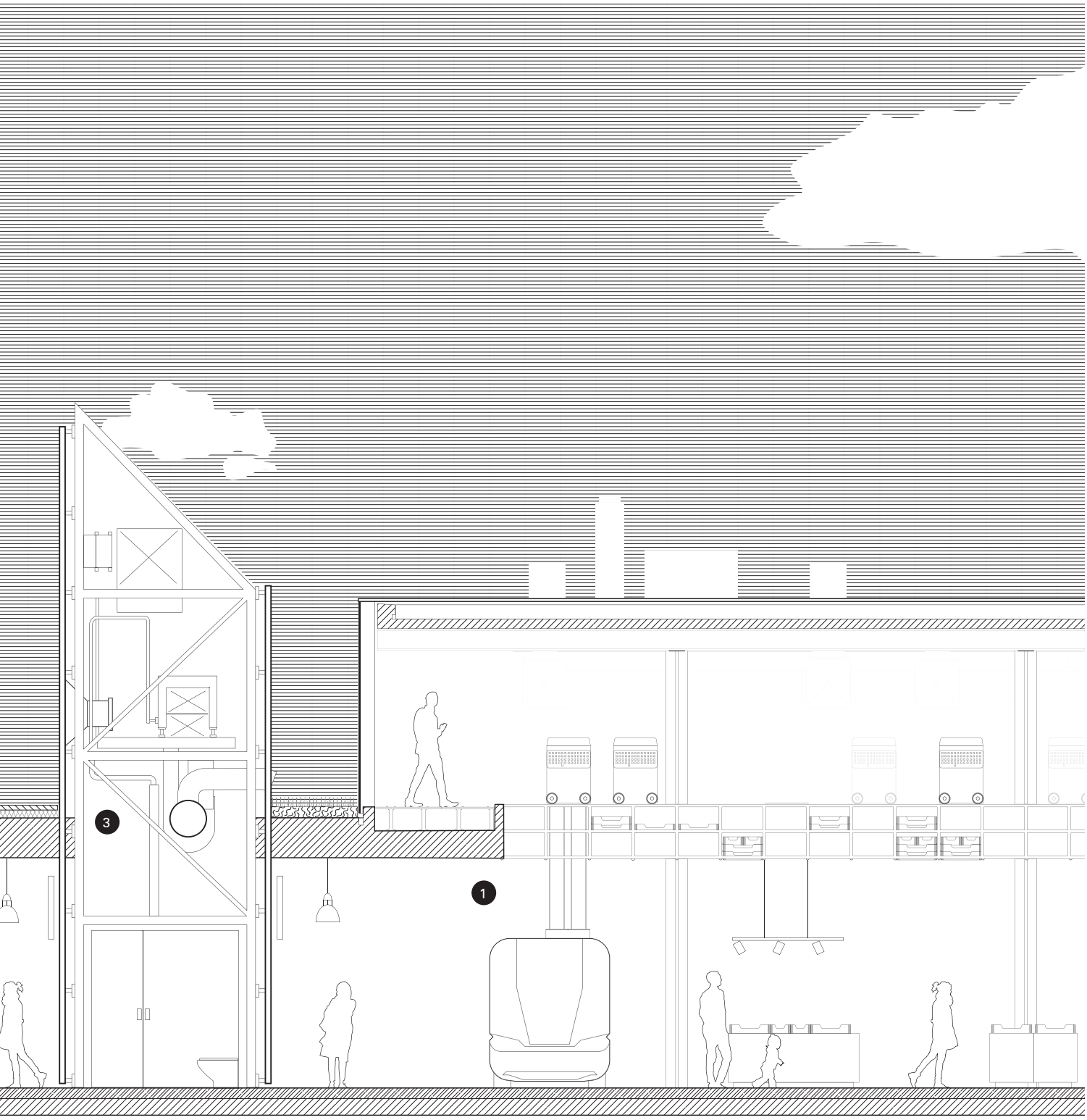

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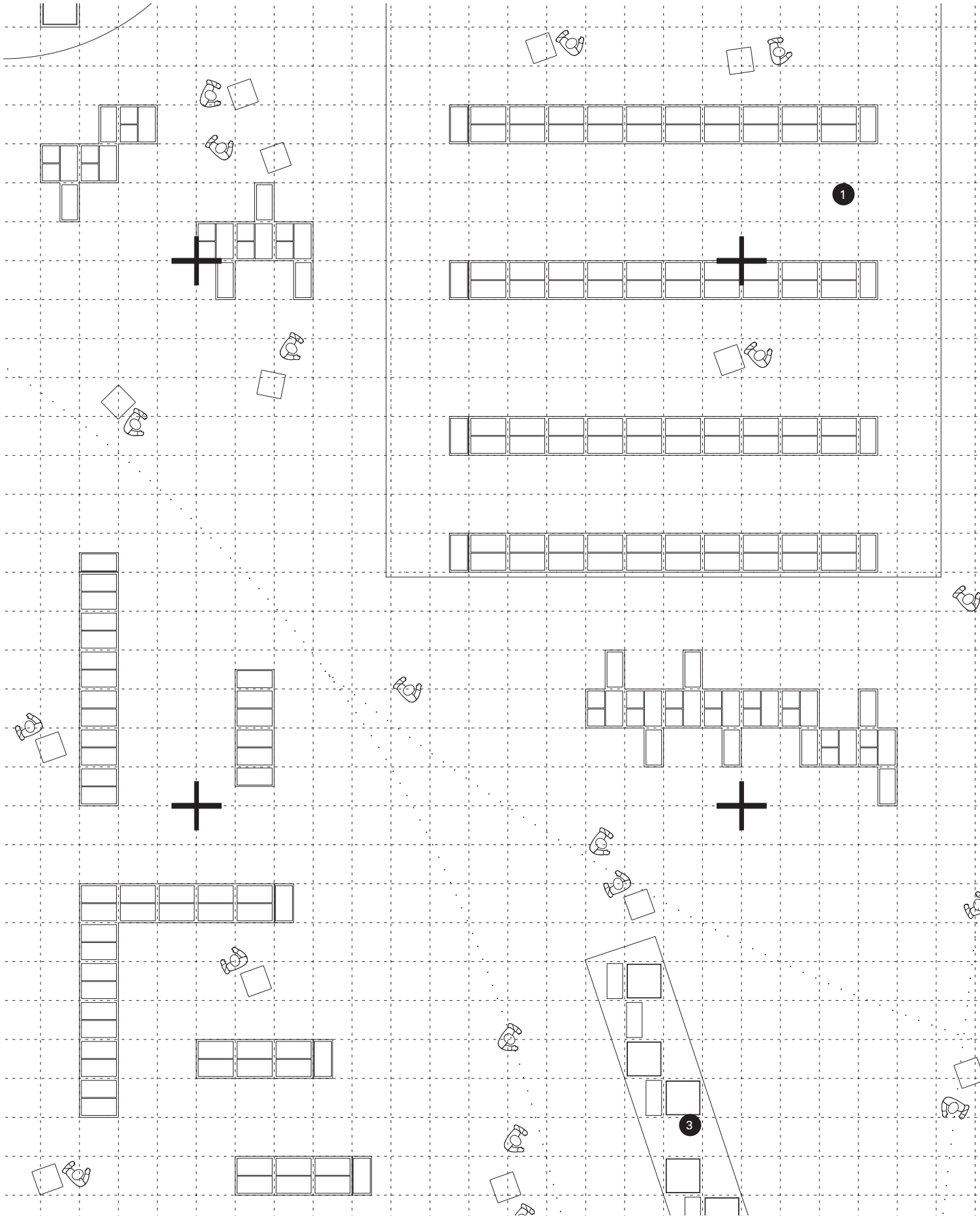

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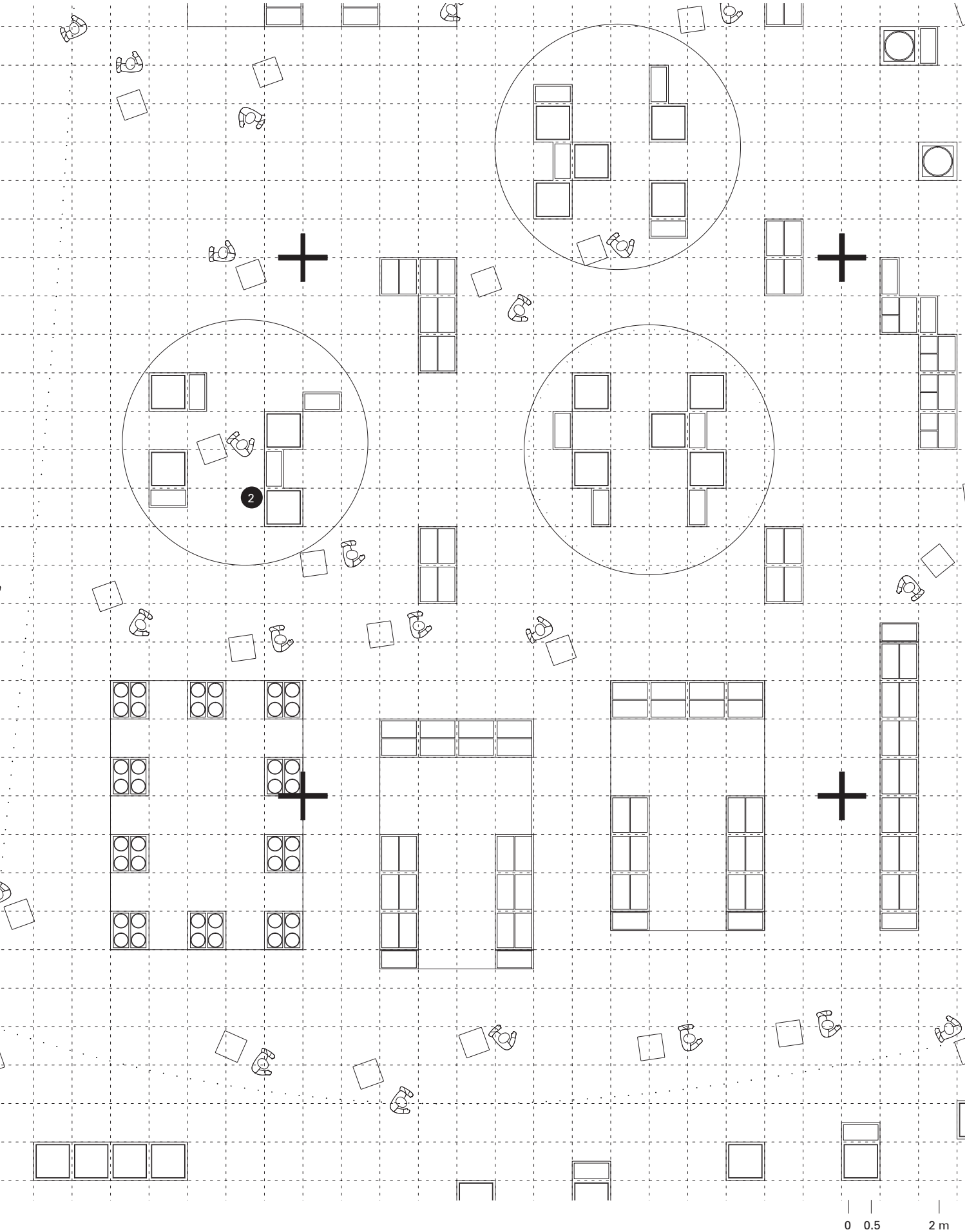
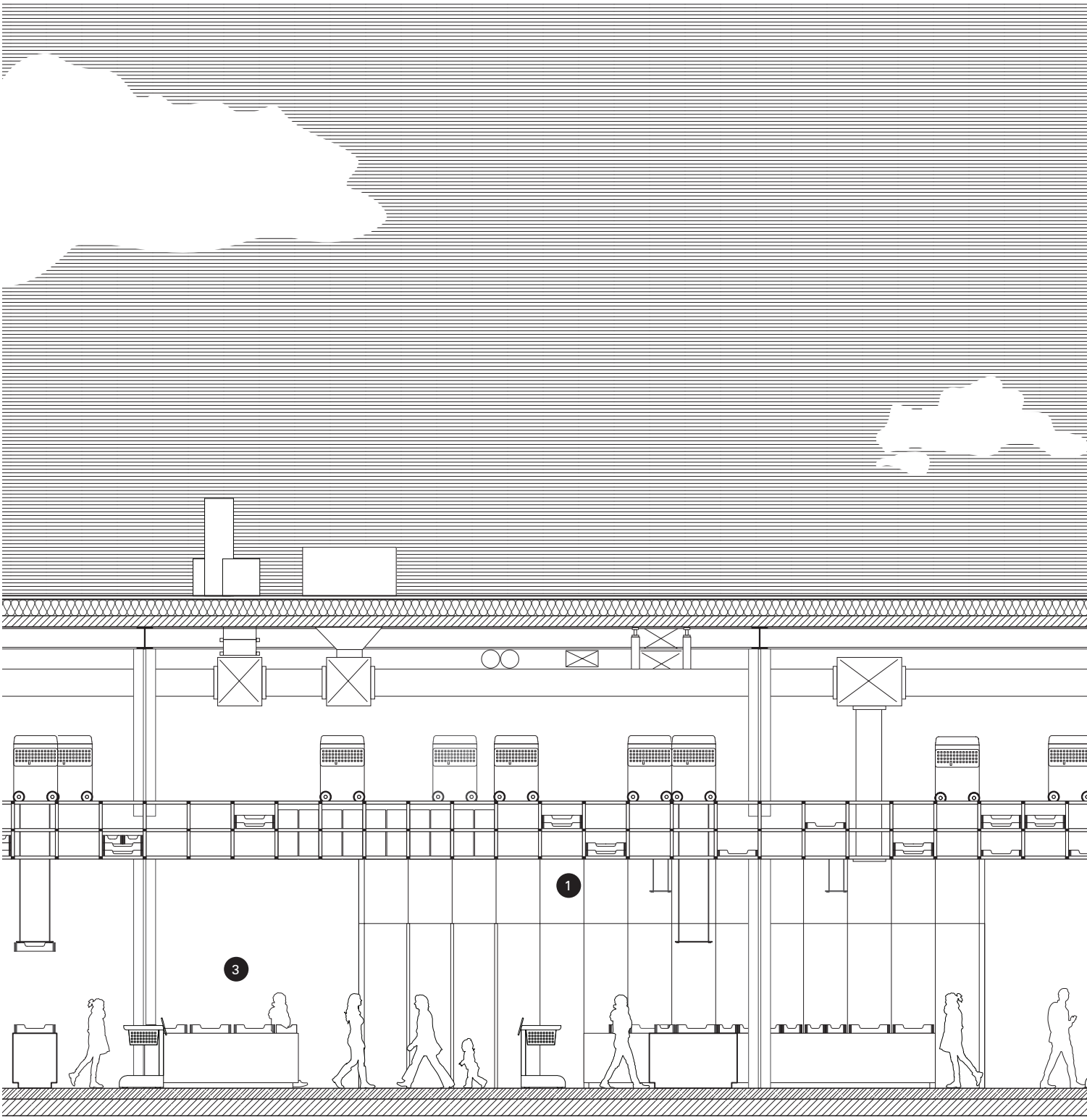


1 Refrigerated room
2 Sesonal products
3 Bonus



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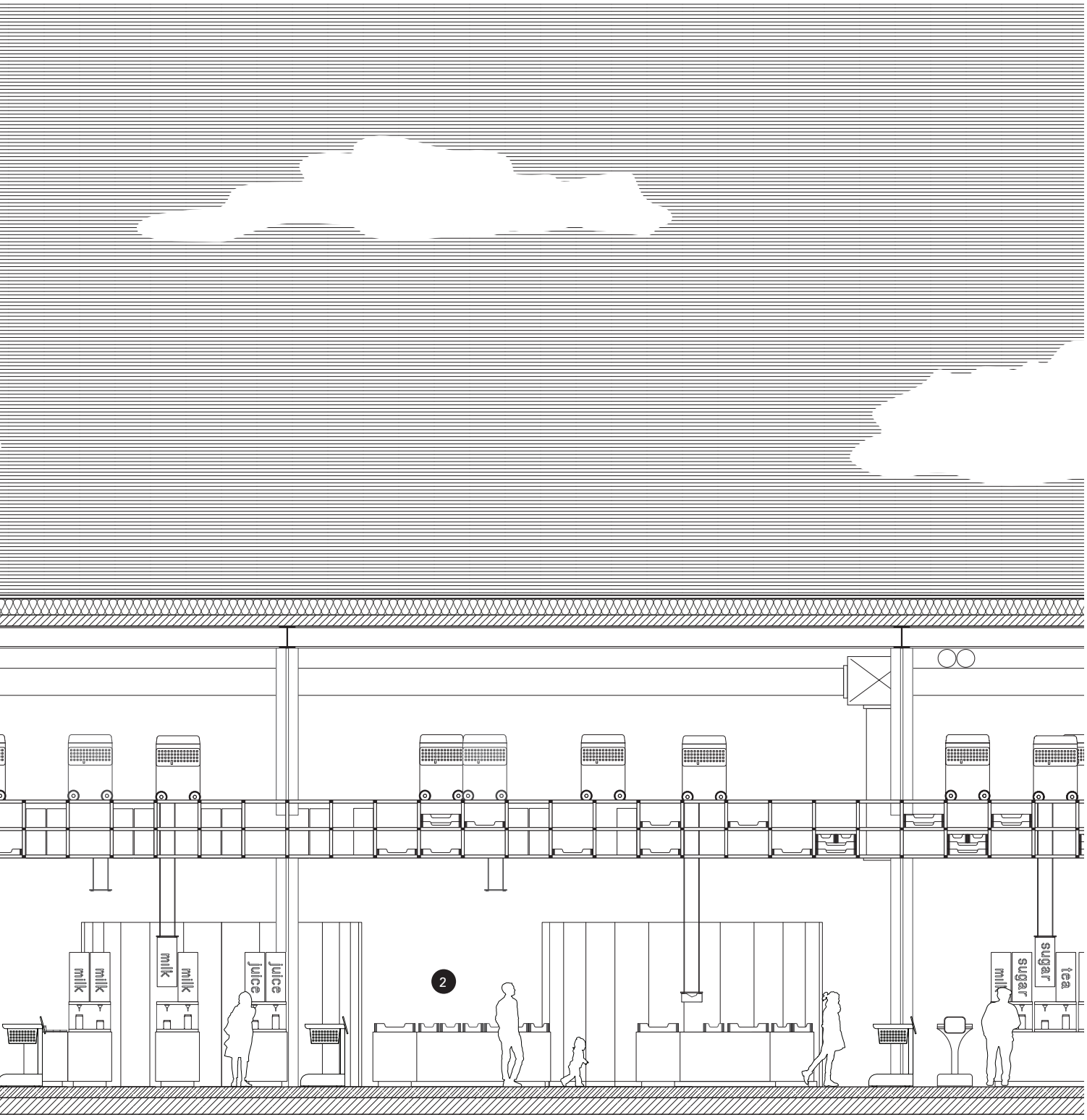

0 0.5 2 m

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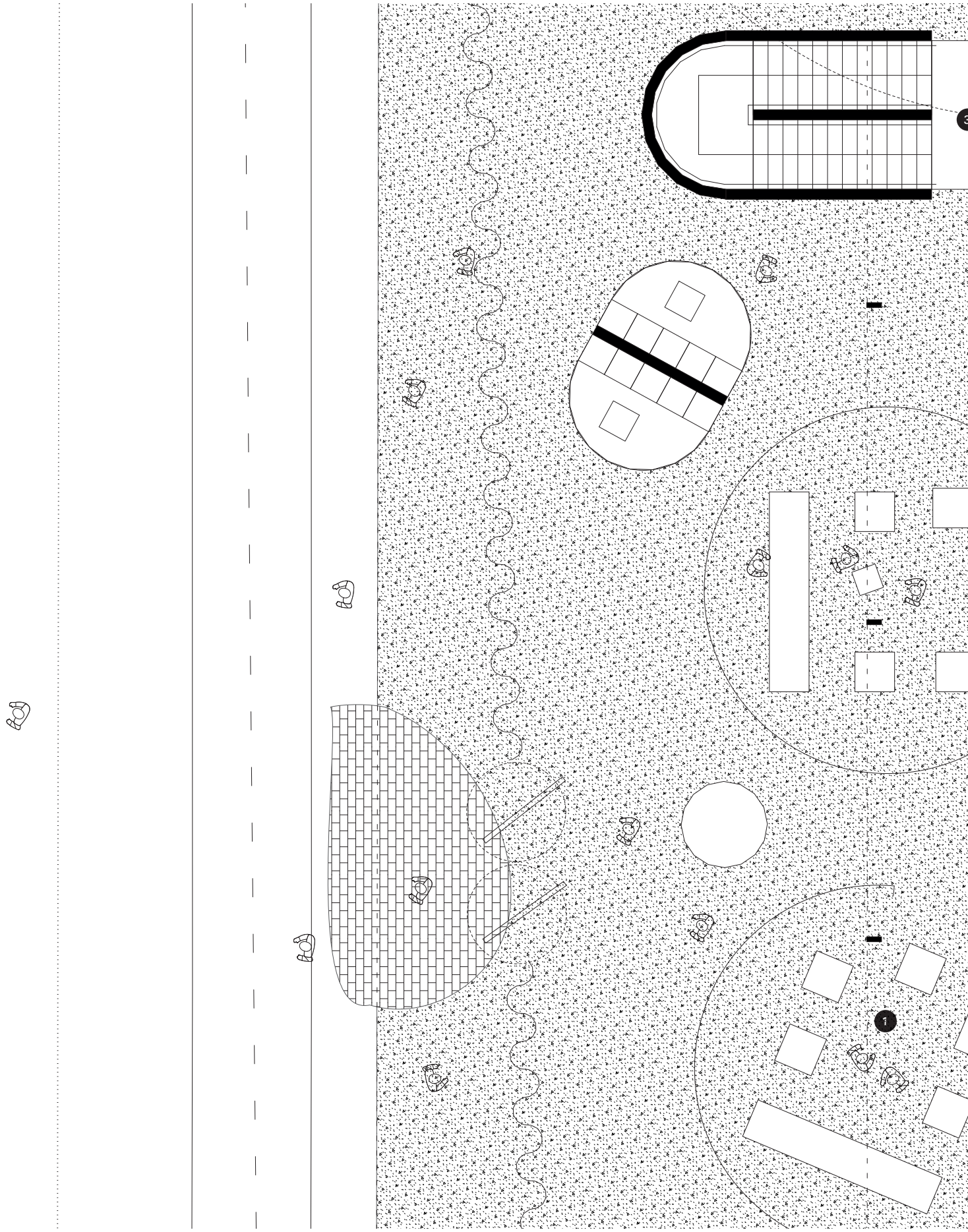
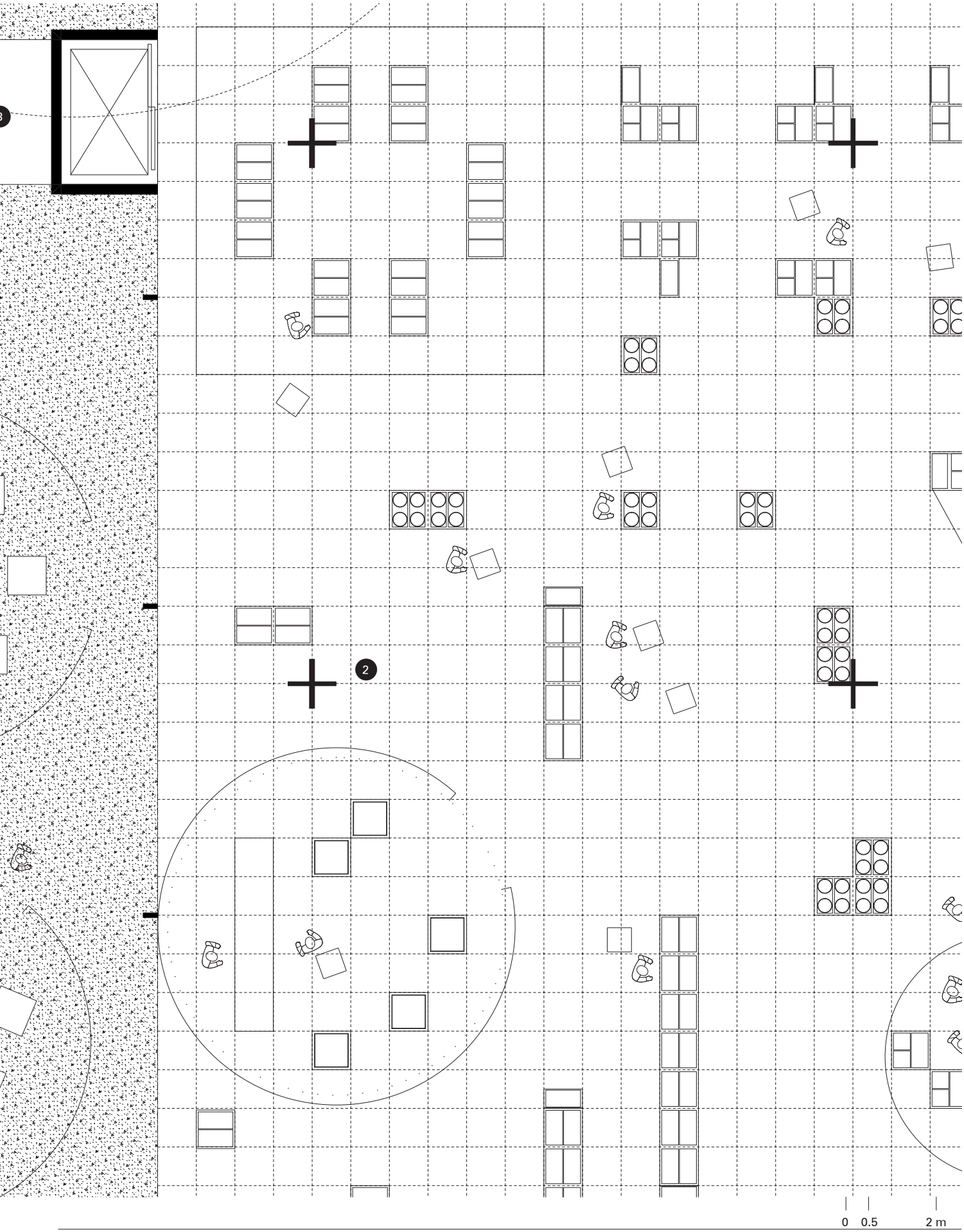


Independent areas are defined for peripheral store-in-stores, promoting collaborations with exclusive brands and local entrepreneurs.



1 Shop-in-shop
2 Sales floor
3 Vertical core
4 Loading dock

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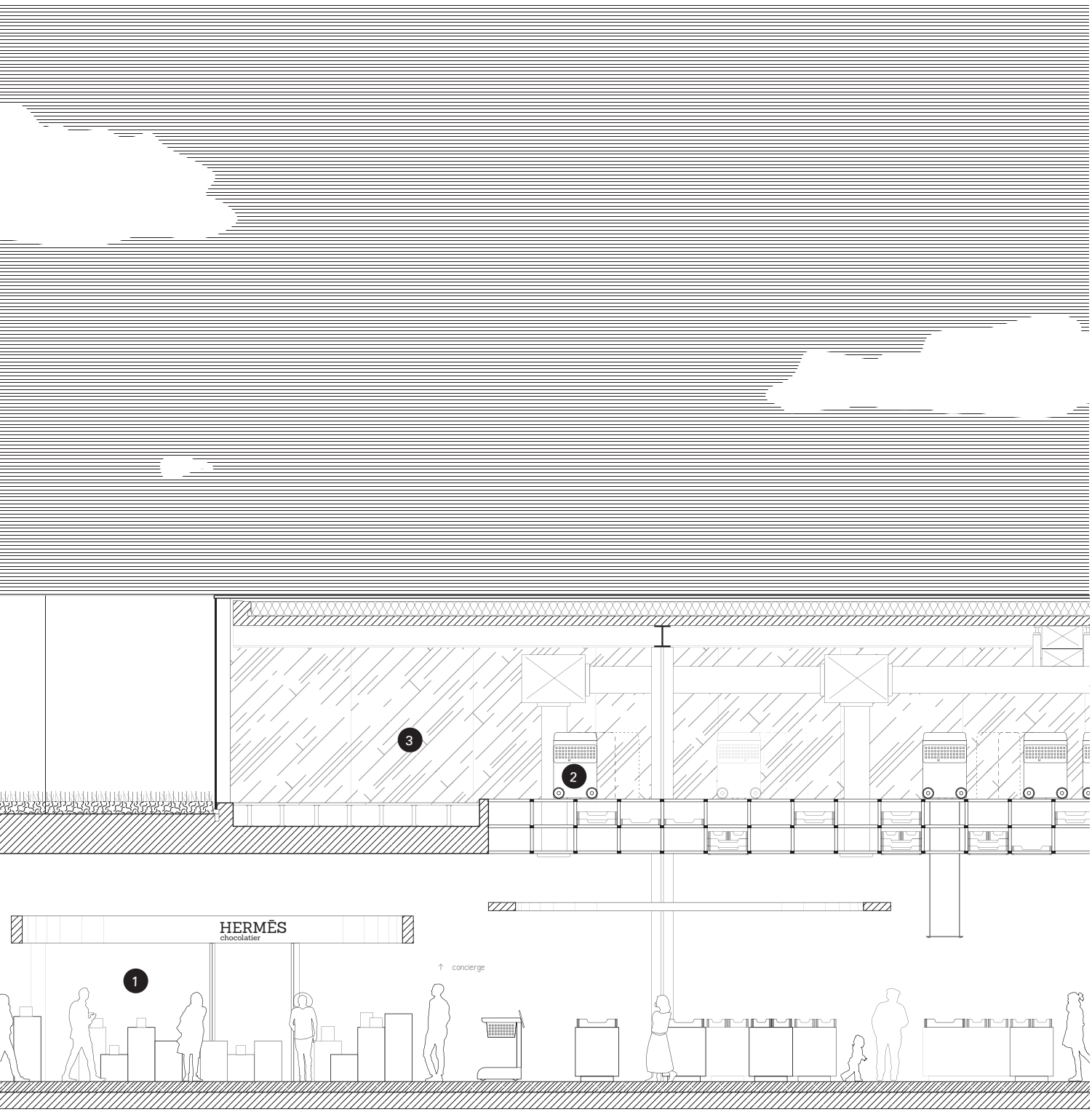
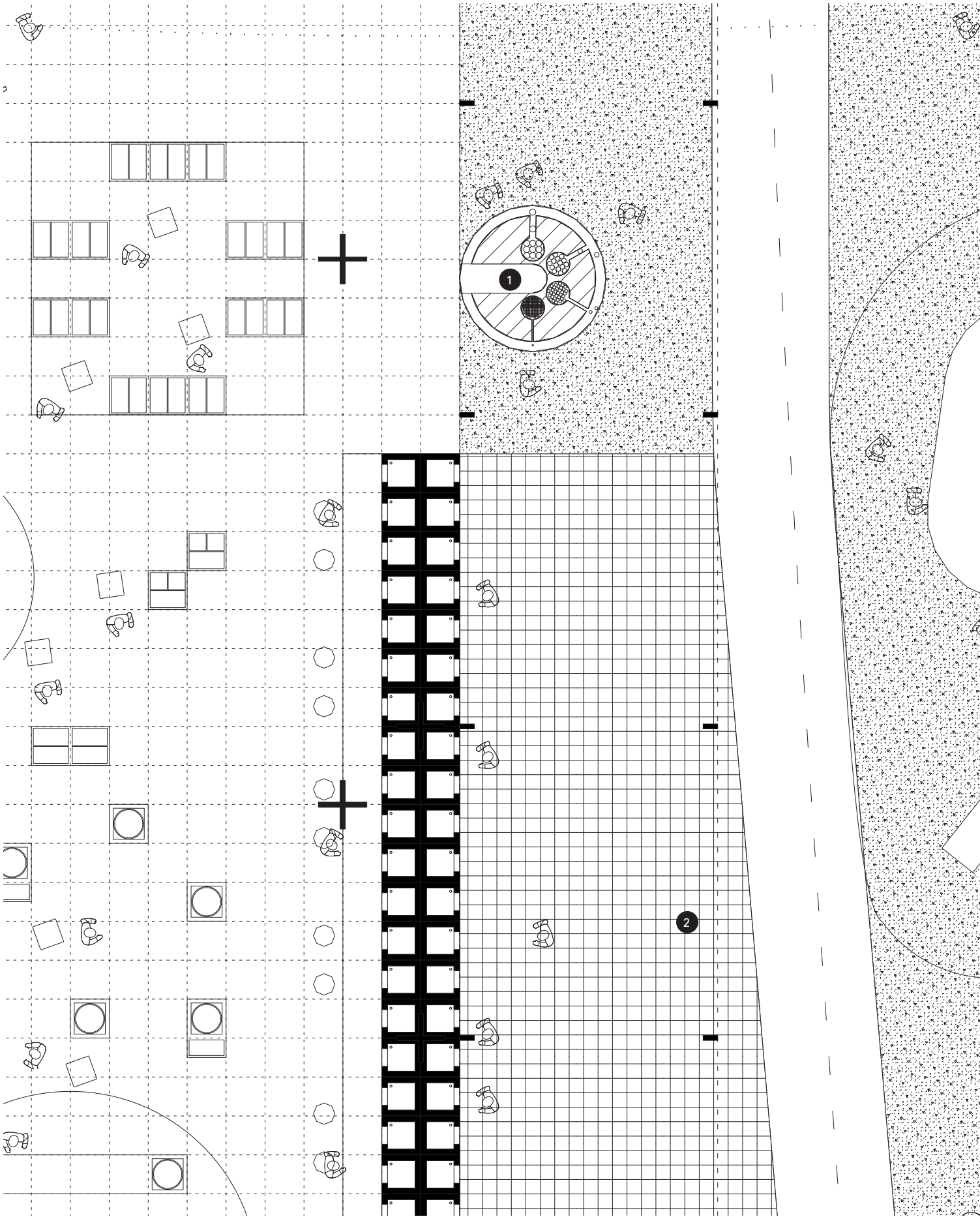
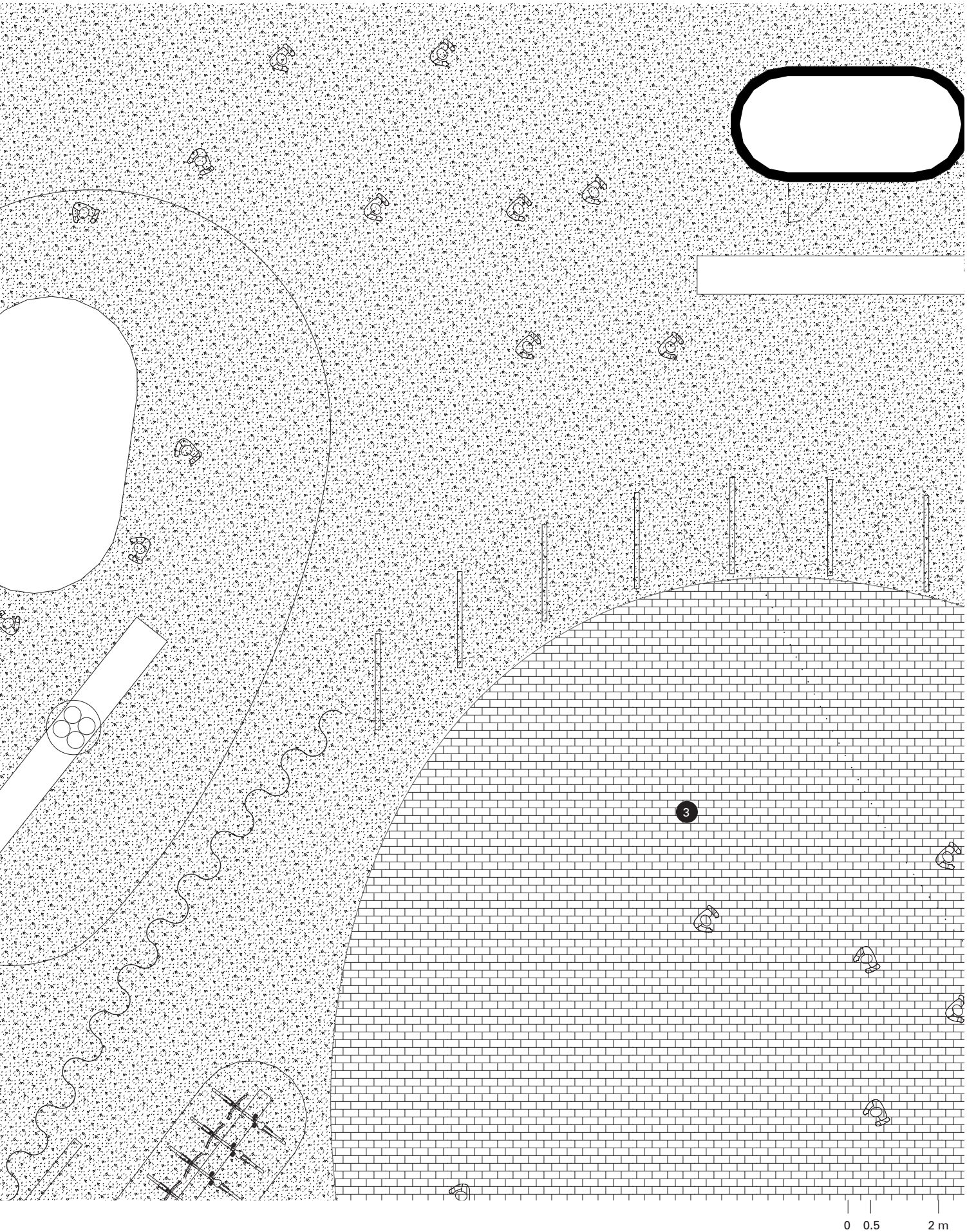


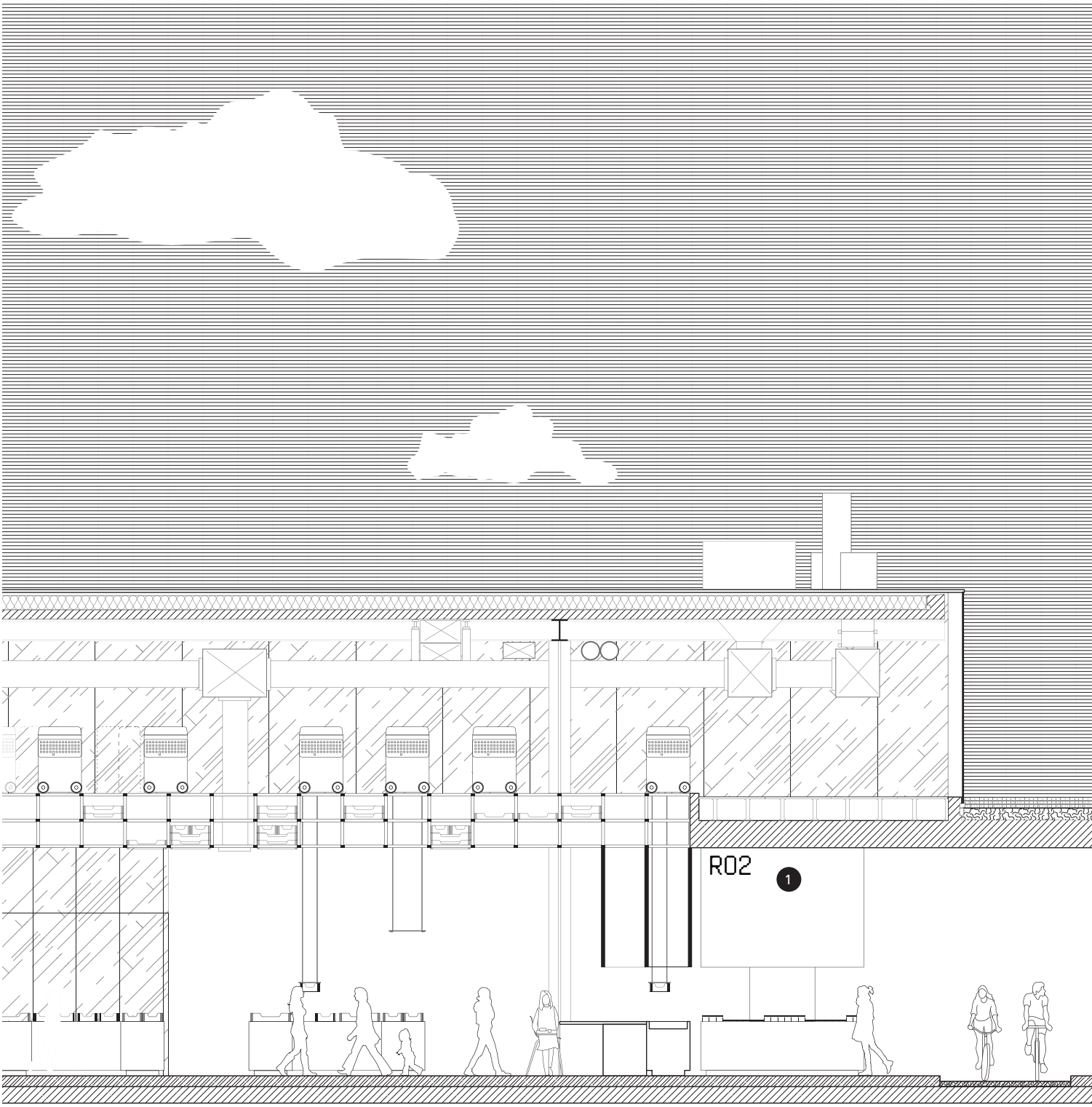
1 Shop-in-shop
2 Sales floor
3 Vertical core
4 Loading dock



Designated slow-paced zones with product demonstrations, workshops, and exclusive shops are developed around the periphery of the supermarket sales floor, in juxtaposition with fast-paced pick-up zones along the bike pathway to promote cyclists, delivery, and e-commerce.



1 Returning point
2 Automat
3 Entrance



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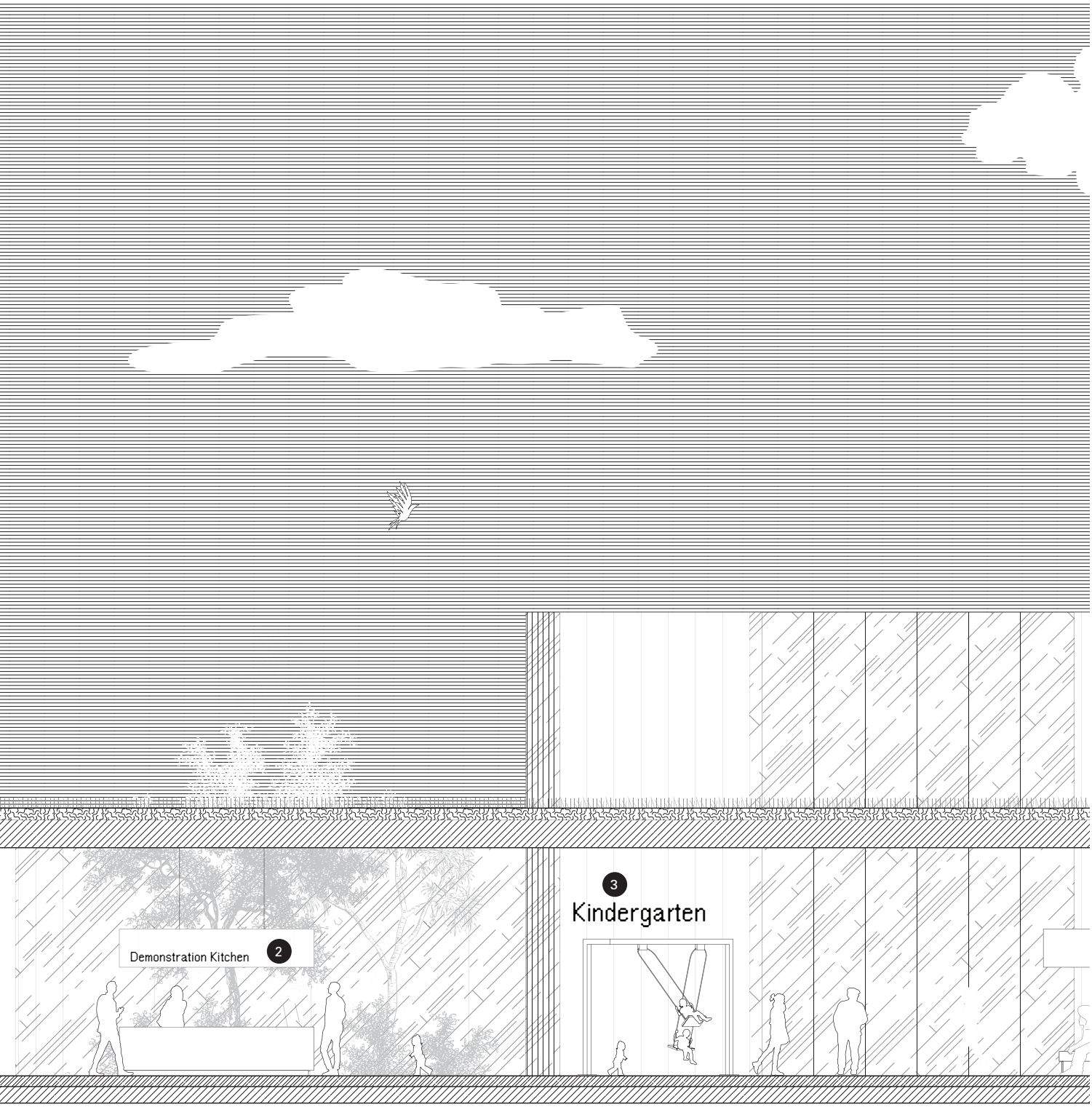
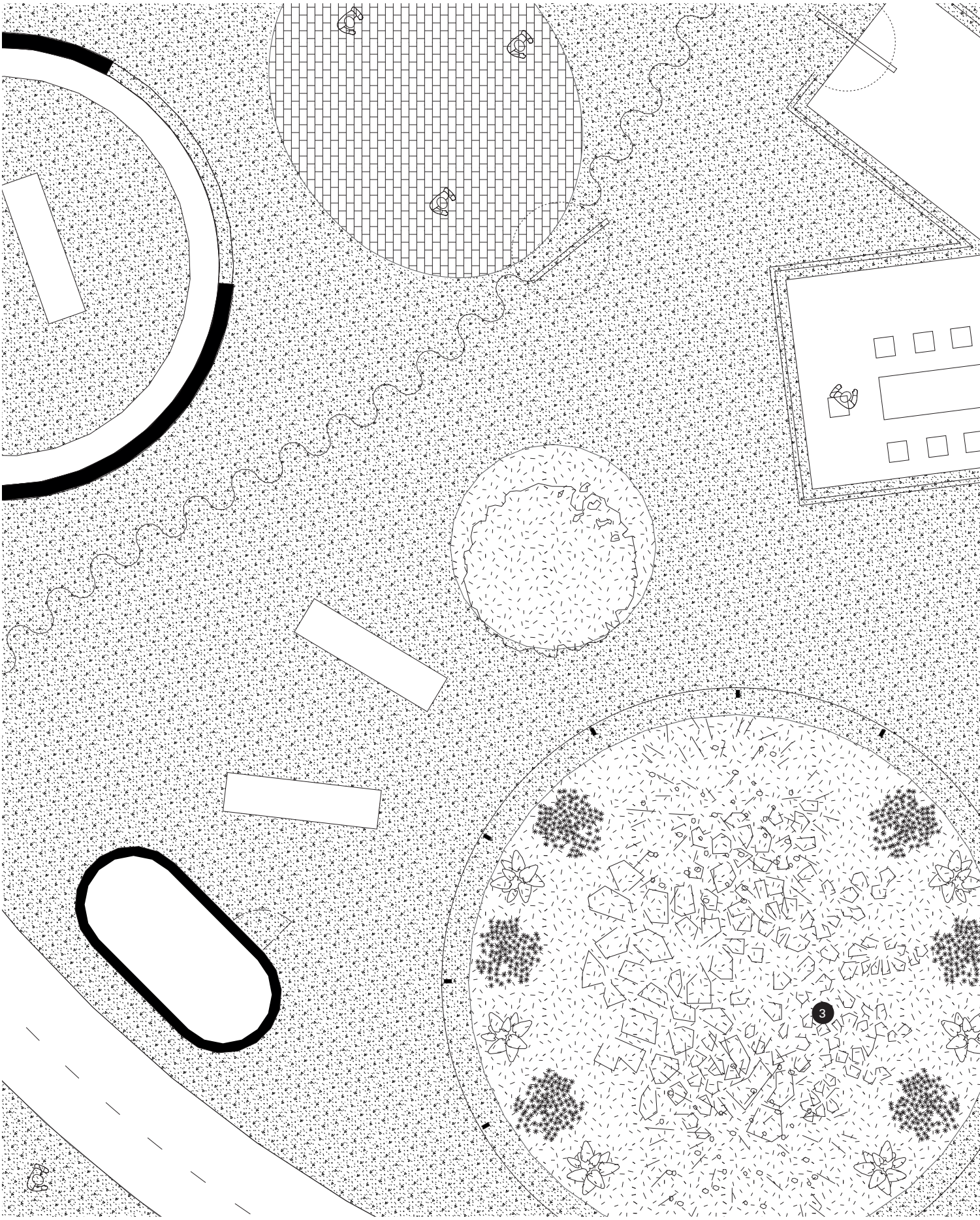
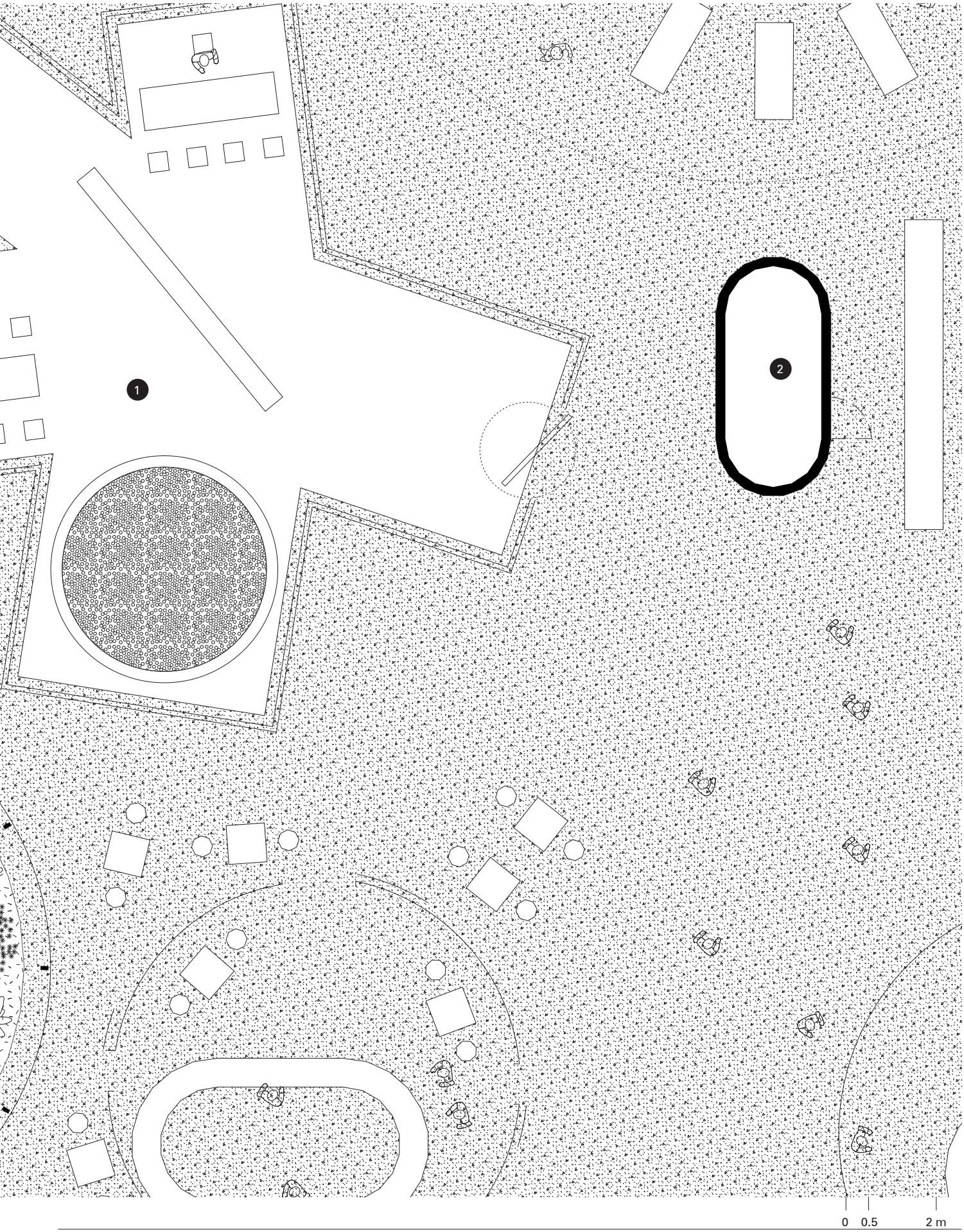


0 0.5 2 m

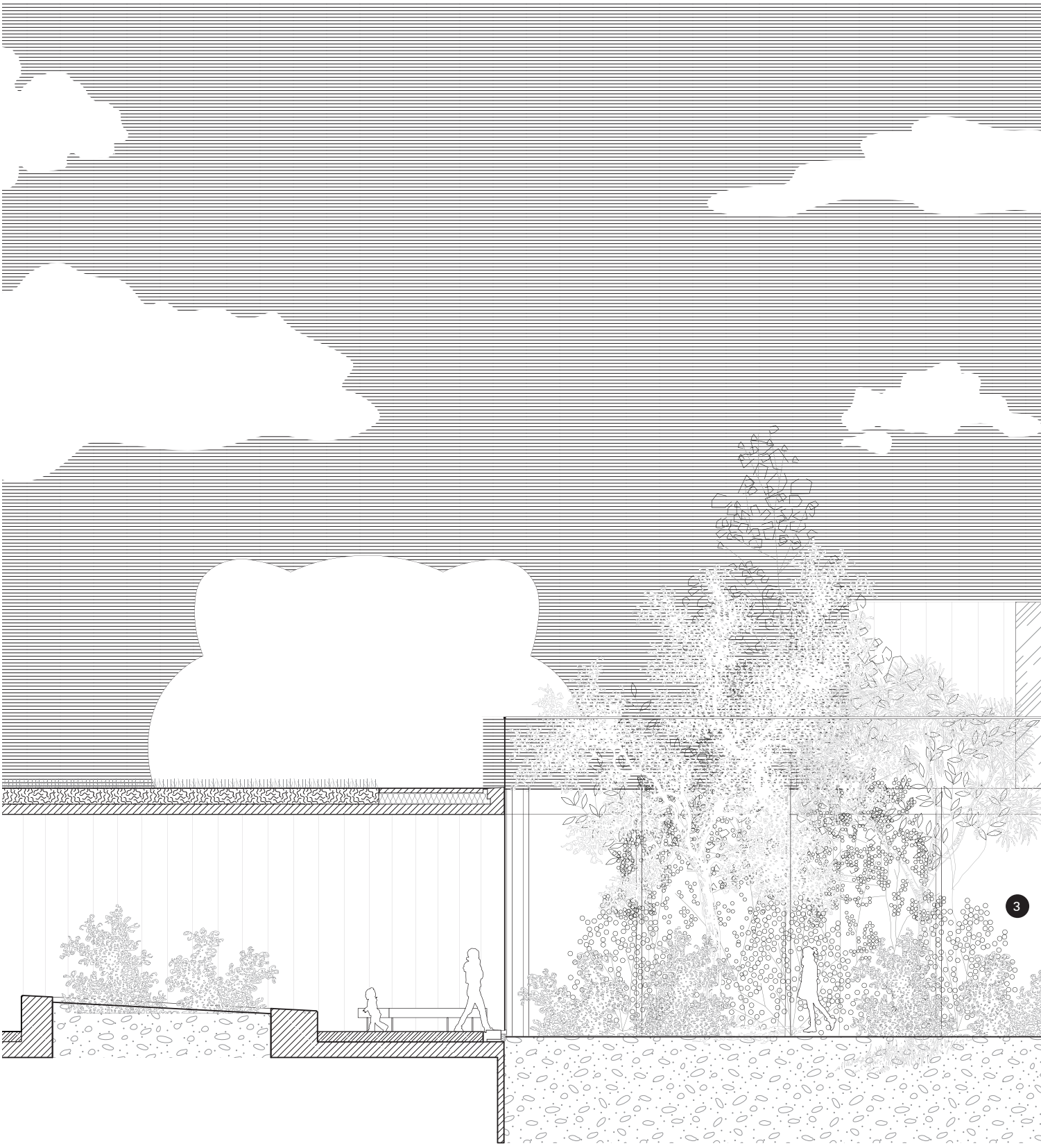
1 Returning point
2 Automat
3 Entrance



Public green zones are incorporated amidst the sales floor to entice the consumers to spend more time inside, while also providing a green roofscape for the neighborhood.



1 Kindergarten
2 Structural core, toiltes, HVAC
3 Public green areas



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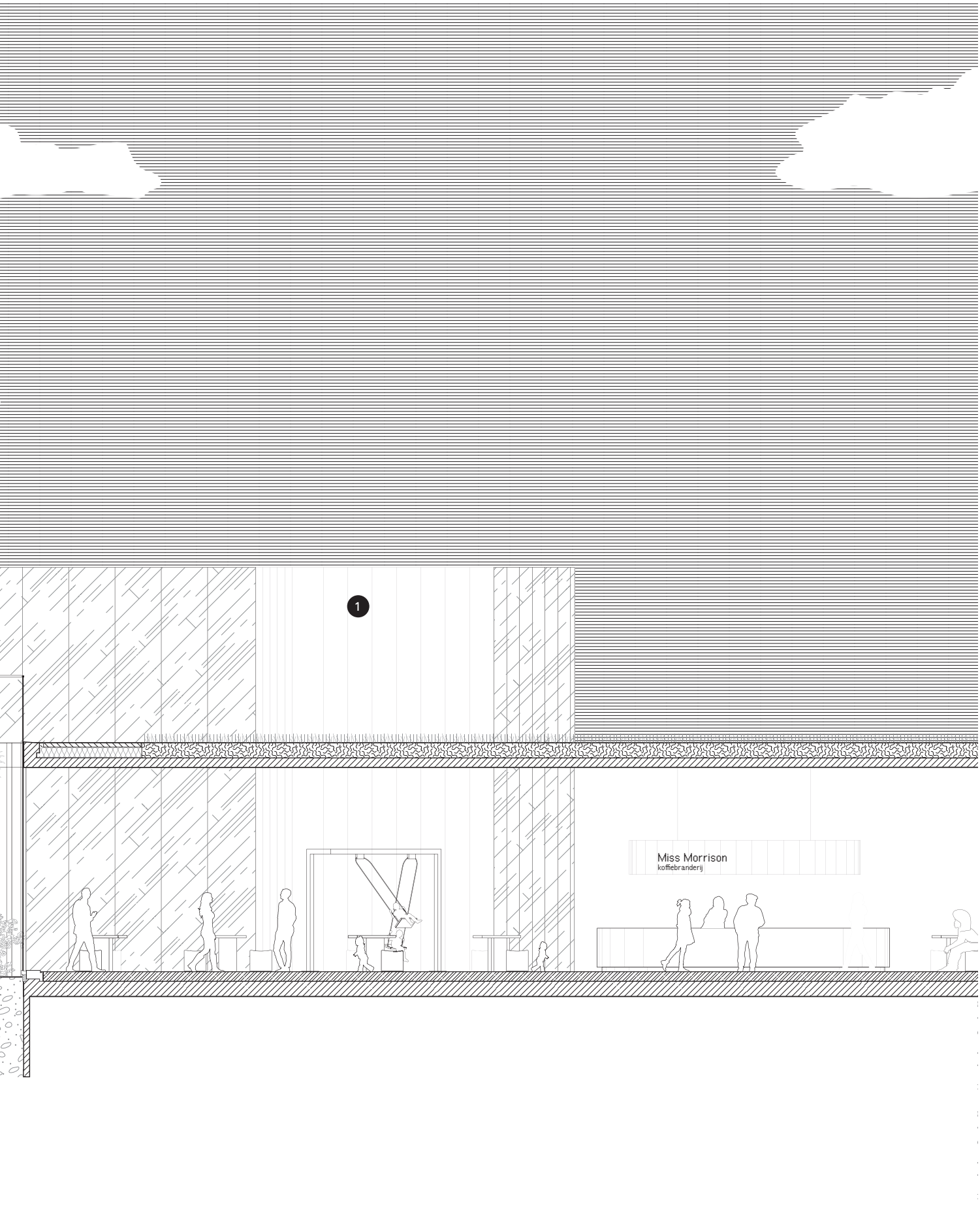

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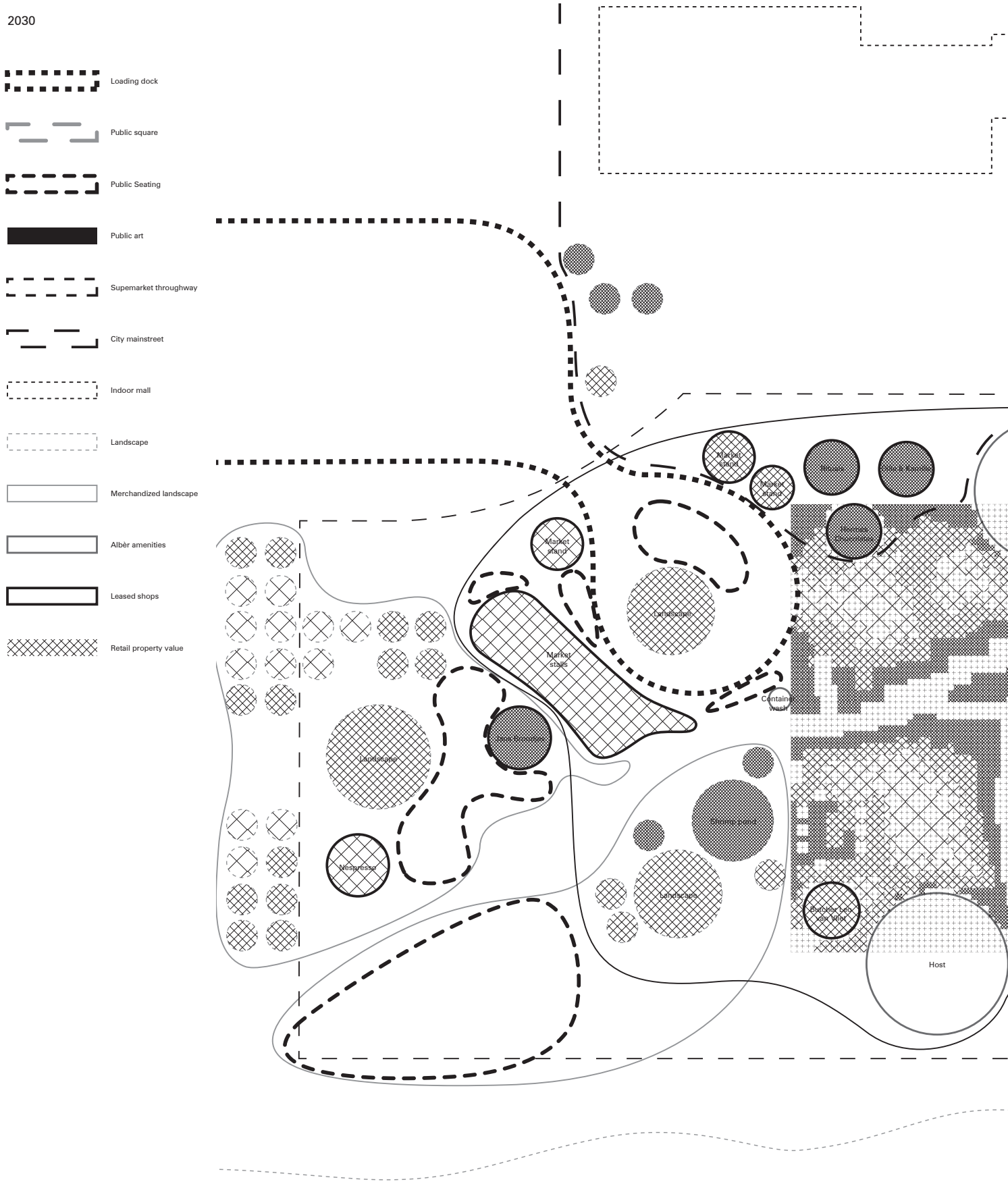
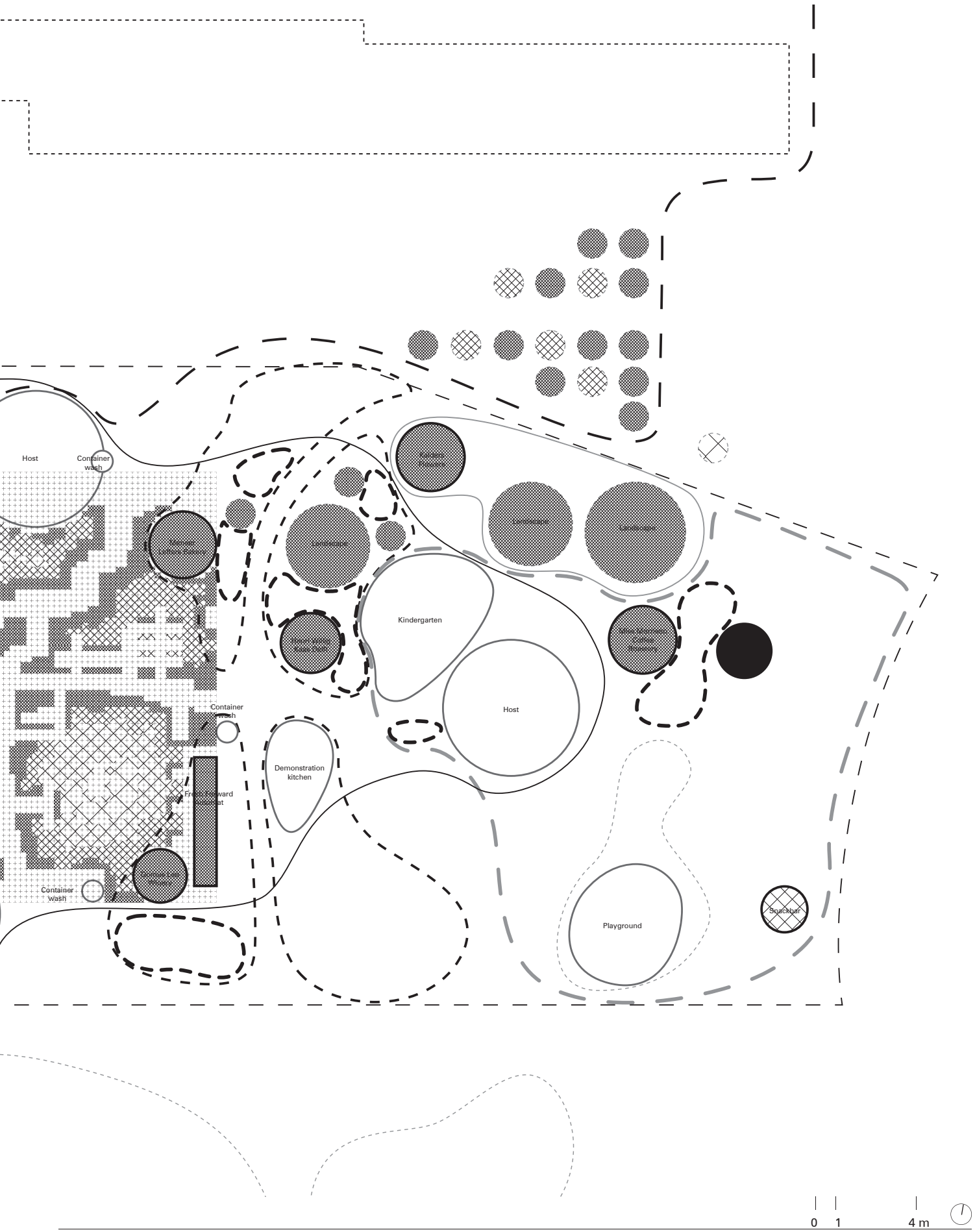
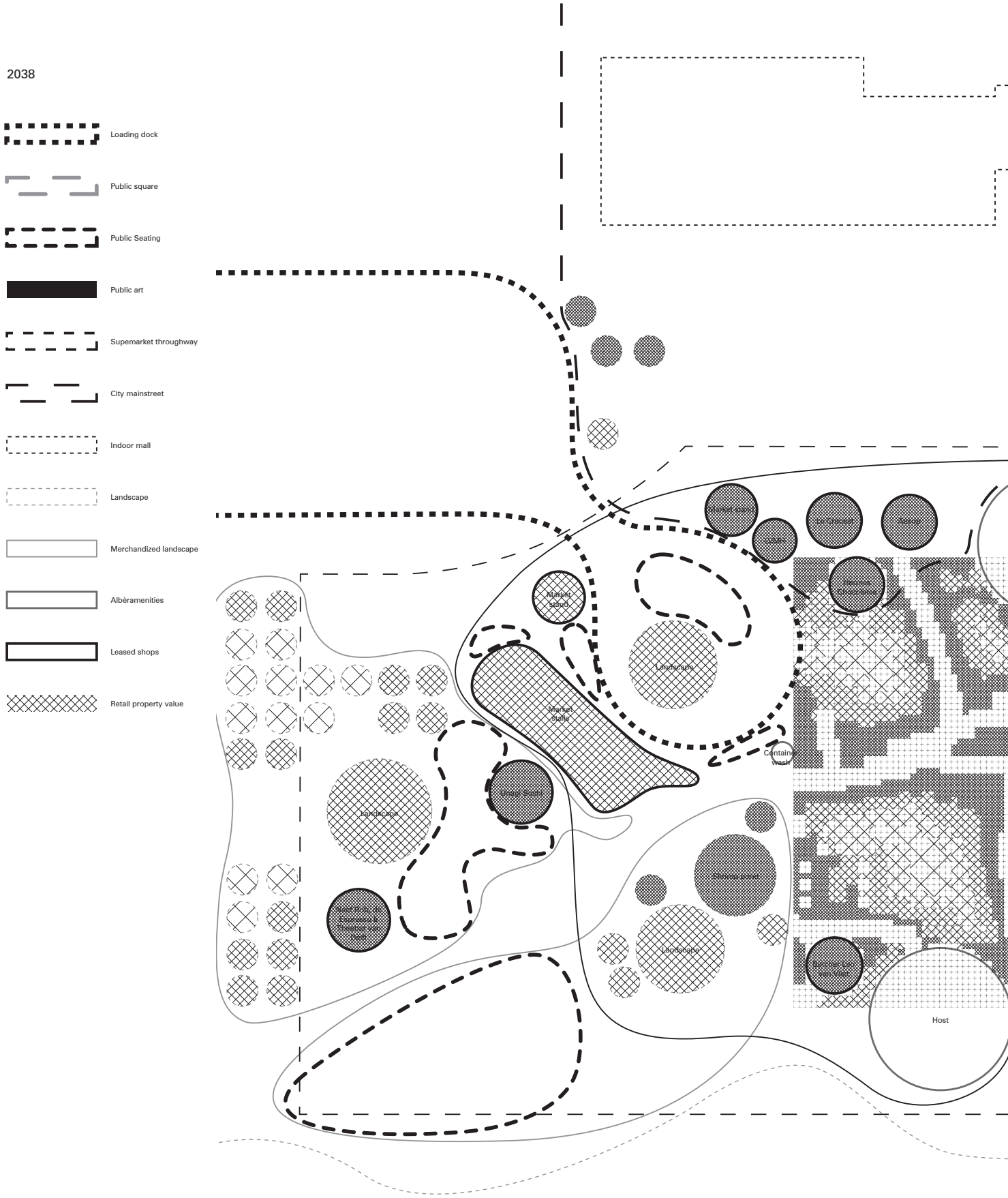


From bulks to fresh produce crates, standardized shelving systems within the open plan generate new episodic formats of planograms. No longer vertical and detached from each other, the new planograms dictate the dynamic floor plan.


Host
Container wash
Kinder-garten
Landscape
Landscape
Landscape
Kindergarten
Host
Container wash
Demonstration kitchen
Container wash
Playground
Snackbar
0
1
4 m



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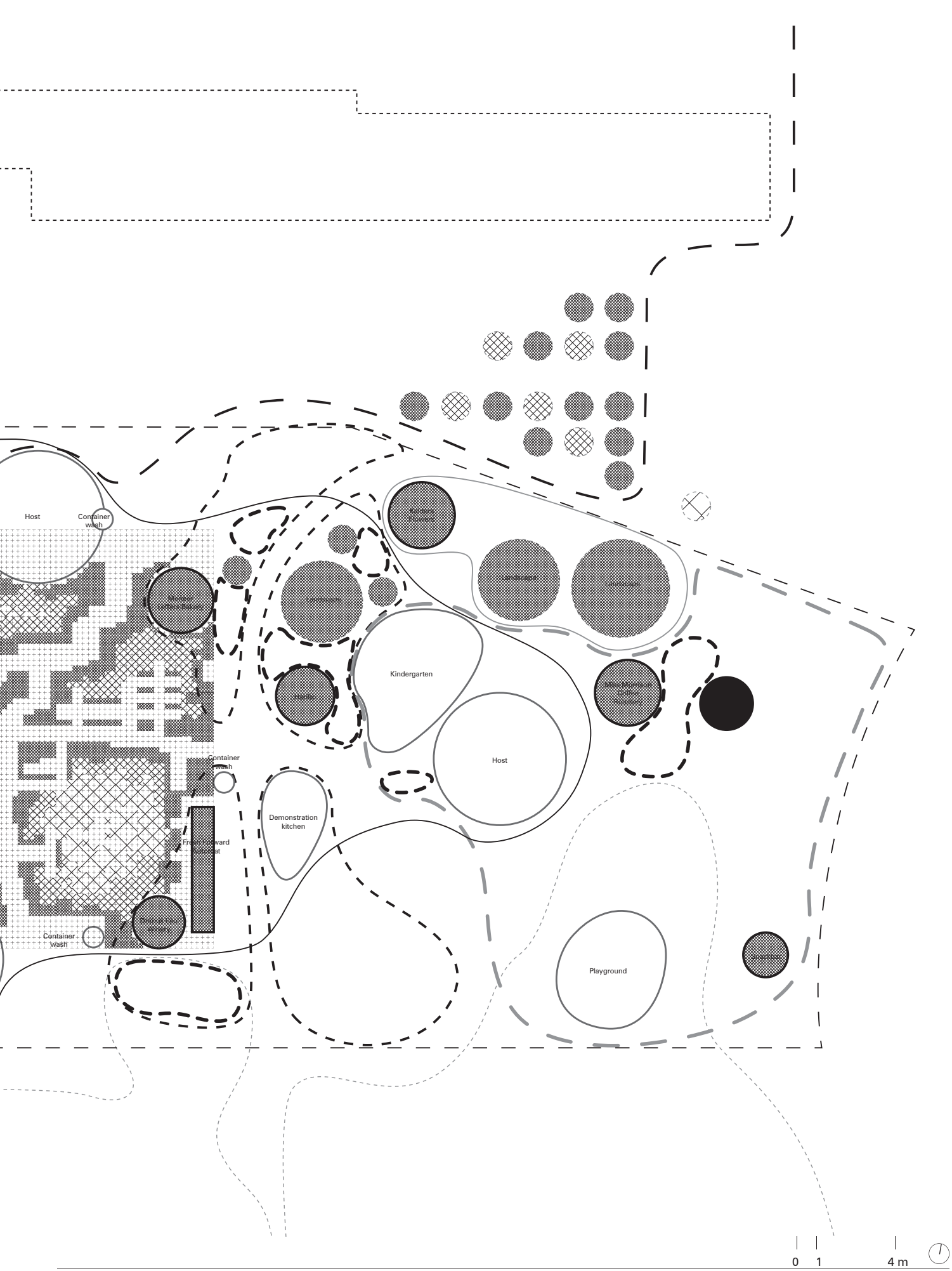
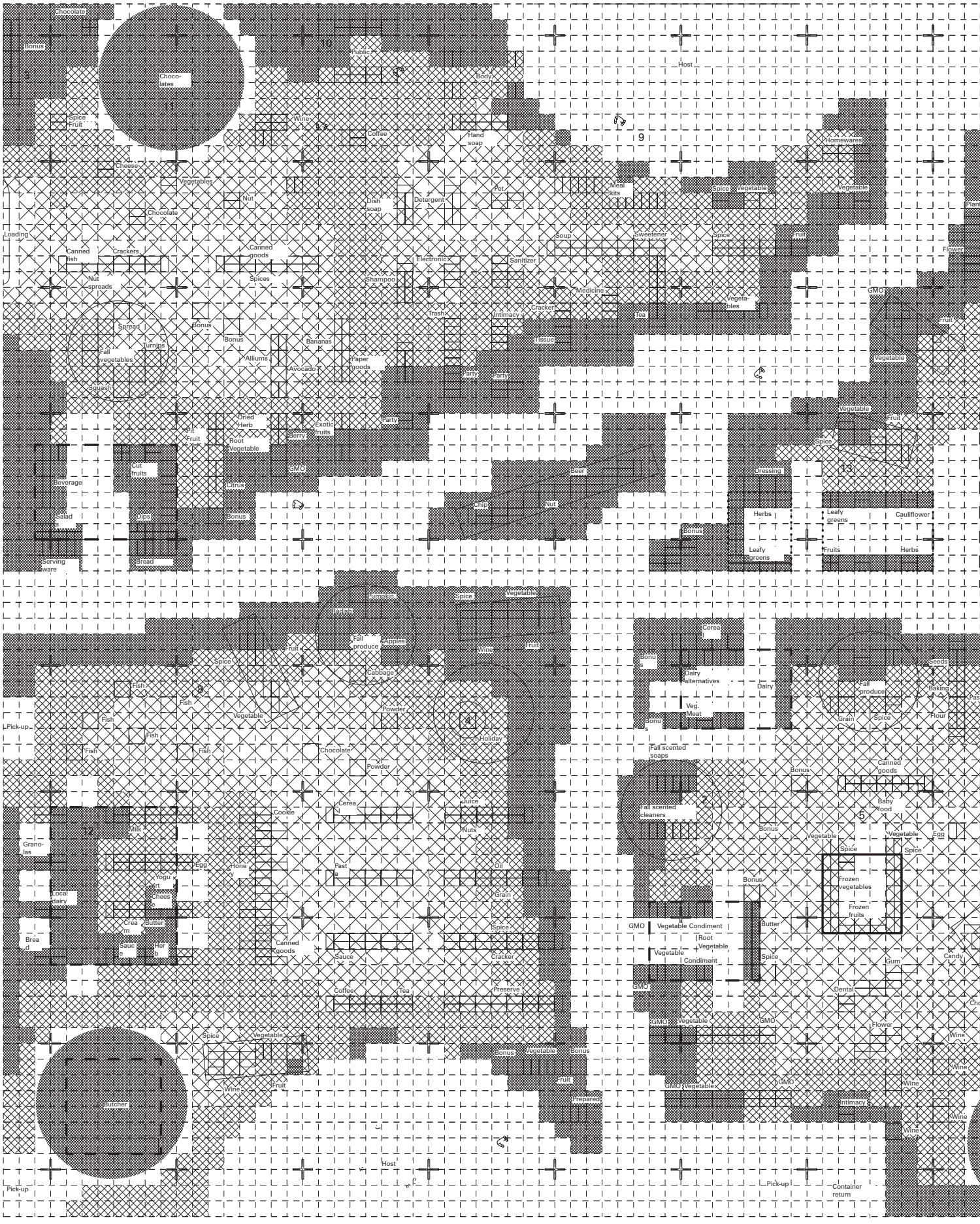
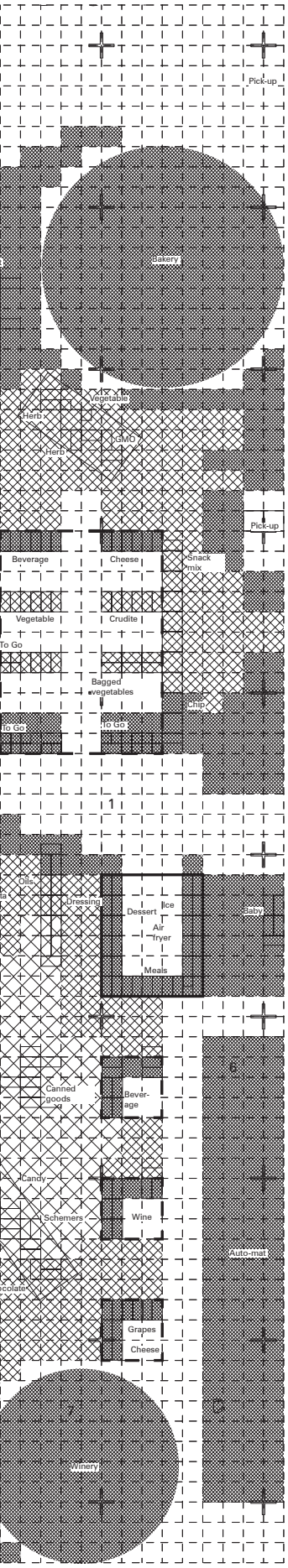

Host
Container wash
Kindergarten
Host
Container wash
Demonstration kitchen
Container wash
Playground
0
1
4 m



The supermarket sales floor as a real estate platform reveals business strategies in order to generate profit. Albèrt's business approach offers a wide range of products through a binary financial model that incorporates all Albèrt products within the efficient automated grid system, while real estate strategies—such as store-within-a-store—for branded products remain exclusively and independently staged.



Retail property value

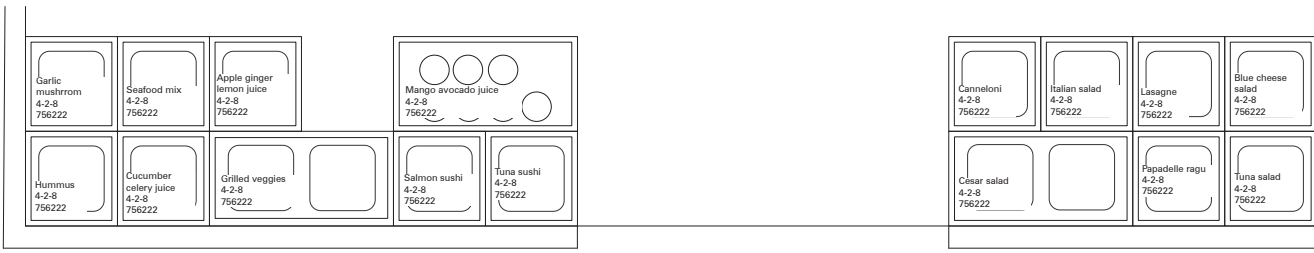
Walk-in refrigeration

Misted refrigeration

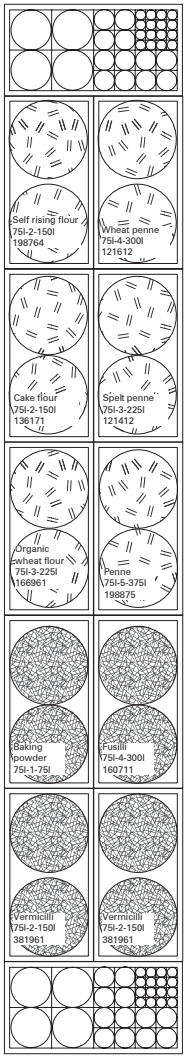
Freezer

PRODUCT NAME (XXXX)
UNITS IN CONTAINER - CONTAINERS IN STORE - UNITS IN STORE (#-#-#)
PRODUCT CODE (######)

0 1 4 m



Path

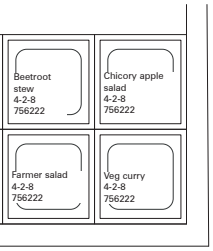


1

Holiday

Path

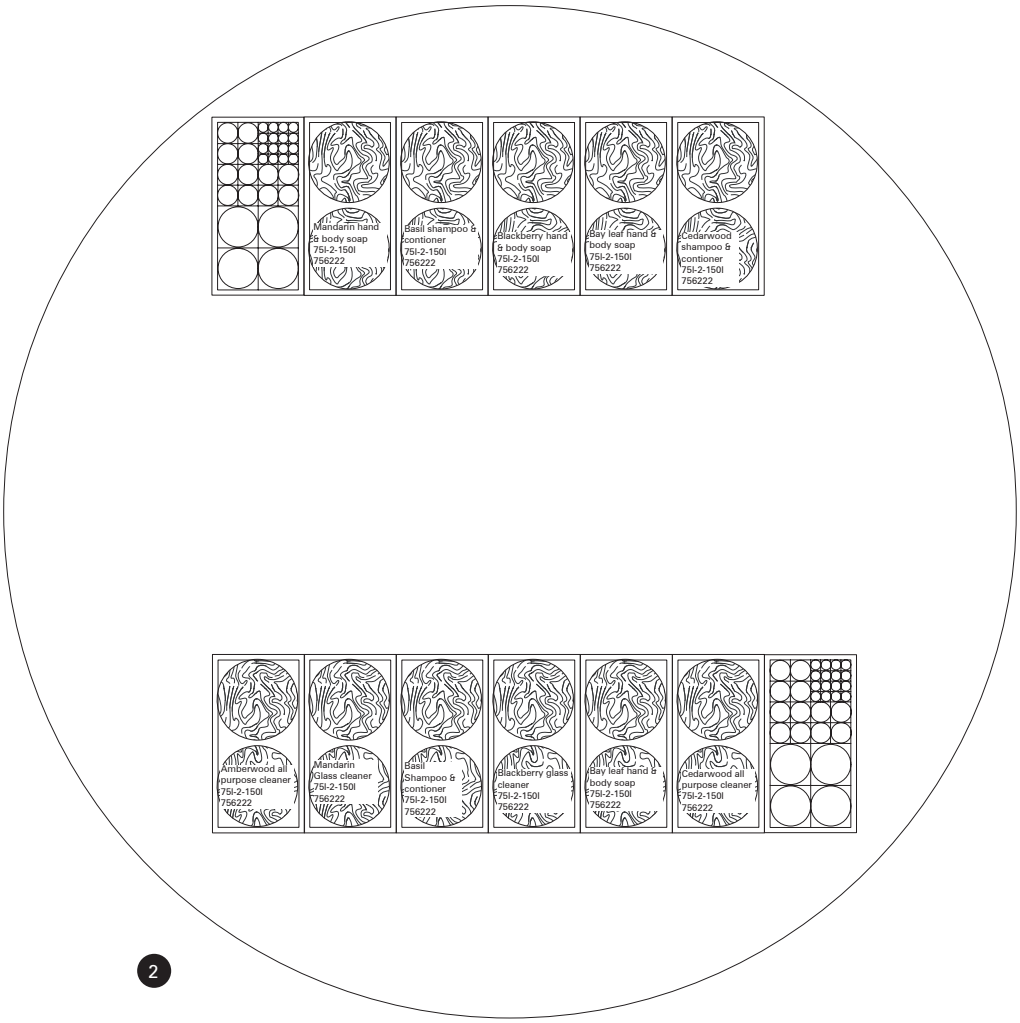
From bulks to fresh produce crates, standardized shelving systems within the open plan generate new episodic formats of planograms. No longer vertical and detached from each other, the new planograms dictate the dynamic floor plan.



Pick-up

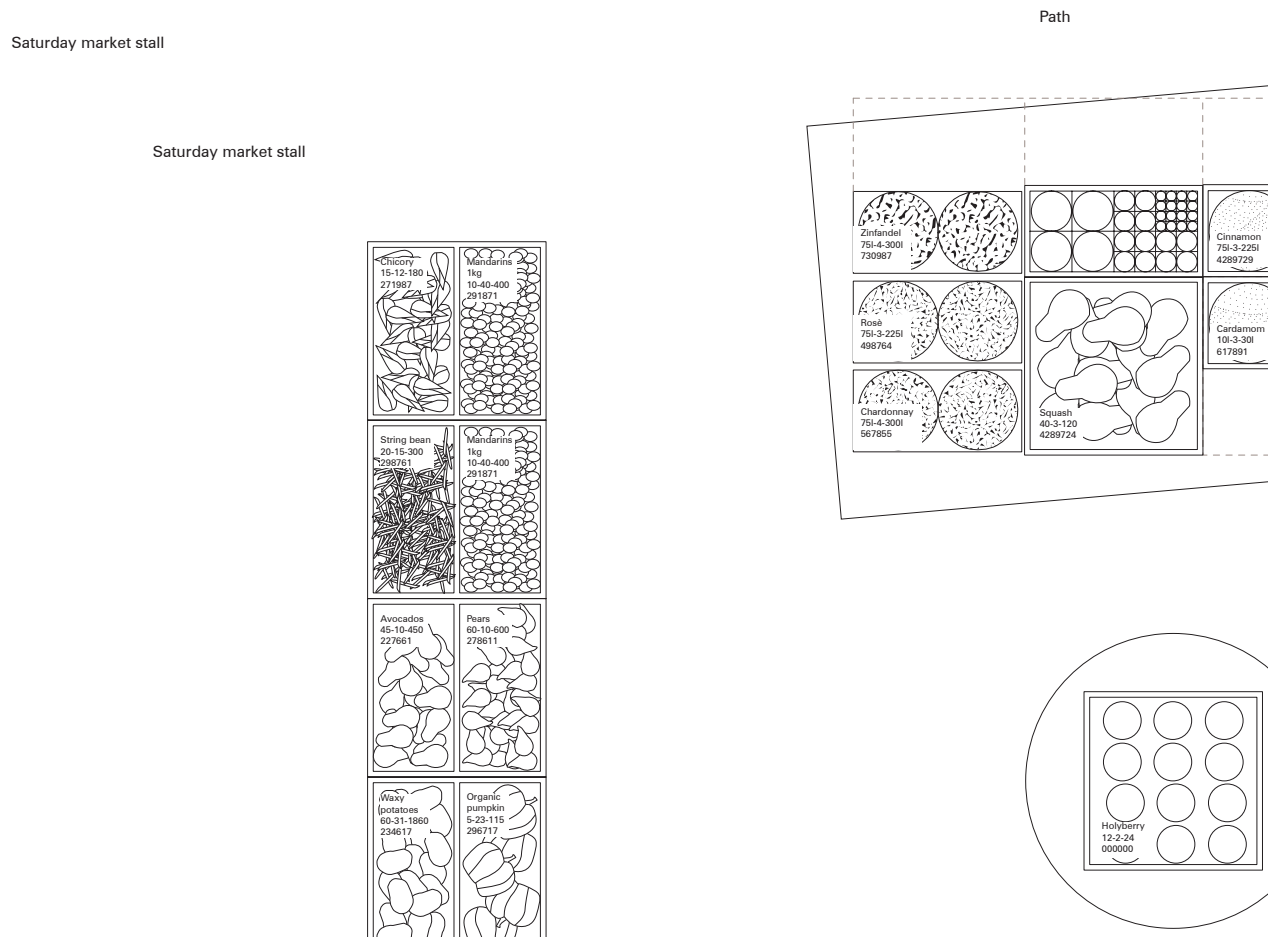
Seating

Bike path



0 200 1000 mm

1 Bike path convenience
2 Fall scented cleaners



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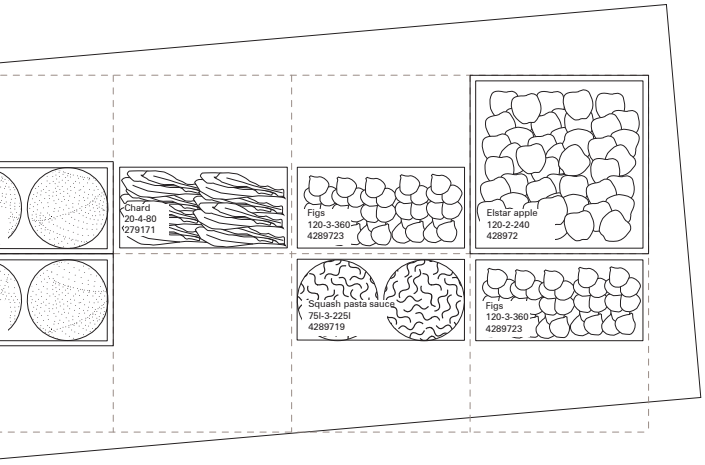
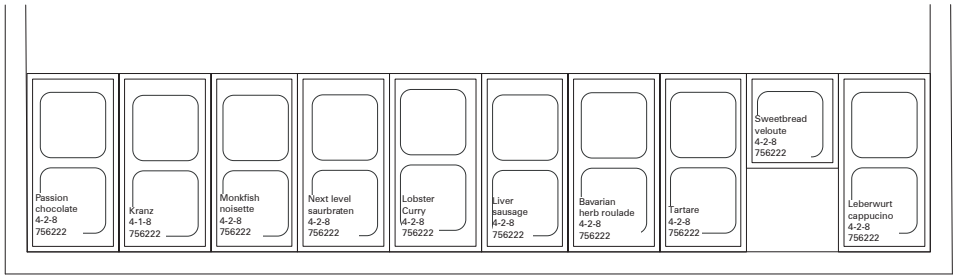
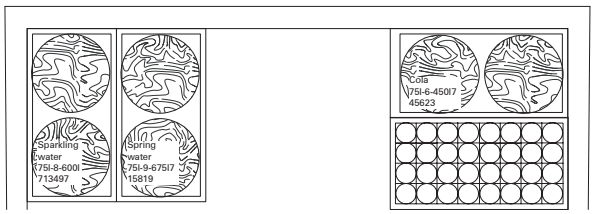


Path



Fresh forward automat

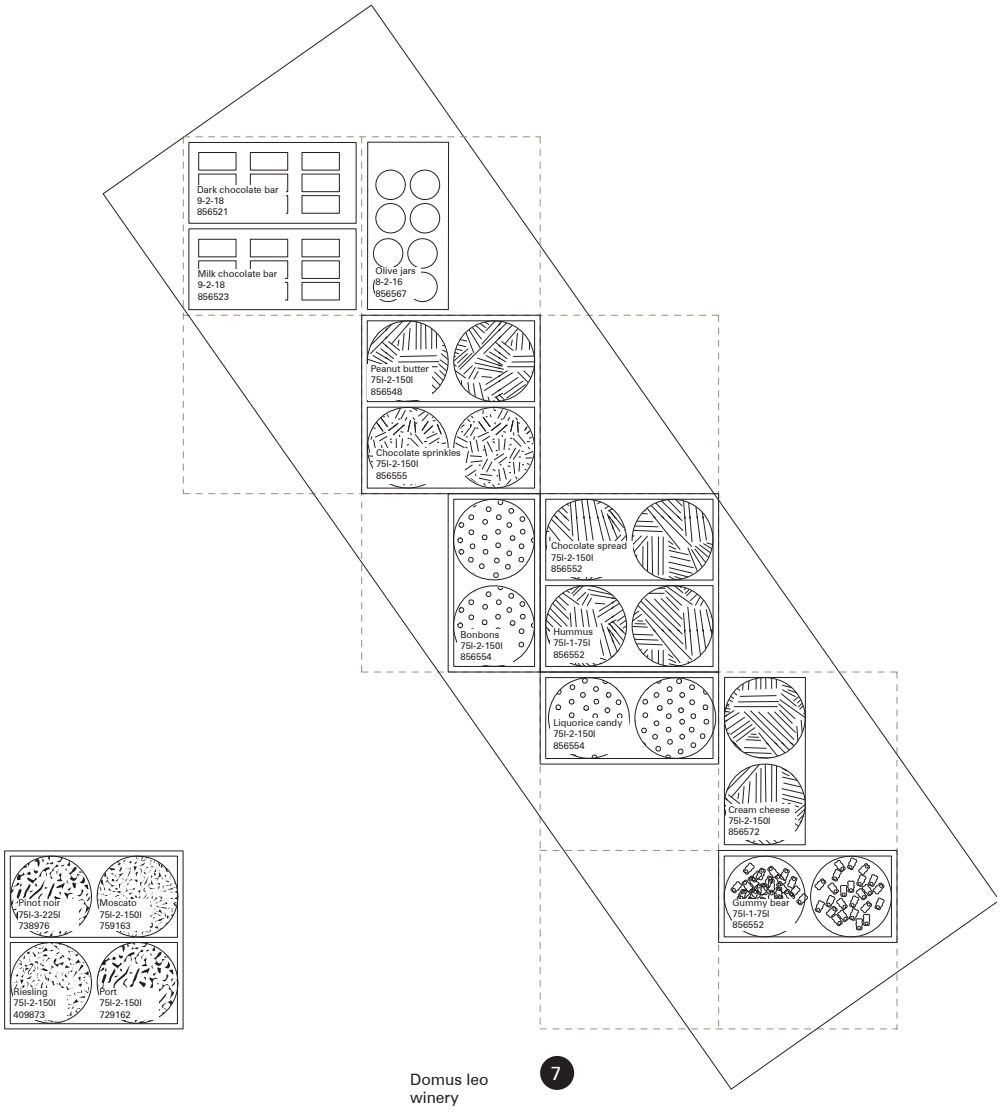


Seating

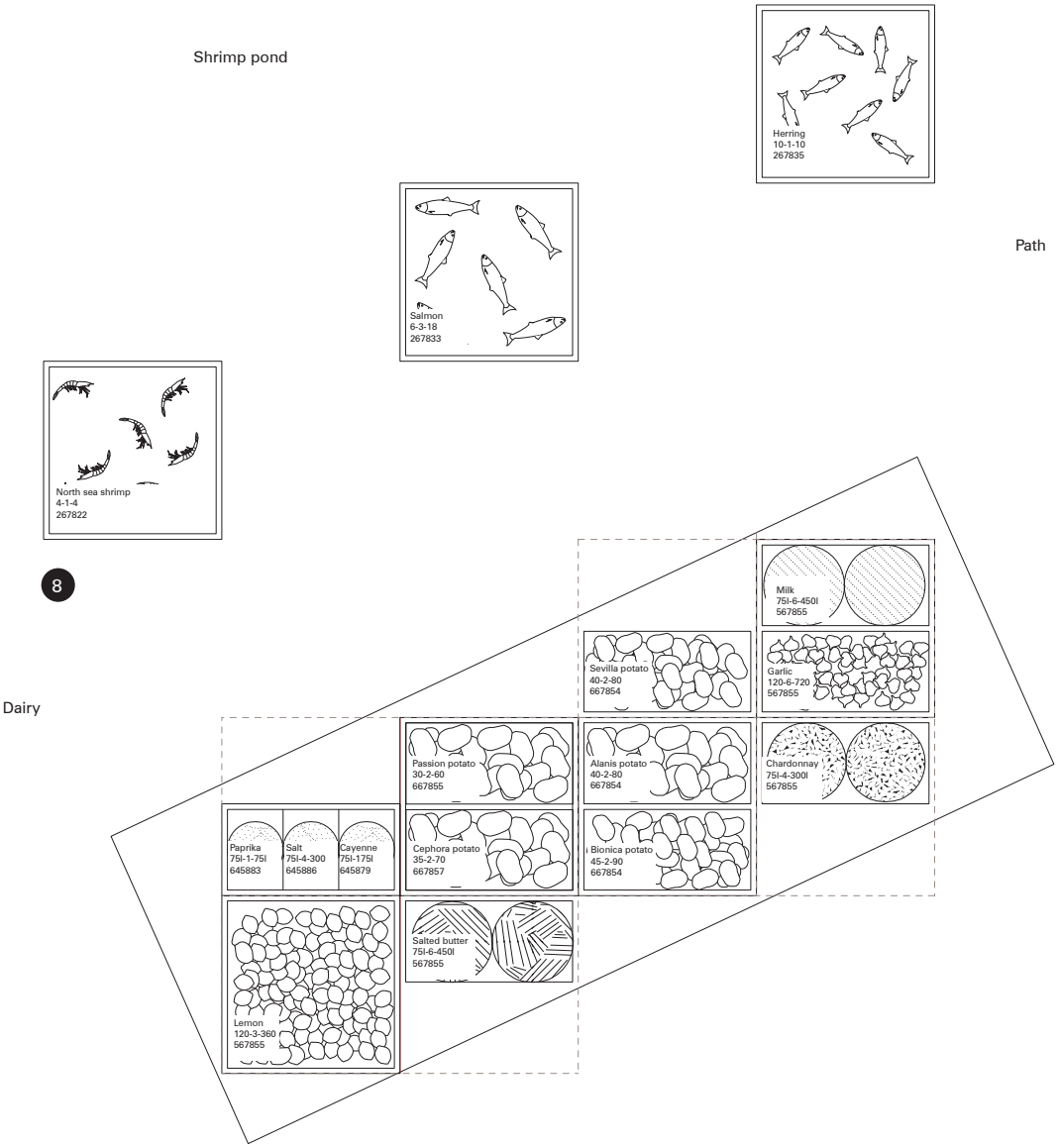
6

0 200 1000 mm

3 Saturday market aisles
4 Holyberry merchandising
5 Baby products and pantry
6 Automat merchandising

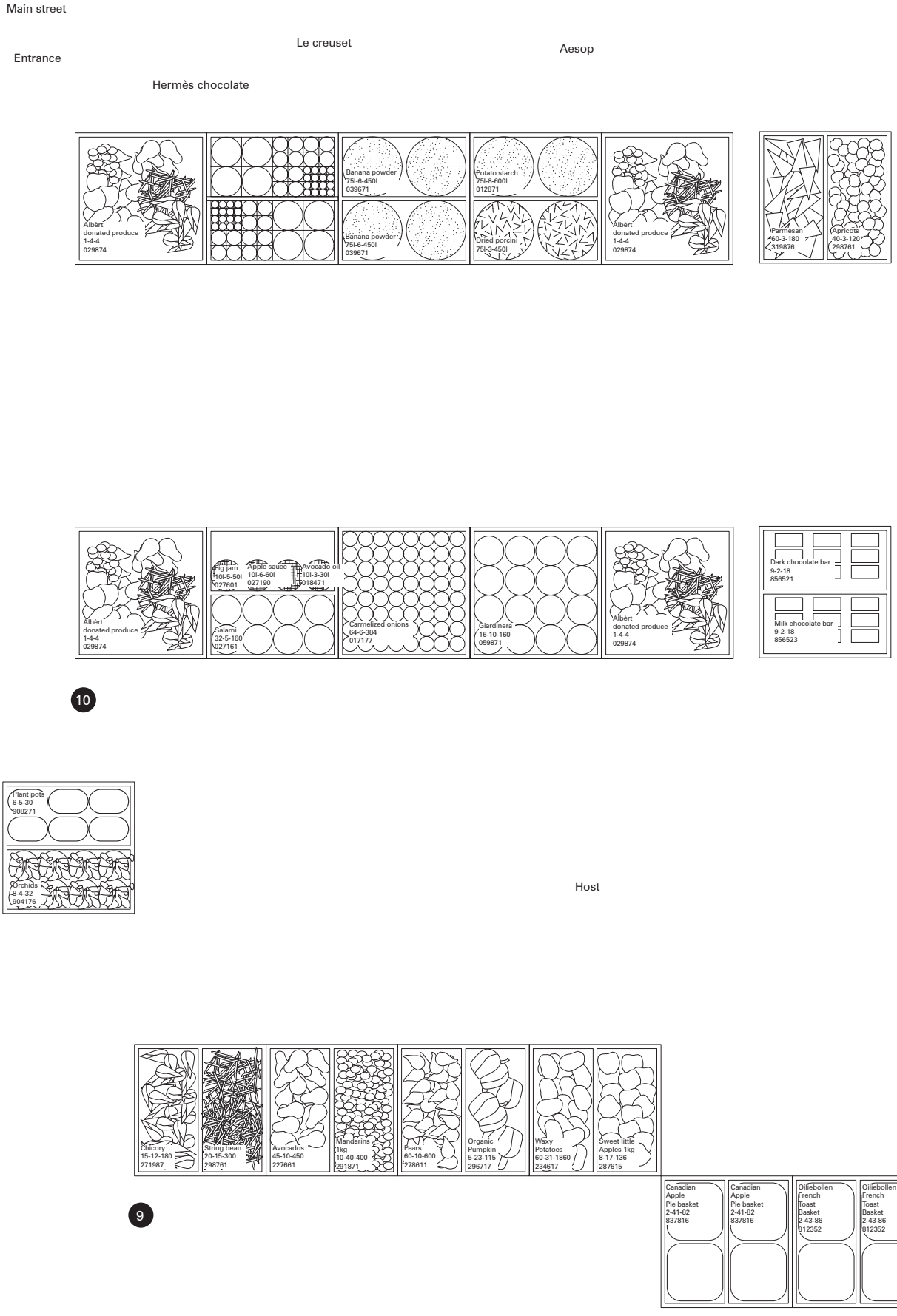


From bulks to fresh produce crates, standardized shelving systems within the open plan generate new episodic formats of planograms. No longer vertical and detached from each other, the new planograms dictate the dynamic floor plan.



0 200 1000 mm

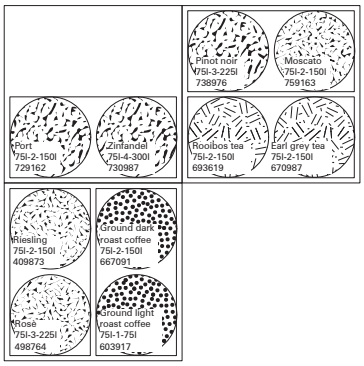
7 Wine merchandising
8 Fishmonger merchandising

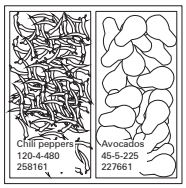


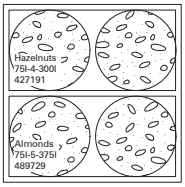
From bulks to fresh produce crates, standardized shelving systems within the open plan generate new episodic formats of planograms. No longer vertical and detached from each other, the new planograms dictate the dynamic floor plan.

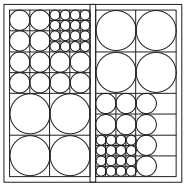
Main street

Hermès chocolate









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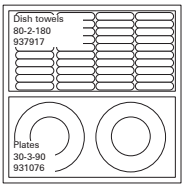
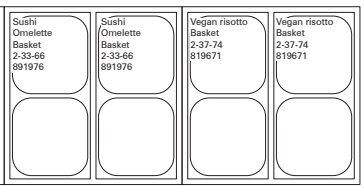
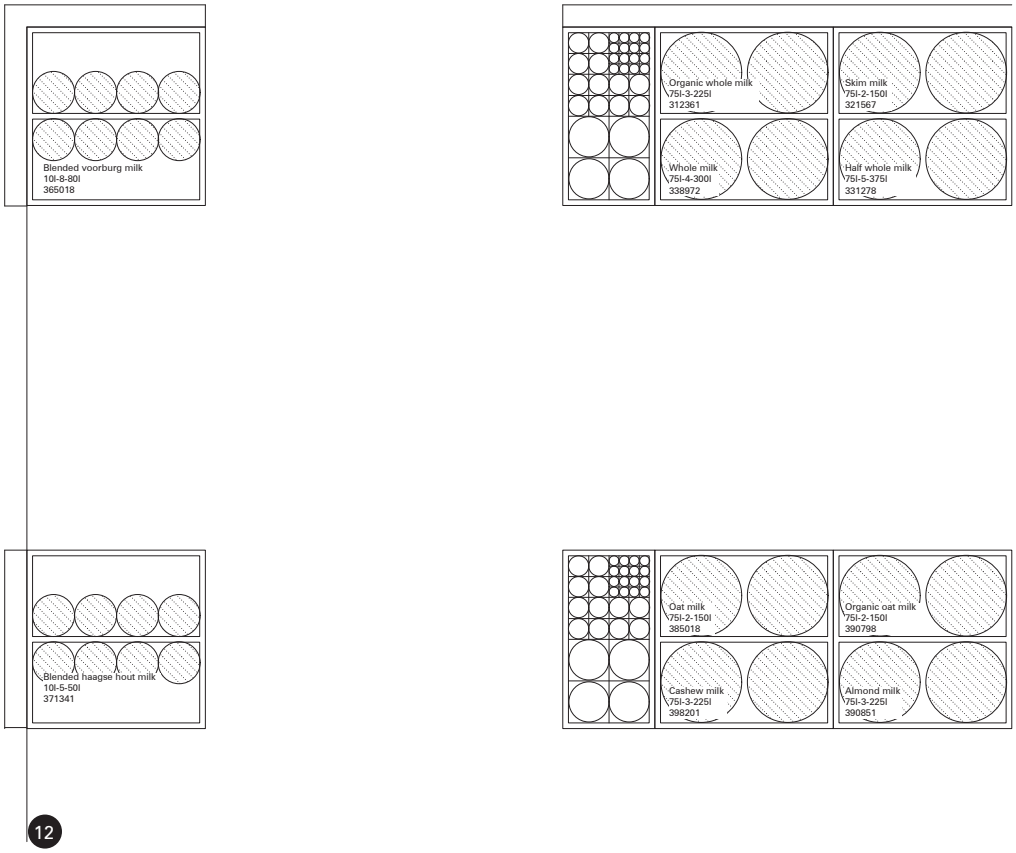
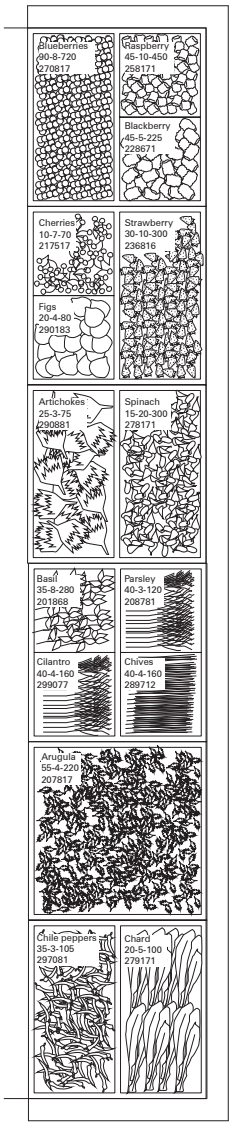




0 200 1000 mm

9 Albèrt lifestyling
10 Public products
11 Chocolate merchandising





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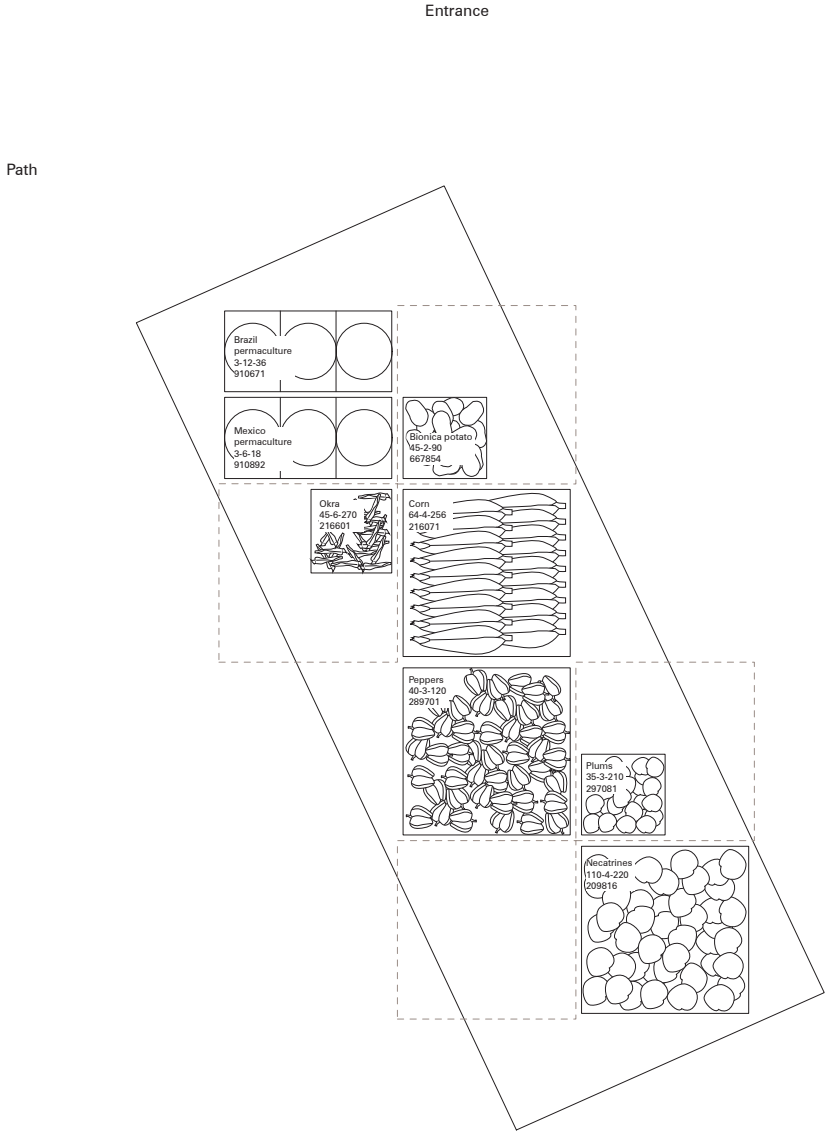
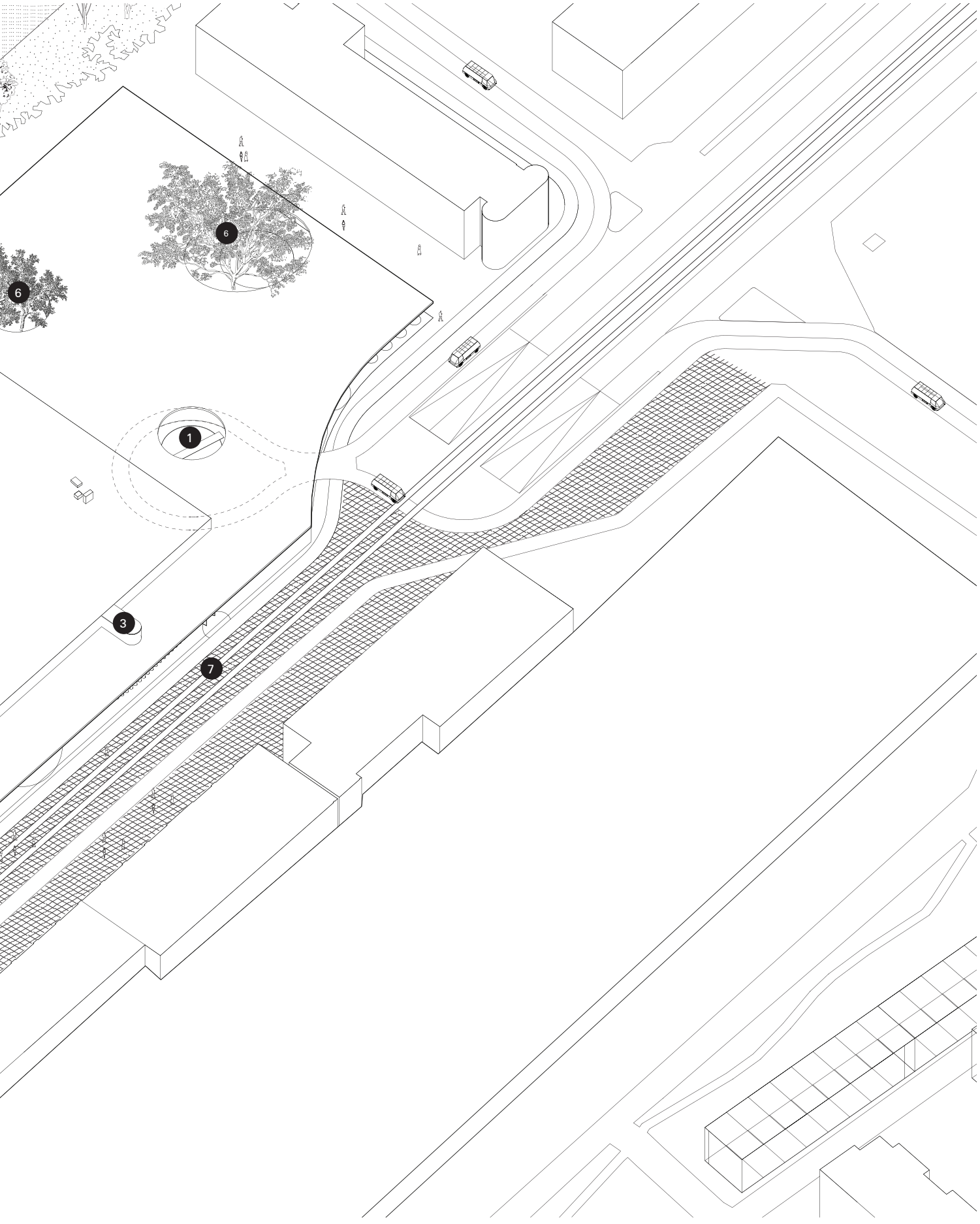


12 Dairy walk-in
13 Fresh produce display

Amidst a transportation node and a public square, featuring a green roofscape, Albèrt extends its perimeter towards the city and its residents, establishing a new civic presence.



1 Loading
2 Automated ceiling
3 Vertical core
4 Kindergarten
5 Sculpture of Albèrt's mascot
6 Garden
7 Tram

Stills from the walk-through video on the reimagined supermarket of the future, Albèrt.

Albèrt

Stills from the walk-through video on the reimagined supermarket of the future, Albèrt.

Demonstration Kitchen

Stills from the walk-through video on the reimagined supermarket of the future, Albèrt.

Koffiebrander
R03
P01

Stills from the walk-through video on the reimagined supermarket of the future, Albèrt.

Stills from the walk-through video on the reimagined supermarket of the future, Albèrt.

1 From The Hague to Genoa, the supply chain of the future supermarket will span across the Blue Banana trade corridor, addressing multifaceted aspects of the food industry in the Netherlands and beyond, through the notions of scarcity, trade, inclusivity, sensorialism, tastemaking, craft, reshoring, protectionism, automation, and extinction.

2 The reimagined supermarket—Albèrt—displays both the product and its supply chain for the conscious consumers by integrating the distribution center with an automated Ocado grid system above the supermarket, rendering a completely open sales floor.

3 In an attempt to reduce waste and address sustainability goals, Albèrt operates within a just-in-time production system of non-disposable packaging and dynamic pricing, maintaining small batches of products in the integrated Distribution Center.

4 No longer an enclosed and controlled retail space, the supermarket uses various strategies—such as store-in-a-store rentals for exclusive brands and specialty displays for seasonal products—to create a flexible sales floor in order to maximize profit, operating as a real estate platform.

5 Novel tasting experiences and green public spaces—along with the dynamic robotic movement that diverts human labor towards hospitality and social interaction—blur the boundaries between the supermarket and the city, introducing a new civic presence.

1

2

3

4

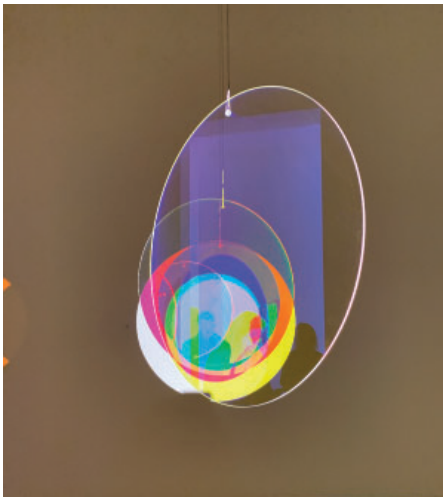
5

1 Photo by author
2 Photo by author
3 Photo by author
4 Photo by author

Current demolished site of Sint-Dimpnaplein 16 in Geel, BE.

Kotoka Strawberry
Source: https://www.finedininglovers.com/article/theres-now-22-strawberry-sale-hong-kong

"The Adoration of the Mystic Lamb" by Hubert and Jan van Eyck in Ghent, Belgium
Source: Author



Olafur Eliasson's Retinal Flare Space
Source: Author

Mineral Hall at Naturalis Biodiversity Center in Leiden
Source: Author

A Family beside the Tomb of Prince William i in the Nieuwe Kerk, Delft by Dirck van Delen
Source: Author

Object

Madonna Like a Prayer
Source: https://www.youtube.com/watch?v=79fzeNUqQbQ

I Am Love direted by Luca Guadagnino
Source: http://thefilmexperience.net/blog/2019/9/10/the-new-classics-i-am-love.html

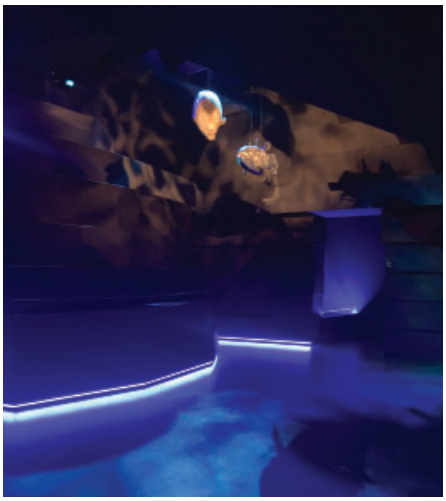
Annunciation in Rotation XL by Andreas Wannerstedt
Source:https://andreaswannerstedt.se/

No Time to Die directed by Cary Joji Fukunaga
Source: https://screenrant.com/james-bond-no-time-safin-villain/ and https://filmschoolrejects.com/no-time-to-die-trailer/7/

Youth directed by Paolo Sorrentino
Source:https://www.telegraph.co.uk/travel/destinations/europe/switzerland/articles/Inside-the-eccentric-Swiss-hotel-where-Michael-Caine-looks-back-on-his-Youth/

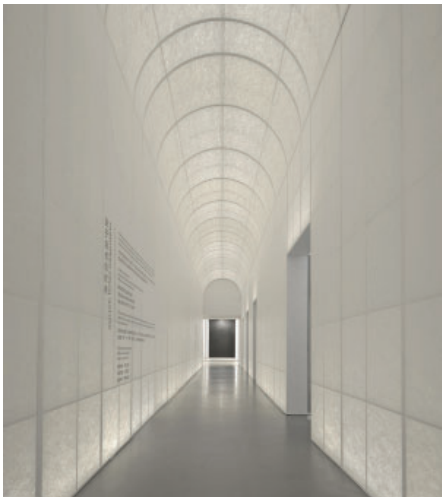
Videography

Miglot Perfume Lab in Ghent, Belgium
Source: Author



Naturalis Biodiversity Center in Leiden
Source: Author

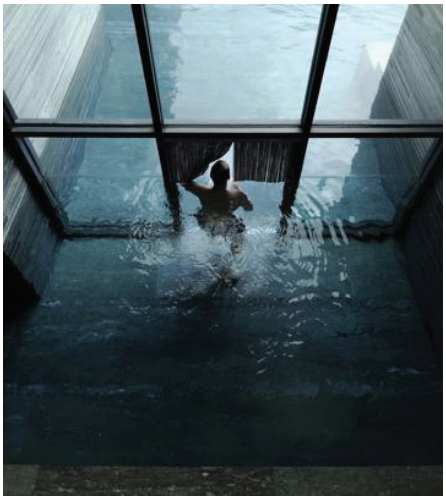
Utestemmeoutdoor matters a sensory exhibition about landscape-architecture by Snøhetta
Source:https://snohetta.com/projects/437-utestemmeoutdoor-matters-a-sensory-exhibition-about-landscape-architecture



Spatial Design Of The Exhibition Fashioned From Nature by Studio 10
Source: https://worldarchitecture.org/article-links/evhzm/studio-10-designs-exhibition-space-with-white-tubular-structures-and-black-translucent-ramps-in-china.html

Snoezelen in Francis House Hospice
Source: https://www.snoezelen.info/europe/francis-house-hospice/

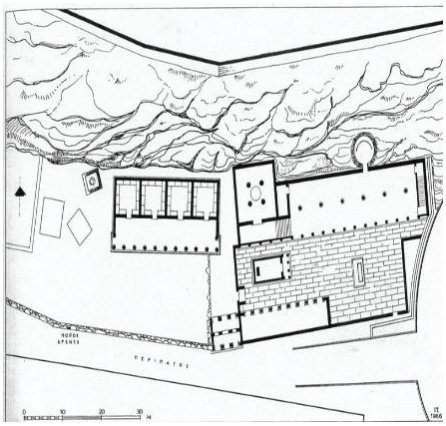
Steilneset Memorial by Peter Zumthor and Louise Bourgeois
Source: https://www.dezeen.com/2012/01/03/steilneset-memorial-by-peter-zumthor-and-louise-bourgeois/



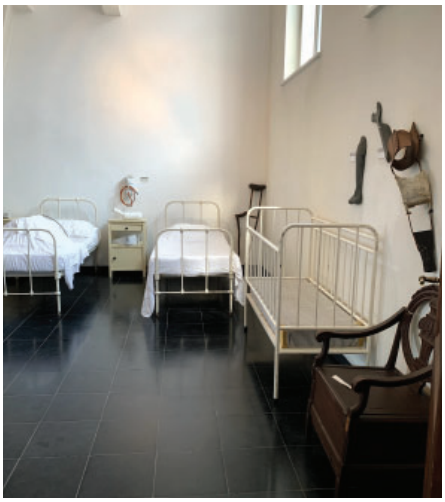
The Therme Vals by Peter Zumthor
Source: https://www.pinterest.dk/pin/288934132352392087/

Begijnhof in Breda
Source: Author

Sanatorium Zonnestraal by Jan Duiker, Bernard Bijvoet, and Jan Gerko Wiebenga
Source: Author



Asclepeion
Source:http://odysseus.culture.gr/h/2/gh251.jsp?obj_id=6624



Geelse Gasthuis and the Gasthuiszusters Augustinessen
Source: Author

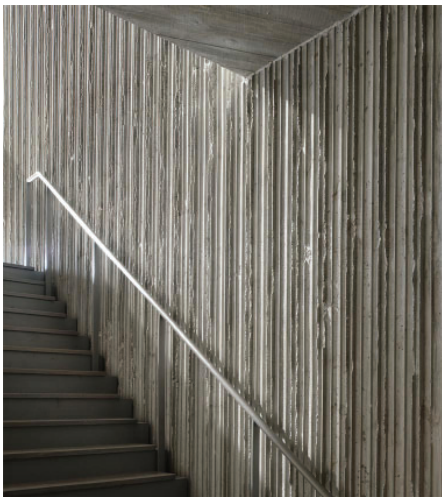
Rosenbery Abbey by Dom Hans van der Laan
Source:https://divisare.com/projects/336071-dom-hans-van-der-laan-jeroen-verrecht-saint-benedict-abbey

Nordic Pavilion in Venice by Sverre Fehn
Source: https://www.archdaily.com/784536/ad-classics-nordic-pavilion-in-venice-sverre-fehn

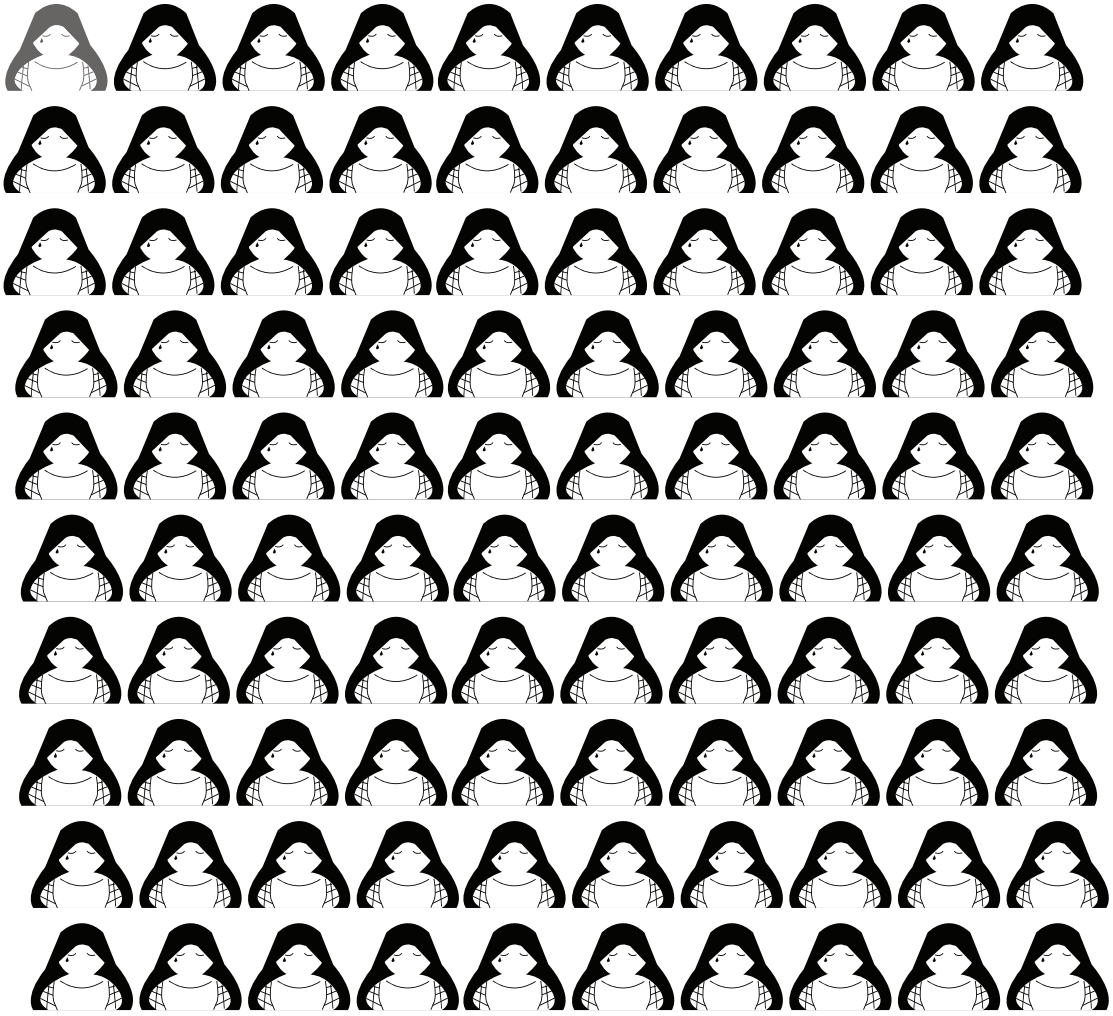
The Barnes Foundation by Tod Williams + Billie Tsien
Source: https://www.archdaily.com/238238/the-barnes-foundation-building-tod-williams-billie-tsien

Piet Oudolf's gardent at Museum Voorlinden
Source: Author

Chapel of Sound by Open Arhictects
Source:https://worldarchitecture.org/article-links/evhzm/studio-10-designs-exhibition-space-with-white-tubular-structures-and-black-translucent-ramps-in-china.html

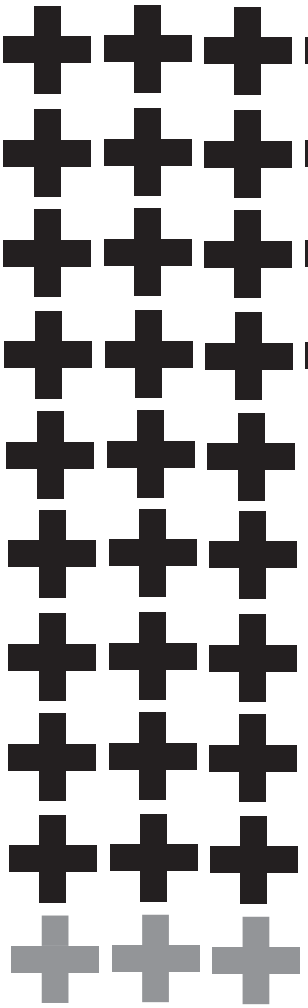


Clyfford Still Museum by Allied Works
Source:https://alliedworks.com/projects/clyf-ford-still-museum

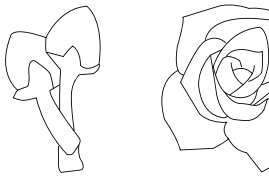


Increase in participants from online bereavement support from COVID-19

=100 people

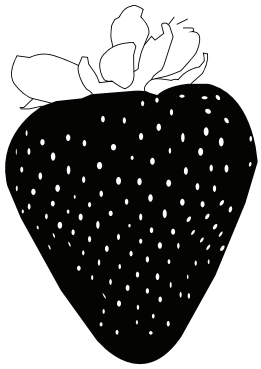


Percentage of loss of taste and sm

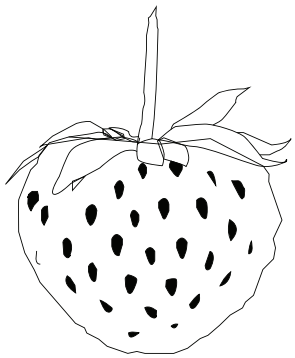


Smell Training Scents

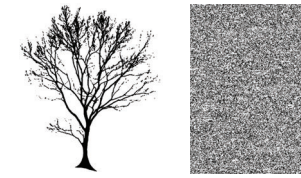
Vision Improvement Test / Therapy



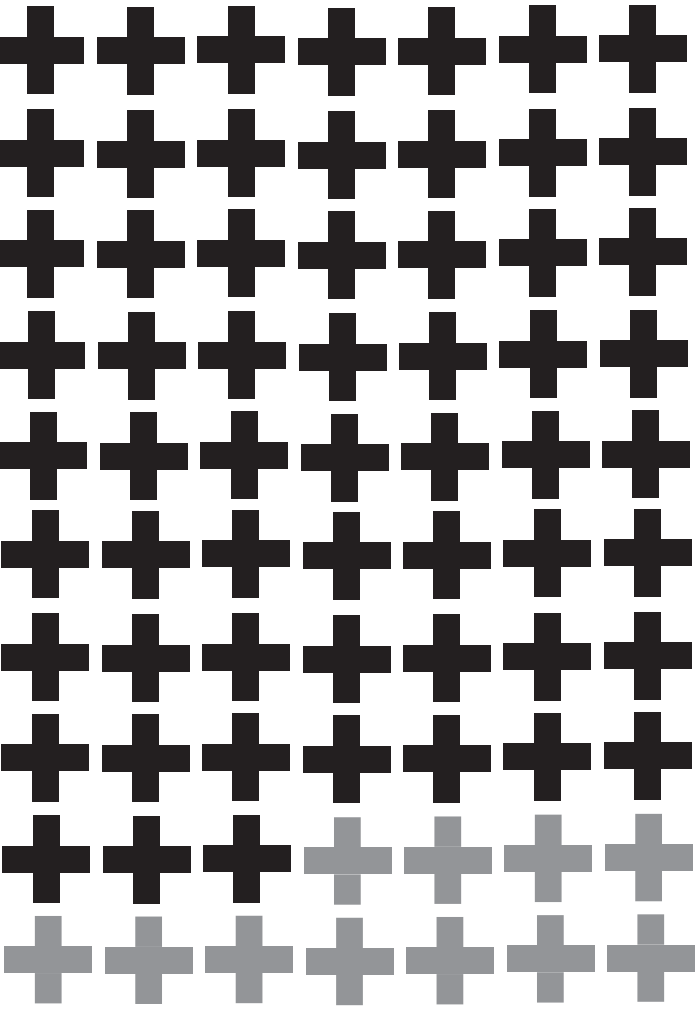
Strawberry
5cm
4.9g of sugar/100g
700g yield per plant
48 million kg / year in BE



Pineberry
2.3cm
5.1g of sugar/100g
100g yield per plant

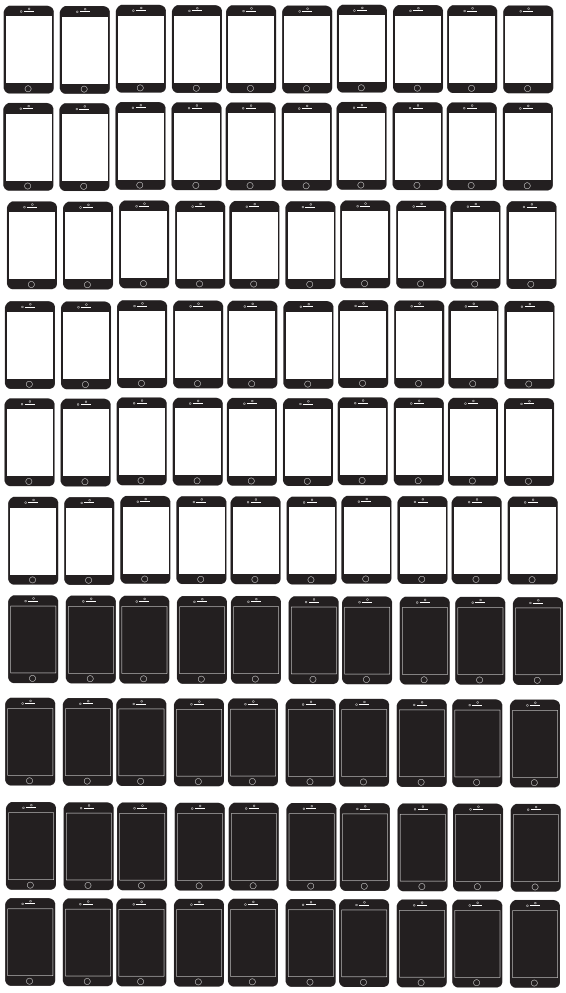


Tinnitus Sound Therapy

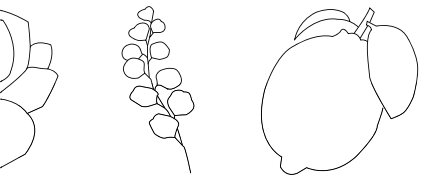


ell affected from COVID-19

=1 million people



Percentage of parents who believe their children are addicted to phone

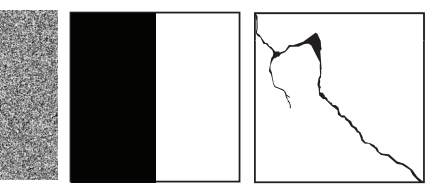


Minister of WIfare, Public Health, and Family

y

Chairmain of OPZ Geel
independent agency of Flemish government

Vice President of OPZ Geel



Government Representative
of Finance

Government Representative
of the Flemish Government

Organization of OPZ Geel - part of the policy area of the Welfare, Public Health and Family

JM: When designing multi-sensory spaces, how does overstimulation affect the user—with varying abilities—and how can architectural space form a balance of over and under stimulation for the senses?

AH: to start with, in my understanding all spaces are multi-sensory, so when you're designing a space, you're always designing a multi-sensory space.Regarding your question about overstimulation, some people on the autism spectrum (but probably also people outside the spectrum) are hypersensitive, meaning that sensory input has a much stronger effect on them than on other people; for instance, when attending a lecture, they can't follow what the speaker is saying because the projector makes too much sound. (You also have people on the spectrum who are hyposensitive; for instance, they risk to burn themselves because they can't feel the heat, or they have to watch what other people are wearing because they don't feel themselves that the weather is changing.) To deal with these extremes, literature on autism-friendly architecture suggests to design 'neutral' environments (whatever that might be) and to combine these with escape spaces for people who are overstimulated on the one hand, and with sensory rooms (or 'snoezel' rooms) for people who are hyposensitive on the other hand.

JM: In your research for loggias—the loggia creates microclimates which help with building regulation and an opportunity for public integration. Does the body notice the transition of temperature and what type of experience has this created?

AH: whether the body notices the transition might differ between people, I assume. See also my attempt to answer you first question. From our work with blind people I learned that their sense of touch is not better developed than that of sighted people, but that they have learned to pay more attention to non-visual information in their environment. Carlos Pereira once described, for instance, that moving from the part of a room that is bathing in direct sunlight to the part in the shadow, feels for him like moving between two different spaces.

JM: In your research what have you found is the desired level of interaction with people of varying abilities with the public and how does architecture respond to privacy and or encouragement of interaction with these spaces?

AH: not sure it's relevant for your question but something we've observed across very different contexts and groups of people is the importance of 'being apart together' and how space may facilitate that.

JM: You mention in Designing from disability experience: Space for multi-sensoriality, that those with vision impairment develop a broader attention to other kinds of sensory experiences and have knowledge of multi-sensory spatial qualities. What have you found that are some of things that are noticed that tend to get overlooked in spaces by architectural designers?

AH: countless things. How a handrail or a doorknob feels to the touch, for instance. The noise of a traffic on the street side of a building versus the sound of the birds on the garden side. The difference in temperature referred to above. …

JM: In Designing from disability experience: Space for multi-sensoriality, it mentions that modernism tends to lean towards sight as the primary sense which creates normalization and disconnect with the body. With visual dependency from technology increasing in society and architectural representation, what have you seen that has been successfully done in spaces and the architect practice to appeal to the other four senses?

AH: the multisensory museum in Van Abbe is a good example, I think: its design pays attention to touch, acoustics, smell, but also movement and stature.

M: How has society been coping with isolation and stress from COVID-19?

SV: In psychologically trying times in today's society, things like meditation. it is becoming more accepted and less spiritual and more aimed towards health. The process of mainstreaming mediation has eliminated the esoteric intangible aspects of mediation that were more part of religious practice.

JM: Why are people looking at the sublime?

SV: The definition of sublime is an experience of such greatness that is incomprehensible. If anyone is looking for that experience they are looking for the experience as it relates to an experience of a context it was evoked. If religious it would be religious gatherings.

JM: Religion is decreasing, so if there is any type of higher power it's usually discussed as the sublime. In the past it was what daily life revolved around. People are looking for other ways to feel.

SV: I considered the development of secularism to be tightly interwoven with people's ability to be comfortable with the insecurity of existence. And most people aren't. It's a disturbing feeling. When you have a high power it's an answer that is calming and provides a sense of sureness about existence that could destabilize. Things aren't known and can't be known. There might not be a reason for something which is difficult for people. It's a stability for those negative thoughts. Chatle monks are pacifist but are famous for kung fu. How does that work? A Lot of people go there because they saw it in a movie. They are trying to withstand pain and help with transcendence. Scientologists try to trigger sublime through torutre, punishment and hunger. Flat earthers' entire behavior is religion and go to conferences and get together as if it's a church. They're experience of the sublime is the congregation they would have 200 years at a normal church. If you look way back in France in the 1500s most people got together in large groups for a dissociative feeling that evokes transcendence. The Church tries to evoke sublime with grand structures. In modern times with color and light, it is completely undervalued. People didn;t have that back then. The large space would disorient them as it evokes a sense of sublime and dissociation of sense. Feet are still on ground but the room is so large it destabilizes how they feel about existence.

JM: Churches are one of the few spaces that include all of the senses. The only other that I have found is mostly over stimulation for autism for a scientific method. It's not considered everyday. With a cell phone you could be anywhere in the world and not notice where you are. How do you get people more aware of bodies in the present?

SV: Yes people should be more aware. The division in society where sensory escapes such as a smartphone will allow people to dissociate themselves from their physical environment. They live in a more self constructed virtual environment. The division will be with those who consciously are aware.A digital detox or retreat. There are people who can't let go of the object. They are decided to be addictive. How do you target those people who consciously try to get away? Breaking people away from escape and distractions can be very difficult.

JM: With covid you couldn't go to work everyday and had to rely on the present with current surroundings. What is it about silence that affects people?

SV: Thinking of distractions as a means to escape or as a reaction to not being able to deal with tranquility and silence defies a necessity of agency driven impulse. Immediate frustration and coping mechanisms have been around forever. What is it about the objects we use pushes us into our mind and out of our environments. Super stimuli - all animals- have an evolutionary effect on behavior. Segalls have a red dot on the beak to stimulate the chick to interact with the mother for feeding. They experimented with making the dots larger making the baby segalls respond faster. Screens are super stimuli for us. Design decisions deal with manipulation of super stimuli for larger consumption. PEople don't know how to be alone or silent. The stress from having the contrast can make them more vulnerable for super stimuli.

JM: Would you say the visual sense is the dominating sense in society?

SV: If you approach it with five senses, it's not new.Design has tapped into evolution on what is already there. IF you look where the eyes are placed, we are visual animals. For hearing as next, hearing has a large proportion of the brain. Design has tapped into evolutionary prepositions. Overproduced pop music from the 50s from now, more and more are the same. It doesn't matter how similar it is to the last song. It's catchy. They tap into things we respond to well. Design that follows our natural tendency over driving the other non dominant senses.

JM: How does perception of seasonal fruit and vegetables physically change your store?
T: You can always buy them. Specific in the period for when they are growing and they are very good. Like in October, they are very good. So the taste is better and stays fresh longer. Better quality at that time. Can get them out of season but more expensive because almost nobody has them and are not so sweet. Not so nice. Hard to get.

JM: The pinberry is more expensive than the strawberry. Correct?
T: Yeah because it's something special.

JM: How do you consider different tastes and varieties within your store? How do you sell the sweeter strawberry?
T: Of course. If we have sweeter and good products we put them outside. Some products are hard to get. I want everyone that walks outside to see I have them and they are looking good. That's how we sell them.

JM: And you sotret them directly into the refrigerator?
T: Keeping them cold is better.

JM: How does standardization and the perfect strawberry affect your store?
T: I can buy the same strawberries but they are not sorted. They have some big ones, little ones,and middle ones mixed. If you want specific big ones and they are checked, they are amazing, they are red, then you pay more. They put the big ones onto the left and small ones on the right for example. They cost more.

JM: Do you notice consumers are looking for sweeter products than five years ago?
T: No, I think it's the same. I know my customers like really sweet products. We have Lambada strawberries. They are the best of the best. To taste them they are so sweet they will melt on your tongue immediately. They are so good but they are expensive. I have some customers that really like them and some say they are too expensive. I buy them because they are very sweet but some customers like them when they are a little sour.

JM: Do you buy them in limited quantities then since they are so expensive?
T: No, I know my customers and they will buy them. The taste is so good when you taste one you really want another one. I will buy two boxes, 16 pieces,I will sell them and get another one the next day.

JM: For the pineberry, where people may not know what it is, how do you market them?
T: It's the same as dragon fruit or papaya. A Lot of people haven't tasted it and don't know what it is. When people don't know what it is they say no thank you, I don't want it. You have to make it a big thing. These are strawberries that taste like pineapple, they are really good, they look white but have amazing taste.

JM: How much pineberries do you order within season?
T: Same with the Lamabadas because it's special. They are more expensive and people know how they taste. 2 boxes. Medium size.

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Description

The sensatorium is a 3,500m2 healing clinic for the six senses—taste, touch, sight, smell, sound, and atmosphere—within the historic healthcare city of Geel, BE. Located adjacent to Sint-Dimpnakerk—a fourteenth century Catholic church dedicated to the resident saint of mental illness—the sensatorium consists of five courtyards—two within the existing Gasthuis—a seventeenth century monastic hospice— across the street from four courtyards within the main structure . Containing sixty—twelve representative apostles for each of the five senses—boarding rooms borders are encouraged to interact with the other senses, residents of Geel, and city. The taste courtyard within the Gasthuis—that previously used land for food production— grows the holyberry—a white strawberry that tastes unrecognizable—within the month of October. The public beholds the holy site where the holyberry can be tasted within one for the five taste bud rooms—sweet, sour, salt, unami, and bitter—along with four other produce cultivated to heighten the taste buds within the Blue Banana. Individuals walk through the taste bud enfilade black rooms highlighting the food with palette cleansing rooms in between. Within the second courtyard of the Gasthuis, floral and aromatic plants are surrounded by four smell therapy rooms—clove, rose, eucalyptus, and lemon—that infuse each of the black enfilade rooms. Across in the main building, the brick simple facade shows no indication of the three crystal shaped courtyards to intensify the emphasis of the senses. Three entrance doorways lead to the courtyards where the public can meander to the other courtyards and healing rooms. The sight court is surrounded by mirrored columns reflecting colorful plants and refracting a perimeter of water. The three sight healing rooms—red light, dim light, and low contrasting colors that blur—are turned on by a switch by the individual. The touch courtyard opens directly to the borders where everyone can walk around the garden of different tactile plants—exaggerated during abscission—and encouraged to interact and touch. The sound courtyard has interior space that separates the access to border rooms from the zen courtyard where individuals listen to the sound of raking and fountain surrounded by sound barrier composite panels to remove the noise of the city and focus within the sensatorium. The sound healing rooms—nature sounds, white noises, fractal sounds, and multi-sonic—are connected to the sight and touch healing rooms by smooth stone space for a moment of silence. At the end of their day, all sixty borders come together for a multi-sensorial meal in the dining room looking out to the sixth sense garden—an extension of Sint-Dimpnakerk's forest cemetery.
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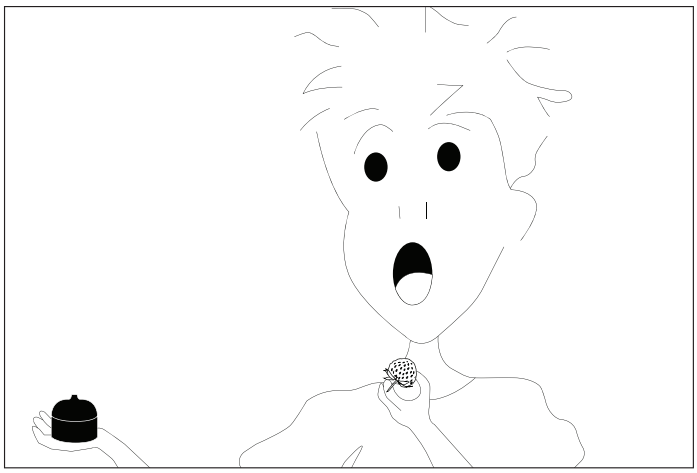
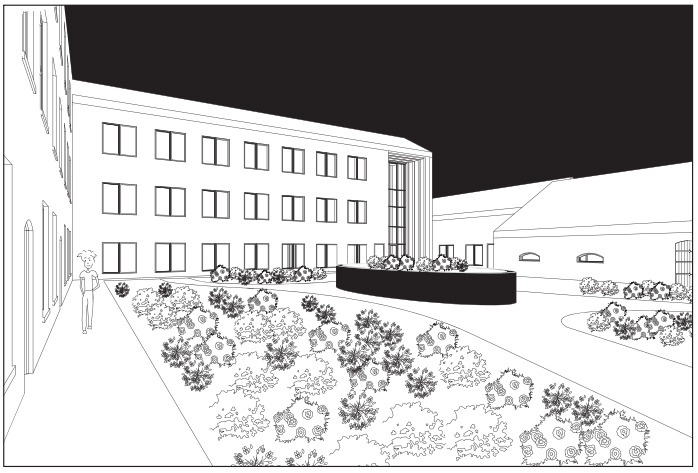


The holyberry—originally named the pineberry—is a white berry expected to be tasteless from its color is the food industry's new name for the unclassified word for the holy sweetness that shocks the senses.

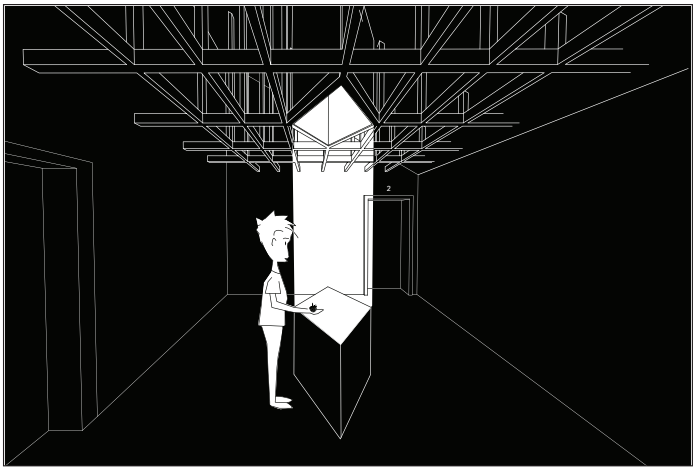
The 1,500 m² sensatorium—an aftercare clinic for the 6 senses—in Geel, BE connects society to one's body and surroundings for a healing environment. 12 patients—referencing the apostles—of each of the 5 senses enter the sesnataorium's main structure.

The 5 courtyards—in total—are designed for a moment of pause from the day to day for society to experience the craving of experiences and stimulation from the pandemic for each of the senses. 3 courtyards—sound, sight and touch—are located within the main structure of the sensatoium as a representation of the holy trinity.

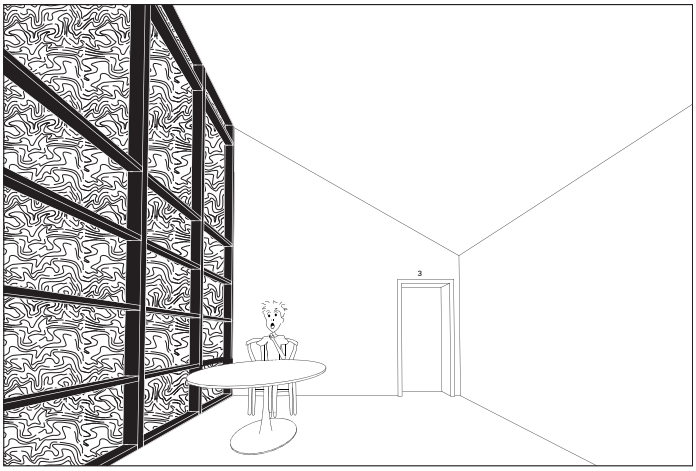


2 courtyards —smell and taste—are located within the previously farmed two courtyards on the monastery adjacent to the sensatorium within the city. Residents of Geel interact with patients within the courtyard to be a part of an inclusive environment needed after the pandemic.

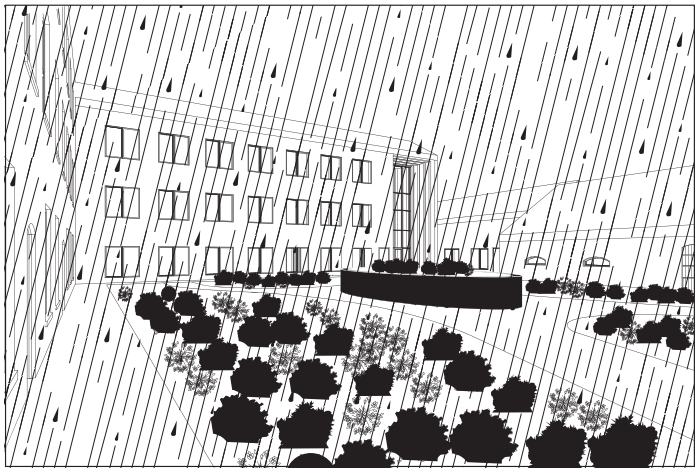
Presented in a set of spatial narratives, the contribution of a clinic for the senses tasting holyberries demonstrates the modified supply chain commencing with the city of Geel in Belgium to reconfigure at the future supermarket—Albèrt—on Martinus Nijhofflaan in Delft.



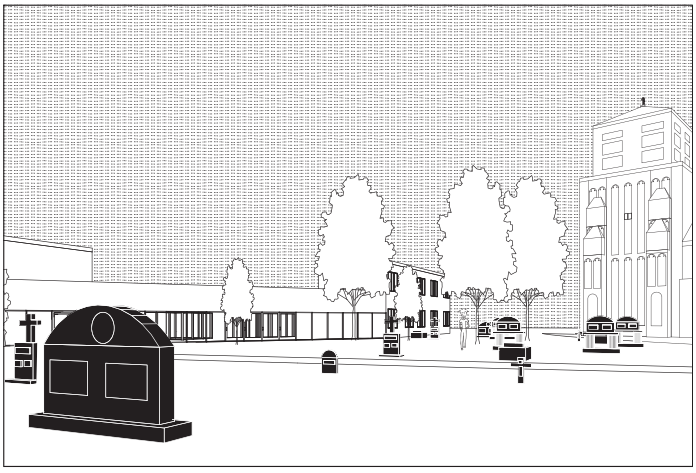
For the loss of taste, a patient is surrounded by an atmosphere of the sweetness of the holyberry 2 times a day in a treatment room before entering the other 4 taste bud rooms. By evoking a specific spatial memory the patient is able to regain taste faster.



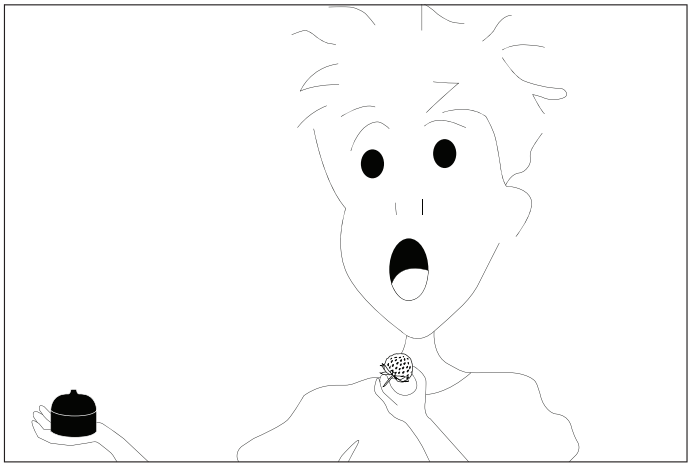
Fresh spices and fruit for the tasting rooms and other 4 taste bud healing rooms for taste come from the blue banana. The patient will enter the palette cleansing rooms directly in between each of the healing rooms.



The patient can enter the courtyard of taste where the holyberry is grown during non-treatment within the adjacent monastery—that historically treated metnally-ill. With less than 500 patients a year for taste recovery, patients feel special to be surrounded by the holyberry which is growing during the abscission of most plants in October—representing the giver of life.



The 6th sense —optimism—connects to Sint Dimpnakerk's serene cemetery.



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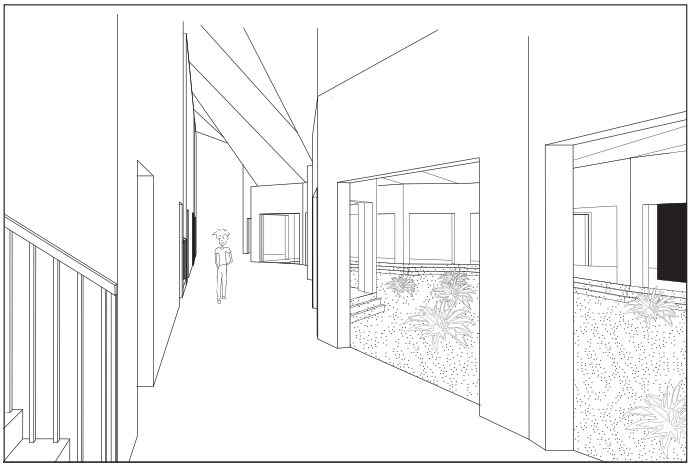

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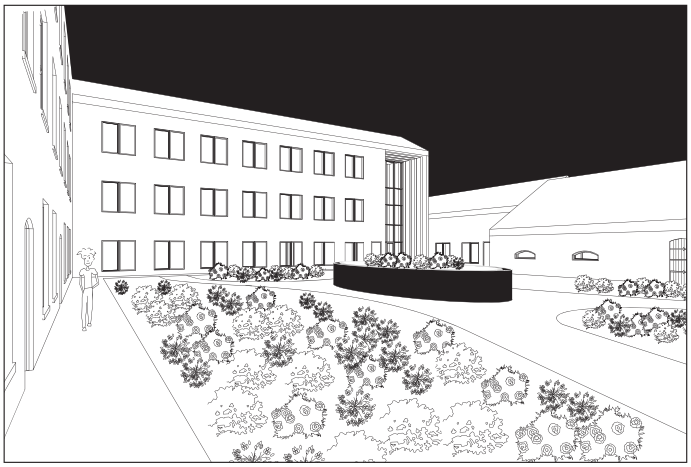

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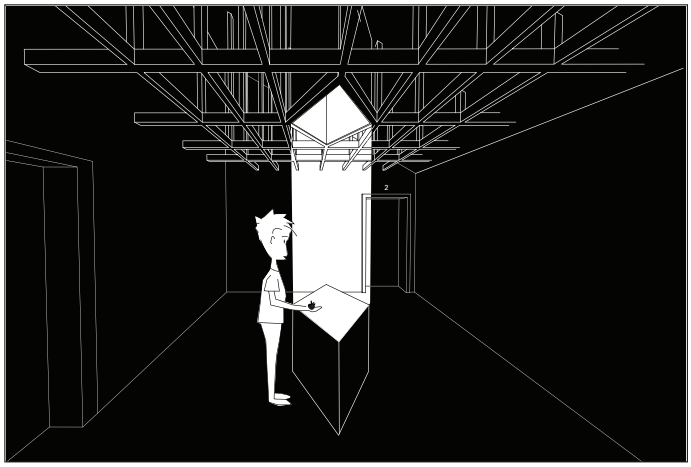

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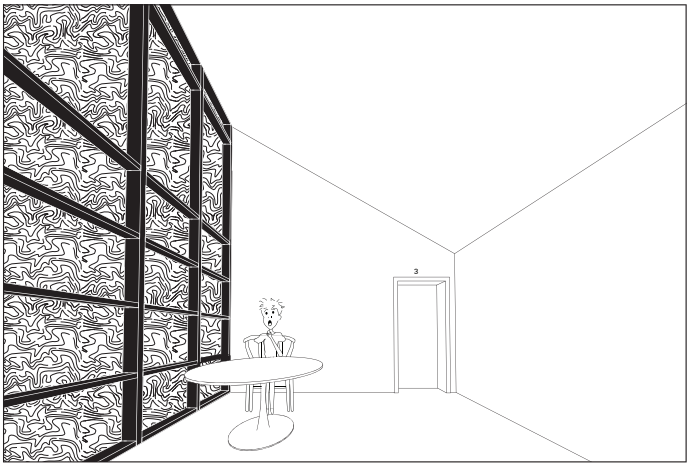

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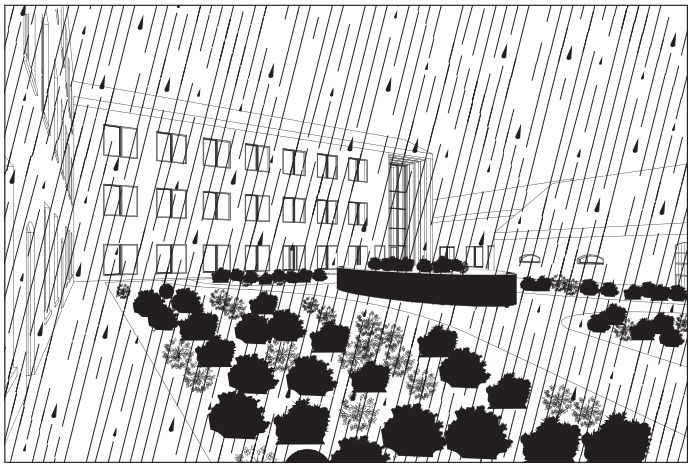

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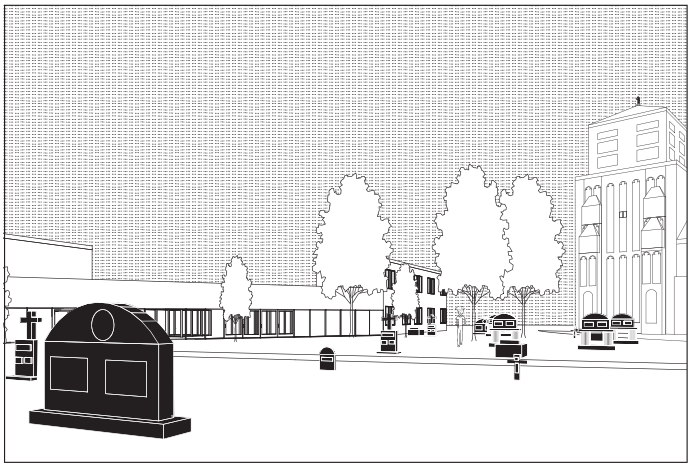

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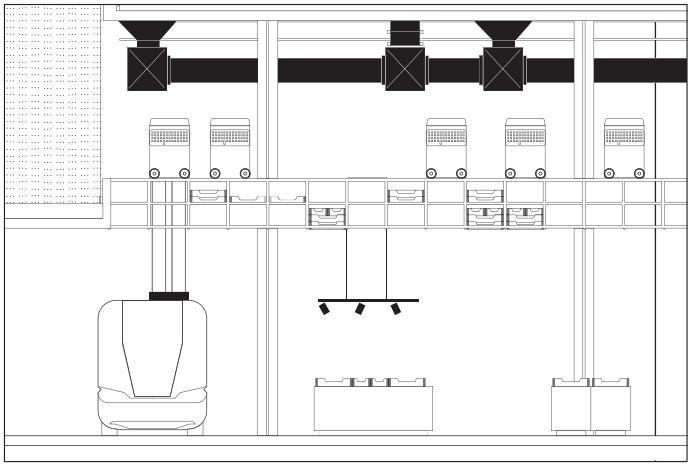
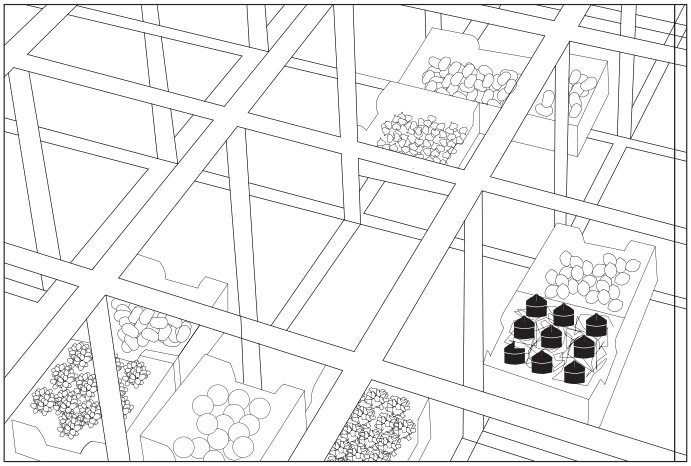
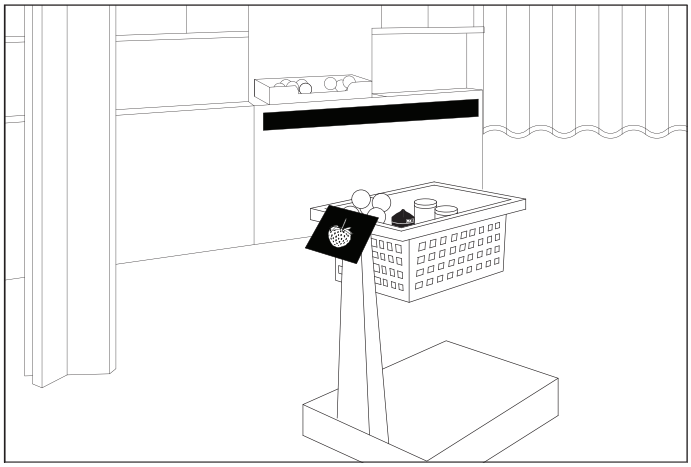


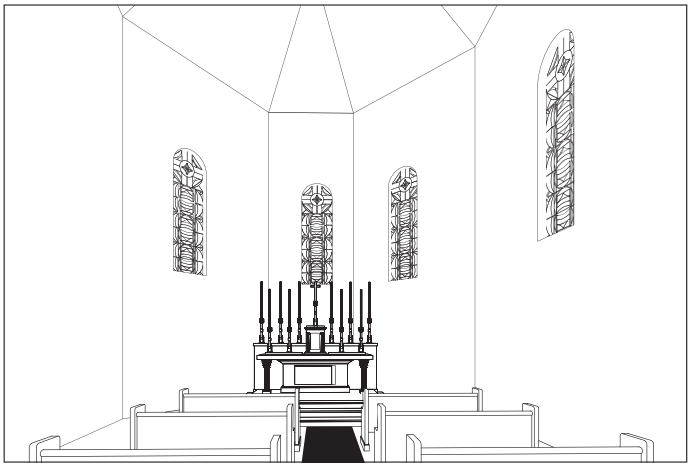
The clear crates are trucked 85km via the A16 to the Albert in Delft, NL where they are brought up to the first floor by the Ocado system and stacked ontop of eachother waiting to be brought back down to the sales floor for restock.



Holyberries are brought down as part of the seasonal promotion section, for the month of October, and placed within the center of the Albert surrounded by other seasonal products to encourage consumers to meander for more purchasing.

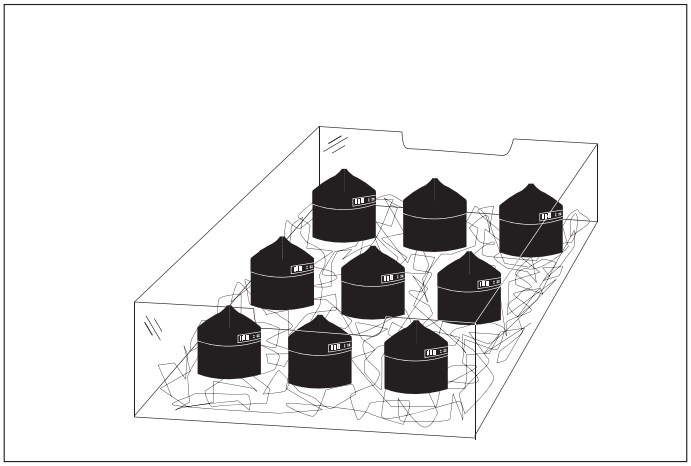


Holyberries are picked by the customer and carefully placed on top of other groceries within the smart cart for protection of the high priced item.

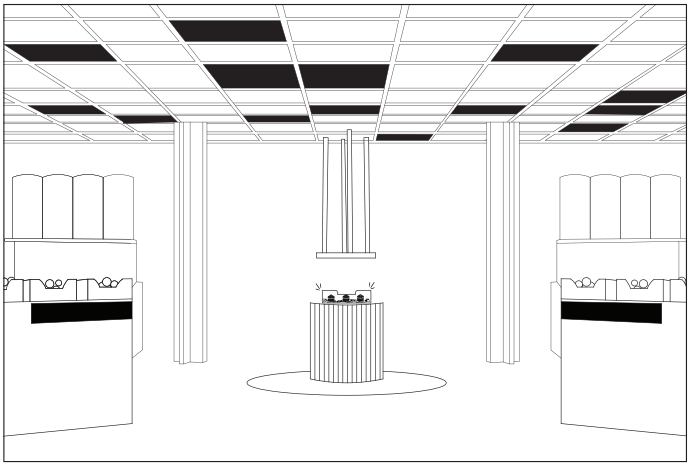


Customers can take the holyberry to their local parish to have it blessed by a priest or pastor on special occasions.

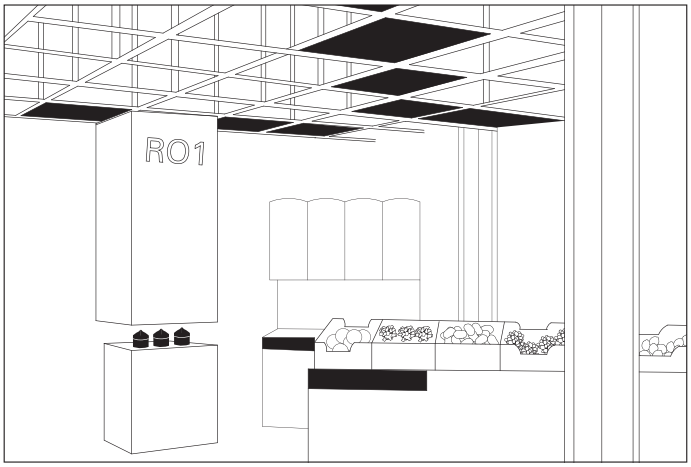
Presented in a set of spatial narratives, the contribution of a clinic for the senses tasting holyberries demonstrates the modified supply chain commencing with the city of Geel in Belgium to reconfigure at the future supermarket—Albèrt—on Martinus Nijhofflaan in Delft.



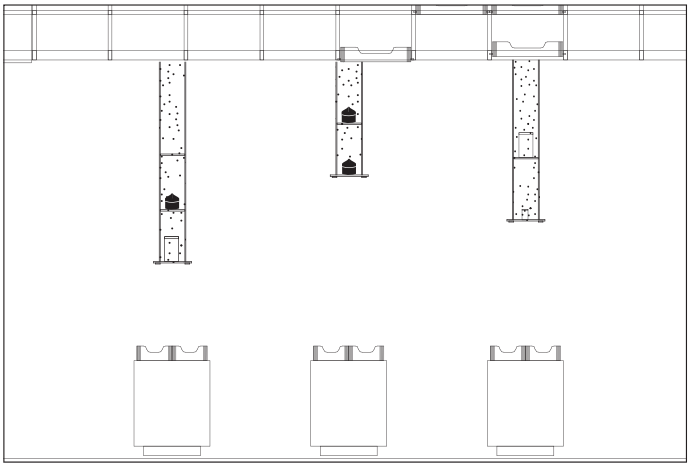
The clear crates highlight the purity of white holyberry on the sales floor among the standard silver crates throughout Albert.



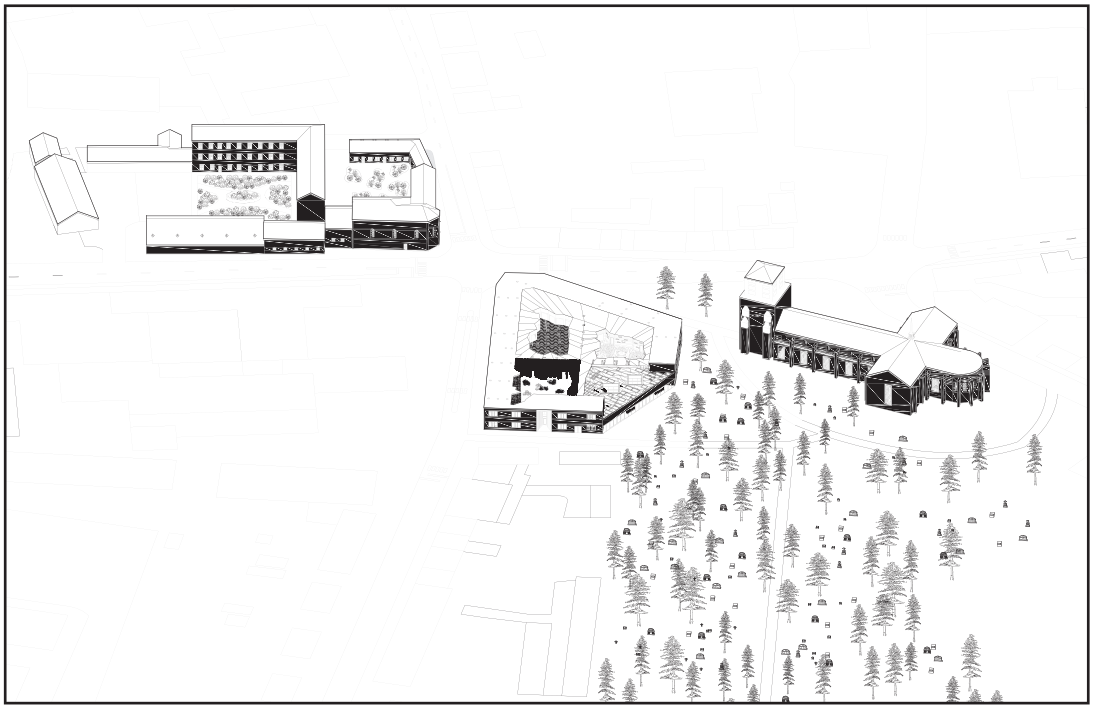
The holyberry crate is placed on top of a circular table with high reflectivity that has a glowing effect to the consumer's eye that brings sensorial qualities for customer interactions amongst the standardization of Albert.



The containers of the Holybery are brought back after consumption to Albert on the return table to be washed and reused for next year which provides consumers with a correlation of the packaging and product to the location of the holyberry and it's recognition every year.



The containers are brought up by the Ocado system into the cleaning room to be washed where they are returned back to Hoogstraten for next year.



Sensatorium Geel, Antwerpen

An exmple postcard of the Sensatorium for a patient to write from the destination as part of the healing process with proceeds going to the European Widowers of COVID-19.

Sensiorium
Rijn 16, Suite 57
Geel, Belgium
2440

Cher Maurice,

After my psychotic episode last week, I checked myself into the sensatorium in Geel. I'm already starting to relax and slowly gaining my sense of taste back. I hope you can forgive me and we can meet over a cup of coffee when I return. Though there is a part of me that does not want to return — it's nice to be away from your father after being cooped up with him for so long. I have met the nicest people here. I'm starting to feel normal again — whatever that means.

Bisous,
Maman

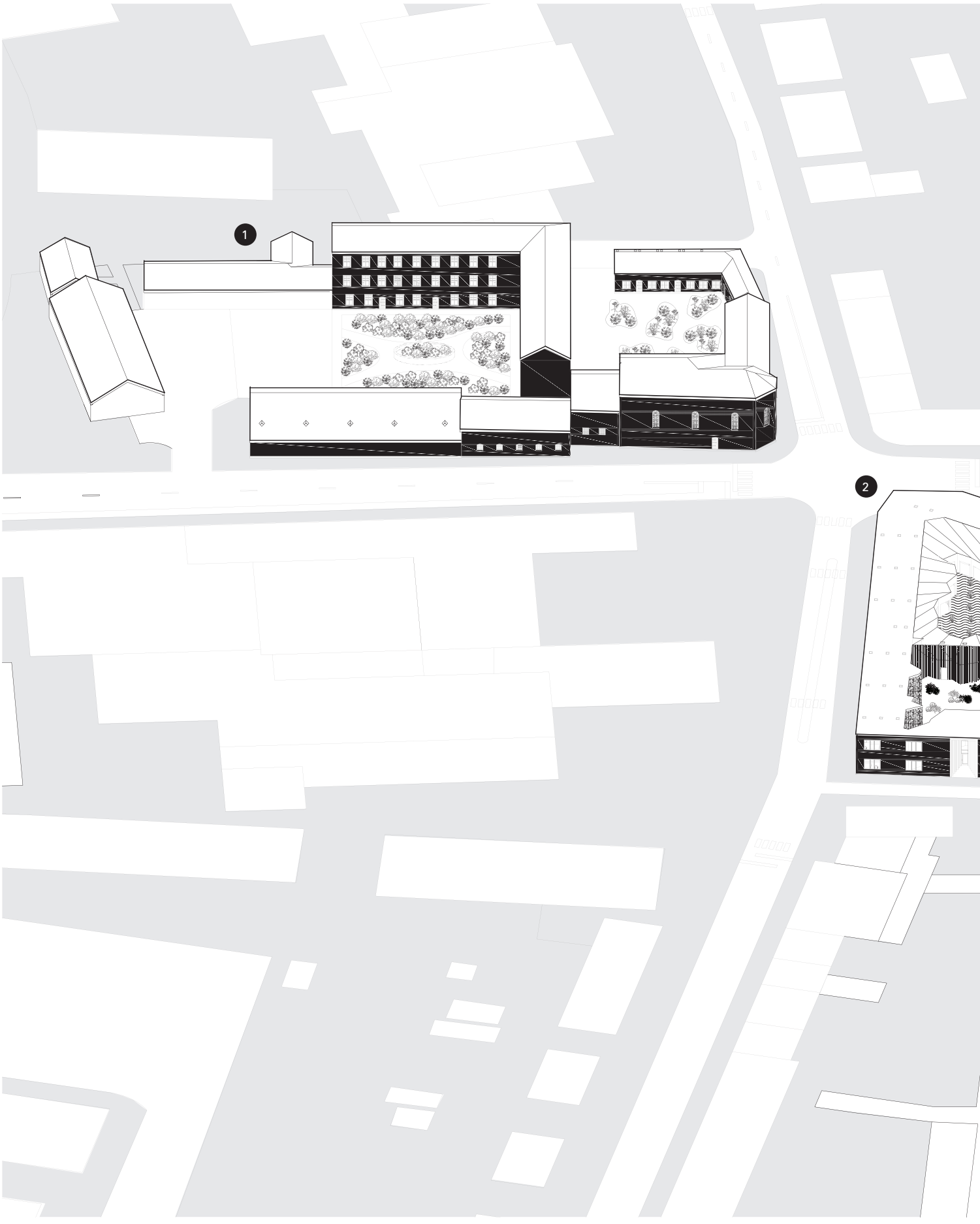
Fr. Maurice Bernasrd

Notre-Dame-de-l'Assomption

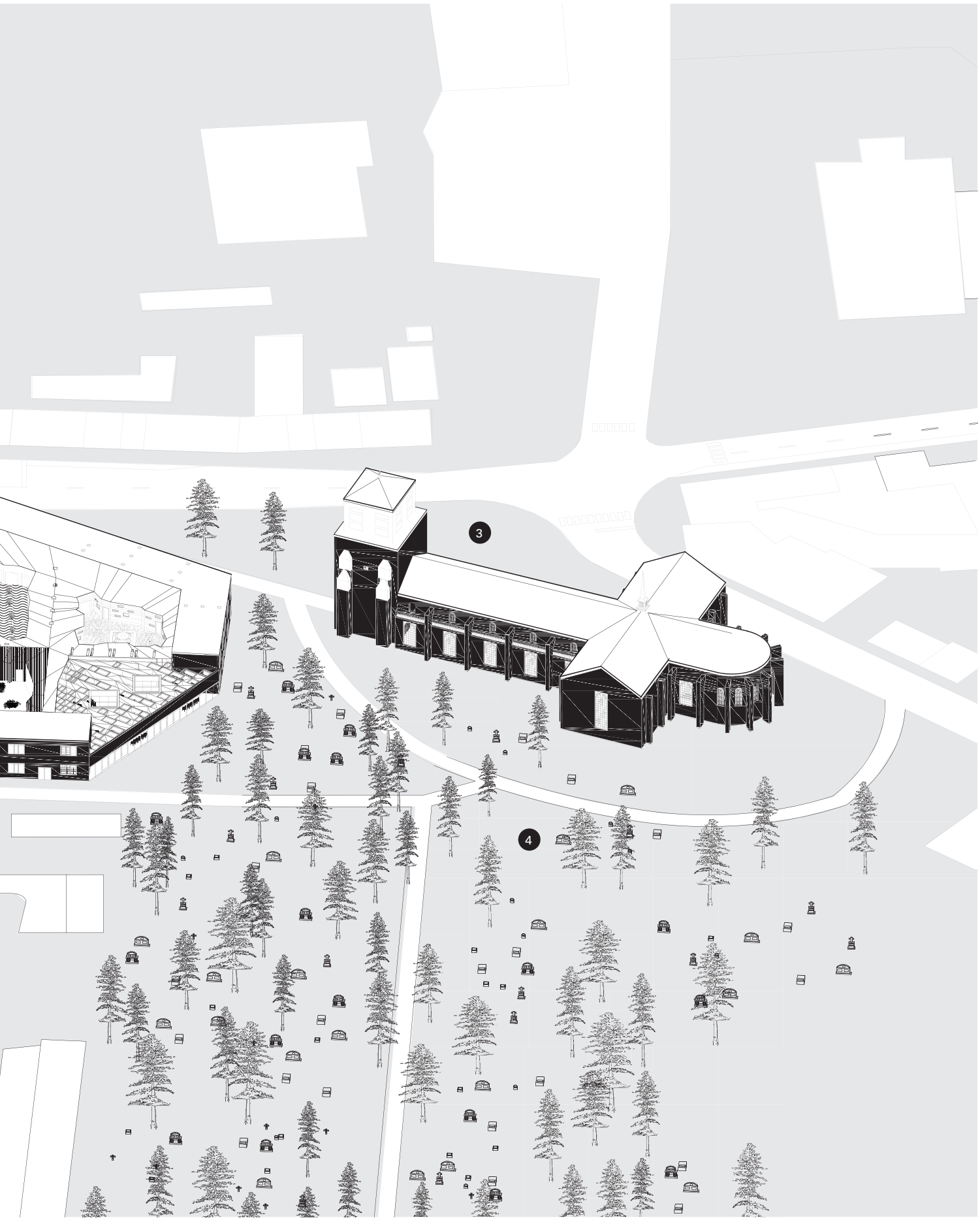
263 Rue St Honoré

75001 Paris, France

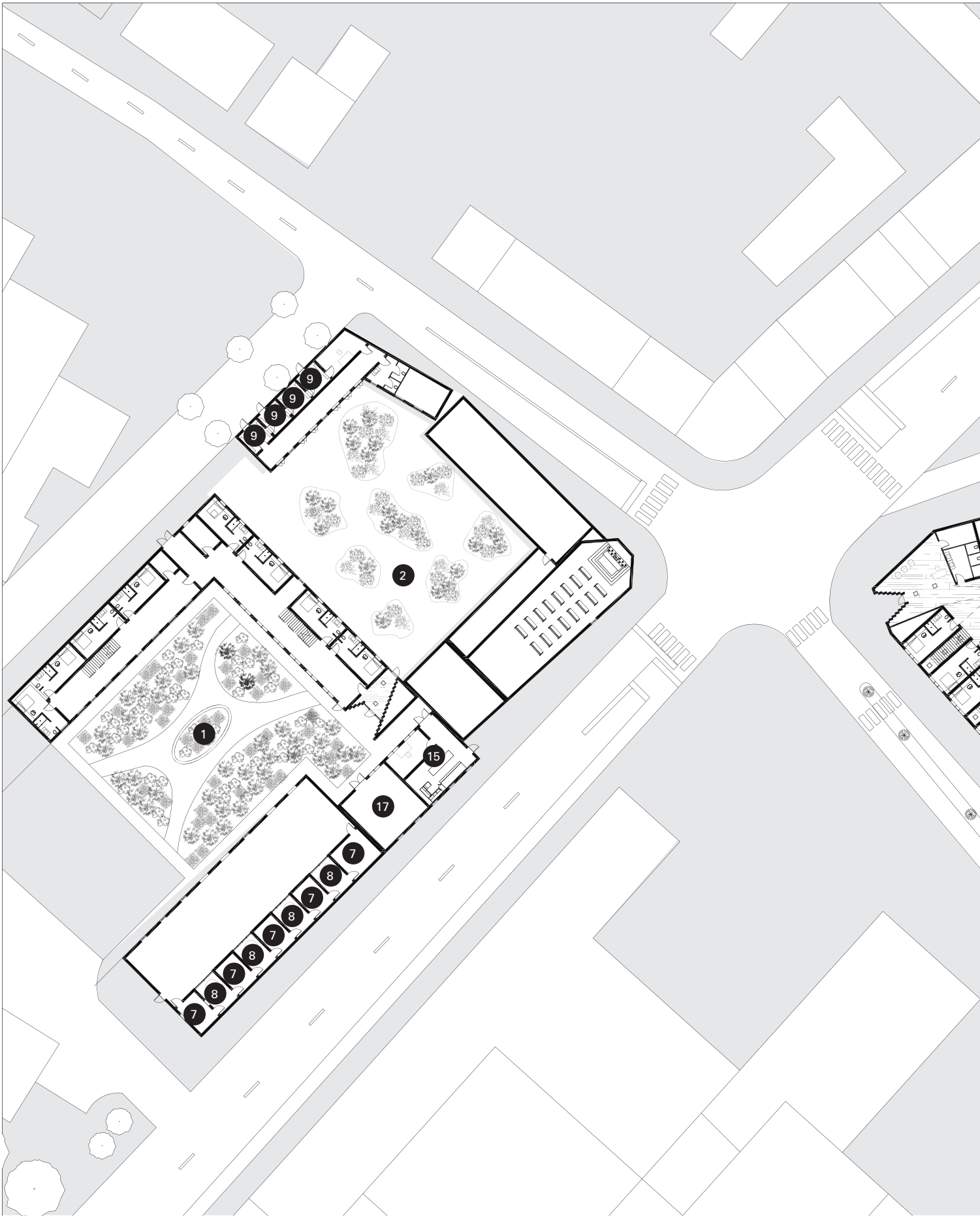
Proceeds purchased for this postcard are sent to the European Widows of COVID-19.



Six courtyards dedicated to the six senses—taste, touch, sight, smell, sound, and atmosphere—connect the existing monastery, Sint-Dimpnakerk, and the Sensatorium to form a destination in the historic healing city of Geel.



1 Gasthuis
2 Sensatorium
3 Sint-Dimpnakerk
4 Sint-Dimpnakerk Cemetery

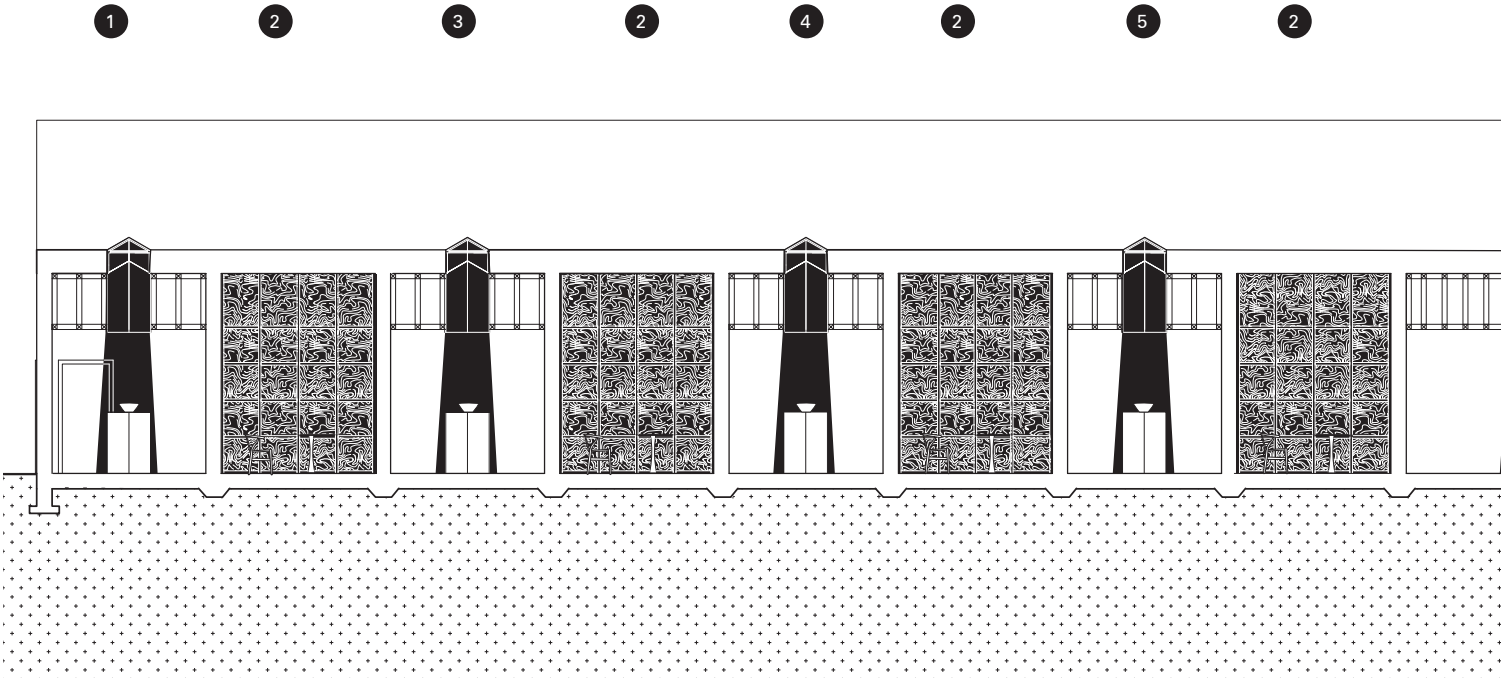


The crystal shape of the Sensatorium forms a symbol in response to a post-pandemic society, creating a calm healing environment for sixty boarders—twelve representative apostles for each of the five senses—to meander between the public and private healing rooms for all of the senses.

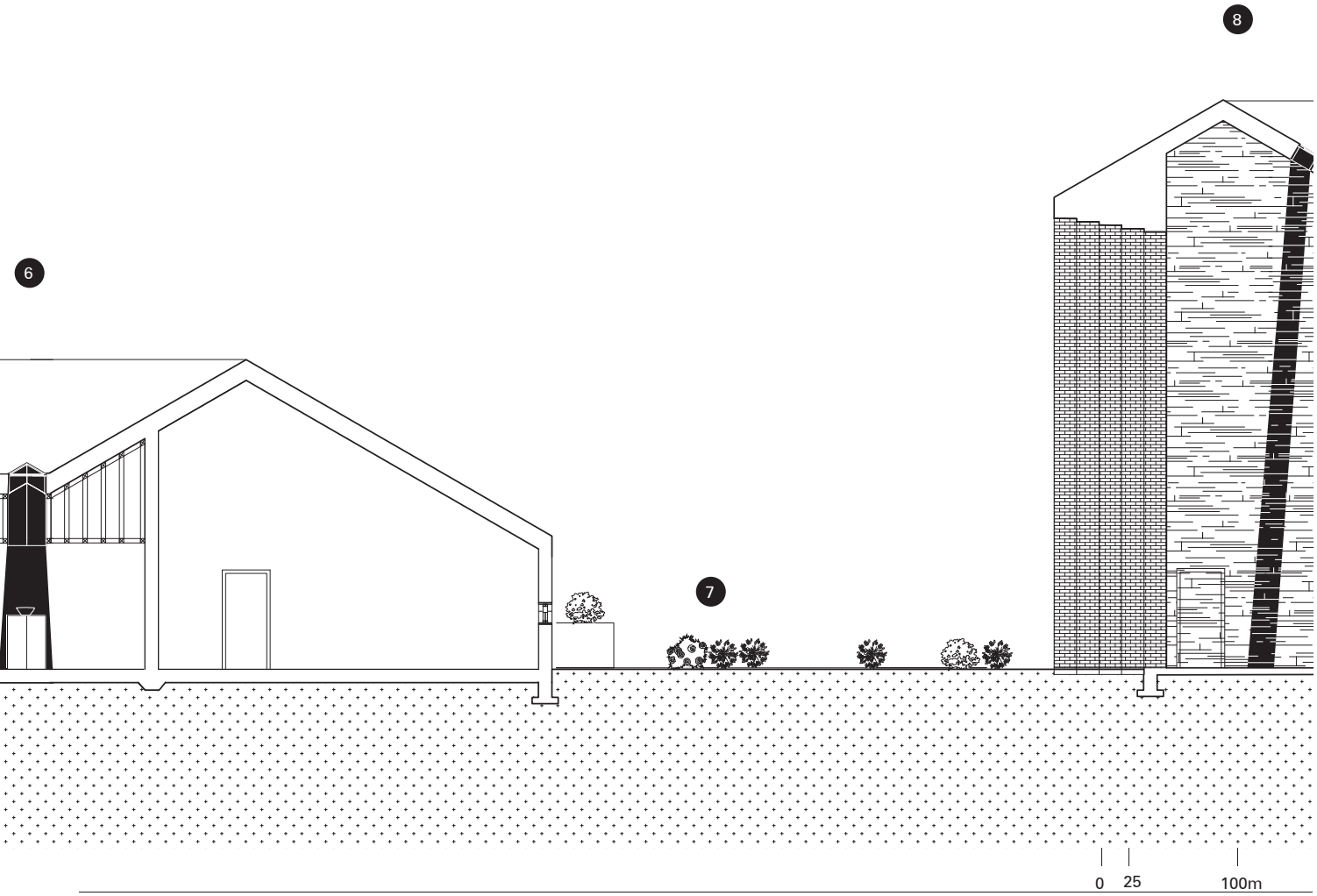
1 Public Taste Room
2 Public Smell Room
3 Public Sight Room
4 Public Sound Room
5 Public Touch Room
6 Public Sixth Sense Room
7 Private Taste Room
8 Palate Cleansing Room
9 Private Sight Room
10 Private Sound Room
11 Private Touch Room
12 Public Silence Room
13 Scriptorium
14 Public Silence Room
15 Kitchen
16 Mechanical
17 Gardening Storage
18 Dining Room

Visitors, borders, and residents interact within the city, passing through the brick tunnel entrances.

0
50
200 m



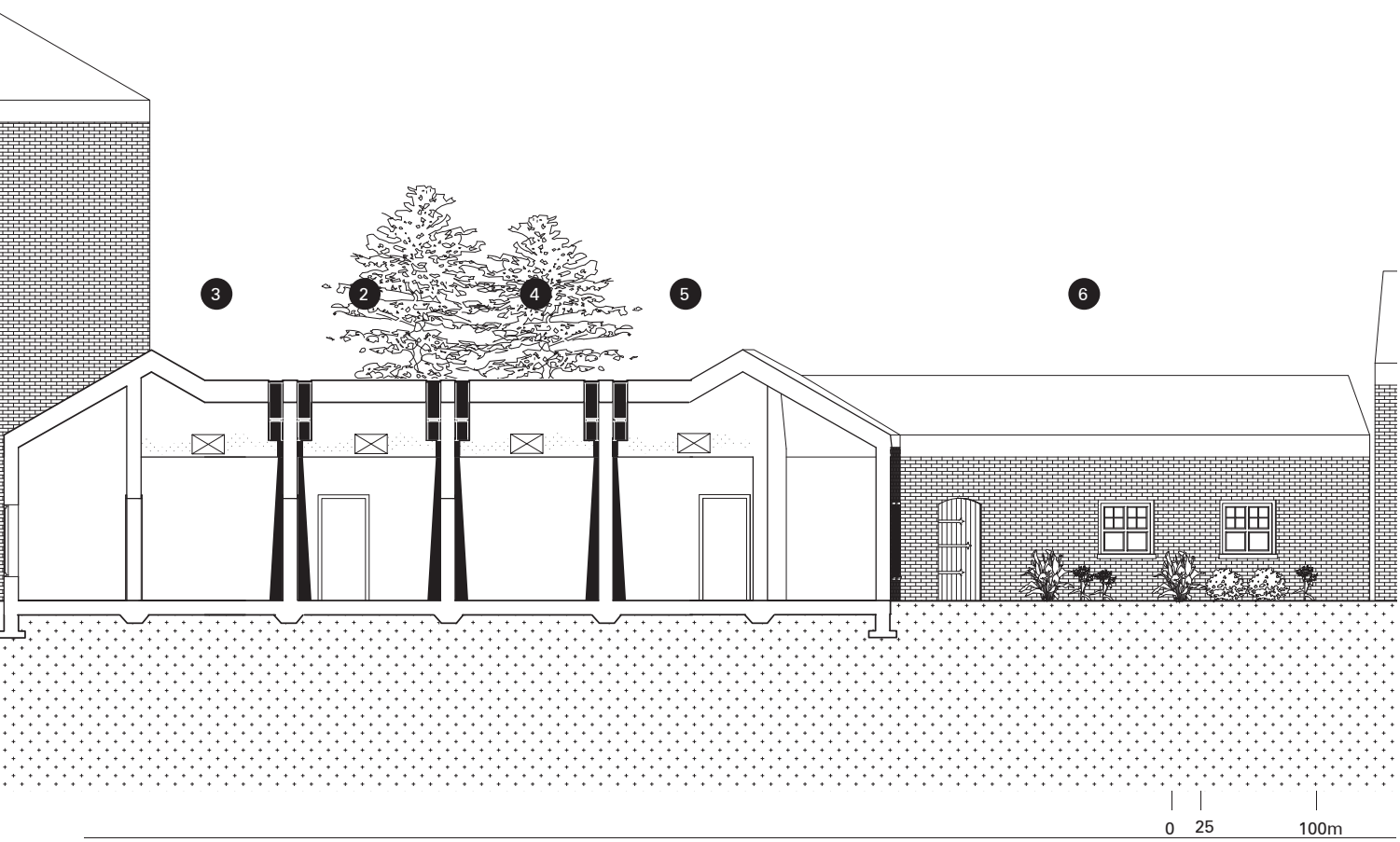
Visitors enter an enfilade sequence of five black rooms for each taste bud—sweet, sour, salt, umami, and bitter—with daylight highlighting only the product from the Blue Banana.



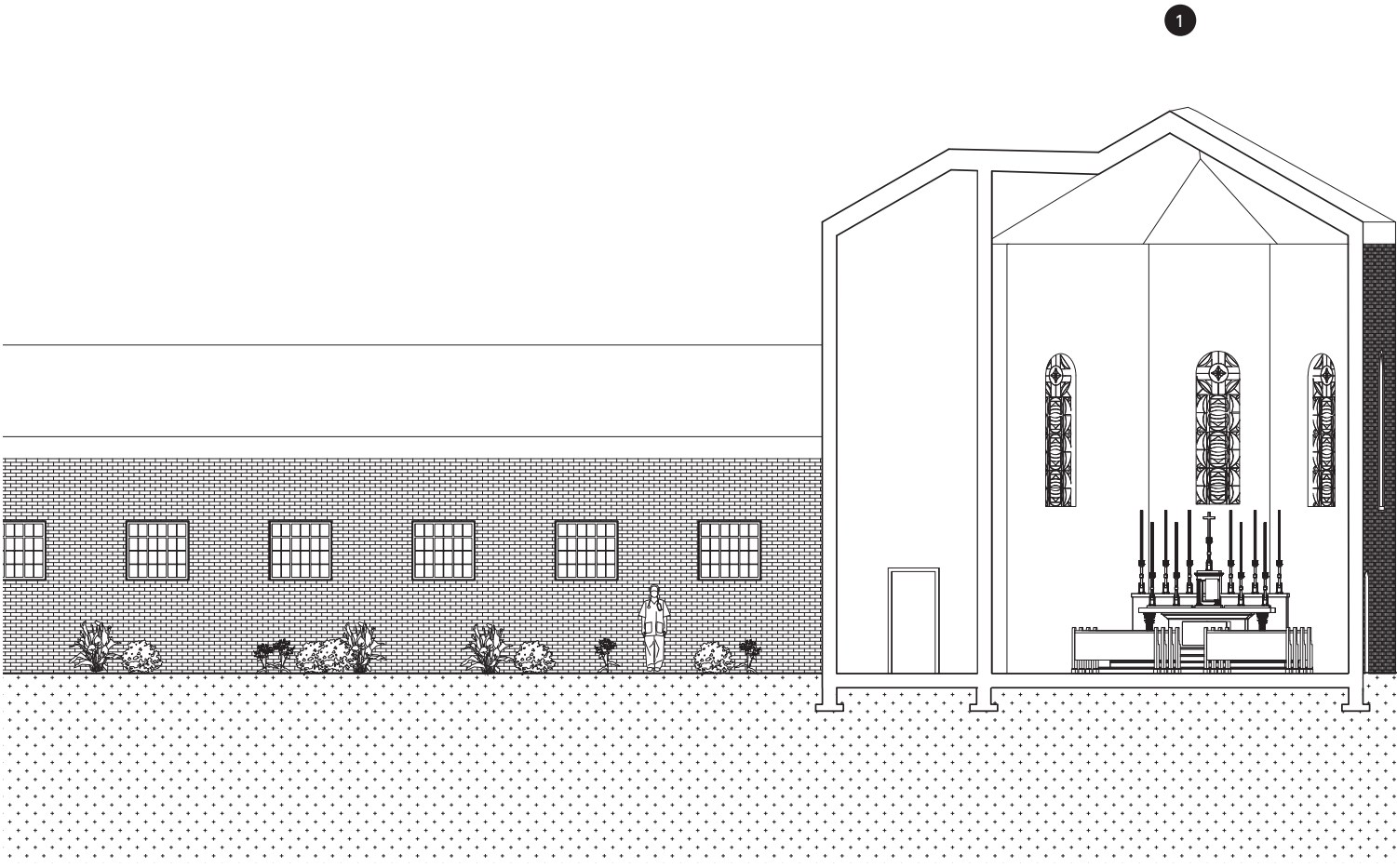
1 Private Sour Lemon Room
2 Private Palate Cleansing Room
3 Private Salt Room
4 Private Eggplant Bitter Room
5 Private Umami Tomato Room
6 Private Sweet Holyberry Room
7 Public Holyberry Taste Room
8 Entrance

1

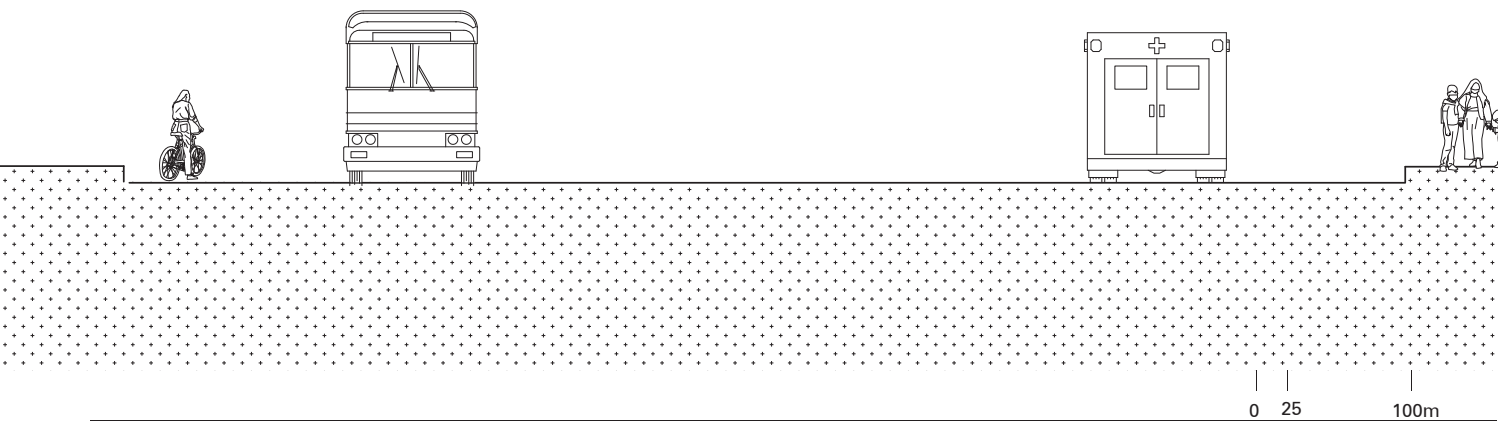
Scents that heighten the sense of smell—clove, rose, eucalyptus, and lemon— are infused into the black private healing rooms, where daylight accentuates the ventilation within the ceiling..



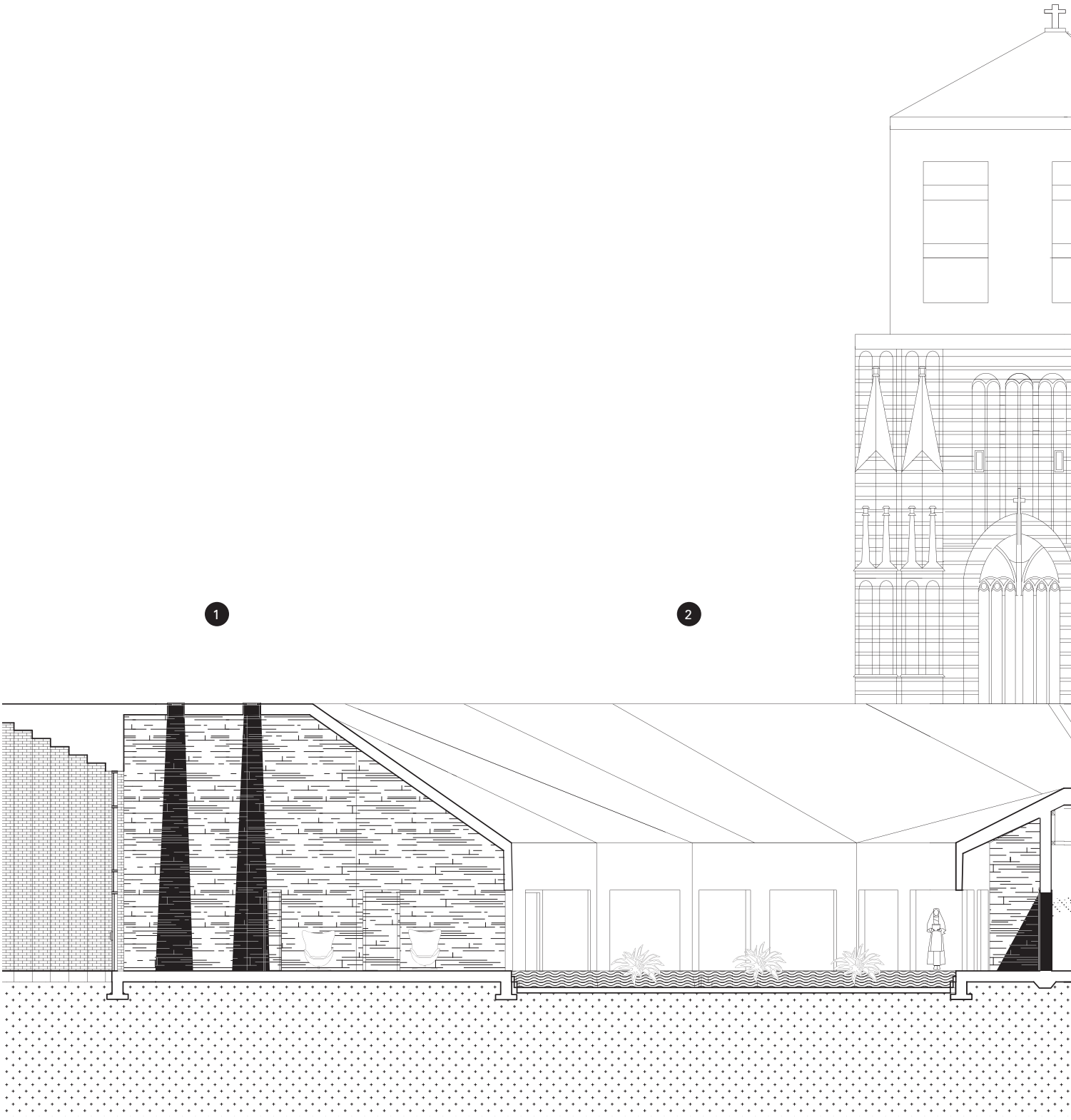
1 Gasthuis Border Rooms
2 Private Lemon Smell Room
3 Private Eucalyptus Smell Room
4 Private Rose Room
5 Private Clove Smell Room
6 Public White Lily Smell Room



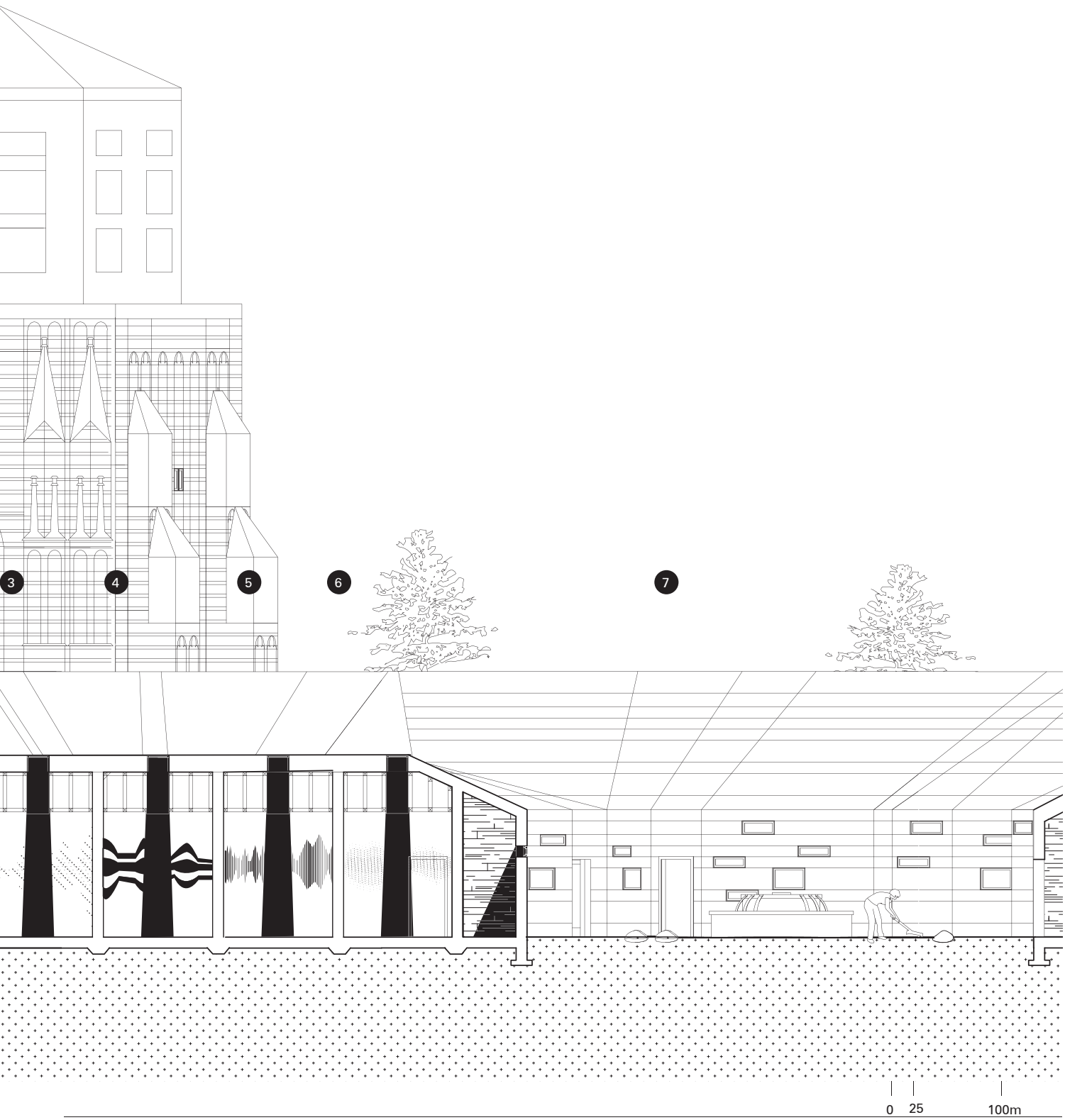
Perfumes of white lily—the symbol of the patron Saint Dymna and purity—and its pairing notes surround the air catering to both the visitors and the existing monastic church.



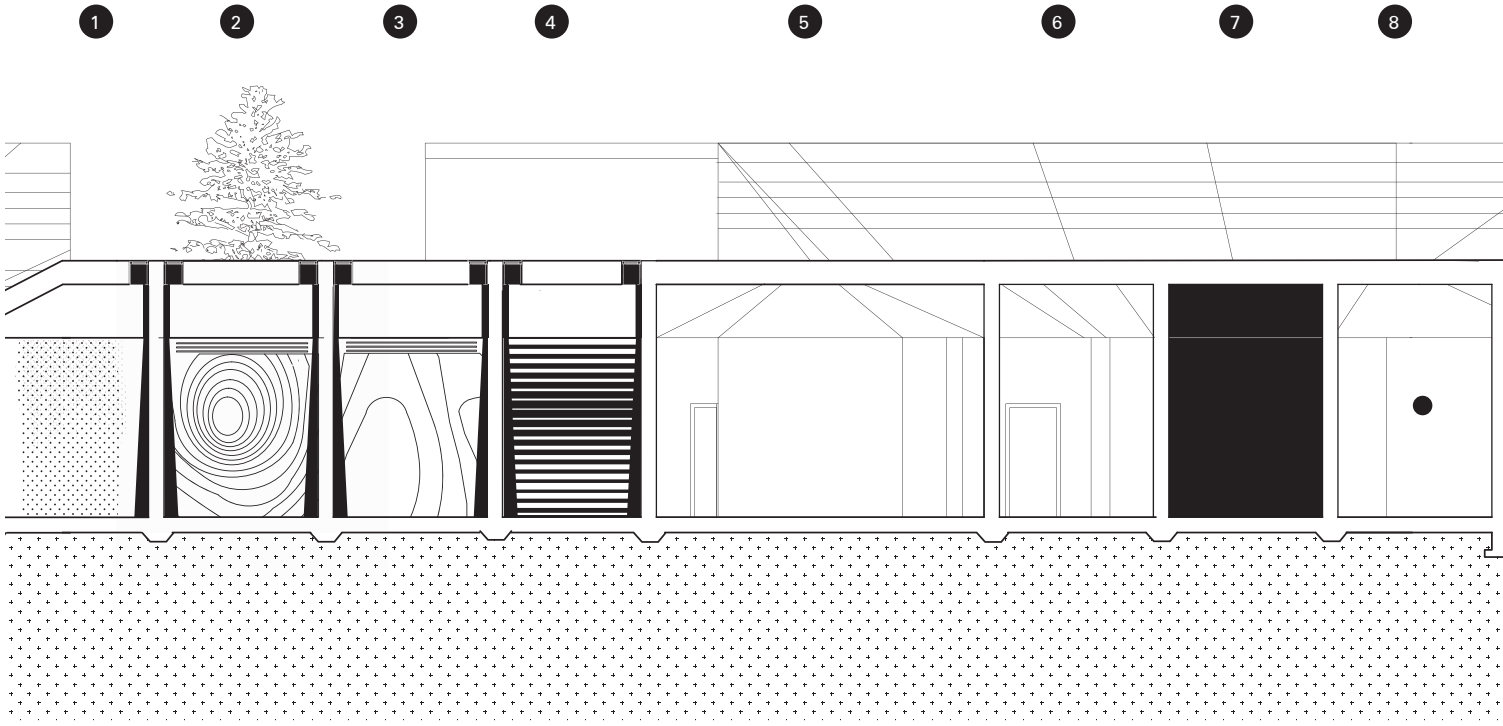
1 Gasthuis Monastic Church



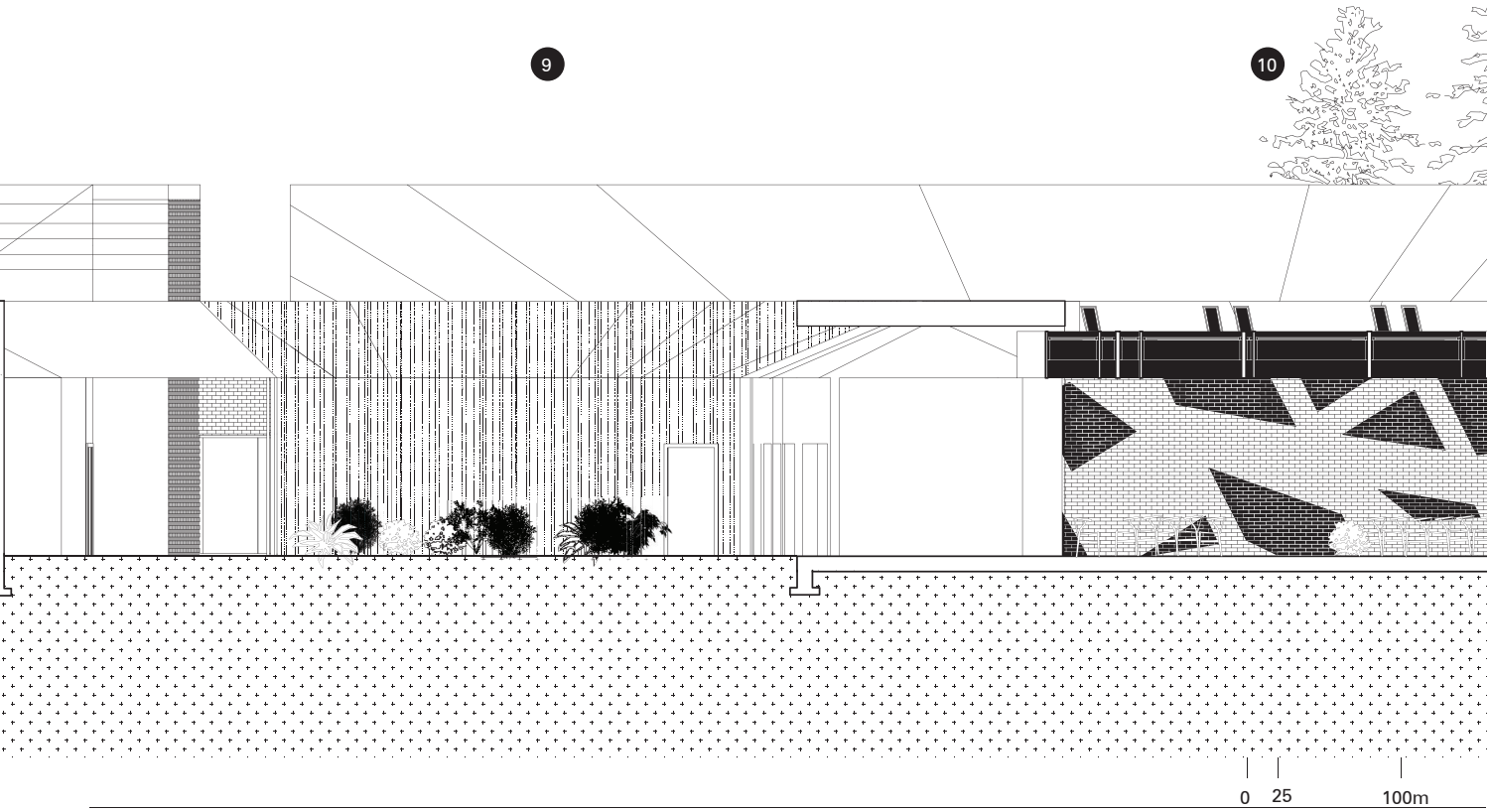
Sounds of Sint-Dimpnakerk's bells—typical of the Geel soundscape—are isolated from the four sounds of healing to create a brief sense of disorientation, turning the focus to the healing process.



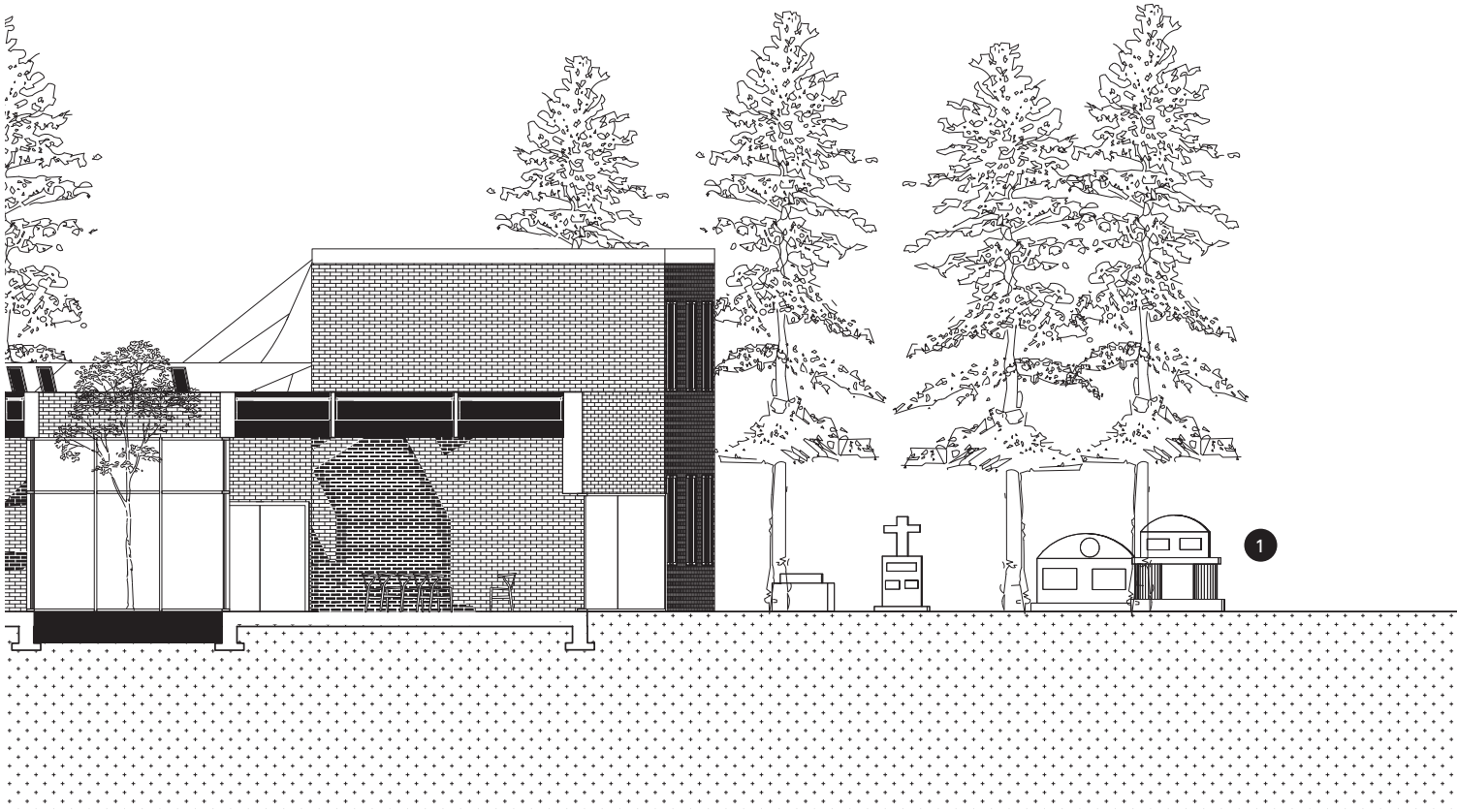
1 Entrance
2 Public Reflecting Sight Room
3 Private Natural Sound Room
4 Privater Dual Sound Room
5 Private Fractal Sound Room
6 Private White Noise Room
7 Public Zen Sound Room



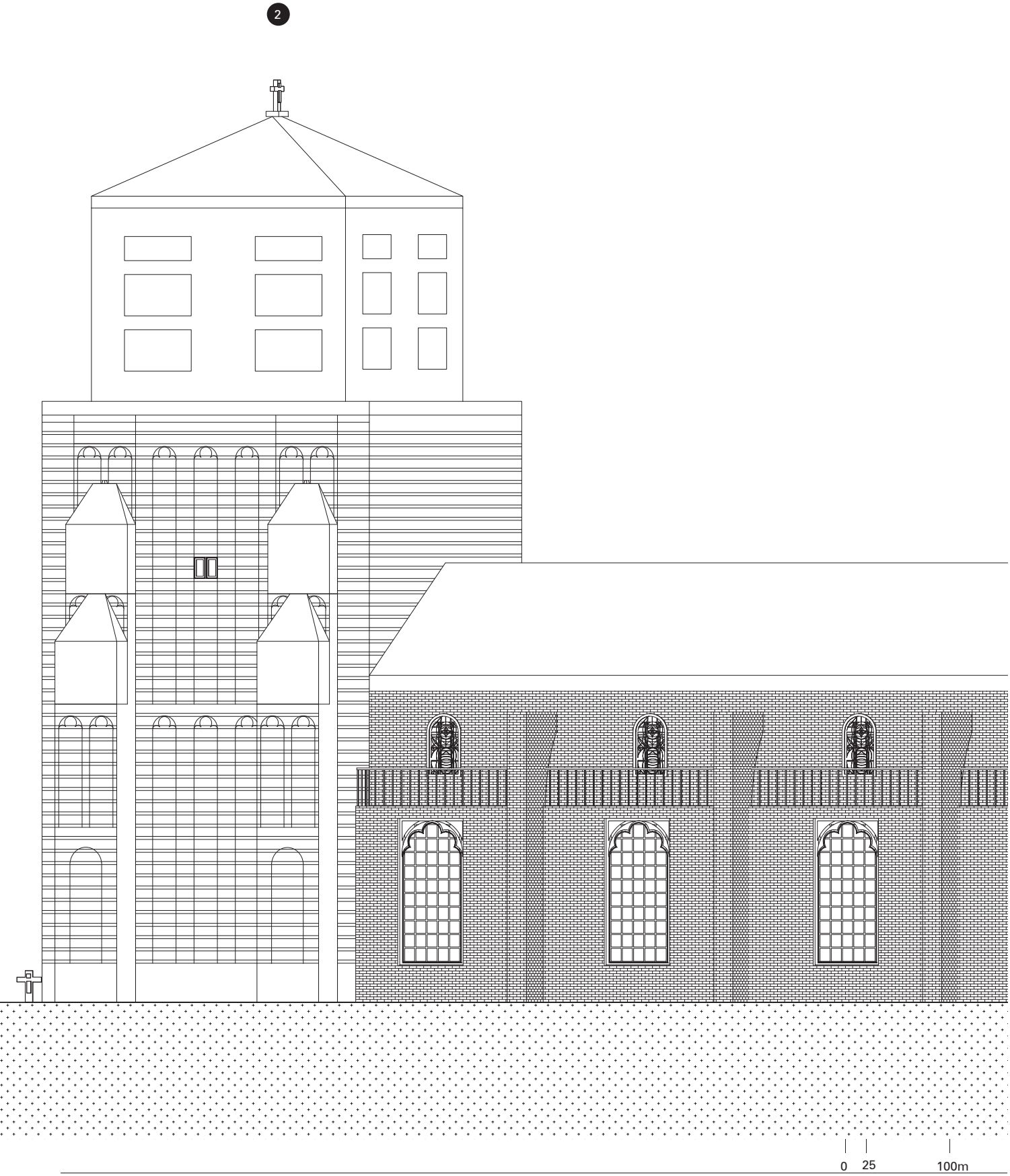
The sight and touch private healing rooms are connected to the silence room for a moment of pause in order to prevent over-stimulation.



1 Private Mist Touch Room
2 Private Heat Touch Room
3 Private Cold Touch Room
4 Private Grain Touch Room
5 Public Silence Room
6 Private Blurred Sight Room
7 Private Red Sight Room
8 Private Pinhole Sight Room
9 Public Abscission Touch Room
10 Dining Room

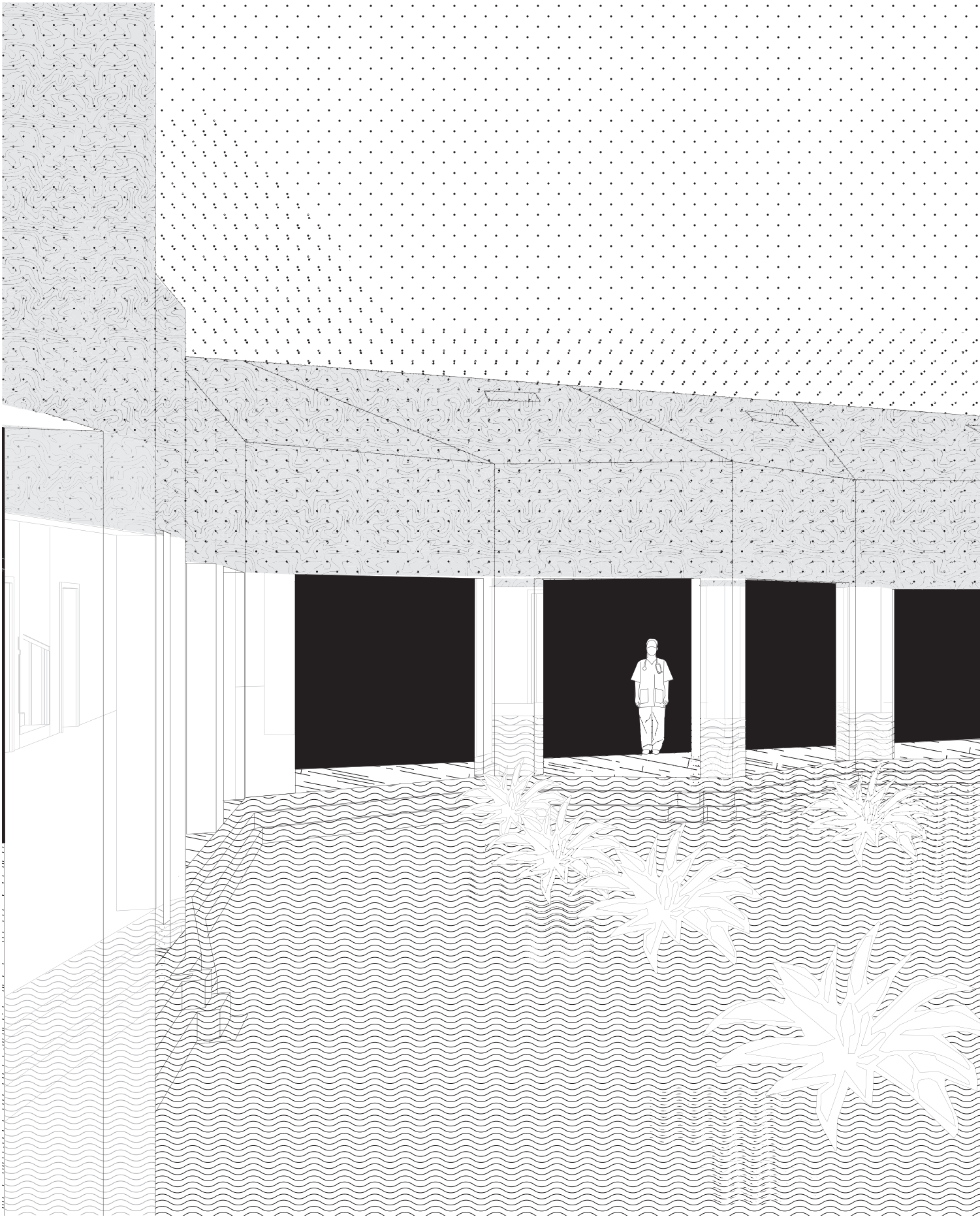


At the end of their day, all sixty borders come together for a multi-sensorial meal in the dining room under a leaf-shaped structure that is an extension of Sint-Dimpnakerk's forest cemetery.

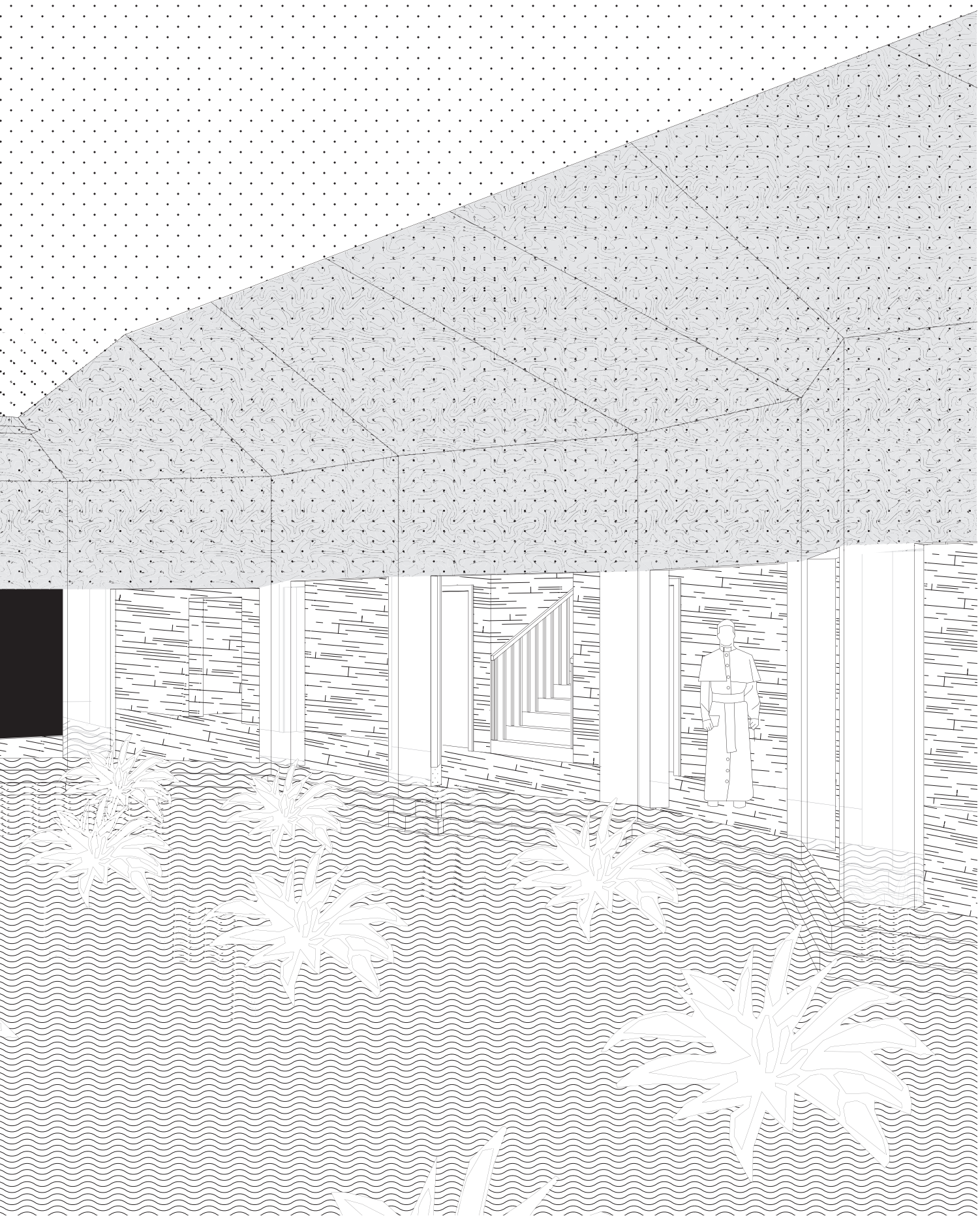


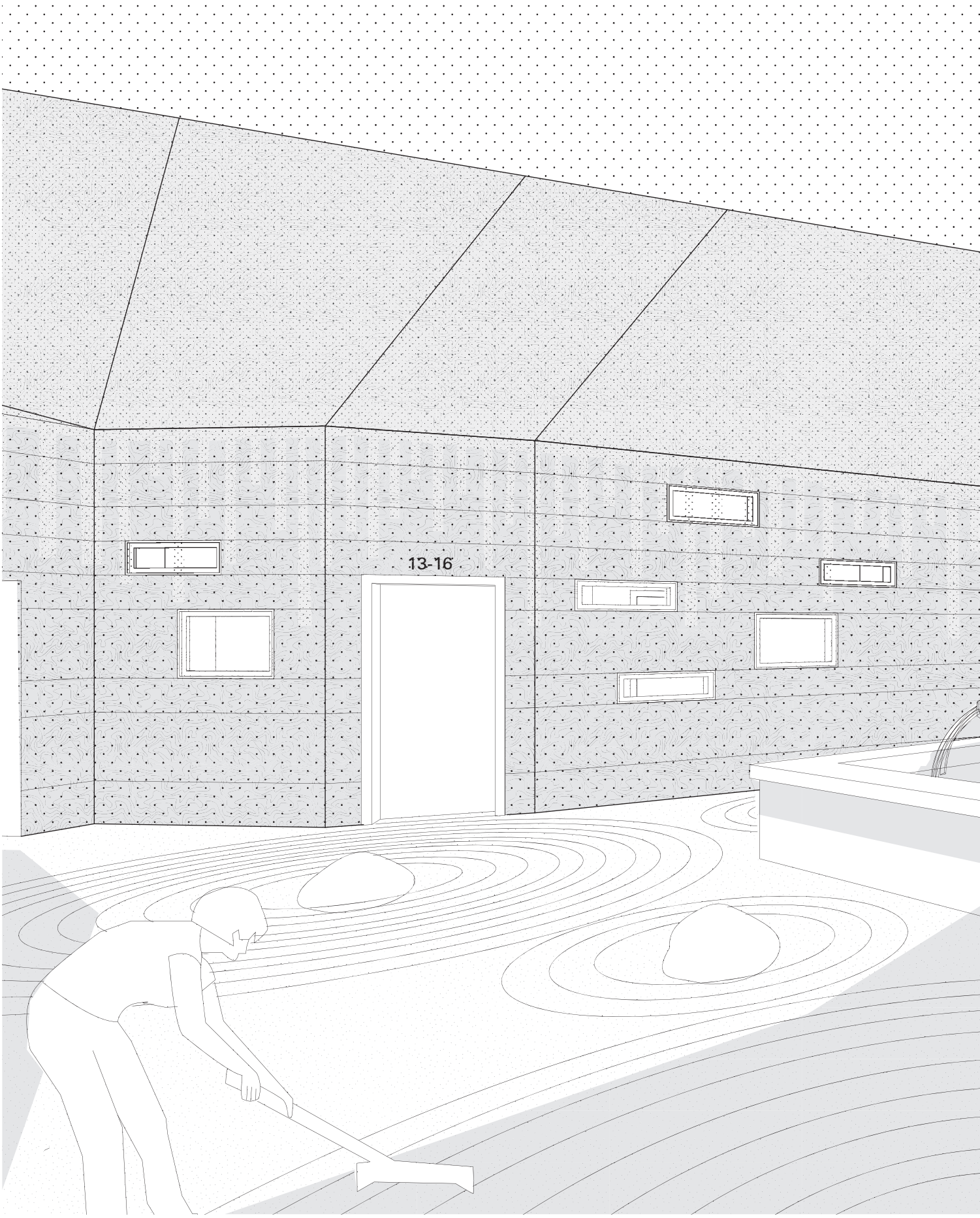
1 Sint-Dimpnakerk Cemetery
2 Sint-Dimpnakerk

The procession of the festival of the holyberry—a pure white strawberry with an undetected taste—in October is surrounded by companion plants witnessing the holy site.

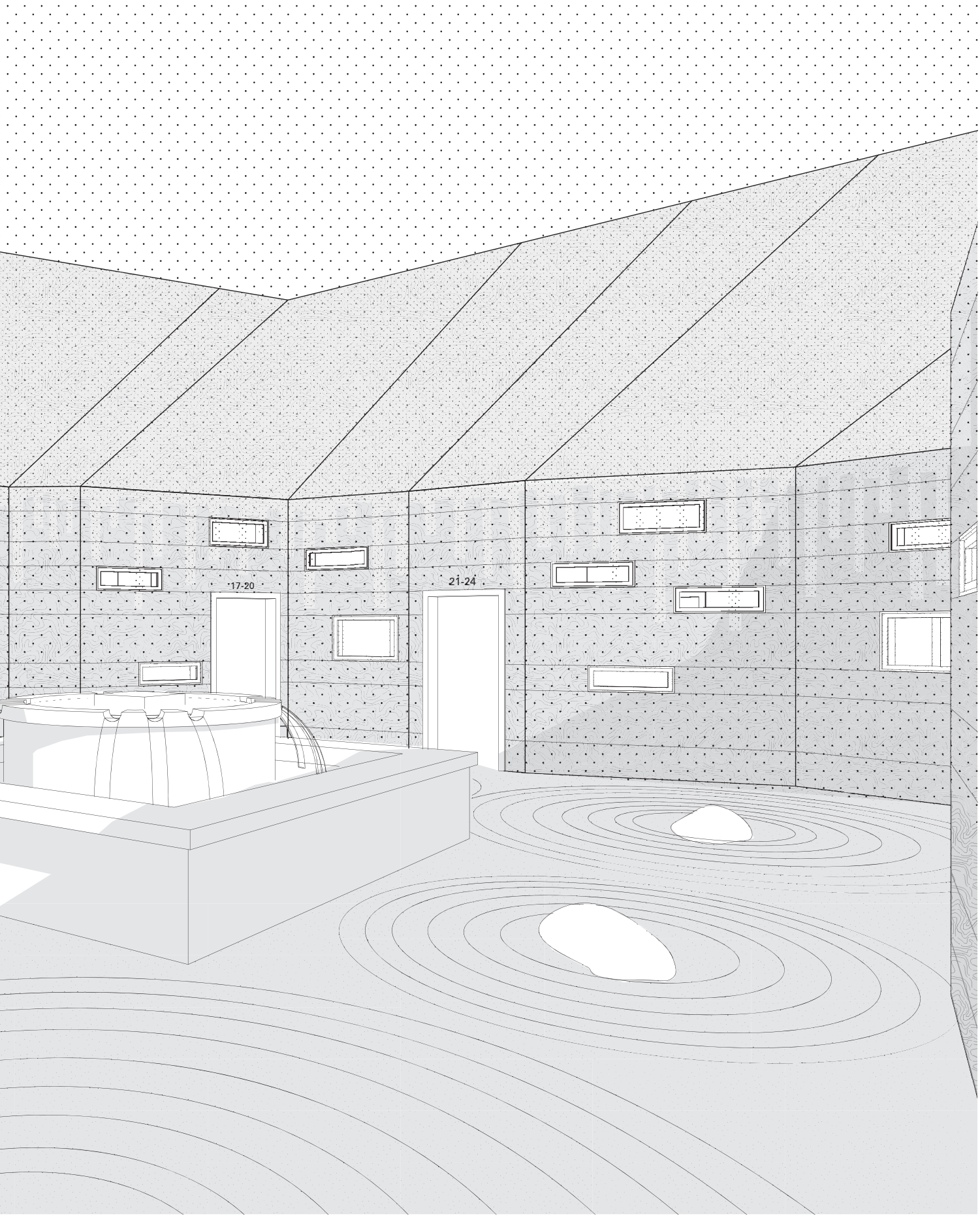


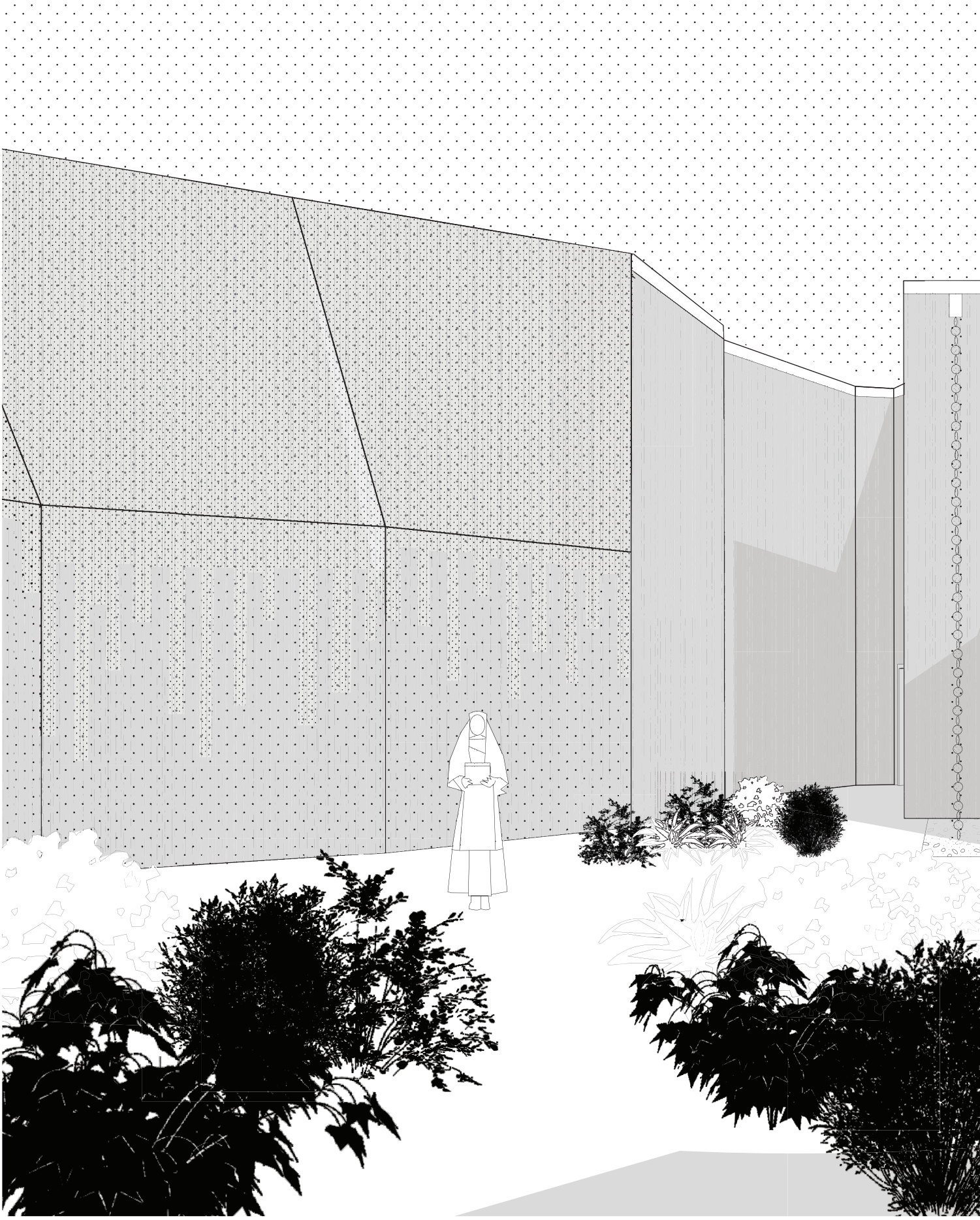
Viewers walk around the perimeter of mirrored columns that reflect the Belgian natural landscape and watch the rain flow into directed points of the pool.





Windows within the stacked concrete that is surrounding the public sound room lookout into the zen garden, enabling visitors to listen to sounds coming from the fountain and the raking of the sand.


17-20
21-24



Textured concrete adjoins the front door of the borders' rooms to encourage interaction with the residents of Geel, the rain chains, and the textured plants—exaggerated during abscission—within the public room.

29
26
25

1 Notions of healing and aftercare and their architectural characteristics need to be conceptualized in response to the societal context that they are responding to. In the digital age, this entails an incorporation of all of the senses.

2 As the history of Geel demonstrates, healing spaces can be an integral part of the city and its community. This needs to be central to designing contemporary healing spaces in order for them to heal the adverse effects of the disembodiment of the digital age, reintegrating patients into society.

3 Pristine provenance and ritualized production processes of symbolic foods are integral to maintaining their meaning as a part of exchange within the Blue Banana.

4 Products that have a strong symbolic meaning beyond their nutritional value require a specific treatment in their display in the supermarket.

5 Customers pay more for meaningful specialty products than for produce cultivated for mere appearance and as outcomes of processes of standardization within Albert.

This contribution is part of *Supermarket*, a collective project on the spatial implications of the food industry in the Netherlands and beyond, redesigning the now considered essential architecture of a supermarket.

The Sensatorium is a healing clinic located in the city of Geel, BE — connecting the Gasthuis and Sint-Dimpnakerk—for residents and sixty borders to be engulfed in spaces of the six senses for a calming immersion of the body and engaging interactions as a response to the aftermath of COVID-19.

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