

# CIRCULARITY OF THE EVERY DAY

PATTERN LANGUAGE

PATTERN LIBRARY



A PATTERN LANGUAGE FOR THE TRANSITION  
TOWARDS A CIRCULAR FOOD SYSTEM OF  
THE EVERYDAY LIFE IN SCHALKWIJK

## Why a pattern book?

This book provides an overview of the developed patterns for a transition to a circular foodscape. It can be used for application and testing in different settings and involved stakeholders. This pattern library provides individual patterns that can be used as guidelines and interventions to start then discussion and engagement to transition to a circular neighbourhood.

The pattern language is a curial design method for my research by design approach for developing a transition towards a circular food system in a post war neighbourhood. For testing and applying the pattern language in a place based setting.

In this case Schalkwijk, in Haarlem, the Netherlands.

The pattern language provides a method for combining a systemic approach with participation of stakeholders in the area.

### **Pattern language: A method to capture and share knowledge through interconnected design patterns.**

Pattern language can function as a research and design method. It can complement the co-creation approach by providing a structured and systematic way to capture and share knowledge. It can help identify and apply design patterns that address the complexities of social-ecological urban systems, supporting the development of sustainable and resilient neighbourhoods.

The pattern language was first introduced in the book 'A pattern language: Towns, Buildings, Constructions' by Christopher Alexander et al. (1977). The individual patterns are a combination of a spatial design implementation or action and the theoretical backup. Thus, is a great design approach to combine theory and research with design in this project.

The potential of the patterns lies that the patterns relate to other patterns, and thus create a pattern field – or language, making sense between the individual design patterns and theories. Thus, the creatin of pattern fields can be used a research method to categorise and structure theories connected with spatial interventions and creates a framework (Salingarios, 2000).

This project will be orientated with the pattern of the 'Cities of making, Foundries of the Future project (2020). The project developed the patterns

The opportunity in developing a pattern language for a circular built environment in post-war neighbourhoods, is that eventually it could be tested and applied also in other Dutch post-war neighbourhood settings.

The pattern language supports the design and research on the strategic approach.

The pattern language unravels the connections between scale and theme. Being able to interpret and evaluate the pattern language helps to understand and design for circular interventions at the neighbourhood level.

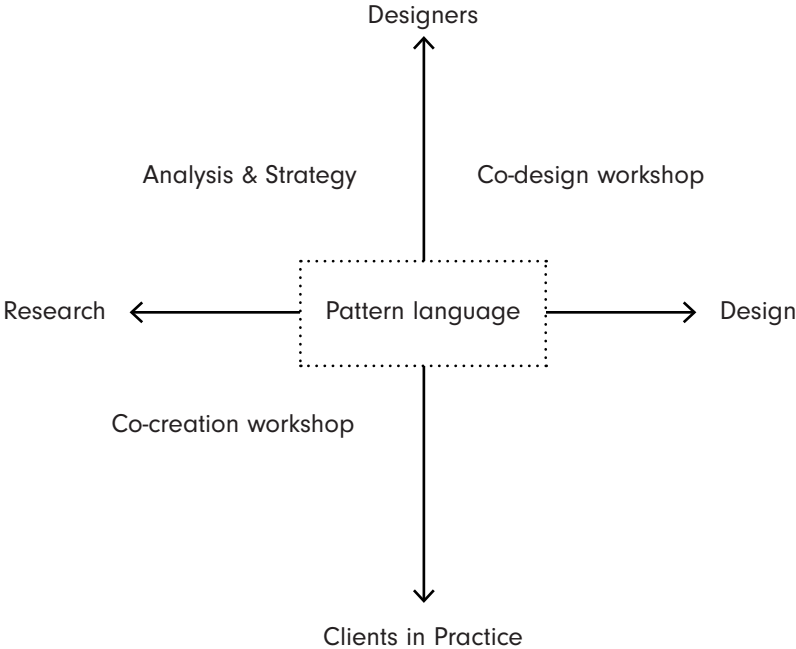
Focusing on how the 'place' of the community can facilitate the spatial interventions required for a circular neighbourhood - for this I need to consider all resource cycles at the neighbourhood scale and adding the value of the neighbourhood (Leclercq & Smit, 2021). Finally, the design language can serve as a basis for communication.

The patterns help to close the communication gap between the abstract concept of the circular economy and its concrete implementation. There is potential of using patterns to create a co-design process, combining the understanding of patterns with an integrated co-design approach. Understanding patterns that operate and are interconnected at different levels (Salingaros, 2000), an integrated co-design approach can connect the theories and their spatial patterns well with the specific place and its actors.

This thesis will use the pattern language as a co-creation approach in the systemic design to understand and the theory and possible spatial implementations for a circular neighbourhood with circular actions in the everyday life of the residents in Boerhaavewijk.

It will be evaluated in which way the pattern language can be used in a co-creation approach to develop a spatial proposal for a circular post-war neighbourhood.

# PATTERN LANGUAGE BRIDGING RESEARCH BY DESIGN



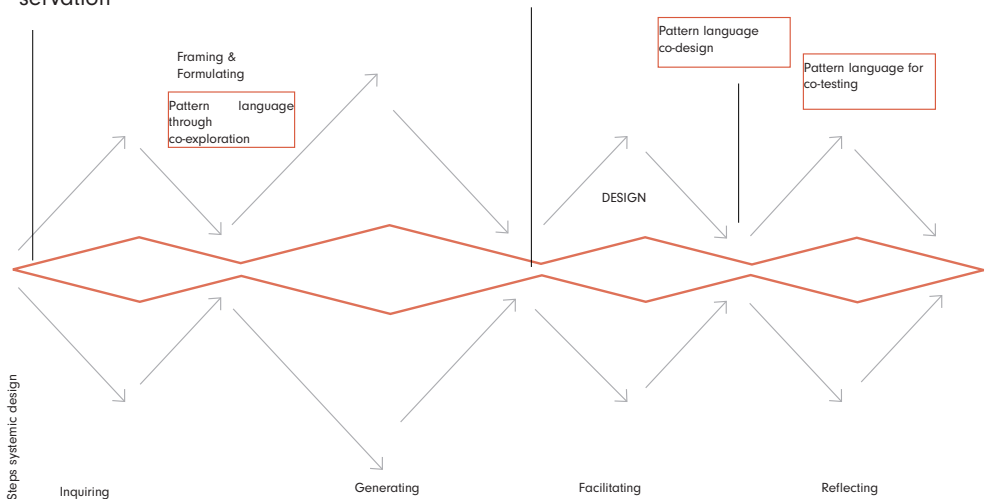
Pattern language utilised  
made by author, inspired from pattern language  
workshop by TU Delft



# RESEARCH APPROACH WITH THE PATTERN LANGUAGE A SYSTEMIC DESIGN APPROACH

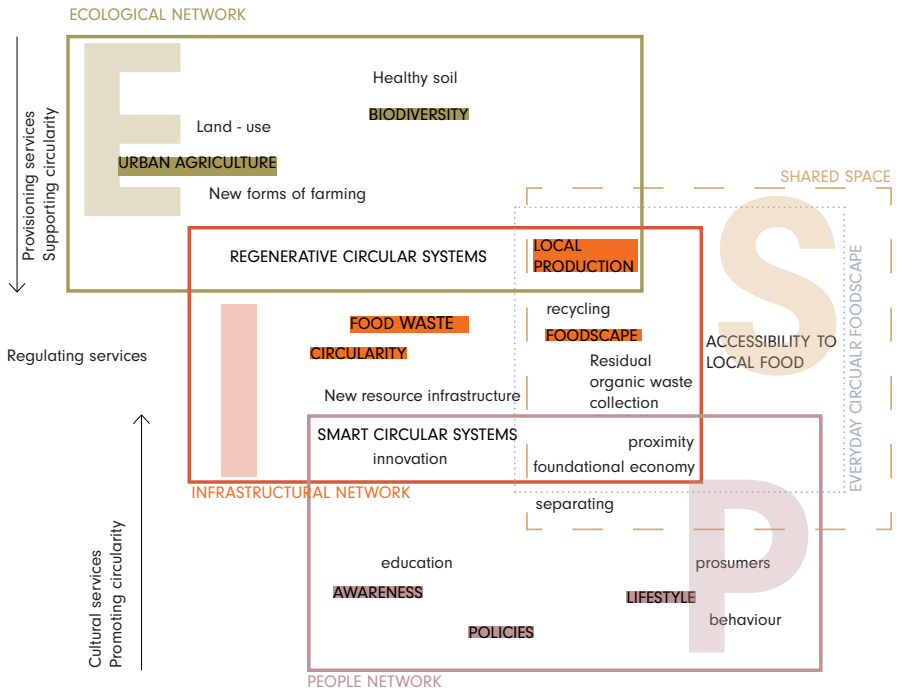
Development of new Patterns by analysis of other systems and observation

Development of Patterns and chain connections in current system

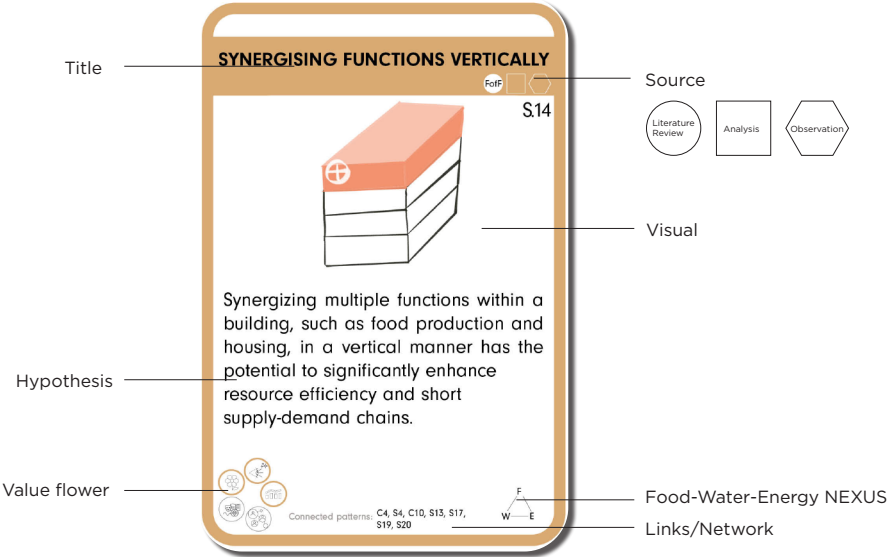


Pattern language utilised  
made by author, inspired from systemic design  
approach

# THE FOUR CATEGORIES



# A PATTERN CARD





## SOURCE ABBREVIATIONS

**C40:** C40 Knowledge Community. (n.d.). [https://www.c40knowledgehub.org/s/?language=en\\_US](https://www.c40knowledgehub.org/s/?language=en_US)

**doC:** doCanto, N.R.; Grunert, K.G.; De Barcellos, M.D. Circular Food Behaviors: A Literature Review. *Sustainability* 2021, 13, 1872. <https://doi.org/10.3390/su13041872>

**EU:** Circular economy action plan. (n.d.). Environment. [https://environment.ec.europa.eu/strategy/circular-economy-action-plan\\_en](https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en)

**FofF:** Hill, Adrian V (ed.). (2020) *Foundries of the Future: a Guide to 21st Century Cities of Making*. With contributions by: Ben Croxford, Teresa Domenech, Birgit Hausleitner, Adrian Vickery Hill, Han Meyer, Alexandre Orban, Víctor Muñoz Sanz, Fabio Vanin and Josie Warden. Delft. TU Delft Open, 2020.

**FU:** Verzone, C., & Woods, C. (2021). *Food Urbanism: Typologies, Strategies, Case Studies*. Birkhäuser.

**GB:** Atelier Groenblauw. (n.d.). <https://www.ateliegroenblauw.nl/>

**McA:** Circular design for food: six short stories. (2023, December 11). <https://www.ellenmacarthurfoundation.org/videos/circular-design-for-food-six-short-stories>

**MG:** 'Community microgrids are a way for neighbourhoods, villages, towns and cities to meet their energy needs locally.' <https://carbontrack.com.au/blog/community-micro-grid/#:~:text=Community%20microgrids%20are%20a%20way,local%20energy%20independence%20and%20resilience>.

**OZ:** Oesterzwammerij. (n.d.). <https://oesterzwammerij.nl/>

**ST:** Stimuleringsfond meeting 'Anders Werken aan wonen' Stimuleringsfonds. (2022). Anders werken aan wonen – 15 projecten geselecteerd | Stimuleringsfonds. [Stimuleringsfonds. https://www.stimuleringsfonds.nl/nieuws/anders-werken-aan-wonen-15-projecten-geselecteerd](https://www.stimuleringsfonds.nl/nieuws/anders-werken-aan-wonen-15-projecten-geselecteerd)

**WUR:** Rietveld M & Lie R., Buurtenergie in de Wildemanbuurt, <https://edepot.wur.nl/441618>

# SHARED SPACE PATTERNS

# SHARED SPACE

### COMPOST AT HOME

S.1

Home composting can provide a close and easy approach to separating organic food waste and returning it directly to the nutrient cycle in the garden. The compost can be placed in the kitchen, the garden, on flat roofs and on balconies. Composting plays a vital role in creating new, local and sustainable soil resources.

Compassion partners: PE, KI, EE, CA, BE, SD

### RESIDENTIAL COLLECTION POINT

S.2

Household waste collection points must be located throughout the neighbourhood, within 200m of each other, as it takes about 2 minutes to walk. And be easily accessible, such as barrier-free and safe from road traffic, to ensure the separation and recovery potential of residual organic waste streams.

Compassion partners: PE, EE, CA, BE, SA, SM, SD, SE, CA, PE, CE, PIA, SD, BE, SD

### FOODSHARING FRIDGE

S.3

Implementing a neighbourhood fridge, close to social or shopping facilities for food sharing could potentially reduce food waste by enabling residents and businesses to distribute and share leftover food, benefiting both contributors and recipients.

Compassion partners: SP, PAI, PE, PA

### WASTE COLLECTION ROOM

S.4

Waste collection within the residential building with access to the public space for easy waste collection and processing.

Compassion partners: PE, CE, CE, BE, CE, CE, PA

### DOWN YOUR WASTE

S.5

There is a waste chute in each residential building, accessible from each floor, to dispose of waste directly from the common corridor into the building's waste collection room. If it is accessible to the residents of the building and is maintained by the property management of the local housing agency.

Compassion partners: PE, PE, SA, PE, PA

### FOOD TO DESIGN

S.6

Exploring new design options for objects and street furniture using food waste, an organic material, can lead to innovative and sustainable solutions and promote circularity in urban design and infrastructure. This can boost the local economy and make food waste a necessary resource for urban spatial transformation.

Compassion partners: CE, CE, SA, PA, PE, PA, SD, BE

### BROODENERGIE

S.7

Bread waste is gathered at local collection points like the bakery or supermarket and transported to anaerobic digester where it is converted into biogas or transformed into fertilizer.

Compassion partners: CE, BE, SA, PE, CE, CE

### WASTE SEPARATION

S.8

Individual waste separation is essential for the effective functioning of a circular infrastructure, as it facilitates the efficient recycling and reuse of resources within the system. Waste separation is made easier by the provision of bins at the kerbside, in public places and communal buildings, and also at home, where you can easily separate your waste into a single bin.

Compassion partners: PE, BE, SA, PE, PA, SD, BE

### WALK-BY COLLECTION POINTS

S.9

Transforming every bus stop into a dual-purpose collection point for waste and transportation offers the potential to encourage waste disposal efficiency and is located both at the needed infrastructure network.

Compassion partners: SE, SA, CE, PE, BE, CE, PA, SD, BE

### OUTDOOR DINING

S.10

Encouraging people to linger in public spaces by adding urban furniture in front of food shops, to socialize and dine contributes to the quality of urban environments and foodscapes

Compassion partners: CE, CE, SA, PA, PE, PA, SD, BE

### FLEXIBLE SCHOOL YARD

S.11

Creating a flexible school yard that is publicly accessible, designed to accommodate children for play and post-school activities, is a valuable addition to the urban fabric by promoting active recreation and maintaining for example a school garden

Compassion partners: PE, EE, CE, PE, PA, SD, BE, SD, BE

### FLEXIBLE SPACES FOR FOOD PRODUCTION

S.12

Flexible spaces for food production in the neighbourhood and on the periphery can provide space for innovative urban agricultural systems by adapting to changing needs and seasons. Part of this is to make ownership of public spaces more accessible for startups and urban gardening. Areas such as car parks, flat roofs, balconies and unused plots of land that can then be activated by interest groups for local production.

Compassion partners: SE, PA, PE, PA, PE, PA, SD, BE, SD, BE

### PRODUCTIVE PUBLIC PLACE

S.13

Designing productive public spaces with multifunctional circular functions can enhance the local food and energy productivity while collecting and storing water and with community involvement can enhance the livability of urban areas, potentially leading to increased economic activity

Compassion partners: PE, EE, CE, PE, PA, SD, BE, SD, BE

### SYNERGISING FUNCTIONS VERTICALLY

S.14

Synergising multiple functions within a building, such as food production and housing, in a vertical manner has the potential to significantly enhance resource efficiency and short supply-demand chains.

Compassion partners: CE, CE, SA, PA, PE, PA, SD, BE, SD, BE

### MICRO-FOOD DEPOSIT

S.15

The introduction of micro-local neighbourhood depots near grocery shops, bus stops and community buildings, which provide accessible food and waste storage similar to a letterbox system, has the potential to streamline waste disposal and food sharing.

Compassion partners: PE, SA, PE, CE, PIA

### PAVEMENT ALTERNATIVES

S.16

The alternation of pavements and green strips on which fruit trees grow improves safety and circulation in the neighbourhood. They provide enough space for the roots to spread out and soak up water like a sponge, so that enough water is available for local food production.

Compassion partners: SA, BE, CE, PIA, SD, BE

### GF/BG SNACKBAR

S.17

Locating a restaurant in the ground floor of residential buildings, especially the apartment buildings of the post-war neighbourhood structure, will increase the accessibility to local and fresh food in the neighbourhood.

Compassion partners: EE, CE, CE, PE, SD, BE, SD, BE

### PUBLIC FOOD FACE

S.18

Implementing transparent facades interacts with the people on the street making the public space more appealing and enhances the quality of the street realm and adds value to the promotion of local and healthy food production by showcasing the freshness and quality of locally sourced products.

Compassion partners: CE, CE, SA, PA, PE, PA, SD, BE, SD, BE

### INCREASE SURFACE WATER

S.19

Increasing surface water in the urban residential areas enhances the water storage capacity, cool the environment, and boost biodiversity by providing greater access to water resources.

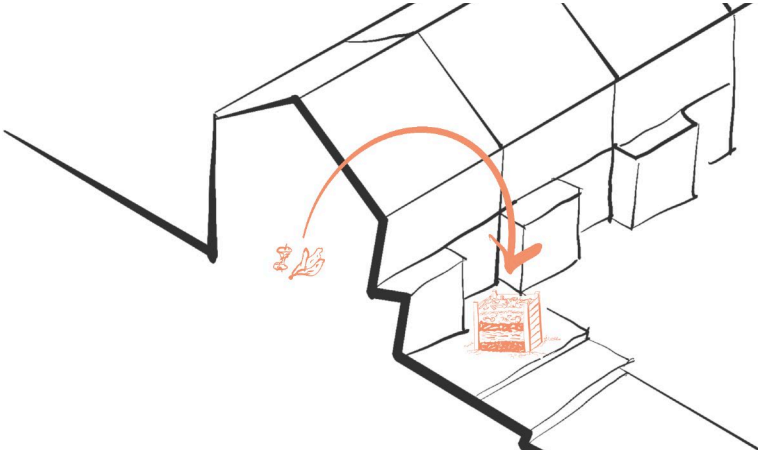
Compassion partners: CE, PA, SD, BE, SD, BE

### PRODUCTIVE BACKYARD

S.20

Creating a productive backyard in single-family homes and community gardens in apartment buildings promotes self-sufficiency and environmental responsibility, leading to a more sustainable and resilient lifestyle with a positive impact on the local community.

Compassion partners: PE, BE, CE, PIA, SD, BE, SD, BE



Home composting can provide a close and easy environment for separating organic food waste and returning it to the nutrient cycle. Composting can take place in the garden, on flat roofs and on balconies. In apartment buildings, there can be a collective compost in front of the building. Composting plays a crucial role in creating new, local and sustainable soil resources, as it provides an integrated solution where food waste is transformed into nutrient-rich soil. Which can be used directly for gardening.

#### How?

Having a composting bin close to the kitchen or garden - where you produce organic waste - is crucial to making sorting easy.

#### Where?

At home - which means a vermicomposter or worm hotel for kitchens (experience of Parisian apartments having a worm hotel for specific organic food waste). A worm hotel can also go in the front garden, balcony or flat accessible roof and is good for indoors and only food waste, not garden waste. Or a low-maintenance compost pile, which requires space in the garden and takes some time, can be used for organic household and garden waste. If you want to speed up the composting process, a multi-tiered composter or a tumbling barrel composter will take up a similar amount of space.



Connected patterns:

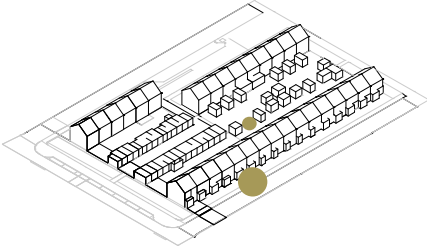
P2, E1, E2, C4, E7, S20





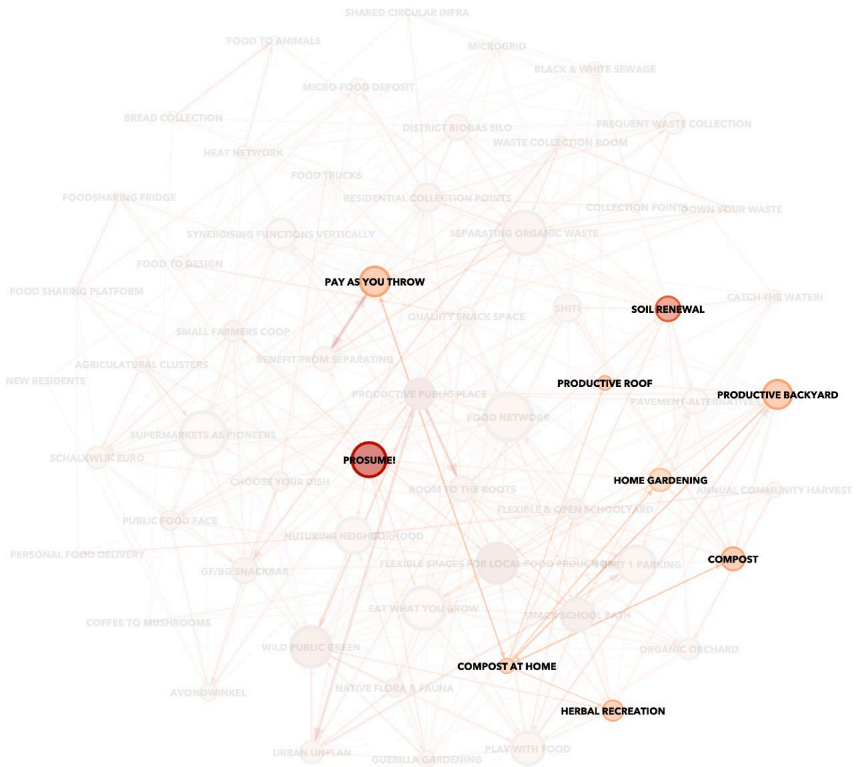
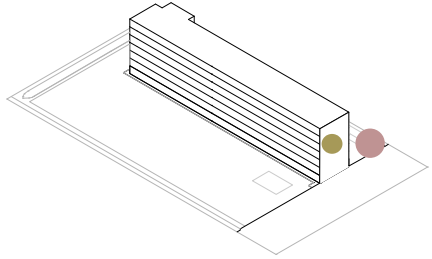
## RIJTJESHUIZEN

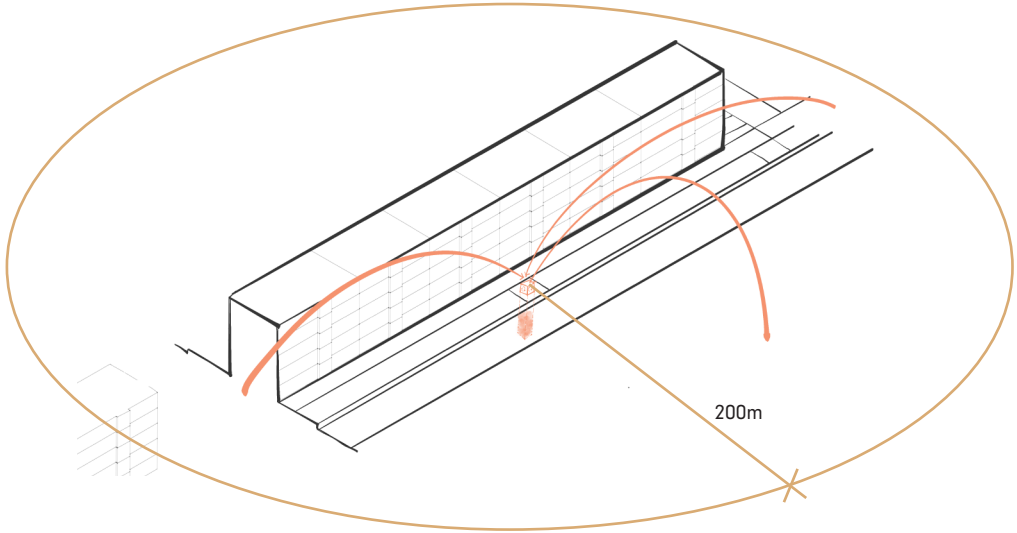
A house set in a row and surrounded on both sides by another house.



## GALERIJFLAT

A galerijflat is a flat, usually with a lift, where the house door adjoins a gallery.





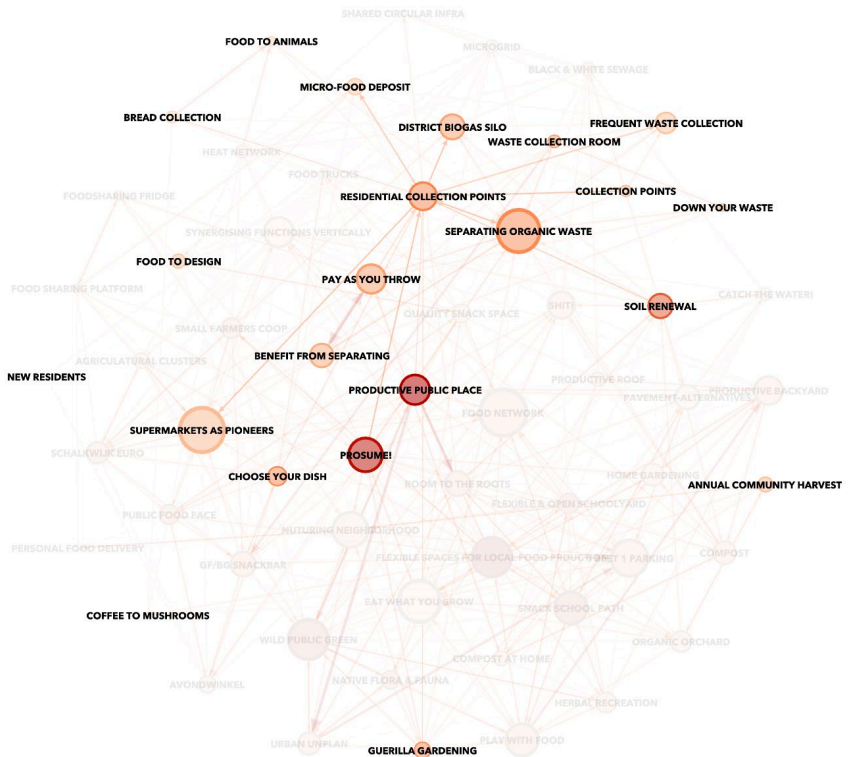
Household waste collection points must be located throughout the neighbourhood, within 200m of each other, as it takes about 2 minutes to walk. And be easily accessible, such as barrier-free and safe from road traffic, to ensure the separation and recovery potential of residual organic waste streams.



Connected patterns:

P2, E3, C2, S4, S5, S6,  
S7, S8, S9, C8, P8, C9,  
S13, S15, P14, S19







Implementing a neighbourhood fridge, close to social or shopping facilities for food sharing could potentially reduce food waste by enabling residents and businesses to distribute and store leftover food, benefiting both contributors and recipients.

#### How?

A Foodsharing fridge is located close to social functions and in front of such functioned buildings, facing the pedestrian walk or public Spaces. For combining the maintenance of the fridge by the social organisation in the building and being accessible for everyone. Also in front of shops the leftover food could be placed, making the shops maintaining the circular food chain and advertising for possible recipes with the leftover food - and thus engaging buying the rest in the shop.

#### Where?

In public spaces in front of social buildings such as the elderly homes, and community buildings and shops.



Connected patterns: E7, P13, P1, P2, P4



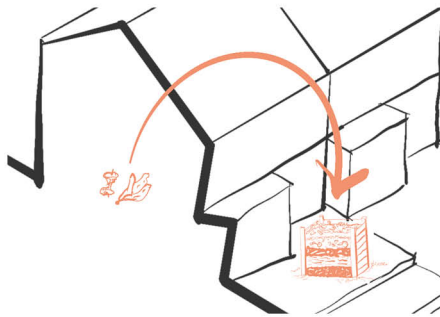


## COMPOST AT HOME

C40



S.1



Home composting can provide a close and easy approach to separating organic food waste and returning it directly to the nutrient cycle in the garden. The compost can be placed in the kitchen, the garden, on flat roofs and on balconies. Composting plays a vital role in creating new, local and sustainable soil resources.



Connected patterns: P2, E1, E2, C4, E7, S20

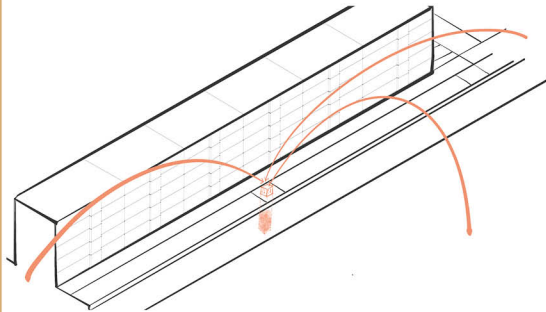


## RESIDENTIAL COLLECTION POINT

C40



S.2



Household waste collection points must be located throughout the neighbourhood, within 200m of each other, as it takes about 2 minutes to walk. And be easily accessible, such as barrier-free and safe from road traffic, to ensure the separation and recovery potential of residual organic waste streams.



Connected patterns:

P2, E3, C2, S4, S5, S6, S7,  
S8, S9, C8, P8, C9, S13,  
S15, P14, S19





## FOODSHARING FRIDGE



S.3



Implementing a neighbourhood fridge, close to social or shopping facilities for food sharing could potentially reduce food waste by enabling residents and businesses to distribute and store leftover food, benefiting both contributors and recipients.



Connected patterns: E7, P13, P1, P2, P4

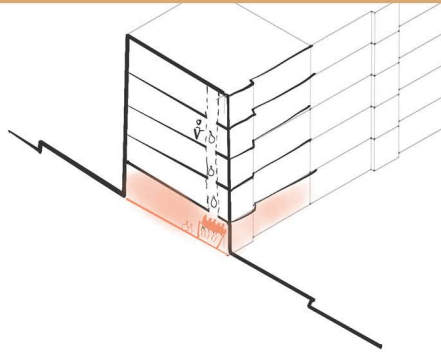




## WASTE COLLECTION ROOM



S.4



Waste collection within the residential building with access to the public space for easy waste collection and processing.

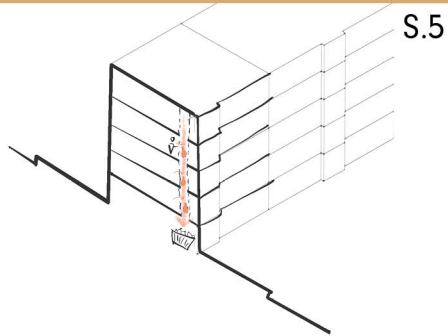


Connected patterns:

P1, P2, C2, S5, S8, C8,  
-S17, P14



## DOWN YOUR WASTE



There is a waste chute in each residential building, accessible from each floor, to dispose of waste directly from the common corridor into the building's waste collection room. It is accessible to the residents of the building and is maintained by the property management of the social housing agency.



Connected patterns: P1, P2, S4, S8, P14

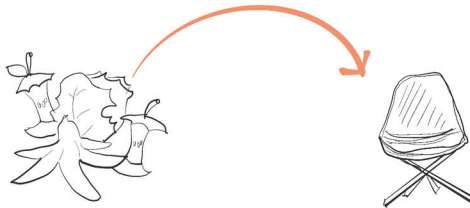


## FOOD TO DESIGN

McA



S.6



Exploring new design options for objects and street furniture using food waste, an organic material, can lead to innovative and sustainable solutions and promote circularity in urban design and infrastructure. This can boost the local economy and make food waste a necessary resource for urban spatial transformation.



C6, C7, S6, S10, E9,  
S14, S18

Connected patterns:



## BROODENERGIE

WUR



S.7



Bread waste is gathered at local collection points like the bakery or supermarket and transported to anaerobic digester where it is converted into biogas or transformed into fertilizer.



Connected patterns: -E3, S9, S8, C2, C5

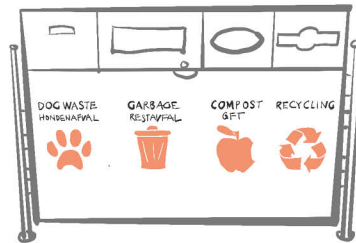


## WASTE SEPARATION

C40



S.8



Individual waste separation is essential for the effective functioning of a circular infrastructure, as it facilitates the efficient recycling and reuse of resources within the system. Waste separation is made easier by the provision of bins at the kerbside, in public places and communal buildings, and also at home, where you can easily separate your waste into a single bin.



Connected patterns: P1, P2, S2, S4, S5, S7, S9, S11, C8, P14, S19

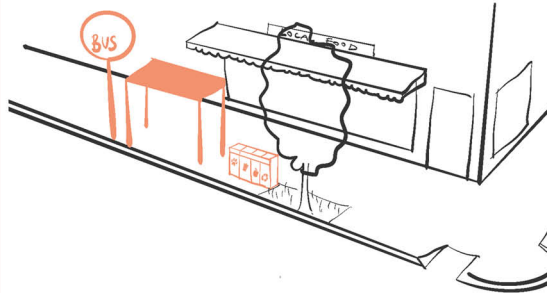


## WALK-BY COLLECTION POINTS

FotF



S.9



Transforming every bus stop into a dual-purpose collection point for waste and transportation offers the potential to encourage waste disposal efficiency and is located both at the needed infrastructure network.



Connected patterns:

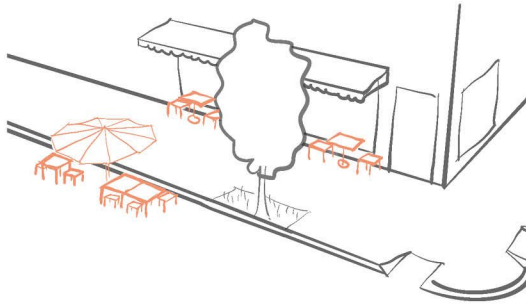
S2, S4, S5, S7, S8, S11, C8,  
S15, S16



## OUTDOOR DINING



S.10



Encouraging people to linger in public spaces by adding urban furniture in front of food shops, to socialize and dine contributes to the quality of urban environments and foodscape

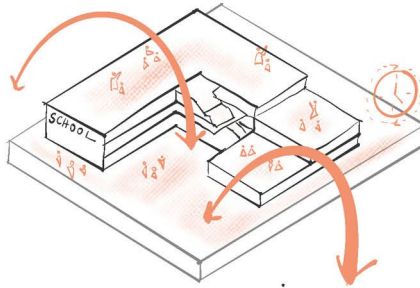


Connected patterns: C6, C7, P5, S6, C13, S18



## FLEXIBLE SCHOOL YARD

S.11



Creating a flexible school yard that is publicly accessible, designed to accommodate children for play and post-school activities, is a valuable addition to the urban fabric by promoting active recreation and maintaining for example a school garden



Connected patterns:

P1, E2, E4, P5, P6, S12,  
S13, E9, C13, S14, P12,  
E10, P13,



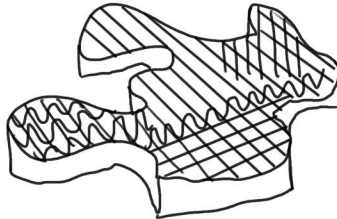


## FLEXIBLE SPACES FOR FOOD PRODUCTION

FoF



S.12



Flexible spaces for food production in the neighbourhood and on the periphery can provide space for innovative urban agricultural systems by adapting to changing needs and seasons. Part of this is to make ownership of public spaces more accessible for start-ups and urban gardening. Areas such as car parks, flat roofs, façades and unused plots of land that can then be activated by interest groups for local production.



Connected patterns:

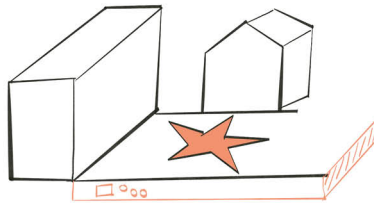
E1, E4, E5, P2, S11, P6, P7,  
E7, E8, P8, C9, P10, P11,  
S13, E9, C13, S14, S18,  
P12, E10, P13, S20, E12



## PRODUCTIVE PUBLIC PLACE



S.13



Designing productive public spaces with multifunctional circular functions can enhance the local food and energy productivity while collecting & storing water and with community involvement can enhance the liveability of urban areas, potentially leading to increased economic activity

connect with choose your dish and schalkwijk euro



Connected patterns:

E4, E5, C4, C6, C7, S3, s6,  
s10, - e6, C10, C11, C12, S12,  
-E9, C13, S14, S16, S17, E10, W  
P13, S19, E11, S20, E12

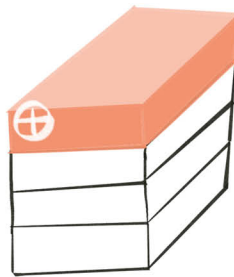


## SYNERGISING FUNCTIONS VERTICALLY

FoF



S.14



Synergizing multiple functions within a building, such as food production and housing, in a vertical manner has the potential to significantly enhance resource efficiency and short supply-demand chains.



Connected patterns: C4, S4, C10, S13, S17, S19, S20

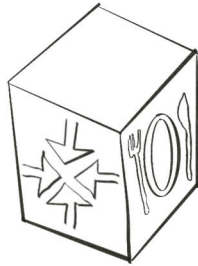


## MICRO-FOOD DEPOSIT

FotF



S.15



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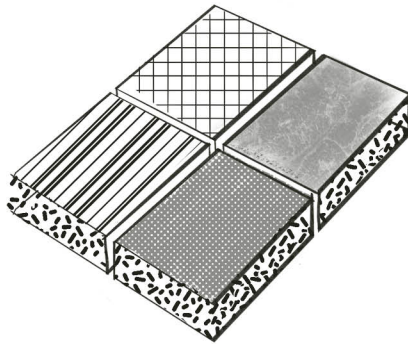
Connected patterns: S2, S6, S10, C13, S14



## PAVEMENT ALTERNATIVES



S.16



The alternation of pavements and green strips on which fruit trees grow improves safety and circulation in the neighbourhood. They provide enough space for the roots to spread out and soak up water like a sponge, so that enough water is available for local food production.



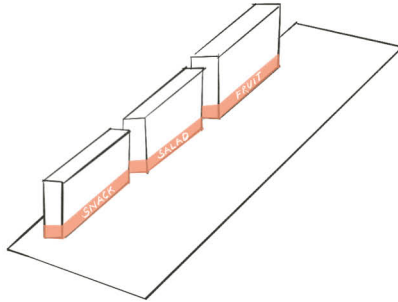
Connected patterns: E4, E5, C1, S10, E7, E8



## GF/BG SNACKBAR



S.17



Locating a restaurant in the ground floor of residential buildings, especially the apartment buildings of the post-war neighbourhood structure, will increase the accessibility to local and fresh food in the neighbourhood.



Connected patterns: E1, C5, C6, P5, S10, P11, S12, S13, E9, C13, P12, P16



## PUBLIC FOOD FACE

FoF



S.18



Implementing transparent façades interacts with the people on the street making the public space more appealing and enhances the quality of the street realm and adds value to the promotion of local and healthy food production by showcasing the freshness and quality of locally sourced products.



Connected patterns:

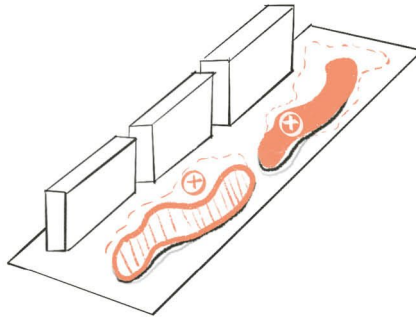
E1, C5, C6, S10, S12, S13, S17, S18, P16



## INCREASE SURFACE WATER



S.19



Increasing surface water in the urban residential areas enhances the water storage capacity, cool the environment, and boost biodiversity by providing greater access to water resources.



Connected patterns: C11, S16, S20, S21, S13

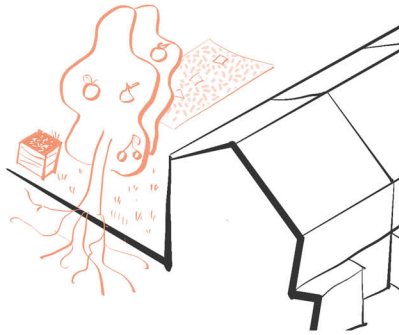




## PRODUCTIVE BACKYARD



S20



Creating a productive backyard in single-family homes and community gardens in apartment buildings promotes self-sufficiency and environmental responsibility, leading to a more sustainable and resilient lifestyle with a positive impact on the local community.




Connected patterns:

S1, E1, E2, C4, S11, E7, S12, S13, S16



# PEOPLE NETWORK PATTERNS


**PROSUME !** P.1



Consumer behaviour is changing towards a circular food system by transforming from a 'consumer' to a 'prosumer', by developing a high level of engagement in food production and an awareness of the long-term sustainability aspects of their food consumption.

Coordinated partners: PL, PE, EL, BE, NL, DE, IT, ES, UK, FR, PT, IE, GR, CY, BG, RO, HU, SI, SK, CZ, PL, SE, NO, DK, FI, EE, LV, LT, LU, MT, MA, TR


**PAY AS YOU THROW** P.2



The "pay-as-you-throw" (PAYT) is waste management policy is charging local residents in accordance with the volume of waste they send to outside waste management.

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**SCHALKWIJK EURO** P.3



The creation of a local currency system, grounded in community connections and aimed at promoting local production, will enhance the strength of the local economy, foster the retention of capital within the region, and encourage stronger interpersonal relationships among residents.

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**FOOD SHARING PLATFORM** P.4



Implementing a food sharing platform within a circular food system will lead to increased resource efficiency, reduced food waste, enhanced community resilience, and improved access to fresh and diverse food sources.

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**CHOOSE YOUR DISH** P.5



Empowering individuals to make choices about what to eat not only enhances personal freedom but also enriches diversity and fosters new economic opportunities within the local neighbourhood economy.

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**GUERRILLA GARDENER** P.6



These growers plant seeds in public spaces, sometimes as a radical act ( This action provides individuals empowerment and improves the biodiversity in the area.

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**URBAN UNPLAN** P.7



Allowing urban spaces to evolve organically without a predefined urban plan can support nature and society to thrive and supports urban and natural diversity.

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**ANNUAL COMMUNITY HARVEST** P.8



Hosting an annual community harvest alongside providing space for fruit trees to grow fosters local food production and enhances social inclusion and nurturing of the public space.

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**AGRICULTURAL CLUSTERS** P.10



The development of agricultural clusters focused on short supply chains has the potential to enhance local food production and strengthen the small agricultural businesses.

Coordinated partners: PL, EL, BE, NL, DE, IT, ES, UK, FR, PT, IE, GR, CY, BG, RO, HU, SI, SK, CZ, PL, SE, NO, DK, FI, EE, LV, LT, LU, MT, MA, TR


**SMALL FARMERS COOP** P.11



Small farmers' cooperatives can play a pivotal role in bolstering the economic viability and sustainability of local agriculture, potentially leading to increased access to resources & improved market competitiveness.

Coordinated partners: PL, EL, BE, NL, DE, IT, ES, UK, FR, PT, IE, GR, CY, BG, RO, HU, SI, SK, CZ, PL, SE, NO, DK, FI, EE, LV, LT, LU, MT, MA, TR


**EAT WHAT YOU GROW** P.12



The practice of "eating what you grow" leads to a stronger connection to food sources. You know what you are eating by being aware of where the food was grown, for example in your own garden or in your neighbourhood.

Coordinated partners: PL, EL, BE, NL, DE, IT, ES, UK, FR, PT, IE, GR, CY, BG, RO, HU, SI, SK, CZ, PL, SE, NO, DK, FI, EE, LV, LT, LU, MT, MA, TR


**NURTURING NEIGHBOURHOOD** P.15



Maintaining, preserving and nurturing neighbourhood spaces that promote biodiversity contributes to both the local biodiversity and the sustainability of food production. And simultaneously strengthens social networks.

Coordinated partners: PL, EL, BE, NL, DE, IT, ES, UK, FR, PT, IE, GR, CY, BG, RO, HU, SI, SK, CZ, PL, SE, NO, DK, FI, EE, LV, LT, LU, MT, MA, TR


**BENEFIT FROM SEPARATING** P.14



Residents who actively participate in waste separation programmes experience tangible financial benefits. For example, they receive a tax reduction or are compensated via the Schalkwijk Euro P3 for boosting the local economy.

Coordinated partners: PL, EL, BE, NL, DE, IT, ES, UK, FR, PT, IE, GR, CY, BG, RO, HU, SI, SK, CZ, PL, SE, NO, DK, FI, EE, LV, LT, LU, MT, MA, TR


**PERSONAL FOOD DELIVERY** P.15



Encouraging friends and family to bring food that is locally sourced with shorter supply chains may lead to greater support for local agriculture.

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**SUPERMARKETS AS PIONEERS** P.16



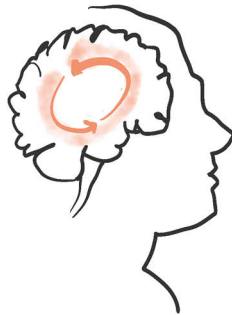
Supermarkets acting as pioneers in adopting short supply chains, local sourcing, and advocating to reduce and eliminate food waste by cooperating in local food sharing strengthen and support that within the neighbourhood.

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# PROSUME !

doC  

P.1



Consumer behaviour is changing towards a circular food system by transforming from a 'consumer' to a 'prosumer', by developing a high level of engagement in food production and an awareness of the long-term sustainability aspects of their food consumption.



Connected patterns:

P2, S1, P3, P4, E1, E2, E4, E5,  
P5, C4, S2, S3, S8, S9, P6, P8,  
P11, S12, C13, S15, P12, E10, W—E  
P13, P14, P15, P16

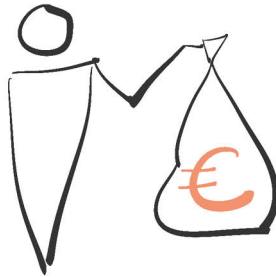


## PAY AS YOU THROW

C40



P.2



The "pay-as-you-throw" (PAYT) is waste management policy is charging local residents in accordance with the volume of waste they send to outside waste management



Connected patterns: S1, P3, S2, S3, S8,  
Contradicts patterns: -P14



## SCHALKWIJK EURO



P.3



The creation of a local currency system, grounded in community connections and aimed at promoting local production, will enhance the strength of the local economy, foster the retention of capital within the region, and encourage stronger interpersonal relationships among residents.



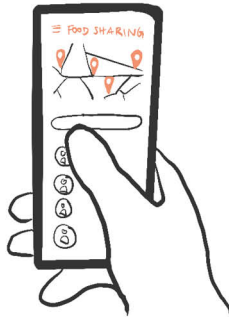
Connected patterns: P1, P4, C2, P5, P10, P11, C13, S17, S18, P16



## FOOD SHARING PLATFORM



P.4



Implementing a food sharing platform within a circular food system will lead to increased resource efficiency, reduced food waste, enhanced community resilience, and improved access to fresh and diverse food sources.



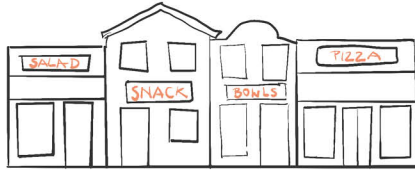
Connected patterns: P1, S3, S15, P12, P15, P16



## CHOOSE YOUR DISH



P.5



Empowering individuals to make choices what to get to eat not only enhances personal freedom but also enriches diversity and fosters new economic opportunities within the local neighbourhood economy.



Connected patterns: P4, E1, C6, C7, S3, E8, C13, S15, S17, S18, E10, S19, E12

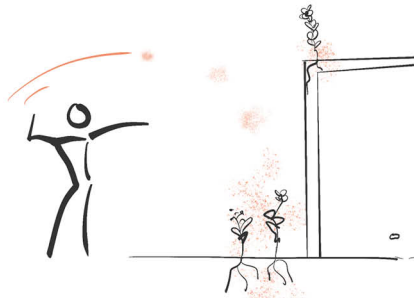




## GUERRILLA GARDENER

FU

P.6



These growers plant seeds in public spaces, sometimes as a radical act ( . This action provides individuals empowerment and improves the biodiversity in the area.



Connected patterns: P1, S2, S8, P7, E9, C13, S16, E10, P13, E11

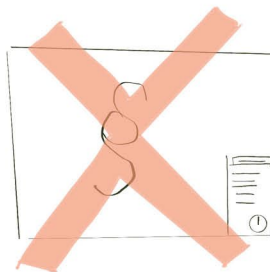


# URBAN UNPLAN

ST



P.7



Allowing urban spaces to evolve organically without a predefined urban plan can support nature and society to thrive and supports urban and natural diversity .



P1, E6, E8, E9, S16, P13,

Connected patterns: E11, E12

Contradicts patterns: -E1



## ANNUAL COMMUNITY HARVEST

GB



P.8



Hosting an annual community harvest alongside providing space for fruit trees to grow fosters local food production and enhances social inclusion and nurturing of the public space



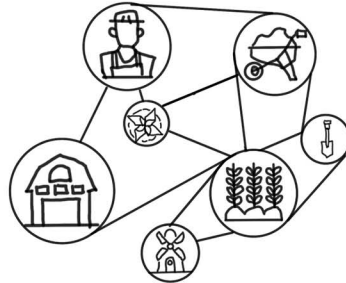
Connected patterns: E5, E7, E8, P12, E10, P13



## AGRICULTURAL CLUSTERS

EU

P.10



The development of agricultural clusters focused on short supply chains has the potential to enhance local food production and strengthen the small agricultural businesses



Connected patterns: P1, P3, C2, S12, E9, S14, S17, S18, P12, P16

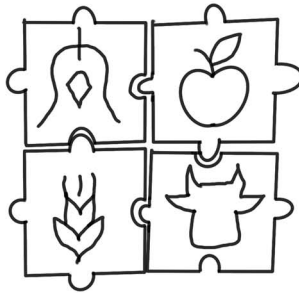


## SMALL FARMERS COOP

EU



P.11



Small farmers' cooperatives can play a pivotal role in bolstering the economic viability and sustainability of local agriculture, potentially leading to increased access to resources & improved market competitiveness



Connected patterns:

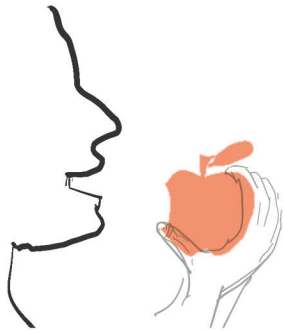
P1, P3, C2, S12, E9, S14, S17, S18, P12, P16



## EAT WHAT YOU GROW



P.12



The practice of "eating what you grow" leads to a stronger connection to food sources. You know what you are eating by being aware of where the food was grown, for example in your own garden or in your neighbourhood.



Connected patterns: P1, E1, S10, S12, P16  
P4, E4, E5, S11, E8, P8, C9,  
P10, P11, S18



## NURTURING NEIGHBOURHOOD



P.13



Maintaining, preserving and nurturing neighbourhood spaces that promote biodiversity contributes to both the local biodiversity and the sustainability of food production. And simultaneously strengthens social networks.



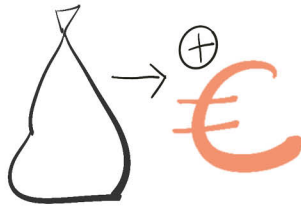
Connected patterns: P1, P6, P8, S12, E9, E10, P15, S20



## BENEFIT FROM SEPARATING

C40

P.14



Residents who actively participate in waste separation programmes experience tangible financial benefits. For example, they receive a tax reduction or are compensated via the 'Schalkwijk Euro P3' for boosting the local economy.



Connected patterns: -P2, P3, C5, S7, S8, S9, C8

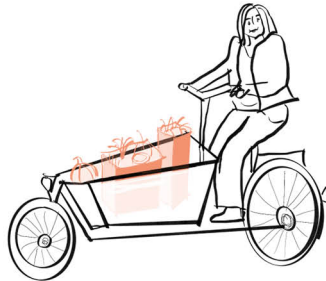




## PERSONAL FOOD DELIVERY



P.15



Encouraging friends and family to bring food that is locally sourced with shorter supply chains may lead to greater support for local agriculture.



Connected patterns: P13, P1, P4

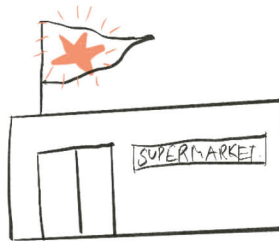


## SUPERMARKETS AS PIONEERS

C40



P.16



Supermarkets acting as pioneers in adopting short supply chains, local sourcing, and advocating to reduce and eliminate food waste by cooperating in local food sharing strengthen and support that within the neighbourhood



Connected patterns: P2, P3, P10, P11, C13, S14





# INFRASTRUCTURAL NETWORK PATTERNS



## CATCH THE WATER!



I.1



Implementing water collection systems in both public and private urban areas can significantly contribute to circular water management



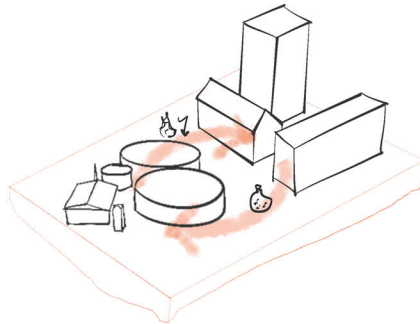
Connected patterns: E4, C3, C4, E7, S 14, E10



## DISTRICT BIOGAS SILO



I.2



A District biogas silo would play a crucial role in closing the loops of a circular food system by shortening the distances for the infrastructure needed to transport waste and heat.



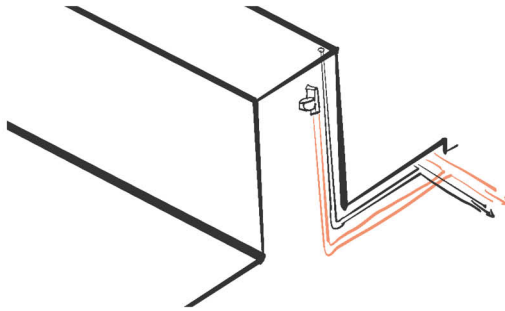
Connected patterns: C3, C5, S2, S4, S6, S7, S8, S9, C8, C10, C11



## SEPARATE SEWAGE



1.3



Separating the wastewater collection sewage system makes it possible to create small loop for reuse of rainwater and separates human wastewater including nutrients to make use of this resource.



Connected patterns: C1,C2,C4,C5,E6,C10,C11,S13 W—E

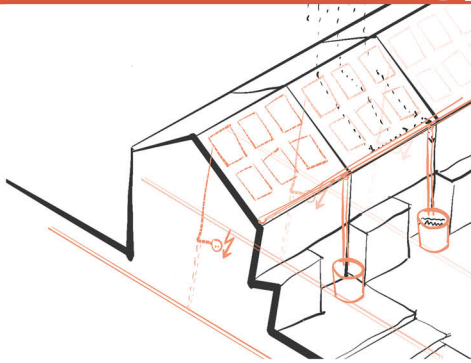




## PRODUCTIVE ROOF



I.4



Maximizing the productivity of a roof for water, energy, and food production can be achieved through an integrated system that combines rainwater harvesting, solar energy generation, and rooftop gardening.



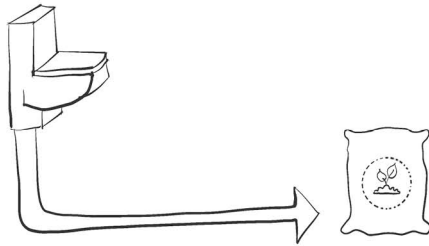
Connected patterns: S1, E2, C1, C3, C5, P6, E6, S14, P16, S20



# SHIT!



I.5



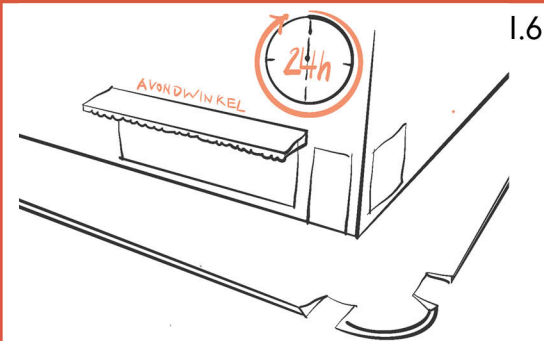
The collection, treatment, and utilization of sewage waste as a source of human nutrients for agricultural fertilization



Connected patterns: E2, E5, C3, E7, C10, C11, E11, S20



## AVONDWINKEL



Extending the hours of evening shops and providing diverse access to food late at night leads to increased consumer convenience while contributing to enhanced accessibility and choices for individuals seeking nourishment during non-traditional hours.



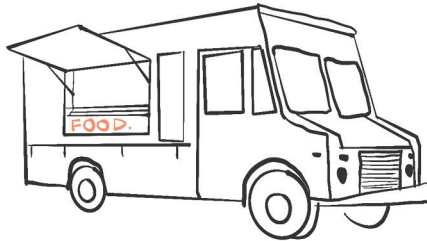
Connected patterns: P3, P5, P9, C13, S17, S18, S19



## FOOD TRUCKS



1.7



Food trucks provide diverse food options in various locations and at different times, expanding access to culinary choices.



Connected patterns: P3, P5, P10, P11, S19



## FREQUENT WASTE COLLECTION

C40



1.8



Implementing frequent waste collection schedules in Schalkwijk can lead to cleaner streets and more pleasant living environment due to no development of smell and waste overflow.



Connected patterns: C2, S2, S8, S9, C12, S15



## COFFEE TO MUSHROOMS



1.9



Using coffee grounds as a substrate for growing mushrooms. Coffee waste is collected separately from cafés and households and then used to grow mushrooms locally. These mushrooms are then sold locally and to the cafes.



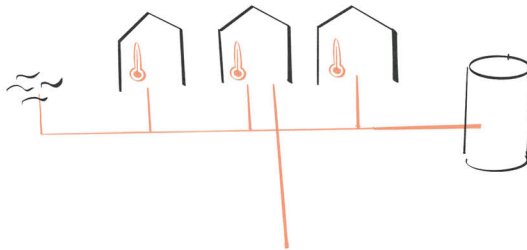
Connected patterns: E2, S7, P12



# HEAT NETWORK



I.10



Implementing a decentralized heat network powered by biogas from local organic waste, supported by a heat pump (WKO).

Implication: rooms for heat pumps - water as aquathermal support

- heat ( district + heating eg Polderwijk NL)



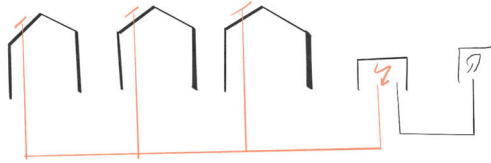
Connected patterns: -E3, C2, S8, C9,P10,P11, S14, P14



# MICROGRID



I.11



Microgrids distribute the energy needed locally. The energy is produced from organic waste in the local biogas plant, which in turn supplies some of the energy to the local microgrid.



Connected patterns: C2, C10, P9, P10, P11,

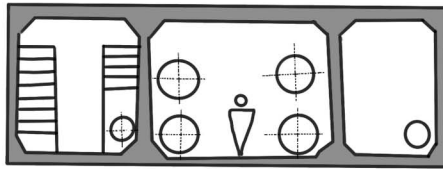




## SHARED CIRCULAR SPACE



I.12



The integration of shared infrastructure for circular systems encompassing sewage, street structures, water collection and storage, and food production leads to synergies that promote resource looping and efficient use of space



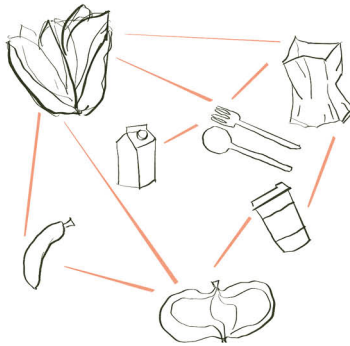
Connected patterns: C3, C8, C10, C11



## FOOD NETWORK



I.13



Establishing a neighbourhood food network that is easily accessible to everyone, well-connected to public transport, and designed with pedestrian-friendliness in mind promotes convenient access to fresh, local produce.



Connected patterns: P1, P4, E4, E5, S6, S10, S11, E8, S12, S13, C13, S15, P12, E12





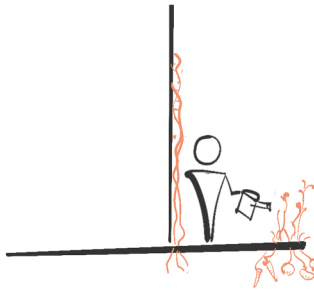
# ECOLOGICAL NETWORK PATTERNS



# HOME GARDENING




E.1



Residents who grow something individually at home on a small plot of land and consume their own produce



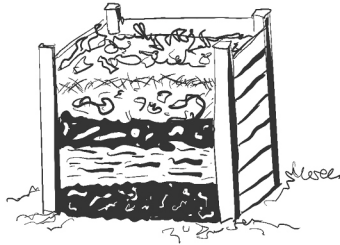
Connected patterns: P1, S1, E2, S12, C13, P12, S20 

# COMPOST

C40



E.2



Composting plays a crucial role in generating new, local, and sustainable soil resources, as it offers an inclusive solution where food waste transforms into nutrient-rich soil and can be directly used for gardening.



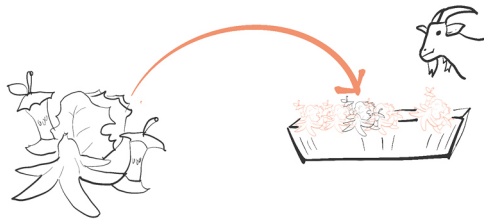
Connected patterns: P1, P2, S1, E1, C2, C5, S8, S20



## FOOD TO ANIMALS

BIR  

Back to the roots E.3



Feeding animals such as goats and pigs with organic food waste from our households is a viable and sustainable practice, as it has the potential to reduce food waste, enhance animal nutrition, and contribute to a more circular agricultural system.



Connected patterns: S2, S8, S9

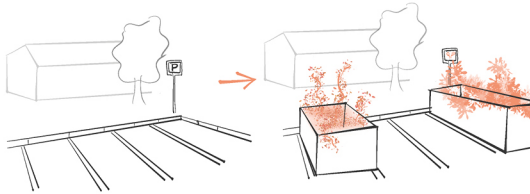




## 1 BEET 1 PARKING



E.4



By converting every second parking spot into a vegetable bed for local food cultivation, neighbourhoods can become greener and offer more space for sustainable food production, potentially leading to increased access to locally grown, fresh produce.



Connected patterns:

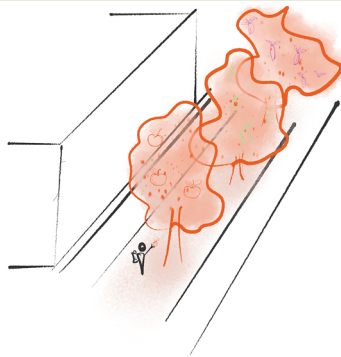
P1, E5, P6, E6, E7, P8, S12,  
S13, C13, S16, P12, E10,  
P13, E11



## SNACK SCHOOL PATH



E.5



Fruit trees and bushes provide healthy and local food for the children which encourages the children to get involved in eating local food



Connected patterns:

P1, E4, C1, S11, P6, E6, P7,

E7, E8, P8, S12, E9, C13, S16,

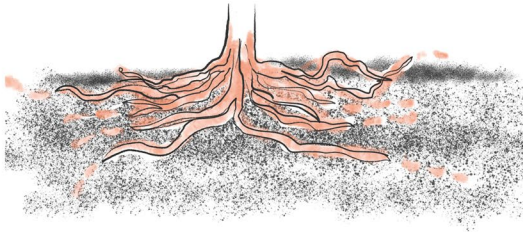
P12, E10, E11, E12



## ROOM TO THE ROOTS



E.6



In order to accommodate tree growth along the routes to schools in the neighbourhood, appropriate space allocation is essential



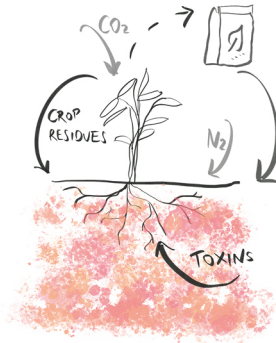
Connected patterns: E4, E5, P7, E7, E8, P8, C12, C13, S16, E11



## SOIL RENEWAL



E.7



Promoting healthy soil plays a crucial role in supporting local food production, closing the resource loops, is supporting the biodiversity in the area and provides better water storage.



Connected patterns: E1, E2, E4, E5, C1, C2, C3, C5, S2, S4, S5, S7, S8, E6, S14, S16



# ORGANIC ORCHARD




E.8



Providing space for fruit trees to grow supports the local food production and also the biodiversity in the area.

Connects with snackschoolpaths, own fruit tree, healthy soil, alternative pavement, annual community harvest, nurturing neighbourhood

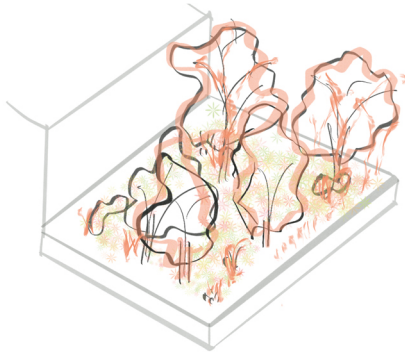


Connected patterns: E7, P8, E9, S16, P12, E10, P13 

## WILD PUBLIC GREEN



E.9



Having public wild green spaces can benefit fostering biodiversity, providing recreational opportunities, and promoting environmental conservation - with minimum need of maintenance and energy



E4, E5, C5, S8, S11, P6, E6,  
P7, C13, S16, P12, E10,

Connected patterns: P13, E11  
Contravert patterns: -S13



## PLAY WITH FOOD



E.10



Integrating natural play areas with food production spaces in public settings promotes outdoor activities playgrounds for children, environmental education, and access to fresh, locally grown produce.



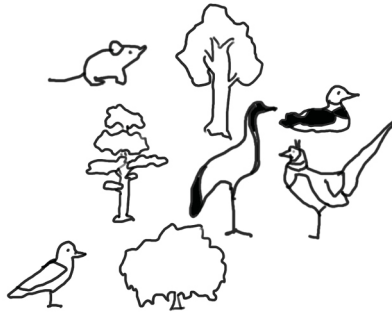
Connected patterns: E4, E5, S11, S12, P12, E11, E12  
Compliments patterns: - S20



## NATIVE FLORA & FAUNA



E11



The importance of native flora and fauna lies in their multifaceted contributions to ecological health, human well-being, and the broader sustainability of ecosystems and economies.



Connected patterns: E4, E5, C5, P6, P7, E7, E8, P8, P10, P11, E9, C13, P12, P13





## HERBAL RECREATION



E.12



Planting herb-rich grass around elderly homes and hospitals enhances herb accessibility and encourages interaction with nature, benefiting both residents and patients.



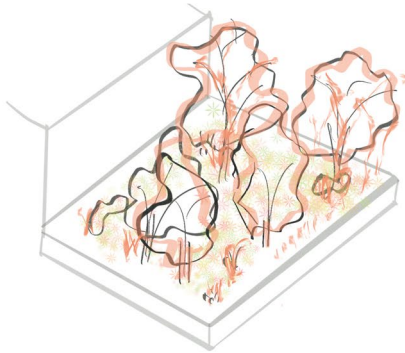
Connected patterns: E4, E5, S11, E9, C13, E10, P13, S20



# AGRO-FOREST



E13



Food production in an Agro-Forest is supporting regenerative urban agriculture and promoting permaculture concepts.



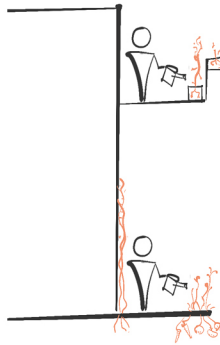
Connected patterns:



## LOCAL SOURCING



E.14



Local food production strengthens the circular food system, shortens the food supply chain, and promotes social cohesion and inclusion by engaging city dwellers in urban agriculture and enhancing green networks.



Connected patterns: C1, C4, C13, C14, E1, E2, E4, E5, E7, E8, E10, E11, E12, E13, P1, P6, P8, P11, P12, P13, S12, S14, S16, S20, S21



**FOOD NETWORK** C6



Establishing a neighbourhood food network that is easily accessible to everyone, well-connected to public transport, and designed with pedestrian-friendliness in mind promotes convenient access to fresh, local produce.

PI, PL, EA, EB, EL, EIC, EIL, EK, EY, I, IC, CI, IY, P, Z, IY  
Community partners: PE, PL, PR, C6, E7, E8, E9


**AVENUE**



Extending the hours of evening shops and providing diverse access to food late at night leads to increased consumer convenience while contributing to enhanced accessibility and choices for individuals seeking nourishment during non-traditional hours.

PI, PL, EA, EB, EL, EIC, EIL, EK, EY, I, IC, CI, IY, P, Z, IY  
Community partners: PE, PL, PR, C6, E7, E8, E9

**DISTRICT**



A District biogas silo would play a crucial role in closing the loops of a circular food system by shortening the distances for the infrastructure needed to transport waste and heat.

CI, E1, E2, E4, E6, E7, E8, E9, C6, E7, E8, E9, C11  
Community partners: PE, PL, PR, C6, E7, E8, E9