

*Friche Josaphat, Brussels
Belgium*

Building (im)perfection

Building (im)perfection

Research

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Introduction

Brussels, the capital of Belgium, stands as a vibrant and diverse city, encapsulating numerous cultures, languages, and traditions. Renowned for its status as an international hub, Brussels serves as a melting pot where people from various backgrounds converge.

With a population that speaks multiple languages, including French, Dutch, English and many more, Brussels embraces its diversity. The city fosters an inclusive environment, which allow multicultural neighbourhoods to thrive.

In two of these multicultural municipalities, Schaerbeek and Evere, the Friche Josaphat is located. This large, unbuilt site is an anomaly in Brussels. A place where nature has been able to thrive for over 20 years.

The Friche is the largest currently unbuilt area in the Brussels Region, with a total area of 25 hectares. The eastern side of the friche is used as an industrial area, while the western side has become a wasteland, not touched since the marshalling yard of the Belgian train company left. This side of the Friche has become a safe haven for almost 300 species of bees, birds, and dragon fly species. This makes the site a unique place in the city of Brussels. Multicultural in every sense of the word.

Since this is 'the last green in town' the city is facing opposition to the development plans, which would turn the area into a new, planned neighbourhood. The first masterplan was introduced in 2014, with multiple other plans also presented in the years following. (Josaphat | Sau-nsi, n.d.) All these plans have posed the same problem, the nature which had the chance of growing would all be destroyed in favour of dwellings, offices and leisure for humans.

A group of people is already showing a different solution is possible. On the friche, a small community exists. A group of people which regularly comes together to eat, cultivate the land and to have informal gatherings. These people strive to keep the friche as the wasteland it is now. This idea has a large following within Brussels, since all presented plans have been opposed.

This poses a problem. On one side the municipality want to construct dwellings on the friche and on the other hand the inhabitants want to keep the natural area in the middle of Brussels. How could people live on the friche while also being able to preserve the natural area?

Motivation

On a Wednesday in September 2023, I together with the whole studio entered the Friche in Brussels for the first time.

A site unable to be seen from the outside, an oasis of calmness when inside. A strange feeling when you know you are in the European capital and one of the most diverse cities in the world. The friche was a place where I did not feel that I was in that city, it could just have been a place far outside of it.

When we were guided through friche and were introduced to the common space near the entrance, the story of the friche was told. Once a marshalling yard for trains and for the last decades untouched.

A group of people had formed a 'commons' as they called it. A place where they could come together on the friche, eat, meet, and grow food.

All while preserving as much of the nature as it is. It stands as a protest against the plans of the city of Brussels, which if constructed would fade friche out of existence.

The idea of the commons caught my attention and remained in my thoughts during the remainder of the trip. Would it be possible for people to live on this wasteland, while preserving the nature and the animals living there.

Upon returning from Brussels, the thought remained in my head. The idea of a place in Brussels so unknown to most, becoming an example of how people can live with nature instead of destroying it, is fascinating.

Part I

Research

Case study

Intentional communities

chapter one

What is an intentional community?

This book presents research into intentional communities and how they function. Firstly, the wording of 'intentional community' will be delved into. The term can be interchanged with 'commons' and 'ecovillage'. A description of 'What are the commons' (Bezboroa, 2020), 'Findhorn Book of Communal Living' (Metcalf & Metcalf, 2004) and 'Finding community how to join an ecovillage or intentional community' (D.L. Christian, 2007) will be used to introduce all terms and create an understanding of the similarities and the differences.

Bezboroa (2020) writes that an ideology could be the most fitting way of describing a commons. A commons refers to the individuals living within a community and the rules they establish. The concept of commons encompasses the community itself, the established protocols, and values within the community. The collective actions in sharing the usage and responsibility of their own environment are referred to as 'commoning'. Commons cannot exist without 'commoners' (the inhabitants) or 'commoning' (the established rules and adhering to these rules). As a result, commons are more than the mere combination of their components and can be viewed as a constant evolving entity.

Metcalf and Metcalf (2004) describe Intentional communities as the following: Five or more people, drawn from more than one family or kinship group, who have voluntarily come together for the purpose of ameliorating perceived social problems and inadequacies. They seek to live beyond the bounds of mainstream society by adopting a consciously devised and usually well thought-out social and cultural alternative. In the pursuit of their goals, they share significant aspects of their lives together. Participants are characterized by a "we-consciousness," seeing themselves as a continuing group, separate from and in many ways better than the society from which they emerged.

Christian (2003) creates the following definition of an ecovillage. Ecovillages have a dedication to social and ecological sustainability, and to sharing what they learn with others.

It is a human settlement, a full-featured settlement in which human activities are harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future.

Human-scale means that the settlement has enough inhabitants to sustain itself, but small enough to know and to be known by other members. A full-featured settlement is a place where, ideally, villagers live and work onsite, grow their own food, and produce their own energy.

These descriptions can be summarized in the following short terms:

‘Commons’

- An ideology
- Refers to the individuals living in a community.
- Refers to the self made rules of community, which differs per community.

‘Intentional community’

- Group of 5 or more people which voluntarily live together in an alternative place beyond mainstream society
- Based on social and cultural alternatives
- Characterized by a ‘we-consciousness’.

‘Ecovillage’

- Human settlement with dedication to social and ecological sustainability
- Supports healthy human development to successfully continue into the future.
- A place where inhabitants work, live, grow their food on site and produce their own energy.

While intentional communities and ecovillages have shared elements, both are places where people live in an alternative place outside of normal society, they have very different reasons of existence. Intentional communities are often created because people have a different view on a social, cultural or spiritual level. Ecovillages are created from an ecological point of view.

While there is a clear difference between the two, they both share the ideology of the commons. Both intentional communities and ecovillages have 'commoners' and practice 'commoning'.

Commons are further explained by De Angelis and Harvie (2003). 'In general terms, the commons are social systems in which resources are shared by a community of users/producers, who also define the modes of use and production, distribution and circulation of these resources through democratic and horizontal forms of governance.'

In conclusion, intentional communities and ecovillages are both communities which practice an alternative lifestyle, in a place often outside of normal society. Both are created out of the wish to live an alternative lifestyle, although with different motivations.

Out of the above-mentioned descriptions a framework is created, to be able to select case studies.

- 1. A community must value community living and must practice the ideology of 'commons'.**
- 2. A community has to seek a measure of control over community resources, this can be in food, water, energy, government or other necessities.**
- 3. A community should have a strong value of shared values, which could be spiritual, cultural or ecological.**



Data analysis

chapter two

For this research, eight communities have been selected. They are located on multiple continents, have a range in size, inhabitants, types of dwellings and ways of living. Over the world, there are over 1000+ of these communities (ic.org, 2023)

In the first chapter, several conditions have been set which the communities have to meet:

1. A community must value community living and must practice the ideology of 'commons'.
2. A community has to seek a measure of control over community resources, this can be in food, water, energy, government, or other necessities.
3. A community should have a strong value of shared values, which could be spiritual, cultural, or ecological.

To facilitate a effective comparison, the communities are located in Europe, North America or in Oceania. The communities, located in the regions commonly referred to as the 'western world' will serve as suitable case studies, since the project site is in Brussels.

This comparison will involve eight communities, listed as follows:

Zentrum für Experimentelle Gesellschaftsgestaltung (ZEGG), Germany
Crystal Waters Ecovillage, Australia
Centraal Wonen Bussum, The Netherlands
Dancing Rabbit Ecovillage, USA
Sieben Linden, Germany
Twin Oaks Community, USA
Christiania, Denmark
Sirius Community, USA

This section of the research will focus on the following:

Population and land use
Types of dwellings
Self sustainability

By combining multiple information sources, including as websites, mail correspondence and research papers, these eight will be compared to each other and, where possible, to the friche.



Size comparison

Intentional communities vary widely in size, ranging from small groups to those housing several hundred residents. These communities function as micro-societies united by a shared objective of promoting sustainability, collaboration, and a deep sense of belonging.

Among the case studies, Sirius Community stands as the smallest with just 30 individuals, while Christiania boasts the largest population, exceeding 900 residents. This has not always been the case, as can be seen from figure 1, most of the communities started off with only a small group of people. As time progressed, the communities grew to the number of inhabitants of today.

To compare these communities, several metrics will be considered: total population size, total area, and utilized area. Utilized area accounts for the space actively used for living, energy generation, food cultivation, and communal activities, excluding natural or unused sections.

When examining total area, which can be seen in figure 3, Crystal Waters and Twin Oaks emerge as the largest communities by a considerable margin. Conversely, Centraal Wonen occupies the smallest physical footprint, encompassing only about 1 hectare, despite hosting a substantial population.

However, this perspective shifts when focusing on utilized area, figure 4. Crystal Waters remains the community with the most extensive land utilization. In contrast, Twin Oaks utilizes a smaller area, comparable to the western portion of the Friche Josaphat site in Brussels.

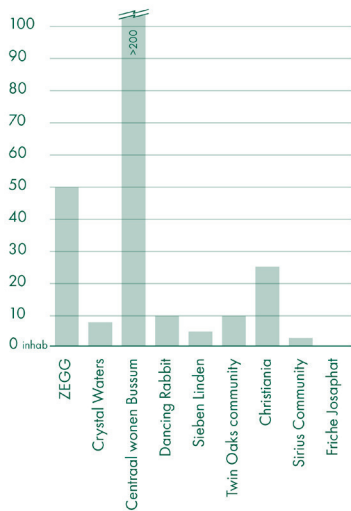


Figure 1: Number of inhabitants at conception

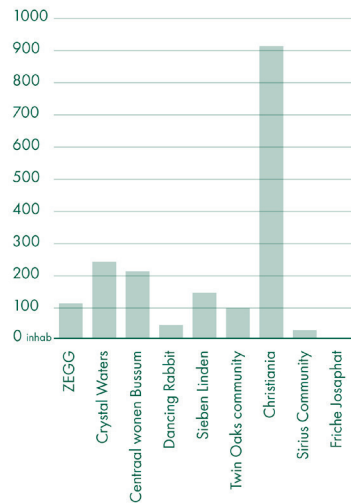


Figure 2: Current number of inhabitants

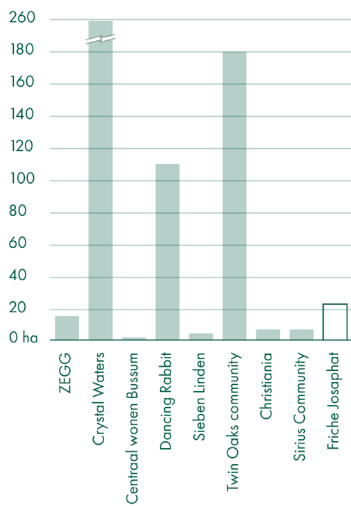


Figure 3: Total area

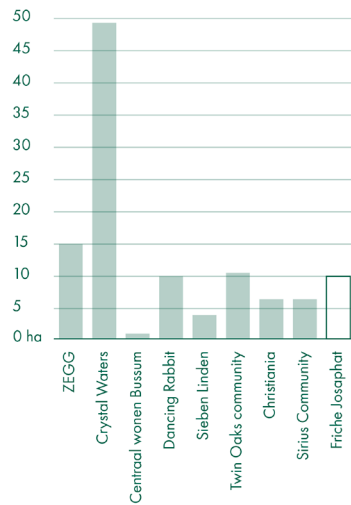


Figure 4: Used area

When both population and size are compared, clusters can be established. There are smaller communities, which have less than 100 inhabitants, and there are communities which are larger in size and have between a 100 and 250 inhabitants. Christiania is the odd one in this comparison with a larger number of inhabitants.

This changes when the used size is compared to the population. This measured the used area of the communities, which is most often much less than the actual area. Twin Oaks for example, has an actual size of around 12 hectares, while the whole site which is owned by Twin Oaks is about 180 hectares. A majority of the communities are smaller than 15 hectares, which would all make then fit on the west side of the Friche Josaphat.

In this comparison two clusters can be identified, a cluster of communities which are smaller than 5 hectares but have more than 150 inhabitants, and a cluster which are larger than 5 hectares but have less than 150 inhabitants.

This indicates that certain communities exhibit either a dense and compact design with higher inhabitant concentration or a more expansive layout, allowing more space between buildings. The Friche Josaphat is a natural site in the middle of Brussels, where densifying is not preferred. A smaller and more spread-out community therefore is preferred.

Community guideline

- The community will be designed to accommodate up to 100 people. In the beginning it will start with a core group of 20 individuals.

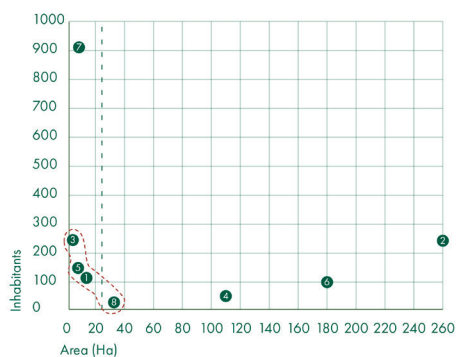


Figure 5: Number of inhabitants compared to total area

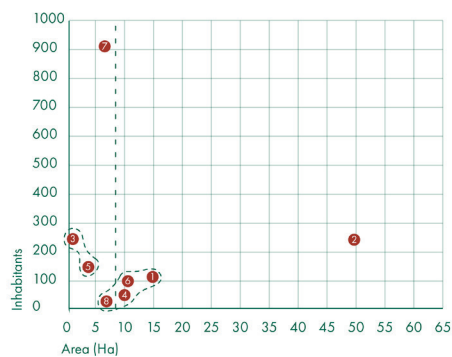


Figure 6: Number of inhabitants compared to used area

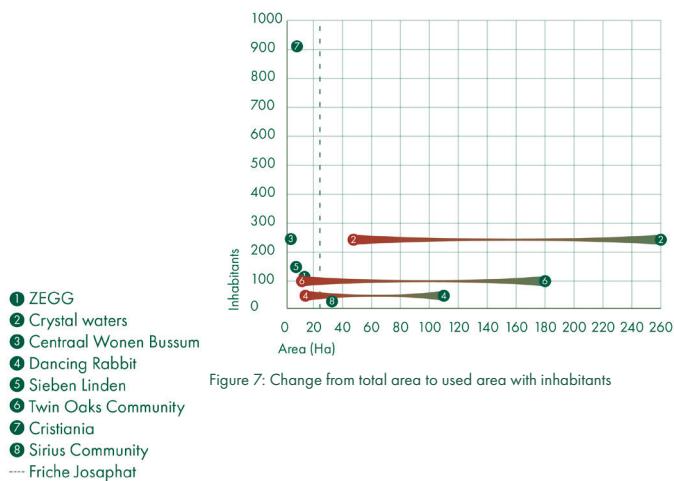


Figure 7: Change from total area to used area with inhabitants

- ① ZEGG
- ② Crystal waters
- ③ Centraal Wonen Bussum
- ④ Dancing Rabbit
- ⑤ Sieben Linden
- ⑥ Twin Oaks Community
- ⑦ Cristiania
- ⑧ Sirius Community
- Friche Josaphat

Dwelling typology

The communities vary greatly in the types of dwellings. Although communities care about a shared lifestyle, the lifestyle of living together varies greatly. Most communities have either smaller buildings where people live in alone, couples, families or in small groups. These can be categorised as 'housing' style, as these are comparable in size. The other type which is most common are cluster-style buildings. These are larger buildings where a larger group of people live together.

Housing

This is often a smaller building, with one to three bedrooms. This can be inhabited by families, or by members who are roommates. In these types of building a kitchen and bathroom are often shared, sometimes in the building itself although some communities share these amenities with a larger group.

Cluster

This type of dwelling is larger than the housing. In these buildings there are often private rooms. Some communities offer multi-person rooms. Within these buildings amenities such as a kitchen and bathroom are often shared with the whole building. The number of rooms varies greatly between the communities.

Other types

Besides these dwellings, half of the communities still use campers or tents. Tents are more often used in the summer. The campers offer a private living place for inhabitants.

Community guideline

- Given the seven-hectare size of the community, the preference will be for cluster-style dwellings

When the type of dwelling is compared against the number of inhabitants it can be seen that the smaller communities mostly have dormitory style housing. Only Dancing Rabbit is the exception, although this community also has a small number of dormitory style housing. The larger communities all have housing style dwellings.

The initial population of the friche community will be modest, beginning with a small number of individuals and gradually growing to accommodate 80 to 100 people. Given its smaller size, the friche community leans towards a dormitory-style dwelling arrangement to preserve the existing natural surroundings.

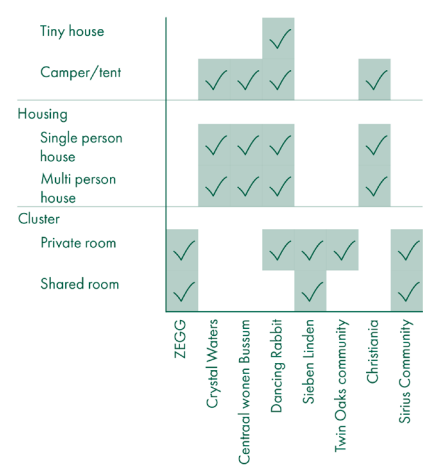
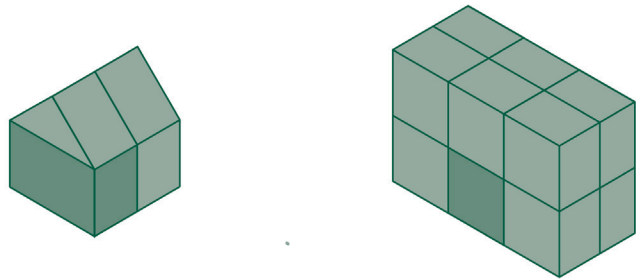


Figure 8: Types of dwellings per community

	Number of inhabitants	Most common dwelling type
ZEGG	>100	Cluster
Dancing Rabbit	45	Housing
Sieben Linden	>150	Cluster
Twin Oaks community	>100	Cluster
Sirius Community	30	Cluster
Christiania	900	Housing
Crystal Waters	>240	Housing
Centraal wonen Bussum	>200	Housing

Figure 9: Most common type of dwelling



‘Housing’ typology, typically with one to three bedrooms and shared bathroom and/or kitchen

‘Cluster’ typology, with either private or shared rooms within a larger building, bathroom(s) and/or kitchen(s)

Self sustainability

Originally rooted in activism or spirituality, the inception of communities was diverse, with some specifically emerging as ecovillages driven by the aspiration for a more ecological lifestyle. Presently, the overarching trend within these communities has shifted towards a focus on ecological living.

While the original ideals of activism or spiritual pursuits persist, their emphasis has evolved. This is evident in the extent to which these communities generate their own electricity and fulfill their food requirements. This deliberate move towards a symbiotic relationship with nature distinguishes these communities from mainstream society, which often exploits natural resources without regard for sustainability.

The underlying philosophy guiding this paradigm shift is rooted in permaculture. The permaculture research institute describes the following: The philosophy behind permaculture is one of working with, rather than against, nature; of protracted and thoughtful observation rather than protracted and thoughtless action; of looking at systems in all their functions, rather than asking only one yield of them; and allowing systems to demonstrate their own evolutions.

Community guideline

- The new community will strive to generate at least half of energy and food needs, with the goal to increase this

Examining the data gathered reveals a noteworthy pattern: half of the communities surveyed generate more than 50% of their energy needs, while merely two communities achieve the same self-sufficiency in food production. This disparity underscores the observation that achieving autonomy in energy production appears more attainable than in food production, highlighting potential areas for further exploration and development within these intentional communities.

Within the communities, the primary source of electricity is generated by solar panels or wind turbines. While generating the electricity in a sustainable way, communities also try to cut their energy use. Food is grown on either organic farms or in greenhouses.

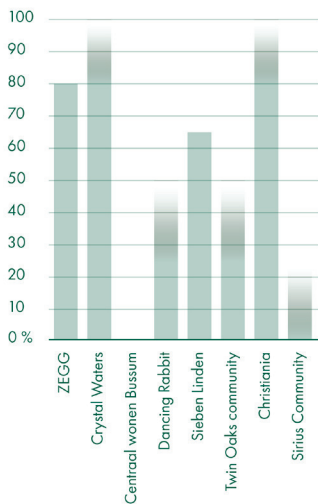


Figure 10: Electricity production

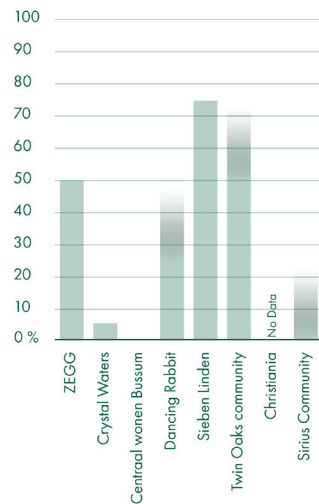


Figure 11: Food production

Conclusion

The analysis of this data has already facilitated the formulation of community guidelines, serving as valuable input for the ongoing design process. To deepen our comprehension of these communities, a subsequent analysis is warranted, specifically focusing on their urban and spatial settings.

For this extended examination, three communities have been selected based on criteria aligned with the established community guidelines. The chosen communities share the following characteristics:

- A smaller or comparable size to the friche Josaphat site in Brussels
- A maximum population of 150 members
- Preference for a mix of dwelling types, while cluster style is preferred
- Demonstrating at least some level of energy and food production, with room for potential improvement

In alignment with these criteria, the three communities identified for in-depth analysis are Dancing Rabbit Ecovillage, Twin Oaks Community, and Sirius Community. This selection ensures relevance to the established guidelines and promises valuable insights into the urban and spatial dynamics of intentional communities with characteristics similar to the envisioned friche Josaphat site.

Community guidelines

- The community will be designed to accommodate up to 100 people. In the beginning it will start with a core group of 20 individuals.
- Given the seven hectare size of the community, the preference will be for dormitory-style dwellings
- The new community will strive to generate at least half of energy and food needs, with the goal to increase this

Case study

chapter three

To gain a comprehensive understanding of the urban setting of communities, three case studies are selected. These communities closely match the size of the site in Brussels and the envisioned number of inhabitants of the new community.

The following communities will
Dancing Rabbit Ecovillage, USA
Twin Oaks Community, USA
Sirius Community, USA

This part of the research will focus on the following:

Access
Walkability
Dwellings & communal building
Placement on the friche

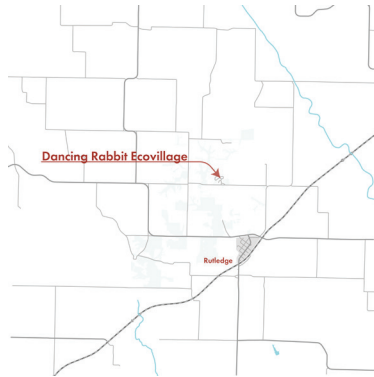
These comparisons will be used to create guidelines for the community on the friche itself.



Location

The three intentional communities in the are located in the United States. Sirius Community, Dancing Rabbit Ecovillage, and Twin Oaks Community have deliberately chosen rural settings far from major urban centers to establish alternative lifestyles and sustainable models of living.





Access

The intentional communities, situated in rural landscapes, rely predominantly on cars for transportation due to their remote locations, with collective ownership of vehicles among their members being a common practice.

In both Twin Oaks and Dancing Rabbit, while cars have the capability to enter the community grounds, such occurrences are infrequent. Typically, cars are parked in designated areas near the entrance of these communities, facilitating occasional transportation needs without disrupting the communal atmosphere.

Sirius Community, being the smallest of the three communities, there is no vehicular entry into the community. Only a designated car park situated near the communal building is available.

Community guideline

- The community is situated in the middle of a city, so a more private entrance is preferred

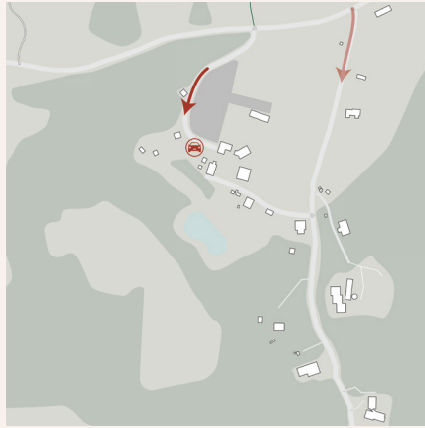


Dancing Rabbit Ecovillage



The first which can be noticed when entering the community is the communal building and a clear sign 'Foot traffic only'. The communal building clearly serves as the entrance for visitors, after this building a more private area for the inhabitants is situated.

- Main access road
- 🚗 Car park



Twin Oaks community



The entrance to the community is open and leads to the old centre. The other access road leads further into the forest and the community.



Sirius community



A simple sign shows that the community is further in the woods and the buildings are not visible from the access road.

- Main access road
- 🚗 Car park

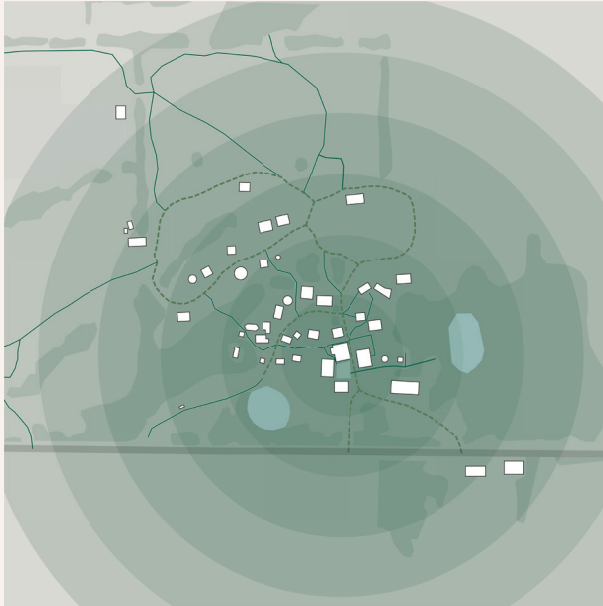
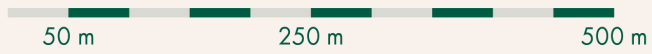
Walkability

In the communities, the predominant mode of transportation is either by walking or cycling. The maps illustrate a network of well-designed paths connecting all buildings and areas efficiently. Notably, the majority of structures are situated within 250 meters of the entrance or central building, and the maximum distance between them is 500 meters.

This close proximity renders cars unnecessary, establishing bicycles and walking as the preferred and practical modes of transportation within these community spaces.

Community guideline

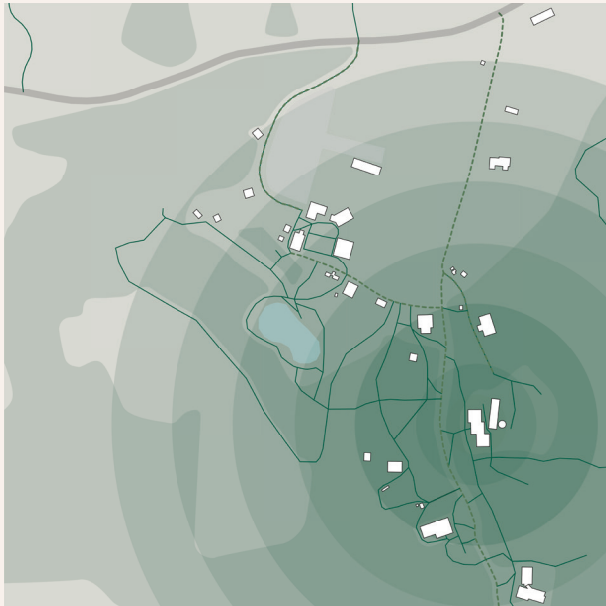
- To make the community interconnected, all buildings and other spaces have to be well connected with walking or bicycle paths



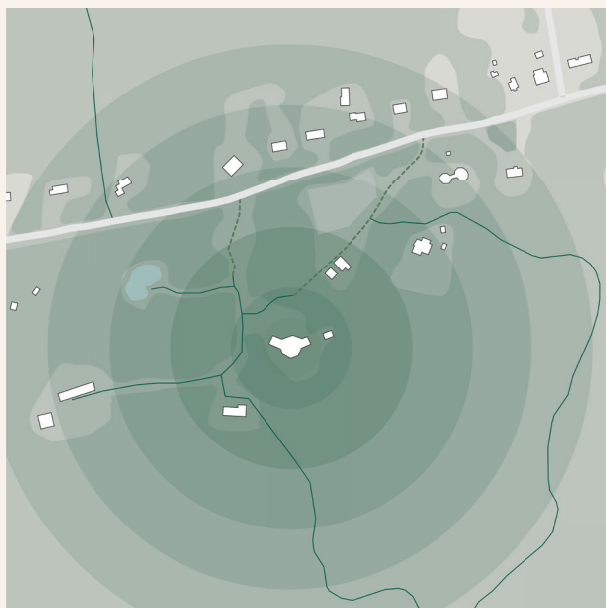
Dancing Rabbit ecovillage



- Paths
- - - Main paths



Twin Oaks community



Sirius community

- Paths
- - - Main paths

Dwellings & communal building

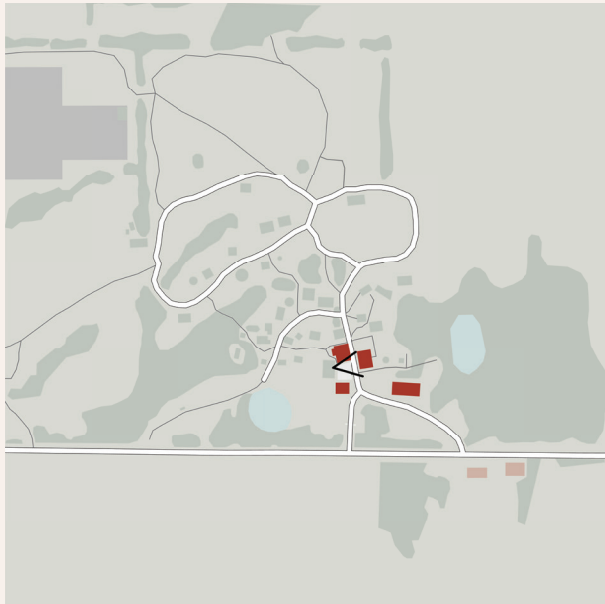
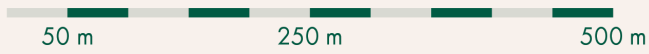
From the information found about the communities, it has become clear that the communities all have one or multiple communal buildings. These buildings are the central point of the communities. In Twin Oaks and Sirius community, these buildings are located centrally in the community, which means they are easily reachable in the physical centre of the community.

In Dancing rabbit, a central square is the centre of the community. The location of these buildings is not near the entrance of the community. Behind this square a more private area is reserved for the inhabitants and their dwellings.

Since the communities are quite small, and the largest distances are less than 500 meters the communal buildings are well connected to all the dwellings.

Community guideline

- A communal building needs to be implemented on the new community

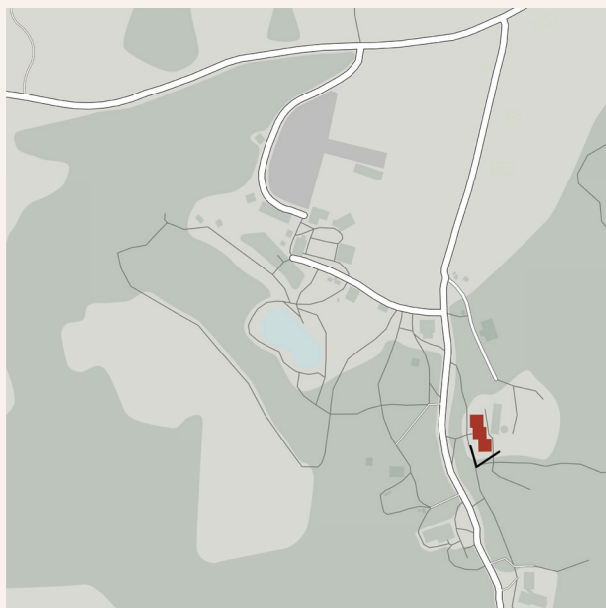


Dancing Rabbit ecovillage




- Dwelling
- Communal building
- Building not part of community



In front of the communal building, a small square is situated. this is used for gatherings, meetings and special events which the community hosts.

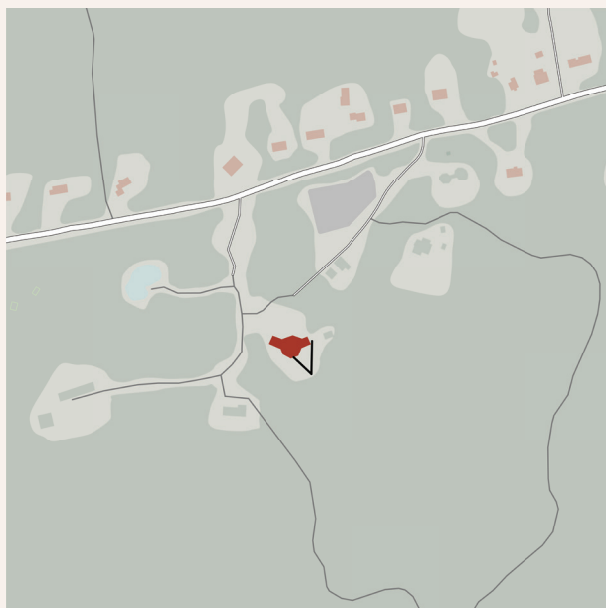


Twin Oaks community




-  Dwelling
-  Communal building
-  Building not part of community



On the south side of the building, outside of the dining hall a small terrace is placed.



Sirius community

-  Dwelling
-  Communal building
-  Building not part of community

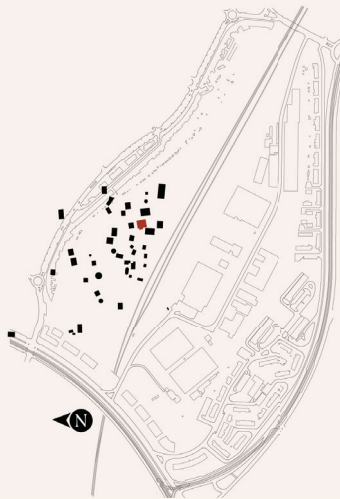


To the backside of the community building of Sirius, picnic tables and a patch of grass are located. In the summer this space is used for workshops and events.

Placement on the friche

As an experiment, the communities have been placed on the Friche Josaphat site in Brussels. From this it can be seen that none of the communities would spatially fit on the friche. The closest that would fit is the Sirius community, which is also the smallest in member size.

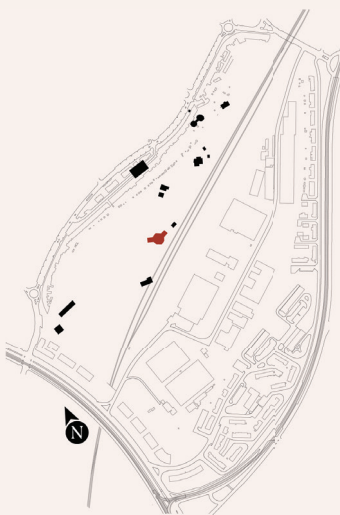
The communities encompass numerous buildings and are dispersed over a large area. The new community on the friche will need a different approach. Buildings cannot be widely spread out and functions of buildings will have to be combined.



Dancing Rabbit ecovillage

Community guideline

- The community should be compact and where possible functions should be combined



Twin Oaks community



Sirius community

Community guidelines

- The community will be designed to accommodate up to 100 people. In the beginning it will start with a core group of 20 individuals.
- Given the seven hectare size of the community, the preference will be for dormitory-style dwellings
- The new community will strive to generate at least half of energy and food needs, with the goal to increase this
- The community is situated in the middle of a city, so a more private entrance would be preferred
- To make the community interconnected, all buildings and other spaces have to be well connected with walking of bicycle paths
- A communal building needs to be implemented on the new community
- The community should be compact and where possible functions should be combined

Communal building

chapter four

To gain more knowledge of the central building of all communities, the communal buildings of four different communities will be researched. During the research all of the communities were mailed with the question if they would be willing to give more information on these buildings. During this time, the floor plans of some communities were found or given.

After the initial contact, the communities were asked a set of questions, which would give a better insight on the use or location of the building. Four communities were kind enough to answer these questions and help with the research.

In this chapter, the following common houses will be analysed: Dancing Rabbit Ecovillage, Twin Oaks Community, Sirius community and Centraal Wonen Bussum. All these have already been used in the first part of this research. Photos of the buildings have also been gathered, and the buildings will be analysed with the following themes: spaces, spatial layout, zones and routing private and public spaces.

These themes will help to understand the buildings and to create design guidelines for the new community building on the friche.



Interview

All the communities have been contacted or visited. To gain a better understanding of three different topics, urban setting of the communal building, zones and routing through the building and the daily use of the building an interview was held with people of these communities.

Interview questions

Urban overview

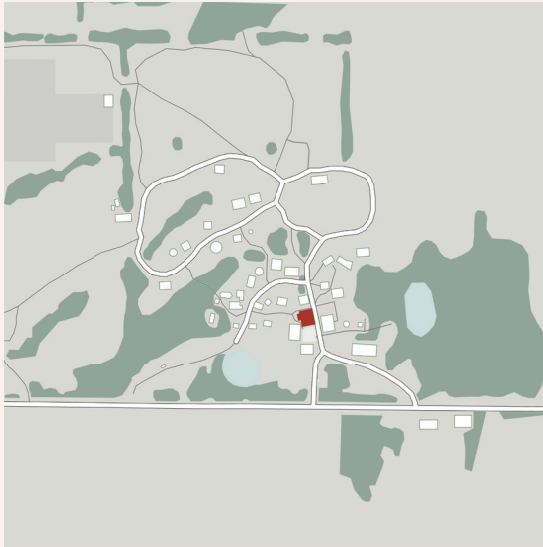
- How well is the building located within the community? Is it easily reachable for all members?
- Are there any other communal buildings, if so what function do they have and where are they located on the site? Do you maybe have a map of the community?
- Do you offer any (educational) workshops or other gatherings for non-members in this building?

Zones & routing

- Which spaces are you currently missing or would be beneficial to add to the communal building?
- Does the current layout work well? Would it have been beneficial to have a different layout?

Daily use

- When does the building get used most often? During the morning, mid-day or in the evening for example?
- Do members have all meals in the building?



Dancing Rabbit

How well is the building located within the community? Is it easily reachable for all members?

‘It is nearer the front/parking lots than most buildings here, which works fine. Our land use plan includes a denser core with a main street, and then gets less dense (but still clustered and walkable) and the common house is situated in the most dense part of the village that is also nearest the entrance. It is a 1/4 mile walk from the farthest house.’

Are there any other communal buildings, if so what function do they have and where are they located on the site?

‘There is a dance hall directly north of the common house that is just a nice, clean, empty room. People do yoga, dances, workshops, concerts, etc. there. It is also a fun place for kids to run around. There is also a public cafe/bed and breakfast directly east of the common house that serves coffee and serves as yet another ‘third space’ for our community.’



Twin Oaks Community

How well is the building located within the community? Is it easily reachable for all members?

‘It is extremely central, almost exactly half-way between the two farthest residences at either end of the community. There are clear paths and roads there from various directions, and three doors to enter or exit.’

Are there any other communal buildings, if so what function do they have and where are they located on the site?

‘All of our buildings are communal. There is no building that no-one can’t walk into at any time and all buildings have communal uses. Other than that, most communal spaces are integrated into our other buildings. We planned a lot of our spaces to be multi-use. (ie. residential/domestic as well as business/other activities) because it is more ecological to build one big building and live and work and recreate in it, than to build one building for living, one for working, one for recreating. So there are numerous communal spaces nestled in residences.’



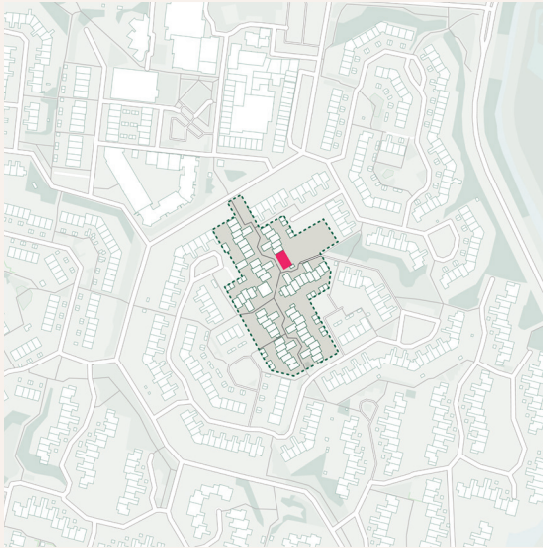
Sirius Community

How well is the building located within the community? Is it easily reachable for all members?

‘We live 15 minutes drive from the closest town commercial center. Almost all of our members live on the community grounds.’

Are there any other communal buildings, if so what function do they have and where are they located on the site?

‘We have a few other communal buildings, about three. They function as auxiliary meeting spaces.’



Centraal Wonen Bussum

How well is the building located within the community? Is it easily reachable for all members?

‘The building is located approximately in the middle of the (relatively small) street and is easily accessible for everyone.’

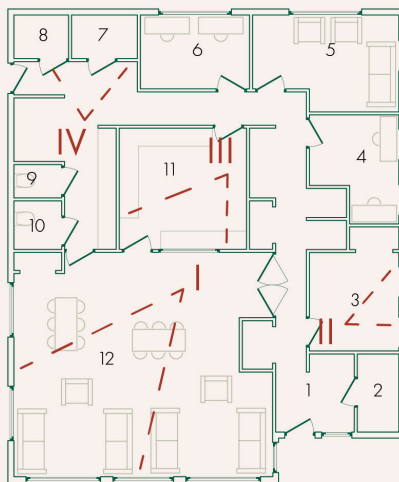
Are there any other communal buildings, if so what function do they have and where are they located on the site?

‘In the street, we also have a hobby space, a mini gym, and a sauna.’

Dancing Rabbit

Dancing Rabbit Ecovillage, situated in the rolling hills of rural Missouri, USA, embodies a commitment to sustainable living and environmental stewardship. Established in the late 1990s, this intentional community thrives on ecological principles, striving towards a low-impact lifestyle. Residents embrace permaculture, renewable energy, and alternative building methods, constructing eco-friendly homes using natural materials.

The village operates on a cooperative basis, fostering a close-knit community where decisions are made through consensus. Dancing Rabbit serves as an educational hub, hosting workshops and events that promote sustainability, organic farming, and eco-conscious living. This pioneering ecovillage stands as an inspiring model for resilient, community-based sustainability in harmony with nature.



Total m ²	187 m ²
1 Entrance	67 m ²
2 Batteries	3 m ²
3 Kids room	9 m ²
4 Office	9 m ²
5 Meeting room	14 m ²
6 Office	9 m ²
7 Shower	3 m ²
8 Bath	2 m ²
9 Toilet	12 m ²
10 Accessible toilet	3 m ²
11 Kitchen	17 m ²
12 Communal room	61 m ²



I | Communal room



II | Kids room



III | Kitchen

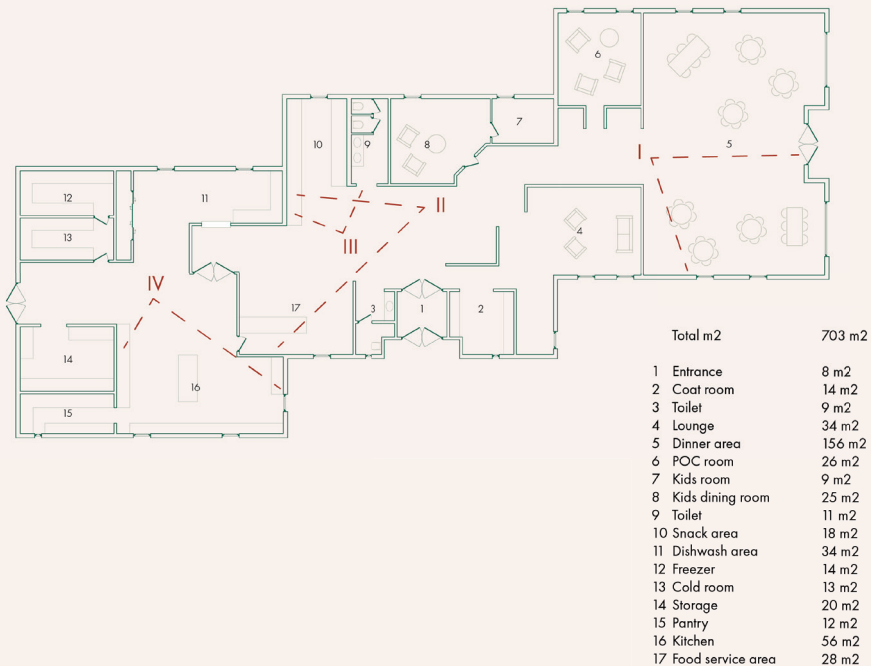


IV | Bathrooms

Twin Oaks

Twin Oaks Community, nestled in the picturesque countryside of rural Virginia, USA, stands as one of the longest-running and well-established intentional communities. Founded in 1967, Twin Oaks operates as an egalitarian commune where around 100 residents live and work together based on principles of cooperation, nonviolence, and sustainability.

Embracing a shared economy, members collectively manage businesses like tofu production and hammock-making, fostering self-sufficiency and economic autonomy within the community. Residents participate in a labor-sharing system, contributing to various communal tasks while enjoying personal freedoms. Twin Oaks values environmental stewardship, offering a model for simple living, social equality, and a tight-knit community bond that has endured for decades.





I | Dining area



II | Central hallway



III | Snack kitchen

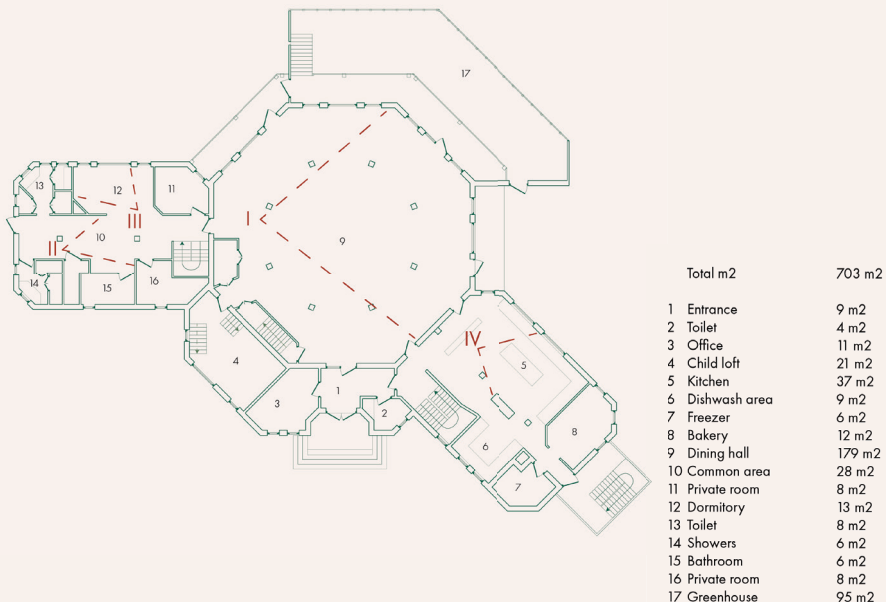


IV | Kitchen

Sirius Community

Sirius Community, situated in Shutesbury, Massachusetts, USA, emerged in the late 1960s as an intentional spiritual community dedicated to personal growth, sustainability, and holistic living. Founded by Norman and Jane Sherry, Sirius embraces spiritual exploration, meditation, and ecological stewardship. Residents participate in consensus-based decision-making and communal living, sharing responsibilities for land management, organic gardening, and eco-friendly practices.

The community focuses on self-sufficiency, permaculture principles, and renewable energy sources. Sirius hosts workshops, retreats, and educational programs on subjects ranging from sustainable living to holistic health. It embodies a harmonious blend of spiritual development, environmental awareness, and intentional communal living, fostering a space for personal transformation and collective consciousness.





I | Dining area



II | Central hallway



III | Snack kitchen

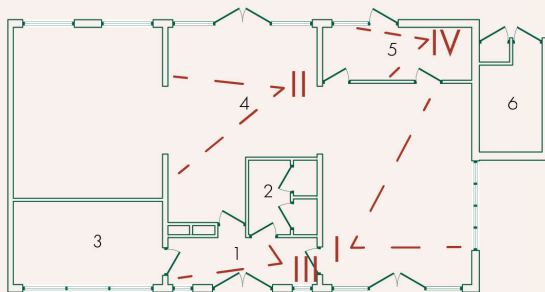


IV | Kitchen

Centraal Wonen Bussum

Centraal Wonen in Bussum, located in the Netherlands, embodies a progressive approach to community living. Established in the late 1970s, this pioneering cohousing project offers a unique blend of privacy and communal interaction. Nestled amidst picturesque surroundings, Centraal Wonen fosters a collective spirit where residents share common spaces while maintaining individual households.

The community promotes social interaction through shared meals, gatherings, and collaborative decision-making. Embracing sustainable practices and a strong sense of solidarity, it serves as a model for inclusive living, emphasizing diversity, mutual support, and ecological consciousness. Centraal Wonen in Bussum stands as a testament to harmonious communal living, fostering a sense of belonging and interconnectedness among its residents.



Total m2	137 m2
1 Entrance	8 m2
2 Bathroom	6 m2
3 Library	14 m2
4 Meeting space	88 m2
5 Storage	9 m2
6 Central heating	7 m2



I | Bar



II | Central room



III | Hallway



IV | Kitchen

Routing & zoning

Twin Oaks & Sirius community

The two larger communal buildings of Twin Oaks and Sirius community are both different in their layout. The building of twin oaks is comprised of three connected blocks which have their own function. The left block functions as the kitchen and storage area, while the right block houses the dining hall.

The only enclosed section of the building is the kitchen. The other part of the building is one large space, which is one of the complaints of the community members. The space echoes, according to the inhabitants. Mae, with whom I had contact, suggested that closing off the dining area would significantly improve this issue.

Entering the building is possible from three different points, on both sides and the front. The three sections of the building are connected with a central axis which runs through the whole building.

In contrast, the Sirius community has a completely different building design. It centers around a central dining/general hall that serves as a connecting hub for various parts of the building. The building can be divided into two wings, where on side the kitchen is located and on the other side the living quarters, the greenhouse, and the central area. These two wings are directly connected to the central hall.

Residents have the flexibility to access the building from various sides, although the left wing is more private and therefore probably not used often.

Design guideline

- A separation between spaces would preferable, so there wont be any disturbance. Spaces could also be dividable

Interview with Valerie from Twin Oaks

Do you offer any (educational) workshops or other gatherings for non-members in this building?

‘Many of those residential buildings also have a communal recreational, domestic or business use in one section or room of the building (eg. a business office or workshop, recreation or exercise room, communal laundry facilities, free clothing store/library, etc.)’

Which spaces are you currently missing or would like to add to the communal building?

‘We’re pretty happy with it overall. In the last year or two, we changed one thing, which is that we changed the smoking room into a BIPOC Affinity Space (more on that below). The main thing that people most often say they would like there to be in that building is a smaller dining room, where either meal meetings could happen, or just quieter dining space, with a door that closed to provide some acoustic isolation.’

Does the current layout work well? Would it have been beneficial have a different layout?

‘The current layout works well--there are 3 main sections, a restaurant-scale kitchen, a large dining room (which also gets used for meetings, dances, performances, etc.), and a ‘catch-all’ section. The section has bathrooms, our two main public noticeboard (one for short notices and one for longer papers and proposals), some regular dining, a dining room for kids and a small snack kitchen (so people can prepare their own food without interfering with the cooks).

There is also a health-supplies closet (aspirin, band-aids, condoms, etc.), a BIPOC Affinity Space (a room where People-Of-Colour can have their own space if desired) and a general lounge where members can read magazines, current proposals or just sit and chat. The one disadvantage to the design is that it has high, angled ceilings and so the acoustics make it sound very loud. It’s already loud with so many people eating and talking, and the acoustics make it more echoey.’

Interview with Eric from Sirius

Do you offer any (educational) workshops or other gatherings for non-members in this building?

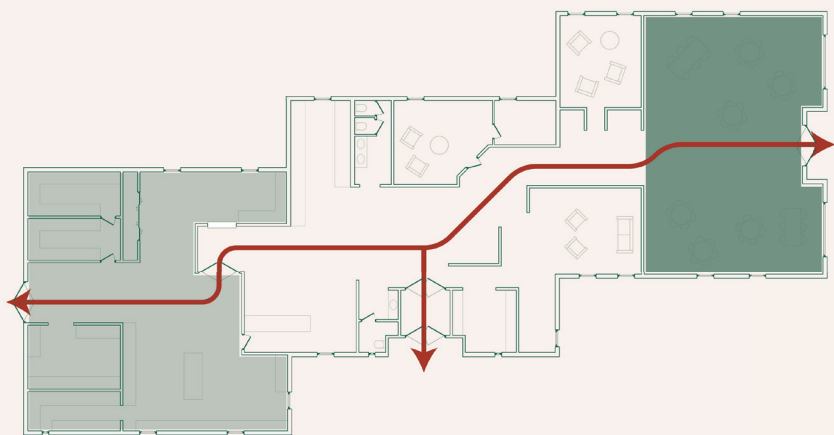
‘Yes, we are currently offering a Non-Violent Communication workshop to non-members. Many of the retreat weekend workshops that we host at our community are open to the public (although many are private). We are hoping to expand our workshop offerings in the future.’

Which spaces are you currently missing or would like to add to the communal building?

‘Most of our needs are met with our current spaces. We could use more guest rooms. Possibly one more meeting room would serve us well also.’

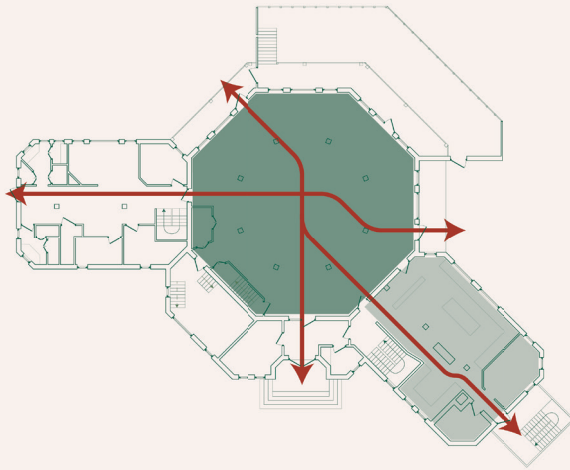
Does the current layout work well? Would it have been beneficial have a different layout?

‘We find the current layout to be awesome. I can’t think of a better layout other than adding the rooms I mentioned in my last answer.’



Twin Oaks Community





Sirius Community

Dancing Rabbit & Centraal Wonen

Both the communal buildings of Dancing Rabbit and Centraal Wonen are smallest in size and serve different purposes. The building of Dancing Rabbit has a hallway running past the common area and the kitchen to the backside where offices and the bathrooms are. This hallway gets quite dark, according to Mae. Who is the correspondent of the community. The kitchen and common area are directly connected and serve as the main two areas in the building

The shared building of Centraal Wonen in Bussum does not have a shared kitchen. The building is used for shared activities and has a central axis with doors on both sides of the building.

Design guideline

- To create a pleasant atmosphere, all areas should be well lit.

Interview with Mae from Dancing Rabbit

Do you offer any (educational) workshops or other gatherings for non-members in this building?

‘We do host educational workshops and programs and they do meet in the common house sometimes, although they also use Casa, which is more like an empty space, clean and open for dance, etc.’

Which spaces are you currently missing or would like to add to the communal building?

‘There was a time recently when we were going to build a larger common house, but weren’t able to raise the money for such an ambitious project, so I can guess at what features we would like based on what was intended to be in that larger building. The current common house has pretty small library and office for the non-profit. We use a storm shelter in another building.’

Does the current layout work well? Would it have been beneficial have a different layout?

‘The back hall is somewhat small and dark. It’s not easy for me to imagine how a different layout would serve us, but I’m sure improvements are possible. In general it works pretty well.’

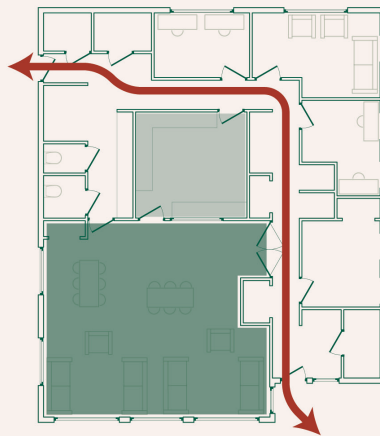
Interview with Vanessa from Centraal Wonen

Do you offer any (educational) workshops or other gatherings for non-members in this building?

‘We do not offer workshops or other activities for non-residents. However, it is possible for non-residents to rent the Luye Gat for an activity through consultation.’

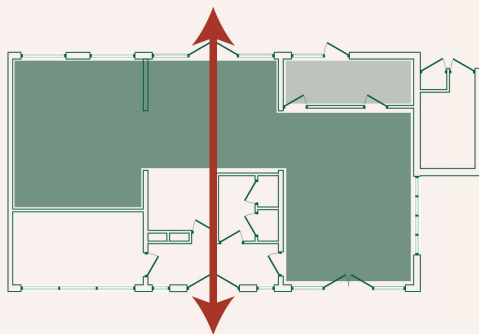
Which spaces are you currently missing or would like to add to the communal building?
/ Does the current layout work well? Would it have been beneficial have a different layout?

‘Actually, nothing is missing at Luye Gat; the decor is a bit dated, but everything is there.’



Dancing Rabbit





Centraal Wonen

Daily use

Twin Oaks & Sirius community

The communal buildings of Twin Oaks and Sirius community have the largest number of functions. Both have various rooms and spaces which get used on different times of the day. The times both buildings are used most in during lunch and in the evenings, when a lot of inhabitants eat in the communal building together with others and when events are organised. Breakfast is the only meal which is not served often in the communal.

The communal building of twin oaks many different areas where members can reside in. Different lounges can be used when inhabitants want to read or have a more private conversation. The building of Sirius is one larger hall with the kitchen directly connected to it. This means the members only have their living spaces to retreat to.

Interview with Valerie from Twin Oaks

When does the building get used most often? During the morning, mid-day or in the evening for example?

‘Extremely significantly, it gets used during lunch and dinner (12 to 13h and 18 to 19h), it’s hugely crowded at those times, too much for some people. Other than that use is pretty spread out. There is often at least someone in the building, even overnight as some people are night-owls. The times that it is the second-most busiest/full of people would be when there are other activities there, such as community meetings (16 to 18h) or dances (after dinner until late).’

Do members have all meals in the building?

‘Breakfast is not served communally, members can eat at ZK, or in their own residences. Most but not all people eat lunch and dinner there. Some people come and get their meals and take them elsewhere to eat (they prefer to have someone cook for them, but find eating with 50+ people too overwhelming) and some people almost never come to the communal meals and just cook for themselves on their own time (using communal food). There is a LOT of social and business activities that happen at meals. People socialize while eating, meal meetings are very common, and people often “catch” someone they need to ask a question to at meals.’

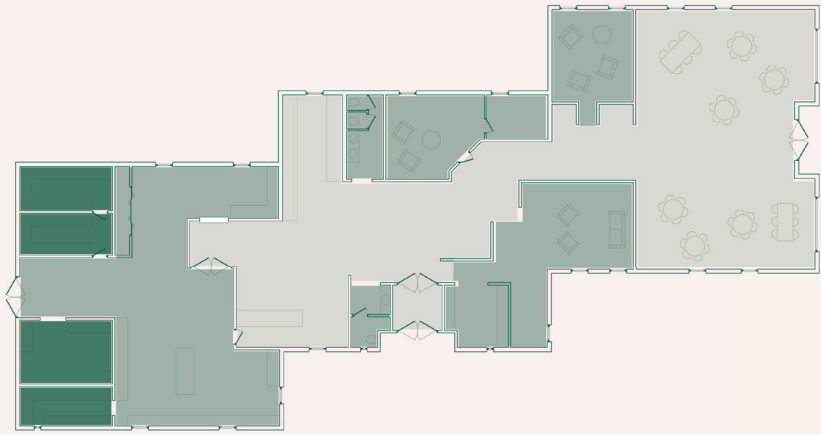
Interview with Eric from Sirius

When does the building get used most often? During the morning, mid-day or in the evening for example?

‘The building gets used for meals for our staff at lunch, and it gets most used in the evenings for Community dinners and after dinner meetings and events.’

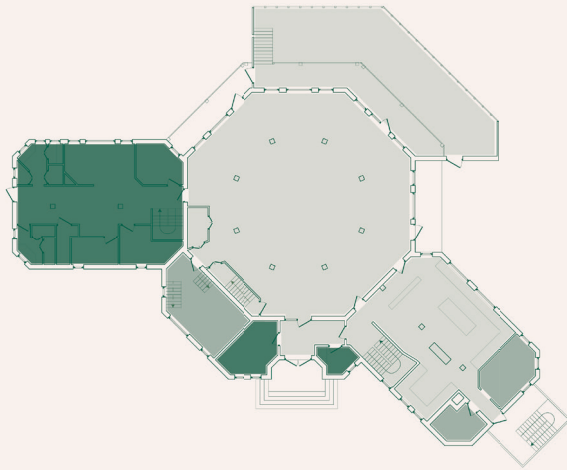
Do members have all meals in the building?

‘Yes, we have a community dinner 5 nights a week that most of the community attends.’



Twin Oaks Community

Public Private



Sirius Community

Dancing Rabbit & Centraal Wonen

The communal building of Dancing Rabbit serves a similar function as the buildings of Twin Oaks and Sirius community, only this building is smaller. There are smaller rooms along the corridor which can be used as meeting spaces and a larger room where members can have meals together or organise events.

Centraal Wonen has the smallest communal building and is not used quite often. During the site visit, the tour guide said that there are only larger events once a month which not all of the inhabitants attend. This would also not be possible, so the community holds larger events outside of this building. Some clusters do have dinner in this building and the bar is also opened twice a week.

Design guideline

- Since the community will be more public, some areas should be more private to also accommodate the needs of inhabitants

Interview with Mae from Dancing Rabbit

When does the building get used most often? During the morning, mid-day or in the evening for example?

‘Weekly potlucks and occasional parties are probably when I see it the most full. There are usually many folks at clean team time, or for meetings. At any time of the day when I go through there, there are usually a few folks. There is a morning crew who drinks their coffee and checks e-mail. Mid day might have a people using the internet or having a committee meeting. Kids go there to look for someone to hang out with, or to play with stuff.’

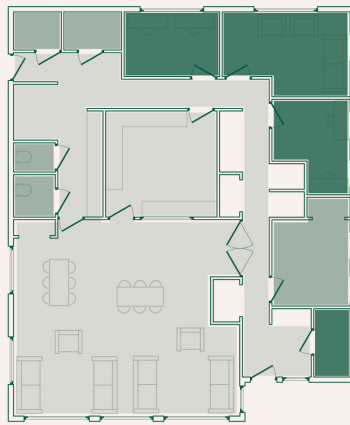
Do members have all meals in the building?

‘No, most members eat either at their own homes or in other cooperative kitchens. There was a time when the common house held a huge eating coop with 35 people, almost everyone in the community at that time, and there have been smaller coops in there or individuals who pay to use the kitchen outside of a coop structure. Currently there are two coop users and probably two non-coop users.’

Interview with Vanessa from Centraal Wonen

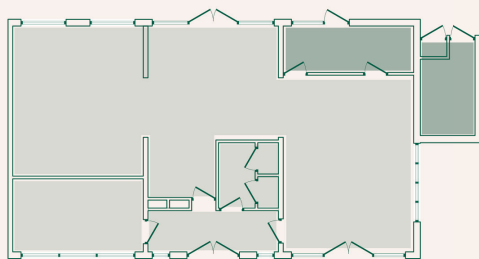
When does the building get used most often? During the morning, mid-day or in the evening for example? / Do members have all meals in the building?

‘The building is used interchangeably; there is a coffee morning two-three times a week, and the bar is staffed twice a week in the evenings. Additionally, people often have meals together (there is a soup night once a week, and occasionally someone organizes a themed dinner).’



Dancing Rabbit

Public Private



Centraal Wonen

Design guidelines

- A separation between spaces would preferable, so there wont be any disturbance. Spaces could also be dividable
- To create a pleasant atmosphere, al areas should be well lit.
- Since the community will be more public, some areas should be more private to also accomodate the needs of inhabitants

Part II

Research

Walter Segal: Self build method

Walter Segal

chapter five

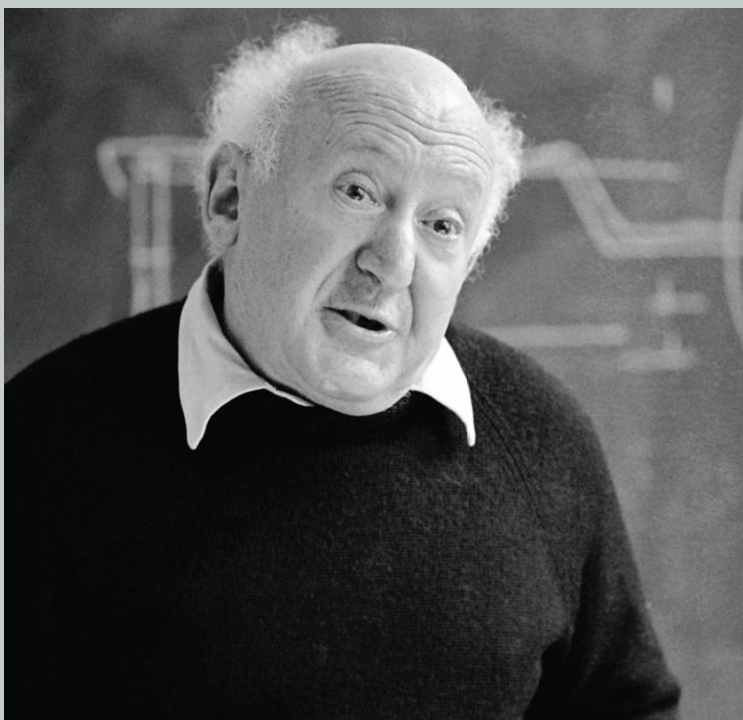
Walter Segal (1907-1985) was an architect widely known for his innovative self-build method and community development. Born in Germany, he moved to Britain during the second World War. During this period, Segal's creative perspective on housing and urban development started to take shape.

The approach of Segal in architecture was influenced by his personal experiences and the social issues of his time. He recognized the need of more social housing and practical solutions. This would later lead to his development of the Segal Self Build Method.

This method was a philosophy which enables people to take the power again in the design and construction of their homes. Instead of solely relying on expensive materials, the method focusses on DIY, basic carpenter skills and readily available materials. This democratized the building and design process and thus enabled people to construct their own homes.

The emphasis of the system on simplicity and sustainability was far ahead of its time. Segal advocated for environmentally friendly which were easy to construct.

To this day, Segal's ideas continue to inspire architect and urban planners around the globe. He and his system serve as a legacy, to remind that architecture is not just about designing buildings or structures, it's about shaping our lives and creating spaces which reflect our vision our values and aspirations.



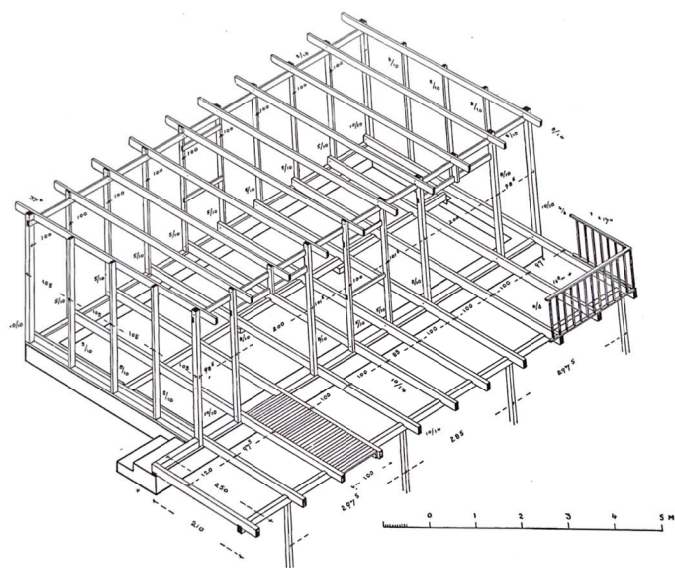
Early projects

La Casa Piccola

La Casa Piccola embodied Walter Segal's vision of practical architecture, characterized by simplicity, transparency, and a blend of form and function. Despite the architectural trends of the time, Segal strained from complexity in favor of practicality.

Through La Casa Piccola, Segal not only created a home but also laid the foundation for his lifelong exploration of architecture which would end with the creation of his self build method.

This building stands as Segal's first exploration with simplistic structures. Design elements of this building can be seen throughout his further career.

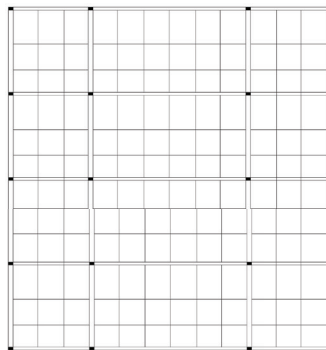


Temporary home

The 'little house', erected for an astonishingly modest sum of £835 and was built in ten weeks, served as a pivotal moment for Segal in both its groundbreaking construction techniques and its thoughtful spatial organization.

Despite its humble size, the house offered a surprisingly functional living space, with a central room serving as the focal point for family gatherings. The house not only garnered professional recognition but also sparked public interest, leading to a demand for houses built using Segal's methods. This newfound success marked a departure from Segal's earlier struggles with traditional construction methods.

The structure of the building consists out a so called 'tartan' grid. This grid has a structural grid and an architectural grid, this allows for greater flexibility in the design. This also allows for changes to be made in building later on, when this is desired by the owners.



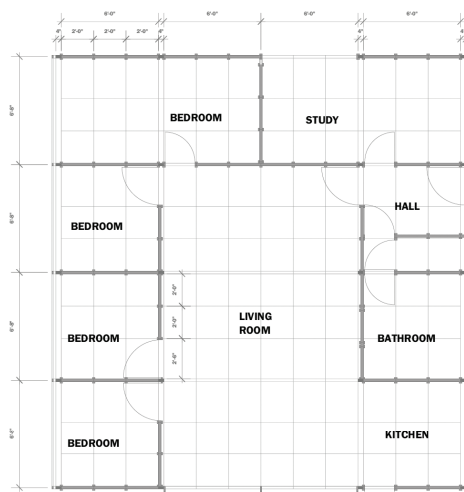
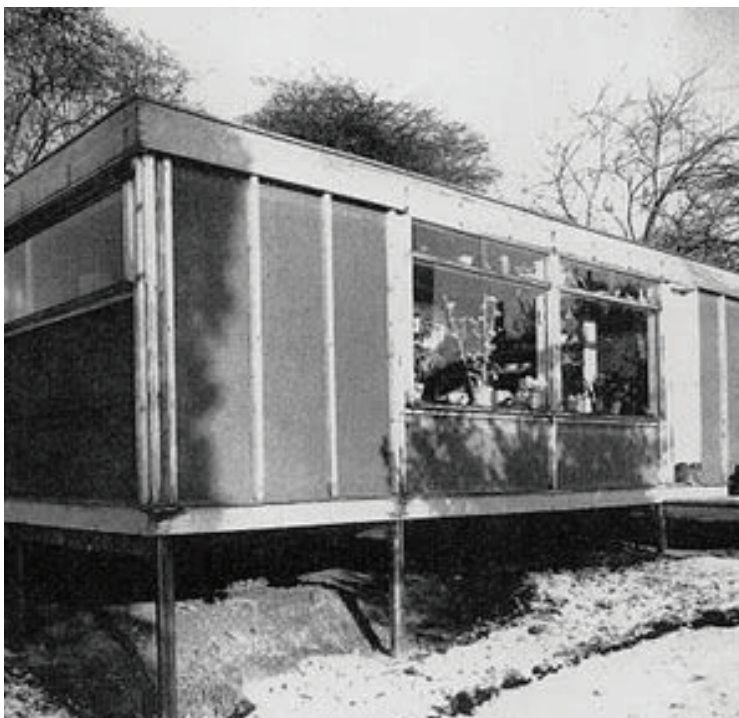


Figure 16. Plan of the Temporary House. Scale - 1:50

Self build method: the process

After the creation of his temporary home, Segal was asked by some of his clients if they could build their own home, based on the system of his home. This eventually led to the creation of the self build system.

Segal created a process for this. This process exists out of two main elements, a planning process, and a building process. Over the next pages, this process will be shown.

1 General arrangement

The planning process

- 2 Modular grid
- 3 Layout drawings
- 4 Structural layout
- 5 Calculations
- 6 Framing drawings
- 7 Schedule of materials
- 8 Catalogue of elements
- 9 Building instructions

The building process

- 10 Foundations
- 11 Structural frame
- 12 Roof
- 13 Floors
- 14 External walls
- 15 Windows
- 16 Partitions
- 17 Ceilings
- 18 Stairs and other features
- 19 Services

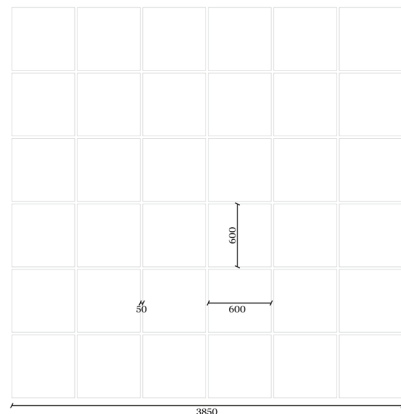


Planning process

The planning process

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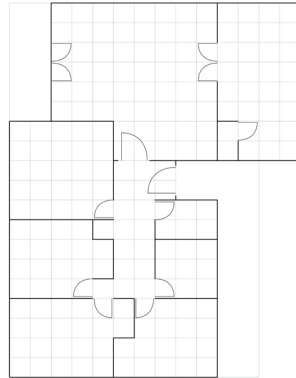


A tartan grid was used, in a normal grid, space is created to make a secondary grid. The structural grid sits in between the 600 mm by 600 mm grid and this grid is 50 mm wide. The structural grid had a maximum span of 6 by 6 units, totaling 3850 millimeters.

He used this 600 mm by 600 mm grid because it matched the readily available size of materials at British construction shops at the time. The maximum size of the 6 by 6 grid was also determined by these standard sizes.

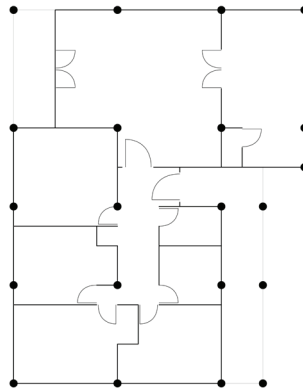
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The planning process

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The planning process

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Building process

The building process

10 Foundations

11 Structural frame

12 Roof

13 Floors

14 External walls

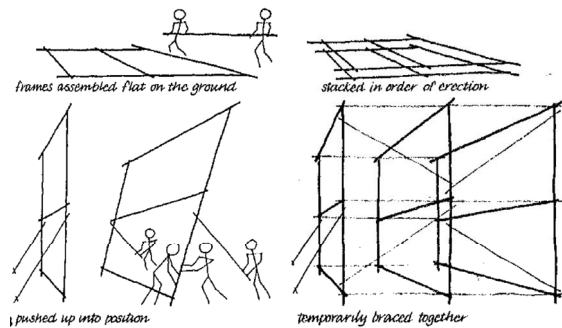
15 Windows

16 Partitions

17 Ceilings

18 Stairs and other features

19 Services



The building process

10 Foundations

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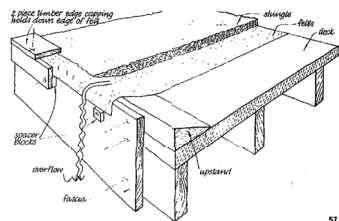
15 Windows

16 Partitions

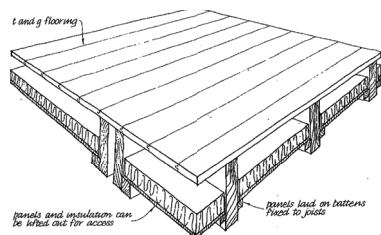
17 Ceilings

18 Stairs and other features

19 Services



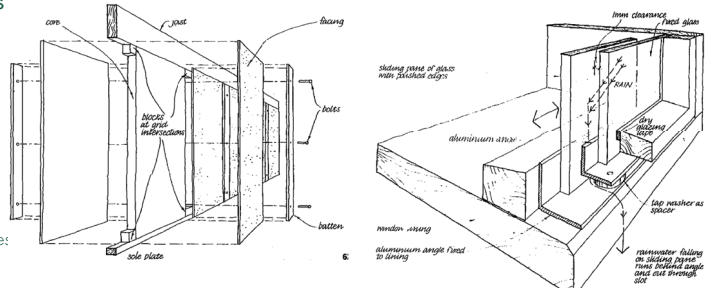
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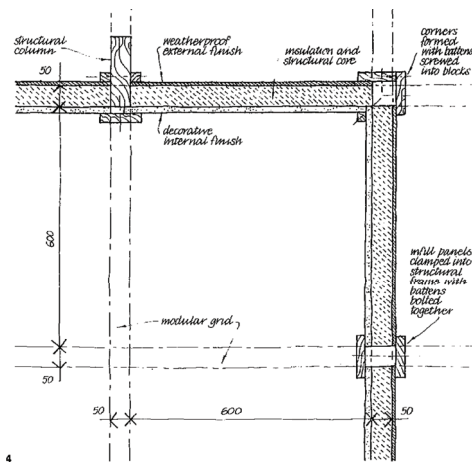
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- 18 Stairs and other features
- 19 Services



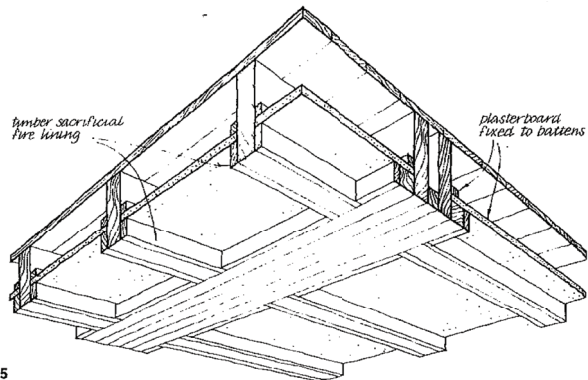
The building process

- 10 Foundations
- 11 Structural frame
- 12 Roof
- 13 Floors
- 14 External walls
- 15 Windows
- 16 Partitions
- 17 Ceilings
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The building process

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Structure dictates architecture

The structure of the system is evident throughout the architecture, most noticeably in the connection of the interior and the exterior walls. These panels link the wall elements and highlight the presence of the self-build system. Some builders opted to remove this aspect, by cladding the exterior walls with plaster. This makes future expansions more challenging, and it also alters the overall architecture of this building as well.

Inside, the grid system is also visible, not just in the wall elements, but in the exposed beams as well. This further emphasizes the building system as a part of the architecture even more.





Why use the system?

The self-build method offers numerous advantages. The most significant benefit is that the method allows for individuals to build their own homes using simple building elements, which are readily available at local construction shops. These materials only need to be cut in the correct length significantly reducing costs by eliminating the need to hire craftsmen.

Additionally, the method allows for future expansion. New parts can easily be constructed by the homeowners. Lastly, the placement of the buildings, using non fixated columns, allows for placement on sites which would otherwise be too expensive or difficult to construct on.



Lower costs



Easy to construct



Readily available materials



Expandable



Buildable on rough terrain

Role of the architect

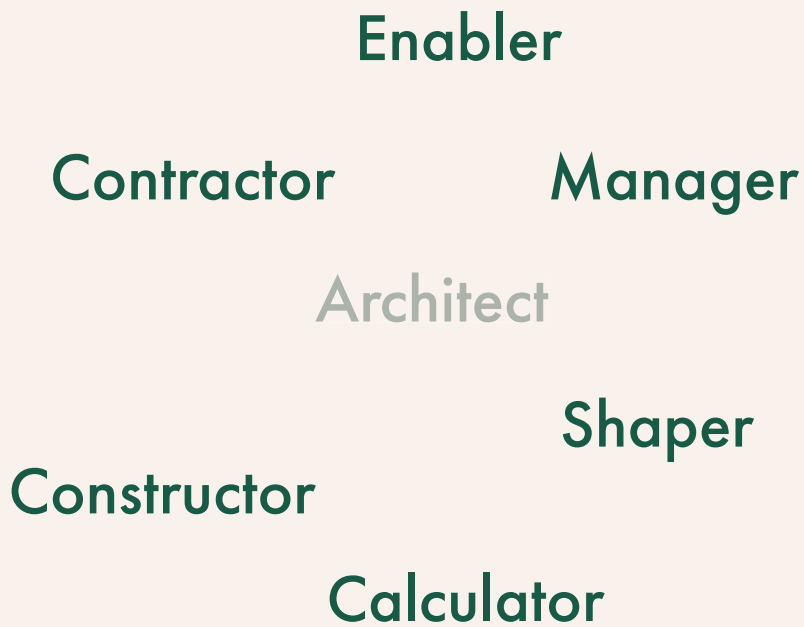
The system of Segal changed his role within the design process. The clients created the floor plans, Segal often helped with this, but he was not in control. His role had changed, from just being the architect to an enabler, constructor, calculator and more.

The architecture itself became less important as well. The system created the architecture, with materials, finishes and shape the remaining architectural elements.

The clients were in control of the process, but this is what Segal envisioned, giving the architecture back to the people.

As the tale of houses formed in this way, developed adjectives of **visual quality seem quickly to fade in importance**, as in 'elegant looking' forms appear to have more important, different qualities

Walter Segal: Self Built Architect



Use in project

This research will be the basis for the project. The system is well-suited for the type of project. As communities grow over time, there is a need for expansion. This method of building does allow for this expansion. The Segal method of will act as a template for the further design of the project.

Currently, the system is outdated: walls are thin, there is no soundproofing, and the fact columns are not fixed to ground poses a challenge for the scaling of the project. Additionally, the method only allows for the addition of new structures rather than direct expansion. These issues can be addressed in the design.

The look and feel of the architecture is something which should be addressed as well. As seen, the single wall elements are either extremely visible or, for example, they have been plastered over.

Overall, the method needs to evolve into a modern self-build approach that addresses these problems.



Start with around 20 individuals,
growth to 100



Cluster-style dwellings



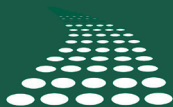
Community building



Combining functions



Generate at least half of
energy and food needs



Walking or bicycle paths



Private entrance



Private areas for inhabitants



Separable spaces



Well lit spaces

Bibliography

Bezboroa, I. (2020). What are the Commons? In Dakshin Foundation. https://www.dakshin.org/wp-content/uploads/2021/06/What-are-the-commons_.pdf

Boyle, R. (n.d.). Brussels is home to world's second most diverse population. The Bulletin. <https://www.thebulletin.be/brussels-home-worlds-second-most-diverse-population>

Broome, J. (2007). The Green Self-Build Book: How to Design and Build Your Own Eco-home. Green Books.

Grahame, A. (2017). Walters way & Segal close: The Architect Walter Segal and London's Self-build Communities : a Look at Two of London's Most Unusual Streets. Park Publishing (WI).

Grahame, A., & McKean, J. (2021). Walter Segal: Life, Work and Legacy. Lund Humphries Publishers Limited.

Josaphat | sau-msi. (n.d.). <https://sau-msi.brussels/developpements/josaphat>
Kesler, B. (1991). Centraal Wonen in Nederland. edepot.wur. http://repository.cohousing.nl:8080/jspui/bitstream/20.500.12011/342/1/edepotin_t4b913fe3_001.pdf

Leyshon, A., Lee, R., & Williams, C. C. (2003). Alternative Economic spaces. In SAGE Publications Ltd eBooks. <https://doi.org/10.4135/9781446220825>
Manzano, E. H. (2021, January 9). Brussels way to deal with multiculturalism - wrAP. wrAP. <https://wrap.apstudent.be/2021/01/08/brussels-way-to-deal-with-multiculturalism/>

Metcalf, W., & Metcalf, B. (2004). The Findhorn Book of Community Living.

New London Architecture. (2021, 27 oktober). Walter Segal: Self-Built architect [Video]. YouTube. <https://www.youtube.com/watch?v=eNkCRuDbaOA>

Parker, M., Cheney, G., Fournier, V., & Land, C. (2014). *The Routledge companion to alternative organization*. Routledge.

Rubin, Z., Willis, D., & Ludwig, M. (2019). Measuring Success in Intentional Communities: A Critical Evaluation of commitment and Longevity Theories. *Sociological Spectrum*, 39(3), 181–193. <https://doi.org/10.1080/02732173.2019.1645063>

Rusu, C. (2019). The ZEGG Intentional Community—Keeping the Spirit Alive. ProQuest, ProQuest 13808702. <https://www.proquest.com/openview/ffbf632243249cefd2c93b5130ab42ca/1?pq-origsite=gscholar&cbl=18750&diss=y>

Sherry, J. (2014). Community supported sustainability: How Ecovillages model a more sustainable lifestyle. Research Gate. <https://doi.org/10.7282/t3959fvm>
Special issue: The Segal Method. (z.d.). *The Architects' Journal*.

Verduyn, L. (2023, March 28). VASTGOED – ‘La friche Josaphat’, het laatste stuk onbebouwd Brussel - De Rijkste Belgen. De Rijkste Belgen. <https://derijkstebelgen.be/nieuws/vastgoed-la-friche-josaphat-het-laatste-stuk-onbebouwd-brussel>

Westra, J. (1982). Being the builder, builds your being. Eindhoven University Of Technology Research Portal. <https://research.tue.nl/en/publications/being-the-builder-builds-your-being>