THE FOOD MAKER

How can food production and dwelling be combined into a food self-sufficient housing block in an urban context?

ROMAN OOST
THE WORLD POPULATION REACHES 9 BILLION IN 2050..

source: UN
FOOD PRODUCTION NEEDS TO INCREASE BY 60% TO FEED EVERYONE..

source: FAO (UN)
WHILE ARABLE LAND IS UNEQUALLY AVAILABLE AND DEGRADING.

(source: FAO (UN))
FRESH WATER IS UNEQUALLY AVAILABLE..

source: FAO (UN)
CATTLE EMISSIONS FUEL CLIMATE CHANGE..
THERE IS FOOD SCARCITY..

source: FAO (UN)
AND OBESITY.

source: WHO
change is needed
UN Goals:

end hunger,
achieve food security,
improved nutrition,
promote sustainable agriculture.
now we move food to the city
but what if we move the farm to the city?
we produce food near consumption so less transportation is needed.
we would have fresher produce!

and more diversity
farming technology can help us..
it could bring agricultural qualities to the city..
it’s already popular as design
but rarely are any calculations added as to how much food is actually produced
no reliance on others for food means increased food security
but being self sufficient is a lot of work and risk, and goes against the principle of specialization and economy of scale.
THE FOOD BLOCK

How can food production and dwelling be combined into a food self-sufficient housing block in an urban context?

ROMAN OOST
01. Site

Where is this block located?
The Food Maker
self-sufficient farming and dwelling

Site
- 35°C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Reference context
Subtitle

- FAR 2.0 (ville radieuse)
- FAR 3.0 (landtong, rotterdam)
- FAR 4.7 (barcelona block)
- FAR 7.1 (manhattan block)
- FAR 12 (hong kong block)
02. Users

Who lives in this block? and how much space does that require?
The Food Maker
self-sufficient farming and dwelling

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- **Diet**

- **Farming Technology**

### People

and households

- 169 (Ville Radieuse, Paris)
- 368 (Landtong, Rotterdam)
- 483 (L'Eixample, Barcelona)
- 1610 (Manhattan, NY)
- 4188 (Central, Hong Kong)

<table>
<thead>
<tr>
<th>User density</th>
<th>Plot area</th>
<th>Amount of users</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.037 ppl/m²</td>
<td>10,000 m²</td>
<td>483</td>
</tr>
</tbody>
</table>
The Food Maker
self-sufficient farming and dwelling

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People
and households

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1610 (Manhattan, NY)

4188 (Central, Hong Kong)

<table>
<thead>
<tr>
<th>Households</th>
<th>Percentage</th>
<th>Amount</th>
<th>Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>one person</td>
<td>29.0%</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>two person</td>
<td>33.6%</td>
<td>72</td>
<td>144</td>
</tr>
<tr>
<td>three person</td>
<td>18.6%</td>
<td>39</td>
<td>117</td>
</tr>
<tr>
<td>four person and over</td>
<td>18.8%</td>
<td>40</td>
<td>160</td>
</tr>
<tr>
<td>totals</td>
<td>100.0%</td>
<td>213</td>
<td>483</td>
</tr>
</tbody>
</table>
The Food Maker
self-sufficient farming and dwelling

Site
35 °C
100 x 100 m
FAR 5.6

Users
313 users
4 user groups

Programme

Mass & void

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Farming Technology

Volume for dwellings
483 users

<table>
<thead>
<tr>
<th>Households</th>
<th>Amount</th>
<th>Area</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>one person</td>
<td>62</td>
<td>70 m²</td>
<td>252 m³</td>
</tr>
<tr>
<td>two person</td>
<td>72</td>
<td>85 m²</td>
<td>306 m³</td>
</tr>
<tr>
<td>three person</td>
<td>39</td>
<td>100 m²</td>
<td>360 m³</td>
</tr>
<tr>
<td>four person and over</td>
<td>40</td>
<td>130 m²</td>
<td>468 m³</td>
</tr>
<tr>
<td>totals</td>
<td>213</td>
<td>19.560 m²</td>
<td>70.416 m³</td>
</tr>
</tbody>
</table>
03. Programme

What do they eat?

and how much space does that require?
The Food Maker
self-sufficient farming and dwelling

MEAT DIET
nutrients per capita per day

energy: 2153 kcal
protein: 89g
fat: 73 g
carbs: 297 g
**Meat diet build up**

for 1 person

### MEAT DIET

**nutrients per capita per day**

- **energy**: 2153 kcal
- **protein**: 89g
- **fat**: 73 g
- **carbs**: 297 g

### GRAINS

- wheat

**Source**: 3D Nature
The Food Maker
self-sufficient farming and dwelling

Site
35 °C
100 x 100 m
FAR 5.6

Users
313 users
4 user groups

Programme
Mass & void
Structure
Accessibility
Houses
Climate
Facade

MEAT DIET

nutrients per capita per day

energy: 2153 kcal
protein: 89g
fat: 73 g
carbs: 297 g

GRAINS
wheat

VEGETABLES
beans
lettuce
carrot
tomato

FRUIT
strawberry
blueberry
dwarf orange
apple tree
cherry tree
mango tree

Source: 3D Nature

nutrients per capita per day

energy: 2153 kcal
protein: 89g
fat: 73 g
carbs: 297 g

MEAT DIET

for 1 person

Source: 3D Nature
Meat diet build up
for 1 person

MEAT DIET

nutrients per capita per day

<p>| | |</p>
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<td>energy:</td>
<td>2153 kcal</td>
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<tr>
<td>protein:</td>
<td>89g</td>
</tr>
<tr>
<td>fat:</td>
<td>73 g</td>
</tr>
<tr>
<td>carbs:</td>
<td>297 g</td>
</tr>
</tbody>
</table>

GRAINS
- wheat

VEGETABLES
- beans
- lettuce
- carrot
- tomato

FRUIT
- strawberry
- blueberry
- dwarf orange
- apple tree

SWEETENERS
- cherry tree
- mango tree
- sugar beet

Source: 3D Nature

nutrients per capita per day

- energy: 2153 kcal
- protein: 89g
- fat: 73 g
- carbs: 297 g
Meat diet build up
for 1 person

**MEAT DIET**

nutrients per capita per day

- energy: 2153 kcal
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**Source:** 3D Nature
The Food Maker
self-sufficient farming and dwelling

Meat diet build up
for 1 person

MEAT DIET

nutrients per capita per day

energy: 2153 kcal
protein: 89g
fat: 73 g
carbs: 297 g

GRAINS
wheat

VEGETABLES
beans
lettuce
carrot
tomato

FRUIT
strawberry
blueberry
dwarf orange
apple tree

SWEETENERS
cherry tree
mango tree
sugar beet

PROTEIN FOODS
soy beans
beans
walnut tree
hazelnut tree

ADDED FATS
soy beans

Source: 3D Nature

nutrients per capita per day
energy: 2153 kcal
protein: 89g
fat: 73 g
carbs: 297 g
The Food Maker
self-sufficient farming and dwelling

Meat diet build up
for 1 person

MEAT DIET
nutrients per capita per day

energy: 2153 kcal
protein: 89g
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carbs: 297 g

GRAINS
- wheat
- beans
- lettuce
- carrot
- tomato

VEGETABLES

FRUIT
- strawberry
- blueberry
- dwarf orange
- apple tree

SWEETENERS

PROTEIN FOODS
- soy beans
- beans
- walnut tree
- hazelnut tree
- almond tree

ADDED FATS

GRAZING
- grass

Source: 3D Nature

nutrients per capita per day

energy: 2153 kcal
protein: 89g
fat: 73 g
carbs: 297 g
The Food Maker
self-sufficient farming and dwelling

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- **Mass & void**

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- **Diet**

- **Farming Technology**

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**Meat diet**
land requirements

- Meat: cow, pig, chicken, turkey
- Cow’s milk
- Chicken eggs
- 1500 M
The Food Maker
self-sufficient
farming and dwelling

Site
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Farming Technology

White meat diet
land requirements

meat: pig, chicken
cow’s milk
chicken eggs

700 M
The Food Maker
self-sufficient farming and dwelling

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Vegetarian diet
land requirements

cow’s milk
chicken eggs

180 M
The Food Maker
self-sufficient farming and dwelling

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35 °C
100 x 100 m
FAR 5.6

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Vegan diet
land requirements

no animal products
155 M
The Food Maker
self-sufficient farming and dwelling

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**Fish diet**
land requirements

- Fish diet
  - land requirements
  - fish meat
  - 132 M
The Food Maker
self-sufficient farming and dwelling

Site
- Site 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
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Programme
Mass & void
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Diet overview
The Food Maker
self-sufficient farming and dwelling

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Resource flow diagram
animal protein sources

source: Energy and protein feed-to-food conversion efficiencies in the US and potential food security gains from dietary changes
The Food Maker
self-sufficient farming and dwelling

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Resource flow diagram
food

![Resource flow diagram](image-url)
The Food Maker
self-sufficient farming and dwelling

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Resource flow diagram
food

- O2
- Plant
- Chicken
- Fish
- Human
The Food Maker
self-sufficient farming and dwelling

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Resource flow diagram
food

- CO2 → H2O → plant → chicken → O2
- Fish → plant
- CO2

Resource flow diagram:

- CO2
- H2O
- O2
- Fish
- Plant
- Chicken
- People

Diagram shows the self-sufficient farming and dwelling process, including the flow of CO2, H2O, and O2, and the integration of farming, dwelling, and food production.
**The Food Maker**

self-sufficient farming and dwelling

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**Resource flow diagram**

- **food**
  - H₂O → plant → CO₂ → fish → O₂
  - Sun → plant → CO₂
  - CO₂ → chicken → O₂

**The Food Maker**

self-sufficient farming and dwelling
The Food Maker
self-sufficient farming and dwelling

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Resource flow diagram
food

- H₂O → plant
- CO₂ → plant
- O₂ → chicken
- NH₄⁺ → fish
- CO₂
- H₂O
- O₂
- NH₄⁺
The Food Maker
self-sufficient farming and dwelling

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Resource flow diagram

- Food
- CO₂ → Plant
- H₂O → Plant
- O₂ → Chicken
- NH₄⁺ → Fish
- Fish → Human
- Chicken → Human
The Food Maker
self-sufficient farming and dwelling

- **Site**: 35 °C, 100 x 100 m, FAR 5.6
- **Users**: 313 users, 4 user groups

- **Programme**
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- **Farming Technology**

The Food Maker

Resource flow diagram

- **food**
- **H2O** → **CO2**
- **CO2** → **O2**
- **H2O** → **NH4+**
- **O2** → **human**
- **CO2** → **fish**
- **H2O** → **chicken**
03. Programme

How do they produce their food?

and how much space does that require?
The Food Maker
self-sufficient farming and dwelling

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Flat farming

Yield: 100%
H2O: 100%
Fertilizer: 100%
Herbi-pesticide: 100%

traditional farming is flat farming
The Food Maker
self-sufficient farming and dwelling

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Farming Technology

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Slanted farming

Yield: 250%

H2O: 30%

Fertilizer: 100%

Herbi-pesticide: 100%

---

increased yield and control, less space use, but hard to access.
The Food Maker
self-sufficient farming and dwelling

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Farming Technology

Aeroponics + sunlight

Yield: 250%
H2O: 10%
Fertilizer: ~60%
Herbi-pesticide ~50%

no soil, water reuse and control over nutrients. Indoor helps protect against pests.

this is easy to stack so it can be very dense.

not possible for all plants of diet

could be a facade
The Food Maker
self-sufficient farming and dwelling

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Aeroponics + LED

Yield: 8800%
H2O: 10%
Fertilizer: ~60%
Herbi-pesticide: 0%
energy: 1.5 kWh/m²/yr/cap

High tech farming has a greater yield because crops receive more and specific light for more harvest cycles per year.

Requires energy input and a lot of LEDs!

Not possible for all plants of diet.

Easy to stack, can be very dense.
**Farming technology overview**

MAKE USE OF THE SUNLIGHT AND MAKE FARMING VISIBLE TO CREATE QUALITY SPACES!
How much void is needed to allow sunlight to reach the crops?

and how much space does that require?
The Food Maker
self-sufficient farming and dwelling

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How much void?

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remque accabotitat.
Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitat iaeper perspiet quas id minihilit vel imenimo lorest, conseculpa ipsament laturit liciduc ienimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
| Site                  | 35 °C  
|----------------------|--------
|                      | 100 x 100 m  
|                      | FAR 5.6  
| Users                | 313 users  
|                      | 4 user groups  
| Programme            |  
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| Structure            |  
| Accessibility        |  
| Houses               |  
| Climate              |  
| Facade               |  
| Diet                 |  
| Farming Technology   |  

**The Food Maker**

self-sufficient farming and dwelling

<table>
<thead>
<tr>
<th>How much void?</th>
</tr>
</thead>
</table>

100% sunlit

100% energy

50 000 m²

100% sunlit

100% energy

50 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remque accaborit. Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitai isepers perspient quas id minihililit vel imenimo lorest, conseculpa ipsament laturit licicuiun senimag natur, inis doluptatquia ditionsed ut omnimi ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

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How much void?

250 000 m³
100 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat.
Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitiat isepers perspiciat quas id minihillit vel imenimo lorest, conseculpa ipsament laturit liciduc ienimag natur, inis doluptatquia ditionsed ut omnimi ligmnet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
dwelling and
self sufficient farming

04. Mass & Void

Where do they farm?
The Food Maker
self-sufficient farming and dwelling

Site
35 °C
100 x 100 m
FAR 5.6

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4 user groups

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Mass & void
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Where do they farm?
Sunlight analysis

27% sunlit
57% max energy
100 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - Site: 35 °C
  - Site: 100 x 100 m
  - Site: FAR 5.6

- **Users**
  - Users: 313 users
  - Users: 4 user groups

- **Programme**
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Where do they farm?
Sunlight analysis

- **30% sunlit**
- **70% max energy**
- **100 000 m2**

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaborit.
Cae consequatium etus aborunt emquis aila vel ma sus aut et fugitat iaepe perspiet quas id minihilit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionesd ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

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Where do they farm?
Sunlight analysis

35% sunlit
81% max energy
100 000 m²
The Food Maker
self-sufficient farming and dwelling

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  - 35 °C
  - 100 x 100 m
  - FAR 5.6

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**Where do they farm?**
Sunlight analysis

40% sunlit
92% max energy
100 000 m²

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Tus nonsequis dolora eum fugit ut ilignis adictii as abore con remquae accaboritat.
Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitat iaeppers perspiet quas id minihillit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
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Where do they farm?
Sunlight analysis

- 50% sunlit
- 91% max energy
- 80 000 m²
The Food Maker
self-sufficient farming and dwelling

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  35 °C
  100 x 100 m
  FAR 5.6

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Where do they farm?
Sunlight analysis

65% sunlit
87% max energy
60 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictis as abore con remquae accaboritat. Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitat aepers perspiet quas id minihilit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
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  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

**Programme**

**Mass & void**

**Structure**

**Accessibility**

**Houses**

**Climate**

**Facade**

**Diet**

**Farming Technology**

Where do they farm?
Sunlight analysis

98% sunlit
82% max energy
40 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remqua accaboritat.
Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitat iaeper perspiet quas id minihillit vel imenimo
lorest, conseculpa ipsament laturit liciduc lenimag natur,
inis doluptatquia ditionsed ut omnimil ignimet molorem
excepti ureptur sita atem. Sedit, conem si arunt veriae
nihilit.
Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

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Diet

Farming Technology

The Food Maker
self-sufficient farming and dwelling

Where do they farm?
Sunlight analysis

100% sunlit
64% max energy
20 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 ºC
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they farm?**
Sunlight analysis

[Diagram showing sunlight analysis with various scenarios specified]
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**

- **Mass & void**

- **Structure**

- **Accessibility**

- **Houses**

- **Climate**

- **Facade**

- **Diet**

- **Farming Technology**

---

**Where do they farm?**
Sunlight analysis

- **Radiation Distribution**

- **Surface**

- **Sunhours**

38% sunlit
92% max energy
100 000 m2

---

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remque accaborit. Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitat iaepe perspiet quas id minihililit vel imenimo lorest, conseculpa ipsament laturit liciduc iemimag natur, inis doluptatquiia ditionse ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, comen si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

---

**Where do they farm?**
Sunlight analysis

**38% sunlit**

**86% max energy**

**100 000 m²**
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6
- Users
  - 313 users
  - 4 user groups

Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they farm?
Sunlight analysis

40% sunlit
82% max energy
100 000 m²

RADIATION DISTRIBUTION

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquee accaborit.
Cae consequarium etus ahorunt emquis alia vel ma sus aut et fugitat iaepe perspiet quas id minihillit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatqua ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they farm?**
Sunlight analysis

- 40% sunlit
- 79% max energy
- 100 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they farm?**
Sunlight analysis

41% sunlit
73% max energy
100 000 m²
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme

- Mass & void

- Structure

- Accessibility

- Houses

- Climate

- Facade

- Diet

- Farming Technology

Where do they farm?
Sunlight analysis
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6
- **Users**
  - 313 users
  - 4 user groups
- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they farm?**
Sunlight analysis

44% sunlit
49% max energy
40 000 m²
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme

- Mass & void

- Structure

- Accessibility

- Houses

- Climate

- Facade

- Diet

- Farming Technology

Where do they farm?
Sunlight analysis

61% sunlit
64% max energy
40 000 m²

61% sunlit
64% max energy
40 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they farm?**
Sunlight analysis

70% sunlit
73% max energy
40 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

---

**Where do they farm?**

Sunlight analysis

- **RADIATION DISTRIBUTION**

<table>
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<th>0</th>
<th>100 %</th>
<th>SUNHOURS</th>
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<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

77% sunlit
76% max energy
40 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they farm?**
Sunlight analysis

83% sunlit
71% max energy
40 000 m²
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6
- Users
  - 313 users
  - 4 user groups
- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they farm?
Sunlight analysis

67% sunlit
98% max energy
80 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaborit.
Cae consequatium etus aborunt enquis alia vel ma sus aut et fugitai iaeper perspiet quas id minihillit vel imenimo lorest, conselculpa ipsament laturit liciduc lenmag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

---

**Where do they farm?**
Sunlight analysis

- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

---

**53% sunlit**

**100% max energy**

**100 000 m²**

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Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat. Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitat iaepe perspiet quas id minihillit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they farm?**
Sunlight analysis

- 45% sunlit
- 100% max energy
- 120 000 m²

Tus nonequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat. Cae consequatium etus aborunt enquis alia vel ma sus aut et fugitit iaeppers perspient quas id minhillit vel imenimo lorest, consecula ipsament laturit liciduc ienimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- Site
  - Site: 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - Users: 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they farm?
Sunlight analysis

34% sunlit
100% max energy
160 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remque accaborit.
Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitiat iaeipers perspier quas id minihillit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatqua ditonsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihil.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

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- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

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**Where do they farm?**
Sunlight analysis

- **27% sunlit**
- **100% max energy**
- **200 000 m²**

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Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquia acabornat. Cae consequatium etus aborunt emquis alia vel ma sus aut et fugit rat iaeper perspriet quas id minihilit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionesd ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
Where do they farm?
Sunlight analysis

100% sunlit
200% max energy
100 000 m2

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat. Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitatis iaeopers perspient quas id minihillit vel imenimo lorest, consectula ipsament laturit liciduc ienimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

Where do they farm?
Sunlight analysis

100% sunlit
60% max energy
30 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat. Cae consequatium etus aborunt enquis alia vel ma sus aut et fugitat iaeipers perspiet quas id minihilit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

- **Users**
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  - 4 user groups

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- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

---

Where do they farm?
Sunlight analysis

84% sunlit
84% max energy
50 000 m²
The Food Maker

self-sufficient farming and dwelling

Site
- 35°C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure

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Diet

Farming Technology

Where do they farm?
Sunlight analysis

71% sunlit
92% max energy
75 000 m²
Where do they farm?

Sunlight analysis

- 52% sunlit
- 94% max energy
- 95 000 m²

The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6
- Users
  - 313 users
  - 4 user groups
- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat.
Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitait iaspers perspiet quas id minihillit vel imenimo lorest, conseculpa ipsament laturit liciduc ienimag natur, ins doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
Where do they farm?

Sunlight analysis

43% sunlit
97% max energy
117 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
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- **Facade**
- **Diet**
- **Farming Technology**

Where do they farm?
Sunlight analysis
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6
- Users
  - 313 users
  - 4 user groups

> Programme
> Mass & void
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> Climate
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> Farming Technology

**Where do they farm?**
Sunlight analysis

- 71% sunlit
- 92% max energy
- 75 000 m²
The Food Maker
self-sufficient farming and dwelling

Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

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Houses

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Diet

Farming Technology

Where do they farm?
Sunlight analysis

80% sunlit
94% max energy
72 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat.
Cae consequatium etus aborunt enquis alia vel ma sus aut et fugitit iaeipers perspiet quas id minihilit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionised ut ominimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they farm?
Sunlight analysis

78% sunlit
96% max energy
72 000 m²
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

<table>
<thead>
<tr>
<th>Topic</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>&gt; Programme</td>
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<td>&gt; Mass &amp; void</td>
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<td>&gt; Diet</td>
<td></td>
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<tr>
<td>&gt; Farming Technology</td>
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</tbody>
</table>

**Where do they farm?**
Sunlight analysis

- 79% sunlit
- 96% max energy
- 72 000 m²

Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remquae accaboritat. Cae consequatium etus aborunt enquis alia vel ma sus aut et fugitat iaeper perspiet quas id minihillit vel imenimo lorest, conseculpa ipsamen laturit liciduc lenimag natur, inis doluptatquia ditionsend ut omnimil ignimet molorem excepti ureptur sitaatem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
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  - 4 user groups

Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they farm?
Sunlight analysis

67% sunlit
91% max energy
72 000 m²
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

Programme

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- Climate
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- Farming Technology

Where do they farm?
Sunlight analysis

79% sunlit
96% max energy
72 000 m²
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

> Programme
> Mass & void
> Structure
> Accessibility
> Houses
> Climate
> Facade
> Diet
> Farming Technology

Where do they farm?
Sunlight analysis

- 94% sunlit
- 100% max energy
- 72 000 m²

stability and view issues
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they farm?
Sunlight analysis

78% sunlit
91% max energy
71 000 m²

Tus nonesse dolora eum fugit ut ilignis adiciis as abore con remquae accaboritat.
Cae consequatium etus aborunt emquias alia vel ma sus aut et fugitit iaepers perspriet quas id minhiliit vel imenimo lorest, conseculpa ipsament laturit liciduc lenimag natur, inis doluptatquia ditionsed ut omnimil ignimet molorem excepti ureptur sita atem. Sedit, conem si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

---

**Where do they farm?**
Sunlight analysis

- **73% sunlit**
- **94% max energy**
- **71 000 m²**
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

---

**Where do they farm?**
Sunlight analysis

76% sunlit
95% max energy
67 000 m²
**The Food Maker**

- **self-sufficient farming and dwelling**

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

---

**Where do they farm?**

**Sunlight analysis**

- 66% sunlit
- 99% max energy
- 71 000 m²

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Tus nonsequis dolora eum fugit ut ilignis adictiis as abore con remque accaboritat. Cae consequatium etus aborunt emquis alia vel ma sus aut et fugitata iaepe persiiot quas id minihililit vel imenimo lorest, conseculpa ipsament laturit liciduc inenimag natur, inis doluptatquia ditioned ut omnimil ignimet molorem excepti ureptur sita ate. Sedit, conen si arunt veriae nihilit.
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

**Where do they farm?**
Sunlight analysis

- 94% sunlit
- 100% max energy
- 72 000 m²

- 117 people

stability and view issues
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they farm?
Sunlight analysis

100% sunlit
84% max energy
53,000 m²

92 people

stability and view issues
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

90 000 - 100 000 M²

% SUNLIT

% of Energy

0

0% 25% 50% 75% 100%
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Technical drawing / Research information / Impression

Subtitle

% SUNLIT

SURFACE

100 M2

0 25% 50% 75% 100%

0 25% 50% 75% 100%
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Subtitle**

*[Technical drawing / Research information / Impression]*

100 M²

SURFACE

% SUNLIT

0 % 25 % 50 % 75 % 100 %
04. Mass & Void

Where do they live?
The Food Maker
self-sufficient
farming and dwelling

Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Where do they live?

Where do they live?

housing on north

28 000 m3 housing
37 000 m3 trees
83 000 m3 crops
147 000 m3 total

53000 m2
**The Food Maker**

self-sufficient farming and dwelling

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- **Facade**
- **Diet**
- **Farming Technology**

**Where do they live?**

Share with neighbour,

- 28 000 m³ housing
- 37 000 m³ trees
- 83 000 m³ crops
- 147 000 m³ total
- 53000 m²
Where do they live?

The Food Maker
self-sufficient farming and dwelling

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Diet

Farming Technology

share with neighbour, divide ground floor

28 000 m³ housing
37 000 m³ trees
83 000 m³ crops
147 000 m³ total

53000 m²
The Food Maker
self-sufficient farming and dwelling

- Site
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  - 100 x 100 m
  - FAR 5.6

- Users
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- Houses
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- Diet
- Farming Technology

Where do they live?

housing on south
Where do they live?

sharing with neighbour, divide ground floor
The Food Maker
self-sufficient
farming and dwelling

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100 x 100 m
FAR 5.6

Users
313 users
4 user groups

Programme

Mass & void

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Farming Technology

Where do they live?

housing on ground floor,
**The Food Maker**
self-sufficient farming and dwelling

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- **Diet**
- **Farming Technology**

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**Where do they live?**

The Food Maker is a self-sufficient farming and dwelling project. It is located on a site with a temperature of 35 °C, covering an area of 100 x 100 m and has a FAR of 5.6. It accommodates 313 users, divided into 4 user groups.

Programme, mass & void, structure, accessibility, houses, climate, facade, diet, and farming technology are key aspects of this project.

The buildings are designed to divide vertically.
The Food Maker
self-sufficient farming and dwelling

 rencontres
Site
35 °C
100 x 100 m
FAR 5.6

Users
313 users
4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Where do they live?

housing on top
The Food Maker
self-sufficient farming and dwelling

Site
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- FAR 5.6

Users
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- 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Where do they live?

divide vertically
The Food Maker
self-sufficient farming and dwelling

- **Site**
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  - 100 x 100 m
  - FAR 5.6

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  - 313 users
  - 4 user groups

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- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

Where do they live?

housing on the east
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

Where do they live?

divide the west
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they live?

housing on the west
The Food Maker
self-sufficient farming and dwelling

Site
35 °C
100 x 100 m
FAR 5.6

Users
313 users
4 user groups

Programme
Mass & void
Structure
Accessibility
Houses
Climate
Facade
Diet
Farming Technology

Where do they live?

divide the east
The Food Maker
self-sufficient
farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

Programme
Mass & void
Structure
Accessibility
Houses
Climate
Facade
Diet
Farming Technology

Where do they live?

housing on the corners
The Food Maker
self-sufficient farming and dwelling

Site
- 35°C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Where do they live?

split the slabs
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

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  - 4 user groups

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- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they live?**

spread housing in the slabs
Where do they live?

and divide it
The Food Maker
self-sufficient farming and dwelling

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  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Where do they live?**
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Where do they live?
05. Accessibillity & Structure

How do they access their house?
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35°C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Access & Structure**

access core per housing stack
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Access & Structure

or one per slab
The Food Maker
self-sufficient farming and dwelling

Site
35 °C
100 x 100 m
FAR 5.6

Users
313 users
4 user groups

Programme
Mass & void
Structure
Accessibility
Houses
Climate
Facade
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Farming Technology

or in between with ramps
this could also work structurally,
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

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**Access & Structure**

This could also work structurally, creates more farming surface and can be a public route or in between with ramps?
The Food Maker
self-sufficient farming and dwelling

Site
- 35°C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Access & Structure

still need cores for elevators and fire escapes
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6
- Users
  - 313 users
  - 4 user groups
- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Split the slabs and rotate?

60% sunlit
84% max energy
80 000 m²

90 people
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**Split the slabs and rotate?**

60% sunlit
86% max energy
80 000 m²

89 people

RADIATION DISTRIBUTION

SURFACE

0 100 %

SUNHOURS

0 12
The Food Maker
self-sufficient farming and dwelling

- Site
  - Site: 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - Users: 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Split the slabs and rotate?

- 62% sunlit
- 89% max energy
- 80 000 m²
- 92 people
The Food Maker
self-sufficient farming and dwelling

Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Split the slabs and rotate?

62% sunlit
89% max energy
80 000 m²

94 people
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

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**add bridges?**

- RADIATION DISTRIBUTION

- 94% sunlit
- 87% max energy
- 60 000 m²
- 104 people

---

7 bridges. 17 000 m³ 10 000 m² facade

bridges receive different radiation for different crops

90 m span
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

How many bridges?

- 88% sunlit
- 88% max energy
- 63 000 m²
- 103 people

12 bridges
bridges receive different radiation for different crops
The Food Maker

self-sufficient farming and dwelling

Site
35 °C
100 x 100 m
FAR 5.6

Users
313 users
4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

How many bridges?

15 bridges.

bridges receive different radiation for different crops

82% sunlit
88% max energy
66 000 m²

100 people
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

How many bridges?

72% sunlit
88% max energy
71 000 m²
96 people

20 bridges.
bridges receive different radiation for different crops
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

How many bridges?

8 bridges. 17 000 m³ 10 000 m² facade

bridges receive different radiation for different crops

94% sunlit
87% max energy
60 000 m²

104 people
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

---

How many bridges?

---

85% sunlit
84% max energy
62 000 m²

97 people
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**

- **Mass & void**

- **Structure**

- **Accessibility**

- **Houses**

- **Climate**

- **Facade**

- **Diet**

- **Farming Technology**

---

**How many bridges?**

- **RADIATION DISTRIBUTION**

87% sunlit
87% max energy
62 000 m²
98 people
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

- How many bridges?

- 90% sunlit
- 89% max energy
- 62 000 m2

- 104 people
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

91% sunlit
89% max energy
62 000 m²

105 people

How many bridges?
The Food Maker
self-sufficient farming and dwelling

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- Farming Technology
The Food Maker
self-sufficient farming and dwelling

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Programme

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Public access bridges?

80% sunlit
90% max energy
70 000 m²
103 people
90m span

make the bridge into ramps for public access 1:10 inclination

80% sunlit
90% max energy
70 000 m²
103 people
90m span
The Food Maker
self-sufficient farming and dwelling

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How far should the bridges span?

73% sunlit
85% max energy
70 000 m²
95 people
70m span
The Food Maker
self-sufficient farming and dwelling

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- Accessibility

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- Facade

- Diet

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How far should the bridges span?

- 67% sunlit
- 80% max energy
- 70 000 m²
- 86 people
- 50m span
The Food Maker
self-sufficient farming and dwelling

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**How far should the bridges span?**

![Radiation Distribution Diagram]

- 62% sunlit
- 76% max energy
- 70,000 m²
- 80 people
- 30m span

---

**How far should the bridges span?**

![Radiation Distribution Diagram]
The Food Maker
self-sufficient farming and dwelling

Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
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Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

How far should the bridges span?

59% sunlit
72% max energy
70 000 m2
76 people
10m span
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

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  - 313 users
  - 4 user groups

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**How far should the bridges span?**

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78% sunlit
69% max energy
50 000 m²

72 people
**The Food Maker**

self-sufficient farming and dwelling

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  - 100 x 100 m
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**How far should the bridges span?**

50m span with overhang to counter the momentum.

overhangs form plateaus for meeting

---

67% sunlit
80% max energy
70 000 m²

86 people
50m span
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
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Rotate the slabs?

72% sunlit
83% max energy
70,000 m²

93 people
The Food Maker
self-sufficient farming and dwelling

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The Food Maker
self-sufficient farming and dwelling

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- **Farming Technology**

Rotate the slabs?

![Radiation Distribution Diagram](image)

76% sunlit
86% max energy
70,000 m²

98 people
The Food Maker
self-sufficient farming and dwelling

Site
- 35°C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
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Programme

Mass & void

Structure

Accessibility

Houses

Climate

Facade

Diet

Farming Technology

Rotate the slabs?

73% sunlit
84% max energy
70 000 m²

95 people
The Food Maker
self-sufficient farming and dwelling

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Rotate the slabs?

![Graph of Radiation Distribution](image)

- 71% sunlit
- 84% max energy
- 70,000 m²
- 93 people
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
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  - 313 users
  - 4 user groups

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- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
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- **Users**
  - 313 users
  - 4 user groups

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- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

**76% sunlit**
**86% max energy**
**70 000 m2**

**98 people**

**RADIATION DISTRIBUTION**

rotated slabs catch more sunlight but also help stability
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme

- Mass & void

- Structure

- Accessibility

- Houses

- Climate

- Facade

- Diet

- Farming Technology

split bridges?
low

58% sunlit
89% max energy
87 000 m²

93 people

rotated slabs catch more sunlight but also help stability
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6
- **Users**
  - 313 users
  - 4 user groups
- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

63% sunlit
89% max energy
83 000 m²

97 people

split bridges?
mid
The Food Maker
self-sufficient farming and dwelling

Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade

Diet
- Farming Technology

split bridges? high

69% sunlit
88% max energy
78,000 m²
100 people

69% sunlit
88% max energy
78,000 m²
100 people
The Food Maker
self-sufficient farming and dwelling

- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- Users
  - 313 users
  - 4 user groups

- Programme
- Mass & void
- Structure
- Accessibility
- Houses
- Climate
- Facade
- Diet
- Farming Technology

Fat to thin bridges?

- 68% sunlit
- 88% max energy
- 75 000 m²

95 people
The Food Maker
self-sufficient farming and dwelling

- **Site**
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

- **Users**
  - 313 users
  - 4 user groups

- **Programme**
- **Mass & void**
- **Structure**
- **Accessibility**
- **Houses**
- **Climate**
- **Facade**
- **Diet**
- **Farming Technology**

65% sunlit
88% max energy
79 000 m²

96 people

WHY FAT BRIDGES? THEY LIFT UP THE LANDSCAPE...
The Food Maker
self-sufficient farming and dwelling

Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure
- steel columns

Accessibility

Houses

Climate

Facade

Diet

Farming Technology
The Food Maker
self-sufficient farming and dwelling

Site
- 35 ºC
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme
Mass & void
Structure
Accessibility
Houses
Climate
Facade
Diet
Farming Technology

keep up steel and wooden floors
The Food Maker
self-sufficient farming and dwelling

Site
- 35 °C
- 100 x 100 m
- FAR 5.6

Users
- 313 users
- 4 user groups

Programme

Mass & void

Structure
- central cores keep it stable in one direction
The Food Maker
self-sufficient farming and dwelling

Site
- Site
  - 35 °C
  - 100 x 100 m
  - FAR 5.6

Users
- Users
  - 313 users
  - 4 user groups

Programme

Mass & void

Structure
- The maximum span is 80m. The truss height is 5.4 m

concrete bridges and platforms are connected to reduce the momentum in both the platforms and bridges.

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they are held together by trusses.
Wind analysis
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Wind speed

![Wind speed diagram](image_url)
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**Wind speed**

| Velocity (m/s) | 12.032 | 10.420 | 8.508 | 6.016 | 0 |

![Wind speed chart](chart.png)
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**Wind pressure**

![Wind pressure graph]

<table>
<thead>
<tr>
<th>Pressure (Pa)</th>
<th>Value</th>
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<tbody>
<tr>
<td></td>
<td>75.088</td>
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<tr>
<td></td>
<td>36.871</td>
</tr>
<tr>
<td></td>
<td>-1.346</td>
</tr>
<tr>
<td></td>
<td>-39.562</td>
</tr>
<tr>
<td></td>
<td>-77.779</td>
</tr>
</tbody>
</table>
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Wind pressure

![Wind pressure diagram]

Velocity (m/s) [Pressure]
- 13.063 [73.827]
- 11.313 [44.143]
- 6.532 [-15.225]
- 0 [-44.909]
04. Mass & Void

Which plant species go where?
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96 people
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trees
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grains
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vegetables
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protein crops
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crops for added fats
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**What we need**

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harvestability
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Sun hours

VEGETABLES: 3 - 10 HOURS
SOY BEAN FOR ADDED FATS: 4 - 6 HOURS

WHEAT: 6 HOURS
PEANUTS - 6 HOURS
SUGAR BEET - 6 HOURS

FRUITS - 6 - 8 HOURS
NUT TREES (ALMOND) - 7 - 8 HOURS
VEGETABLES: 3 - 10 HOURS

sweeteners
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Crop sorting

beans are more porous than wheat
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Crop sorting
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### Technical drawing / Research information / Impression

**Subtitle**

---

#### STORE ALL SEASONS

<table>
<thead>
<tr>
<th>foodgroup</th>
<th>rep. plant</th>
<th>req amount (gr/day/cap)</th>
<th>req amount (kg/yr/cap)</th>
<th>Harvesting season</th>
<th># of harvesting months</th>
<th>harvesting surplus (kg)</th>
<th>density kg/m³</th>
<th>required storage space m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>grains</td>
<td>wheat</td>
<td>200</td>
<td>73</td>
<td>JULY + OCT</td>
<td>0</td>
<td>73</td>
<td>770</td>
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<tr>
<td>vegetables</td>
<td>broccoli</td>
<td>418</td>
<td>152,57</td>
<td>DEC + FEB, JAN +</td>
<td>0</td>
<td>152,57</td>
<td>128</td>
<td>1.191953125</td>
</tr>
<tr>
<td>fruits</td>
<td>strawberry</td>
<td>288</td>
<td>105,12</td>
<td>JAN + MAR, APR</td>
<td>0</td>
<td>105,12</td>
<td>222</td>
<td>0.473513514</td>
</tr>
<tr>
<td>dairy</td>
<td>na</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>protein foods</td>
<td>soy bean</td>
<td>164</td>
<td>59,86</td>
<td>SEP + NOV</td>
<td>0</td>
<td>59,86</td>
<td>750</td>
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<tr>
<td>added fats</td>
<td>soy bean</td>
<td>28</td>
<td>10,22</td>
<td>SEP + NOV</td>
<td>0</td>
<td>10,22</td>
<td>750</td>
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<tr>
<td>sweeteners</td>
<td>corn</td>
<td>15</td>
<td>5,475</td>
<td>AUG + NOV</td>
<td>0</td>
<td>5,475</td>
<td>600</td>
<td>0.009125</td>
</tr>
</tbody>
</table>

**total** 1,862,836,833 m³/cap
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