CLIMATE PRINCIPLE OF THE PROJECT

OPEN UP THE SEMI-PUBLIC SPACE.
A PLEA FOR A WORK & LIVE DWELLINGS IN AMSTERDAM

NICO LEFERINK GRADUATION STUDIO DWELLING 1534920
Open Up the Semi Public Space

H1 Communal Glashouse 01

H2 Ventilation 05

Principle 05
Floorplans 08
References III

H3 Heating 12

Principles 12
Floorplans 15
References 18

H4 Insulation 19

Principles 19
References 20
Meaning of This Book

This booklet will explain the general climate principles. These principles are conceived how to stimulate social cohesion and communal possibilities which indirectly will stimulate the semi public space but above all is designed to upgrade the use of each dwelling now and in the future.

Each capital will explain a main feature of the system starting with the communal climate room, ventilation, heating and last insulation. On the first page of each capital there are explained the main principles which indirectly stimulate the semi public space. Afterwards there is background information.
Communal Glasshouse
Comunal Glasshouse - placed near communal courtyards

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The Comunal Glasshouse

The glasshouse is part of the communal facilities in the neighborhood. Generally it’s the room where all outside energy sources are centralized before they will be regulated to the individual rooms.

Wintergarden

The Glasshouse serves in winter time also as a storage for the vegetation which normally is situated in the semi public space. By the lack of space inside the minimal dimensions of the individual dwelling there is no space to store the plants in the winter. That’s why this space could work more social cohesion in the winter as a meeting point to give the plants enough water.

Entrance

The room is also the entrance of the dwelling located on the roof. Hereby the designed is secured and will be used by at least one dweller in order to prevent this space to get neglected.
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Index

1. input air
2. Ground pipe 200mm
3. Airfilter
4. Ventilator
5. Sound reduce filter
6. Airpipes (transportation)
7. Rooms
8. output air grill
Index

1. input air  
2. Ground pipe 200mm  
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6. Airpipes (transportation)  
7. Rooms  
8. output air grill  
9. Serial CV system  
11. heating Divider

Ventilation system  Heating System
The general ventilation principles

The ventilation system of every building is connected with an airpipe. The pipe is integrated in the quay which is surrounding the whole project site.

This integration of airpipes and the quays have the benefit that it will cool down the air in the summer before it reaches the individual rooms.

The system also secures that the surroundings are used in an integrated way towards the neighborhood.

Communal Climate Room

There is a communal climate room located in every building. In this room the ventilation air is commonly prepeared before it revived in each room.

The benefit of this communal room is the disconnection of technical systems which have no direct influence to a dwelling. The climate room in this design is more efficient and can connect easy to new power sources or repaired without bothering the dwellers.

Air Reuse.

Old used air is sucked out of every dwelling. This air is reused to heat the unprepared air coming out of the airpipe in the climate room. After this the air is blown out in the outside air. This will be done above the glasshouse.
Ventilation - General Scheme ventilation.

LEGENDA
1. input air
2. Ground pipe 200mm
3. Airfilter
4. Ventilator
5. Sound reduce filter
6. Airpipes (transportation)
7. Rooms
8. output air grill
Ventilation - Ground pipe system, to communal glasshouses

LEGENDA
1. Communal Glasshouses
2. Groundpipe waterfront
3. Ground pipe beneath park
4. Centrale pipes to each glasshouse
LEGENDA

1. concrete cover band
2. RVS air grill (input)
3. root barrier
4. Airpipe to building (200mm)
5. pil 5:1
6. Prefab concrete quay profile
7. Water (500mm below quay)
8. Sheetpiling

Ventilation - Section ground pipe near water front
Ventilation - scheme in floorplans Ground floor

1. Entrance
2. Dinning area & Kitchen
3. Living Room
4. Toilet
5. wardrobe
6. Dwellers Choise
7. Office space
8. Bedroom
9. Shower
10. Climate Room
11. Comunal Glashouse
12. Private outside
Ventilation - scheme in floorplans First floor

LEGENDA

1. Entrance
2. Dinning area & Kitchen
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B Second Floor
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Ventilation - scheme in floorplans, Third floor

LEGENDA

1 Entrance
2 Dinning area & Kitchen
3 Living Room
4 Toilet
5 wardrobe
6 Dwellers Choice
7 Office space
8 Bedroom
9 Shower
10 Climate Room
11 Comunal Glasshouse
12 Private outside

A Third Floor
1 Airgrill located at quay
2 Airtube to glasshouses
3 Layer to prevent roots to grow to airtube
Communal Climate room

In the communal Climate room all of the installations are placed. The main energy power is the sun which is collect with vacuum sun collectors on each roof.

Individual regulation of rooms

In order to make different dwelling typologies there is a need to connect different rooms together. These rooms need to be therefore regulated individually by temperature.

Radio controlled system

A system of radio controlled (3 kleps) water dividers and measure machines will control the heating and therefore give each room a different controlled temperature.

With this radio system the rooms are easy to connect. To group the radio devices in groups connected to the dwelling.
Heating - general heating system

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1. Sun collector
2. Pumps
3. Serial Cv system
4. Heatpump
5. Main Divider
6. 3 kleps verdeler
7. Radio controlled main system
8. radio controlled heat regulator
9. Divider 10 floor heating
Heating - Place of the solar collectors

LEGENDA
1. Communal Glasshouses
2. sun collectors on every roof
LEGENDA

1. Vacuum Suncollector
A First Floor 1:100

LEGENDA

1 Divider
2 Floor heating Area
Max. 41m²
Heating - Floor plans scheme, third floor

1  Divider
2  Floor heating Area
Max. 41m²

C third Floor 1:100
LEGENDA

1. Radio controlled water divider
2. Isolated noppen plate
3. Radiocontrolled water measure
4. Standard 6 unit divider floor heating
5. Vacuum Sun Collector
6. Vacuum Sun Collector Principle
Organic insulation material

All the materials which are used to insulate the buildings are organic. The two main insulation materials are flax and cork. These materials have a good Rc value better an anorganic materials.

Flax is mainly used in the walls. The Cork is used only by the finishing layer to cover the steel profiles.

Two wall system

The facade is design in two seperated layers. The innerlayer consist out of a wooden wall frame can be fixed with the help of the dweller. to reduce costes and create a special cohesian in the neighborhood.

After this layer has been made the building is waterproof and the dwellers van intergrate floor heating and other finishing layers inside the building. The second layer consist out of a prefab wooden finishing layer which give the building the proper insulation value. This layer is fixed by the professional
LEGENDA

1. prefab wood construction
2. Prefab floors
3. prefab inner walls
4. window frames
5. installations inside
6. outside prefab pannels
Index

1. Cork for finishing layer
2. Flax for main filling walls
3. Cork
4. Prefabricated wood element
5. “”
6. Flax
Insulation - references