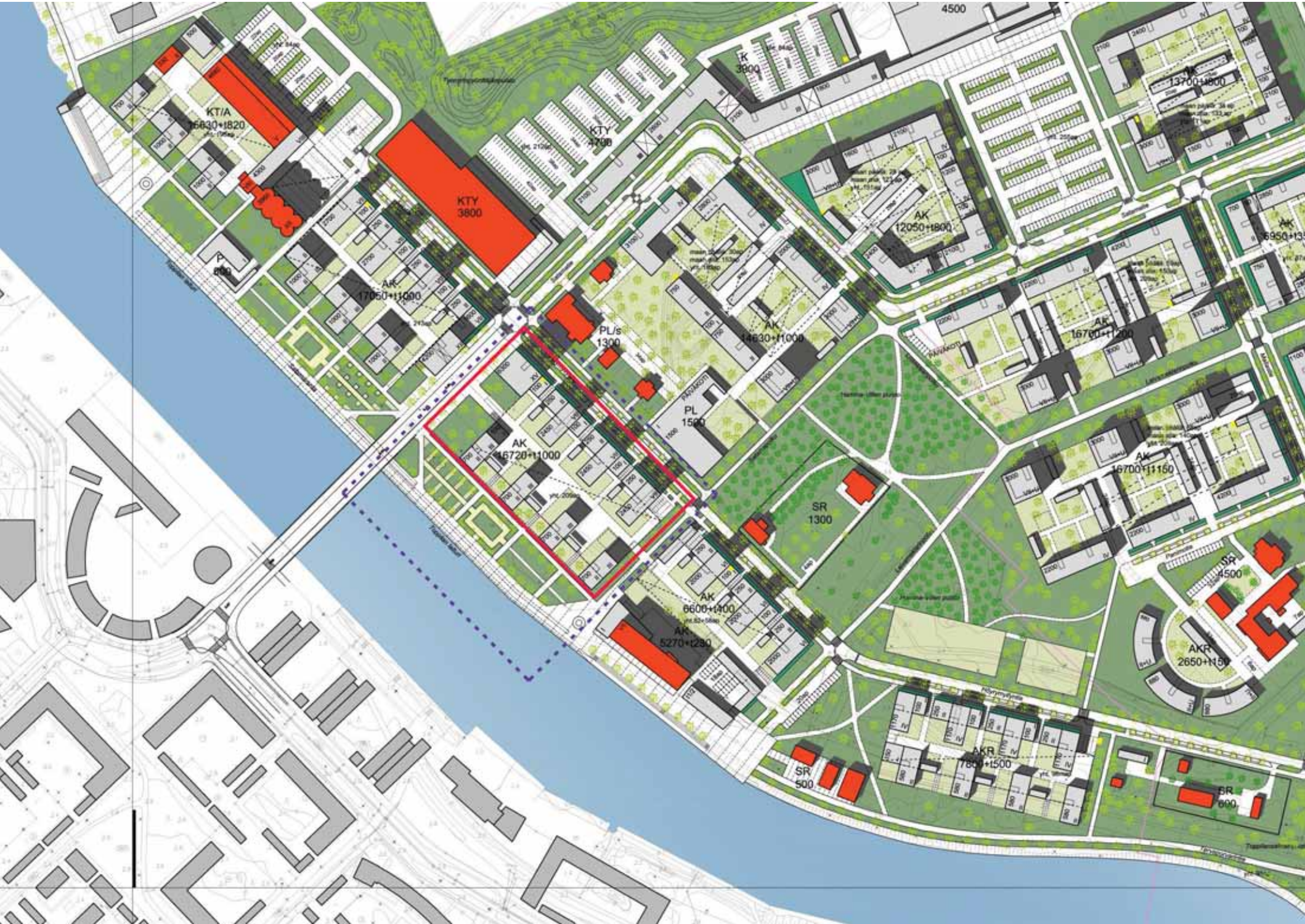
TOPPILASHORE

Block 80

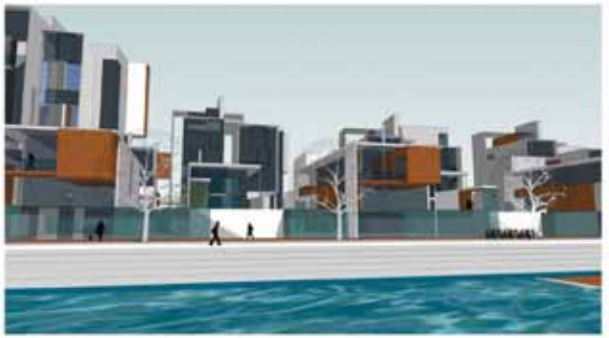
INVITED ARCHITECTURAL COMPETITION
1.7.- 31.10.2008

COMPETITION AREA




"TOPPILA LIGHTHOUSE"

SITE PLAN 1:500



"TOPPILA LIGHTHOUSE"


"TOPPILA LIGHTHOUSE"

TOPPILA TIMBER TOWN

Toppila Shore areal view

Sustainability

Sustainability and low energy solutions are integrated parts of the project. Taking into account Oulu is located at 65gr north it is still possible to work with passive and low energy housing.

Low energy quotes are reached by working with different parameters:

- The building masses are 11m deep - the amount of facades facing sundeck, environment are minimized.
- (Closed+ buffer zones in front of larger parts of glass in facade.
- Highly insulated structure towards rough weather environment with U-values at max. 0,09 W/qm/K.
- Window systems with U-values at max. 0,8 W/qm/K.
- Recuperation/action of heat from the ventilation systems.
- Intelligent regulation system of ventilation.
- Optimizing use of heat through summer months by possibility of optimizing passive properties of materials (PCM – phase changing materials).

15 kWh/sqm/year

Approximately 15 % of the housing units will have an energy consumption need for heat that will not exceed 15kWh/sqm/year. This is equal to requirement for passive house qualification.

This low energy quota is reached by working with a building mass 11m deep with façade construction with a thickness of 50-60 cm. (well insulated) - meaning that the amount of facade facing outdoor environment is minimized.

30 kWh/sqm/year

The other 50 % of the housing units will be low energy class housing using no more than 30 kWh/sqm/year. These units are located at the periphery of the buildings - at the ends/corners/roofs.

Heat is supplied by local power plant, alternatively establishing geothermic heat supply can be investigated. Together with implementation of thermo active concrete structures this will be a very sustainable energy source.

Structure & materials

The buildings are simple geometric volumes. Each volume has one or two slightly tilting facades and an angled and regular roof. The basic structure of decks, service cores and stabilising wall elements are made of prefabricated concrete elements. Basement is constructed from site cast concrete.

Secondary, internal walls are light structures (gypsum and/or wood).

Facades are of prefabricated concrete elements with a high grade amount of insulation covered with low wood laminated panels. Facade panels are low maintenance and fire safe.

Each of the buildings is thought to have their own colour identity within the spectre red, ochre and brown.

Plateaus between buildings are covered with wood with integrated light systems. Structural fields of the plateaus create intimate and covered spaces and access to basement below.

Identity ?

The proposed structure creates barriers to the surroundings. The non-permeable structure need focus areas to give the neighbourhood identity.

Buildings must relate to the qualities of the area: the water, the views, the forrest and the light.

Opening up

The structure opens up to the surrounding in all directions - there is no backside. The new neighbourhood is permeable with surprising views and physical connections through and across.

Local identity

The changing spaces between the building create a sensation of squares. Each square will have its own identity with character to underline the change of space as well as to give a local feel to the inhabitants.

Accesible

The structure allowes people to access from a variety of directions. Connections through the world area naturally goes between the houses and creates of lively and urban atmosphere.

Area plan 1:2000

Section AA 1:500

Toppila Timber Town





1. Urban and connecting

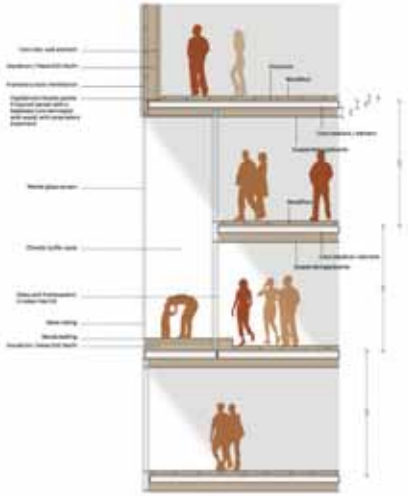
2. In the wood

3. A natural part

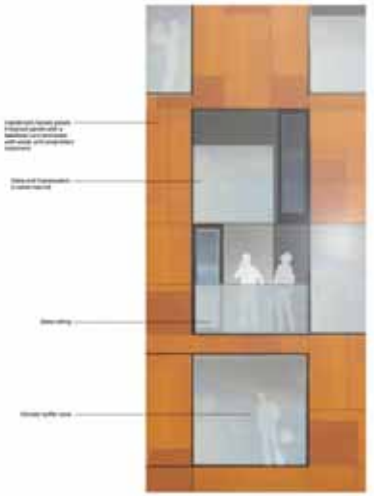
4. Enjoy the water

• Reference & tradition

Facade east 1:500



Section 1:50



Partial facade 1:50

"Buildings and trees blend naturally along Hörnymäentie"

Full House

shore

competition

Full House

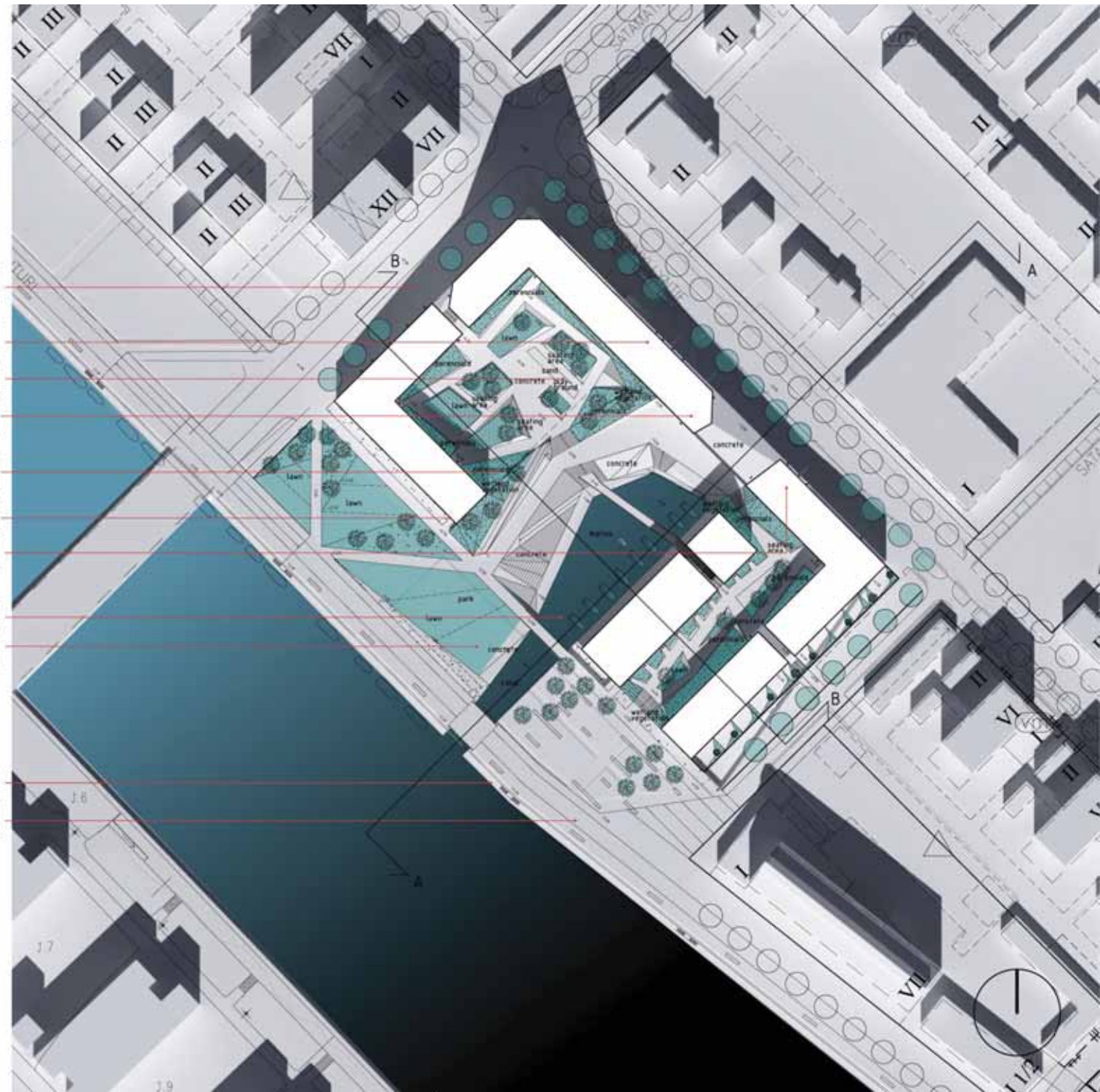
P perspective view from Courtyard

Full House

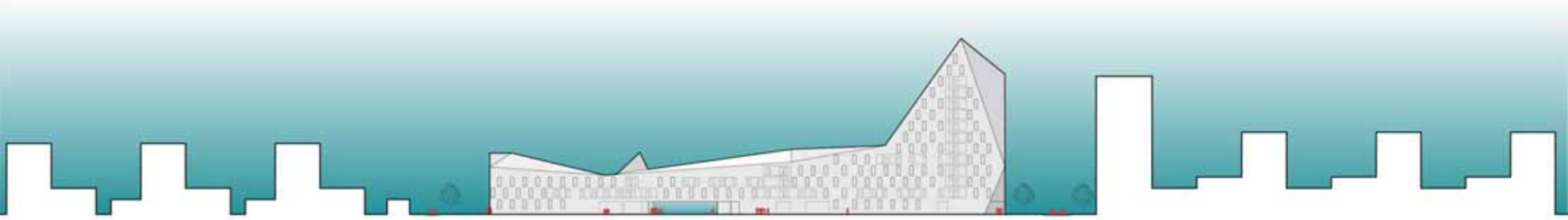
Toppila Shore competition

B-B section 1/200

Organization of the site



Relation to surroundings



Elevation towards Höyrymyllyntie Street 1:500

Elevation towards waterfront 1:500

Cross section A–A 1:500

Waterfront living

The new created inlet and internal water surface complements the yard with contemplative values besides supporting various activities such as boating, kayaking, swimming and ice-skating depending on the season. On the opposite side of the inlet, the water meets the yard with a light sloping shoreline. A generous portico forms the transition between the yard and public spaces, streets and park, surrounding the block. In this way a main axis through the block connects Höyrymyllyntie Street with the public green areas of the Inlet Park by the dock of Oulu River. This also contributes a natural junction and meeting point, well suited for commercial services. The increased value of the apartments and the site, and opportunities for establishing functional commercial services, pays the costs of the created inlet.

An important aspect in this project is to offer a structure that can decrease building costs but at the same time stay flexible and enable to change through time.
The housing solution starts with the issue of seasonal variations, and aims at bringing single-family housing qualities to the apartments. All rooms are oriented in strict relation to the cardinal points, closed-in terraces orient to the south and the water view. Most of the apartments are in duplex form. Each one has a "traditional" space with lounge, kitchen and bedrooms, as well as an additional space, closed-in terrace or winter garden that is in double height.

The inhabitable part of the house varies according to the seasons, expanding from standard consisting of living room, kitchen and bedrooms, to a larger space by integrating the entire garden in high summer. The dwelling-specific sauna is placed in between the garden and the apartment as a natural link between indoors and outdoors.

In the core of the block by the central water surface, eight special apartments are provided. They are carried out as exclusive row houses with an integrated atrium. Facing the water they are equipped with a private boathouse and sauna with direct access to the water.

Materials and materiality

A variation in apartment types is made possible according to a strict modular system. The system is easy to produce, avoiding conflicting angles and inefficient floor space. The solution has been adjusted for possible prefabrication. The terraces are separated from the isolated part of the house, to minimize cold bridges between the construction parts. The shell structure has a bright, light concrete finish similar to snow, whereas the interior part and the row houses have a warm, wooden character.

The materials suggested are durable, age carefully and with grace, are easy to maintain and can easily be recycled at the end of the building's life cycle. Renewable and local products should be considered. Life cycle costs and analysis are prescribed to make optimal long-term choices and solutions possible.