EPFL

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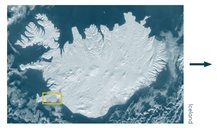
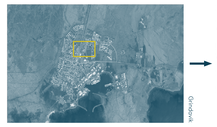
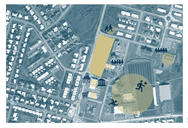
THINK GLOBAL, BUILD LOCAL
Adapting an individualistic building and living culture to the constraints of contemporary life and sustainable development

Location: Grindavik, Iceland


Iceland

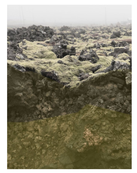
Reykjanes peninsula


Grindavik


Plot

Sections in the village

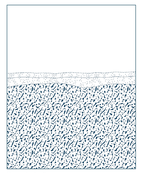
Soil composition



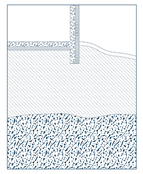
moss cover 10-15 cm

loose basalt mixed with soil (thickness varies, on average 10-15cm)

basalt bedrock (good for foundation support)



Untouched soil
Geologically speaking, the soil in Grindavik is quite young. It hasn't had time to transform from its state of hardened lava to a more traditional soil composition as can be found in most of Europe. As a result, there is only a thin layer of 10-50cm loose rock and moss on top of the bedrock.

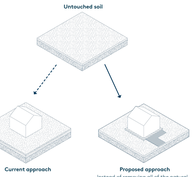


grass

aggregates from quarry

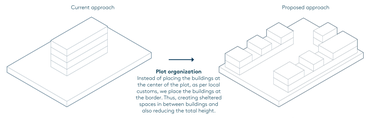
basalt bedrock

Traditional residential projects
The top layers of loose basalt and moss are removed and replaced with aggregates from a neighboring quarry. This is not only done under the foundations, but under the whole plot; therefore, eliminating all of the natural surface soil.



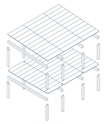
Proposed approach
Instead of removing all of the natural soil of the plot, we propose creating a foundation cushion only under the building and necessary infrastructures, and keeping the natural soil untouched elsewhere on the plot. We then use timber paths to circulate. They are only anchored in a few spots in the ground and float over the moss.

Strategies

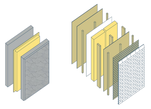


Plot organization
Instead of placing the buildings at the center of the plot, as per local customs, we place the buildings at the border. Thus, creating sheltered spaces in between buildings and also reducing the total height.

Apartment organization
Each apartment has its own outdoor space of considerable size and with a private glass house.

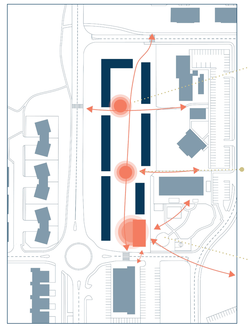


Structural system
The structure is composed of pre-cast concrete elements.



Wall facing street
This wall is a precast concrete "sandwich" that makes use of various vernacular concrete treatment methods to create variations in the exterior facade.

Wall facing courtyard
This wall is composed of wood and gives a warmer feeling to the courtyard space.



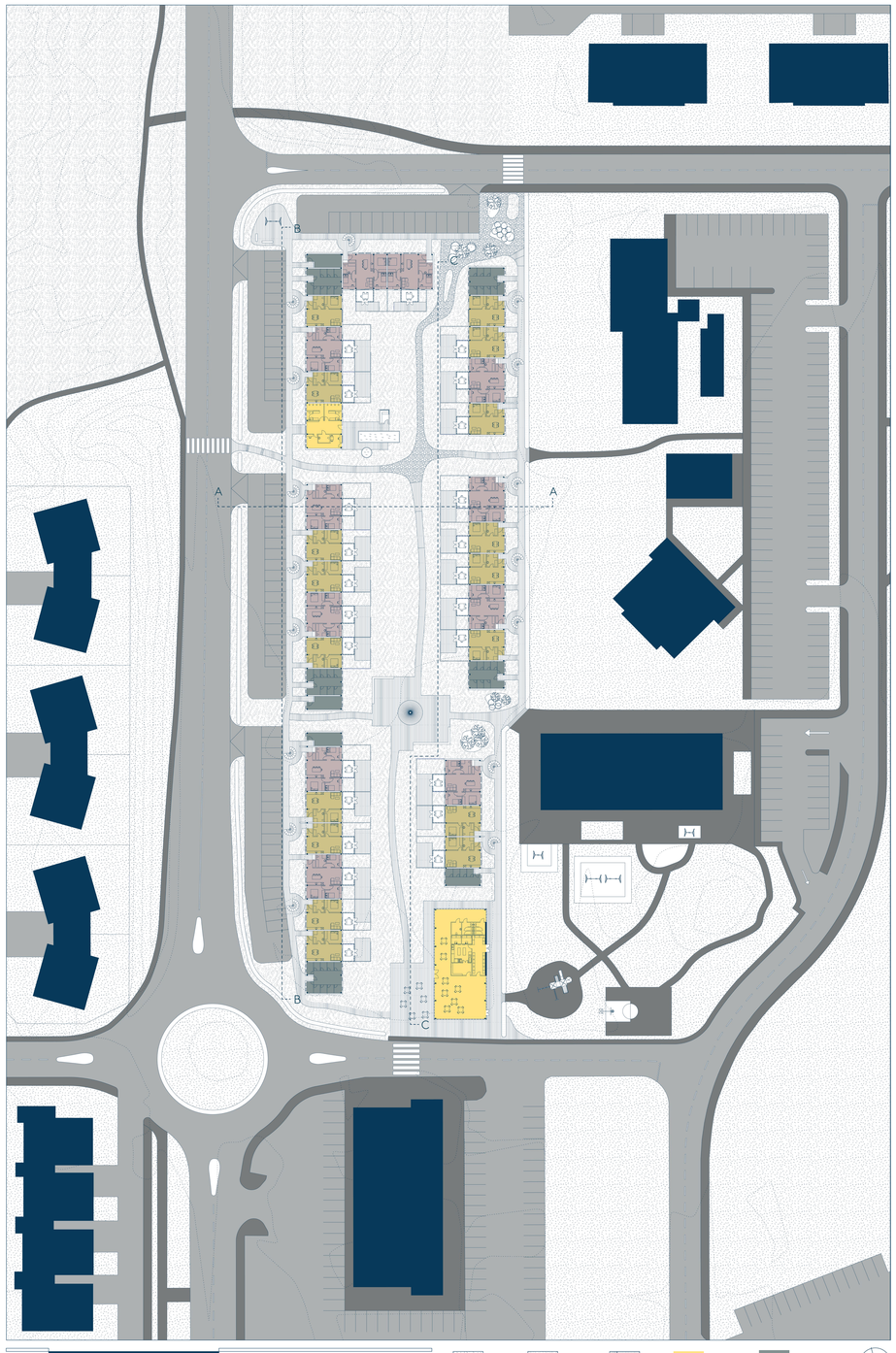
Integration into existing context drawing

Outdoor pool
Bathing is an inherent part of the Icelandic culture. Due to the availability of geothermal heat, most pools are outdoors and warm.

Central plaza
This is an outdoor space which can be used for playing and also for community gatherings such as garden parties and New Year's celebration.

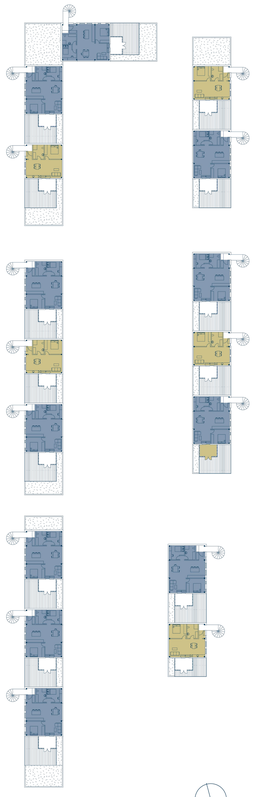
Public Greenhouse
This greenhouse contains a restaurant and plant growing stations which will be used by local schools and businesses to grow food and learn about it.

View of courtyard
Perspective

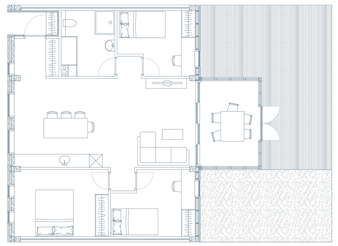


Ground floor plan & site plan
1:250

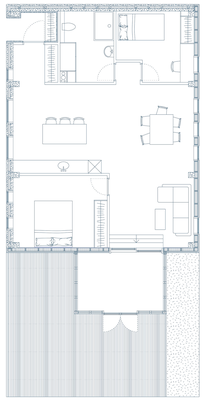
View of living area in groundfloor apartment
Perspective



2nd floor plan
1:250

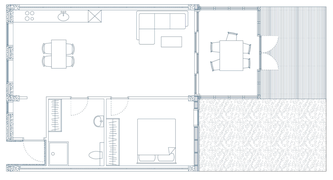


3 bedroom, 95 m² apartment
1:50



2 bedroom, 95 m² apartment
1:50

View of kitchen area in groundfloor apartment
Perspective



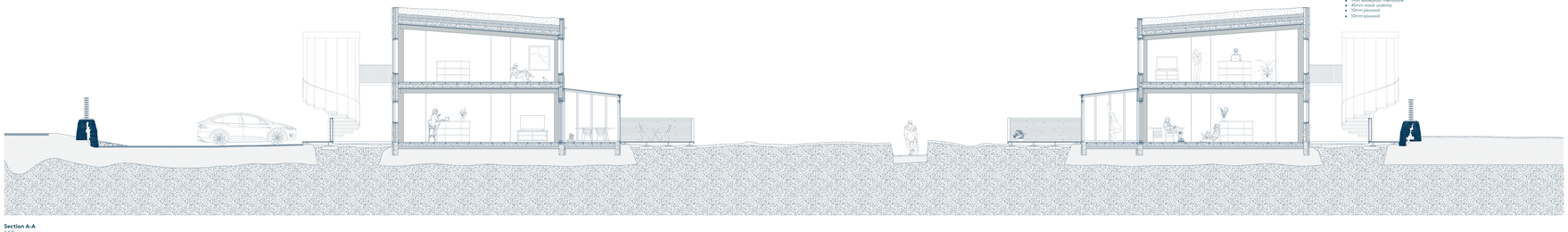
1 bedroom, 70 m² apartment
1:50

Timber wall
- 20mm wood shingles
- 40mm wood underlay
- 10mm waterproof membrane
- 10mm plywood
- 145mm studs with isolation in between (cc 600mm)
- 1mm waterproof membrane
- 40mm wood underlay
- 10mm plywood
- 10mm plywood

Roof construction
- 200mm soil and grass
- 150mm waterproof insulation
- 10mm waterproof membrane
- 2mm waterproof membrane
- 160mm precast concrete slabs

Concrete wall
- 75mm concrete cladding with various surface treatments
- 50mm isolation
- 120mm concrete wall

Elevation street view
1:50



Section A-A
1:50

Courtyard elevation
1:50

Elevation B-B
1:250

Elevation C-C
1:250