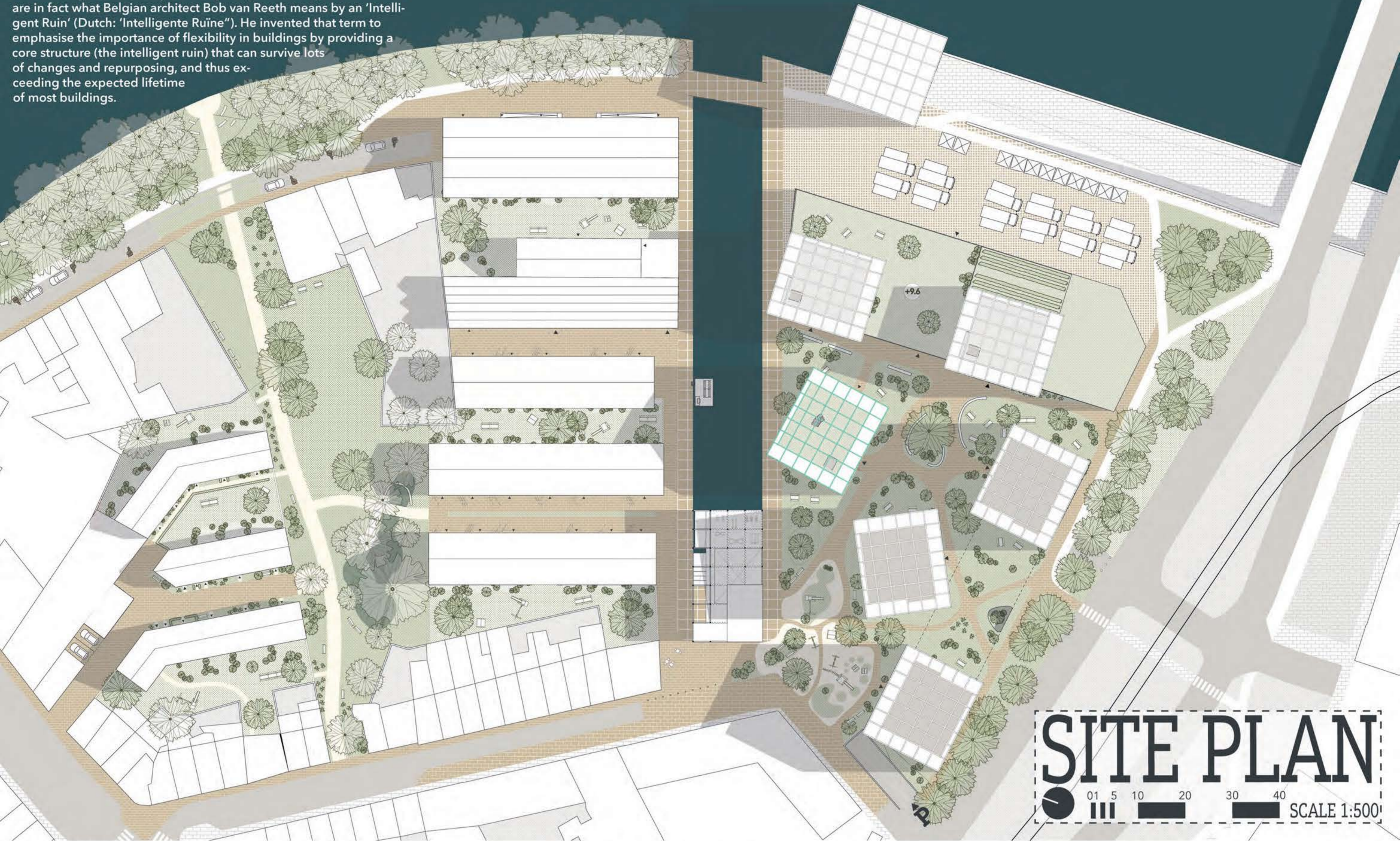


PAPERDOLL TOWERS

Concrete is in essence the perfect building material for permanent applications. When a structure has a permanent core, consisting of only the most necessary components, and for the rest is flexible in use and expression, the environmental impact of the building can be justified through the warranty of a long lifecycle. The Paper Doll Towers are in fact what Belgian architect Bob van Reeth means by an 'Intelligent Ruin' (Dutch: 'Intelligente Ruïne'). He invented that term to emphasise the importance of flexibility in buildings by providing a core structure (the intelligent ruin) that can survive lots of changes and repurposing, and thus exceeding the expected lifetime of most buildings.



SITE PLAN
01 5 10 20 30 40 SCALE 1:500

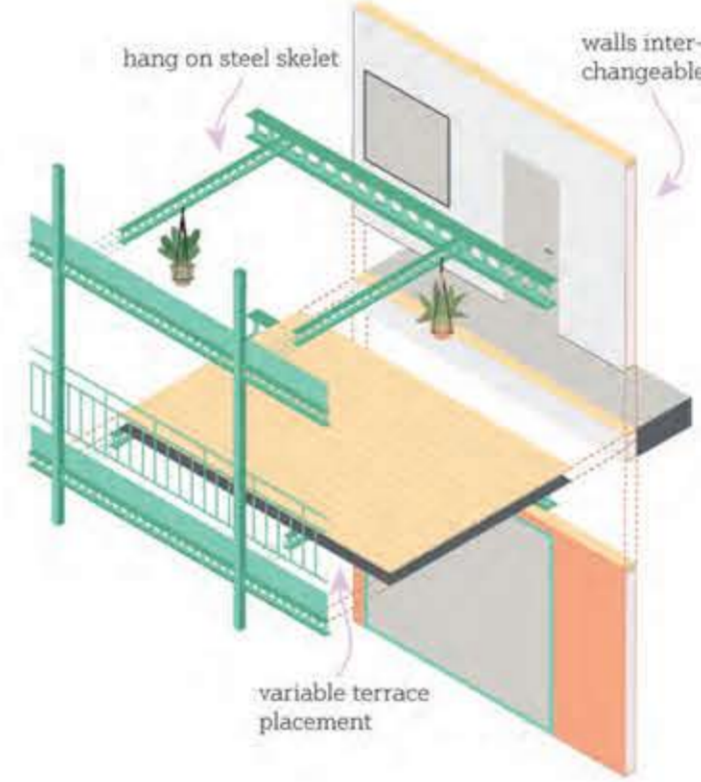
The Paper Doll Towers are part of a masterplan we designed for a site at the far end of 'De Oude Dokken'; an industrial zone in Ghent with lots of now unused terrain due to the de-industrialisation of the district, with a strong connection to the docks. In 2004, OMA won the competition for the masterplan-project this district. OMA proposed a pattern of differentiating ribbons of built terrain, water and green open spaces, perpendicular to the water. Our masterplan elaborates on OMA's idea - the site is divided in three zones by a new park 'Bevelandpark' and a new dock 't Klein Dok'. The areas in between, which accommodate housing, vary in height and density, ranging from low-rise houses connecting to the lower built neighbouring environment in the North called 'Tuinwijken' ('Garden Suburbs'), stacked duplexes with an industrial character to reference the industrial halls on the site called 'Kadehallen' ('Quay Halls') and finally a high-rise zone with 6 towers and public and collective facilities, 'Babylon'.

A tower at the waterside was designed as a prototype for the Paper Doll Tower. It consists of a permanent core and light, interchangeable walls, just like a paper doll, which can change its clothes to adapt to the owner's taste. The dynamic concept of this always-changing tower is applied to all of the 6 towers in Babylon.

SELF-EXPRESSION

The notion of self-expression was a driving factor in the design of the tower. The goal is to involve the residents in the process of shaping their own living environment. The design of an apartment takes place in 2 phases: the structural design precedes the design of the apartment's indoor spaces, facades and terraces. In the second phase the architect takes a step back in order to give the resident maximal freedom.

The facades are non-load bearing, timber frame walls, which gives them a lot of freedom concerning finishing materials and layout of openings and can be customizable over and over again by the residents. The steel structure around the apartments supports terraces and walkways, which can have different finishings, and the castellated beams can be used to hang plants, curtains, etc. This way, a patchwork of styles and expressions emerges. A visual map is created by the residents and breaks the anonymity that is often synonymous with apartment buildings.



PROGRAM

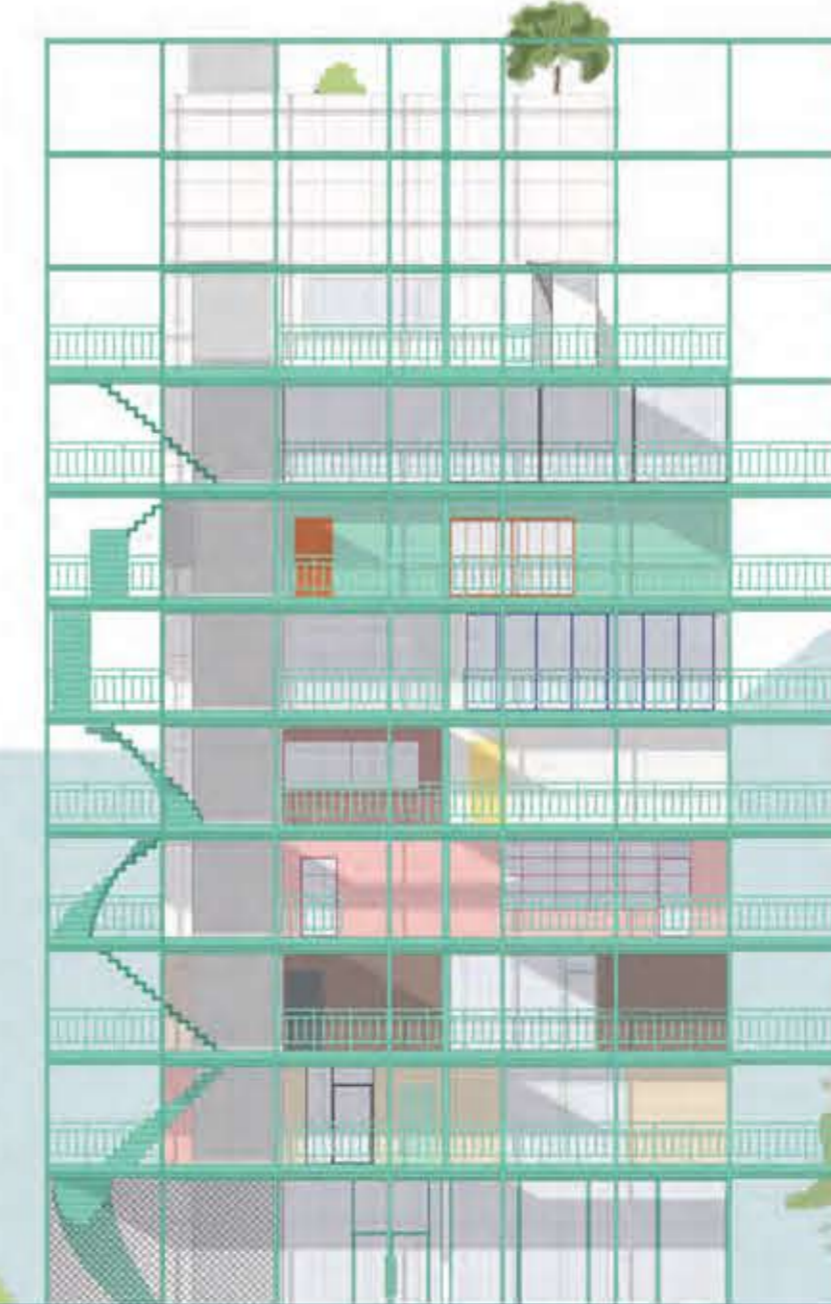
The concepts of the 'intelligent ruin' en self-expression make it possible to design each apartment uniquely depending on the resident. The plans of the apartments are meant as an illustration of a possible scenario.

Each floor has the capacity to house 4-7 people in 1-3 apartments. The living surface of one floor is 170 m² and the maximum surface for terraces is 145 m².

+9	collective rooftop-terrace	160 m ²		
+9.5	technical space	150 m ²		
+8	collective livingroom + kitchen	85 m ²	collective laundry room	12 m ²
				collective terrace
				170 m ²
+7	penthouse 5 residents / 4 bedrooms	170 (inside) + 90 (terrace) m ²		
+6	duplex 4/3	135 + 55 m ²	simplex 3/2	95 + 40 m ²
+5	studio 1/1	25 + 10 m ²	duplex 4/3	185 + 100 m ²
+4	simplex 3/2	80 + 13 m ²		
+3	simplex 2/1	70 + 25 m ²	simplex 4/3	100m ² +45
+2	simplex 3/2	75 + 20 m ²	simplex 4/3	90 + 35 m ²
	studio 1/2	60 + 35 m ²	studio 1/2	60 + 35 m ²
			studio 1/1	50 + 55 m ²
+0	entrance + bicycle storage			180 m ²
	open office			100 m ²
-1	basement: garbage, storage, technical facilities			190 m ²



SECTION AA'
0 1 2 5 10 15 SCALE 1:200



SOUTH ELEVATION
0 1 2 5 10 15 SCALE 1:200

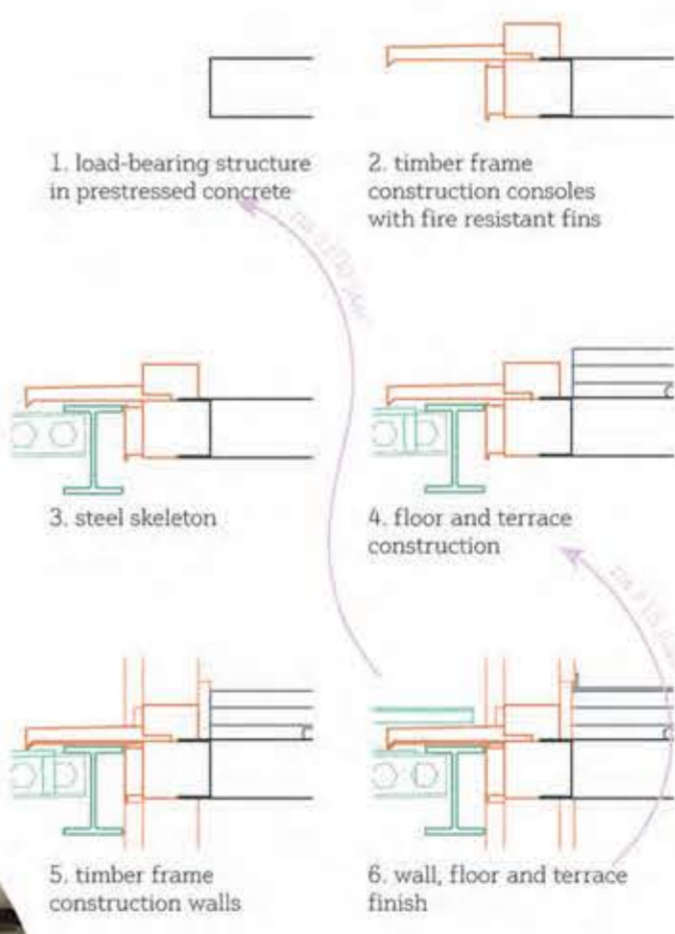
PLANS COLLECTIVE & PUBLIC SPACES

0 1 2 3 4 5 SCALE 1:100



PLANS APARTMENTS

0 2 4 6 8 10 SCALE 1:200



INTELLIGENT RUIN

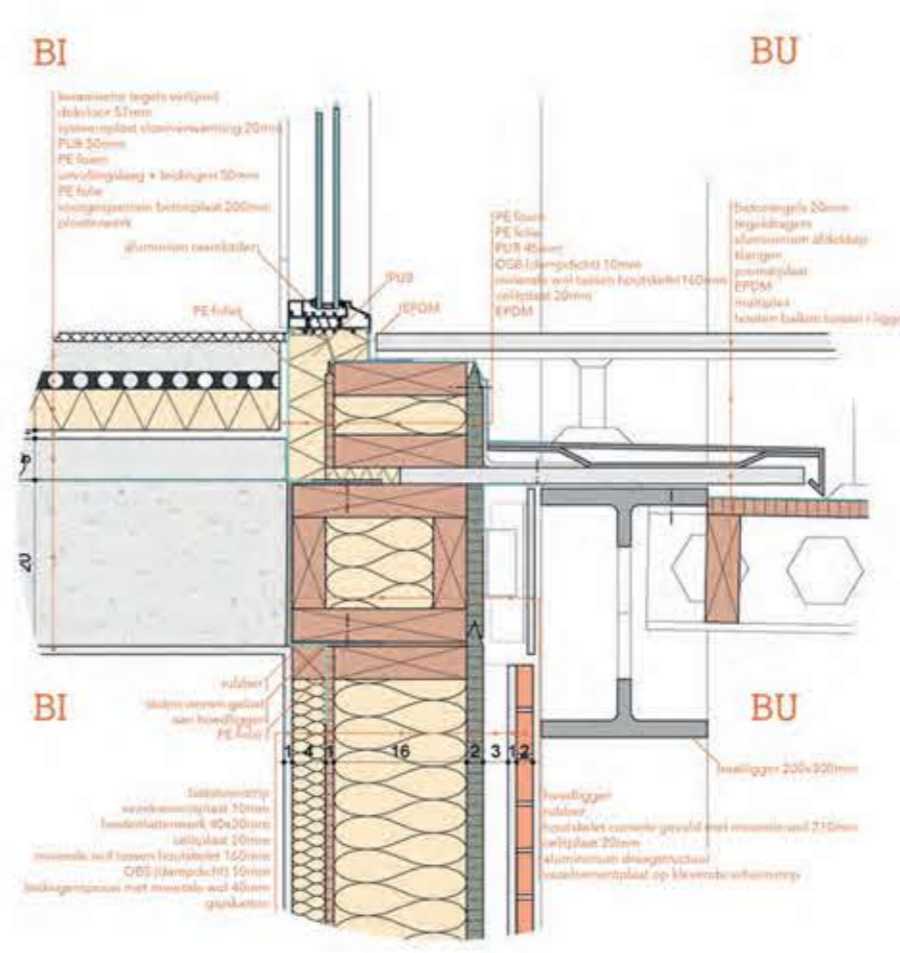
A Paper Doll Tower has a **concrete spine**, consisting of 4 shafts spread about the floor plan. These **shafts** also function as the pipe ducts, which provide a great amount of flexibility because of their multitude. The 4 shafts, in combination with the elevator shaft, support the floors made out of **prestressed concrete**. The layout of the shafts reduce the maximal span and cantilever length of the floors. The concrete spine gives space for an **almost entirely open plan** of 170m², which can be filled in with apartments, office space, etc by installing inside walls made out of an (acoustically insulated) timber frame construction.

The **facades are fully (inter-)changeable to the taste of a resident**, therefore they must be **easily dismantlable**. A solution for that is provided by attaching identical **timber frame consoles** on each prestressed concrete floor. These consoles are used to support the timber frame facades, and are **designed in such a way that the demands** concerning airtightness, waterproofing and measures against fire spread are **met** when installing different types of facades and different layouts of their openings.

After the consoles, a **self-supporting steel skeleton** is placed around the core, which supports the **terraces and walkways**. The skeleton also functions as **'permanent scaffolding'** and facilitates the installation of the facades. There are no permanent structural elements in the facade, which provides a great flexibility in expression and different uses of the indoor space.

GENIUS LOCI

'De Oude Dokken' in Ghent are known for their industrial character. On the site, an **industrial hall used in steel production** is contained and will be **repurposed** as a commercial hotspot in the masterplan. **Elements** of this hall called 'Metaalwerken' (Metalworks) are **reused** in the Paper Doll Towers, or **serve as inspiration**. By for example **reusing the steel truss** in the entrance of the tower, or **reinterpreting the polycarbonate skylights** of Metaalwerken and using them as windshield for the outside stairs and the elevator, the **spirit of the site is preserved** and a **connection with surrounding buildings** is made.



This way of designing an 'intelligent ruin', where the facades aren't part of the load-bearing structures, divides the building's elements into different **life cycles that can proceed autonomously**. The concrete spine is the core of the project literally and figuratively, because it is designed to last over a century. **This way concrete can be used sustainably by playing into it's strenghts: durability and permanence.**