

#### The architect as developer

PATCH22, a 30m tall high-rise in wood, was one of the successful plans in the Buiksloterham Sustainability Tender in 2009. The initiators, the architect Tom Frantzen and building-manager Claus Oussoren, wanted to achieve independently what they had never been able to manage when working on commissions for their previous clients: an outsized wooden building with a great degree of flexibility, striking architecture and a high level of sustainability, not because that was what was required but because that is what ought to be done.

The project was developed for their own account and risk in the middle of the crisis years of 2009-2014, and innovative financing solutions were conceived and implemented to meet this challenge. The project also incorporates numerous innovations in the technology used and application of technical rules, all aimed at achieving the desired flexibility without having to make compromises. Examples include the hollow floors and removable top floor, the lack of shafts in the apartments — achieved by having the piping and cabling taken horizontally to central shafts in the core — and agreements for a fixed ground lease with flexible positioning of the functions within the building. But the most unusual feature is the use of a wood as the main structure for the 30m-tall building. Moreover, the wood has largely been left visible, making this a key factor in the ambience of the apartments and the exterior.



#### Re-development of an industrial area

PATCH22 is located in a redevelopment area in Amsterdam north, where a lot of industry will remain in the area. Therefore Patch22 is equipped with noise insulating single sheet glass facades covering the balconies on the north side. To protect the south side balconies from the always present south western winds the same sliding glass panel system is installed on the south side as well.



#### Sustainability: energy neutral

In Patch22, 'sustainability' is achieved through energy efficiency, the use of renewable materials and great flexibility in the floor plan layout options. The 2009 design for Patch22 had a GPR score (a Dutch governmental Benchmark score) for sustainability of 8.9 and an EPC for energy efficiency of 0.2. The roof is entirely covered with PV panels, making the building energy-neutral. Rainwater is collected and reused in a grey water system. Heat is generated using CO2-neutral pellet stoves that use compressed waste wood from the timber industry as fuel.



#### Sustainability: as much wood as possible

The 30m-tall building uses wood, a renewable material, as its main material for the structure and facade. according to the cradle2cradle filosophy it is Ok to use a material exuberantly when nature proides us with it again and again. with this in mind we solved the fire resistancy issue that obviously arises when building a highrise in wood. We simply added enough extra wood to the structure so it would take the obligatory 120 minutes before the structural qualities of the building would be affected by a fire. This way we were able to keep all the wood used in plain view.





### Sustainability: flexible installations

The owners of the apartments are able to design and install their own layout for the pipework and cabling thanks to the hollow floors with removable top layer. They can easily make changes later on. The piping and cabling run horizontally to a central shaft in the core. The division walls between apartments, with a slight gap for acoustic reasons, can easily be added or removed. This means apartments can be subdivided or merged, and the division into apartments will remain flexible in the future. The fire resistance requirement of 120 min. for the main load-bearing structure was satisfied by adding 80mm of extra wood to the wooden structure on the fire-load sides.



#### stacked villas

We aimed at creating a structure in which all buyers would be able to build their own villa. On the other hand we didn't want to create just an anonymous facilitating structure because the renewal of this post-industrial area needed a landmark to show the city that transformation has begun. It turned out that the expressive exterior and the completely open layout of the interior were the pefect combination to attract buyers to this part of the city, even in the middle of the creditcrunch period 2009-2014







ground floor: commercial space, storage and rowhouses

2nd storey: (work)lofts, roof terraces of the rowhouses





#### Sustainability: flexible floorplans

The high-rise section of the 5400m2 building can be converted from commercial space into residential space and vice versa without any changes being needed to the structure. The storeys, which shift in and out in a playful manner, can be used as large loft apartments of up to 540m2 with huge balconies, as up to eight smaller apartments or as open office space covering the entire floor thanks to the lack of structural dividing walls, the generous storey height of 4m and the high floor load of 4kN. Apartments can be subdivided or merged, and the division into apartments will remain flexible in the future. The apartments themselves offer complete layout flexibility because the occupants are able to install the pipework and wiring to their own need and demands in the hollow floors with removable top layer.









#### Sustainability: flexible use

To achieve flexibility during the (hopefully extended over and over) lifecycle of the building we designed the sections not only to accommodate apartments in every imaginable way but thanks to the gross floor heigts of 4m lots of other scenarios are possible as well. By applying escape route regulations for housing as well as those for office buildings PATCH22 can even be used to house offices. To make sure there will be no objections by the government against an alternative use in the future we drew up a new kind of land-lease contract in cooperation with the city of Amsterdam.













The ceiling heigt of the commercial space measures 6,4m whereas the Dutch standard is only 3m.













#### **Do It Yourself!**

Final layout of the high-rise section, with apartments and layouts chosen by the owners (per storey). Our office FRANTZEN et al architects did not design all the interiors but we coached all the owners in their process of designing their homes themselves. Some used interior architects, some used nothing more than drawing paper and a pencil. When all the designs were conceived, our office converted them into working drawings so all plumming and electricity could be installed already in the hollow floors during the construction phase by the general contractor. After completion of the casco building the owners could start building their own interiors with their private contractors or even by themselves.



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## 7th & 6th floor, design by FRANTZEN et al together with the owner

The 18m wide glass facade can be felt throughout the entire apartment offering a majestic view on the old city centre of Amsterdam.





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An open floorplan on the top floor of the building is combined with cellular bedrooms for the two children and a guestroom.



The loggia balconies on the south side of the builling are 2 to 2,4m wide offering the posibilitie of using it as a real exten-

sion to the interior. Several owners have installed bathtubs on the balconies. Due to the extra slide away single glass sheet windscreens the climate on these loggia balconies is always more moderate than outside conditions.





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### 5th floor, design by owner

The interior is build up around antique Moroccan doors bought in Spain by the owner. The hexagonal rooms feel like caves in which the more private functions take place.





### 4th floor, design by owner

An open floorplan appartment for a family with to teenage daughters. The structural wooden wall of the west facade is present in the complete space.





## **3th floor, floorplan by FRANTZEN et al, finishings by owner**

A lofty open kitchen and living room in combination with cellular bedrooms for the parents and two small children. A separate small apartment is used by the grandmother and can only be reached trough the communal corridor.





### 2th floor, design by owner

A completely open floorplan appartment with a minimum of walls to maximise the

loft feel and to minimalise construction

costs.





### Wood blows (you) away

Given the fact that a wooden building is so light that windforces on the facades are the biggest structural challenge we shaped the building as if the wind already did it's work and shaked all the floors. In a post-selling survey with our customers we found out that the iconic looks of the exterior in combination with the neutral casco interiors were very appealing to our customers and their main reason to take the risk to move to

the yet undeveloped industrial area Amsterdam North in the middle of a financial crisis.



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