

FEATURE

Sustainable Redevelopment

Retrofitting buildings ensures the development of a circular economy, as well as a future for our cities

By Michiel Raaphorst

Architect Director & Founding partner, V8 Architects

As a little kid I loved to destroy structures. Breaking them apart until the very last piece. Only to be able to build something bigger, more imaginary, and more efficient with the same bricks.

Ask yourself, why does this pragmatic approach of our youngest generations get lost when growing up? The planning, design, and construction industry is heavily involved in creating new structures whilst often leaving existing structures behind as waste. In the insight that we overuse the capacity of our planet with more than 175% on a yearly base, a number that is rapidly

increasing, we radically need to change our perception. We need to learn how to harvest our existing buildings.

In the Netherlands, we have a strong tradition of organic city building. We maintain buildings which have an economic value and which can

be transformed into a newly adapted usability. It is the way the Dutch are used to deal with assets they already invested in and which hold value for years to come. You could almost say it is part of our cultural DNA.

In the last year and a half, my team and I have frequently worked in the UAE. Initially, to start the construction of The Netherlands Pavilion for EXPO 2020, but our journey has gone further than that. During the very first visits we got inspired by the great and genuine ambition of the UAE to change its urban environment to facilitate a post-carbon society. It is so promising to see that this change is to a substantial extent driven by the younger generation, who are able to connect global knowledge with the very resourceful local Arabic culture. Since we are architects and our key attribution is to link

Sijthoff - retail and offices - The Hague, NL



“We foresee that the UAE is only at the beginning of a vital and sustainable urban development.”

technology with evolved culture, we foresee that the UAE is only at the beginning of a vital and sustainable urban development to make comfortable livable places and to facilitate communities for future generations. Eager to learn more, we began having in depth talks with government bodies, knowledge institutions, and a wide range of experts in urban planning,

economy, sustainability, architecture, and construction. We concluded these talks with a very inspiring and surprising lesson. In parallel with the Dutch way of ‘making city’: from development towards redevelopment.

When returning to a building after extended periods of time, like decades, 9 times out of 10, you will find that the urban context of the building will have changed drastically since its origin. Its context will have changed from monofunctional into multifunctional alongside the growth and development of the city. But it could also have moved into another direction as districts may have become economically less viable, so vacancy is felt heavily and an impulse is required.

Our team has realized numerous inner-city redevelopments, where asset values have increased significantly not only because the building became more efficient in maintenance costs, energy efficiency and usability, but also because the building revived its context, thus incentivising neighboring building owners to invest

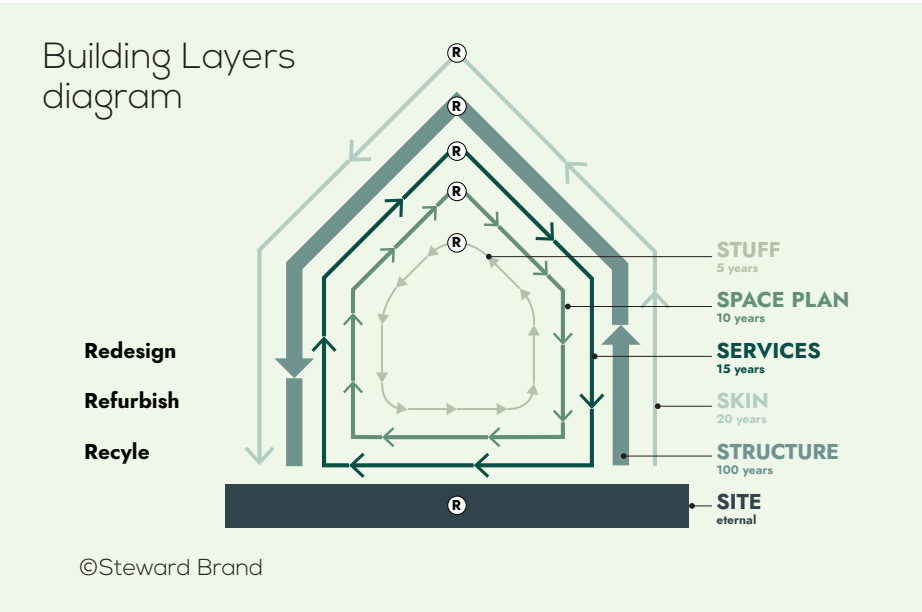
in the same, resulting in an even more attractive urban context for users and inhabitants. In that sense, we like to speak about a so-called catalyst. The context changes, the building responds, and the context gets stronger. This has a positive effect on real estate value.

It’s simple mathematics. Approximately 40% of total construction costs is present in buildings’ main structural components, so redeveloping makes it possible to substantially reduce costs, by eliminating the need for excavation works, substructure, and skeleton. Add to this the fact that concrete globally contributes to CO2 exhausts of over 5% and it becomes clear that a shift towards retrofitting is essential.

This pragmatic and tangible necessity to reuse existing structures serves not only the interest of the building owner and its users. The retrofit approach makes a city more resilient.

Cities are in a sense just like humans, when they grow older and they are kept in good health, they become stronger and mature. In this way, cities become valuable, not only from an economic perspective but, equally important, from a perspective of identification. This creates a meaningful relation between the buildings, the urban spaces and its users.

Like a city, a building is a complex system. It consists of different layers, each of them with their own value and lifecycle. This system can be broken down to six so-called shearing layers: Site, Structure, Skin, Services, Space plan and Stuff. Redevelopment is all about understanding the individual economy and potential of these layers and redesign, refurbish or recycle them into something sustainable.





Headquarters KPN, Rotterdam, NL

To get a grip on this complexity we use a threefold approach: buildings, building components ('layers'), and building material.

The first approach is to see if the building as a whole can be reused. This deals with the relation between building and context. Redesigning some crucial parts of the building can already make a great difference: for example, upgrading the ground floor façade and entrance which provides a better connection between inside and outside to activate the public space.

The second approach is to refurbish the building as a system. This may involve upgrading or replacing MEP systems, recladding the framework with a new façade to allow for an improved energy performance and fire safety. This method replaces some of the 'layers' which have

reached the end of their lifecycle but will maintain the layers which are still of value and functional.

And with the third, approach we look at the smallest scale, in essence harvesting usable raw building material. This could imply aggregating concrete, reusing steel or even turning upholstery into new fabrics.

All these approaches share one very important aspect: circularity. It is our responsibility as developers, designers and engineers to use the already limited resources wisely.

One of the most important lessons is that there is no such thing as a fixed blue print for redevelopment. Every building is unique and requires a realistic concept. It can be applied to vacant buildings and to buildings which need to be prepared for a new lifecycle and to attract new users. But

the tools for this concept are known and proven. Redesign, refurbish and recycle. Which makes real estate valuable in a sustainable way.

Architecture and city development start with dreams, imagining a new reality in a nearby future. But this future is for a major part already here, in existing buildings and their components, which we - where possible - can redesign, refurbish and recycle.

Together with building owners, governments, and institutions we continue our mission to reuse buildings in the UAE in a generous way. To apply for a more sustainable way of city making, which makes people relate to their environment and creates resilient and adaptive cities, combining long-term real estate value with an inclusive habitat for all citizens. 🌱