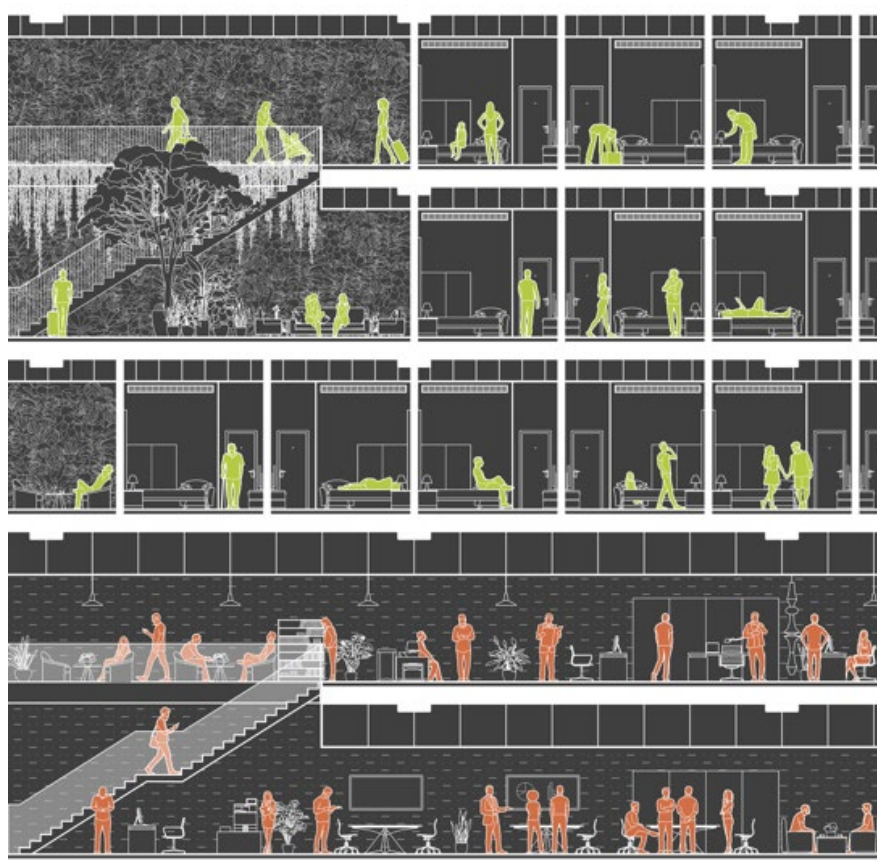


Studio Title: Future Adaptations: Design for Versatility

Studio Instructor: Pauline Ang



In [“A Global Moratorium on New Construction” \(2021\)](#), Lausanne-based architect Charlotte Malterre-Barthes argued for all new construction to be put on hold, so that architects and planners would be forced to fall back on existing building stock and materials to fulfill new development needs. Instead of building anew with extractive, carbon-intensive methods, the focus would shift to methods of repair and prolongation, and new forms of adaptation and construction.

While this may seem extreme, it may well be the only way to arrest the massive carbon debt that we continue to incur as we mine raw materials to make new products and buildings. Yet, despite gaining traction in recent years, adaptive reuse for ordinary, non-heritage buildings remains a difficult proposition, simply because the amount of adaptation required to “make it work” is often too extensive and costly compared to a new building. This is hardly a surprise, given that most buildings are designed for a specific use group, and end-of-life options, including reuse, are rarely considered upfront. As architects, how can we design buildings that are inherently versatile so that they can be adapted to shifting patterns of use over time?

While adaptive reuse is about designing with “as found” structures, designing for future adaptations anticipates the changes in uses that could take place in a building over an extended

period. The two are not mutually exclusive – the concept of designing for future adaptations can also be applied in an adaptive reuse project. Such is the case in the ZIN building, which involves the reuse of the two World Trade Centre towers in Brussels for a new mixed-use development comprising office, residential, hotel and common spaces. By keeping the existing building cores, rebuilding the floor slabs of the towers to increase their loading capacity, and inserting a central slab at every two floors between the two towers, the architects [51N4E](#) created a hybrid building with a system of interlocking single and double-height spaces, which provides the spatial flexibility for future changes in the use mix.

However, designing for future adaptations is by no means a straightforward task, even when the changes in question are narrowly defined as the relative proportion of office vs residential spaces within a single building. The forms, spatial configurations and floor plate sizes of office and residential buildings are generally very different, primarily because office interiors are climate-controlled while residential spaces are naturally ventilated and therefore limited in size and depth. In this respect, mixed-use developments that combine office, residential, hotel and other uses within a single tower are useful case studies that will provide insight in the formulation of possible design strategies for future use adaptations.

To understand the potential of the various design strategies for future adaptations, this studio will explore them in the context of a new site-specific building where there are fewer constraints compared to an existing building. This can be seen as a primer for a more complex circular design challenge at a later stage, which is to test and develop these strategies in an adaptive reuse project, to complete the life cycle process of a building.

Studio Description and Objective

Under the URA's Master Plan, the housing and industrial neighbourhoods along the [Kallang River](#) will be rejuvenated with new homes and workplaces, transforming it into a mixed-use waterfront precinct that connects the various communities. The brief is to design a mixed-use building on a prominent waterfront site in Kallang that is versatile enough to adapt to the changing demands in commercial office and residential spaces over a period of 100 years. The studio will explore a range of design strategies that can facilitate such conversions and prolong the relevance and lifespan of the building, while reflecting its changing identity and presence at the urban level.

The studio is organised into 4 parts, with students working in pairs throughout the term:

1. Precedent studies for mixed-used towers
2. Site-specific massing strategies
3. Office and residential design research
4. Design strategies for different use scenarios