

PLUG-IN

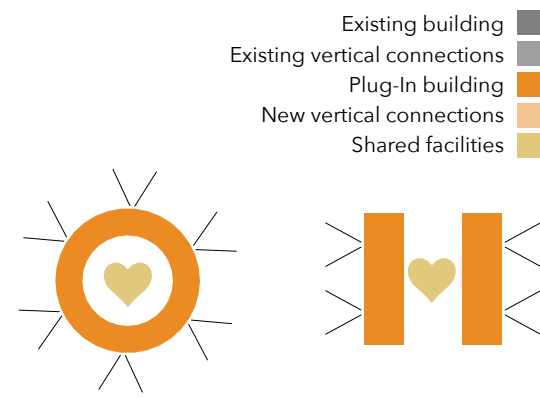
Plug-In is a flexible model that can be superposed to many different structures.

The modular housing units are organized so that one side is fully open towards the exterior (to maximize views, sitting on top of existing buildings), while the opposite side looks towards the inner courtyard or the walkway with shared facilities.

The basic boxy unit is formed by two prefab CLT bearing walls and two composite walls with MetsäWood LVL elements. The Kerto Ripa flooring system is resting on the CLT walls. MetsäWood Kerto T LVL wall studs and plywood are used for interior partition walls.

Communal spaces (such as saunas, workshop room, shared living room, home-office area, etc.) are designed using the same hybrid CLT/LVL system.

Four case studies in Helsinki city centre are examined to show the range of possible combinations. Shopping centers and warehouses are suitable buildings to host added floors, due to their big simple volumes, few openings and heavy if not overdimensioned structures. Listed buildings are included in the chosen case studies, since a careful but meaningful interventions should be considered in order to bring new life and functions to historical but underused edifices. The Ympyrätalo case study is developed more in detail.



CASE STUDY 1: YMPYRÄTALO PLUG-IN ON TOP OF AN OFFICE BUILDING

Ympyrätalo would be an interesting case study for increasing housing density in a central and lively neighborhood.

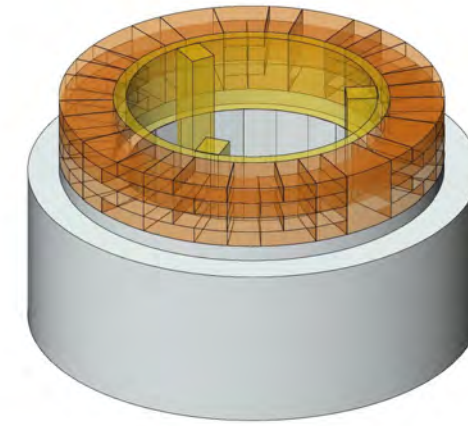
The building's location would allow for raising the volume without blocking any close-by building's view. Moreover the new floors would have majestic views of Tokoinranta, Hakaniemen tori and Kallio.

The existing building has a public ground floor with restaurants, shops and a supermarket. On top of the double height ground floor there are 7 floors of offices. There are 3 entrance tunnels to the inner courtyard. A glazed-roof circular arcade connects the different entrances to the shops and to the upper floors.

Using the Plug-In model three independent entryways are set in the arcade in front of the existing office's stairwells. In this way the new housing blocks have quick and independent vertical connections (staircases, elevators, new HVAC shafts) that do not alter the existing circulation system and respect the current fire regulations.

Four new floors are added on top of the existing volume. The existing top floor is a service floor and it would now include both old and new HVAC systems, as a buffering layer between the new and the old structures.

The apartment units and balconies are set on a continuous ring and multiple combinations (student units, studios, family apartments, assisted living facilities, etc.) are design using the prefab modular elements A and B, made out of CLT panels and MetsäWood products.

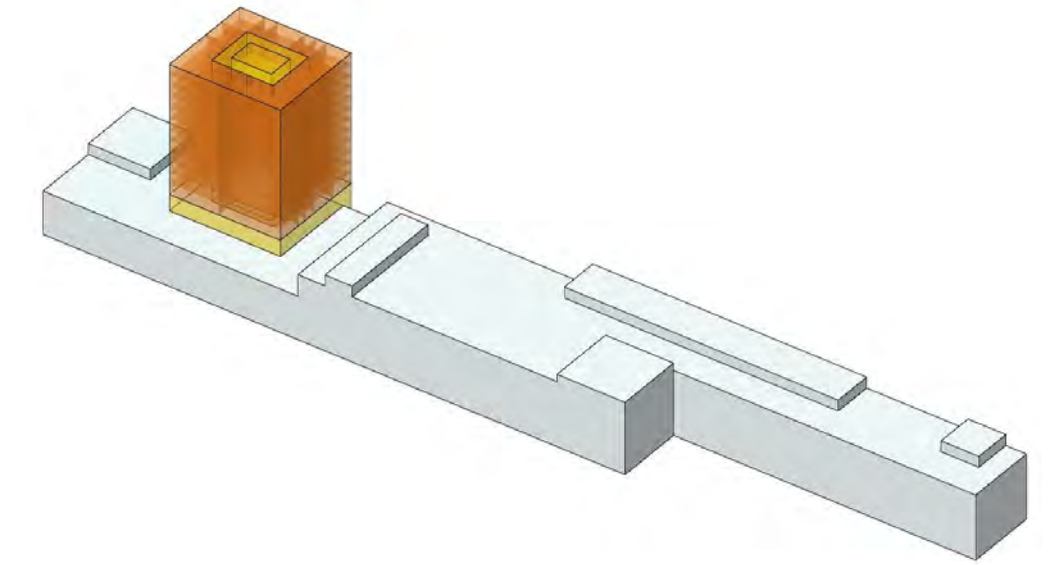


CASE STUDY 2: KAUPPAKESKUS RUOHOLAHTI PLUG-IN ON TOP OF A SHOPPING CENTER

Shopping centers are big structures in the city and often times the roof is just a vast unused bitumen area.

The Ruoholahti shopping centre could potentially host a housing tower on its western side. Using the Plug-In model, an independent entryway is set on the back facade of the mall. In the tower vertical circulation is hosted in the central core, which would be made of concrete in order to provide the needed structural stability and safe fire escape routes.

The apartment units and balconies are set on a continuous ring on the perimeter. Apartments are combined using the prefab modular elements A and B, made out of CLT panels and MetsäWood products.



CASE STUDY 3: KESKO FORMER HQ PLUG-IN ON TOP OF A 1940'S BUILDING

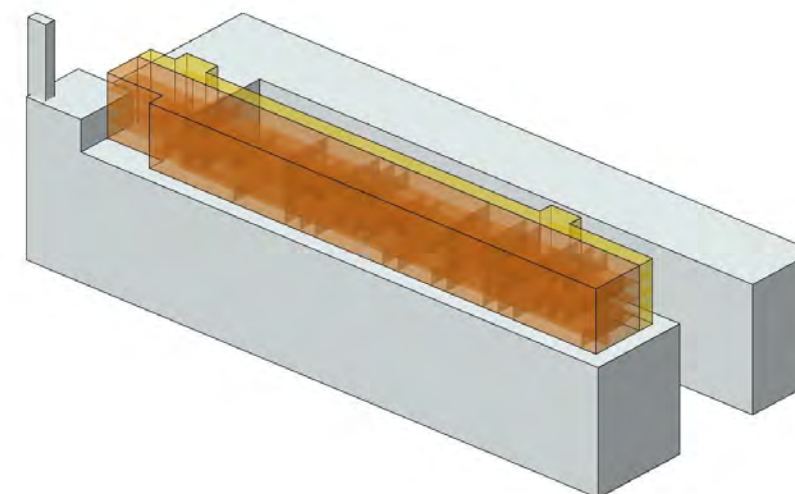
Kesko headquarters in Katajanokka is a former office and storage building. The southern wing has a concrete structure with reinforced concrete mushroom columns that can withstand much higher loads than the actual use. Hence the Plug-In model could be easily located on the rooftop, provided that the HVAC units are relocated in a more compact layout.

In this case no new vertical connections are needed, since the existing stairwell have space for new elevators and are enough from a fire safety point of view.

The new housing units would benefit from open views towards the sea and a prime location in Helsinki downtown.

The apartment units (prefab modular elements) and balconies are facing south while the distribution corridor is on the northern side, providing as well a climate buffer space.

The new housing block is assembled using only prefab modular elements A and B, made out of CLT panels and MetsäWood products.



CASE STUDY 4: LARS SONCK'S L2 PLUG-IN ON TOP OF A WAREHOUSE

Warehouses are excellent cases for Plug-In buildings, since the structure can normally support several more floors once the building's function is no more storage. Their simple shape and volume let vast part of the roof free for new use. Last but not least, the facades generally do not present many openings, hence the new vertical elements can be added in multiple locations.

Lars Sonck's warehouse L2 lies in a preeminent location, by the sea and well connected to the city center. The harbor activities are fading out, hence the storage building changed already its function. The new housing blocks would be served by vertical connections on the warehouse short sides. Once on the roof, the middle area would be an inner garden, communal space from where walkways at each floor give access to the single apartments.

The two housing rows are assembled using only prefab modular elements A and B, made out of CLT panels and MetsäWood products.

