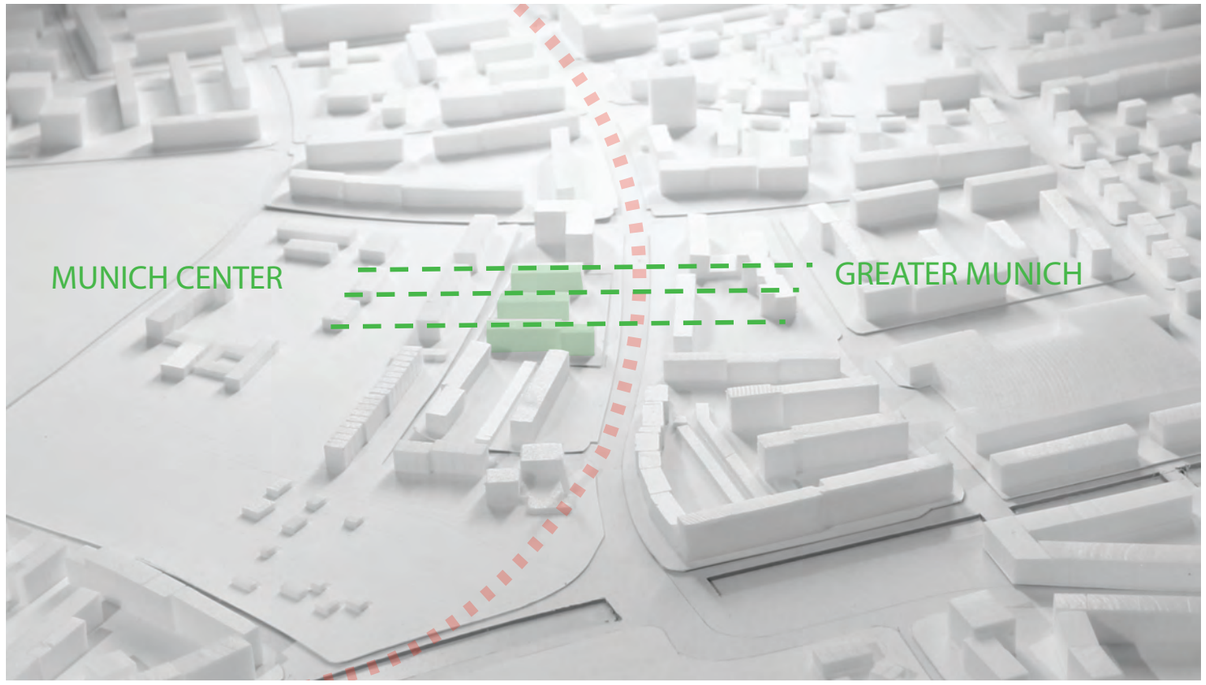
München - Europan 12

combined **process** - digital document



Short and Long run mass plans

The adaptable city

To establish an adaptable city that is capable of acclimating to change, as well as to the demands of its time is a complex, stimulating, and ambitious task. It is most importantly a necessary task, especially when considering the environmental stakes or the economic crisis that has been affecting the world, and Europe in particular.
This debate however is not new. Even though it has regularly been mentioned just as much in public debates as in more specialized circles, the difficulty seems to be to give rise to concrete propositions and projects that would lead to a dynamic transformation of our cities. This competition is an opportunity to definitively approach the subject, where the projects will be presented to the conflicts and controversies in order to bring out concepts and ideas to which each one can be identified.

It is with this ambition and motivation that our multidisciplinary team is engaged in this task. We have supported our research and our proposal through architecture, urban planning, and engineering in various forms. We believe that the paths to explore for an adaptable city can be found in the diversity of disciplines, and in their engagement. This is our aspiration.

City cycles

Whether in terms of the economy or the seasons, a city is a cyclical organism that must be able to renew itself, to evolve, and to transform in order to adapt to the requirements, contexts, and principles of its time period. Following the example of this territory of Munich, the European and world cities are brimming over with urban units that today have singular functions, but they have the ability to change.

Despite various shared principles, each one of these units is singular in terms of the context in which is it installed. It is this environment and the possibilities it offers that determines the field of action and direction of projects. Ultimately, it is a balance between concepts and reality for which we are searching, in order to participate in this debate while proposing a feasible project, of its time and place.

In Munich, for this piece located in a vast residential dormitory territory, the context and the purpose of the request quickly oriented our response towards three ideas. The strong presence of the Chiemgaustraße, a noisy boulevard acting as a genuine urban frontier, made us consider the relation between it and its upgradability. Moreover, the wishes of GEWOFAG Holding GmbH, (the local authority landlord of the ground,) to develop its land raised the question of adopting the strategy of thickening, whereas the need for an architectural coherence and adaptability of the unit raised the question of the design of the facade module. This is the heart of our research presented here.

The «comb» figure opens depths views

Progressive densification

The principal objective formulated by "GEWOFAG HoldingGmbH" surrounding this project is to increase the value of available property in proposing a principal of densification. Densification is an essential subject in planning a flexible city, capable of adapting itself to current demands.

General principals

Condensing a site means fitting into a space that has already been established. Its existence can neither be denied nor denigrated. The idea that we've implemented falls within the continuity of three already existing structures. Arranged in a "comb" layout, oriented east to west, these four-story housing buildings open onto interspersed largely sunny gardens and the northern side of the park. This quality of living cannot be taken away from the residents, who would then be disturbed and inconvenienced by the project. For this reason we've decided to keep the idea of constructing in a 'comb' layout and to keep its qualities all the while condensing within the continuity of the existing structures. Certain views onto the park will be conserved.

Nevertheless, the presence of Chiemgaustraße to the south, a considerable source of noise pollution, raises the question of sound insolation. The construction of a low structure along the length of the boulevard will increase noise impediment all while preserving the amount of sunlight we wish to conserve in the heart of the block. We estimate that one building at least 6 meters in height is capable of acting as a barrier against noise pollution.

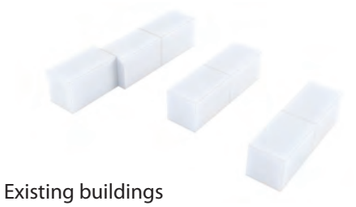
To the north, along Bacherstraße, gaps between the buildings can be constructed, in order to reinforce a uniformed aligned effect throughout this pathway all the while maintaining the amount of sunlight in public spaces and apartments. A system of low pillars seems to be the best option, allowing the creation of an esthetic alignment while conserving the access of light to corner rooms, all the while not having to modify the current apartments. Open terraces facing south will be arranged between the constructions.

The densification of this site is an opportunity to renovate the existing buildings. A moderate redevelopment comprised of insulating the facades and converting several apartments that are situated near the new construction sites, in order to make them more energy efficient. Integrating this into the entirety of the project is conceivable.

Some figures

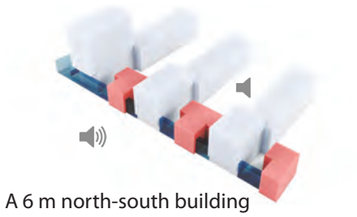
Today the site, covering 6130 squared meters, is composed of 5772 square meters worth of housing, resulting in a ratio of 0.94 in land occupation density. This project offers the possibility to double the housing surface area in constructing 6574,3 squared meters of extra housing of which 507 squared meters are community rooms, for a total of 11746 squared meters, or a land occupation density ration of 1,91. The project also organises 68 new flats.

Two levels of parking will be created, in the same location as the current parking structure. A total of 100 parking spaces will be installed, in order to accommodate the number of car stalls required per apartment.
The size and height of the new or renovated structures comply with Bavarian regional city code and notably the 'h=l' rule, maintained by adjoining plots. The height of the buildings will just as well allow the integration of the project with the neighboring buildings. The south western facing edifice is however a bit higher since it is comprised of 8 floors. Its position on the outskirts of the block accords it a singular status that we wished to take on and accentuate. It's an urban marker that galvanizes the composition and adds to the opening of the park.

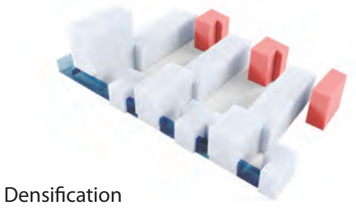


Existing buildings

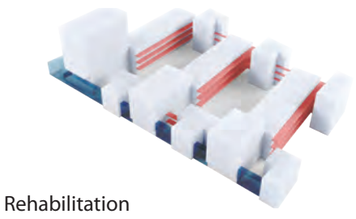
Strengthening the «comb» layout
for sunny gardens



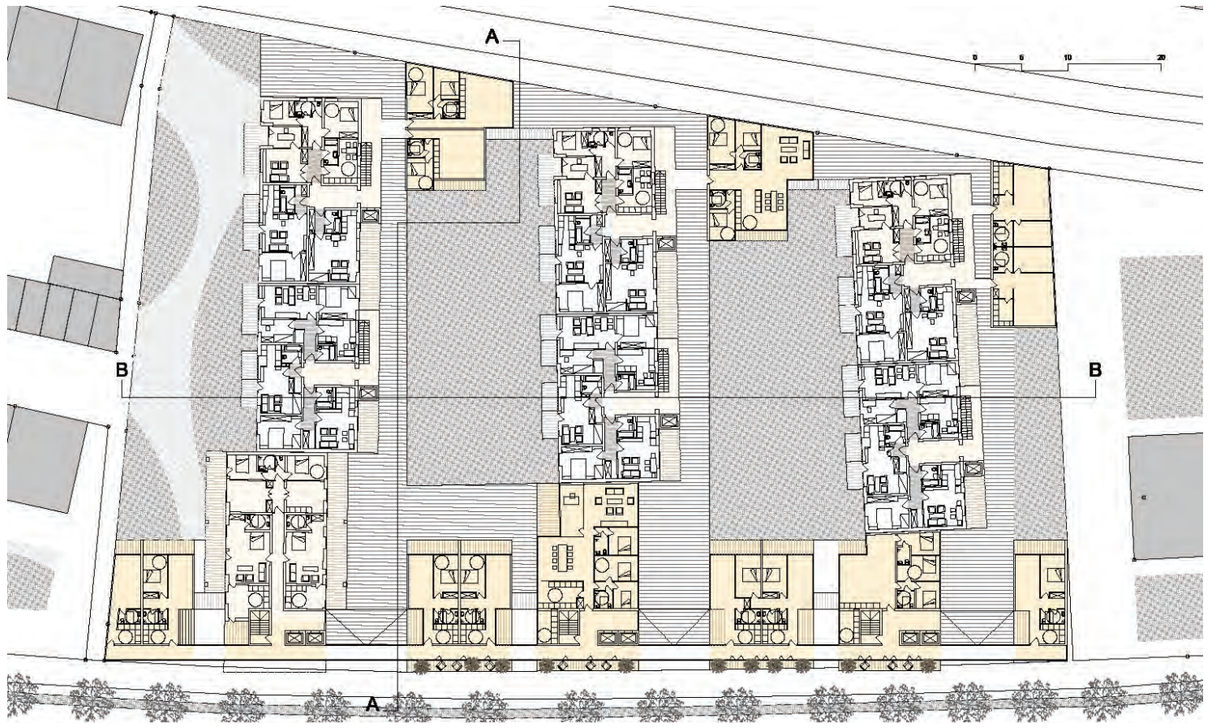
A 6 m north-south building
for noise insolation and sunny gardens



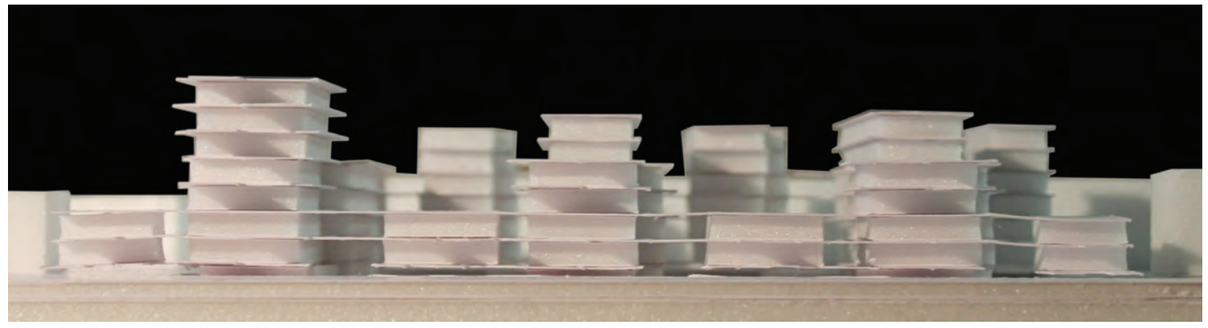
Densification



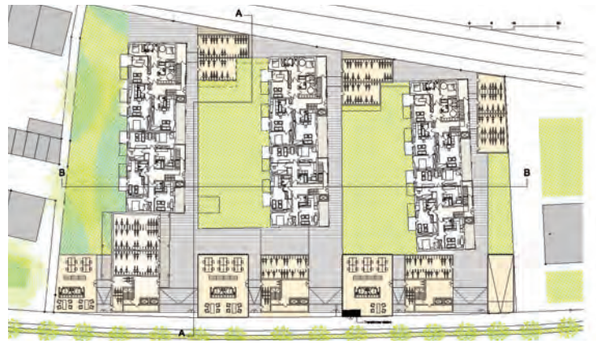
Rehabilitation

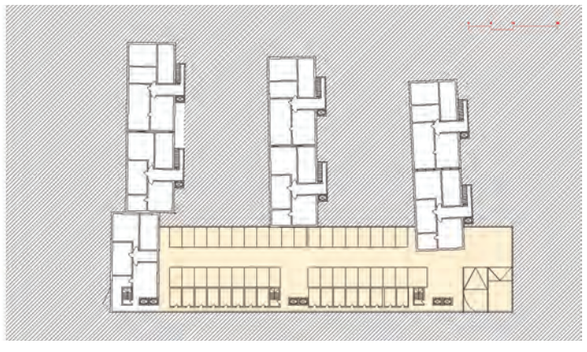


Typical floor plan



The comb allow a deep densification





Ground floor and parking floor plans

Phasing

Constructing an already occupied site is a delicate matter. It requires edifying the building in an efficient manner all the while generating the least amount of inconvenience to the residents. Furthermore, it requires balancing budgets quickly as well as moving in new tenants in a timely manner. Just as importantly it requires condensing the space in a progressive manner, establishing a process of development, or phasing.

In the short term, the first phase will consist of erecting the central and east located buildings along the boulevard. The property is available, the residents will notice very little noise and would soon benefit from sound obstruction. The current parking lot will be destroyed and the new one will be built in its place with two underground levels.

Once finished, the currently residing tenants in the northwestern and southwestern apartments will be moved to the new housing.

The southwest facing building, at this point empty, can be renovated. This will be the second stage. The lower part will be renovated and the extension will be added only after the crossbar framework is put into place above the existing edifice.

The last remaining residents inhabiting the buildings to the north of the land plot will be relocated to the new apartments. New residents could also move into those new available apartments so that the operation becomes profitable.

The third stage will consist of constructing three buildings to the north of the plot while restoring the three existing units.

Once the work is done, the residents of the central units will be moved into the new apartments and the restoration of these units can begin without disturbing the everyday life of the other tenants. The new residents will be accommodated in the remaining apartments.

Once the restoration is completed, the rest of the apartments will be allocated to new residents.

Densification, a matter of time

This progressive densification allows this very complex and demanding process to be spread out over time. The interest of such an approach is to be able to adapt to this condensing to risks and new demands that characterize the life cycles of a city. To condense an adaptable city is to organize a flexible, pliable and resilient process, without destabilizing the general intention or the goals of the project. The phasing previously described is adaptable, adjustable and transformable. This project fits into the long process of fabricating a city rather than just a short-term response.

Typologies

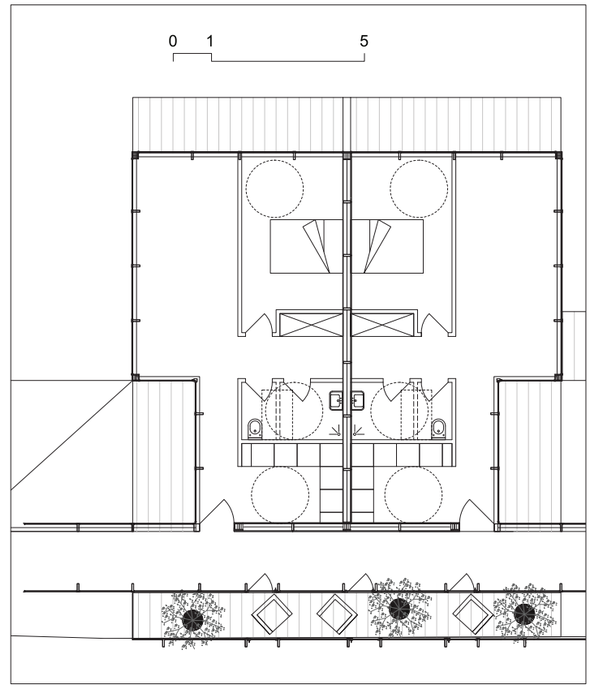
The issue of constructing in the southern part of the plot is to be able to have a type that is capable of offering light from the south to the main rooms all the while isolating them from noise pollution.

The ground floor apartments facing north south are situated behind the walkway that leads to them, located along the boulevard and offers them protection from noise. A first draft of the framework alternates layouts of the kitchen and the bathroom as well as patios designed to bring in as much sunlight from the south, notably into the living room.

Thus, the apartments benefit from a maximum amount of sunlight while remaining protected from sound and air pollution.

Structure

All of the new structures as well as the extensions and additions to the existing edifices will be prefabricated metallic structures and assembled onsite. This technic permits a quick carrying out of construction, reducing the duration of work and thus the inconveniences for the residents. It also guarantees high quality results while sparing the means, time and costs necessary to put the project into operation.



Deep appartments along the boulevard
insolated from noise pollution and south-lighted living room

An adaptable public space

The city is of course comprised of buildings but also of public spaces. Consequently, planning an adaptable city requires taking time to consider the question of versatile public spaces that are capable to evolve with the times and adapt themselves to changing needs. The Chiemgaustraße, a generously large boulevard seen as a source of inconvenience and as an urban divide, offers many important possibilities for evolution that could transform the life of the neighborhood.

New address, new functions

At present, it seems difficult to imagine such an ambitious project on this boulevard.

Nonetheless, at the city level, the reduction in traffic speeds could be something for the municipality of Munich to study in order to, on one hand, reduce CO2 emissions, and on the other, to reduce sound pollution.

At the land plot level, the project can constitute the first stage of significant long-term changes. The construction of the buildings along the boulevard can create a new address for the ensemble of housing on the land plot. This ensemble of housing would from then on be addressed to the Chiemgaustraße and no longer the Bacherstraße. This minor change could help transform the idea of this boulevard, bringing it from backyard to the forefront.

Moreover, the creation of ground floor community spaces on the Chiemgaustraße will make the boulevard a place of destination rather than a place one simply passes through. Local users as well as residents could meet up, discuss, interact and park their bicycles, etc., to develop new uses that would ultimately be capable of bringing about a transformation of Chiemgaustraße's collective image.

These business buildings will be rented to associations within the district in order to allow the tenants meet, do activities, work on projects, create, and repair. We can thus imagine the installation of workshops, an assembly hall, an area for exhibits, a dance or yoga studio, a community center etc. available to all. Specific or more regular gatherings could take place on the boulevard, and therefore would give it a more urban role that it does not have at present.

Re-proportioning the boulevard

In the long run, a more significant action on this boulevard could be considered. In the event of a reduction in the necessity of private car travel, due to the increase announced in oil prices, the current breadth of the streets would become obsolete. A downsizing of two lane per one, (instead of keeping the current two lanes per two lanes,) would be tangible and would liberate otherwise useful land.

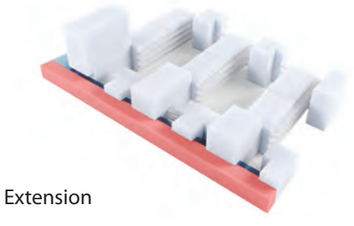
Extension

This available land could therefore be used in various new ways. It could accommodate a public transport or tramcar lane, or the construction of temporary installations that could bring about new uses. For example, a public or private gardens that could bring back agriculture and a local economy that do not exist today. It would also be possible to build on this new land in the event of a need for more housing developments or more diverse programs.

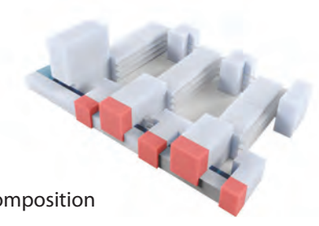
It is in this spirit that we considered that the low southern building built along the boulevard could extend on this strip of newly available land. The pathway with a southern facing facade would make it possible to serve to access this extension without having to construct new means of entry. The apartments could be installed here, open to the boulevard that has become less noisy.

Introducing new programs

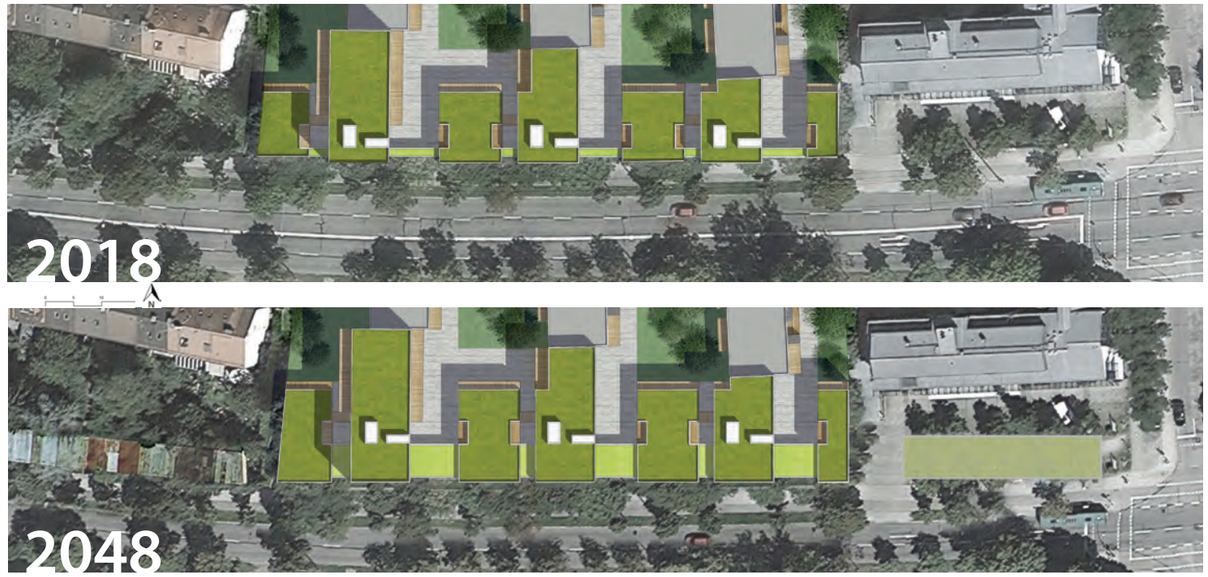
It is possible however that in the long run, new needs would rise. The ensemble of the structure could therefore be transformed into an office building with a surface area of 3900 squared meters, which is the equivalent of two office spaces units (2x2000m2).
It is also possible to transform this structure, either partially or completely, into a commercial building or a small scale industrial building. Even variations of these would be possible.



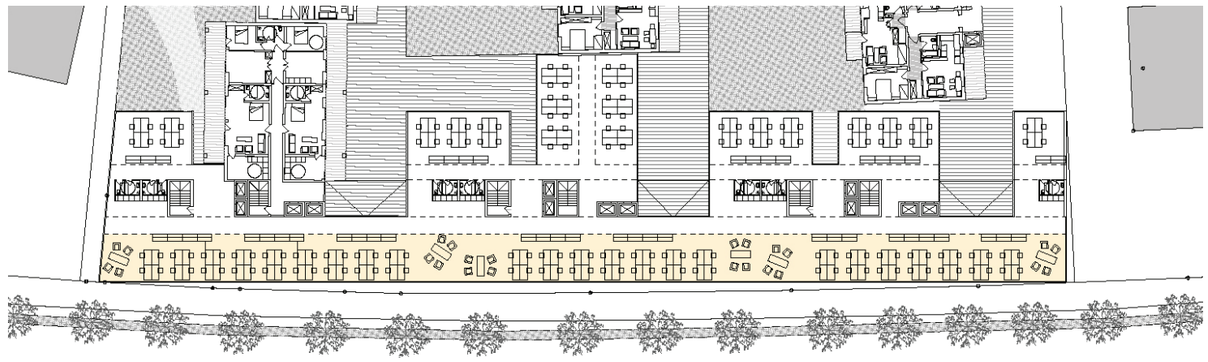
Extension



Composition



Short and long run mass plans



2048

Extension of the typical floor plan with offices

2048

AA - Long run Lenghways section

An interchangeable unit

In the quest for a city capable of adapting to changing urban cycles, all levels of consideration must be taken into account. Thus, we consider the facade module to be a necessary element to integrate into the process.

A shorter lifespan

In order to integrate time into urban and architectural projects, one must consider the lifespan of each one of their elements and their parts. In the image of an urban ensemble, a building is to be seen as an assembly of elements, each with a different lifespan.

The components of the facade are part of the elements having the shortest lifespans, given the rapid change of styles and tastes as well as their exposition to weather conditions that degrade their structural integrity.

Generally, the replacement of a facade takes place when one wishes to transform the image of the building ; to rejuvenate it. In certain cases, this transformation is related to a re-allocation of the program of the building. These changes are a part of the cycles of an adaptable city and they must be taken into consideration.

Modularity

In order to renew a facade in a simple and economic way, without transforming the building's general image, we suggest the construction of a modular facade.

The assembly of prefabricated modules results in a saving in costs, time, and important expertise on the building site and guarantees a high quality of application.

Re-allocation

Thus, when a building is intended to change its allocation, the replacement of the facade module allows for an easy and efficient transformation of the image all the while permitting sun-filled spaces and their necessary protections to adapt.
Durable Development and Energy Performance

The assembly of prefabricated modules is also an opportunity to raise the question of durable development, particularly the question of energy efficiency. During the program and re-allocations in particular, energy needs and energy consumption change. The replacement of one module by another allows the edifice to adapt to its new requirements.

Thus, during a possible change of plan of the low building in the south, the replacement of the module currently under consideration by another could make it possible to adapt the energy performances of the building. These performances today are intended for multifamily housing, the requirements of an office building, or for regular commercial practice; all of which are of a different nature.

Functions

The modularity opens other paths concerning the question of functions and their adaptability throughout the forthcoming decades. If today, the question of an individual exterior space is the main focus, maybe these demands will be obsolete by tomorrow, replaced by new ones. The replacement of the module will make it possible for the facade to adapt to its new functions.

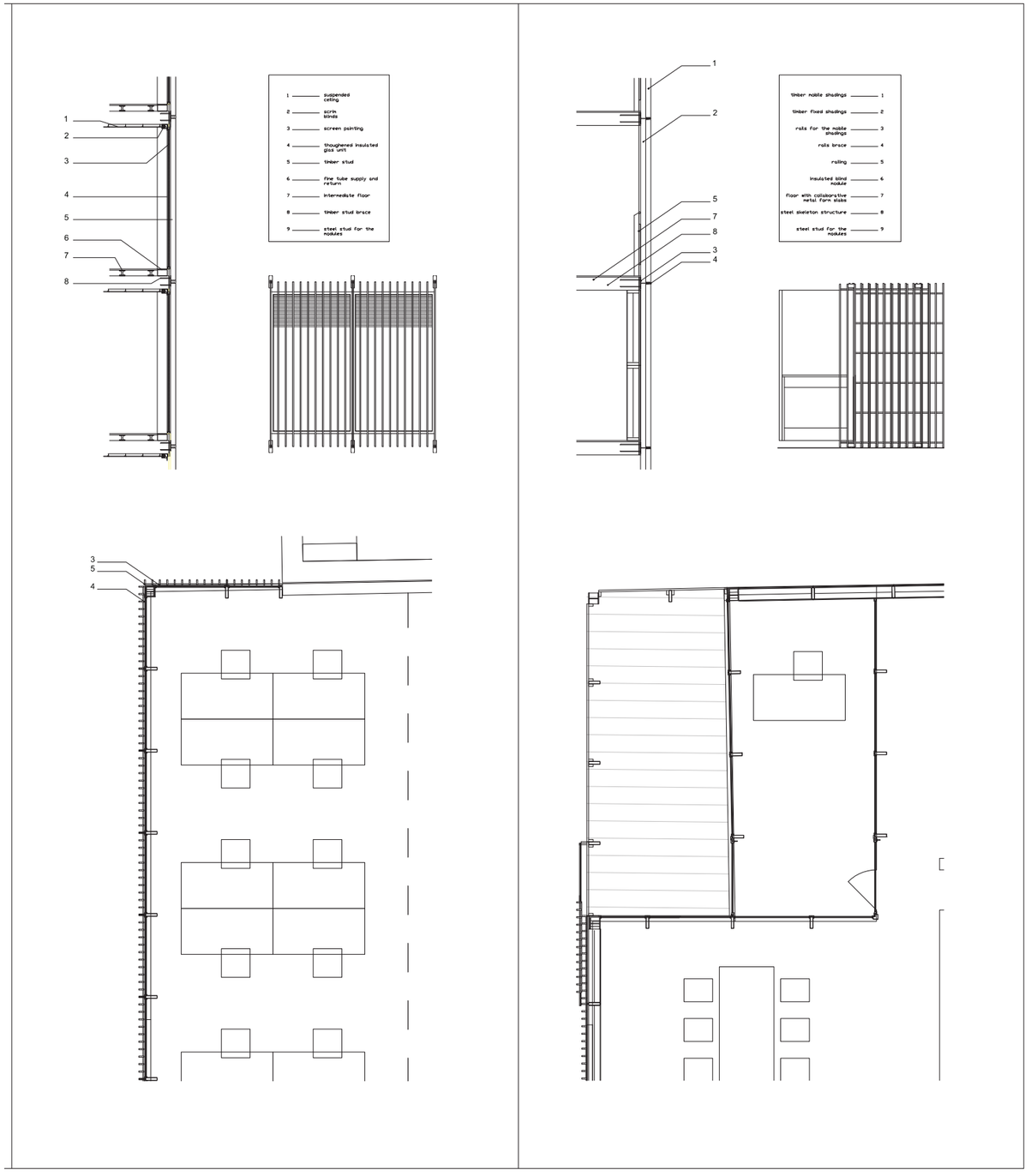
Thick facade

In order to provide solutions to all of its issues, one must consider a thick facade that, in successive layers, would be able to organize all of the proposed resolutions.

Here, the wood framing unifies the project in a contemporary manner and light image. The second layer of the facade regulates the distribution of sunlight within the apartments via an alternation of glass and opaque panels. These panels equally organize airtightness and watertightness, and they are attached to the metal structure of the edifice.

Architectural composition

The buildings' vertical height reinforce the comb layout. The wooden elements reiterate the strong presence of trees. The lower building connects with the boulevard through horizontal lines. The stacking of high, vertical wooden volumes in the lower horizontal edifice is a way to discretely reunify the presence of trees with the boulevard.



The main intention of this site is to propose an idea of progressive densification, adapted to be the least disruptive as possible for current residents. This project has thus based itself on buildings that already exist by keeping on their principal quality: the "comb layout," which makes for favorably oriented apartments and largely sunny gardens. The project allows each existing building to contextualize itself with its close environment all the while redesigning the islet by creating a hierarchy of public and private spaces thanks to new constructions. Naturally the project is isolated from the noise of the boulevard and conserves its current qualities.

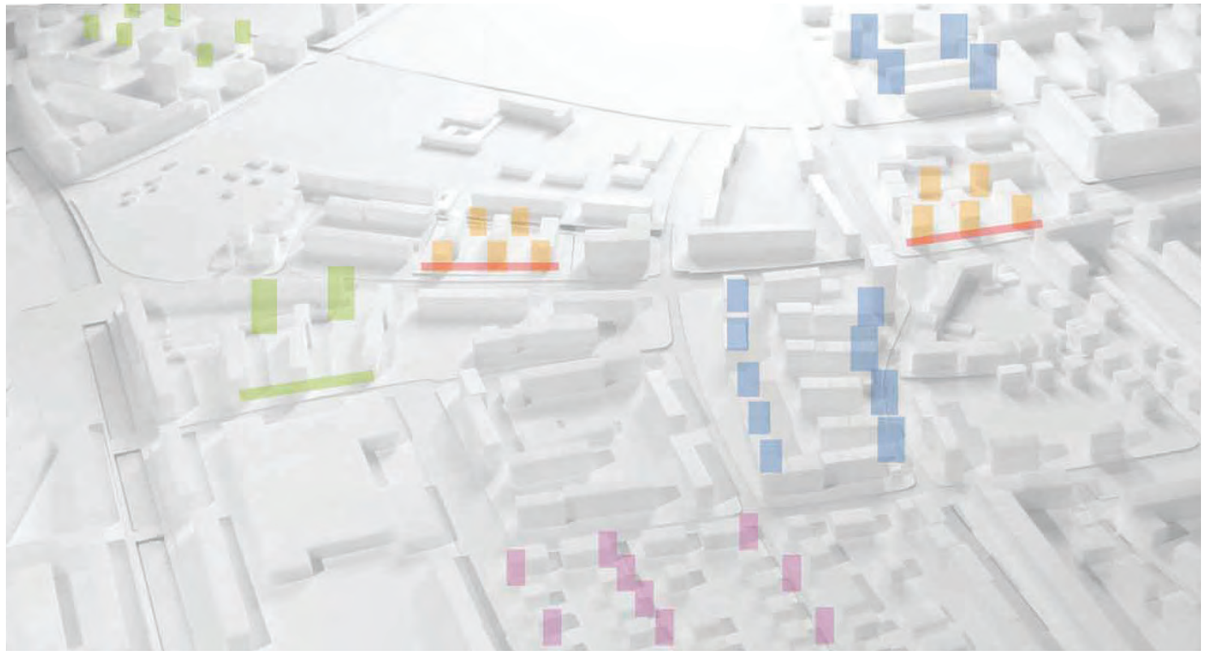
With the image of the Chiemgaustraße today as an axis that crosses the city, without creating it, the periphery close to Munich is a territory made out of structures with singular functions, that does not have link to those which surround it. To think of an adaptable city, it is to think of a city of synergy ; a city linked with its context. We think that the Munich's future development is found in these homogenous peripheries. Various new forms of activities, accompanied by research in density will probably be tracks to follow. In the quest for these synergies, the Chiemgaustraße will have to evolve in order to be able to offer an address to buildings to which is gives access, new functions for residents that visit it, and a flexibility in order to adapt to current needs as well as to organize in the best way possible the further evolution of the developed land.

The north-southern building, envisaged along the side of the boulevard, was designed based on a frame that allows it to extend in order to organize this diversity and introduce commercial or office buildings. This extension is a possibility that will need to be based on the demands of the time.

The flexibility and upgradability of the project also need to be considered in terms of the elements that compose them, namely the facade modules. Society and the codes of the times evolve quickly. Family units are rapidly increasing and customs change. The apartments offer the flexibility necessary for these evolutions, just like the facade modules that can be replaced to adapt the buildings to new needs and programs.

The cost-effectiveness of this project must be evaluated in the long term. The phases of the principle of densification, the possibly future extension, the replacements of the facade modules, offer as much flexibility to adapt of the needs of tomorrow as one could ever imagine. The crisis that currently exists in our cities rests on the concept that "for every problem there is a solution." The adaptable city that we propose offers the versatility that is needed when considering several possibilities.

The adaptable city is the city of possibilities rather than the city of solutions. It is flexible and resilient, and it refuses big scale planning. It envisions the locale and the context as the support for thoughts and considerations, and rejects all dogmatism and ideology.



Munich - a city of possibilities

Fourth floor plan and southern Chiemgaustraße facade

	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	community rooms convertible into housing	NEW HOUSING FLOOR	coefficient	Built
Rdc											507 m²	507 m²		
R+1	88 m²	97 m²	134 m²	97 m²	80 m²	49 m²		121 m²	118 m²	111 m²		895 m²		
R+2		97 m²	134 m²	97 m²	80 m²	49 m²		121 m²	118 m²	111 m²		807 m²		
R+3			169 m²		115 m²	49 m²		121 m²	118 m²	111 m²		683 m²		
R+4			169m²		115 m²		222 m²	121 m²	118 m²	111 m²		856 m²		
R+5							222 m²	121 m²	118 m²	111 m²		572 m²		
R+6							222 m²					222 m²		
R+7							222 m²					222 m²		
TOTAL												4764 m²	1.38	6574.3m²

	E1	E2	E3	E4	E5	E6	E7	EXISTING HOUSING FLOOR	Built
Rdc	180 m²	160 m²	180 m²	160 m²	180 m²	160 m²	160 m²	1180m²	
R+1	180 m²	160 m²	180 m²	160 m²	180 m²	160 m²	160 m²	1180m²	
R+2	180 m²	160 m²	180 m²	160 m²	180 m²	160 m²	160 m²	1180m²	
R+3	180 m²	160 m²	180 m²	160 m²	180 m²	160 m²	160 m²	1180m²	
								4720 m²	5172 m²