

HYBRID BUILDING WITH SUSTAINABILITY ELEMENTS

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Mixed-use or Hybrid

one of the issues of a plinth in regard to the two different worlds it creates is that the upper building block is disconnected from the surroundings. Often, the plinth contributes to a mere staging of functions. But, one of the strengths of combining functions is that together the result should be greater than the sum of the two. But,

when talking about mixed-use or hybrid buildings there appears to be no clear definition of either and they seem to almost be interchangeable in the architectural community. It is important that we define what we mean with these terms to create common grounds for our research.

Kenneth Kaplan explains very clearly how related, but still so different a mixed-use building is from a hybrid building. According to Kaplan, "...buildings, in a sense, have also been "crossed", like plants and animals, to produce Hybrid Architecture. (...) despite their idiosyncratic and even strange manifestations, all the cited buildings possess the common idea of heterosis or hybrid vigour.

Each example, no matter which of its formal, functional or urbanistic elements might predominate, ascends to a richer, more elemental-wholeness, invigorated by a poetic union of its minor parts." But, this does not mean that it will always be successful, as Kaplan adds:

"curiously, like its cousin in genetics, architectural "hybridization" also can breed sterility in its offspring: those all too familiar, barren "mixed-use" mega-structures that have invaded our urban and rural landscape. The taut line between vigour and sterility dares our mastery."¹⁹

So, in other words, a mixed use and hybrid building are two extremes on a single scale. With that in mind, the mixed-use building in essence contains several functions that are not mixed, but instead are simply placed back to back.

Apart from the same footprint, these functions have (in general) nothing in common and share no spaces. The sum of its parts is just that and nothing more. On the contrary, the hybrid building contains several functions that are integrated and might even share spaces, target groups, etc. In short, the sum of the parts of the hybrid building is greater than if they would be separated. In biology, the hybrid offspring that has qualities superior to those of either parents is called a heterotic hybrid, or what we consider to be a 'true' hybrid.²⁰

But this does not mean functions in the mixed use building are not compatible, for instance most of the times it is primarily a residential-building that contains some additional functions. However, the additional functions present are for the exclusive use of the residents in the building.

Further, the mixed-use building is characterized by isolation within the urban context.²¹

In contrast, a hybrid building "turns against the combination of the usual programs and bases its whole *raison d'être* on the unexpected mixing of functions."²²

Even though the relation of these programs might not initially be obvious, they ought to be compatible. This might be the combination of a function that uses a space during office hours, together with a function that uses that same space during the night.

In addition to what This is Hybrid states about the hybrid as an unexpected mixing of functions, we should look at what we actually mean with this unexpectedness.

At first glance, it might seem that this unexpectedness is solely based on the combination of particular functions, for instance two functions that one just didn't think about combining before. But this is not necessarily always

¹⁹ Kenneth Kaplan in Joseph Fenton, *Architecture Pamphlet #11; Hybrid Buildings*, 1985, p.4

²⁰ The American Heritage Dictionary of the English Language, Fourth Edition. Houghton Mifflin Company, 2009.

²¹ Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), p.60

²² Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), Back cover

the case. It can also refer to the nature of functions that might be unexpected, but would work very well together. The hybrid is a “celebration of complexity, diversity and variety of programmes.(...) a mixture of different interdependent activities.” It is a search for “unexpected, unpredictable, intimate relationships, encourages coexistence and is conscious that unprogrammed situations are the keys to its own future.”²³ This shows that it is truly about the interaction between these functions that is the unexpected element. The hybrid opens up to its surroundings and contact among strangers should be encouraged.

In order to illustrate what we mean with this, it may be helpful to now introduce an example. At OMA’s Bryghusprojektet in Copenhagen, there are terraces present on the upper level of the building that are shared by the dwellings, offices and the Danish Architecture Centre. In this scenario, the Danish Architectural Centre attracts both external visitors as well as the dwellers and workers from the offices which creates a connection among strangers. This illustrates how unprogrammed situations in a combination of functions affect each other and can generate a higher quality experience.

Two recurrent, major aspects that differentiate a hybrid from a mixed-use building are scale and form. Leen van Duin compares the relatively new hybrid building typology with the studies done by the Structuralists or the Metabolists in the 1950s and 1960s. But he states that there is a fundamental difference between these mixed-use ‘megastructures’ and the hybrid building in scale and form²⁴.

Kaplan argues that more specifically a hybrid’s “scale is determined by the dimension of a city block within the orthogonal grid.”²⁵

The fact that a hybrid building is often super-

imposed with the grid of the city as defined by city blocks and other factors, like perspectives, public spaces, and landmarks, the hybrid actually becomes a part of the realm of public planning.²⁶

Sociability is a more abstract view on what the hybrid should be, what it should facilitate.

A place where the intimacy of the private and sociability of the public spheres meet. With this a key element is its permeability for (in essence) everybody.

And it is a place where there is activity 24 hours a day, because the activity ought to be constant and, therefore, not controlled by public or private rhythms.

This is Hybrid coins the term of the “fulltime building.”²⁷

Considering the qualities of a hybrid building as opposed to a mixed-use building, the following question was then triggered: what are the architectural elements through which the qualities of a hybrid have been achieved in precedent projects?

Development of the Hybrid

The combination of multiple functions within a single building structure is something that is not a new approach. Rather, it is an architectural strategy that has been practiced for hundreds of years. Joseph

Fenton in 1984 already compared “the house over the store, the apartment above the bridge and the Roman bath” as traditional examples of “combining two or more functions within the walls of a single structure.”²⁸

Already in the middle of the twentieth century, buildings that contained multiple functions were coined mixed-use buildings.²⁹

23 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), p.43

24 Clemens Steenbergen, Henk Muhl, Wouter Reh, and Ferry Aerts, *Architectural Design and Composition* (Bussum: THOTH Publishers, 2002), p.208

25 Joseph Fenton, *Architecture Pamphlet #11; Hybrid Buildings*, 1985, p.5

26 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), p.45

27 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), p.50

28 Joseph Fenton, *Pamphlet Architecture: Hybrid Buildings*, 1985, Vol. 11, p.5

29 Joseph Fenton, *Pamphlet Architecture: Hybrid Buildings*, 1985, Vol. 11, p.3

According to *This is Hybrid*, the mixed-use concept itself came about at the end of the 19th Century in American cities.³⁰

Additionally, Richard Ingersoll believes that in order for city life to survive it requires the “anthropological equivalent of biodiversity”³¹. In his eyes, one of the things to guarantee this diversity is crossing programs. So it is not remarkable that mixing of functions within one building has been around for years. But it has not been until the twenty-first century that a rise of a second building type has been seen: the hybrid building. *This is Hybrid* states that the hybrid building type has the mixed-use building type gene in its gene code, but that the hybrid building has evolved from the mixed-use building type.³²

As defined in the previous chapter this is derived from the fact that the mixed-use and hybrid building both consist of the ‘gene’ of combining functions. However, we define the mixed-use building as something that is a mixture of functions that is just that. The true hybrid building evolved from this in the sense that its main purpose is to create a greater building through the mixing of functions.

One of the first publications regarding the hybrid building was Joseph Fenton’s Pamphlet *Architecture #11 Hybrid Buildings*, which was published in 1985. In this publication, he attempted to write about the fact that there was a distinction between the anonymous building masses filled with several functions and buildings with integrated, well-thought function combinations. Steven Holl wrote in his foreword that “hybrid buildings are undeniably fruits of modernity”.³³ He states that this is directly linked to the mechanical advancements of that time, such as improved concrete con-

structions and steel frames, and maybe even more importantly: the development of the elevator.

Apart from the fact that hybrid buildings are comprised of several unexpected functions that should work together seamlessly, makes it a resistant building to different needs. But that doesn’t necessarily mean it is resistant to changes in these needs. As mentioned in previous chapters, society is diverse, and ever changing. Thus, the hybrid building will also be subject to changes in functions, so it has to be flexible. Some functions will leave spaces, others will reoccupy them. In essence this is always the case with buildings, and therefore a problem that architects, engineers, urbanists, etc. have always had to deal with. But in the case of the hybrid building this is something that will affect the whole building, as the idea is that the function should work together in a way that the building transcends itself.

But, it is good to specify what we mean with flexibility. A good summation to illustrate this is given by the article *Building Flexibility Management*. It talks about three basic types of flexibility within a building, which should be present in order to facilitate change. The first one is service flexibility, and is important for the (amount of) building’s users. In average this is important during the first two years of the building’s life. Second is the modifiability of the building itself, to allow for changes in use of spaces. On average, this is of special importance from the third until the tenth year. And lastly the long-term adaptability which “is a key factor especially in the stratification of the urban structure and the cultural environment.”³⁴

For example, “The Hub” at Kings Cross in London is an example of how this can be implemented, and is a proven success. Even though

30 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), p.13

31 Lecture by Richard Ingersoll, *The Death of the City and the Survival of Urban Life* (2004), Source:

<http://www.publicspace.org/en/text-library/eng/a030-the-death-of-the-city-and-the-survival-of-urban-life>, visited 30-01-2014

32 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), back extract

33 S. Holl in his Foreword in J. Fenton, *Architecture Pamphlet #11: Hybrid Buildings*, 1985, p.3

34 Arto Saari and Pekka Heikkilä, *Building Flexibility Management* (*The Open Construction and Building Technology Journal*, 2008), p.239. source:

<http://www.benthamscience.com/open/tobctj/articles/V002/239-TO-BCTJ.pdf>, accessed 03-02-2014.

it is for a large part owned by a single company, which facilitates a combination of renting and traditional membership. Members are chosen to ensure a diverse membership mix that represents an array of professions, sectors, and industries. They can work on flexible desk- and networking spaces during the day, which opens up as an event space for debates and lectures during the night. All flexible spaces are available for private hire, and in addition to all the flexible spaces it also contains a café and meeting rooms. Bringing people together is apparent as one of the greatest benefits of this concept. Again, even though this building might not be entitled as a true hybrid, its principles are in essence the same.

In the beginning of this chapter, we talked about the hybrid building as a strategy rather than a building per se. Therefore, with the eye on tomorrow it would be inconsistent to write down how exactly to build a hybrid. One has to keep in mind that the whole idea of the hybrid is to provide for the needs of various people and target groups. And as hard as it is to build for the current society, all the harder it is to build for the future society. Therefore the (future) hybrid building should be adaptable to all kinds of situations. This could be a small change on the scale of immediate users, to a change which might impact the whole hybrid building. Which means changes of user groups over the course of a day, to complete function replacement. And it could even mean that the building has to deal with a (temporary) vacant space, whilst retaining its functionality.

Doubts: Are “Hybrids” True Hybrid Buildings?

Today, more than ever, it seems that everywhere you turn in the architectural community, the term “hybrid” building is mentioned. However, once we embarked on our research regarding hybrid buildings, doubt and a hypothesis surfaced: we realized that the majority of the buildings that are coined as “hybrids” are in reality not more than mixed-use buildings. In essence, the conventional build-

ing model that is so often referred to as a “hybrid” is not wrong per se, but we believe that the conventional building model in question is not actually what it claims to be.

Faced with the reality that so many buildings claim to be or are referred to as “hybrids” in the architectural community but are actually mixed-use buildings, the logical next step is to then formulate a mental model regarding the qualities that encompass a true hybrid building. A mental model is described as “...personal, internal representations of external reality that people use to interact with the world around them. They are constructed by individuals based on... their perceptions, and understandings of the world. Mental models are used to reason... They provide the mechanism through which new information is filtered and stored”.³⁵

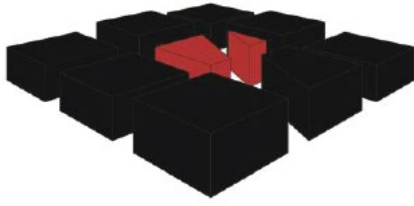
A mental model will provide us with clear criteria regarding a true hybrid building that will allow us to quickly decipher whether a precedent project is truly a hybrid building and will also provide direction regarding our personal designs for the hybrid buildings that we will be designing for the site on the Oostelijke Handelskade.

Mental Model for a True Hybrid Building

Through our theoretical research, bound by literature about the hybrid building and the observations that we have discussed in the former paragraphs, we arrived at a mental model that is comprised of eight qualities that we argue when implemented together result in a true hybrid building. The following section introduces and provides an explanation regarding each of the eight qualities contained in the mental model for a true hybrid building:

35 Natalie A. Jones, Helen Ross, Timothy Lynam, Pascal Perez, and Anne Leitch, “Mental Models: An Interdisciplinary Synthesis of Theory and Methods”, *Ecology and Society* 16 (1): 46.

1. Project Scale



The first quality in the mental model for a true hybrid building is project scale.

In regard to scale, This is Hybrid describes hybrid buildings as “...super buildings, super-blocks, megastructures, or Building-as-a-City”. This is Hybrid argues that hybrid buildings are of a large scale due to the fact that mixing different functions requires that the building be of a large size and superposing (or placing things on top of one another) results in a greater building height.³⁶

Furthermore, in her essay regarding hybrid buildings, Susanne Komossa refers to a hybrid building is an “extremely condensed urban block”.

Komossa argues that this is an important characteristic of the hybrid building due to the fact that the hybrid building itself “...increases the city’s density and contributes to the public realm of the city – horizontally as well as vertically...”³⁷

2. Urban Area Density



³⁶ Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 45

³⁷ Susanne Komossa, “Researching and Designing GREAT; the Extremely Condensed Hybrid Urban Block”, *AE... Revista Lusófona de Arquitectura e Educação* 5 (2011), 29

The second quality in the mental model for a true hybrid building pertains to urban area density. Hybrid buildings thrive in the presence of a dense urban fabric surrounding the project. Globally, congestion and density in the city have been plaguing issues; however, it was Rem Koolhaas who first saw the potential that lies in density regarding the architecture of mixing different functions during his study of New York. A true hybrid building “exploits the conditions of congestion to generate new forms of social interaction”.³⁸

In regard to urban context, the hybrid building “...proposes intense environments of cross fertilisation, which mix known genotypes and create genetic allies to improve living conditions and revitalise their surrounding environments...The hybrid goes beyond the domain of architecture and enters the realm of urban planning”.³⁹

Essentially, the hybrid building flourishes in dense urban environments and even has the potential to positively impact the surrounding urban fabric.

3. Function Diversity



The third quality in the mental model for a true hybrid building concerns function diversity. For example, This is Hybrid states that the hybrid building “...turns against the com-

³⁸ Rafael Luna, “A Flexible Infra-Architectural System for a Hybrid Shanghai” MA Thesis MIT (2006), 10-12. Retrieved from: <http://dspace.mit.edu/handle/1721.1/57525>, Accessed 16 December 2013

³⁹ Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 45

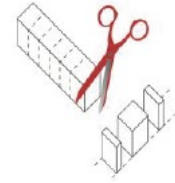
bination of the usual programs and bases its whole *raison d'être* on the unexpected mixing of functions".⁴⁰

This is Hybrid compares the hybrid building to the "social condenser" which is a building type that arose in the Soviet Union. Like the hybrid, the social condenser typology is said to also have the mixed-use typology in its DNA. However, what really seems to distinguish the hybrid from the social condenser is the fact that the condenser is only geared to a closed community, and this is especially visible in the functions that are present in a condenser:

they are predictable and only cater to the needs of the building residents. Whereas, the hybrid is claimed to open up the city and ultimately encourage contact among strangers.⁴¹

In terms of defining exactly what can be considered "unexpected" in terms of functions, it may be best to define "unexpected" functions as those that do not simply serve a closed community and promote contact among strangers. It has even been said that a hybrid building doesn't just juxtapose unexpected functions but that it actually contains 'disparate', or contrasting functions.⁴² Again, we argue that a building that simply contains two functions is not a hybrid building; instead, the hybrid building must contain unpredictable or even (preferably) functions that although they are unlike they support each other, and result in a higher quality building. Further, the unexpected nature regarding the functions in a hybrid building may also refer to their complexity; for example, the unforeseen element regarding the functions in a hybrid building may refer to a situation in which one function operates in a space in the morning and another operates in the same space during the evening.

4. Function Scale



The fourth quality in the mental model for a true hybrid building relates to function scale. As previously discussed, in order to mix various functions, the overall scale of the hybrid building itself must be quite large. However, this is not the case in regard to the individual functions themselves that make up a hybrid building. According to Susanne Komossa, hybrid buildings will often contain large scale functions such as swimming pools; we argue though that the building should not only contain large scale functions.⁴³ Rather, a range in the scale of functions should be present in a true hybrid building. Jan Gehl states that a collection of smaller scale functions is more likely to generate a vibrant, mixed audience as opposed to a single, large scale function.⁴⁴

For example, Steven Holl's Linked Hybrid in Beijing contains a range in the scale of the functions present; larger functions such as a cinema are present as well as smaller functions such as small groups of small scale shops, which Holl refers to as "micro-urbanisms" due to the fact that they activate certain areas present at the project.⁴⁵

In essence, we are not referring to the scale of the unit in particular (in the case of a dwelling or a shop), rather in regard to scale we are referring to the size of the function as a block as it has been implemented.

40 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), back extract

41 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 52

42 Ariel Manolo Fausto, "Merge: The Hybridization of Architecture, Infrastructure, and Landscape" MA Thesis MIT (2002), 1. Retrieved from: <http://dspace.mit.edu/handle/1721.1/37562>, Accessed 28 January 2014

43 Susanne Komossa, "Researching and Designing GREAT; the Extremely Condensed Hybrid Urban Block", *AE... Revista Lusófona de Arquitectura e Educação* 5 (2011), 29

44 Jan Gehl, *The City at Eye Level* (Delft: Eburon, 2012), 16, 203

45 "Linked Hybrid", Council on Tall Buildings and Urban Habitat (July 2013), 58

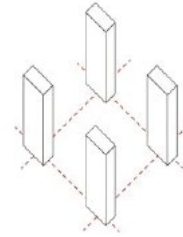
For example, one of the precedent projects that we studied was the Marina Bay Complex in Chicago, where one massive functional block of 900 apartments was implemented – we are not referring to the size of the individual apartments, but instead the fact that the dwelling function is massive and has not been broken up by subsequent functions.

5. Function Integration The fifth quality



in the mental model that we have compiled regarding qualities of a true hybrid building is function integration. As we have previously discussed, the true hybrid building contains unexpected functions, but what is essential is the fact that these functions do not simply exist in the same building but that they in fact are integrated, or mingled. Susanne Komossa states that the hybrid building integrates functions in order to “activate”.⁴⁶ This is Hybrid compares integration within the hybrid building to a system of interconnected vessels; she states that potential is generated by the integration of functions and it is transferred to weaker activities present within the hybrid building.⁴⁷ From precedent research, we have concluded that integration of functions can be horizontal or vertical and furthermore can be achieved through visual or physical connections.

6. Flexibility



The sixth quality that we have included in the mental model for a true hybrid building pertains to flexibility, or the ability to change the current building situation. As previously discussed, the hybrid building should not be seen as an endpoint, but rather a strategy in which things are left rather free. For example, Rem Koolhaas has stated that, “I am incredibly bad at predicting the future... A building has at least two lives –the one imagined by its maker and the life it lives afterward – and they are never the same”.⁴⁸ Thus, accepting that there should not be a sense of finality in regard to the hybrid building and that it must instead react to unpredictable future needs and situations, it is crucial that the hybrid building can accommodate possible future uses.

Flexibility is greatly reliant upon a structure that results in spaces that are flexible in terms of subdivision as well as changes in function. The flexibility of a building also relates to the surrounding urban context; a building can best serve the social needs of a community by having the ability to adapt to the changes in the needs of those in the community.⁴⁹

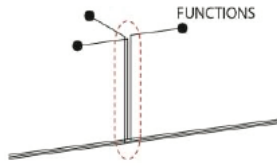
46 Susanne Komossa, “Researching and Designing GREAT; the Extremely Condensed Hybrid Urban Block”, *AE... Revista Lusófona de Arquitectura e Educação* 5 (2011), 34

47 Aurora Fernández Per, Javier Mozas, and Javier Arpa, *This is Hybrid* (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 45

48 Paul Fraioli, “The Invention and Reinvention of the City: An Interview with Rem Koolhaas”, *Journal of International Affairs* 65 (2012)

49 Laura Maynard, “Community Reclamation: the Hybrid Building” MA Thesis, 2012. Retrieved from: <http://docs.rwu.edu/archthese/84/>

7. Vertical Connections



The seventh quality contained in the mental model that we have created for a true hybrid building pertains to vertical connections that promote integration. Again, returning to the idea that a true hybrid building contains integrated functions and that the public realm is not simply isolated to the ground floor in a hybrid building, it is then necessary to create strong vertical connections that facilitate way-finding in the hybrid building for users. According to Susanne Komossa, vertical connections such as elevators and stairs make it possible for building users to find their destination in the city within the city, which is the hybrid building.⁵⁰ It is clear that vertical connections in the hybrid building have the ability to facilitate the integration or separation of the functions present.

8. Integrated Public Gathering Space



The final quality that is present in the mental model for the true hybrid building is inte-

grated public gathering space. In general, the presence of public space in which people can gather contributes to a vibrant, successful urban realm.⁵¹ Specifically in regard to the hybrid building type, the intimacy of the private realm as well as the sociability of the public realm dwell within the true hybrid. Further, This is Hybrid states that the hybrid building thrives off of the meeting of public and private realms.⁵² Finally, Susanne Komossa states that a hybrid building "...extends the city's public domain horizontally and vertically into the building's interior and links the public domain inside and outside".⁵³ In short, regarding public space, the true hybrid building integrates public space; the true hybrid does not stop at confining public gathering space to the ground floor, but instead integrates public gathering space vertically into the building.

To conclude, the eight qualities contained in the mental model for a true hybrid building are as follows:

1. Project scale
2. Urban area density
3. Function diversity
4. Function scale
5. Function integration
6. Flexibility
7. Vertical connections (that promote integration)
8. Integrated public gathering space

50 Susanne Komossa, "Researching and Designing GREAT; the Extremely Condensed Hybrid Urban Block", AE... Revista Lusófona de Arquitectura e Educação 5 (2011), 32

51 "Regarding Public Space", 306090 Architecture Journal 9 (2005), 32

52 Aurora Fernández Per, Javier Mozas, and Javier Arpa, This is Hybrid (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 43

53 Susanne Komossa, "Researching and Designing GREAT; the Extremely Condensed Hybrid Urban Block", AE... Revista Lusófona de Arquitectura e Educação 5 (2011), 29

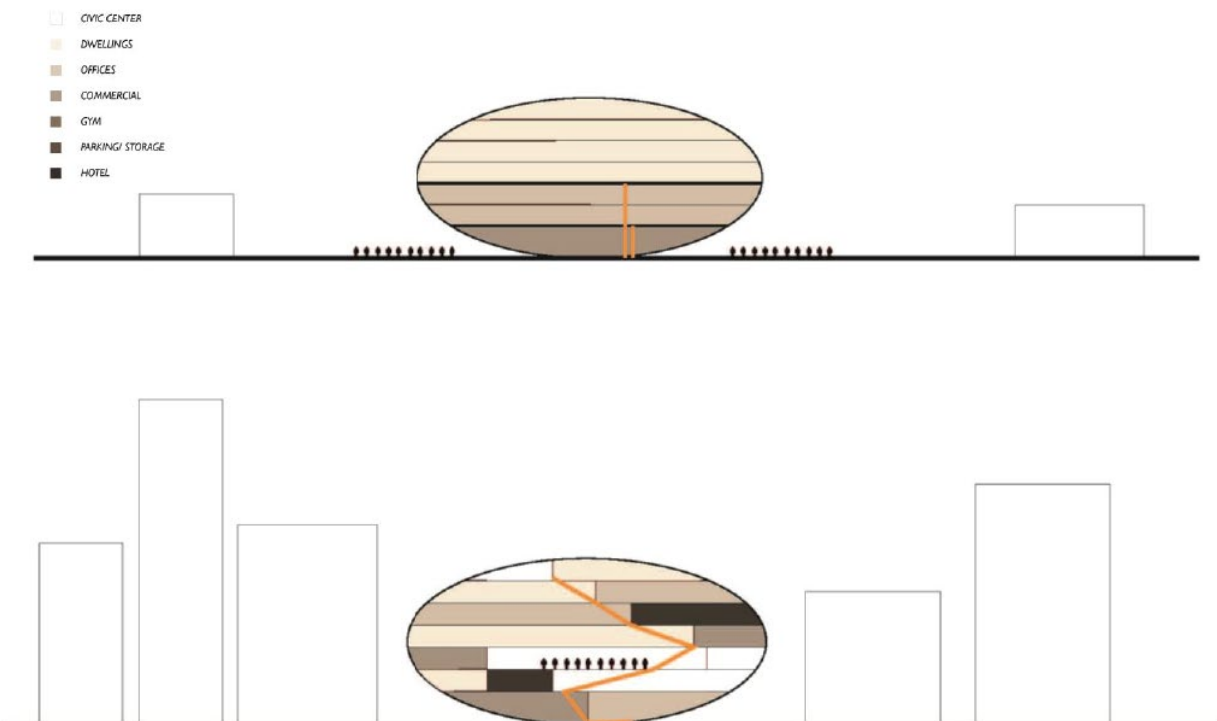
Overview Precedent Studies

To reiterate, a quick review of many precedent projects that are referred to as “hybrid” buildings instead often shows a very different situation, which can be summarized in diagram 1.11

However, our research regarding hybrid buildings resulted in a clear mental model of the qualities that are present in a true hybrid building and our mental model can be quickly summarized in diagram 1.12

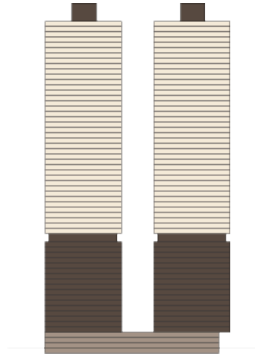
We have reviewed fifteen case study projects using the mental model we derived from our research regarding hybrid buildings; the projects include:

- a. Marina City Complex, Chicago
- b. John Hancock Center, New York City
- c. Ihme Zentrum, Hannover
- d. Torre Velasca, Milan
- e. Seaside Hybrid Building, Seaside, Florida
- f. Cube Dwellings, Rotterdam
- g. Shinonome Canal Court Block I, Tokyo
- h. Bryghusprojektet, Copenhagen
- i. Linked Hybrid Building, Beijing
- j. The Galleria, New York City
- k. De Rotterdam, Rotterdam
- l. Sliced Porosity Block, Chengdu
- m. Solid 18, Amsterdam
- n. Brunswick Centre, London
- o. Groothandelsgebouw, Rotterdam



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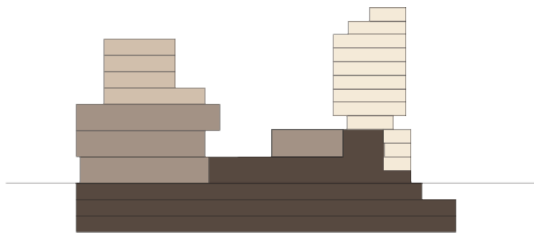
- A MARINA CITY COMPLEX**
 Bertrand Goldberg, 1959-1964
 Chicago, USA



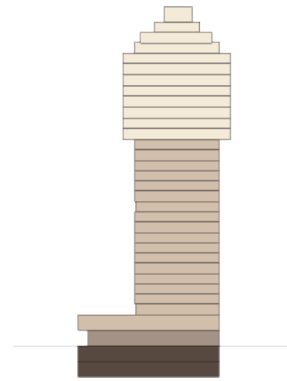
- B JOHN HANCOCK CENTER**
 Skidmore, Owings & Merrill, 1968-1970
 Chicago, USA



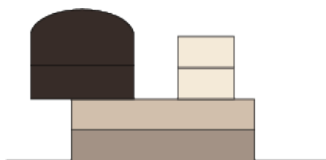
- C IHME ZENTRUM**
 Helmut Kloss, Peter Kolb & Partners, 1972
 Hanover, Germany



- D TORRE VELASCA**
 BBPR, 1954
 Milan, Italy



- E EASIDE HYBRID BUILDING**
 Steven Hall Architect, 1984-1988
 Ceaside, USA



- F CUBEDWELLINGS**
 Piet Blom, 1984
 Rotterdam, The Netherlands



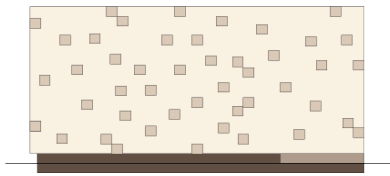
- CIVIC CENTER
- DWELLINGS
- OFFICES
- COMMERCIAL

- GYM
- PARKING/ STORAGE
- HOTEL

Note: diagrams not to scale

PRECEDENTS

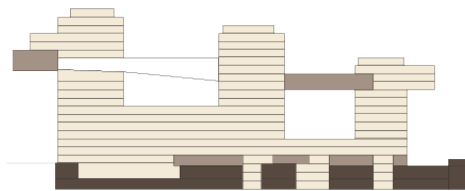
G SHINONOME C.C. BLOCK I
 Riken Yamamoto & Associates, 2003
 Tokyo, Japan



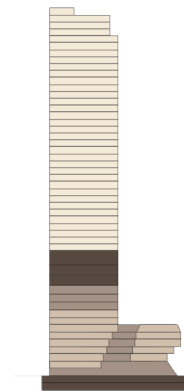
H BRYGHUSPROJEKTET
 OMA, 2017 (expected)
 Copenhagen, Denmark



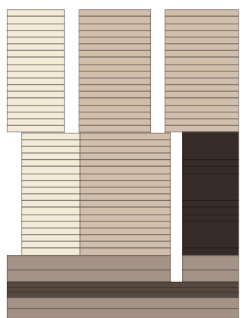
I INKED HYBRID
 Steven Holl Architects, 2008
 Beijing, China



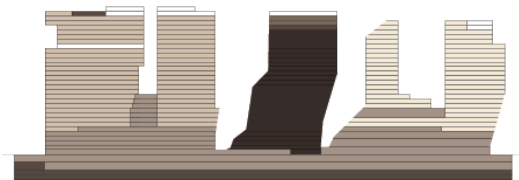
J GAKKERIA
 David Specter, 1975
 New York, USA



K DE ROTTERDAM
 OMA, 2011
 Rotterdam, The Netherlands



L SLICED POROSITY BLOCK
 Steven Hall Architects, 2007-2011
 Chengdu, China



- CIVIC CENTER
- DWELLINGS
- OFFICES
- COMMERCIAL

- GYM
- PARKING/ STORAGE
- HOTEL

Note: diagrams not to scale

PRECEDENTS

M SOLID I8

Claus en kaan, 2007

Amsterdam, The Netherlands



N BRUNSWICK CENTER

Patrick Hodgkinson, 1971-1974

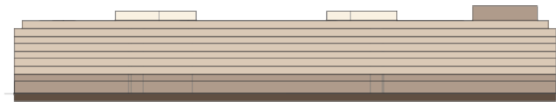
London, United Kingdom



O GROOTHANDELSGEBOUW

Hugh Maaskant, 1952

Rotterdam, The Netherlands



□ CIVIC CENTER
■ DWELLINGS
■ OFFICES
■ COMMERCIAL

■ GYM
■ PARKING/ STORAGE
■ HOTEL

Note: diagrams not to scale

PRECEDENT CRITERIA

1. PROJECT SCALE



2. URBAN DENSITY



3. FUNCTIONAL DIVERSITY



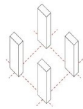
4. FUNCTION SCALE



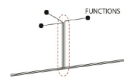
5. FUNCTION INTEGRATION



6. FLEXIBILITY



7. VERTICAL CONNECTIONS



8. INTEGRATED PUBLIC GATHERING SPACE



CRITERIA	1: PROJECT SCALE	2: URBAN DENSITY	3: FUNCTION DIVERSITY	4: FUNCTION SCALE	5: FUNCTION INTEGRATION	6: FLEXIBILITY	7: VERTICAL CONNECTIONS	8: INTEGRATED PUBLIC GATHERING SPACE
A MARINA CITY COMPLEX	■	■	□	□	□	□	□	□
B JOHN HANCOCK CENTER	■	■	□	□	□	■	□	□
C IHME ZENTRUM	■	■	■	■	□	■	□	■
D TORREVELASCA	■	■	□	□	□	■	□	□
E SEASIDE HYBRID BUILDING	□	□	□	■	□	■	□	□
F CUBEDWELLINGS	■	■	■	■	■	□	■	■
G SHINONOME C.C. BLOCK I	■	■	■	■	■	■	□	■
H BRYGHUSPROJEKTET	■	■	■	■	■	□	□	■
I LINKED HYBRID	■	■	■	■	□	■	■	■
J GALLERIA	■	■	□	■	□	□	□	■
K DE ROTTERDAM	■	■	□	□	□	■	□	□
L SLICED POROSITY BLOCK	■	■	■	■	■	□	■	■
M SOLID 18	■	□	□	■	□	□	□	□
N BRUNSWICK CENTER	■	■	□	■	□	■	□	□
O GROOTHANDELSGEBOUW	■	■	■	□	□	■	■	■

■ Quality present
 □ Quality not present

GROOTHANDELSGEBOUW

Hugh Maaskant, 1952

Rotterdam, The Netherlands



SHINONOME C.C. BLOCK I

Riken Yamamoto & Associates, 2003

Tokyo, Japan

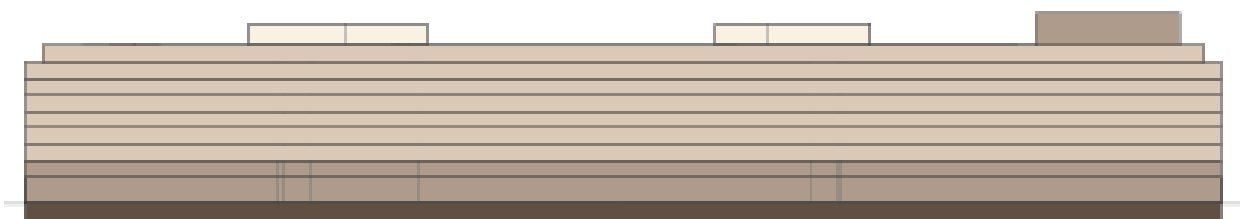


BRYGHUSPROJEKTET

OMA, 2017 (expected)

Copenhagen, Denmark





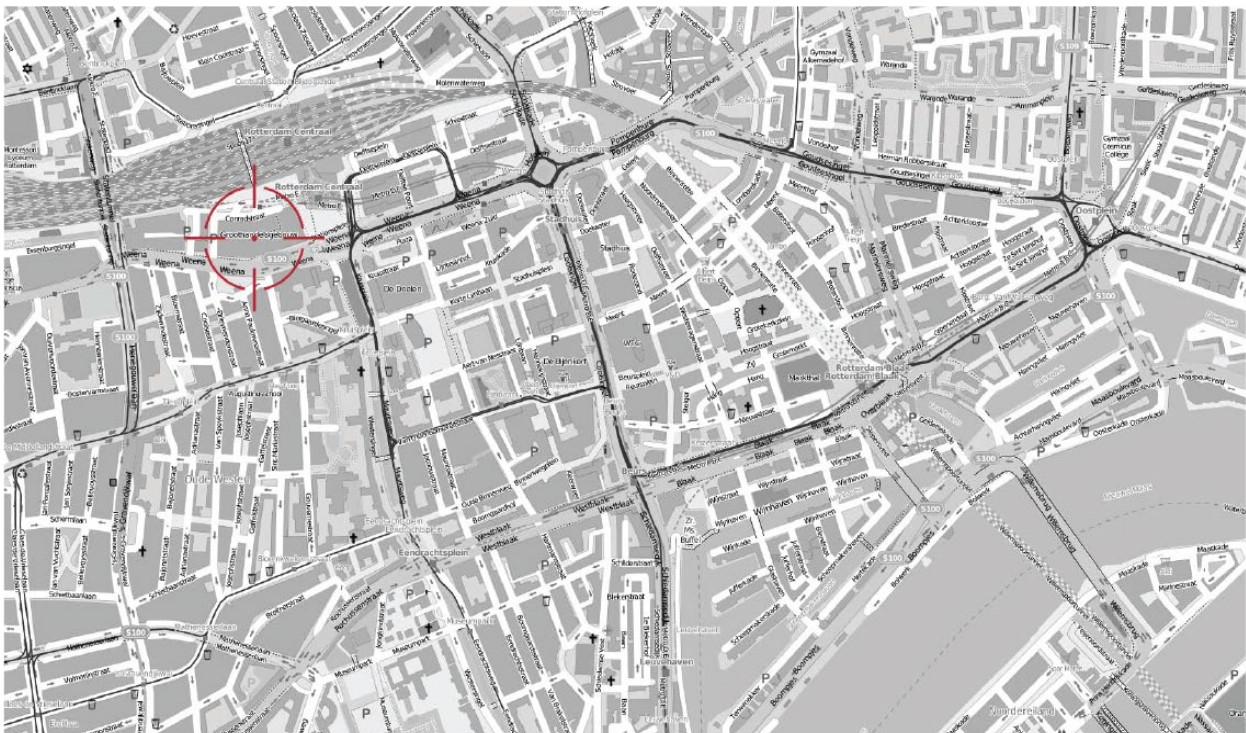
DWELLINGS
 OFFICES
 COMMERCIAL

GYM
 PARKING/ STORAGE

Note: diagrams not to scale

GROOTHANDELSGEBOUW

Hugh Maaskant
1952, Rotterdam, The Netherlands

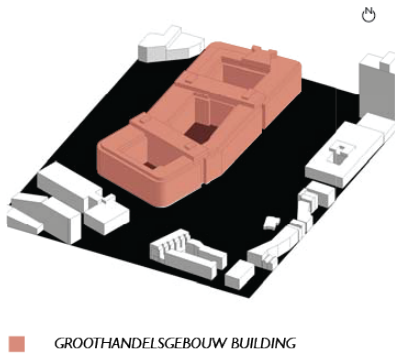


ANALYSIS

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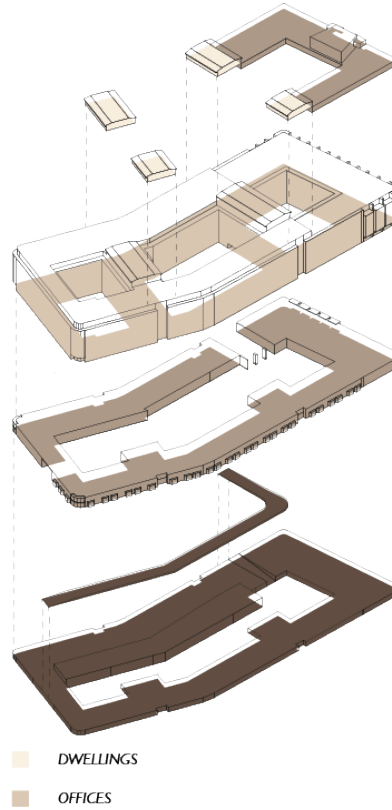
1. PROJECT SCALE

In terms of scale, the Groothandelsgebouw building is quite massive due to the fact that it contains several functions that would typically be found in a more sprawling city block it is truly a city within a building regarding scale.



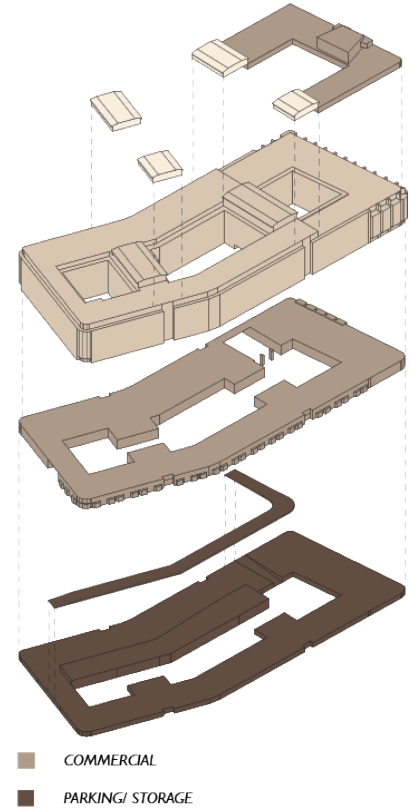
3. FUNCTIONAL DIVERSITY

There are several different functions present at the Groothandelsgebouw building such as: shops, offices, restaurants, and dwellings. Presently, there are over 160 tenants in the Groothandelsgebouw building, which means that there is a wide range of functions present in the building.



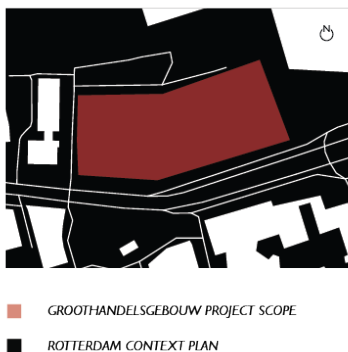
4. FUNCTION SCALE

In terms of scale, the Groothandelsgebouw building is quite massive due to the fact that it contains several functions that would typically be found in a more sprawling city block it is truly a city within a building regarding scale.



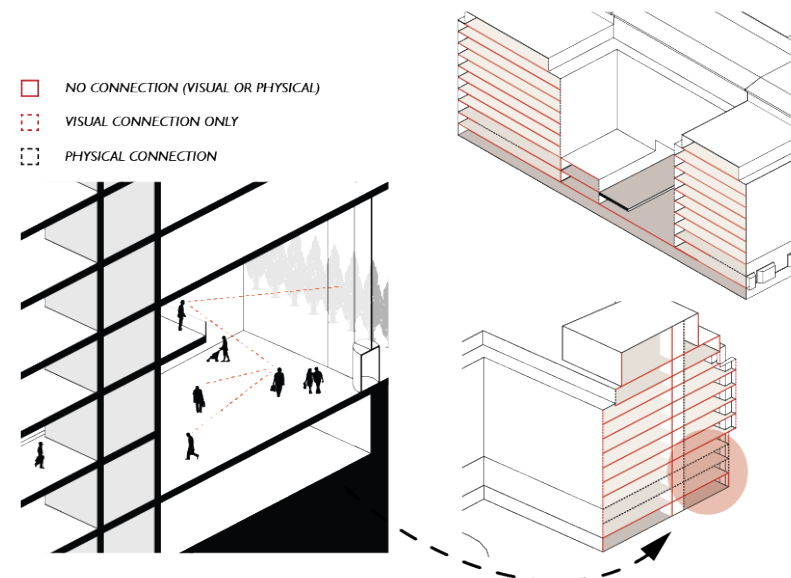
2. URBAN DENSITY

The Groothandelsgebouw building is located in the dense urban context of Rotterdam. The building seems to respond and positively impact the surrounding context. For example, public gathering spaces in the form of lobbies have been placed at nodes corresponding to the site context.



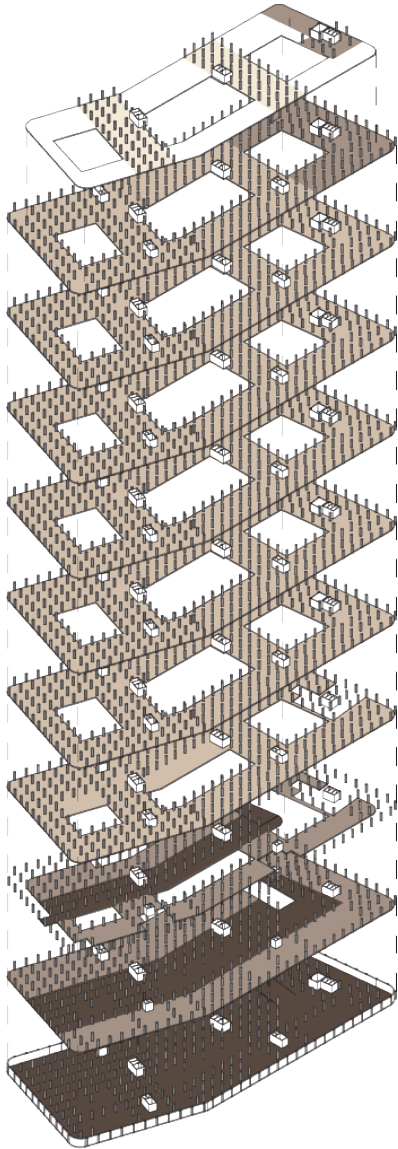
5. FUNCTION INTEGRATION

Some of the functions are integrated at the Groothandelsgebouw building. For example, the triple-height main lobby offers visual integration of different functions across the void present. Otherwise, there is no physical integration of functions present.



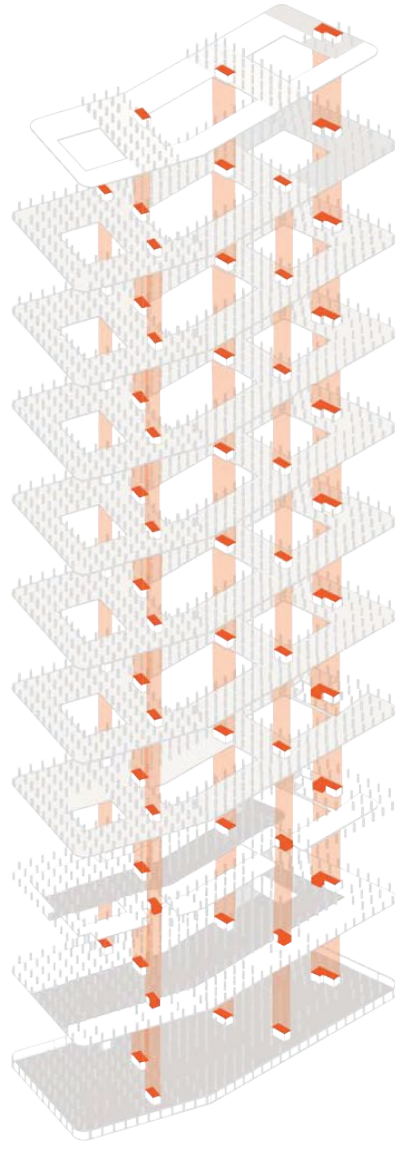
6. FLEXIBILITY

The column structure at the Groothandelsgebouw project provides a high level of horizontal flexibility for future changes. The column structure results in spacious, neutral floor plans. Furthermore, portions of the ground floor are double-height, which offers flexibility to make changes vertically, as well.



7. VERTICAL CONNECTIONS

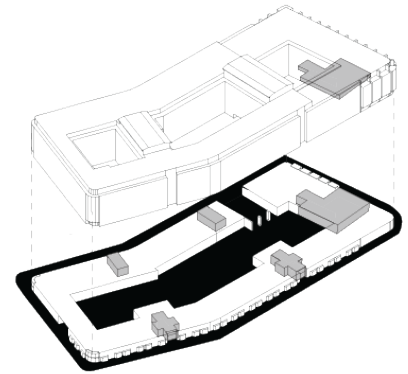
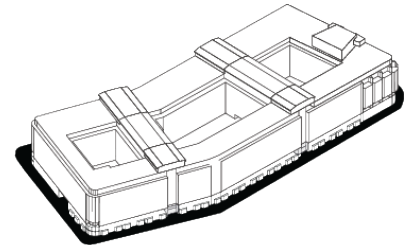
All of the functions present share vertical connections at the Groothandelsgebouw building, much like a system of connected vessels which can transfer potential to the weaker functions present. There are greater chances for different people groups to integrate when access is shared between different functions.



- AREA FOR VERTICAL CONNECTION
- VERTICAL CONNECTION

8. INTEGRATED PUBLIC GATHERING SPACE

All of the functions present share vertical connections at the Groothandelsgebouw building, much like a system of connected vessels which can transfer potential to the weaker functions present. There are greater chances for different people groups to integrate when access is shared between different functions.



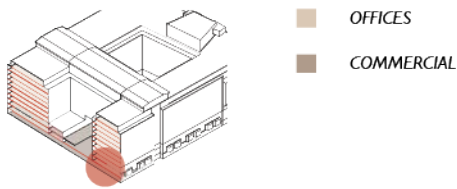
- PUBLIC GATHERING SPACE
- SEMI-PUBLIC GATHERING SPACE

ADAPTABILITY IN FUNCTIONS AND DIVISION

A key quality that is present at the Groothandelsgebouw is the flexibility that is offered by the structure. The neutrality of the column structure that is present at the project offers a high level of flexibility for future changes. For example, Iteration 1 (above) of the offices shows a future situation where one of the existing offices has been divided into several smaller offices. Iteration II shows a future situation where two shops have replaced a portion of an existing larger office. Although the structure offers a great deal of flexibility, the routing system is limited; thus, if offices are sub-divided into small offices or shops, the routing must be extended to offer access to the new functions (visible in Iterations I and II, above).

VERTICAL ADAPTABILITY WITHIN FUNCTIONS

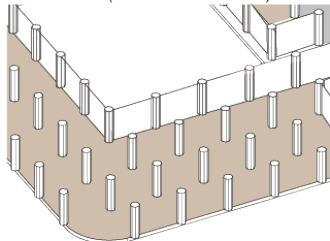
Portions of the ground floor at the Groothandelsgebouw offer a spacious, double height section. The spacious section provides a high degree of vertical flexibility for future changes. For example, the spacious section offers the possibility of constructing a full first-floor level within the space (Iteration I, above). Furthermore, the neutrality of the structure on the ground floor allows for flexibility in terms of future changes in function within the space; Iteration II (above) shows a future situation where a full-ground storey floor has been constructed and a commercial function has been replaced with an office.



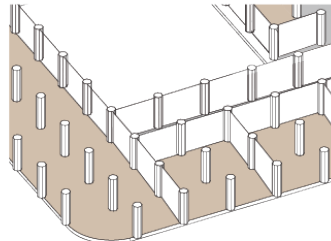
ZOOMED SEGMENT

ADAPTABILITY AND LACK OF ADAPTABILITY PRESENT

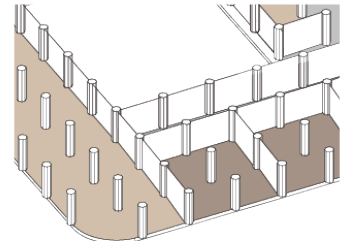
2nd-8th FLOOR (COMMERCIAL & OFFICES)



PRESENT SITUATION

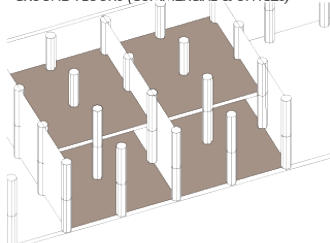


ITERATION I

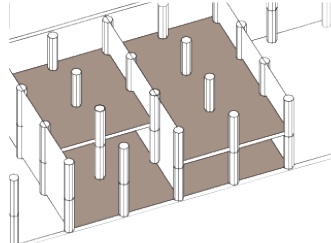


ITERATION II

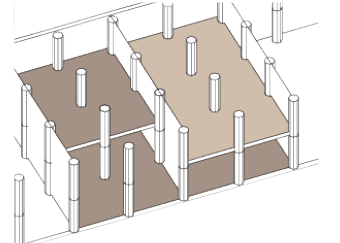
GROUND FLOORS (COMMERCIAL & OFFICES)



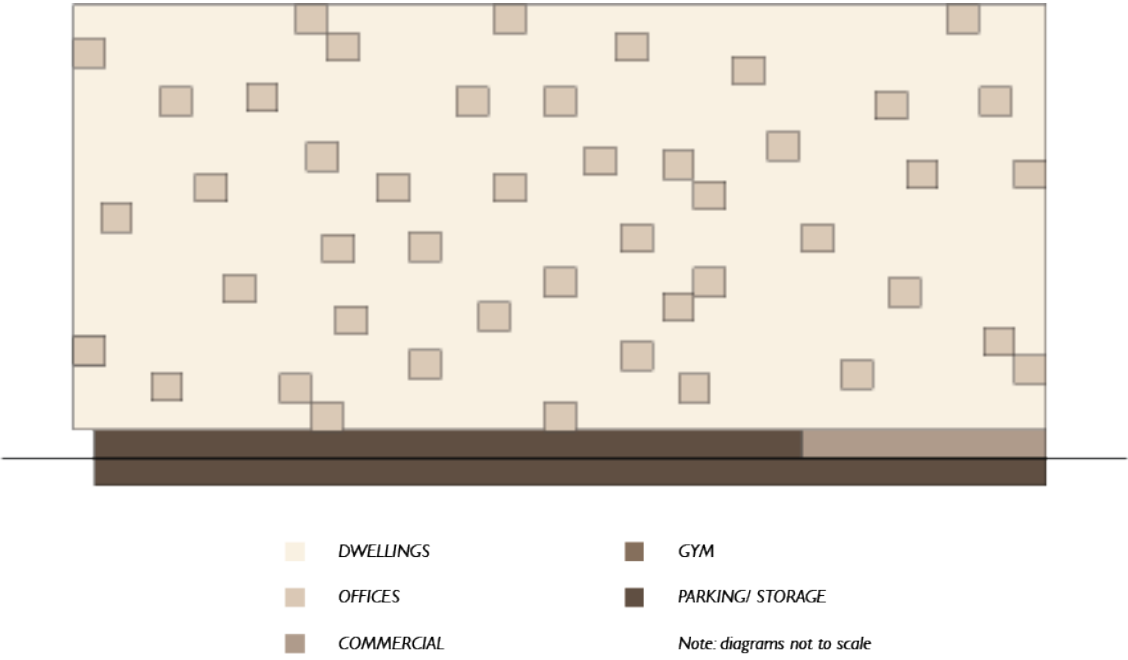
PRESENT SITUATION



ITERATION I



ITERATION II



SHINONOME CANAL COURT BLOCK I

Riken Yamamoto & Associates, 2003
Tokyo, Japan

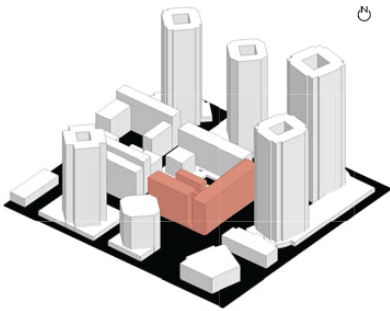


ANALYSIS

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1. PROJECT SCALE

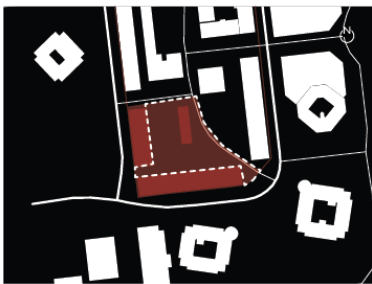
In terms of scale, the Shinonome Canal Court project is massive; due to the various functions present, the project truly embodies the hybrid spirit of a city within a building.



SHINONOME CANAL COURT BLOCK 1

2. URBAN DENSITY

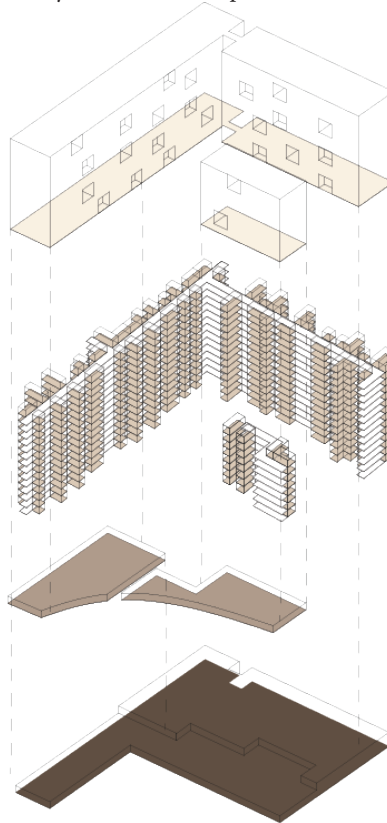
The Shinonome Canal Court Block project 1 is located in the extremely dense urban context of the Koto ward of Tokyo. The project design responds to the urban fabric in the sense that it provides a route through the project which maintains connectivity in the site context.



SHINONOME CANAL COURT BLOCK 1 PROJECT SCOPE
KOTO WARD CONTEXT PLAN

3. FUNCTIONAL DIVERSITY

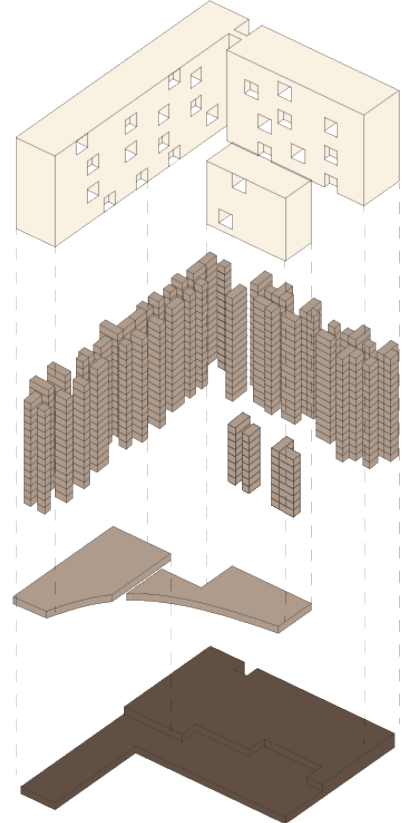
There are several different functions present at the Shinonome Canal Court Block 1 such as: shops, offices (SOHOs - small office/home offices), and dwellings. Furthermore, the flexible nature and number of SOHOs at the project means that there is the potential for a high amount of diversity in the functions present.



DWELLINGS
OFFICES

4. FUNCTION SCALE

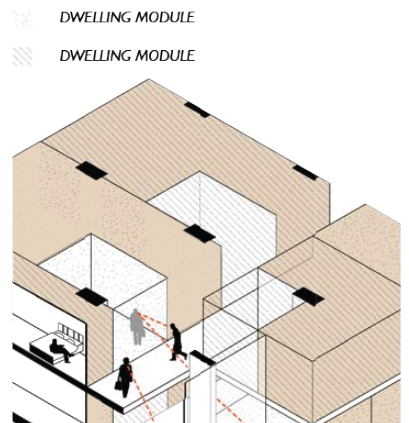
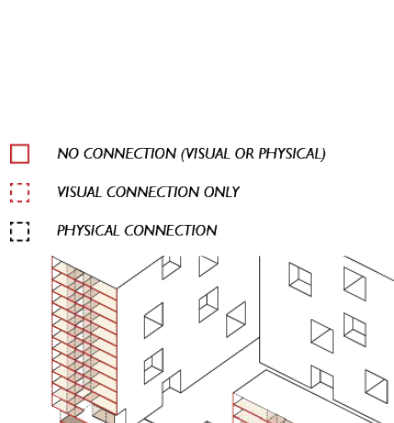
In general, the scale of the function blocks at the project is quite small and optimal to contribute to function integration. For example, a SOHO (possibly used as a public function) has been implemented with every dwelling - which has resulted in an absence of a mono-functional block.



COMMERCIAL
PARKING/ STORAGE

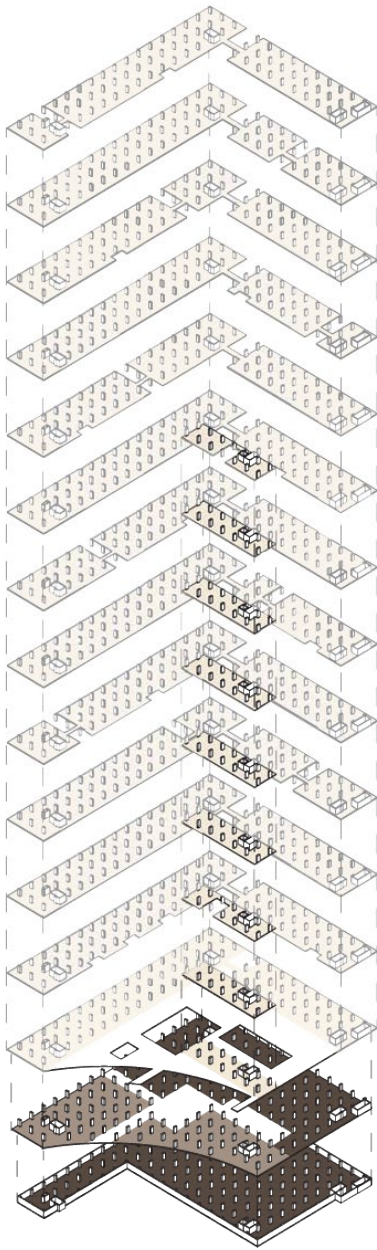
5. FUNCTION INTEGRATION

There is a high level of integration present at the project. For example, an office (SOHO - small office/home office) has been integrated horizontally with every dwelling in the project. Further, voids in the form of terraces at the project provide opportunities for the visual integration of functions.



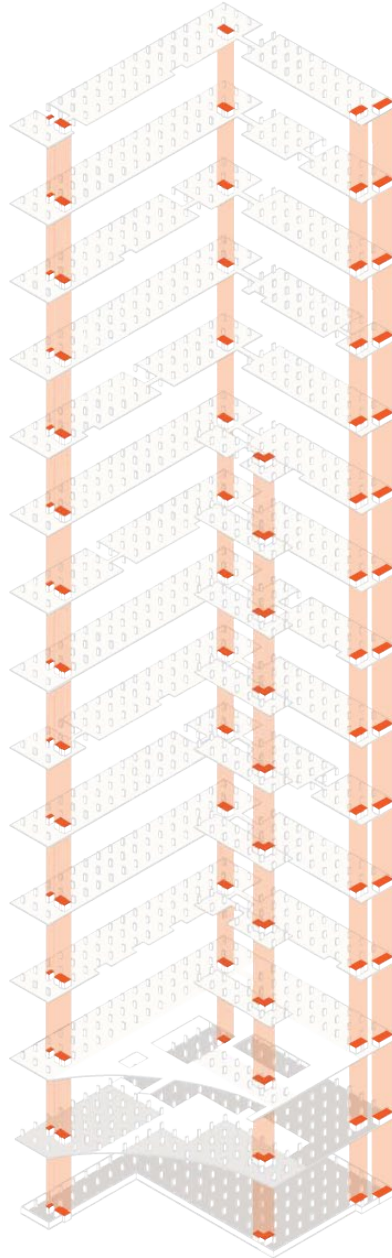
6. FLEXIBILITY

The column structure is at the Shinonome Canal Court Block 1 project provides a high level of flexibility for future changes. Further, opportunities for short-term flexibility have been provided through movable partitions present that separate the SOHO from the dwelling.



7. VERTICAL CONNECTIONS

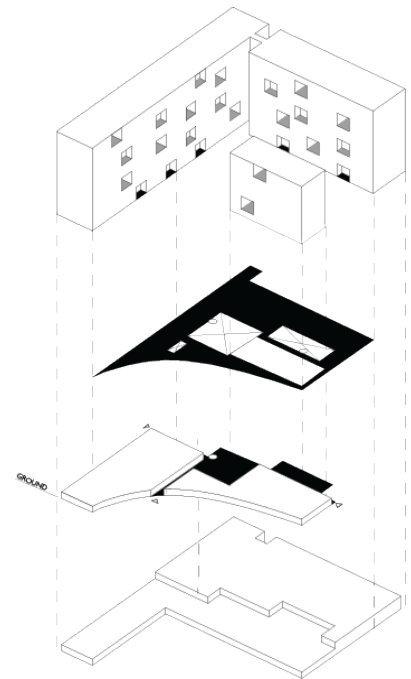
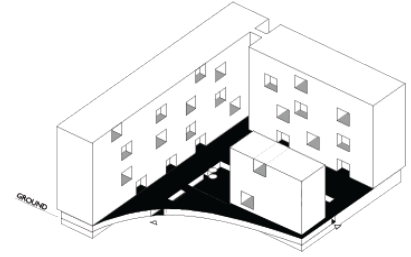
At the Shinonome Canal Court Block 1 project, the dwellings and the SOHOs share vertical connections; this sharing of vertical connections facilitates the integration of functions and the interaction of people. However, access to the vertical connections themselves is limited at the project; the vertical transport at the project is not fully open to the pub-



■ AREA FOR VERTICAL CONNECTION
■ VERTICAL CONNECTION

8. INTEGRATED PUBLIC GATHERING SPACE

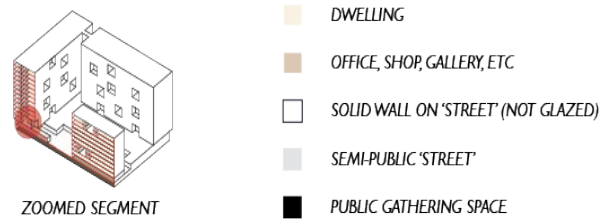
Public gathering space has been integrated into the project. The public gathering space is not located within a building per se, but an elevated space (located one storey above ground level) for gathering that is fully accessible to the public has been provided.



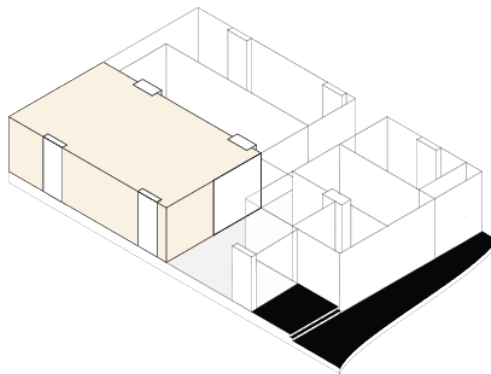
■ SEMI-PUBLIC GATHERING SPACE
■ PUBLIC GATHERING SPACE

POSSIBLE DWELLING CONFIGURATIONS

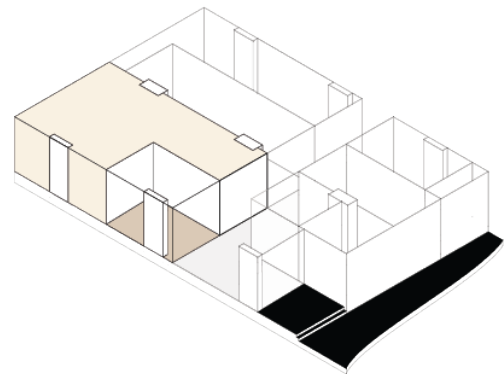
A key quality that is present is the flexibility that is provided by the floor plan as well as certain architectural features that are present at the Shinonome Canal Court Block 1 project. For example, a SOHO (small office/home office) has been provided for every dwelling, but architectural features such as movable wall panels (above, right) provide flexibility for the dweller to either utilize the provided SOHO space as a public office or shop or instead utilize the space for more personal use as part of the dwelling (Iteration A 1). Furthermore, the moveable wall panels allow the dwellers to also control the actual size of the SOHO (Iterations A II, A III & A IV).



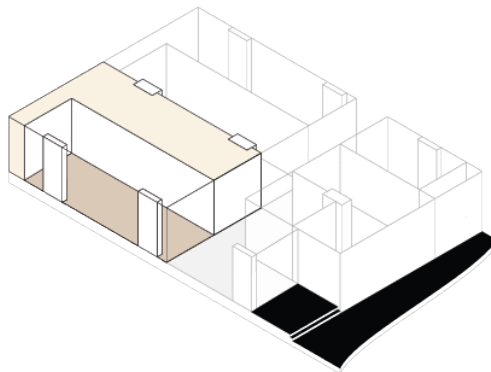
TOWER DWELLINGS WITH SOHO POSSIBILITY



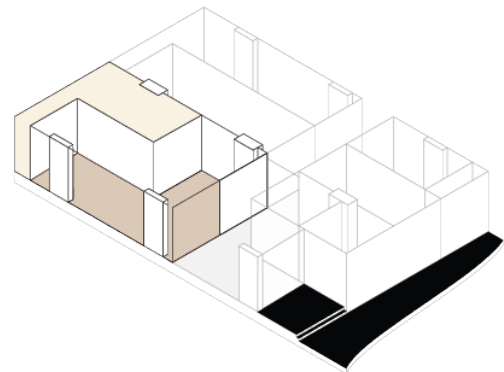
ITERATION A I



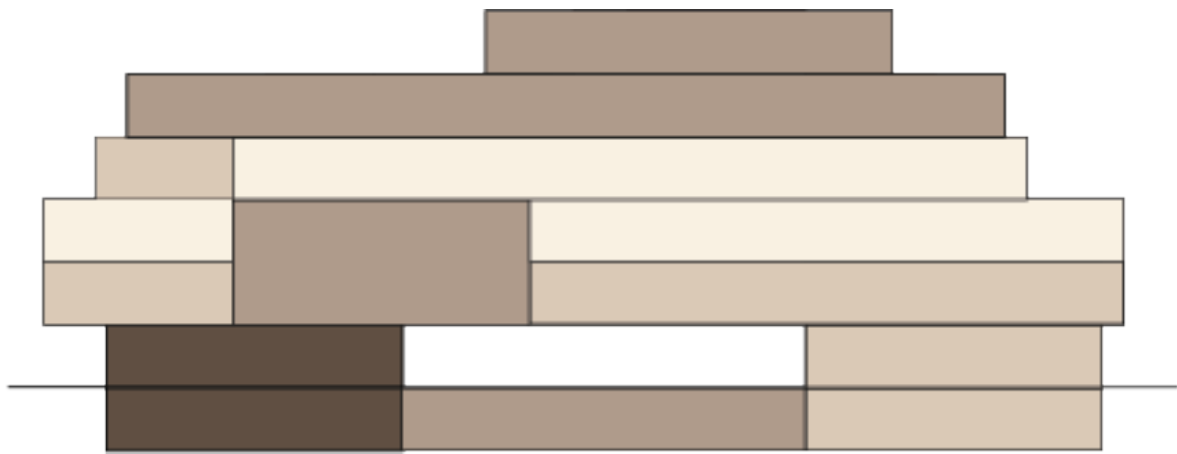
ITERATION A II



ITERATION A III



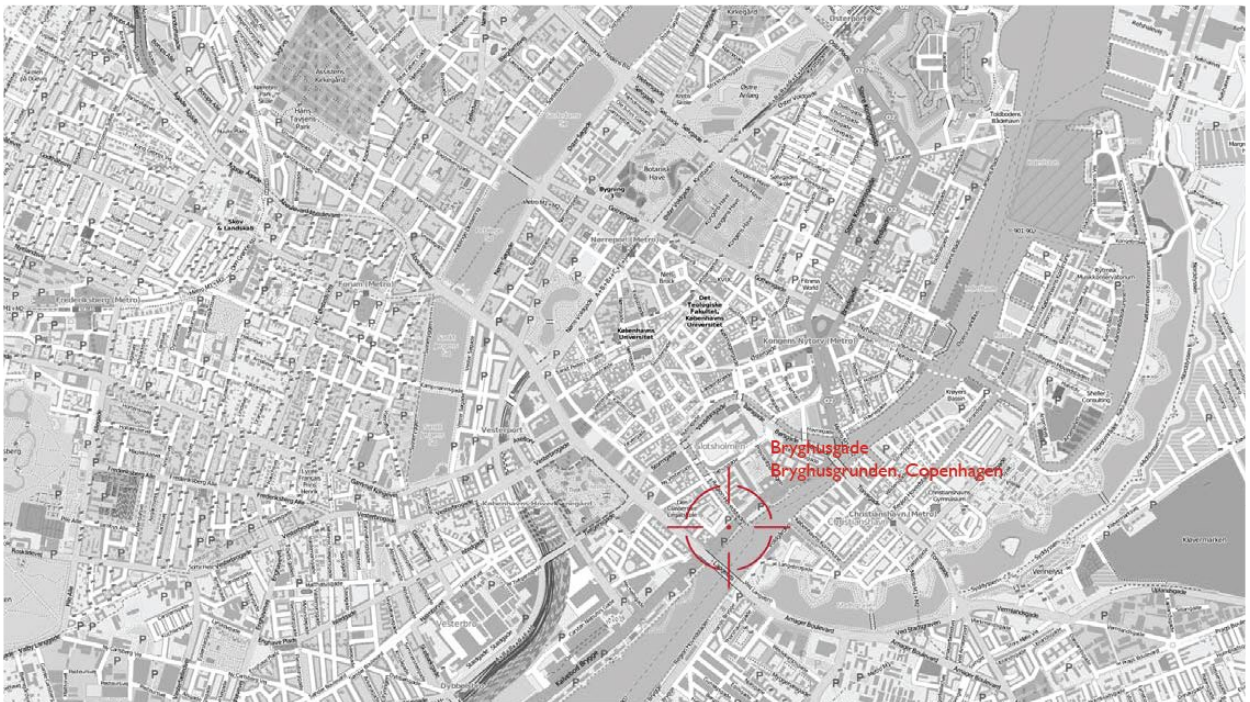
ITERATION A IV



- | | |
|---|---|
| DWELLINGS | GYM |
| OFFICES | PARKING/ STORAGE |
| COMMERCIAL | <i>Note: diagrams not to scale</i> |

BRYGHUSPROJEKTET

OMA,
2017 (expected) Copenhagen, Denmark

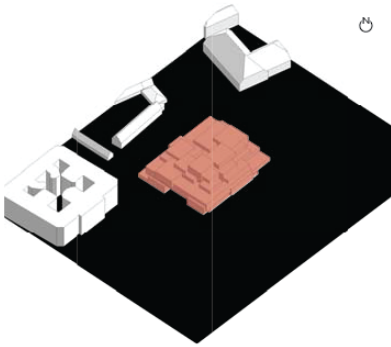


ANALYSIS

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1. PROJECT SCALE

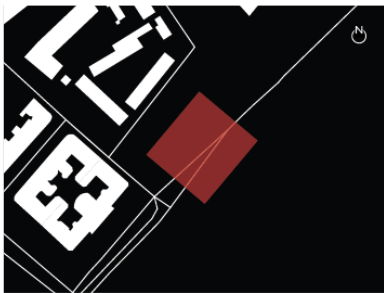
The Bryghusprojektet is of a large scale. Due to the range of functions present, the resulting scale of the building is quite large.



■ BRYGHUSPROJEKTET

2. URBAN DENSITY

The Bryghusprojektet project is located in the dense urban context of Copenhagen. The project is quite responsive in terms of the surrounding urban fabric due to the fact that it spans over Christians Brygge Road and further provides pedestrians connections to all sides of the site via routes that run through the project.

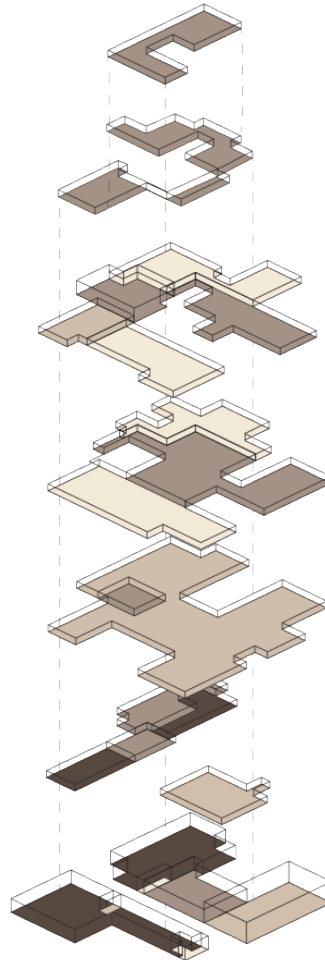


■ BRYGHUSPROJEKTET PROJECT SCOPE

■ COPENHAGEN CONTEXT PLAN

3. FUNCTIONAL DIVERSITY

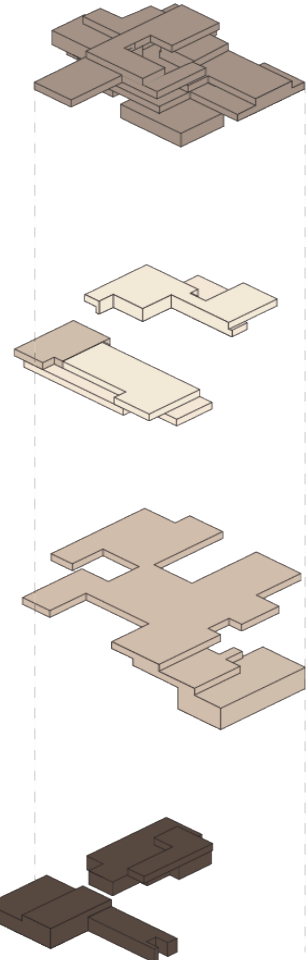
There are several different functions present at the Bryghusprojektet project such as: the Danish Architectural Center, a cafe, offices, and dwellings. The Danish Architectural Centre truly adds the unexpected element to the building that is associated with the hybrid due to the wide range of users it draws and the potential for those users to interact with dwellers from the building.



■ DWELLINGS
■ OFFICES

4. FUNCTION SCALE

The Bryghusprojektet does contain some rather large functions (i.e. the Danish Architectural Centre). The key is that the functions have not been implemented as one large functional block but instead have been broken up into smaller functional blocks and distributed over several storeys in the project.

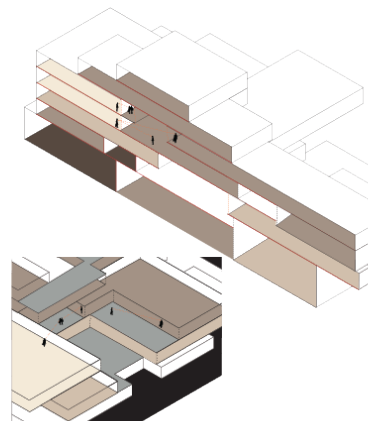


■ COMMERCIAL
■ PARKING/ STORAGE

5. FUNCTION INTEGRATION

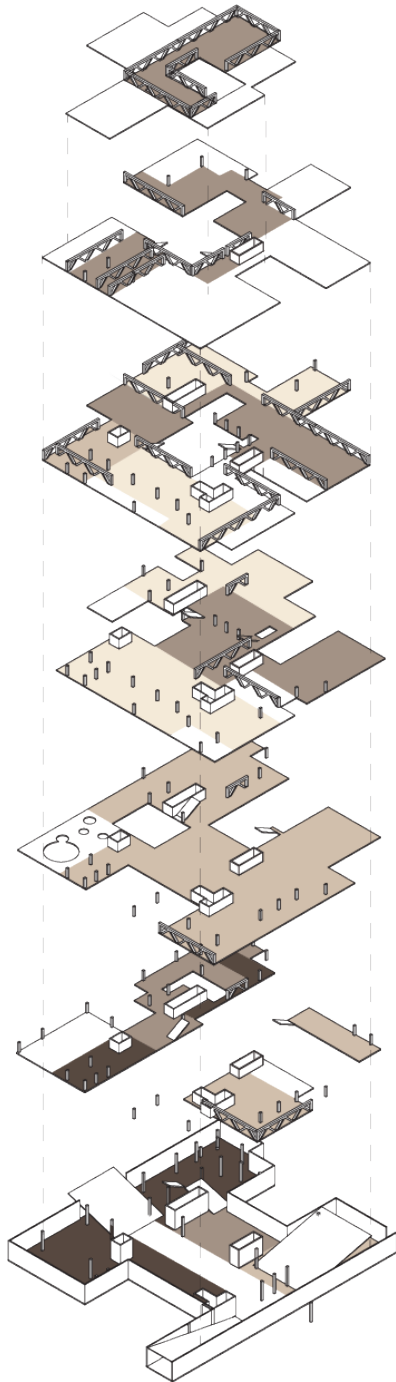
Some of the functions present at the Bryghusprojektet project are integrated. For example, some of the functions such as the Danish Architecture Centre, dwellings, and offices are physically integrated through the sharing of public terraces. Visual connections are also offered in some portions of the building to the Danish Architecture Centre; however, there are some opportunities for physical integration of functions that were missed.

- NO CONNECTION (VISUAL OR PHYSICAL)
- VISUAL CONNECTION ONLY
- PHYSICAL CONNECTION



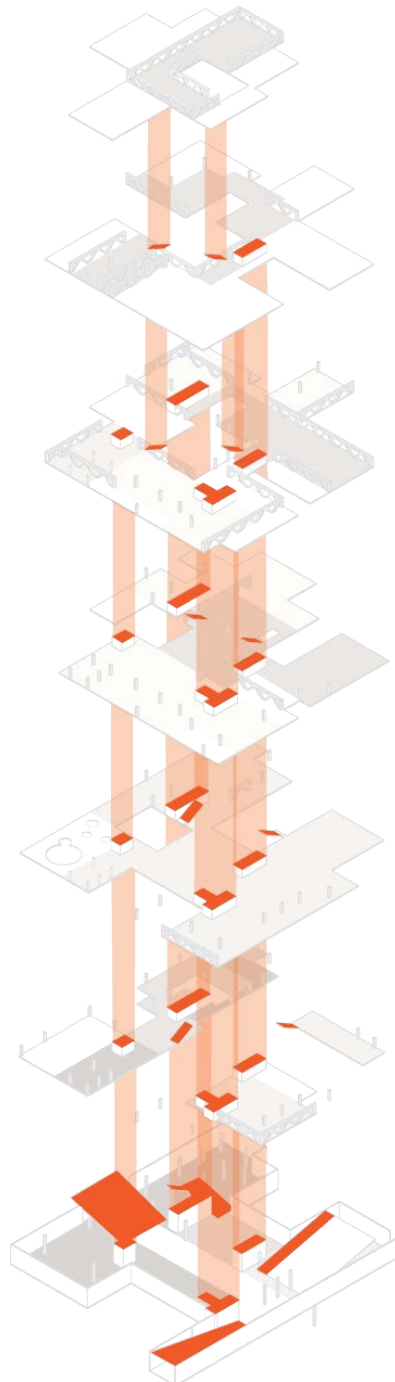
6. FLEXIBILITY

The column and truss structure at the Bryghusprojektet project provides a high level of flexibility for future changes. However, some of the floors contain uneven portions which means that horizontal flexibility is limited at some locations in the building.



7. VERTICAL CONNECTIONS

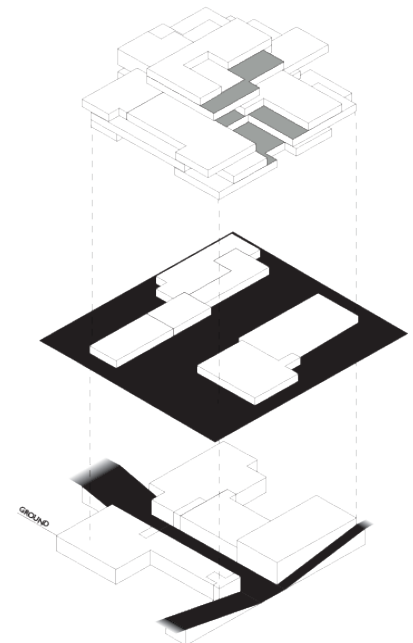
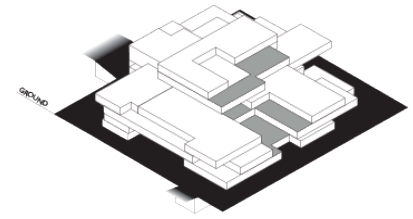
Vertical connections at the Bryghusprojektet are quite isolated in the sense that each function present has its own vertical access system. This results in a fragmented feeling in terms of access and does not facilitate the integration of the functions present.



- AREA FOR VERTICAL CONNECTION
- VERTICAL CONNECTION

8. INTEGRATED PUBLIC GATHERING SPACE

Public gathering space has been integrated into the Bryghusprojektet project. For example, there is a public route that runs through the project; the public route offers public places for gathering as well as connections to functions within the building. There are also semi-public gathering places in the form of terraces that are located on the upper floors of the building; some of the functions present are physically integrated through the sharing of the semi-public



- SEMI-PUBLIC GATHERING SPACE
- PUBLIC GATHERING SPACE

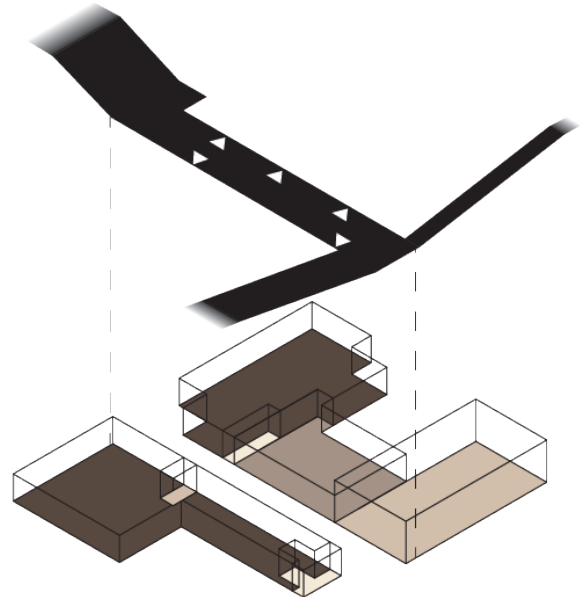


SUB-CONCLUSION

INTEGRATION OF PUBLIC SPACE

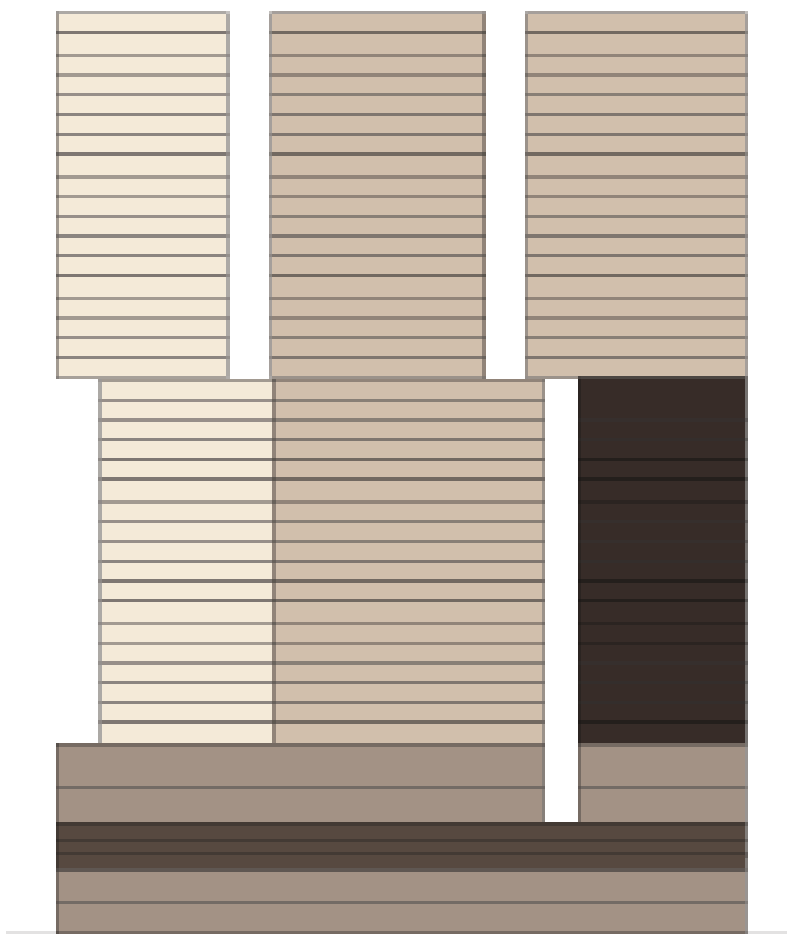
A key quality that is present at the Bryghusprojektet is the presence of public space that has been integrated into the building. The public route that runs through the building offers areas for gathering. The entrances to all of the functions in the building are located along the public route that runs through the building. Further, elements from the Danish Architecture Centre have been placed in the public route - programmatic elements spill out into public spaces in order to activate the space.

INTEGRATED PUBLIC SPACE



PUBLIC GATHERING SPACE AND FUNCTION ENTRANCES

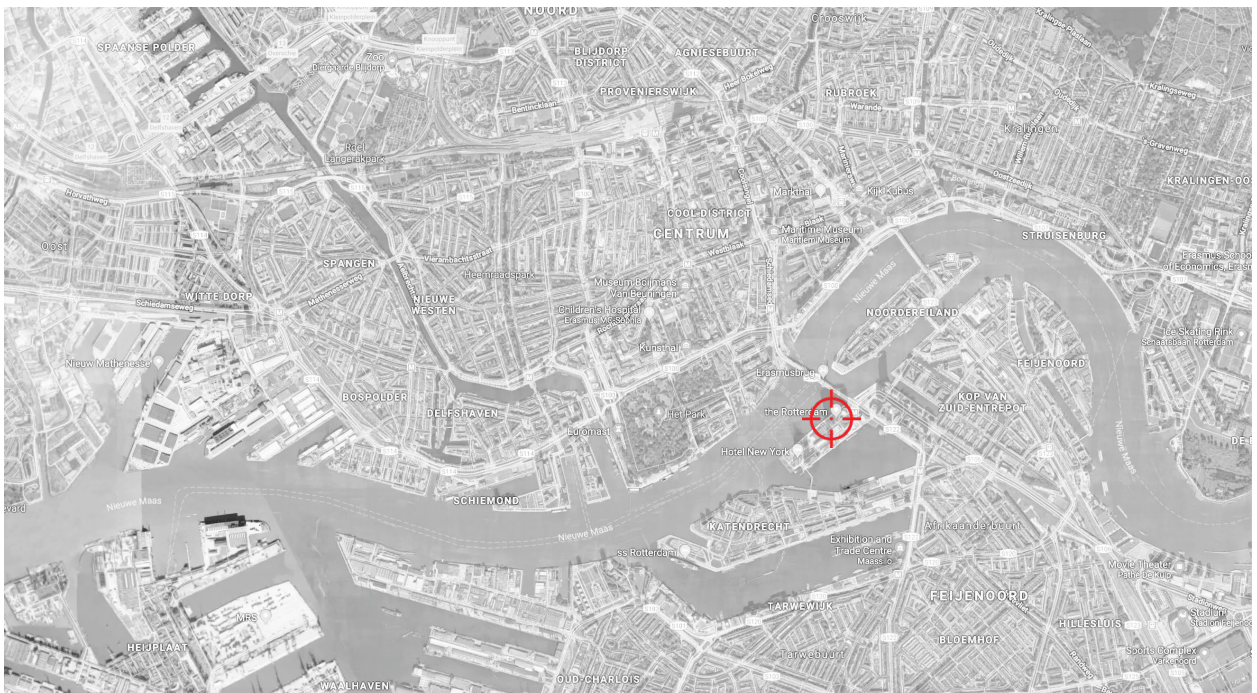
- DWELLING LOBBY
- OFFICE AUDITORIUM
- COMMERCIAL LOBBY
- STORAGE
- PUBLIC GATHERING SPACE



- | | |
|---|---|
| DWELLINGS | PARKING/ STORAGE |
| OFFICES | HOTEL |
| COMMERCIAL | <i>Note: diagrams not to scale</i> |

DE ROTTERDAM

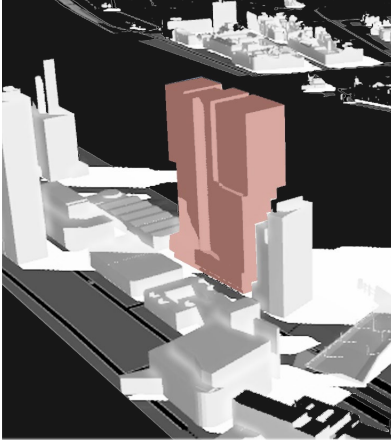
OMA, 2011
Rotterdam, The Netherlands



ANALYSIS

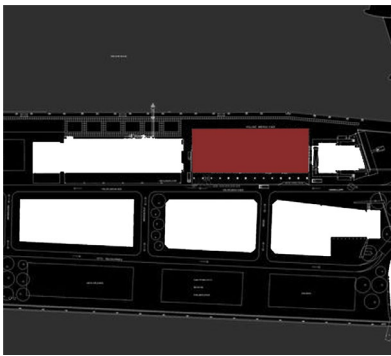
1. PROJECT SCALE

The DE ROTTERDAM is of a large scale. Due to the range of functions present, the resulting scale of the building is quite large.



2. URBAN DENSITY

De Rotterdam is a building on the Wilhelminapier in Rotterdam, designed by the Office for Metropolitan Architecture in 1998. The complex is located between the KPN Tower and Rotterdam Cruise Terminal and was finalized at the end of 2013. On 21 November 2013, the municipality of Rotterdam, as the largest user, received the keys. The design provides space for offices, a hotel and apartments.



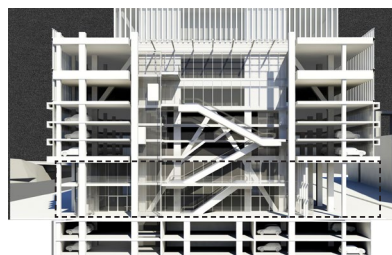
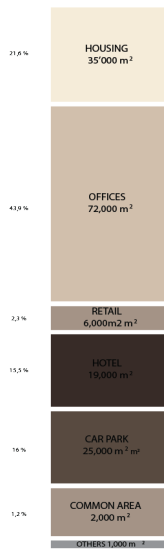
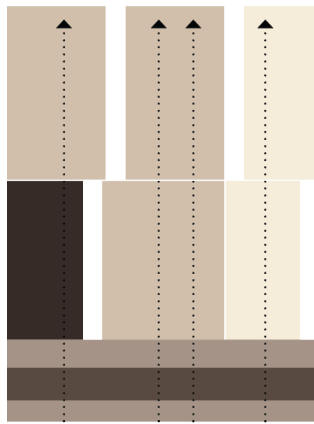
■ De ROTTERDAM PROJECT SCOPE
 ■ ROTTERDAM CONTEXT PLAN

5. FUNCTION INTEGRATION

Some of the functions are integrated at De ROTTERDAM building. For example in ground floor we have a physical integration between Dweling Offices And Hotel lobby.

3.FUNCTIONAL DIVERSITY

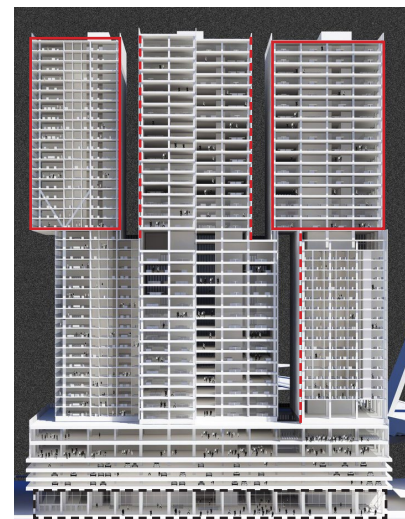
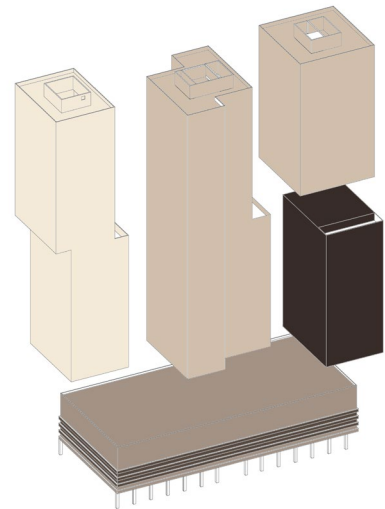
Nevertheless, the building is exceptionally compact, with a mix of programs organized into distinct but overlapping blocks of commercial office space, residential apartments, hotel and conference facilities, restaurants and cafes. Office employees, residents and hotel guests are brought together in conference, sport and restaurant facilities.



- NO CONNECTION (VISUAL OR PHYSICAL)
- VISUAL CONNECTION ONLY
- PHYSICAL CONNECTION

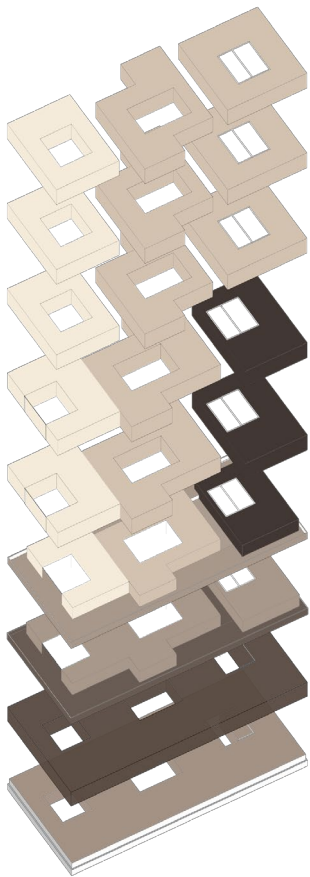
4.FUNCTION SCALE

The three stacked and interconnecting towers of De Rotterdam rise 44 floors to a height of 150 meters and span a width of over 100 meters. De Rotterdam does contain some rather large functions. The key is that the functions have been implemented as one large functional block and distributed over several storeys in the project.



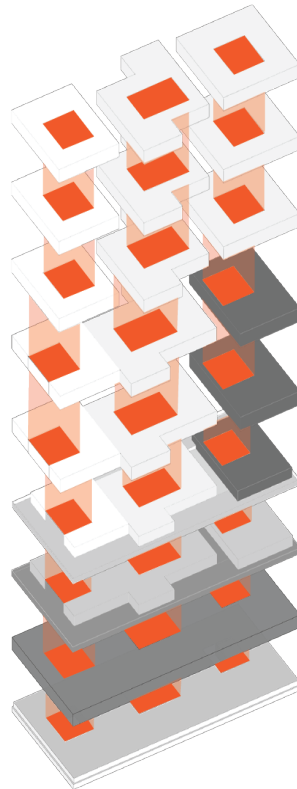
6. FLEXIBILITY

The column and open plans provide a flexibility for De Rotterdam projects in different stories such as Offices.



7. VERTICAL CONNECTIONS

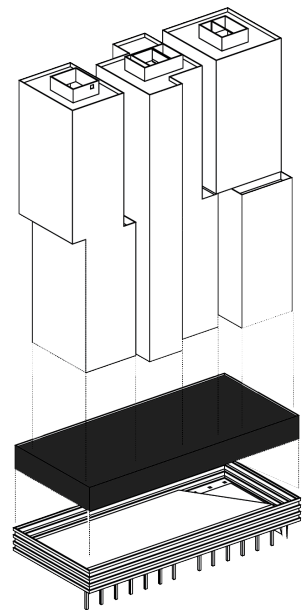
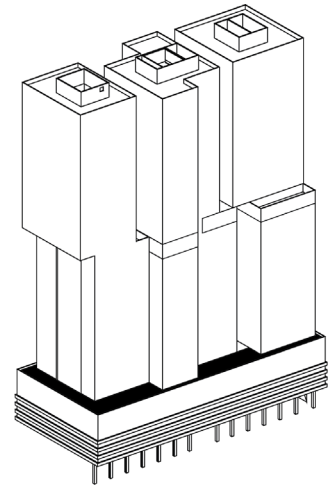
Vertical connections at De Rotterdam are quite isolated in the sense that each function present has its own vertical access system. This results in a fragmented feeling in terms of access and does not facilitate the integration of the functions present.



■ AREA FOR VERTICAL CONNECTION
■ VERTICAL CONNECTION

8. INTEGRATED PUBLIC GATHERING SPACE

Public gathering space has been integrated into De Rotterdam project. The building's shared plinth is the location of the lobbies to each of the towers, creating a pedestrianized public hub by means of a common hall.



■ public Gathering Space