AN EXPLORATION INTO THE QUALITIES OF A TRUE HYBRID BUILDING

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MS. 3 FALL 2013
ARCHITECTURE AND DWELLING GRADUATION STUDIO
10 FEBRUARY 2014
10-02-2014, Delft

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Theme Research Booklet
“An exploration into the qualities of a true hybrid building”

Msc3 Fall - Graduation Studio
“At Home In The City”
Architecture & Dwelling
Faculty of Architecture
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ABSTRACT

Triggered by the design challenge posed by our graduation studio regarding the design of a hybrid building on the Oostelijke Handelskade, we will begin by reflecting upon the design context that we are designing in as well as the twenty-first century society in general. We will begin our research into hybrid buildings specifically by constructing a mental model for the qualities of a true hybrid building. We will use the mental model we construct from our research to analyze precedent projects – first a basic analysis of fifteen precedents followed by a more thorough analysis of five projects that have either been explicitly called “hybrids”, are relevant geographically, or are of historical significance. Our research will reach beyond the mental model: considering the qualities that are present in a true hybrid building (the mental model), we will then extract the architectural elements in the five precedent projects by which each of the qualities of a true hybrid building have been achieved. We will be constructing an architectural model for the true hybrid building by using the mental model as a base. The culmination of our theoretical research (the mental model for the true hybrid) as well as the architectural model that we extract will serve as a solid foundation on which we can then design our final graduation projects.
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I) CRITICAL ANALYSIS
- MENTAL MODEL

I. Introduction

“The last gap” is the last remaining vacant site along the Eastern Docklands in Amsterdam, and requires a first statement for a housing Hybrid of the 21st century. This is an exciting opportunity not only because it was the design task formulated by our studio, but also because the location is ideal for an exploration into the (architectural) needs of today and tomorrow. Regardless of its origin, our interest was quickly sparked to take a dive into researching the possibilities of mixed functions within a building. A building we would describe as a hybrid building.

It became clear upon our first visit to location that we were dealing with a site that was a gem hiding in plain sight. Its nickname, the last gap, already reveals that among the long strip of buildings at the Eastern Docklands our site was an untouched piece of land that we could mold to our own liking. The seemingly big plot was the last puncture in a wall of buildings between the Quay on the side of Java Island, and the South-West part of Amsterdam connecting the water to the rest of the Eastern Harbour Area. The possibilities appeared to be almost limitless.

The following site analysis made clear that there were actually quite some restrictions and points of attention to which the building had to respond within its context. In short this meant sun and sound pollution from the south, and strong winds and views on the north. Together with very particular building masses around the site made it almost impossible not to engage in a conversation with its context. Site research showed that most of the buildings along the Eastern Docklands consisted of dwelling blocks with additional functions, mostly directed towards external target groups instead of the immediate surroundings. Namely a specialty clothing shop, office spaces, etc. However, the Detroit building (located three buildings to the west of the site) was specified as a hybrid building. Apart from dwellings, the building also has an integrated swimming pool, fitness, sauna, and a communal laundry space, only to name a few amenities. Even though these functions mainly cater its residents the versatility present, together with the studio design task, fueled the interest into further research of the mixed functions within a building. But it is important to understand the given context, therefore it is necessary to understand the existing situation through research and analysis, and in turn formulate a problem statement.

The Eastern Docklands of Amsterdam are part of the greater Eastern Harbour area. It is comprised of a long strip of large building blocks alongside the old quay. New building blocks are interspersed with a number of old harbour warehouses that have been preserved. Even though all of the other areas in the Eastern Harbour area mostly consist of dwellings, this particular strip has a relatively high concentration of mixed functions which vary from offices, dwellings, (specialty) shops, and more.

Most of these buildings are comprised of a ground floor that interacts with its surroundings through (semi) public functions, like shops, offices or restaurants. On top of this ground floor the rest of the building is filled with mostly dwellings and/or offices. The buildings can be described as
This plinth typology is not new, especially within Amsterdam. The early house over the store types - like canal houses dating from at least the 1660s - were already a combination of dwellings with a commercial ground floor, be it down to the small scale of a single dwelling. Even though many of the (reconstructed) canal houses today are more comparable to a terraced house, many of the earlier types are in essence small plinth buildings. One of the most distinctive types within the canal houses is the so-called Merchant House.

Many of the canal houses were originally built like this, but only few remain today. The original merchant house was compiled of a two-story buffer zone connected to the street, and a dwelling behind and on top of it. The buffer zone was most commonly used for small commercial functions and/or for the storage of grain, livestock, etc. According to Meischke, Amsterdam and Rotterdam were the first cities where this architectural type emerged around the 17th century. Though in Amsterdam this happened in the beginning of the century and in Rotterdam more towards the end, making the Rotterdam version more modern. As opposed to Amsterdam where most were renovated, in Rotterdam most of these types were completely demolished.

In relation to the current situation, there is also a modern day example of a dwelling with commercial space in the Eastern Docklands. One of the residents in the Detroit building on one of the higher floors runs an art gallery out of her own dwelling, which is not immediately visible from the exterior. This shows there is still a need to combine living with working, even above ground level and without direct visual contact.

Another problem that influences the situation in the Eastern Docklands greatly is the current economy and its impact on the local commercial situation. Vacancy is something that the area has to deal with, and together with the large scale of the commercial spaces it is hard to find entrepreneurs for it on the short term. As a result, several of the public gathering spaces in the surroundings are connected to empty retail spaces, contributing to ‘dead’ public spaces. Apart from the scale of these functions in the ground floors of

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1 In architecture, a plinth is the base or platform upon which a column, pedestal, statue, monument or structure rests. Poppeijers, Chambers, and Historic American Buildings Survey. (2003, p. 104)
2 Bureau monumenten & Archeologie en Stadsarchief Amsterdam, Amsterdam Heritage Days (Amsterdam, 2013), p.5
3 Translated from the specific Dutch “Koopmanswoning” or “Zaalhuis”, common from the 1300s (Kassin et al., 2011)
4 R. Meischke, Een terugblik op het Rotterdamse koopmanshuis (1940), p.205-206
6 John Melaniphy, Possible solutions for vacant department store spaces (Shopping Center Business, 2001), Source: http://www.melaniphy.com/content/possible-solutions-mall-and-shopping-center-vacancies, visited 30-01-2014
the buildings the fact that it relies solely on retail might not be the best strategy in the current economic situation. The City at Eye Level states that “according to some estimates, due to the combination of the oversupply created in the last ten years and the rise of internet shopping, half the current shops will disappear from our streets. In setting up plinth strategies, we also look at new economic functions such as co-working places, restaurants and cafés, social functions such as schools, and most of all residential space on the ground floor.”

II. Observation; Plinths & Dwellings are Two Separate Worlds

A plinth is more than the literal ground floor connected to the surroundings, with a building block placed on top of it. In order to see what exactly it is, we should first go to where it came from. The plinth was first used in literature when Semper defined it as a crucial element of four elements of architecture of any building. According to Semper, a plinth is necessary “to negotiate between a structure and the ground.” As every building has a more or less transition between the ground and the structure, we would like to approach this transition as something that is a buffer between the ‘city’ and the ‘building’, or how the City at Eye Level describes it as “the ground floors that negotiate between the inside and the outside, between the public and the private.”

As previously described, the early merchant houses’ living spaces were already disconnected from the street via a buffer zone for storage or a secondary function. But, as this was mainly on the scale of a single dwelling, the distance between them was small enough not to lose the connection between the surrounding public realm and the dwellers. For instance, all of the dwellings with their commercial space had an individual entrance, so per family a connection with the public realm remained. What we observed is that the concept of a single dwelling plinth is often just scaled up when functions grow bigger within the building blocks. But it doesn’t work properly, as the connection between the upper levels and surroundings is centralized and therefore is lost. The same situation is visible around the site in the Eastern Docklands. The large-scale functions on the ground floor only have a handful of openings that are present to allow people to go into the building, but the pedestrian is then totally unaware regarding what happens above the plinth. It is the same the other way around. Dwellers move up to their home through only one or two centralized and isolated vertical connection points that lead up to a secondary gallery to their dwelling. This only fuels the fact that the ground floors and upper floors are two different worlds.

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8 Gottfried Semper, The four elements of architecture and other writings (Cambridge, 1989)
9 Meredith Glaser, The city at eye level lessons for street plinths (Delft: Eburon, 2012), p.6
People that visit the public spaces might actually never meet any of the dwellers that live above it and vice versa. The fact that the plinth is often designed in a distinctive way as opposed to the rest of the building only underlines this phenomenon.

In regard to the plinth typology, has there been a change in society that correlates to the disconnection between the public realm and the dwelling?

III. The Situation of Modern Society
The society of the twenty-first century is incredibly diverse. Amsterdam, the city in which we are designing our graduation project, is one of the most diverse cities in Europe; the city is home to more than 170 different nationalities and an ethnic minority of 45% is present in the city. If we consider this issue at a personal level, we also see a great amount of diversity; in our studio alone, we have diverse backgrounds from Holland and other parts of the world including Bulgaria, Korea, and the United States. With a high level of social diversity, there also exists a high variance in the demands and needs of society. Today, as citizens of the twenty-first century, we have also have an immense amount of freedoms – freedom of speech, expression, movement, and action.

Further, specifically in regard to Europeans in the twenty-first century, their lives are generally healthier, safer, richer, and more peaceful than the lives of the generations that came before them.

There are two resulting opinions in regard to the high level of social diversity present in the twenty-first century society. The first sentiment is one of excitement in regard to welcoming the opportunities for learning and sharing from one another, as well as the potential to have a more enriched life as a result of a highly diverse society. The second sentiment in regard to the increased social diversity present in the twenty-first century is one of fear. Subsequently, many individuals have placed a high amount of importance on their own personal security. According to Professor Paul J. Cloke, western societies of the twenty-first century “are becoming increasingly insulated and ‘capsular’”. Lieven de Cauter describes cocooning as “…the word for capsularisation and living. Our daily life can be exactly described as a movement via transportation capsules from one enclave or capsule (home, for instance) to another (campus, office, airport, hotel, mall and so on…” Fear of those who are different has caused many to desire to live and dwell in isolation and a reclusive series of capsules. Fear triggers the desire to censor, but then a question arises in regard to how far we should go as a society in censoring others to en-

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14 Paul J. Cloke, Country Visions (Essex: Pearson Education Limited, 2003), 229
sure that our lives are free of fear and risks.\textsuperscript{15}

However, the trend of cocooning that we see today hasn’t resulted solely from fear of social diversity. Instead, technology (or more specifically, the internet) has also contributed in some cases to cocooning, as information processing has become increasingly easier. It has become easier and easier to organize into progressively smaller digital interest groups (or co-
coons) in which people share the same ideas.\textsuperscript{16}

The extreme of cocooning that we presently see in the twenty-first century seems a bit like Dutch history repeating itself. For example, after the year 1850, \textit{verzuiling} (or “pillarization”) occurred, and it was a process that was initiated in the villages of Holland. Each Dutch village citizen belonged to a pillar based on their religion, politics, etc. Each pillar had its own set of social regulations and rules as well as facilities such as schools, universities, sports clubs, etc. Additionally, those who belonged to one pillar would not interact informally with those who belonged to a different pillar — in short, pillars resulted in a high amount of social isolation.\textsuperscript{17} In essence, the cocooning and trend of social isolation that we see today due to technology is similar to the social isolation that was present in the pillars in Dutch villages more than a century and a half ago.

Thus, in order to address the great amount of social diversity present in the twenty-first century society as well as the reality that the needs of society are constantly changing, we need buildings that can accommodate diversity in needs as well as dynamic needs. Additionally, now more than ever, society is need of architecture that actually facilitates the meeting of strangers. The hybrid building is then an inspiring, interesting, and challenging solution for the ever-changing needs of the diverse society of the twenty-first century. Hybrid buildings are said to “…leave room for any unpredictable changes in housing demands that might arise. The hybrid design task is not geared to an endpoint but to a strategy: the goal is to find an unambiguous motive for every situation”.\textsuperscript{18} Fundamentally, the hybrid building does not deliver a final solution, rather the hybrid building provides a framework that meets current needs and can adapt to unknown future needs.

\textsuperscript{15} Robert Trager and Donna L. Dickerson, \textit{Freedom of Expression in the 21\textsuperscript{st} Century} (Thousand Oaks: Pine Forge Press, Ltd., 1999), 33
\textsuperscript{17} Jon L. van Zanden, \textit{Economic History of the Netherlands 1914-1955} (London: Routledge, 1998), 10

\textsuperscript{18} Clemens Steenbergen, Henk Mihl, Wouter Reh, and Ferry Aerts, \textit{Architectural Design and Composition} (Bussum: THOTH Publishers, 2002), 208
IV. Mixed-use or Hybrid

In relation to the previous chapter, 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 stacking 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.”

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. 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. In contrast, a hybrid building “turns against the combination of the usual programs and bases its whole raison d’etre on the unexpected mixing of functions.”

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.

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


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
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 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.” 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 form. Kaplan argues that more specifically a hybrid’s “scale is determined by the dimension of a city block within the orthogonal grid.” The fact that a hybrid building is often superimposed 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.

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 “full-time building.”

Considering the qualities of a hybrid building as opposed to a mixed-use building, the following question was

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


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
then triggered: what are the architectural elements through which the qualities of a hybrid have been achieved in precedent projects?

V. 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 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 constructions 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

29 Joseph Fenton, Pamphlet Architecture: Hybrid Buildings, 1985, Vol. 11, p.3
30 Aurora Fernández Per, Javier Mozas, and Javier Arpa, This is Hybrid (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), p.13
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
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.”

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 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.

VI. 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 building 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”.

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.

VII. 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:

i) 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. Furthermore, in her essay regarding hybrid buildings, Susanne Komossa refers to a hybrid building as an

Figure 1.3: Project Scale, source: Author


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

ii) Urban Area Density

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”.

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

iii) 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 combination of the usual programs and bases its whole raison d’etre on the unexpected mixing of functions”. 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.\textsuperscript{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.\textsuperscript{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 unalike 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.

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

\begin{flushright}
\textsuperscript{43} Susanne Komossa, “Researching and Designing GREAT: the Extremely Condensed Hybrid Urban Block”, AE... Revista Lusófona de Arquitectura e Educação 5 (2011), 29
\textsuperscript{44} Jan Gehl, The City at Eye Level (Delft: Eburon, 2012), 16, 203
\end{flushright}
areas present at the project. 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. 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.

v) 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”. 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. 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.

vi) 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

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

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
never the same”. 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.

vii) 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. It is clear that vertical connections in the hybrid building have the ability to facilitate the integration or separation of the functions present.

viii) Integrated Public Gathering Space

The final quality that is present in the mental model for the true hybrid building is integrated public gathering space. In general, the presence of public space in which people can gather contributes to a vibrant, successful urban realm. 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

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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
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.”

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:

i. Project scale
ii. Urban area density
iii. Function diversity
iv. Function scale
v. Function integration
vi. Flexibility
vii. Vertical connections (that promote integration)
viii. Integrated public gathering space

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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
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
PRECEDEENTS

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 SEASIDE HYBRID BUILDING
Steven Holl Architects, 1984-1988
Seaside, USA

F CUBEDWELLINGS
Piet Blom, 1984
Rotterdam, The Netherlands

Note: diagrams not to scale
G  SHINONOME C.C. BLOCK I  
Riken Yamamoto & Associates, 2003  
Tokyo, Japan

H  BRYGHUSPROJEKTET  
OMA, 2017 (expected)  
Copenhagen, Denmark

I  LINKED HYBRID  
Steven Holl Architects, 2008  
Beijing, China

J  GALLERIA  
David Specter, 1975  
New York, USA

K  DE ROTTERDAM  
OMA, 2011  
Rotterdam, The Netherlands

L  SLICED POROSITY BLOCK  
Steven Holl Architects, 2007-2011  
Chengdu, China
M SOLID 18  
Claus en Kaan, 2007  
Amsterdam, The Netherlands

O GROOTHANDELSGEBOUW  
Hugh Maaskant, 1952  
Rotterdam, The Netherlands

N BRUNSWICK CENTER  
Patrick Hodgkinson, 1971-1974  
London, United Kingdom
### Precedent Criteria

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- ☐: Quality present
- ☐☐: Quality not present
The case study projects we reviewed have either been explicitly referred to as “hybrid” buildings in the literature that we reviewed or they were projects that were ahead of their time and came before the implementation of the word “hybrid” but nonetheless embody many characteristics of the hybrid building and have seemingly withstood the test of time. The following pages contain a short summary regarding the precedent projects we reviewed in relation to the presence of the qualities contained in the mental model of a true hybrid building that was formulated by our research.

Returning again to our statement of doubt regarding the fact that many of the buildings that have been credited as “hybrid”, our precedent review confirmed that although many buildings have been referred to as such, there are not any buildings that completely embody all of the qualities of a true hybrid building. Case in point, Solid 18 by Claus en Kaan is praised as a “hybrid” building by This is Hybrid; however, our review of the project found that it fell short of a hybrid regarding a few qualities. For example, although there are several functions present at Solid 18, the functions lack the “unexpected” quality that is so vital to a hybrid building. For example, Solid 18 is comprised of a gym, small shops, offices, and dwellings. In essence, all of the functions present at Solid 18 are only geared to serving a small closed community and do not trigger interaction among strangers, which is much more in line with the social condenser typology that we previously discussed as opposed to the hybrid typology. Solid 18 lacks integration of functions that are present in the building. For example, there is a substantial presence of stacking of functions at Solid 18; the functions are arranged from most public to most private vertically with no interaction present among the functions. Further, upon review of the structure, one will notice that the lower portion of the structure present at Solid 18 is made up of columns and can therefore provide a neutral framework to accommodate [unknown] future changes. However, beginning with the presence of dwellings on the second floor, the structure is made up of load-bearing walls, and therefore is quite limiting in terms of offering flexibility for future changes. When reviewing the vertical connections present at Solid 18, we found that access to the dwellings has been kept completely separate from the access to the gym, shops, and offices present. As we previously stated, the vertical connections in a true hybrid building should facilitate the integration of functions, and this is not the case with the vertical connections present as the vertical connections to the dwellings have been kept completely isolated from the vertical connections that service the other functions. In essence, the dwellers at Solid 18 could make the trip from their car to their home or from their home to the surrounding urban context and never once see or interact with the other functions that are located in the building. Lastly, in regard to public gathering space, our research revealed that the true hybrid building contains public as well as private realms. However, this is not the case at Solid 18; public gathering space has been left completely outside of the building and is mainly found adjacent but completely separate from the building at Ed Pelsterpark.

Beyond Solid 18, we have chosen to do an in-depth analysis of four additional precedent projects (for a total of five projects) in regard to the presence of the qualities of a true hybrid building that we have compiled into the mental model; we have selected to do an in-depth analysis on the

54 Aurora Fernández Per, Javier Mozaz, and Javier Arpa, This is Hybrid (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 112
five projects that either embody many of the qualities of a true hybrid building or were ahead of their time and have thus withstood the test of time well. We also placed a high priority on the analysis of Dutch precedents, as they will help us better understand the context that we are designing our graduation projects in. In short, we selected the five most interesting or geographically relevant projects to study closer, not necessarily the projects (out of the fifteen precedents) that had the highest amount of hybrid qualities. Before moving on to our analysis regarding the presence of the qualities of a true hybrid building in the precedents that we studied, it may be useful to first give a short introduction regarding each of the five projects that we analyzed in terms of vision that the architect had for the project.

i) Solid 18
Solid 18 is situated on Haveneiland, within the greater context of Ijburg in Amsterdam, the Netherlands. The master plan for Haveneiland was a collaboration between Claus en Kaan, Frits van Dongen, and Schaap en Stigter. Frits van Dongen proposed placing “solid” buildings at prominent locations on Haveneiland. Van Dongen’s vision for the “solids” were buildings that allowed flexibility in terms of functions for the present and future. Van Dongen believed that a neutral floor plan and spacious section were vital qualities in creating flexibility for future functions. Furthermore, in order to activate their surroundings, the architects of the “solid” buildings believed that this could be achieved by “stacking” various functions within their building envelope. Thus, Solid 18 is just one of the several solid buildings on Haveneiland, but each of the solids is unique to the fact that each was designed by a different architecture firm. In regard to their design approach, Felix Claus of Claus en Kaan stated that, “We make generic buildings for unknown users…they are not eye-catching or photogenic. The only presence in the street is the volume and proportion of the building. In this way we try to make our buildings strong objects. They are anchors of the neighbourhood”.

ii) Groothandelsgebouw
The Groothandelsgebouw is situated in Rotterdam, the Netherlands. The building was completed in 1953, and due to the fact that it is still a vibrant and functioning building over 60 years, it is safe to say that thus far it has withstood the test of time. Although, the building has seen both sides of the public opinion. After the build it was considered for a long time to be an exemplar building of the future. After a trip to Chicago Maaskant was inspired by the biggest business complex Merchandise Mart in Chicago, on which the Groothandelsgebouw was modelled after. Because of the fact that it was built just after the Second World War the idea of a mixed functions


56 Aurora Fernández Per, Javier Mozaz, and Javier Arpa, This is Hybrid (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 112


building was quite revolutionary. The fact that shops and offices where in the same building had so many advantages, many of which were related to economic or time-related aspects. For instance it was easier to get a permit for one big building, than for many individual franchises. Also many shared facilities made the building cheaper, but could in turn be designed with a higher quality. This was the case for functions like the meeting rooms, cafeterias, entrances, elevators and stairwells. Overall this translated in an affordable building, which still had a high level of finishing and appearance. Together with flexible workspaces the building attracted many small companies of which some already settled in the building before completion.

But as said the ‘Groothandelsgebouw’ has also been a centre of discussion in its later years. In 1960s Netherlands public opinion slowly changed, which was largely directed negatively towards material growth. But it was not until 1971 that Maaskant’s building the ‘Groothandelsgebouw’ finally became one of the buildings that was considered to be a degrading product of an anti-social architect. Important qualities that were considered to be important, like visual stimuli, security and the ‘human’ scale, where apparently not adequate in the ‘Groothandelsgebouw’.

iii) Cube Dwellings

The Cube Dwellings are located in Rotterdam, the Netherlands and the project was designed by Piet Blom. Blom was an apprentice of Aldo van Eyck and the two worked together for years. Both had a specific vision on how dwellings should be built. A city should be a large house, and a house should be a small city. It was a response to the then upcoming vision of the functional city. Blom was in a constant search for a mixing of functions and form of repetition that was no longer visible, in order to create a community. Additionally, Blom had the vision that the ‘homo ludens’ was not a nomad, but more that of a settled individual. These things lead up to the fact that the creation of both a living and working environment which stimulates social interaction, form a recurring theme in Blom’s projects.

Blom was an architect that seemingly worked with two contradictions. His projects were almost always a balancing act between predefined order and individual freedom. He had strong ideas on how the house of the people should look like, in order for people to develop. This was already clear when he wrote about the study he did on “Wonen Als Stedelijk Dak” in 1965 [living as an urban roof]. The mentioned contradiction is visible in the compulsion of the idea how people were supposed to live was forced into a tight grid. In his drawing this is visible as they contained his plea of the creation of space, but were filled until the last square centimeter. “The Architect of Spatiality” seemed to suffer of a ‘horror vacui’.

It is not hard to see that this could also be the case at the Cube Dwellings. At

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60 Piet Blom, Wonen Als Stedelijk (Bussum: dak, 1965)

first glance, it appears to be a spacious project with numerous public functions, enclosed public spaces, and playful dwellings. But after a closer look the limitations of the public spaces, the public functions, and the dozens of identical dwellings become apparent. It is so defined and shaped in a specific way, that there is almost no room for variation or changes. This is not very surprising, as his view on critique was often defined as ‘either you agree with him, or you have no idea what you are talking about’.  

iv) Shinonome Canal Court Block I
Shinonome Canal Court, Block I is situated within the greater context of the Shinonome Canal Court Center development. Each of the six building blocks in the development were designed by a different architect. One of the elements of the vision for the development was that it would provide flexibility to accommodate future changes. The architects envisioned the space between the building blocks as places for “outside living” that could accommodate various activities during the day. For Block I, Riken Yamamoto designed a basic infrastructure in which rooms were envisioned as modules with a standard width of 3 meters. A theme throughout the Block I project is the blurring of the lines between public and private spaces. For example, Riken Yamamoto provided each dwelling with a SOHO (small office home office space), which they envisioned as a porch or conservatory that would exist outside of the boundary of the private “home”; the façade of the SOHO space that is adjacent to the access corridor is highly glazed to provide a strong visible connection. Riken Yamamoto saw the Block I development as an opportunity to expand the potential of collective housing by integrating homes and offices. Specifically, Riken Yamamoto envisioned the development as a blend of homes and workplaces as opposed to the conventional situation of homes situated next to workplaces.  

v) Bryghusprojektet
As previously mentioned, the Bryghusprojektet building is currently under construction with an expected completion date of 2017. We specifically chose to study this project due to the fact that it aims to challenge the conventional hybrid building model (which, in reality, is typically a mixed-use building).  


64 Hilary French, New Urban Housing (New haven: Yale University Press, 2006), 136, 139

65 Aurora Fernández Per, Javier Mozas, and Javier Arpa, This is Hybrid (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 124

tion was that the project should contribute to good conditions for pedestrians.

OMA then completed the architectural design for the project. Koolhaas’ vision for the project was to break away from the typical hierarchical program dispersal within buildings and instead create the disorderly combination of uses in order to create true interactions. The Bryghusprojektet building is in line with Koolhaas’ greater vision of the modern “Generic City” as he refers to it, or a city that is full of anonymous and generic space that is flexible and stripped of all traces of specificity. For the Bryghusprojektet building, Koolhaas’ idea is to gather many activities in one building; he wants to intermingle various functions (housing, offices, a café, and the Danish Architecture Centre) as much as possible to guarantee a dynamic nature in the building. Koolhaas sees the building as an “engine” that will generate urban life in the surrounding context. Koolhaas positioned public terraces around the building that belong to the Danish Architecture Centre; Koolhaas envisions other functions sharing these integrated public spaces, and the spaces facilitating in the integration of people. Koolhaas provided a passageway through the building as a distinctive and special element that would “inject” life into the building, with a potential to transfer the vibrancy even vertically within the building. As our research has shown, this project still may have not gone far enough in challenging the conventional hybrid building model due to the fact that besides the physical connections that are provided in the plinth and at isolated terraces within the project as well as some visual connections interspersed in the building, the functions are still rather isolated from each other.

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67 Aurora Fernández Per, Javier Mozas, and Javier Arpa, This is Hybrid (Vitoria-Gasteiz: a+t Architecture Publishers, 2011), 124
68 Tatjana Schneider and Jeremy Till, Flexible Housing (Oxford: Architectural Press, 2007), 165
2) ANALYSIS

I. Research Question

Considering the qualities that are present in a true hybrid building, what are the architectural elements by which the qualities have been achieved in precedent projects?

II. Goal

We started our research regarding hybrid buildings by compiling a mental model regarding the qualities that are present in a true hybrid building. We wish to further analyze five precedent projects in order to discover the elements present in the precedent project that have achieved the qualities of a true hybrid building. In essence, our research with the compilation of a mental model for a hybrid building and through a close study of precedent projects, we wish to derive an architectural model for a true hybrid building. Ultimately, we will then be able to implement the architectural model for a true hybrid building in our personal designs for the graduation project.

III. Criteria

As previously mentioned, the first criteria for the precedent projects is that they have either been explicitly referred to as “hybrid” buildings in the architectural community or that they were projects that were ahead of their time but nonetheless embody many characteristics of the true hybrid building and have seemingly withstood the test of time. We have placed a priority on choosing built case study projects, but we also selected one project that is currently under construction (OMA’s Bryghusprojektet in Copenhagen) in order to see if even buildings that are being constructed at this moment in time and are being referred to as “hybrids” are actually hybrid buildings. Additionally, for the more thorough analysis of five case study projects, we placed a priority on selecting Dutch precedents in order to be able to better correspond to our design site. Finally, an additional criteria element is that the project contains dwellings.

IV. Method

i) Formation of Mental Model for a True Hybrid Building:

Review of theories and case study projects (via drawings, pictures, literary text, videos, diagrammatic analysis, on-site observations) in order to decipher the qualities of a true hybrid building. The qualities will then be combined to form a “mental model” regarding the qualities of a true hybrid building.

ii) Quick Testing of Precedents Using the True Hybrid Mental Model:

The mental model which is based on our research for the true hybrid building consists of the following qualities:

i) Project scale
ii) Urban area density
iii) Function diversity
iv) Function scale
v) Function integration
vi) Flexibility
vii) Vertical connections (that promote integration)

viii) Integrated public gathering space
Using the mental model that we have compiled for a true hybrid building, we will perform a quick check for the presence of the eight qualities in the following fifteen case study projects:

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. Groothandelgebouw, Rotterdam  

iii) Thorough Analysis of Precedents  
Using the True Hybrid Mental Model  

We will then thoroughly analyze five of the fifteen precedent projects (the projects listed above in bold) for the qualities contained in the mental model for a true hybrid building. We will perform the analysis using diagrams in order to be able to form a standardized means to compare and contrast the five projects we will be looking at more closely.

We will then expand upon one quality in each of the precedent projects that offers the most potential. We will explore that specific quality diagrammatically in terms of the extents, limits, etc. that can be achieved.

iv) From True Hybrid Mental Model to an Architectural Model for a True Hybrid Building  

Steps i-iii of our research method pertain to the creation (through research) of a mental model for a true hybrid building and then the subsequent testing of precedent projects using the mental model. Step iv of the method is where we believe that the mental model for the true hybrid building actually becomes a physical model for a true hybrid building. In step iv of our method, we will then address each of the qualities present in the mental model and select the project(s) that best embodied the quality. More than just listing the project that best manifested the particular quality, we will elaborate on the architectural element(s) present in the precedent by which the quality was achieved. Architect Mario Botta has stated that, “The essence of architecture lies not in its usefulness – the purely practical solutions it offers to the human need of shelter – but in the way it meets the much profounder spiritual need to shape our habitat”.

Thus, in some instances in describing the architectural model for a true hybrid building, it will be smarter to locate and describe how a quality was achieved such as through columns, etc. Whereas, in some cases it is about atmosphere or spatial aspects that have resulted from the combination, placement, juxtaposition, etc. of more subtle and abstract components.

V. Precedent Analysis  
The following pages will show an analysis per project.
PRECEDENT OVERVIEW

SOLID 18
Claus en Kaan
2007, Amsterdam

GROOTHANDELSGEBOUW
Hugh Maaskant
1953, Rotterdam

CUBE DWELLINGS
Piet Blom
1984, Rotterdam

SHINONOME CANAL COURT
BLOCK I
Riken Yamamoto & Associates
2003, Tokyo

BRYGHUSPROJEKTET
OMA
2017 (expected), Copenhagen
INITIAL FUNCTION DIVISION SCHEME, AUTHOR

- DWELLINGS
- OFFICES
- COMMERCIAL
- GYM
- PARKING/ STORAGE

Note: diagrams not to scale
SOLID 18
Claus en Kaan
2007, Amsterdam

North facade; http://archinect.com/firms/project/2779/ijburg-amsterdam-the-netherlands/8587046
1 PROJECT SCALE
Solid 18 is a project of great scale; its scale is a result of the fact that the building contains several functions.

2 URBAN DENSITY
Solid 18 is located in a dense urban context, but the density is low when compared to other case study projects such as Tokyo. Furthermore, the project seems to have little impact or influence on the urban fabric surrounding the building.

3 FUNCTION DIVERSITY
There are several different functions present at Solid 18 such as: a gym, shops, offices, and dwellings. However, lack the element of the “unexpected” that is characteristic of the hybrid and furthermore mainly serve the closed community of the building.

4 FUNCTION SCALE
The scale of the functions present at Solid 18 is adequate for integration; in general, the functions present only comprise a few storeys at the most - the issue instead lies in the fact that there was a missed opportunity regarding function integration.

5 FUNCTION INTEGRATION
There is a substantial stacking functions at Solid 18, but there is no integration of functions (physical or visual). As previously discussed, the scale of the functions was adequate for integration, but the opportunity for integration of functions was missed.

- NO CONNECTION (VISUAL OR PHYSICAL)
- VISUAL CONNECTION ONLY
- PHYSICAL CONNECTION
6 FLEXIBILITY
The structure is somewhat flexible; the basement through first floors have a column structure which allows for flex-
ibility, but floors two through four have a more limiting
load-bearing wall structure.

7 VERTICAL CONNECTIONS
The dwellings at Solid 18 have their own vertical connec-
tions, whereas the additional functions present share verti-
cal connections. Thus, the dwellings are isolated in terms
of access from the other functions present and integration
of the dwellings with other functions has not been made
possible.

8 INTEGRATED PUBLIC
GATHERING SPACE
Public gathering space (Ed Pelsterpark) is located adjacent
to the project site. However, there is no public gathering
space that is integrated within the building.
ADAPTABILITY IN FUNCTIONS AND DIVISION

A key quality that is present is the flexibility that is provided by the column structure present on the basement through first floors at Solid 1B. The column structure offers a high level of flexibility for future changes. For example, Iteration I (above) shows a future situation on the first floor where one of the existing offices has been expanded. Iteration II shows a future situation on the first floor where a dwelling and a shop has replaced one of the existing offices. The flexibility provided by the column structure creates a situation where only elements such as the location of interior partition walls need to be modified when an existing function is expanded or reduced or when a new function is introduced.

The flexibility of the load-bearing wall structure on floors two through four is shown (above). The dwellings themselves cannot be expanded. New functions such as shops and offices can be introduced where the existing dwellings are located (Iterations I and II), but the size is strictly limited by the structure. Specifically, the load-bearing walls are located 5.5 meters apart (center-to-center) in the short direction and 7.0 meters apart (center-to-center) in the long direction.

NO ADAPTABILITY IN FUNCTIONS AND DIVISION

The inflexibility of the load-bearing wall structure on floors two through four is shown (above). The dwellings themselves cannot be expanded. New functions such as shops and offices can be introduced where the existing dwellings are located (Iterations I and II), but the size is strictly limited by the structure. Specifically, the load-bearing walls are located 5.5 meters apart (center-to-center) in the short direction and 7.0 meters apart (center-to-center) in the long direction.
INITIAL FUNCTION DIVISION SCHEMATIC

Dwellings
Offices
Commercial

Gym
Parking/ Storage

Note: diagrams not to scale
GROOTHANDELSGEBOUW

Hugh Maaskant
1953, Rotterdam

Location; Google Maps
Stationsplein Centre, Rotterdam

Stationplan
Centre, Rotterdam

Station side; http://upload.wikimedia.org/wikipedia/commons/e/e6/Rotterdam_groothandelsgebouw.jpg
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.

In terms of scale, the majority of the function blocks present at the Groothandelsgebouw are far too large to result in function integration/interaction. For example, there are seven uninterrupted storeys of offices present at the project.

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.

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 floorplans. 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.

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.
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 I (above) of the office 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 building 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.
INITIAL FUNCTION DIVISION SCHEME: AUTHOR

- DWELLINGS
- OFFICES
- COMMERCIAL
- GYM
- PARKING/ STORAGE

Note: diagrams not to scale
CUBE DWELLINGS
Piet Blom
1984, Rotterdam

Location; Google Maps

Overblaak
Blaak, Rotterdam

Inner courtyard; http://photoscity.files.wordpress.com/2011/01/20100917-cubehouse.jpg
CUBE DWELLINGS PROJECT SCOPE

As shown below, the scale of the Cube Dwellings is quite large due to the fact that the project contains several functions.

Blom’s Cube Dwelling project is located in the dense urban context of Rotterdam. The project seems to have made a positive impact on its context due to the fact that it was constructed over Blaak Road and offers pedestrians a meandering route through the project that connects the adjacent Oudehaven to Rijstuin Road.

There are several different functions present at the Cube Dwellings project such as: shops, offices, and dwellings. Specifically in regard to commercial functions, there was originally an Academy of Architecture located in one of the supercubes at the project. However, the project is nearly entirely comprised of shops and dwellings.

The functions at the Cube Dwellings project are highly integrated. For example, there is a small commercial or office space located between every dwelling present; in essence, every dwelling is physically integrated with commercial space. Further, the proximity of the dwelling to the public realm has created strong visual integration of the dwelling.

FUNCTION DIVERSITY

The small scale of nearly all the functions present at the Cube Dwellings easily allows for integration within the building and into the urban realm.
6 FLEXIBILITY

The unique and highly specialized structure at the Cube Dwellings project provides very little flexibility for future changes. For example, horizontal expansion of the cubes themselves is not possible without extensive structural additions. Furthermore, the highly unique structure makes changes within the cubes difficult without extensive structural additions.

7 VERTICAL CONNECTIONS

Nearly all of the functions present are accessed through one main route that begins with a clearly visible large staircase off of Rijnauwen Road that connects to a pedestrian path that leads through the project and ends by descending ramps down to the Oudehaven.

8 INTEGRATED PUBLIC GATHERING SPACE

Public gathering space has been integrated into the Cube Dwellings project. For example, the vertical route that runs through the project offers small spaces for gathering for the public. The public space is also easily accessible for the shops and offices that are present at the project.
STRONG VISUAL CONNECTIONS

The boundary between public and private spaces at the Cube Dwellings project has been blurred; public and private spaces are in very close proximity to each other due to the fact that a public route has been created that is directed through the project. The public route also contains gathering areas have been activated by the fact that public functions are located along the public route. The close proximity of public and private realms in the project has led to the opportunity to create strong visual connections from private to public spaces. The over-hang of private space (the cube dwelling itself) over the public spaces (exterior as well as interior in the commercial spaces) at the project allows strong visual connections to be realized. The private realm of the cube is mostly closed or solid in terms of material transparency (i.e. brick and metal panels); visual connections from the private realm (the cube) to the public realm have mainly been created on the under-side of the cube in order to orient views to public spaces as opposed to the top sides of the cube. Further, every commercial space that is located in between each dwelling is highly glazed, which further provides strong visual connectivity from private to public spaces in the project.
INITIAL FUNCTION DIVISION SCHEME, AUTHOR

- DWELLINGS
- OFFICES
- COMMERCIAL
- GYM
- PARKING/ STORAGE

Note: diagrams not to scale
SHINONOME CANAL COURT BLOCK I

Riken Yamamoto & Associates

2003, Tokyo
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.

The Shinonome Canal Court Block 1 project 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.

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.

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.

There are several different functions present at the Shinonome Canal Court Block (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.
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 public.

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.

---

AREA FOR VERTICAL CONNECTION

VERTICAL CONNECTION

SEMI-PUBLIC GATHERING SPACE

PUBLIC GATHERING SPACE
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 I). Furthermore, the moveable wall panels allow the dwellers to also control the actual size of the SOHO (Iterations A II, A III & A IV).

POSSIBLE DWELLING CONFIGURATIONS

- DWELLING
- OFFICE, SHOP, GALLERY, ETC
- SOLID WALL ON ‘STREET’ (NOT GLAZED)
- SEMI-PUBLIC ‘STREET’
- PUBLIC GATHERING SPACE

TOWER DWELLINGS WITH SOHO POSSIBILITY

ITERATION A I

ITERATION A II

ITERATION A III

ITERATION A IV
INITIAL FUNCTION DIVISION SCHEME, AUTHOR

- DWELLINGS
- OFFICES
- COMMERCIAL
- GYM
- PARKING/ STORAGE

Note: diagrams not to scale
BRYGHUSPROJEKTET

OMA

2017 (expected), Copenhagen

View from South-West: http://openbuildings.com/building/bryghusprojektet-profile-45344

Location; Google Maps

Bryghusgade, Bryghusgrunden, Copenhagen

Architecture and Dwelling Graduation Studio

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

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.

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 pedestrian connections to all sides of the site via routes that run through the project.

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.

**ANALYSIS**

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.

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 pedestrian connections to all sides of the site via routes that run through the project.

3. **FUNCTION DIVERSITY**
   - There are several different functions present at the Bryghusprojektet project such as: the Danish Architectural Centre, 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.

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.

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.

**Legend**

- **BRYGHUSPROJEKTET**
- **COMMERCIAL**
- **OFFICES**
- **PARKING/ STORAGE**
- **DWELLINGS**
- **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.

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
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.
## Strongest Architectural Qualities Per Project

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Project Scale</th>
<th>Urban Density</th>
<th>Function Diversity</th>
<th>Function Scale</th>
<th>Function Integration</th>
<th>Flexibility</th>
<th>Vertical Connections</th>
<th>Integrated Public Gathering Space</th>
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- **Quality present**
- **Quality not present**
- ✓ Example to avoid for Architectural model
- ✓ Strong quality for Architectural model
II. **Architectural model**

The overview and specific architectural elements are on the following pages.

---

3) **ARCHITECTURAL MODEL**

I. **Introduction to the Architectural Model**

The five precedent projects that we have chosen to analyze are Solid 18, the Groothandelsgebouw, the Cube Dwellings, Shinonome Canal Court Block 1, and the Bryghusprojektet. We analyzed the projects diagrammatically using the mental model of the eight qualities of a true hybrid building as a guide.

In the final step of our analysis pertaining to the mental model for the five projects listed above, we isolated the quality present in the project that offers the most potential. But, by doing this final step in the analysis using the mental model, we realized that the strongest quality in many of the projects pertained only to flexibility. This realization confirmed that we needed to then refer back to each quality of the true hybrid building (in the mental model) and examine which precedent(s) embodied each quality and the actual architectural elements that were implemented to achieve the quality. In essence, the conclusions from the mental model analysis were still too vague – in order to gain a true understanding for how the qualities were achieved through precedents we had to begin with the construction of an architectural model by using the quality as the starting point, and not the strength.

To reiterate, our research question aims at constructing an architectural model (containing architectural elements) from the mental model that we first arrived at through our theoretical research.
## Strongest Architectural Qualities per Criterion

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<th>Criteria</th>
<th>Project Scale</th>
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- Quality present
- Quality not present
- Example to avoid for Architectural model
- Strong quality for Architectural model

1: **Project Scale**

![Project Scale Diagram](image1)

2: **Urban Density**

![Urban Density Diagram](image2)

3: **Function Diversity**

![Function Diversity Diagram](image3)
4: FUNCTION SCALE

5: FUNCTION INTEGRATION

6: FLEXIBILITY

7: VERTICAL CONNECTIONS

8: INTEGRATED PUBLIC GATHERING SPACE
III. Exploring from Mental to Architectural Model

i) Project Scale

In regard to project scale, all of the projects that we reviewed more extensively were of a large scale and could qualify as a hybrid building, but some projects more than others truly embodied the idea of the hybrid as an “extremely condensed urban block” that Susanne Komossa spoke of in her essay. Specifically, the Shinonome Canal Court Block 1 embodied the idea of a building-as-a-city, as it has a floor area of nearly 50,000 square meters and contains larger commercial functions as well as up to 420 various smaller functions (provided in the SOHOs present). In essence, the Shinonome Canal Court project has taken many of the functions that could be found in a typical city block and has condensed them into one building (Figure 3.1).

ii) Urban Area Density

Again, our research revealed that true hybrid buildings thrive in the presence of a surrounding dense urban fabric. Further, the true hybrid building even has the potential to positively impact the surrounding urban fabric. Out of all of the precedents that we closely studied, the Cube Dwellings in Rotterdam best presented a design solution that actually positively contributes to the urban fabric. For example, as demonstrated in Figure 3.2, the project responds to the existing urban situation in the sense that it was constructed over the existing Blaak Road (which contains a great amount of traffic), but the projects also goes further in providing pedestrians a meandering route through the project that connects the adjacent Oudehaven to Rijstuin Road.

Figure 3.1: Shinonome Canal Court Block 1, Source: http://riken-yamamoto.co.jp/?page=ry_proj_detail&id=66&lng=_Eng

Figure 3.2: Cube Dwellings, Source: http://www.bing.com/maps/#Y3A9NTluMDgzMDAwfjQuMzAwMDAwJmx2bD00JnN0eT1yJnE9cm90dGVyZGFt

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

In regard to diversity, the precedent that we studied that displayed the greatest amount of diversity in functions was the Bryghusprojektet by OMA. In terms of diversity and the true hybrid building, it is defined by unexpected (not predictable) functions as well as functions that serve more than a closed community. This is especially the case of the functions present at the Bryghusprojektet. For example, Bryghusprojektet contains dwellings, a restaurant, offices, and the Danish Architectural Centre. In terms of an “unexpected” element, the Danish Architecture Centre is not only an unpredictable function to combine with dwellings, but it also goes beyond serving the closed population within the building and instead serves the greater community of Copenhagen. Thus, there is the possibility of interacting with strangers and not simply just other building residents.

iv) Function Scale

In regard to function scale, our analysis revealed that function scale has been executed the best at the Cube Dwellings and the Bryghusprojektet. As previously discussed, a range in the scale of functions should be present in a true hybrid building. Again, when referring to function scale, 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. At the Cube Dwellings, there is a range in size of functions present, including the larger Academy of Architecture in one of the supercubes. Although there are a high amount of dwellings and small commercial spaces present, they have not been implemented in one large monofunctional block. Rather, at the Cube Dwellings, every individual dwelling is placed adjacent to a small commercial space (Figure 3.3) instead of one monofunctional block containing the thirty-eight dwellings that are present. The pattern in placement of a small commercial function placed between every dwelling present also facilitates the integration of functions as well as the meeting of public and private realms.

Moving to the Bryghusprojektet, there is also a range in scale of functions present, including the large Danish Architecture Centre. The Danish Architecture Centre has been broken up and distributed over every floor present in the building, as opposed to being placed in one monofunctional block on one floor of the building. The same can be said for the dwellings and offices present in the Bryghusprojektet: they have been broken down into smaller functional blocks and distributed over a few floors, rather than being implemented as a single functional block on one floor of the building.

Figure 3.3: Cube Dwellings, Source: http://blog.cheapoair.com/top-5/five-impressive-buildings-around-the-world.aspx
v) Function Integration

To reiterate, the true hybrid contains unexpected functions that are integrated, or mingled. In terms of function integration, we believe that out of the precedents that we studied, function integration was best executed at the Shinonome Canal Court Block 1 project. The Shinonome Canal Court has achieved the integration of functions through visual as well as physical connections. For example, common ‘terraces’ have been provided throughout the project. The common terraces consist of voids that span over two storeys of the building. Four SOHOs (or small office home offices) surround each terrace (Figure 3.4). The façade of each of the SOHOs is highly glazed (Figure 3.5) and results in a strong visual connection with the adjacent semi-private “street” (or corridor) as well as a strong visual connection between other functions (housed in SOHOs) across the void of the terrace.

The integration of functions continues to the level of the dwelling at the Shinonome Canal Court Block 1 project. Again, every dwelling present at the project has been provided with a SOHO that can be utilized to house a private function for the dwell-
ing or a public function, as the architects saw the SOHO as a space that would exist outside of the boundary of the private “home”. The private spaces of the dwelling are separated from the SOHO through two instances of movable partitions. For example, there is a movable set of opaque doors on a fixed track that separates the SOHO from the private bedroom and bathroom (Figure 3.6). There is also a set of semi-transparent movable doors on a flexible track that separates the SOHO from the kitchen and also allows sunlight to penetrate to the SOHO (Figure 3.7).

Essentially, there is quite a permeable barrier between the public SOHO and the private dwelling. The fact that a SOHO has been provided for every dwelling means that a very high level of function integration is possible at the project.

vi) Flexibility

Returning to the quality of flexibility, the true hybrid building holds the potential to accommodate future uses. Our research showed that the quality of flexibility is greatly reliant upon structure, but additional architectural elements can also contribute to flexibility. Flexibility in regard to future changes relies heavily upon a neutral structure that can allow changes to be made horizontally and/or vertically. In terms of providing flexibility vertically, the project that best embodied this quality was the Groothandelsgebouw building in Rotterdam. For example, at the Groothandelsgebouw building, certain portions of the ground floor were designed as double-height spaces, which provide vertical flexibility to add partial or full first storey slabs in the future (Figure 3.8).

In general, all of the projects that we closely reviewed contained neutral structures that provided flexibility horizontally. However, this was not the case regarding the upper storeys at the Solid 18 building. Again, the lower portion of the structure present at Solid 18 is made up of columns and can therefore provide a neutral framework to accommodate future changes. However, for the second through the fourth floors, the structure is made up of load-bearing walls. Therefore, the upper portion of the structure is quite limiting in terms of offering flexibility for future changes. We realize that it is not wrong in general to use load-bearing wall structures in construction, and that the choice was most likely made in the case of Solid 18 to use a load-bearing wall structure out of issues such as cost or noise protection between dwellings. But, we believe that it is important to note that if flexibility is truly desired, this is not the appropriate structure in order to provide freedom for future changes. Horizontal flexibility was also achieved through the implementation of movable elements at the Shinonome Canal Court project. Again, the dwellings contain two sets of movable partitions (one opaque, and one semi-transparent) that provide short-term flexibility. For example, the movable partitions result in a flexible situation where the SOHO can be used publicly during the day (with the partitions

Figure 3.8: Groothandelsgebouw, Source: http://rotterdamabbabelbox.yourbb.nl/viewtopic.php?t=1916
closed) and during the evening the partitions can be pulled back and the SO-HO can be incorporated into the dwelling and used for more private uses.

vii) Vertical Connections (that Promote Integration)

Revisiting the idea that the public realm is not simply isolated to the ground floor in a true hybrid building, strong vertical connections that facilitate way-finding to the various functions located within the building are necessary. Our research has shown that vertical connections in the hybrid building also have the ability to facilitate the integration or separation of the functions present. Out of all of the precedent projects that we studied, the vertical connections were the strongest at the Groothandelsgebouw building as well as the Cube Dwellings. For example, strong vertical connections were achieved at the Groothandelsgebouw building in Rotterdam. For example, the functions present do not have isolated vertical connections, rather the functions share vertical connections. Due to the size of the building, there is one main lobby and several smaller lobbies present (see the situation of the main lobby in Figure 3.9); in all of the lobbies at the Groothandelsgebouw, the elevators and staircases are clearly visible for building visitors upon entry to the building. Furthermore, there is a very strong visual and physical connection of the main lobby to the surrounding urban context through a highly glazed facade. Thus, as a pedestrian, routing from the street to the lobby and then to the vertical connections present is very straightforward.

At the Cube Dwellings, a large staircase adjacent to Rijstuiin Road directs pedestrians upward and connects to the main pedestrian path that leads through the entire development (Figure 3.10); the route then descends down through a series of ramps to end at the Oudehaven (Figure 3.11). The key element is that nearly all of the functions present at the Cube Dwellings can be reached from one central means of vertical access. Due to the fact that nearly all functions present share the same vertical connection, the integration of functions has followed.

Unfortunately, in the case of the Groothandelsgebouw, although the vertical connections are quite strong, function integration has not been achieved at the project.

viii) Integrated Public Gathering Space

Considering the final quality of a true hybrid building from the mental model, (integrated public gathering space) the precedents that best embodied this quality were the Cube Dwellings, Shinonome Canal Court Block 1, and the Bryghusprojektet.
For example, integrated public gathering space has been strongly achieved at the Cube Dwellings. For example, there is a clear and unified elevated pedestrian route that runs through the project. The pedestrian route through the project provides access to the various functions present as well as small areas where the public can informally gather (Figure 3.12). There is an overhang of the cube dwellings themselves over the public gathering spaces present (Figure 3.13); thus, there is a very close relationship established between the private dwelling and the public gathering space below, as dwellers can visually connect with the public realm while being in the privacy of their dwelling. As a result of the overhang of the cube, the public gathering space then feels more enclosed; additionally, glazed panels have been placed on the upper voids between cubes (Figure 3.14) in order to filter out the noise of the city, which further results in an enclosed feeling in the public gathering areas.
At the Shinonome Canal Court project, space for public gathering has been provided. For example, the architects designed a space for gathering that is situated in a unique manner: the space is freely accessible by the public (through several staircases), but it is located one level above the ground (Figure 3.15). Therefore, the space is open to all but seems to have an element of integration due to the fact that it is located one level above ground and the main entrances to the dwelling towers are located in close proximity to the public gathering areas.

Lastly, at the Bryghusprosjektet, a public route has been placed running through the ground floor of the building; the route connects to the surrounding urban fabric (Figure 3.16). Located along the public route, there are spaces for the public to gather informally (Figure 3.17). Further, the Bryghusprosjektet contains several elevated terraces that join various functions present within the building, such as the Danish Architecture Centre to dwellings (Figure 3.18). Not only has public gathering space been integrated in the project through the terraces present, but it is also on these terraces that the functions meet and are integrated.
4) CONCLUSION

I. General Conclusion

In conclusion, our interest in conducting research into hybrid buildings was first sparked by the challenge that was posed to us by the design studio regarding the design of a hybrid building (containing dwellings) that would be representative of the twenty-first century. Upon further research into the surrounding context of the site, we were disappointed to find that although most of the Oostelijke Handelskade has been recently developed, the new buildings often make innovative claims, but seem to offer nothing new that would be representative of the twenty-first century. In fact, the surrounding area is full of plinth typology buildings. We believe that the plinth typology is often simply a scaled-up version of the typical Amsterdam Merchant house. The problem is that what worked well at the scale of a single dwelling that contained commercial space below does not work well when simply scaled-up to the size of a whole building, as the plinth typology often results in the creation of two worlds: a public world at the street level and a private world in the upper portion of the building. Often with the plinth typology, these two worlds exist completely disconnected instead of the plinth acting as a buffer or transition from the public ground floor to private spaces above.

Reflecting on the society of the twenty-first century, it is extremely diverse. As a result, the needs of the twenty-first century society also differ greatly. However, fear of diversity as well as technology have contributed to capsularization in which one may simply live their daily life moving from the capsule of their home to the capsule of their care to the capsule of their job, etc. This extreme cocooning and social isolation are actually quite reminiscent of Dutch pillarization which can be dated back to the middle of the nineteenth century. As a result, as a society we are in need of an architectural typology that can accommodate differing present and future needs – we need an architectural typology that is not an end-all solution but rather a strategy for the future.

Before delving straight into the study of the hybrid, we realized that it was crucial to first thoroughly study the mixed-use typology, as the concept of multiple functions existing in a single building is nothing new.

Our research revealed that mixed-use buildings contain functions that are stacked and do not interact or share spaces. The actual nature of the functions contained in the mixed-use building is that they are geared to serving the closed community that is within the mixed-use building. Further, the mixed-use building
is often isolated within its context and only looks inward instead of outward to the surrounding urban context.

The hybrid, on the other hand, contains diverse and unexpected functions. In terms of defining “unexpected”, our research showed that the unexpected element could also be in terms of functions that share the same space but operate intelligently in opposing times (i.e. AM and PM). The hybrid is absent of stacked functions and instead contains private and public realms that meet. The hybrid is often of a very large scale in the sense that it is often the equivalent of a more sprawling city block that has been condensed into a building. The hybrid also characterized by connection with (as opposed to isolation from) the surrounding urban context; the hybrid elevates itself to the level of urban planning, as it often addresses issues on the urban scale.

Shortly after we began to study the hybrid typology, we realized that examples that are called hybrid buildings are common all over architectural publications today. But, doubts arose due to the fact that upon a quick inspection, many of these so-called “hybrid” buildings were not more than mixed-use buildings.

Thus, the next step in our research was to form a mental model regarding the qualities of a true hybrid building. To reiterate, the mental model for a true hybrid that was driven by our research contains the following qualities:

i. Project scale
ii. Urban area density
iii. Function diversity
iv. Function scale
v. Function integration
vi. Flexibility
vii. Vertical connections
   (that promote integration)

viii. Integrated public gathering space

After the formation of our mental model for a true hybrid building, we performed a quick analysis of fifteen precedents that had either been explicitly referred to as hybrids or had been ahead of their time in a sense and had seemingly met the needs of society over time. From the fifteen projects, we then selected the five most interesting or geographically relevant projects to study closer. The five projects that we closely reviewed were Solid 18, the Groothandelgebouw, the Cube Dwellings, Shinonome Canal Court Block 1, and the Bryghusprojektet. We analyzed these projects diagrammatically using the mental model of the eight qualities of the true hybrid building. We wanted to go a step further and explore our research question, which pertained to examining the architectural elements through which the qualities of the true hybrid were achieved in the precedent projects. In short, our research question aimed at constructing an architectural model from the mental model that we first arrived at through our research.
To close, we will shortly summarize per quality of the mental model for the true hybrid which project(s) best embodied that quality and how (the architectural elements). In regard to project scale, we found that Shinonome Canal Court best embodied the true hybrid’s characteristic of project scale in that it seemed to take the many functions that would typically be found in a sprawling city block and condensed them into one building.

In regard to urban area density, the Cube Dwellings best embodies the true hybrid’s characteristic of urban area density in that the project was integrated into an existing urban context and provided solutions to issues that existed within that existing urban fabric.

In terms of function diversity, the Bryghusprojektet best embodies the true hybrid’s characteristic of function diversity in that it contains dwellings and offices combined with a public and rather unexpected function (the Danish Architecture Centre).

In regard to function scale, the Cube Dwellings and the Bryghusprojektet best embody the true hybrid’s characteristic of function scale. In the case of the Cube Dwellings, one small commercial function was placed in between each dwelling as opposed to the implementation of larger functional blocks (i.e. all 38 dwellings in one functional block). The Danish Architecture Centre really stood out at the Bryghusprojektet due to the fact that it was implemented over all project floors instead of being confined to one or two storeys.

Looking at function integration, the Shinonome Canal Court Block 1 project best embodies the true hybrid’s characteristic of function integration in that the project contains strong visual as well as physical connections. For example, SOHO functions are visually connected across double-height voids in the project. Further, a high degree of physical integration results from the presence of the movable partitions in between the private dwelling and the public SOHO.

Moving to flexibility, the two projects best embody the true hybrid’s characteristic of flexibility are the Groothandelsgebouw and the Shinonome Canal Court Block 1. The Groothandelsgebouw offers a structure with double-height spaces for future vertical changes. The Shinonome Canal Court project offers immediate horizontal flexibility through movable partitions. On the contrary, the load-bearing wall structure at Solid 18 provides little to no flexibility for future horizontal changes.

In regard to vertical connections, the Groothandelsgebouw and the Cube Dwellings best embody the true hybrid’s characteristic of strong vertical connections. In both projects, nearly all of the functions present use the same means of vertical access, which reduce isolation and contributes to the integration of functions.

Lastly, in referring to integrated public gathering space, three projects best embody the true hybrid’s characteristic of integrated public gathering space: the Bryghusprojektet, the Groothandelsgebouw, and the Cube Dwellings. The Bryghusprojektet provides a route through the ground floor that is connected to the urban fabric and contains places to informally gather. The Groothandelsgebouw contains a main lobby with space to informally gather which is strongly visually connected to the surrounding urban context. Further, the pedestrian route that meanders
through the Cube Dwellings contains places to informally gather and it has been enclosed to a certain extent by the overhang of the cubes.

From our research, we believe that a project can still offer valuable insight and interesting approaches even if does not have all eight of the qualities that we argue are present in a true hybrid building. In that case, it simply means that the building is not a hybrid.

In our opinion, there may not actually be any built examples of true “hybrid” buildings. Thus, we find the challenge of the studio especially exciting – we hope to challenge the existing site context on the Oostelijke Handelskade as well as the architectural community in general and design a true hybrid building that meets the diverse needs of our modern society. It is important to end by returning to an earlier issue that was discussed in our research. Our research derived a model for the true hybrid of the twenty-first century, which we can imagine with ever increasing diversity and needs will most likely not be the model that is perfectly fit for the twenty-second century, for example – rather, we believe that the model that we have presented best meets the needs of today’s society and will provide a flexible framework for future needs.
II. Personal Reflection

i) Taylor Wiesner

In reflecting upon our research, I feel as though I have gained a clear understanding regarding exactly what a hybrid building is, its origin, and also why it is such an intriguing and challenging design solution to fit the needs of our diverse modern society. Through our research, we discovered the qualities of a true hybrid building (the mental model) and through the process of creating an architectural model from the mental model, we now have documented actual elements from the precedents that we can reference as an approach to achieve each quality. As a result, I believe that I now have a firm basis for my personal design.

Our research has resulted in a mental model that we can refer back to throughout the design process to ensure that the buildings that we are designing are actually truly hybrid buildings and that they embody each of the eight qualities that we studied — at the moment that our personal designs stray from the mental model, they are no longer true hybrid buildings. Although I am disappointed that our research revealed that there may actually not be any constructed buildings that embody all of the qualities of a true hybrid building (as all of the projects that we studied fell short in some aspect), the research process was nonetheless fascinating. The examination of various precedents was an exciting process, as we realized that in some cases different precedents took unique approaches regarding the implementation of architectural elements, but in the end could achieve the same quality.

In thinking about the architectural model that we extracted from our research, there are several connections that I have made with my personal project design. Below I will name just a few of the connections that I have made thus far in the design process.

There are several elements that I have incorporated into my design that were influenced by our research into the Shinonome Canal Court Block 1 project. Similar to the Shinonome Canal Court project, I have implemented a SOHO into my design that features movable walls and each SOHO is connected to a dwelling. The SOHO not only results in flexibility based upon the diverse desires of each individual user but it also contributes to the integration of functions, as there is no longer a strict boundary between public and private realms if the SOHO is used to house a public function. I have gone one step further than the Shinonome Canal Court SOHO in terms of flexibility, as the SOHO I am proposing also allows for vertical expansion — vertical flexibility was something that I thought was strong in the Groothandelgebouw building and I wanted to also incorporate it into my design.

The presence of the SOHO in my design also results in the absence of one large functional block (related to function scale), as each dwelling is situated adjacent to a SOHO, such was the case at the Shinonome Canal Court project. Further expanding on the topic of function scale, our research revealed that it is not wrong per se for hybrid buildings to contain large functions, but it is highly desirable if the larger functions present are broken up and implemented in smaller functional blocks.

We specifically saw this concept at the Bryghusprojektet: the Danish Architecture Centre that is present is large but it is broken up over seven storeys and integrated with other functions — this is a concept that I incorporated in my own design. For example, the study library that I am proposing is somewhat large in scale, but it is broken up into several smaller functional blocks and is integrated with functions such as dwellings, the hotel, and a restaurant over several storeys in the building. Lastly, I drew upon the strong
vertical connections (the staircases and ramps) that we saw present at the Cube Dwellings; the vertical connections at the Cube Dwellings revealed that vertical connections can contribute to the integration of functions. Thus, in my personal design, I have implemented a strong vertical connection in the form of a red staircase that wraps through the project and is clearly visible to building users. The staircase directs building users to the most public places within the building, but can also be used to access more private functions such as dwellings.

In conclusion, I believe that the mental model for the true hybrid building backed by the architectural model that we have extracted from the study of precedents has given each of us a firm basis to proceed with for our personal designs for our graduation projects.

Taylor Wiesner, 06-02-2014

ii) Robin Gringhuis
The hybrid building is something exceptional. It is a title that is not restricted to any profession or product, and is used by many. Hybrid cars, animals, software, buildings, only to name a few. At the beginning of this research I thought I knew about the hybrid building, it was something that was good, it was improvement, progress. But still, I did not really know what we actually meant when talking about a hybrid building.

But the research provided us with a mental model that gave a clear overview of qualities which would (or should) be present in a hybrid building. In retrospect many of which are often present in the numerous unrealized projects of hybrids that we have encountered during our search; projects that have often failed to leave the drawing table. The reason for this is maybe because the mental model is not yet an architectural model. Based on realized buildings the architectural model gives way to a hands-on approach in designing a hybrid building, something we need(ed) in order to design for the design project parallel to the research we did. I think this research made it clear what a hybrid building actually is. For ourselves, and hopefully for anyone who reads it with us.

There are several elements from the research that I want to incorporate into the building that we have to design on the Eastern Docklands.

Firstly, in the Cube dwellings there is a High density function diversity, as is illustrated in the Function Scale criterion. The dwellings are so intertwined with the commercial spaces that a high level of interaction is possible. But, when working with this project it became clear that there was room for improvement. One of the things that I like to address, or in a way try to improve, is the fact that the unexpected interaction between people could be higher. Maybe because most of the commercial spaces are not related to the dwellings. Or not designed in such a way that they invite people to actively interact with one another, which creates vacancy. In my opinion there is a solid base that works, but it could use some architectural refinement. For instance; more intelligent program placement, smart use of materials, higher degree of flexibility, diversity of dwelling types, etc.

The way I tried to incorporate this in my design project is to try to provide a higher degree of unexpected interaction. I believe this is possible through the use of SOHO spaces, which are all connected to a big atrium space. The SOHO spaces from the Shinonome Canal Court Block I inspired me to implement this, as it generates a high diversity of functions, that are all permanently occupied by its dwellers. Also, the functions within these SOHO’s can be immensely diverse. Some people might use it as an office space, gallery space, to
host workshops, or even because they want a bigger living room. In this way diversity is always guaranteed, without the risk of vacancy, which is key in order to generate vibrancy.

An element that became clear in the research is that the SOHO’s in the Shinonome project are all connected to a not-so public interior corridor. This is because of the entrance system with buzzer, which only facilitates local traffic meant for specific SOHO’s, i.e. an office. With this notion one could almost rule out unexpected interaction, as it is never truly unexpected. This is really an important element which I would like to further investigate and test in my design project. It is not just about creating a corridor for all of the SOHO’s, but about creating a qualitative space that people would visit, and make visitors to stay for a bit. It is all about triggering people to visit more than just what they came for.

How I think this is possible on the given location is through the use of an atrium space. Protected from the harsh wind, rain and pollution I created an enclosed (but accessible) atrium, which is connecting all of the SOHO spaces. This is in line with what we learned from the Cube dwellings. The street that is created there is public and sets a framework for different people at various times of the day. Additionally it shows that it is possible to get people to wander around in a secondary public space, even above ground level. As long as there are functions or activities that attract people. The Groothandelsgebouw does this in a smaller, but similar way. In the lobbies it connects an open staircase with a couple of functions, which mixes various target groups.

As is discussed in the first chapters there is often no good transition from the dwelling scale to the building scale as to the connection to the public realm. With the idea of a SOHO space per dwelling, connected to an atrium space, I would like to address this ‘problem’ of disconnectedness to the surrounding urban fabric. The atrium should generate a vibrant, pleasant environment that invites to stay. It is not about the SOHO’s, atrium, or other functions, it is about the combination of them.

Additionally, in my opinion the Merchant House has shown that the combination of a dwelling with a commercial, storage, etc. function works. But how can we transform this ‘old’ concept in regards to 21st century society and aforementioned hybrid building strategy? How can we create a ‘true’ hybrid building all the way from the building block scale down to the individual dwelling?

All in all, everything we found in the research done, together with the literary foundation I think we have laid a solid foundation. We have seen what works, what is a pre, and what we should be aware of. In my opinion that is exactly what research should provide, in order to further develop the design project. 
Robin Gringhuis, 06-02-2014