EUROPEAN DEBATE
Research:

Brussels
Site analysis
EU
Problem statement
Program
Design strategy & concept design explorations
Sustainability
Mass study
Diagrams & plan references
Impression
Cores & logistics
Structure
Materialization
Facades
Visualization
Figure 2.20: Areal photo of European quarter in 1953 and 2004. Source: Declerck, 2009
LANGUAGE BARRIERS

18 Brussel
>10% Dutch as first language

>90% French as first language
ARCHITECTURE NÉCROGÈNE
AXE ROUGE
RÔDE AS

DU LUNDI
AU VENDREDI
VAN MAANDAG
TOT VRIJDAG
DE VAN
7 A TOT
9.30
DE VAN
13 A TOT
18
Operation facelift begins

The authorities of Brussels-Capital Region, in close partnership with the European Commission and the City of Brussels, are launching a major competition aimed at defining a new urban design for the European Quarter. The area devoted to the competition includes the zone around the rue de la Loi, between the circular ring and the chaussée d’Etterbeek.

The goal of this competition is to define an urban design with a strong symbolic identity, featuring convivial public spaces, giving priority to non-motorised mobility and public transport, and providing buildings of high environmental quality and architectural value.

The project is in keeping with the objectives defined by the recent Master Plan for the European Quarter. It aims to transform the zone into an eco-district combining the first European and international administrative site in the Region, diversified housing as well as cultural and leisure spaces. In addition, it responds to the desire, as expressed jointly by the regional authorities and the European Commission, to reorganize the locations of the Commission on both sides of the Rue de la Loi while encouraging significant functional and social diversity.

This ambitious project of refitting envisages a rationalization and a concentration of the presence of the Commission along the rue de la Loi. It implies that the office area occupied by the Commission in the zone would increase from 170,000 m² to 400,000 m². The idea is to encourage greater density in the zone via an increase in the floor/ground ratio, which rises from an average of 4.5 to 8.0.

Details of the competition

The contracting authority is the Brussels-Capital Ministry’s Administration of Housing and Regional Planning, Studies & Planning Direction administration. It is organizing the competition, will make its decisions on the basis of opinions provided by an advisory committee [which includes representatives of the Region (2), the City of Brussels (2) and the European Commission (2), as well as international experts (7) selected from the 27 EU Member States], and will monitor and ensure that the mission is completed. Under the terms of this competition, the results will be made public.

---

1 The precise area of the zone can be consulted in the notice of competition or is available from the office of the Brussels-Capital Region

2 This Master Plan will be approved by the regional authorities in the course of April.

---

The Commission occupies an area of 865,000 m² in Brussels, with 61 buildings spread across the city. Its declared expenditure on buildings for 2007 is €207.49 million, mainly comprising the purchase and rent of buildings.

Yesterday's proposal from the Commission and Brussels Capital-Region incorporates 400,000 m² of Commission property on each side of the Rue de la Loi – thus involving the construction of some 220,000 m² of new office space there - as well as 180,000 m² set aside for housing throughout the European quarter, and in particular along Rue Lalaing, Rue Orban and Rue Guimard.

Conscious of criticism in the past concerning Commission buildings policy – and particularly its Berlaymont centrepiece – Kallas and Picqué were keen to emphasise that yesterday's plan offers "better value for money". Vacated by staff in 1991, the Commission’s Berlaymont headquarters finally reopened in 2004 after a thirteen-...
OMA

LOSING COMPETITION ENTRIES

Xaveer De Geyter Architects
The Open Block

Portzamparc uses this typology in many urban designs. He claims both Hausmann’s closed urban block (the typology currently used in the neighborhood) as well as the modernist urban approach of streetless urban scenes do not perform well for urban life. He combines the two urban typologies into his open block typology.

Source: www.de-architectura.com
In the Portzamparc masterplan, the closed building blocks along the Rue de la Loi are opened up to create new public space, while new tall volumes are added in between the existing building masses to create more volume for offices and apartments. The size allowance of the new volumes is controlled by a strict zoning law, explained further on the next pages. The masterplan incorporates the new headquarter of the EC as a podium topped by three towers in square form. The podium houses the conference centre.
Setback guidelines according to masterplan
BUT:

The masterplan mentions the building’s plot as an exception to the guidelines with unlimited building height and more unrestricted setbacks.
NATO - reaction on soviet union, countries form a front against the power in the east

ECSC - European Coal and Steel Community, joined markets for the main resources of war - goal: peace between european countries, Germany & France in particular

EEC - European economic community created an open market for european countries
Euratom - European atomic energy community founded to create a specialized market for atomic energy, make energy for the member countries and sell the surplus of energy

The Community expands to nine member states and develops its common policies

The first direct elections to the European Parliament

The first Mediterranean enlargement
Berlin wall down

Completion of the single market

The Treaty of Maastricht establishes the EUROPEAN UNION

The EU expands to 15 members

€ EURO notes and coins are introduced

2004: Ten more countries join the Union

Multiple countries reject Maastricht Treaty

Several countries decide not to join the euro

Ireland rejects treaty of Nice

Romano Prodi (EC president '99-'04)

It is clear that in the news everyday, let's say over Iraq, Europe is divided and so the image that we project is an image of division, but I think that it cannot be a different image. We cannot expect to be perceived as united without a common foreign policy.
It is clear that in the news everyday, let's say over Iraq, Europe is divided and so the image that we project is an image of division, but I think that it cannot be a different image. We cannot expect to be perceived as united without a common foreign policy.
The Maastricht Treaty creates the European Union, which consists of three pillars: the European Communities, common foreign and security policy and police and judicial cooperation in criminal matters.

The first pillar consists of the European Community, the European Coal and Steel Community (ECSC) and Euratom and concerns the domains in which the Member States share their sovereignty via the Community institutions. The process known as the Community method applies in this connection, i.e. a proposal by the European Commission, its adoption by the Council and the European Parliament and the monitoring of compliance with Community law by the Court of Justice.

The second pillar establishes common foreign and security policy (CFSP), enshrined in Title V of the Treaty on European Union. This replaces the provisions of the Single
European Act and allows Member States to take joint action in the field of foreign policy. This pillar involves an intergovernmental decision-making process which largely relies on unanimity. The Commission and Parliament play a modest role and the Court of Justice has no say in this area.

The third pillar concerns cooperation in the field of justice and home affairs (JHA), provided for in Title VI of the Treaty on European Union. The Union is expected to undertake joint action so as to offer European citizens a high level of protection in the area of freedom, security and justice. The decision-making process is also intergovernmental.

Source: Europa.EU - legislation summaries
Enfranchised people (it applies the suffrage of the responsible countries)

1: Elections are every 5 years. The right to vote may be different depending on the country
2: State-level, consensus on varying composition depending on the policy area
   Each country is represented by one member per department
3: Each country is represented by one member
4: The European Central Bank is composed of representatives of the national central banks
   Its board is elected by the European Council on the proposal of the Council of Ministers
Commissioners
27 ±10
±4 per Department

President

Head of DG

Head of Department
+/- 10

Subdepartments
+/- 4 per Department

27 DG’s

Berlaymont Building

Plus staff, press etc

Directorates general
1+ Building per DG

A B C

meeting rooms
small restaurants

The DG’s share:

27 DG’s

27 DG’s

Meeting rooms
Restaurant

Coffee
Cafeteria
The vertical gated community
A critique on the skyscraper typology

Joost Barendregt

As a student of the TALL graduation lab in the Chair of materialization, I’m concerned with the impact of large buildings on the urban context. While being an architect is something else from being an urbanist, also the architect takes part in the shared responsibility to make the city livable. The design of a building and the way it deals with the relation to the city has a big impact on the inhabitants and users of that city. The typology of the monofunctional skyscraper is over a century old and has since been adjusted in form and efficiency, but not in typology.

In building mass, a skyscraper can be compared to a complete neighborhood, and although it does not have the same spatial footprint, it does have the same amount of floor area and inhabitants or users. However, the building is completely inaccessible for outsiders; it has a lot of resemblances to the gated community. That in the very dense urban city center. Would anyone allow a company to build an enormous closed company campus or giant gated community for housing in the most central area of a city like new york or, in the case of my design question, Brussels? No. In the democratic western world, a city’s inhabitants would not allow this. In societies with more totalitarian governments or extreme liberal spatial planning, downtown gated areas are a more common phenomenon.

In my opinion, the typical skyscraper does not belong in a democratic city. City’s urban planning committees should not allow for monofunctional skyscrapers to be built in the city center’s context, but should force developers to make the tall buildings more in context with the city and their inhabitants.

II. Counterargument

When Sullivan introduced the skyscraper typology with his famous: ‘That form ever follows function. This is the law.’, he started a design movement that glorified the monofunctionality of the tall office building.

In ‘delirious New York’, Koolhaas describes the pride that the developers had over the ‘well-planned design and automatic architecture’ of the empire state building. The building is seen as the first great example of the contemporary skyscraper. One of the results of neoliberalism is the power that
corporations gained over the last century. The planning and design of city districts is not just determined by governments and urbanists, but big corporations also have a lot of power over the cities nowadays.

The typology that Sullivan started led to the construction of an enormous amount of skyscrapers that over time became more efficient. Koolhaas describes the machine-like architecture of the empire state building as a product of process, as sheer envelope. 'It's ground floor is all elevator; there is no place left between the shafts for metaphor.'

While there have been attempts by architects and local governments to integrate the skyscraper in the city or vice versa, the results are mere incidental high rise alternatives. The skyscraper is a result from corporate power and is designed from the owner's perspective, not from the perspective of society.

III. Argument

Segregation
Aalbers probably describes the basics of a gated community best: 'A gated community is (...) a community surrounded by a fence and provided by a gate for entrance,' and the impact it has on the city is also caused by these two factors. In the skyscraper typology, the gate is the one most visible of the two, because of the verticality of the building mass, the fence is not experienced as strong as in a horizontal gated community. On social level, the gate factor is the one with the most impact. The social distances between inside and outside grow, the gate becomes a metaphorical border between the private and the public, between the secured, good inside and the wild, bad outside.

Because only a certain group of people is allowed inside the skyscraper, segregation occurs. Segregation often leads to social disintegration en social conflicts. Building a skyscraper could be seen as the opposite of gentrification, where the skyscraper has such a scale that it turns life in the neighborhood upside down.

Permeability
The fenced off character of the skyscraper is not something that pops up at street level. It’s not a horizontal fence like in the traditional gated community. However, a skyscraper is an enormous building mass that cannot be entered from anywhere except the secured gate, by anyone except a selected group of people.

While the urban footprint of a skyscraper generally does not exceed the size of a regular urban block, there is a huge urban mass that cannot be accessed by a city’s inhabitants. Permeability is the grade of the perception of openness, and while the ground floor of a skyscraper might feel like a
semipublic space, the enormous mass is seen from a long distance as non-public space.
Contemporary concepts of horizontal gated communities, like IKEA’s strand east development are gated and fenced in services like security and behaviour, but not in a physical way. The Skyscraper only gives the impression of being permeable.

Homogeneity
While there might be different functions around the site of a skyscraper, the complete building consists of only one function: office. Monofunctionality has a very bad influence on the livability of a neighborhood. Jane Jacobs wrote about the need for diversity in urban area’s. Her books can be seen as manifests for mixed functionality. Without a mix of functionality, there is more traveling time, more peak and slow hours, and less activity and happiness in the public space. While creating different functionality around the plot of the building could compensate for the monofunctionality of a skyscraper, this would lead to another homogenous area, where there is only peak activity, and the catalyst is external.

While the typical skyscraper has a lot of resemblances with the gated community, the vertical one is very well accepted by the public. However, it does create segregation within society, creating a strong, gated, border between the private and the public. This does lead to greater social distances. Also, with the introduction of a skyscraper, an enormous impermeable mass is added to a city. The mass is visible from a long distance, but is not publicly accessible. The homogenic program of the skyscraper does lead to reduces public activity in the urban space, and also forces surrounding areas to become more homogenous.

This study critiques the skyscraper typology, however during my graduation I’m designing a high-rise building myself. The arguments in this paper will be reflected in the design that will be desegregating, permeable and polygenic.

Referenced literature:
Jacobs, Jane, Life and death of great American cities (Dutch


Smets, Peer, Gated ‘communities’: their lifestyle versus urban governance, Paper, Amsterdam 2005

Sullivan, Louis, ‘The Tall Office Building Artistically Considered’ (Dutch translation), Dat is Architectuur, Rotterdam 2004
VERTICAL METRO CAPACITY:

4-CAR SUBWAY EVERY 3 MIN
METRO CAPACITY: WAY EVERY 3MIN
OTIS SAFETY ELEVATOR
NEW YORK, 1854
“Pure product of process, Empire State can have no content. The building is sheer envelope. [...] Its ground floor place left between
of process, Empire State
content. The building is sheer

It is all elevator; there is no
seen the shafts for metaphor.”

Koolhaas, Delirious New York 1978
(Chapter 6:Verse 11)
URBAN
DYSTOPIA
10 POINTS FOR GOOD ARCHITECTURE

Add to the context
A building is always part of greater public systems. People own the streets and urban views, have social networks in their urban situation and have emotional bounds with places. The city belongs to their inhabitants. Any change to the city should be an addition, that makes the city a better place.

Space for metaphor
A building is more than a machine, optimized for functionality and efficiency. The poetics of space, form and material are the difference between building and architecture. Architecture is not something that can be added in the end of the process, but is a starting point and backbone for any design process.

User central
The user of a building should be the first to consider for any decision in the design process. Installations should be designed to create the best climate for the user, transportation should be designed so it suits the user’s needs best. When buildings lose their useability, they get abandoned. That’s why user-centric design is the most long lasting and therefore the most sustainable.

As simple as possible
Always reflect the design and see what’s the essential in it. Focus on the essence and leave out the unnecessary. In Einstein’s words: ‘Make everything as simple as possible, but not any simpler’. When the building is reduced to the essential, the architect’s ideas become clear, and the building gets understandable.

Survival of the fittest
For any problem, find all relevant solutions for a problem, and only go with the best solution. Don’t settle with the safe choices, written by conventions. Find innovative solutions that look for the boundaries of the possible.
Design for eternity
Any building should be designed in a way it eliminates waste. Materials and energy should be saved during construction-, use- and demolishing phase. For all phases this should be considered from the start of the design process already. A long life span of a building reduces the impact of construction and demolishing, so buildings should be designed in an adaptable way, in a high quality.

Journey
The routing through a building should be a natural journey that starts in the public and ends in the most private part of the building. This route guides the user through the building. During the journey, there can be welcoming or obtrusive elements when needed, creating semi-public or semi-private zones.

Detail everything
Every element of a building should be detailed and considered in relation to the overall design. Everything should be detailed in coherence, no detail can be left to accident.

Be honest
Design problems should be solved, not hidden. A building’s externals should be related to space behind, and should not create an unrelated form or appearance. Material should be used in a functional way, structurally or as cladding. When it becomes a wallpaper, it loses its purpose else than decoration.

Elegance
Buildings should be designed from an aesthetic point of view. People feel better in beautiful environments. Only integrated designs can be beautiful.
Former international settlements
Shanghai, China
Zhaofuli
Shikumen Neigborhood, 1914, Shanghai
Shikumen Neigborhood, 1914, Shanghai
From:
The Shanghai Alleyway House: A Threatened Typology
Bracken, G, *Delft 2012*
In the current crisis, a climate distrust arose. The liberation from this negative view starts with the realization that Europe is not a foreign power, but our own community in this part of the world. Europe, that is us.

HM Queen Beatrix, Christmas speech 2012
EU’s Europe
I WANT MY MONEY BACK!
2000 Denmark against Euro

2003 Sweden against Euro

2005 Netherlands against European Constitution

2005 France against European Constitution
Building & City

The European Quarter is a neighborhood with very monofunctional programme. Most buildings in the area house the European Commission, European Consul or European Parliament, or companies related to these. The new masterplan for the Rue de la Loi contains more mixed functions, it will bring more housing and commercial functions to the street. By this mix and the activated plint, the Rue de la Loi will be used more as a pedestrian’s street.

A skyscraper’s connection to the city is usually not much stronger than that of a low-rise building. The intersection with the street is the same, just the the elevators have more numbers to choose from.

Some high-rise buildings have a bar or a viewing platform at the roof top, but the rest of the building is not very much connected to the public. In the case of the European commission it’s very desirable to merge the programme with the citizens. Especially for internal (elevated) public spaces, precedents studies are needed to make sure the public space will have urban quailty.

Public & Private

Because of the created interior private space, there’s the need for vertical connectivity. Interior Public space should be connected to the outside public space to be part of the continuing urban structure.

Public spaces inside the building are separating the private towers into smaller segments.

How can the public and private area’s be connected to eachother in a more gradual way?

How can the interior public space be more then just a part of the tower?
EU & the Europeans

Since its founding, the European Union got a lot of critique on the gap between the political ‘elite’ layer and the inhabitants of the EU states. The union is an invisible organisation, with a lot of faceless office buildings and some icons that are mainly unaccessible for uninvited guests.

The European neighborhood houses a lot of International embassy buildings, as well as many corporate lobby buildings. However, the people do not have a place to lobby. They have no reason to be in the neighborhood. The new building could offer this by creating a debate between the European Union and the European citizen.

Both the movement by the power and the people can be gathered in streams that then can be confronted with eachother. In this way debate or discussion can be forced.

Building design force within different scales?

Coworker & Coworker

The current EC offices have a very functional typology, with small office rooms along long hallways. This makes the offices very private, but reduces the open communication. Workers can choose to close their door to separate themselves from the rest of the office.

The open office concept however, has no privacy at all. It’s a panopticon where workers are always visible to their colleagues. It’s easy to communicate with colleagues, but the ability to concentrate is limited, as well as the possibility to have a private conversation.

A form should be found that both offers separation and communication. This might be a hybrid solution or a flexible, adjustable solution that can be adjusted to an employee’s needs.
Horizontal neighborhood

Skyscraper

Vertical Neighborhood
HOW TO DESIGN A SKYSCRAPER?

EFFICIENT CORE + LATERAL STABILITY
SKYSCRAPER?

FLOOR SPACE

CONSTRUCTABLE FACADE
HOW NOT TO DESIG

MONOFUNCTIONAL + LACK OF IDENTITY
HOW NOT TO DESIGN A SKYSCRAPER?

NO URBAN CONNECTION + NO SPACE FOR SOCIAL STRUCTURES
IS IT GREEN?
Sustainability is not about creating a substitute for nature. It’s making a great building that can stand time without creating waste.
ENERGY

Reducing the energy footprint by good design of facade & climate systems. This reduces the demand for energy without losing comfort.

The energy needed will be generated by location-specific renewable energy plants in a european network. e.g. solar farm in the mediterranean and wind farms in the north sea. The choice is made to not generate energy on the building itself. It would be a very inefficient option compared to the network-solution. Also, the building would be dependent on the network anyway, because of the non-consistent supply of local power production.

By using a network for energy

WASTE

Waste is created (and should be reduced) in three phases of a building

- Construction
  In the design, as little material should be used as possible. Optimization of the building for the amount of material use is important. Also the energy, both embodied and used on site, is a waste product that is not part of the physical building.

- Use
  During the use-phase, the building exports waste in form of garbage, sewage and air. Streams can be reduced and reused.

- Demolishing
  This phase should be delayed as long as possible, and the design should be flexible enough to do so. During this, it should be possible to harvest materials from the demolition waste. Also this can be incorporated in the design process.
The indoor climate should be designed around the user. This means that the air should be fresh everywhere in the building and that the user should feel in control about the climate (psychological aspect). Daylight enhances the well-being of the users of the building. Therefore, the building should be designed in a way that enough daylight penetrates the facade.

Water is transported all the way up a tower, transformed in waste water and transported down the tower again. Not only the production of the water consumes energy and resources, but also the transportation through the building is wasted energy. A smart system can reduce the demand for drinking water. Rain water can also be used as grey water in this system.
Sustainability

+

ENERGY
operational energy and carbon dioxide (CO2)

ECOLOGY:
ecological value, conservation and enhancement of the site

BREEAM
MANAGEMENT:
management policy, commissioning, site management and procurement

POLLUTION:
External air and water pollution

LAND USE:
Type of site and building footprint
360°
NEW PROGRAM
CONFERENCE CENTER

METRO
FIRE - 2 CARS - 2 GROUPS - 2,5 m/s
SERVICE - 3 CARS - 1 GROUP - 2,5 m/s
OFFICE - 16 CARS - 2 GROUPS - 2,5 m/s
PARKING - 3 CARS - 1 GROUP - 2,5 m/s
OFFICE - 9 CARS - 1 GROUP - 2,5 m/s
OFFICE SHUTTLE - 4 CARS - 1 GROUP - 12 m/s
FIRE - 2 CARS - 2 GROUPS - 2,5 m/s
SERVICE - 3 CARS - 1 GROUP - 2,5 m/s
OFFICE (TWIN SYSTEM) - 12 CARS - 2 GROUPS - 2,5 m/s
PARKING - 3 CARS - 1 GROUP - 2,5 m/s
OFFICE SHUTTLE - 3 CARS - 1 GROUP - 12 m/s
OFFICE - 12 CARS - 2 GROUPS - 2,5 m/s
PUBLIC SHUTTLE (VERTICAL METRO) - 9 CARS - 1 GROUP - 12 m/s
HOTEL SERVICE - 2 CARS - 1 GROUP - 2,5 m/s
HOTEL ENTRANCE - 1 CAR - 1 GROUP - 2,5 m/s
HOTEL ENTRANCE - 1 CAR - 1 GROUP - 2,5 m/s
HOTEL - 5 CARS - 1 GROUP - 2,5 m/s
APARTMENT SERVICE - 2 CARS - 1 GROUP - 2,5 m/s
PARKING - 4 CARS - 1 GROUP - 2,5 m/s
APARTMENT SHUTTLE - 2 CARS - 1 GROUP - 12 m/s
APARTMENTS - 5 CARS - 1 GROUP - 2,5 m/s
OFFICE LOBBY
OFFICE LOBBY
STOP ONLY ACCESSIBLE AT NIGHT (CLUB ENTRANCE)
APARTMENT LOBBY
**Floor Heights:**
- 4200
- 3300

**Grid Size:** 7200mm

**Max Size Cantilever:** 2 grid segments

**Continuous Tower:** 6x6 grid segments

**Average Daylight Ratio:**
- 71.8%

**Average Floorplan Efficiency:**
- 67.2%

**Daylight Efficiency (h=4000):**
- 84.7%

**Daylight Efficiency (h=3900):**
- 80.2%

**Daylight Efficiency (h=3800):**
- 78.1%

**Daylight Efficiency (h=3700):**
- 78.0%

**Daylight Efficiency (h=3600):**
- 77.7%

**Daylight Efficiency (h=3500):**
- 77.2%

**Daylight Efficiency (h=3400):**
- 76.3%

**Daylight Efficiency (h=3300):**
- 76.0%

**Daylight Efficiency (h=3200):**
- 75.7%

**Daylight Efficiency (h=3100):**
- 75.2%

**Daylight Efficiency (h=3000):**
- 74.6%

**Daylight Efficiency (h=2900):**
- 74.0%

**Daylight Efficiency (h=2800):**
- 73.3%

**Daylight Efficiency (h=2700):**
- 72.6%

**Daylight Efficiency (h=2600):**
- 71.9%

**Daylight Efficiency (h=2500):**
- 71.2%

**Daylight Efficiency (h=2400):**
- 70.5%

**Daylight Efficiency (h=2300):**
- 69.8%

**Daylight Efficiency (h=2200):**
- 69.1%

**Daylight Efficiency (h=2100):**
- 68.4%

**Daylight Efficiency (h=2000):**
- 67.7%

**Daylight Efficiency (h=1900):**
- 67.0%

**Daylight Efficiency (h=1800):**
- 66.3%

**Daylight Efficiency (h=1700):**
- 65.6%

**Daylight Efficiency (h=1600):**
- 64.9%

**Daylight Efficiency (h=1500):**
- 64.2%

**Daylight Efficiency (h=1400):**
- 63.5%

**Daylight Efficiency (h=1300):**
- 62.8%

**Daylight Efficiency (h=1200):**
- 62.1%

**Daylight Efficiency (h=1100):**
- 61.4%

**Daylight Efficiency (h=1000):**
- 60.7%

**Daylight Efficiency (h=900):**
- 60.0%

**Daylight Efficiency (h=800):**
- 59.3%

**Daylight Efficiency (h=700):**
- 58.6%

**Daylight Efficiency (h=600):**
- 57.9%

**Daylight Efficiency (h=500):**
- 57.2%

**Daylight Efficiency (h=400):**
- 56.5%

**Daylight Efficiency (h=300):**
- 55.8%

**Daylight Efficiency (h=200):**
- 55.1%

**Daylight Efficiency (h=100):**
- 54.4%

**Daylight Efficiency (h=0):**
- 53.7%
Seagram Building, New York
Ludwig Mies van der Rohe
Seagram building, New York

Ludwig Mies van der Rohe
SUSTAINABILITY

SOLAR HEAT

WATER
Because the shifted tower volumes, the cantilevered masses have to be compensated for in the structure. This is achieved by using a ‘backbone’ in the form of a rectangular tube megastructure. The 2m diameter megacolumns deal with the windforces, a triangle pattern in the facade creates stiff slab-facades and connects the cantilevered volumes to the backbone.
Section through street 1:500

Structural elevation 1:500

Typical facade section 1:200

Typical floor plan 1:500
In an attempt to make the vertical tower elements more elegant, and reducing the impact the structure has on the image of the building, a new structural principle was introduced. The complete facade is now used for stability, and the core now also takes part in the stabilization of the building. In the elevated streets, forces are distributed between the shifted tubes.
During the P2 presentation the remark was made that diagonal structure was too much a decorative element and the stability issues in the building could be much easier dealt with using a steel frame structure that is connected to the stable core. The columns in the facade function as tension or compression elements for creating the lateral stability. To achieve this, they are connected by outriggers on two or three levels in the building (e.g. service floors).
Concept D: Vierendeel Structure
post- P2 presentation

This system is similar to the one used in the 'stadskantoor' in Rotterdam. Because all perpendicular steel connections are welded on site with a specific technique, the structure is lateral stable without any diagonal bracing. This makes it possible to create a facade that is as simple as possible, where the structure can be hidden in the detailing of the facade framing.