

LOG BOOK

**MUSEUM**

### Educational Institution or Theme Park?

Not only in those countries that only paid relatively little attention to museums in the years of reconstruction following the Second World War, erecting only limited quantities of new museum buildings, but also more or less worldwide, in the eyes of the public at the time, museums were considered to be boring or elite and were poorly visited. The accusation that the museums had cut themselves off from their own present time was coupled with the opposing assessments of museums as either temples to art or prisons thereof, but in both cases, the accusations targeted their exclusivity. The demand that was already being made by forward-looking museum experts at the end of the fifties, to transform museums and in particular, museums of modern art, into trading centres for new ideas and centres for the exchange of ideas<sup>44</sup> a decade later met the objectives aspired to by the protest movement triggered off by the student revolts beginning in 1968, which sought to transform the ivory towers of scholarly work into places of social discourse and to convert the museums from temples of the muses into places of learning.<sup>45</sup> The result is well known: the "museum for tomorrow's society,"<sup>46</sup> without which museum pedagogy is unimaginable,<sup>47</sup> and whose future in 1970 generated reflections oscillating between scepticism and optimism,<sup>48</sup> experienced a 'Gründerzeit'<sup>49</sup> whose end is not in view, despite disappearing financial resources. The paucity of public funds led to financing shifting into the private sphere in Europe, following the American model. This entails both opportunity and risk at one and the same time, allowing museums more autonomy and flexibility, but forcing them to submit to the laws of commercial efficiency. In the context of the tourist industry, it threatens to make them into art fairs<sup>50</sup> which will be judged on the extent to which they turn out to be successful in drawing in the public, and, moreover, this success is evaluated as evidence of the democratisation of culture. The public role of the museum is thus changing, and not insignificantly so. In the end, it raises the question as to whether the museum is a "theme park or [an] educational institution."<sup>51</sup>

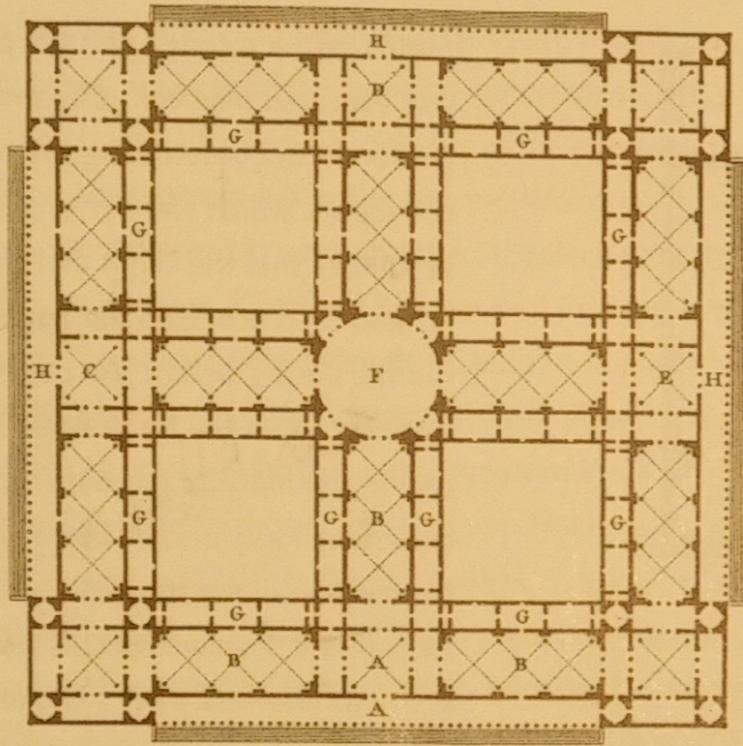
### The Museum in Media Society: Responsibilities and Opportunities

Even if today people sometimes flirt with the idea of throwing the museum into question<sup>52</sup> following the tradition of avant-garde front-liners like the Futurists,<sup>53</sup> as institutions, they are more successful than ever before. Never before have more people visited museums,<sup>54</sup> and never before have so many museum buildings been erected in such a short time. Never before has there been such a variety of museums; they range from museums of art and architecture to science and technology museums, from museums of natural history of all sorts to the most varied of historical, cultural history or ethnological museums. The "museumization" of our cultural environment,<sup>55</sup> which has reached an unprecedented extent in the meantime,<sup>56</sup> carries with it the danger of using history to compensate for the rapid developments of the present time and in so doing, obstructing the view of our own time.<sup>57</sup> On the other hand, that is precisely where the museum's opportunity lies, as an "island in time" to be a place for those things "that remain after time's flight in pursuit of progress, in which they are not replaced by something new."<sup>58</sup> As a living form of memory, the museum should not simply content itself with just archiving these things, however; it must instead address the question as to how the experiences contained in them can be made useable for us, and even more, how the present can be measured against that which is timeless. In these formulations of the museum's functions, two different conceptions of the museum can be detected: a more recent one, currently in vogue, in which

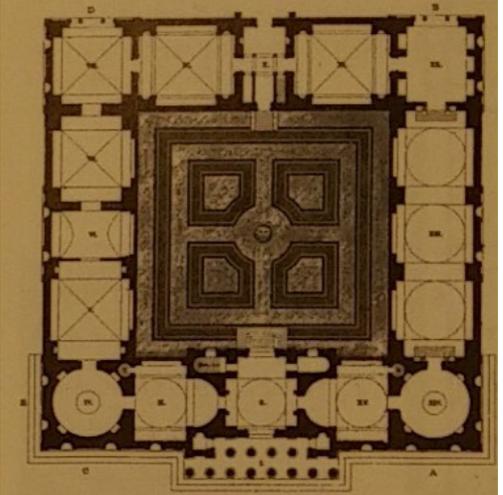
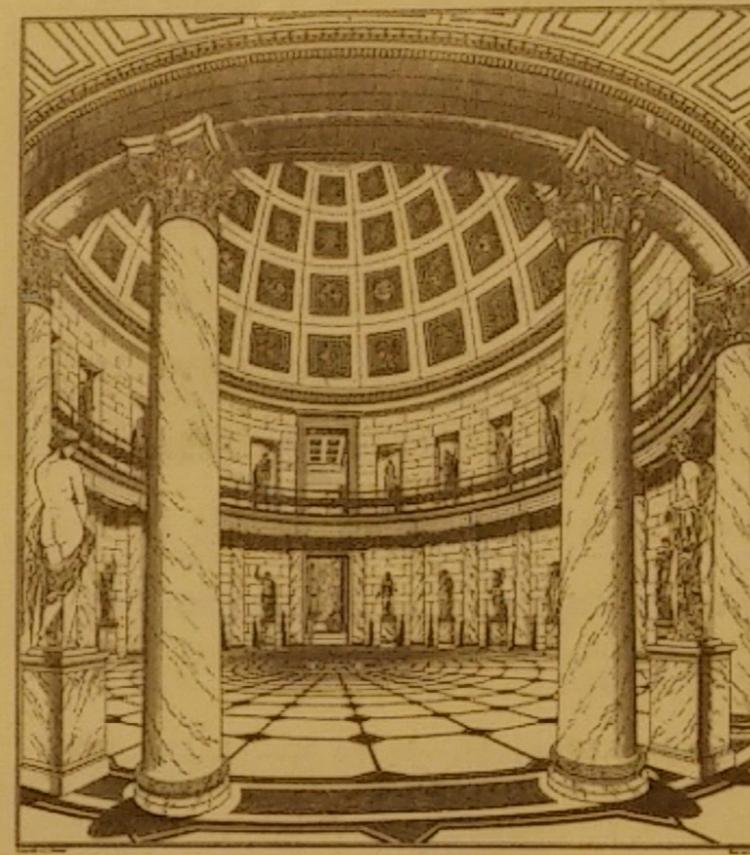
## AS AN INSTITUTION



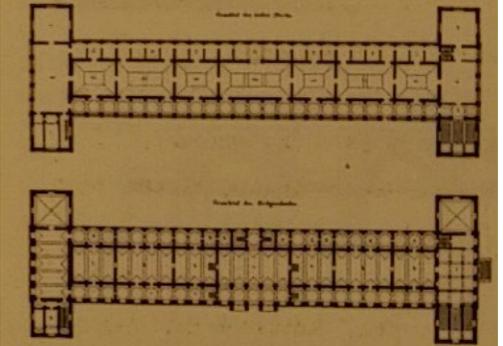
- A. Porche et Vestibule.
- B. Salles d'exposition annuelles
- C. Salles de Peinture.
- D. Salles de Sculpture.



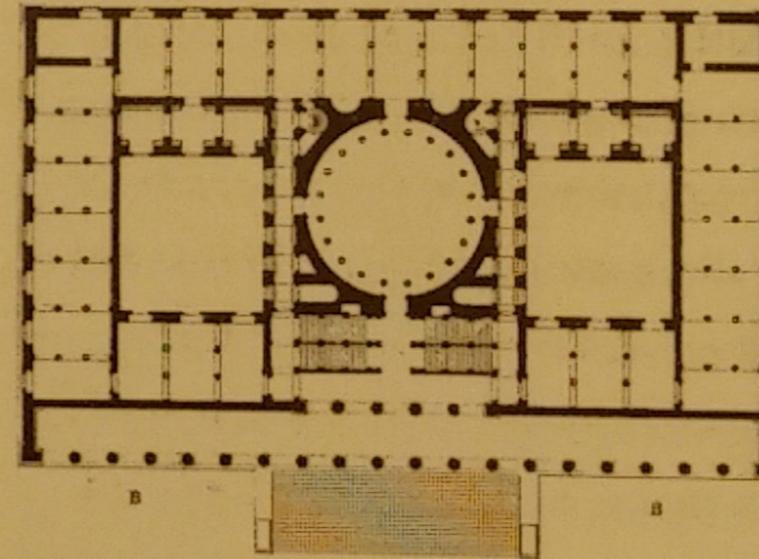
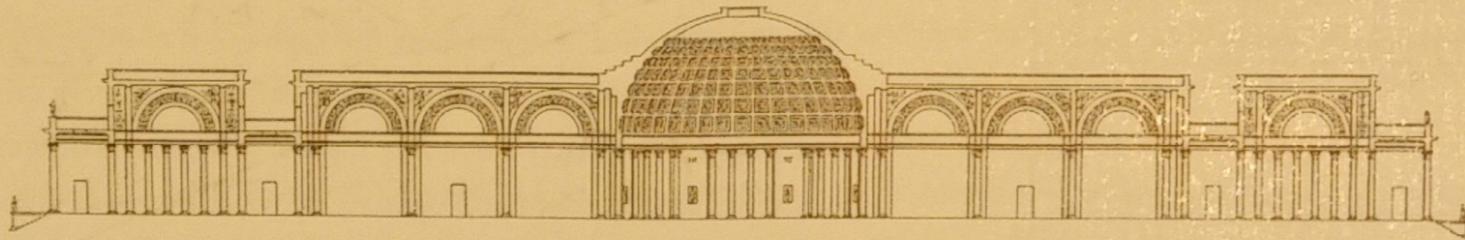
- E. Salles d'Architecture.
- F. Salle de Reunion
- G. Cabinets des Artistes.
- H. Entrées particulieres.



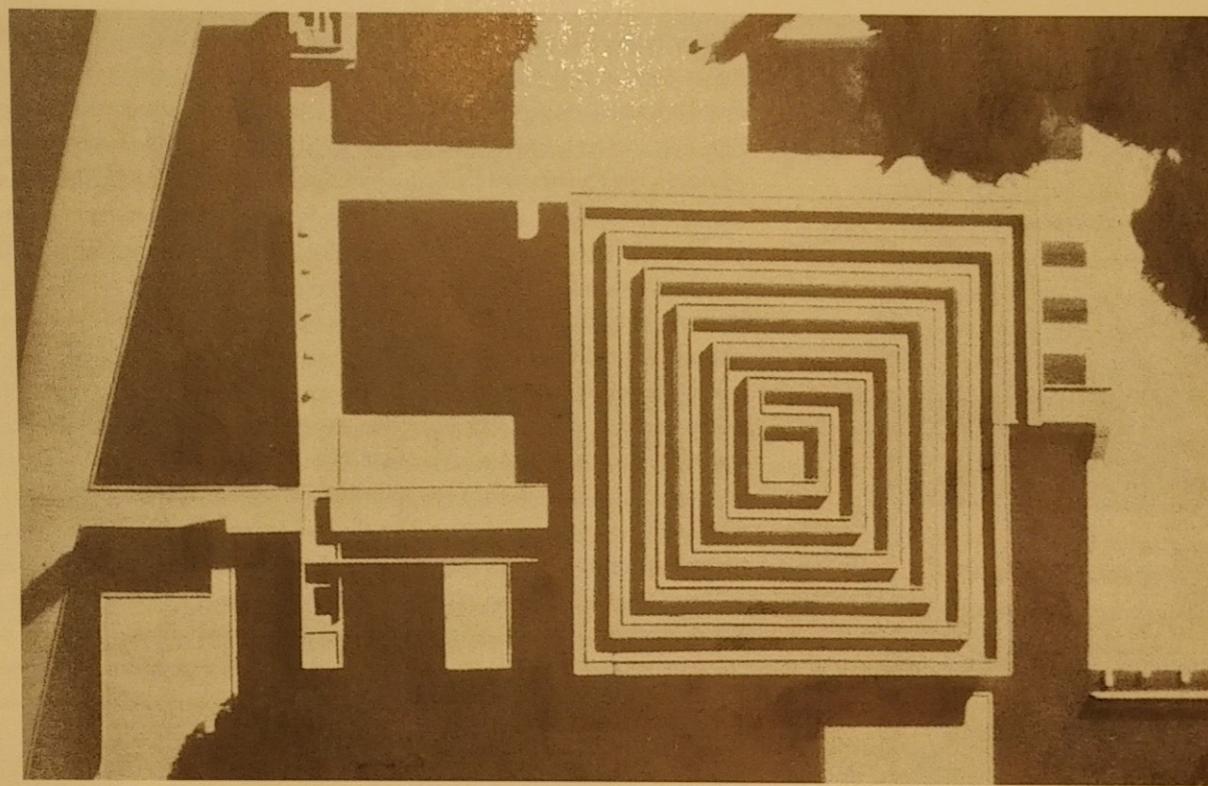
32 Munich, Glyptothek, ground plan  
(Leo von Klenze, 1816-30)



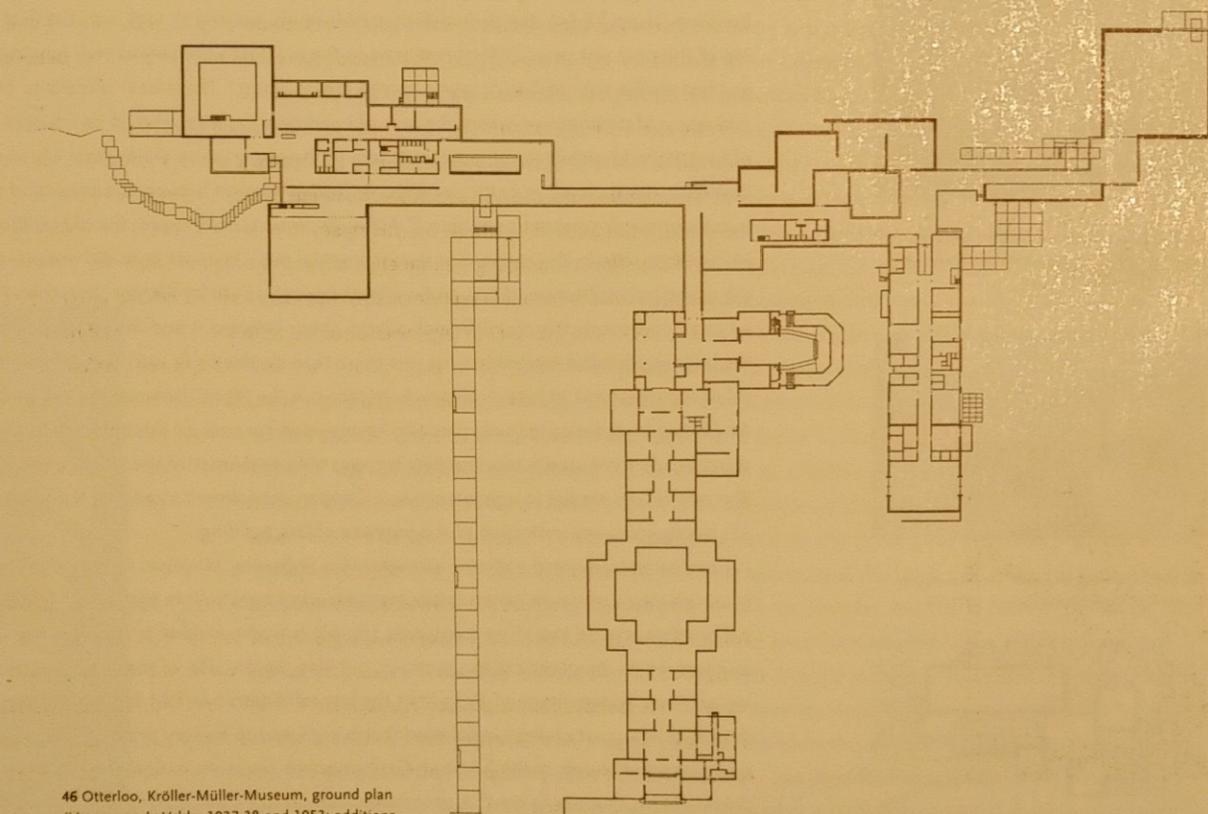
33 Munich, Alte Pinakothek, ground plan  
(Leo von Klenze, 1822-36)



34 (bottom) + 35 (top) Berlin, Altes Museum  
(Karl Friedrich Schinkel, 1823-30), ground floor plan | rotunda; from: K.F. Schinkel: Sammlung architektonischer Entwürfe, 1831

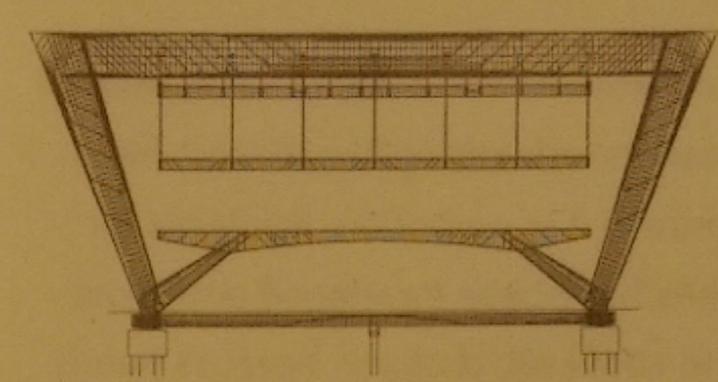


111 Le Corbusier: Design for a "Musée à croissance illimitée," 1931

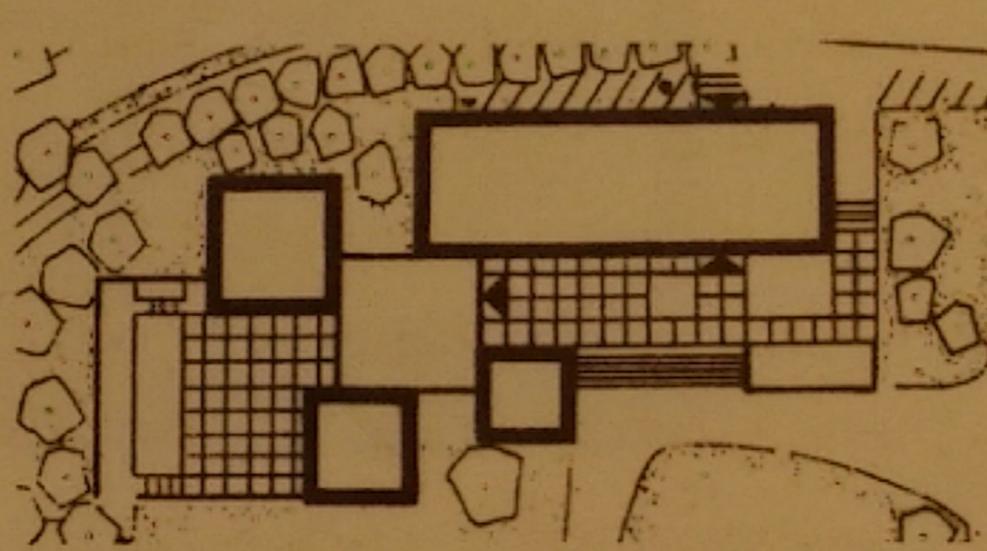


46 Otterloo, Kröller-Müller-Museum, ground plan (Henry van de Velde, 1937-38 and 1953; additions by W.G. Quist 1972 and 1975-77)

**BUILDING TYPES**  
ARCHITECTURE & EXHIBIT.  
STYLISTIC COINCIDENCE VS NEUTRALITY



52 Rio de Janeiro, Museum of Modern Art, section through the gallery wing (Affonso Eduardo Reidy, 1954)



51 Pforzheim, Reuchlinhaus, site plan (Manfred Lehmbruck, 1957-61)



53 London, Crystal Palace (Joseph Paxton, 1850-51)



54 Norwich, Sainsbury Centre for the Visual Arts, University of East Anglia (Norman Foster, 1974-77)





**FORM & FUNCTION**  
INSIDE & OUTSIDE

**FORM & FUNCTION**  
CIRCULATION

**FORM & FUNCTION**  
SPATIAL EXPERIENCE & OBJECT PRESENTA-  
TION

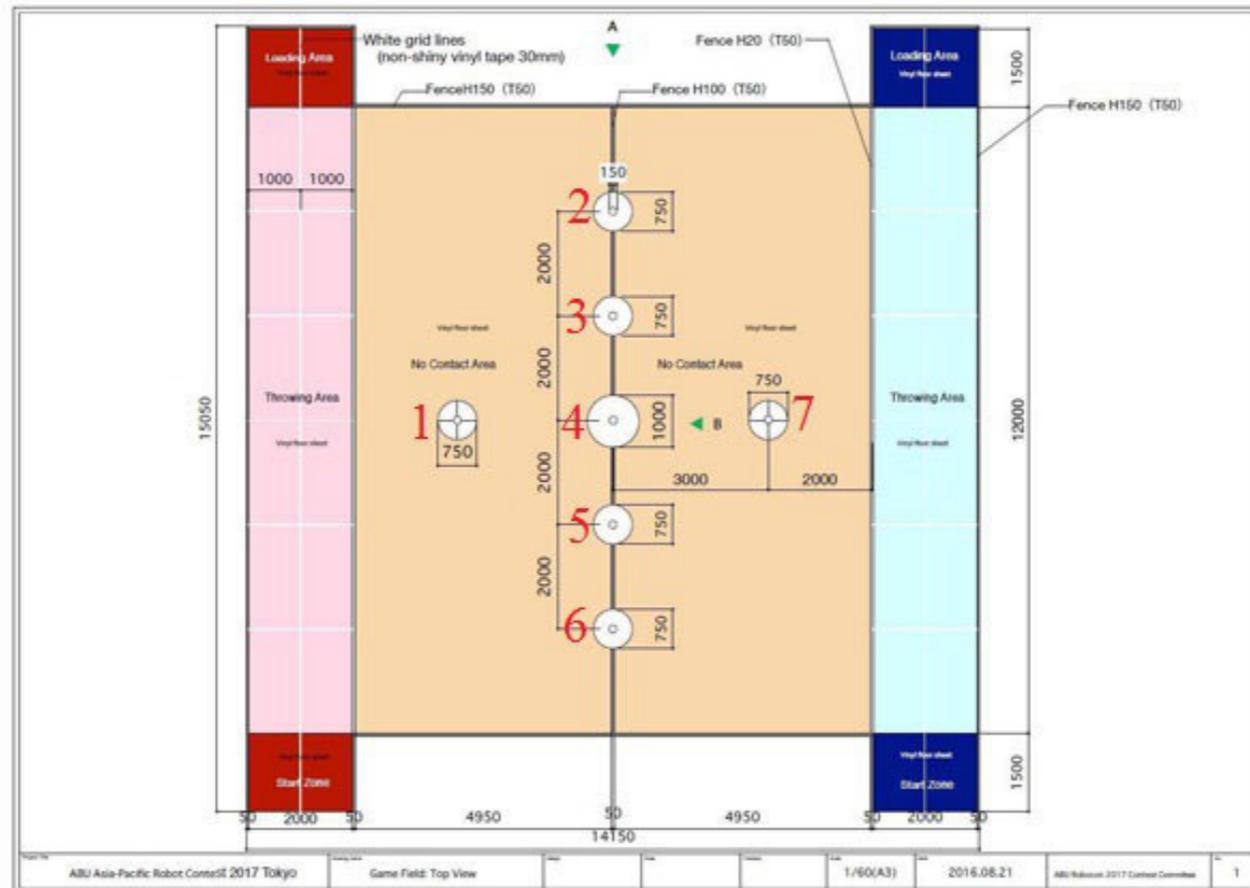
**UNIVERSITY  
CAMPUS  
&  
SAIGON HIGH  
TECH PARK**



**ROBOCON  
&  
TECHNOLOGY**

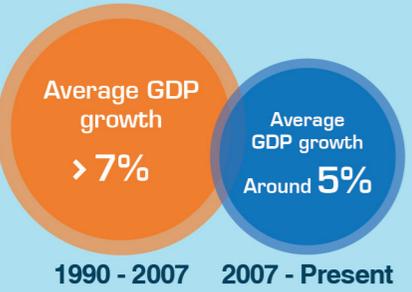


Year	Host city	Theme	Grand Prix	1st runner-up	ABU Robocon Award
2002	Tokyo	Reach for the Top of Mt. Fuji	Ho Chi Minh City University of Technology	University of Science and Technology of China	Kanazawa Institute of Technology
2003	Bangkok	Takraw Space Conqueror	Sawangdandin Industrial and Community Education College	King Mongkut's Institute of Technology Ladkrabang	Chungnam National University
2004	Seoul	Reunion of Separated Lovers, Gyeonwoo & Jiknyeo	Ho Chi Minh City University of Technology	Southwest University of Science and Technology	Mongolian University of Science and Technology
2005	Beijing	Climb on the Great Wall Light the Holy Fire	University of Tokyo	University of Science and Technology Beijing	Higher Technological Institute Tenth of Ramadan City, Egypt
2006	Kuala Lumpur	Building the World's Tallest Twin Tower	Ho Chi Minh City University of Technology	Samut Songkhram Technical College	Universiti Teknologi Malaysia
2007	Hanoi	Halong Bay Discovery	X'fan Jiaotong University	Electronic Engineering Polytechnic Institute of Surabaya	October 6 University-Egypt
2008	Pune	Govinda	X'fan Jiaotong University	Higher Technological Institute 10th of Ramadan City, Egypt	X'fan Jiaotong University
2009	Tokyo	Travel Together for the Victory Drums	Harbin Institute of Technology	University of Hong Kong	Harbin Institute of Technology
2010	Cairo	Robo-Pharaohs built pyramids	University of Electronic Science and Technology of China	Lac Hồng University	University of Electronic Science and Technology of China
2011	Bangkok	Loy Krathong, Lighting Happiness with friendship	Dhurakij Pundit University	Kampaengphet Technical College	University of Tokyo
2012	Hong Kong	Peng On Dai Gat (In pursuit of peace and prosperity)	University of Electronic Science and Technology of China	Lac Hồng University	University of Tokyo
2013	Da Nang	The Green Planet	Kanazawa Institute of Technology	Lac Hồng University	Electronic Engineering Polytechnic Institute of Surabaya
2014	Pune	A Salute for Parenthood	Lac Hồng University	Nagoya Institute of Technology	Lac Hồng University
2015	Yogyakarta	Robominton	Hung Yen University of Technology and Education	Hong Kong University of Science and Technology	Hung Yen University of Technology and Education
2016	Bangkok	Clean Energy Recharging the World	Universiti Teknologi Malaysia	Northeastern University	University of Tokyo
2017	Tokyo, Japan	The Landing Disc <sup>[1]</sup>	Lac Hong University	Universiti Teknologi Malaysia	Lac Hong University
2018	Vietnam	The Festival Wishing Happiness & Prosperity	<i>to be determined</i>		



1. ROBOCON 2015 COMPETITION
2. ROBOCON RANKING TABLE
3. STUDENTS PREPARE THEIR ROBOT ON THE CORRIDOR OF THE UNIVERSITY OR THE DORMITORY
4. LAYOUT OF THE BATTLE FIELD IN ROBOCON 2017

# SCIENCE, TECHNOLOGY AND INNOVATION IN VIET NAM



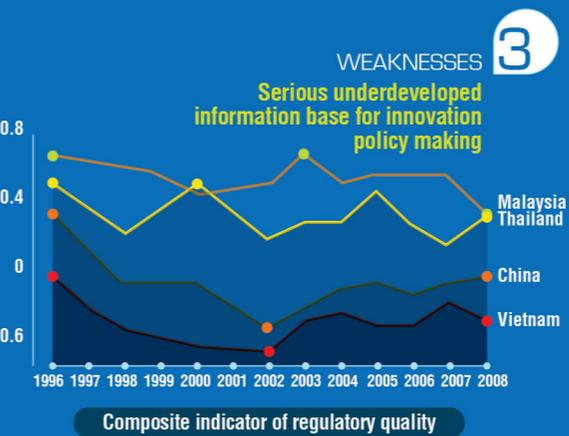
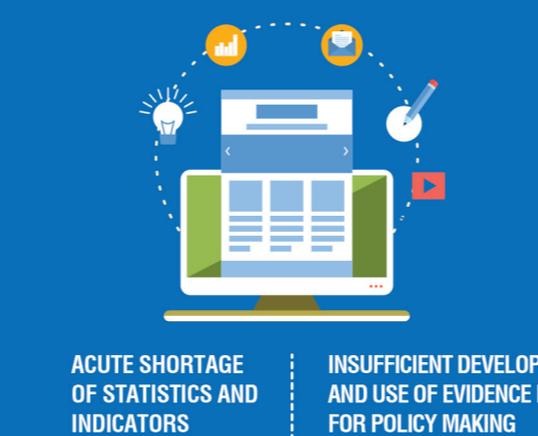
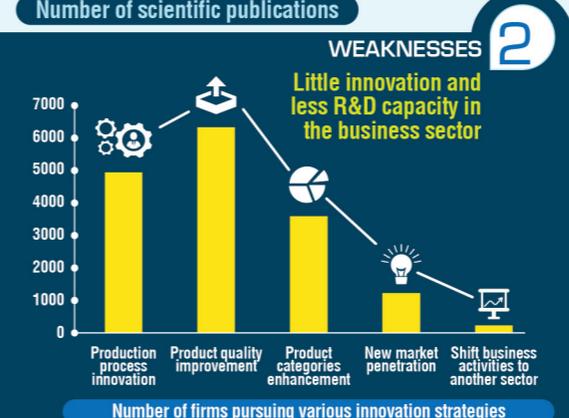
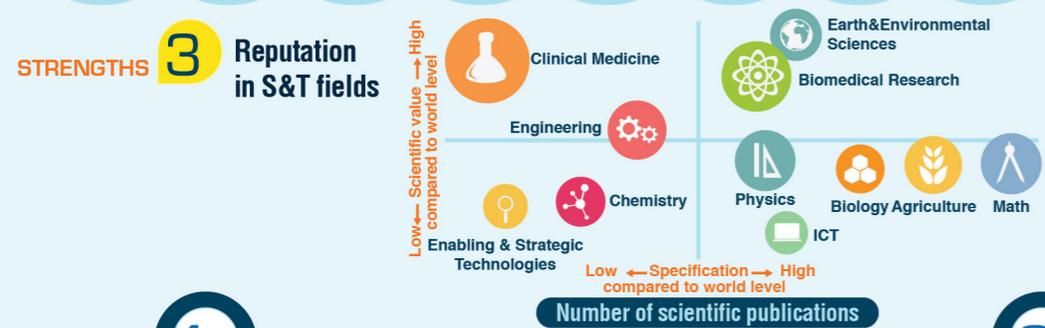
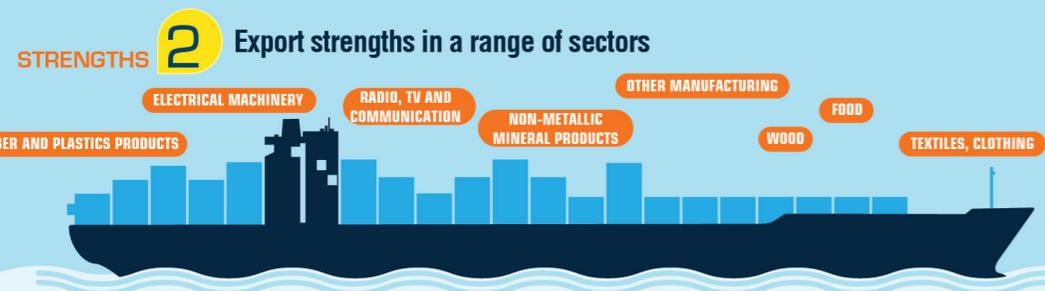
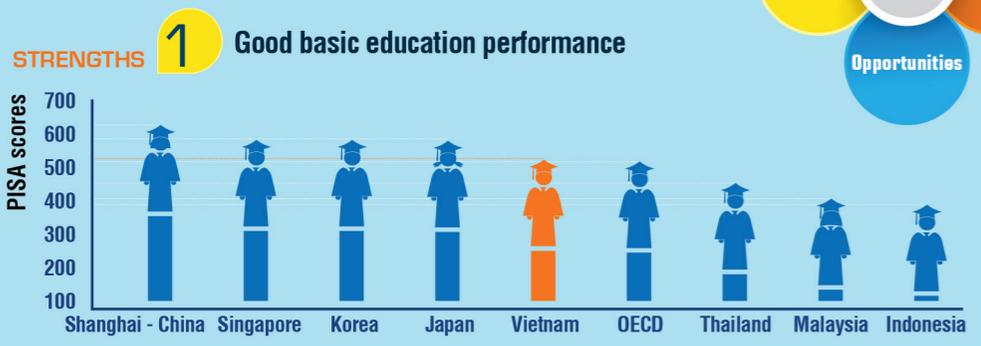
## WHY SCIENCE, TECHNOLOGY INNOVATION?

Fostering science, technology and innovation (STI)

- Increasing productivity
- New driver for sustained growth



SWOT analysis of Vietnam's innovation system

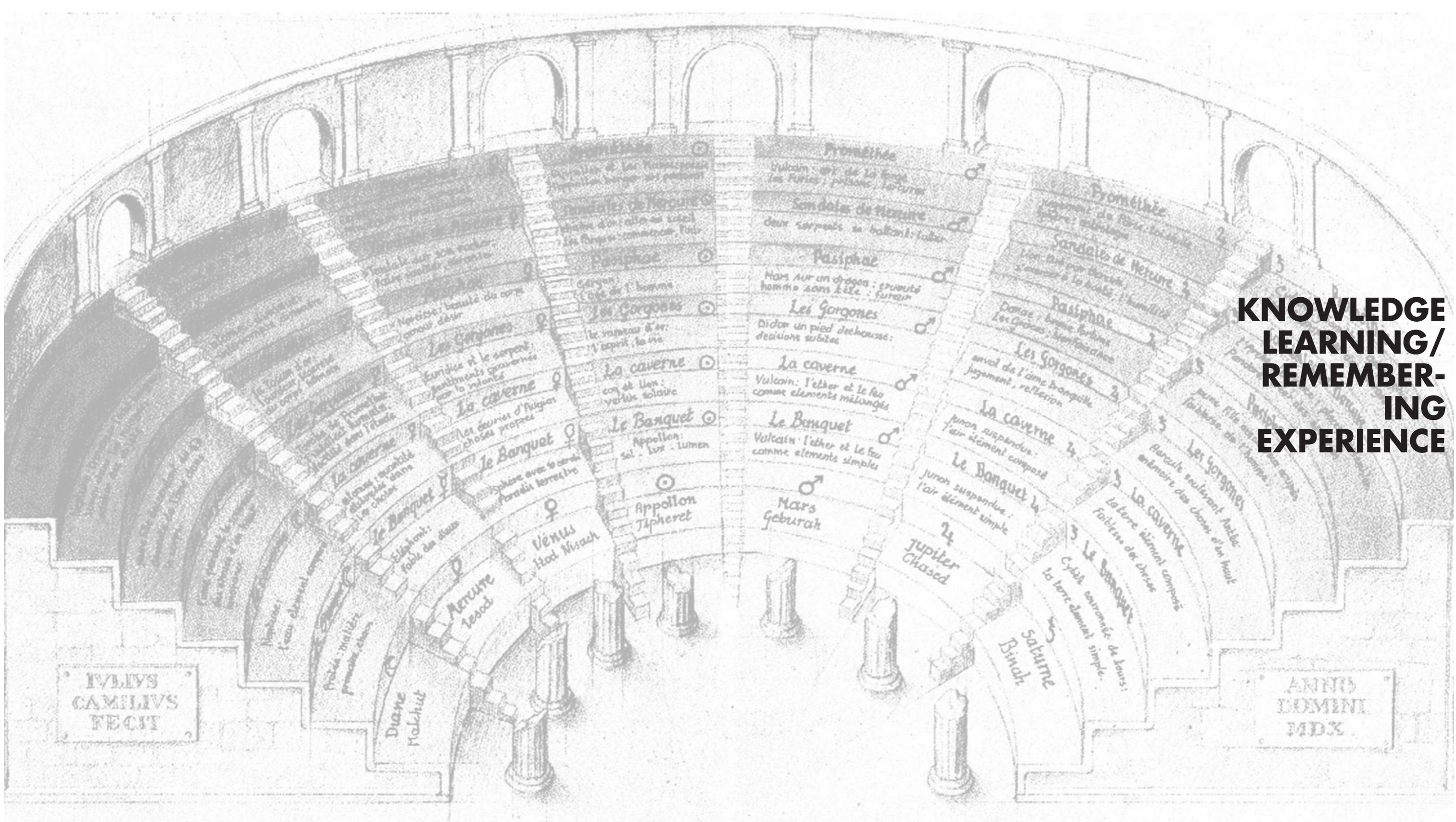


- ### OPPORTUNITIES
- Further developing the human capital and skills base
  - Nurturing a dynamic business sector and its innovation capacities
  - Improving effectiveness of the innovation system

- ### THREATS
- Slowdown in growth
  - Failure to improve the institutional and business environment
  - Increasing brain drain

## HOW TO PROMOTE STI IN VIETNAM?

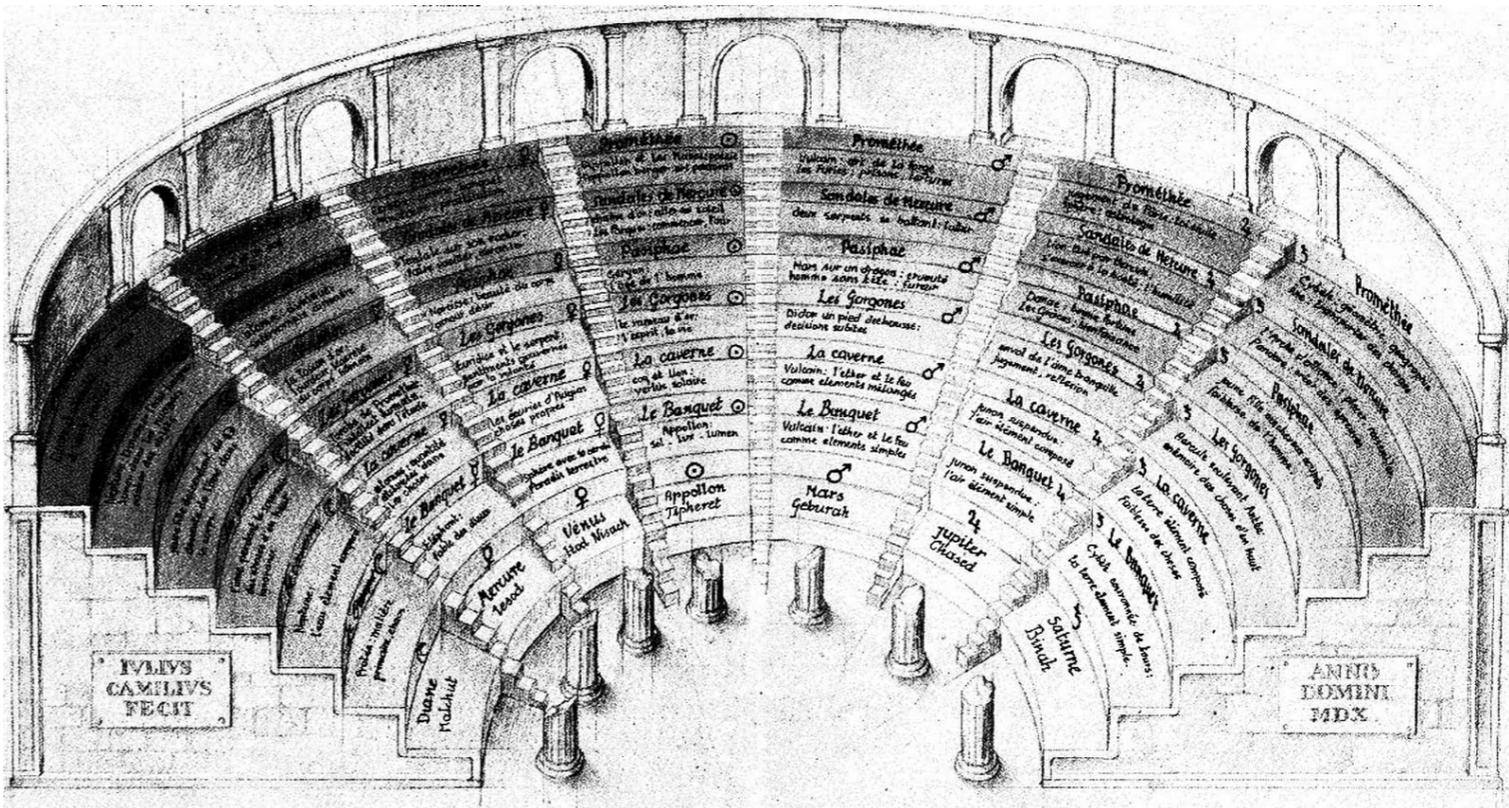




**KNOWLEDGE  
LEARNING/  
REMEMBER-  
ING  
EXPERIENCE**



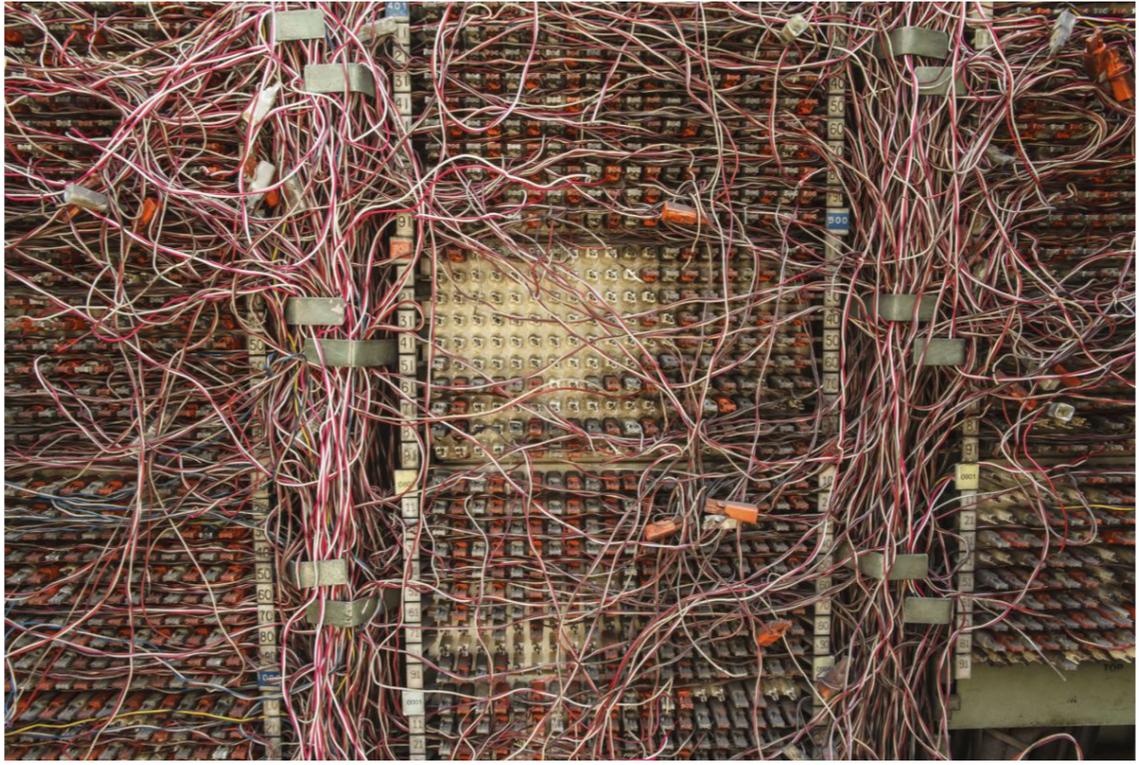
EXPERIENCE - Night at the Museum movie series



LEARNING - Mnemonic methodology - The theatre of Memory, Giulio Camillo



EXPERIENCE - "Relativity" 1953 by M. C. Escher



KNOWLEDGE - the era of technology and machinery

**THE FORMULAR**

lo è che, a differenza di un tradizionale teatro antico, greco o romano, in cui lo spettatore si trova in platea e lo spettacolo si svolge nell'*orchestra* (al centro dell'emiciclo della platea) e sulla *scena* (il palco), l'architettura è pensata in modo da porre lo spettatore al centro dell'*orchestra* facendo del teatro stesso uno spettacolo che gli si dispiega intorno. Da quel punto infatti, si dipartono sette settori corrispondenti ai sette pianeti (Luna, Mercurio, Marte, Giove, Sole, Saturno, Venere), ognuno suddiviso a sua volta in sette gradini contrassegnati ciascuno da una diversa immagine: *Primo grado, Convivio, Antro, Gorgoni, Pasifae, Talari, Prometeo*. Ciascuna delle quarantanove intersezioni, che così risultano, è modellata da una porta contrassegnata da immagini mnemoniche desunte dalla mitologia, ognuna delle quali ha il compito di rinviare e descrivere una parte dello scibile umano, tramite una dotta rete di connessioni fondata su neoplatonismo, astrologia, alchimia e cabala (tavola 1-2). Camillo definisce in tal modo una suddivisione coerente nella quale sistemare secondo processi di associazione simbolica una vastissima bibliografia suddivisa per soggetto. La possibilità di giungere a richiamare le informazioni tramite emblemi collocati all'interno di un'architettura mentale è un procedimento ben noto già alla retorica greca e poi latina e indicata dalla ricerca come *mnemotecnica*. Camillo spinge più in là gli obiettivi di questo processo interpretandone i processi associativi e le finalità alla luce del neoplatonismo e facendo della conoscenza una illuminazione di carattere mistico raggiunta mediante emblemi magicamente attivati dalla coscienza. E' in tal senso che il teatro diviene un edificio della memoria, rappresentante l'ordine della verità eterna e i diversi stadi della creazione, un'enciclopedia del sapere e l'immagine del cosmo.

unlike an ancient Greek or Roman theatre, in which the audience is in the stalls while the show takes place on the *orchestra* (center of the stalls) and on the *scena* (stage), the observing point is placed right in the center of the *orchestra* and the theatre surrounding the spectator displays "the show" itself. Seven sectors, corresponding to the seven "planets" known in the past (*the Moon, Mercury, Mars, Jupiter, the Sun, Saturn and Venus*) are developed from the orchestra. Each sector is in turn divided into seven steps, each marked by a different image (*First step, Convivius, Cave, Gorgons, Pasifae, Talari, Prometheus*). Each of the 49 resulting intersections is marked by a door decorated by mnemonic images moulded from classical mythology. Each door is finally meant to refer and describe a single part of human knowledge, through a sapient network of connections based on different disciplines as astrology, alchemy, cabala, ermetism (plan 1-2). In this way Camillo defined a coherent subdivision in order to collocate, through symbolical associations, a huge bibliography divided by subjects. The technique for recalling informations through emblems collocated inside an ideal architecture was already used in ancient Greek and Latin rhetoric and known by modern scholars with the name of *mnemotechnique*. Camillo pushed farther the goals of this technique interpreting its associative processes and objectives through neoplatonism and making knowledge something like a mystic enlightenment reached through emblems magically activated by consciousness.

This is the meaning of the Theatre of Memory, a building representing eternal order of truth and the different stages of creation, an encyclopaedia of knowledge and an image of cosmos.

### Catching a moment

when we have a dream. We will be in an illusion. situation which is either a good scenario or vice versa. In some, we want to escape and others we want to stay in that magical moment forever.

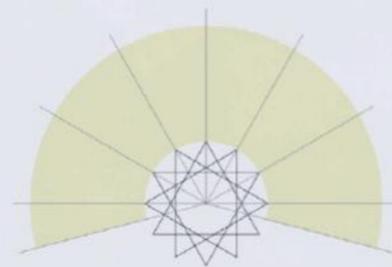
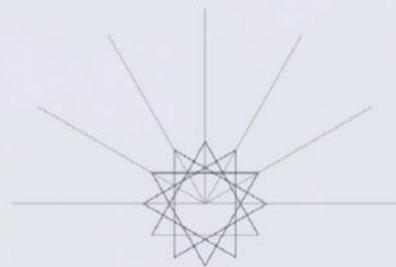
Nothing is everlasting. We suddenly awake and realize that we just have been through a moment. Whatever it is, we always remember it.

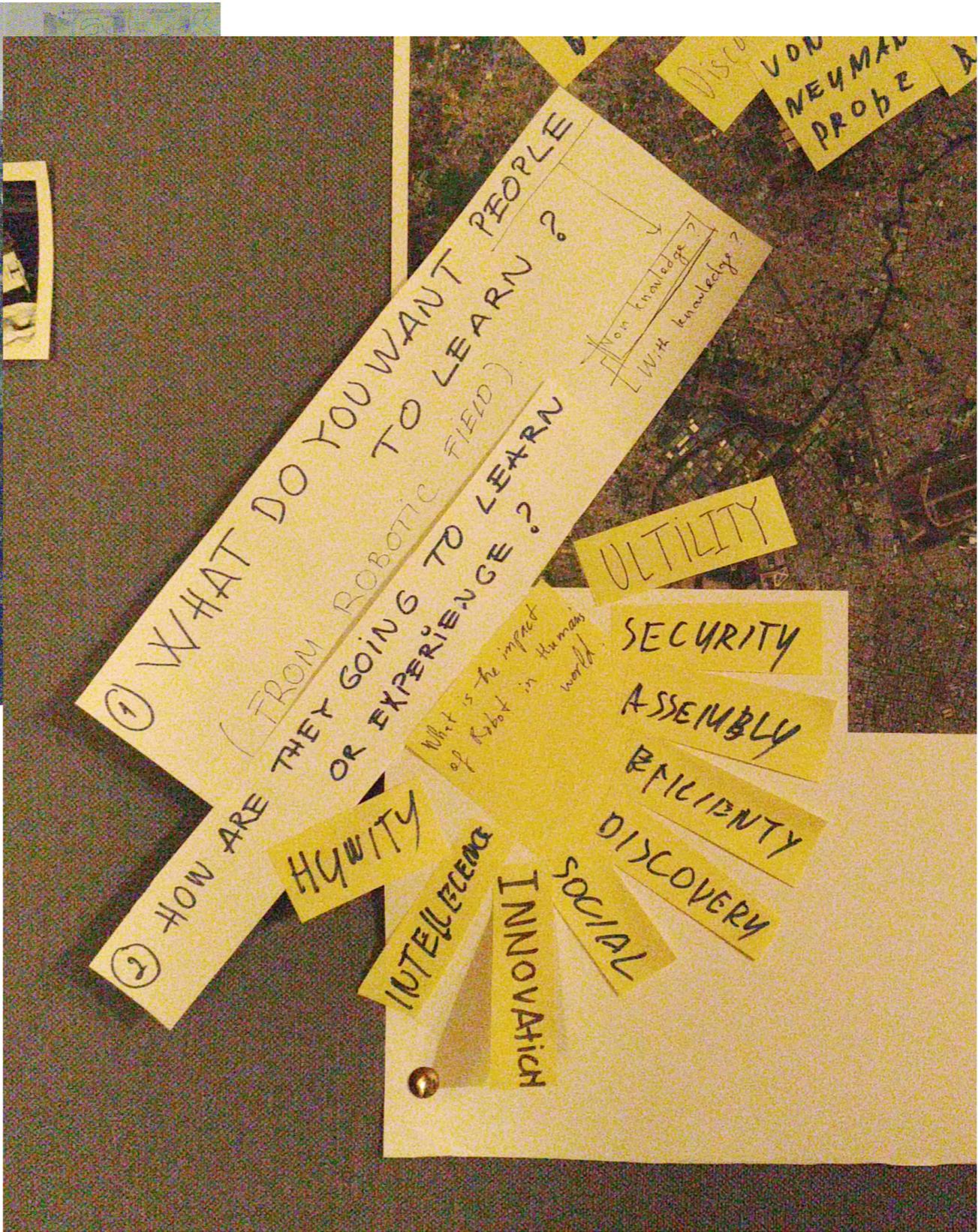
The most remembering moment is when your eyes start to see and your brain starts to realize the reality. That moment, in between exiting the dream and realizing the reality, is a trigger of your memory.



The route of realistic and virtual world

**THE FORMULAR**





**CONTENTS ?**  
 WHAT WILL PEOPLE LEARN IN  
 THE MUSEUM?

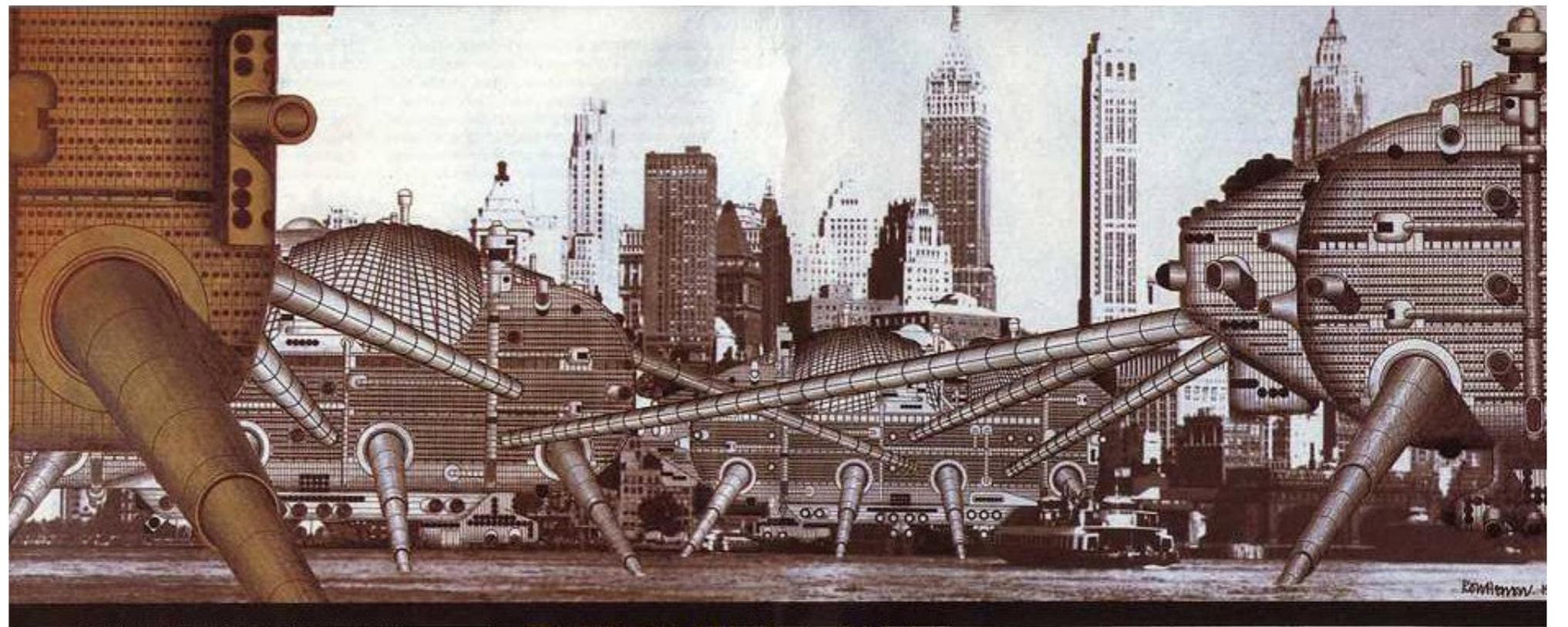
'A house is a machine for living in...'  
*Le Corbusier (1923)*

'But I thought that all that functional stuff  
had been refuted. Buildings aren't  
machines.'  
*Student*

'You haven't understood. The building isn't the  
machine. Space is the machine.'  
*Nick Dalton,  
Computer Programmer at University College  
London (1994)*

Hillier, Bill; *Space is the Machine* (London: Space Syntax, 2007).

**ARCHITEC-  
TURE  
ROBOTIC**



EACH WALKING UNIT HOUSES NOT ONLY A KEY ELEMENT OF THE CAPITAL, BUT ALSO A LARGE POPULATION OF WORLD TRAVELLER-WORKERS.

## A WALKING CITY



The Santa Justa Elevator in Lisbon

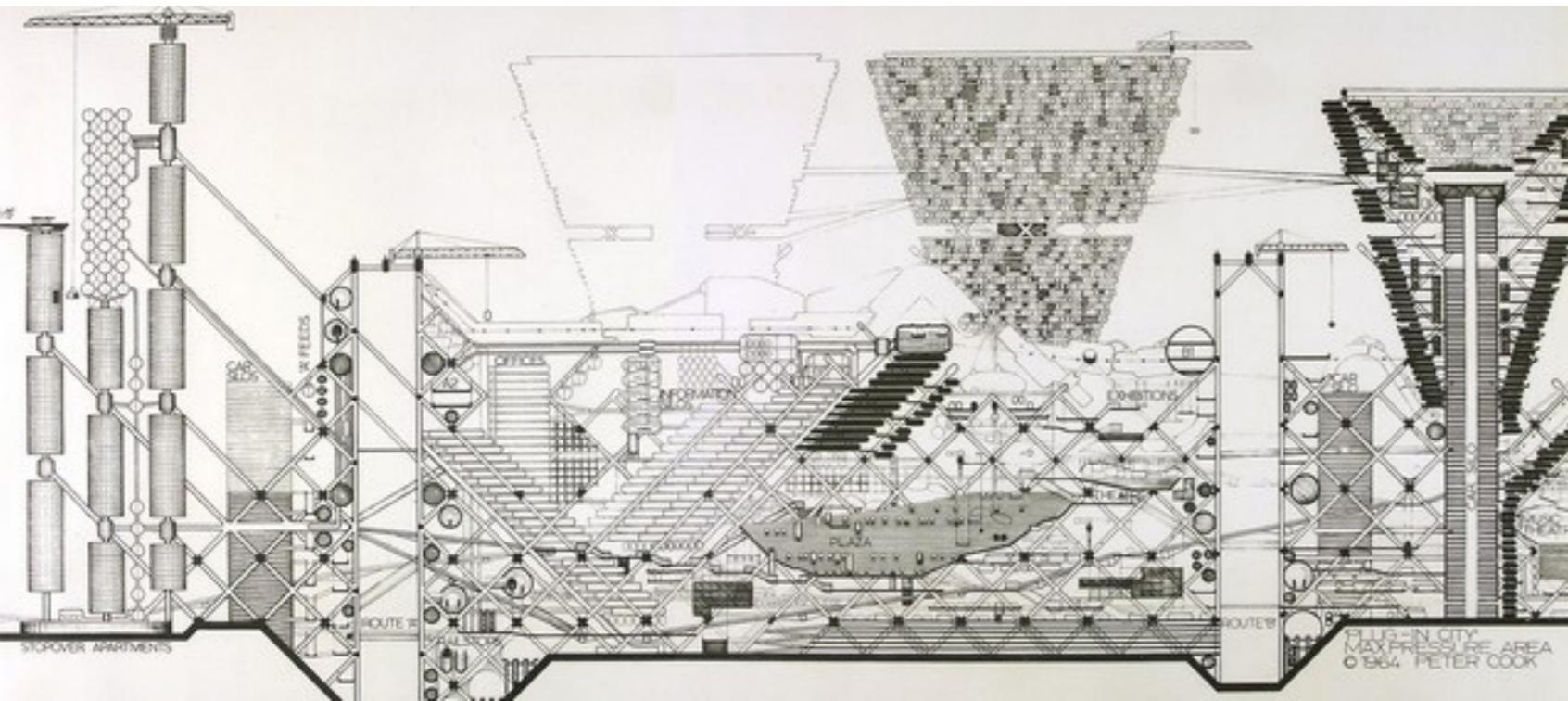
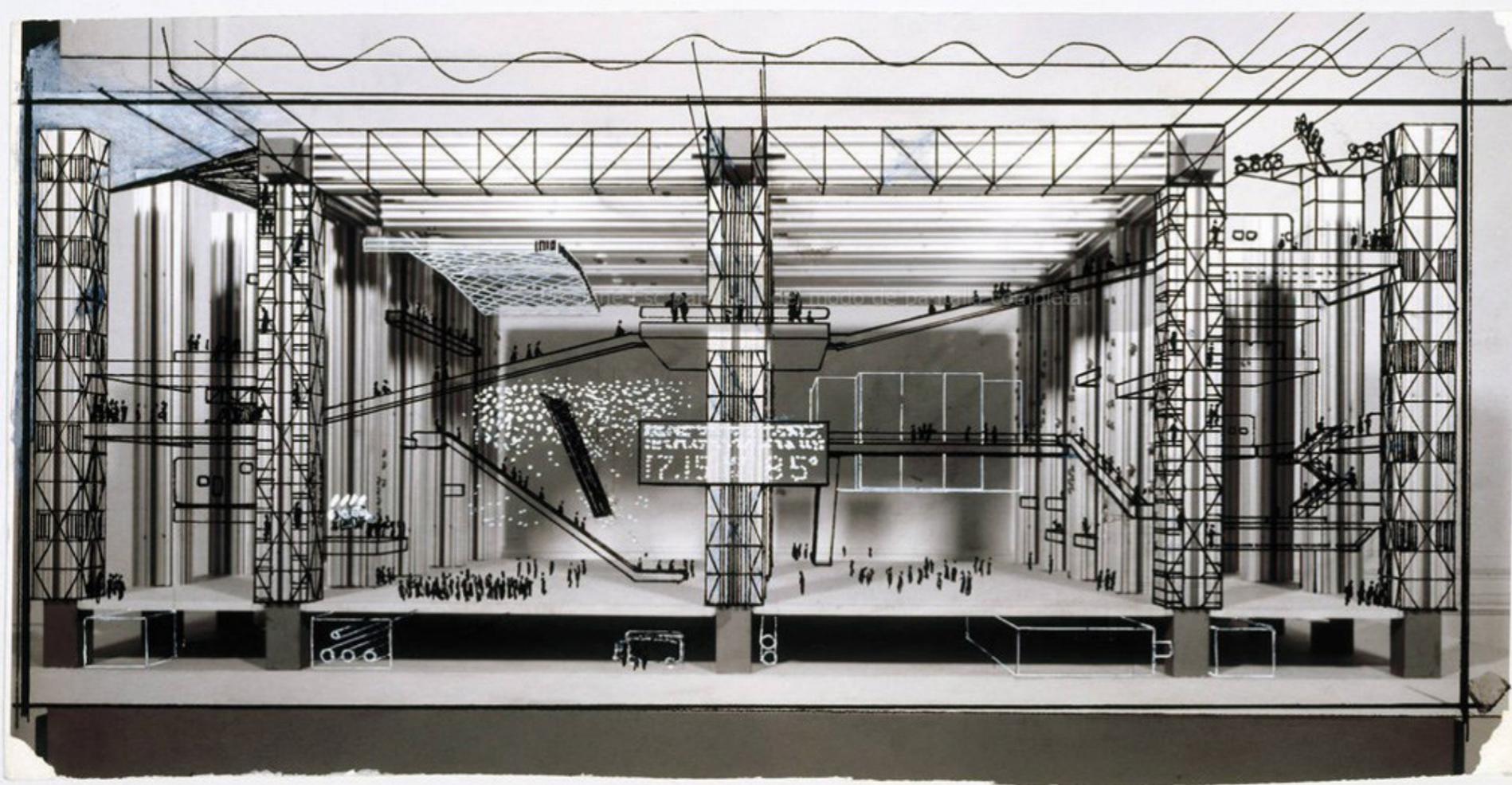
To architectural robotics, the *Centre Pompidou* (1977) brings the notion of architecture-as-scaffolding: a steel exoskeleton serving as the armature for the display screens enveloping it, the walls and floors reconfiguring within it, and the computing capacity permeating it—all of these being plug-n-play and easily or automatically updatable. Recognizing change as permanent and inevitable, the young architects Renzo Piano and Richard Rogers envisioned, in their architectural drawings submitted to the open design competition for the *Centre Pompidou*, a physically reconfiguring “communications machine,” reprogrammable in both its physical and informational aspects. Their winning design was surely indebted to two unrealized architectural projects that preceded the *Centre Pompidou* competition by a few years: Cedric Price’s *Fun Palace* (1961), a vision of an articulated, dynamic structure promoting interactions between it and its users that cause the physical form of the building to reconfigure<sup>4</sup>; and Archigram’s *Plug-in-City* (1964), a mega-structural steel armature for receiving standardized plug-in components, such as living-unit pods.<sup>5</sup>

In a city government press release, the *Centre Pompidou* was offered, with great anticipation, as the physical manifestation of the hopes (and maybe the trepidations) of Europe in the mid-to-late 1960s: “A true science of information is now beginning to develop in correlation with the new orientation of science and the social sciences: art history, communications, cybernetics, linguistics and semiology have restated the concepts of theory, history, space and time, and of the symbol in new terms.”<sup>6</sup> In this context, the *Centre Pompidou* was not to be “a passive cult-object” exemplified by the great works of art commissioned by noblemen, rulers, and religious leaders, but rather a grand public space open to “information, dialogues and debates.”<sup>7</sup>

The architects’ vision of the building-as-scaffold, sheathed in display screens and mechanized for physical reconfiguration, was never realized in the *Centre Pompidou* we know today. Nevertheless, the building has largely fulfilled President Pompidou’s call for a “polyvalent cultural center” situated in the historic center.<sup>8</sup>

Undoubtedly, the building remains a daring presence in the historic city. But would the *Centre Pompidou* get built today? Andy Sedgwick of Arup, the engineering firm that played an essential role in the *Pompidou* design, doesn’t think so.<sup>9</sup> “I don’t think a national government would put its faith in such a young team today,” opines Sedgwick. “In fact,” he adds, “in our checklist-driven, bureaucratic world, I doubt [Piano and Rogers would] even make it through pre-qualification. With the industry now much more risk-averse than in those days—particularly public sector clients—many inspirational projects probably fall unnoticed at this first hurdle.”<sup>10</sup>

Cedric Price's Fun Palace (1961)



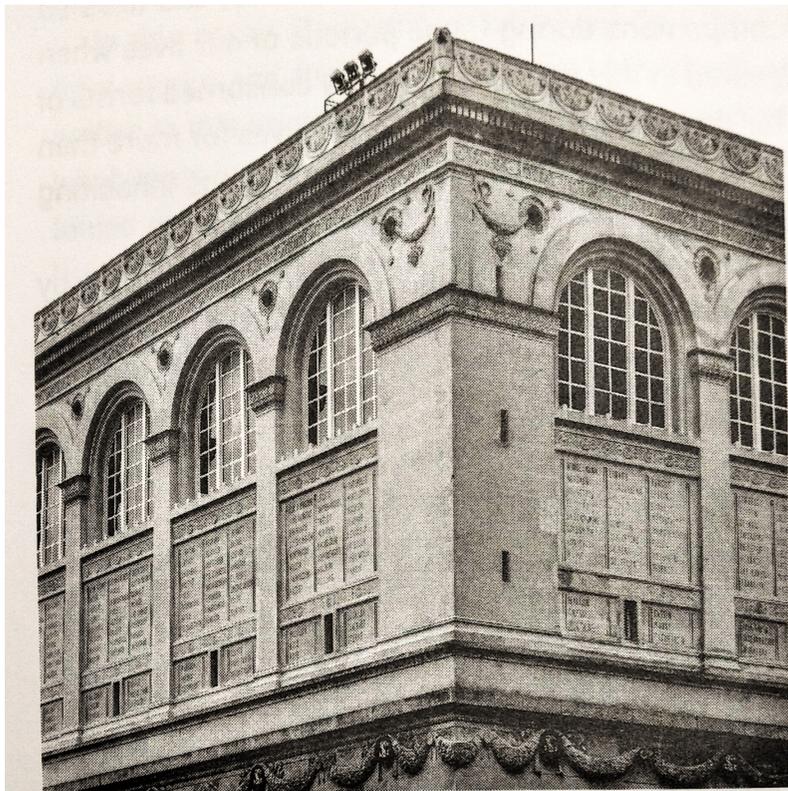
Archigram plug-in-city - 1964

Such useless aspects of architecture and machines serve a very real function: to enchant us, to stimulate us, to provide us with a sense of wonder and, perhaps, even, a sense of hope. As architect Robert McCarter argues, “if we accept the machine as neutral, as something we can use ‘without thinking,’ then we risk being delivered over into a type of being completely determined by technological evaluations,” where “meaning [is] replaced by mere means: utility.”<sup>14</sup> Architectural robotics draws from Tinguely the notion that machines are very human and have something important to tell us.

Evan Green, Keith; *Architectural Robotics - Ecosystems of Bits, Bytes, and Biology* (USA: MIT Press, 2016), page 178

Labrouste transforms this building into a written guide to the library: stone is paper and binding, walls are shelves, light is illumination, columns are trees of knowledge, and the façades are a table of contents. *The building is a book. Words become worlds.* From the *Bibliothèque Sainte-Geneviève*, architectural robotics draws the communicative power of architecture—architecture of a different, less pure variety that relies (as did Labrouste’s library) on it being hybridized with other information and communications technology.

Evan Green, Keith; *Architectural Robotics - Ecosystems of Bits, Bytes, and Biology* (USA: MIT Press, 2016), page 180



### 12.3

Architecture with an added layer of information. Detail of the *Bibliothèque Sainte-Geneviève*—its card catalog inscribed in the façade (photograph by the author).

**Ecosystems of Bits, Bytes, and Biology**

Evan Green, Keith; *Architectural Robotics - Ecosystems of Bits, Bytes, and Biology* (USA: MIT Press, 2016), page 179

## **MEGASTRUCTURE/ Metabolism**

**Thursday, April 28, 2011**

*Metabolism was maybe the last modern avant garde movement in architecture. Metabolism has had a positive vision to the population augmentation, and the urban growth. In this factor, the movements before metabolism in 60s and 50s, they've had a negative pessimist vision to those factors.*

*In this **Agricultural City** project by **Kisho Kurokawa**, the megastructure parameters could be discovered.*

1. Modular
2. Unlimited extension capability

*My golden rule for MEGA-Macro Structure project is this :*

*" There is no mass plan. There is a process "*

*The process of further development, extension, and growth.*

*Some kind of auto-generation ability for architecture or urban design or both of them. This is my definition of megastructure.*

[http://shadkar.com/shadkar/iConcept/Entries/2011/4/28\\_Projet\\_MEGASTRUCTURE\\_\\_Metabolisme.html](http://shadkar.com/shadkar/iConcept/Entries/2011/4/28_Projet_MEGASTRUCTURE__Metabolisme.html)

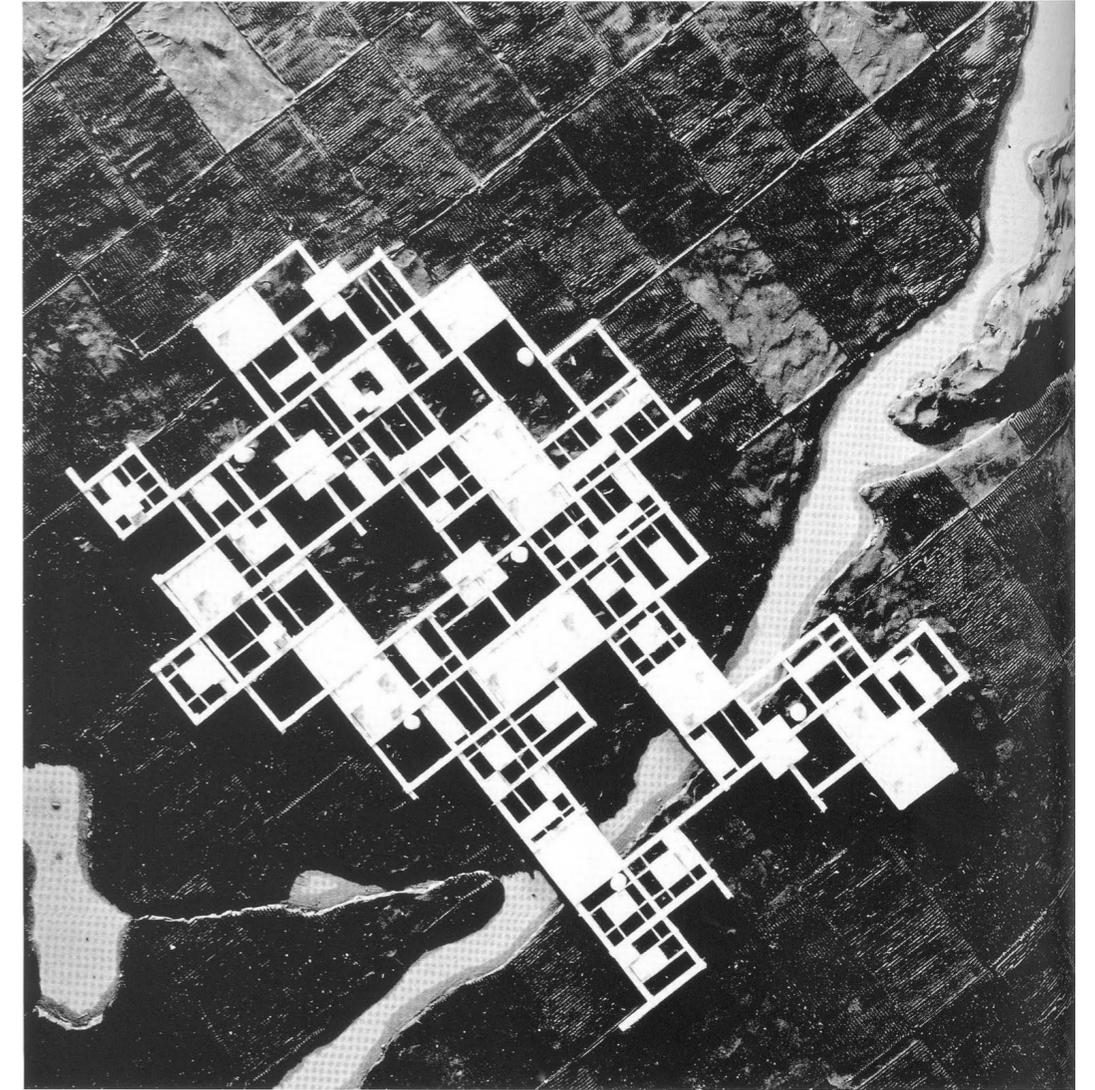
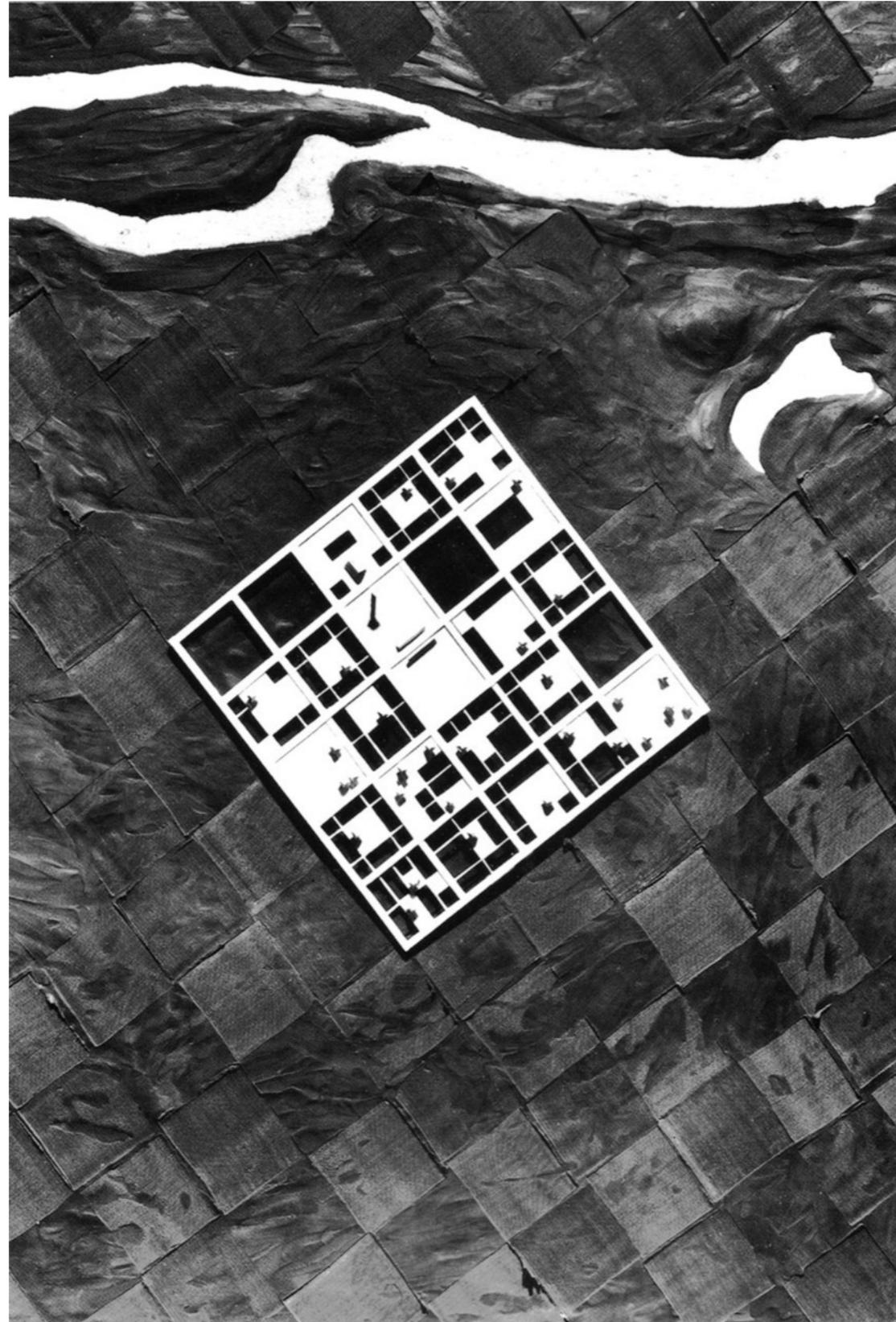
<https://namigradoli.wordpress.com/2016/11/27/kisho-kurokawa-agricultural-city-1960-kenzo-tange-ciudad-campamento-para-peregrinos-en-la-meca-1974/>

*"Metabolists believed that adopting this approach in architecture would save the identity of human beings and allow them to communicate their humanity to architecture"*

<https://architecture.knoji.com/metabolism-in-architectural-movement-in-the-1960s/>



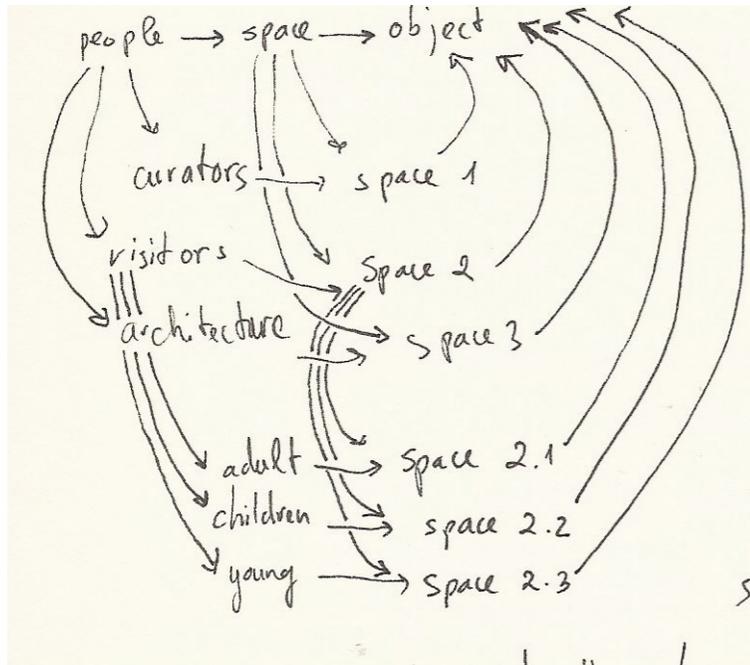
*NOWADAYS, REPEATITIONS OR REPLICAS IS REPRESENTING THE GROWTH OF MACHINES OR ROBOTS. THE DYNAMIC AND VARIETY IN HUMAN SOCIETY IS BEING MECHANIZED, MODULLED AND MASS PRODUCED.*



THE GROUND IS GETTING COSTLY IN THE SOCIETY. EVERYONE IS TRYING TO TAKE AS MUCH AS THEY CAN FOR THEIR OWN BENEFIT. THE SOCIETY IS BECOMING INDIVIDUALISM. LAND IS BEING PRIVATIZED. SUCH A PUBLIC SPACE DOESN'T EXIST IN VIETNAM FREQUENTLY. BUT WHAT TYPE OF PUBLIC SPACE? LIFT IT UP IS THE ONLY WAY AND IT IS FREE???

**AT THE END, THE FUTURE OF MUSEUM IS AN CLOSED PUBLIC SPACE / FACILITATING PUBIC SPACE**

**LOCATION &  
SOCIAL IM-  
PACTS**



# ARCHITECTURE DESIGN SOLUTIONS

Situation 3:

- People are static. Objects & spaces have to become dynamic & inviting?

Situation 1:

- the object is static
- ⇒ the space has to be adapted to personality of users

Situation 2:

- the space is static
- the objects has to be inviting ones to be connected with users.

DIRECTED SEQUENCES OF ROOMS  
MATRIX-LIKE ARRANGEMENT OF ROOMS  
SPATIAL INTERPRETATION & SPATIAL ISOLA-  
TION  
OPEN PLANS  
FREE-FORM SPACES  
CONVERSIONS AND EXTENSIONS OF  
ARCHITECTURE MONUMENTS

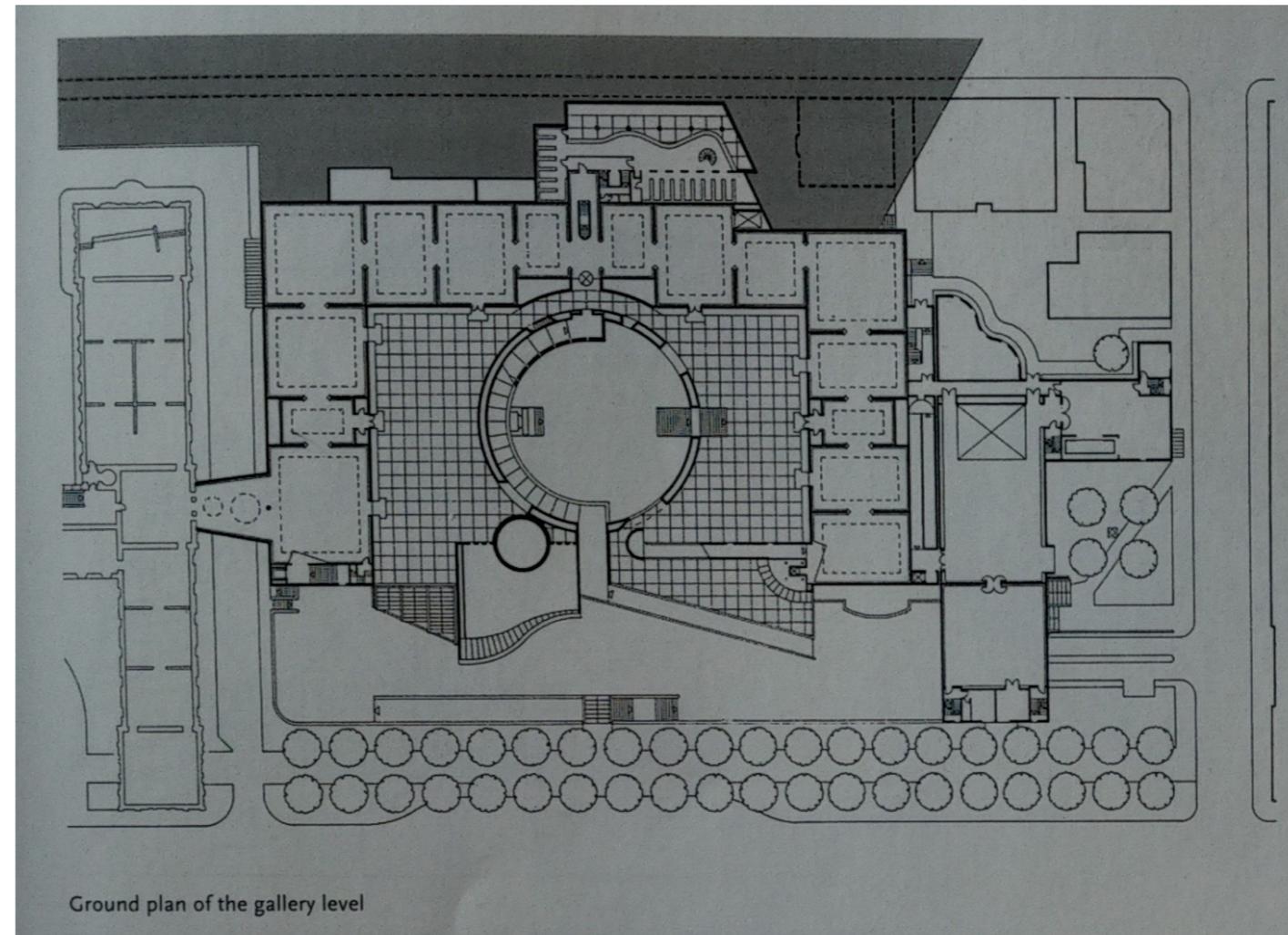
**MUSEUM LAYOUTS -  
EXHIBITION**

# Directed Sequences of Rooms

The closed sequence of rooms referred to as an enfilade dates back to the representative secular architecture of the Baroque era. As the museum developed into an autonomous building type in the late eighteenth and early nineteenth centuries, architects fell back on this motif of palace architecture, connecting rooms of the same or different sizes so that the doors along a single axis enabled a view through all the rooms. In the Alte Pinakothek in Munich, the line of large exhibition rooms was supplemented by a long line of cabinets also linked in enfilade and connected at certain intervals to the large halls. Out of this resulted a combination of a main route and a variety of auxiliary routes.

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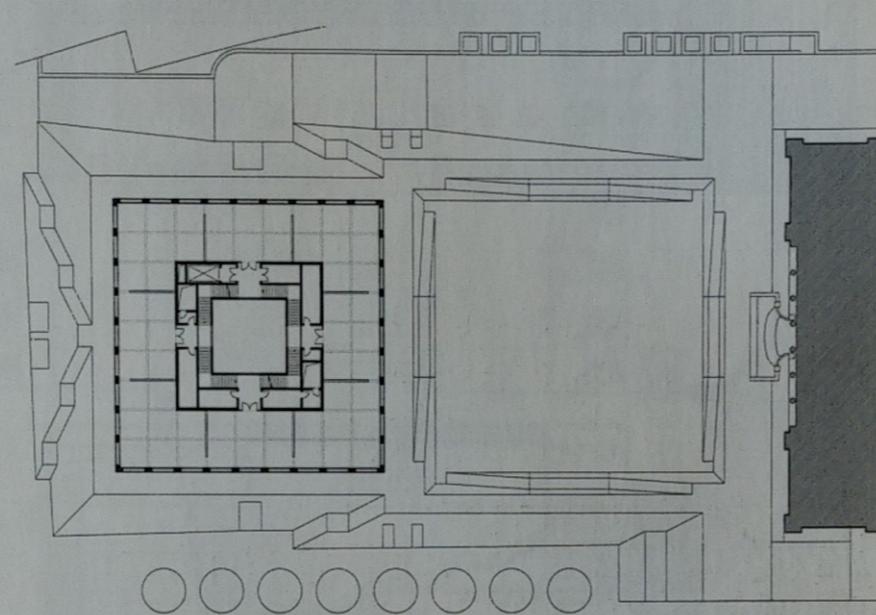
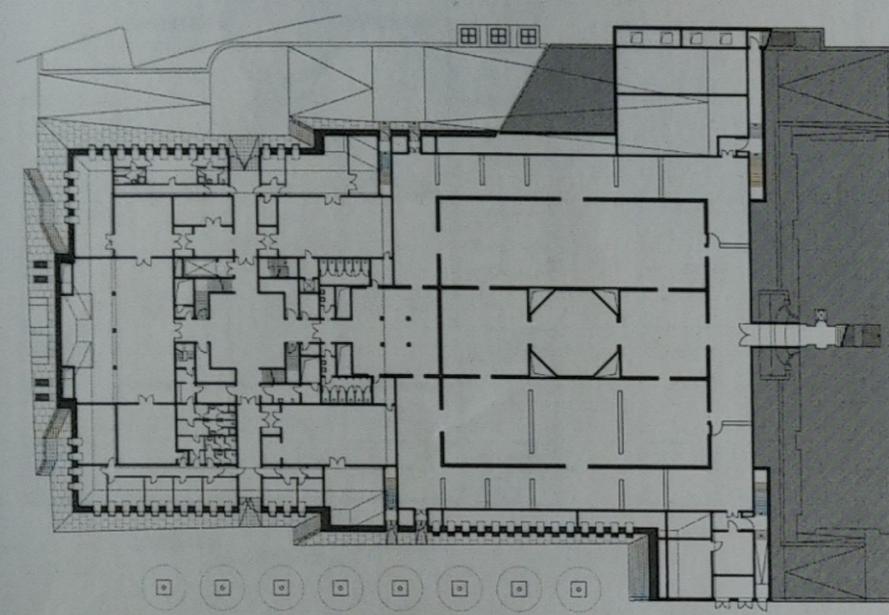
Since then, this principle of visitor routing has determined not only the majority of the museums of the nineteenth century, but was also adopted repeatedly in the museum buildings of the last decades. Even if such a clear and programmatic arrangement of the exhibition rooms following the model of the nineteenth century as the one to be found in the Stuttgarter Staatsgalerie remains the exception, room connections like the enfilade that allow a view through at least three rooms and thereby justify the term 'directed sequence of rooms' are to be found so frequently in the museum architecture of the last decades that it is not by chance that this category in our selection is represented with the most examples. However, it subsumes not only sequences of rooms with unambiguous visitor routing, but also the numerous filiations and augmentations of this principle, in which a main direction is recognizable, but alternative routes are also allowed. Among these are all those solutions in which a main route, often called a museum street or museum passage, accesses the exhibition rooms, occasionally interlinked, that are separated from it. A variety of graduations and interpenetrations of a 'directed sequence of rooms' such as those that determine the ground plan structure of the Sainsbury Wing of London's National Gallery at the close of this section introduce the transition to the next category of ground plan forms, the matrix-like arrangement of rooms.



NEUE STAATSGALERIE  
STUTT GART, GERMANY  
JAMES STIRLING

DIRECTED SEQUENCES OF ROOMS  
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## MUSEUM LAYOUTS - EXHIBITION

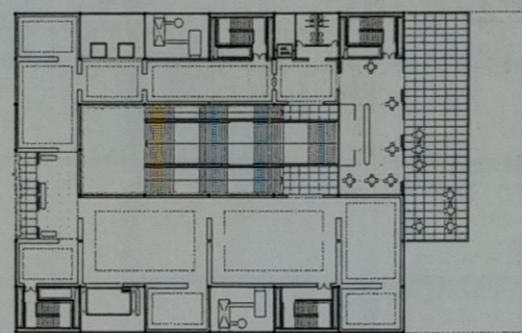
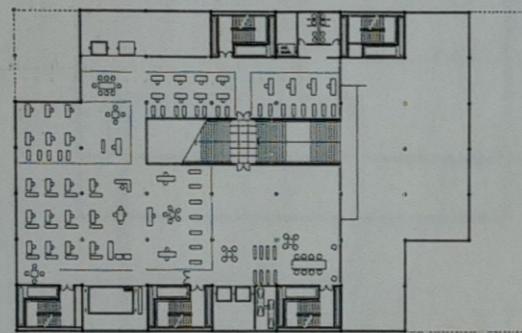
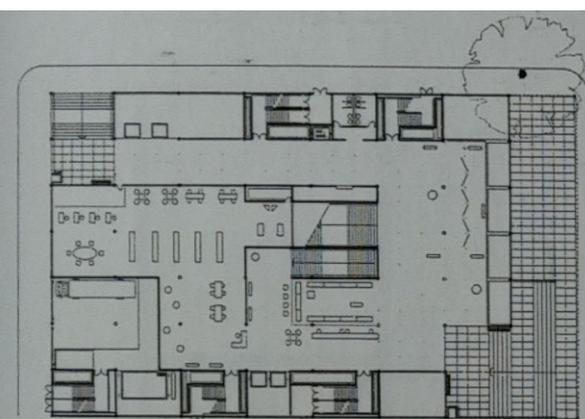


Ground plan of the first floor

Ground plan of the third floor

- DIRECTED SEQUENCES OF ROOMS
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## MUSEUM LAYOUTS - EXHIBITION



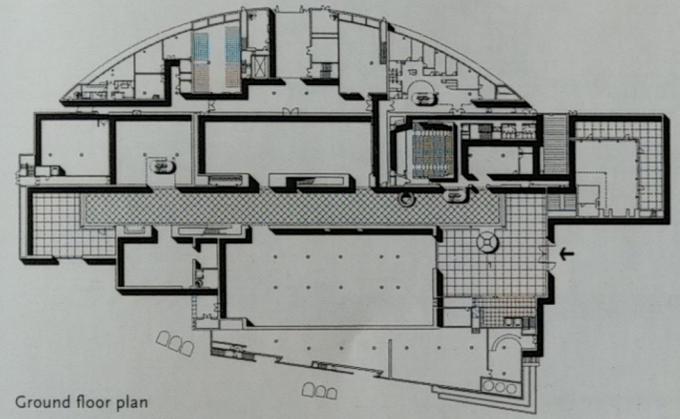
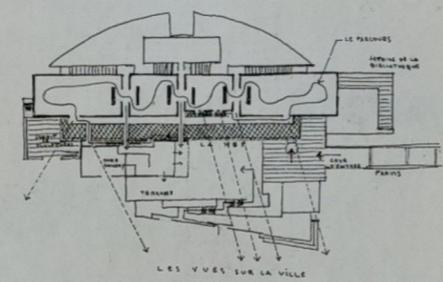
0 2 10 m

Ground floor plan

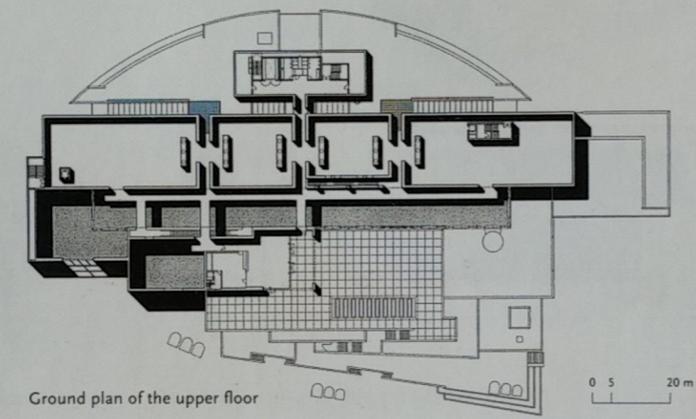
Ground plan of the mediatheque on the upper floor

Ground plan of the exhibition areas on the upper floor

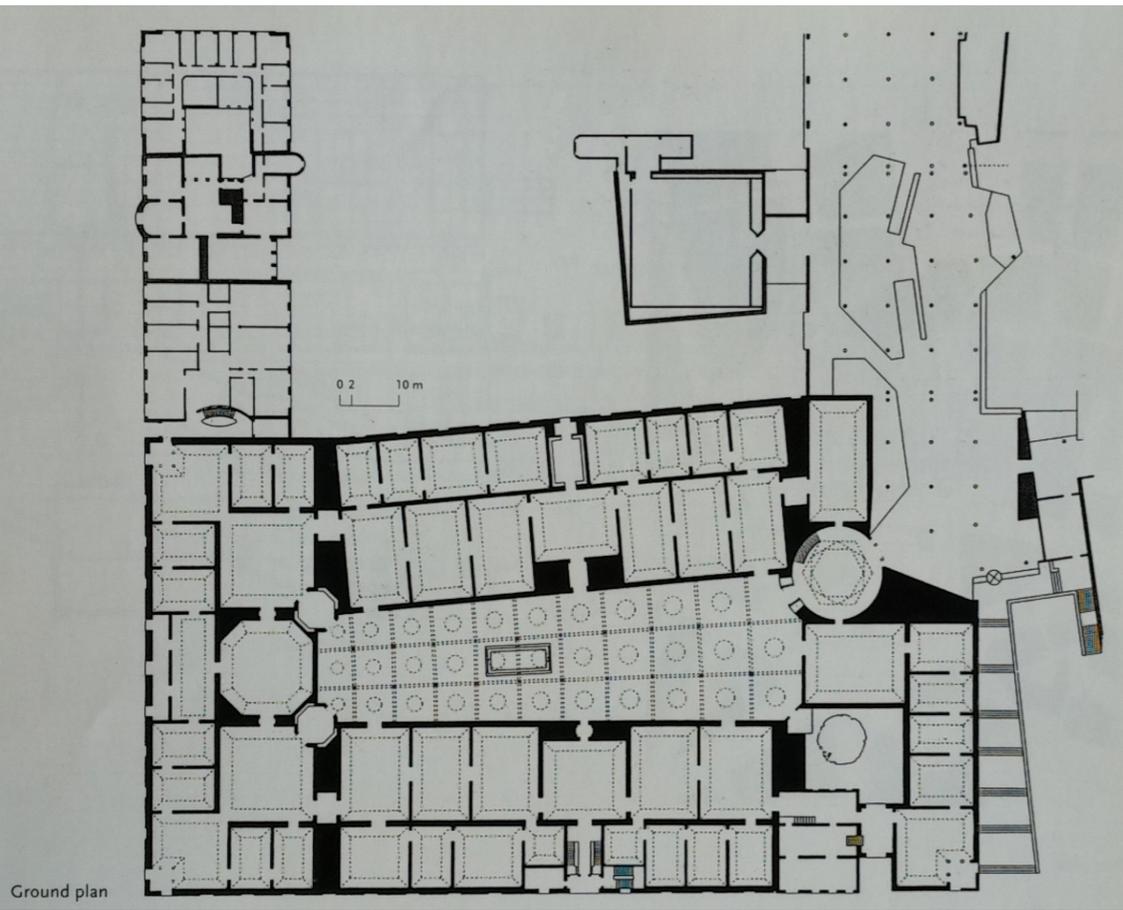
Plan of the circular tour with views to the outside



Ground floor plan



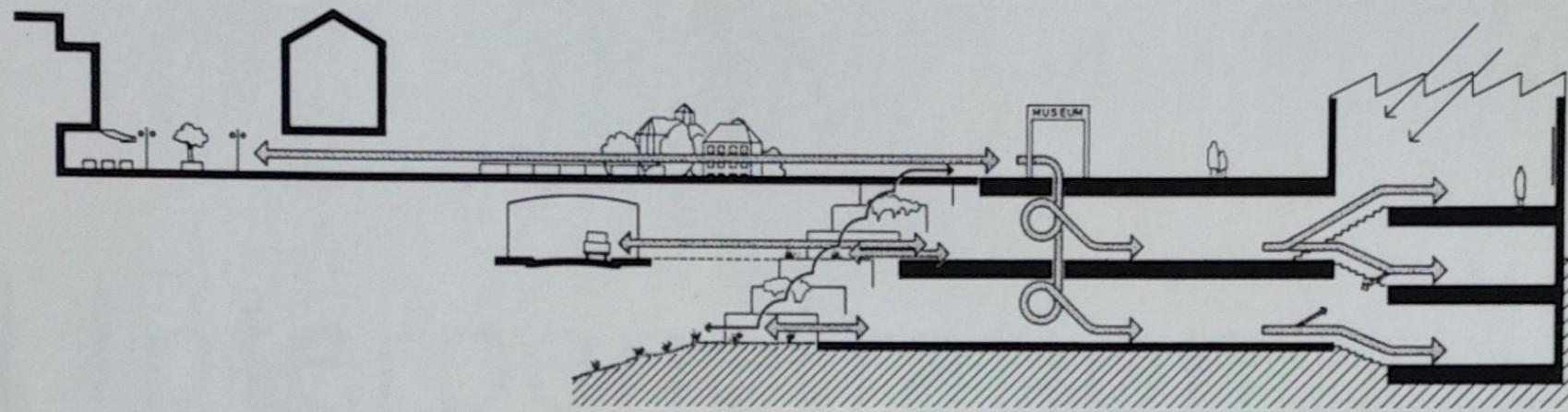
Ground plan of the upper floor



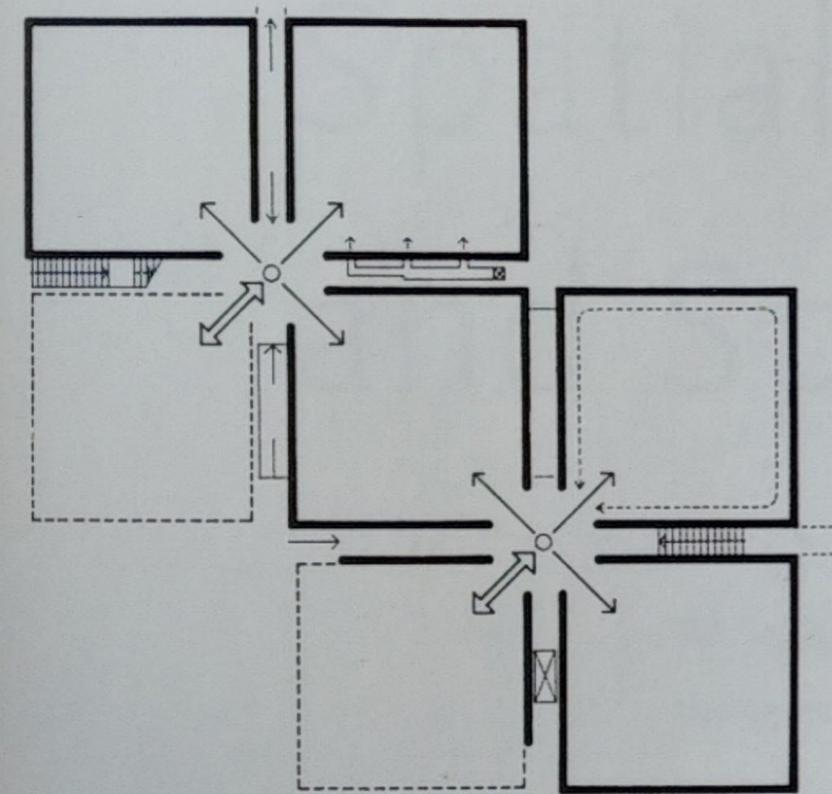
Ground plan

- DIRECTED SEQUENCES OF ROOMS
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**MUSEUM LAYOUTS - EXHIBITION**



Circulation (schematic longitudinal section)



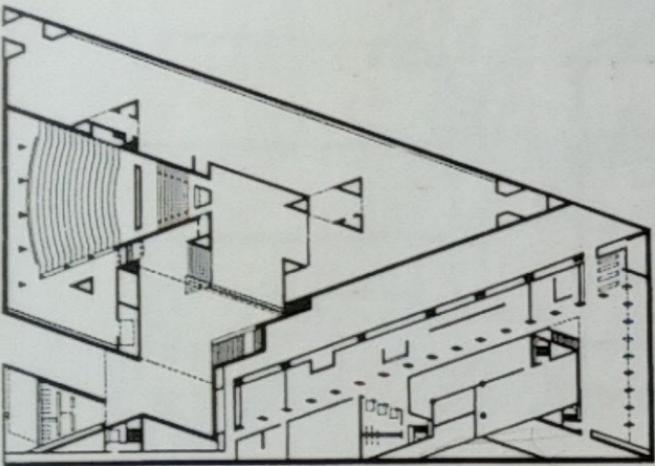
Exhibition room access

# Matrix-like Arrangement of Rooms

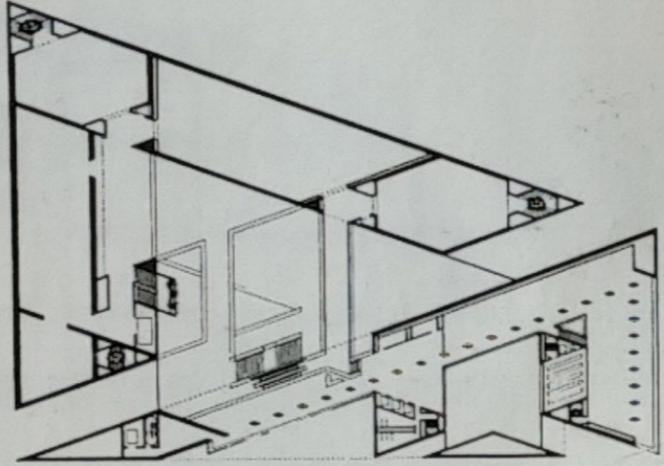
The term "matrix" used in biology to designate topsoil, and in connection with physics, referring to the simultaneous control of different parameters and finally, in mathematics, designating a particular scheme of figures and other quantities, here stands for the overlapping and ambiguity of spatial structures. Exhibition rooms are linked to each other in such a way that visitors are no longer conducted by a single route associated with auxiliary routes, but instead they are always offered a number of equal alternatives for continuing on their way. Beginning with the relatively simple spatial structure of the Kunstsammlung Nordrhein-Westfalen in Düsseldorf, which in many respects still exhibit the traits of a "directed sequence of rooms," the complexity of the spatial connections increases in the subsequent examples and in the end, does not remain limited in each case to one level (particularly in Hans Hollein's museums) but extends to the vertical interlinking of levels staggered in counterpoint to each other by means of an almost extravagant use of ramps and stairways.

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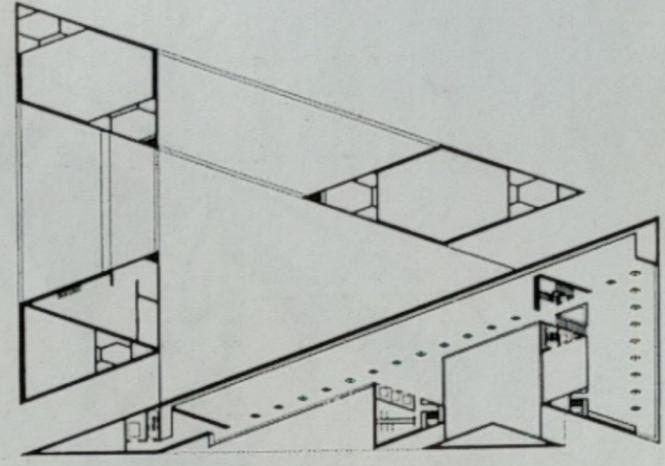
## MUSEUM LAYOUTS - EXHIBITION



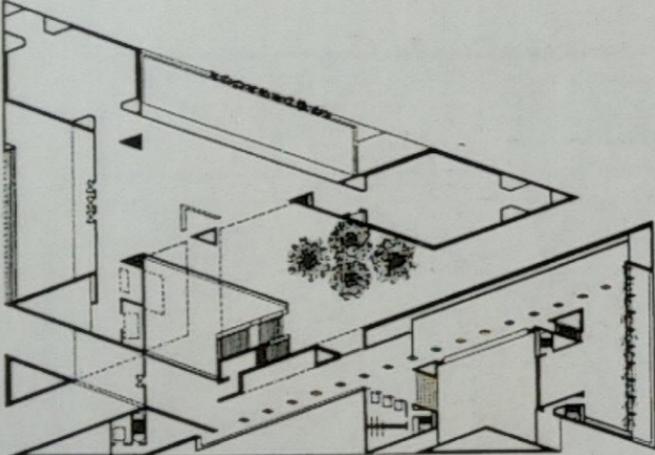
Level 1 (atrium)



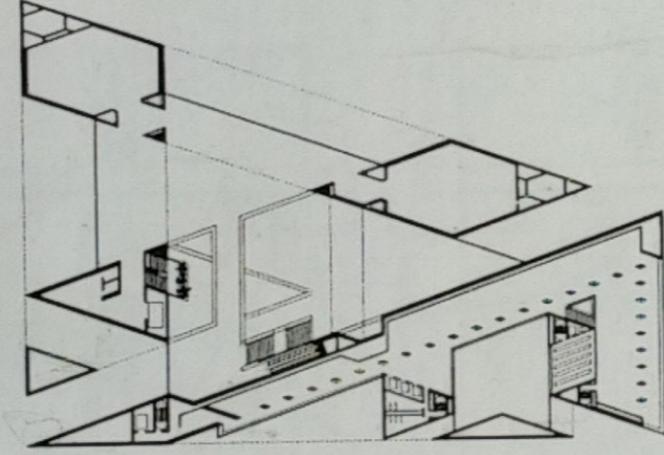
Level 4 (main gallery)



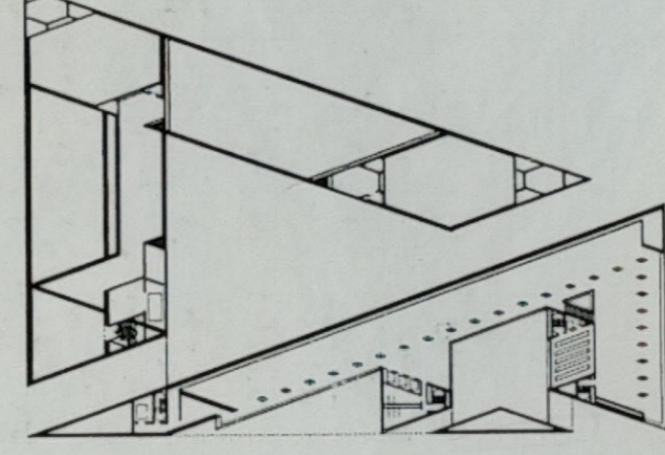
Level 6



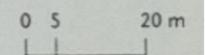
Level 0



Level 2 (mezzanine)



Level 5



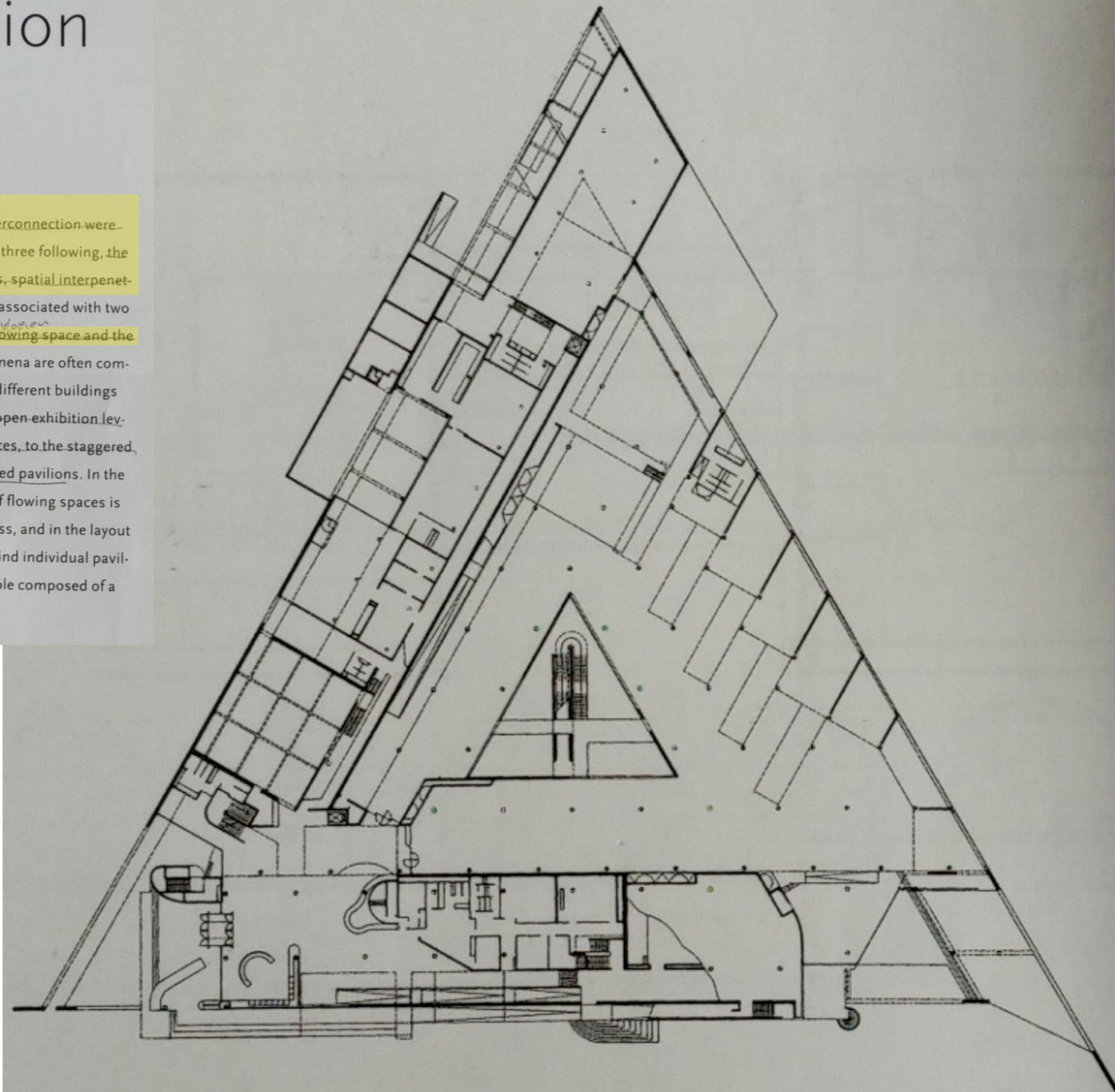
Ground plan of 6 levels of the East Wing

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**MUSEUM LAYOUTS -  
 EXHIBITION**

# Spatial Interpenetration and Spatial Isolation

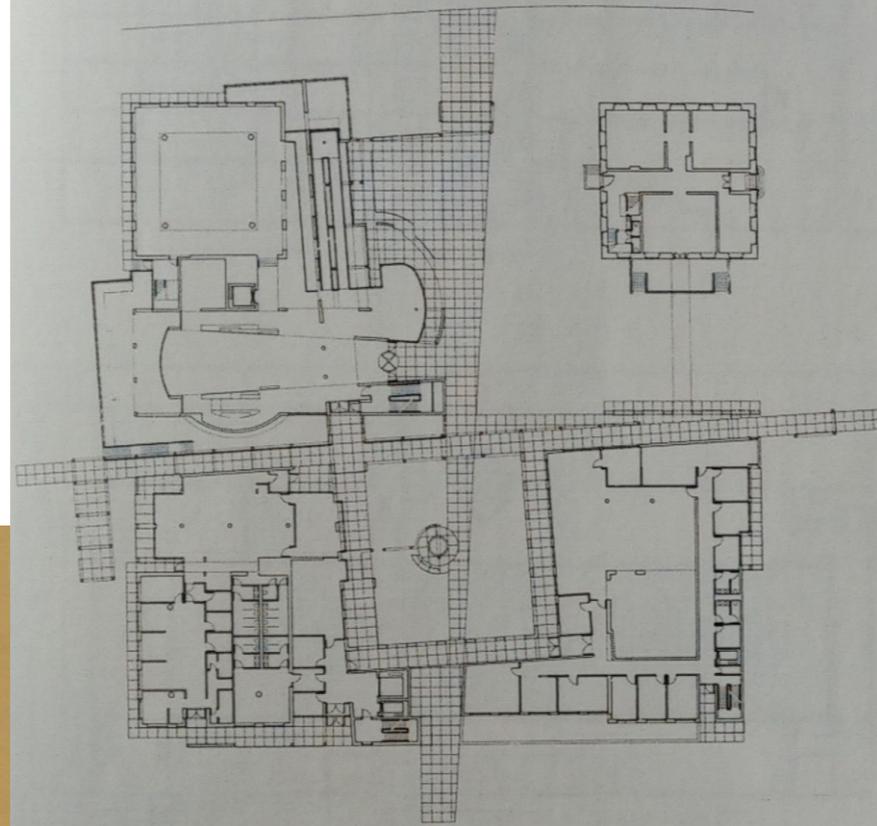
While the relationship of the rooms to each other and their spatial interconnection were the selection criteria in the first two parts of the project section, in the three following, the criterion is the quality of the spaces themselves. That pair of opposites, spatial interpenetration and spatial isolation, attempts to name a phenomenon that is associated with two important design principles of classical modernism: the concept of flowing space and the preference for pavilion-like structures. These two architectural phenomena are often combined, but they can also be mutually exclusive. Therefore we find very different buildings here, from the monumental solidity of Bielefeld's Kunsthalle, whose open exhibition levels can, however, also be regarded as classic examples of flowing spaces, to the staggered ensemble of Davos' Kirchner Museum, which consists of largely isolated pavilions. In the refined spatial structure of the Kunsthall in Rotterdam, the principle of flowing spaces is elevated to a complex interpenetration of spaces with spiral-form access, and in the layout of the Louisiana Museum – which has been repeatedly extended – we find individual pavilions connected by long passageways linked together into a unified whole composed of a number of rooms enclosing and interpenetrating each other.



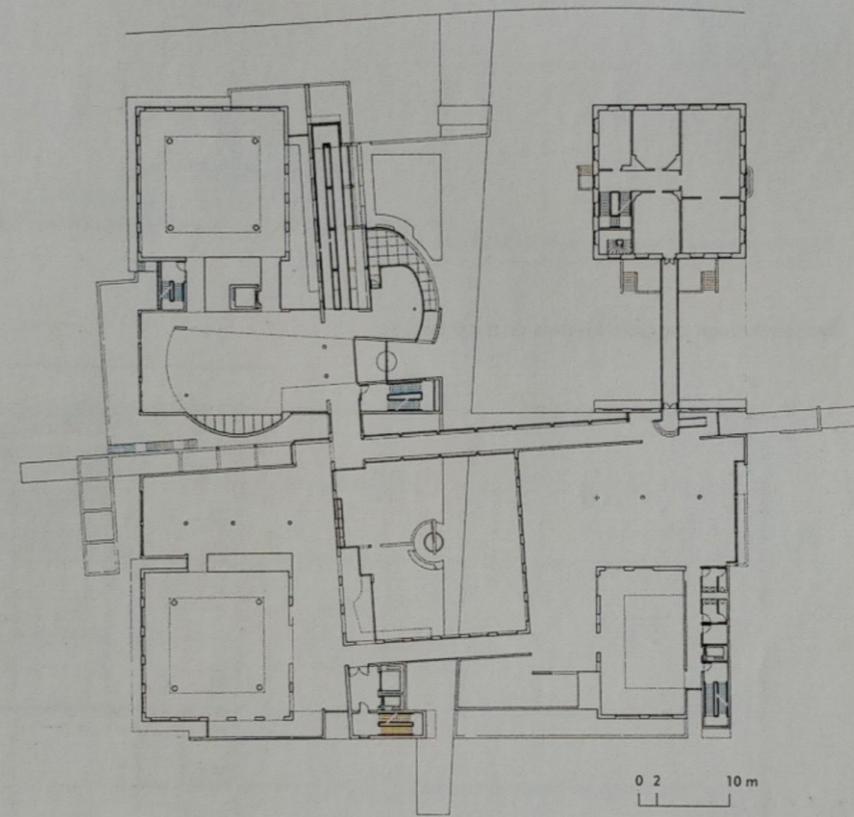
Ground floor plan

- DIRECTED SEQUENCES OF ROOMS
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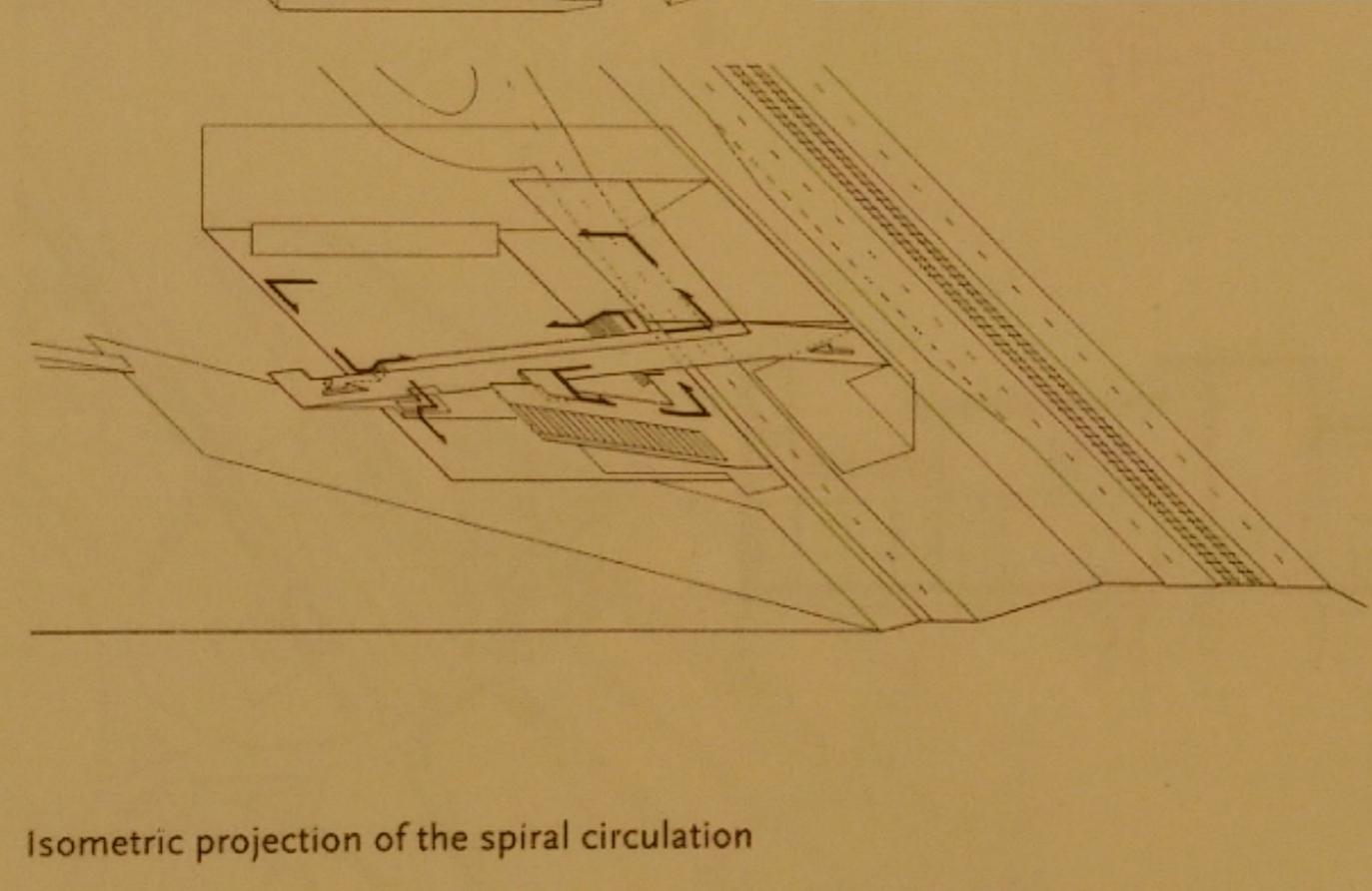
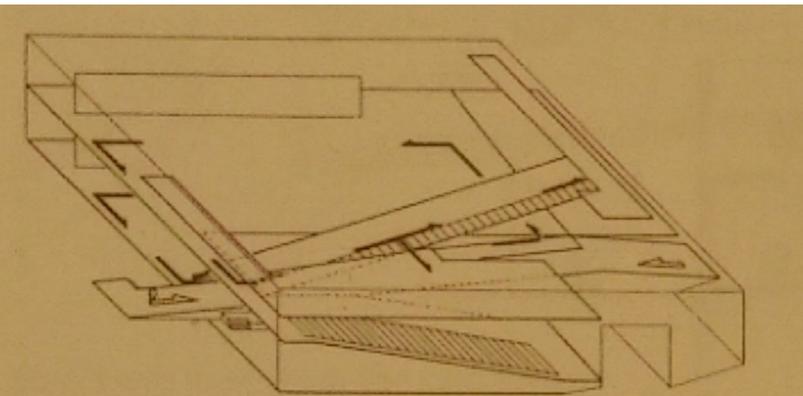
## MUSEUM LAYOUTS - EXHIBITION



Ground floor plan



Ground plan of the first floor



Isometric projection of the spiral circulation

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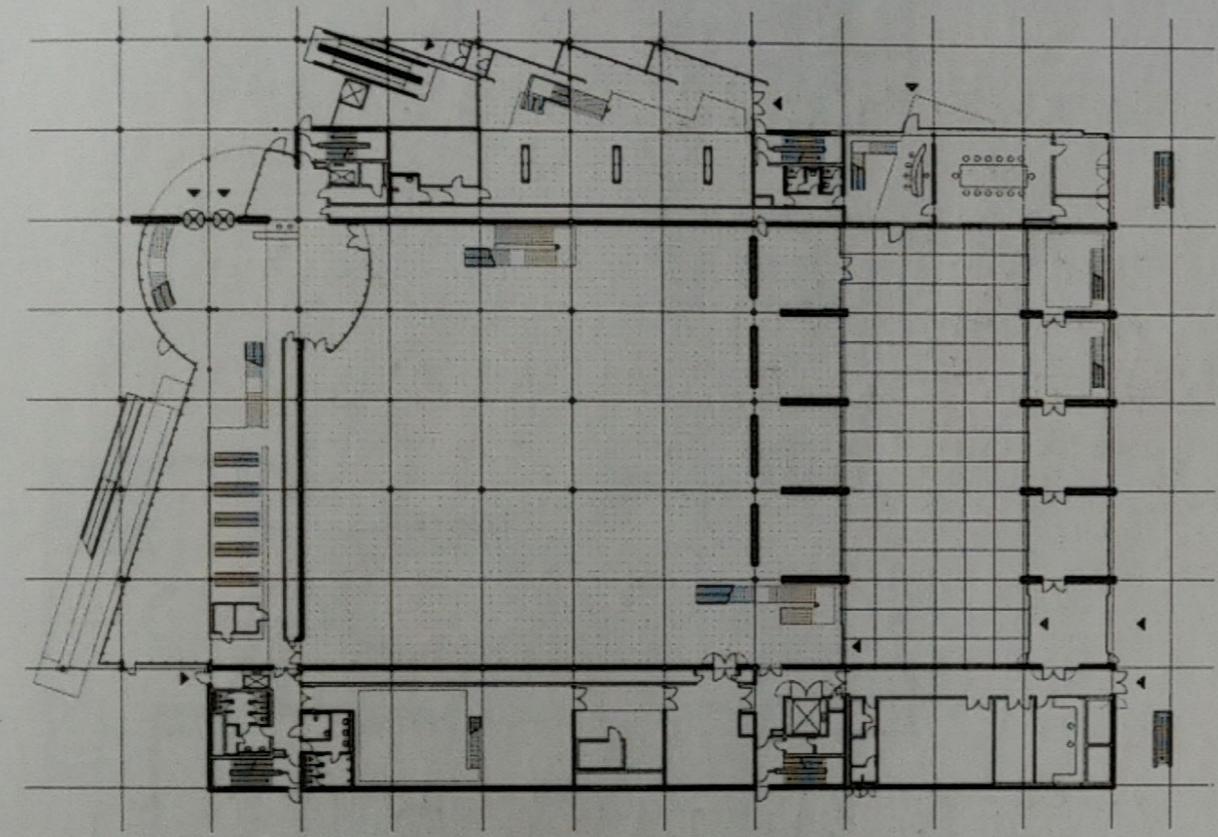
## MUSEUM LAYOUTS - EXHIBITION

# Open Plans

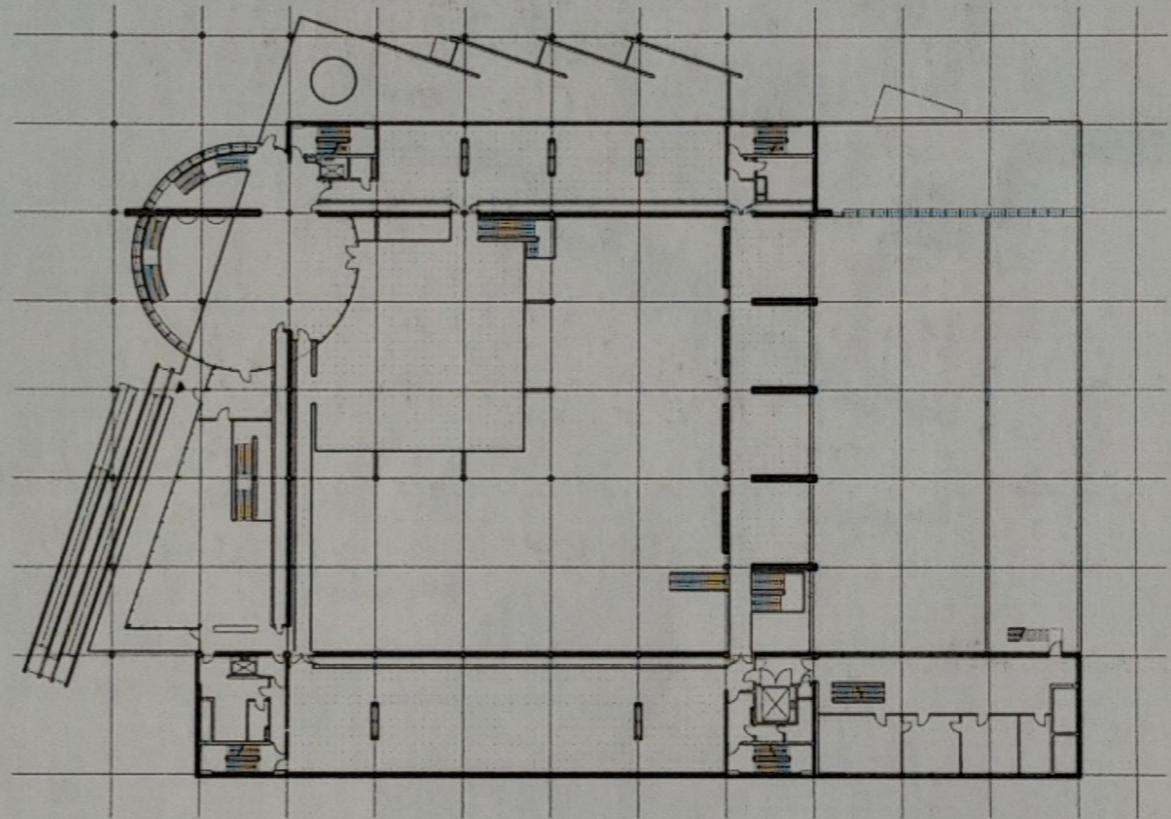
Especially in the sixties and seventies, the open plan was not only considered a model of democratic transparency, but also, as a supposedly neutral pattern, provided the prerequisite for a multitude of transformation possibilities achievable by technical means. The most spectacular example of this is the Centre Pompidou, whose original conception has to a large extent been lost, however, by the subsequent addition of fittings. Nonetheless, this architecture conceived as a “flexible container” is programmatically placed at the beginning of our selection of museum buildings whose open structure is appropriate not least for didactically arranged science museums like the newMetropolis or Domus. This section ends intentionally with two museums, the Kunsthau in Bregenz and the Neue Nationalgalerie in Berlin, whose very different rooms – that are in any case to be classified as “open” – are no longer intended to be understood as neutral envelopes, but instead as manifestations of the epitome of architectural space.

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EXHIBITION**



Ground floor plan

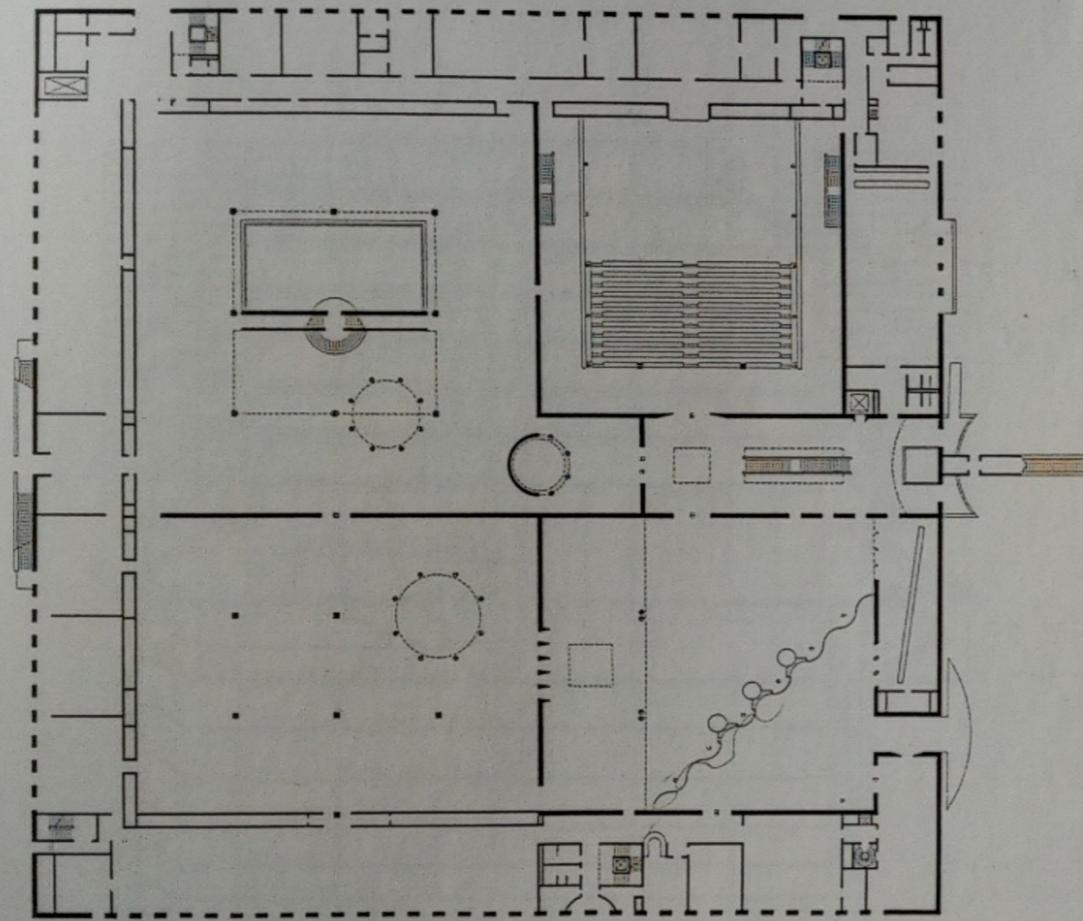


Ground plan of the second floor

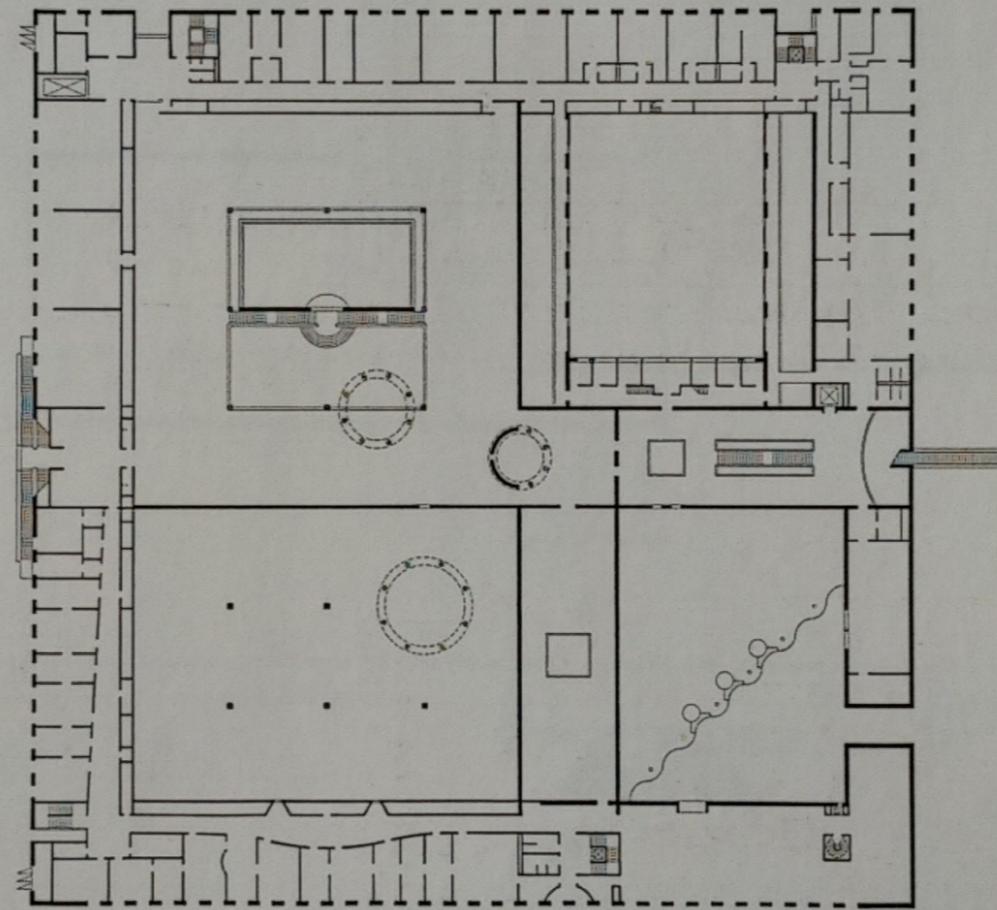
0 2 10 m

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Ground floor plan

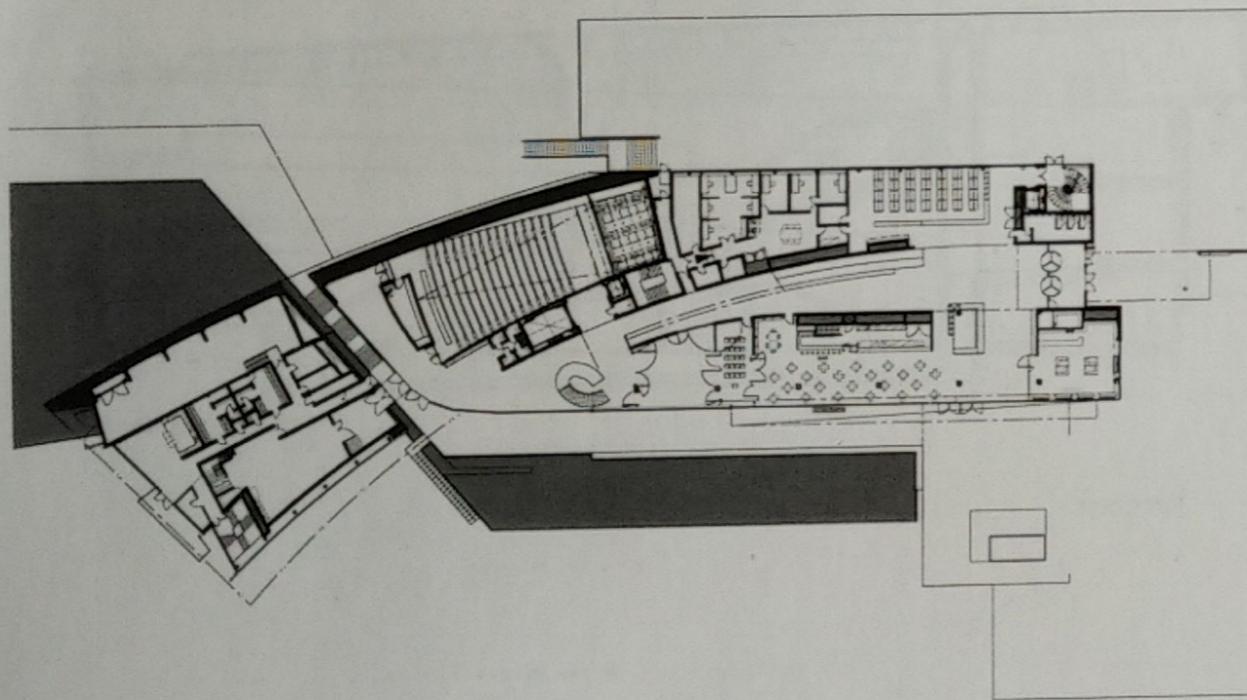
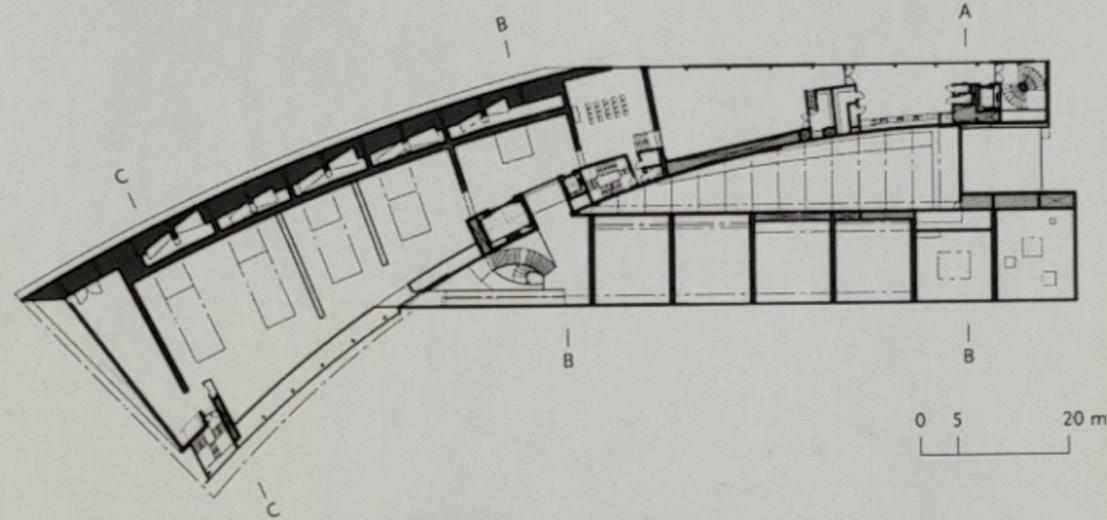
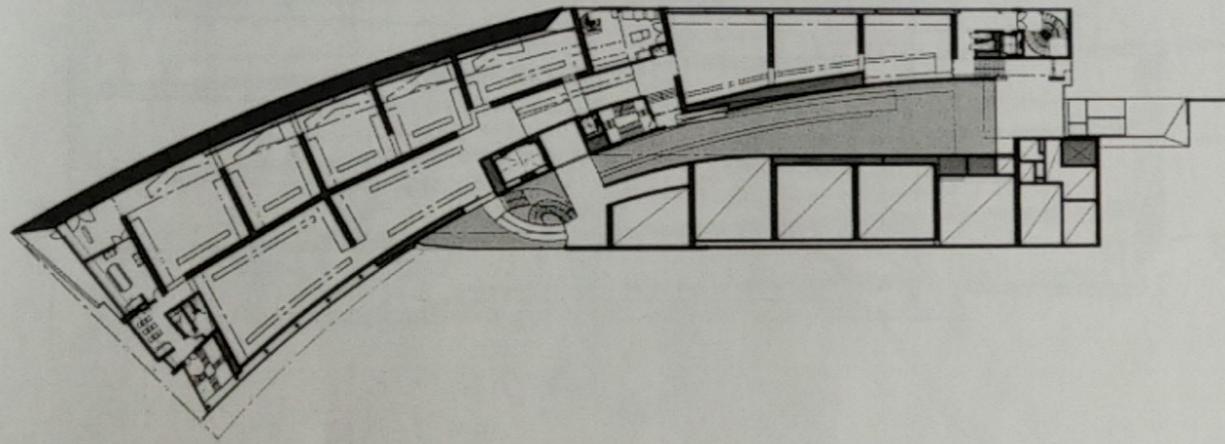


Ground plan of the upper floor

0 5 20 m

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## MUSEUM LAYOUTS - EXHIBITION



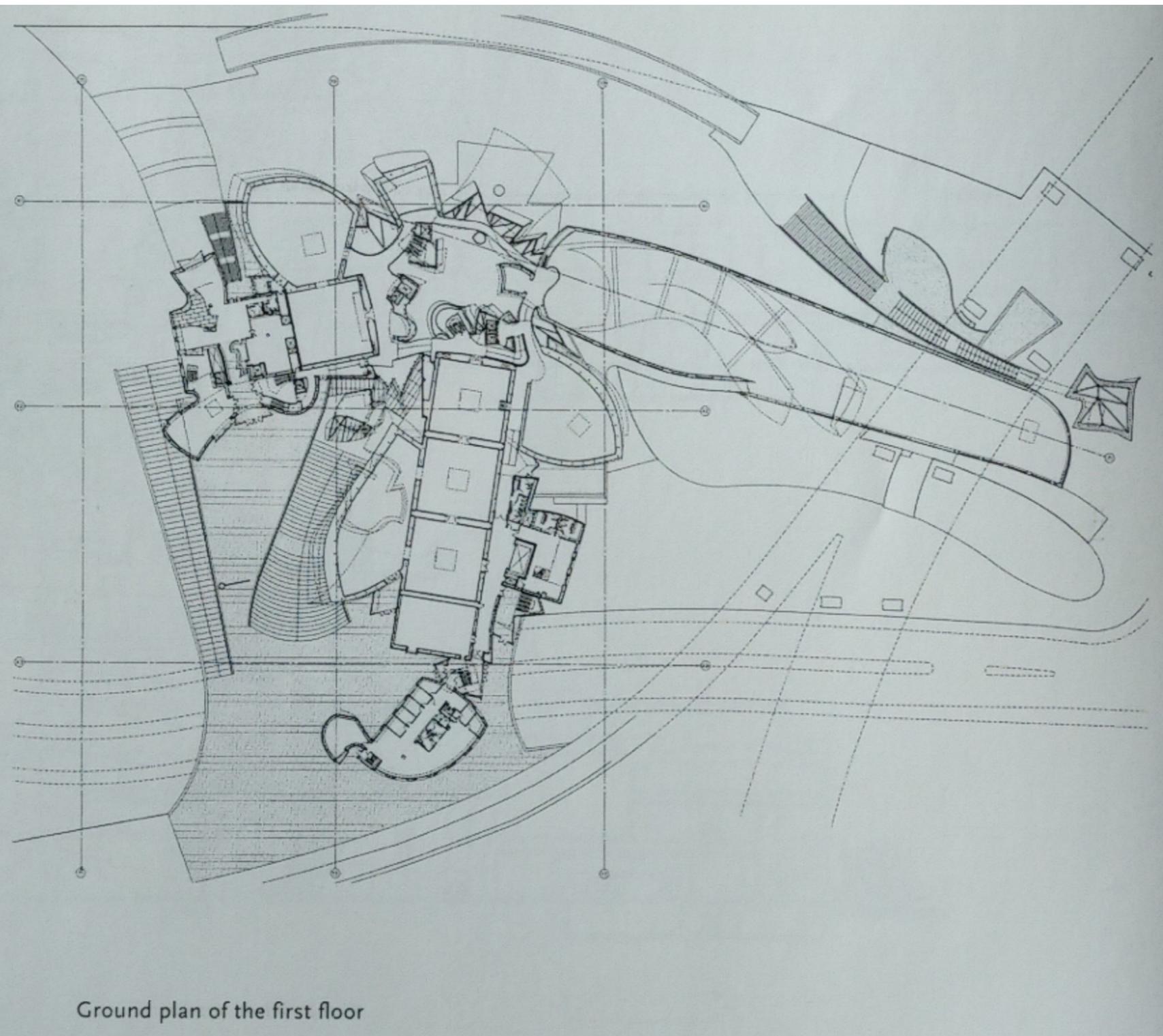
from below left to above right  
Ground floor plan | Second floor | Fourth floor

# Free-form Spaces

The characteristic that is common to the museum buildings in this section, whose labelling ranges from “expressive” to “deconstructivist” to “plastic” and “organic” is the rejection of the prismatic form based on the axiom of the right angle. As the uniqueness of their appearance lies primarily in the extravagance (very differently motivated) of their architectural form, buildings such as the Jüdische Museum in Berlin, The Kiasma Museum in Helsinki, and the Neanderthal Museum in Mettmann are collected together here under the category of free-form spaces, although they also meet – and in this sequence – the criteria for “spatial interpenetration,” “directed sequences of rooms” or “open plans.” Even the Guggenheim Museum in Bilbao, which is considered to be the epitome of that ‘plastic architecture’ that breaks with all architectural conventions also has a sequence of rooms linked in enfilade on a square or rectangular ground plan. Yet the declared intention of all these buildings to underline the ‘museum’ purpose not least through their architecture understood as autonomous work of art justifies the appropriateness of the organizational category of “free-form spaces.”

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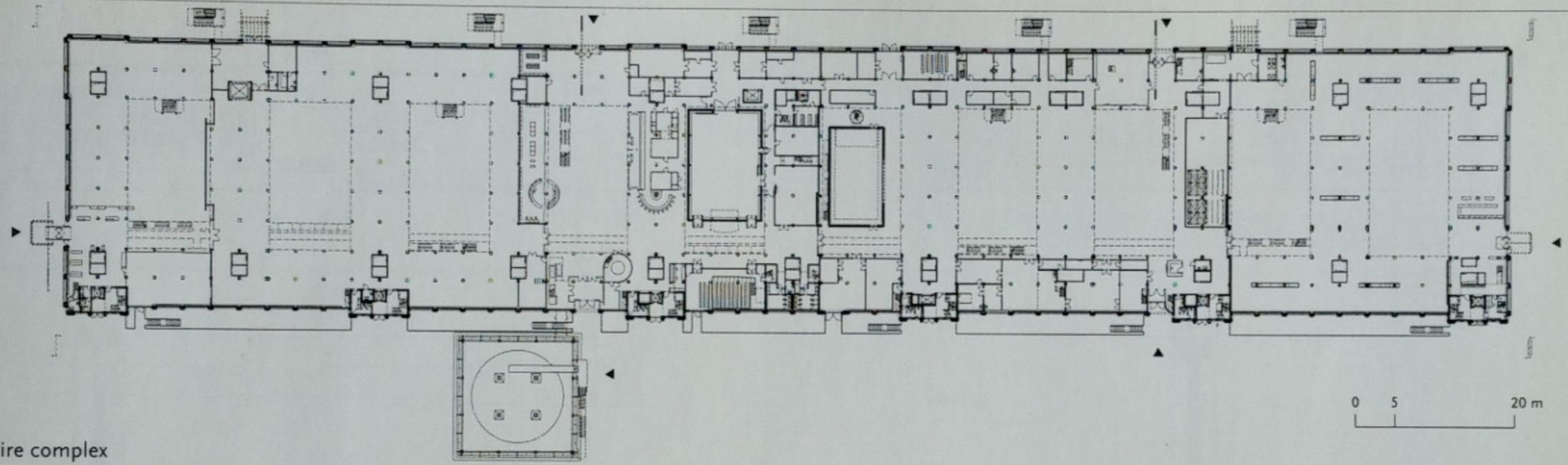
## MUSEUM LAYOUTS - EXHIBITION



Ground plan of the first floor

DIRECTED SEQUENCES OF ROOMS  
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TION  
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ARCHITECTURE MONUMENTS

## **MUSEUM LAYOUTS - EXHIBITION**



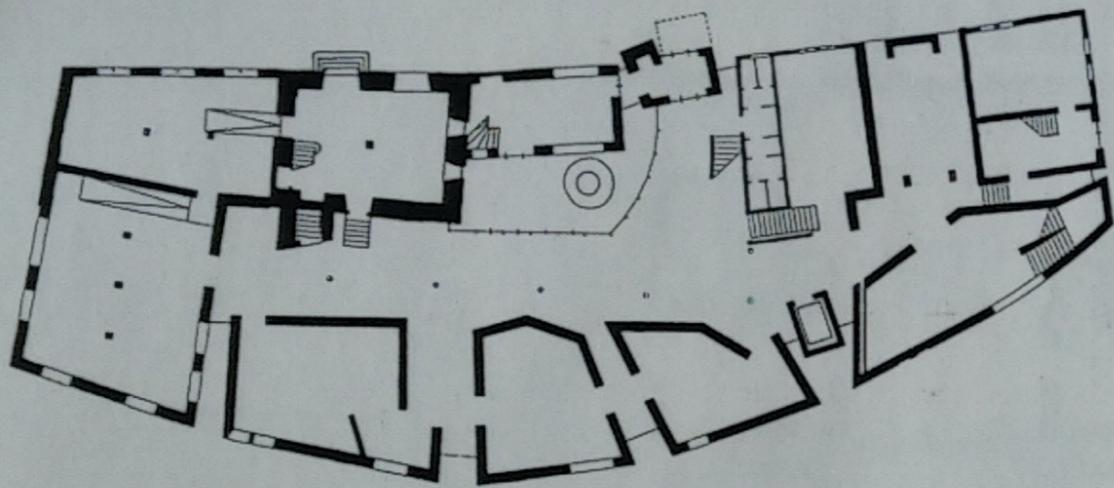
Ground floor plan of the entire complex

# Conversions and Extensions of Architectural Monuments

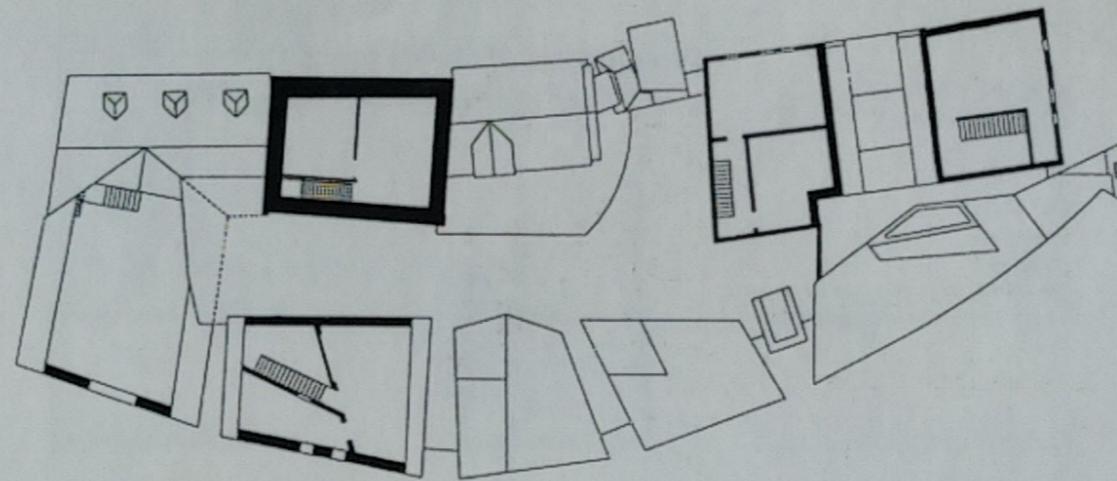
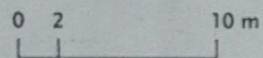
Although the organizational parameter of this category necessitates an additional change of perspective, it is justified not only by the fact that many of the oldest and at the same time most prominent buildings, such as the Louvre or the Uffizi, came into being as conversions of existing buildings, but also by the fact that the attempt to come to terms with existing structural fabric denotes a fundamental preconditioning of any planning that allows hardly any free choice between the typologies mentioned before. The scope of this category ranges from preservation to the highest degree with only very minor extension of the existing historical structure in the Centre for Art and Media Technology in Karlsruhe, to the extensions of the Korbach Regionalmuseum and the Kassel Museum für Sepulkralkultur, both of which used an entirely new formal language, but whose dimensions were oriented on those of the original buildings. Finally, in the Gipsoteca Canoviana, the completely autonomous extension provides a contrasting accent to the old building left in its original museum function, and from that perspective, represents a borderline case that leads back to the Neue Stuttgarter Staatsgalerie at the beginning of the project selection. That gallery could be classified as an extension, just as the Sainsbury Wing of the National Gallery in London or the East Wing of the National Gallery in Washington could as well.

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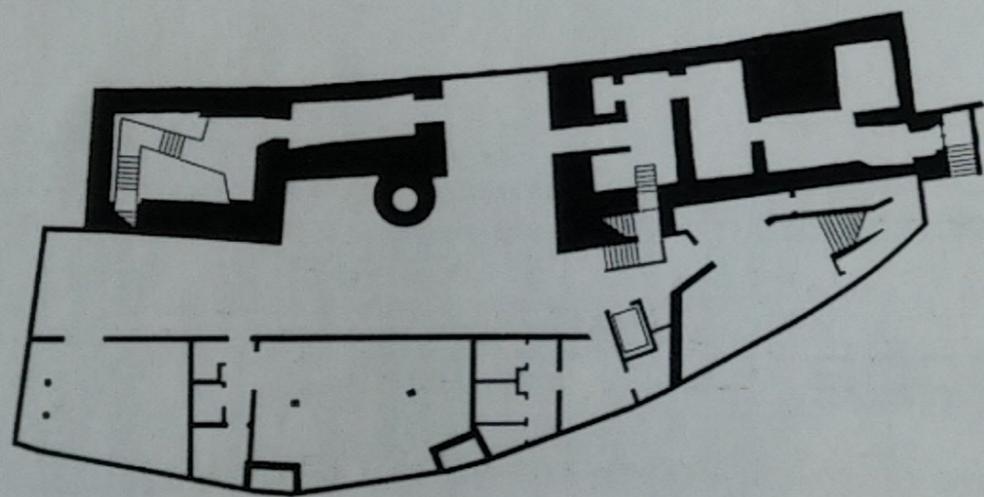
## **MUSEUM LAYOUTS - EXHIBITION**



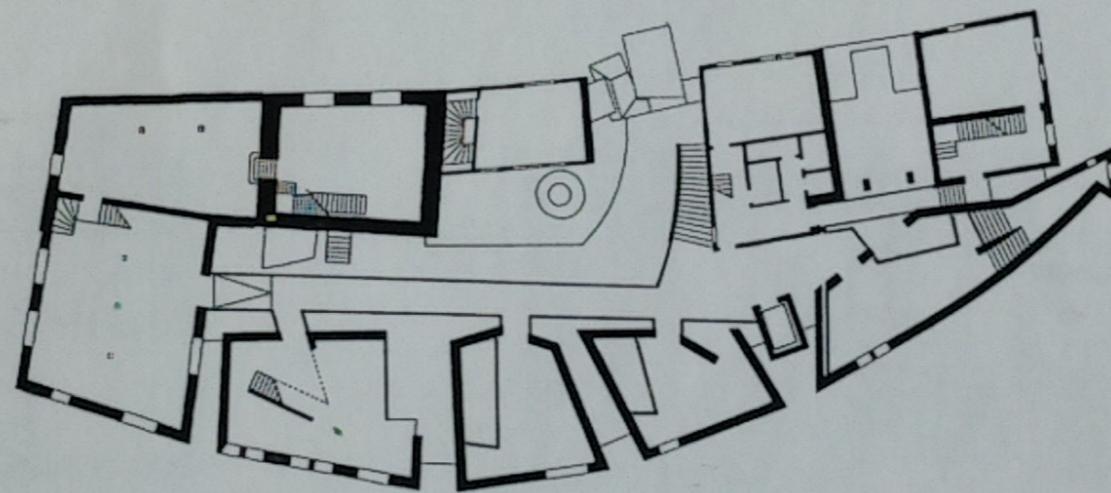
Ground floor plan



Ground plan of the second floor



Ground plan of the basement



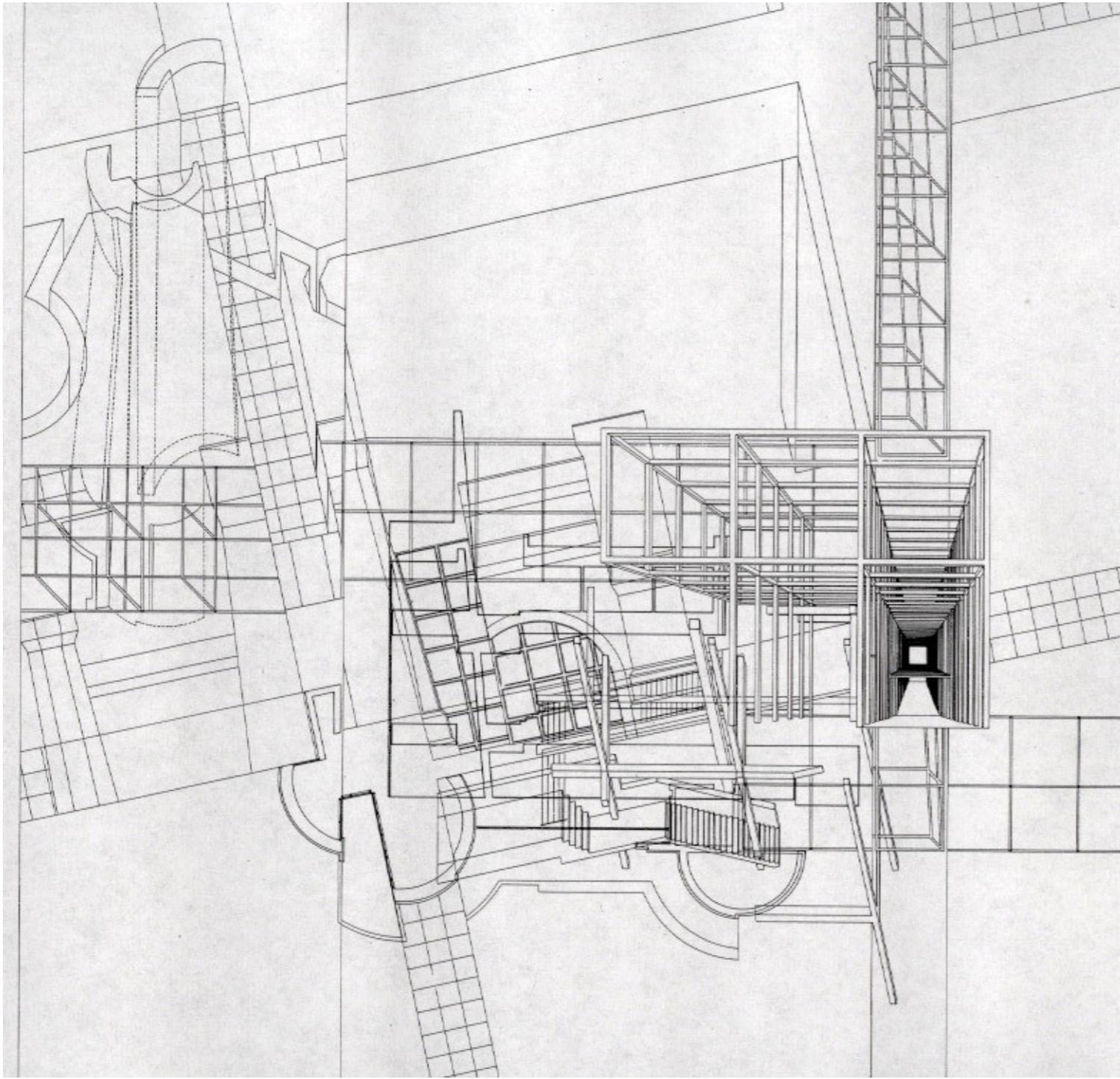
Ground plan of the first floor

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**MUSEUM LAYOUTS - EXHIBITION**



**INFRASTRUCTURE**  
Building is over the road



Wexner Center for the Arts / Peter Eisenman

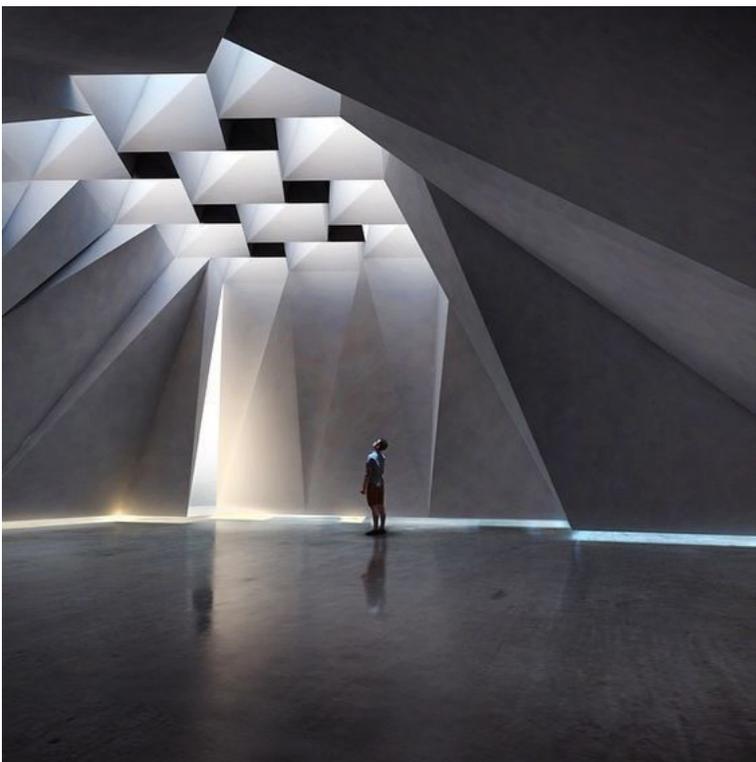
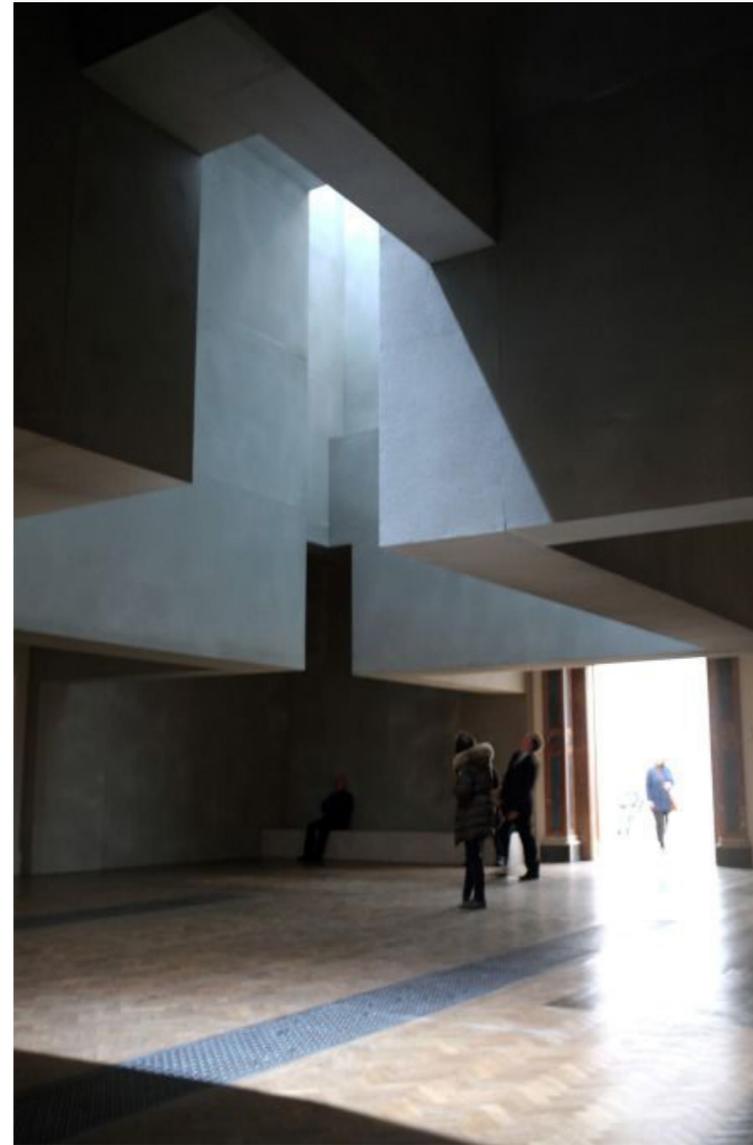
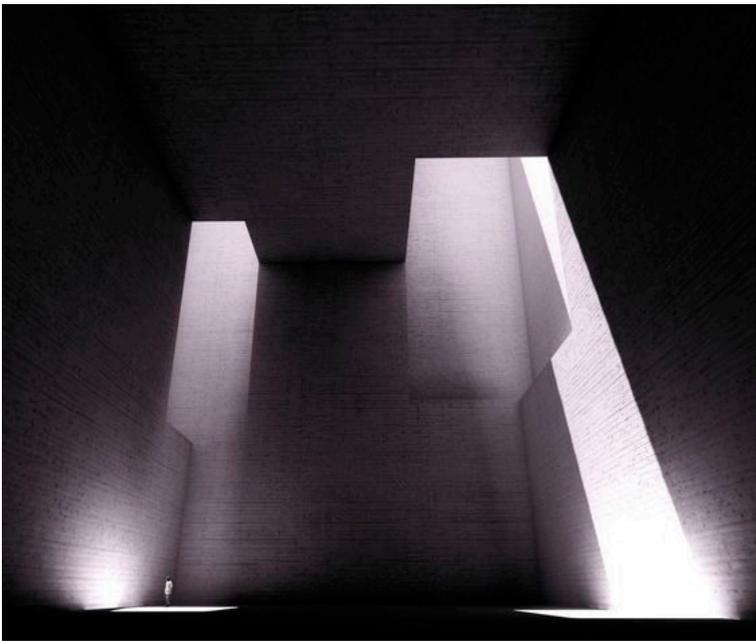


'Villa Hutheesing' by Dioniso González, 2013

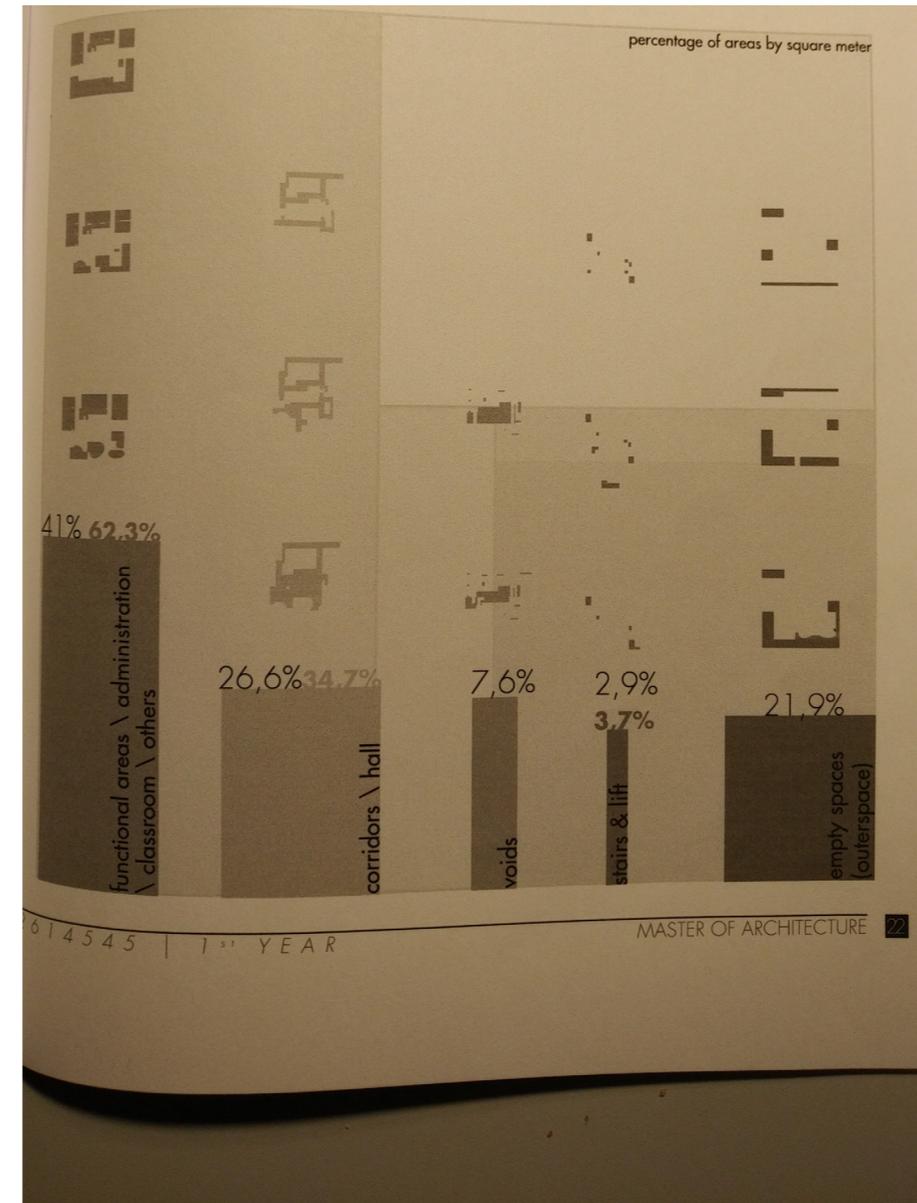
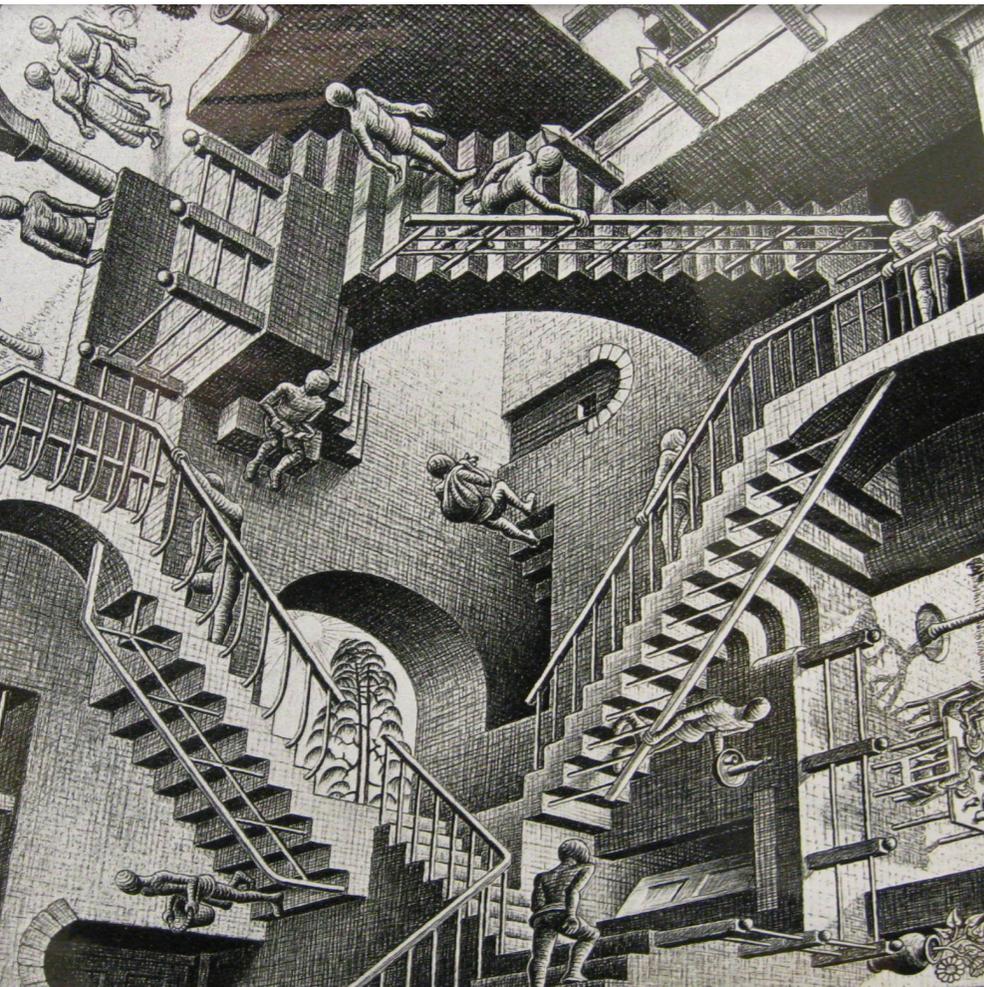
## CUT-OUTS & FRAMES



**CUT-OUTS & FRAMES**



**SPACE AND LIGHT**



The scale of space areas in this building is an example. Actual main function is less than half of the entire building.

## SPACE AND LIGHT

**SHADING**

**MATERIALISM**

Concrete

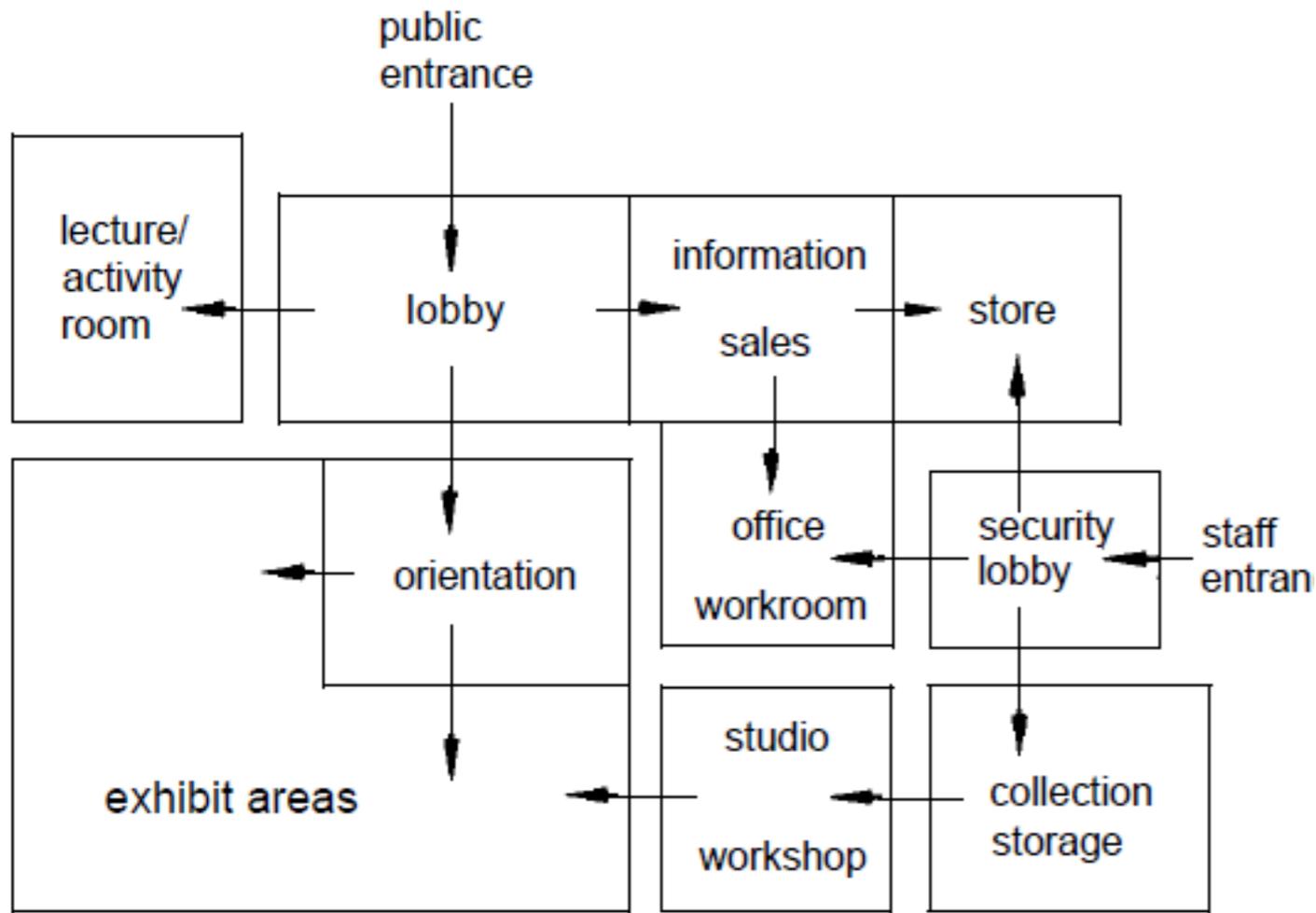
Metal

Glass

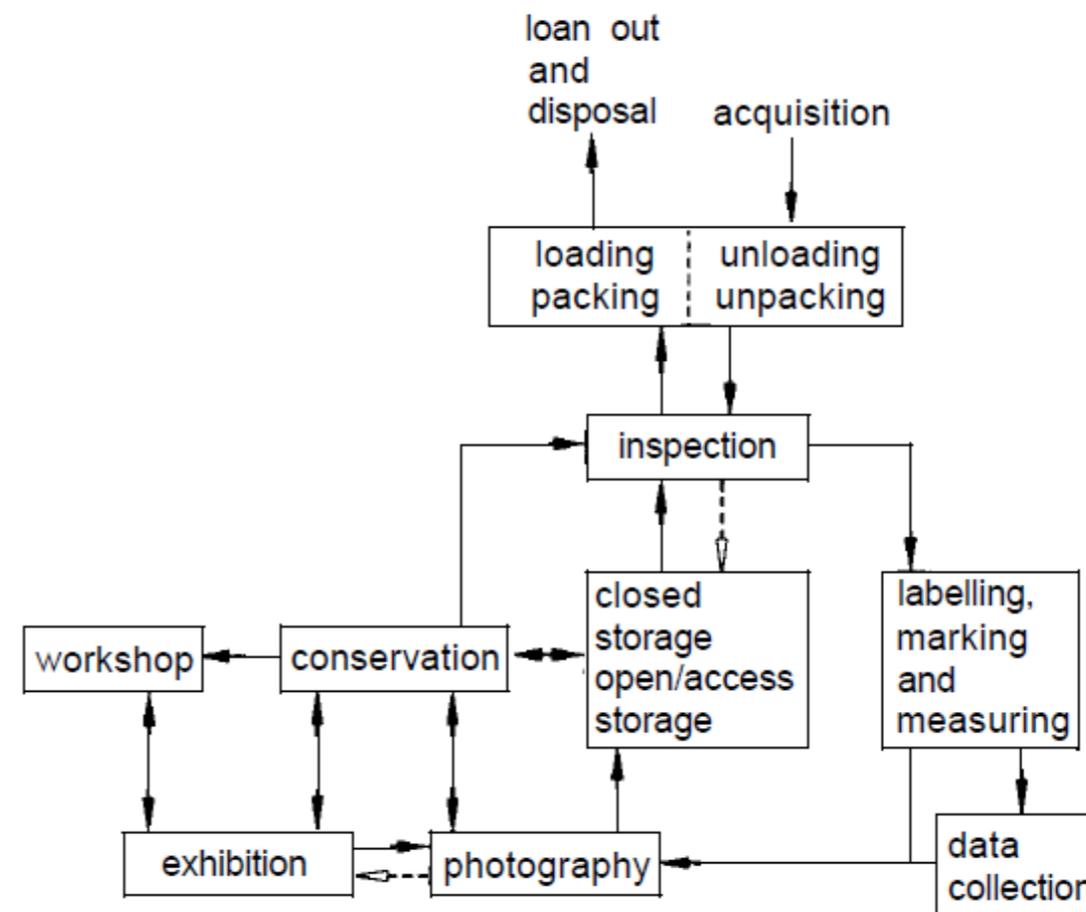
Green

Wood

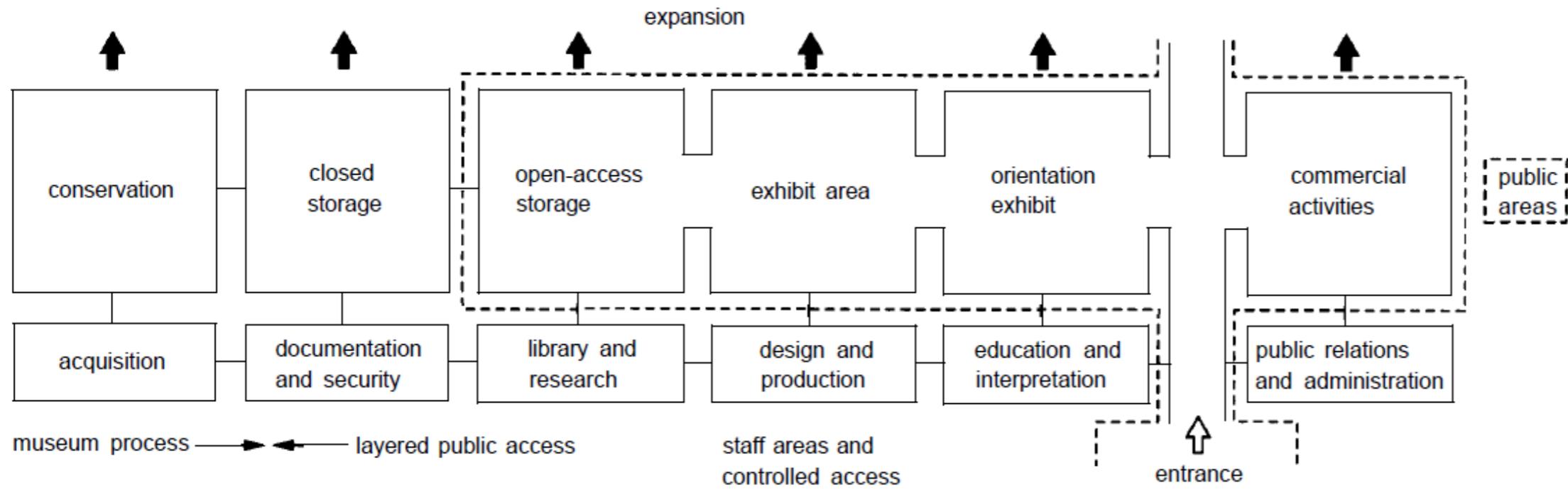
**ARCHITECTURE**  
**TURE**  
DESIGN STANDARDS



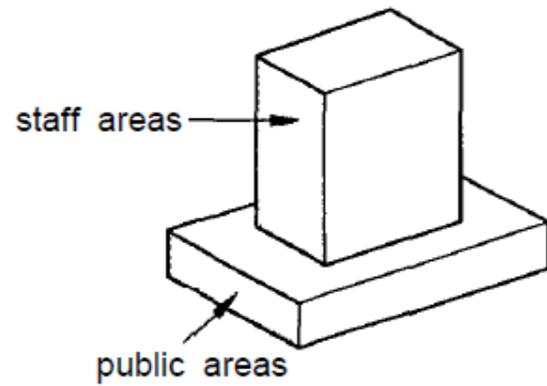
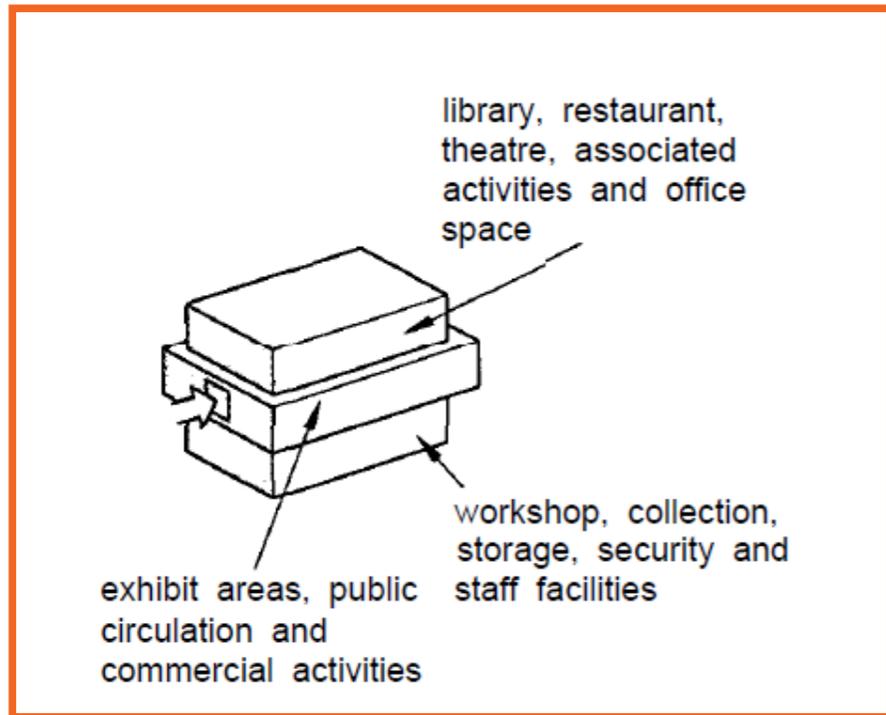
31.4 A possible layout diagram for a small museum



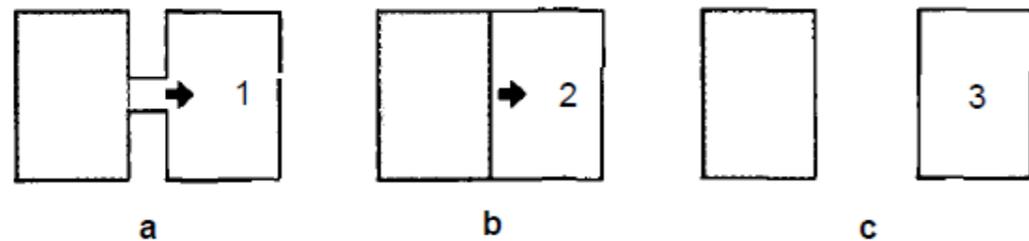
31.2 Flow diagram of collection item movements in the operation of collection services: exhibitions, conservation and collections management



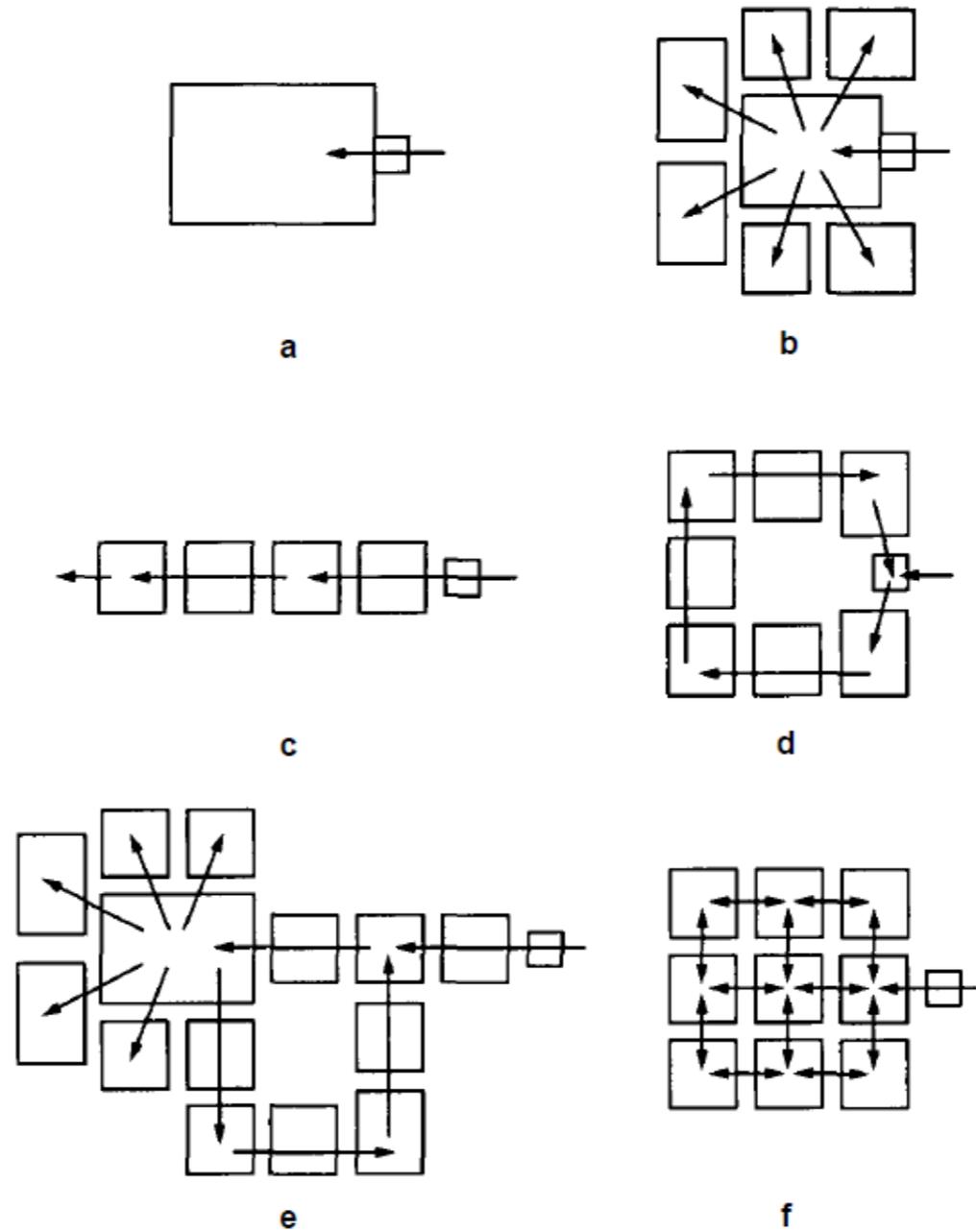
31.3 A layout concept showing a clear relationship between museum functions and an approach to zoning and expansion



31.5 Two basic massing concepts that allow public areas to be organised on one level



31.6 Three modes of expansion: a Block addition; b Extension; c New building



31.7 Genetic plans for exhibit and open-access storage areas:  
 a Open plan; b Core + satellites; c Linear procession; d Loop;  
 e Complex; f Labyrinth



**SECURITY**

**SECURITY**



Abhinay Bhandari, former Intern at Sikkim Renewable Energy (2016-2017)

Answered Apr 26, 2017

The thumb rule for setting up solar panel is that you can set up a 1 kilowatt plant in an available space of 8 meters square.

**So for 1 sq. m we can setup 1000/8= 165 watt**

You won't get a module with that capacity. so you can fit a 150 watt panel or a 200 watt panel.

Now you installed a 150watt solar panel

The amount of energy you harness depends on the amount of solar insolation your area receives. It's different for different areas.

Let's assume the Global horizontal index or the solar insolation for your region is 4.5 kWh/sq.mday

**Therefore the energy produce per year**

= Panel capacity \* solar insolation\* days of the year

= **150 \* 4.5 \* 365**

= **261157 Whr or 261 KWhr per year.**

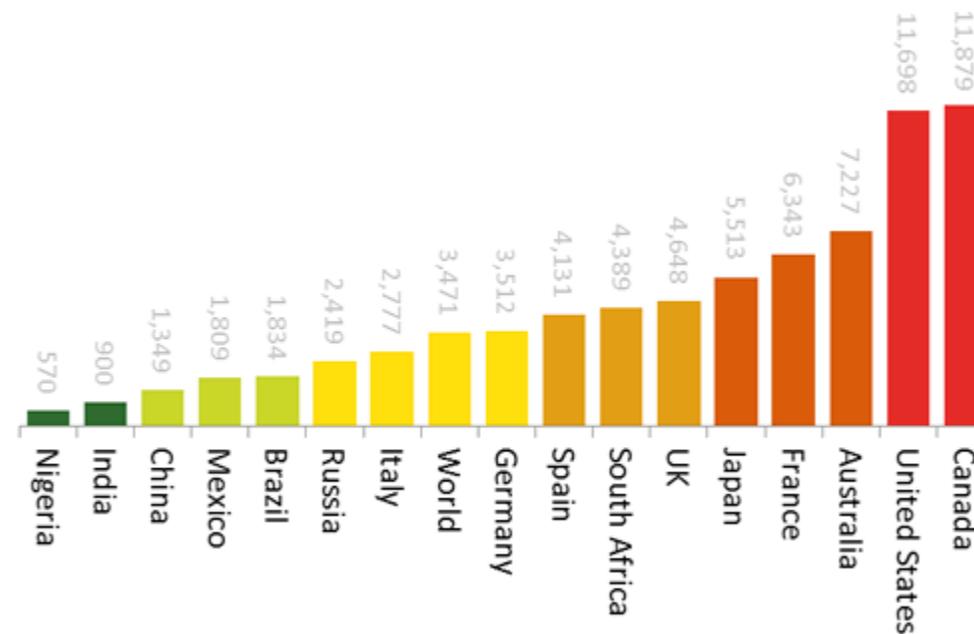
You can look into <http://HTTPS://eosweb.larc.nasa.gov/see>

[NIWE](#)

KWH/year

$19.000 \text{ m}^2 \times 150 \times 4.5 \times 365 = 4681125000 \text{ WH} / 1400 = 3.343 \text{ households/year}$   
 $19.000 \text{ m}^2 \times 200 \times 4.5 \times 365 = 6241500000 \text{ WH} / 1400 = 4.458 \text{ households/year}$

Household Electricity Consumption (kWh/year)



Note: Figures are 2010 averages for electrified households

Source: Enerdata via World Energy Council



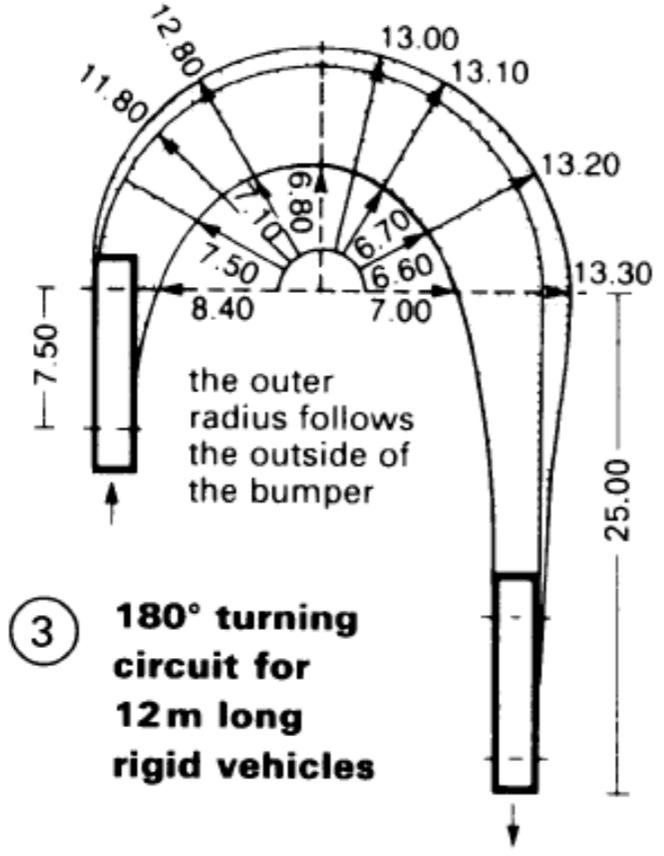
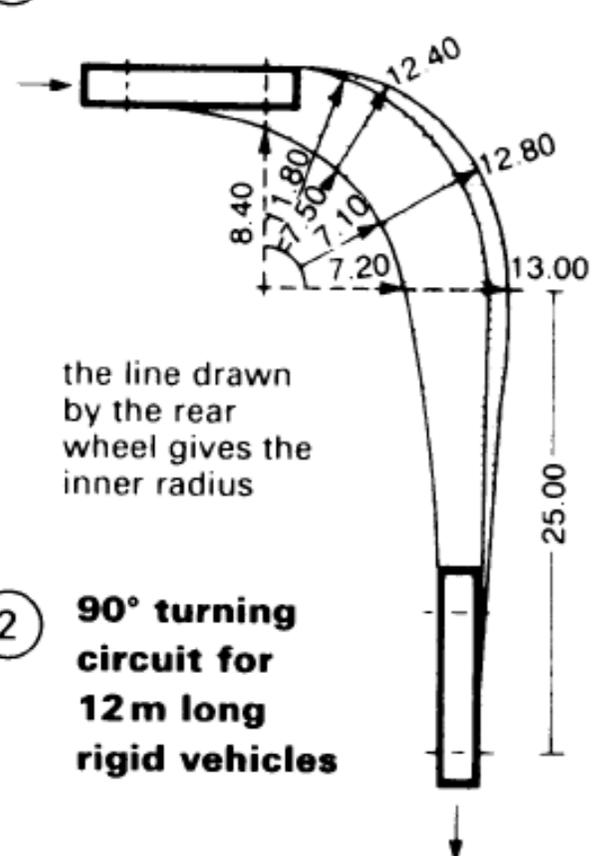
**CLIMATE CONDITION-  
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**CLIMATE CONDITION-  
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**LIGHTING DESIGN**

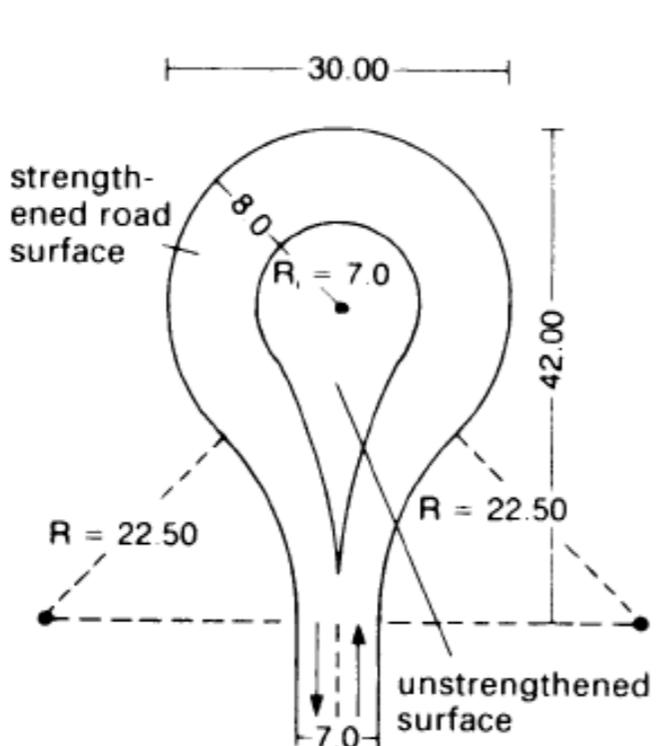
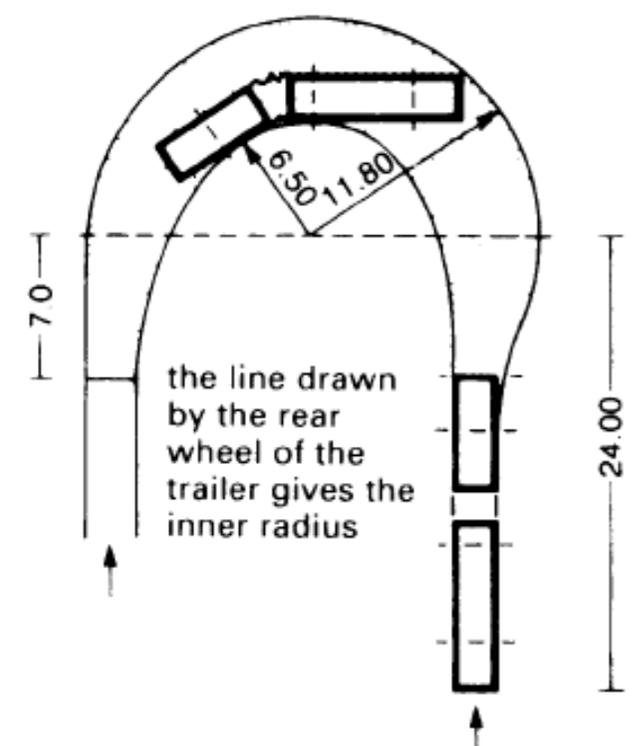
**LIGHTING DESIGN**

**1 Bus dimensions**



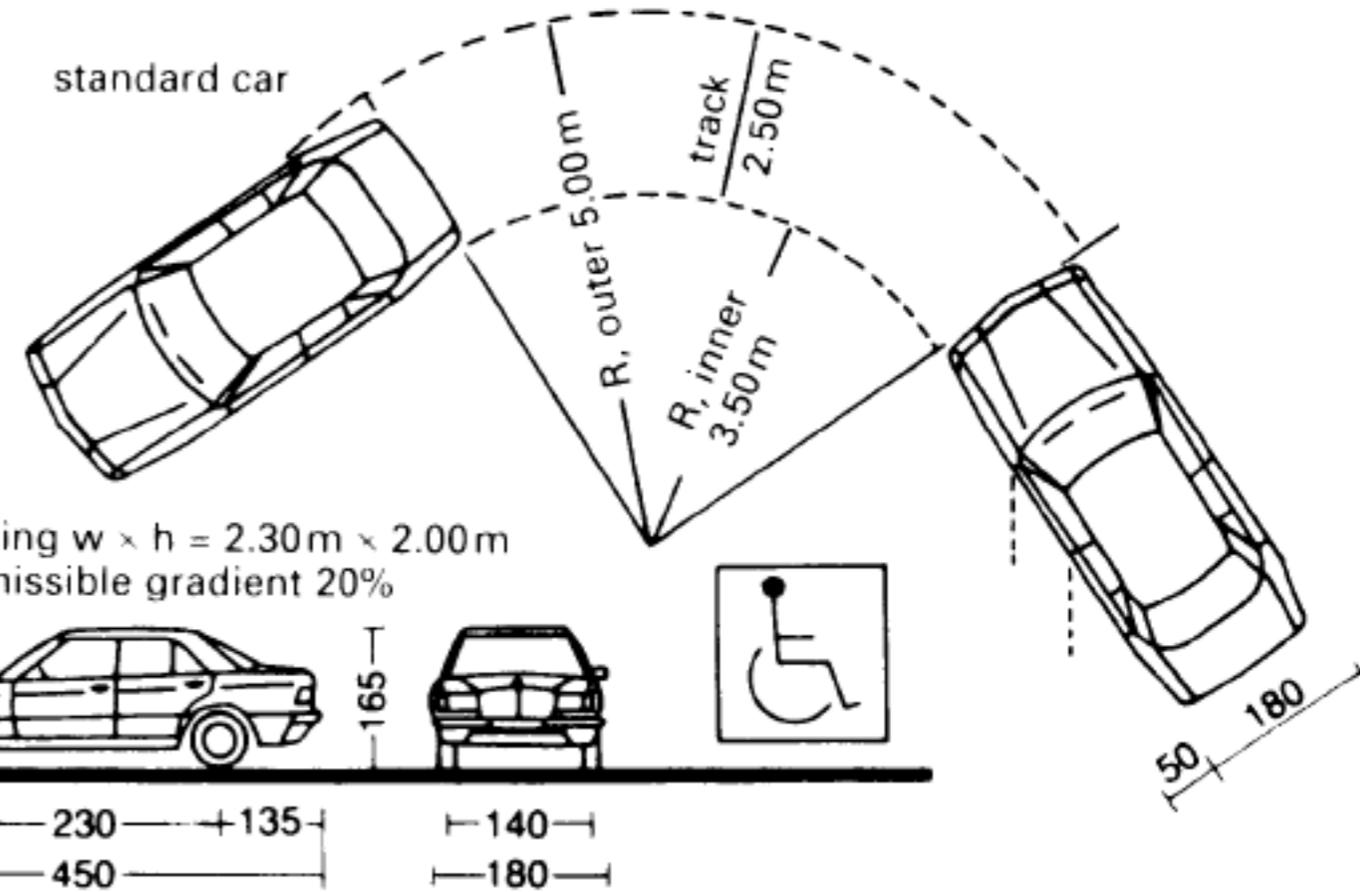
**2 90° turning circuit for 12m long rigid vehicles**

**3 180° turning circuit for 12m long rigid vehicles**



**4 180° turning circuit for 17m long articulated vehicles**

**5 Turning circuit**



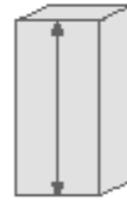
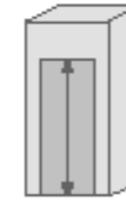
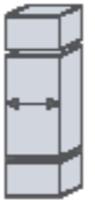
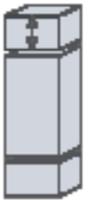
**1 Standard car**

**TRAFFIC**

type of vehicle	length (m)	width (m)	height (m)	turning circle radius (m)
motorcycle	2.20	0.70	1.00 <sup>2)</sup>	1.00
car				
- standard	4.70	1.75	1.50	5.75
- small	3.60	1.60	1.50	5.00
- large	5.00	1.90	1.50	6.00
truck				
- standard	6.00	2.10	2.20 <sup>1)</sup>	6.10
- 7.5t	7.00	2.50	2.40 <sup>1)</sup>	7.00
- 16 t	8.00	2.50	3.00 <sup>1)</sup>	8.00
- 22t (+16 t trailer)	10.00	2.50	3.00 <sup>1)</sup>	9.30
refuse collection vehicle				
- standard 2-axle vehicle (4 × 2)	7.64	2.50	3.30 <sup>1)</sup>	7.80
- standard 3-axle vehicle (6 × 2 or 6 × 4)	1.45	2.50	3.30 <sup>1)</sup>	9.25
fire engine	6.80	2.50	2.80 <sup>1)</sup>	9.25
furniture van (with trailer)	9.50 (18.00)	2.50	2.80 <sup>1)</sup>	9.25
standard bus I	11.00	2.50 <sup>3)</sup>	2.95	10.25
standard bus II	11.40	2.50 <sup>3)</sup>	3.05	11.00
standard vehicle - bus	11.00	2.50 <sup>3)</sup>	2.95	11.20
standard vehicle - articulated bus	17.26	2.50 <sup>3)</sup>	4.00	10.50–11.25
standard articulated truck	18.00	2.50 <sup>4)</sup>	4.00	12.00 <sup>5)</sup>
tractor		2.50 <sup>4)</sup>	4.00	
trailer		2.50 <sup>4)</sup>	4.00	
max. values of the road regulations				
2-axle vehicle (4 × 2)	12.00	2.50 <sup>4)</sup>	4.00	12.00
vehicle with more than 2 axles	12.00	2.50 <sup>4)</sup>	4.00	12.00
tractor with semi-trailer	15.00	2.50 <sup>4)</sup>	4.00	12.00
articulated bus	18.00	2.50 <sup>4)</sup>	4.00	12.00
trucks with trailer	18.00	2.50 <sup>4)</sup>	4.00	12.00
notes:				
1) height of driver's cab; 2) total height with driver, about 2m; 3) with wing mirrors, 2.95m;				
4) without wing mirrors; 5) turning circle radius adjusted up to max. as per regulations				

**TRAFFIC**

**METRO STATION**

GQ kg		VKN m/s	HQ m	ZE	ZKE				Type						
						BK mm	TK mm	HK mm		BT mm	HT mm	BS mm	TS mm	HSG mm	HSK* mm
630	8	1.0	45	15	1	1100	1400	2200-3000	T2	900	2000-2400	1650	1775	1175	HK+1250
		1.6	80	30	1									1300	HK+1400
800	10	1.0	45	15	1	1350	1400	2200-3000	C2	900	2000-2400	2025	1700	1175	HK+1250
		1.6	80	30	1									1300	HK+1400
1000	13	1.0	45	15	1	1100	2100	2200-3000	T2	900	2000-2400	1650	2475	1175	HK+1250
		1.6	80	30	1									1300	HK+1400
		2.5	100	36	1							1700	2475	2050	HK+2050
		3.0	150	50	1									2275	HK+2250
	13	1.0	45	15	1	1600	1400	2200-3000	C2	900	2000-2400	2150	1700	1175	HK+1250
		1.6	80	30	1									1300	HK+1400
		2.5	100	36	1							2200	1725	2200	HK+2050
		3.0	150	50	1									2425	HK+2250
1275	17	1.0	45	15	1	1200	2300	2200-3000	T2	1100	2000-2400	1950	2700	1175	HK+1300
		1.6	80	30	1									1300	HK+1500
		2.5	100	36	1							2000	2700	2075	HK+2050
		3.0	150	50	1									2300	HK+2250
	17	1.0	45	15	1	1650	1700	2200-3000	C2	1100	2000-2400	2425	2025	1175	HK+1300
		1.6	80	30	1									1300	HK+1475
		2.5	100	36	1							2450	2050	2200	HK+2050
		3.0	150	50	1									2425	HK+2250
1600	21	1.0	45	15	1	1400	2400	2200-3000	C4	1300	2000-2400	2200	2800	1200	HK+1300
		1.6	80	30	1									1325	HK+1475
		2.5	100	36	1							2225	2800	2185	HK+2050
		3.0	150	50	1									2525	HK+2400

**CIRCULATION**

Drive	Load capacity		Speed	Travel height max.		Number of stops max.		Nominal rating			Door	Shaft			
	Passengers	max.		ZE	*4 PMN	*4 INN	*5 BK	*5 TK	*5 HK	Type		*6 BT	*6 HT	*7 HSG	*7 HSK
	GQ		VKN	*3 HQ											
	kg		m/s	m		kW	A	mm	mm	mm		mm	mm	mm	
Rope*1	1000	13	1.00	42	21	8.9	23.0	1000-1600	1400-2350	2000-2500	T2/C2/C4	800-1600	2000-2500	1650	HK + 1750
			1.60	65		13.7	31.0							1850	HK + 1900
	1275	17	1.00	42	21	11.1	29.0	1100-1800	1500-2650	2000-2500	T2/C2/C4	800-1800	2000-2500	1650	HK + 1750
			1.60	65		16.1	36.0							1850	HK + 1900
	1600	21	1.00	25	21	11.5	30.0	1200-2100	1500-2900	2000-2500	T2/C2/C4	800-2100	2000-2500	1650	HK + 1750
			1.60			17.4	39.0							1850	HK + 1900
	2000	26	1.00	25	21	15.3	39.0	1400-2300	1650-2950	2000-2500	T2/C2/C4/C6	800-2300	2000-2500	1650	HK + 1750
			1.60			24.3	53.0							1850	HK + 1900
	2500	33	1.00	25	21	20.2	42.0	1400-2300	2050-3500	2000-2500	T2/C2/C4/C6	800-2300	2000-2500	1850	HK + 1950
	3000	39	1.00	24	21	23.3	48.0	1500-2300	2350-3800	2000-2500	C4/C6	1000-2300	2000-2500	1850	HK + 1950
	3200	42	1.00	24	21	23.4	48.0	1700-2400	2350-3550	2000-2500	C4/C6	1000-2400	2000-2500	1850	HK + 1950
3500	46	1.00	24	21	25.4	52.0	1800-2400	2550-3600	2000-2500	C4/C6	1000-2400	2000-2500	1850	HK + 1950	
4000	53	0.80	24	21	24.2	53.0	1800-2500	2800-4000	2000-2500	C4/C6	1000-2500	2000-2500	1850	HK + 1950	
Hydraulic	1000	13	0.63	18	8	16.0	38.0	1000-1600	1300-2300	2000-2500	T2/C4	800-1600	2000-2500	1500	HK + 1600
Rucksack*2	1275	17	0.63	18	8	20.0	45.0	1100-1800	1450-2600	2000-2500	T2/C4	800-1800	2000-2500	1600	HK + 1600
	1600	21	0.63	18	8	33.0	73.0	1200-1500	1500-2900	2000-2500	T2/C4	800-1500	2000-2500	1600	HK + 1600
Hydraulic	1600	21	0.63	18	8	33.0	73.0	1550-2100	1500-2250	2000-2500	T2/C2/C4	800-2100	2000-2500	1300	HK + 1600
Tandem*2	2000	26	0.40/0.63	18	8	33.0	73.0	1400-2300	1650-2950	2000-2500	T2/C2/C4/C6	800-2300	2000-2500	1300	HK + 1600
	2500	33	0.40/0.63	18	8	47.0	98.0	1400-2300	2050-3500	2000-2500	T2/C2/C4/C6	800-2300	2000-2500	1400	HK + 1600
	3000	39	0.25-0.63	18	8	47.0	98.0	1500-2300	2350-3800	2000-2500	C4/C6	1000-2300	2000-2500	1400	HK + 1600
	3200	42	0.25-0.63	18	8	47.0	98.0	1700-2400	2350-3550	2000-2500	C4/C6	1000-2400	2000-2500	1400	HK + 1600
	3500	46	0.25-0.63	18	8	60.0	123.0	1800-2400	2550-3600	2000-2500	C4/C6	1000-2400	2000-2500	1400	HK + 1600
	4000	53	0.15-0.63	18	8	60.0	123.0	1800-2500	2800-4000	2000-2500	C4/C6	1000-2500	2000-2500	1400	HK + 1600
	5000	66	0.15-0.40	15	8	47.0	98.0	1800-3100	2700-4900	2000-2500	C4/C6	1000-3100	2000-2500	1500	HK + 1600
	6300	84	0.15/0.25	15	8	40.0	86.0	2000-3200	3000-5500	2000-2500	C4/C6	1000-3200	2000-2500	1500	HK + 1600

## CIRCULATION

## Reading list

- Macdonald, Sharon; *A Companion to Museum Studies* (West Sussex, UK: Wiley-Blackwell, 2011).
- Kossmann, Herman; *Narrative Spaces - On the Art of Exhibiting* (Rotterdam, NL: 010 Publishers, 2012).
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## Inspiring movies

- Night at the museum
- Real steel
- Hugo
- Ready Player One

## REFERENCE DOCUMENTS

**PROCESSING**