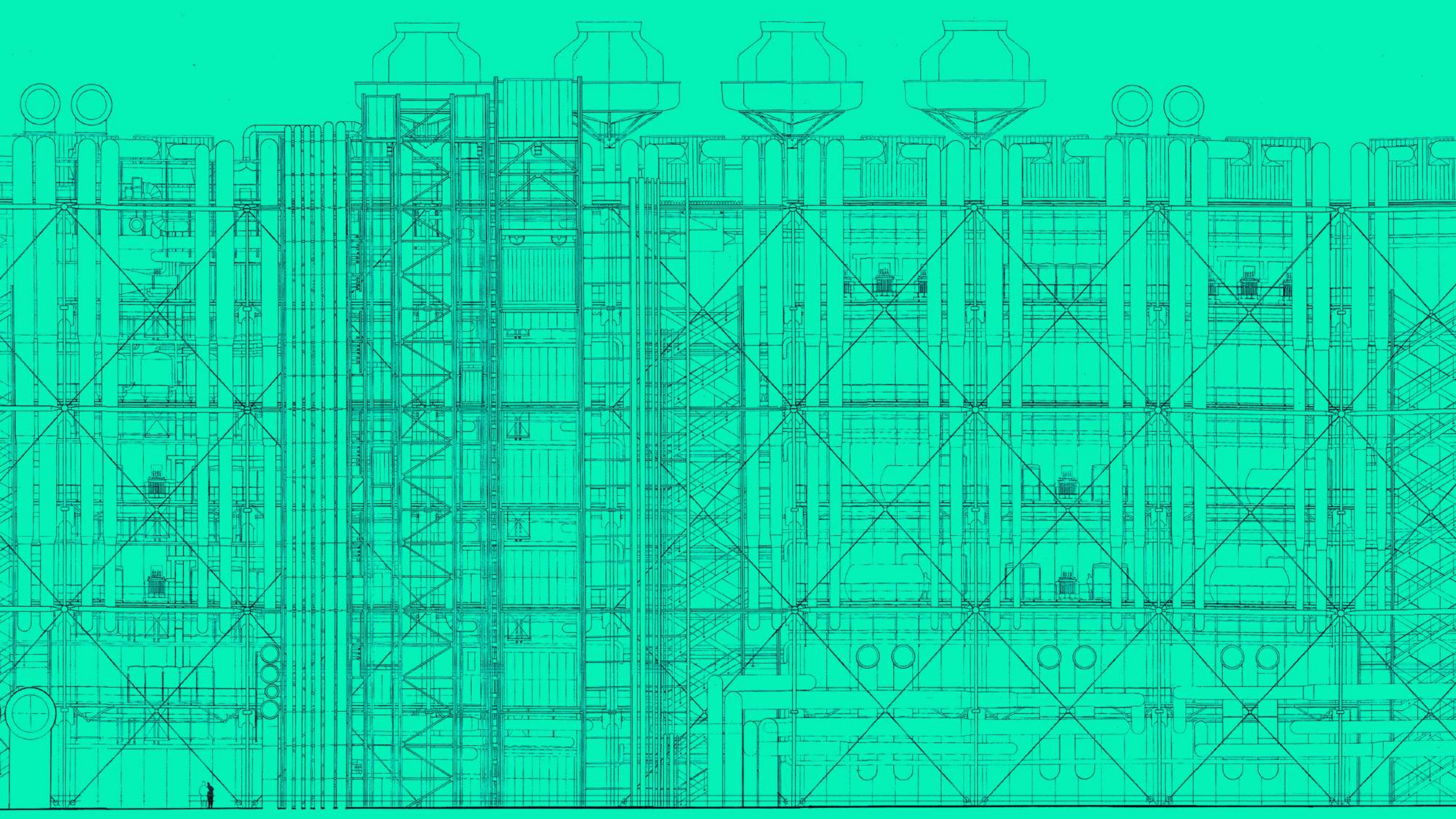
Beaubourg Genova-Parigi A/R
Le origini genovesi del Centre Pompidou

a cura di Boris Hamzelan
con la collaborazione
di Fondazione Renzo Piano,
Centre Pompidou, Arup

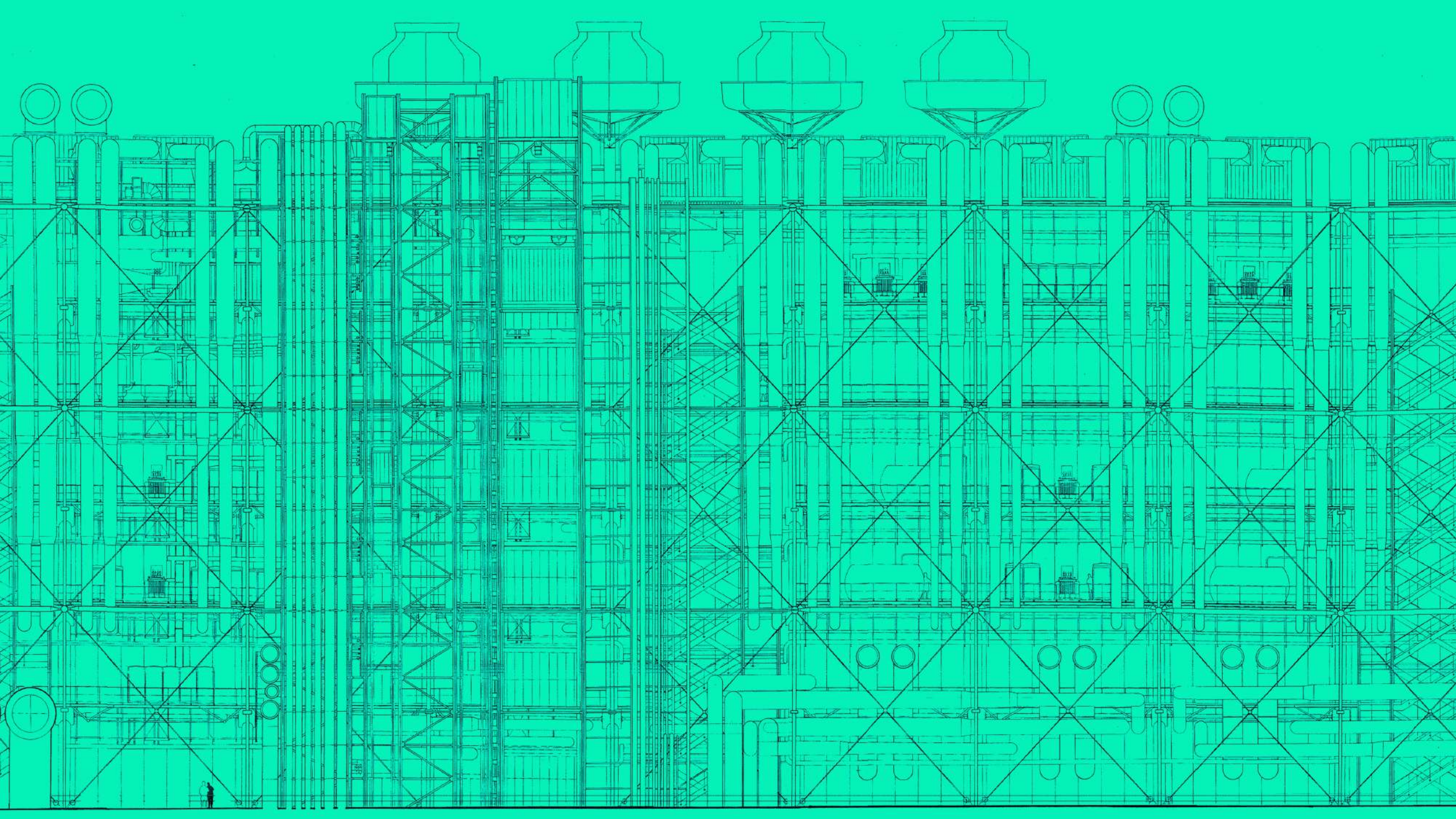
Genova
Palazzo Ducale
ore 18

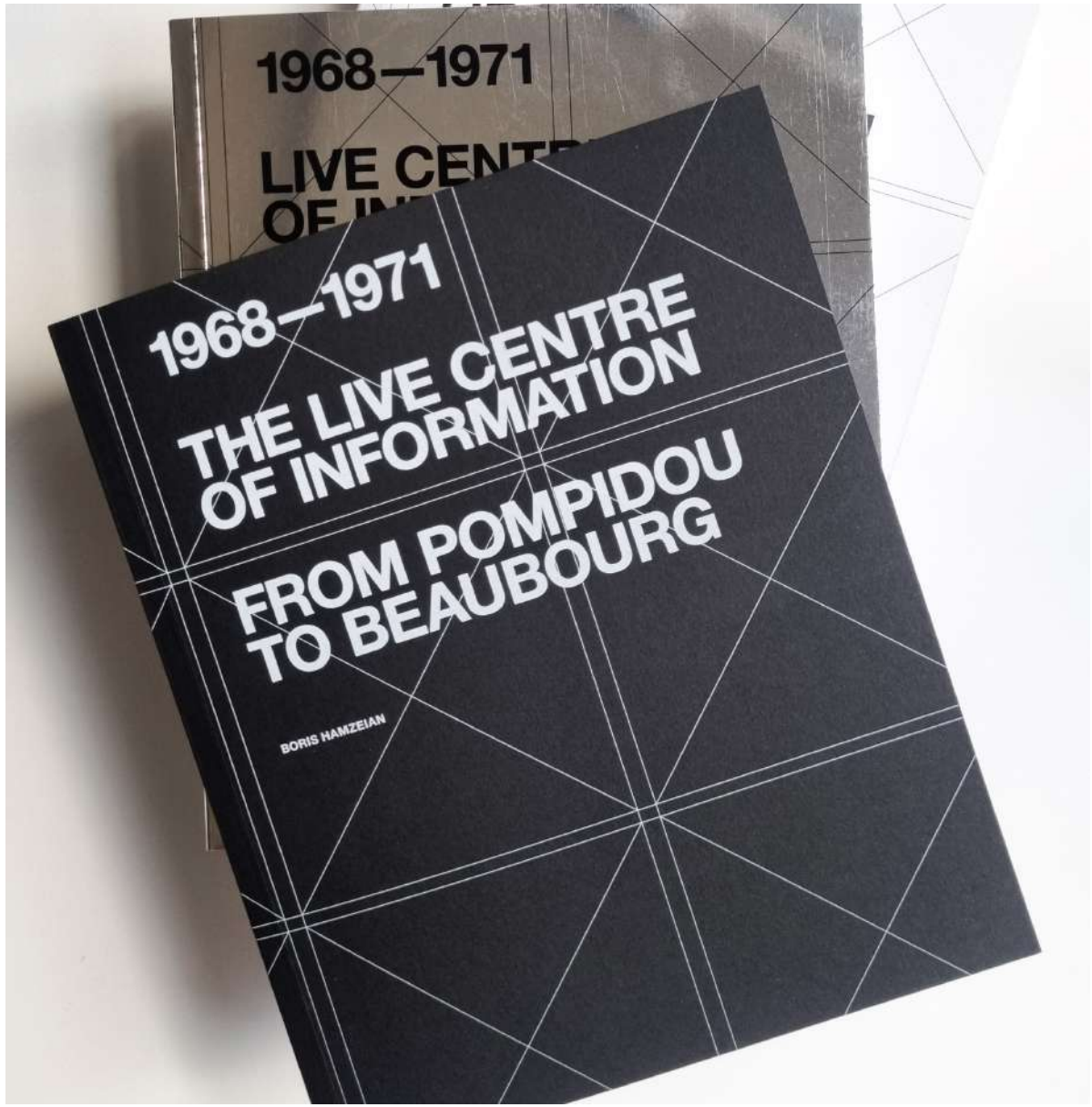
22.03
2023

ore 17 visita guidata ai modelli di studio
e altri materiali originali del progetto Beaubourg

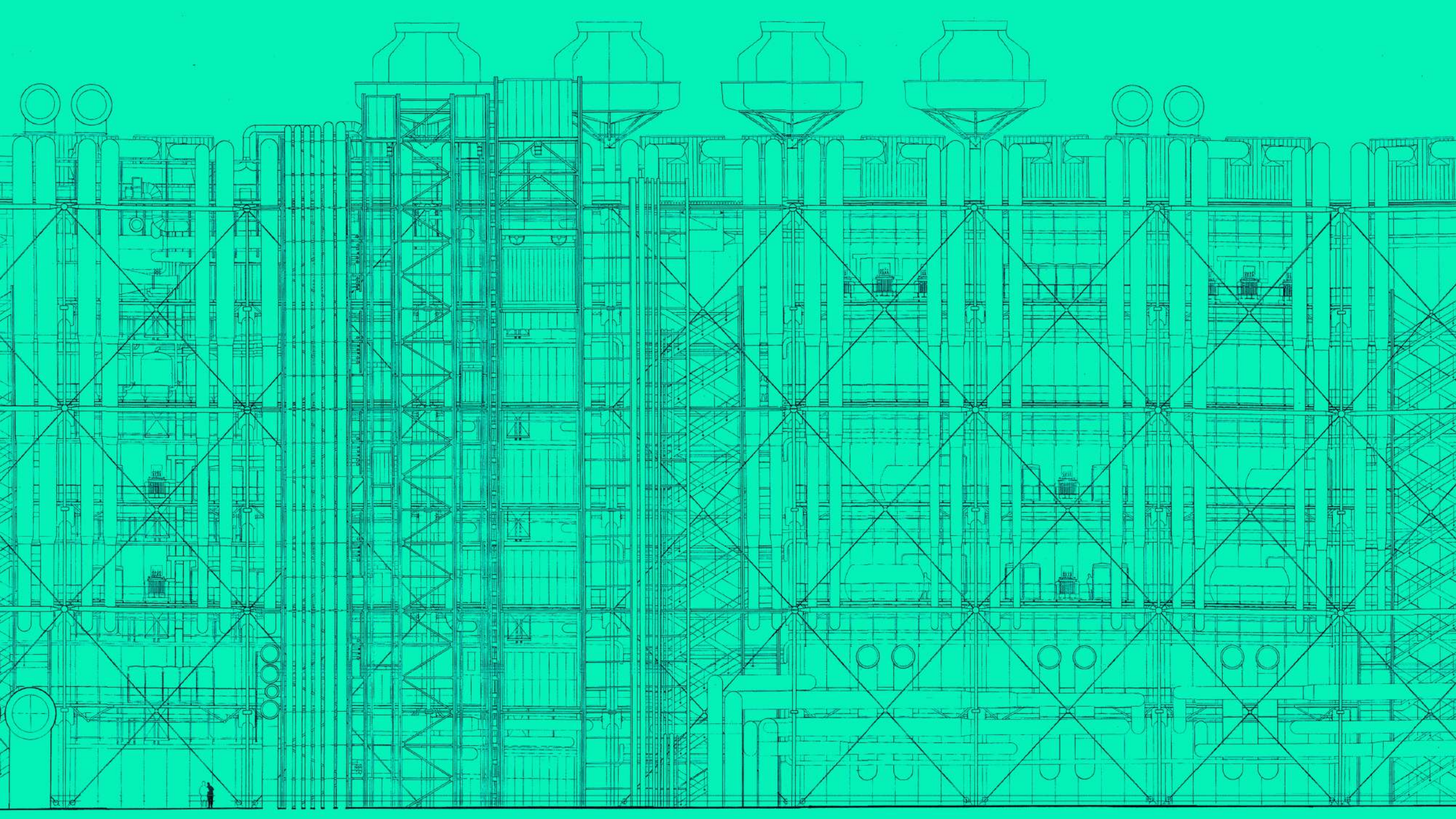



1968—1971
LIVE CENTRE
OF INFORMATION
DA POMPIDOU
A BEAUBOURG
BORIS HAMZEIAN

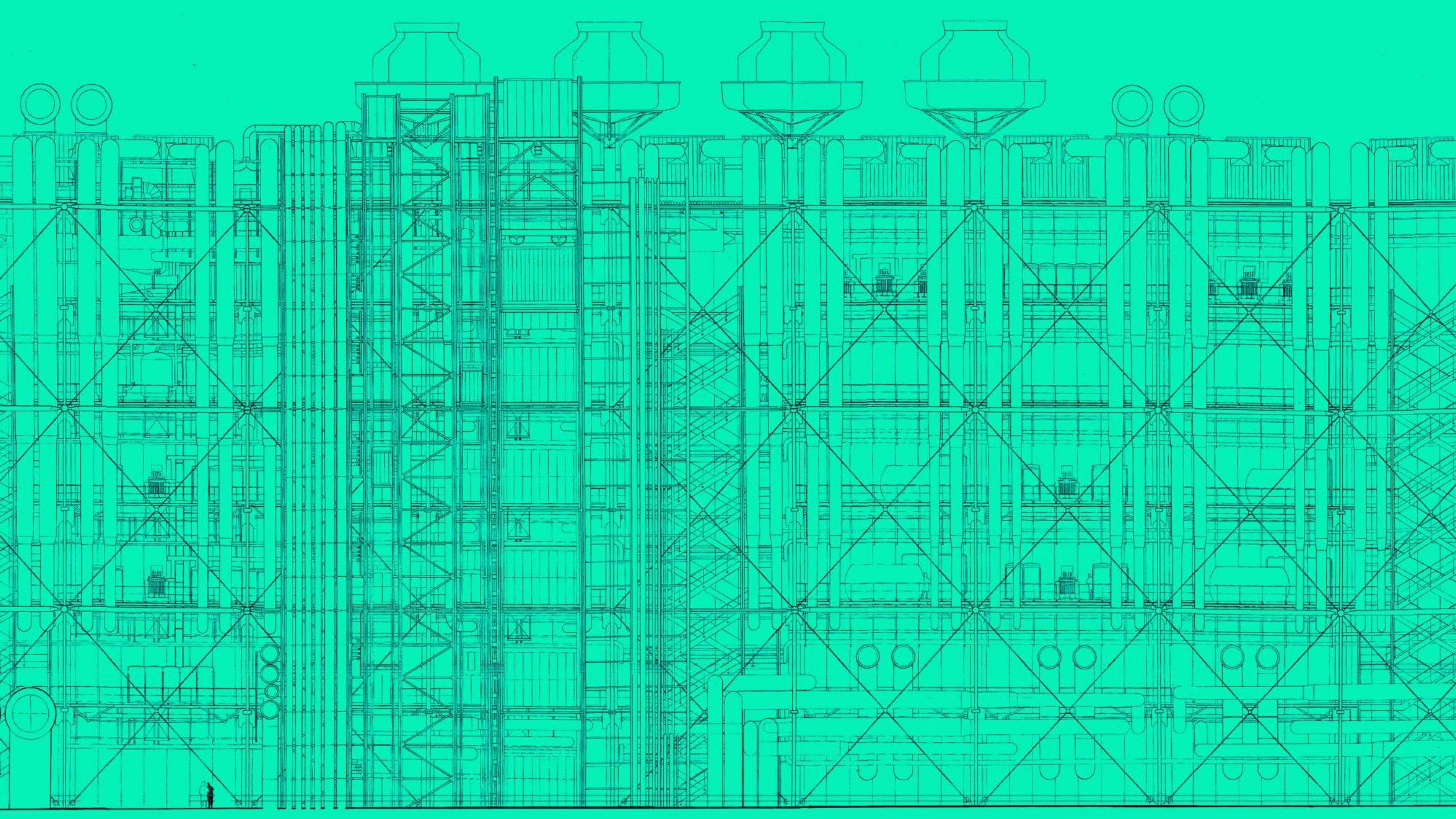



1968—1971
1968—1971
THE LIVE CENTRE
OF INFORMATION
FROM POMPIDOU
TO BEAUBOURG
BORIS HAMZEIAN


92
the great
sky-hook
ONE
roof platform

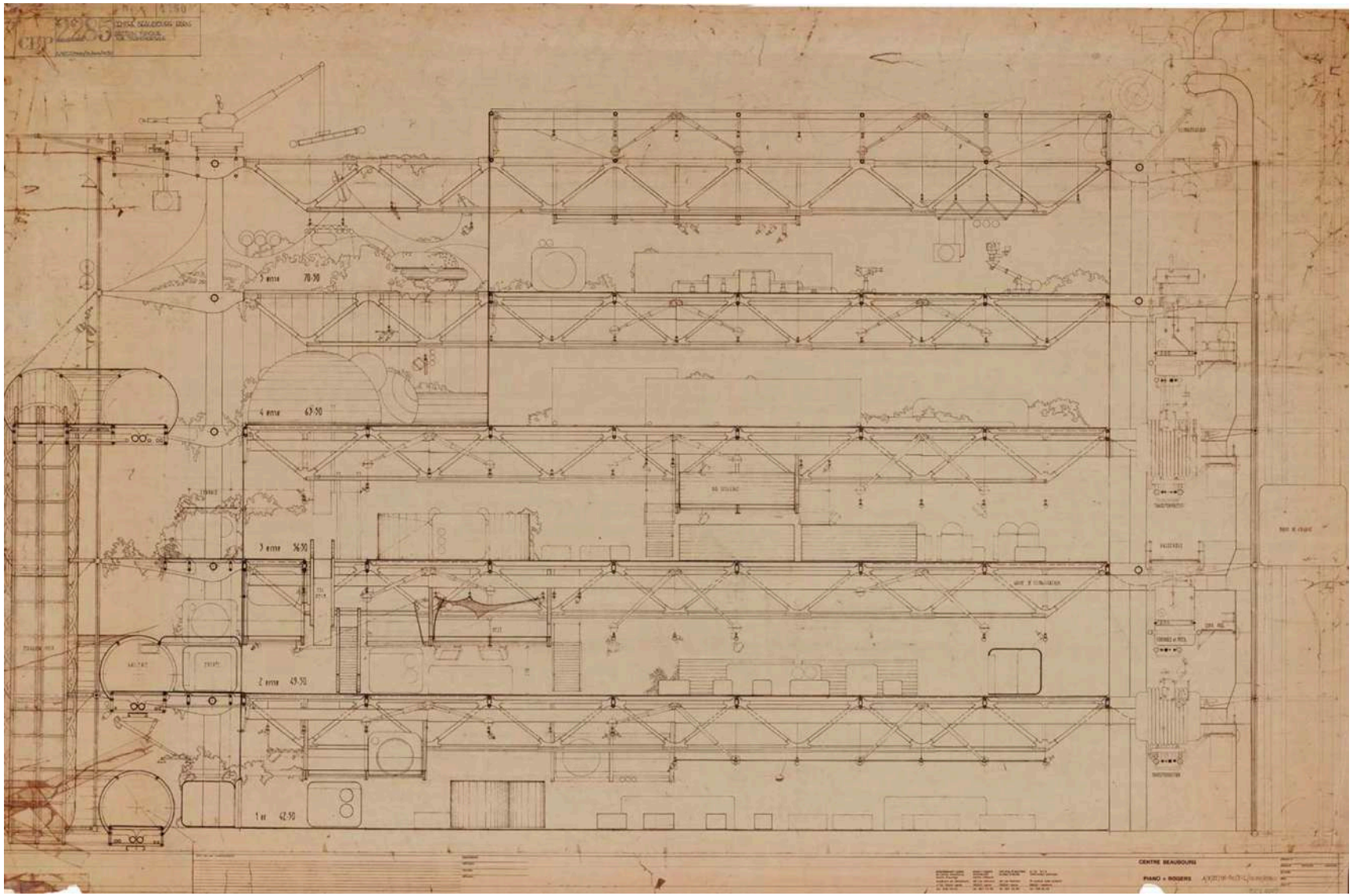



1968—1971
LIVE CENTRE
OF INFORMATION
DE POMPIDOU
À BEAUBOURG
BORIS HAMZEIAN




AR
Richard Rogers
RENZO PIANO BUILDING WORKSHOP
PHAIDON
Supercrit #3
Richard Rogers
The Pompidou Centre
Renzo Piano
Dialoghi di cantiere
Editori Laterza
L'enjeu du Centre Georges Pompidou
Claude Mollard
10 18
Centre Pompidou
Renzo Piano, Richard Rogers, and the Making of a Modern Monument
Francesco Dal Co
GA
DEJA DEMAIN
PARIS BEAUBOURG LES HALLES
Richard Rogers
The Making of Beaubourg
Nathan Silver
Du Plateau Beaubourg au Centre Georges Pompidou
Richard Rogers
PHAIDON
Renzo Piano
CHANTIER OUVERT AU PUBLIC
Renzo Piano


ANIMATED MOVIES PRODUCTION FOR THE
COMPUTER TECHNIQUE OF
Accueil



53000 pages de documentation

Fondazione Renzo Piano
RSHP (Rogers, Stirk, Harbour + Partners) Archives
Arup London Archives

Archives Nationales de Paris
Fond 20100307
Fond Henri Domerg
Fond Sébastien Loste
Fond Présidence de La République

Institut Georges Pompidou

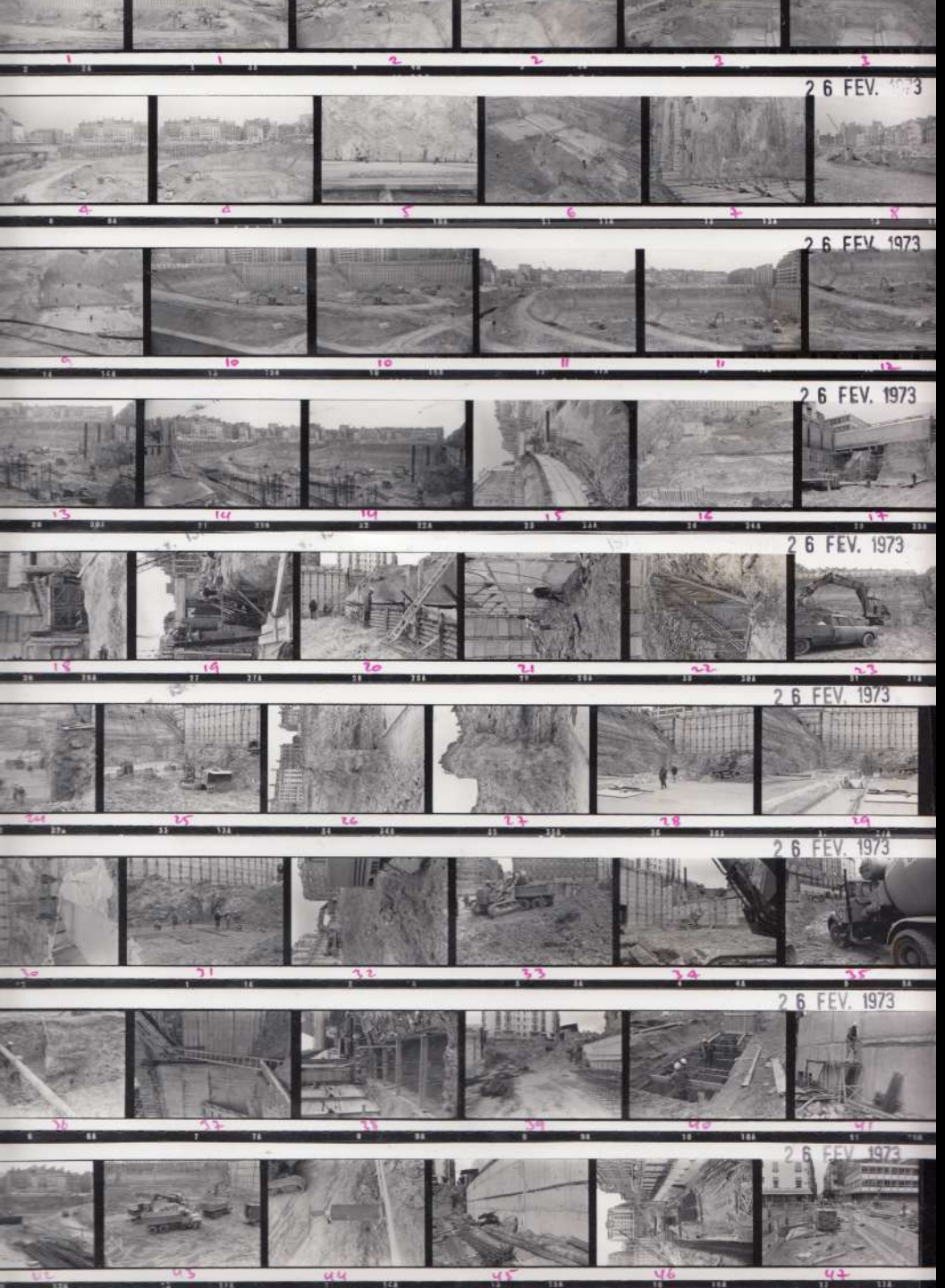
Bibliothèque Kandinsky
Fond Jean Prouvé
Fond Coupures Presse

Pôles Archives Centre Pompidou

Mike Davies (10 mai 2017)
Richard Rogers (10 mai 2017)
Andrew Holmes (21 juin 2017)
Anthony Dugdale (23 juin 2017)
John Young (25 juillet 2017, octobre 2017)
Shunji Ishida (août 2017, octobre 2017 2018, 2019, 2020, 202
Cuno Brullman (27 septembre 2017, mai 2021)
Susan Rogers (9 octobre 2017)
Flavio Marano (7 mars 2018)
Riccardo Franchini (10 juin 2018)
Renzo Piano (janvier 2019, juin 2021)
Bernard Plattner (1er mai 2021)
Laurie Abbott (mai 2021)
Noriaki Okabe (juin 2021)
Giorgio Bianchi (juillet 2021)

Lennart Grut (5 juillet 2017, 9 octobre 2017,
1er mai 2018, 29 avril 2021)
John Morrison (27 juillet 2017)
Tom Barker (27 septembre 2017, 30 mai 2018)
Alan Denney (mai 2021)

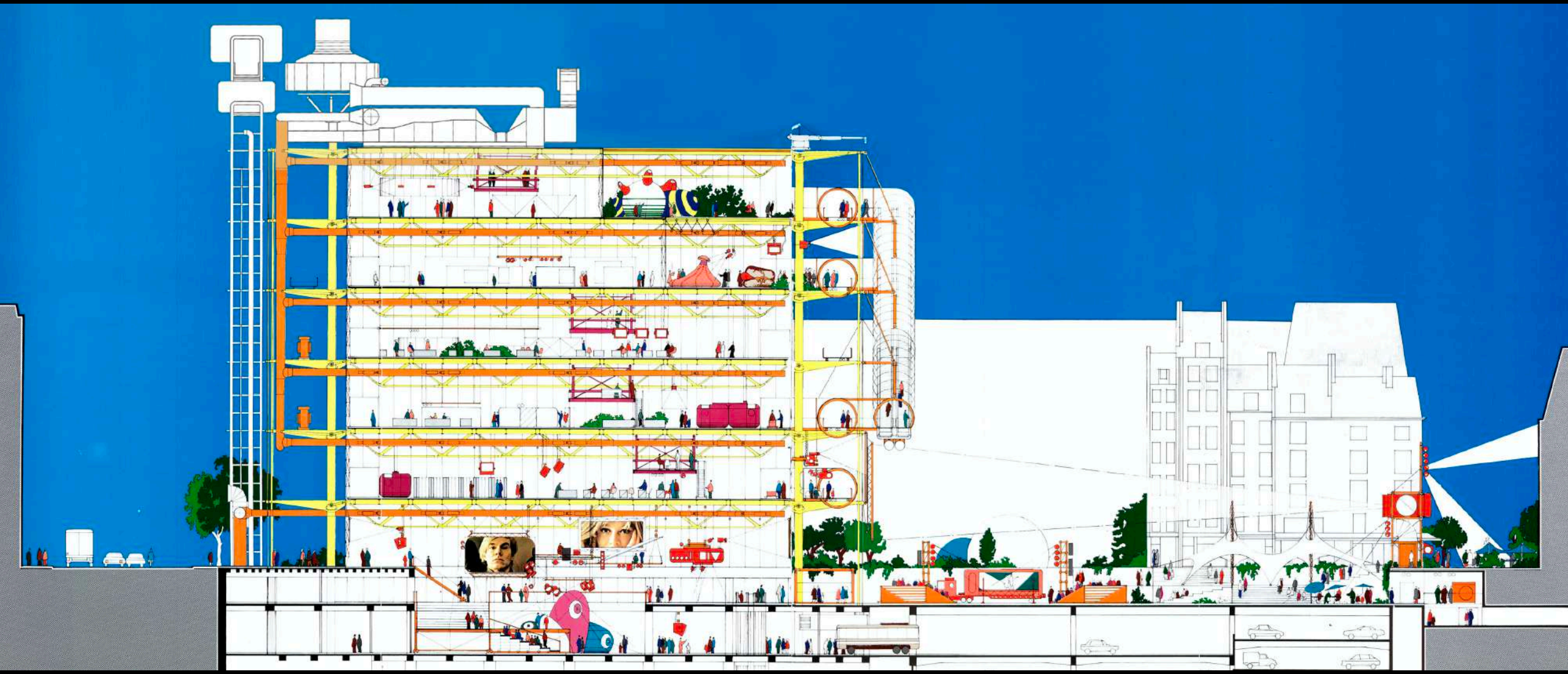
Denise Scott Brown (mai 2017)
Elijah Zenghelis (24 mai 2017)



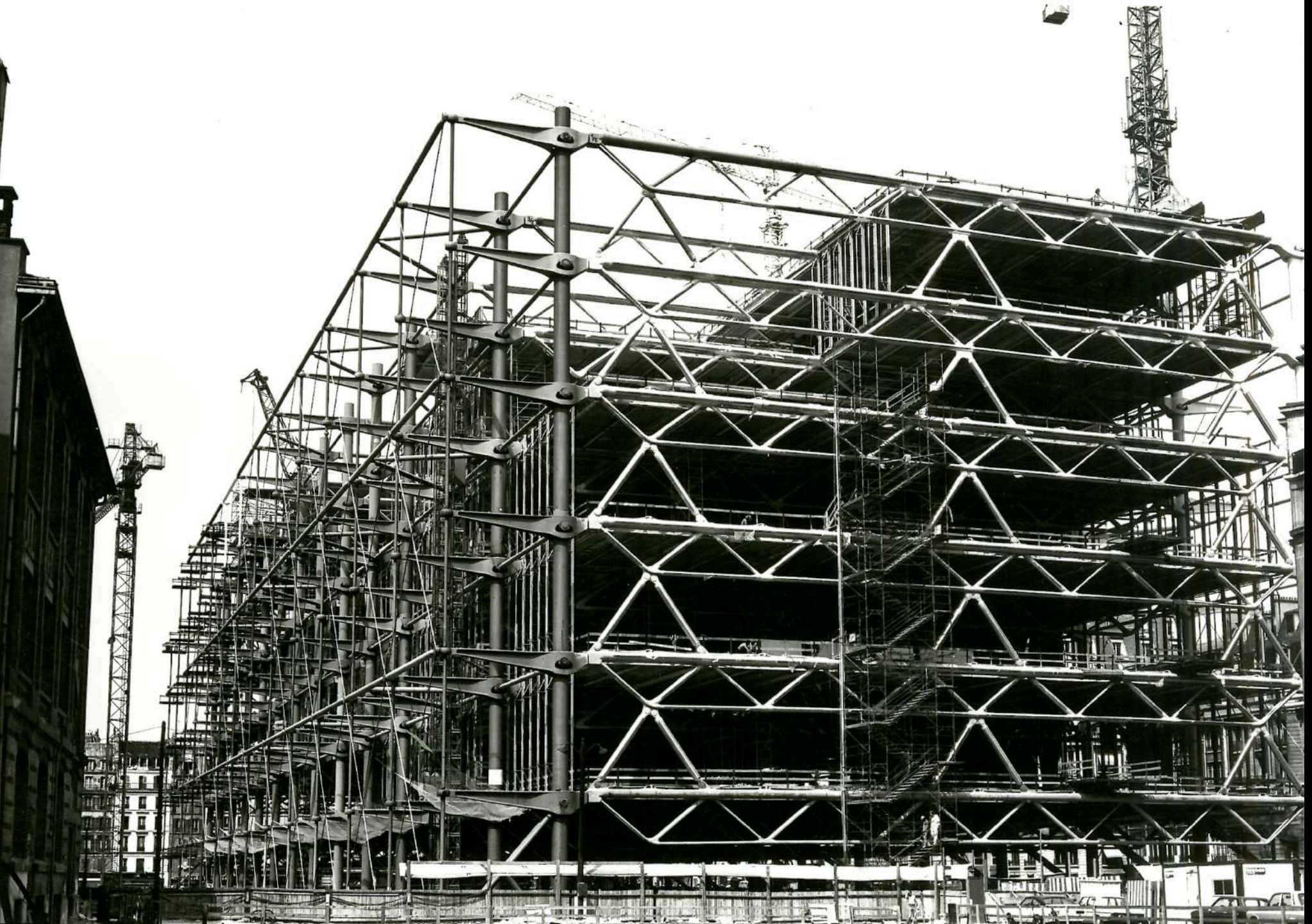
PER UNA CRONACA DELLE IDEE, DEL PROGETTO E DELLA SUA FABBRICAZIONE

4.3.3. Vue générale aérienne direction sud.

General aerial view direction South.

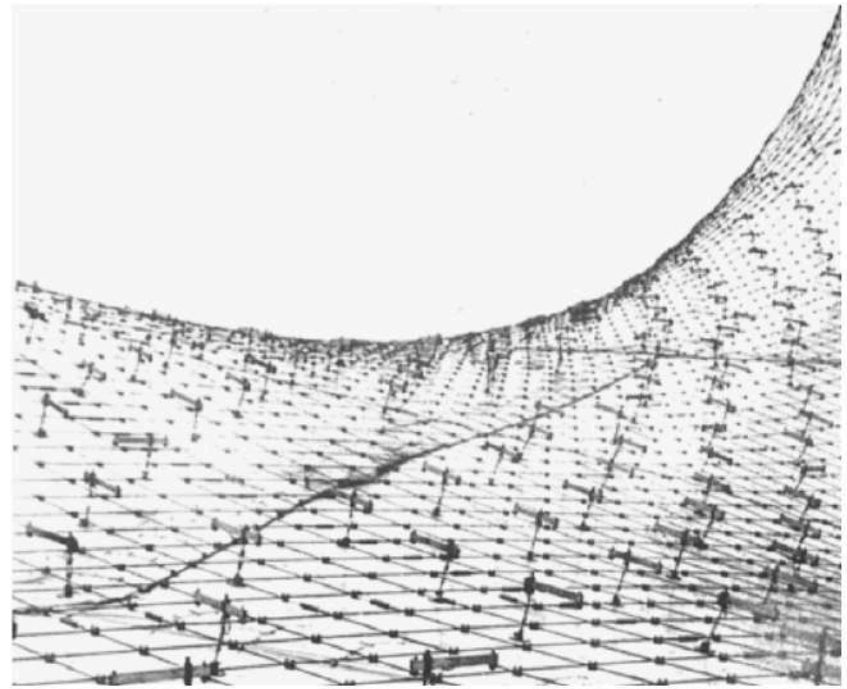


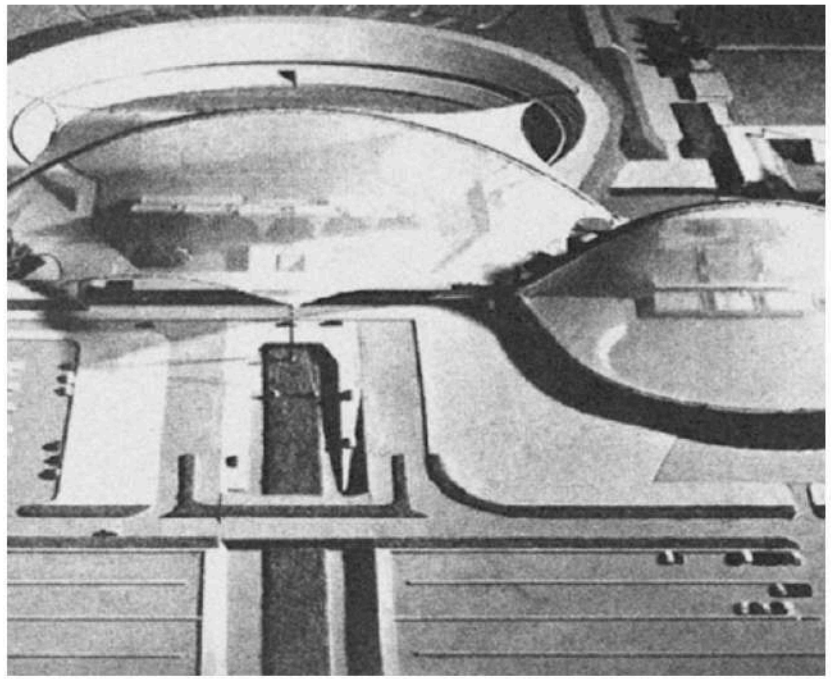
Piano+Rogers Architects et Ove Arup & Partners, Centre Beaubourg de Paris, Projet Définitif, Section Sud, printemps 1973

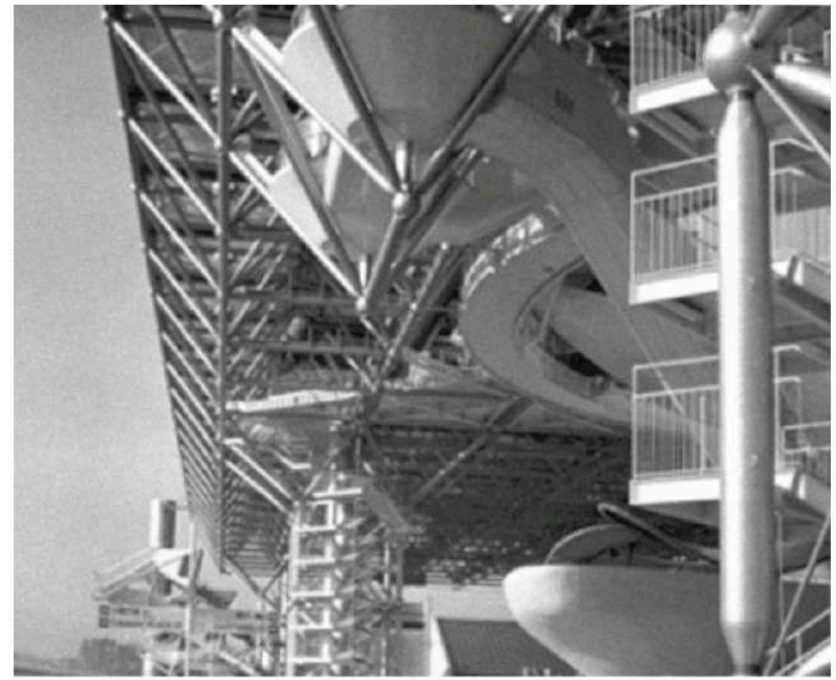


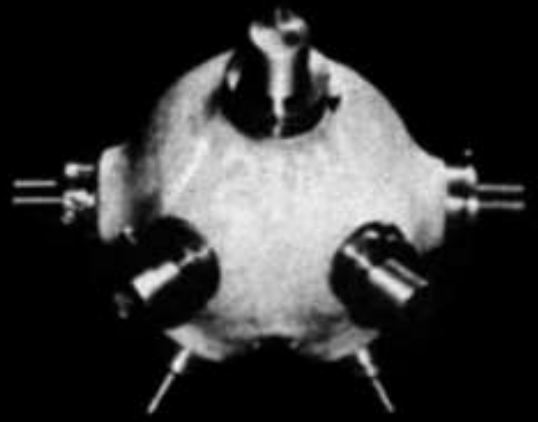
Peter Davey, editor of *Architectural Review*

Left to right:
Lennart Grut, Ted Happold and Peter Rice









Lennart Grut *(L)* Ted Happold *(T)* and Peter Rice *(P)* discuss Frei Otto and his work

They felt that their differing attitudes towards Frei and his relationship with them could best be explained in dialogue. This would illustrate how they saw him, what he is like to work with and what they learned from him – not criticising him but hoping to help understand him.

T The problem in talking about Frei Otto is that we are all engineers and this conditions how we see him and what he shows of himself to us.

P He certainly finds engineers very difficult because they are always restrictive. His biggest problem is that engineers are a restricting and restraining force in his life and they are continually containing him. On the other hand, there is nothing he enjoys more than to be well thought of by engineers.

L Peter has known Frei for two and a half years and I for only two, but you, Ted, have known him for longer.

T I first met Frei Otto after the UIA limited competition for the Conference Centres for Riyadh and Mecca which was held in 1966. We were in partnership with Trevor Dannatt and he was asked to carry out the Centre for Riyadh and Frei Otto and Rolf Gutbrod were asked to design the Centre for Mecca. I knew Frei Otto's work of course and when he and Rolf Gutbrod asked us to be their engineers we were very pleased. They were both entailed in the construction of the Federal Pavilion for Montreal at the time so I can include some of that in my first hand experience of him, but I have only personally known him since that time and there is a tremendous volume of his work I know little about. Between the three of us we have controlled all the detail work our practice has done with Frei, but we certainly could not be definitive about him.

L The problem in trying to define the way he works and the skills he brings to a design team for me is that I am trying to comment on him from very specific meetings and this is very difficult. Perhaps we should begin by discussing some of his background.

T Both his father and grandfather were sculptors and woodcarvers. He was a pilot during the Second World War though still very young. When he was captured he was put in a prisoner of war camp near Chartres and, while there, was engaged on rebuilding work. Then he went to university, took a degree in architecture, and his famous books were his doctoral theses. I think life in Germany as a student was quite a struggle then.

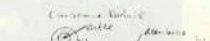
L What about his practical work? Is one of the sides of the way he works and the type of person he is, that he has never worked in a practical sense as part of a design team? He seems to me to have always worked with ideas.

T I think he understands the problem of a design team. When we started work with Rolf Gutbrod and Frei on the Mecca project, we were moving into a field we had not worked in before and, as the programme was tight, I felt strongly that if we could separate the engineering problems into separate sections it would be feasible to build up a group with expertise. So we agreed to separate the roof of the main auditorium from the main structure and to seal the building with unloaded links in order to isolate the main roof's engineering problems. Frei accepted our problem, even though he did not believe the roof was difficult to analyse or define. You know how difficult we found it to discover who, among our engineers, were able to work in this field and I think Frei showed great patience with our learning.

P In spite of the fact that I agree with all the reasons why you felt it necessary to do so, I think it was a flaw to separate the roof from the structure. The point is a measure of Frei's commitment to architecture.

T To continue the point. He has worked a lot with manufacturers, Peter Stromeyer, the famous tent maker, financed him for a long time and he designed the majority of the tents in the Stromeyer catalogue – at least the big ones. I think the first cables used to reinforce tents were the ones he was consultant for at the Swiss National Exhibition in Lausanne. He had done a similar shaped one for a garden exhibition but I don't think that had cables. So prior to Lausanne he was using membranes. For the Lausanne ones cable nets were sewn into the canvas, with plastic sleeves, and there was a difference in behaviour between the cables and the canvas – not bad but enough to be noticeable.

Interior, Lausanne cable net.



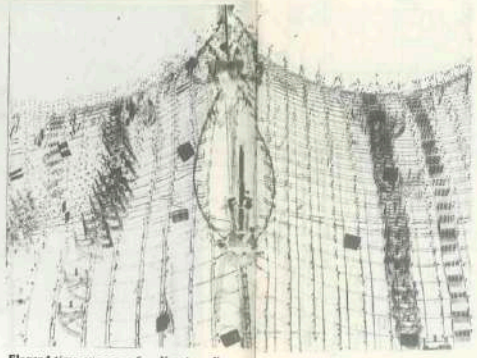
Lausanne, cable sleeve detail.

T I think this led to the solution of separating the cable net from the membrane at Montreal. The reason the separation was quite a large one was because the accuracy of measuring the cables and the membranes was not close enough and the behaviour was relatively incompatible.

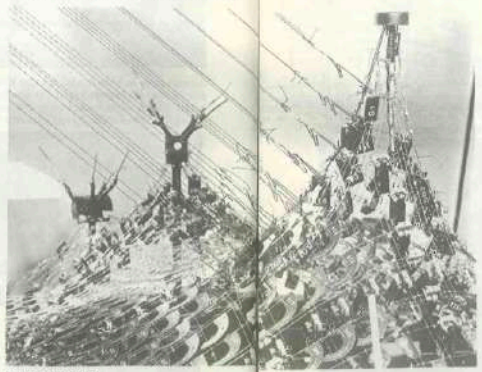
P There is an interesting difference here. A membrane is not a shear free surface, whereas a cable net is. The difference between the two is that he can do with cables things he could never do with his membranes without a great deal of work. I do not believe, in strict terms anyway, that the Montreal structure would have existed if he had tried to do it from the first as a membrane.

P In thinking of Frei it is important to appreciate the fact that he has created modelling techniques which take him all the way from the initial concept of the design to the final structure. This integrated use of models, both as an inventive design and finally an analysis tool, is very unusual and may be unique. The whole process is geared at each stage to solving the problem being tackled in a positive manner.

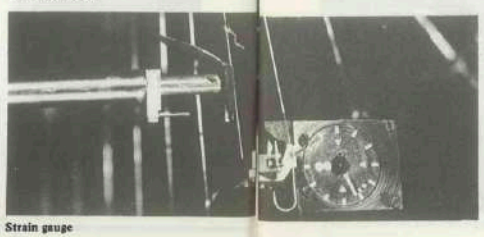
150 ▷



Elapsed time exposure for direct reading.



Wind test model

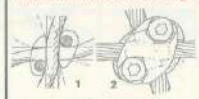


Strain gauge

Clamps

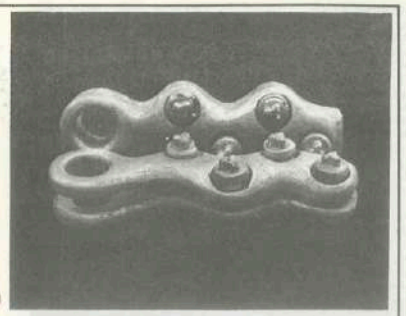
Frei Otto notes:

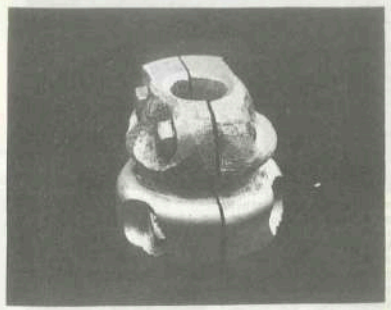
I only started to design clamps because the engineers could not. I am interested in a form with minimum material, to develop out of the function of the clamp. Less weight, very good strength; a rounded form which does not fix the cable and damage it (thus corrosion is prevented) and which can be cheaply produced. Screws are good because you can control the pre-stress, though we are redesigning the head to improve the resistance to corrosion. Fig. 1

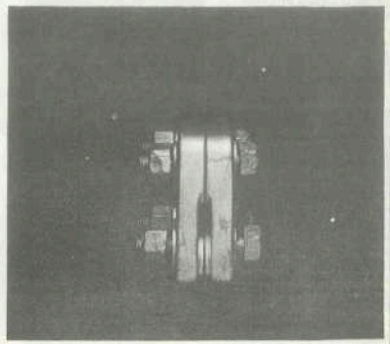


1 2

has a big disadvantage in that there is only one bolt which must be very big and strong, as it carries bending; but the advantage of the design is that the cable can move. It is expensive and maybe not strong enough. I prefer round edges in bolt heads so that the clamp can allow movement as shown in 2. This, with one cable, is the clamp of the future. The steel from which the clamp is made must not be too hard. Hot forged steel with a rough surface with a thick galvanised coating will reach a resistance to slip of 0.2. – though you should design to 0.1. I believe that clamps should slip – it's safer. Galvanising of HS bolts is difficult. Galvanisation must be done electrically which can damage the bolt. Secondly, you can get angular torsion (16.ib) which can also damage the bolt, as it is less able to deform. I like to use rope rather than strand because it is easier to use on site. It is important that the cable, when laid out on the site, does not kink, and the high modulus of elasticity of rope reduces this risk. For Montreal we used a rope. Rope allows an evolution of a surface within our methods. Munich will be the first big roof with strands. Certainly they have to be very careful during the handling and erection as a kinked strand can have only 20% of its normal strength.

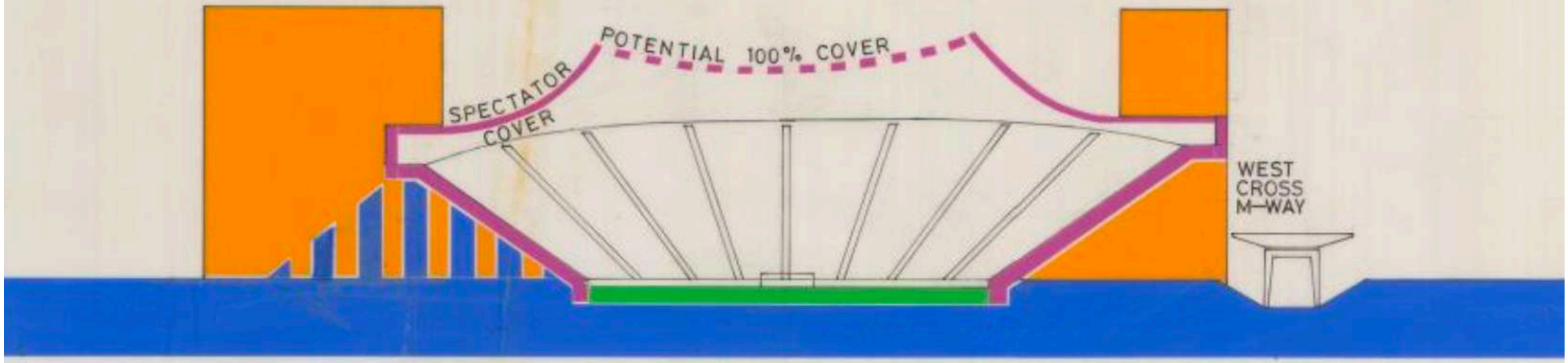






CHELSEA FC

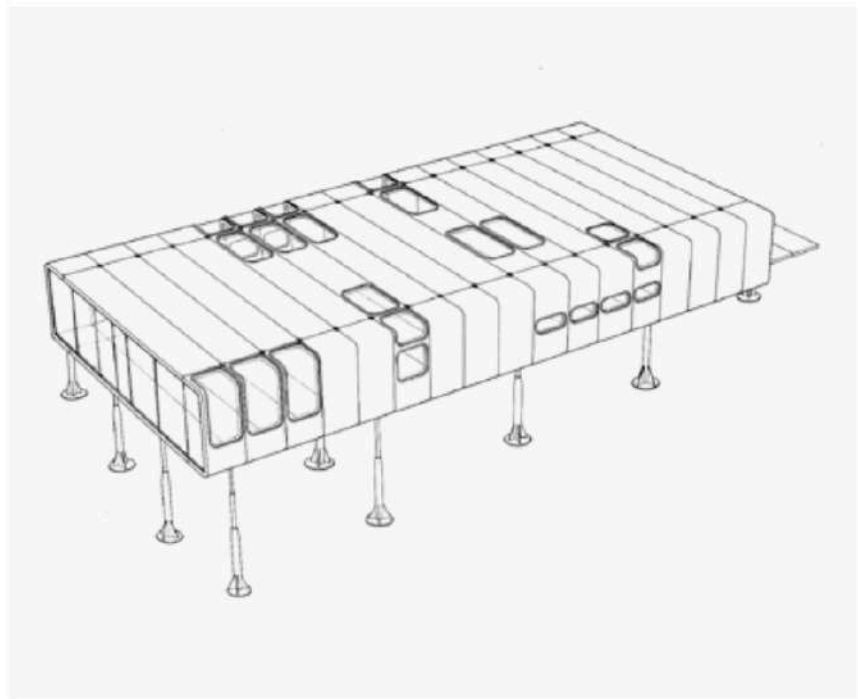
feasibility study section

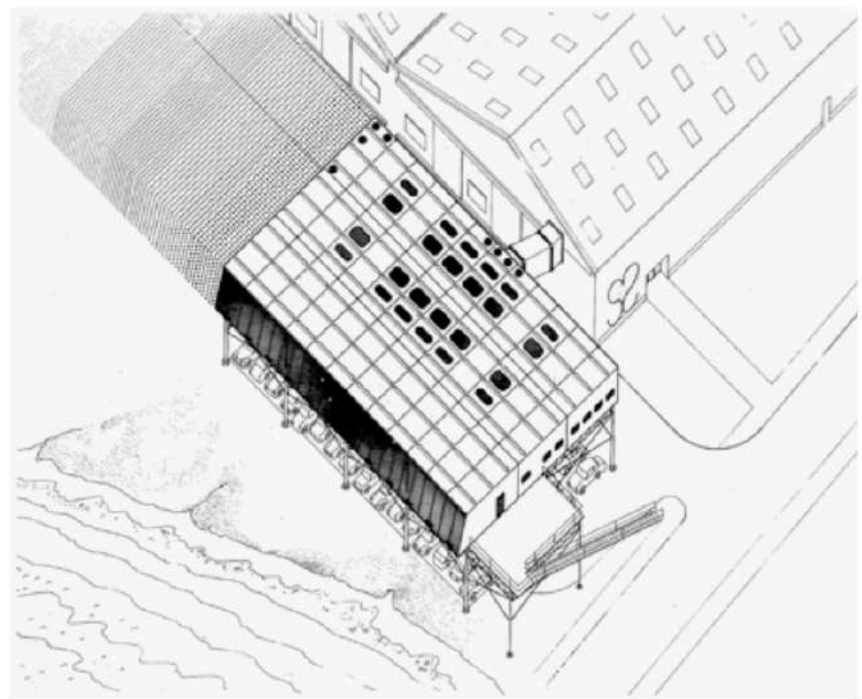


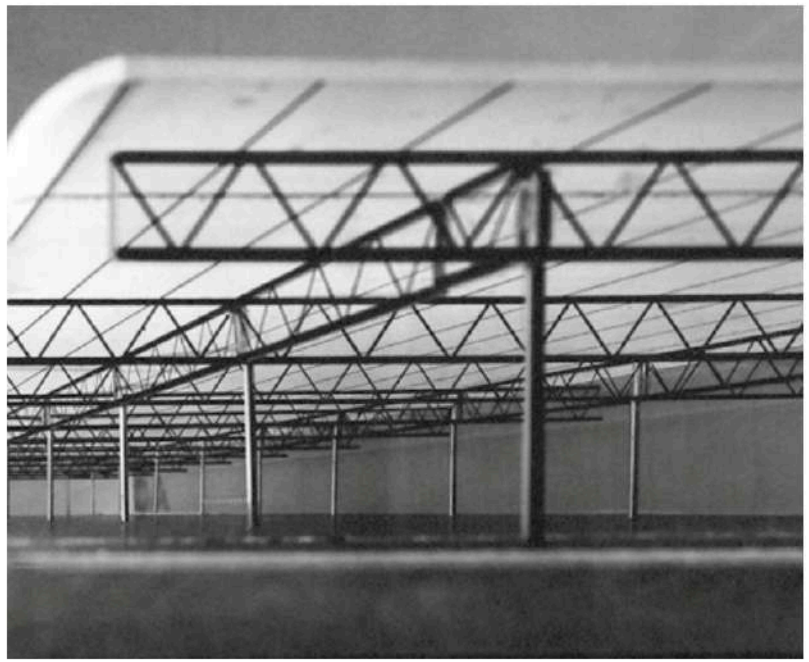
STADIUM

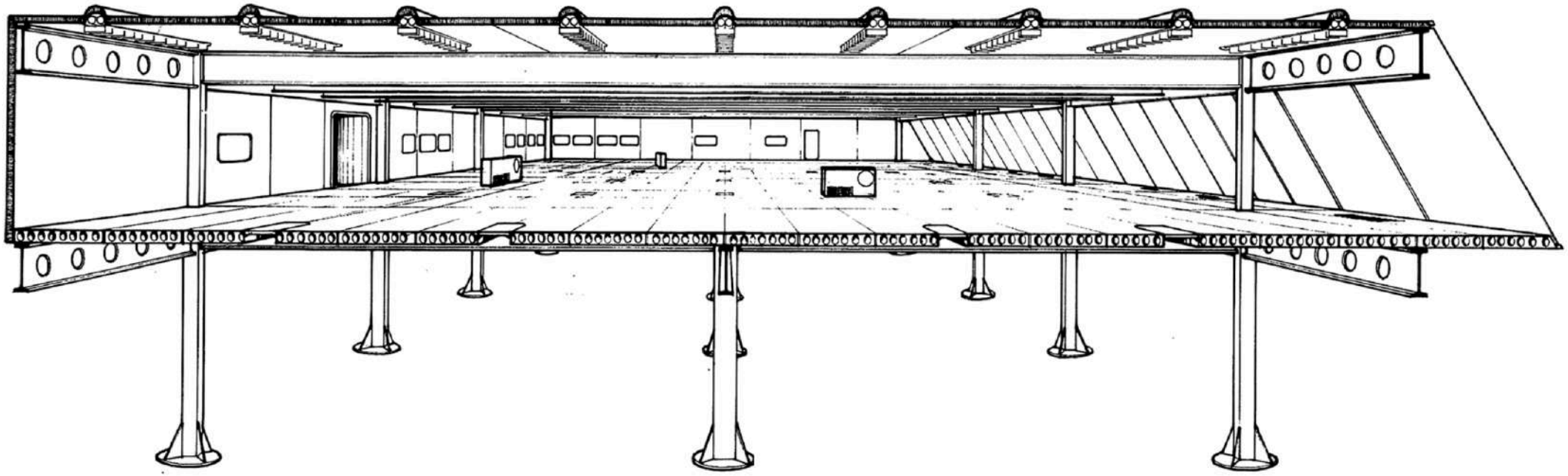
OTHER USES

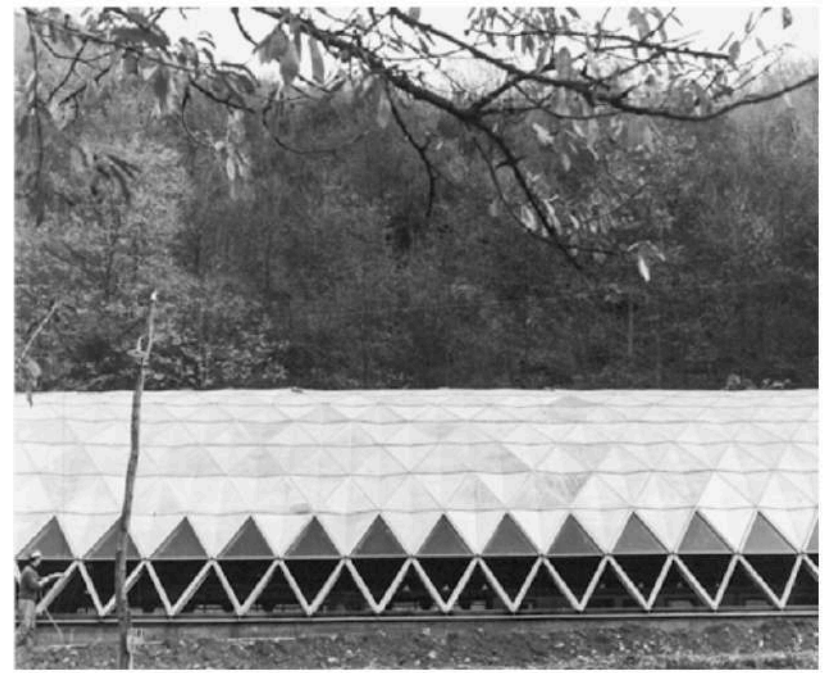
EARTH

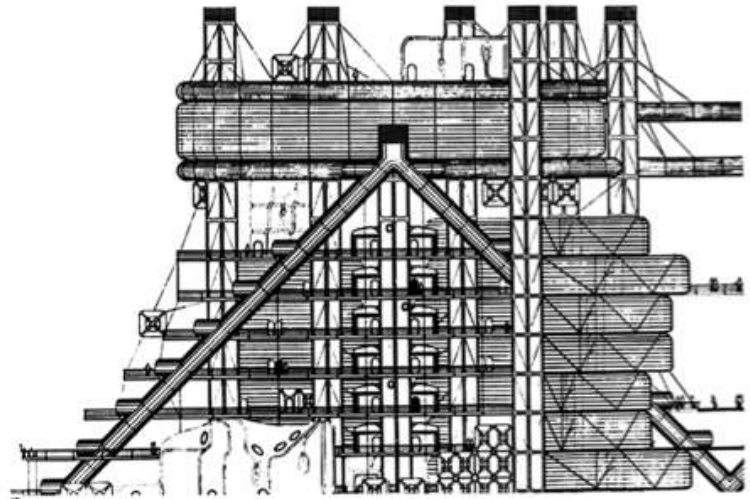












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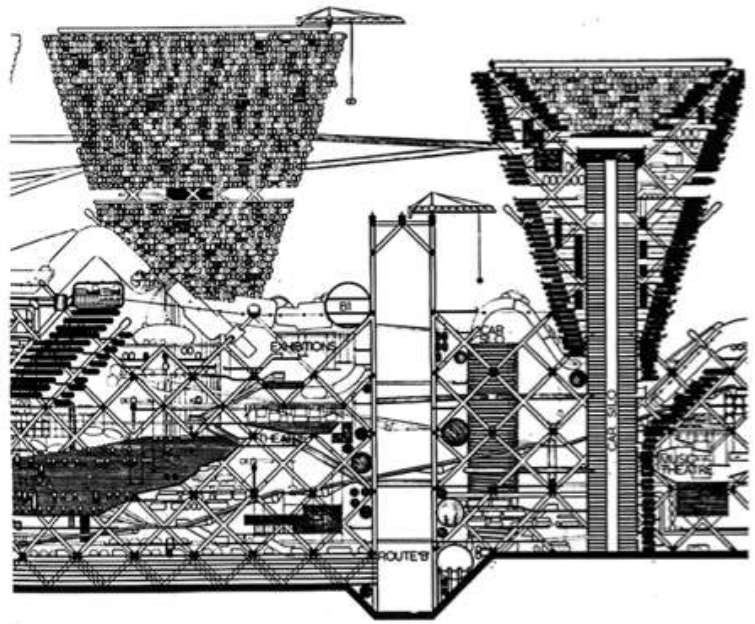

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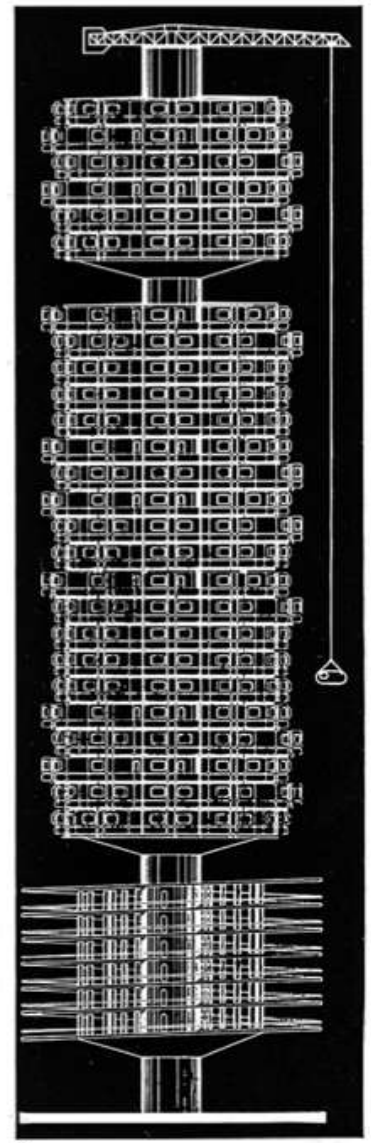

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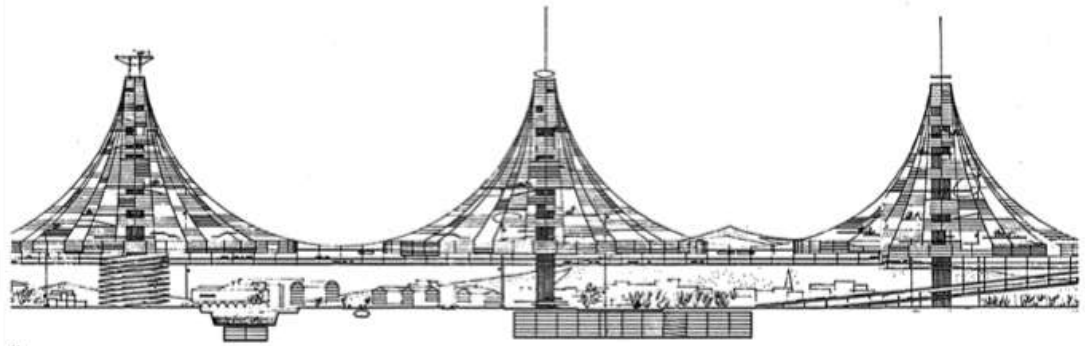

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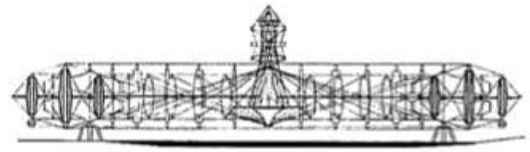

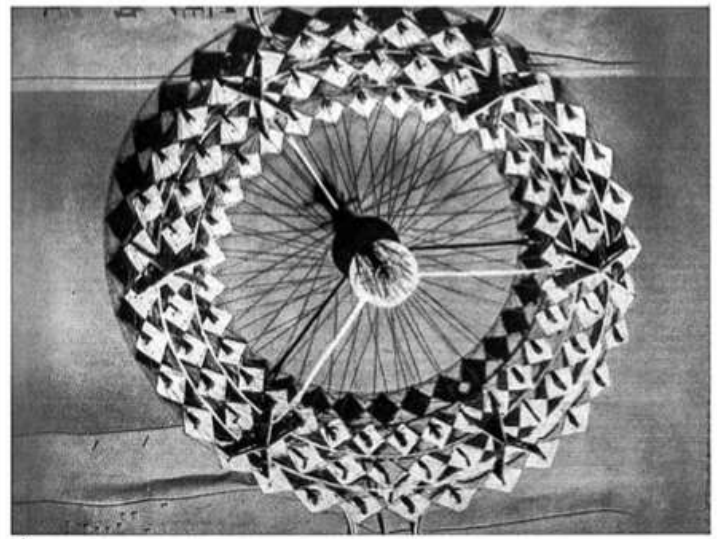

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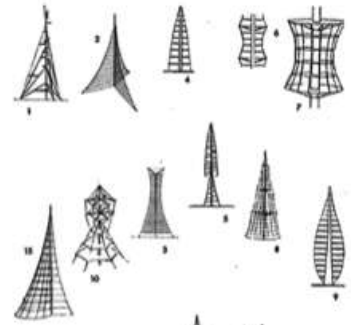

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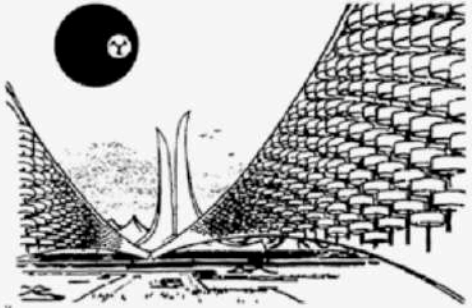
K. Kikutake, Giappone: Mova block, 1961. E' una città costruita su enormi cellenoni triangolari; al centro è un pilone di sostegno alto circa 300 metri, all'interno del quale sono i collegamenti verticali. Da questo pilone partono dalla base e dalla cima grossi cavi di acciaio che sono agganciati ai vertici del triangolo. Verticalmente al suolo sono collegate ai cavi dei sostegni, ai quali sono appese le cellule abitative, prodotte in serie come le automobili. Ogni triangolo può contenere da 10.000 a 30.000 persone.
15
P. Hausermann, Germania: proposta urbanistica, 1966. Le cellule sono ottenute da un blocco unico di plastica.
16
K. Kikutake, Giappone: la città galleggiante, 1961. Questa città propone dei grattacieli cilindrici formati da un sostegno centrale e da cellule costruite in serie, appese. Di questa città esistono due versioni: in una, quella degli isolotti, sostengono i grattacieli; nell'altra i grattacieli, galleggianti come per sorta fanno le bottiglie vuote, sostengono una piattaforma pedonale.
17/18/19
Gruppo Archigram, Gran Bretagna: proposte urbanistiche, 1960-1964. I principali esponenti di questo gruppo sono: P. Cook, D. Crompton, M. Webb, D. Greene, W. Chalk, R. Herron.



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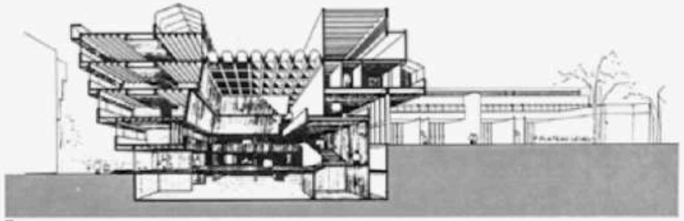

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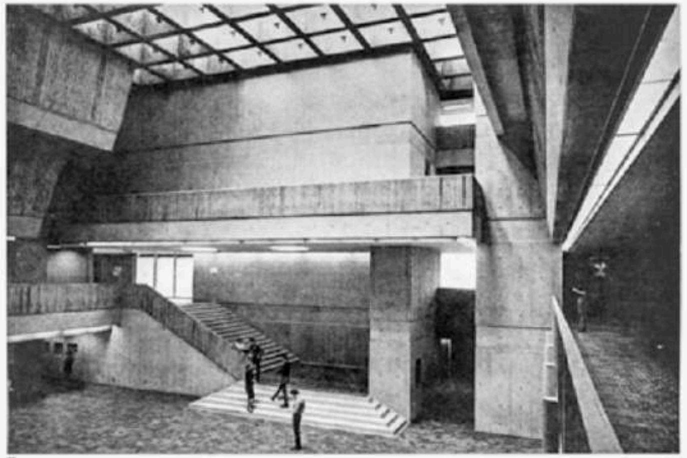
sociali, traslando l'identità dalla scala del dipartimento a quella dell'intera struttura.
Alla perdita d'identità del dipartimento corrisponde dunque un'identità ad una scala maggiore, quella collettiva, non più nella sede delle attività didattiche (dipartimento) ma nel sistema delle attività sociali.
Il sistema delle attività sociali assume configurazioni assai diverse nello Scarborough college e nella Università libera di Berlino: nel primo caso vi è un grande spazio comunitario che fa da drenaggio e raccoglie al centro in un « unicum architettonico » tutti i diversi livelli di vita comunitaria che si svolgono nei bracci. L'assunzione di un unico fuoco sociale conferisce una enorme rigidità al sistema ed è riscontrabile anche a livello figurale dove alla accidentalità ed articolazione, alle varie scale, della vita associativa lungo le strade pedonali che si snodano nei bracci, si contrappone la monumentalità, l'assialità del grande spazio centrale.
Nella Università libera di Berlino non c'è un unico fuoco, ma piuttosto una matrice per una pluralità di fuochi che variano in funzione del variare del contesto sociale.
La matrice assunta, la griglia delle strade interne pedonali, è di tipo geometrico e stabilisce un ordine gerarchico di organizzazione delle funzioni conferendo al tutto una sua precisa fisionomia; fisionomia che si configura attraverso l'uso e le attività che permeano la matrice.
Tale approccio pone un problema generale, quello di un rapporto tra forma e contesto, tra spazio e relazioni sociali. La mobilità dei rapporti sociali rende estremamente variabile tale rapporto.
Christopher Alexander nelle « Note sulla sintesi della forma » ci dà un'interessante interpretazione del fenomeno quando fa l'esempio del campo magnetico e della limatura di ferro: « ... Supponiamo di inventare una disposizione di limatura di ferro che sia stabile quando è posta in una certa posizione in un dato campo magnetico. E' chiaro che si può considerare questa ipotesi come un problema di progettazione. La limatura di ferro costituisce una forma, il campo magnetico il contesto. Anche in questo caso, possiamo giudicare facilmente la rispondenza della forma ponendola nel campo magnetico ed osservando se la limatura si muove sotto la sua influenza. Se non si muove, la forma è rispondente ».
Nei progetti (Università libera di Berlino) dove si punta maggiormente sul parametro delle relazioni sociali, proprio alla luce dell'esempio fatto, alla indeterminatezza di



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1/2
Siena: piazza del Campo. Roma: nuovi quartieri.
Queste e le fotografie che seguono ad illustrazione del presente servizio, senza proporre riferimenti precisi alle indicazioni date dai partecipanti al dibattito sul patrimonio storico e il mondo moderno, possono tuttavia rappresentare adeguatamente il punto di applicazione delle gravi preoccupazioni che alimentano il tema del territorio storico, quando si vada alla ricerca di soluzioni ordinate per i nuovi problemi della città e dell'ambiente. Le immagini sono parte del ricchissimo censimento dei beni naturali ed artificiali del nostro paese e dei danni ad essi apportati, raccolto da R. Bazzoni e dai suoi collaboratori in occasione della mostra «Italia da salvare», allestita per conto dell'associazione «Italia nostra».


1

negare le complesse e specifiche esigenze culturali perché le considerano troppo scarsamente produttive e quindi anacronistiche. In sostanza, dunque, è la supina obbedienza a tali forze quella che induce gli architetti ad affermare che occorre ridurre la tutela degli ambienti a ciò che è veramente essenziale, quasi che tale richiesta non significasse implicitamente la negazione di quegli stessi valori che le moderne leggi intendono tutelare.
Intanto noi non possiamo limitarci a trasmettere un'eredità culturale senza qualificare ciò che trasmettiamo per la parte che ci riguarda. Se l'ambiente storico deve sussistere come una realtà viva, esso non potrà continuare ad essere tale a forza di provvedimenti di eccezione e di incrementi turistici. Se, in altre parole, la dissociazione che distingue l'attuale urbanistica diverrà un normale aspetto del futuro, se cioè un nuovo ambiente non sarà stato creato in senso umanamente positivo, nemmeno sarà possibile, a lungo andare, il sussistere degli ambienti storici. Essi saranno divenuti ormai privi di significato perché non più legati al nostro divenire; ed ovviamente la perdita non si limiterà alla mutilazione degli aspetti del passato poiché implicherà la scomparsa dei valori stessi di cui quegli ambienti sono testimonianza.
L'isolamento al quale vanno oggi riducendosi le opere di maggior significato, proprio a causa della progressiva scomparsa di quelle stratificazioni che storicamente le qualificavano, è la prova allarmante di questo processo di estraniazione che coinvolge l'uomo insieme con la memoria del suo passato.
Ora, se si ritiene che tale sia, e non possa non essere, l'immagine del mondo moderno, non è più possibile parlare di qualificazione e quindi di cultura; la parola «moderno», che tanti insistono ad usare solo in senso positivo, diventa allora sinonimo di «irresponsabilità». Poiché non si tratta di una diversa dimensione alla quale dobbiamo adeguare noi stessi, rinnovando il nostro comportamento e le nostre abitudini di vita, ma della rinuncia pura e semplice a qualsiasi dimensione; allo stesso modo con cui, secondo una fatale coerenza, siamo indotti a rinunziare a qualsiasi futuro.
Del resto, non sembra possibile individuare le vere e più profonde cause dell'attuale disintegrazione dei valori ambientali senza risalire alle cause più generali della moderna crisi di civiltà. E' noto, ad esempio, che lo spreco del patrimonio d'arte e di natura fa tutt'uno con quello del patrimonio biologico; e non per nulla una delle voci più autorevoli della nostra comune società europea, quella del biologo Julian Huxley, si è spesso sollevata per affermare ragioni che tornano a pieno sostegno delle nostre attuali.
Nessuna proposta di pratici interventi potrà dunque aver valore per l'avvenire senza una piena consapevolezza di tali presupposti. Basta per questo rilevare come essa sia strettamente associata e subordinata agli sforzi che si vanno compiendo in gran parte del mondo al fine di scongiurare la minaccia più grave per l'avvenire dell'umanità: quella del pauroso e progressivo aumento della popolazione mondiale e quindi della progressiva, inevitabile rinuncia a qualsiasi sforzo di qualificazione. Per quanto non sembri immediatamente coerente, è certo che la tutela della eredità del passato — che è quanto dire l'aspirazione ad una continuità di cultura e di storia — sarà possibile solo se il più rigoroso controllo delle nascite sarà la legge di domani. Se ciò non accadrà, il caos dei nostri grattacieli di abitazione sarà presto considerato come una testimonianza di tempi ancora fiduciosi ed ingenui; né sarà più consentito agli architetti di tentare, come già essi vanno facendo, novità di giganteschi volumi e di sovrapposizioni, nella narcisistica illusione che un qualche velleitario formalismo possa rendere più tollerabile l'orrore della futura convivenza umana. Allora non vi sarà posto che nella totale obbedienza alla «ragione»; e finalmente, la scomparsa di miliardi di essere umani si imporrà come la sola condizione possibile per la sopravvivenza dell'umanità. Se poi, non piacendo questa apocalittica seppur logica conclusione, io dovessi sostituire ad essa una proposta immediata, insisterei sulla necessità che le nostre scuole di architettura si decidessero finalmente ad assumere, tra i loro compiti fondamentali, lo studio dei problemi che abbiamo enunciato (1).

R. Pane

1)
Relazione presentata al convegno sul tema «Passage de l'idée de monument isolé à l'idée d'ensemble historique et artistique», svoltosi a Bath tra il 3 e il 7 ottobre 1966, ad iniziativa del Consiglio d'Europa.

Antico e nuovo come valori

In sede operativa il problema del rapporto tra antico e nuovo non dovrebbe più presentare alcuna incognita. Conosciamo esattamente, in base ad attendibili previsioni, quale sarà lo stato dei centri storici e del paesaggio, continuando la presente evoluzione tecnologica. La previsione globale è confermata anche da approfondite indagini settoriali quel è, ad esempio, il rapporto Buchanan sul traffico.
In questo quadro del futuro tutte le indicazioni e i rimedi sono da considerare e valutare, tranne, forse, quello che si ispira al liberismo e ad una artisticità fuori luogo.
Liberistico, nel migliore dei casi, è il modo in cui si effettua tutta la produzione edilizia nazionale con i risultati che sappiamo, e liberistico è l'atteggiamento di alcuni architetti e critici italiani quando negano, per l'architettura da situarsi nell'ambiente antico, ogni limitazione formale e volumetrica. Tale posizione, che nel suo radicalismo sembra rivoluzionaria e serve soprattutto a scuotere qualche soprintendente riluttante, risulta, nell'ormai maturo dibattito sul rapporto tra antico e nuovo, una tautologia. Conferma cioè con un crisma di cultura quanto già avviene nella pratica professionale per altri e ben noti motivi.
La polemica che essi conducono non è, come affermano, contro una teoria dell'ambientamento, coltivata forse in privato da qualcuno dei suddetti soprintendenti e non condivisa da alcuno studioso responsabile, ma contro alcune proposte d'ordine pratico, avanzate da una minoranza per limitare il danno all'ambiente antico. Non importa in questa sede entrare nel merito di tali proposte: esse valgono essenzialmente come testimonianza di un disagio culturale che ha altre radici e non va identificato con il falso problema dell'ambientamento.
Inoltre vorrei rilevare che il suddetto dibattito, da circoscriversi ad un solo settore della grande trasformazione urbanistica in atto, non va posto tra due fittizie schiere di conservatori ed avanguardisti, e che è inutile ed ingenuo dire o far dire se l'una o l'altra parte abbia o meno spirito di simpatia per l'antico o per il nuovo, più per l'uno e meno per l'altro; per nostra fortuna la questione non sta in questi termini e, anche se lo fosse, nessuno, se non totalmente sprovveduto, confesserebbe le sue preferenze.
Eppure in questa malposta polemica, la cui soluzione sarebbe in gran parte attuata da una più efficiente politica urbanistica, esiste un problema di valutazione. Di una valutazione etico-estetica perché sono in discussione gli aspetti di una più civile convivenza connessi a quelli della cultura e dell'arte.
Ora, non è difficile riconoscere che tutti i quesiti inerenti al rapporto tra antico e nuovo, quali la legittimità o meno di costruire nell'ambiente antico, i suggerimenti per limitarne il danno, le decisioni da assumersi caso per caso, le scelte su quello che si debba vincolare, la definizione stessa di ambiente, rimarranno irrisolti fino a quando non saremo in grado di definirli ed inglobarli in una valutazione oggettiva o almeno concordata.
Che, nelle sue linee generali, il patrimonio storico-artistico-paesistico sia un valore, è fuori dubbio, come certamente, sempre in generale, è un valore l'architettura moderna e la sua cultura. Ma appena dobbiamo esprimere dei giudizi particolari, queste generiche ammissioni non sono più sufficienti. Non potendo da un lato conservare tutto, né dall'altro costruire tutto e dovunque, siamo costretti ad esaminare storicamente, ossia da una visuale di oggi, ciò che realmente vale (ossia serve a soddisfare le più ampie esigenze maggioritarie e minoritarie) e realmente è vivo, sia che appartenga all'antico sia che rientri nel nuovo. Abbiamo pertanto bisogno di principi per giudizi di valore.
Una prima relazione tra antico, nuovo e rispettive valutazioni si deduce dalla «Teoria della valutazione» di J. Dewey quando afferma: «In base alla continuità delle attività umane personali ed associate, la portata delle valutazioni presenti non può essere validamente stabilita fino a che esse non sono inserite e viste nella prospettiva dei passati eventi di valutazione con i quali sono continue. Senza ciò, la prospettiva futura, cioè le conseguenze delle presenti e nuove valutazioni, è indefinita». In altri termini, nel nostro caso, i nuovi valori dell'architettura, per essere definibili, dovrebbero porsi in continuità con quelli antichi, continuità che non escluderebbe il contrasto dialettico. Ma a questa esigenza di legame tra passato e presente, che si traduce in norme di comportamento, si oppongono numerose difficoltà prodotte da altrettante soluzioni particolari di continuità proprie alla vicenda dell'arte e dell'architettura moderna.
In una dimensione minore e con un ritmo più lento di quello attuale, il mondo antico formulava dei principi di valore cui si atteneva sino alla nascita dell'evento e delle personalità emergenti che sconvolgevano l'ordine delle cose imponendo diversi principi di valore.
Ad investire di valore le cose era il gusto, inteso come il denominatore comune della cultura del tempo; i criteri derivanti erano, oltre quelli formali, l'ordine, la simmetria, l'equilibrio, la


2

EXTERIOR DESIGN IN ARCHITECTURE

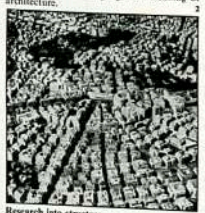
YOSHINOBU ASHIHARA

RENZO PIANO

One or two twentieth century architects have shown themselves capable of surmounting all doubts about the social content of their work: the great example is of course Mies van der Rohe, followed perhaps by Pier Luigi Nervi and others who found complete absorption in the manipulation and developments of pure structural systems in relation to human requirements for shelter, comfort and functionally usable space. Renzo Piano* seems destined to join this group, as anyone who saw last year's exhibition of his work at the Architectural Association will no doubt have realised. Born in 1937 Piano studied architecture at Florence and Milan and has been Assistant Professor at the Milan Polytechnic since 1965. His work includes numerous research and theoretical studies in addition to the design of buildings. His office, after a time in Milan, has now moved to Genoa. (*Top right in photo opposite)

Architecture and technology

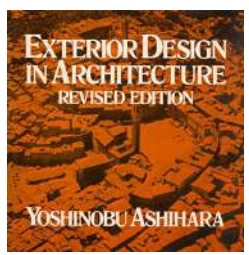
I think that the impetus underlying contemporary architectural thought derives from the social and functional revolution which the present century has wrought in our environment. We have moved from the traditional multifunctional structure (expressing a deep integration between social patterns and structures) to the monofunctional units which dot our current landscape, lacking any integration expressive of their broadly similar purpose. The view of the centre of old Siena **1** shows how in mediaeval times the city centre was conceived as a whole; multifunctional and yet integrated into a marvellously complex unity. The aerial view of a post-war quarter of Rome **2** shows precisely the opposite development—the structure of the city is degraded precisely because of the discrete conception of each building and the failure of the plan to make a sensible unit out of the complex as a whole. Particularly noticeable is the way in which the streets and open spaces perform no *connecting* function but merely operate as *negative space*. I believe that in my work I am endeavouring to express a critical attitude towards the static design definitions which are the functional cause of the disintegrated development so characteristic of our age. Architecture that has been statistically conceived and schematically organized in an initial analysis of *problems*, with the subsequent generation of *remedies* (mostly intolerably slow ones), plus the whole university teaching system based on analysis and later synthesis; all combine to show a profound inconsistency with the fluid and changing reality of things in real life. I think that against the background of contemporary architecture and planning, advanced structural research and the use of the most advanced technology available represents the most positive step towards a reintegration of the language and meaning of architecture.

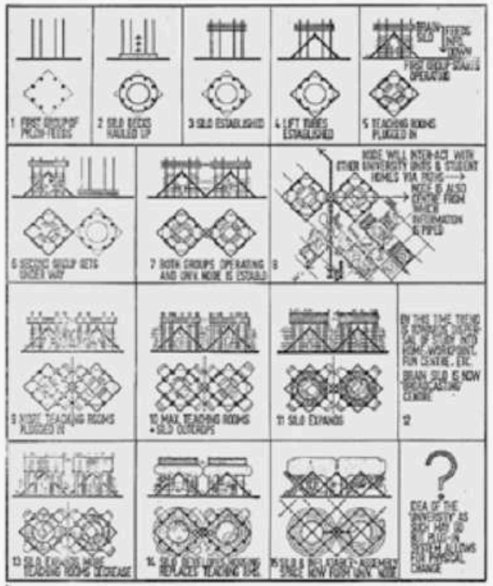


Research into structure

Functional integration through the clear identification of structural elements enables us to achieve a better relationship between servicing elements and structure in the built environment. Phased assembly should make possible the use of the primary structural system as a generator of multiple subsystems each capable of adaptation to any number of servicing functional roles. A similar relationship exists between rigid structural systems (rooted in the ground and intended for permanence), and secondary, mobile or inflatable substructures such as inflatables or cable tensile forms. The structural revolution through adoption of these two principles would make inevitable, will of course have severe repercussions throughout the construction industry where methodologies are not adapted to the speed of change which above developments would necessitate. New materials, steel at first, then aleminium and plastics compounds provide a very low structural weight allied to a very high strength performance. Moreover the techniques of construction now used differ from the system overlaying characteristic of traditional methods, new materials require complex operations of casting and welding—so that site work (unless the site is organized in a very sophisticated way) must be limited to simple assembly. Geometric structural configurations defy the laws of gravity as much as the traditional concepts of construction. The structural revolution has moved, to mind, in three primary directions; towards the space frame, the shell, and the tensile structure.

Space frame structures reduce the cost by standardizing component sizes irrespective of the span of the structure, whilst their lightness of weight and optimized stress-performance produces costs as well as facilitating the investigation of larger and larger clear-span areas. Photograph **3** shows a structural system composed of pyramidal GRP elements held in place by aluminium tensile members. This system, widely used for temporary buildings, combines high structural strength with translucency or even transparency. A similar system using steel pyramidal frames **4** can be stacked easily for transportation, used horizontally for roofs or floors, or erected vertically for walls or partitions. A third structural frame structure using timber **5** also uses a pyramidal form on a square base. The ti

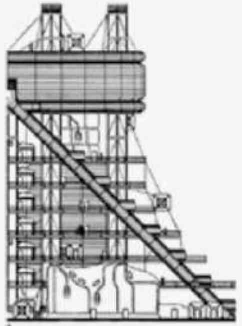




1

Plug in university node, del gruppo Archigram. Studio di un particolare nodo della Plug in city per dimostrare le possibilità di organizzazione e crescita in base a specifiche e mutevoli condizioni. La struttura diagonale dei condotti-supporto della concellazione incrocia la maglia verticale costituita dagli « information tubes » che portano al « silo » e alla biblioteca. La circolazione orizzontale a livello urbano e quella diagonale a livello di settore s'incontrano nel nodo. Il nodo come punto energetico fisso sul quale s'innestano specifiche funzioni mutabili dal contesto. Qui le relazioni di scambio si concentrano; le singole unità sono « metal boxes » e gonfiabili.

1 Modello di sviluppo e di conformazione dell'university node.
2 Pianta del nodo corrispondente alle condizioni di massima occupazione (fase 10 nel modello di sviluppo).
3 Particolare di un settore corrispondente a metà nodo e alla fase di sviluppo numero 10, in cui vi è la massima occupazionalità educativa ed inizia la localizzazione residenziale.



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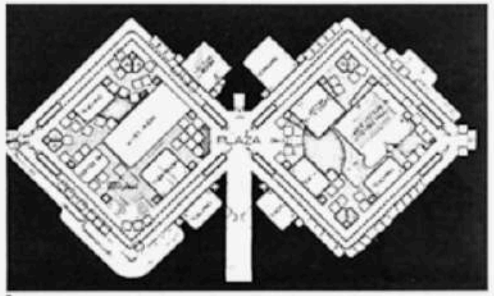

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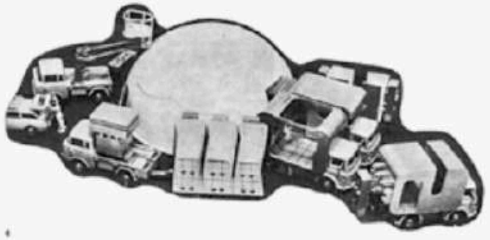
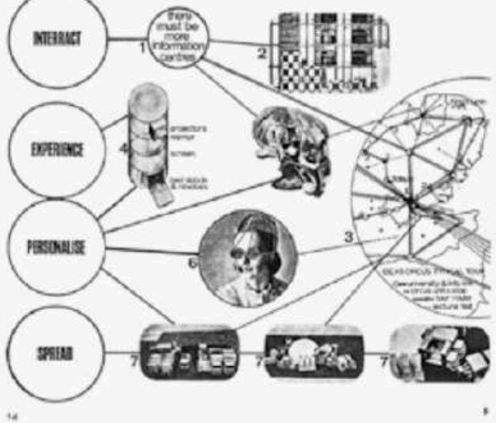


4

Ideas Circus, di Peter Cook del gruppo Archigram. Proposta di un sistema di unità mobili contenenti: fonte di energia, tipografia, biblioteca, teaching machines, ausilii audiovisivi, e « media » di vario tipo. E' previsto che la circolazione si svolga tra centri educativi esistenti. L'ipotesi è di una maglia fortemente differenziata di strutture educative rese accessibili da strutture mobili di circolazione tali da costituire fattore di incentivazione e stimolo allo sviluppo dell'attitudine individuale all'apprendimento e alla formazione culturale.

5 Il diagramma illustra le diverse relazioni stabilite dal Circus con altri « media » per produrre, manipolare, immagazzinare e diffondere l'informazione: 1. memorizzazione delle informazioni come feed-back dei centri educativi visitati. 2. Plug in university node in cui ciascun studente ha una cellula metallica come apperatus-house. 3. Circuito tipico del Circus. 4. Tamburo di informazione audio-visiva. 5. Unità educazionale individuale. 6. Info-Gonk. 7. Unità mobili e loro aggregazioni.
4-6-7 Particolari strutture mobili provviste di mass-media educazionali, come sussidi audio-visivi, bank of knowledge, stazione di immagazzinaggio e manipolazione, diffusione informazioni, teaching machines, aree gonfiabili di scambio per l'istruzione di gruppo.
8 Prototipo di una unità educazionale individuale progettata da David Greene, del gruppo Archigram.
9 Modello illustrativo delle diverse configurazioni assunte dalle strutture educazionali mobili in relazione alle condizioni di applicazione ed alle caratteristiche educative o meno dei centri esistenti a cui il circuito si relaziona.



5

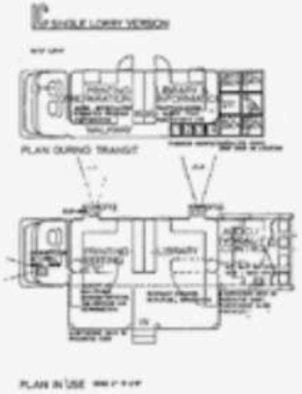
plement the instructor's presentation. Obviously, depending on their manner of use, some devices may be either aids or media » (1).

Mass media

In relazione a questi strumenti di comunicazione e diffusione del sapere, le diverse tipologie che fanno capo all'organizzazione degli spazi per le attività didattico-scientifiche dovranno rispondere ai seguenti requisiti:
— spazi di scambio nei quali lo studente entra in contatto con i « media » e con il docente.
— Spazi di produzione, nei quali « media » in varie forme sono prodotti ed originali per soddisfare le necessità di particolari situazioni educazionali.
— Spazi per l'immagazzinaggio e la manipolazione in cui « media » in varie forme sono catalogati, ordinati e resi accessibili per l'apprendimento individuale e per lo sviluppo dell'istruzione di gruppo.
Risulta chiaro da ciò che le tipologie tradizionali relative alle funzioni che fanno capo all'organizzazione didattico-scientifica risultano ampiamente obsolete: basti pensare alla consueta configurazione dell'aula scolastica dove la trasmissione dell'informazione tra docente e studente avviene entro i limiti della parola, al più amplificata, quando esistono già strumenti collaudati capaci di trasmettere simultaneamente l'informazione dell'uomo sulla terra a strumenti nel cosmo e viceversa.

Processi autoeducazionali

Si può ritenere che la tecnologia dell'istruzione si svilupperà nei prossimi anni verso la produzione sempre maggiore di materiali autoeducazionali largamente accessibili a tutti i livelli. Da ciò consegue che l'ipotesi, per la quale lo sviluppo dell'istituzione come tale appare chiuso dalle vie individuali all'istruzione, è resa plausibile dallo sviluppo tecnologico stesso, e dalle possibilità di recuperare la funzione educativa all'interno delle altre funzioni consolidate dell'habitat umano. Detta ipotesi rifiuta la concezione di una cultura « solo universitaria » come prodotto di una organizzazione autonoma, rispetto alle condizioni produttive della società.
Il vero significato non sta, quindi, nella moltiplicazione e diffusione di nuovi organismi educativi in cui i processi siano sotto il controllo istituzionale, ma piuttosto di apparati i cui processi educativi siano sotto il controllo dell'individuo. L'obiettivo è quello di una « generalizzazione » della istruzione a tutti i livelli della società in quanto strumento necessario a ciascun individuo per la piena coscienza delle proprie scelte e delle proprie azioni.
In linea generale l'educazione di massa è perseguita attraverso la circolazione delle idee entro canali in cui i « mass-media educazionali » sono mobili o fissi. Mobili quando l'ipotesi è quella di una maglia differenziata di strutture educative e la circolazione avviene non solo a livello dell'informazione, ma soprattutto degli individui che la personalizzano e la trasformano in esperienza. Fissi quando la maglia ipotizzata per le strutture educative tende all'omogeneità, all'uniformità nei vari livelli, e la circolazione avviene attraverso una rete di comunicazioni capillare ed indifferenziata. C'è da aggiungere che, dando per scontata l'incidenza educazionale dei « mass-media », restano determinanti le condizioni dell'environment nella loro accezione sociologica, psicologica, percettiva, economica eccete-



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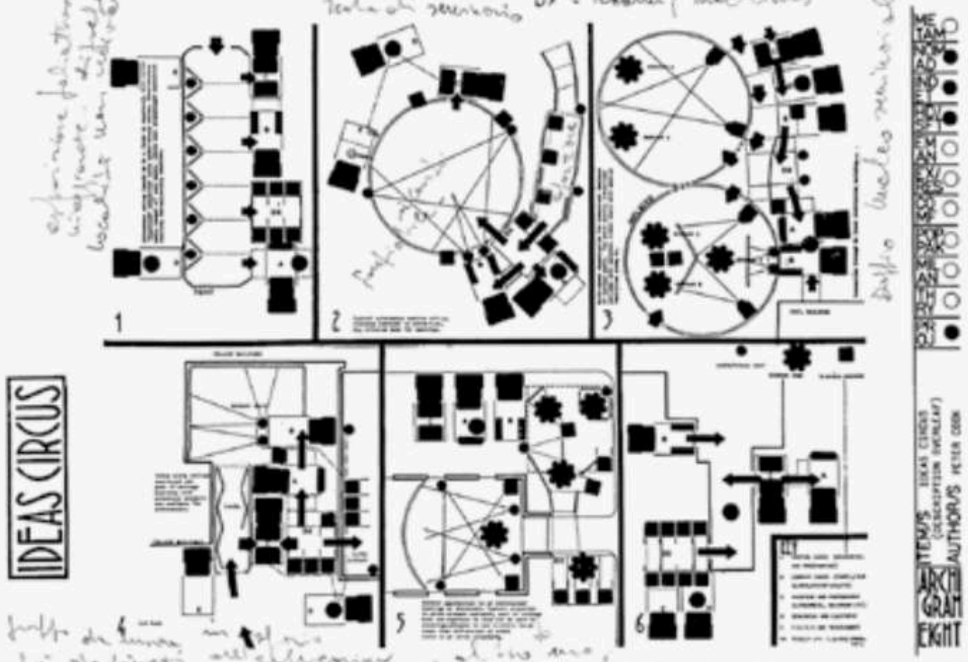
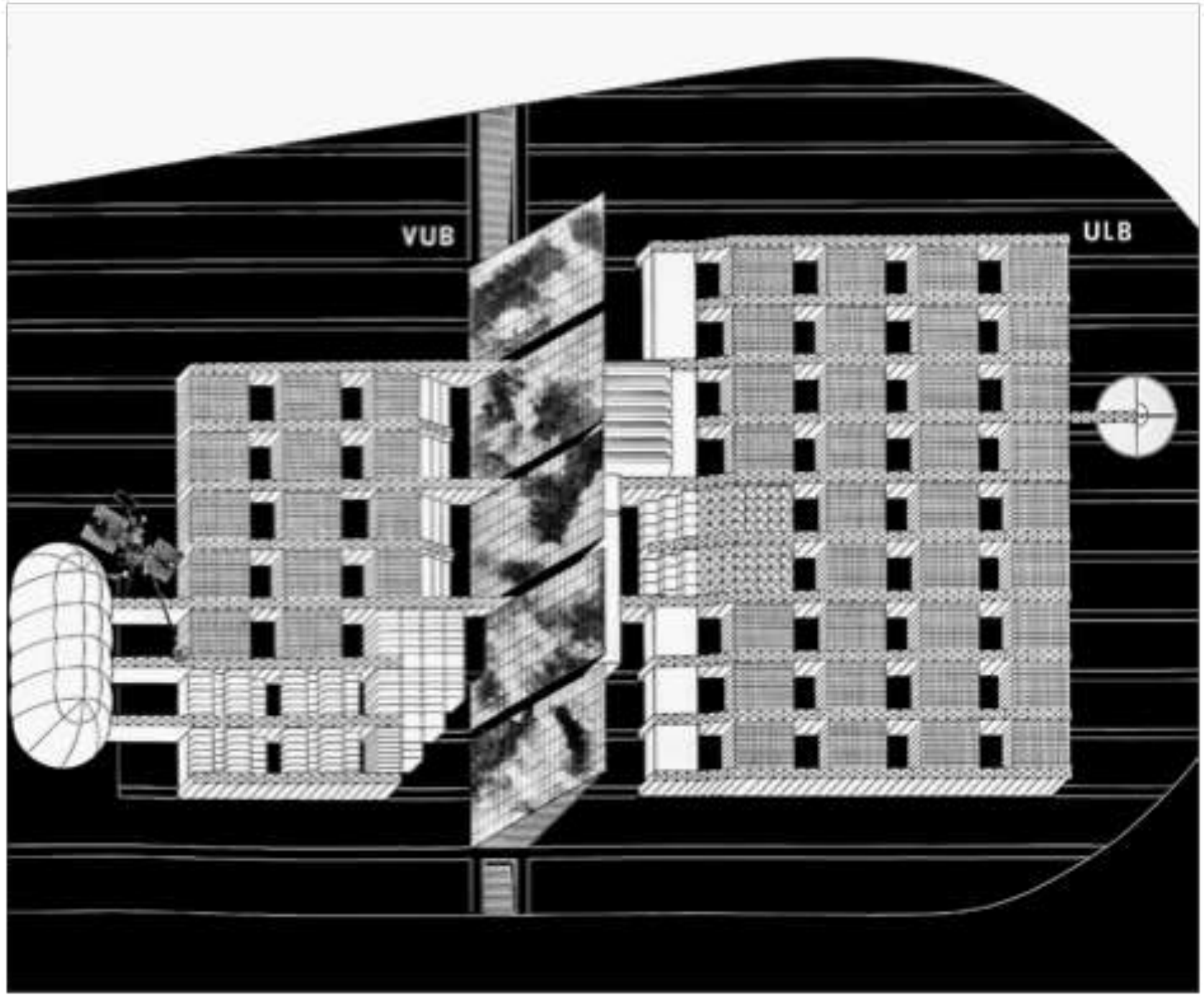
8

A - cabina di controllo, alimentazione e programmazione
B - cabina biblioteca (nastri, films, ...)
C - stampa e fotografie
D - generatore e impianti
E - ... e manutenzione
DY - teaching machines

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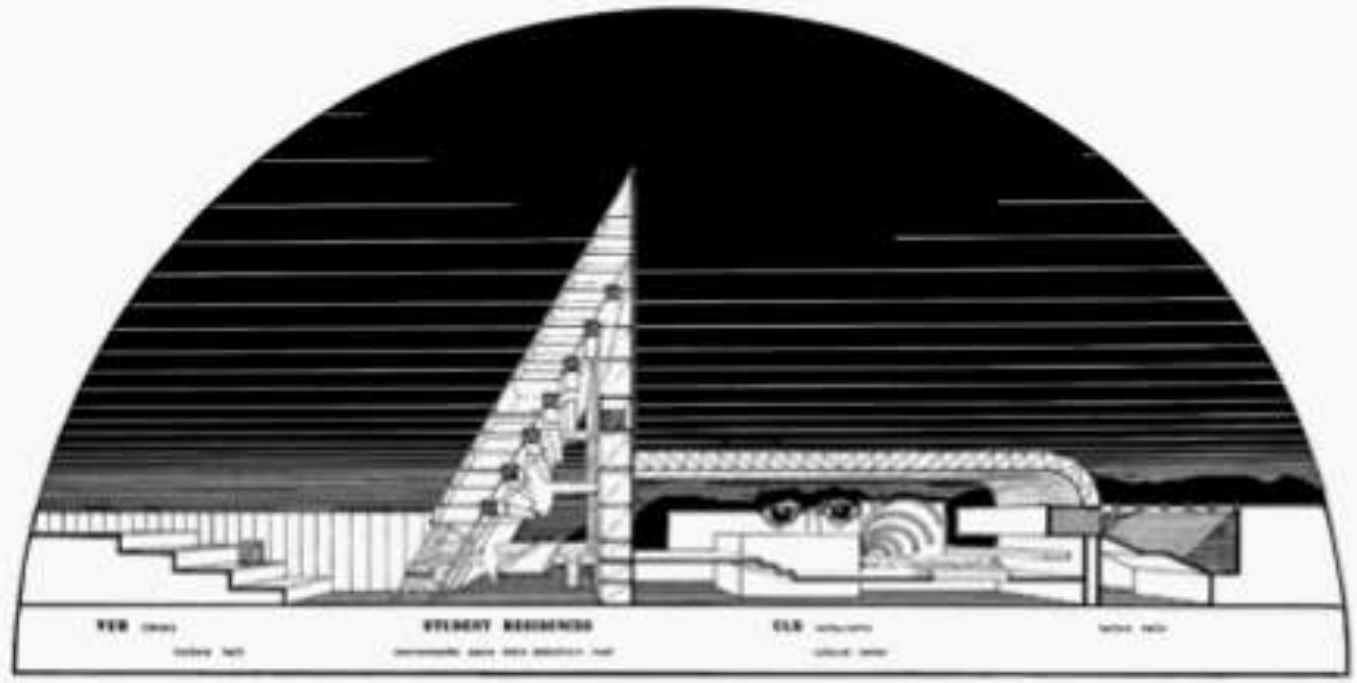

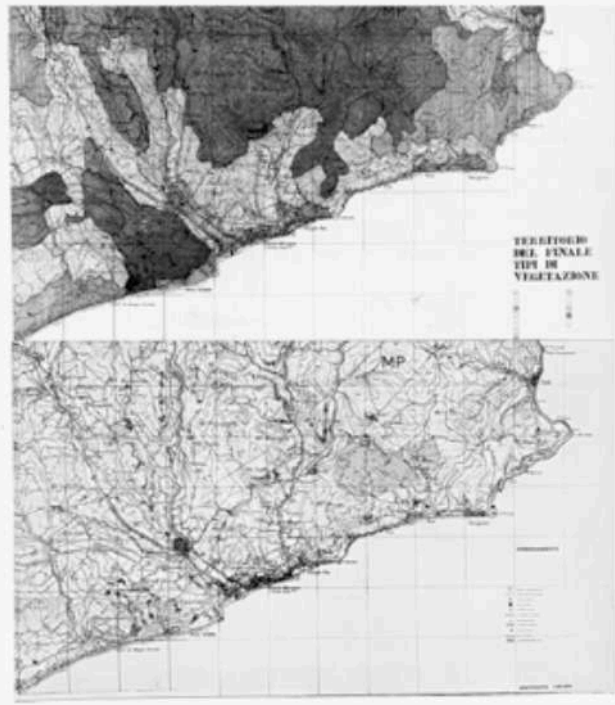

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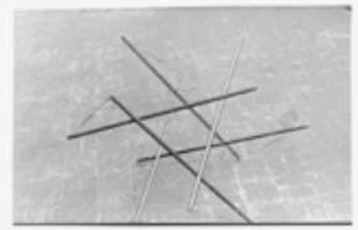
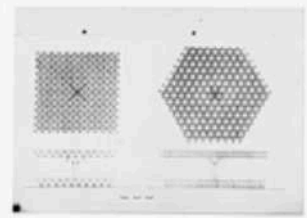
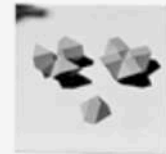
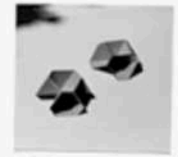
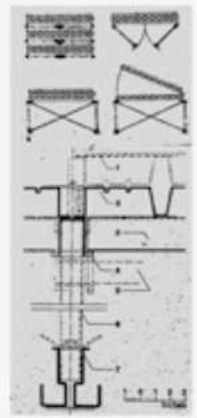


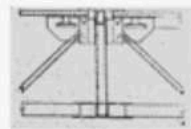


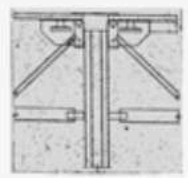




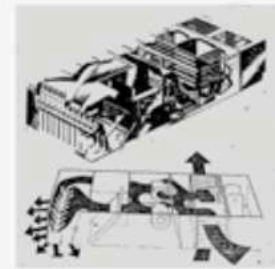
E15

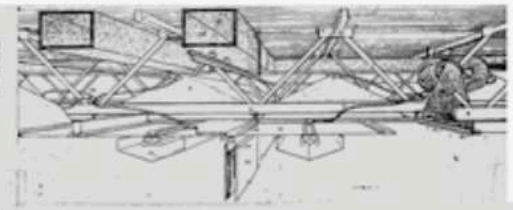


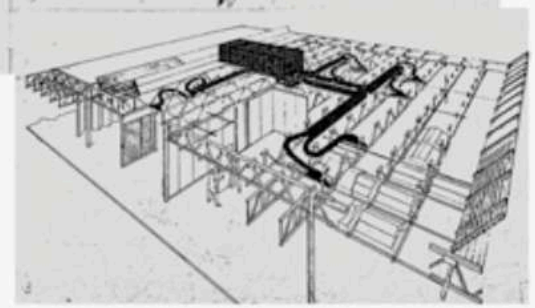


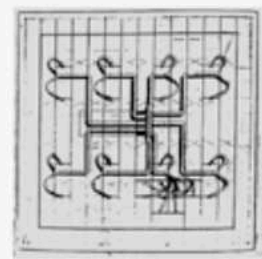


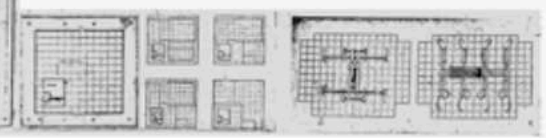
SCSD











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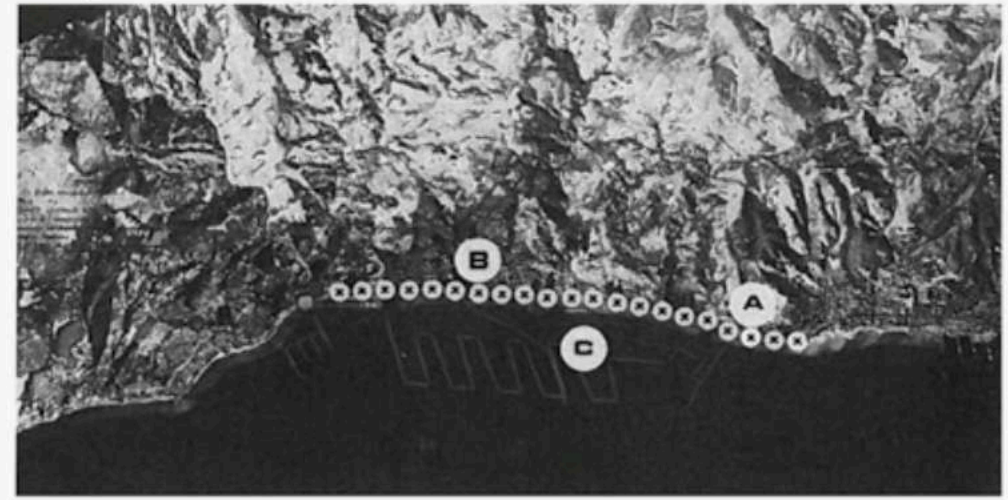


9

Works and projects

Study scheme for the Port area of development, Genoa 1970

(1) Along the axis of communication are distributed the facilities of the areas included in the plan of reconstruction.

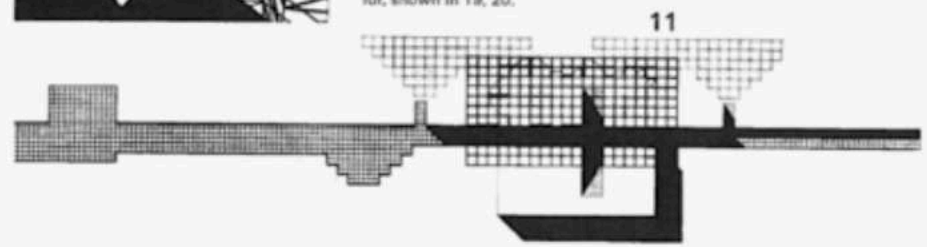
The educational facilities are provided for in A, to be carried out with structural schemes of the type indicated in the experimental projects in the illustrations 9, 10, 11, 12, 13.

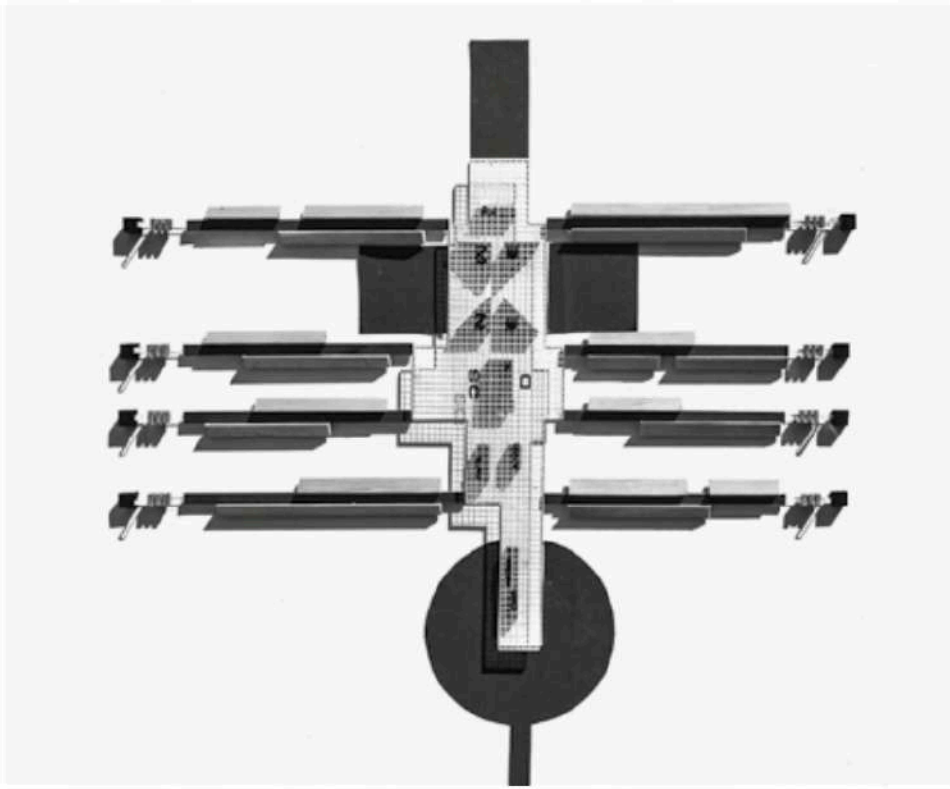
Sports facilities, large covered areas, leisure and markets are provided for in B, to be executed with the structural schemes of the type shown in illustrations, 14, 15, 16, 17, 18.

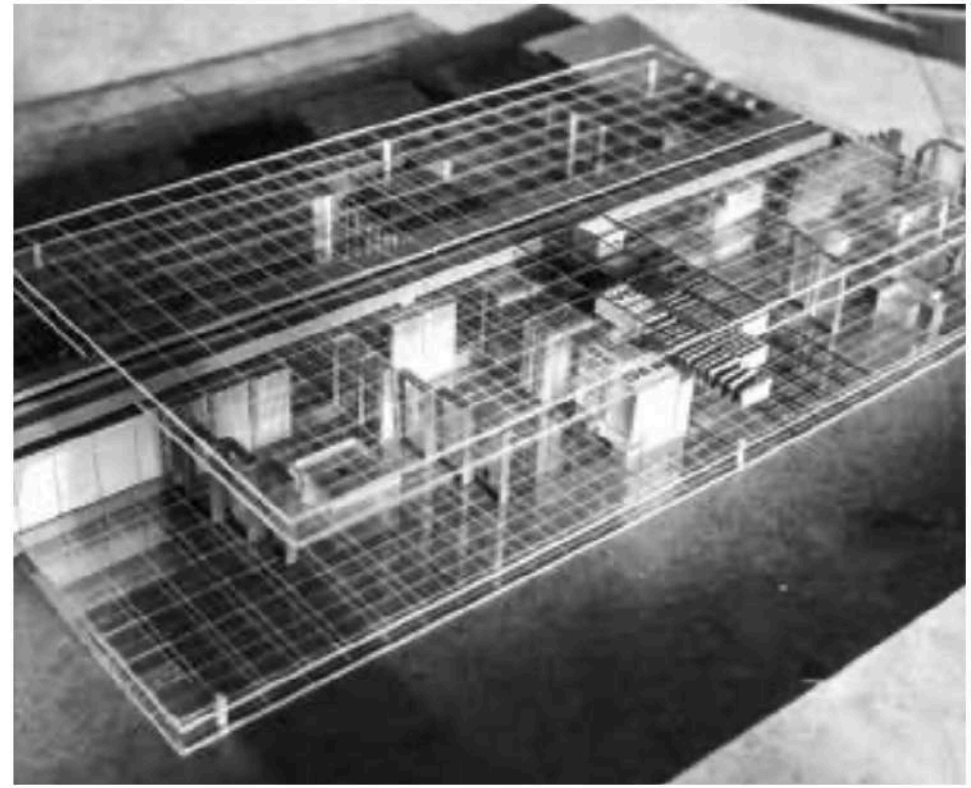
In C, port facilities, mobile and capable of enlargement, are provided for, shown in 19, 20.

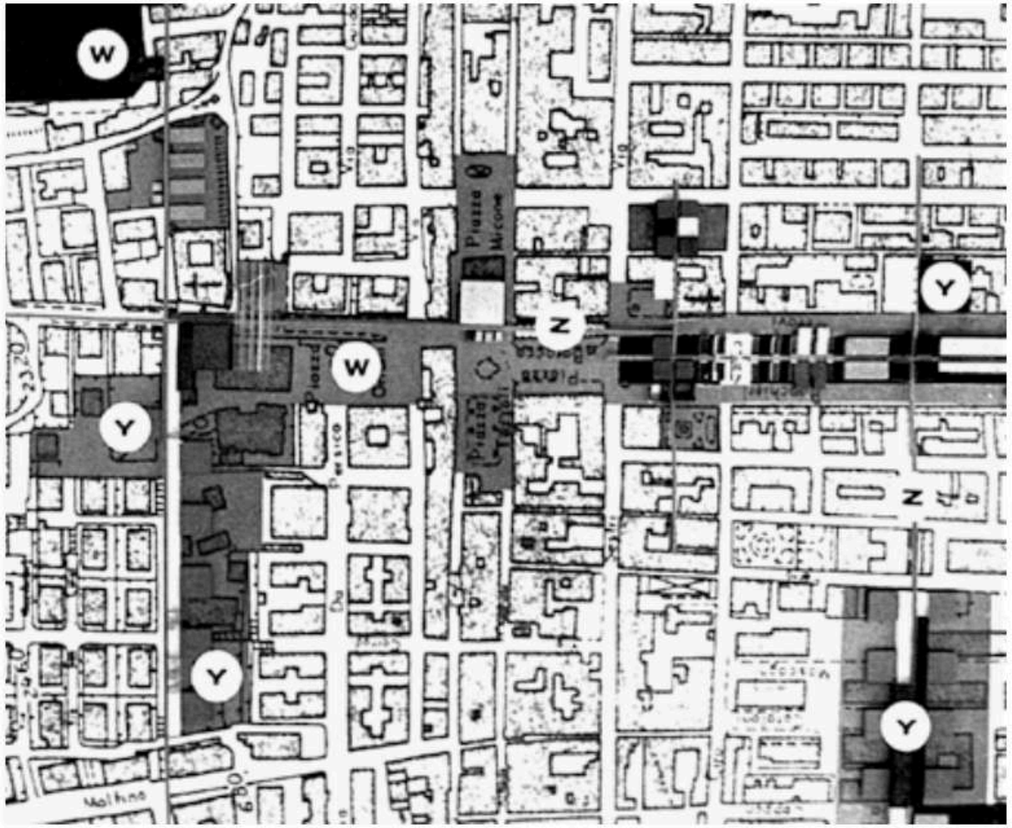
The relation between the effective requirements of the project and the examples described is to be understood in a wide sense, excluding choice of details and limiting the retention of the structural and spatial characteristics of the examples. These are all *suggested*, not so much as architectural concepts complete in themselves, but as fields open to more complex developments.

11





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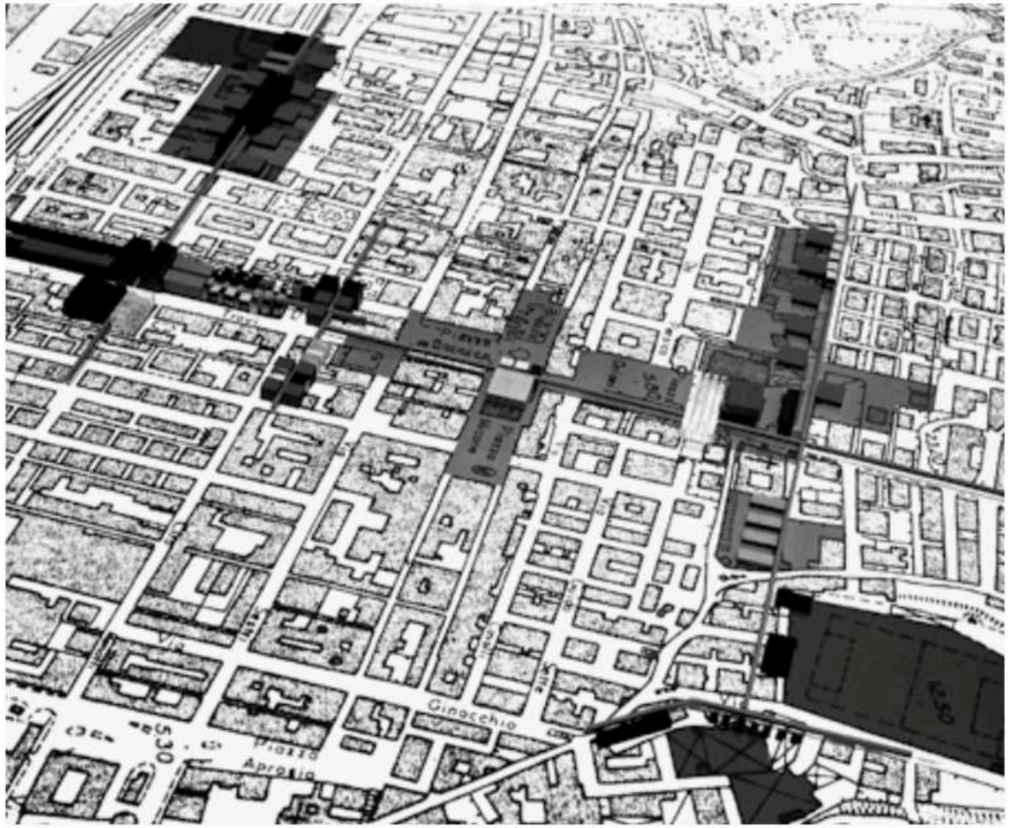

Ginocchio

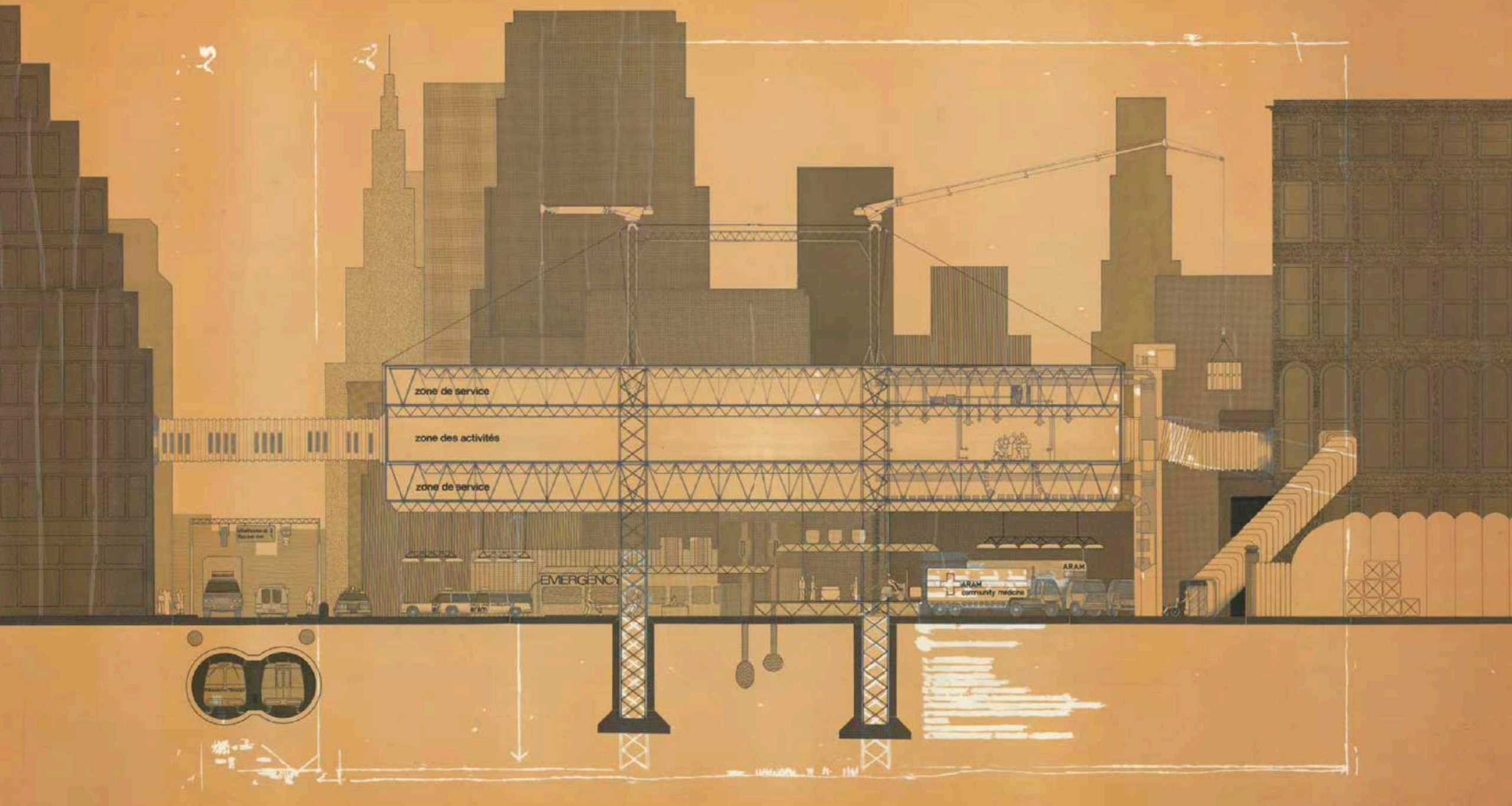
Un "sistema [per l'architettura scolastica] (school system) da sviluppare in Italia e in Inghilterra".

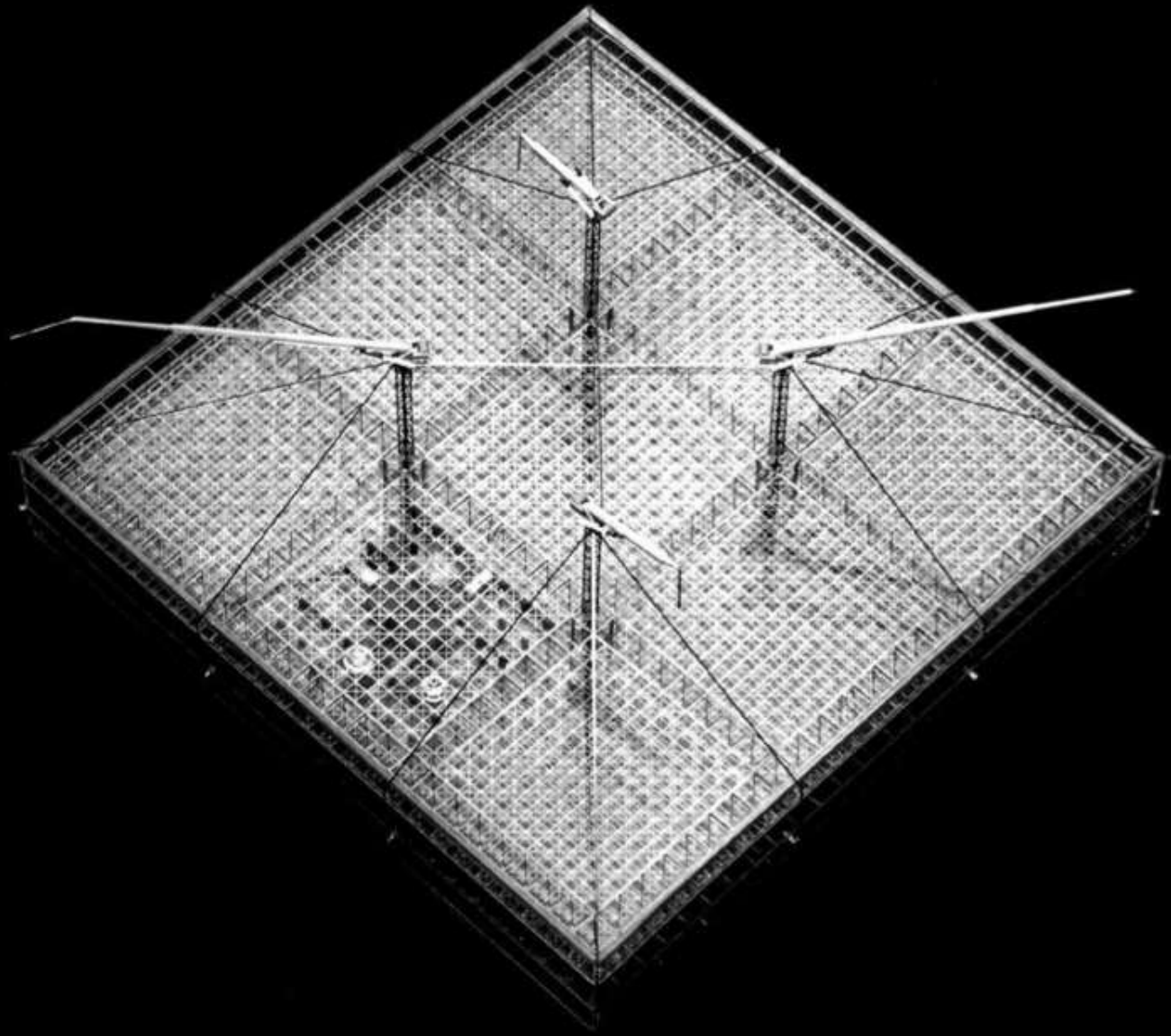
Renzo Piano, Lettera a Richard Rogers, febbraio 1970

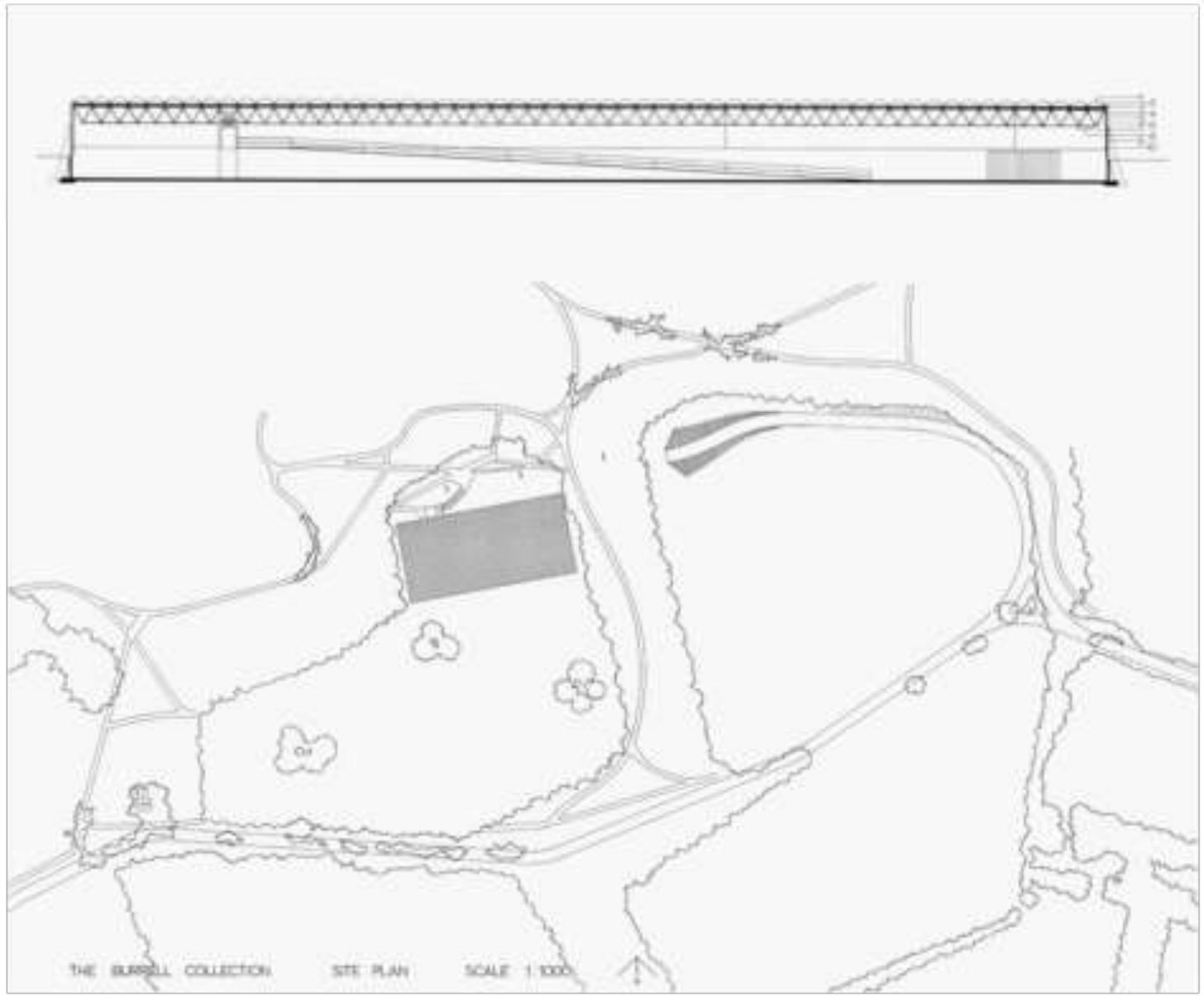
"Un piano profondo completamente integrato, come nel caso dell'SCSD [di Ehrenkrantz], ma che utilizzi componenti standard + una copertura che lasci entrare la luce, ad esempio finestre Zip-Up in copertura o un materiale isolante e traslucido per il tetto".

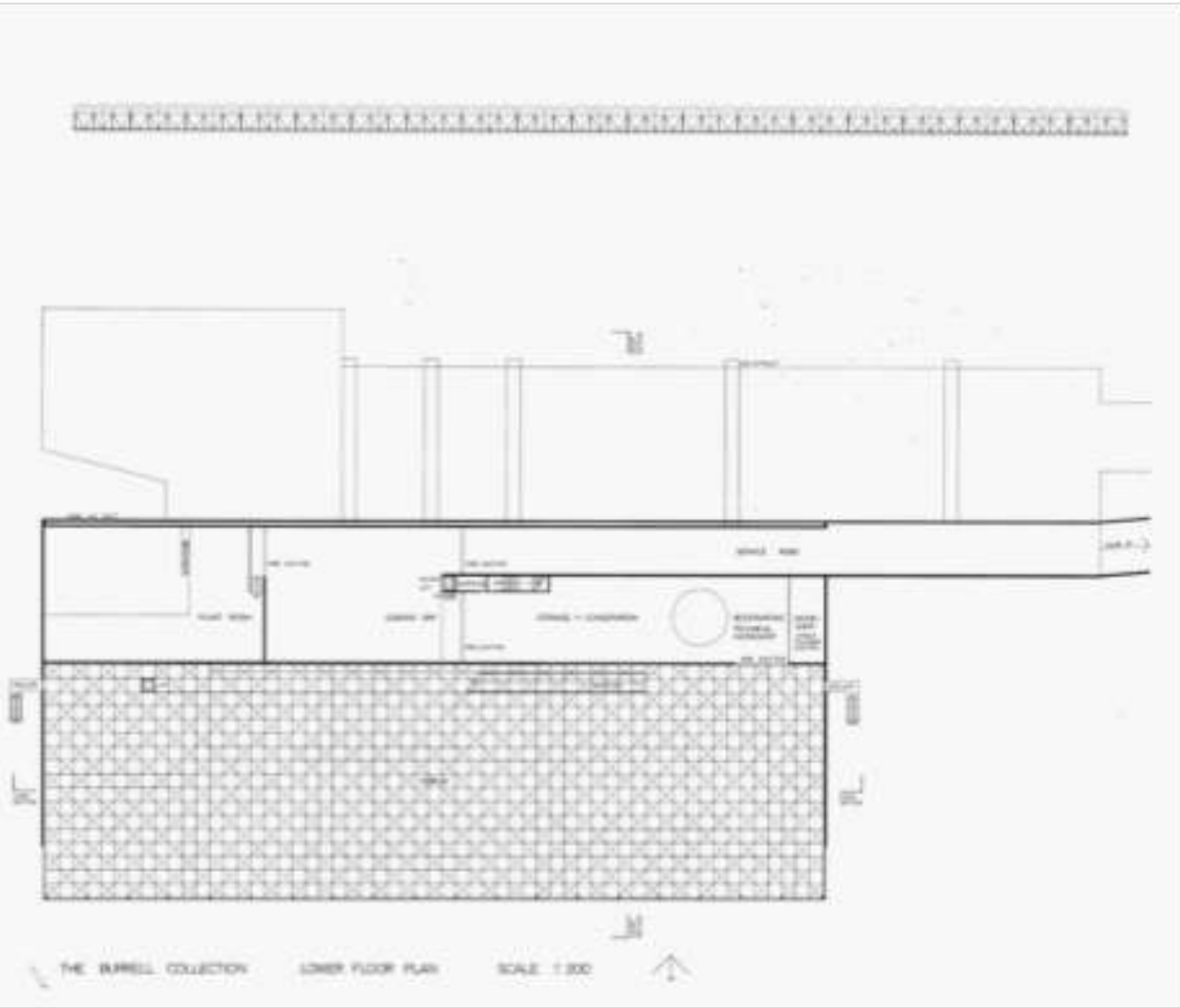
Richard Rogers, Schools – Renzo Plan, s.d. [mars 1970], RSHPA, C01, General Correspondence, Administration Piano+Rogers Architects.

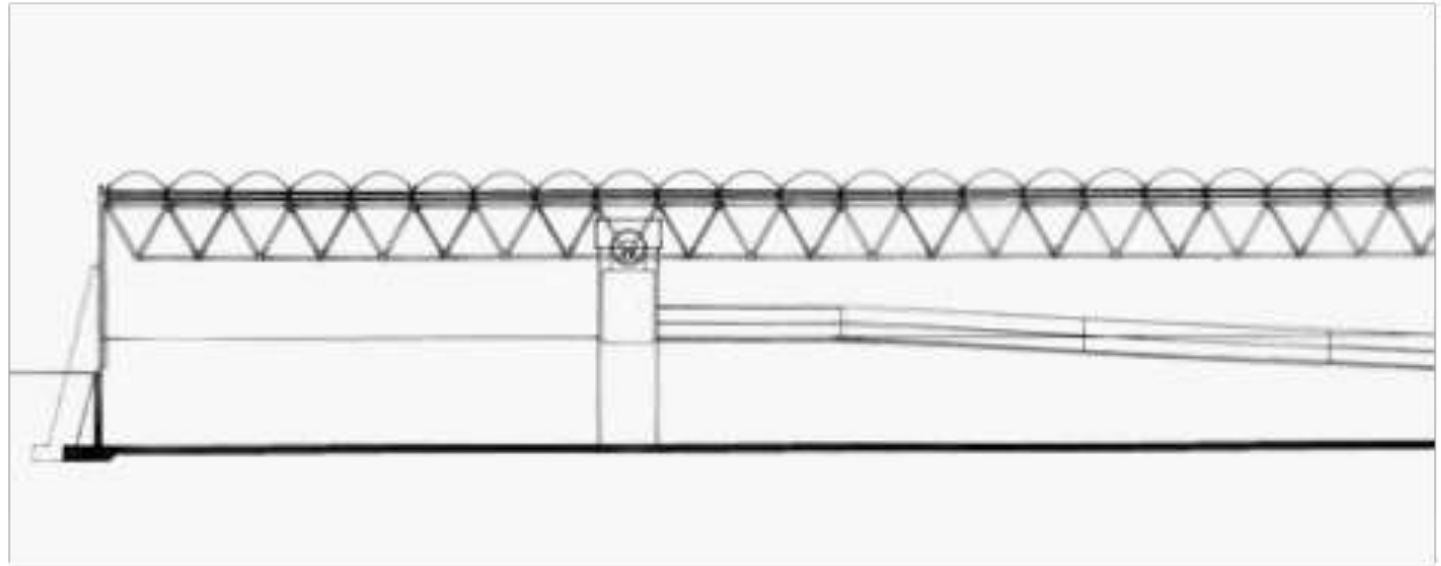

Park
WHILE YOU
BANK

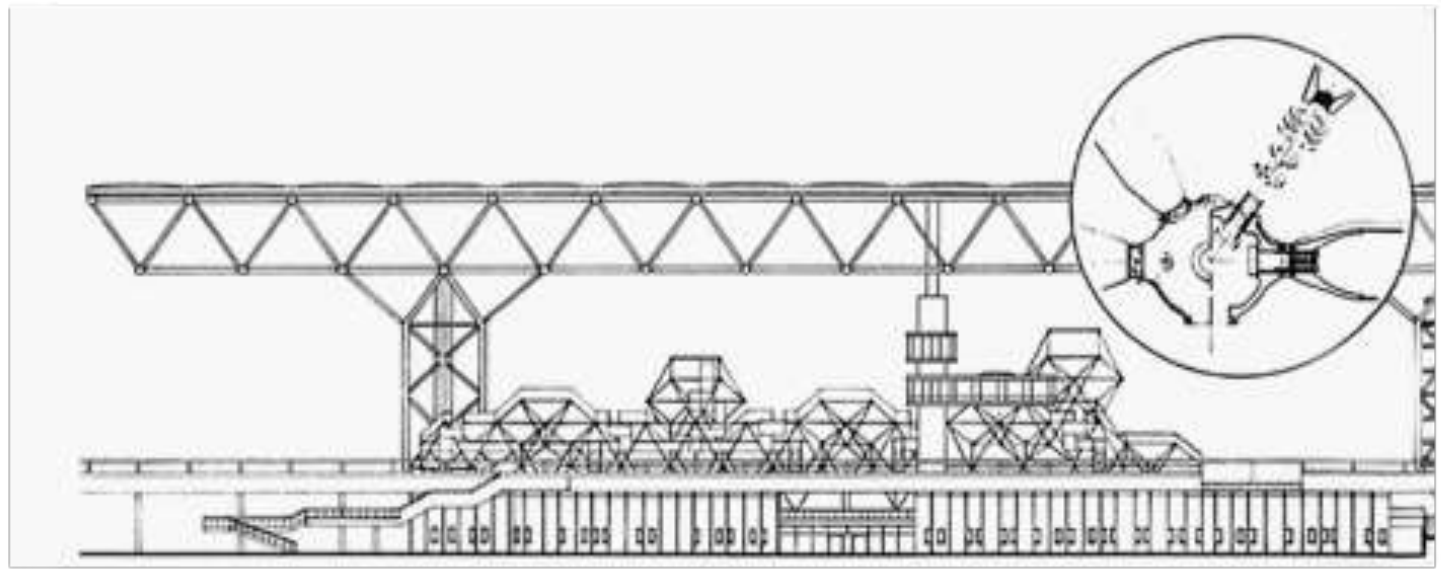

zone de service
zone des activités
zone de service
EMERGENCY
ARAM
ARAM
community medicine

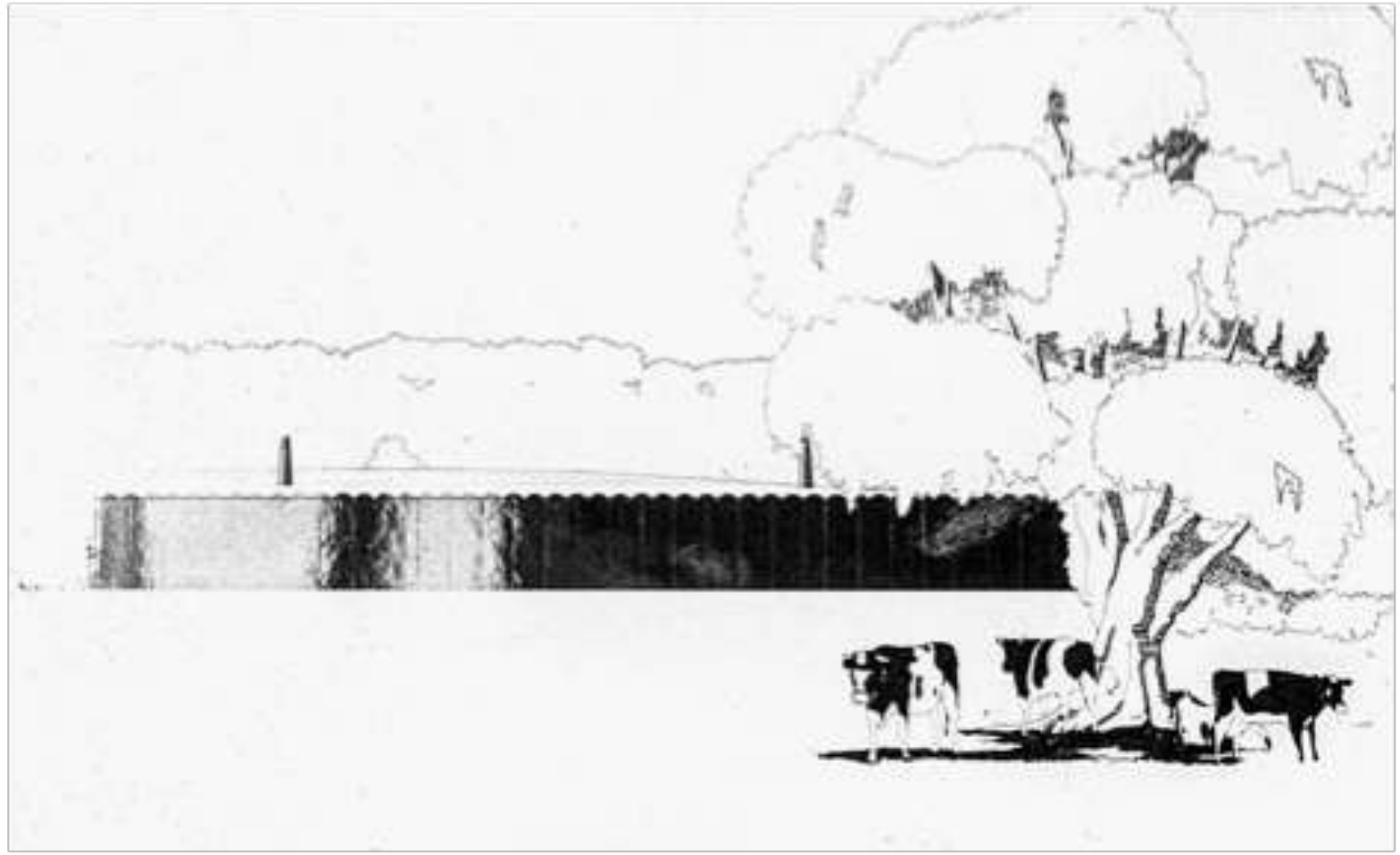



THE BURRELL COLLECTION
SITE PLAN
SCALE 1:1000


THE BURRELL COLLECTION
LOWER FLOOR PLAN
SCALE 1:200







JURY

E Aillaud,
Sir Frank Francis (British Museum)
Philip Johnson (strong & eratic)
Laclotte
Niemeyer (ugh!)
Picon
Prouvé (good)
Sandberg (Istrate Curator)
Utzon (good)

SUMMING UP

I don't like the following

1) Its so political that even without the written loop-holes I dont believe there is more than a 3 to 1 chance of it ever being built (the prize money is not bad).

2) Its very complex and will need 100 hours partners time and 300 hours others,ie, 500 hours approx. by 15th June. This means we must start this week. Even if Renzo, Su and I spent 50% of the next fortnight, ie, approx. 100 hours - what about Cambridge, Burrel, Roof extension, Basildon and work getting. I suspect the only person who could complete it is JY, say 100 hours, who is already doing Camden Mews, Cornwall, and Burrell! Dom may be willing to put in 200 hours, ie, 36 hours a week, but he cant do Burrel and what about his own work?

3) I dont like the fact that it is a single stage.

4) I dont much like the jury . There is no assurance that the same jury will be appointed for the second stage of the competition.

5) The building will be a route and flex. volume building.

6) I dont think we can do both Burrel and Beaubourge and I wo uld access Burrel as totalling 200 hours, being half complete. It has to be in on May 28th as against June 15th.

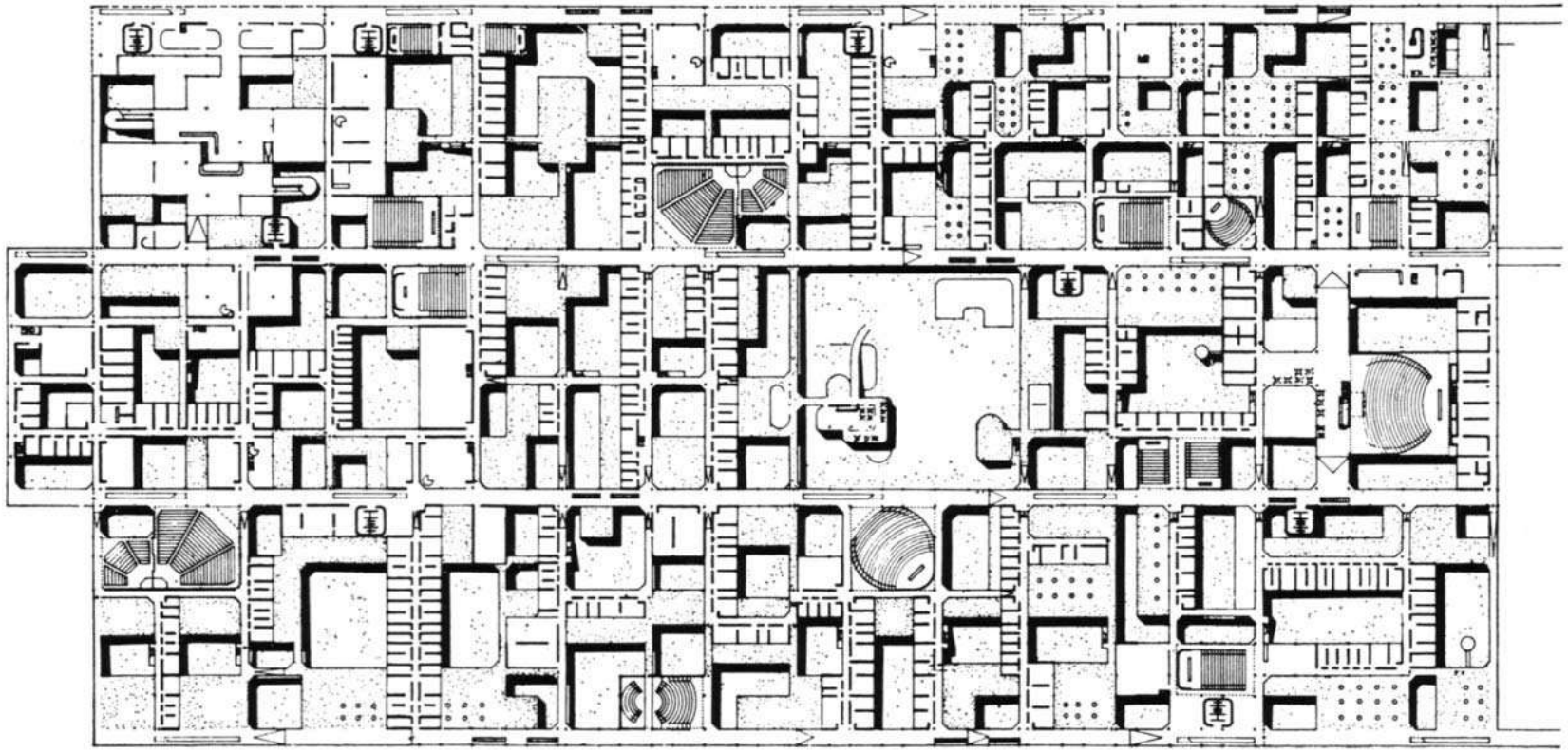
Richard

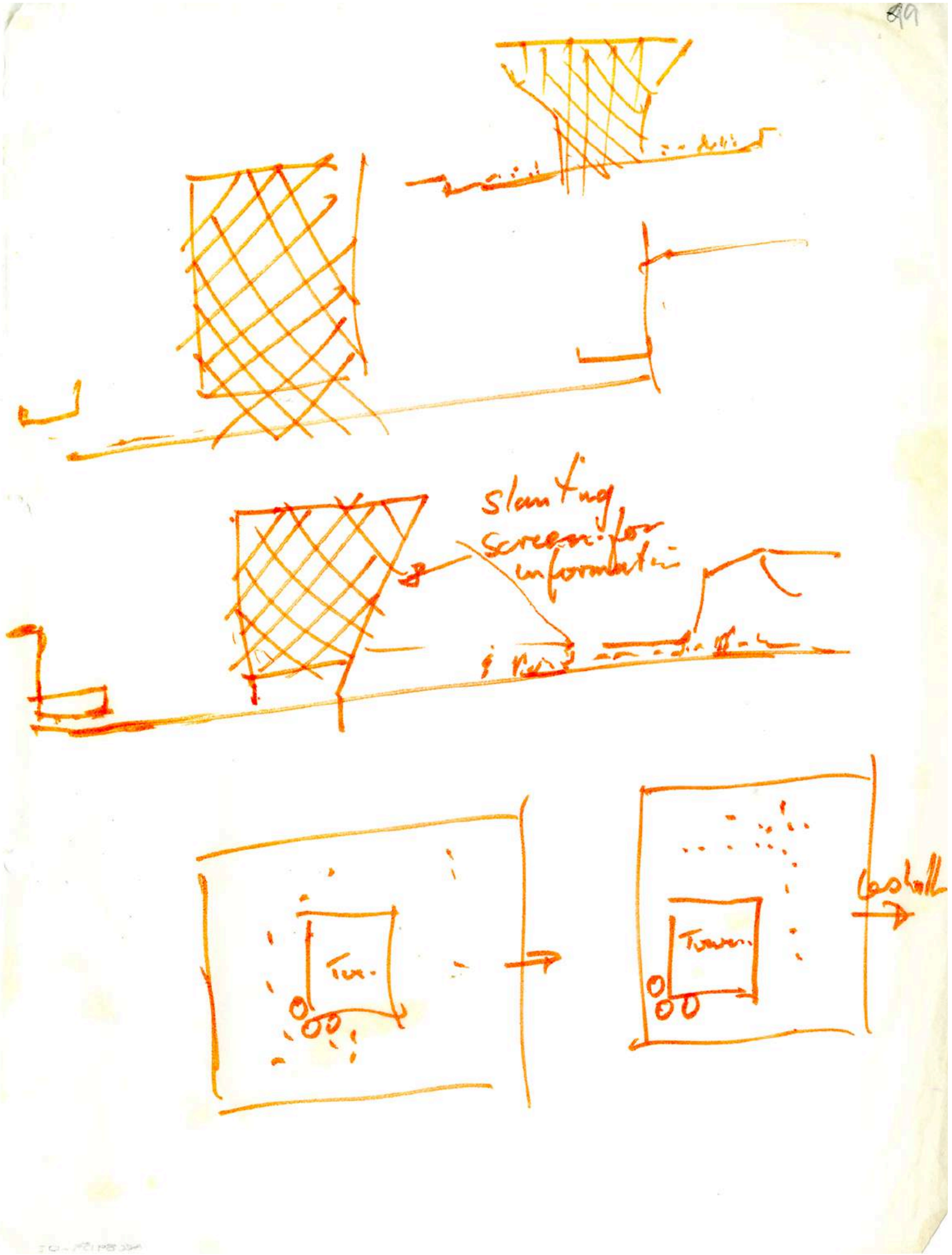
I dont like the socio-political overtones ~~of~~ the dangers centralization [illegible]

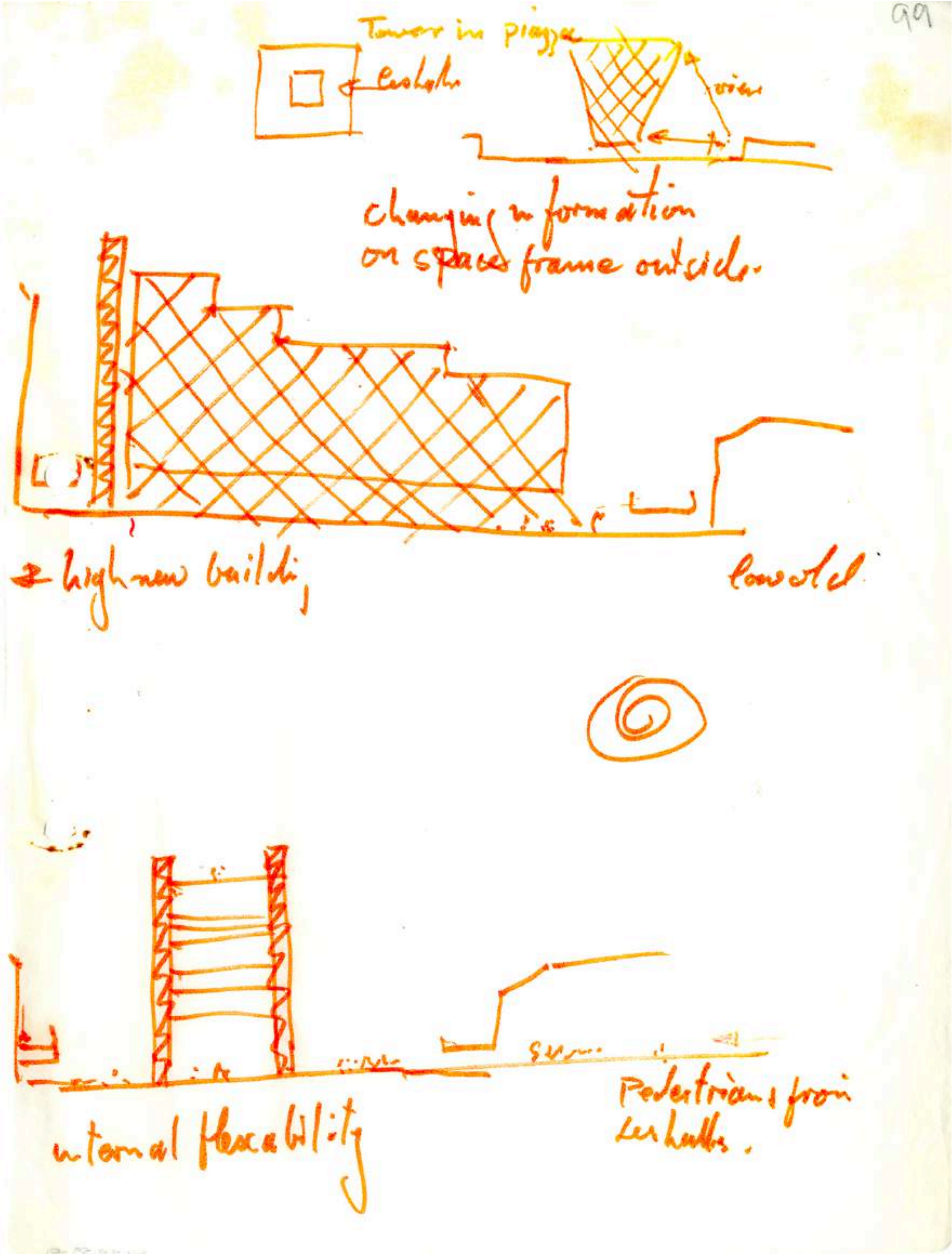
circulation: SR/JY/RP/MG

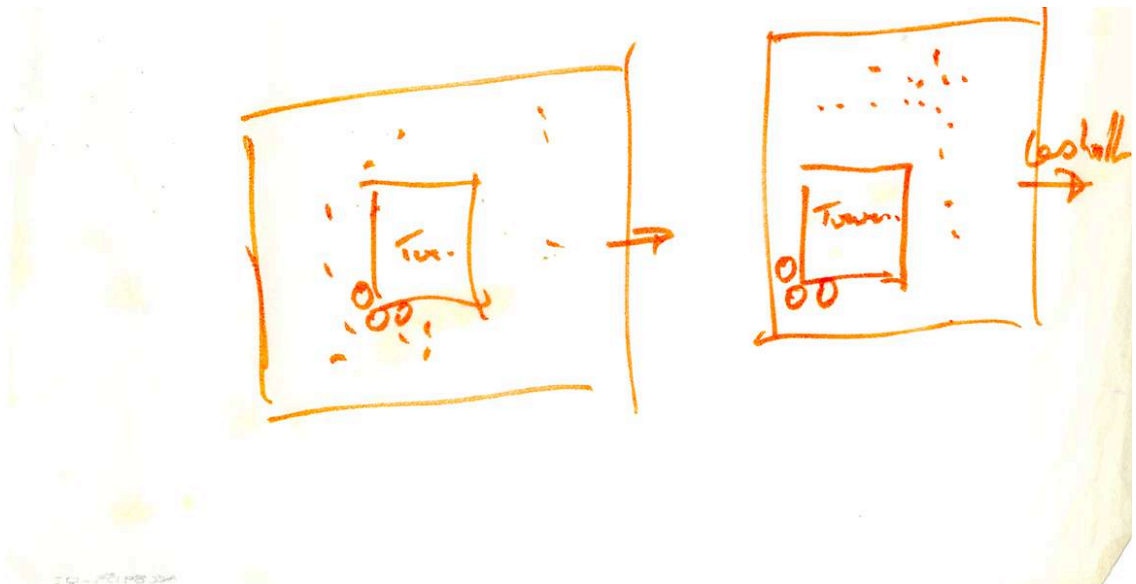
Il centre sarà un'estensione del tessuto urbano" P. 11
Un'entità coerente, dovrebbe offrire le più svariate possibilità in termini di flessibilità e adattabilità" P. 27

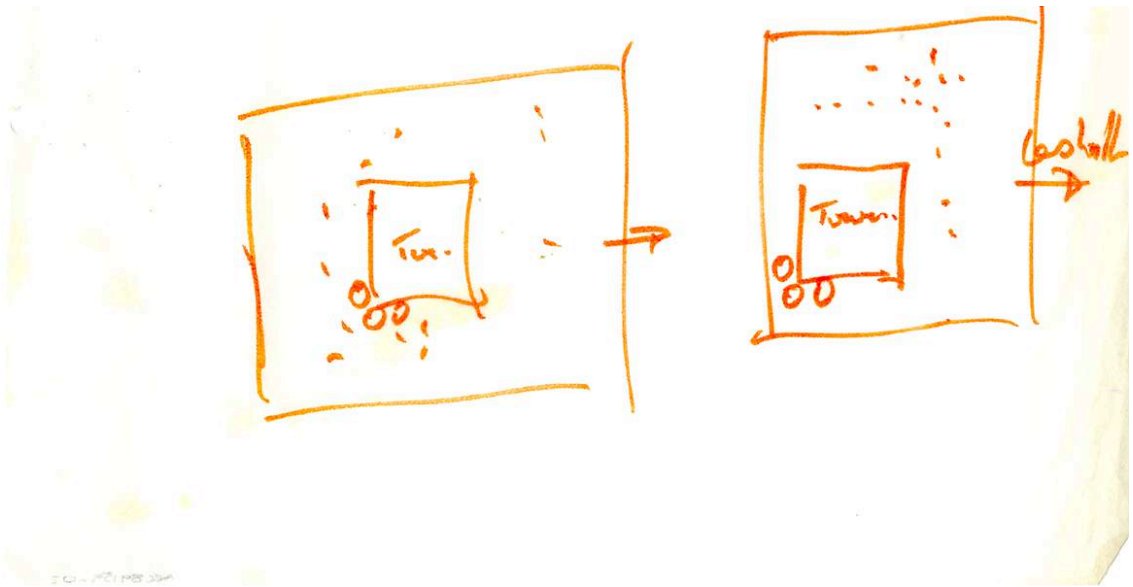
"L'edificio sarà un percorso e un edificio flessibile".
"Flessibilità e libertà di movimento (Una sorta di università libera a Berlino?)"

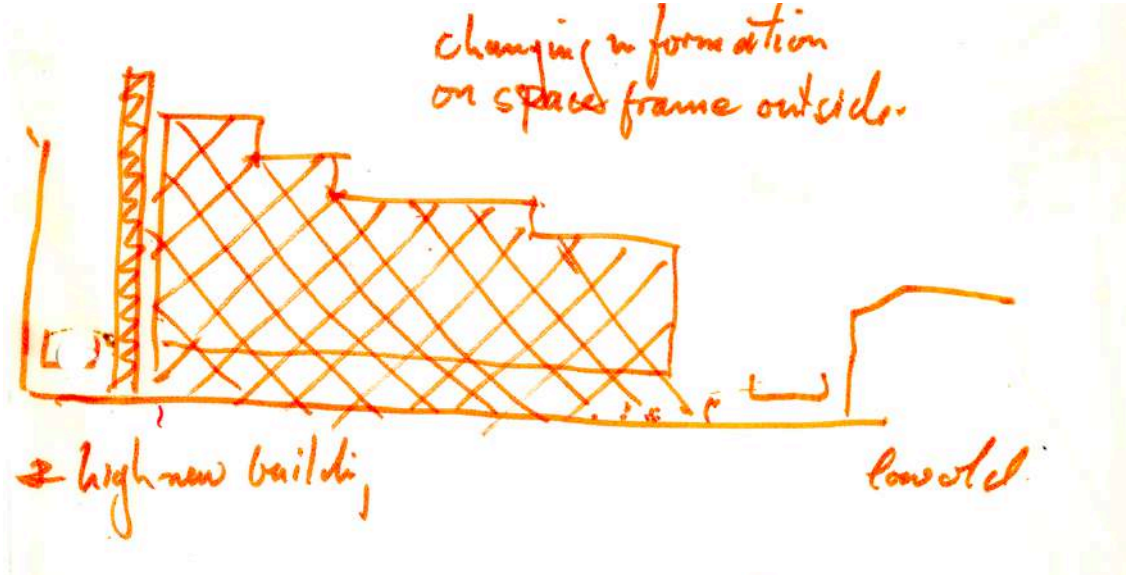


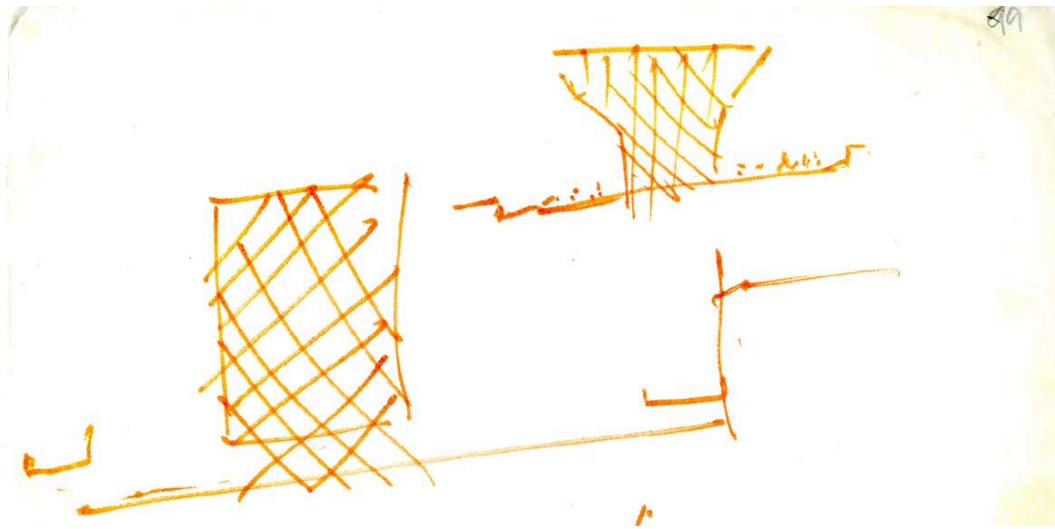

99
slanting screen for information
Tow.
Tower
Leshalls

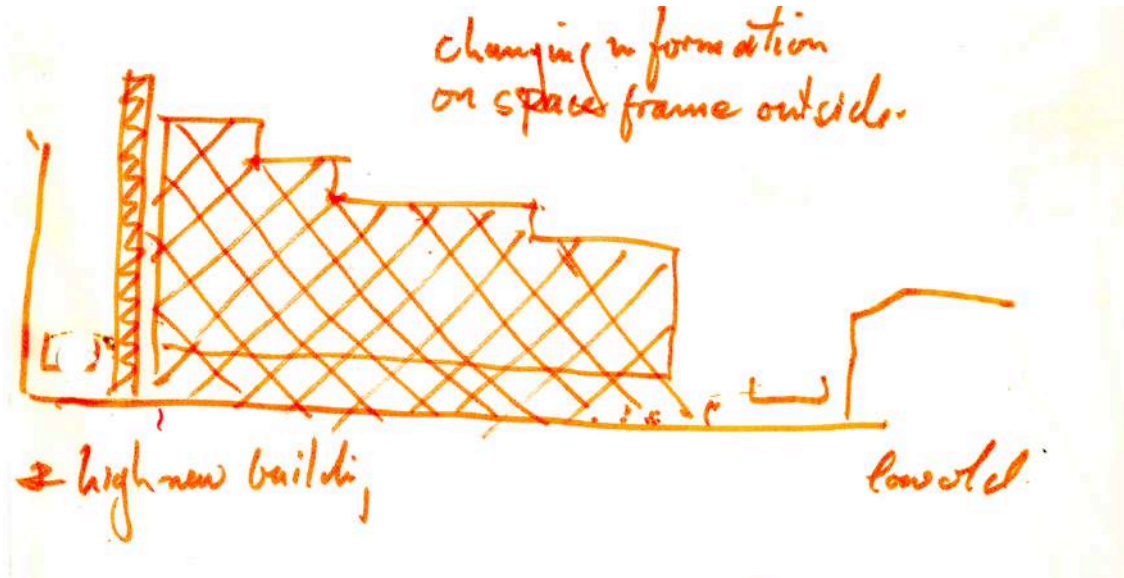

99
Tower in piazza
Leshalls
view
changing information on space frame outside.
high new building
low old
internal flexibility
Pedestrians from Les halles.




Tow.
Tower
Eastfield


changing information
on spaces frame outside.
high new buildi
low old

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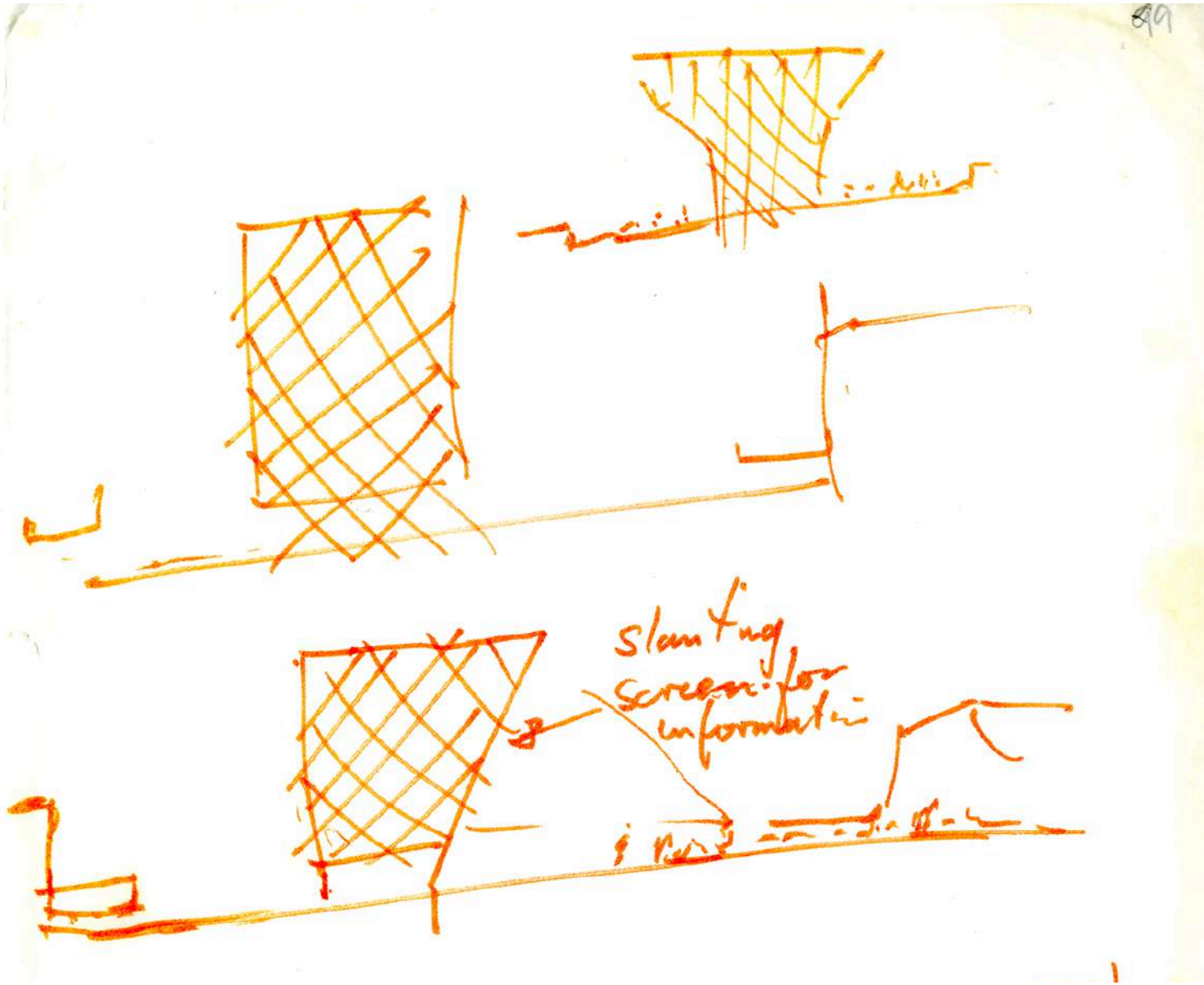
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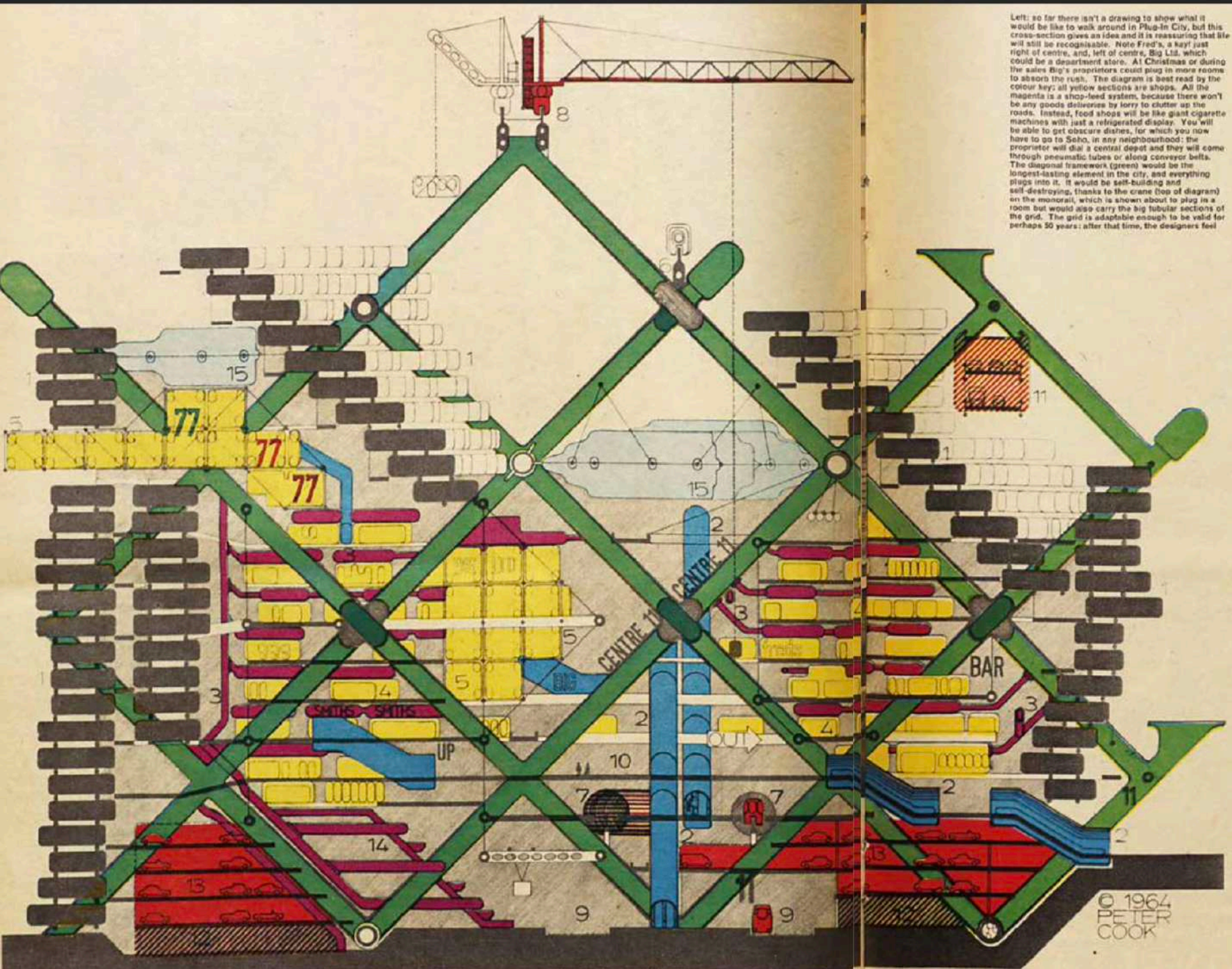
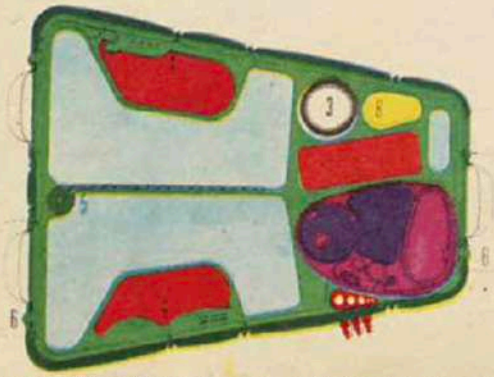
Left: so far there isn't a drawing to show what it would be like to walk around in Plug-In City, but this cross-section gives an idea and it is reassuring that life will still be recognisable. Note Fred's, a key† just right of centre, and, left of centre, Big Ltd. which could be a department store. At Christmas or during the sales Big's proprietors could plug in more rooms to absorb the rush. The diagram is best read by the colour key: all yellow sections are shops. All the magenta is a shop-feed system, because there won't be any goods deliveries by lorry to clutter up the roads. Instead, food shops will be like giant cigarette machines with just a refrigerated display. You will be able to get obscure dishes, for which you now have to go to Soho, in any neighbourhood: the proprietor will dial a central depot and they will come through pneumatic tubes or along conveyor belts. The diagonal framework (green) would be the longest-lasting element in the city, and everything plugs into it. It would be self-building and self-destroying, thanks to the crane (top of diagram) on the monorail, which is shown about to plug in a room but would also carry the big tubular sections of the grid. The grid is adaptable enough to be valid for perhaps 50 years: after that time, the designers feel a whole new system would have begun to replace it. There are lifts and escalators in the grid sections so people can step out of their doors on to a bridge or street, depending on where they live, and get on the escalator to their office. Or they could take an escalator to the local monorail (Fig. 7 at the bottom of the diagram) and take that either to their step or to the nearest station on the fast monorail, which being faster moving and quicker to respond to technological change is higher up the framework at Fig. 6. This cross-section is the best diagram for seeing what the designers call "the hierarchy of speed and change". Generally the oldest, slowest-moving and slowest-to-change elements are near the bottom of the grid, the fastest near the top. At ground level are trains (for as long as they last), local monorails and local roads. At the top are the fast monorail and the fast road (Fig. 11 at right), which is suspended from the grid so that it can be easily changed to whatever is needed when cars go out. In the long run everything can be plugged out and replaced without too much fuss, although obviously some things will change slower than others. The black colouring is housing, nine-tenths of which would be on the outside of the grid

Below: Warren Chalk's floor-plan for the house units which plug into the tower (previous page) pursues the hierarchy of change down to the fastest-changing things of all – the appliances. The units themselves could be changed whenever a new, improved one came out, but since new, improved appliances are bound to develop even faster, there is a clip-on appliance wall (Fig. 4 on the diagram) which can be snapped out and replaced with one fitted with more advanced food mixers, vibro massagers and machines like the American one which makes plastic mixing bowls meant to be thrown away after using. Kitchens and bathrooms are the next areas to become obsolete, so they are contained in a pop-out capsule (2) situated near a wide service door opening into the tower's core. The key to the diagram is: (1) Services duct; (2) Kitchen-bathroom capsule; (3) Pneumatic lift instead of a staircase; (4) Clip-on appliance wall; (5) Spring-loaded space divider; (6) Wide door for removing capsules and walls; (7) Services connection; (8) Storage unit. The dark area is soft flooring for sitting and lying on.
Foot of page: an elevation of the unit showing runners at bottom, on which units would slide into tower plug-in framework





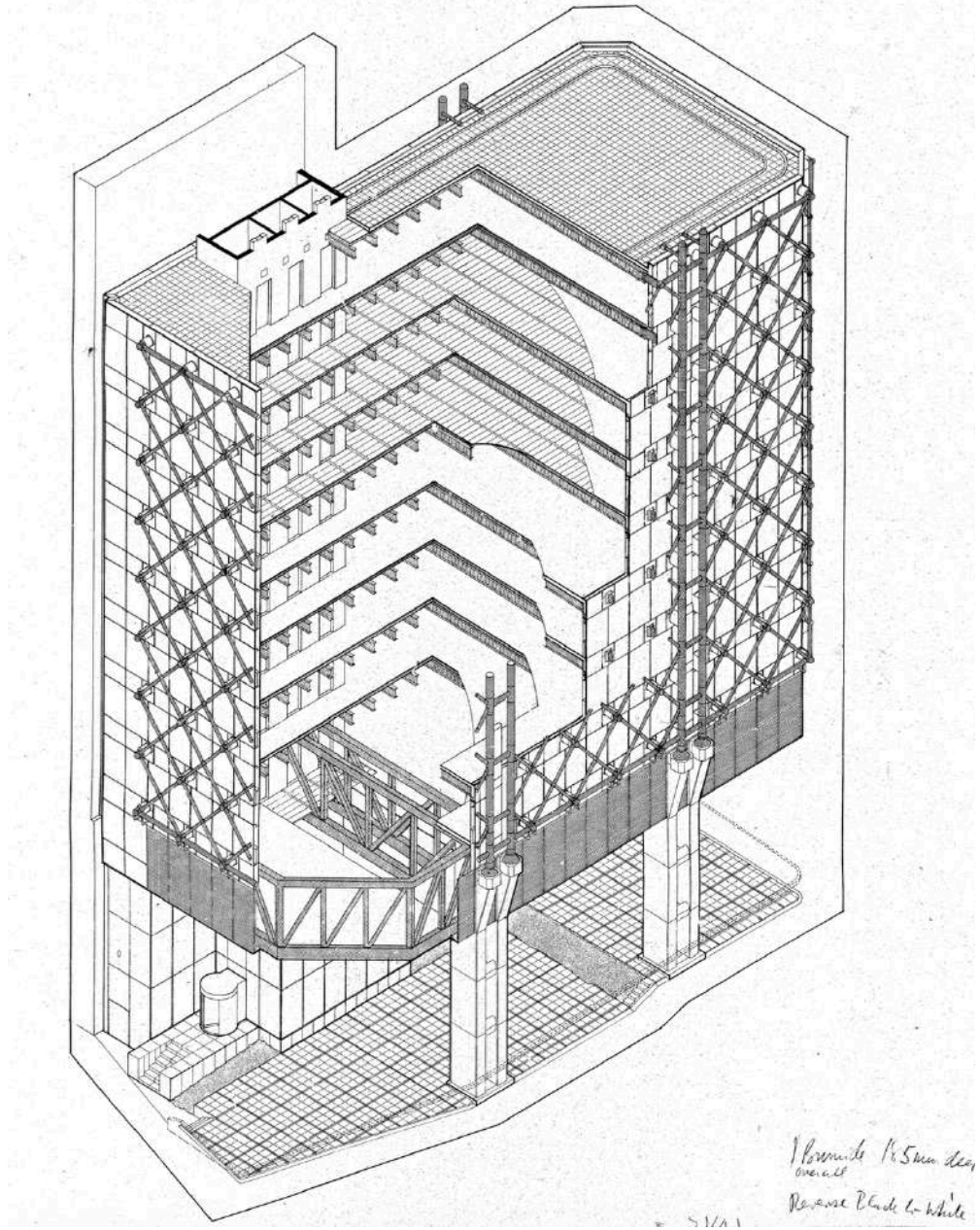
started right now and in 20 years be well on its way.

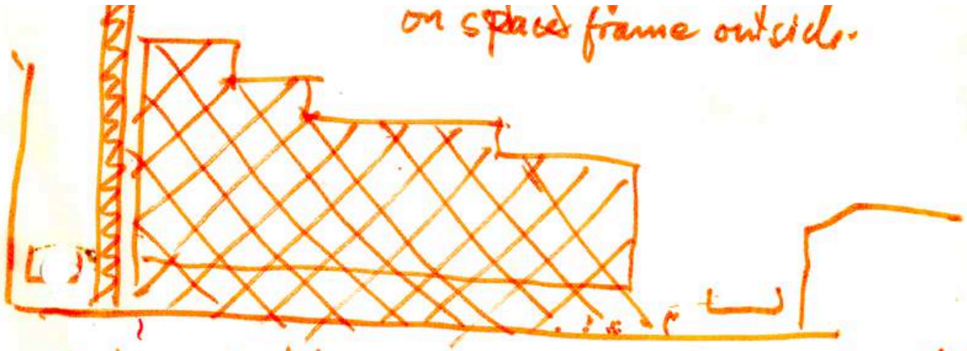
On a technical level it is set apart from other plans by its purchase on life as it will be in the future. It grasps the rate at which people and things will change and, in effect, acknowledges throw-away architecture.

But what is going to matter to people now is that this plan is so much less traumatic than others: so much so, in fact, that anyone – anyone, that is, who is not totally opposed to the future – could almost welcome the predicted millions and the opportunity to plug in with them. On an even cursory examination of the diagrams on these four pages, Plug-In City turns out not to be as heartless as it sounds. The name is more funny than frightening and the plan itself is humane, benign, even cosy – the work of well-intentioned young men who say the whole point is to have lively neighbourhoods. Chalk, Cook, Crompton and Co. find it hard to say exactly what it will be like to step out of your front door in Plug-In City, but it sounds as though it will be a mixture of a theatre (balconies, aisles and stairs) and Montmartre (passages and stairs connecting different levels): in any event, there will be lots of well-travelled, busy catwalks and streets honeycombing the grid system, all connected by the lifts and escalators. They reckon on a density of 400 people to the acre to ensure the lively neighbourhood feeling (like Mayfair's today), and while the L.C.C. do not generally allow a density of more than 135 these days advanced city planners who want to get away from the New Towns that stretch too far and too dispiritedly, are already thinking in terms of 400.

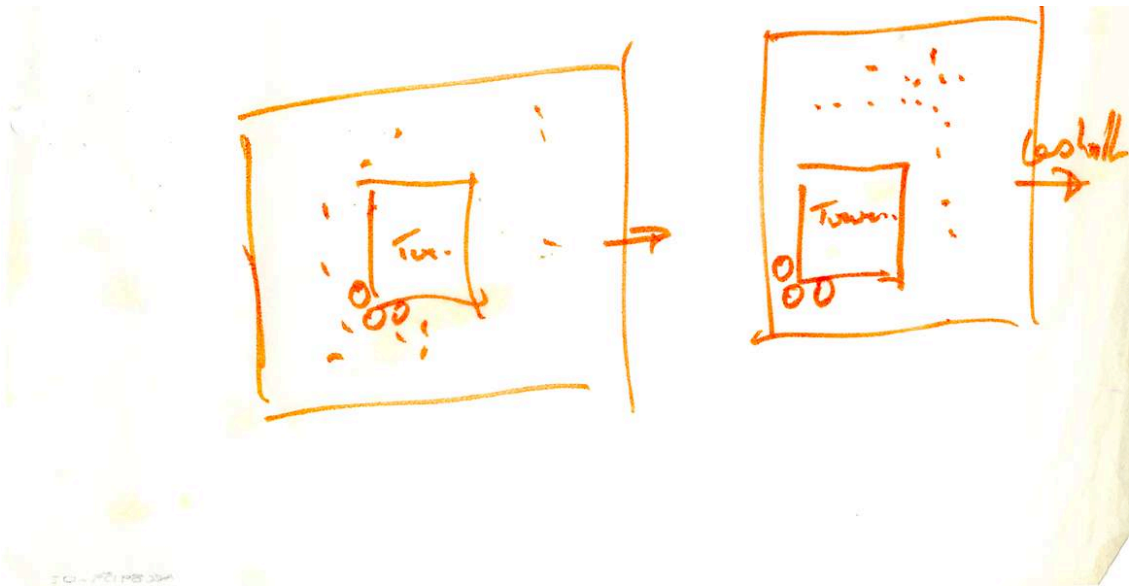
Plug-In City has two enormous advantages over cities as we know them. The first is that it is a straight line rather than a circle. What this means sinks in when you consider that London has a radius of 20 miles, that under proposals like the South-East Plan it would soon be several times that and week-end cottages wouldn't be anywhere you could get to at a weekend. Its designers see Plug-In City as a magnetic field across Europe, collecting like iron filings all the hopeless little piecemeal building that is smothering the countryside.

The second advantage /continued overleaf




on spaced frame outside.
high new building
low old


internal flexability
Pedestrians from Les halles.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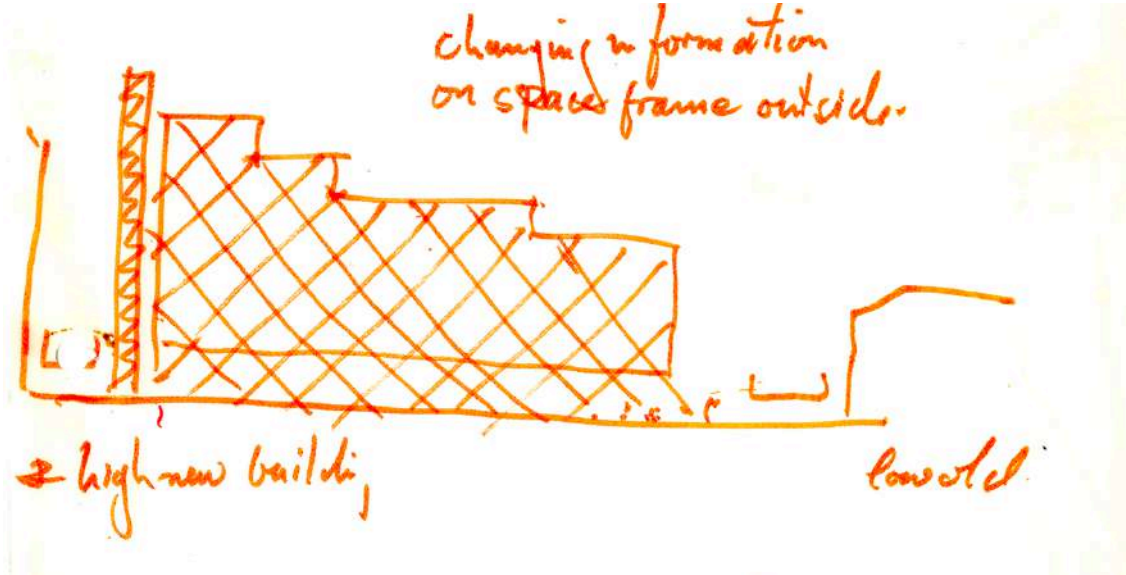
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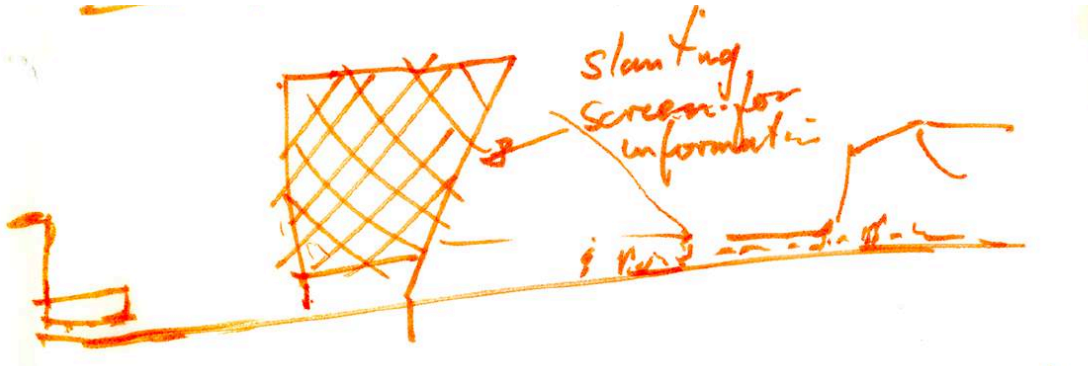
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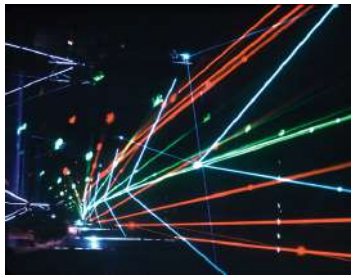
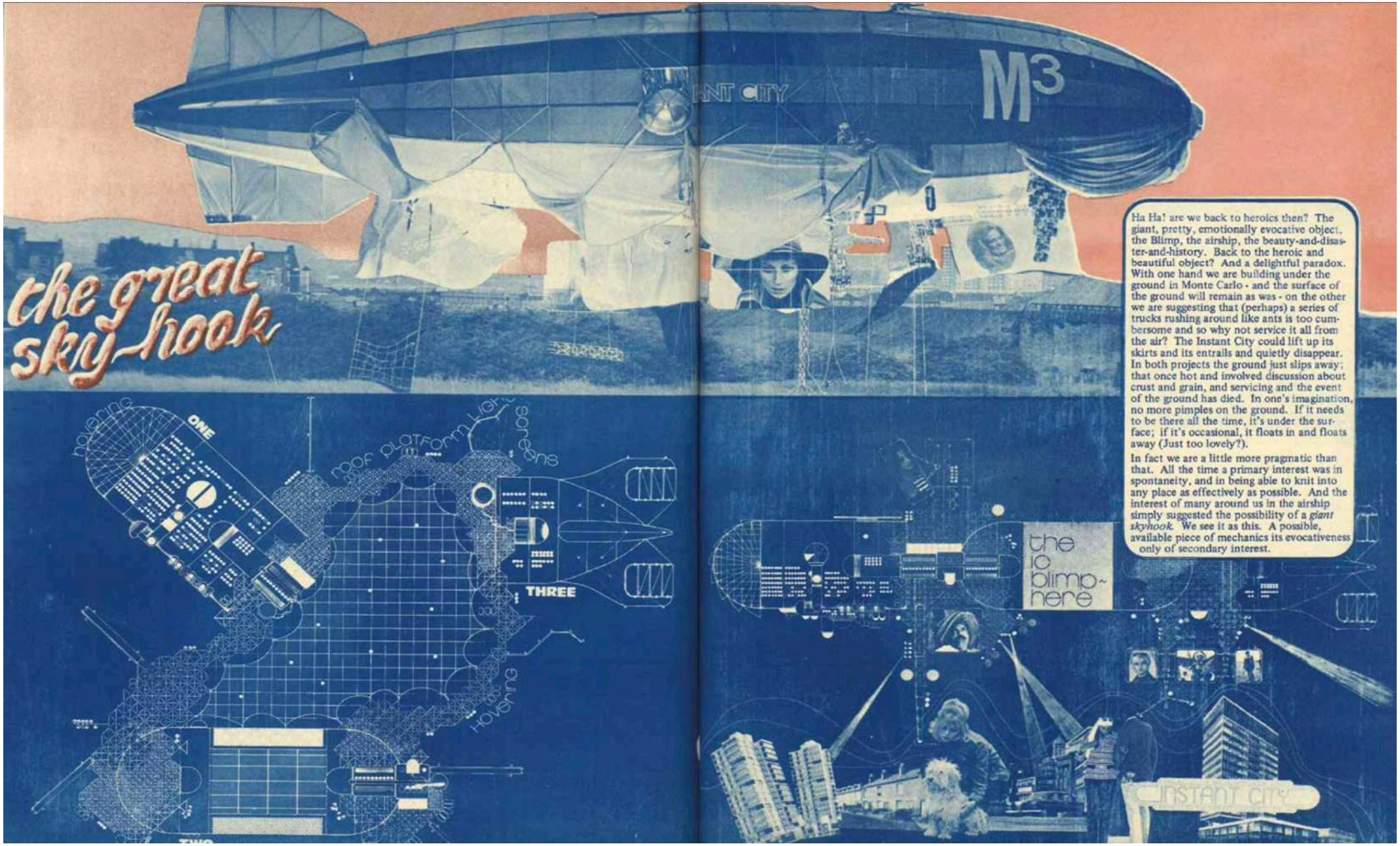
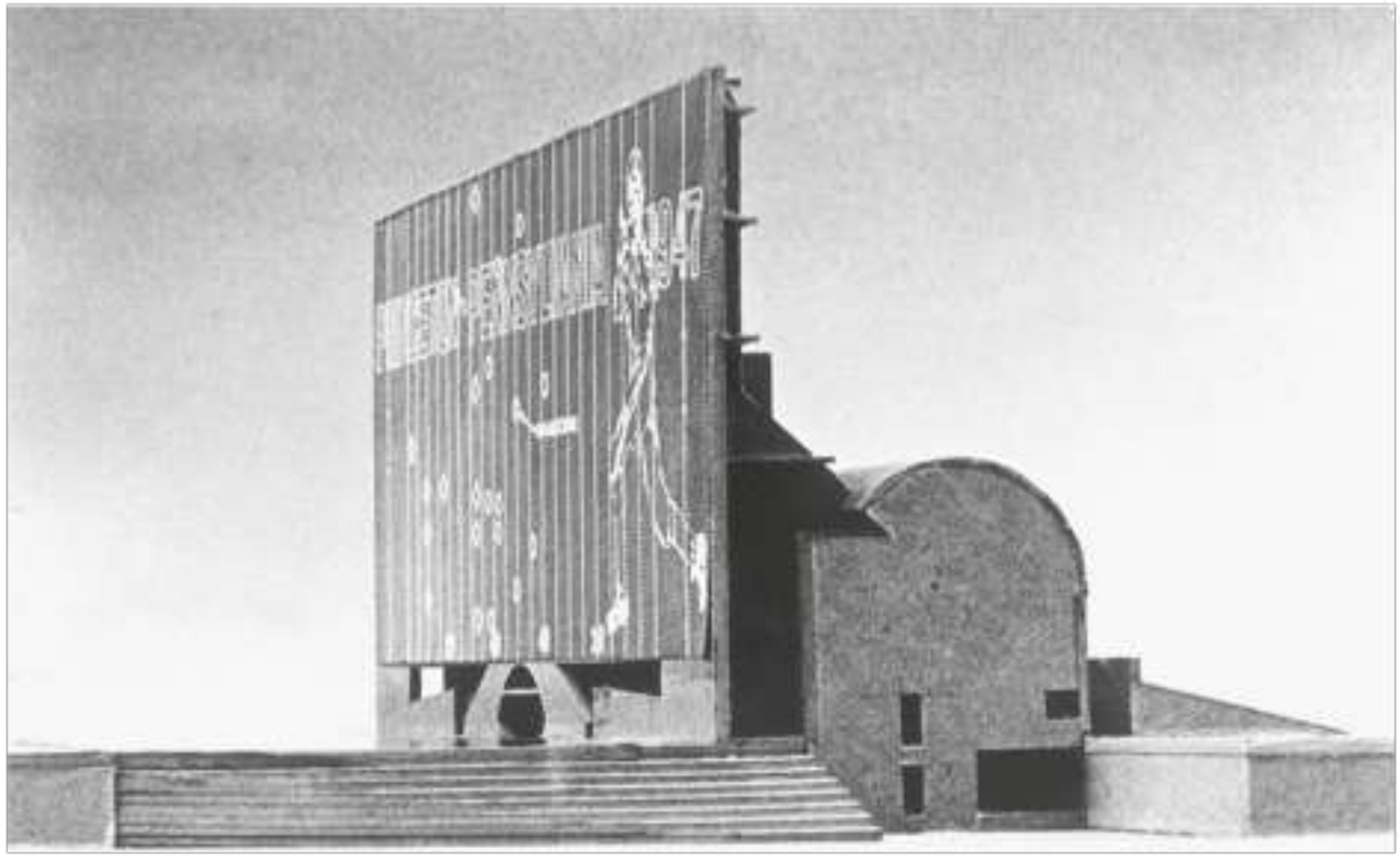
Canadian Club
IMPORTED WHISKY
B·O·A·C

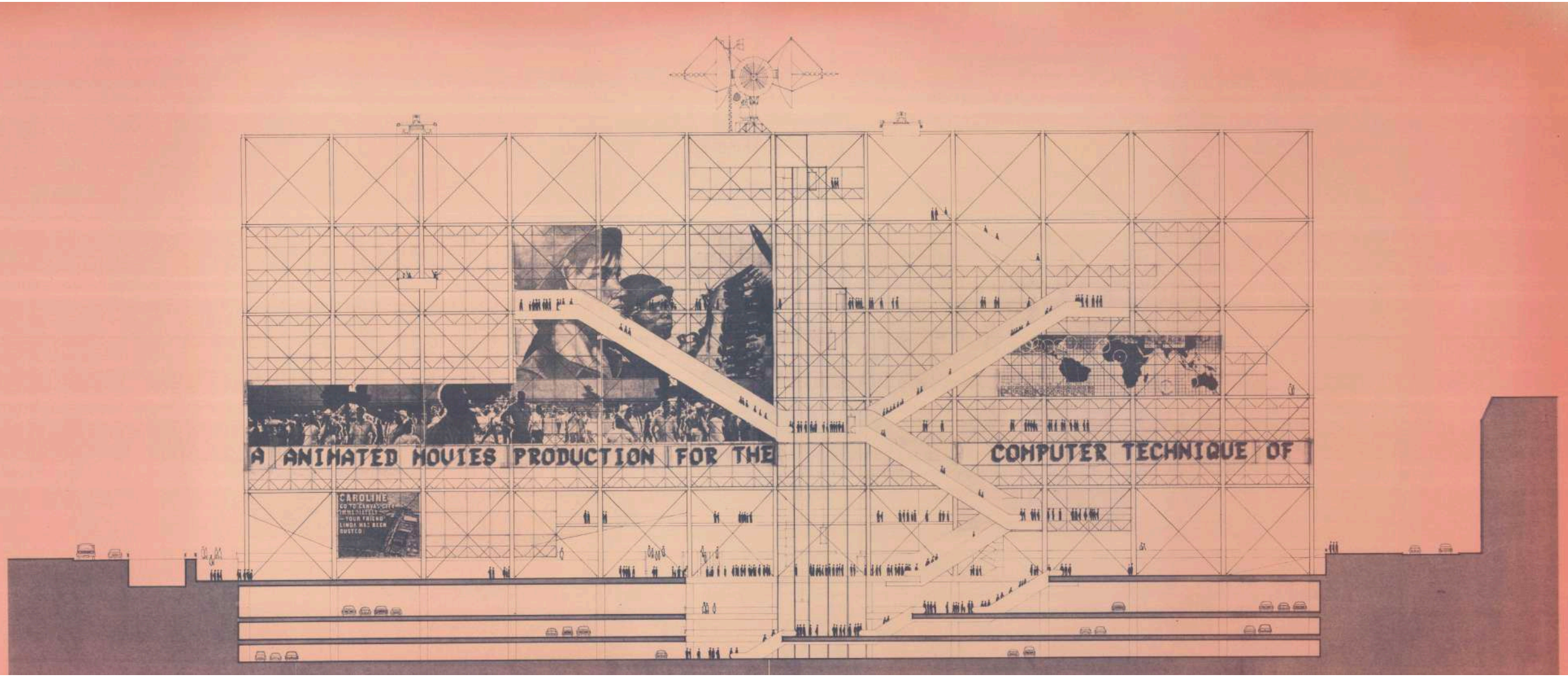




Ha Ha! are we back to heroics then? The giant, pretty, emotionally evocative object, the Blimp, the airship, the beauty-and-disaster-and-history. Back to the heroic and beautiful object? And a delightful paradox. With one hand we are building under the ground in Monte Carlo - and the surface of the ground will remain as was - on the other we are suggesting that (perhaps) a series of trucks rushing around like ants is too cumbersome and so why not service it all from the air? The Instant City could lift up its skirts and its entrails and quietly disappear. In both projects the ground just slips away; that once hot and involved discussion about crust and grain, and servicing and the event of the ground has died. In one's imagination, no more pimples on the ground. If it needs to be there all the time, it's under the surface; if it's occasional, it floats in and floats away (Just too lovely?).

In fact we are a little more pragmatic than that. All the time a primary interest was in spontaneity, and in being able to knit into any place as effectively as possible. And the interest of many around us in the airship simply suggested the possibility of a *giant skyhook*. We see it as this. A possible, available piece of mechanics its evocativeness only of secondary interest.




A ANIMATED MOVIES PRODUCTION FOR THE
COMPUTER TECHNIQUE OF
CAROLINE

PREFACE BY
LAURENT LE BON

INTRODUCTION BY
ROBERTO GARGIANI

AFTERWORD BY
RENZO PIANO

On July 19, 1971, Jean Prouvé presented the winning design of the future Centre Pompidou in Paris to an astonished audience. The project's architects, Renzo Piano, Richard Rogers, and Gianfranco Franchini, were considered "unknowns"; its sponsors, the engineers at Ove Arup & Partners, were simply forgotten; the project's idea of a "Live Centre of Information" was denigrated as a "metallic dam" in the heart of Paris; the jury was presumed to have been dominated by the charismatic Philip Johnson and the man who initiated the competition, President of the Republic Georges Pompidou, to have been forced to bend to the jury's will. Fifty years after those events, it is time to analyze these false certainties through the first chronological and documentary reconstruction of the genesis of the Centre Pompidou.

1234567890

1968—1971

IL LIVE CENTRE OF INFORMATION

DA POMPIDOU A BEAUBOURG

BORIS HAMZEIAN

PREFAZIONE DI
LAURENT LE BON

INTRODUZIONE DI
ROBERTO GARGIANI

POSTFAZIONE DI
RENZO PIANO

Il 19 luglio 1971 Jean Prouvé presenta il progetto vincitore del futuro Centre Pompidou di Parigi a un pubblico attonito. Gli architetti del progetto, Renzo Piano, Richard Rogers e Gianfranco Franchini, sono considerati degli "sconosciuti"; i suoi promotori, gli ingegneri dello studio Ove Arup & Partners, sono semplicemente dimenticati; l'idea del progetto di un "Live Centre of Information" è denigrata all'immagine di una "diga di metallo" nel cuore di Parigi; la scelta della giuria è ritenuta dominata dal peso del carismatico Philip Johnson; il promotore del concorso, il presidente della Repubblica Georges Pompidou, è creduto costretto a piegarsi al volere della giuria. A cinquant'anni da quegli eventi è tempo di scardinare queste false certezze attraverso la prima ricostruzione cronologica e documentale della genesi del Centre Pompidou.

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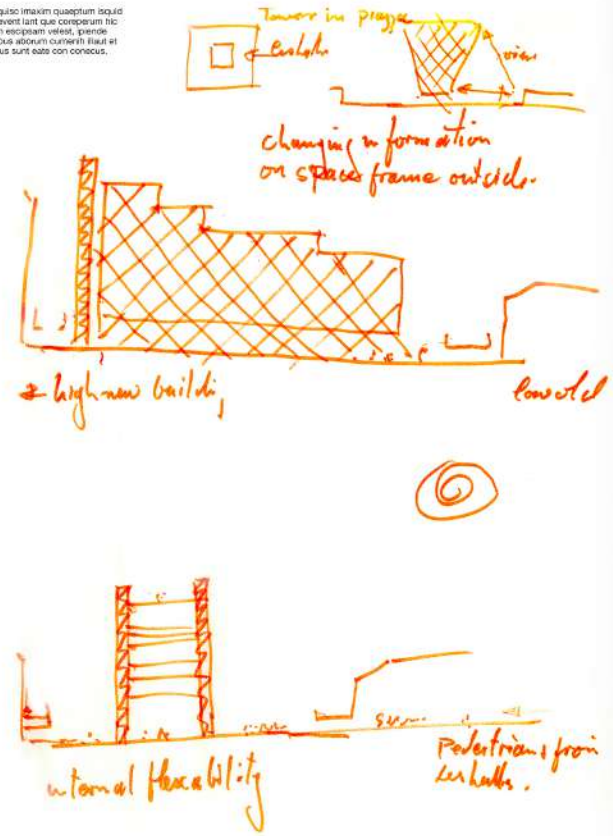

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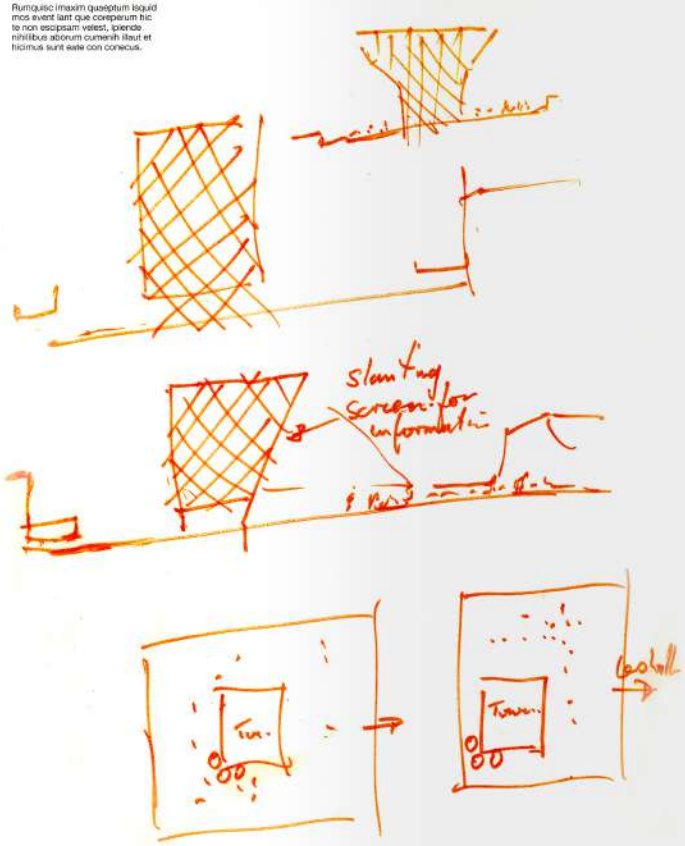


with his *monument en hauteur* was also underlined by the function assigned to the building, that of the new seat of the Ministry of Finance.[14] Pompidou associated the image of this grandiose monument with the idea of the financial power of the French state and with the more ambiguous one of the state control of taxes.

At the decisive meeting on January 26, 1968, Pompidou convinced de Gaulle to go ahead with an urban planning study to be followed up by specific and significant design studies aimed at creating an "architectural ensemble" of monumental character.[15] The idea of a *monument en hauteur* for the Ministry of Finance was taken up by de Gaulle, who at these meetings always stressed its iconic nature, capable of celebrating the Gaullist presidency in the future.[16] "The Ministry of Finance," declared de Gaulle, "must of necessity be erected in Les Halles as a monument that will symbolize the operation of renewal, just as royalty signed the Louvre and religion the cathedrals."[17]

It matters little that in the summer of 1968 the municipal authorities eliminated the Ministry of Finance from the Les Halles redevelopment project[18] and that in October of the same year the entire project took on the form of an underground forum intended to extend through a maze of tunnels and sunken buildings beneath the surface of the capital (Figs. 15–16): the idea of the tall monument to French grandeur had lodged itself in Pompidou's mind and was destined to influence the idea of the Centre Beaubourg.

1.2

THE METAMORPHOSIS OF AN IDEA: "A MONUMENT" AT LES HALLES "TO CONTEMPORARY ART AND THOUGHT"

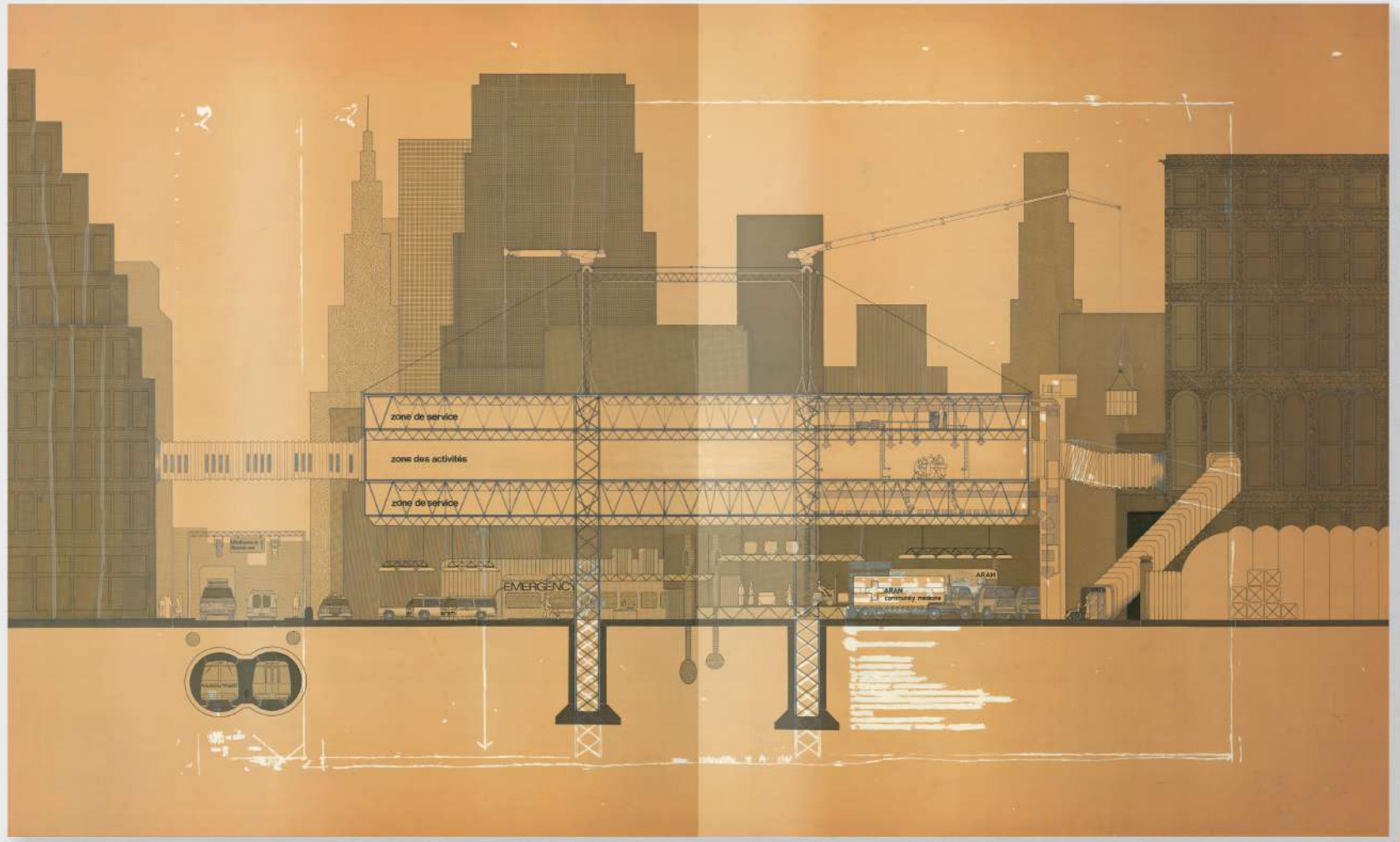
The idea of a monument to the glory of the nation and contemporary architectural design in the form of a tower to be erected in the heart of Paris came back into vogue between the summer and fall of 1969, when Pompidou, no longer prime minister but president of the French Republic, from an office in the Élysée Palace—furnished in the classical style but now decorated with works of contemporary art by Delaunay, Soulages, and Kupka—took charge of the Ministry of Cultural Affairs's principal dossiers, putting an end to the autonomy the ministry had won under Malraux (Fig. 18).

Between a series of initiatives aimed at reinvigorating French artistic creativity, such as the furnishing of some rooms of the Élysée Palace with the avant-garde pieces of the French designer Pierre Poulin and a decor conceived by Agam (Figs. 19–21), the attempt to bring the composer and conductor Pierre Boulez back to France, and the entrusting of the curation of an exhibition of contemporary art to be staged at the Grand Palais to François Mathey (Fig. 22), Pompidou started to think once again about the need promote contemporary French architecture. And so, at the end of November 1969, he drew up a letter for the new minister of cultural affairs Edmond Michelet in which he revived his idea of a "*monument en hauteur.*"[19]

In his desire for a monument that would no longer celebrate de Gaulle's presidency but his own, Pompidou did not pursue the idea of a seat for the Ministry of Finance. After the 1968 students' and workers' revolts against middle-class power the proposal to house in the presidential monument a financial institution that would be an emanation of that power had become unpopular, indeed unacceptable. So it was with culture, i.e., the sector with which he had linked his own public image, that Pompidou intended to associate his monument. Despite the lack of a precise plan, what Pompidou imagined at Les Halles was a monument "open to the present and to the future and dedicated in particular to contemporary art and thought."[20]

Despite confirming "the site of Les Halles" as the location for his monument, Pompidou was not looking precisely at the Plateau des Halles, where the demolition of Baltard's pavilions, constantly deferred and much opposed by public opinion, ren-

Prime Minister Georges Pompidou and his wife Claude in the ministerial office on rue de Matignon with a painting by Pierre Soulages on the wall, 1963.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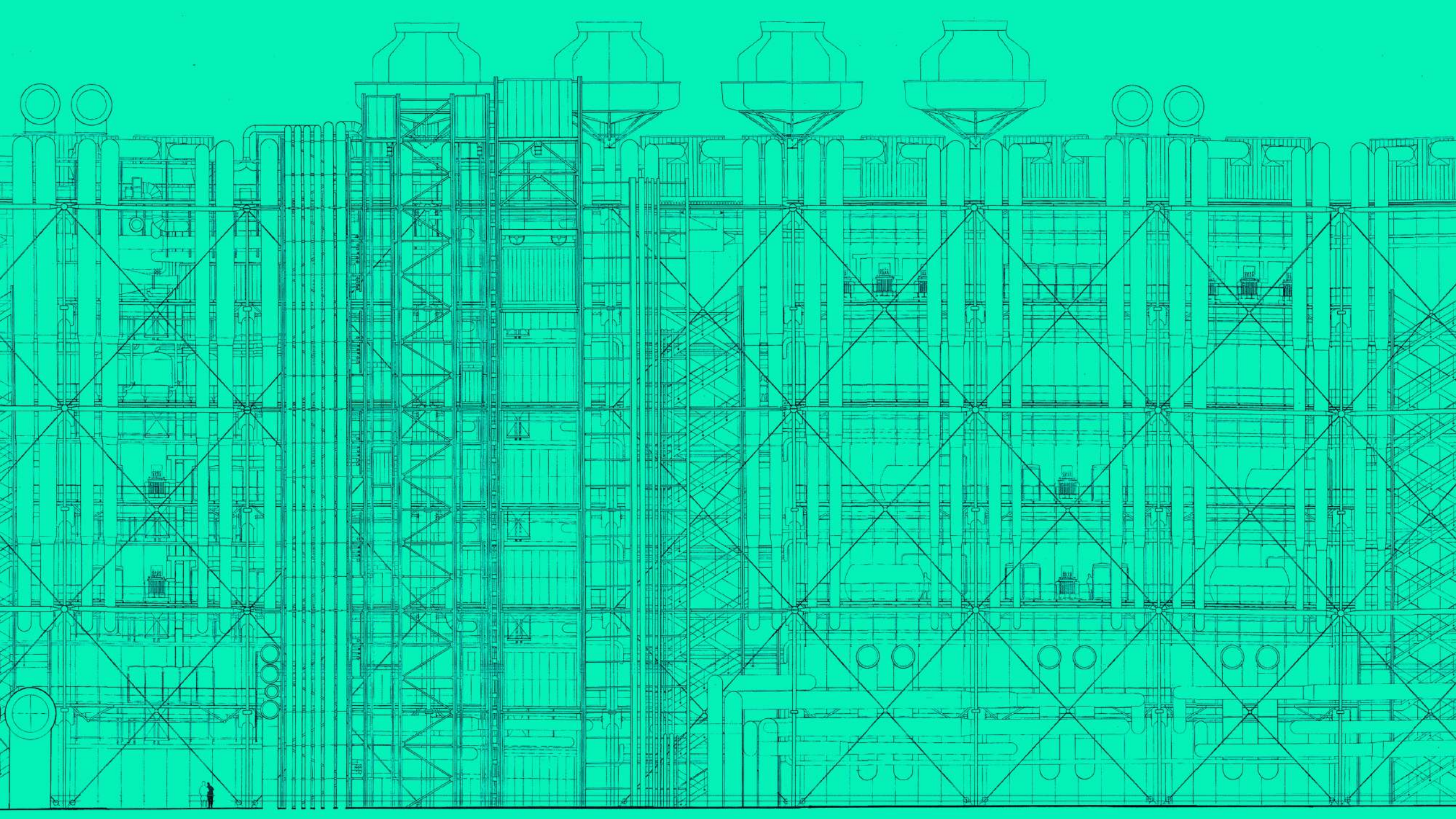



2020


CENTRE POMPIDOU
CENTRE POMPIDOU


LE

L’eredità Beaubourg nel dibattito d’architettura

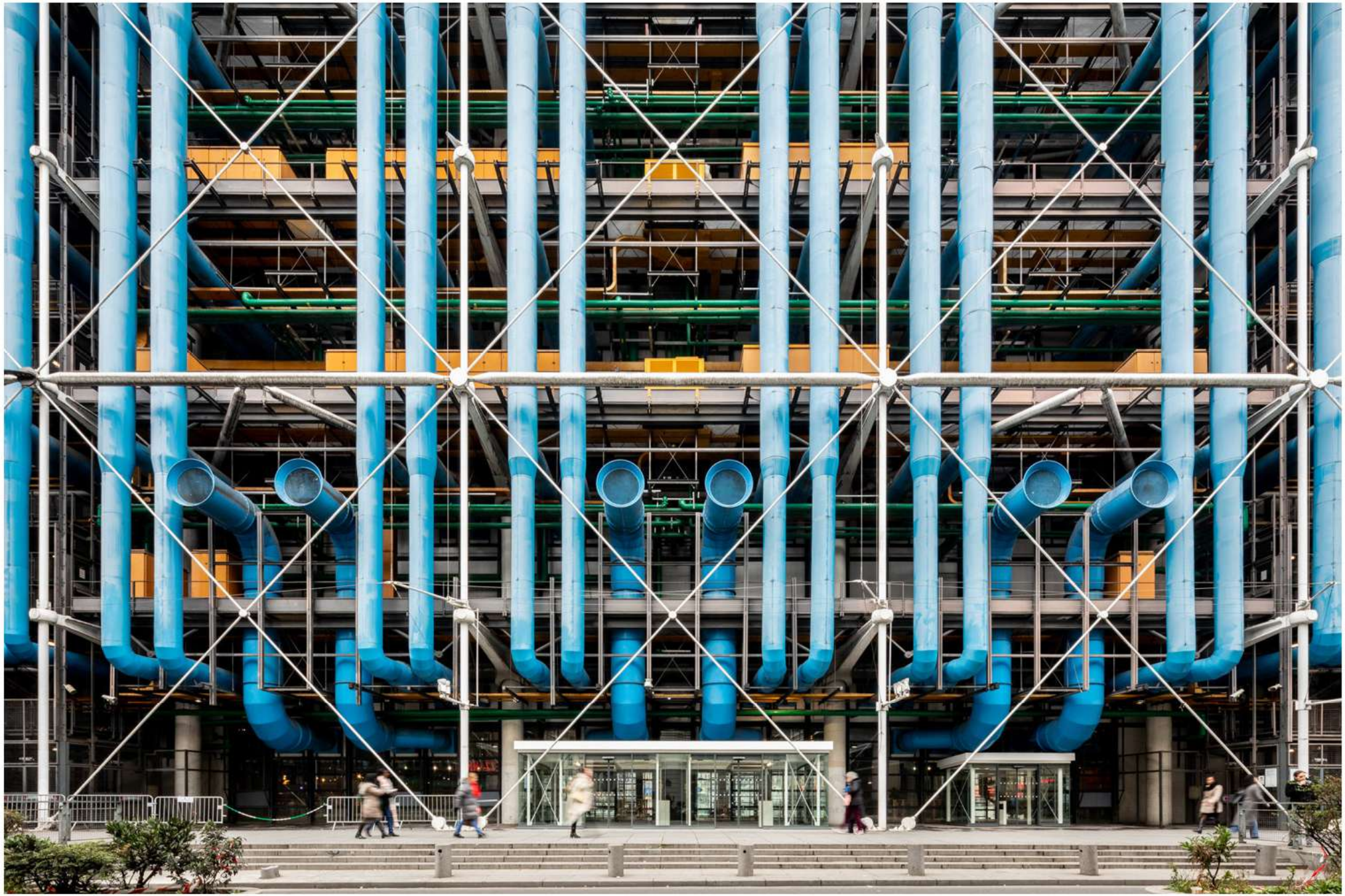
AR

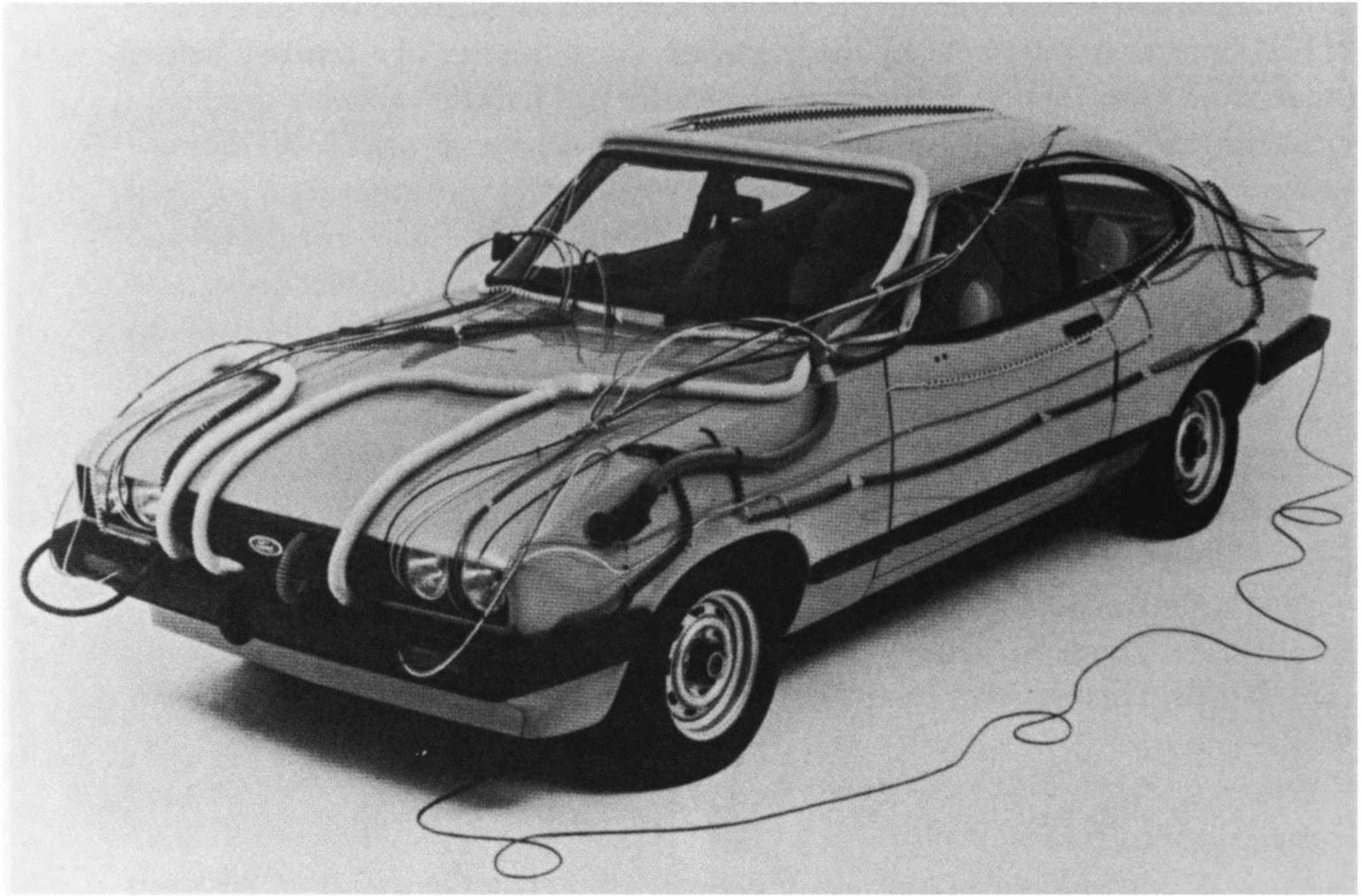
PR

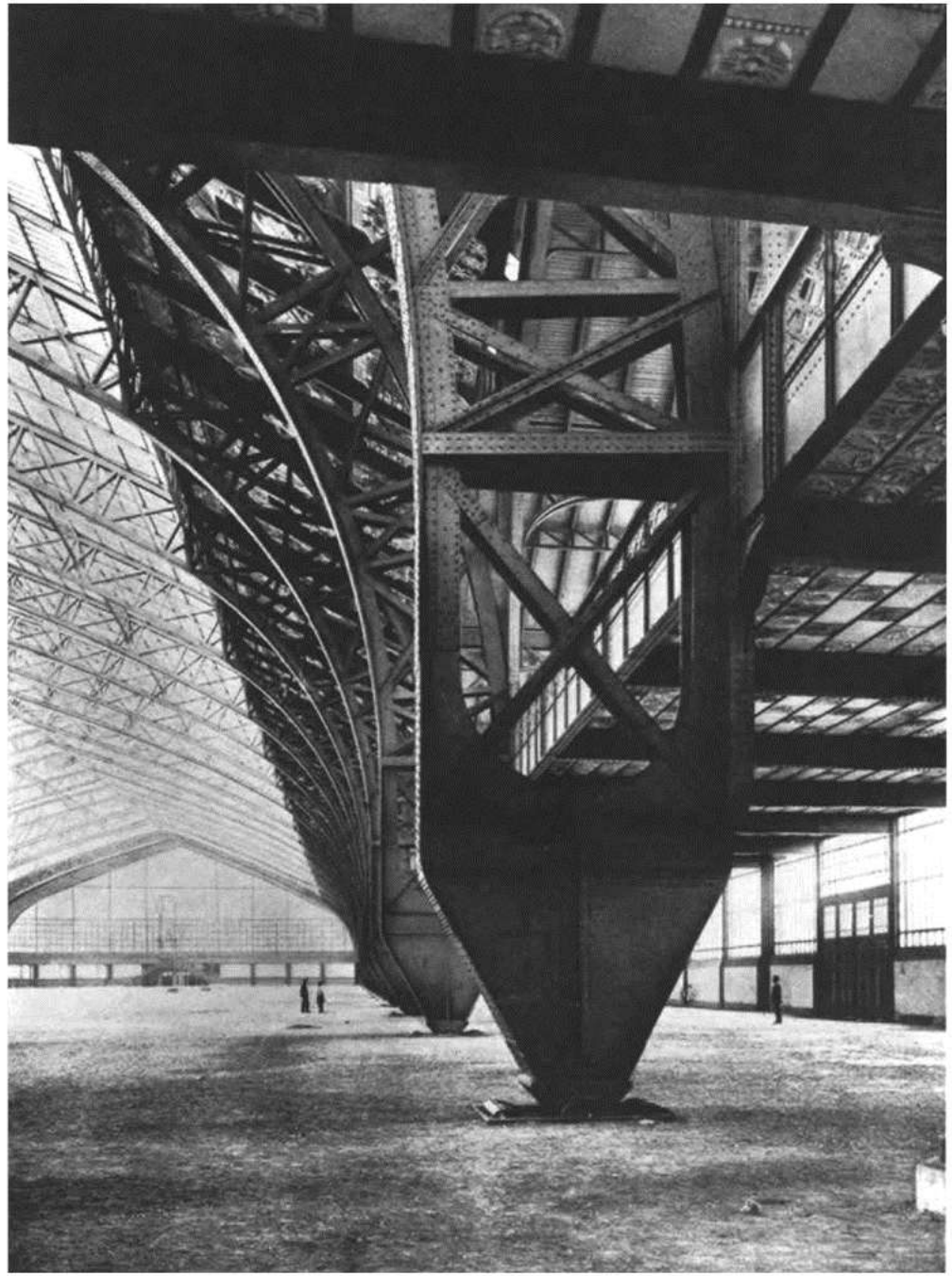
PM

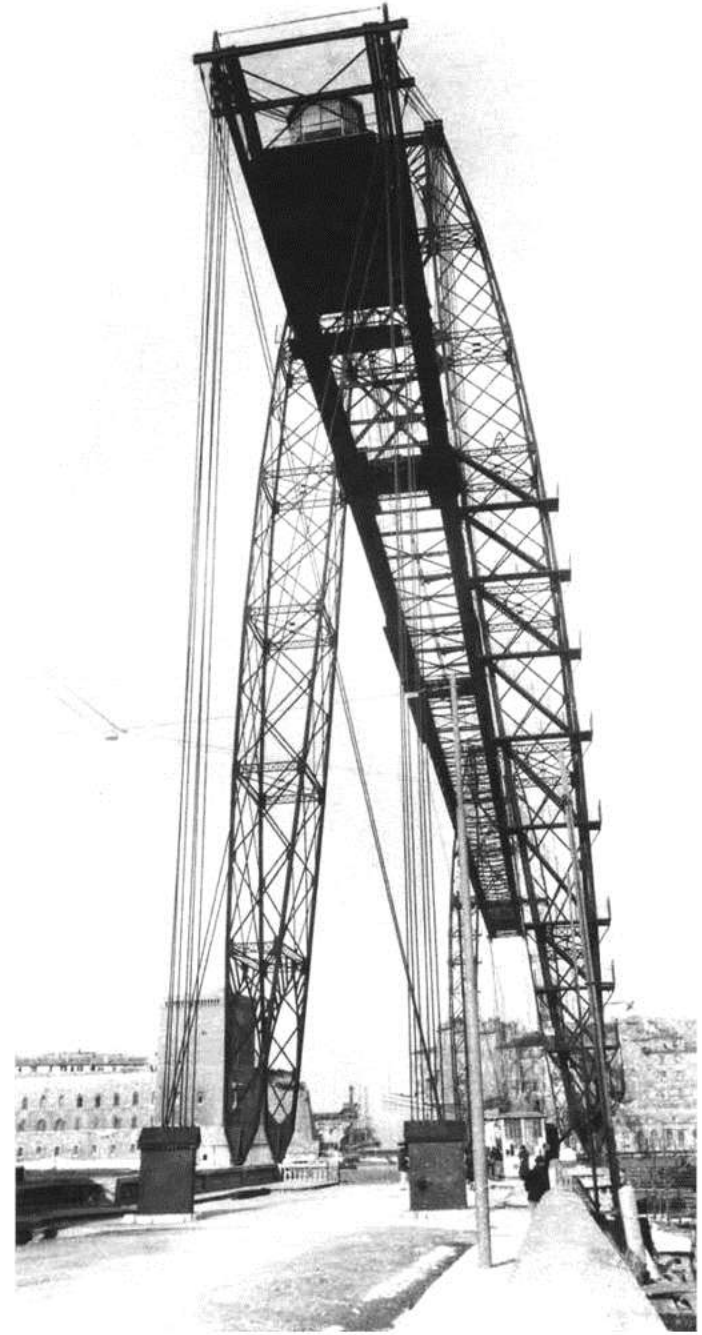
HT

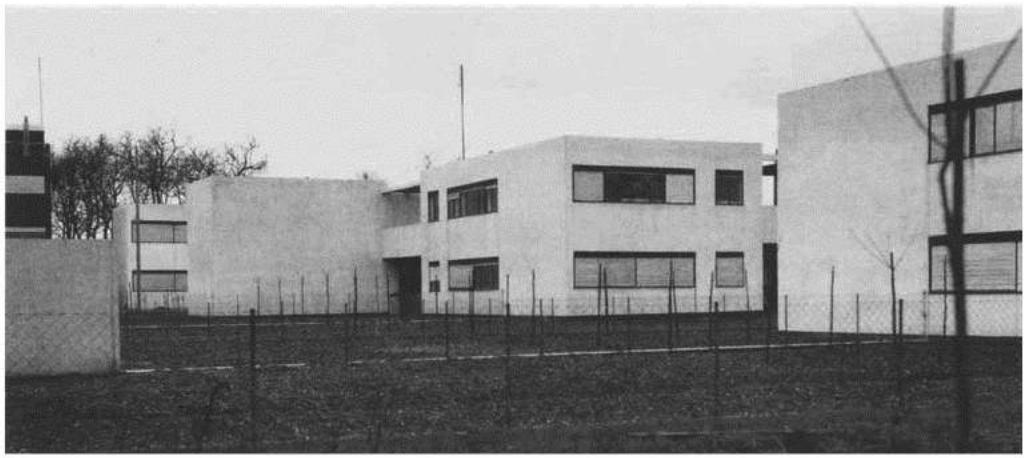
Team 4, *Reliance Controls factory*, Swindon, 1967











been trained for this kind of integrated work. Monumental tasks have not been entrusted to them.

As a rule, those who govern and administer a people, brilliant as they may be in their special fields, represent the average man of our period in their artistic judgments. Like this average man, they experience a split between their methods of thinking and their methods of feeling. The feeling of those who govern and administer the countries is untrained and still imbued with the pseudo-ideals of the nineteenth century. This is the reason why they are not able to recognize the creative forces of our period, which alone could build the monuments or public buildings that should be integrated into new urban centers which can form a true expression of our epoch.

(8) Sites for monuments must be planned. This will be possible once replanning is undertaken on a large scale which will create vast open spaces in the now decaying areas of our cities. In these open spaces, monumental architecture will find its appropriate setting which now does not exist. Monumental buildings will then be able to stand in space, for, like trees or plants, monumental buildings cannot be crowded in upon any odd lot in any district. Only when this space is achieved can the new urban centers come to life.

(9) Modern materials and new techniques are at hand: light metal structures; curved, laminated wooden arches; panels of different textures, colors, and sizes; light elements like ceilings which can be suspended from big trusses covering practically unlimited spans.

Mobile elements can constantly vary the aspect of the buildings. These mobile elements, changing positions and casting different shadows when acted upon by wind or machinery, can be the source of new architectural effects.

During night hours, color and forms can be projected on vast surfaces. Such displays could be projected upon buildings for purposes of publicity or propaganda. These buildings would have large plane surfaces planned for this purpose, surfaces which are nonexistent today.

Such big animated surfaces with the use of color and movement in a new spirit would offer unexplored fields to mural painters and sculptors.

Elements of nature, such as trees, plants, and water, would complete the picture. We could group all these elements in architectural ensembles: the stones which have always been used, the new materials which belong to our times, and color in all its intensity which has long been forgotten.

Man-made landscapes would be correlated with nature's landscapes and all elements combined in terms of the new and vast façade, sometimes extending for many miles, which has been revealed to us by the air view. This could be contemplated not only during a rapid flight but also from a helicopter stopping in mid-air.

Monumental architecture will be something more than strictly functional. It will have regained its lyrical value. In such monumental layouts, architecture and city planning could attain a new freedom and develop new creative possibilities, such as those that have begun to be felt in the last decades in the fields of painting, sculpture, music, and poetry.

Materiali moderni e nuove tecnologie, strutture metalliche leggere, pannelli di diverse tessiture, colori e dimensioni; solai che possono essere sospesi su grandi travi reticolari che coprono campate praticamente illimitate.

NINE POINTS ON MONUMENTALITY

(Written by J. L. Sert, F. Léger, S. Giedion)

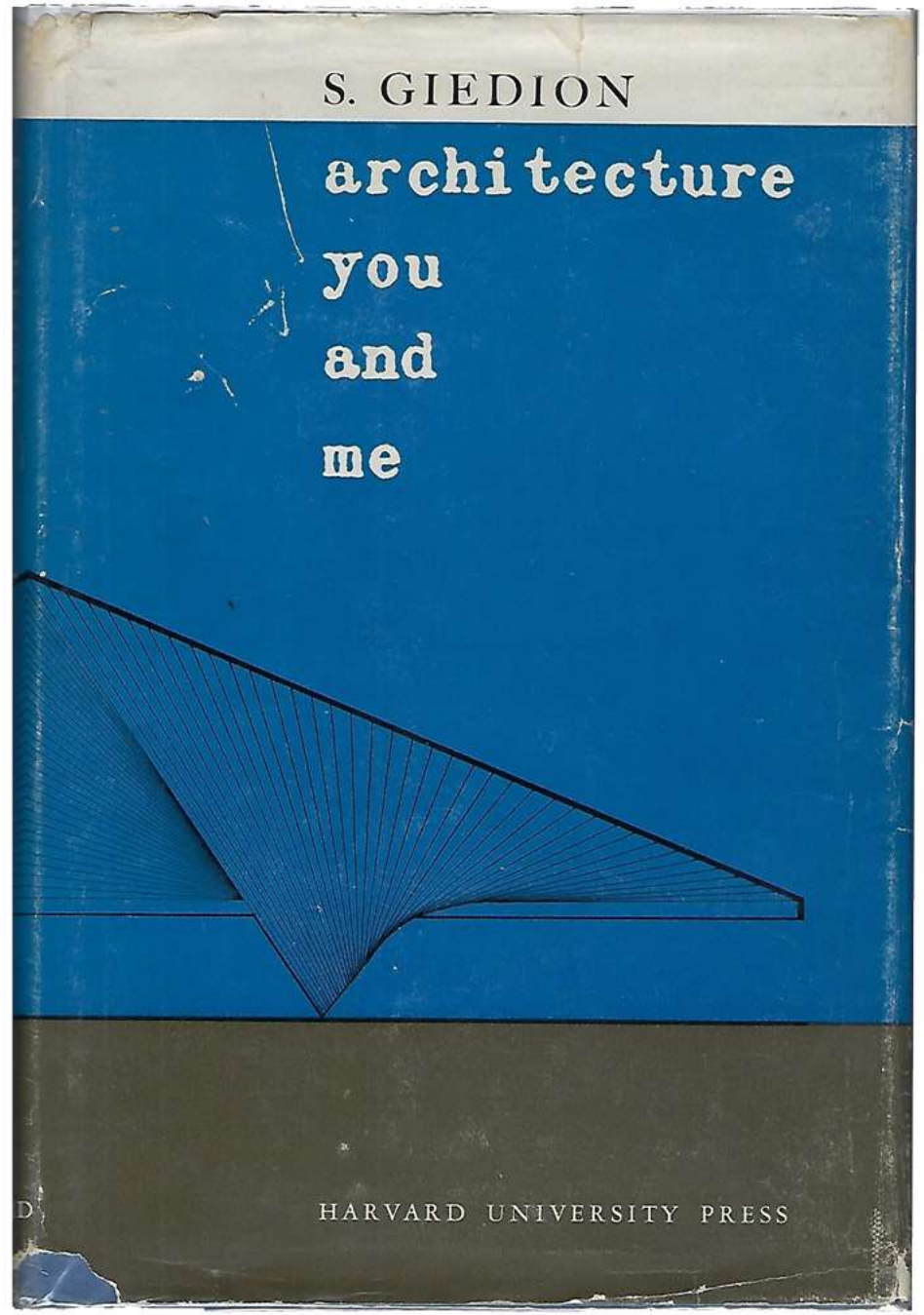
Que donneriez vous ma belle
Pour revoir votre mari?
Je donnerai Versailles,
Paris et Saint Denis
Les tours de Notre Dame
Et le clocher de mon pays.
Auprès de ma blonde
Qu'il fait bon, fait bon, fait bon.
(From an old French song,
"Auprès de ma blonde")

(1) Monuments are human landmarks which men have created as symbols for their ideals, for their aims, and for their actions. They are intended to outlive the period which originated them, and constitute a heritage for future generations. As such, they form a link between the past and the future.

(2) Monuments are the expression of man's highest cultural needs. They have to satisfy the eternal demand of the people for translation of their collective force into symbols. The most vital monuments are those which express the feeling and thinking of this collective force—the people.

(3) Every bygone period which shaped a real cultural life had the power and the capacity to create these symbols. Monuments are, therefore, only possible in periods in which a unifying consciousness and unifying culture exists. Periods which exist for the moment have been unable to create lasting monuments.

(4) The last hundred years have witnessed the devaluation of monumentality. This does not mean that there is any lack of formal monuments or architectural examples



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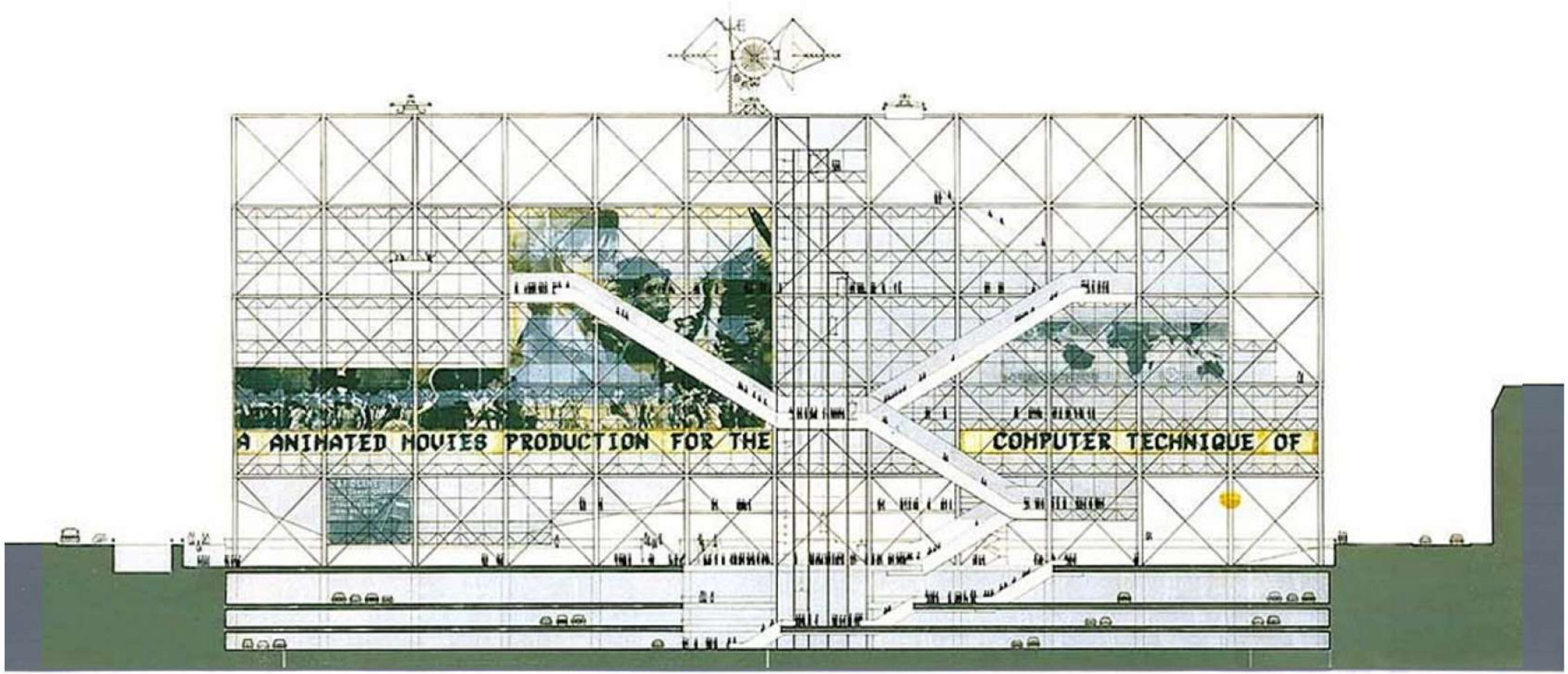
Elementi mobili possono variare costantemente l'aspetto degli edifici. Questi elementi, cambiando posizione e proiettando ombre mutevoli quando mossi dal vento o da macchinari, possono produrre nuovi effetti architettonici.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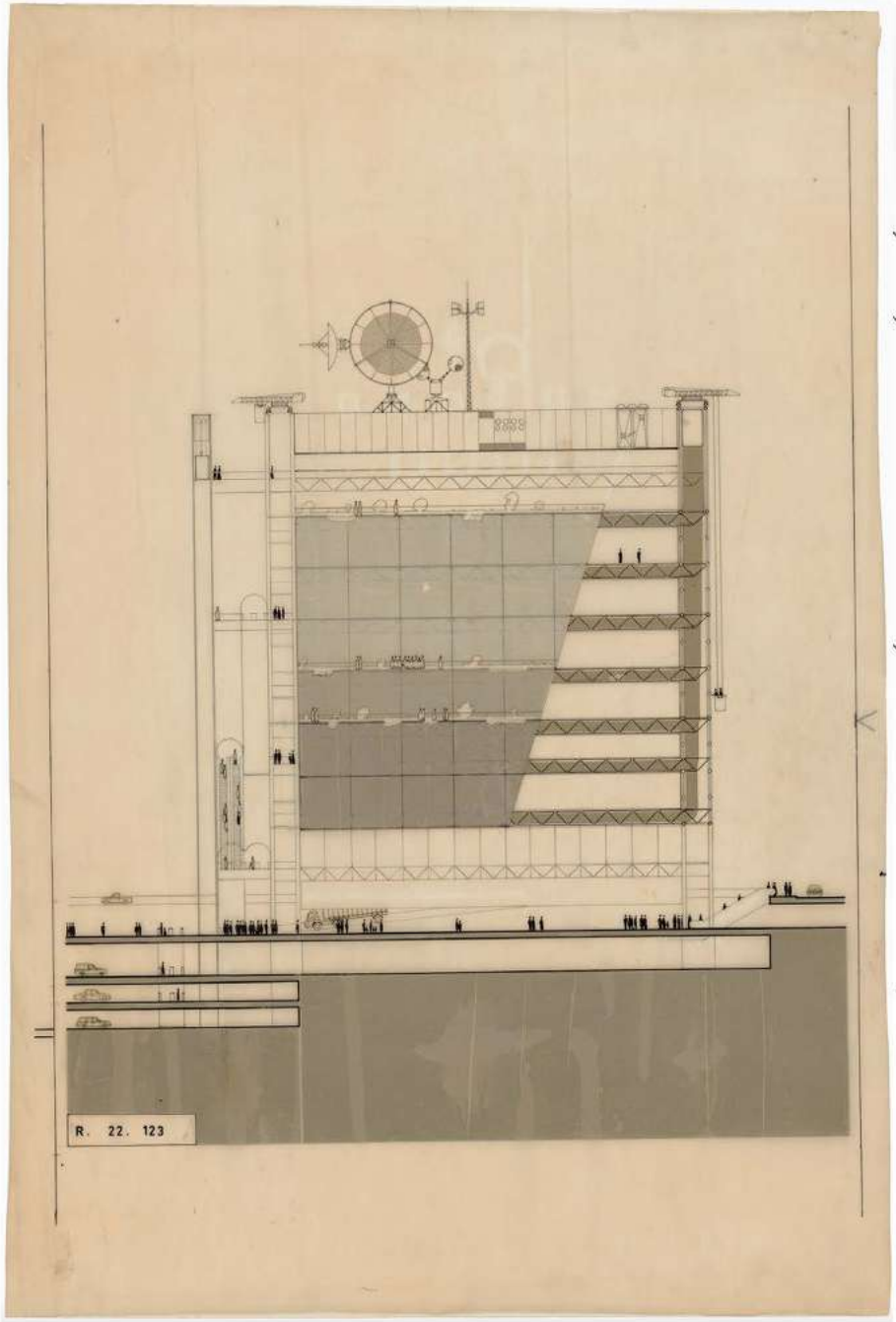
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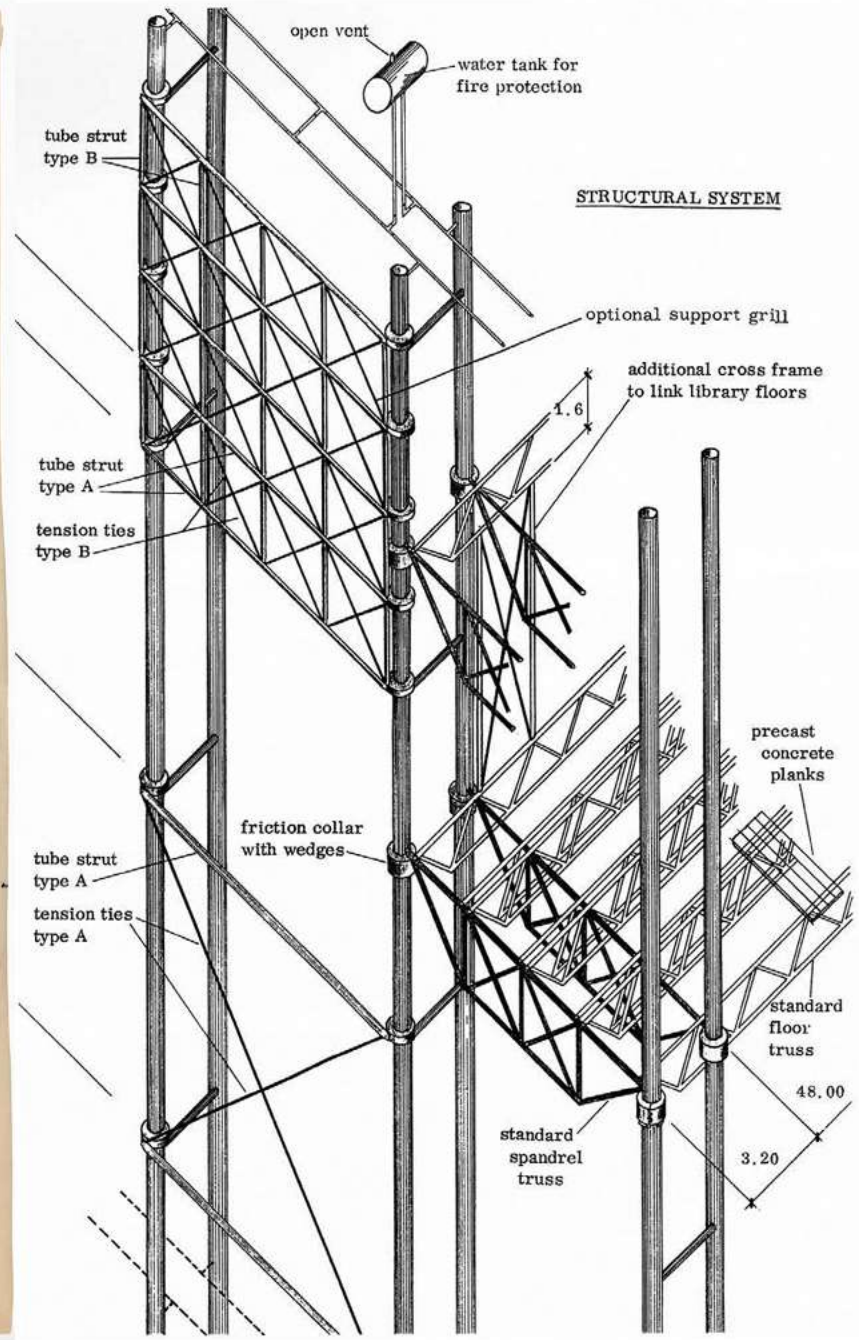
open vent
water tank for fire protection
tube strut type B
STRUCTURAL SYSTEM
optional support grill
additional cross frame to link library floors
1.6
tube strut type A
tension ties type B
precast concrete planks
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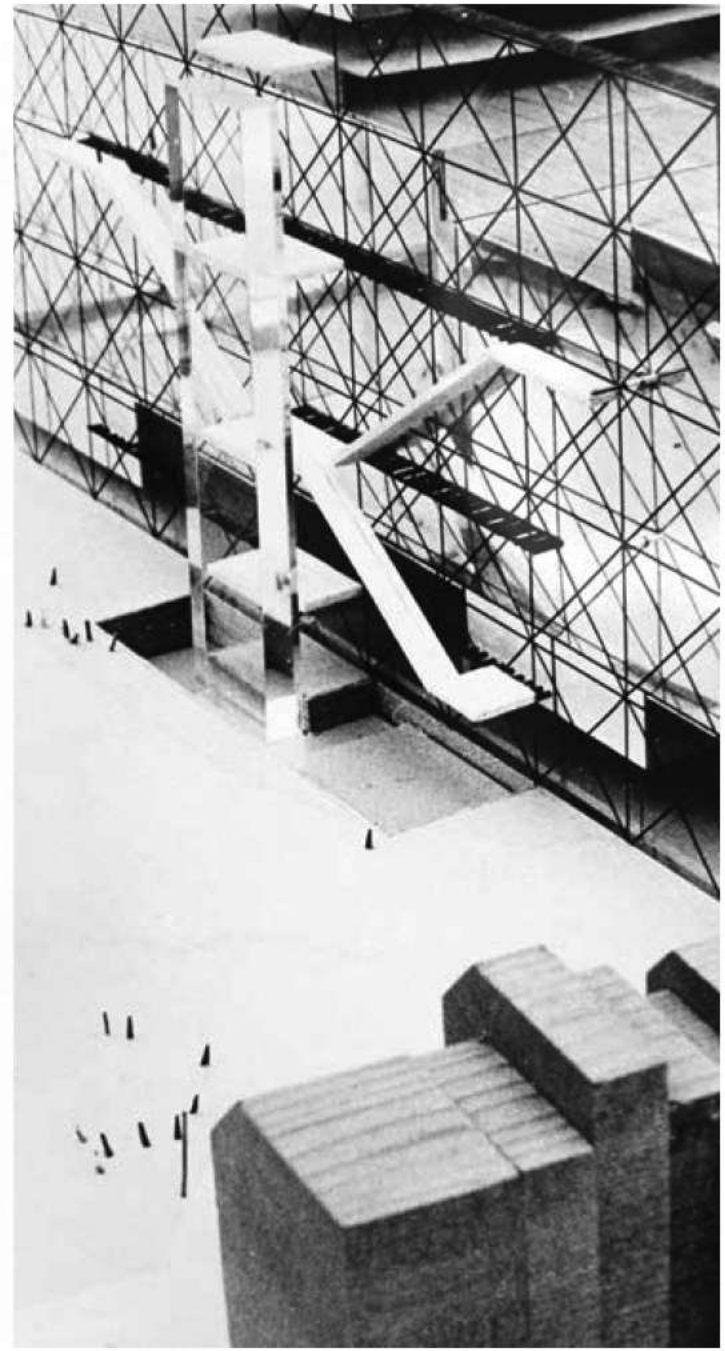
standard floor truss
48.00
standard spandrel truss
3.20



MOVIMENTO MODERNO

MONUMENTO MODERNO

Il Centre Pompidou è chiaramente un monumento, un monumento molto permanente.

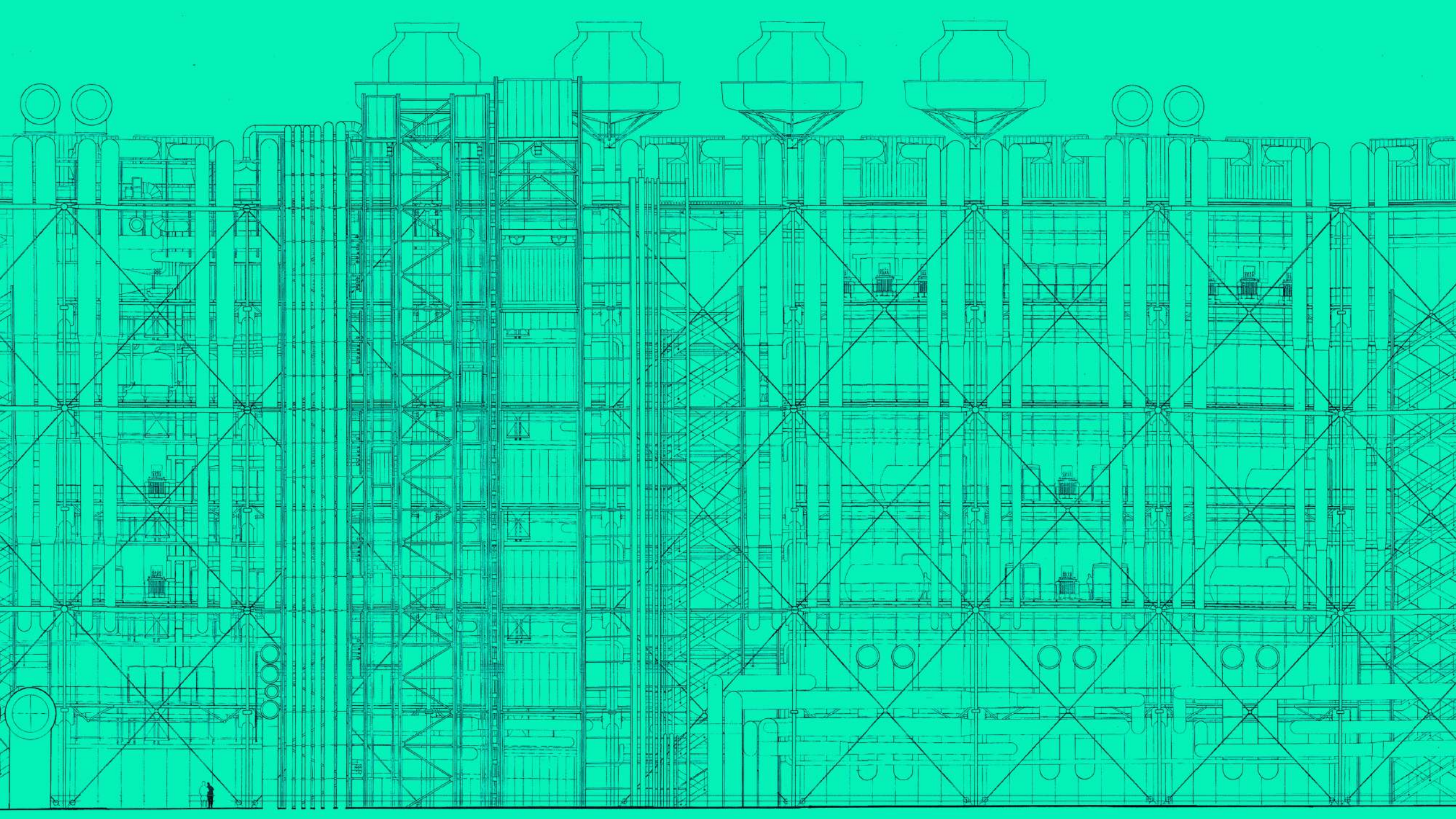
Ma si può avere un'immagine permanente del cambiamento?

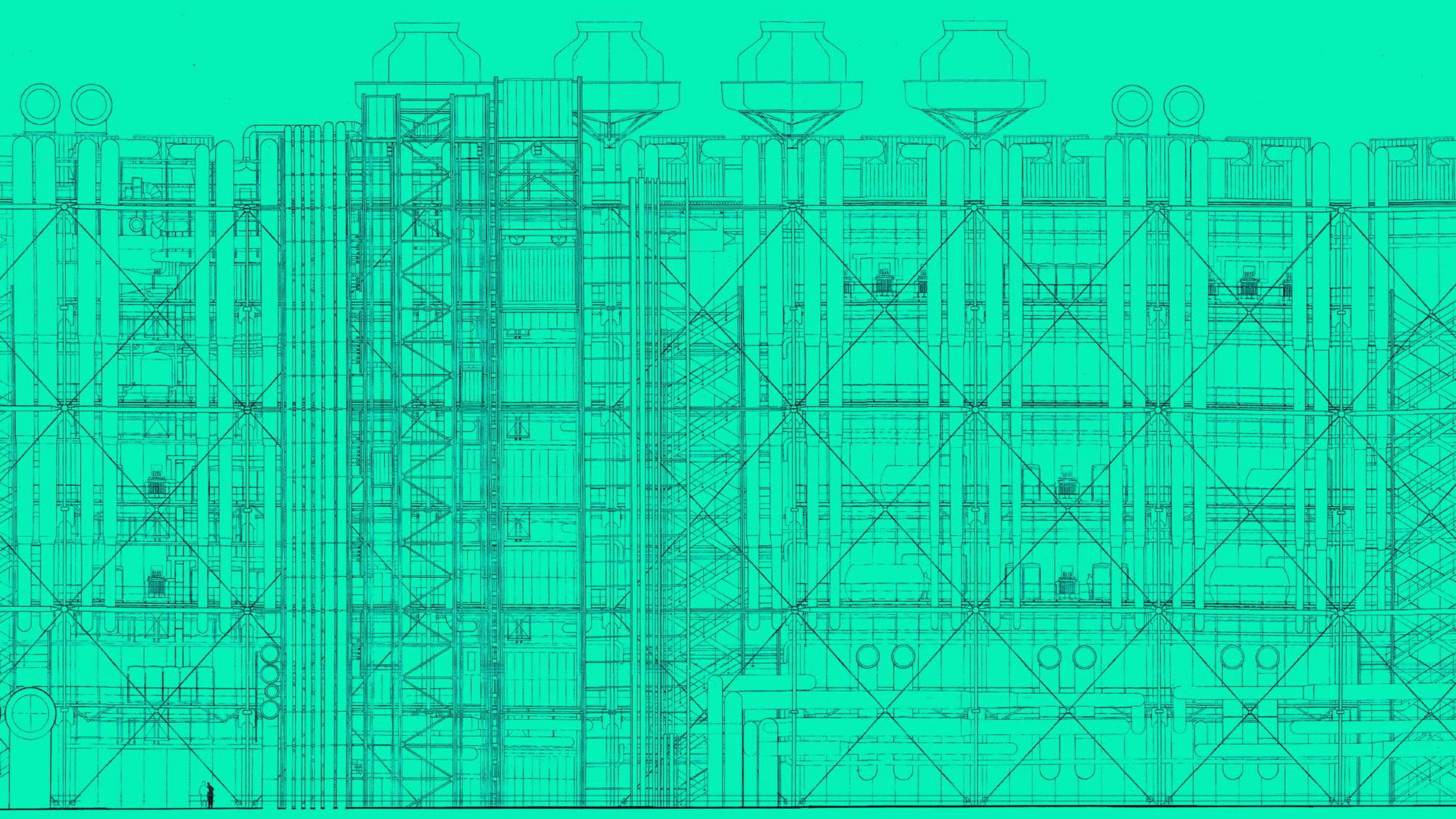
La risposta è stata quella di progettare una statua permanente dedicata all'*idea* di impermanenza.


UN NOUVEAU FESTIVAL
LE NOUVEAU FESTIVAL DU CENTRE POMPIDOU
LE CORBUSIER
LE CORBUSIER
MESURES DE L'HOMME


CENTRE POMPIDOU
CENTRE POMPIDOU

grazie!

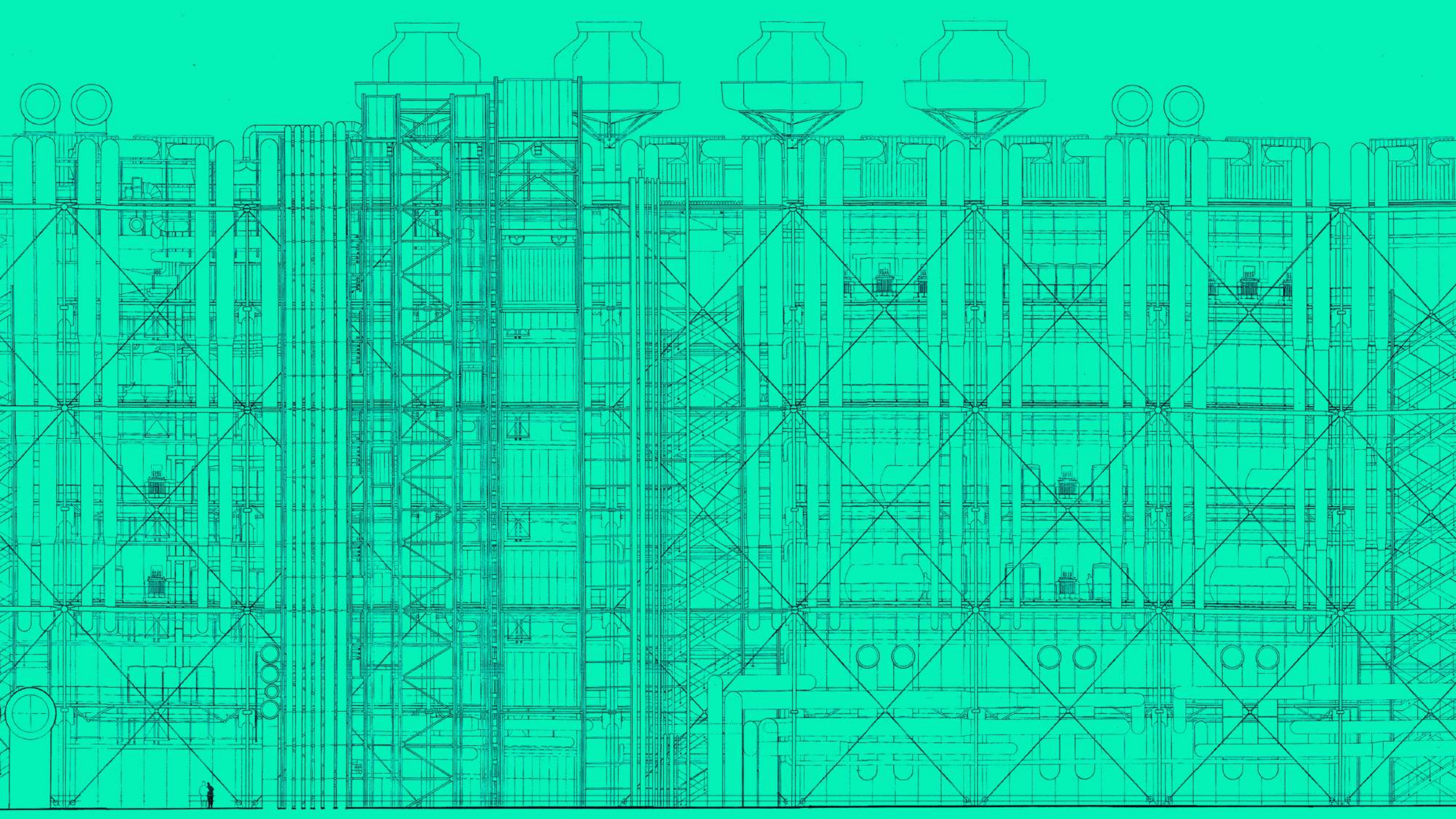





BORIS HAMZEIAN
1966
1971
THE LIVE CENTRE OF INFORMATION
FROM POMPIDOU TO BEAUBOURG


the great sky-hook
M3
ONE
THREE
the blimp-here


ANIMATED MOVIES PRODUCTION FO
COMPUTER TECHNIQUE OF



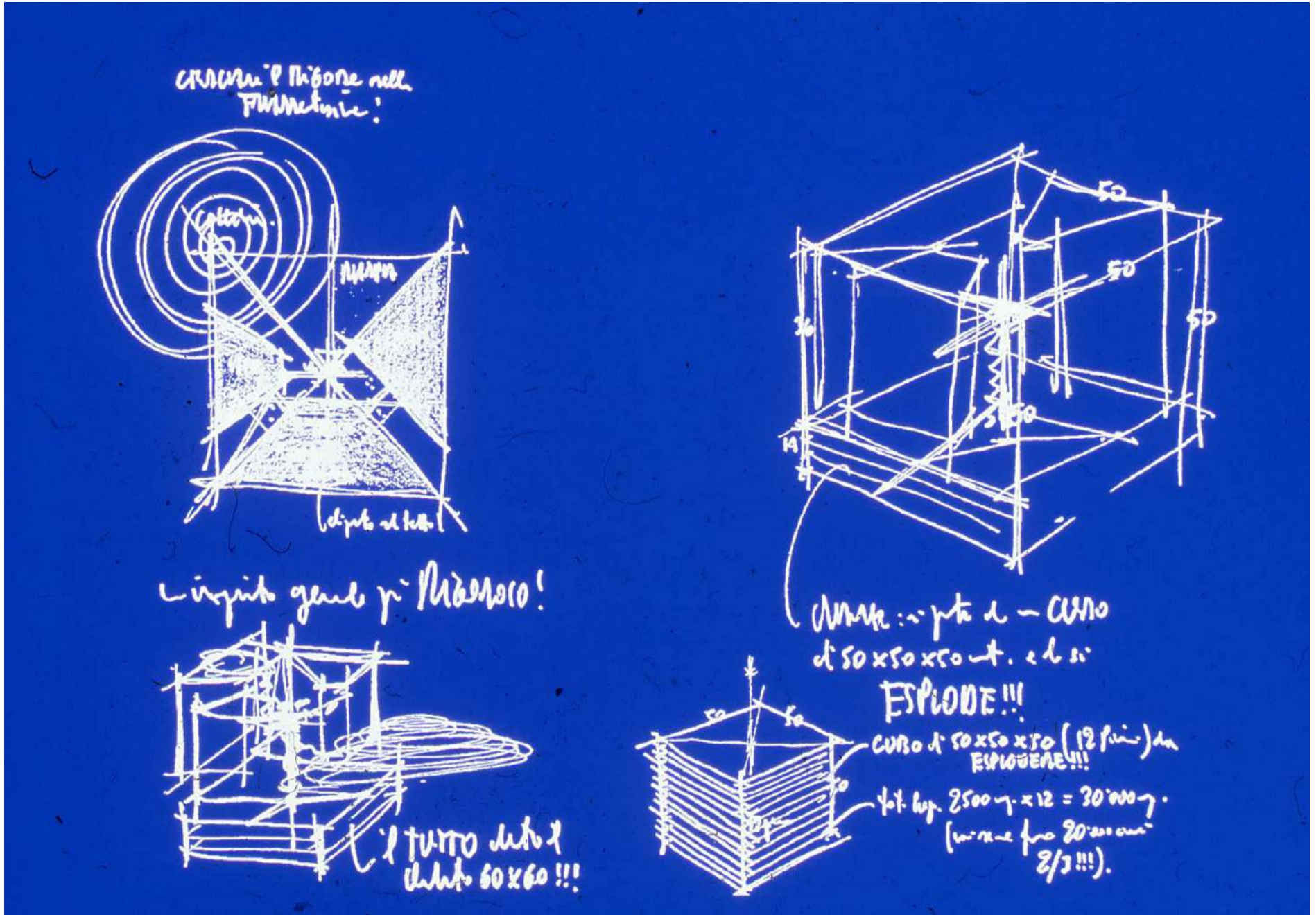
Arup e l’eredità Beaubourg

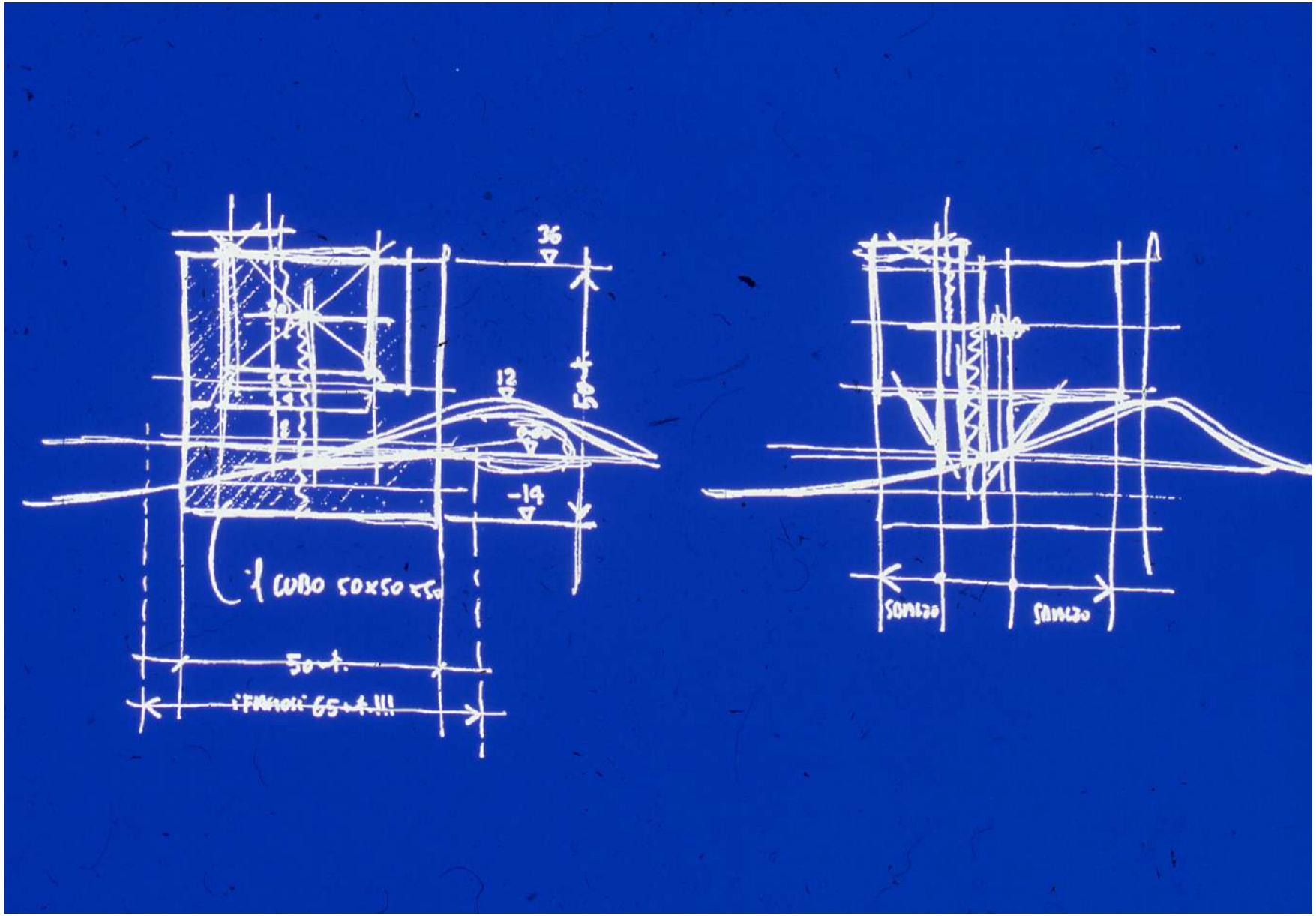
In principio erat Verbum…
In the beginning was the Word…

In principio c'era l'idea…

…la nascita del progetto…

Gabriele Del Mese


Cercare il rigore nella funzionalità!
Cattedrale
Tempio
Edificio ad hoc
L'impianto generale più rigoroso!
L'intero deve stare in un cubo 60x60!!!
50
50
50
50
Ognuno dei 12 cubi di 50x50x50 cm. esplode!!!
ESPLODE!!!
CUBO di 50x50x50 (12 pezzi) da ESPLODERE!!!
Vol. kg. 2500 x 12 = 30'000 kg.
(in realtà fino 20'000 cm³ 2/3!!!).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-14
CUBO 50x50
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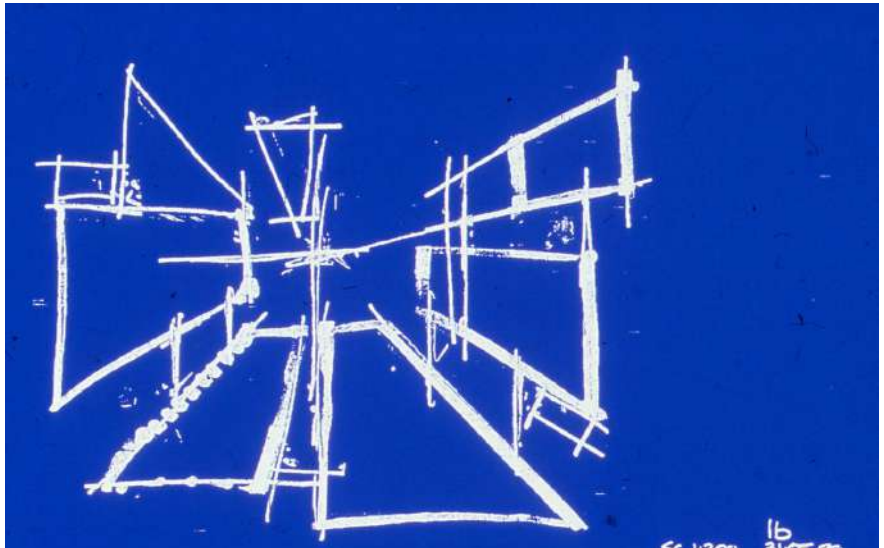
SPAZIO
SPAZIO



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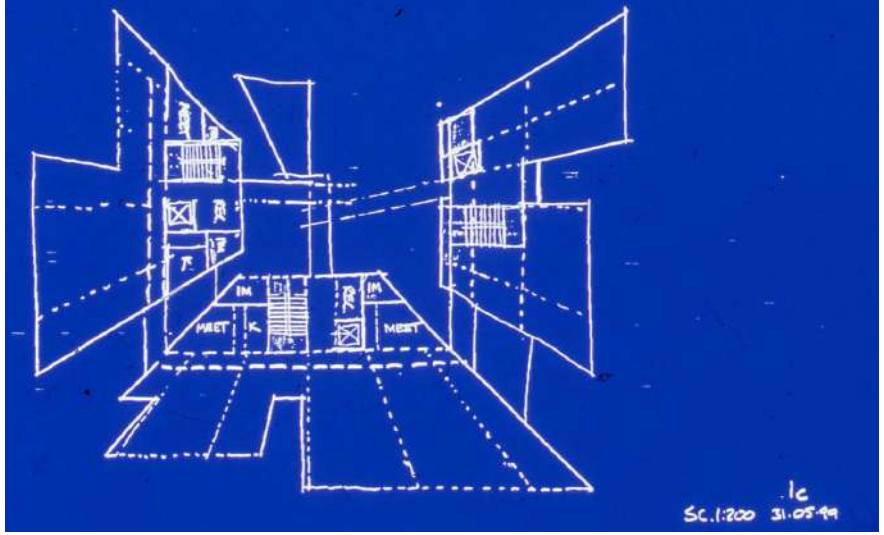

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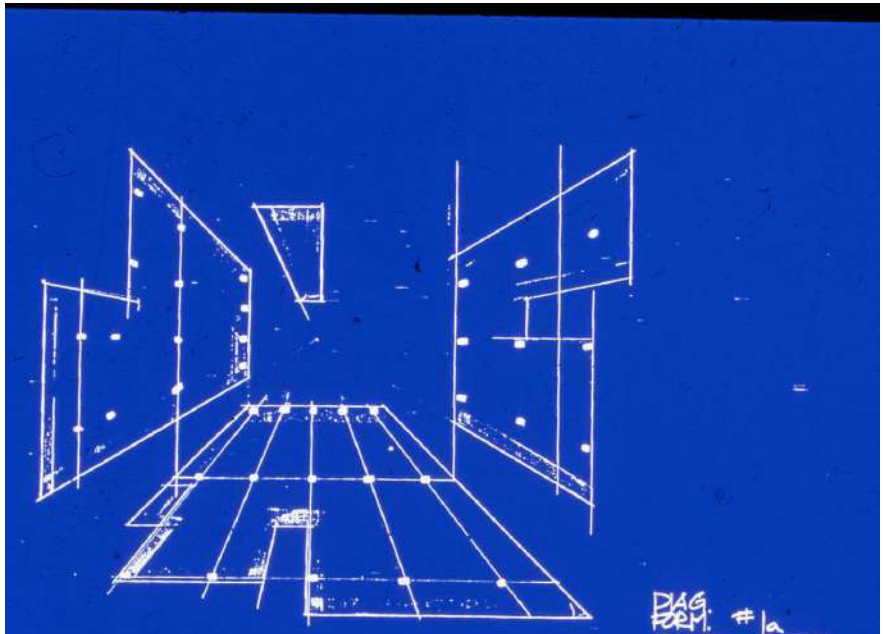

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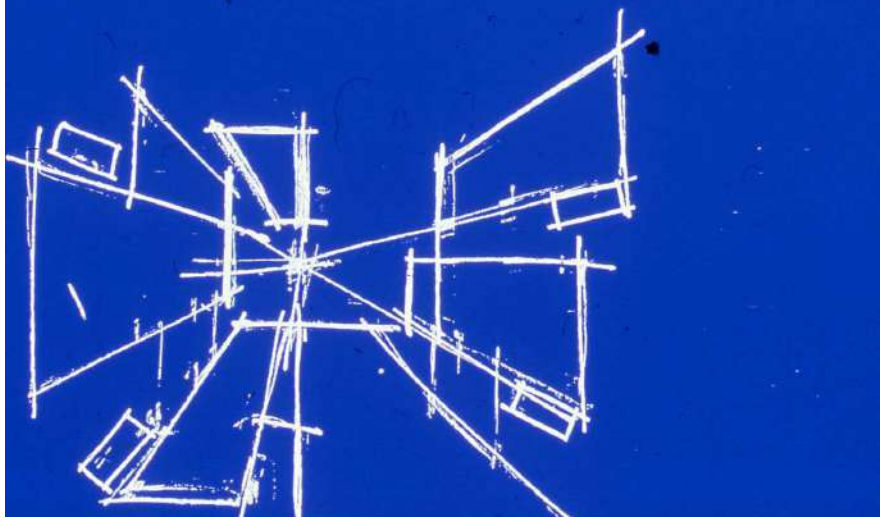
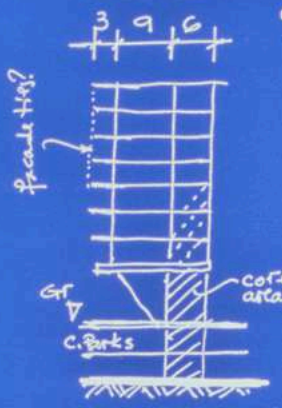
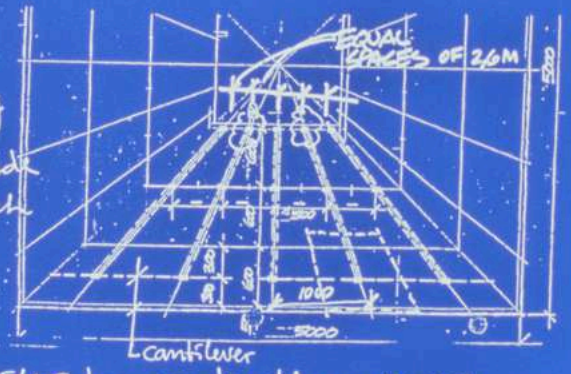


1 - grid / vertical structure / cores



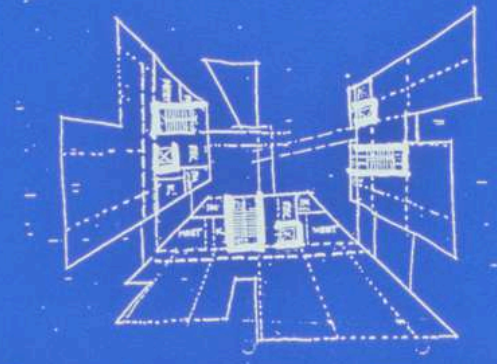
a) the sub. divisions 3-9-6 are ok, both for planning & for structure - I hear that no structure (ie cols) are wanted in the facade - That is ok, - however, with the fanned geometry of the floor plates →



are there about 10 ms (span) along the edge. If the glazing/facade is supported @ each floor, it may be wise to link some of the floor edges with ties, in order to make them move together of the same quantity (control of movements → glass). These are just steel ties, not cols.

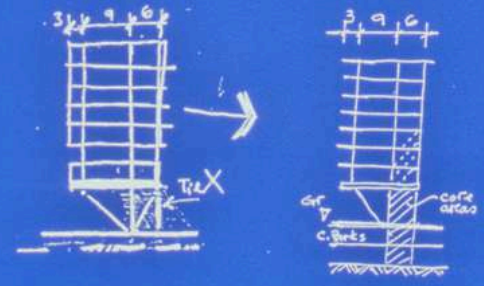
Along the inner courtyard, the 2 cols with boobles could be eliminated.

b) cores



› By splitting the cube into blocks, inevitably the number of cores increases - This may give an un-favourable ratio between core area & floor-plate area - This needs watching.

› I imagine the cores (stairs & l-ft shafts) need to go all the way to the ground & into the basement - If this is so there would not be any need of ties & the typical Xsection is → or could be

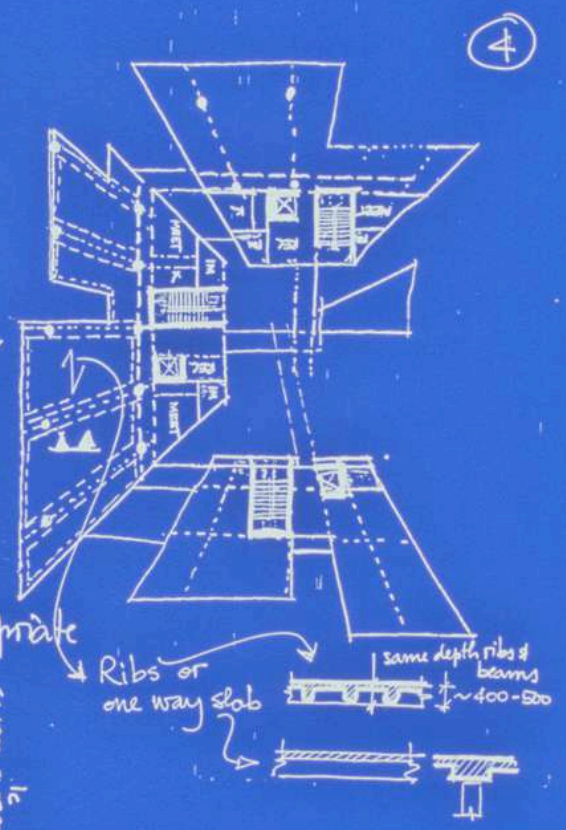


4

2) Floor structure

A possible floor structure could be:

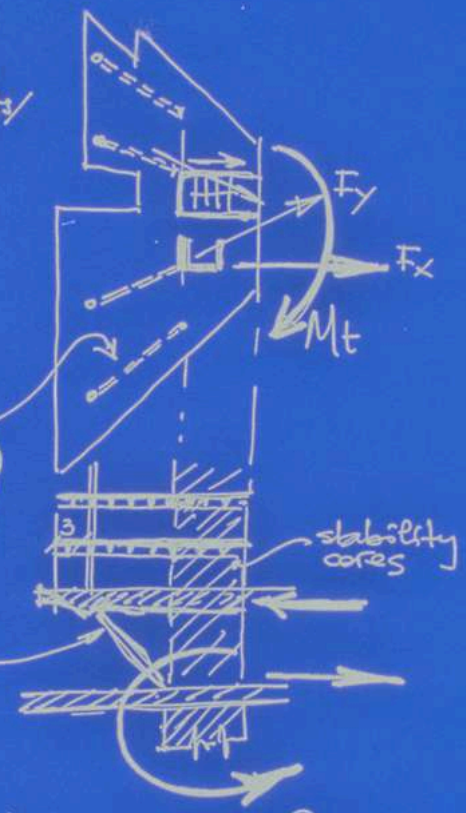
- > beams & slab, as shown
- > Ribs & beams within the same depth, as shown
- > Flat slab may not be totally appropriate for the following reasons:
  - a) the 'fields' are irregular
  - b) it will be very thick & costly
  - c) stability is an issue.



5

3) Stability (global)

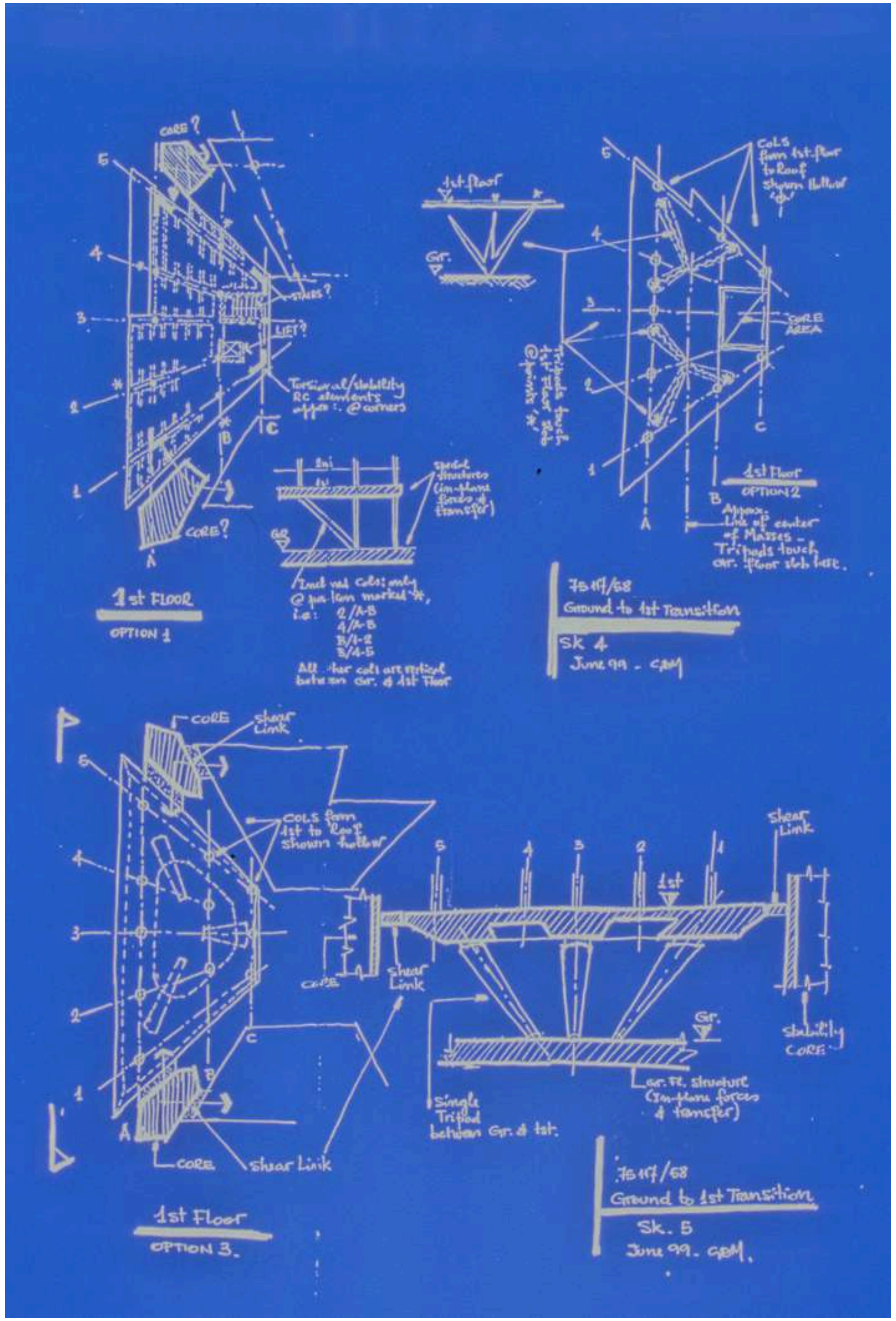
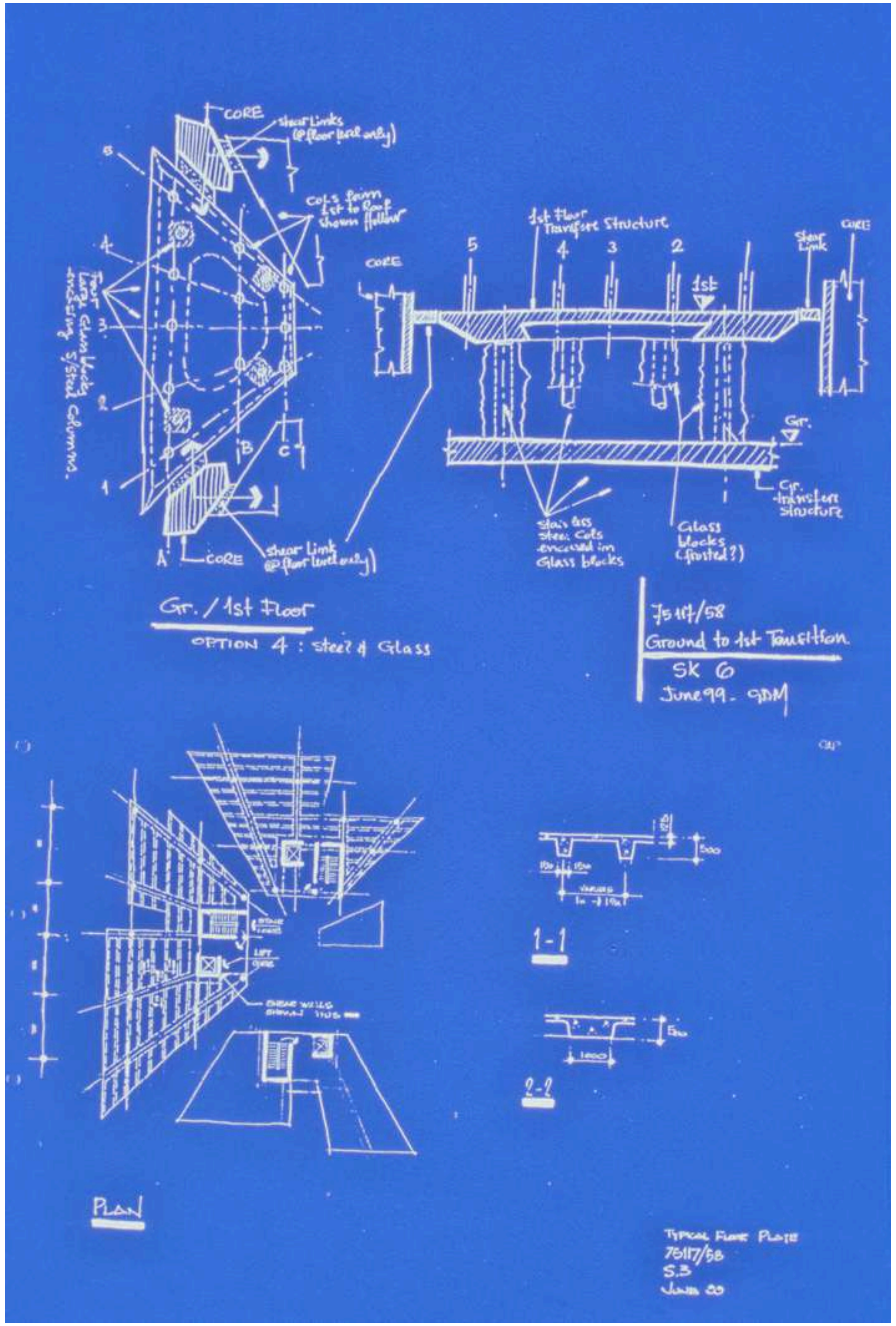
It would be advantageous for some/most of the inclined struts/cols @ gr. floor to meet the cores - These will happily take all the horizontal & torsional components generated by the geometry & asymmetric loads -

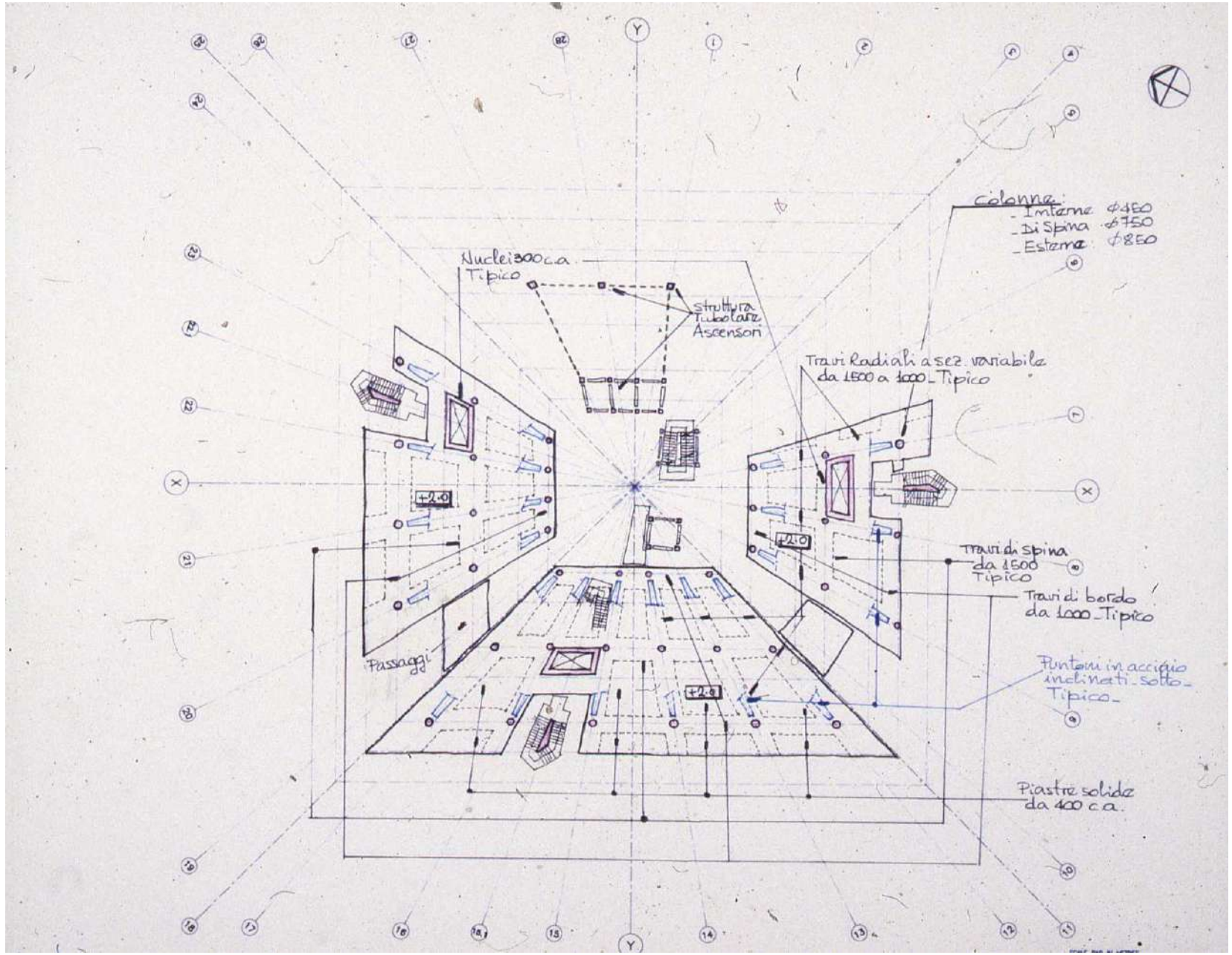


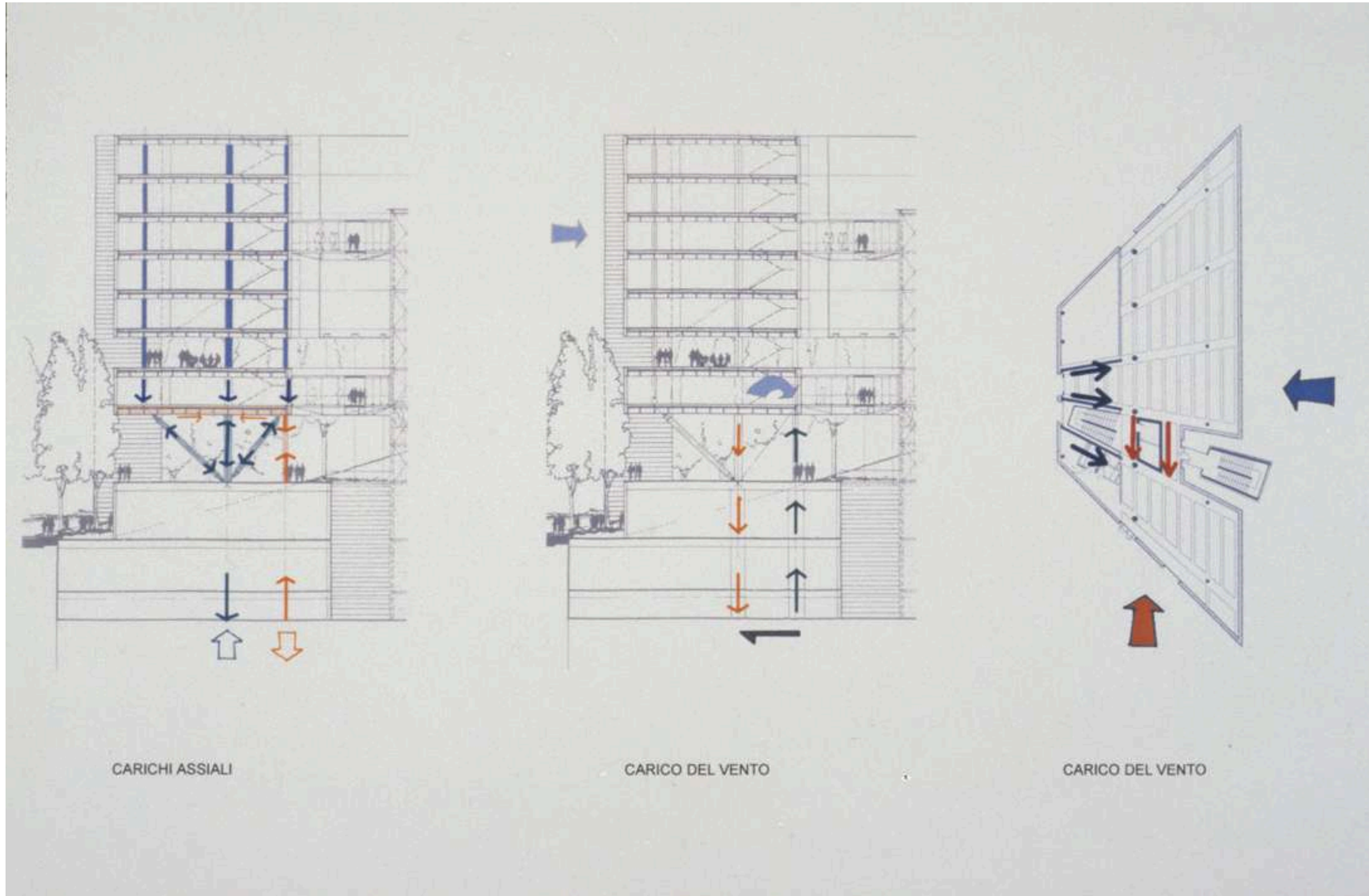
Tomorrow 3/6 we will fax some proper/better sketches -

Ciao Gabs -

Ps. I'll be away Thu. + Fri -


CORE?
STAIRS?
LIFT?
Torsional/stability RC elements appear @ corners
CORE?
1st FLOOR
OPTION 1
1st floor
Gr.
Cols from 1st floor to Roof shown hollow
CORE AREA
1st Floor
OPTION 2
Tripods touch 1st floor slab @ points "*"
Approx. line of center of Masses - Tripods touch Gr. floor slab here.
Special structures (in-plane forces & transfer)
All other cols are vertical between Gr. & 1st Floor
75117/58
Ground to 1st Transition
SK 4
June 99 - GDM
CORE
shear Link
COLS from 1st to Roof shown hollow
shear Link
CORE
1st
Gr.
Shear Link
stability CORE
Single Tripod between Gr. & 1st.
Gr. Fl. structure (in-plane forces & transfer)
CORE
shear Link
1st Floor
OPTION 3.
75117/58
Ground to 1st Transition
Sk. 5
June 99. GDM.

CORE
shear Links (@ floor level only)
COLS from 1st to Roof shown hollow
1st Floor Transfer Structure
CORE
1st
Gr.
Gr. transfer structure
Glass blocks (frosted?)
shear Link @ floor level only
CORE
Gr. / 1st Floor
OPTION 4 : steel & Glass
75117/58
Ground to 1st Transition
SK 6
June 99. GDM
1-1
2-2
PLAN
TYPICAL FLOOR PLATE
75117/58
S.3
JUNE 99

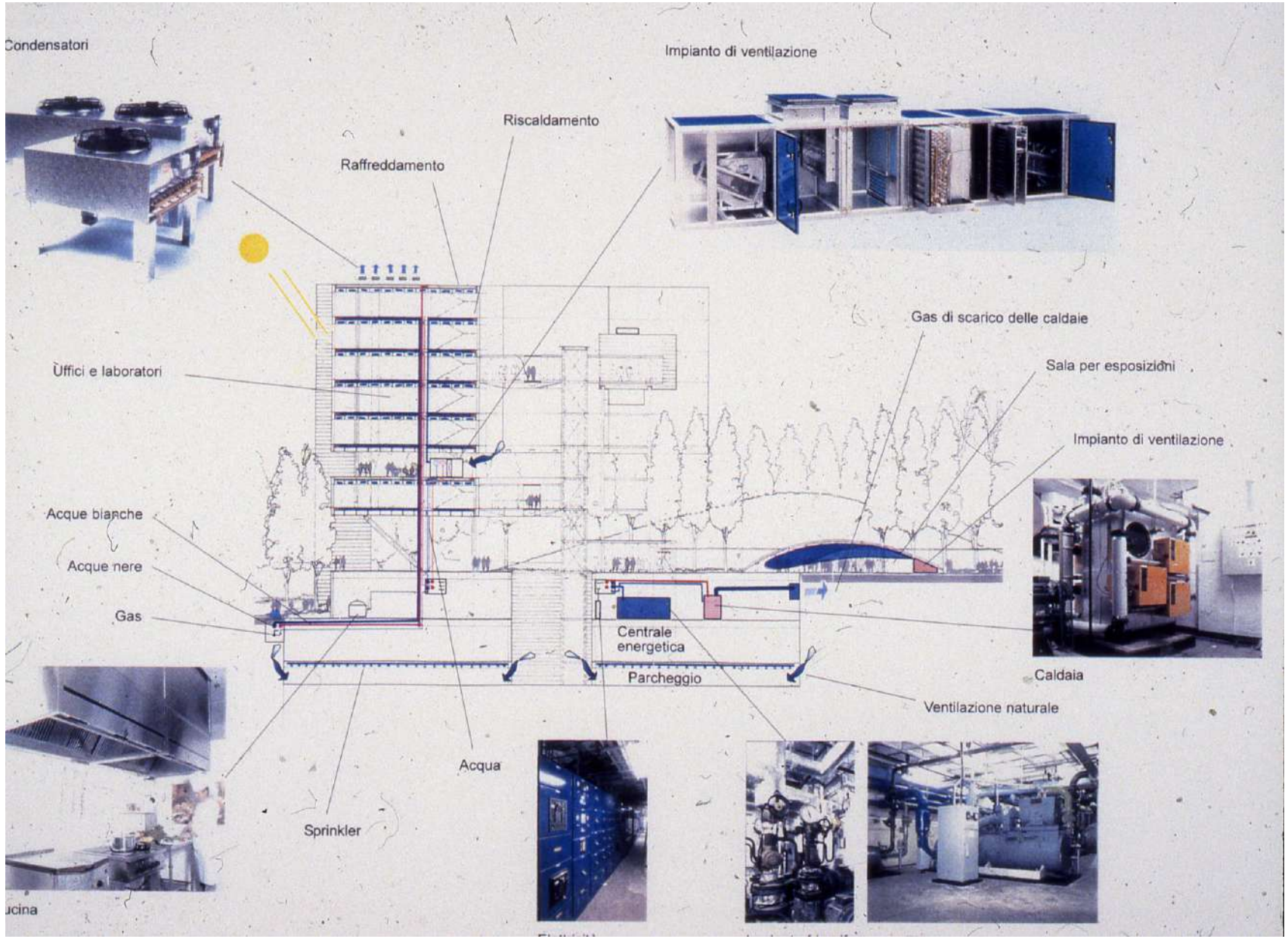

Colonne:
- Interne Φ450
- Di Spina Φ750
- Esterne Φ850
Nuclei 300 c.a. Tipico
Struttura Tubolare Ascensori
Travi Radiali a sez. variabile da 1500 a 1000 - Tipico
Travi di spina da 1500 Tipico
Travi di bordo da 1000 - Tipico
Puntoni in acciaio inclinati sotto - Tipico -
Passaggi
Piastre solide da 400 c.a.
+2.10



CARICHI ASSIALI

CARICO DEL VENTO

CARICO DEL VENTO


Condensatori
Impianto di ventilazione
Riscaldamento
Raffreddamento
Gas di scarico delle caldaie
Uffici e laboratori
Sala per esposizioni
Impianto di ventilazione
Acque bianche
Acque nere
Gas
Centrale energetica
Parcheggio
Caldaia
Ventilazione naturale
Acqua
Sprinkler
ucina

L'ingegneria non è una scienza.

La scienza studia eventi particolari per trovare leggi fisiche generali.

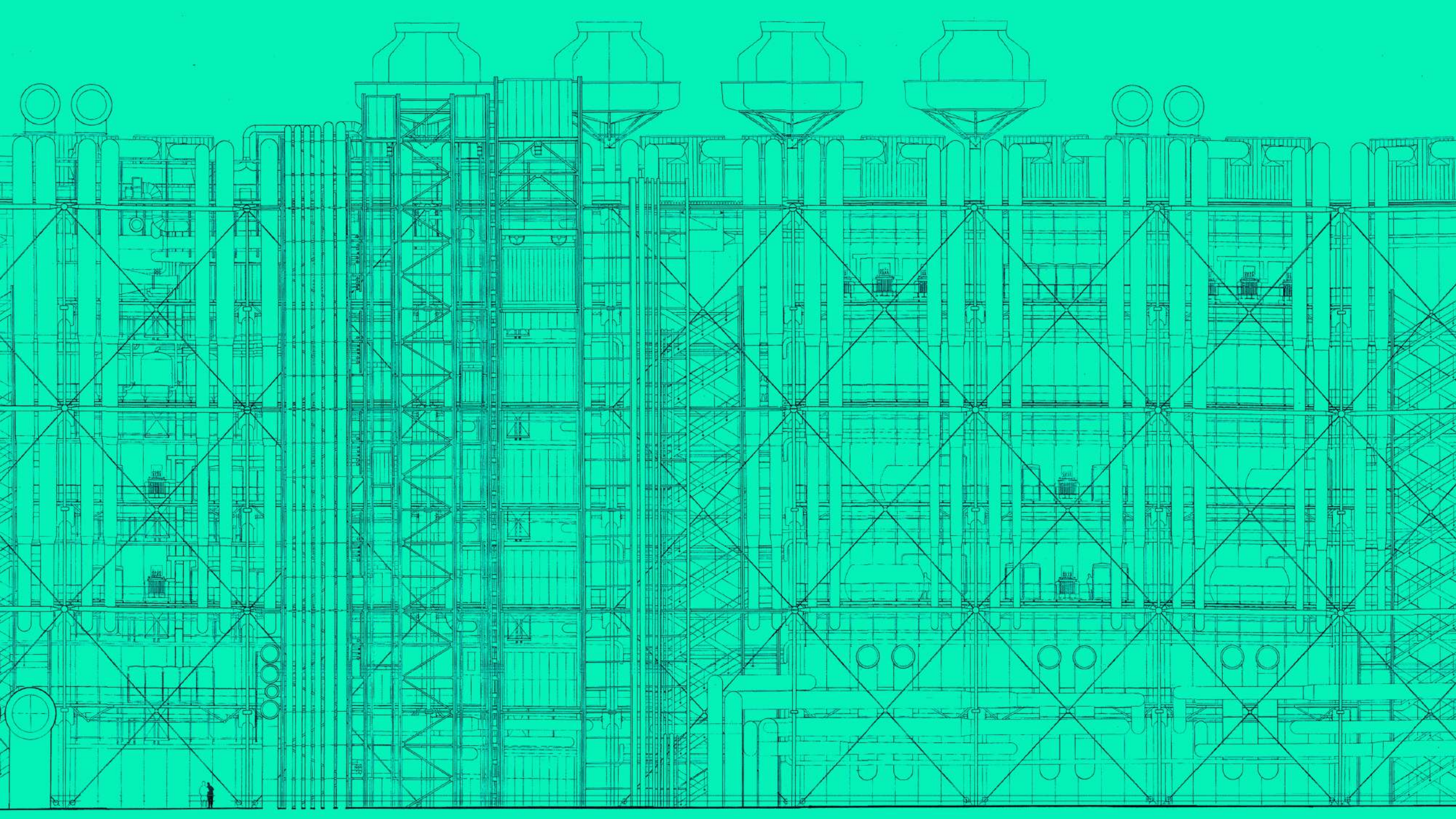
L'ingegneria fa uso di queste leggi per risolvere problemi particolari.

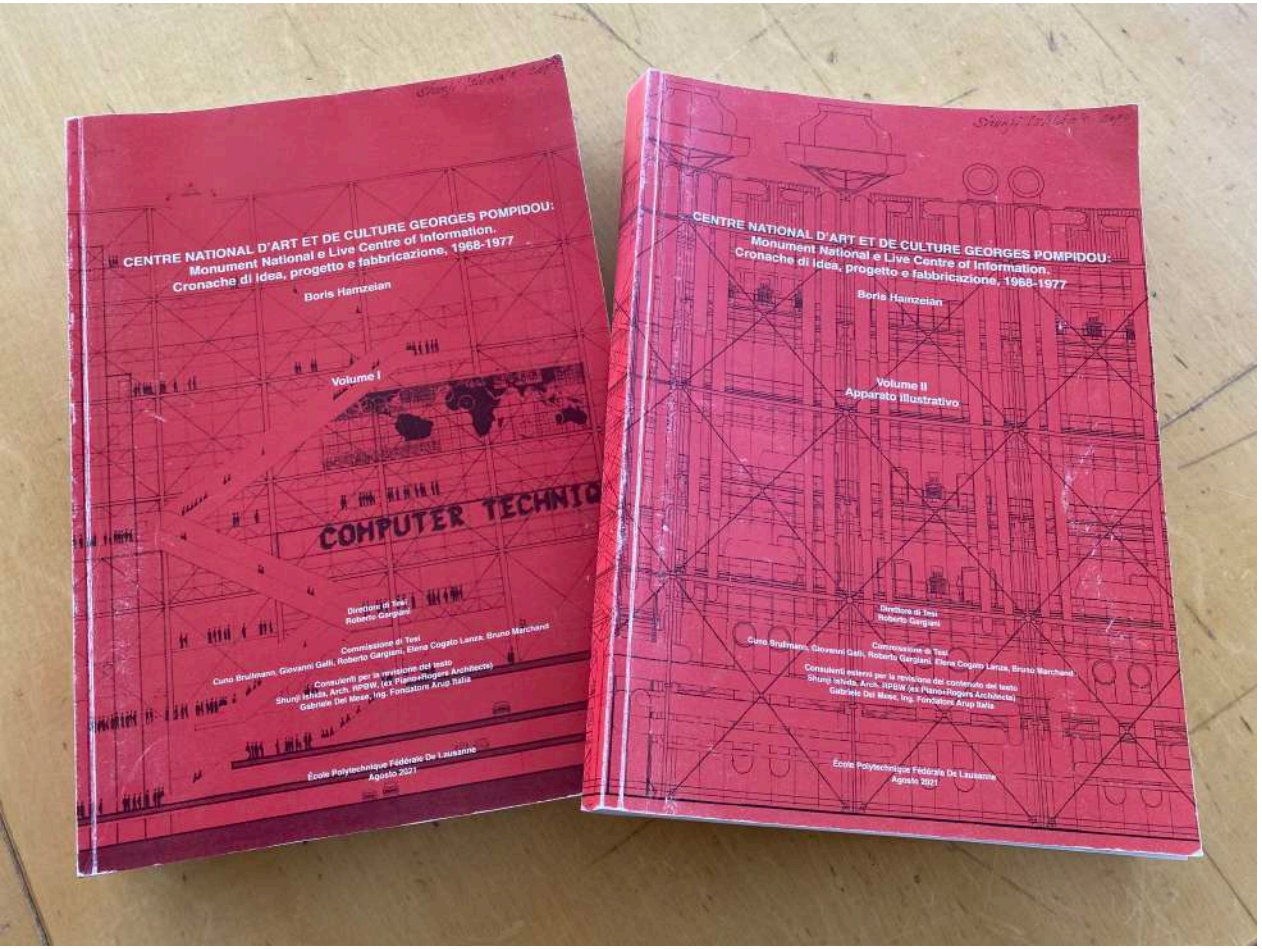
In questo senso è più strettamente collegata all'arte o all'artigianato, ove i problemi non sono definiti in termini chiari, ove esistono molte soluzioni, alcune ottime, alcune scadenti e altre indifferenti.

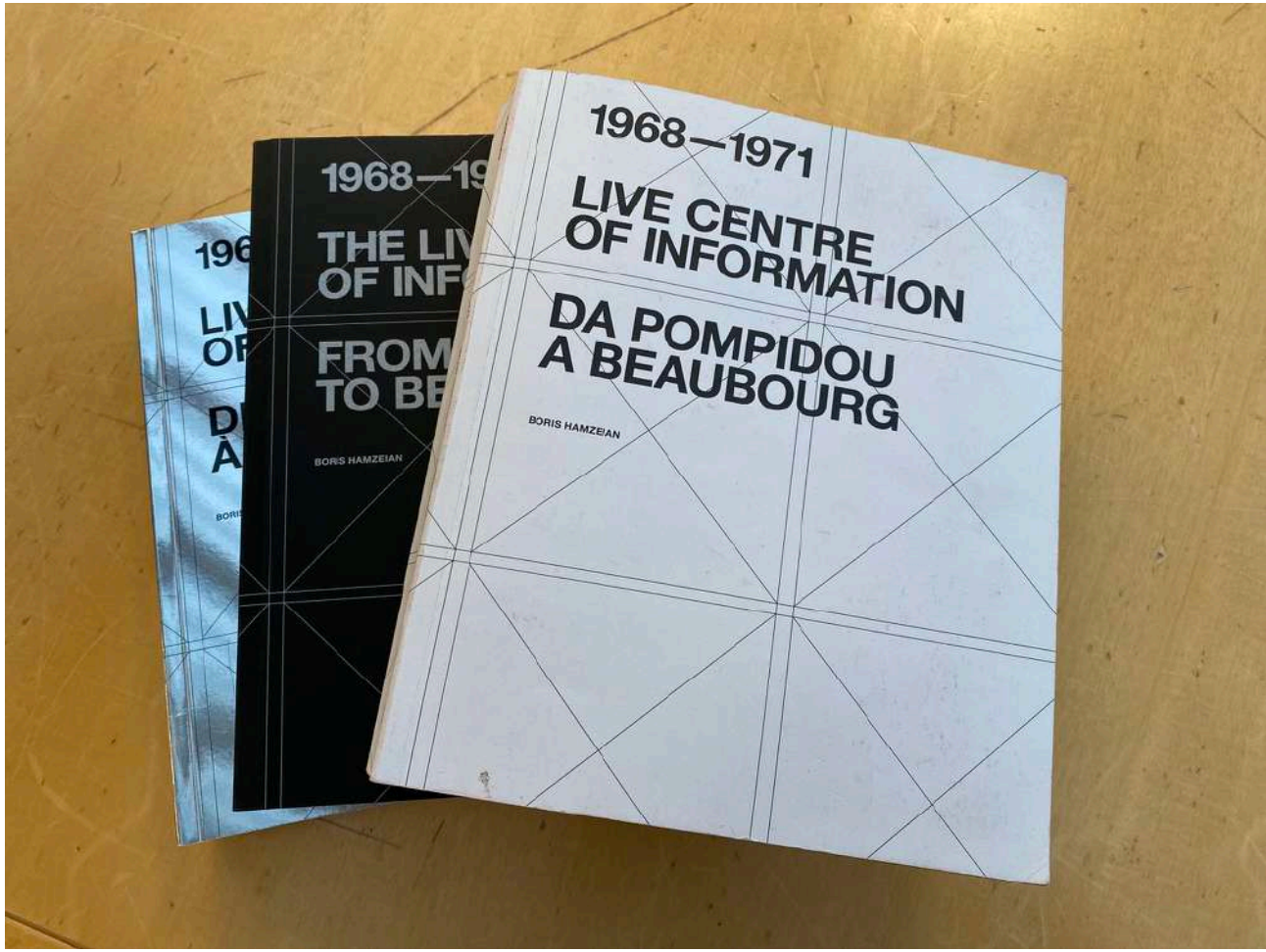
L'arte consiste nell'arrivare a una buona soluzione tramite una selezione di obiettivi e di modalità.

Questa è un'attività creativa che richiede immaginazione, intuizione e scelta coscienziosa.

Sir Ove Arup

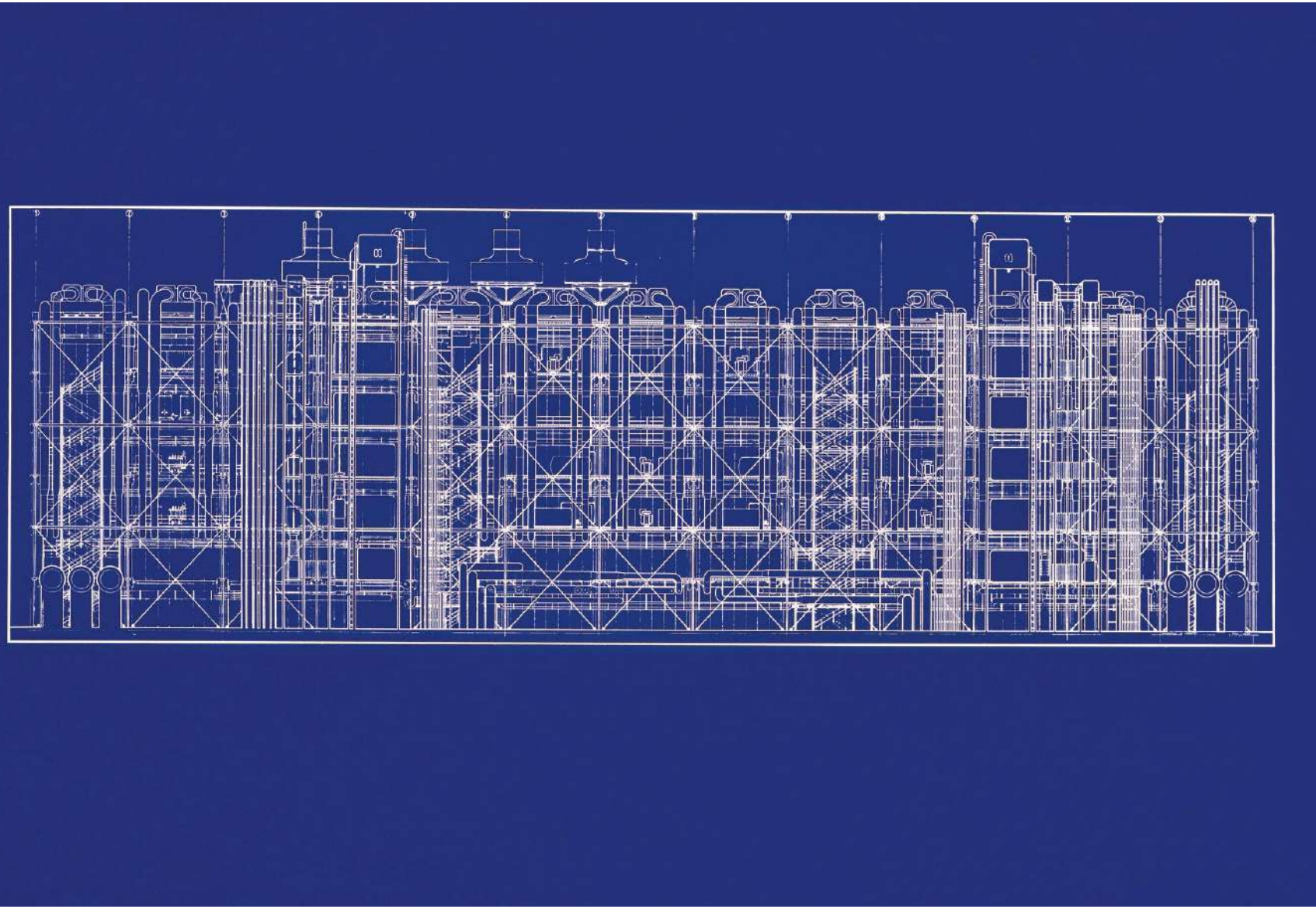


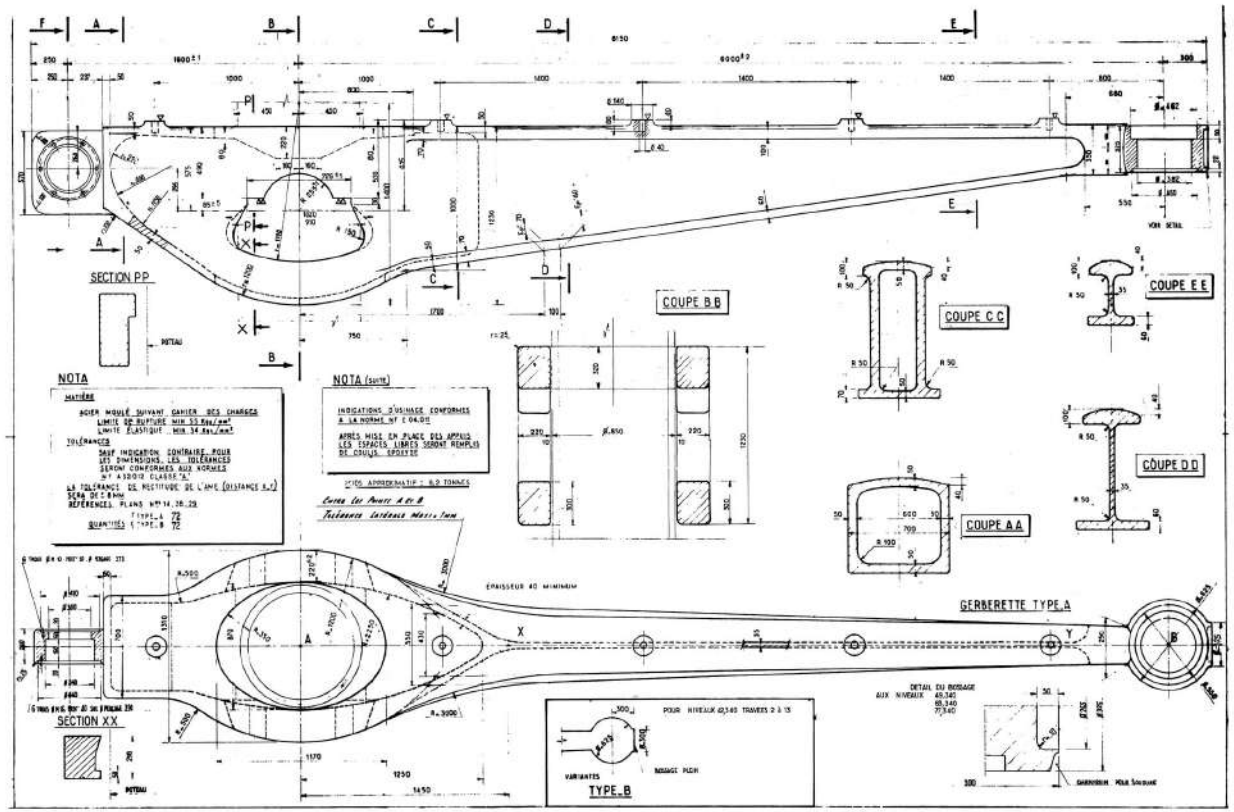


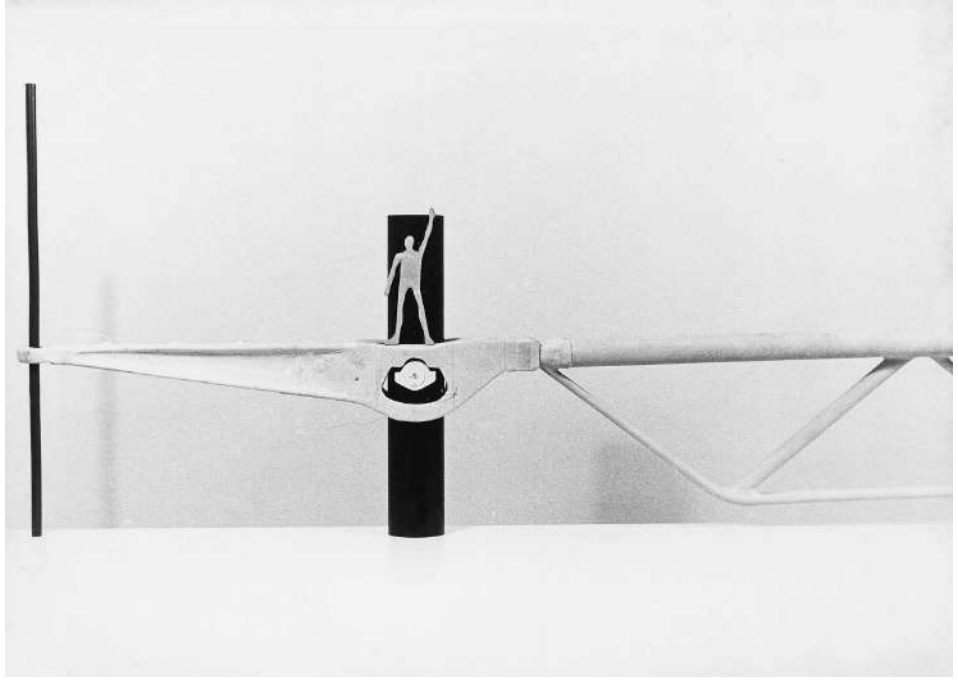


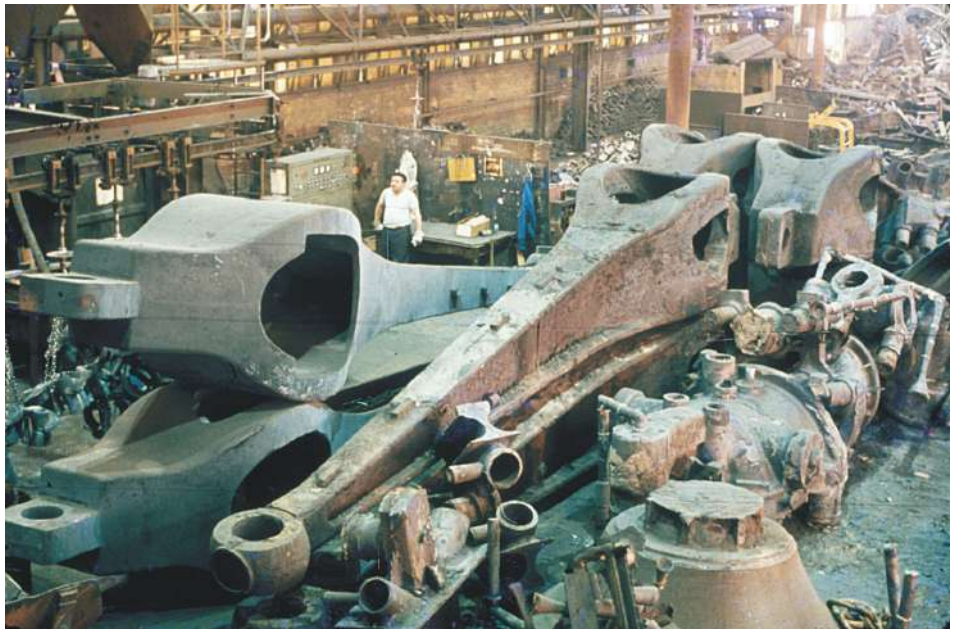
PIANO + ROGERS ARUP

BEAUBOURG

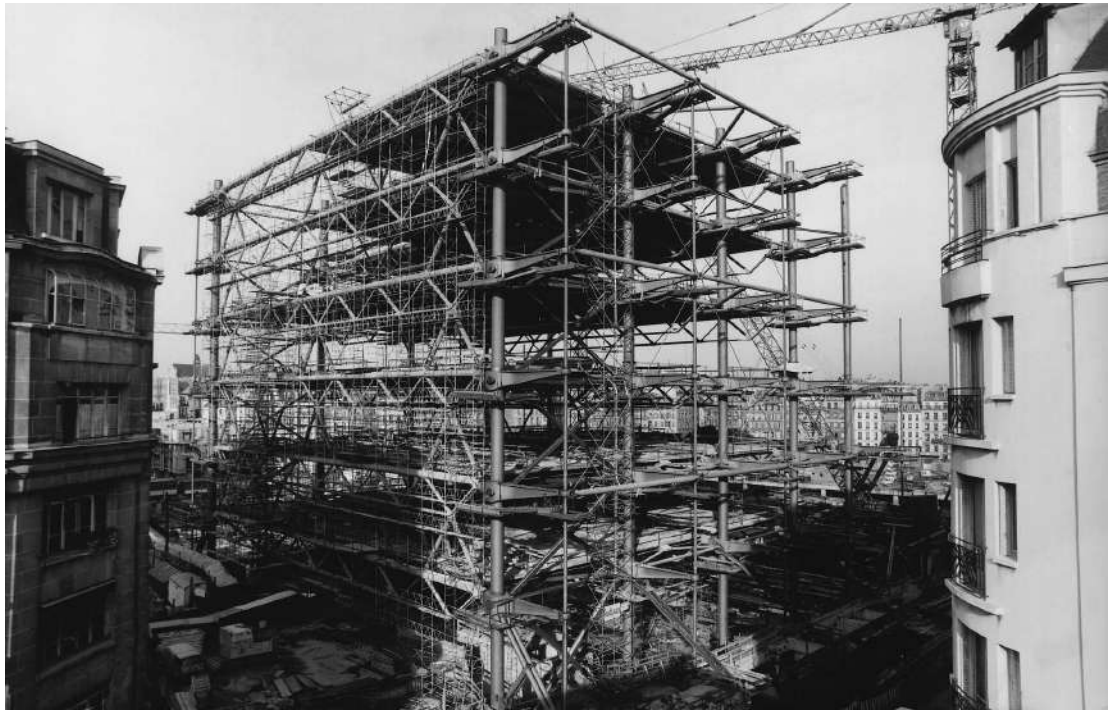


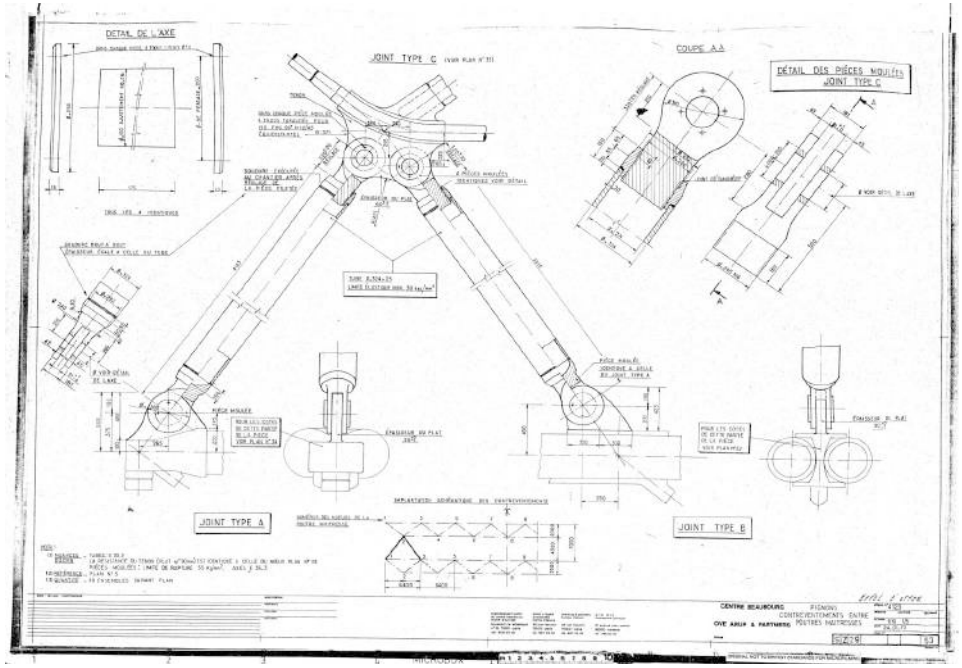

SECTION PP
COUPE B.B
COUPE C.C
COUPE E.E
COUPE D.D
COUPE A.A
NOTA
NOTA (suite)
GERBERETTE TYPE.A
SECTION XX
TYPE.B



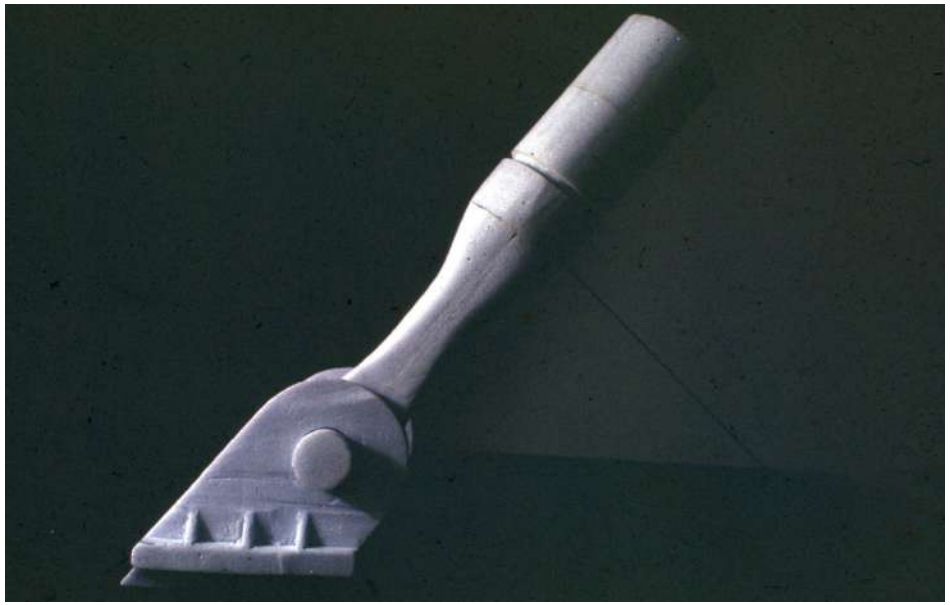


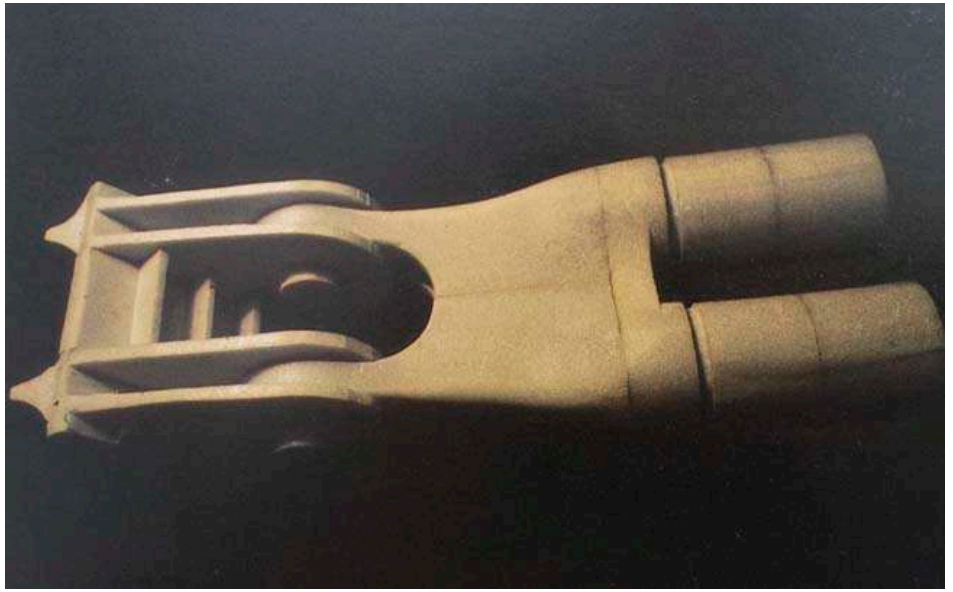

ATTENTION
CONVOI EXCEPTIONNEL

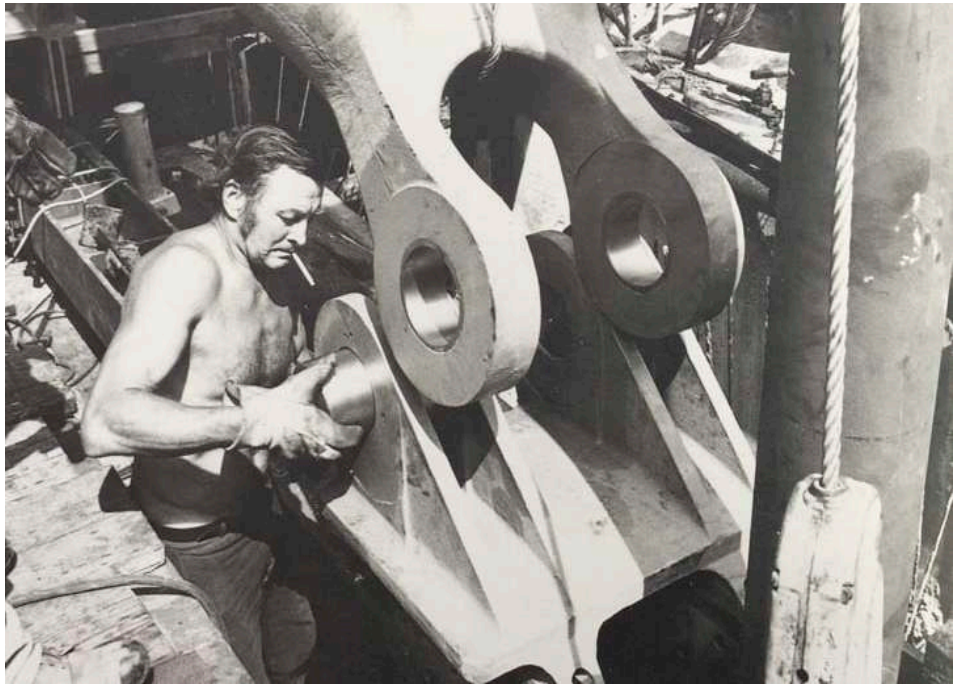


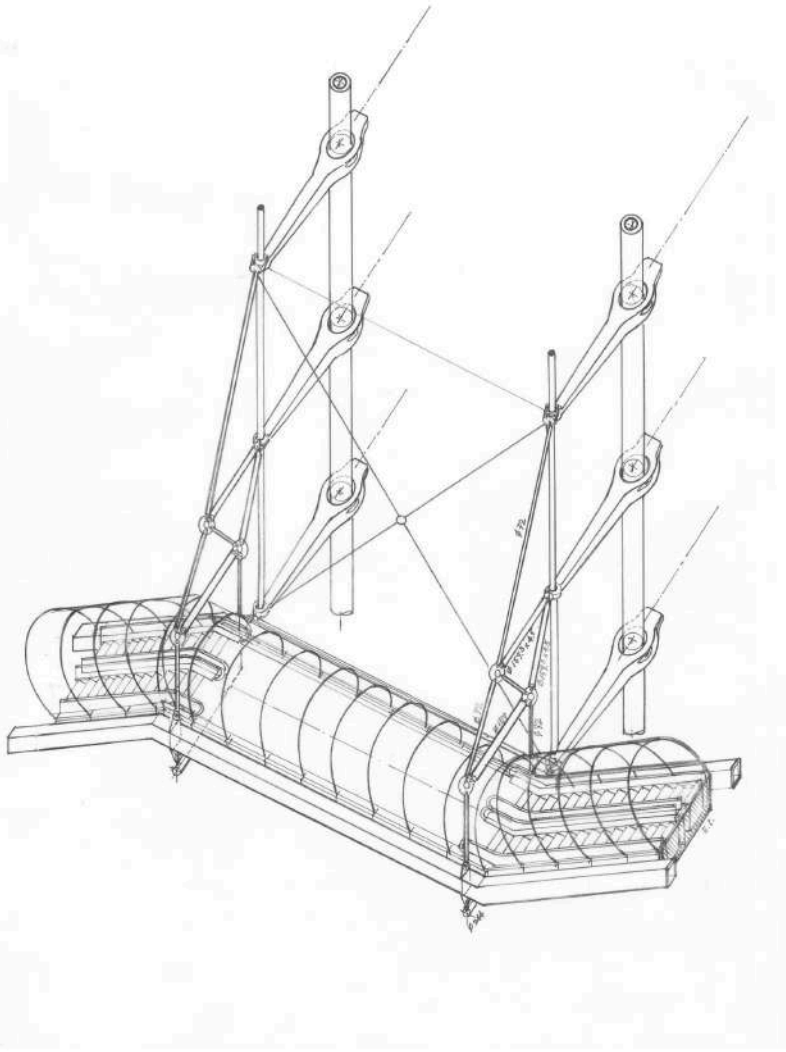

DETAIL DE L'AXE
JOINT TYPE C
COUPE A-A
DÉTAIL DES PIÈCES MOULÉES JOINT TYPE C
JOINT TYPE A
JOINT TYPE B
CENTRE BEAUBOURG
OVE ARUP & PARTNERS

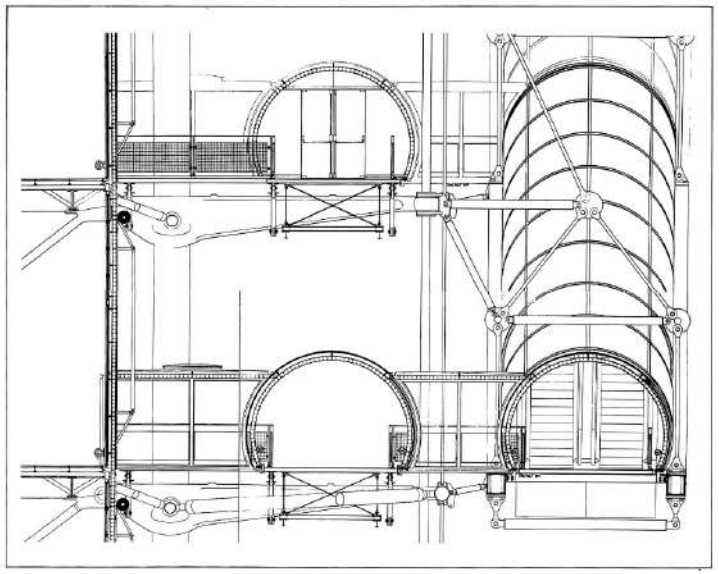

Probest.

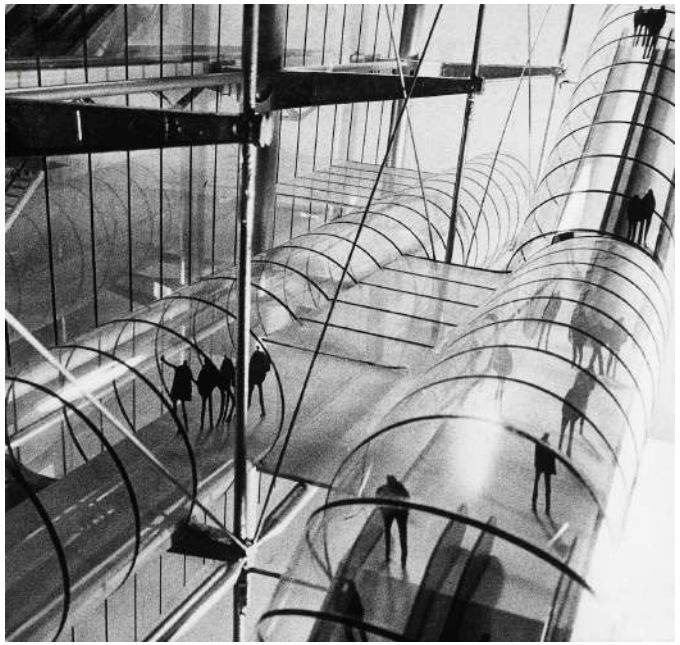


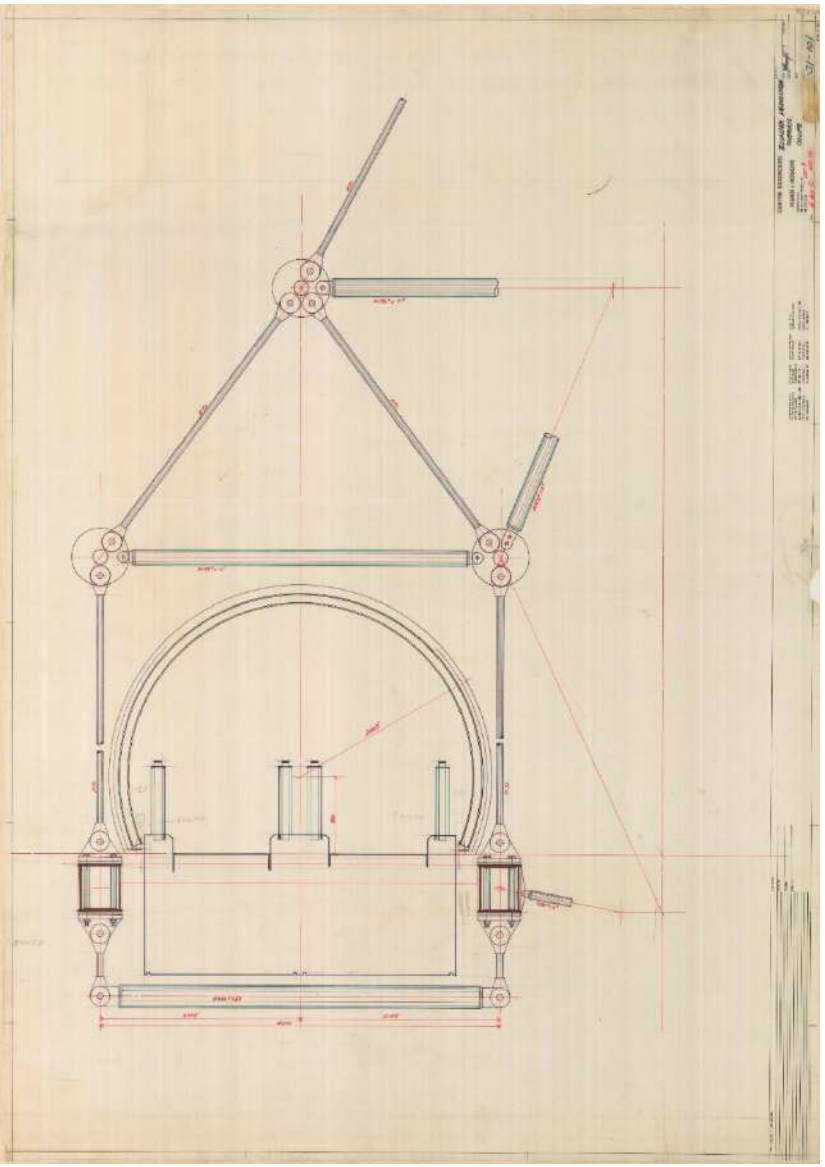


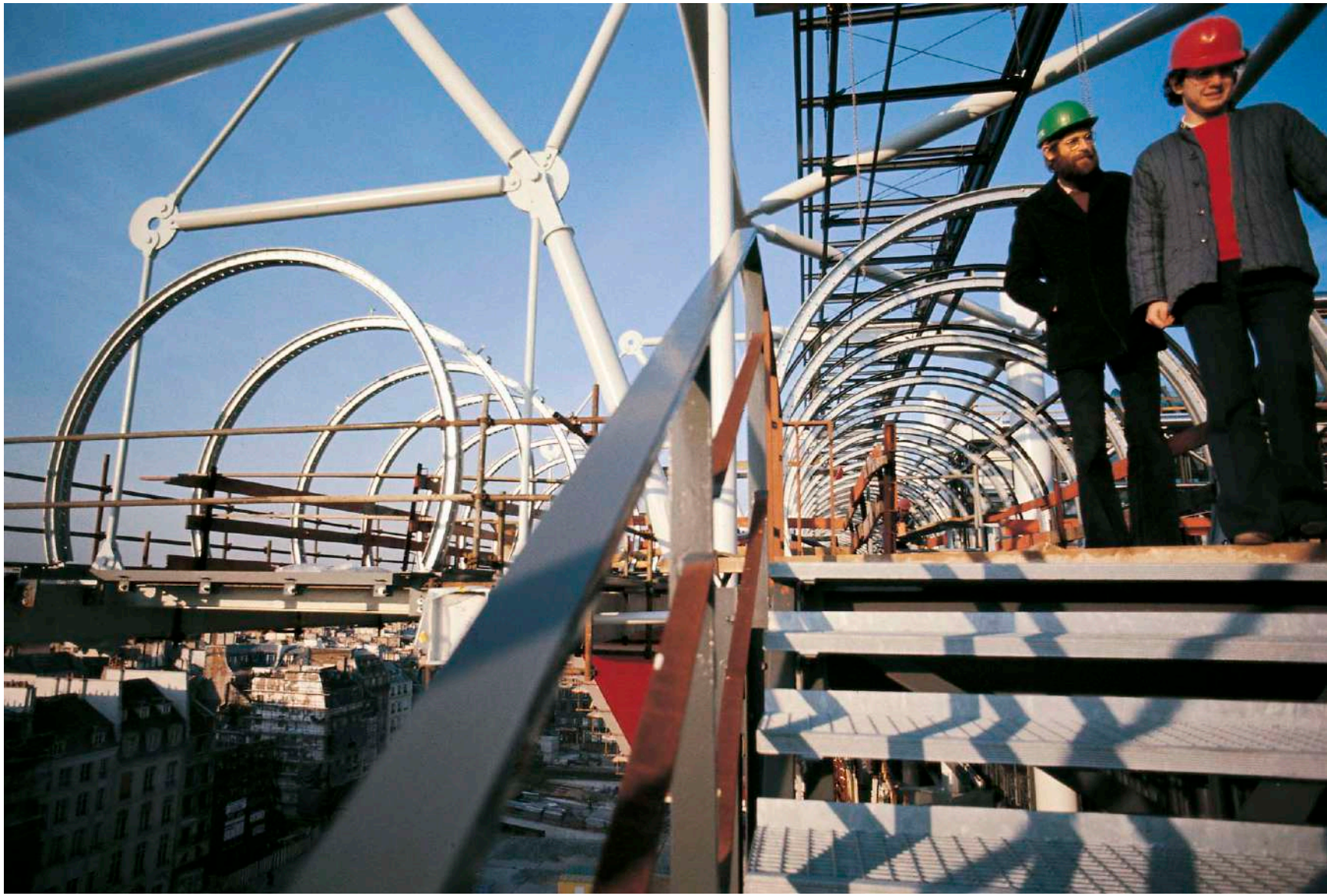


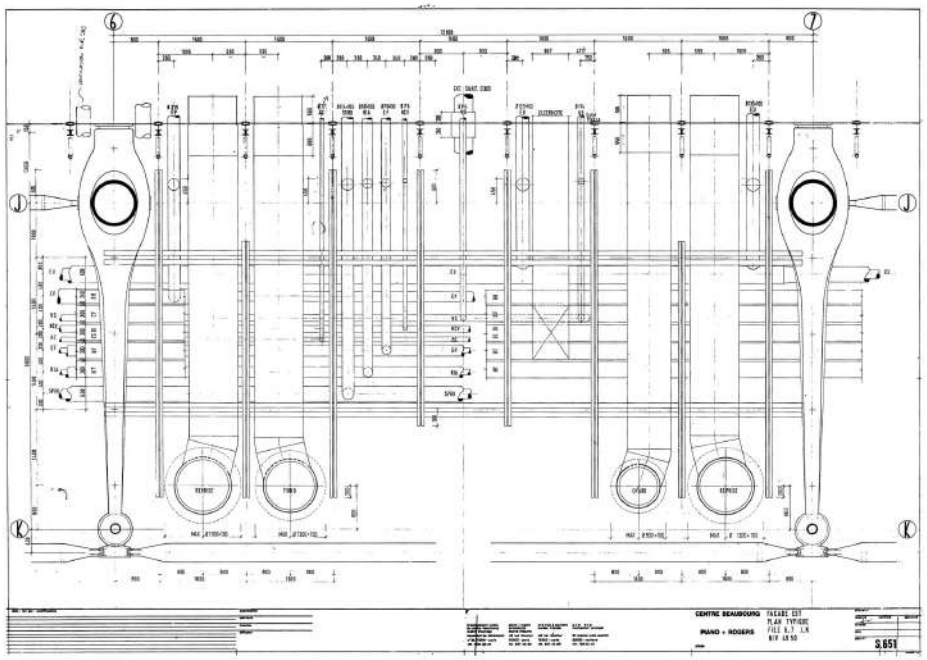


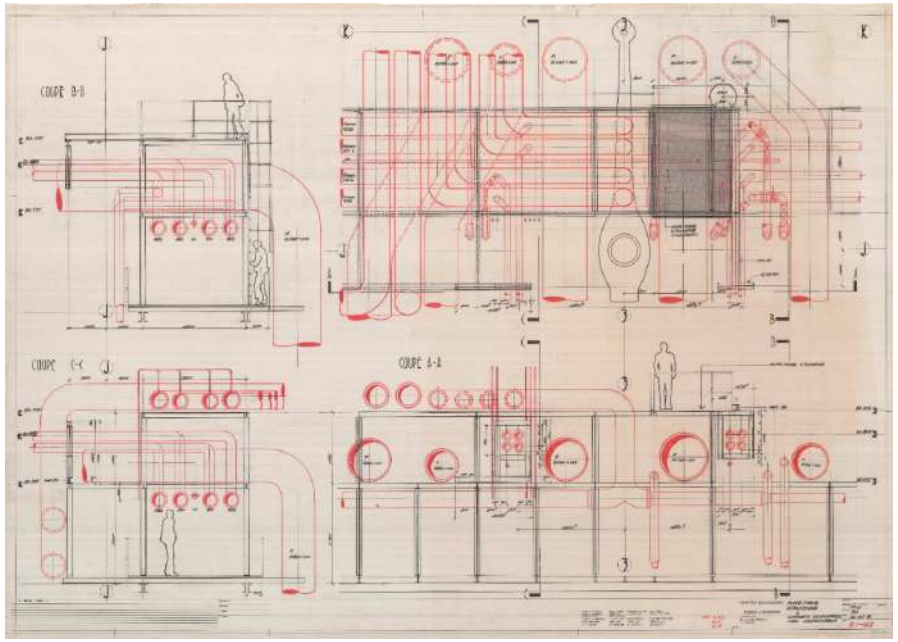


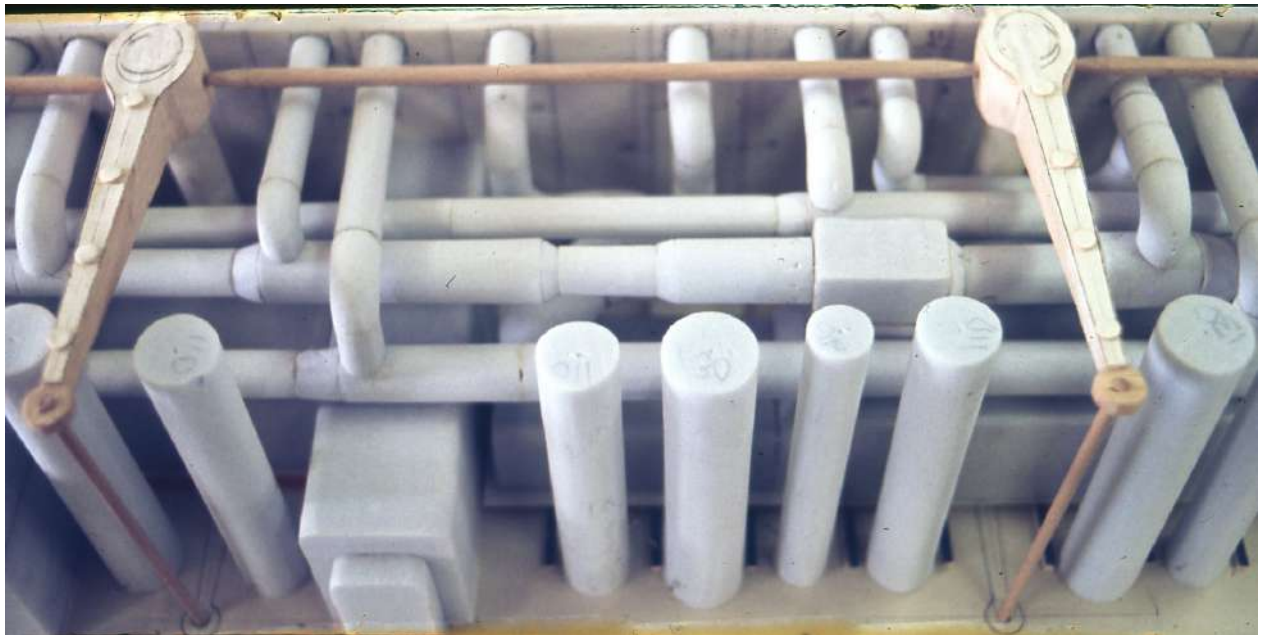


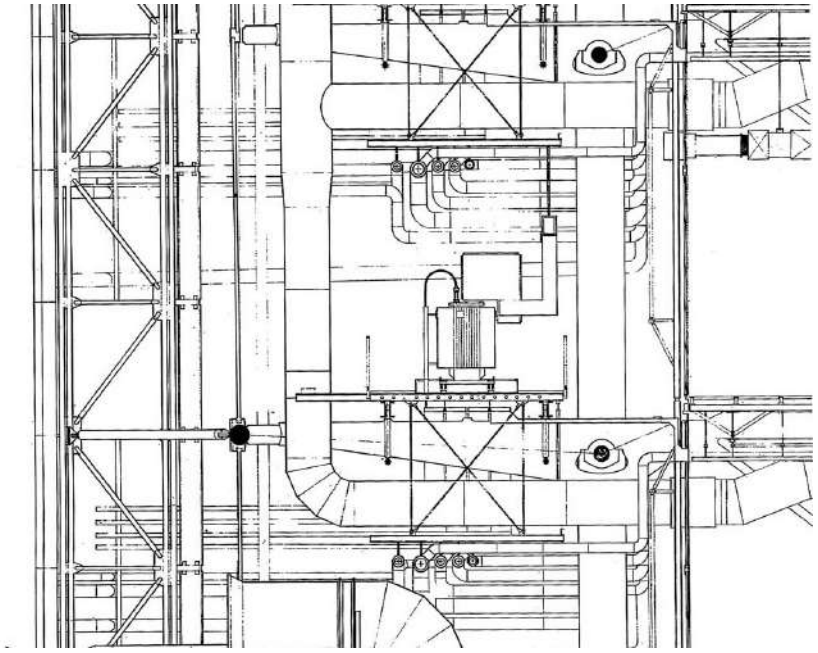


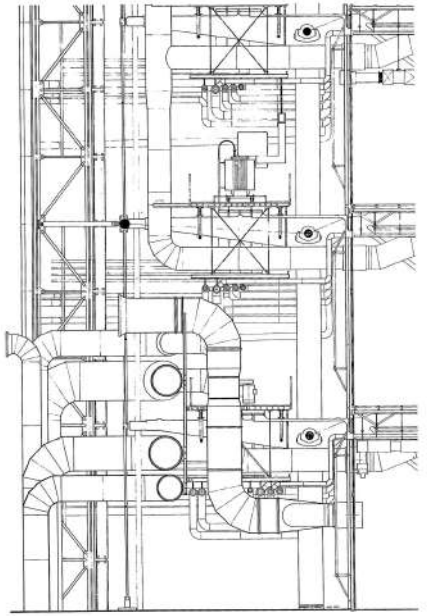


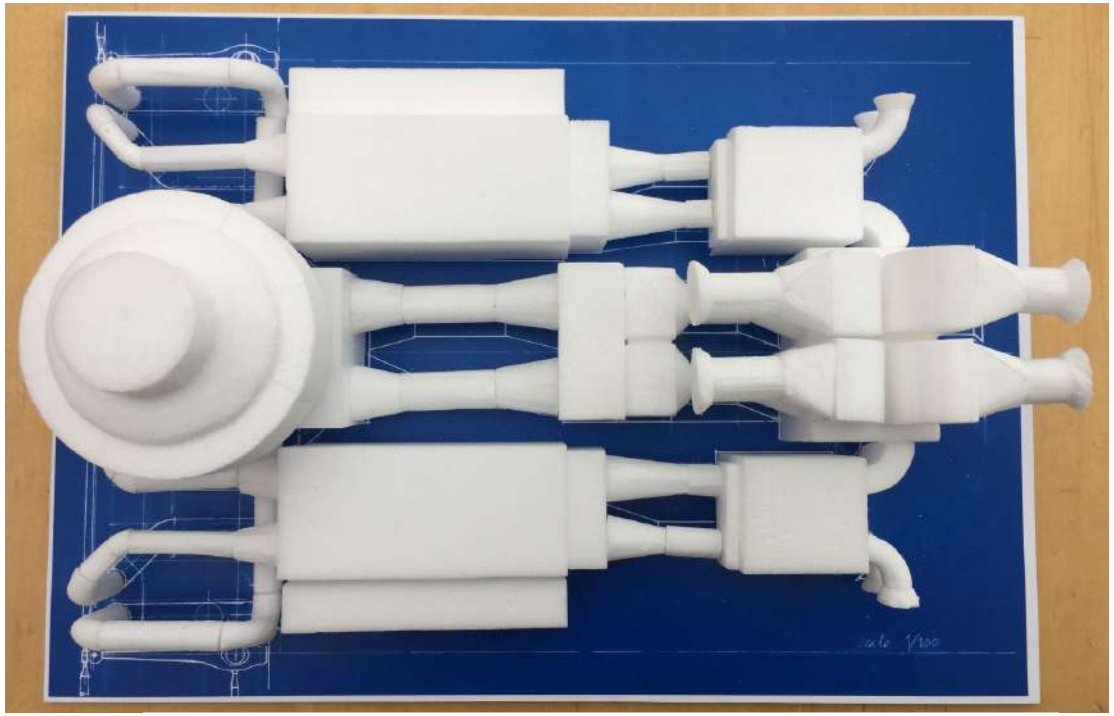

CENTRE BEAUBOURG
PIANO + ROGERS
S.651

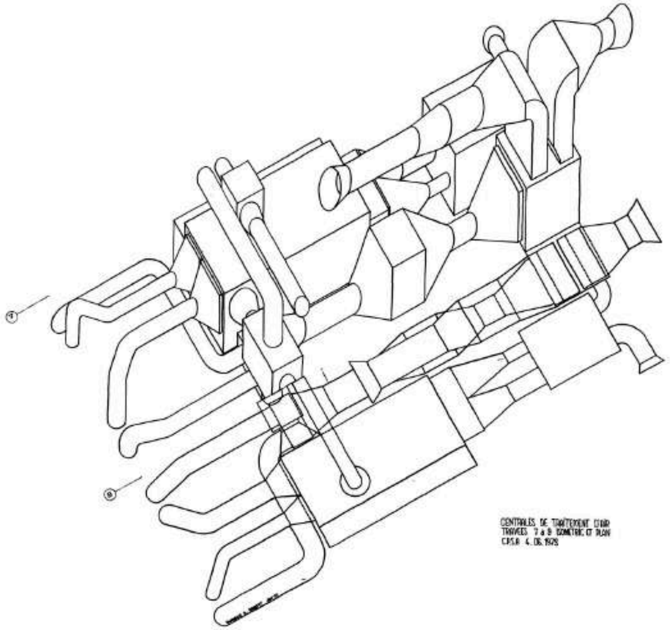

COUPE B-B
COUPE C-C
COUPE A-A

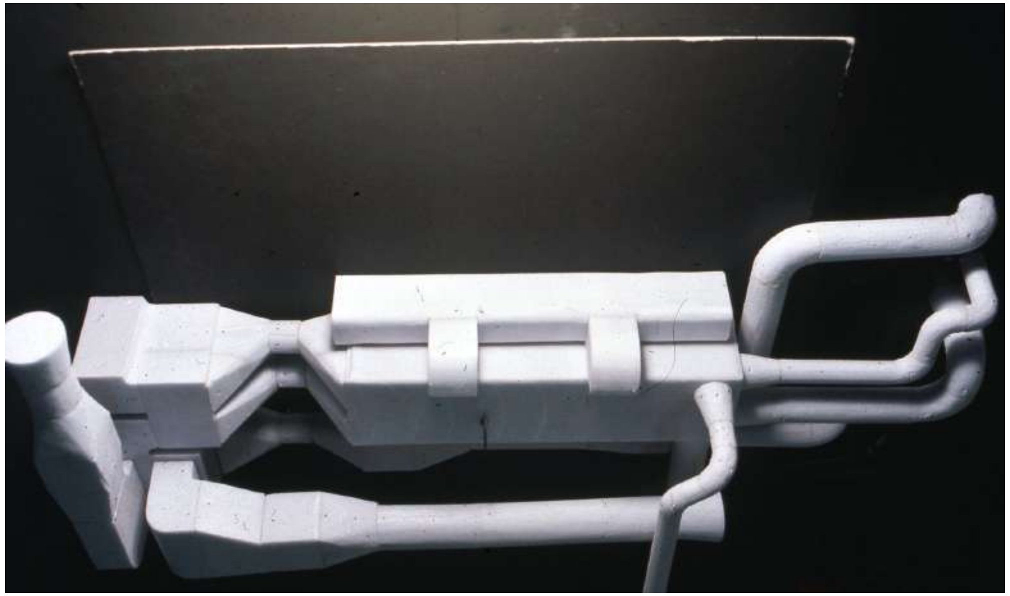




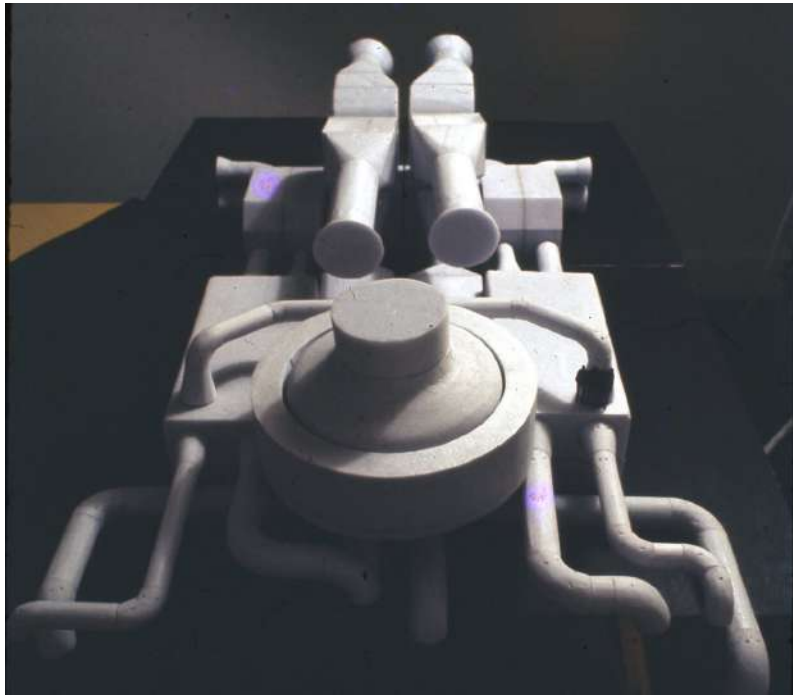


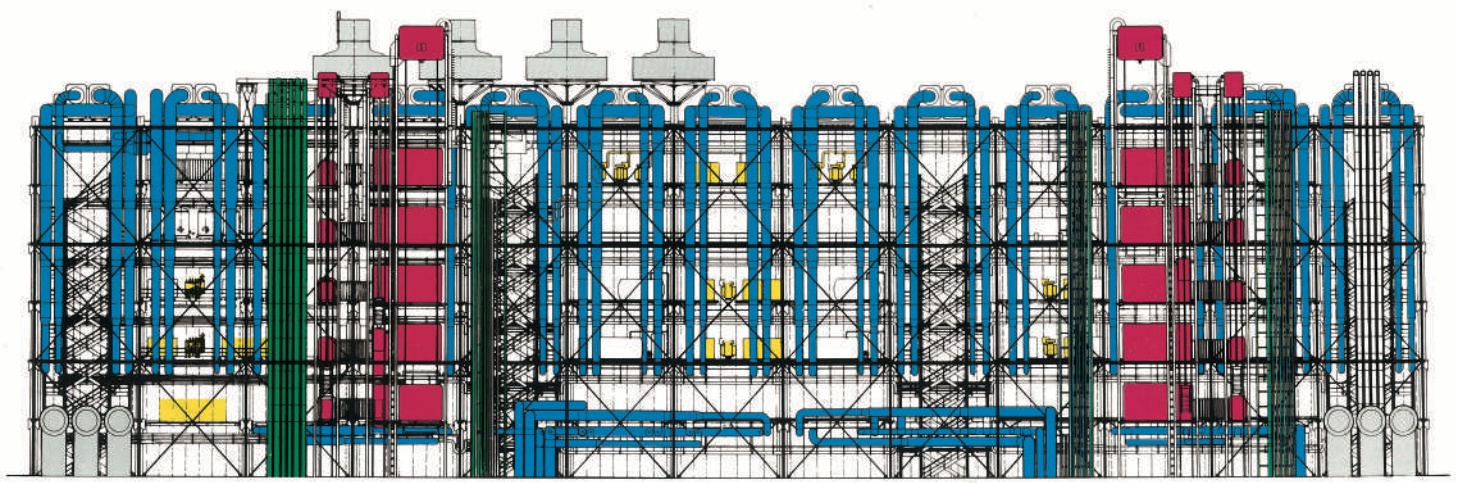


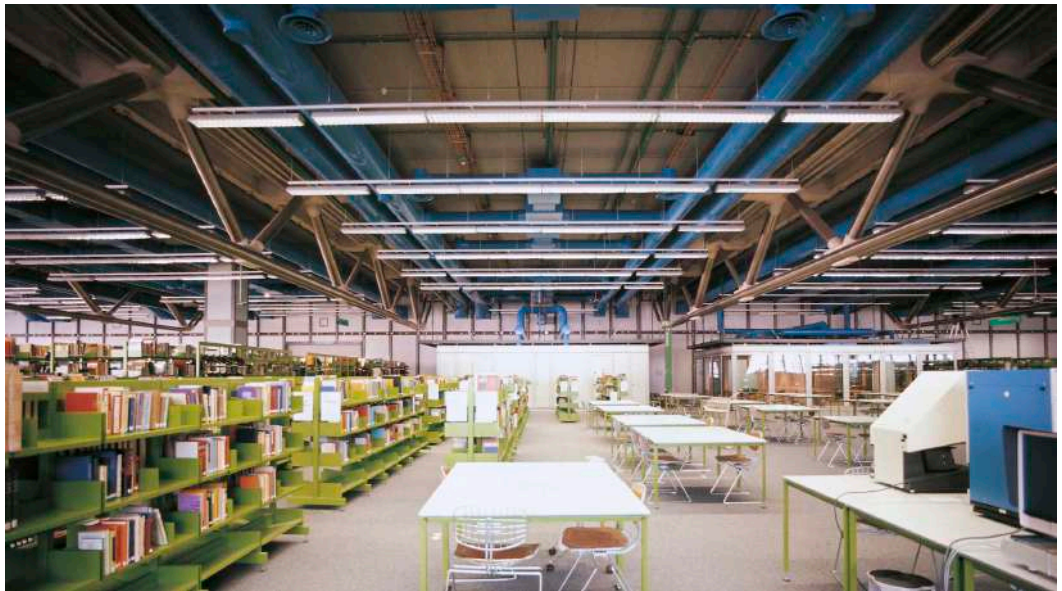

CENTRALES DE TRAITEMENT D'AIR
TRAVEES 7 à 9 ISOMETRIE ET PLAN
C.P.S.A 4.06.1979

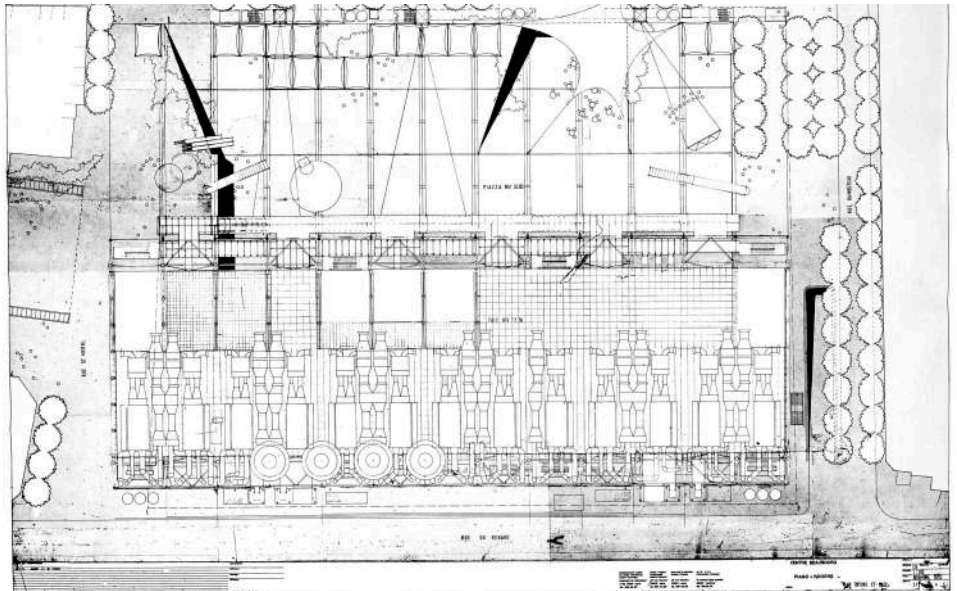



ENTREPOSE

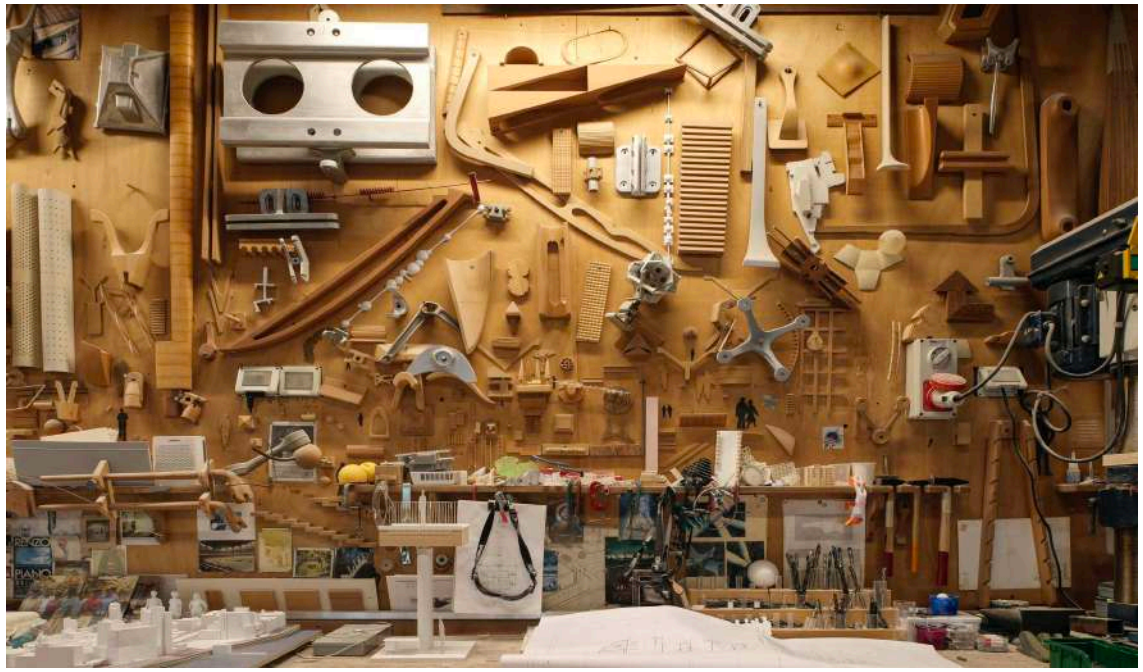


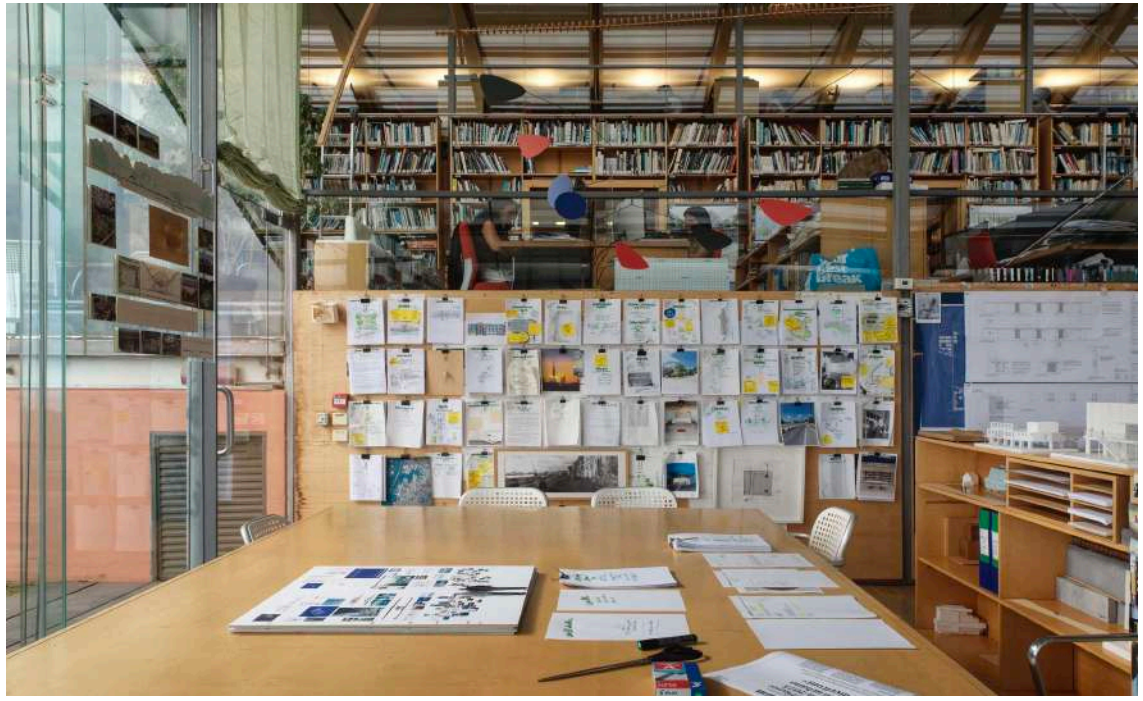


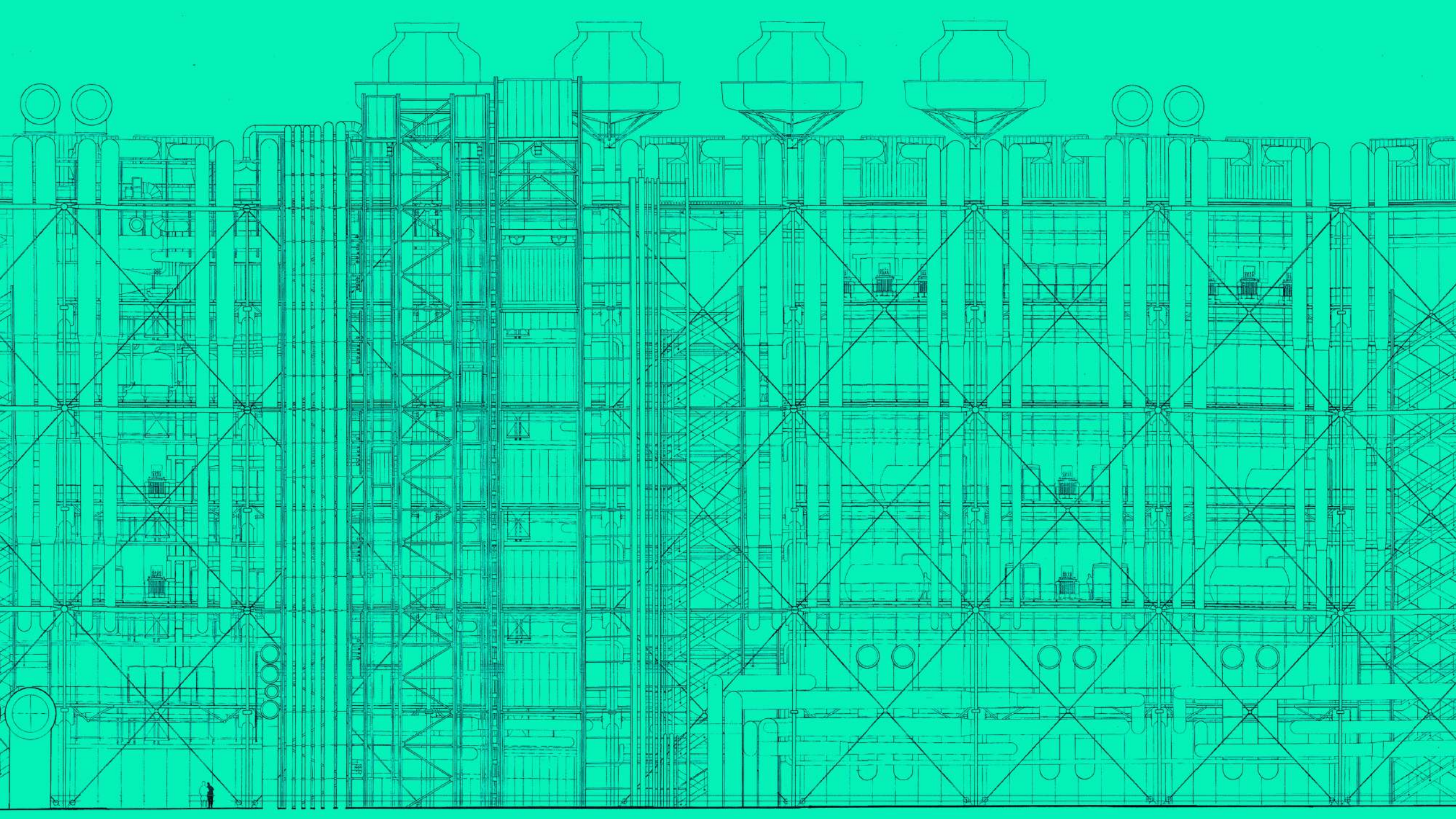





LA BATAILLE DU
CENTRE








GBR
ITA
GRC
HKG
TZA
URY
US-HI
USA
SGP
ACTAR
FROM POMPIDOU TO BEAUBOURG
THE LIVE CENTRE OF INFORMATION
1968
1971
DE POMPIDOU À BEAUBOURG