

New Designs for Preservation

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The government, in 1967 directed that the planning and design of the National Gallery should proceed. Following an architectural competition in 1968, my firm Edwards Madigan Torzillo & Briggs was selected to undertake the design of the project. Separately a client, the National Gallery Interim Council, was established.

It was not possible to proceed immediately with the design of the Gallery because of the then uncertainties associated with the siting of the permanent Parliament House. A decision of the government in 1969, that the new House should be sited on Camp Hill behind the present Parliament House, necessitated a review of the planning of the Central Area of Canberra, by the National Capital Development Commission.

As a result of this review, the Commission recommended to the government that the National Gallery be sited with the High Court in the north-eastern sector of the Parliamentary Triangle. This proposal was approved in April 1970. My firm subsequently won the High Court competition in 1973.

The National Gallery Interim Council, formed in July 1968, had the responsibilities for the planning and construction of the Gallery. A Joint Working Group was formed consisting of representatives from the Interim Council, the Prime Minister's Department, the National Capital Development Commission, and the Architect.

The Working Group's first task was the preparation of the brief for the building. Mr. James Johnson Sweeney of New York, an art critic and Gallery Director of world repute was engaged by the Commission as a special consultant, to assist in the preparation of the brief using his great experience as a Gallery Director.

A preliminary brief was subsequently prepared and examined by the Working Group. My overseas tour in late 1968, visiting some 50 museums, tested

this brief against gallery conditions and practice in other countries.

The final brief, incorporating the overseas experience, calling for the preparation of a design and cost estimate, was issued by the National Capital Development Commission after approval by the client – the National Gallery Interim Council. Since then, August 1970, the architect, in close consultation with the Joint Working Group and the Commission, developed the sketch design. Mr. Sweeney made five visits in all to Australia to review the development of the design work.

His input was constructive and substantial as was Mr. James Mollison's contribution, the Director of the Gallery. The Working Group Committee meetings were co-operative and focused attention on particular problems giving feedback to the design process and new direction to our thoughts. The sketch design was completed in February 1971 and approved by the government.

We are now building the Australian National Gallery – at the present date it is 10% complete. The building is programmed to open in 1981 – my involvement as architect commenced in 1968 – an intense commitment to the building is needed over a period of 13 to 14 years.

As I talk about the Gallery building, and its facilities for conservation, I want to relate obliquely, to the conservation of the "spirit of architecture", in this context of time with its economic and political vicissitudes which are capable of contradictory interpretation and ambiguity, and I also want to relate to the understanding of concepts which can pluralise and 'shift' and sometimes be endangered by misunderstandings in this considerably long period.

We were encouraged at being asked to participate in the competition. I believe encouragement to be an essential ingredient for the conservation of

our heritage — for the pursuance of ideas and the conservation of ideas when rationally resolved.

Architectural design is problem solving by methodology, using knowledge, ideas, intuition and perceptions; it is a process, rather than the pursuit of a product; an environmental approach to the architectural brief where the stated requirements must 'fit' appropriately into a natural position. This correct 'setting' for building elements makes the proper association for man and building, a symbiotic union — I believe an art museum's contribution to the community it serves is its educational potential — whether this potential be active or passive, it unquestionably comes alive through the educational activity and whilst it is prominent for its collection, it must also serve as an active cultural centre, presenting a vital and everchanging schedule of exhibitions directed towards man's instruction in the arts, again contributing to the associative understanding of the man-object relationship.

As well as conserving the National Collections, it is important to preserve the freedom to innovate, to preserve ideas, quality, good taste and encourage the pursuit of order and beauty, to enhance this union between object and man.

The Australian National Gallery is to collect, exhibit, conserve and teach; it is a National building of substance. I believe architect's drawings and models can abstract the essence of ideas and in their own right they are not tied to any particular tongue.

The four-level Gallery is located on a site of 2 hectares, set 140 metres back from the lakeshore

in the north-eastern sector of the Parliamentary Triangle, towards Kings Avenue Bridge. Pedestrian footpaths extending from the Gallery to the Lake ferry, National Place, and towards the Administration Building, collect visitors and direct them to the main entrance of the museum.

A view from the opposite shore of the lake shows the Gallery and High Court juxtaposed with the Parliament House on the right. People arriving by car first view the Gallery from the southern approach road off King Edward Terrace. The visitor arrives at the Pedestrian Concourse, or continues on to park underground in front of the Gallery building — spaces for 200 cars are available. A pedestrian overpass bridge above the approach road links the main entrance of the Gallery to National Place and the forecourt plaza of the adjacent High Court building. The Gallery building stands 23 metres high above the Concourse level. Steps, escalators and ramps take the visitor to the main entrance doors at the overpass bridge level.

The Gallery has a floor area of 20,573 sq. metres of which 7,000 sq. metres will be devoted to exhibition space. The galleries are arranged on three levels. On the main or first floor are the large, high-ceilinged galleries; on the floor above, a series of more intimate galleries flow one into another. On the ground floor is the great Sculpture Gallery with a smaller gallery, Gallery 10, located so that it can be used for changing exhibitions with Gallery 11, which is off the northern end of the foyer. Careful placement of ramps and lifts ensures that disabled

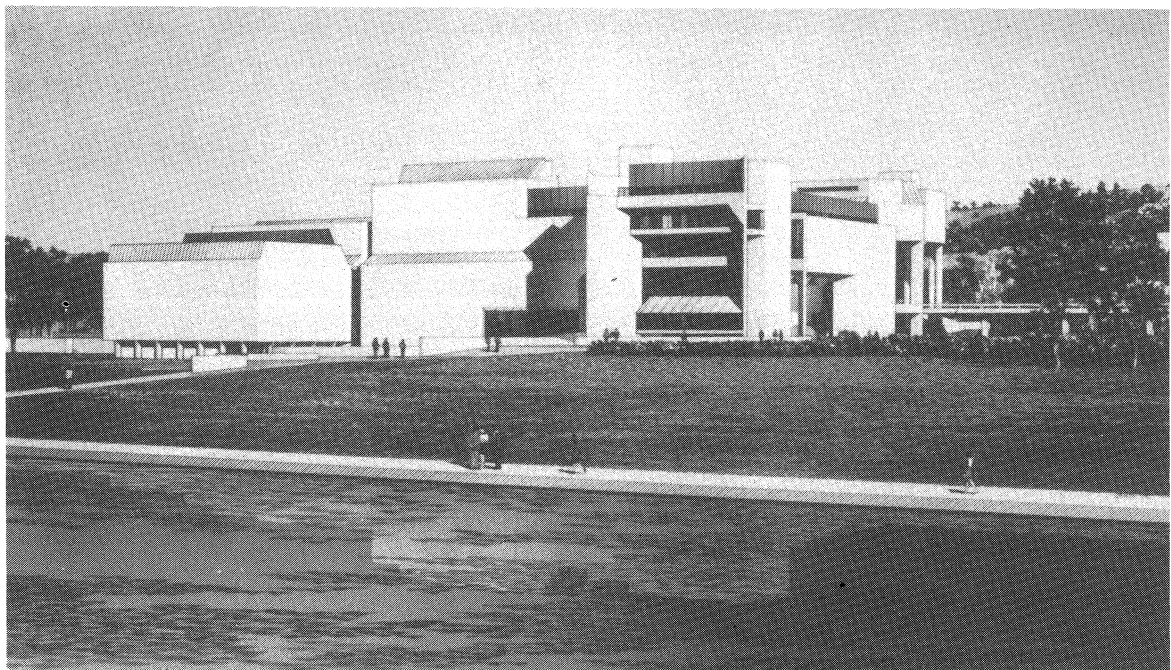


Figure 1. The Gallery building seen from Lake Burley Griffin

people can encompass the whole gallery without physical fatigue or discomfort.

The Gallery Foyer acts as a primary selector for all activities and provides access to all areas. The visitor can first address enquiries and be directed to visiting exhibitions, the Bookshop, cloaks, public toilets and the theatres. Stairs and lifts take visitors to the Education Department, Library, Study/Storage, Photographic Department, Workshops, Conservation Department, Restaurant and Lounges, Members' Rooms and the Gallery Administration where the Director and his staff are located.

Display rooms are arranged to allow the visitor to encompass the whole Gallery in sequence. The selective viewer can easily find the gallery of particular interest and study it in the general context of the whole display as well as its particular situation.

Progression is made through a series of galleries whose proportions and characters vary. The gallery spaces have an element of anticipation to entice the visitor and whet his curiosity about subsequent displays. There are mood changes, variations in design, lighting, and scale, and a general feeling of anticipation combines to provide a Gallery which will have a stimulating effect on the visitor and obviate the possibility of museum fatigue. The free plan form is disciplined by a geometry giving it law and order.

In my profession, there is a reference to the architecture of our time as being either "inclusive" or "exclusive". I tend to think of our architecture as being "inclusive" because it reveals its function and purpose readily allowing each observer to participate in its workings. The design process is from the inside out to achieve this proper 'fit' and the physical expression reveals this desired intention.

"Exclusive" architecture, so called, can be the opposite to this. In some instances, it develops from a preconceived idea unrelated to the free expression of the function, where the preconception dominates the form and the programmed requirements are forced into it. The necessary evolution, which at times demands additions or variations to this type of architecture, is difficult to formulate.

Participating architecture makes space its best asset and gives priority to this event over and above what may be considered the conservative luxury of "fine" finishes. Staff and visitors to the building will sense a "luxury of space", and a release from the conservative containment of the box. The nobility of primary materials, such as reinforced concrete, which makes the architecture, must be judged in relation to the spatial forms that it produces.

One will enter the building and see its structure, services and functions exposed. It immediately "includes" the visitor in the way it works.

The whole building is cast in concrete like a shell – the structural calculations are those of cantilever and continuity to achieve the plastic flow of the design intentions. The concrete will be bush-hammered, giving the concrete forms a soft off-white finish. There is no inside independent of the outside, as one flows with and is of the other. Large galleries and public spaces of the interior will have this same bush-hammered finish. In the more intimate galleries, where art is to be hung, the walls will be painted plaster, giving the Director options for pertinent background colours. Floor finishes will vary, from quarry-split slate in the Sculpture Gallery, large brick tiles in the galleries on the main floor, and wood (Tulip Oak) in the upper galleries, to carpet in the rest lounges.

To conserve the National Collection, the building will be air-conditioned 24 hours per day. The air-conditioning has been integrally developed with the architecture on the principles that:

1. The well being of all art objects is paramount. Spaces for art will be conditioned to close limits. These stable conditions will be maintained throughout the year. Stability is peculiar to conservation hence the paradox between innovation and conservatism.
2. At certain times, up to 5,000 people may be in the building, requiring large volumes of fresh air to maintain air contamination at a low level.
3. Canberra is subject to large daily temperature swings, which, with the possible big changes in numbers of people, will require special attention to air capacity, adapting through heating and cooling cycles in order to maintain stability in the spaces.
4. The Galleries will have a flexible lighting system with a potentially high heat load. In addition, special provisions have been made for daylight admission, presenting a further varying heat load.
5. In each of the other Departments of the building (for the display galleries account for only one-third of the space), the conditioning has been designed specifically for the purpose of those spaces. This has been achieved by special conditioners, exhaust systems where contaminants occur, including smoking, cooking and chemicals of various types, planning has carefully segregated the air distribution in what could be considered an open planned building.
6. The building encloses 3.5 million cubic feet of space. The climate process is to filter – wash – cool and dehumidify or filter – wash – heat and humidify the spaces and control to close limits stabilising temperature and humidity.

The stable inside design conditions will be:
Galleries and storage 72°F ± 1°F D.B. and 55% ± 3% R.H.

Other areas 72°F ± 20°F D.B. and 55% ± 5% R.H.

In comparison, outside conditions are:

Summer maximum 95°F D.B. 68°F WB

Winter normal minimum 30°F D.B.

Short term minimum 20°F

In winter when the outside air is at a low saturation level and heating is applied to maintain conditions, water is added for humidification at the rate of 2,000 lbs per hour or 200 gallons per hour, enough for the daily needs of 10 people.

Air filters installed are of a high efficiency, capable of removing dust particles of 1 micron or less (cigarette smoke is 3-5 microns). Removal is at the rate of 30 lbs per hour or 120 tons per year under normal conditions.

To control the climate within the Gallery:

1. The refrigeration needed is 750 tons, or a capability of producing 750 tons of ice per day.

2. The heating capacity needed is 12,500,000 BTU/hr, or 3,700 – 1KW domestic electric radiators.

3. The supply air is 450,000 cfm, equivalent to a circulation rate of 15 tons of air/min.

4. The exhaust and relief air needed is 140,000 cfm, or 4.5 tons of air/min. being replaced by outside air.

In display galleries, air is supplied at ceiling level, and is directed downward to have a terminal velocity about 10 feet above the floor. Return air from the galleries is extracted at skirting level to the main return air tunnels.

Lighting in all galleries will be equipped with luminaires fitted with quartz-halogen lamps of various sizes. A distribution system will be provided to allow light sources to be placed in the best location

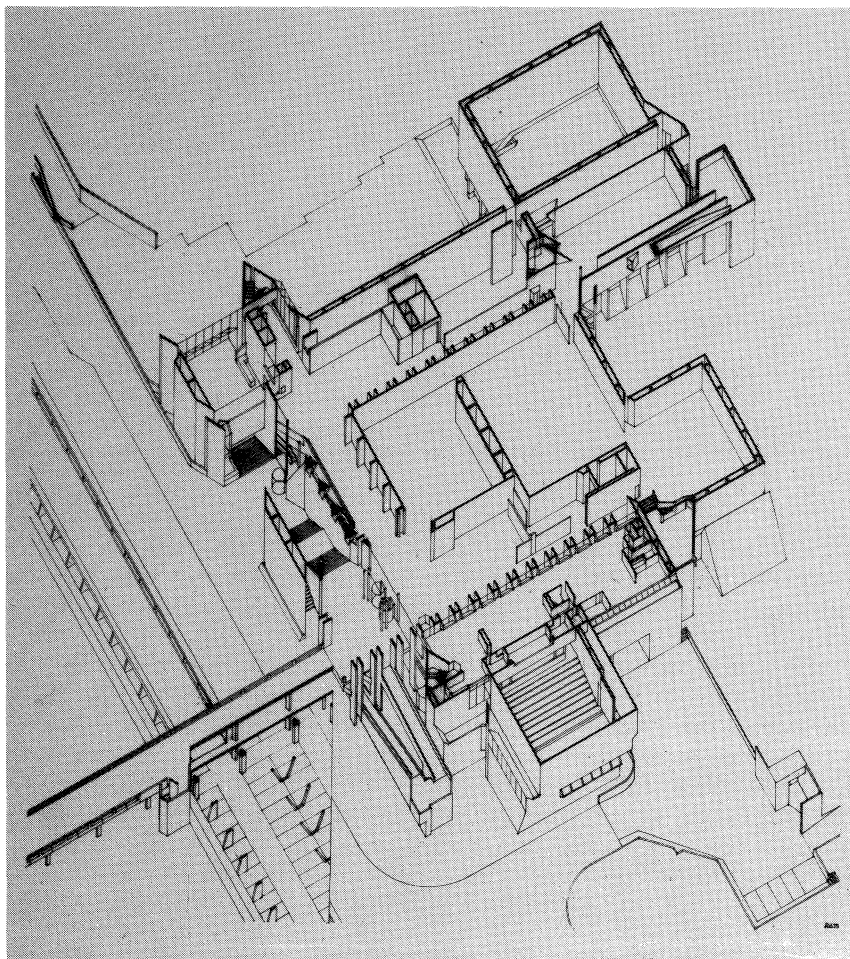


Figure 2. Axonometric view showing Gallery circuit at main entrance level.

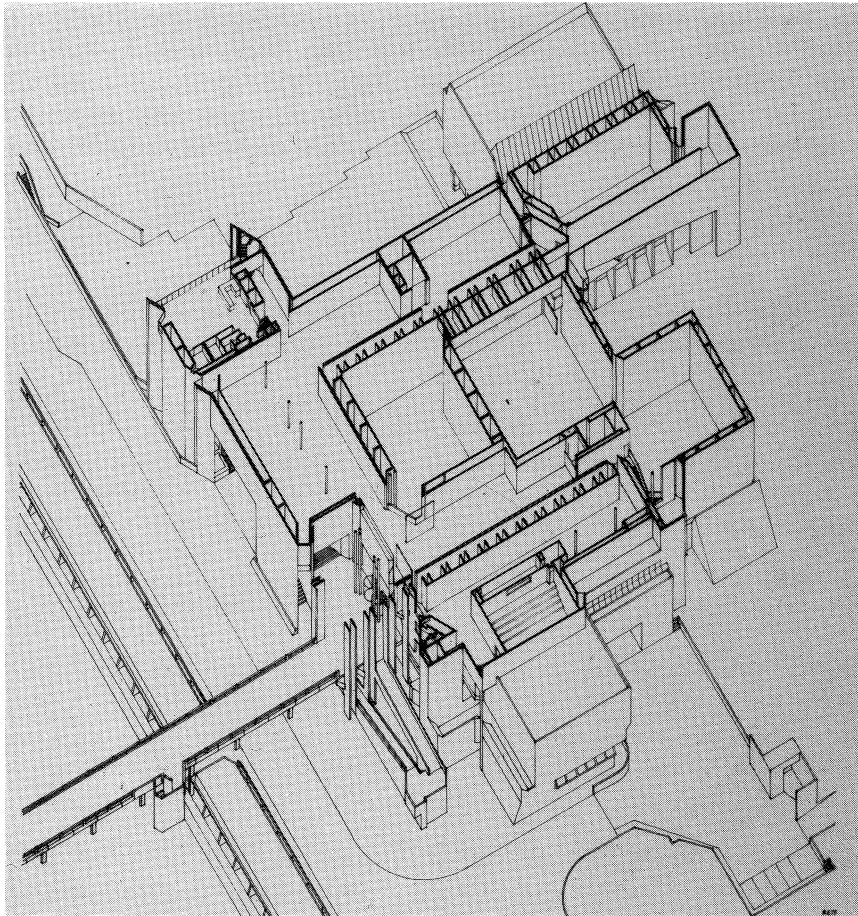


Figure 3. Axonometric view showing Gallery circuit at top level.

on a full grid basis. Use is being made of the structural system to provide maximum concealment, avoiding distraction to gallery visitors. Attention will be required to maintain operating voltage, to achieve proper colour rendition.

The power supply to the building will be from its own sub-station, with a capacity of 3,000 KVA.

Of further interest, to move the objects, (as well as three passenger lifts), the two service lifts are heavy-duty units, having platforms designed for fork-truck loading. Doorways at all levels are 13 feet clear height, for handling large art works. A special picture hoist traverses all levels from storage through all exhibition floors to the conservation department. This will move a painting 11' x 32' x 10" through the building.

Technical Services for Conservation

In the conservation and the photographic departments, special acid drainage is required. For good natural light, the conservation department is on the

top floor. The department has demineralised/ filtered and softened water supplied by an automatic processing plant giving practically distilled water. It will have a clean, dry, dust-free compressed air system. Special gases will be provided in a pipe gas system. Also provided will be a compressed air vacuum system with a capacity pulling 16" Mercury vacuum, a suction pressure of 7 p.s.i.

All services are mounted on panels providing a multiple plug in system, which may be extended by the radius of the hose in use. In the studio, these same services have ceiling outlets as well as the normal exhaust facilities which are provided in the form of exhaust hoods and fume cupboards. The total air supply to the conservation area never returns to the A/C system, but is exhausted or relieved to atmosphere carrying with it all contaminants detrimental to art works.

I believe that, with the proper attention (attention being the first process of thought), that architecture, with a good client, can resolve the ques-

tions that at times appear impossible. But let me return to my general proposition that if there is an evolving understanding between man and object, what should the intentionality of the design process express?

The building is then a flexible container, for the display of the Nation's art collection — like a theatre. Good presentation of art does not depend on light levels alone, but on the total environment, the comfort of the viewer, how he is received, welcomed and guided through the spaces, the impact of created form in light, aesthetics being integral rather than intellectual, colour and texture interacting, a sense of quality and not quantity; all necessary to sustain the interest of the viewer to the object for total communication — what I have called an evolving symbiotic relationship.

The National Gallery will continually teach to achieve this association through its preserved objects and its extension services; its study collection, library, lecture rooms, theatres; conducted tours and sales. It will have facilities to attract the highest numbers of people, from scholars to children and sustain their interest, and hopefully, transport them to other dimensions, for considerable periods of time.

The depth and intensity of the role a museum plays, is related to quality. Museums in their own right have developed in comparatively recent historic times, and this development, if studied, shows a graphic picture of the upgrading of the institution's social importance.

The totality of the experience which can and should be provided by an art gallery has already existed and been necessary. For many centuries, however, art was traditionally displayed in cathedrals and palaces to enhance their presence, but with an essentially complementary status.

During the last three centuries, there has been an increasing divorce of art and architecture, leading to the establishment of art galleries in their own right. These were initially classical monuments to their benefactors, but with the development of more diffuse forms of art, the style of gallery design moved towards a negative form of building, which assumed a kind of competition between art and the environment. Art stood alone. In such galleries, the continuous uncontrolled striving for transparency of space made aesthetic comprehension difficult.

More recently, with the concentration of population in predominantly urban environments, and the diffusion of cultural appreciation through expanded educational opportunity, the role of the gallery building itself has been reassessed. The building in its own right now needs to make a positive contribution to the appreciation of the art form and recap-

ture the total experience provided formerly by the palace and cathedral.

The museum must exhibit its collection with vital comment and here I mean the total scope of presentation including the architecture. It must "shoot the works" as Buckminster Fuller would say and attempt to raise the standard of taste, judgement and understanding in all areas between objects and man and primarily between men. Museum architecture must set good standards for 20th century aesthetics and it must demonstrate with integrity, the oneness of contemporary art and architecture. The Building and its contents must interact at the highest level, paintings and sculptures relating to the contemporary environment to acknowledge that culture must not be compromised.

Mainstream architecture is a social art and science, a response mechanism, by way of shelter, to the contemporary social issues. These political and economic issues are complex in form — quite capable of misinterpretation, and they influence design as you can imagine. Museum architecture must recognise the wants of programme, cost, structure, mechanical equipment and purposeful expression which are today complex and contradictory in ways previously unimaginable. By embracing contradiction and complexity, sound development between the parts follows, resulting in vitality as well as validity. The design can be disciplined by geometric law and order, making a unity between the parts to realise the Building.

My propositions in this paper are concerned with the expression of architecture, so let me summarise this way.

Design, then, has a responsibility to communicate values, helping towards an understanding of history and of man himself. Architecture is a welding of imagination and common sense, opening up new possibilities for the informed client who appreciates and desires the innovation if it answers his question, and as such, architecture runs into conflict with established codes, established values, specialists, commercial interest, authority and those people with an undue reverence for the letter rather than the spirit of the law.

Architecture should make it easier to conceive the infinite variety of specific instances which lie unrealised by man in the heart of nature.

With this commitment, there is an interface between reality and idealism; between tradition and innovation, and to be pragmatic, in architecture, there is a necessity to mix reality and the ideal to a critical edge of acceptance. This struggle between innovation and tradition has been with us throughout recorded history, development relying heavily on the power of man to change his state. Reality, as we perceive it, sometimes is intolerable without an

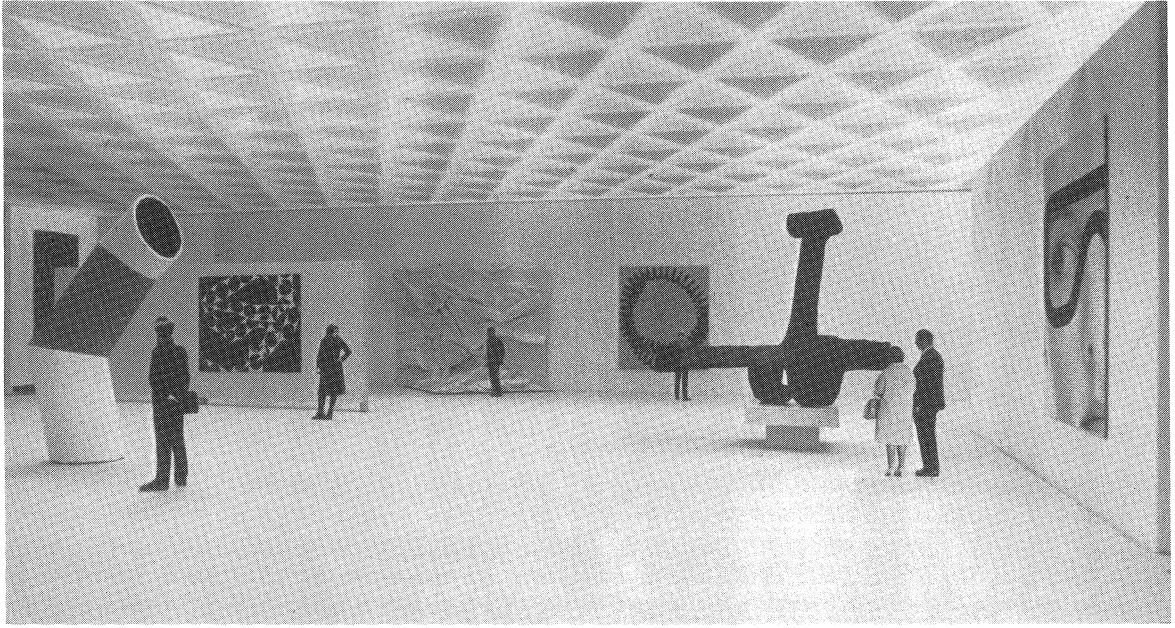


Figure 4. The exhibition gallery – 11.

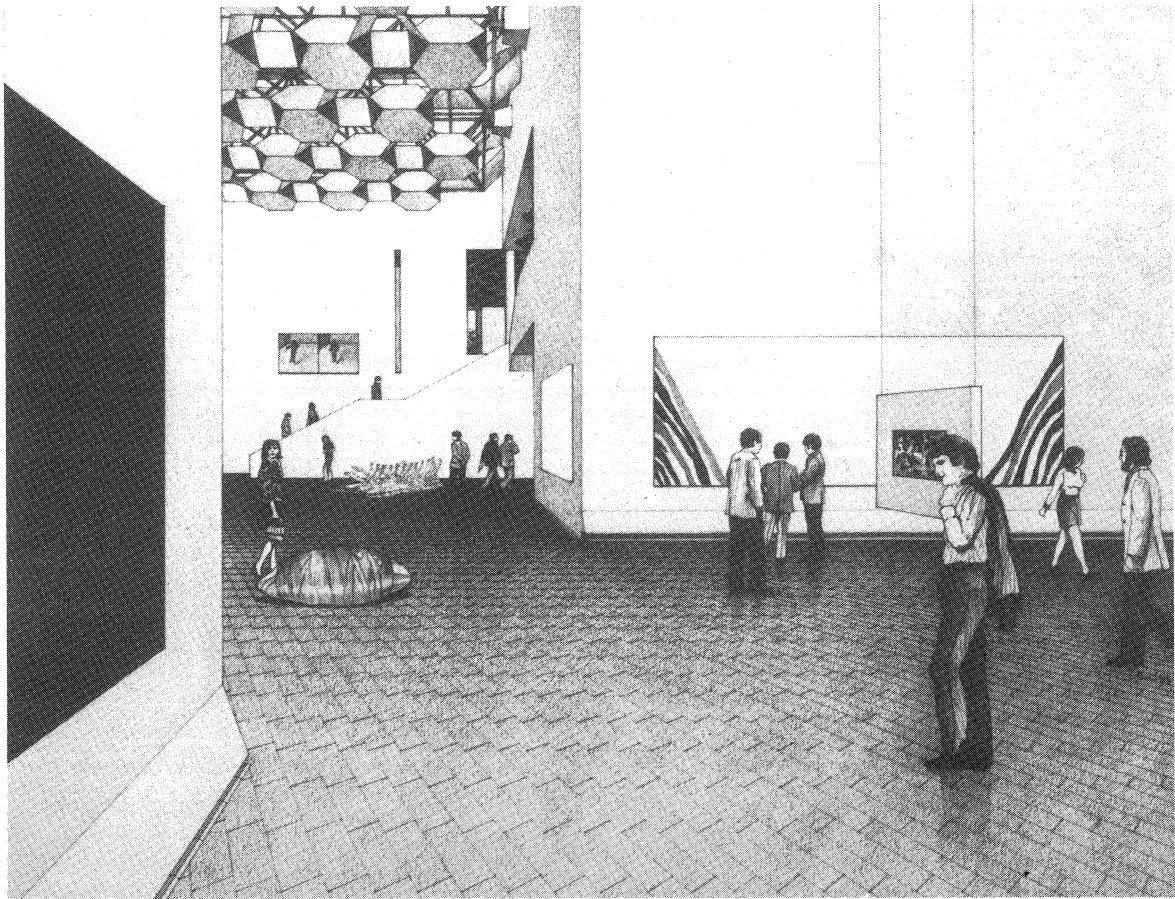


Figure 5. Perspective view of gallery 2 and 3 with stair to visitors lounge and gallery 4.

alternative. There must always be a faith in the evolution of an ultimate and indestructible freedom. A design then can embrace complexity. It can express purpose and it can express freedom, the art of architecture can rescue us from our self-chosen triviality to which we are so prone. The science of architecture can rationalise and conserve its purpose in universal terms, despite a resistance by the forces of instinctive conservatism, privilege and dogmatic authority, recognising here the paradox between conservatism and conservation.

Henri Bergson (1859-1941), the predecessor of Bernard Shaw and Samuel Butler, (the exponents of the theory of creative evolution), described evolution as "the gradual insertion of more and more

freedom into matter" and he went on to say "in the amoeba you might say that impulse has manufactured a small leak through which free activity could be inserted into the world and the process of evolution has been the gradual enlargement of this leak. Evolution cannot proceed without the accumulation of knowledge into the reproductory process and new advances become possible."

I believe, in evolution's programme, there is a purposeful tendency to become more complex, more free and man is at his best when he has a strong sense of purpose, embracing more complexity. The statement by Bergson is indeed a concise description of a design process which I believe can be applied to a building, and it should be kept entire.