

01

INTRODUCTION



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Introduction

A building which grows from a proposed artistic epicentre of the University of Pretoria becomes a sanctuary for all those concerned with the disciplines of art and architecture. By occupying the vacant site at the historical southern entrance of the university, the proposed centre for visual arts becomes a vehicle which allows the main campus to spill over its boundaries and fuse itself onto the existing separated South Campus.

It is the aim of this dissertation to explore the ability of spaces inside this building typology to assist in inspiring and educating each of its occupants. The journey through the building becomes the narrator of spatial experiences whilst creating opportunities for artistic expression by providing facilities for the exhibition of art. By inspiring young minds with a symphony of experiences these spaces create the foundation for developing great artists.



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Theoretical premise

Theories on the experience of space and how it has been present in architecture, ranging from ancient Greek civilisations to twenty first century architecture is investigated. The theories discuss the elements used to manipulate space and how these affect each of the human senses in order to create a sense of space.

By analyzing case studies, an understanding of the influence of spatial experience on learning activities is explored. These include social studies of proxemics and the effect of how different sensory stimuli affect the human condition.

Due to the nature of the site and building program, great emphasis is placed on circulation through the building as well as around it. One of the most important considerations during the design process was pedestrian routes intersecting at various points on the site. An in depth analysis of existing and proposed circulation on and around the site was done and this will be discussed in terms of the effect the proposed building will have on pedestrians on these routes.



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Real world problem statement

Spaces in which students are educated in the disciplines of art and architecture, are not conducive to their creative development. By making students aware of inspirational environments, educational spaces can help to establish a solid foundation for artistic growth.

Sub-problems: (research questions)

1. How does the designer create spaces which make the user aware and receptive to his/her surroundings in order to inspire him/her in an artistic manner?
2. What type of space encourages learning in the different disciplines of art and how do the spaces need to be configured to create a Utopian scenario.
3. What does the exhibition of art involve? Why do artists exhibit their work and in which manner does student exhibitions differ from corporate exhibitions?
4. Why and how do you create common ground where interaction between all parties concerned with art is encouraged?
5. In what manner should the building function be programmed in order to make it cater for educational as well as corporate exhibition purposes?
6. How does the designer ensure that a building can grow and evolve over time in order to stay contextually appropriate in future?



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Client

The client is the University of Pretoria and more specifically the Departments of Art and Architecture. The specific requirements of the client will be discussed in more detail in the sections concerning the building program.

Context of problem

The vacant site at the southern end of the pedestrian link "Tukkielaan" is surrounded by the buildings which house the Departments of Art and Architecture respectively. As shown in figure 1.01 it is proposed that an art precinct be established which will try to solve programmatic problems whilst creating an appropriate end to "Tukkielaan". The site offers many opportunities in terms of exposure of the affected departments due to high density traffic on Lynnwood Road at its southern end.

With the current programmatic limitations of the visual arts building it has become necessary to address these problems in order to create suitable spaces for current lacks in program of the above mentioned building.

Definition of terms

In this document, *Common ground* is the term used to describe a place of interest for all people concerned with the disciplines of art and architecture

Interactive teaching methods include promoting the interaction between students and staff as well as the interaction between students from different disciplines and students in different year groups to maximize their exposure to a broader spectrum of



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fig 1.01



work.

Abbreviations

UP is the abbreviation used for the University of Pretoria.
CSIR is the abbreviated term for the Council for Scientific and Industrial Research.
APS is the abbreviation used for the Artist Proof Studio program and studios which is explained in the chapter dealing with building typology.

Delimitations

This dissertation does not delve into the studies on personal space and how it varies in different cultures. It excludes aspects of personal space concerning comfortable or intrusive distances between people of different cultures and rather concentrate on the habitat a person needs in order to grow academically.
The parties involved with the financing of the new developments and how funds will be allocated to different aspects of the project will not be discussed in detail.

Assumptions

The first assumption is that people concerned with the arts are very responsive to their environment and use the sensory stimuli around them for inspiration in their work.
Another assumption is that appropriate learning spaces will encourage improved growth in an artist.



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BUILDING TYPOLOGY



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Introduction

Through an investigation of various types of precedent and the national buildings regulations, this chapter discusses the norms and regulations concerning centres for visual art. It also looks at the role these centres play at a South African university.

Each part of the building is analysed separately in order to get a better understanding of the specific requirements of the building program.

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The role of centres for visual art at South African universities

Through the study of art, students are encouraged to value and respond to their own perceptions, observations, emotions, and intuition. Arts Departments work to ensure that students not only build skills, but also become more comfortable and confident in expressing themselves in an artistic manner.

By improving skills in expressing their artistic talents, students discover a heightened sense of awareness by developing their sensory perception and the power of observation. This makes it critical that students be taught in an environment which will have a positive effect on their work. Through aesthetic education

students find new ways to perceive their world. By teaching aesthetic literacy, students' awareness of the world and their relationship to it are expanded thereby making them more susceptible to inspiring environments.

In addition to teaching full time students at the university, the Departments of Visual Art in South Africa also make a great contribution in educating people from underprivileged communities. The "Artist Proof Studio" program which was founded in 1991 is one such project. (Bebber, 2008:17)

Art exhibition areas and galleries

The inclusion of art exhibition areas call for very specific requirements in terms of lighting, ventilation and fire protection.

It is important that all artefacts be protected against direct sunlight, fire, theft, damp, aridity and dust. (Neufert, 1980:359) Appropriate wall and floor areas should be provided to accommodate painting, multi-media and sculpture exhibitions.

Lighting and solar control:

Exhibition areas in the proposed building are divided into two categories: areas where natural light is present at all times and areas where natural light can be excluded totally. Exhibition spaces situated on the proposed bridge have long east and west facing facades and the exclusion of natural light from these directions are important to protect artworks and give unvarying

light qualities throughout the day. A series of clerestory windows allow light to penetrate the spaces from the south.

The inclusion of artificial lighting and the option to exclude all natural light are important to accommodate exhibitions ranging from painting and sculpture to multimedia exhibitions. Various lighting arrangements will need to be addressed to make spaces multifunctional.

Art galleries are situated at the southern ends of the proposed building thus providing ample natural light without the risk of damage to light sensitive artworks. In some parts of the building (the bridge) this is not possible and special care has to be taken to shade artworks from harsh east and west sun.

Floor surfaces and ceilings:

For the exhibition of various types of artworks, floors need to be hard wearing and of a neutral colour palette. This allows for easy clean-



ing and provides a “blank canvas” which can accommodate any type of installation.

The use of castellated steel beams and lightweight floors and ceilings allow for the installation of lighting and services inside the floor and ceiling cavities.

Walls:

Walls should match floor colour and allow for the hanging of paintings and work from student exhibitions.

Exhibition and gallery spaces are left fairly unfurnished to accommodate a number of internal arrangements. These are made possible by the installation of display panels which are hung from support structures. This is especially useful in the bridge exhibition spaces since it needs to cater for a wider variety of installations.

Art Studios

Studio spaces should consist of large open space to accommodate a number of various furniture arrangements. This gives students the opportunity to organize spaces the way they prefer and provides each studio with a specific character. The sense of ownership created by the personalization of spaces will encourage students to use studios more regularly.

Lighting and solar control:

It is essential that studios have good natural light qualities. Between 25 and 30% window to floor area ratios (Neufert, 1980:137) should be allowed with light penetrating the space from the southern and eastern sides. Ancillary lighting should be provided by means of artificial lighting.

It is also essential that provision is made for solar control on all windows exposed to direct sunlight.

The installation of light shelves in studios makes it possible to provide a deep space with ample natural light penetrating at designated positions. In the proposed building these light shelves have the extra function of serving as seating on the vegetated roof of the studios.

Acoustics:

Although acoustic qualities are not an essential requirement, it is important that there is very little distraction by excess noise. If care is taken with acoustic qualities, the studio also lends itself to doubling as a classroom.

Wall, floor and surface finishes:

Finishes inside studios should be hard wearing to facilitate cleaning. Walls need to be able to facilitate the hanging of students’ work for inspection by studio masters.

Storage and restoration

Storage facilities are placed in close proximity to circulation routes. This provides visitors the opportunity to see artworks which are not on exhibition in the galleries. It also allows interaction between the students using the centre and professionals responsible for the restoration of artworks.

Lighting and solar control:

Natural light needs to be excluded as far as possible with only south light penetrating the storage spaces. Special care needs to be taken with the installation of artificial light sources. Only light fittings with diffusers specifically designed for art stores should be installed.

Walls and floors:

It is important to keep walls and floors dry and damp free at all times. Stored artworks should never be in direct contact with these surfaces and special storage racks should be





fig. 2.01_Laser restoration
(www.aestudios.com)



fig.2.03_Painting storage units
(www.samtamonicaart.com)



fig. 2.04_Artist stuio
(www.hangargalleries.com)



fig. 2.02_Rentable galleries
(www.hangargalleries.com)

installed to hang artworks. Steel tracks should be provided in the floor surface to allow larger works to be moved in and out of storage and restoration areas without damaging the artworks or floors.

Services:
Fire protection in storage and restoration areas need to be in accordance with the specific requirements which will be discussed in chapter 09. Temperature and humidity should be controlled at all times with the respective measurements between 20 - 23degrees Celsius and 47 - 53% humidity. (www.MidAmericaArtsAlliance.com)



fig. 2.05_Art storage units
(www.reservevault.com)

Office design

Lighting:

Controlled lighting will be provided by overhead luminaires. Due to the position of the offices in the proposed building; natural light will be able to penetrate the building from both the north and south sides. North light is shaded by overhangs and south light enters the spaces through the central atrium inside the building.

Ventilation:

Natural cross ventilation is possible in the offices and boardrooms since both the northern and southern sides open to the outside. Other services like electrical and electronic conduits will be installed inside floor and ceiling voids.

Interior design:

Offices will be designated to specific members of staff and the interior arrangements will be designed accordingly. Spaces for storage and filing of records will be provided with

a central electronic storage server room provided for the storage of all electronic data.

Restaurant design

The restaurant is designed to serve as a small eatery during every day operation. It will cater mostly for students and staff serving small meals with little preparation needed. The restaurant will however serve visitors to organised exhibitions and will have to be able to facilitate professional caterers.

Kitchen:

The kitchen provides facilities for preparing, cooking and serving food as well as washing and small temporary storage areas. Spaces for cooking and preparation of meals are combined and separated from the storage and washing areas.

The kitchen is served by a service elevator which is accessed from Lynnwood Road. This makes for easy delivery and refuse disposal. The kitchen is designed to have a floor area of more or less one third of the seating area in the restaurant.

Ventilation:

Because of the position of the restaurant it is possible to ventilate seating areas naturally. Although the kitchen can be ventilated naturally, mechanical ventilation will assist in the ventilation thereof.

Wall and floor surfaces:

All floor and wall surfaces to be easily maintained and washable to ensure a hygienic environment. Surfaces should be hard wearing to avoid abrasion due to high pedestrian traffic.

Courtyard design

Two courtyards are included in the proposed building. The first to serve as a spill out space for studios and workshops and the second to become an extension of the existing sculpture garden situated on the eastern side of the existing Department for Visual Arts.

Studio courtyard

This space is designed to facilitate interaction between students and will also be used to accommodate workshops with children from underprivileged communities.

Floor surfaces:

Surfaces covered in vegetation will be used in all areas except on designated circulation routes surrounding the central space. These help to promote student interaction.

Site furnishings:

Indigenous trees and benches is placed inside the courtyard. The trees serve as solar shading to the

northern side of studios and workshops as well as providing shading inside the proposed courtyard.

Access:

Vehicular access to the courtyard is possible from Lynnwood Road. This allows for the delivery of machinery and materials to workshops and studios.

Pedestrian access is only possible through the proposed building.

Drainage:

Stormwater drainage is linked with the existing drainage systems. Catch pits allow water to drain and flow through an underground piping system which link up with the existing municipal stormwater pipelines.

Sculpture courtyard

As an extension of the sculpture garden on the eastern side of the existing Visual Arts building, this courtyard starts to extend the space into the proposed building.



At ground level the courtyard serves as a space which facilitates most of the pedestrian movement while serving as a spill out space from the foyer and restaurant. The definition of space is not made at ground level but rather on first floor level. This gives the observer the opportunity to experience space 'underneath' a building.

It could be argued that this is not in essence a courtyard but rather a combination between a courtyard and an atrium since the space is neither inside nor truly outside the building.

Surface treatment:

Due to the high density of pedestrian traffic and the nature of the sculpture garden it is necessary to have an inviting yet hard wearing surface.

A combination of grass and concrete

blocks are used to get the desired effect.

Drainage:

Stormwater drainage is achieved by draining water into stormwater channels. These are connected to stormwater storage tanks and the overflow from these run inside a central stormwater channel underneath the building. It then links up with municipal stormwater connections.

Lecture theatres and classrooms

Lecture theatres and classrooms designed for the proposed building are designed without special multimedia rooms. Due to the relatively small size of auditoriums in the proposed building, all multimedia controls are provided inside the lecture podium in the front auditoriums.

Wall, floor and ceiling surfaces:

A combination of absorption and reflection surfaces are installed in order to give the required acoustic qualities. This will be discussed in more detail in chapter 09.

Seating:

Classrooms are equipped with loose standing chairs and writing surfaces while lecture theatres have fixed seats and surfaces.

Storage spaces for chairs and tables are provided for classrooms and lecture theatres.

Multimedia rooms

Multimedia rooms and digital libraries are equipped with necessary audiovisual equipment. All conduits for electrical and electronic cabling are provided inside ceiling voids.

Surfaces:

Soft surfaces are provided on floors, walls and ceilings to avoid echo and noise pollution to neighbouring facilities.

Digital printing lab

A digital printing facility is proposed for use by students in the disciplines of art and architecture.

It is proposed that the facility specialises in large format printing and also have normal copying and printing facilities available.

A member of staff will handle administrative duties for this facility and although a designated office is not provided, it is proposed that filing and storage facilities be included in the furnishing of the space.





In the 12 years of existence, the Artist Proof Studio Initiative has been focussed mainly on developing the principles of building capacity, professional practice, self-sustainability, and black leadership. Since 2003, Artist Proof Studio has offered several inter-related skills and empowerment programmes to under-served communities including learnerships, mentorship and outreach.

The Training and Professional Skills Development programmes run over a three year period with the opportunity to exit the course at the end of each year. The program has been developed in accordance with the specific needs of learners and the art industry. Learners accepted into Artist Proof Studio come from previously disadvantaged backgrounds. These training programmes are critically needed to further the growth and development of young artists and also to extend the income generation opportunities for the community arts sector as a whole. The inclusion of a satellite studio for the APS initiative allows interaction between aspiring artists from all walks of life. This grants everyone the opportunity to benefit from the multitude of cultural influences in our diverse society.



fig. 2.06

03

PRECEDENT



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Introduction

This chapter discusses precedents in terms of three groups which include: conceptual-, functional- and programmatic precedent. Structural typologies- and use of materials precedents will be discussed in the chapter 09.

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fig. 3.01



fig. 3.02



fig. 3.03



fig. 3.04



fig. 3.05



UCT Sport centre - Rudolf Uytendboogaardt - 1978

The treatment of circulation routes sends the visitor through a number of sensory experiences and realizations. The merging of inside and outside spaces is experienced throughout the route and it makes the visitor aware of functions situated adjacent to it. Moving underneath the building at some points gives the visitors an even wider range of experiences on the route.



Carpenter Center - Le Corbusier

The Carpenter Center for the Visual Arts at Harvard University in Cambridge, Massachusetts is the only building by Le Corbusier in the United States. The building was completed in 1962. The building mass is built around a central circulation axis with all the accommodation facilitated in the lung shaped spaces adjacent to it. The project is relevant as a precedent due to the way in which it deals with circulation and how it exposes facilities surrounding it.

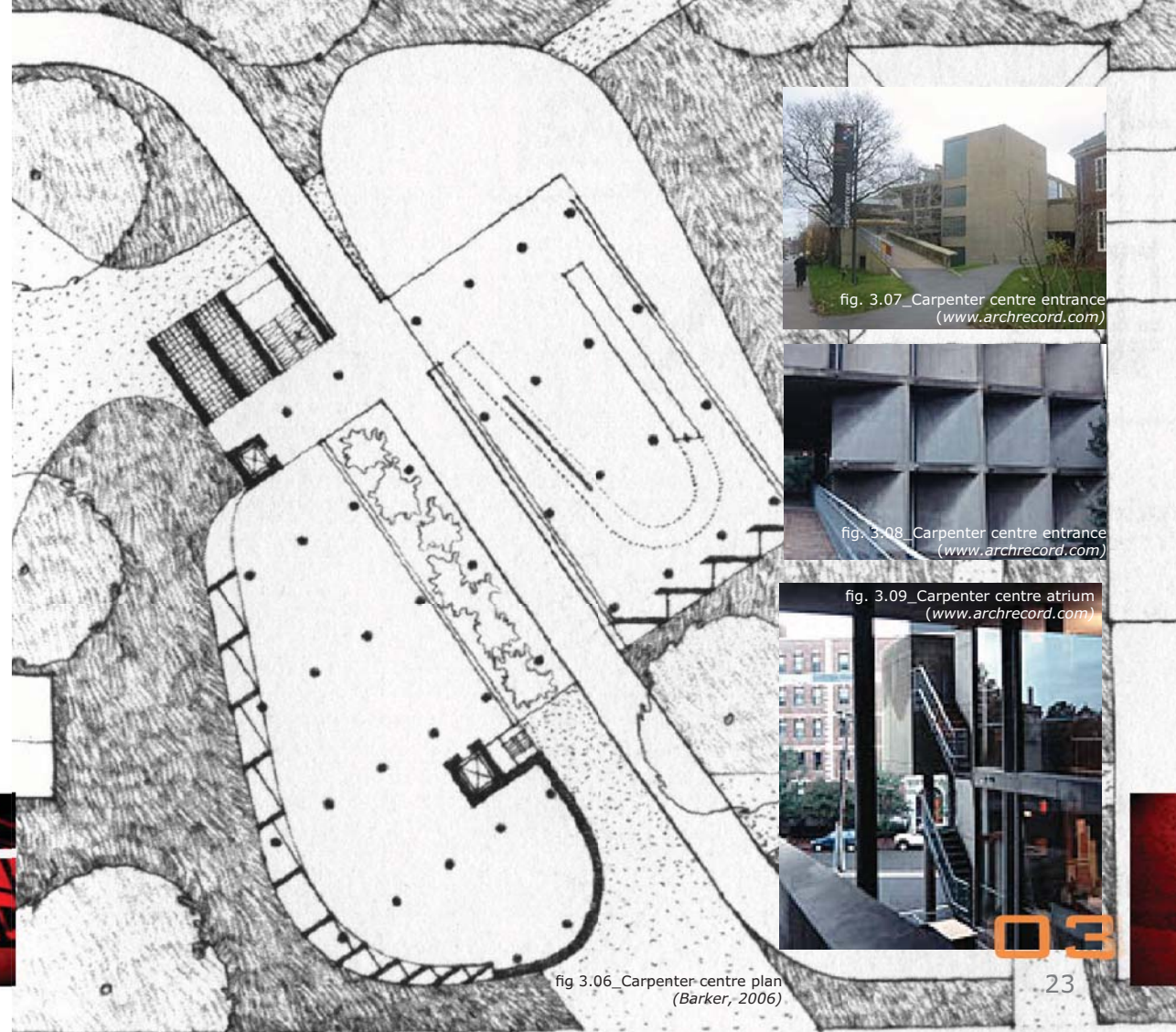


fig 3.06_Carpenter-centre plan
(Barker, 2006)



fig. 3.07_Carpenter centre entrance
(www.archrecord.com)



fig. 3.08_Carpenter centre entrance
(www.archrecord.com)

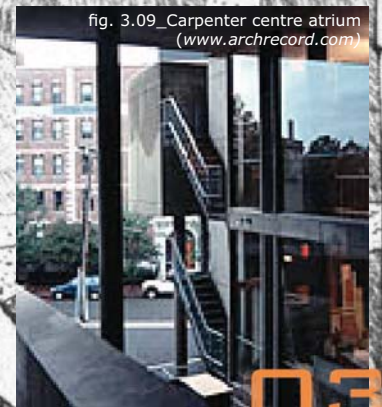


fig. 3.09_Carpenter centre atrium
(www.archrecord.com)

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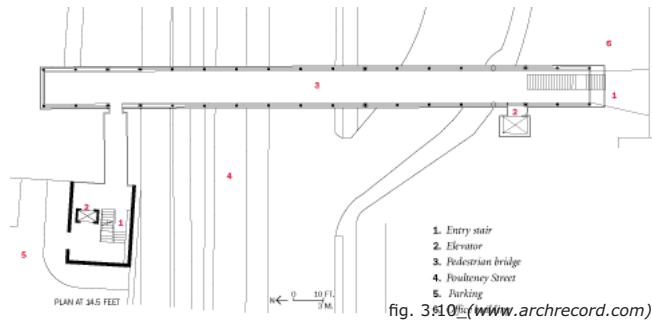


fig. 3.10 (www.archrecord.com)



fig. 3.11 (www.archrecord.com)



fig. 3.12 (www.archrecord.com)



fig. 3.13 (www.archrecord.com)

Houghton Park Pedestrian Skyway - Hascup/Lorenzi - May 2003

Constructed of two custom made Vierendeel trusses and clad with structural glazing, this pedestrian bridge stays true to its linearity even in the interior detailing. The 61meter long bridge extends over its access staircase in true Bauhaus style to give the impression of an ever extending path. Similar to the building proposed in this dissertation the bridge connects to a parking garage and leads the user across a road.



fig. 3.14 (www.designmag.co.uk)

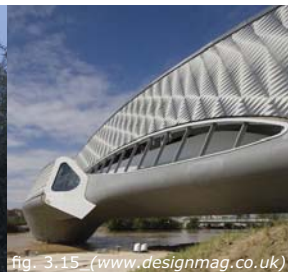


fig. 3.15 (www.designmag.co.uk)



fig. 3.16 (www.designmag.co.uk)



fig. 3.17 (www.designmag.co.uk)



fig. 3.18 (www.designmag.co.uk)

Zaragoza Bridge Pavillion - Zaha Hadid - 2008

Great emphasis has been placed on the entrance and spatial qualities in this project. High ceilings with exposed structure gives the bridge an inviting feel. Scattered patterns of light provides the space with an ever changing array of shapes on the route. Although the bridge has a heavy imposing form it still gives an 'airy' feel to internal spaces. The bridge doubles as a exhibition space which makes it particularly relevant to this dissertation.



Lewis Glucksman Gallery - Cork, Ireland - O'Donnell and Tuomey

This building deals with the pedestrian circulation in a similar way to the proposed building in this dissertation. The visitor can choose to either pass underneath the building and becomes 'part' of building without entering it. Once the visitor enters the building he/she is taken on a journey through various exhibition spaces. The orientation of various galleries inside the structure provides the correct lighting qualities for the exhibition of art.

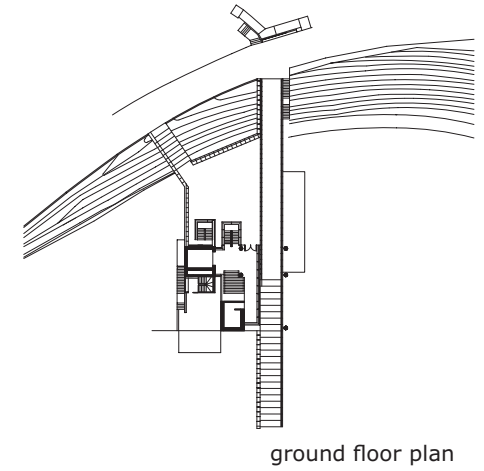
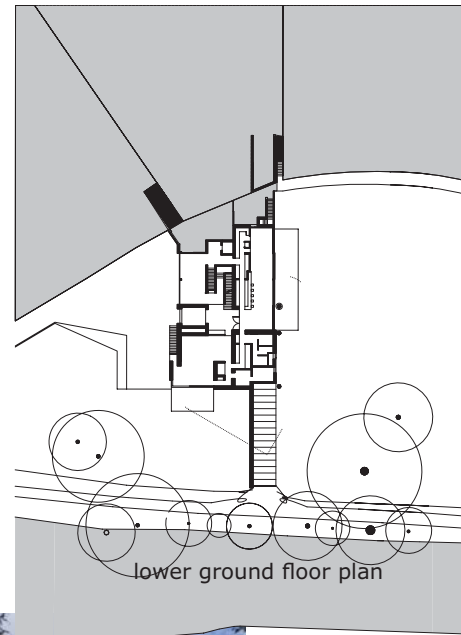


fig. 3.19_East elevation
(www.archrecord.com)



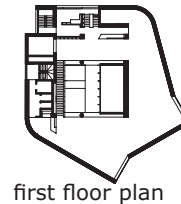
fig. 3.20_South elevation
(www.archrecord.com)



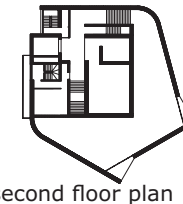
fig. 3.21_Entrance
(www.archrecord.com)



fig. 3.22_North elevation
(RIBA, 2005:33)



first floor plan



second floor plan



third floor plan

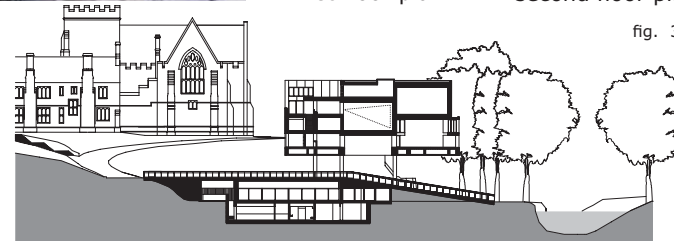


fig. 3.23_Diagrammatic plans and sections
(RIBA, 2005:33)

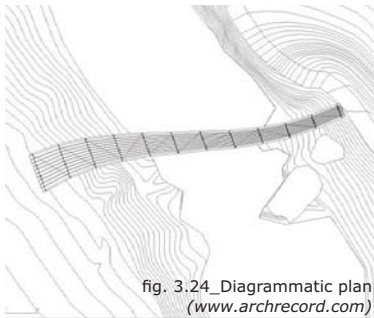


fig. 3.24_Diagrammatic plan
(www.archrecord.com)



fig. 3.25_Photograph showing lightweight structure
(www.archrecord.com)



fig. 3.26_Bridge entrance
(www.archrecord.com)



fig. 3.27_Light quality
(www.archrecord.com)

Passerelle on the Aureuse - Boudry, Switzerland - GD Architects - 2002
Spectacular light qualities are achieved by very simple timber cladding. This lets the structure imitate the scattered light through the trees of the surrounding forest. The bridge does not follow the conventional linear path but rather turns slightly and narrows to the end to enhance the perspective.

Museum for contemporary art - SANAA - New York - 2007

The use of expanded aluminium sheets fixed onto translucent poly carbonate backing gives the building a glow rather than the harsh reflection usually associated with metal clad facades. The changing light during the course of the day allows the building to change appearance in different conditions. The iconic nature of the building creates a landmark which will now be associated with contemporary art.



fig. 3.28_Reflection of light
(www.gsdmaterials.com)



fig. 3.29_Street elevation
(www.gsdmaterials.com)



fig. 3.30_Night view showing illuminated panels in facade
(www.gsdmaterials.com)