3.1
Crossprogramming

Crossprogramming and transprogramming in the building
Concept development from context interpretation
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Site Scale
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Demands for the particular site
2 PRECEDENT STUDIES
Walter Sisulu Square Of Dedication, Kliptown, Soweto.
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3 CREATE A LANGUAGE
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Crossprogramming
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Concept 3: Crossprogramming (juxtaposition of events)

The robustness of a building is the extent to which a building can be utilised for different purposes within its life span (Bathey, et al. 1985:27). When buildings and spaces have been custom designed for a single activity, it makes it more difficult for other activities to be accommodated. Crossprogramming and transprogramming is the extent to which activities within a building can overlap without the restrictions of inflexible spaces.

Architecture has always been as much about the events that take place in a space as the space itself. When the shock value of a project can no longer be produced by the sequence and juxtaposition of facades and lobbies, Tschumi (1997:18) guides us to a higher developed solution: by starting to superimpose events that take place behind these facades.

The Rotunda at Columbia University illustrates the concept of crossprogramming or transprogramming. The Rotunda has been used as a library, a banquet hall and is often used for university lectures. The Rotunda can in future be used to fulfill the needs for an athletic facility and even a swimming pool – a part of the shock (Tschumi 1997:18). In today's society we have seen a jail turned into a constitutional court and offices turned into flats. The complete interchangeability of form and function is evident.

Through the use of crossprogramming, transprogramming and even disprogramming, concept and experience, space and use, structure and image should be merged into unprecedented combinations of programmes and spaces (1997:18).

The development of the precinct will happen in various phases; the first phase of construction, involving the stadium, will commence at the end of 2005. The facilities for the development of sport fall within the second phase of the project that is planned for 2008 fig. [3.1]. The lack of a built context was the first major challenge that occurred in this dissertation.

None of the buildings in the precinct other than the stadium have been designed, nor are there any design guidelines for them. This makes it impossible to generate the images of the surrounding buildings. This places demand on the planned project as it must establish a language for itself, as well as contain clues incorporated in the design that will help to create and become the context for the next generation of buildings.

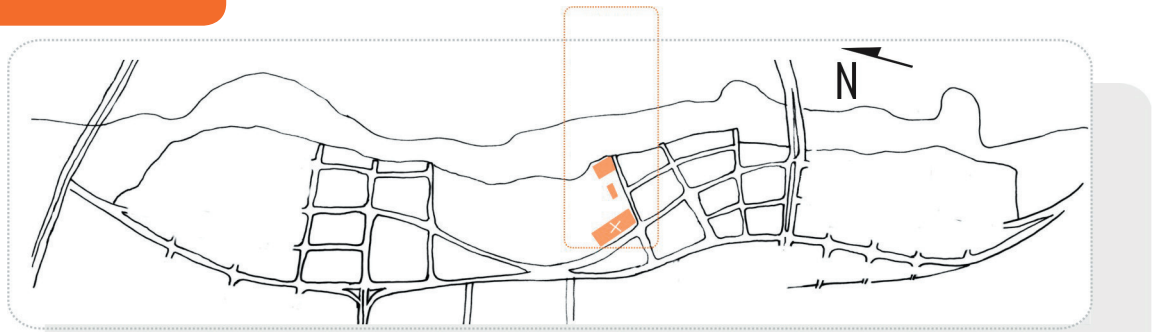
In most cases, the physical context of a building/project can be used as an inspiration to generate the aesthetics of a building when the project is situated in an inspiring urban fabric. In the context of the Rainbow Junction precinct, the challenges faced in the proposed project includes an attempt to provide facilities in a depressing under-serviced area: an environment that is quite uninspiring, apart from the river. Sabine Marshall and Brian Kearney address key issues regarding the drab contexts South African architects face. Apart from problems posed by the lack of infrastructure and resources, the context of such visually impoverished environments rarely supplies the architect with reference points worth relating to. The emphasis thus shifts from inspiration by context to provision of upliftment,

Crossprogramming and transprogramming
Concept development from context interpretation

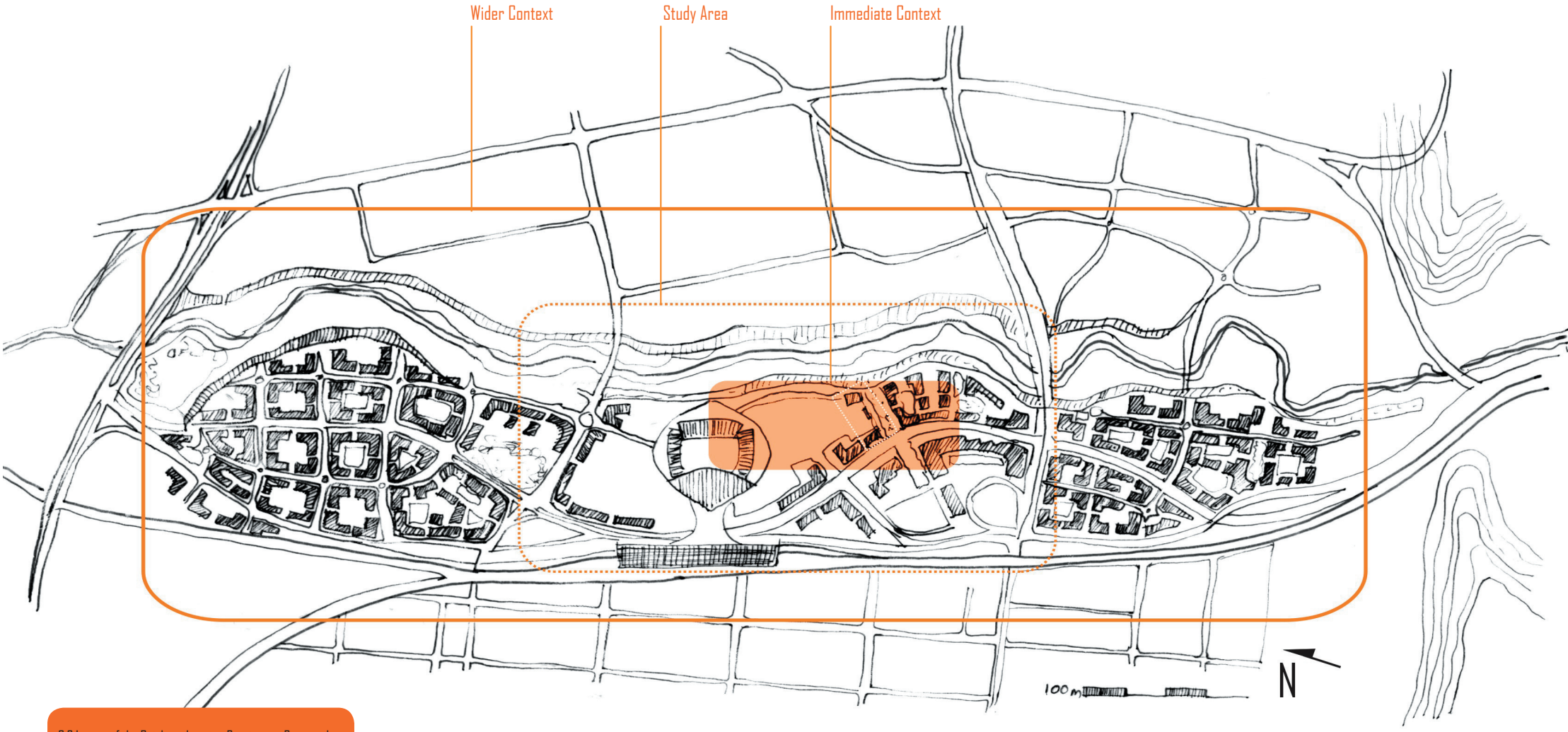
that is, the need for the building to brighten and enliven its drab depressing surroundings (Marschall 2000: 125).

Aims are to:
-establish the demand of the framework on the project facilities and the site
-learn from precedents that are also in dreary contexts offer
-create a language for the buildings and surrounding buildings to follow

3.1 Phase Two of the Proposed Development Framework, Due for Construction in 2008. The Facilities for the Development of Sport are Included in this Phase as Indicated.



Phase 2



3.2 Layout of the Rainbow Junction Precinct as Proposed by the Holm Jordaan Group. The Wider Context, Study Area and Immediatle Context of the Site are Indicated

Precinct Scale

The approach, for the purpose of the dissertation, to the Rainbow Junction Framework is, firstly, to determine what the key mental and physical aspects are of a successful contemporary city. Secondly, to make sure that the given framework allows for the design of conditions that will ensure a successful contemporary city. The essence of the project is to celebrate contemporary life in a contemporary city and to design the conditions for a flourishing precinct that can be used as a precedent for community type living. The purpose of the development is not to exclude the inhabitants from a vibrant, complex city life, nor to protect them from the conflict (not implying crime) of city life. These elements are embraced to celebrate the event of everyday life. The Rainbow Junction development is overwhelmed by the 'event' of the Soccer World Cup and the stadium that goes with it. The project in question will aim to unravel the sensations of everyday experiences embracing our contemporary condition. The 'event' will be translated to several events that will happen in everyday life even after the World Cup so that 'everyday' and 'life' become the main event.

Site Scale

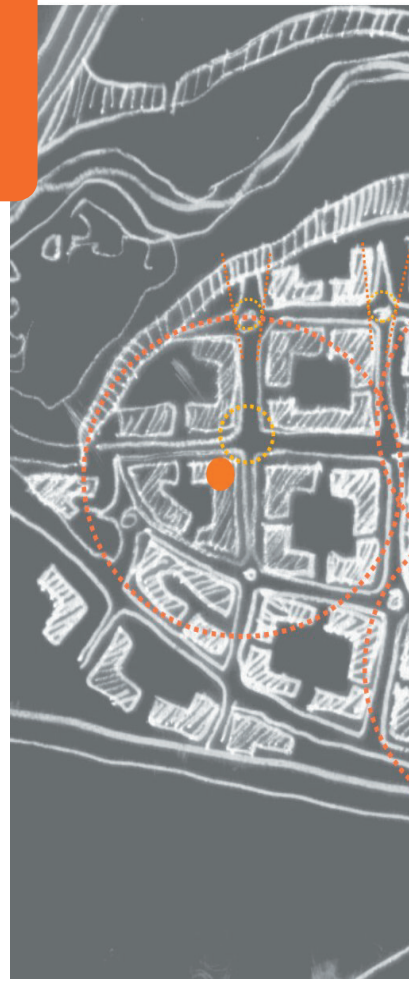
The context of the site will be addressed using two approaches:

1 POSTULATING A CONTEXT USING THE DEVELOPMENT FRAMEWORK

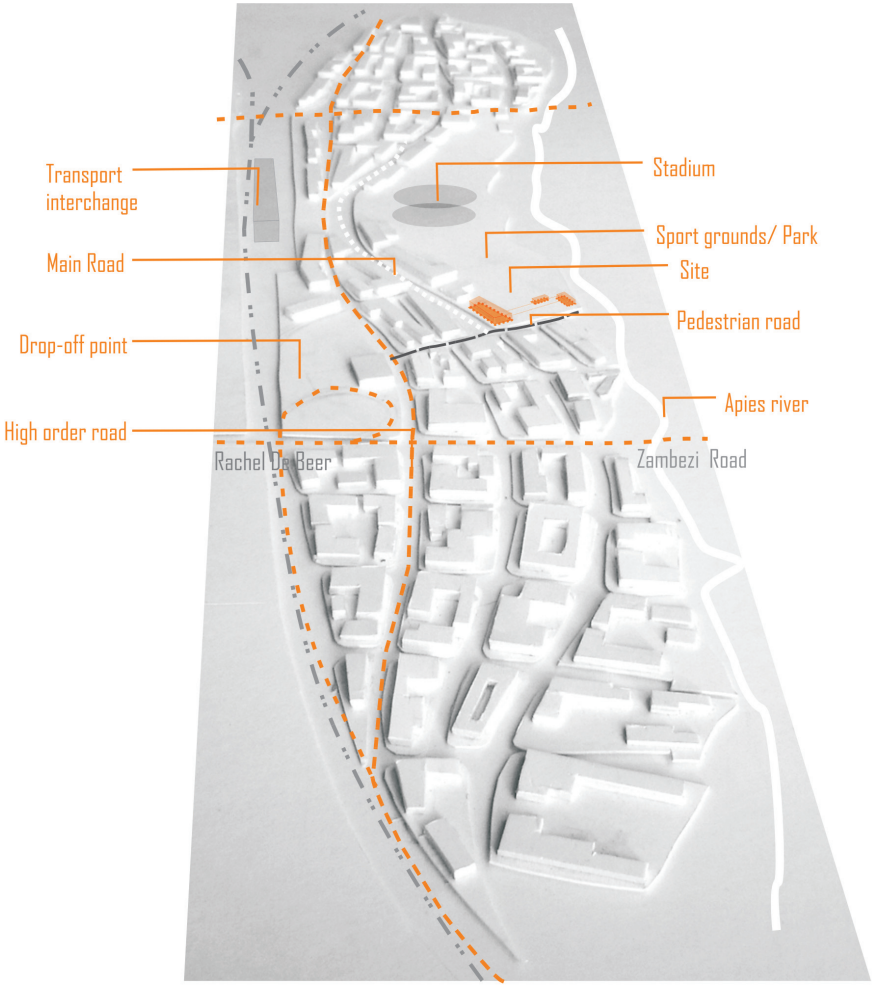
When designing the sports stadium for the University Western Cape Roelof Uitenbogaardt and Rozendal were faced with a similar problem of having no context within which to find the beginning of a design. The problem was approached by postulating a diagram of the surrounding developments in order to create a context of which the stadium could be part. Once built, the stadium would implicitly contain these clues and would hopefully become the context for the next generation of buildings (Gerwel 1987: 24).

In order to postulate the future context of the design, a diagram was drafted using the urban design principles and guidelines for the precinct fig. [3.3]. By creating the planned future context it will be possible to determine what the demands for the particular site is, in terms of location within the precinct and relation to the rest of the development.

3.3 A Diagrammatic Context of the Rainbow Junction Development




Significant Activity Node
Activity Node
Bus stops
View points
N
Construction of K14 bridge
Flood Area Reserved for open space and conservation
Rehabilitation of river bank with active interface
Stadium
Sport, Sport Retail
Pedestrian walkway
Residential
Office
Hotel
Sport facility
Service Retail
Retail
Pedestrian bridge
Drop-off
Transport Infrastructure
Light Industry
Intermodal Interchange @
Pretoria North Station
Construction of K14 road
Pretoria North
Pres Steyn
Rachel De Beer



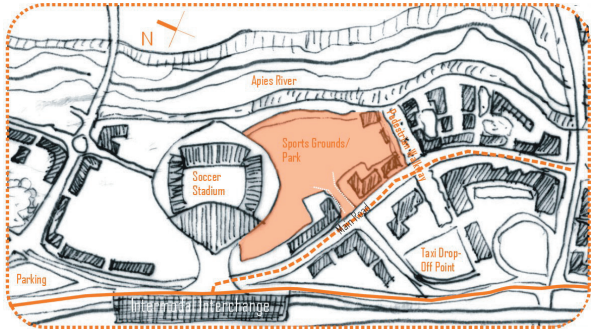
Demands for the particular site

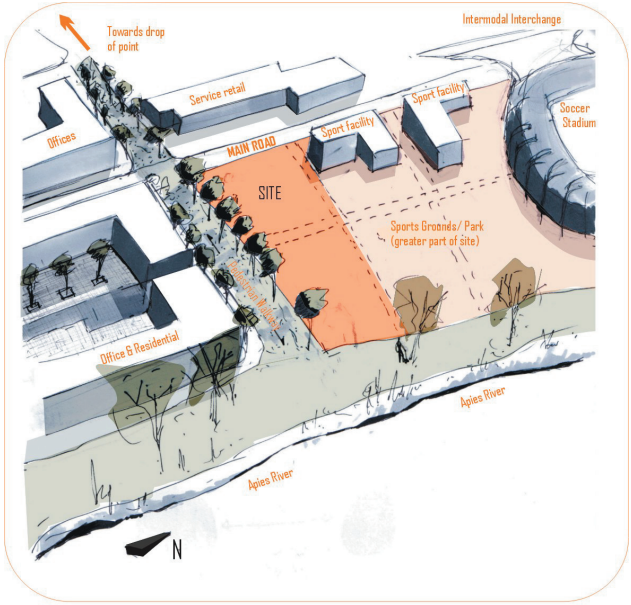
The site requires five very different responses:

The main road to the south west demands a hard edge, with appropriate permeability to allow on-street interaction. The building has to contribute to a vibrant cosmopolitan atmosphere on street level. The vibrant nature of a main road is an opportunity to generate a lot of energy within the building and to have an exciting on-street interface. The main road facade primarily faces west, demanding careful planning and shading devices. The main road may also generate a lot of noise that is not optimum for lectures or conferences and will need cautious planning. Construction will start in 2008, in the second phase of the Rainbow Junction development, and should therefore help to establish the necessary infrastructure for the development.

3.4 **Left:** A Model of the Postulated Context for the Rainbow Junction Development

3.5 **Right:** The Immediate Context of the Site





[3.6]

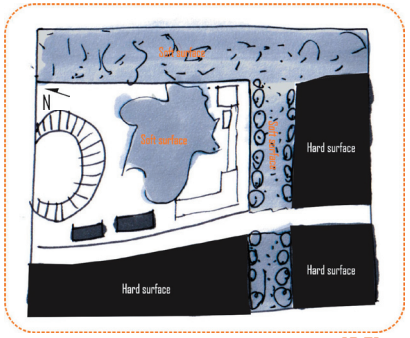
3.6 **Left:** Site Perception

3.7 **Bottom Left:** Hard vs. Soft Surfaces

3.8 **Bottom Right:** The Site in Relation to the Green/ Public Spaces

The pedestrian walkway to the south east consists of man made green space, with very low order traffic passing at intervals. The building should have an appropriate response to the soft space of the walkway. The pleasant view towards the pedestrian walkway will contribute aesthetic qualities to spaces within the building. The buildings will have permeable edges to invite nature and involve passers-by with the activities of the building.

The Apies River area to the north east is reserved for natural green space, that includes the Apies River and the proposed 'Green Lung' development towards the city. The main building should have a permeable soft edge, and should step down towards the river as a result of the height restrictions nearer the river.



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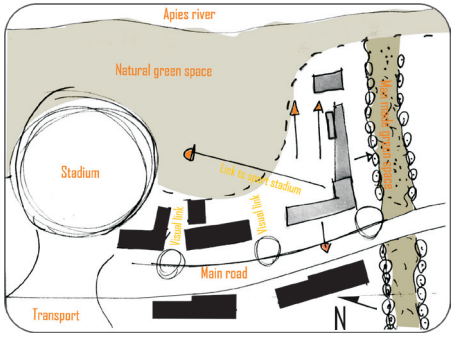


[3.8]

The secondary buildings within the green space have to respect the nature of the park and have to be integrated into the landscape.

The stadium to the north demands a soft edge of the building, as the area in-between is natural green space. Pedestrians will move around, past and even through the main building towards the stadium.

The neighbouring building to the north west is one of the visual links and passages from the main road towards the green space and the stadium. This façade of the building could have either a hard or a soft edge.

2 PRECEDENT STUDIES

A study of appropriate local and international precedents will create a deeper understanding of the systems involved in such a sporting/community development and the incorporation thereof into the city. A study of the various approaches regarding similar developments will allow a platform for learning from past mistakes and improving there upon. Precedent studies will be used to enhance the diagrammatic context.

The precedents are integrated into the design discourse where applicable.

Permeable soft edge response

3.9 **Top:** The Soft Edge Response Between the Building and the Pedestrian Walkway on the Southern Border of the Site

3.10 **Bottom:** Diagram Indicating the Hard Edge of the Sports Administration Building on the Main Road (left) and the Soft Edge Fronting the Green Space and the River

Hard street edge vs. Permeable soft edge

Walter Sisulu Square of Dedication, Kliptown, Soweto.

StudioMAS Architects

Architect: Pierre Swannepoel

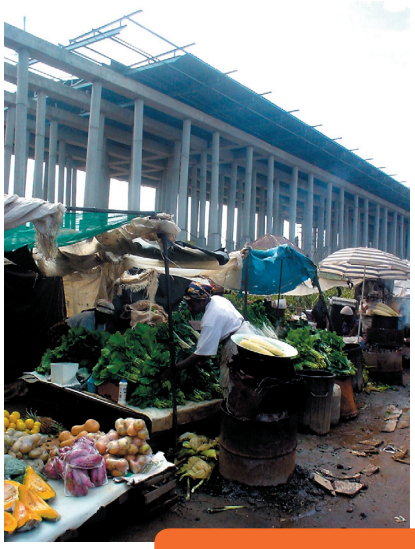
The Walter Sisulu Square of Dedication development strives to uplift the community and aims to transform the uninspiring context in which it is located.

Kliptown may be termed an informal settlement in an uninspiring context. Regardless of the run-down environment, Kliptown possesses an incredible sense of place. The Walter Sisulu Square of Dedication project contrasts sharply with its surrounding, creating a vision for growth in the area. The philosophy of the project is to give freedom to the community through job creation and a vision for people to be liberated. The Walter Sisulu Square of Dedication is relevant to the unique social and economic context of the project. The rich history of the site is acknowledged in the project through the square and other building elements.

Architect Pierre Swanepoel designed the building in smaller repeating modules and materials are manufactured locally by twenty new businesses that have been opened as a result thereof. The building is designed to be robust and to accommodate future change in use. The project reaches further than the site by attempting to stitch the surrounding areas together. The physical apartheid barriers, like the railway and fences, are addressed in an attempt to link Kliptown with Soweto.

Key strategies learnt from the Walter Sisulu Square of Dedication that have an influence on the proposed sport administration building:

Transform the drab context
Reach further than the site
Involve the community
Create job opportunities
Design the building true to its unique greater context
Reflect the history of the site
Create a vision for the future



3.11 The Walter Sisulu Square of Dedication and the Immediate Context of Kliptown

Learning from the Olympic Games

Historically the Olympic Games offered the opportunity of jump-starting large-scale urban renewal. Therefore the Olympic Games in Munich, Barcelona and Sydney were reviewed to determine to what extent these developments were successful in the long term.

In Munich the Olympic areas were kept separate from the city, while in Barcelona venues were dispersed throughout the city. In Sydney both approaches were combined (Pocter 2000:73-75).

The review of the Olympic Games proved that the Munich Olympic facilities were put to better use, because the facilities form part of the urban fabric of the city. This was achieved by incorporating the facilities into the city by means of public open spaces such as parks. Although the Barcelona model dispersed venues throughout the city, these are inaccessible for visitors as it is fenced off from public use. Tourists cannot freely gain access to the facilities.

The Sydney Olympic village adopted an environmentally sustainable design approach. It is built upon layers of history while presenting a confident statement about the future. The huge sports complex is more than just a logistical solution for the two weeks of the games; it is a long term legacy for the people of Sydney. The Olympic Games was regarded a theatre of 'inquiry' whereby architecture, art and urban design speaks of our aspirations in specific ways.

> 'Architecture is a language having the discipline of grammar. Language can be used for normal day-to-day purposes as prose. And if you are very good, you can be a poet.' Ludwig Mies van de Rohe (Frampton 1996:169)

It is in the nature of sport stadiums to have a dynamic tectonic or expressive presence. The decision was made that the language of the proposed facilities for the development of sport need to have elements to highlight these characteristics. Precedents were sought that had certain dynamic and tectonic qualities. The work of Miralles and Pinos was chosen among others, as their work provides the basis for a new language by looking to the future, rather than to the past (Zabalbeascoa 1992: 34).

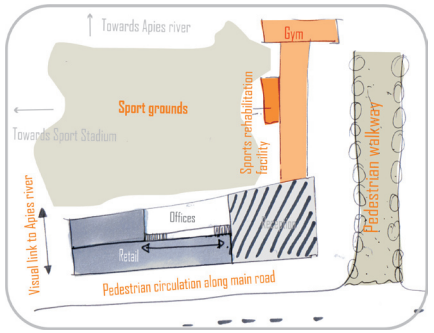
The concept for the sports administration building is multiple but in essence a search for an applicable language, in a new development, that will reflect a vibrant contemporary community. The building will answer the needs of the context and programme, through the application of 6 theoretical concepts by Bernard Tschumi. The theory is not intended to defend, justify or promote the design, but merely to explore the freedom of design, which architects rarely get the opportunity to do.

3 CREATE A LANGUAGE

3.12 **Top Right:** The 1972 Olympic Stadium, Munich

3.13 **Bottom Right:** Conceptual Layout of the Sports Development

Concept of the project



Experience

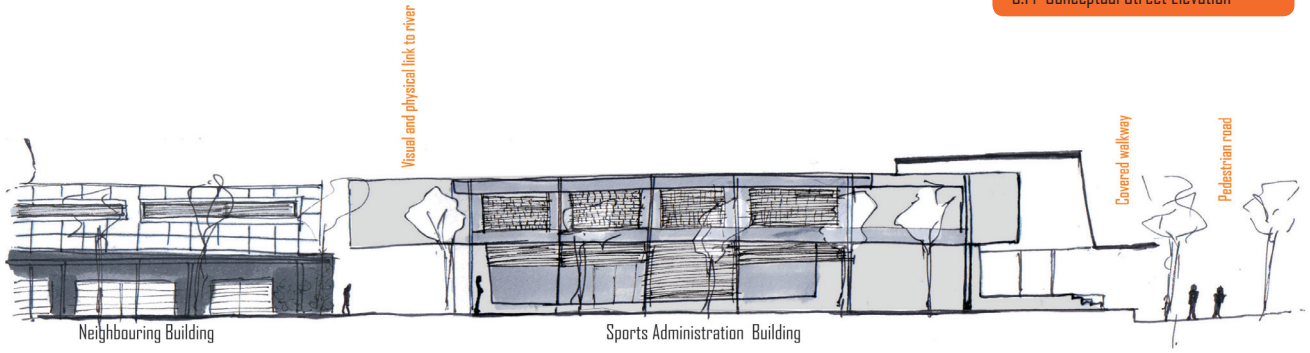
Throughout architectural history we find that the experience of a building is often expressed as a function of the human body: how it moves through space, what is perceived though the eyes, by touch and by hearing.

In Alvar Aalto's Säynätsalo Town Hall (1952), the user encounters a sequence of contrasting tactile experiences, from entry to council chamber. The sense of arrival is reinforced by various non-retinal sensations: 'from the smell of polished wood to the floor flexing under one's weight together with the general destabilisation of the body as one enters onto a highly polished surface' (Frampton 1996:11-12).

Miralles and Pinos's attitude to 'experience' is poetic and intuitive, their architecture is described as being affirmative, even restorative to nature (Curtis 1999:8) 'Their architecture is made to enhance human action, to promote the enjoyment of light, space and view, to appeal to the physical sense of movement.' Their dynamic forms and spaces appeal to the body's sense of movement rather in the way explained by Geoffrey Scott in 'The Architecture of Humanism' : 'through these spaces we can conceive ourselves to move, these masses are capable, like ourselves of pressure and resistance; these lines, should we follow or describe them, might be our path and our gesture'.

In a similar way the sports administration building aims at achieving a rich bodily and sensory experience for the user, through the expressive potential of the structure and spaces within.

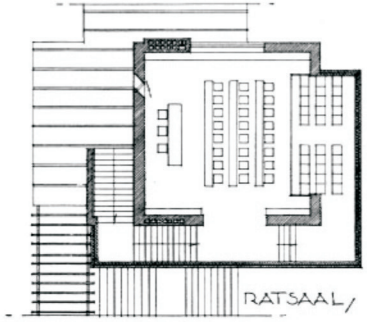
3.14 Conceptual Street Elevation

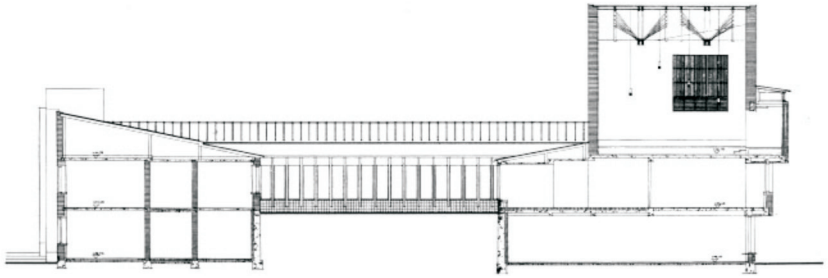


3.15 **Left:** Alvar Aalto's Saynatsalo Town Hall: Stairs to the Council Chamber

3.16 **Botom:** Plan and Sections of Alvar Aalto's Saynatsalo Town Hall, 1949-1952

[3.15]





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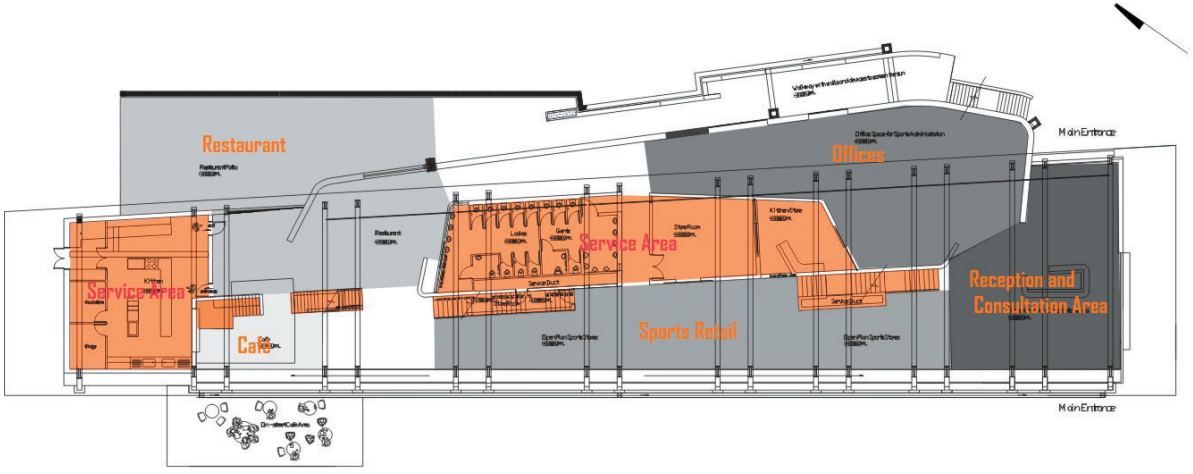
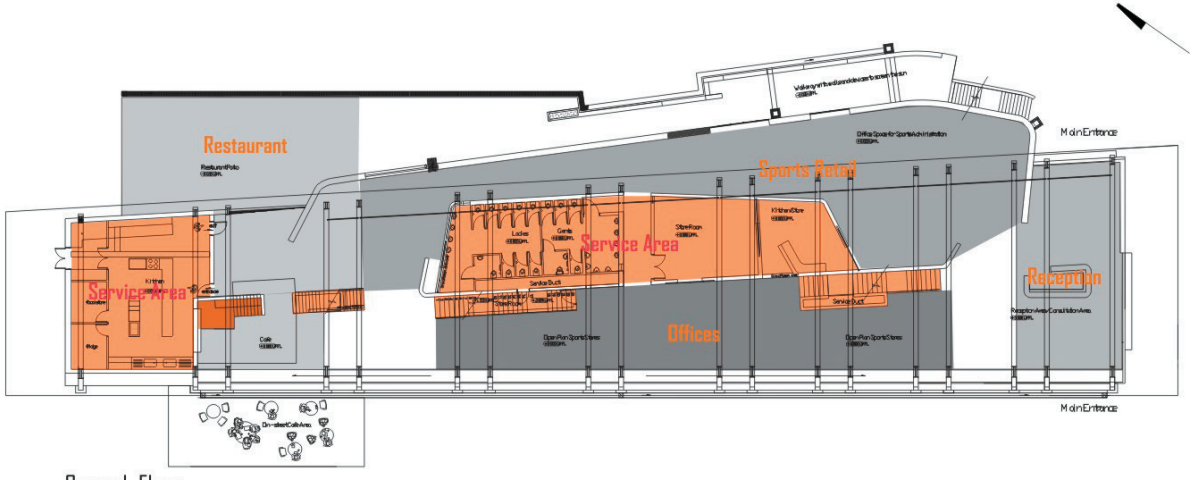


Ground Floor



Ground Floor

3.17 **Above:** An Example of Crossprogramming on the Ground Floor

Space and use

Crossprogramming

Crossprogramming and transprograming are used as tools for the arrangement of the program with the intention for activities to overlap; resulting in unexpected events occurring between the different users of the building.

The initial aim was to avoid designing spaces for specific activities. This is incredibly difficult to achieve as it would imply that a person must be able to use the lecture rooms as a restaurant or host a conference in the restaurant. In addition certain functions require specific design of spaces. The definition of spaces in area would not be problematic, but the fittings of the facilities determine the quality of the space. It would be pointless to sacrifice human comfort or acoustic requirements, solely for the purpose of not naming a space. The conclusion is that spaces with similar characteristics should allow crossprogramming.

The juxtaposition of activities as discussed under the concept superimposition, created spaces where different users could experience the unexpected event of crossing paths with others that have nothing in common with themselves.

The majority of the spaces on the ground floor of the sports administration building, that are not part of the formal activities of the building, can certainly achieve crossprogramming. The restaurant can be extended to inhabit the balcony; conference lunches can take place on the balcony. The retail space can extend to the ground floor offices or the reception area. The offices can change places with the retail areas. On the first floor, the lecture rooms have been designed to allow refitting, doubling as exhibition space.

Evaluation of crossprogramming;

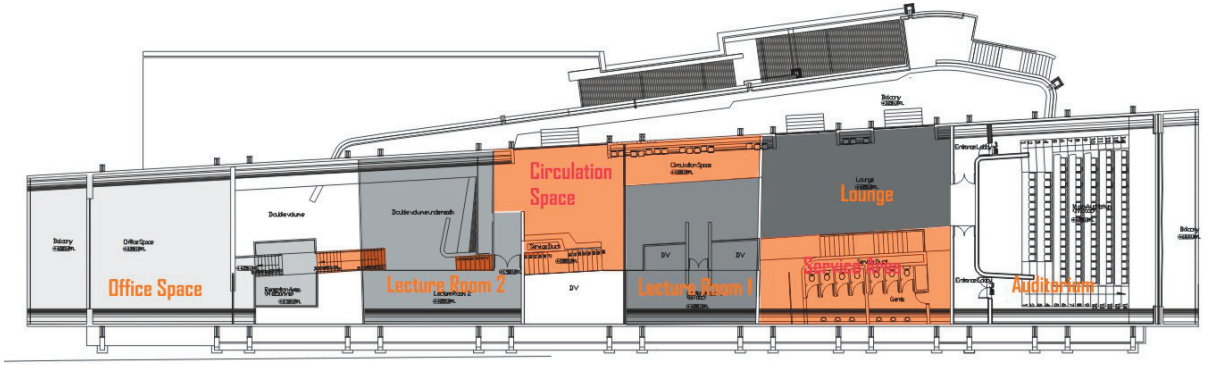
It is agreed with Tschumi that buildings in future should accommodate crossprogramming, if the decision is made from the concept phase it is quite easy to allow crossprogramming. Buildings that are designed as such will have a longer lifespan, being more sustainable, as it will be easy to accommodate other events.

Structure and superficial image

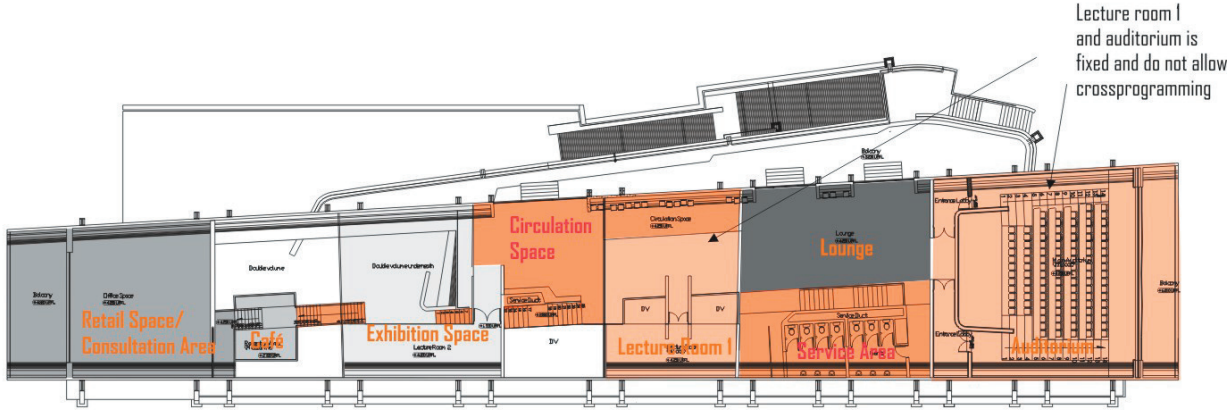
The structure of the sports administration building is the result of a search for tectonic expression. The aim was to arrive at a structure by means of a study on structurally significant buildings. The next step was to explore what shape the various structural elements allows the building to take. The most important part of this exercise was to design the structural elements and the building as a whole. (Refer to de-structuring.) The engineer was consulted after the initial concept phase to ensure that the structure is viable. The process started with a simple frame that became more complex as the design of the building advanced.

The superficial image of the building is the result of a search for a language for the design of the precinct. The question was: What would be an appropriate image for the building? The question was addressed by consulting numerous precedents. Included in these precedents were the work of:

Enric Mirralles and Carme Pinós
Igualada Cemetary Park, Barcelona 1985 Fig. [2]
Archery Range, Vall de Hebrón, Barcelona 1989 Fig. [1],[3]
Hostalets Civic Centre, Barcelona 1986/1992 Fig. [8]
Eurhythmic Sports Centre, Alicante 1990/1993

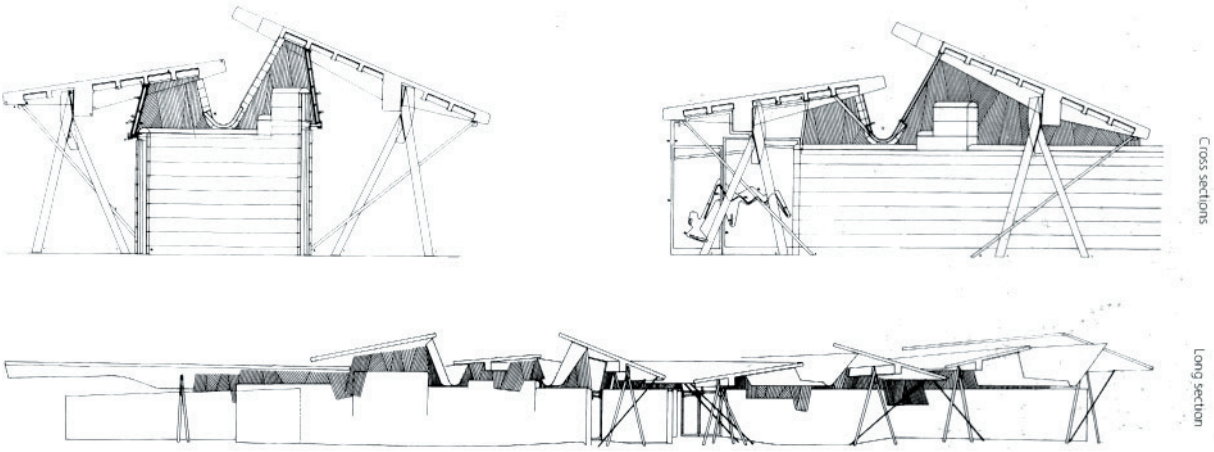


First Floor



First Floor

3.18 An Example of Crossprogramming on the First Floor



[1]

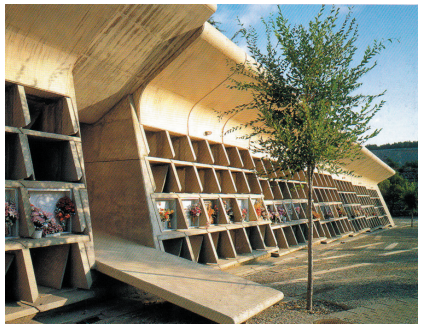
Sport Centre, Huesca 1990/1994

Rem Koolhaas (OMA)
Casa da Música, Porto Fig. [10]
KunstHal, Rotterdam, The Netherlands Fig. [5]
Educatorium, Utrecht, The Netherlands Fig. [9]

MVRDV
Villa VPRO, Hilversum 1993-1997 Fig. [7]

Bernard Tschumi
The Zenith Convention Centre, Rouen Fig. [4]

Santiago Calatrava
Oriente Station, Lisbon Portu Fig. [6]
Extension of Stradelhofen Rail Station, Zurich



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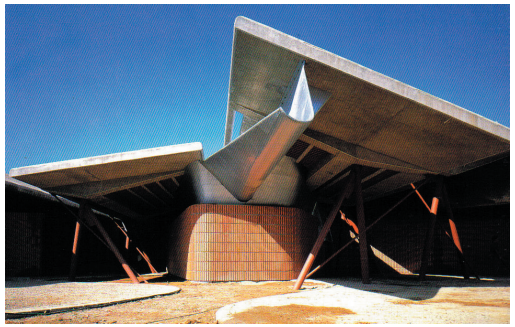

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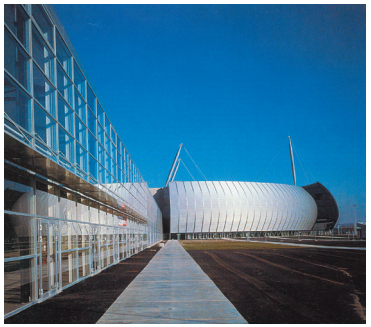

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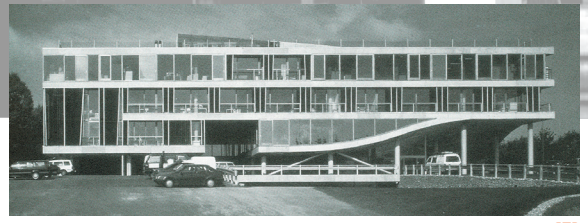

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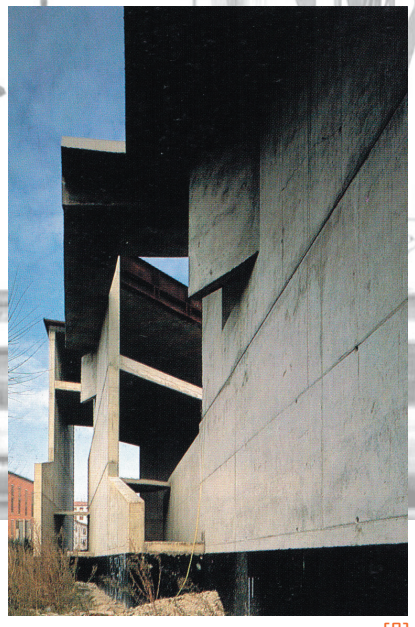

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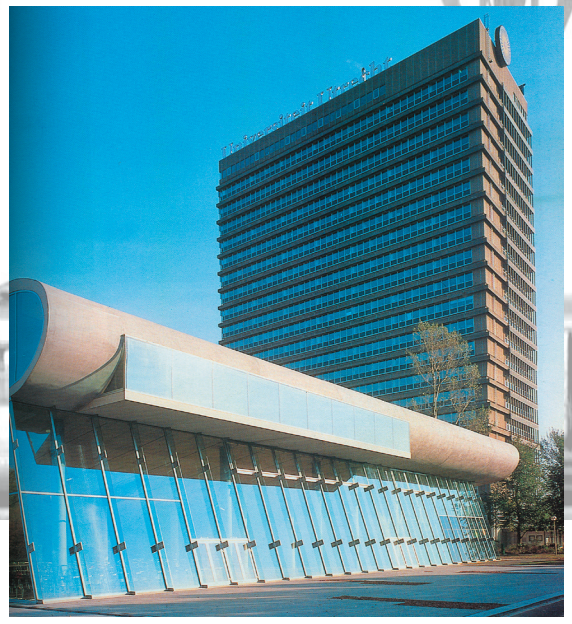

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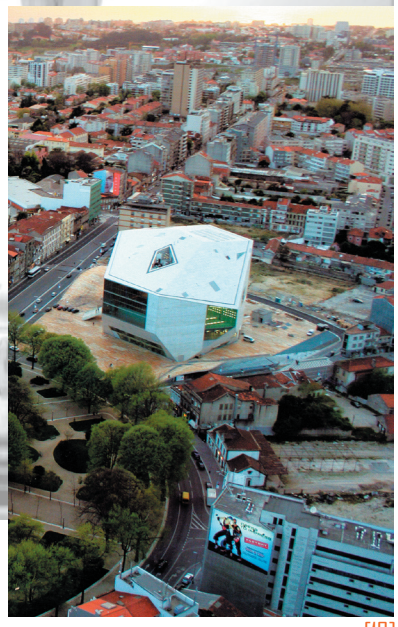

[10]