Chapter 4

Precedent Studies

"The use of natural elements in our architecture is a consequence of the need to establish a more open dialogue" - Inaki Abalos 2005

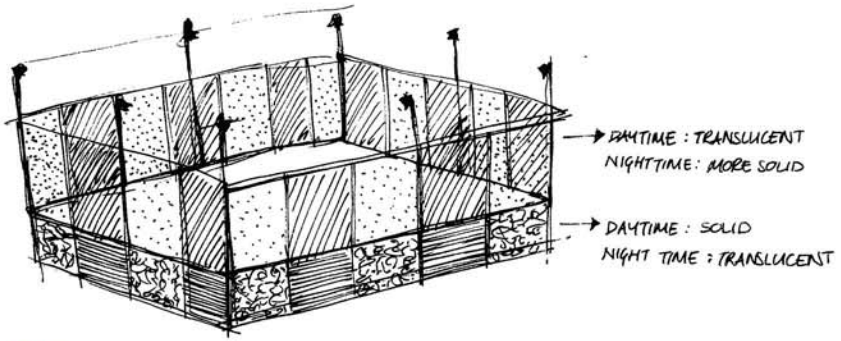
01 Retiro Park Gymnasium - Abalos and Herreros
Pieter Rolies : 2006

According to Spanish architects, Abalos and Herreros, recycling is when a material is of such nature that one can breathe new life into it. (*Domus : 2005: 53*) Therefore the materials they use can be submitted to transformative processes.

The *Retiro Park Gymnasium* is one of many of this firm's so-called 'eco-monumental' designs. Natural elements and materials are used to break down the contemporay construction of the city. To them nature is an aesthetic definition that might integrate the values of contemporary society within architecture, and that distances itself from contemporary aesthetic principles. (*Domus : 2005: 51*)

Abalos and Herreros have used the structure in such a way to sustain nature. The *grille* enveloping the whole pavilion acts not only as protection, but also as a support for the creepers that will eventually cover it. This demonstrates what is termed '*re-discription*', the re-using of something in a different context that automatically transforms things into apprehensible aesthetic entities. (*Domus : 2005: 53*)

It is this connectivity of re-description that has driven the appearance of nature in their work.



02 Perspective view
Sketch by author : 2007

Materials Used:

1. Grille mesh as support to creepers
2. Translucent screens
3. Steel framing
4. Two different grain woven steel screens as walls for the tennis court

Application:

1. Mesh screen's dual function as structural element and back drop for creepers simultaneously emphasises memory and aspiration
2. Reminder of nature as active participator in design
3. Adaptability of structure to vary in translucence from daytime to night time, captures architectural transformation

4.1.1 Retiro Park Gymnasium

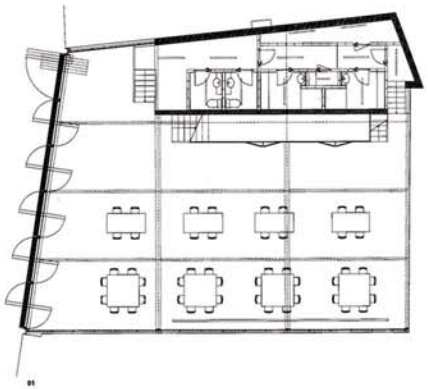
Project: Retiro Park Gymnasium, 2002

Location: Parque del Retiro, Spain

Architect: Abalos & Herreros

03 Structure as platform for nature
Pieter Rolies : 2006

04 Inaki Abalos and Juan Herreros
ICON-MAGAZINE : 2006



05 Colmenarejo Municipal Hall - Abalos & Herreros
Bell, V. B. & Rand, P. : 2006

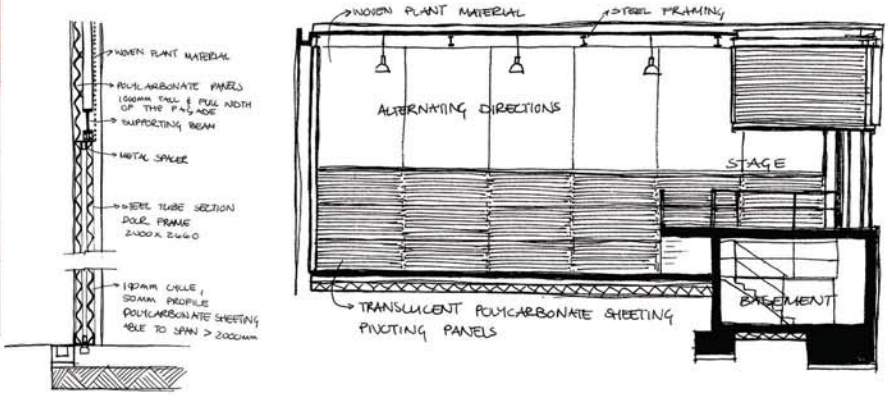
Abalos & Herreros' beginnings in industrial architecture gave them a unique approach to the design of public buildings. They build university buildings with the same materials as a recycling plant. They have mastered what one might call the *industrial venacular.* (*McGuirk, J. : 2006*)

The main goal was to strengthen civic pride by creating a meeting facility as an extension of the public square. The inclusion of natural and man-made materials creates a provocative juxtaposition, through which the designers hoped to create a representation of the old and the new.

White corrugated polycarbonate is used to cover the exterior, while woven plant material sheath the interior of the wall cladding, referencing the old and organic. The grass matting are biodegradeable and the steel and polycarbonate are recyclable.

The translucent polycarbonate sheeting illuminates the interior. A series of pivoting panels provide a high degree of spatial continuity.

06 Section
Sketches by the author : 2007



Materials Used:

1. Translucent polycarbonate sheeting
2. Woven plant material
3. Steel tube section framing
4. Simple I-beam support structure

Application:

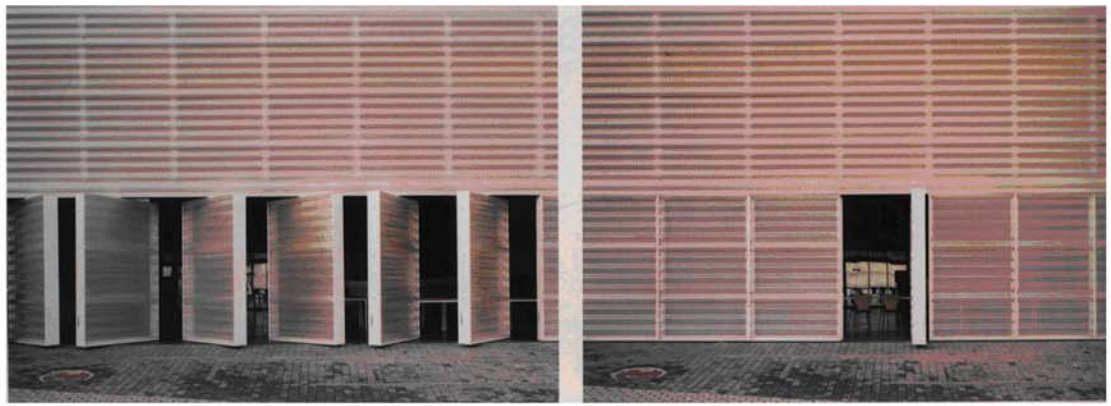
1. Pivoting doors as entrance or wall
2. Translucent sheeting used for natural lighting by day and artificial lighting by night
3. Adaptability of structure to be a private meeting hall, or to become an open structure linking up with the external public square.

4.1.2 Colmenarejo Municipal Hall

Project: Colmenarejo Municipal Hall, 1999

Location: Colmenarejo, Madrid, Spain

Architect: Abalos & Herreros



07 Adaptable Structures
Bell, V. B. & Rand, P. : 2006

08 Saynatsalo Town Hall by Alvar Aalto
www.greatbuildings.com:2007

The late Finnish architect, Alvar Aalto (*c. 1898 - 1976*), was a humanist philosopher whose hand could more easily be seen in the natural materials he used and the details of his designs, than in the overall look of his buildings. He was more concerned with people than with power, more with pleasing than impressing. (*Riding, A. : New York Times : 2007*)

The *Saynatsalo Town Hall* is an example of governmental architecture in which indigenous building traditions and materials are combined with modern design and building technology. Set within a small town centre, it is surrounded with pine trees typical of Finland. Alvar Aalto's generous use of wood, both for exterior panelling and for interior floors, ceilings, stairs and window blinds, speaks to the surrounding landscape.

Alvar Aalto's detailed analysis and resolution of lighting quality is visible throughout his designs. He employs white surfaces as secondary illumination sources. Much attention is given to maximised southern exposure through the use of vertical glazing as well as the use of louvres to control sunlight at different times of day.

Alvar Aalto defended his organic geometry through the use of supple, natural materials and respect for human feeling. (*Riding, A. : New York Times : 2007*) This is visible in his embracing courtyards and stepped grass terraces with human activity as central focus.

Materials Used:

1. Brick exterior
2. Timber exterior panelling, interior ceilings, stairs and floors.
3. Timber truss systems
4. Vertical glazing

Application:

1. Pedestrian friendly courtyards
2. Stepped grass terraces as part of building shape and utilised by the occupants
3. Use of louvres, glazing and white surfaces to control and direct natural lighting
4. Attention to detail enhancing the experience of the end-user

4.2.1 Saynatsalo Town Hall

Project: Saynatsalo Town Hall, 1949 competition, 1952 built

Location: Saynatsalo, Finland

Architect: Alvar Aalto

09 Attention to detail
www.greatbuildings.com:2007

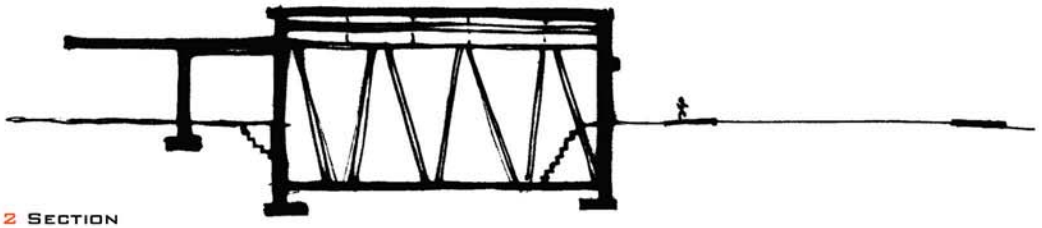
10 Alvar Aalto (c. 1898-1976)
Riding, A. : New York Times : 2007

11 Pfaffenholz Sports Complex - Herzog & de Meuron
www.spiluttini.com : 1995

Herzog & De Meuron's sports complex is located at the border between Switzerland and France. It features a large indoor gym and an open-air oval track. Since service ducts are hidden behind glass facades, the interior is exposed concrete. The entrance area is dominated by a clear-span roof that runs the full length of the building and is its most monumental feature.

The interior and exterior are linked by light: daylight creates bright channels throughout and vistas stretch up to 70 metres. The gym floor was sunk into the ground, allowing for an external shape that is almost flat. The facade glazing is tinted dark with screen prints to give the building an almost sacred air. (*www.spiluttini.com*)

The building design has successfully simplified the intricates of large structure design as its appearance defies gravity, structure and functional form. This building simply consists of a floor, a wall and a roof.



12 Section
Sketch by author : 2007

Materials Used:

1. Exposed concrete interior
2. Glass facades: tinted dark with screen prints
3. Flat concrete roof supported by diagonal concrete columns hidden within interior
4. Textured concrete exterior

Application:

1. Hidden service ducts
2. Lighting channels to connect interior with exterior
3. Attention to detailing and connection of edges
4. Varying finished floor levels levels to influence building shape and spectator views

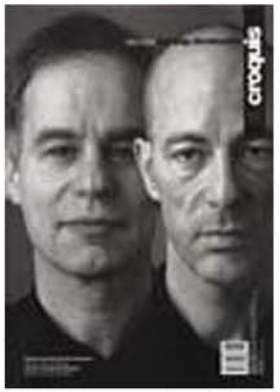
4.3.1 Pfaffenholz Sports Complex

Project: Pfaffenholz Sports Complex, 1992-1993

Location: Saint Louis, France.

Architect: Herzog & De Meuron

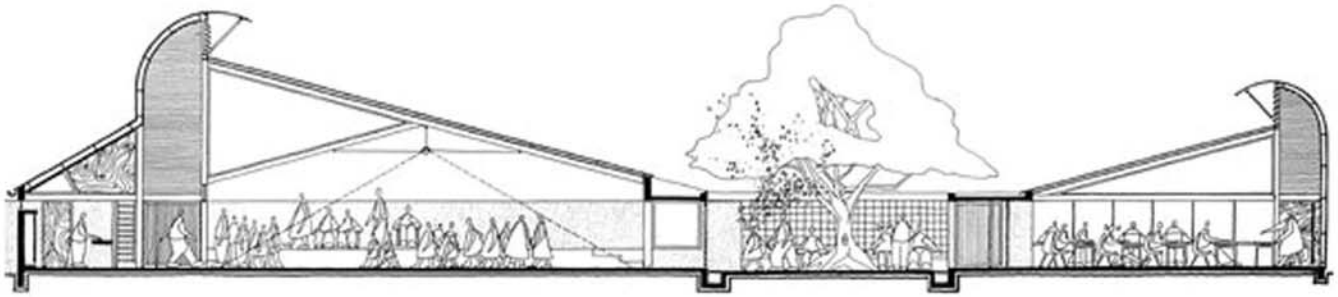
13 Detail design and connections
www.spiluttini.com :2007

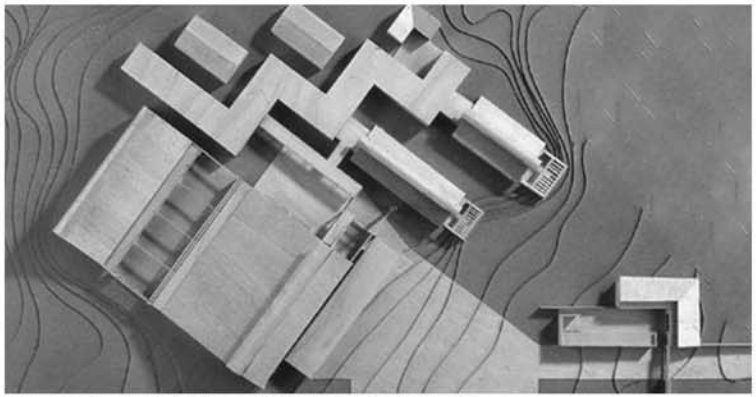


14 Jacques Herzog & Pierre de Meuron
www.spiluttini.com 2007

The *Soweto Careers Centre* is challenged by its context, topographical site limitations and existing buildings on site. (*Clessor,C.:1994:22-29*) Jo Noero kept these structures intact and designed a community centre with innovative vault-shaped roofing structures and brightly painted structural elements that create intrigue and provides for a vibrant and active centre.

The clever roof design is directly influenced by the different functions within the building. The curved IBR-sheeting vault structures are located over the higher floor spaces inside the building where there is in fact a second level in use. Jo Noero has also used mono-pitch roof structures to emphasize intimacy within the building, this is echoed by the flat roofs framing the walkways at the entrances of buildings. Again scale plays an important role as one notices how the sloping roofs subtly embrace the tree that covers the courtyard.





15 Soweto Careers Centre - Jo Noero
www.noerrowolff.com : 2007

Materials Used:

1. Exposed steel columns and truss systems
2. IBR-profile metal sheeting as cladding and roofing system
3. Plastered brick walls - brightly painted
4. Decorated truss interiors
5. Plasterboard ceilings and insulation

Application:

1. Exposed structure to frame buildings
2. Curved sheeting profile to celebrate higher movement levels within a building
3. Concrete and grass combined to form a designed exterior surface that becomes the spatial link between buildings
4. The ways in which a building, surrounding a courtyard, influences it and the spatial links between interior and exterior.

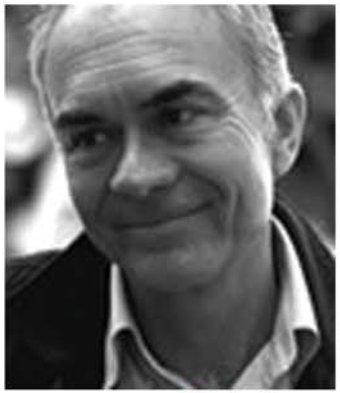
4.4.2 Soweto Careers Centre

Project: Soweto Careers Centre, 1990

Location: Diepkloof, Soweto, Gauteng, South Africa

Architect: Jo Noero

16 Interior and exterior shapes that promote vibrance www.noerowolff.com :2007



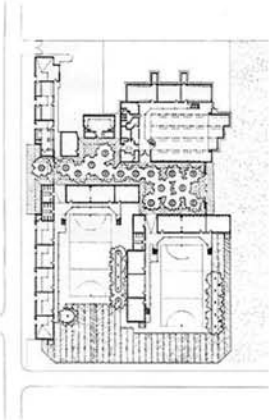
17 Jo Noero
www.noerowolff.com : 2007

The site for the school is within a densely populated informal settlement. It has to be adapted to accommodate a communal sport field and the new Further Education and Training Centre (FET) which calls for more entrepreneurial training. The classrooms on the street edge are designed to be used for entrepreneurial teaching with hatches that open to the street to allow for public interaction. This single storey line of classrooms mimics the scale of the informal settlement around it, but also declares its institutional character. (*www.noerowolff.com:2007*)

In areas like Khayelitsha, schools are often the first public buildings and sometimes the only permanent, durable and expensive buildings. Therefore the street facade of the school has a strong specific image for identification.

There is a central circulation space - a reminder of the organic urban spaces created in informal settlements. It is filled with trees and benches and the perimeter is lined with canopies to facilitate circulation on the scale of both an individual and a crowd. (*www.noerowolff.com:2007*)

The L-shaped classroom blocks protect the open spaces from strong directional winds and sand. The roof lights are shaped to cause suction on the leeward side of the roof and to improve natural ventilation in summer.



18 Usasazo Secondaary School - Jo Noero
www.noerrowolff.com : 2007

Materials Used:

1. Concrete pavings, sports surfaces and building structure lines extended to gutters and concrete paving
2. Concrete building blocks, baggwashed and painted
3. Structural steel columns
4. IBR- profile sheeting
5. Saw-toothed roof truss system to span larger halls
6. Plastered walls painted red or olive green to provide identity
7. Trees and concrete benches to pedestrianize courtyards

Application:

1. The use of large simple signage for orientation
2. The develpment of street facades to accommodate public interaction
3. The use of canopies to protect against climate as well as direct within the building
4. Orientation of buildings to protect courtyards against climate and even crime

4.4.4 Usasazo Secondary School

Project: Usasazo Secondary School, 2004 built

Location: Khayelitsha, Cape Town, South Africa

Architect: Jo Noero

19 The treatment of natural lighting within larger structures
www.noerowolff.com :2007