



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

## Chapter 7

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DESIGN DEVELOPMENT AND TECHNICAL INVESTIGATION

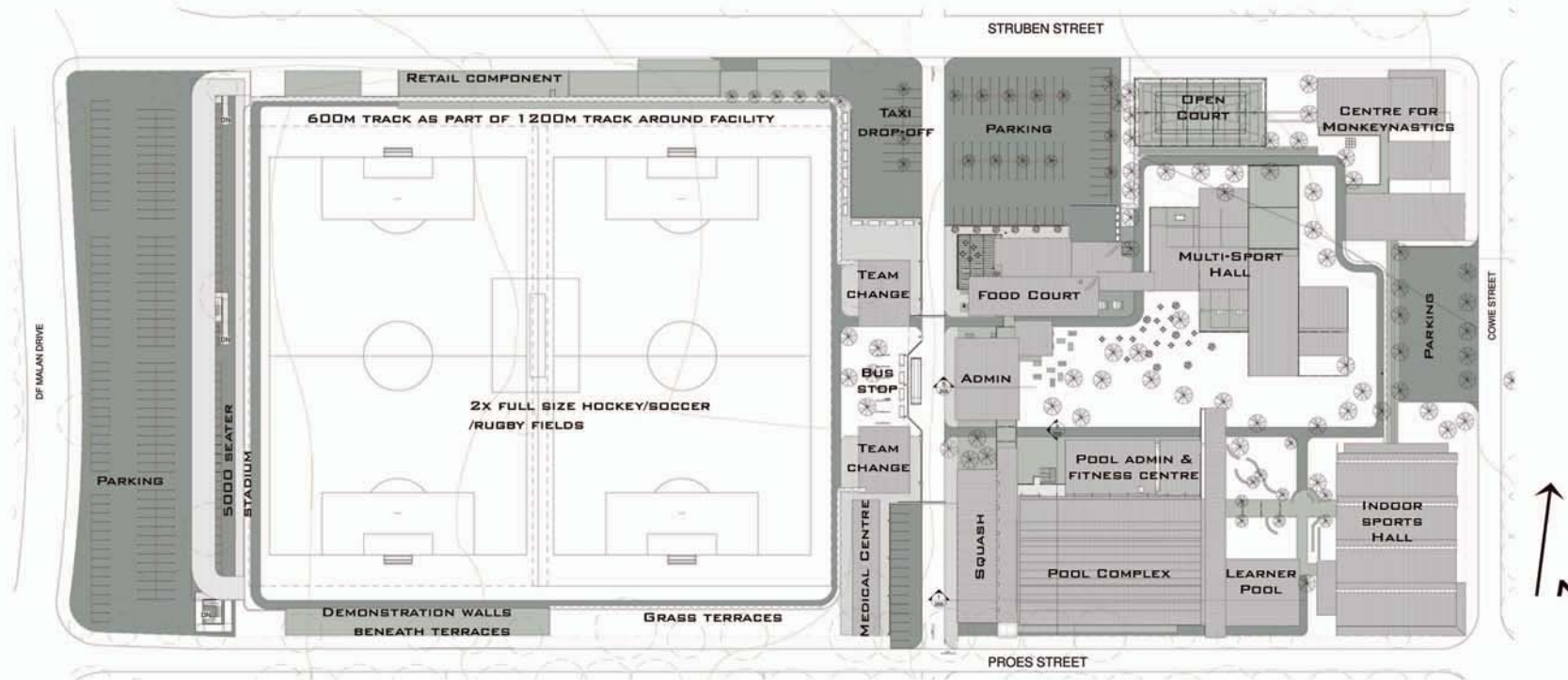
The Centre for Illustrated Sports will accommodate the following

**Marabastad Stadium: 4930m<sup>2</sup>**

1. Two full-size grass pitches (ideal for hockey, soccer and rugby).
2. A 600m running track that connects to the greater 1500m track that weaves through the facility.
3. A mini-stadium with seating for 5000 spectators, equipped with press box for major events.
4. Grass terraces with seating for a further 2500, with built-in demonstration corridors.
5. Changing and shower facilities for 4 teams (2 male, 2 female).
6. Retail component (sublet to tenants) on Proes Street.
7. Sport medical centre with treatment and consulting rooms providing physiotherapy, sports injury massage, and access to specialist doctors, lifestyle and wellness advisors.

**Pool Complex: 8975m<sup>2</sup>**

1. 12 lane 50m swimming pool with depth varying between 1500mm and 2000mm to accommodate underwater hockey, waterpolo, synchronised swimming and water-aerobics.
2. Learner pool with depth of 1200mm to accommodate guided water jogging, swim school, water-aerobics and under water breathing classes.
3. Downstairs changing village equipped with saunas.
4. 6 Squash courts on ground floor level.
5. Fitness centre with 9 treadmills, 26 stationary cycles as well as two demonstration and aerobics halls (respectively 250m<sup>2</sup> and 90m<sup>2</sup>).



01 SITEPLAN SCALE 1:3000  
PLAN BY AUTHOR.

**Indoor Sports Hall: 1570m<sup>2</sup>**

1. 1520m<sup>2</sup> artificial grass flooring suitable for hockey, soccer and event hosting.
2. Seating around perimeter for 600 people.

**Multi-Sports Hall: 1576m<sup>2</sup>**

1. Long Hall with Desso grass flooring suitable for cricket net practise as well as indoor golf.
2. Multi-purpose halls with sprung-wood floors suitable for volleyball, table tennis, badminton and indoor netball.
3. Two Regupol tracks with sand boxes to allow combined triple and long jump.
4. Dojo centre for martial arts training and competitions equipped for karate, judo, wrestling and boxing.
5. Fitness suite equipped with 7 lifting platforms, free & fixed weights as well as stretching and warm-up zone.

**Open Court: 634m<sup>2</sup>**

1. An open court with regupol floor finish to accommodate netball tennis and basketbal. Netting envelope to keep balls in field.
2. 13m high concrete climbing walls fitted with cleats and foot- and handgrips for adventure sport.

**Centre for Monkeynastics: 1513m<sup>2</sup>**

1. Pre-primary and Primary halls for monkeynastic activity.
2. Quiet room or meditation studio for audio-visual hand-eye coordination development, yoga and pilates.
3. Trampoline shaft with two ground fitted mats.
4. External exercise courtyard fitted with purpose made muscle training playground equipment and concrete master climbing walls.

**Admin and Food Court: 1497m<sup>2</sup>**

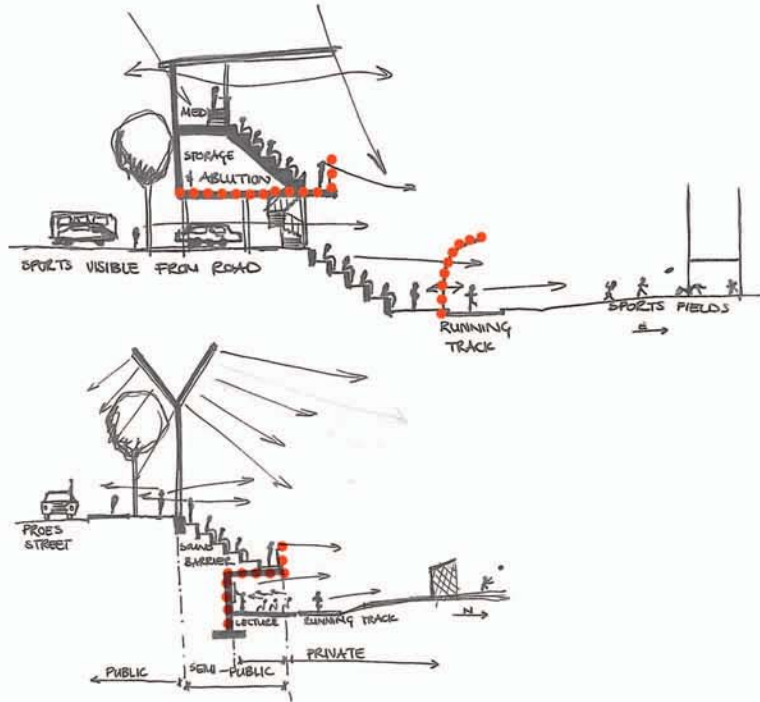
1. Admin offices for centre staff as well as sports club managers or trainers.
2. Full kitchen to cater for take-away and cafeteria, in and outdoor on groundfloor as well as for the roof cafe on first floor.



02 LEAPING  
MAREY DEMENY:1896

03 SOME OF THE SPORTS ACCOMMODATED AT THE CENTRE FOR ILLUSTRATED SPORTS  
COLLAGE BY AUTHOR : 2007





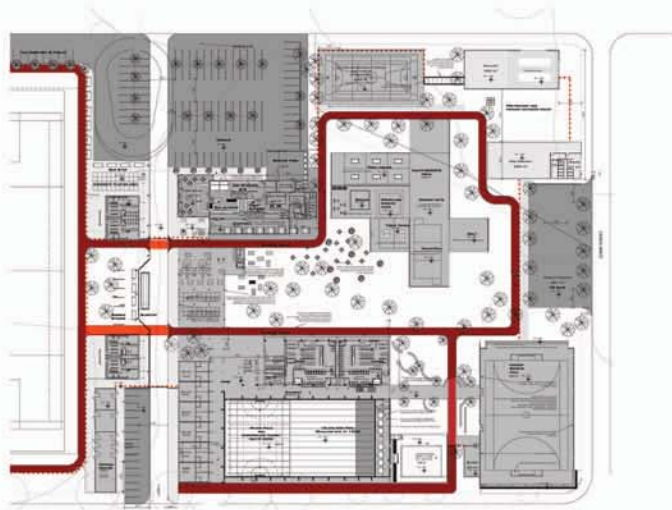
**04 SECURITY PROVIDED THROUGH SLOPE DESIGN AND FENCING**  
SKETCHES BY AUTHOR

**Personal safety** is a major concern when developing takes place in Marabastad. Where possible, slope is utilised as a physical barrier, this is evident at the terraces for the full-size sports fields. The proposed structures is also placed to define safe enclosure. In addition, *Clearvu Fencing* is used to protect the rest of the campus. This is a security barrier which disappears into it's surroundings. It is manufactured from high density, high tensile mesh with apertures too narrow for finger and footholds.

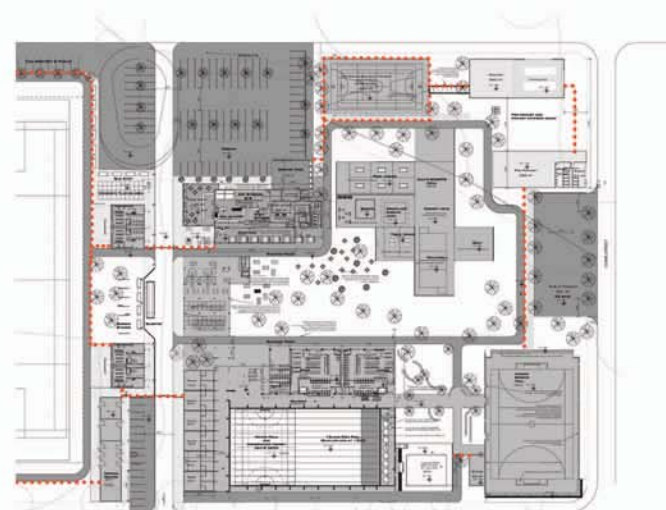
**Night-time security** is enhanced by the use of proper street lighting and visibly active security. The application of a kinetic walkway (a concrete paving with embedded sensors to activate lighting on the facades), will also assist in creating a safer environment for pedestrians. The lights will be visible through translucent sheeting, resulting in an awareness of external movement from within the structure. The activities hosted within this complex, creates for extended hours of use.

The centre is equipped with a 1500m **running track** that can be split up into three separate tracks of 600m, 500m and 400m. The running track is made of *Regu-Turf*, ideally suited for fitness training. An adventure route, deviates from this track, catering for track-and-field athletes. For longer distance runners, the track links up with the *Heritage Route* running through the greater Marabastad area, measuring at a distance of 1800m.

**Landscapes** are designed to promote pedestrian interaction. On the ground floor below the elevated administration component, one of numerous interior courtyards is defined. All concrete paving will be engraved with lines defining games like *hop-sotch*, *hand-ball* and even *chess*. Hollow blocks provide seating for enjoying take-away meals, waiting for the bus, or simply for interaction or reflection.



**05 RUNNING TRACK**  
PLAN NOT TO SCALE : BY AUTHOR.



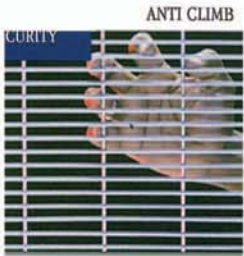
**06 SECURITY FENCE**  
PLAN NOT TO SCALE : BY AUTHOR.



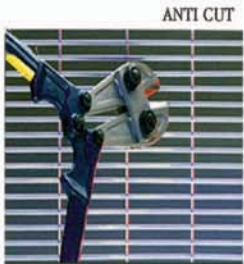
**07 TUDOR ROAD TRAIL CROSSING (USA)**  
INTERNATIONAL IRON AND STEEL  
INSTITUTE : 1997 : 27



**09 TRANSLUCENT SHEETING AT  
CAMBRIDGE UNIVERSITY**  
WWW.CAMBRIDGE/VISUALS.COM



ANTI CLIMB



ANTI CUT

Apertures engineered to prohibit  
fingers, feet or bolt-cutters

**08 VISIBILITY, ANTI-CLIMB AND ANTI-CUT FEATURES  
OF THE CLEARVU 2 SECURITY FENCING SYSTEM**  
WWW.COCHRANESTEEL.COM



**10 KINETIC STREET LIGHTING  
ACTIVATED BY MOVEMENT**  
WWW.KINETICARCHITECTURE.COM



VANDAL PROOF

All fixtures(anti-vandal bolts) protected  
on the inside of the fence line

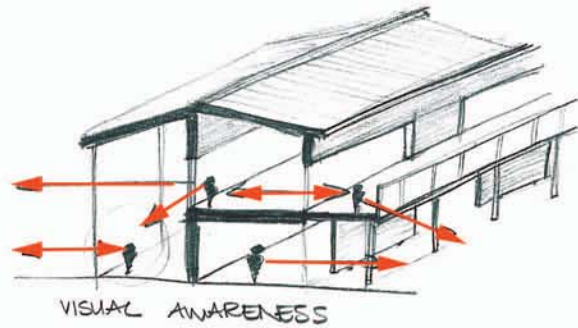


**11 REGUPOL TYPE 7619 AG  
SYNTHETIC OUTDOOR SURFACING FOR  
ATHLETIC RUNNING TRACKS**  
FINTREX : 1995

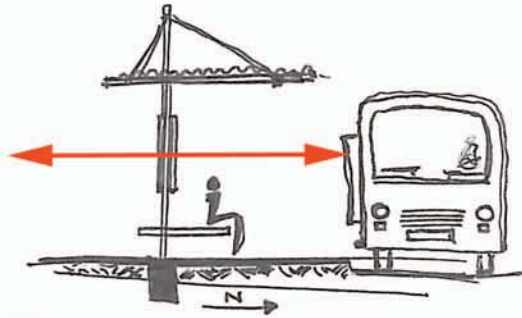


**12 INTERACTIVE COURTYARDS - NEW YORK**  
WWW.INTERACTIVEARCHITECTURE.COM



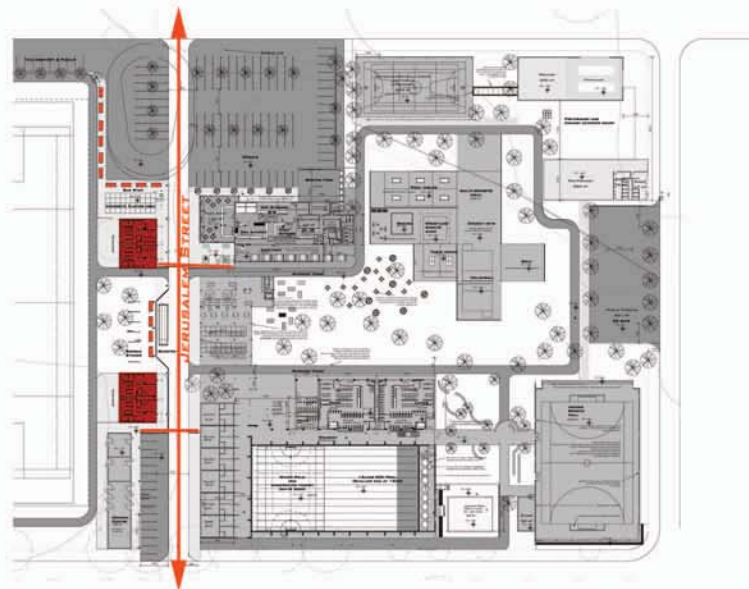


VISUAL AWARENESS



### 13 CHANGE ROOMS AND INTERACTIVE BUSSTOPS

SKETCHES BY AUTHOR

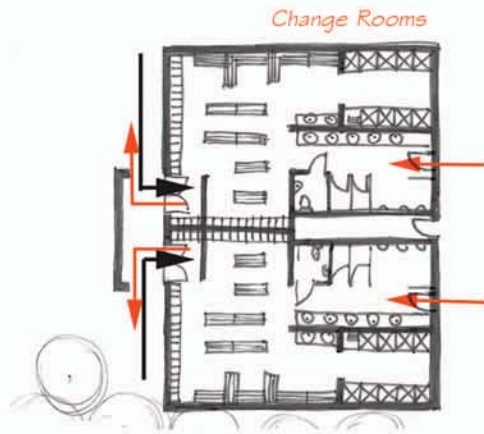


### 14 BUS STOPS AND CHANGING ROOMS

PLAN NOT TO SCALE : BY AUTHOR.

The parking area is designed to accommodate a proper bus turning circle, especially for the high flow coming from the North along DF Malan Drive East and down Struben Street. A taxi-drop off zone will cater for the vast amount of taxi commuters in Pretoria CBD. **Bus shelters** are constructed from standard steel profiles to assist with mass production. The aim is to erect similar bus stops throughout Marabastad and even Pretoria Inner City. The shelters should respond to individual locations using a variety of materials dressing/cladding the steel frames. The use of intelligent screens on these structures will create for functional information centres.

Big sliding gates across Jerusalem Street will control vehicular access, whilst allowing a **pedestrianised thoroughway** when closed. This will allow buses to access the complex with relative ease when dropping off sports teams. This drop-off is situated in close proximity to the change rooms and ablution facilities provided for the teams. These dressing rooms can be open to public when necessary. Participating teams filter through these cloakrooms to gain access to the full-size sports fields on the opposite side. On first floor level over the change room, seating can be rented out to fans or teams partaking in games. Transparency and visual connection allow for passive surveillance in this area.



15 MOVEMENT THROUGH CHANGE ROOMS  
SKETCH PLAN BY AUTHOR : 2007

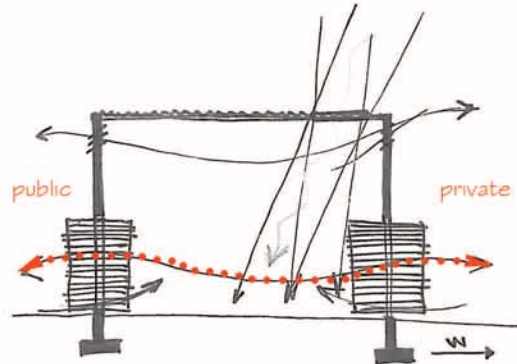


16 TRAM STATIONS WITH SIMILAR STRUCTURE AND ALTERNATIVE INFILL MATERIALS, HANNOVER, GERMANY  
BELL, B. , ET AL. : 2006



17 KINETIC TOUCH SCREENS  
WWW.KINECITY.COM : 2007





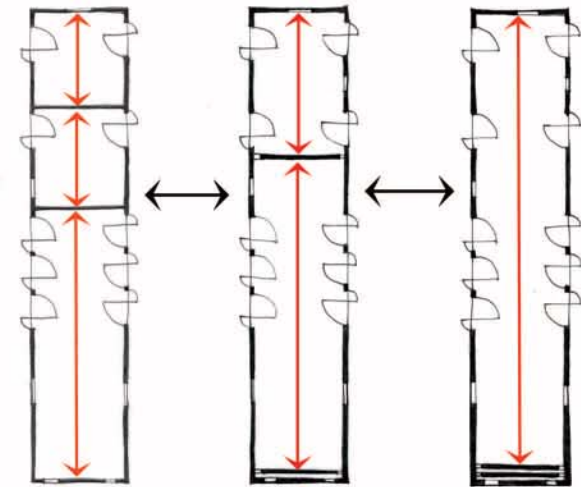
**18 AIR MOVEMENT THROUGH THE MEDICAL CENTRE**  
TYPICAL SECTION BY AUTHOR : 2007



**19 MEDICAL CENTRE**  
PLAN BY AUTHOR : NOT TO SCALE.

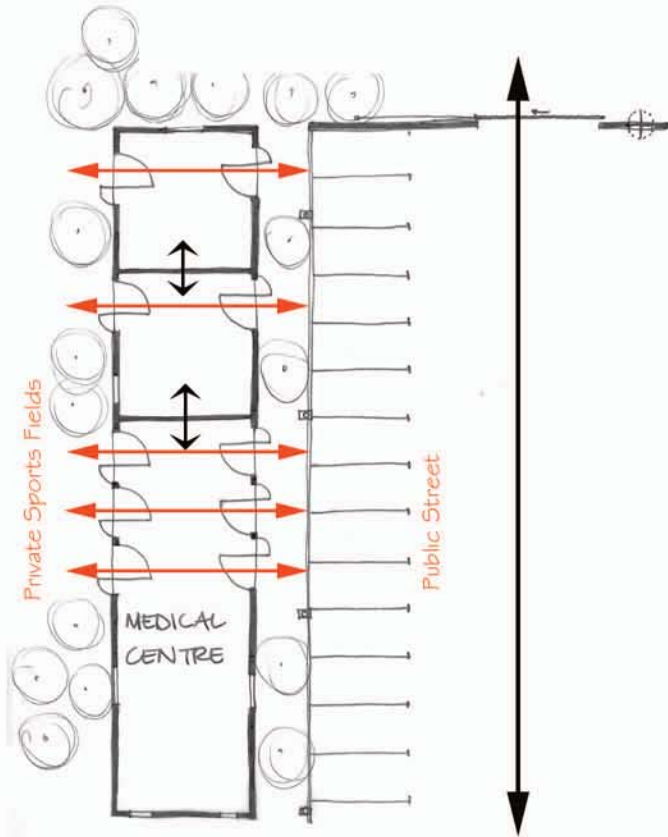
The Medical Centre is designed as a **sports injury clinic** with the potential of a full sports medicine and science centre. Treatment and consulting rooms are defined using movable partition within a large hall. The centre will provide services such as physiotherapy and sport massage, amongst others. The structure is adaptable to serve the needs of the different inhabitants. It will be equipped with enough electronics cabling to support a human performance centre for physiological testing and monitoring. A *Medical Health Clinic* is situated on the island between the two DF Malan Drives and to the south of Proes Street. This provides access to specialist doctors and lifestyle and wellness advisors; the Medical Centre on campus becomes the meeting place between athlete and professional.

Large **pivoting panels** are used to create an adaptable structure that could be private if need be, but also has the capacity to either open up to the public on street level, or towards the sports fields. The interior divider walls are **shifting screens** that run on tracks fitted to the structure floor and ceiling, enabling different interior configurations to accommodate various activities. These walls are framed by 50mm openings that allow light through in order to emphasize structural adaptability. For ease of operation, all services are fitted in the floor. This transitional space is rather similar to the treatment facilities at the finishing line of the Comrades, albeit housed within the static determinants of a permanent structure.



**20 ADAPTABLE INTERIOR**  
SKETCHES BY AUTHOR : NOT TO SCALE





**21** MOVEMENT THROUGH THE MEDICAL CENTRE  
SKETCH PLAN BY AUTHOR : 2007



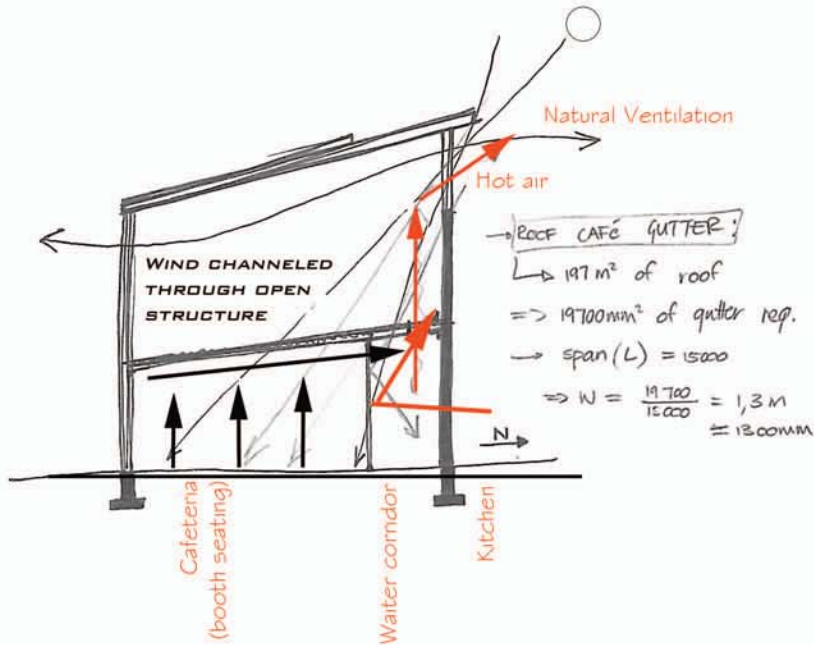
**22** SPORT THERAPY CENTRE, TEAM BATH SPORT CENTRE,  
UNIVERSITY OF BATH, GERMANY  
[WWW.TEAMBATH.COM](http://WWW.TEAMBATH.COM) : 2007



**23** SHIFTING WALLS AND USE OF LIGHTING BEHIND  
TRANSLUCENT SHEETING AT CAMBRIDGE UNIVERSITY  
[WWW.CAMBRIDGE/VISUALS.COM](http://WWW.CAMBRIDGE/VISUALS.COM)

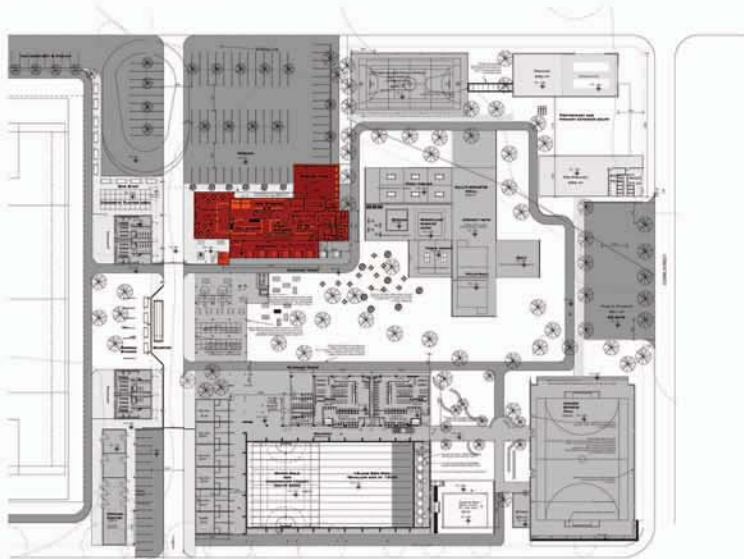


**24** SHIFTING WALLS FRAMED BY LIGHT, RESPONSIVE SPACE,  
MIT, MASSACHUSETTS, USA  
[WWW.INTERACTIVEARCHITECTURE.COM](http://WWW.INTERACTIVEARCHITECTURE.COM) : 2007



## 25 AIR CIRCULATION IN THE CAFETERIA

SKETCH BY AUTHOR



## 26 FOOD COURT

PLAN BY AUTHOR : NOT TO SCALE

The **Food Court** consists of a Cafeteria, Garden Cafe and Take-Away on ground floor, and a Roof Cafe on the first floor. The kitchen is equipped to cater for a capacity of 150 sit-down customers per meal. Deliveries therefore amount to an average of 25,5kg/5troleys per day. (Adler, D.:1999: 18-8) Ample storage is provided in a 10m<sup>3</sup> cold store with deep freeze and cold room. Dry storage shelving amount to 0.45x25 running metres for canned and dried items to be delivered three times per week. The **Hot Kitchen** is equipped with 1 oven, two 2kW microwave ovens, one 0,5m<sup>2</sup> griller, two 0,6m<sup>2</sup> griddles and a 90kg/hr fryer.

The **Cold Kitchen** consists of four work stations; for the preparation of fish, meat, vegetable and salad as well as dessert. The area is fitted wash basins connected to a floor drain and grease trap. The **Scullery** has a sterilising dishwasher, with the capacity to do 3000 pieces/hr, as well as two wash basins and ample worktop space. Refuse collection occurs once a week from the delivery yard where 5 waste containers are covered with shade cloth to protect against harsh conditions. A 380V 3Phase dumb waiter connects the kitchen with the Roof Cafe.

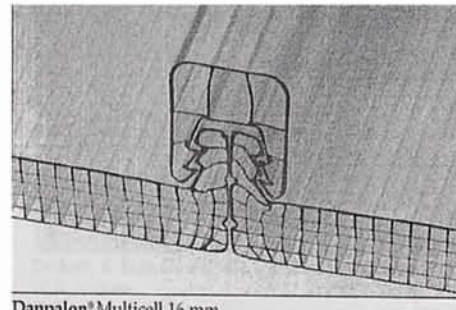
In order to comply with SABS/SANS 0200, openings are scattered at non-overlapping intervals to contain sound within the **waiter corridor**. The floors are covered with *Microplex* perforated tiles and *Gypsum fibre* panels are used for sound absorbing ceilings. According to SABS/SANS 0400, the air requirements within kitchens and cafeterias are 17,5 l/s and 7,5l/s(smoking) & 5l/s(non-smoking) respectively. Thus, a centrifugal fan (from *Xpelair*) will be installed in the kitchen, with an air duct & filter above grills and stoves. The waiter corridor is lined with 8mm toughened glass, with printed decals for obstructed views to the kitchen. It not only acts as acoustics barriers, but also insulates and therefore confines the heat generated by the kitchen. The corridor is fitted with a *Danpalon* roof to let natural light in, and with a louvered vent to allow accumulated hot air to escape.

The Take-Away component's location allows for **passive surveillance** onto the parking lot, busstops and bicycle rack. The extended operating hours of this facility creates for safer surrounding environments.





29 FRAMED ENTRANCES, INDIGENOUS SYSTEM  
JO NOERO  
WWW.NOEROWOLFF.CO.ZA : 2007

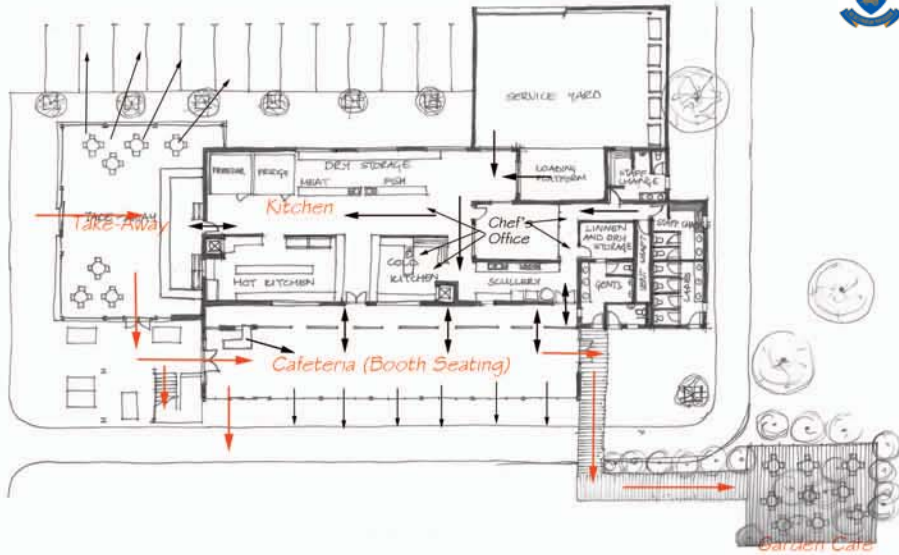


Danpalon® Multicell 16 mm.

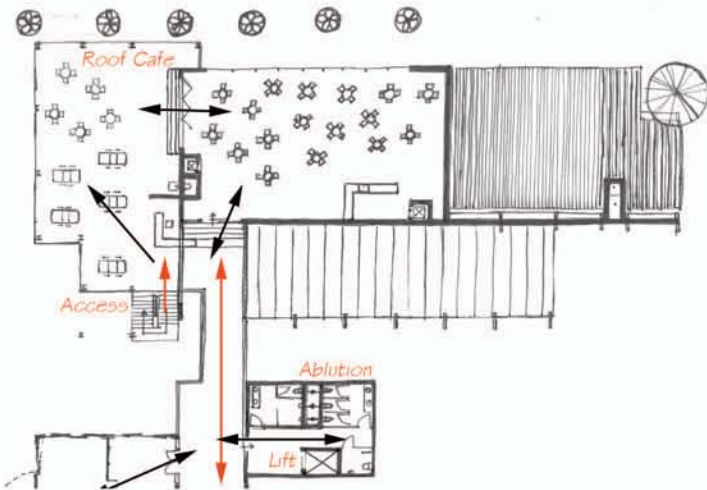
30 16MM TRANSLUCENT DANPALON MULTICELL  
ROOFING PANELS  
REVOLUTIONARY DANPALON SYSTEMS : 2007



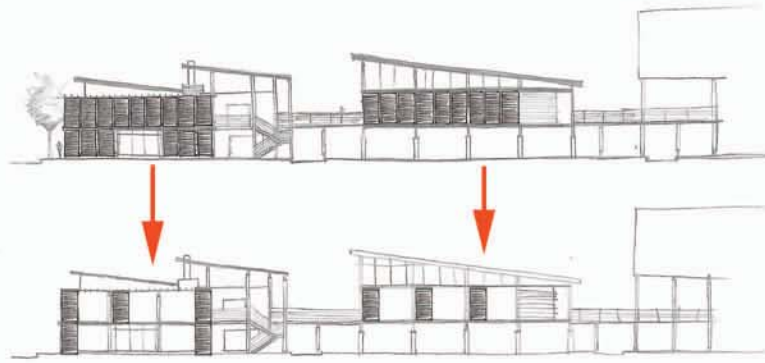
31 BOOTH SEATING, CAFETERIA - CANTEEN 01  
WWW.INTERACTIVEARCHITECTURE.COM : 2007



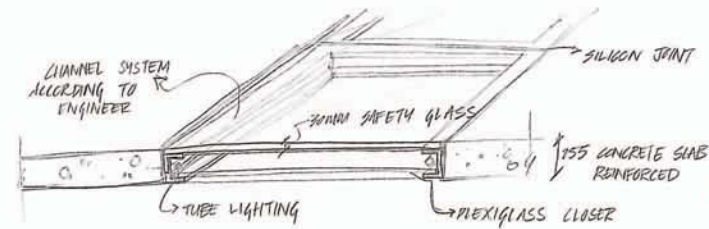
27 FOOD COURT GROUND FLOOR - NOT TO SCALE  
SKETCH PLAN BY AUTHOR : 2007



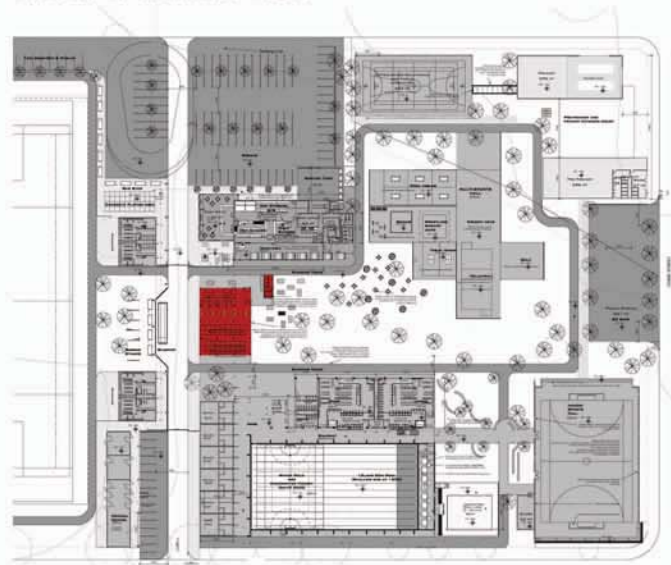
28 FOOD COURT FIRST FLOOR - NOT TO SCALE  
SKETCH PLAN BY AUTHOR : 2007



**32 FACADE POSSIBILITIES ACCORDING TO SUN ANGLES**  
SKETCH BY AUTHOR : 2007



**33 GLASS FLOORING DETAIL**  
SKETCH BY AUTHOR : 2007

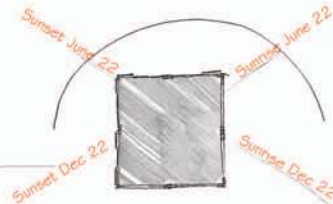


**34 ADMINISTRATION**  
PLAN BY AUTHOR - NOT TO SCALE : 2007



12:00 summer solstice:  
22 June - 41°  
21 March/23 Sept - 65°  
22 Dec - 88°

17:00 summer solstice:  
22 June - 3°  
21 March/23 Sept - 14°  
22 Dec - 24°



MINIMUM NATURAL LIGHT  
MAX ARTIFICIAL LIGHT REQUIRED



MEDIUM NATURAL LIGHTING  
MEDIUM ARTIFICIAL LIGHT REQUIRED



MAXIMUM NATURAL LIGHTING  
MINIMUM ARTIFICIAL LIGHT REQUIRED

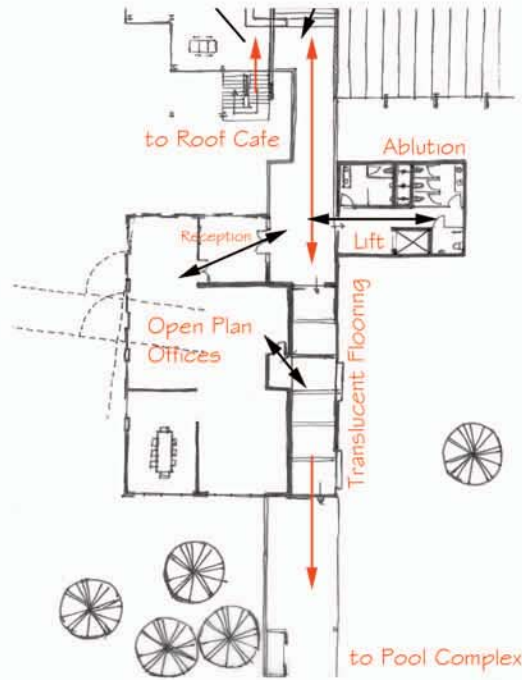
The **Administration** building is lifted from ground floor to allow the green corridor from Steenhoven Spruit to extend through the site. The elevated position also makes it visible from various locations. Access is provided via a passenger lift and an open-air staircase. The building comprises of a steel structure on a 5m column grid with toughened *Solar E* glazing infill panels. Sliding louvre doors are used to permit direct sunlight from entering the offices. These sliding panels allow the user to alternate the spread of the facade according to his or her needs. The steel columns are clad with translucent sheeting to allow natural lighting in, even when the entire facade is closed. Fluorescent tube lighting are fixed to the sides of the clad steel structures for artificial lighting. This will illuminate the courtyard below at night time.

Adjustable *Luxalon* louvre systems are installed to allow accumulated hot air out during hot summers. The glazing panels are fitted with opening profiles for cross ventilation. The sloping roof provides ample space for the installation of an aircon duct along the middle of the open plan offices.

The **walkway floor** that runs through the structure is made of 20mm frosted toughened glass from *SmartGlass*. The 1,5x3m glass panels are fitted on lipped channel purlins bolted to the building structure. The permeability of the floor allows the dwellers below obstructed views of the building users as well as a constant awareness of movement. All glazing consist of a transparent honeycomb insulation plus light diffusing veils sandwiched between two lites or architectural glass. An energy-efficient metal spacer and structural silicone surround the structure and a breather tube assures air pressure equilibrium.

Application of *Solera L* from *SmartGlass*:  
Visible light transmittance = 3% - 67%  
Shading Coefficient = 0.04 - 0.75  
Light diffusing power = Moderate to excellent  
Size limit = 1524x64x3658mm  
Fitted with operable windows  
([www.smartglass.co.za:2007](http://www.smartglass.co.za:2007))





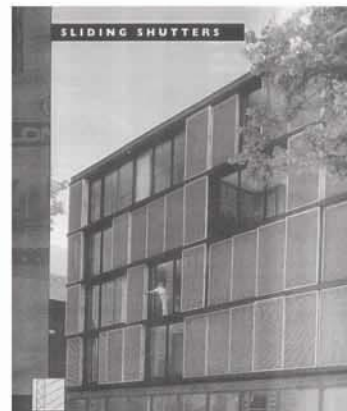
**35 MOVEMENT THROUGH ADMINISTRATION BUILDING**  
SKETCH PLAN BY AUTHOR : 2007



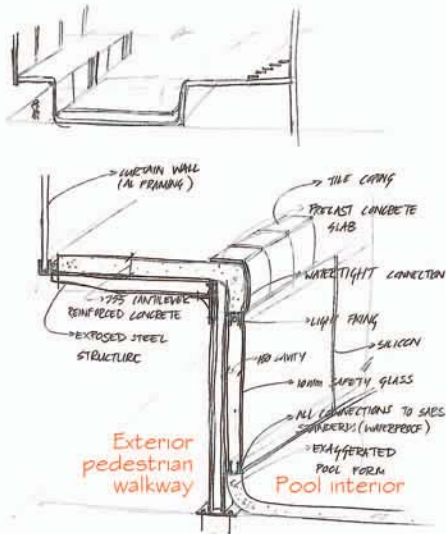
**36 MOVEMENT AWARENESS THROUGH GLASS FLOORING**  
SB MAGAZINE : 1/2005



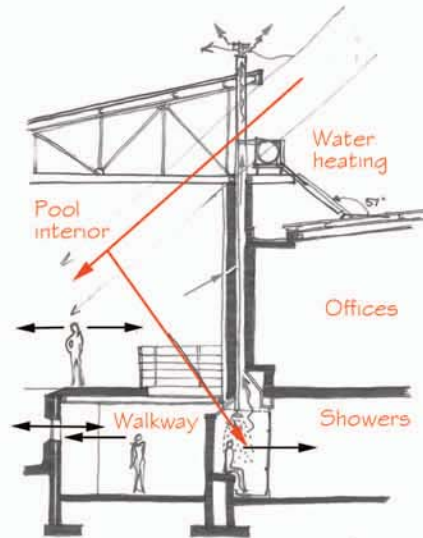
**37 CORRUGATED POLYCARBONATE, FILTERED LIGHT AND SOUND, HOUSE IN IMAZATO, JAPAN, KATSUYASU KISHIGAMI**  
BELL, V. B., ET AL. : 2006



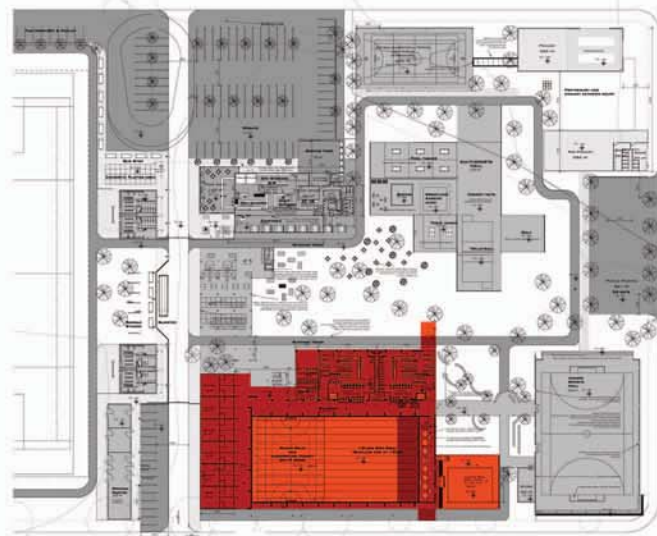
**38 SLIDING SHUTTERS FROM LUXALON**  
LUXALON SUN CONTROL SYSTEMS : 2005



39 VISIBILITY INTO POOL - INITIAL CONCEPTS  
SKETCH BY AUTHOR - 2007



40 AIR CIRCULATION AND LIGHT EMISSION  
SKETCH BY AUTHOR - 2007



41 POOL COMPLEX  
PLAN BY AUTHOR - NOT TO SCALE : 2007

POOL GUTTER

MAIN  
 $\hookrightarrow 20000 \text{ m}^2$  of roof  
 $\Rightarrow 20000 \text{ mm}^2$  of gutter req.  
 $\rightarrow \text{span (L)} = 47700$   
 $\Rightarrow W = \frac{20000}{47700} = 419 \text{ mm}$   
 $\approx 420 \text{ mm}$

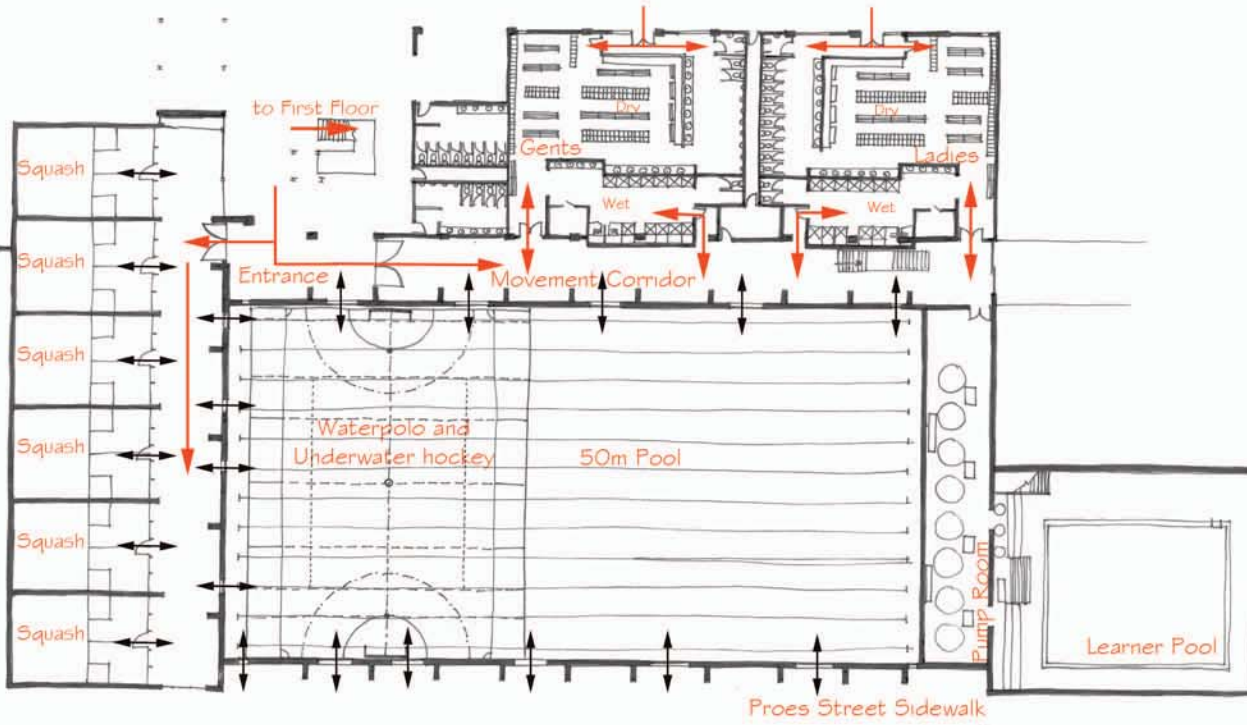
OFFICES  
 $\hookrightarrow 229 \text{ m}^2$  of roof  
 $\Rightarrow 229000 \text{ mm}^2$  of gutter req.  
 $\rightarrow \text{span (L)} = 35700$   
 $\Rightarrow W = \frac{229000}{35700} = 640 \text{ mm}$

On arrival at the **Pool Complex**, the user is diverted towards a long corridor that leads you to a changing village, equipped with lockers, showers and even a sauna. Frosted *Danpalon* ceilings fitted at the back wall of the showers, allows natural light in from within the Pool Complex. A vent shaft is provided above the showers to allow hot air out. PVC pipes set at intervals in the wall of the complex, are connected to this shaft to draw out excessive humid air within the complex. The corridor leads to a staircase at the end, which takes users to the first floor.

Back at the entrance an alternative route will take the user to 6 squash courts fitted with 12mm *Contra-vision* Glass walls and louvres at a height of 5m for ventilation. The back wall of the squash courts create a barrier for the western afternoon sun and helps keep the complex cool. Across from the squash courts, are glass panels in the gunite concrete pool construction to allow for views into the pool. These are also found along the corridor and the pool facade on Proes Street. After investigation it became clear that a pool this size would generate too much water pressure for full-size windows; small(600x600mm) square windows or longer and thinner(1200x600mm) would be more suitable. The 32mm laminated toughened glass is fixed with 125x50mm steel hollow section frames and 3mm high density foam. The pool is retained by a 100mm gunite concrete leaf, with 280mm brick cavity wall supported by 600x230mm brick buttresses at 3000mm centres.

The pool uses saltwater that is heated by absorber heating panels set on the roof. The water is cleaned by 8 *sandfilters* (1000diax2400mm fibreglass reinforced tanks) and 4 *chlorifiers* (600x1200x800 fibreglass reinforced PVC tanks). The filter pump and motor is manufactured by *PoolEquip*.





**42** MOVEMENT AND VISIBILITY OF POOL COMPLEX - GROUND FLOOR PLAN  
SKETCH PLAN BY AUTHOR - NOT TO SCALE



**43** RECDECK PVC FLOORING  
WWW.POOLEQUIP.COM : 2007



**44** SAUNA, FOUNDERS COMPLEX,  
UNIVERSITY OF BATH, GERMANY  
WWW.TEAMBATH.COM : 2007



**45** STEGMEIER DECK DRAIN SYSTEM  
WWW.POOLEQUIP.COM : 2007



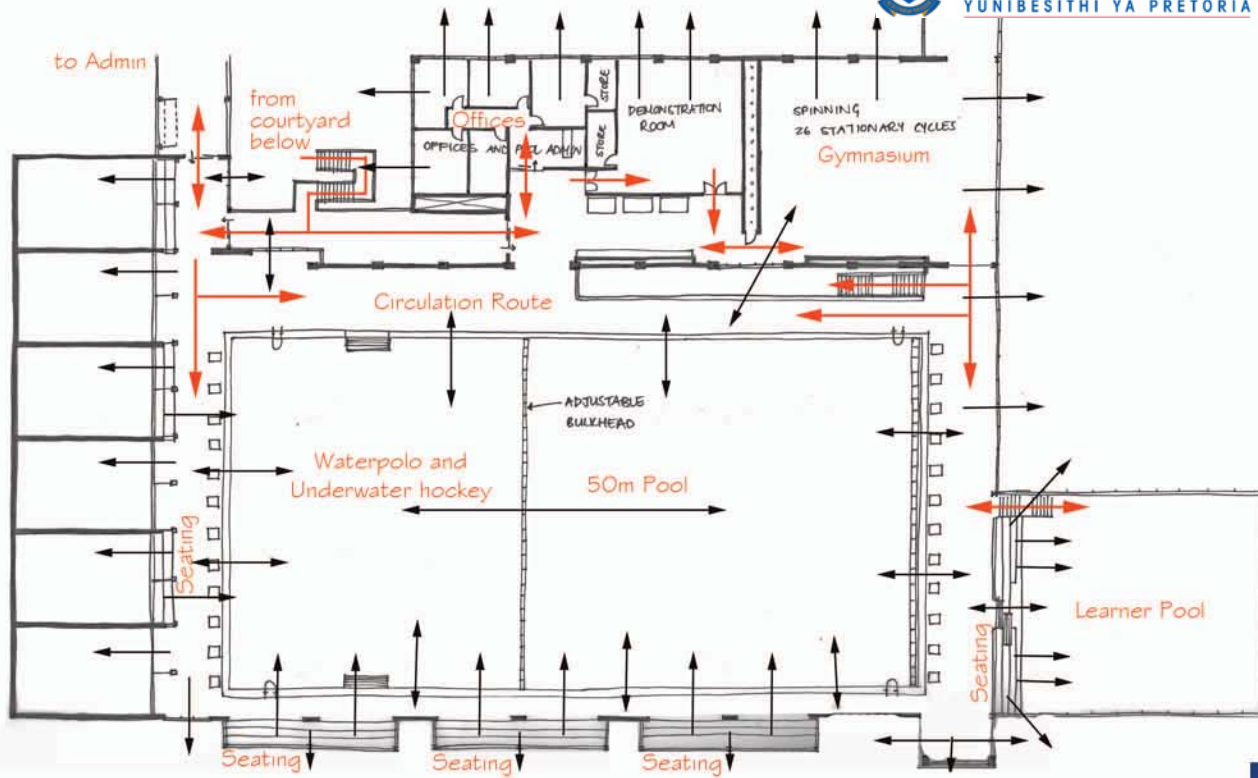
**46** SLIDING INTERIORS HOUSE MONCRIEFF,  
DE WATERKANT, CAPE TOWN  
MEYER & VORSTER ARCHITECTURE SOUTH  
AFRICA : 8/2007

### 7.7.1 GROUND FLOOR

## 7.7 Pool Complex

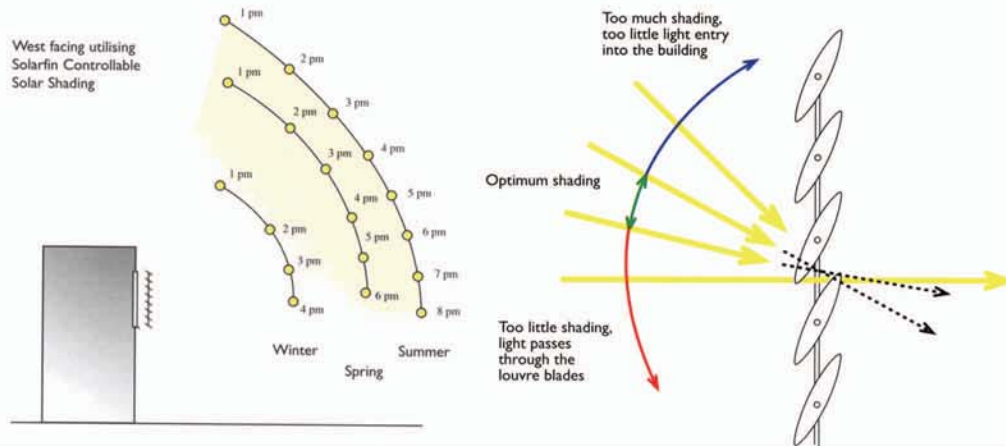






**51 INTERIOR TRUSS SUPPORTS,**  
POLYMER ENGINEERING CENTRE,  
VICTORIA, AUSTRALIA  
BELL, V. B., ET AL. : 2006

**49 MOVEMENT AND VISIBILITY OF POOL COMPLEX - FIRST FLOOR PLAN**  
SKETCH PLAN BY AUTHOR - NOT TO SCALE



**50 CONTROLLABLE SOLAR SHADING - SOLARFIN FROM SOLAR SHADING INDUSTRIES**  
SHADOMETAL BROCHURE : 2007



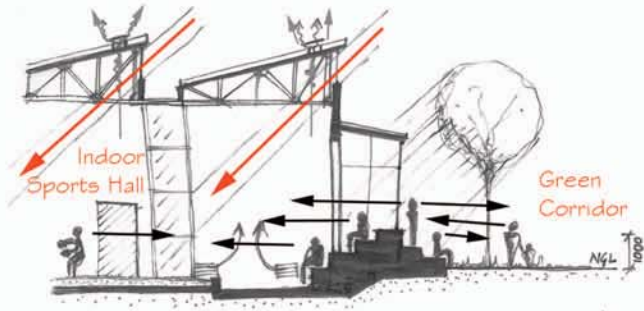
**52 CURVED TRANSLUCENT SHEETING**  
POLYMER ENGINEERING CENTRE,  
VICTORIA, AUSTRALIA  
BELL, V. B., ET AL. : 2006



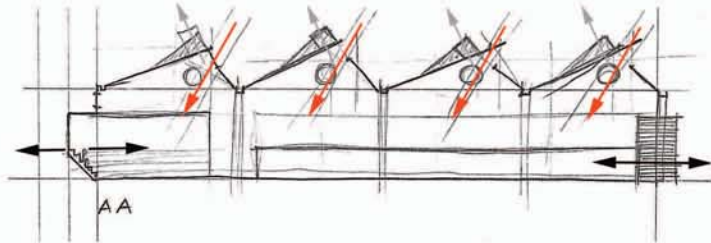
**53 MULTI-FUNCTIONAL POOL,**  
FOUNDERS COMPLEX,  
UNIVERSITY OF BATH, GERMANY  
WWW.TEAMBATH.COM : 2007

## 7.7.2 FIRST FLOOR

# 7.7 Pool Complex



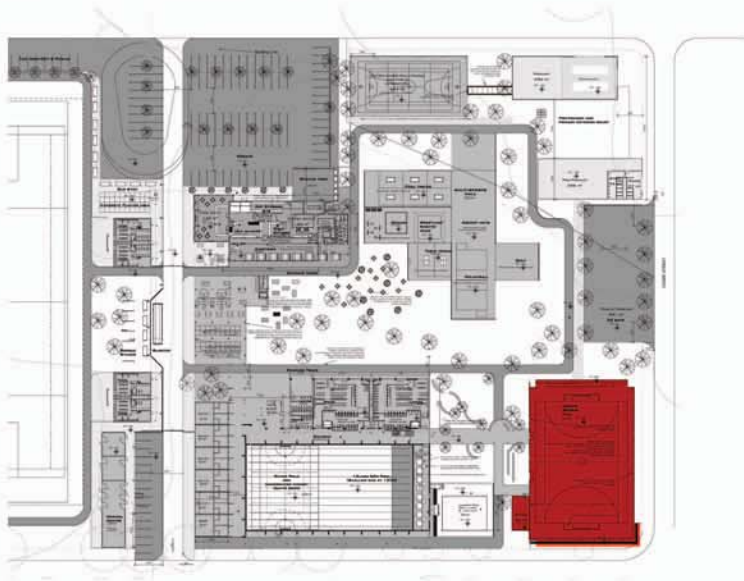
54 INTERIOR AND EXTERIOR VIEWS  
SKETCH BY AUTHOR : 2007



55 NATURAL SUNLIGHT AND CROSS-VENTILATION  
SKETCH AND 3D BY AUTHOR : 2007



Spring Equinox



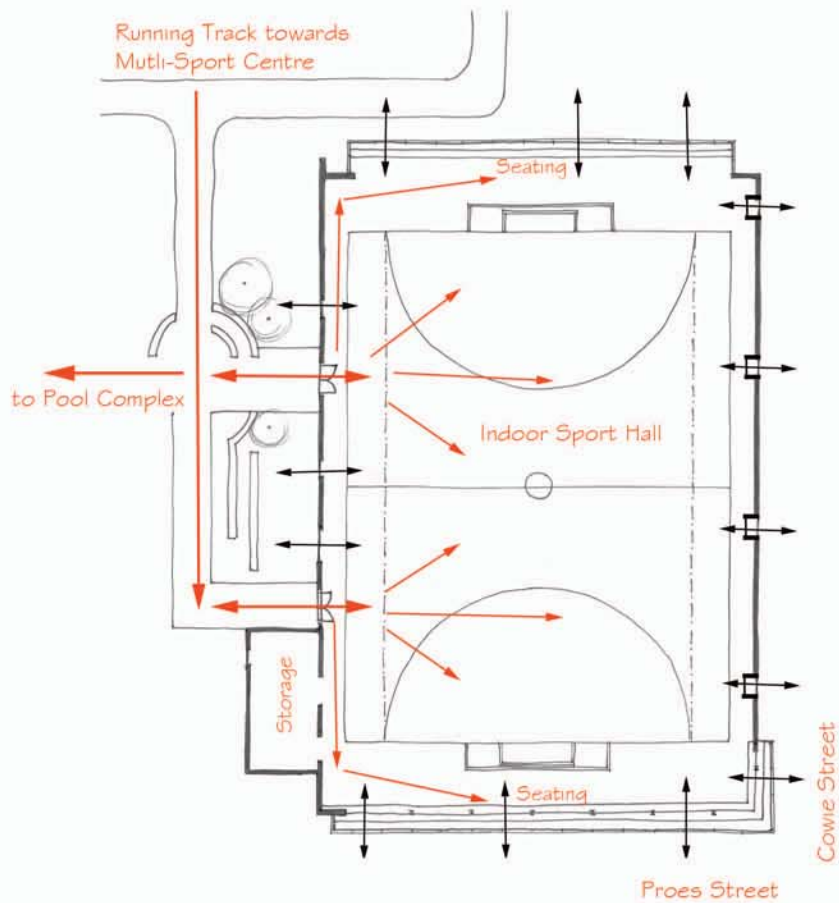
56 INDOOR SPORTS HALL  
PLAN BY AUTHOR - NOT TO SCALE : 2007

The corridor along the pool leads to the outside where curved seating walls covered under trees provide courtyard seating for gathering. The pathway connects to the a 1500m<sup>2</sup> **Indoor Sports Hall**. The floor is covered with *Desso Sportsflooring*, (consisting of 7,6mm polyolefin fibre woven interlocking fabric on a 10mm *Regupol* shock absorbing underpad with a 170mm concrete subbase) ideal for 5-a-side soccer, netball, 6-a-side cricket, hockey training and for instance Super Sport's *LetsPlay* initiative. The northern and southern walls of the hall are punctured by glazed openings which frame precast concrete spectator seating. For outside pedestrians to be able to see the activities inside the hall, the level difference between the height of the spectator seating and the external finished floor level must be no greater than 1000mm. The sports surface is therefore dropped to below ground level. This also accommodates the aspect of water reticulation as these type of floors require vast amounts of water. The equipment store, open to the inside, has a door connecting it to the outside for external fitness exercises.

**Natural light** enters the hall through continuous clerestories along the roof structure. Glazing continues along the sides of the structure. Alternate thickness translucent sheeting panels with low energy fluorescent lighting are fixed to the structure. Aluminium framed glazing is fixed to the sheeting at right angles, forming interior niches for scoreboard keeping, the fixing of curtains and the fixing of climbing apparatus. The external facade will however remain flush in order to avoid it from being used as a urinal. Due to the translucent nature of the cladding and the lighting fixtures set within the walls, these structures will light up their surroundings at night time.

**Mechanical ventilation** is fixed to the inside of the roof trusses down the centre of the structure. Adjustable louvres are installed along the base of the walls in order to allow fresh air intake. Hot air will rise and accumulate at the highest points of the roof trusses where vents allow escape.





57 MOVEMENT IN AND VIEWS THROUGH THE IDOOR SPORTS HALL  
SKETCH PLAN BY AUTHOR - NOT TO SCALE : 2007

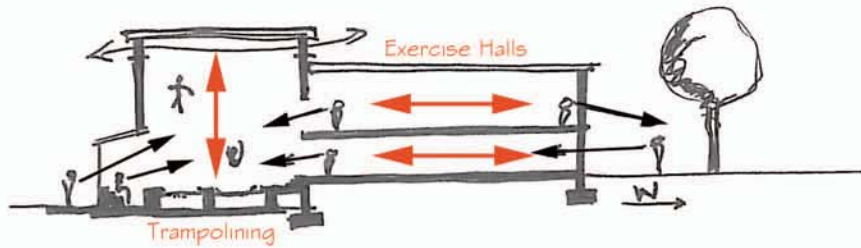


58 GRANTHAM INDOOR GRASS HALL, MICHIGAN, USA  
WWW.GRANTHAM.COM : 2007

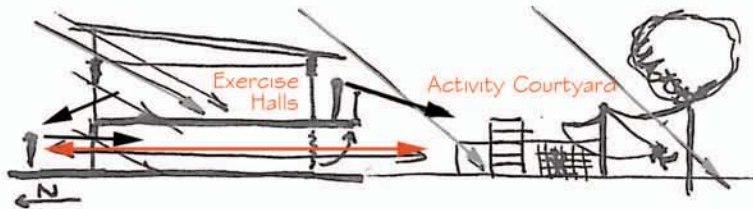


59 OVERLAPPING FROSTED SKINS OF GLASS,  
AMBASSADOR'S RESIDENCE, WASHINGTON DC, USA, STEVEN HOLL  
ARCHITECTURAL REVIEW : 5/2007

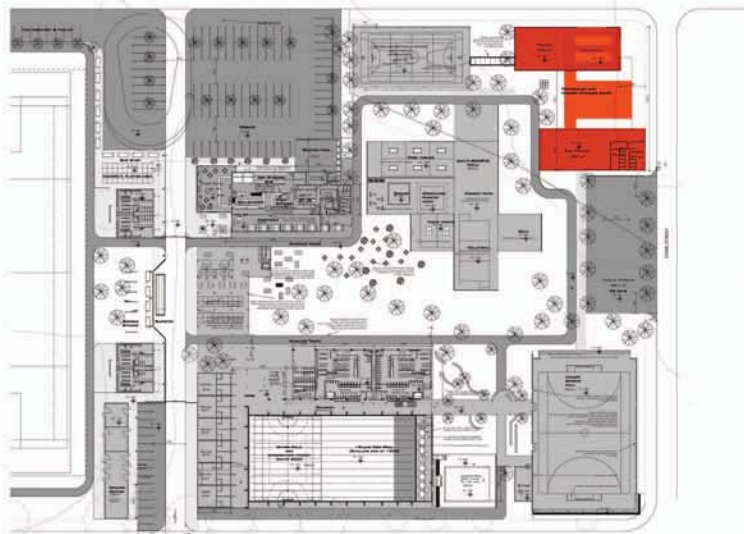
## 7.8 Indoor Sports Hall



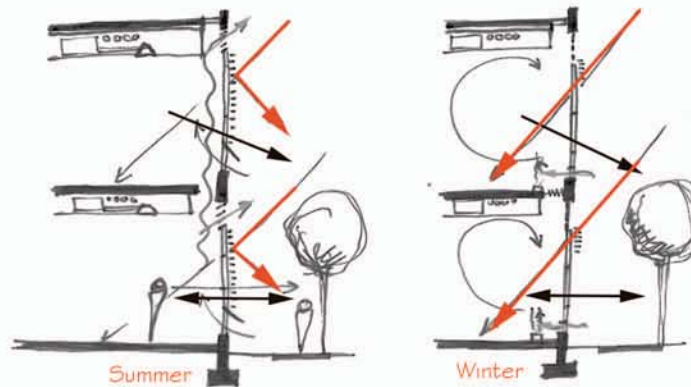
60 VISIBILITY FROM INTERIOR AS WELL AS EXTERIOR  
DIAGRAM BY AUTHOR : 2007



61 PASSIVE SURVEILLANCE AND VISIBILITY  
DIAGRAM BY AUTHOR : 2007



62 CENTRE FOR MONKEYNASTICS  
PLAN BY AUTHOR - NOT TO SCALE : 2007



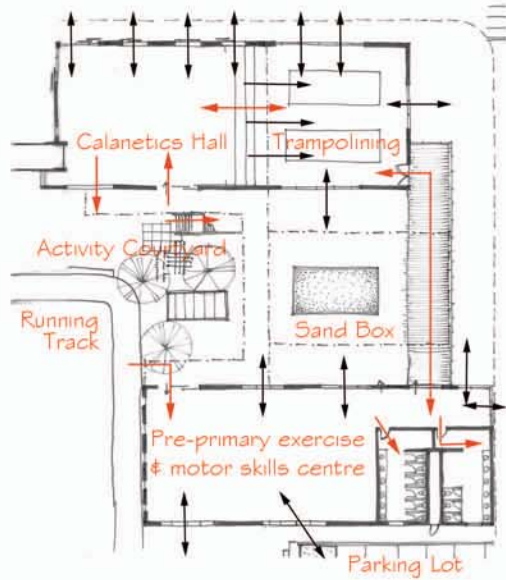
63 AIR RETICULATION IN WINTER AND SUMMER  
DIAGRAMS BY AUTHOR : 2007

The **Centre for Monkeynastics** caters specifically for primary and pre-primary school kids. The centre is aimed at developing the motor skills of the children through a spectrum of games and activities. The activity courtyard is equipped with climbing apparatus, a sand box and training slopes. The building structure encloses the courtyard on three sides, not only protecting the it from wind and sun, but also creating a safe environment for outdoor activities. Exterior walls are built with brightly coloured glazed bricks, each colour representing a different type of sport hosted at the **Centre for Illustrated Sports**.

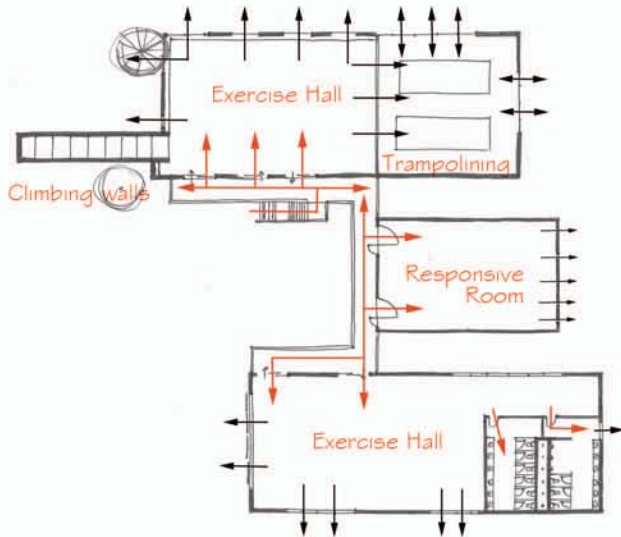
The **Meditation Room** is a steel structure suspended between two brick structures, externally clad with *miniwave corrugated stainless steel sheeting* and insulated with 40x600 tongue-and-groove *Isoboard*. Windows are limited to 200x1200mm openings in the eastern facing wall to avoid from interrupting meditation. Cross ventilation is promoted by door openings in the western facade and adjustable louvres below windows in the eastern facade. The entire room is naturally lit through the application of 16mm translucent *Danpalon Multicell* roofing panels with superior light transmission to insulation ratio.

Retractable and adjustable louvres are fitted external to double glazed windows on the northern facade of the exercise halls. Adjustable vents at the top and bottom of windows allow air to pass in and out. Floor slabs stop short of the facade to assist with **ventilation** of interior spaces. All vents and louvres are operable by a building management system, catering for varying needs.





**64 CENTRE FOR MONKEYNASTICS GROUND FLOOR PLAN**  
SKETCH PLAN BY AUTHOR - NOT TO SCALE : 2007



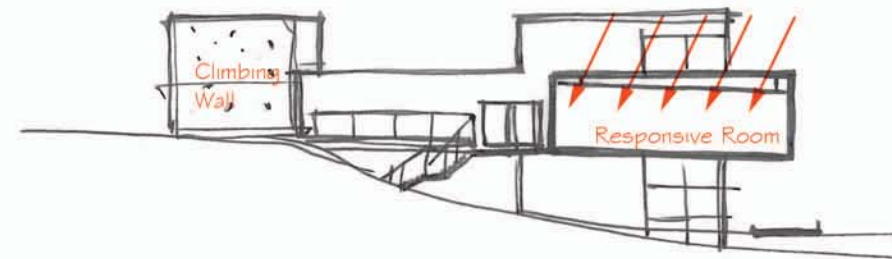
**65 CENTRE FOR MONKEYNASTICS FIRST FLOOR PLAN**  
SKETCH PLAN BY AUTHOR - NOT TO SCALE : 2007

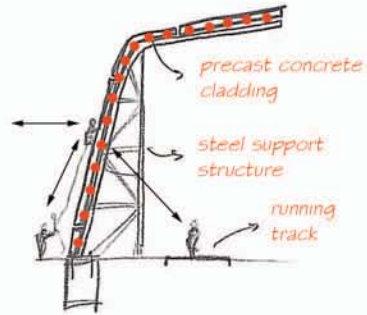


**66 MINIWAVE CORRUGATED STAINLESS STEEL SHEETING, PROFIL ARBED HEAD OFFICE, LUXEMBOURG, BOHM AND MINKUS ARCHITECTS**  
INTERNATIONAL IRON AND STEEL INSTITUTE : 1997



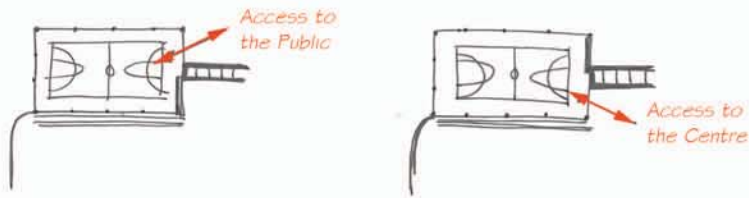
**67 BRIGHTLY COLOURED GLAZED BRICKS, RAINBOW ALLIANCE, HOLLAND, DE TWEE SNOEKEN ARCHITECTS, 2004**  
BRICK BULLETIN : 12/2006





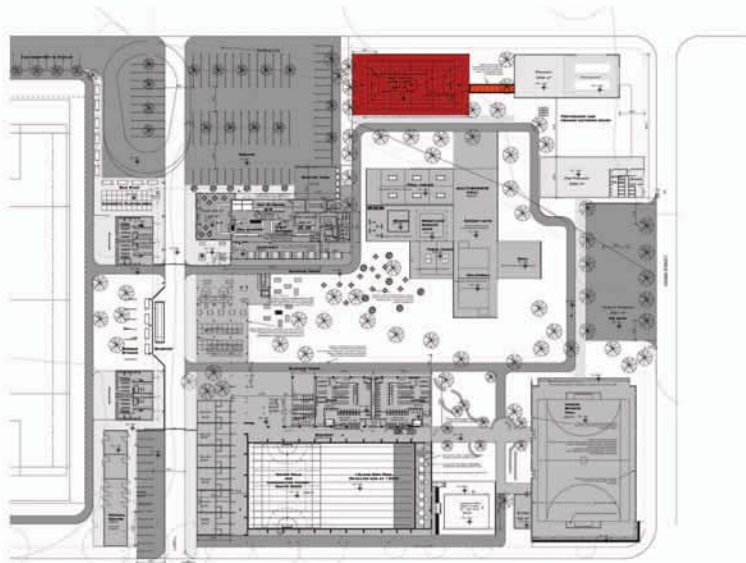
68 CLIMBING WALLS

DIAGRAM BY AUTHOR : 2007



69 ADAPTABLE LEVELS OF USE

SKETCH PLANS BY AUTHOR - NOT TO SCALE : 2007



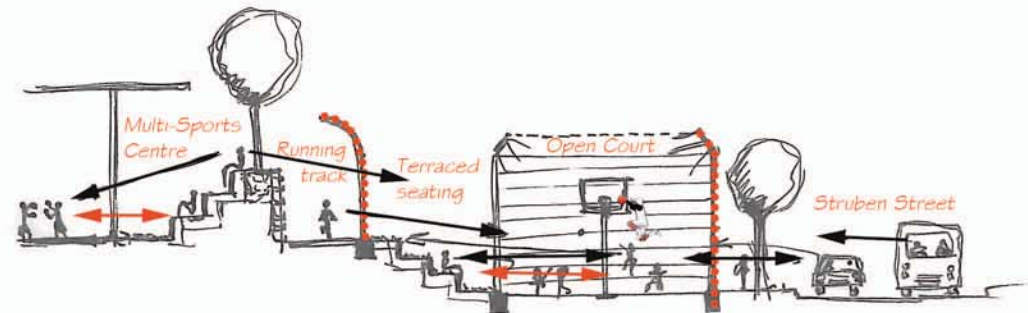
70 OPEN COURT AND CLIMBING WALLS

PLAN BY AUTHOR - NOT TO SCALE : 2007

Purpose-made concrete and steel climbing walls connect the Centre for Monkeynastics with the Open Court on Struben Street. These climbing walls, equipped with finger and foot holds as well as cleat rings, acts as a security barrier to the Centre. The open court is lined by 254x146x31 steel I-profile columns that supports court lighting as well as the stainless netting mesh enveloping the open structure to limit balls to the court. The court is covered with coated alkali resistant fibre glass mesh cloth, to protect it from excessive heat build-up. The mesh cloth emits light but protects players' eyes against glare.

The court is equipped with retractable basketball/netball baskets (with adjustable height) and removable tennis net to accommodate multiple use. The court surface is finished with Regupol Sports Surfacing suited for basketball, netball and tennis. Concrete retaining blocks form terraced seating for spectators adjacent to the court. Behind the seating blocks, the Clearvu fence along the running track provides secondary security.

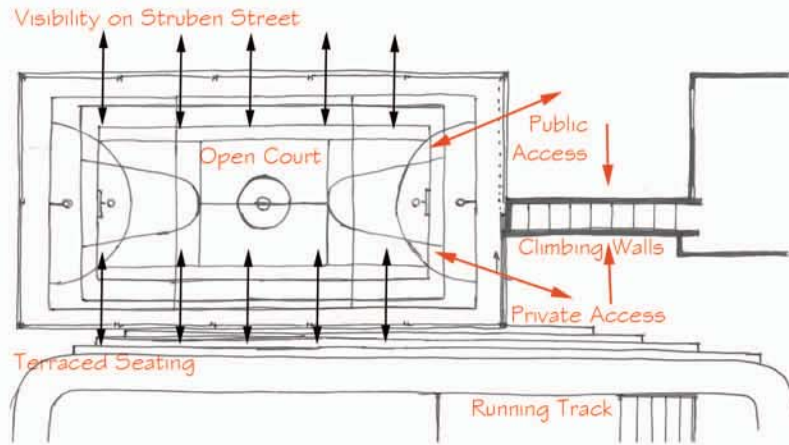
The Open Court functions directly from within the Centre for Illustrated Sports, but can also be opened to the public at certain times of the day or week. A large shifting screen (by Hillaldam) runs on a track on either sides of the climbing wall, bordering the court. When the screen is on the street's of the climbing walls, access is provided to users from within the Centre, while prohibiting access from the street. Alternatively, the screen wall can be slid across to the opposite side of the climbing walls to allow the members of public entry onto the court, simultaneously providing security to the Centre.



71 ACCESS AND VISIBILITY BETWEEN MULTI-SPORTS HALL, OPEN COURT AND STRUBEN STREET

DIAGRAM BY AUTHOR - NOT TO SCALE : 2007





**72 OPEN COURT LAYOUT**

SKETCH PLAN BY AUTHOR - NOT TO SCALE : 2007

**73 CLIMBING WALLS AT SPORTS TRAINING VILLAGE,  
UNIVERSITY OF BATH**

WWW.TEAMBATH.COM : 2007



**74 CLOSE-UP OF BALL BUNGEE CONNECTION**

WWW.SEATTLEFABRICS.COM : 2007



**75 STAINLESS NETTING MESH FOR ROOFING SYSTEMS**

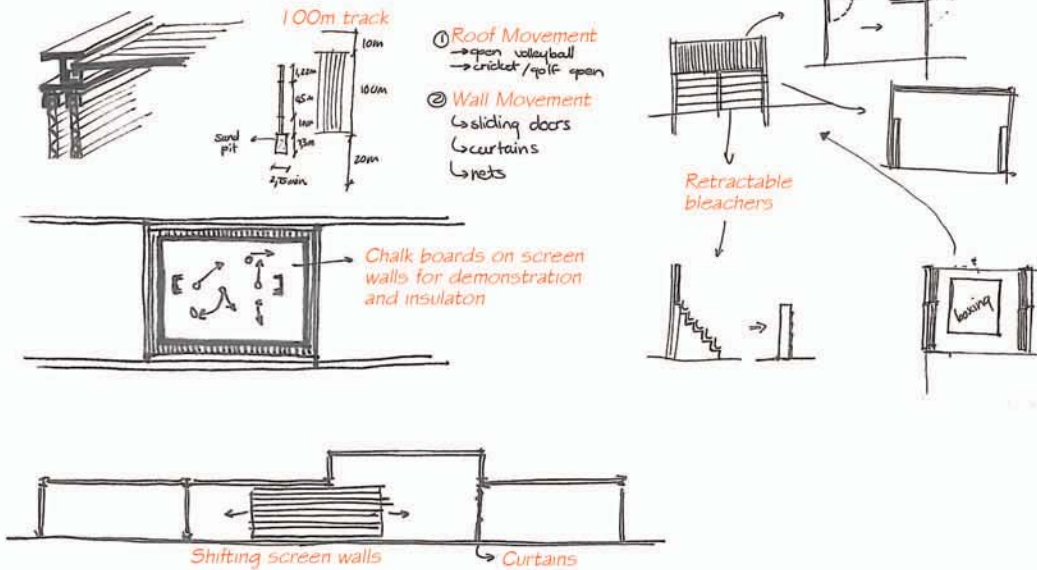
WWW.SEATTLEFABRICS.COM : 2007



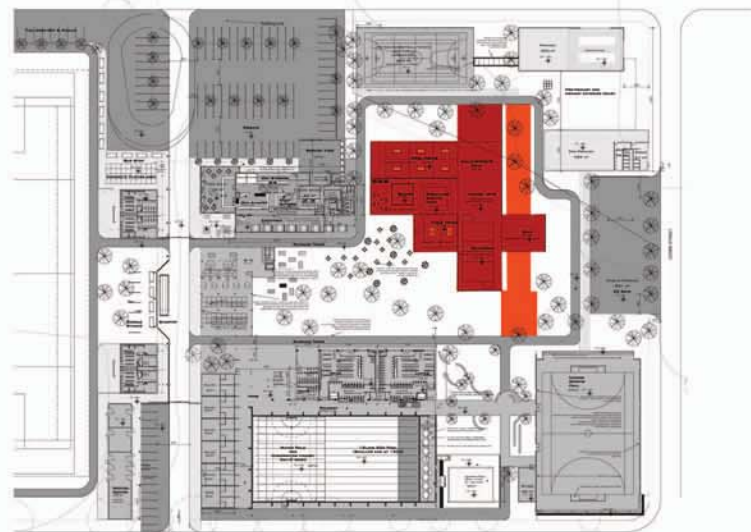
**76 COATED ALKALI RESISTANT FIBRE GLASS MESH CLOTH**

WWW.SEATTLEFABRICS.COM : 2007





**77 ROOF AND WALL MOVEMENT**  
SKETCHES BY AUTHOR - NOT TO SCALE ; 2007



**78 MULTI-SPORTS CENTRE**  
PLAN BY AUTHOR - NOT TO SCALE ; 2007

It is emisioned that the **centre for multi-sport** accommodate various kinds of sports, within one building envelope, at different times of day. The aim is achieved by the use of sliding hanger doors form *Hillaldam*, bleacher seating and planned floor finishes. *Translucent synthetic steel* divider curtains will also be introduced to allow for flexible interior spaces.

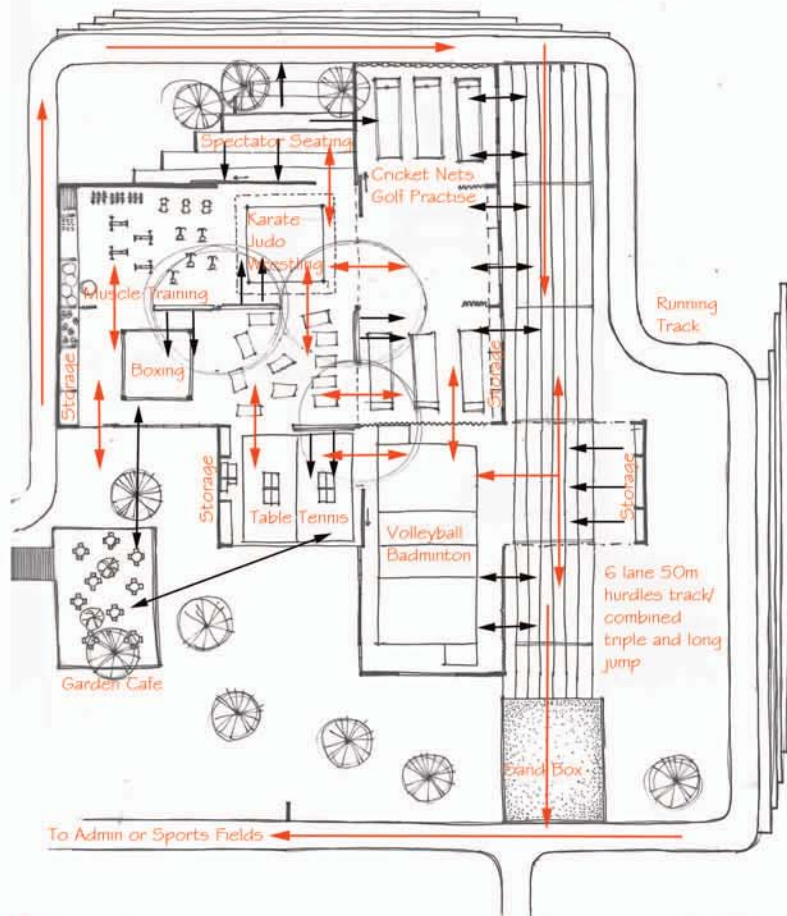
In addition, the roof structure will slide open to accommodate volleyball games, out/indoor cricket and even golf practise. *Coated alkali resistant fibre glass mesh cloth* covers the open courts at a height of 7metres to keep balls in field. The cloth is supported by aluminium poles horizontally fixed to the steel structure.

The adaptable envelope can become an atrium, but can also be closed to prohibit inclement weather from interrupting sports activities. Precast concrete hollow blocks form terraced spectator seating that borders the structure.

The steel structure is cladded with profiled metal sheeting, mostly *KlipLock 700* and *Miniwave*, and insulated either with glasswool insulation backing the chalk boards on certain walls, or with 40x600x600mm tongue-and-groove *Isoboard*.

Permanent walls form the backdrop for mesh covered storage cages, electronic scoreboards and lighting fixtures. The extended wall, on the eastern facade has ribbon-like window openings at alternating heights, allowing views of athletes training on the adjacent hurdles track. At the end of the 6 lane 50m hurdles track is a **sand box** to accommodate long jump and triple jump. Track-and-field athletes cross these hurdles and sand boxes as part of their adventure course.



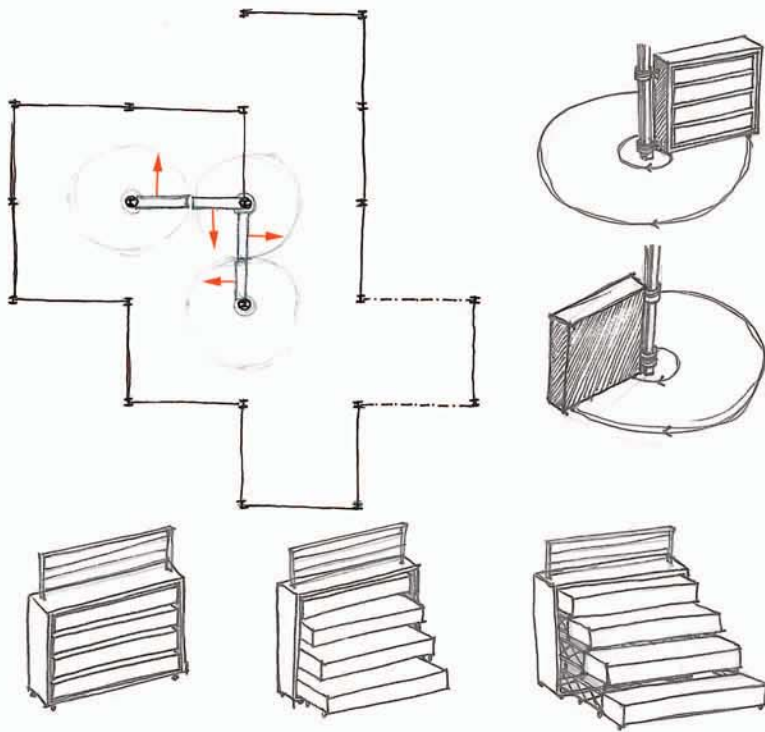


**79** ACCESS AND VIEWS THROUGH THE MULTI-SPORTS CENTRE  
SKETCH PLAN BY AUTHOR - NOT TO SCALE : 2007

**80** THE ROOM CAN BE CLEARED TO ACCOMMODATE A SINGULAR MATCH, OR IT CAN BE USED FOR TRAINING SESSIONS HOSTING A MULTITUDE OF MATCHES SIMULTANEOUSLY. HIGH PERFORMANCE JUDO CENTRE, SPORTS TRAINING VILLAGE, UNIVERSITY OF BATH  
WWW.TEAMBATH.COM : 2007



**81** 6 LANE 132M INDOOR SPRINT TRACK, TRIPLE JUMP PIT AT THE END, SPORTS TRAINING VILLAGE, UNIVERSITY OF BATH  
WWW.TEAMBATH.COM : 2007



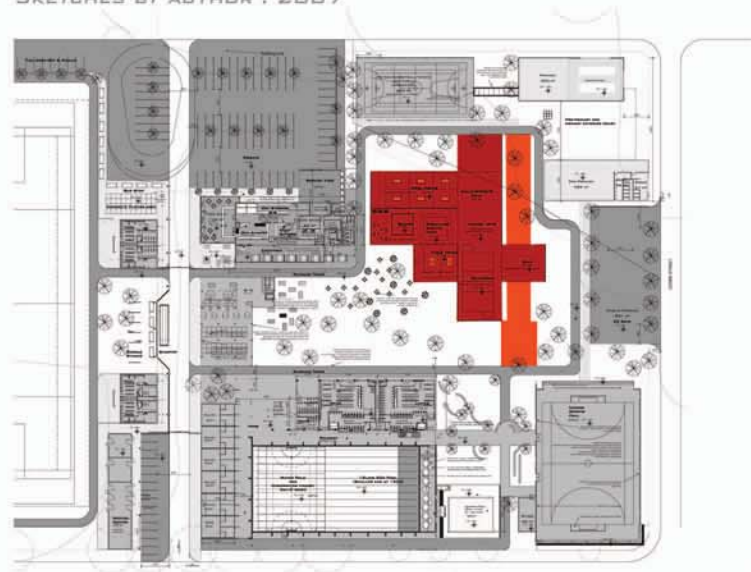
**B2 THE USE OF BLEACHER SEATING**

SKETCHES BY AUTHOR : 2007

The use of **bleacher seating** on tracks around an axis, permits the end-users to change the building structure to accommodate their specific needs at different times of day. If there is no seating requirements, these bleachers can fold away to become room separators.

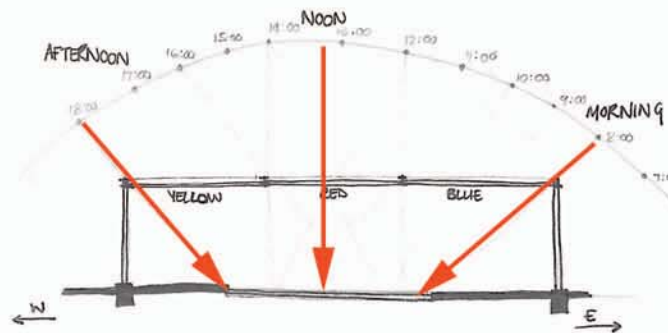
Sun angles are used to transform the **interior lighting** quality at different times of day. *Danpalon* roof lights, tinted red, yellow and blue are fixed at specific angles to the sun, in order to create different lighting conditions. Changing interior colours can assist with schedule orientation as well as creating a specific light quality.

A modular approach is followed. The structural grid defines a court area that can be utilized for singular or multiple sports. This subdivision of courts within the greater structural rhythm of the building, is a subtle reminder of Marabastad's **finer grid** layout as opposed to the bigger divisions of neighbouring Pretoria's Inner City blocks.



**B3 MULTI-SPORT CENTRE**

PLAN BY AUTHOR - NOT TO SCALE : 2007

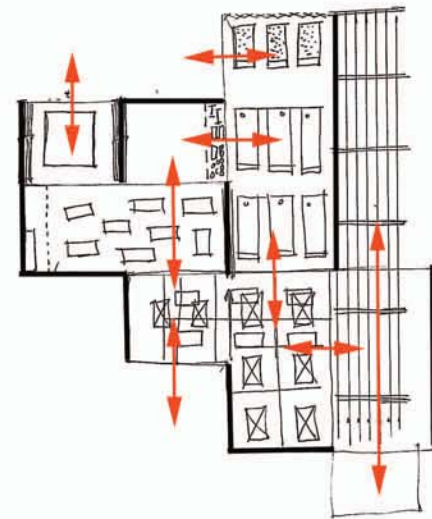
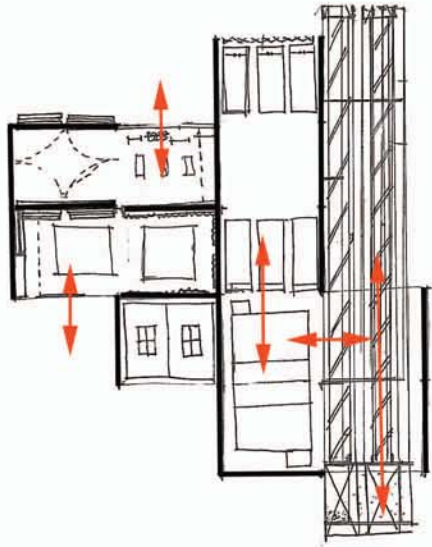


**B4 APPLICATION OF NATURAL LIGHT**

SKETCHES BY AUTHOR : 2007

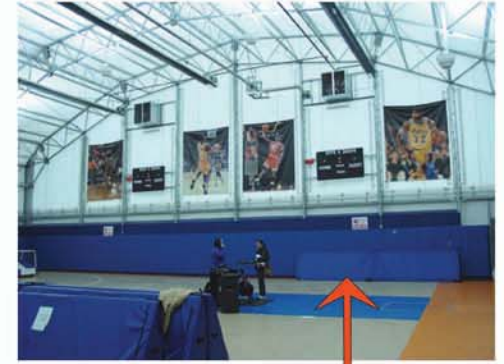
- 8:00 - 10:00 → BLUE FLOOR : STRETCHING / BALL-TRAINING
- 10:00 - 12:00 → PURPLE FLOOR : YOGA / PILATES
- 12:00 - 14:00 → RED FLOOR : AEROBICS / CARDIO
- 14:00 - 16:00 → ORANGE FLOOR : KARATE / JUDO / WRESTLING
- 16:00 - 18:00 → YELLOW FLOOR : VOLLEYBALL / TENNIS / BADMINTEN





**85 ALTERNATIVE USAGE FOR MULTI-SPORTS CENTRE**  
SKETCH PLANS BY AUTHOR - NOT TO SCALE : 2007

**86 ADAPTIVE SPORTS HALL WITH SPRUNG-WOOD FLOORS,  
SUBDIVIDING CURTAINS AND CRICKET NETS,  
FOUNDERS COMPLEX, UNIVERSITY OF BATH**  
[WWW.TEAMBATH.COM](http://WWW.TEAMBATH.COM) : 2007



**87 TRANSLUCENT SYNTHETIC STEEL DIVIDER CURTAINS,  
TIM HENMAN TENNIS HALL, UNIVERSITY OF BATH**  
[WWW.TEAMBATH.COM](http://WWW.TEAMBATH.COM) : 2007

