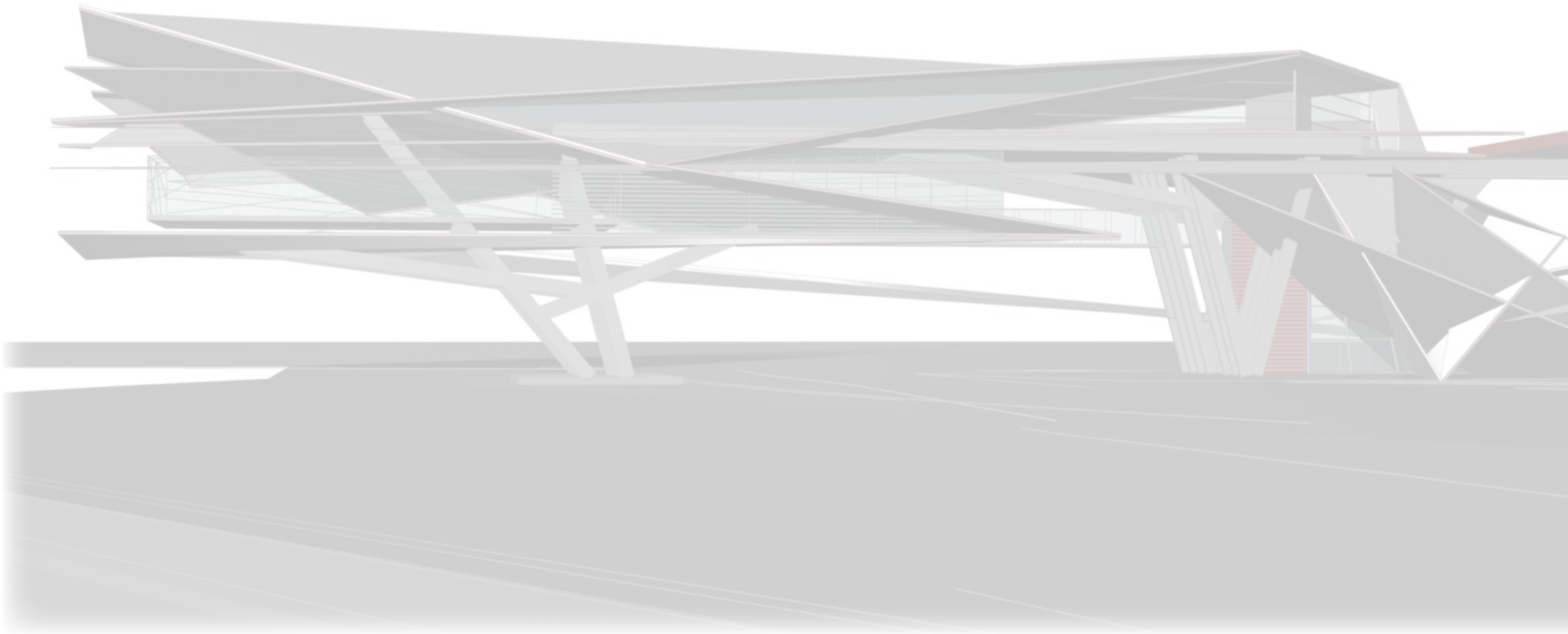


***TO THE FIVE PEOPLE IN
MY LIFE.
WITHOUT YOU, I NEVER
WOULD HAVE DONE IT.***



THEME:

Desire: The Architecture of consumerism

PROJECT NAME:

H² (Heliport x Hotel)

LOCATION:

Menlyn, Pretoria

WRITTEN AND DESIGNED BY:

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STUDENT NUMBER:

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**SUBMITTED IN FULFILMENT OF PART OF THE
REQUIREMENTS FOR THE DEGREE MAGISTER
IN ARCHITECTURE (PROFESSIONAL) IN THE
FACULTY OF ENGINEERING, BUILT ENVIRON-
MENT AND INFORMATION TECHNOLOGY.**

**UNIVERSITY OF PRETORIA
DEPARTMENT OF ARCHITECTURE**

NOVEMBER 2004

DESIRE

THE ARCHITECTURE OF CONSUMERISM

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***Global markets demand a predatory
colonization of open space.*** (Mao.2002:45)



Fig. 2.



Fig.3

PREFACE

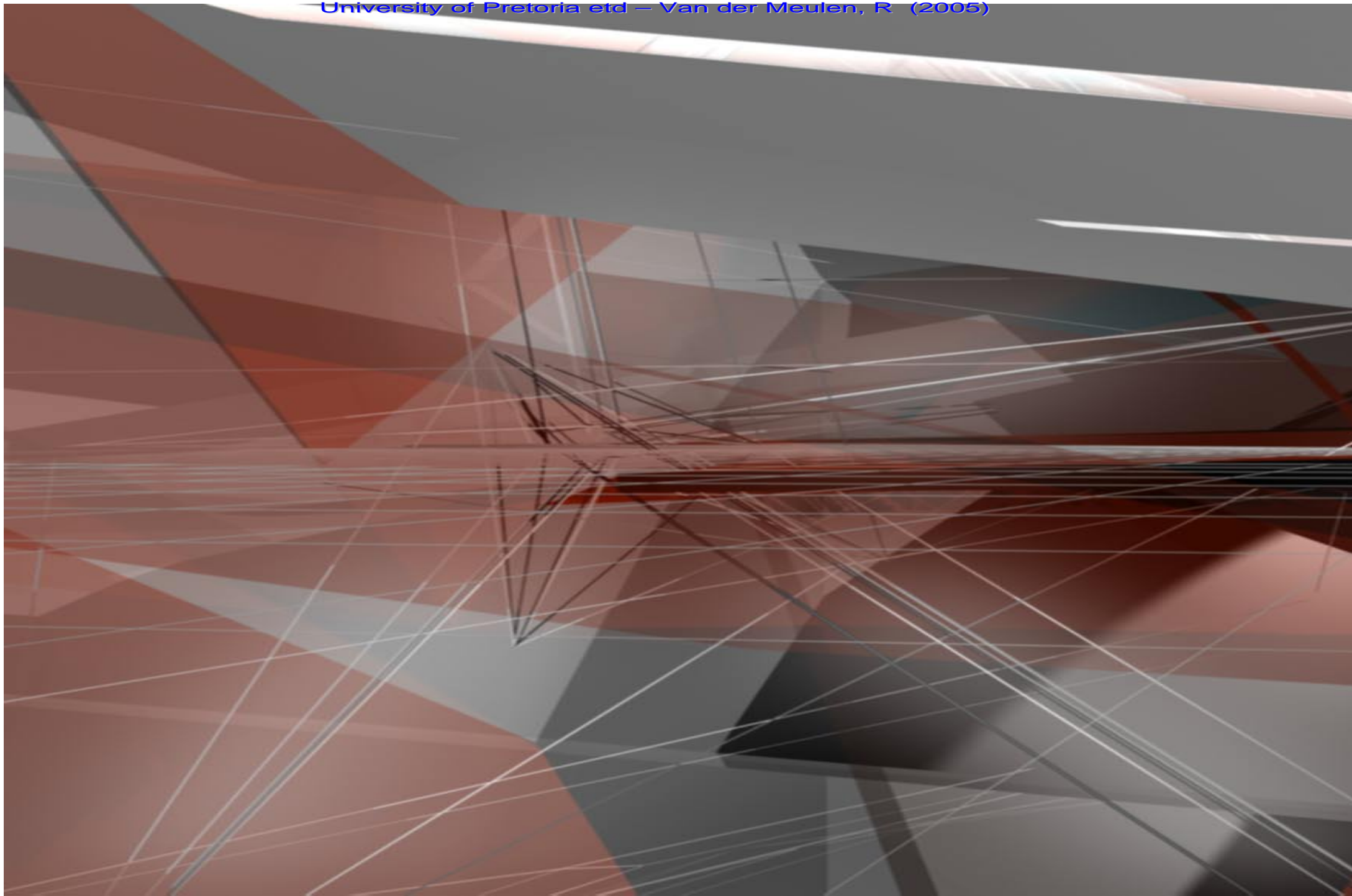
This book is a discourse about the impact that consumerism and globalism have on South African and global architecture. It is irrelevant whether the impact is negative or positive. Architecture has to deal with a reality that's rooted in a context informed by market driven decisions. As the growth and expansion of cities are uncontrollable, architects become interveners, not masterplanners.

The brief asked for a heliport and a boutique hotel. (aptly named H²). The site for H² is next to a major regional shopping center, and a national highway. The building will be adaptable, and transformable to cater for future growth and needs; and no urban masterplanning was done, as the building intervenes rather than dictates.

Much of the debate in this book revolves around the impact advertising has on our urban realm. The design of H² borrows from the principles and tactics employed by advertising companies to create desire in consumers. H² responds to the highway and to the consumer 'cathedral' next to it on a subconscious level, and like a advertisement, piece of music, or a film, aims to amplify the responses and emotions of visitors and passerby's alike.

Enjoy!

Fig 2 & 3: Times Square, New York.



DESIGN BRIEF

The background is a complex, abstract composition of overlapping geometric shapes and lines. It features a dark, almost black, base with various shades of grey and brown. A prominent feature is a large, white, three-dimensional rectangular prism that appears to be floating or tilted. The overall aesthetic is modern and technical, with a focus on perspective and depth. The text 'DESIGN BRIEF' is rendered in a bold, white, sans-serif font, slanted to follow the perspective of the prism.

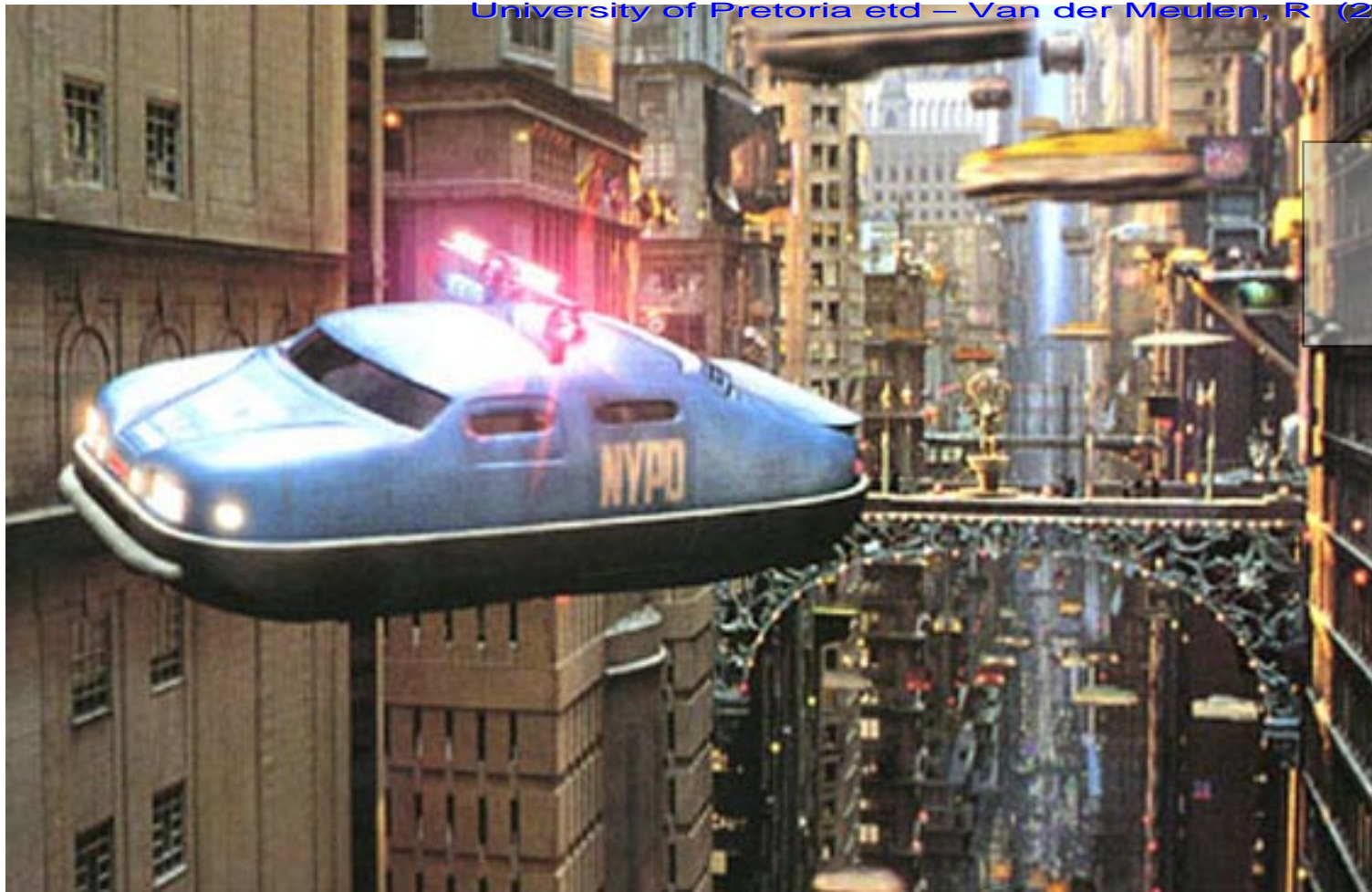


Fig.4



PROBLEM BACKGROUND.

In the Luc Besson film **The 5th element** Bruce Willis is cab driver who saves a beautiful young girl and eventually the world. Later in the 2002 film **Minority Report**, Tom Cruise plays a detective who finds himself in a bind and also saves a young girl and eventually the 'world'. What the above mentioned movies have in common is not only good looking actors and beautiful woman in the need of rescue. Both these movies are set in the sometime in the future, and in this future world people travel in **flying cars**. Humans, especially script writers and directors of big budget Hollywood movies, have had a fascination with flying cars for at least a half a century. It makes sense, as Americans started to experience serious traffic congestion for the first time around the late 1950's. The rationale went that if the roads are congested; why not travel in the seemingly unlimited space above the roads? Although NASA are currently testing a South African designed "flying car", up until recently the technology has not existed to make flying cars a reality.

Two modes of air travel available to man at present are airplanes and helicopters. The airplane is not a viable option, as it needs a long take-off and landing strip. In urban environments, where space (land) is at a premium, these landing strips would take up too much space. In other words, an airplane cannot land where it wants to. Helicopters on the other hand can land virtually anywhere, making it the closest vehicle to a flying car yet. So why has everybody not traded their Toyotas for helicopters yet?

Fig.5

The main reason is cost. Helicopters range in price from R 750 000 for a very basic 2 seater, to R50 000 000+ for a state-of-the-art 10 seater (similar to the one Donald Trump owns). Helicopters are notoriously difficult to pilot. This caused the demand for helicopters to stay low, and pushed the price up. The relative low demand never justified mass production which would have meant lower prices. It follows then that if cars were not so easy to drive, few people would own cars at present.

Another reason for the low demand of helicopters is accessibility to take-off and landing facilities (helipads). Air travel's main benefit in an urban environment is cutting down on time lost in traffic. To take full advantage of this benefit, helipads must be close to the user's place of work / home / recreational activity. Currently most helipads in the Johannesburg-Tshwane metropolis are positioned at or around regional airports. This is totally illogical. If a helicopter can land anywhere, why place its landing pads on the same property as airplanes which, as we already established, cannot land anywhere? To spend an hour in traffic to get to a helipad negates the main benefit of traveling by helicopter.

To reap the full benefit of helicopters, helipads have to be positioned close to its users, and other amenities.

No transport facility can exist in isolation. For the heliport to work it has to be part of a network of heliports in the PWV region and beyond. The average helicopter has a range of between 500 and 700 km placing eight of South Africa's nine provinces in reach of a heliport located in

Fig 4: The flying cars seen in futuristic movies are still far in the future.

Fig 5: Traffic congestion will only get worse as time passes.

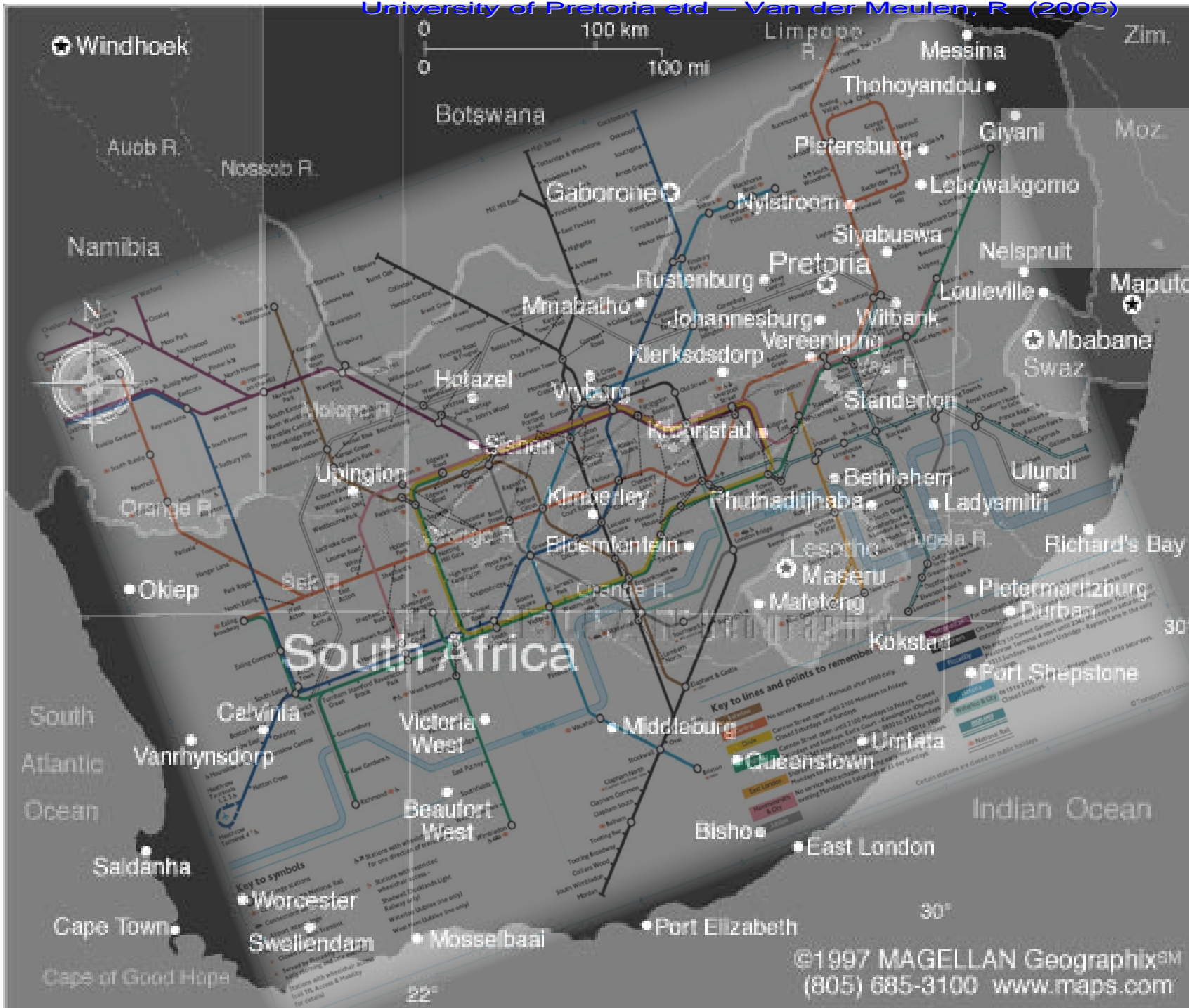


Fig.6 & 7

Pretoria. (The location of **H²**) This is particularly important for servicing the lucrative tourist market.

Other locations for heliports include: the William Nicol off-ramp on the N1, Sandton CBD (a helipad already exist on Sandton City Office tower's roof), and Johannesburg CBD. Existing airports (excluding Johannesburg International) have helipads with service and storage facilities for helicopters, but for how long the bigger airports will allow this remains to be seen. Airports make the most money from international and long haul (Cape Town) flights; and compete against each other to provide berths to the different airlines. For major airlines to even consider berthing at an airport, safety must be of a very high standard. Helicopters are seen as slow moving hazards and are therefor undesirable at an airport wanting Boeing and Airbus airplanes to frequent it. The answer to this problem is obvious: a heliport network.

Air-taxis or shuttles will transport passengers between heliports, thus creating a greater demand which will bring traveling costs down, and as passenger numbers grow, the heliports become not only transport-, but also commercial-hubs in the urban fabric.

THE SOVEREIGN INDIVIDUAL

In the book "The Sovereign Individual" the authors (DAVIDSON, J. & REES-MOGG. 1997.) make the case for a future where individuals will live free from all the constraints that contemporary life imposes on them. These constraints include governments, taxes, national boundaries, citizenship, corporate employment and confined spaces as places of work. Through the use of current and future technology these sovereign individuals

will work for who they want to, where they want to, when they want to. They'll live in countries or regions with the lowest taxes (as golfers, race car drivers and actors already do), conduct their business over the Internet or cellular phone, and impress others by the network of contacts they've built up, not the amount of people working for them.

This future scenario is already here for some , as more and more people can now do their work anywhere from their laptops and cellular phones. Technology like Bluetooth allows individuals the ability to connect to the Internet from virtually anywhere, and the concept of office space needs a serious rethink. Business meetings are conducted in neutral spaces like airport lounges and restaurants, rather than boardrooms (The Apprentice is all fiction).

The idea of 'hot desking' is taking of worldwide, as companies start to realize that their employees spend very little time at their assigned desks. 'Hot desking' and 'working from everywhere' gives new meaning to the cliché of 'the company is its people' as the people are not at 'work' anymore, but working all the same. 'Hot desking' is fine for a company with a substantial work force, but not for mobile professionals who use their BMW's as offices. There is a definite need for 'hot office space' that can be leased for hours, in convenient locations around the city.

Fig 6 & 7: The London underground map superimposed on a map of South Africa, is a visual metaphor for a future heliport network.

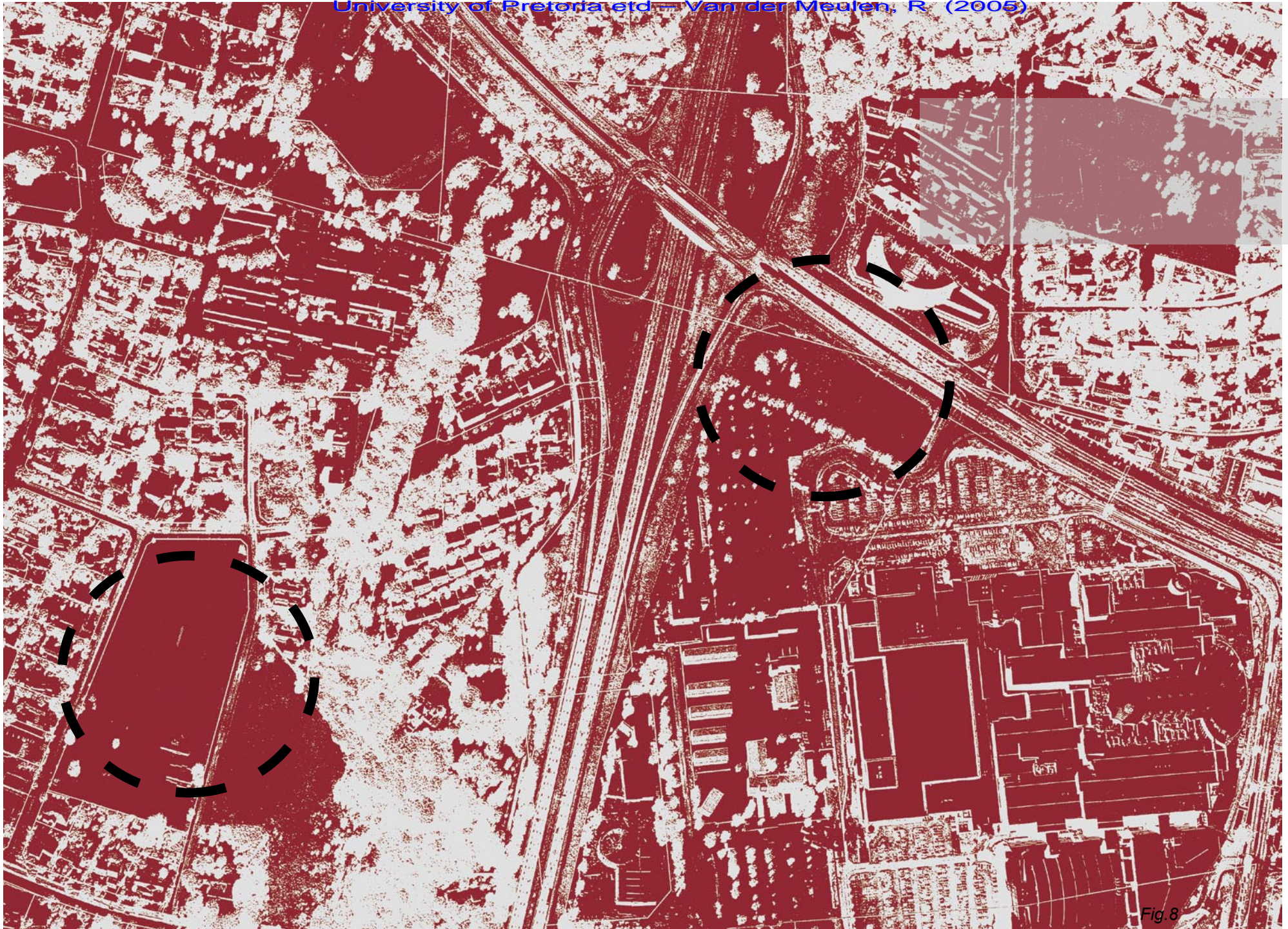


Fig.8

SITE CRITERIA + MOTIVATION

Pretoria, as the administrative capital of South Africa, with the highest disposable income per capita in South Africa, is the natural choice for a heliport. Many embassies are located in Pretoria, and Pretoria is close to many tourist attractions like Limpopo province (Sun City and numerous private game resorts in the Waterberg region), and destinations in and around the Kruger National Park. The site for a heliport must, as previously mentioned, be easily accessible by its users. In Tswane the target market for such a facility live and work in the suburbs east of the CBD. Most embassies are located in the suburbs of Arcadia, Brooklyn, Waterkloof and Waterkloof Ridge. High wealth individuals also live in these suburbs and in the newer suburbs further to the east (Silver Lakes, Woodhill etc.) Lastly, big business also tends to be east of the CBD.

Having established that the heliport should be somewhere in the eastern suburbs, other criteria for a suitable site are as follows:

- < Proximity to existing commercial nodes
- < Proximity to future mass transit facilities (Gautrain)
- < Noise impact must be minimized - the site must not be too close to residential environs
- < Proximity to highways and main thoroughfares
- < Size - there must be enough space for buildings, helipads and parking
- < To avoid having to place helipads many stories above ground, the site must not be in close proximity to tall buildings (helicopters need a 1:8

approach)

- < Visual impact - as the building will have to sell itself and its function, the chosen site must be in an environment where an iconic, large scale building is not out of context

Site 01 : Pro Arte sport grounds

The first site selected for the heliport seemed ideal at first: Loads of space, close to an existing commercial node and the N1 highway, with the possibility of future expansion. On the downside it was too close to existing residential suburbs (it was in an existing suburb), large trees obstructed the aerial approach, and although close to main roads the traffic impact would have been unacceptable. Furthermore, by developing a heliport on this site would have compromised This site is located about 1.5 km from the eventual site.

Other sites

After abandoning Site 01 other sites were investigated including the Innovation Hub development bordering the N1 and the N4 east of the University of Pretoria sports grounds. Although the site offered many opportunities, not all of the above mentioned criteria could be met. The Innovation Hub development also lacks a strong image and prestige. Although image and prestige are not criteria points per se, it is often the difference between a successful development or not.

Fig 8: The circle on the left indicates site 01, and the one on the right the site for the final proposal.

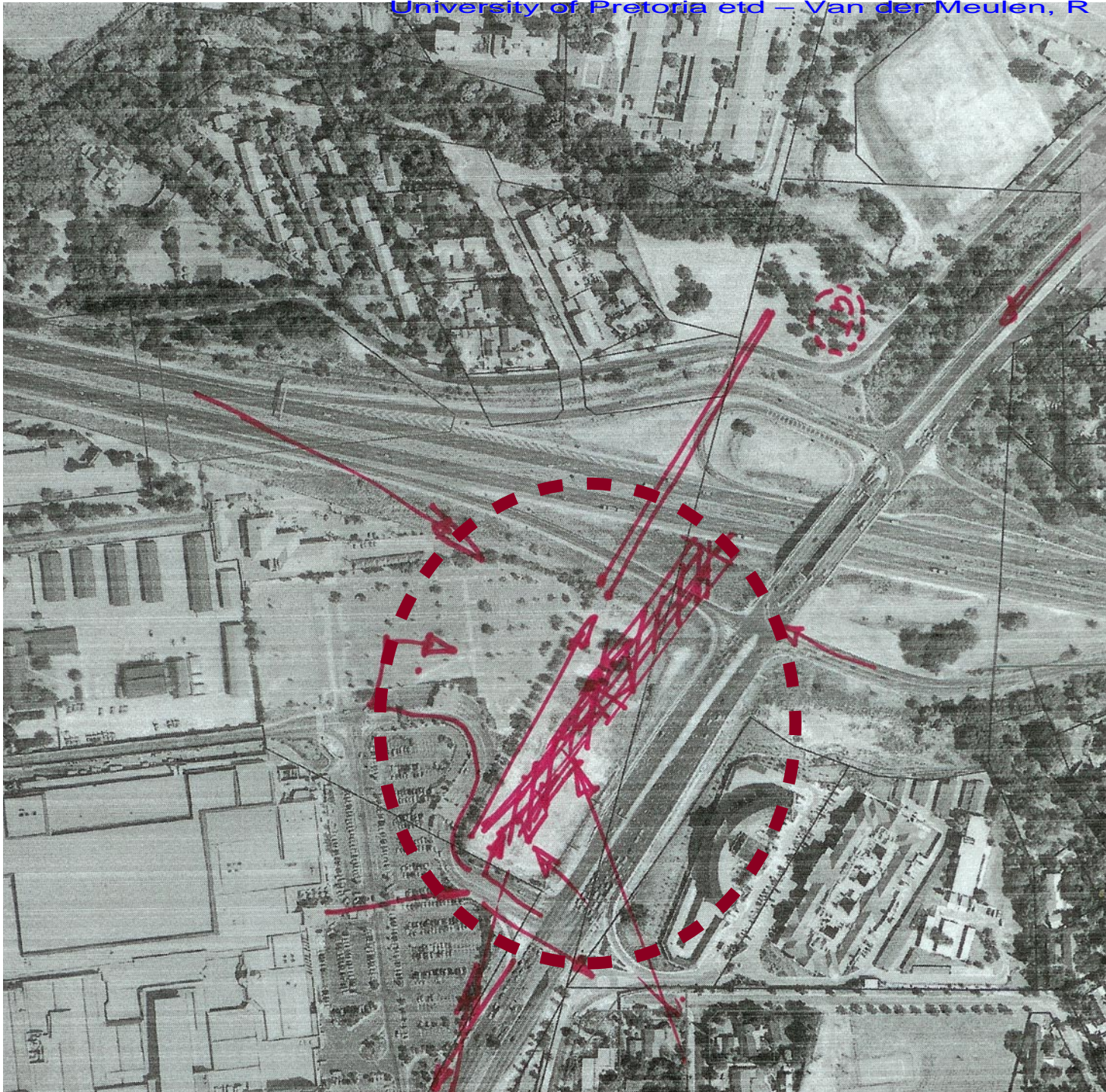


Fig.9

*The site: Atterbury road, Menlyn Park
The site chosen for the heliport met all of the above criteria and more. The site is a piece of underutilized land next to the N1 highway and Atterbury road in a recently developed commercial district.*

Existing buildings in the immediate vicinity of the site include office buildings, showrooms, and Menlyn Park shopping center. The site has excellent exposure and visibility, and is located next to a national highway and to one of Tswane's main regional roads.

The site has the following strategic advantages that could be exploited:

- < *the site is close to a major retail and commercial node (Menlyn)*
- < *the site is centrally located - close to new and old city*
- < *the site's closeness to many embassies*
- < *the existing access to the N1 highway is excellent, and the opportunity exists to create direct access to and from the highway*
- < *the site is walking distance from a proposed satellite Gautrain station*
- < *the immediate surroundings are currently being developed, but no masterplan exists to guide the development*
- < *the site is fairly flat, so no major earth works are required*
- < *helicopters can fly along the highway, so noise pollution will be minimized*

- < *adequate parking already exists adjacent to the site.*
- < *an opportunity exists to improve pedestrian circulation around the Menlyn park shopping center.*

A detail site analysis will be provided in the context study.

Fig 9: The site shares access with Menlyn Park shopping center.

WISDOM



Fig.10

Fig 10: Night traffic in Singapore

The project vision is to create a highly visual iconic building that will serve as a gateway to one of the fastest growing urban areas in South Africa. The building will be a expression of contemporary lifestyle and the freedom it entails.



Fig.11

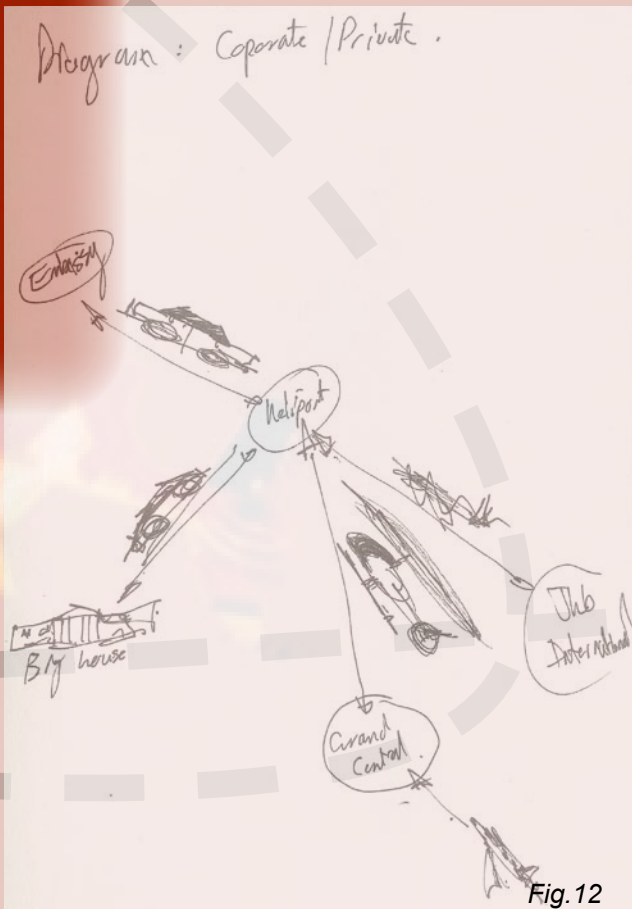


Fig.12

PROBLEM STATEMENTS

REAL WORLD PROBLEM : primary

At present no helicopter facilities for private and non-governmental institutions are available close to Pretoria CBD. Foreign diplomatic staff, high wealth individuals and high ranking corporate executives, all people who can well afford to pay for helicopter services between Pretoria and other destinations, have to drive to airports outside of the city. No facility like the Wall Street heliport in New York city exists at present.

Should a person or entity require helicopter services between Pretoria and an international airport, the closest helipad for private use would probably be at the same airport where the person wanted to be in the first place.

REAL WORLD PROBLEM : secondary #01

Short term, high turnover (space rented by the hour) office space is extremely scarce if not non-existent in the Tswane metropolis. Although conference facilities exist (mostly in hotels), these facilities are often out of the way, are outdated, and cater only for large groups (20+). A real need for 'hot' office space exist in a contemporary environment where users can rent space without booking ahead, and without paying the preposterous rates charged for conventional conference facilities.

REAL WORLD PROBLEM : secondary #02

The choice of upper class hotels in the eastern suburbs of Pretoria are truly limited. No boutique hotels that cater for wealthy travelers exist at present, and businessmen in the upper bracket stay in hotels in Johannesburg even when

they need to be in Tswane. The four star Sheraton hotel cater for such visitors, but its out of location in the suburb of Arcadia.

Visitors would much rather be staying in the eastern suburbs. A small luxury hotel catering for a upmarket clientele is needed east of the CBD.

THE CLIENT

Client profile:

The client in this instance would be a private or institutional property investor. As such a development would demand a large capital outlay, the client would probably be a financial or insurance related institution. Government funding will not be forthcoming for a development that caters exclusively for the rich. Names that immediately come to mind include:

- < Nedbank
- < Old Mutual
- < Investec
- < JCI

These companies have taken part in similar developments in the past and as Old Mutual already owns the land, and the billion rand Menlyn Park Shopping center next to the proposed site, it would be a fair assumption that they (Old Mutual) would be interested in such a development. The developer will only invest in the venture if a above average return on investment can be expected, and if the overall image and vision of the development is in alignment with their own.

Fig 11 & 12: The heliport will provide businessmen, diplomats and tourists with a transport hub close to their work, residences and places of recreation.

BRIEF



Fig.13

The various buildings or facilities will be managed by independent companies, normally with experience in similar developments elsewhere. These management companies will lease the buildings from the developer and profit from the day to day running of the relevant facilities. Two distinct management companies will exist in this development, with secondary companies managing micro functions:

The Airport Company of South Africa

The Airport Company of South Africa (ACSA) run all the major airports in South Africa and have vast experience in the day to day running of air passenger facilities. As a management company for the Heliport facility ACSA will be a logical and probably the only choice.

General needs & requirements (ACSA):

- < A safe environment for passengers
- < Restricted access to various areas in the building
- < Commercial & retail space to recover the costs of leasing the building
- < A pleasant environment where visitors will spend time (and money)
- < Adequate circulation space for visitors
- < Long and short term parking
- < Easy access to the facility
- < A recognizable building that advertizes its function without explicate signs.
- < Adaptability
- <• 5 Helipads (each min. 20m x 20m)

W Hotel Group

W Hotels has come to the foreground as the hotel group with some of the best designed hotels on the planet. W hotels are known for their innovative off interiors and world class facilities. With hotels in locations such as Time Square in New York City, Tokyo, Sidney and Los Angeles, the W hotel group are experts in operating hotels in fast growing urban environments, especially in “New World”, non-European environments.

General needs & requirements (W Hotel Group):

- < A Location in an area that normally serve the affluent
- < Security
- < The main circulation spaces must also be income producing space (Lobby/reception/lounge/bar)
- < A rational layout where public and service spaces are clustered together
- < Visually impressive interior spaces
- < Utilization of the views on offer
- < Luxurious, but low maintenance materials & finishes
- < Adaptability

Fig 10 : The foyer of W Hotel Los Angeles. W Hotels have set a new standard in contemporary hotel design.

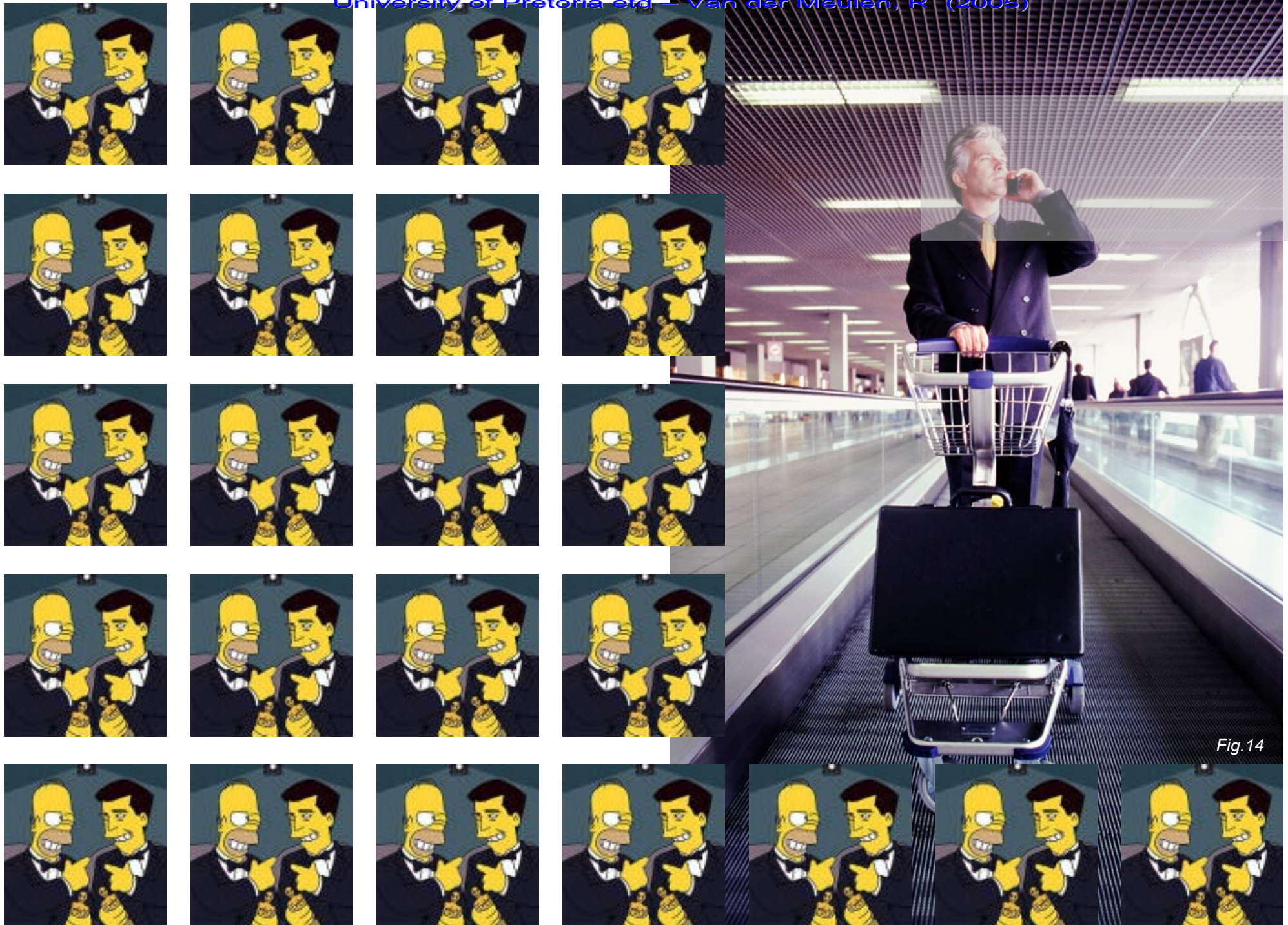


Fig.14

User profiles:

There will eventually be four types of regular users / visitors of the building. The design must cater specifically for the needs of these users and generally for users that do not fall under these categories. The four types or categories of users are:

- < The air passenger
- < The businessman /woman
- < The recreational visitor (Diners & bar patrons)
- < The tourist

The fifth type of user will obviously be a combination of any of the above types. (An air passenger might have a quick meeting in one of the offices before take -off and so on.)

The air passenger

The air passenger will visit the building primary for boarding a helicopter. This person will only shop or make use of the amenities if he/she is early, bored, or if their flight is delayed. Any income above the landing fee that the facility earn from this visitor is seen as a bonus. The reason why passengers have to be at airports two hours before take off is not only security related. The airport want to earn extra money from the passengers while they wait.



Fig.15

General and specific needs and requirements:

- < A direct and hassle free route from the car to the airport lounge and air transport
- < A ticket counter or pay area
- < Adequate seating
- < Televisions to keep in touch with what's happening
- < Internet facilities (Bluetooth)
- < Adequate ablution facilities
- < Cafeteria or coffee shop for refreshments
- < Long term / short term parking facilities

Fig 14: Networking and who you know are more important in the global village than the location and size of your office premises.

The businessman / woman

The businessman will visit the building mainly to meet others or for the use of the business center. This user will expect world class technology, a safe comfortable environment and luxurious surroundings to conduct business in.

General and specific needs and requirements:

- < Short term (rentable per hour) office and meeting spaces
- < Private and quiet environments
- < Views and natural light
- < An array of communication options (Satellite, Internet, fax, post ect.)
- < Televisions to keep in touch with what's happening
- < Internet facilities via personal laptops (Bluetooth)
- < Adequate ablution facilities
- < Cafeteria or coffee shop for refreshments
- < Access to retail facilities

Fig 15 : The contemporary businessman does business wherever there's cellphone reception.



Fig. 16

< Long term / short term parking facilities

The recreational visitor

These visitors will frequent the restaurant and bar areas of the building, and must not interfere with the port and business functions of the building. Recreational visitors are important for the 24 hour life cycle of the buildings, and adequate provision must be made for them.

Unfortunately recreational visitors can be noisy and pose a security risk for the building.

When planning the interior circulation the designer must take into account that not all visitors will be air passengers.

General and specific needs and requirements:

- < Views towards the highway
- < Waiting areas for restaurant patrons
- < Sufficient acoustics and privacy (to avoid disturbing other users of the building)
- < Safe parking and access to the building
- < Smoker areas
- < Contemporary interior design
- < Separate entrance.
- < Adequate ablution facilities
- < A dining area
- < A Bar area

The tourist:

The tourist will stay over in the hotel before moving on to other tourist destinations elsewhere. Tourists will often be without personal transport and will be dependent on public transport or traveling by foot. As Menlyn Park will be undoubtedly be an attraction for foreign visitors staying at the hotel, security between the hotel and the shopping center must be excellent.

The hotel will have the “boutique” label attached to it, and visitors will expect the typical amenities associated with such a facility

General and specific needs and requirements:

- < A high level of luxury
- < A world class restaurant and bar on site
- < Access to the usual amenities (transport, retail, banks, communication facilities)
- < Rooms to have separate lounge areas
- < Some recreational facilities (a swimming pool , exercise facilities)

Fig 16: Like carnival grounds of the past, urban space in today's city aim to astonish and entertain.

Space description / Function	Area	Additional information
Departure lounge	150	Access to helipads, Views NB, Access to all other facilities,
Coffee shop	30	Adjacent to departure lounge. Separate small kitchen. Counter seating
Retail facilities	60	Service providers, bookshop, currency converters, travel agents etc.
Office space	250	Short term office space, heliport administration, views NB
Control room	30	Private, out of public sight, security NB
Ablution facilities x 2	150	1 facility for departure lounge, 1 facility for restaurant, uni-sex possible
Help desk (s)	20	Close to primary vertical circulation, counter to help 3 persons min. at a time
Internet café	50	Adjacent to Office space, Individual privacy NB
Restaurant	440	Separate access, Views to highway NB, Noise and Smells might be an issue for non-dining users.
Bar	200	Adjacent to restaurant, Views NB, Noise an issue
Kitchen	90	Two separate area's: Public viewing area & Non-public "messy" area
Plant room	200	Air intakes to be above NGL to avoid pollution, centrally located
Street café	100	Positioned to cater for rail commuters and building visitors
Entrance foyer	50	Security NB

BUILDING PROGRAM: Heliport

HELICOPTERS: Specific and general requirements.

A minimum of four landing pads must be provided for. Two of these pads will function as pick-up and drop-off zones, while the other two will function as parking space. The pick-up and drop-off pads will have turn around times of 15 minutes. In line with local legislation, access to the pads must be controlled. The parking spaces will be rented out for a maximum period of four hours, and these pads does not necessarily be accessible to passengers. The control room must have a dedicated radio channel, and if it does not have unobstructed views of the helipads and the building's surroundings, video cameras have to be installed. Specific requirements:

- < Minimum of 4 Helipads
- < Helipads to be a minimum of 20m x20m
- < Safety nets surrounding the helipads if it is not at ground level
- < Access to the helipads to be limited
- < Helicopters have a 1:8 approach angle, and should obstructions exist, the helipads must be above ground level.
- < A wind sock.

ISSUES:

MULTI-FUNCTIONALITY

Port, station and air terminal buildings all have one thing in common: passengers. Airports are places where people

arrive (land) - wait - depart (air) or (air) arrive - depart (land). Normally these spaces are not for lingering and designed around efficient circulation routes of people and vehicles. Retail and food facilities alleviate boredom during waiting periods, and provide a welcome cash flow to the building owners.

In this instance the volume of passengers will not justify the size and cost of the building, and additional functions must be added to improve the 24 hour life cycle of the building. Facilities like a high class restaurant, conference rooms / short term office space and limited retail space will all improve the viability of the building. Retail or commercial space might even exist at ground floor level to engage passing pedestrians.

CIRCULATION

Circulation inside the building is an important issue. In a multi-functional building different users will have different agendas. The users must be able to navigate the building with ease. Vertical circulation must be inclusive. As escalators take up lots of space and cannot cater for wheelchair users, lifts are the logical choice.

SUSTAINABILITY

The building must adhere to sustainable development principles. Social, economic and environmental sustainability must be achieved in the short and long term. Effort must be made to create jobs, save energy, and to use renewable resources where possible.

Fig 17: The program originated from functions and issues surrounding the heliport function of the building.

Space description / Function	Area	Additional information
Foyer / Reception incl. Circulation	100	Double volume space. Logical layout that are easy to navigate
Bar area	120	Counter seating and couch seating, music stage?
Lounge	150	Adjacent to bar area and reception
Restaurant	200	+/- 20 tables seating 4 per table, possibly close to pool, views to outside
Gym	300	Separate access? Cardio-vascular, circuit, and weights areas
Ablution facilities: Foyer	40	Close to bar and lounge area
Ablution and change room: gym	120	Adjacent to gym, including facilities like steam rooms and saunas
Indoor pool (25x20)	450	Adjacent or close to gym. 25m. length.
Conference rooms	300-500	Possibly in basement? Different size rooms. One large room. Separate access?
Laundry room	30	Adjacent to kitchen
Kitchen	100	In basement with high windows
Pantry	24	Adjacent to kitchen
Storerooms / Linen cupb. (2)	20	On same level as hotel rooms, close to laundry chute
Hotel rooms (30 - 35)	1300	Natural light NB, each room to have a lounge area & study area
Porte Cochere	50	Should be in the parking area, covered pathway to the hotel

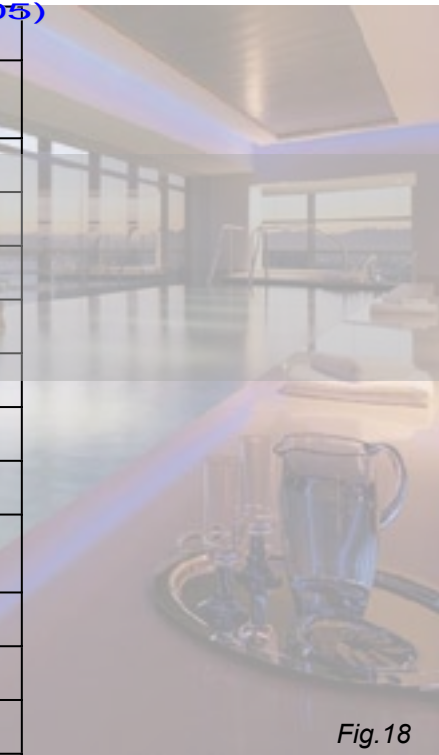


Fig. 18



Fig. 19

BOUTIQUE HOTELS

The main function of hotels are to provide a place to stay for travelers. During the last 50 years most hotels, bar a few exceptions, have developed a certain aesthetic that can only be described as the “hotel aesthetic”. This aesthetic is best experienced from the interior of the hotels:

- < Light or dark laminated wood paneling
- < Heavy carpets and curtains,
- < Predominantly beige interior colors with maroon offsets
- < Patterned upholstery
- < Brass signs almost everywhere
- < Ridiculous looking staff uniforms

Visionary developers and talented designers have caused a turnaround in hotel design in the last decade. Although large hotels have joined the party recently, the change in hotel design started with smaller hotels. These so-called boutique hotels set themselves apart through highly innovative and ‘fresh’ interior and sometimes exterior design. The “Boutique” label was borrowed from the fashion world where boutiques were normally associated with small expensive shops that cater for a few select clients. Boutique hotels provide a similar function in the hospitality industry:

- < They are normally small, seldom more than 50 rooms
- < They are always expensive
- < The interior design is cutting edge

- < The facilities are world class
- < Boutique hotels are close to most amenities
- < Normally all rooms have a separate lounge area
- < There is no “honey moon suites” - In other words forget the traditional idea of hotel.

One of the main issues of urban hotels is claustrophobia. In unpleasant micro climates, where mechanical ventilation are used, rooms seldom have openable windows. The windows in rooms are also small, allowing limited natural light into the interiors. Ample natural daylight should reach the interiors of the hotel.

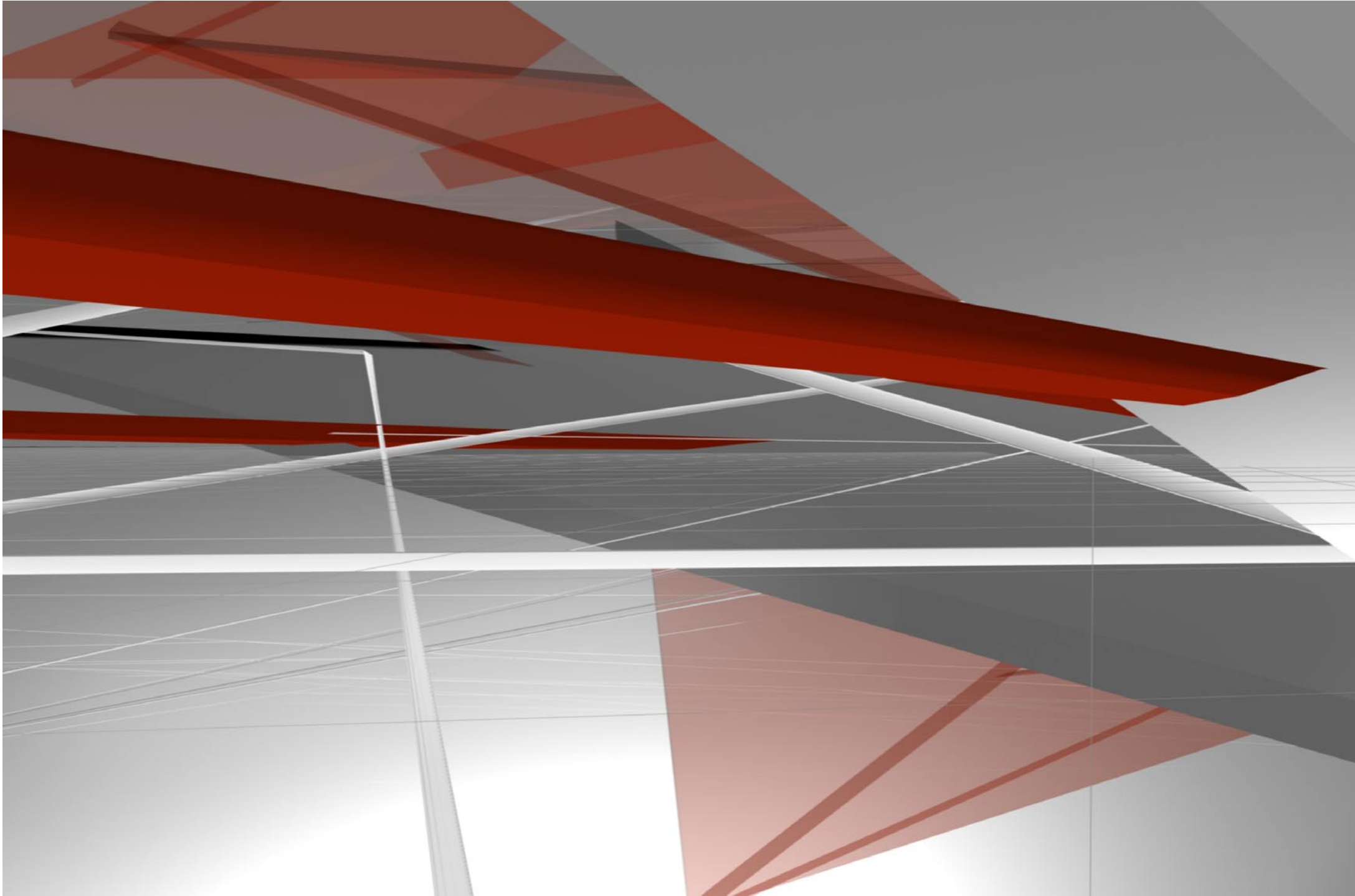
To improve the financial feasibility of the hotel, facilities like the gym, bar, and conference rooms; should be accessible to non-residents without interfering with the day-to-day running of the hotel. (Visitors to these facilities should not have to walk through the lounge ect.)

Other issues that the design should address include:

- < Noise (helicopters & traffic)
- < Minimizing circulation space
- < Glare
- < Visual connection with the heliport function
- < Sustainability
- < Security

Fig 18: The indoor swimming pool will become the main focal point of the hotel interior space.

Fig 19: Visitors will spend most of their time inside the hotel. Therefore interior design and detail becomes crucial in the total design package.



CONTEXT STUDY

A 3D perspective graphic featuring a grid of lines that recede into the distance. The text 'CONTEXT STUDY' is rendered in a bold, italicized, sans-serif font, appearing to float above the grid. The text is white with a slight shadow, giving it a three-dimensional appearance. The background is a gradient of gray, with darker tones on the left and right sides, and a lighter tone in the center. The overall effect is modern and technical.

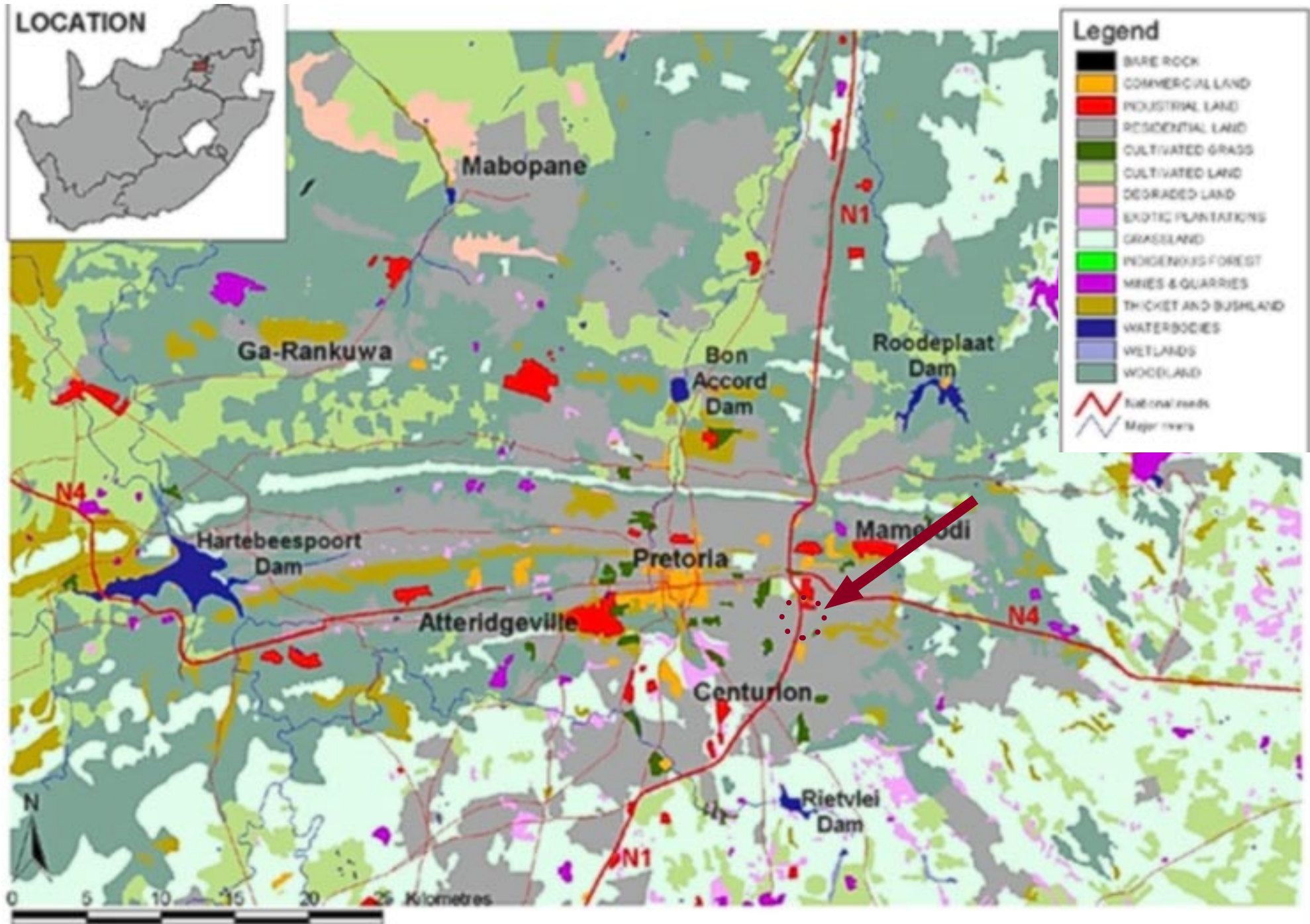


Fig.20

CITY AND REGIONAL CONTEXT

The city: Inner city decay and urban sprawl

Pretoria has gone through the typical life cycle of a twentieth century city:

The city had a booming inner city till the mid 1980's when things started to slow down. The middle class and rich grabbed their families and moved into the country (suburbs). Soon after many retail businesses and commercial companies did the same. Tshwane municipality responded recently by offering tax incentives to businesses that relocate back to the inner city. Although the tax incentive might lure some larger businesses back, businesses that provide services and goods to middle, upper- middle and upper class clients tend to stay close to their client base: outside the inner city.

Being a capital city, Pretoria has a host of embassies scattered from the Union Buildings in Arcadia east and south east, throughout the older and more affluent eastern suburbs. These suburbs include Eastwood, Colbyn, Brooklyn, Waterkloof and Waterkloof Ridge; all suburbs that are in close proximity (5 minutes drive) to the site. The city's upper class and wealthy citizens also tend to live in these suburbs and east of the N1 highway.

The N1 highway (north - south axis) divides the city in two distinct regions: The old developed region west of the highway, and the new developing region east of the highway. Similar to development patterns elsewhere in the new world, the region east of the highway developed horizontally at an astounding pace in the last decade.

This growth can be accredited to the following factors:

- < *The lack of a clear-cut urban plan by the town council*
- < *The reluctance of the town council to allow new high density developments in established neighborhoods*
- < *The lack of a definite city boundary*
- < *The low cost and seemingly unlimited supply of undeveloped land allow developers to make huge profits*
- < *South Africans love owning their own little piece of land and generally frown on apartment living*
- < *The popularity of security estates - No land is available for such developments west of the highway.*
- < *The upgrading of the Menlyn Node*
- < *Closeness to various highways - A large portion of Pretoria's population commute to Johannesburg and Midrand on a daily basis.*

Fig 20: Pretoria's land use map illustrates the lack of density and the growth of so called edge cities. The arrow indicates the location of the site.

CONTEXT

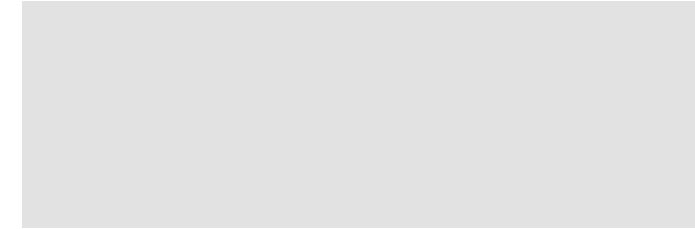
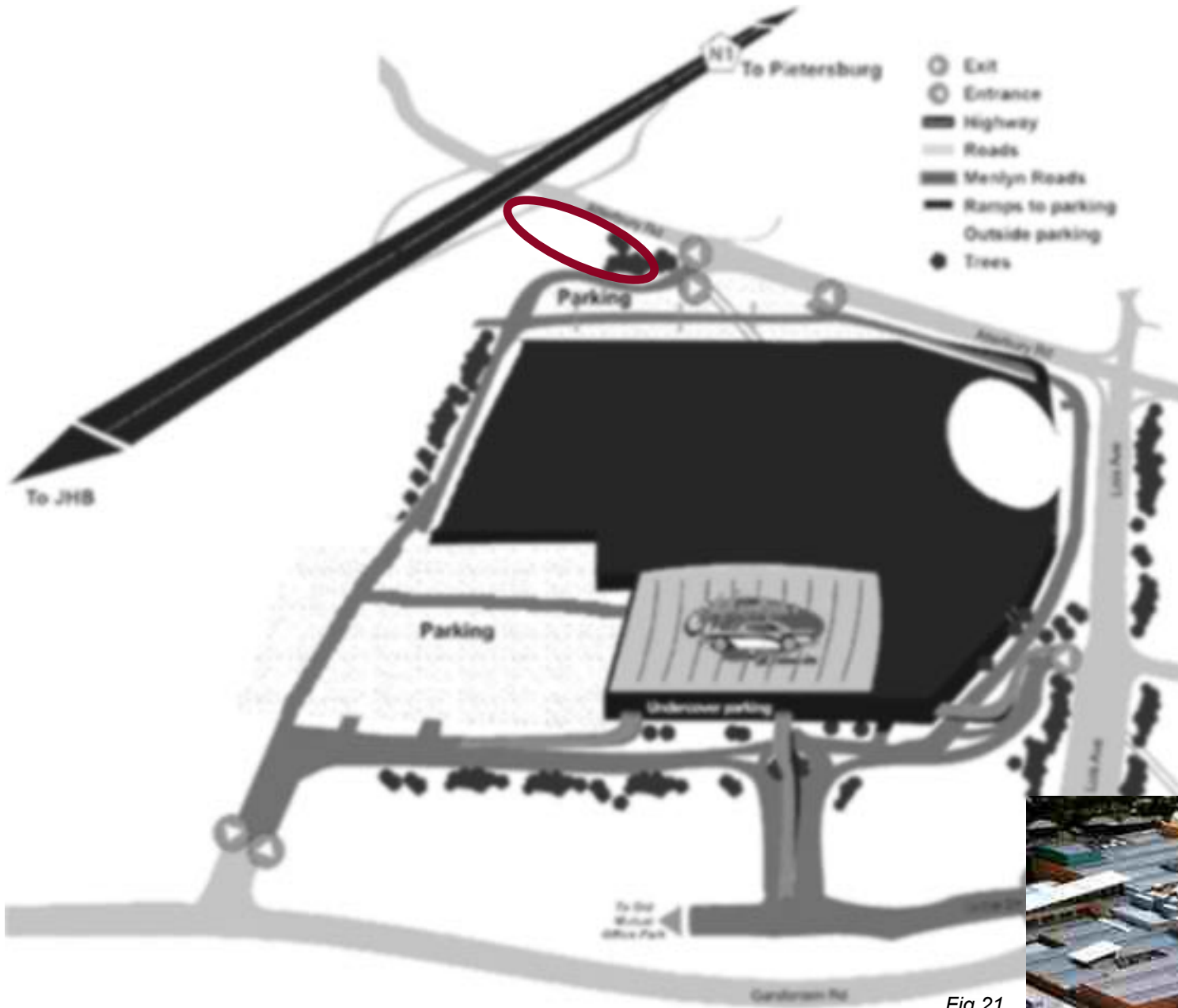


Fig.21



Private and public transport

Like most new world cities public transport is nonexistent. Most people use taxi's and the rest use private transport. Although many people live east of the highway, most work west of the highway or in Johannesburg. This daily migration causes heavy traffic on the four bridges (Atterbury, Lynwood, Garsfontein and Rigel) crossing the highway, and on all the highways. The Gautrain rapid rail link that's going to connect Johannesburg International Airport, Sandton and Pretoria will definitely take some of the load of these roads.

Gautrain is planning a satellite station at the Menlyn Node, next to the Heliport site, on the other side of the highway.

Regional airport facilities

The four major airports around Pretoria are: Johannesburg International, Grand Central, Lanseria and Wonderboom.

Wonderboom is the closest, it is not in the same class as the other airports (equipment and facility wise).

Most helicopter owners store their helicopters at Grand Central and Lanseria.

Roads network

Major highways close to the site are the N1(north / south), N4 (going east towards Nelspruit), R21(towards Johannesburg International Airport) and the R28(west towards Krugersdorp).

The Menlyn commercial hub.

The Menlyn commercial hub can be defined as the area between Generaal Louis Botha road in the east, the N1 highway in the west, Garsfontein road in the South and Atterbury road in the North. This area's main feature is undoubtedly the Menlyn Park Shopping Center, a highly visible, ten storey high, colorful building catering for every need the consumer might have (including a world first drive inn on the roof).

Up and until 5 years ago the Menlyn commercial hub would probably not have been called a "hub" at all. The small to medium sized Menlyn shopping center was surrounded by a couple of dreary looking and relatively sparsely space office blocks, car showrooms and dilapidated townhouses. Then Old Mutual decided to renovate and increase the size of the shopping center substantially. The renovation of the Menlyn Park Shopping center was the catalyst the Menlyn Node was waiting for. New office buildings, showrooms and retail complexes soon followed. Menlyn Park shopping center now has two million visitors a year and is one of the biggest shopping centers in the Southern hemisphere. It is a vibrant area catering for everybody from housewives to young people socializing in one of the nightspots. The area seem to be busy 24 hours a day, seven days a week.

The Menlyn hub has three major flaws at present. There is definite lack of high density residential buildings, no provision has been made for pedestrian circulation between different buildings and there is lack of integration between the hub and the surrounding suburbs. Most of these flaws can be accredited to incompetence, lack

Fig 21: Menlyn Park Shopping center, one of the largest shopping centers in the hemisphere with two million visitors a year.



Fig.22

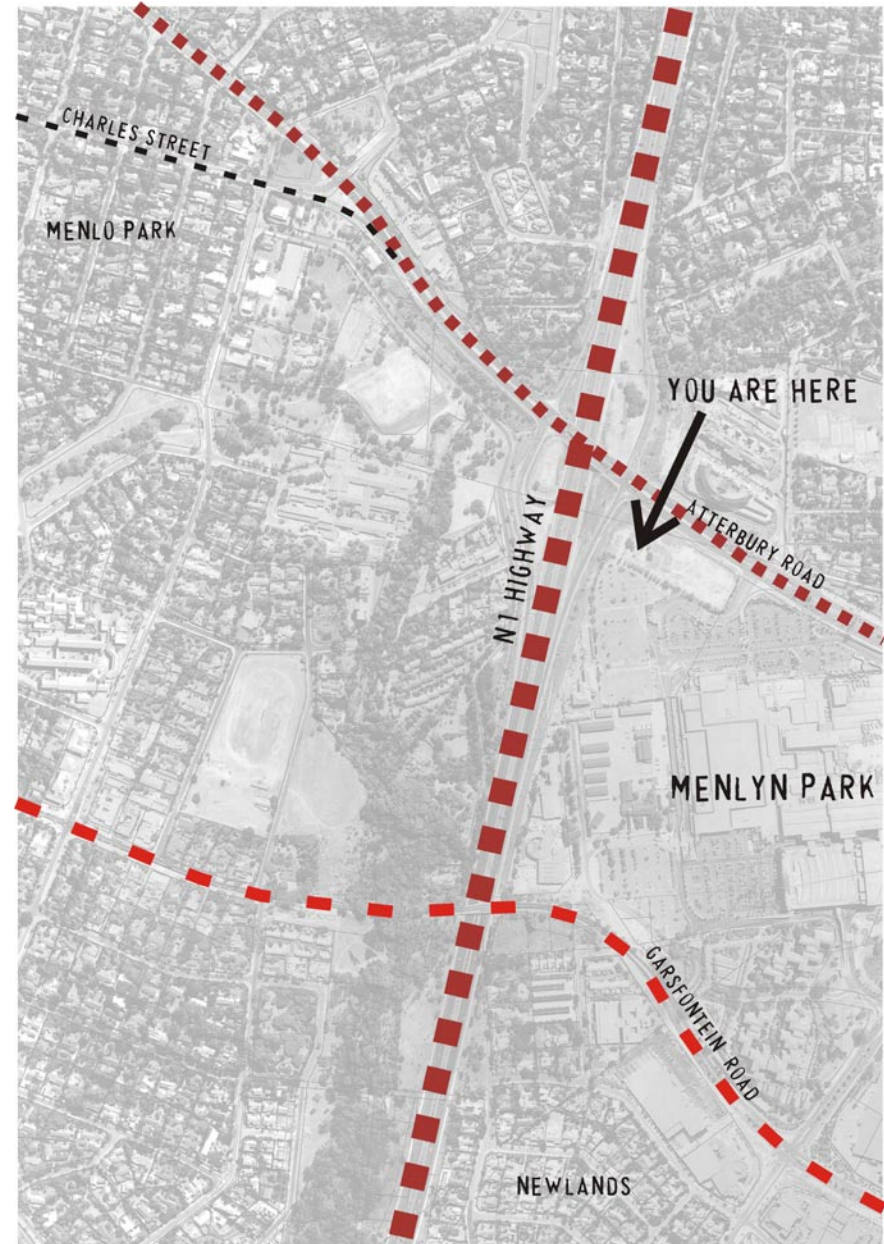


Fig.23

of vision, and the lack of backbone on the side of the municipality's townplanning office. The only planning the townplanning office did on this region was to give it the boundaries mentioned above, and to refuse any high density residential developments. Pedestrian circulation, buss stops and taxi ranks should have been discussed and planned for before approving the plans for the proposed renovation of Menlyn Park. Now taxis block Atterbury road during peak hours and crossing the road is life threatening for pedestrians. Employees at office blocks across the street from Menlyn Park, rather drive to the shopping center than try and cross the road. At present none of the buildings in the area address the street, or encourage pedestrian circulation.

Other commercial hubs and shopping centers in the region (10 -15 minutes drive) are Brooklyn, Hatfield, Boardwalk (Fairie Glen), and the new Woodhill shopping center.

SITE LOCATION & CURRENT OWNERS

The site is located in Menlyn, Pretoria, Gauteng province, South Africa. The boundaries are the N1 highway, Atterbury road, Garsfontein road and Menlyn Park shopping center. Old Mutual is the existing owners of the site and there are no immediate plans to develop the site at present.

ACCESS & CIRCULATION

Access to the site is possible from Atterbury road, directly north of the site, or Garsfontein road, about a kilometer south of the site. Direct access from Atterbury road will

not be possible, as there is not enough space between the off-ramp and the Menlyn Park access road for another road entrance.

A access road built by the developers of Menlyn Park is adjacent to the site on the east. This access road is mainly used by visitors of Menlyn Park and has parking ticket systems installed for visitors entering and leaving the parking lot of the shopping center. The opportunity exist to enter the site from this access road before encountering the ticket system, but vegetation and a turn in the road will leave motorists leaving Menlyn Park unsighted, and collisions might occur. It is therefor envisioned that visitors will access the site via the ticket booms, from the south. Pedestrians from Menlyn Park will access the site and building from the east by extending the existing pathway from the Ocean Basket entrance.

As stated before, the new Gautrain station planned on the opposite side of the highway offers the opportunity to channel pedestrians through the site. Pedestrians can cross a (new) pedestrian bridge or the existing vehicular bridge and move past or across the site to Menlyn Park and beyond.

Fig 22: The existing commercial zones are islands in the residential sprawl of Pretoria East

Fig 23: The site is located next to a national highway, and a major regional road, giving it good access to Pretoria and beyond.

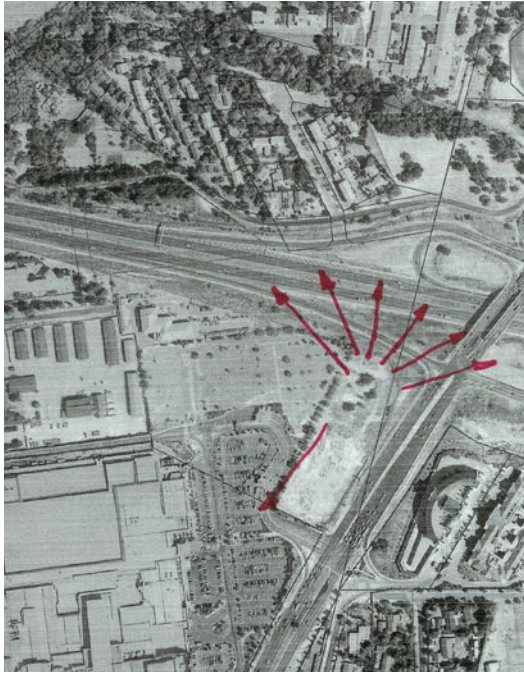


Fig.24



Fig.25



Fig.26

VISUAL IMPACT

With thousands of people driving past the site on a daily basis, any future building that will be built on this site will have a strong visual impact.

Ultimately the speed and direction of travel and whether the viewer is below or above the site determines the visual impact:

- < *A multi storey building will be visible for an extended period of time for motorists traveling north on the N1 albeit at high speed.*
- < *Motorists traveling south on the N1 will only have glimpses of a multi storey building, as the view angles driving south will not allow a clear view of the building.*
- < *Motorists traveling east or west on Atterbury road will have clear views of the building for an extended period of time at slow to medium speed.*
- < *Pedestrians in the open car park at Menlyn Park Shopping center will have clear views of the building for extended periods of time at slow to standstill speed.*

VIEWS FROM THE SITE

The highway will offer spectacular views for the building occupants, especially from the western edge of the site where views along the highway to the south and north can be exploited.

Views from the middle of the site to the south and north can be described as depressing: The new eclectic Price Waterhouse Coopers building blocks the view to the north. While the service area of Menlyn Park, more eclectic office buildings and blacktop parking make up the view to the south.

Fig 24: Pretoria's land use map illustrates the lack of density and the growth of the so called edge cities.

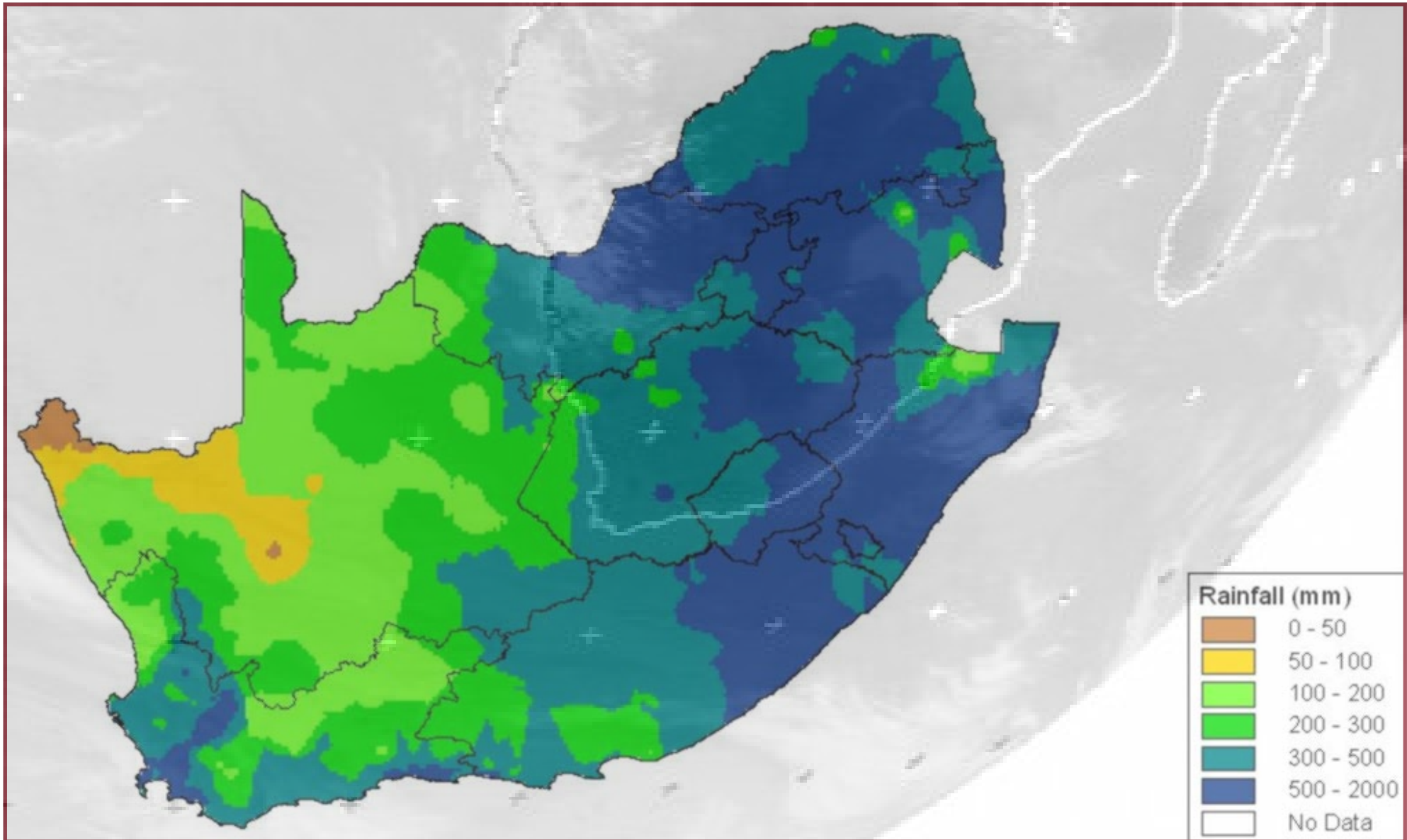
PHYSICAL CHARACTERISTICS

The site is flat with no significant topographical features and a constant 3 degree fall from east to west. The site is 2 to 3m lower than Atterbury road on the northern boundary and level with the parking area on the southern boundary. It is obvious that the site was cleared and leveled sometime in the past.

A row of indigenous trees was planted on the southern boundary and a single wattle tree grows in the middle of the site. Otherwise the existing vegetation is negligible.

Fig 25: Pretoria's land use map illustrates the lack of density and the growth of the so called edge cities.

Fig 26: Pretoria's land use map illustrates the lack of density and the growth of the so called edge cities.



MET7 23 OCT 2004 0900 IR2 D Fig.27 & 28

CLIMATE

REGIONAL CLIMATE

The site lies in a typical semi-lowveld climate with hot summers and mild winters. Rain mostly occurs during the summer months as rainstorms of high intensity and is generally accompanied by gustily south-westerly winds. Winter months are generally dry and mild to cold.

The site is in the southern hemisphere and the sun orientation is north. The sun angle is 5deg at noon in the summer (22 December) and 43deg at noon in the winter (22 June).

Month	24hr max (mm)	average (mm)	Ave. temp max	Ave. temp max
Jan.	116.0	133.8	27.9	15.7
Feb	87.7	75.8	27.4	15.7
Mar	72.5	82.6	26.1	14.0
Apr	76.8	57.8	23.8	10.5
May	44.3	12.1	21.1	5.8
Jun	38.0	9.9	18.7	2.6
Jul	11.5	1.9	19.1	2.6
Aug	15.8	4.9	21.8	5.4
Sep	40.4	22.1	25.1	9.3
Oct	63.0	70.9	26.7	12.7
Nov	48.0	104.0	26.9	14.1
Dec	78.7	117.6	27.6	15.3

MICRO CLIMATE

Passing traffic cause sites next to busy highways to have more wind than the surrounding areas, and this site is no different.

The council planted a dense screen of Eucalyptus trees on the opposite side of the highway to screen the suburbs from wind and dust, but for some reason, did not do the same on the eastern side of the highway. The site is therefor unprotected from wind, noise and dust.

All slopes on the site face are neutral (flat) and receive sunlight for most part of the day, as none of the surrounding buildings are close enough or high enough to cast any shadows on the site.

Conclusion: The site has an unpleasant micro climate, and unless a courtyard building is designed, the building must not open up to the outside.

Fig 27 & 28: Pretoria receives mostly summer rainfall in the form of afternoon thunder showers.

PRECEDENTS

The background of the slide is a complex, abstract composition. It features a dark, almost black, space filled with numerous thin, white, intersecting lines that form a grid-like pattern. Overlaid on this are several large, dark red, semi-transparent geometric shapes, primarily triangles and quadrilaterals, which appear to be layered and slightly offset from each other, creating a sense of depth and movement. The overall aesthetic is modern and technical.

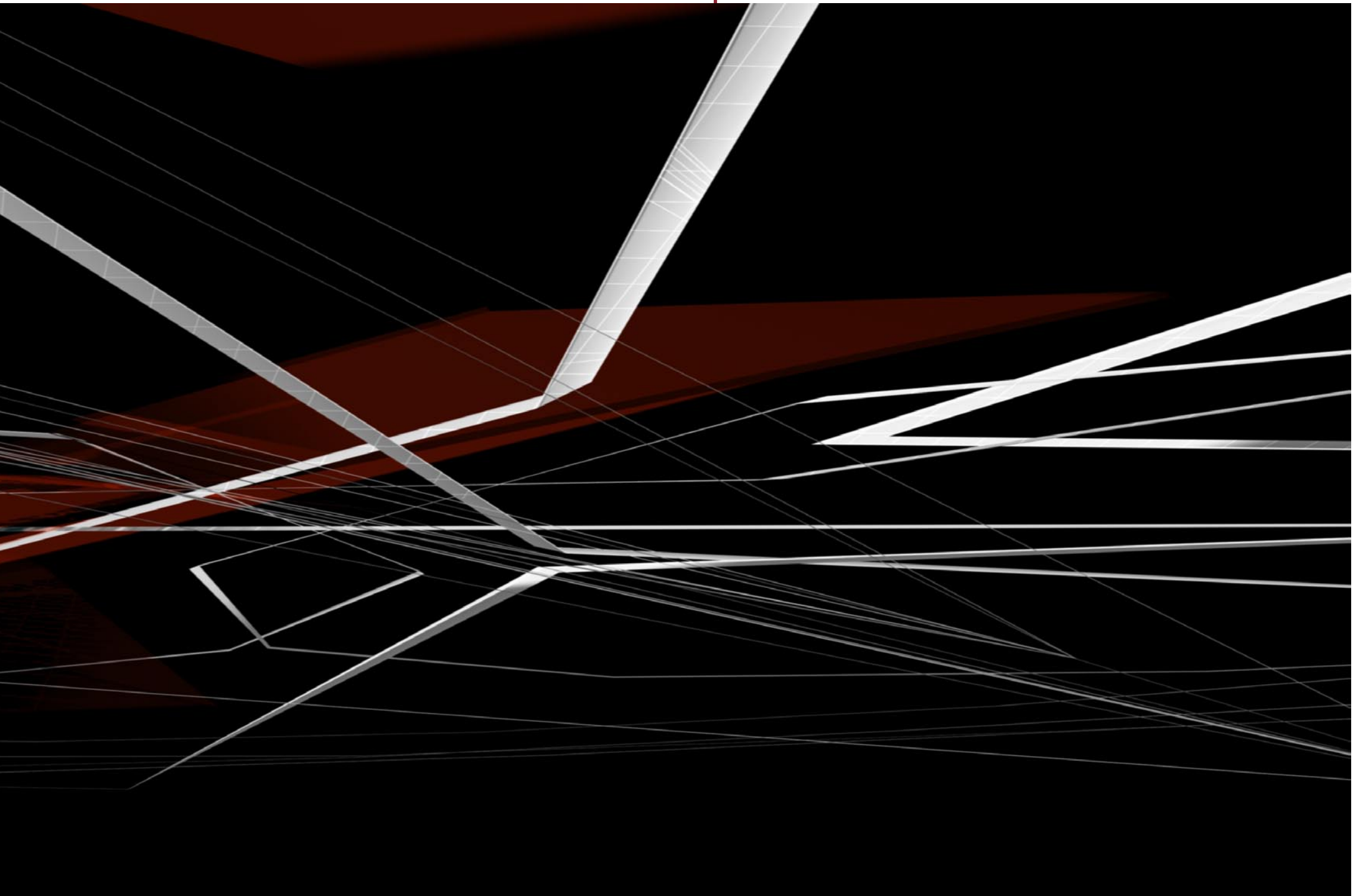




Fig. 29

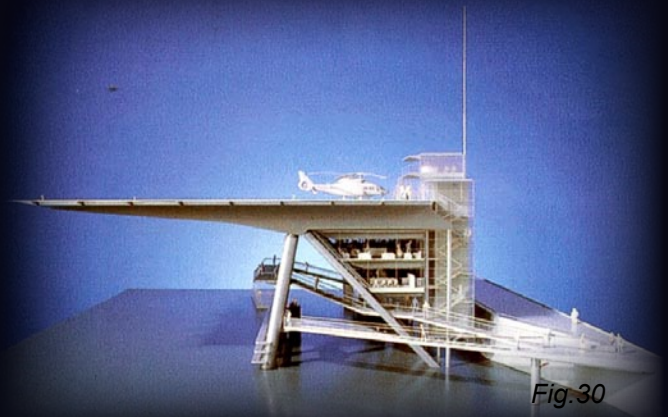


Fig.30

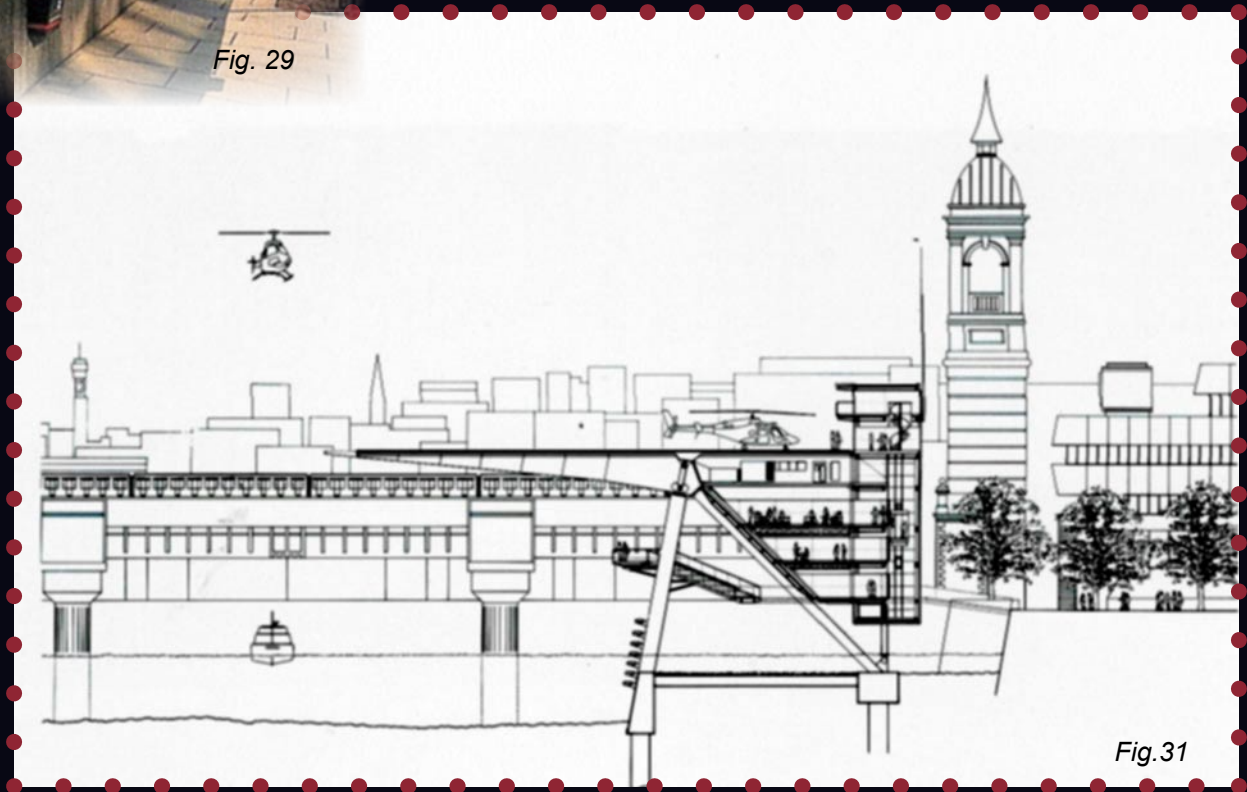


Fig.31

London City Heliport

London City Heliport was designed by Foster & Partners in 1988. After investigating numerous sites, the decision was made to place the heliport on the Thames river close to an existing subway station. This decision was based on the following factors:

- < *Helicopters can approach the heliport along the Thames river, thus minimizing the impact of noise.*
- < *Helicopters have a 1:8 approach and take-off angle, and by approaching the helipads along the Thames river, the surrounding buildings will not have an influence.*
- < *The heliport will have a stronger visual presence, as the Heliport can be observed from distance by pedestrians circulating around the Thames.*
- < *Public transport is close-by.*
- < *The heliport will have the potential to uplift a fairly decapitated area.*

To minimize noise pollution, and to neutralize the effect of tall buildings in the immediate vicinity, Foster lifted the helipads above ground. This created the opportunity to design add-on functions underneath the helipads that would enhance the overall feasibility of the building. These add-on functions includes a conference center and a restaurant. Both these facilities were designed to offer maximum views along the Thames river.

For various reasons the building remains unbuilt.

Fig 29: The Heliport is located next to pedestrian pathways and a major regional train station.

Fig 30 & 31: The helipads cantilever 40 meters over the river Thames, with viewing decks and restaurants making up the base of the building

Fig 31a: The heliport can best be viewed from across the Thames river.



Fig.31 a

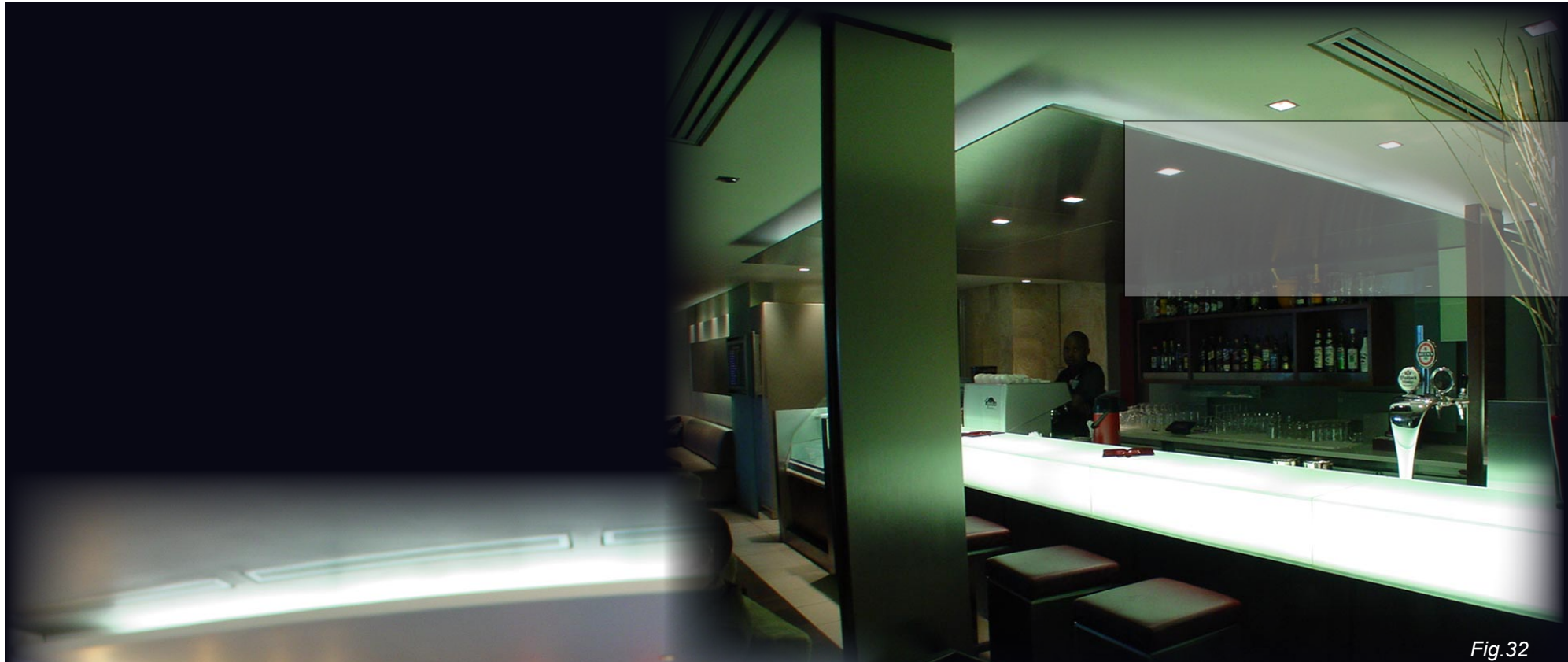


Fig.32



Fig.33



Fig.34

Dunhill smoker's lounge, Johannesburg International Airport

The Dunhill smoker's lounge takes branding and airport lounge design to a new level. As the design had to conform to the Dunhill brand image, the designers did an extraordinary job of communicating the Dunhill brand throughout the design. The image Dunhill wants to communicate, is one of contemporary luxury. The Smoker's lounge consequently becomes more than just a waiting area at an airport, but an advertisement of the Dunhill brand.

Fig 32 -34a. The collage of different but complimentary materials and finishes, create the feeling of luxury, and sell the Dunhill brand image

The lounge caters for anybody who wants to use it's facilities. These facilities include a bar, two lounge areas, and an internet café. Luxury items from Dunhill and its sister company Gucci is sold at the entrance of the lounge.

The main reason for including this precedent is occupant comfort. Occupant comfort in this instance is achieved not only by an excellent air conditioning system, but by the overall experience of the space. Everything is done to make the visitor comfortable. Deep couches and ottomans provide the seating, while the side tables have built-in sockets for cell-phones and lap top computers. The lounge areas is done in a collage of contemporary materials, including stainless steel, sandblasted glass and polished stone; all creating a luxurious setting for visitors. The color palette is neutral, with accents of burgundy, that unconsciously reminds the visitor of the Dunhill brand.

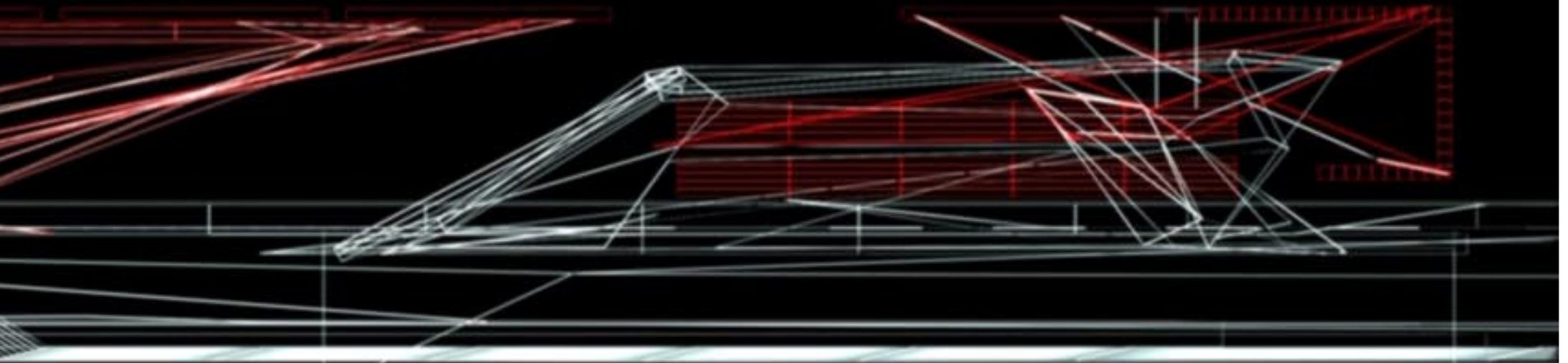
The Dunhill Smokers Lounge is a lesson in how to design a luxurious contemporary space, while communicating an abstract idea to its visitors.



Fig.34a



DESIGN DISCOURSE



& DEVELOPMENT



MET7 22 FEB 1999 1500 VIS2 CTOT



Fig.35

Fig.36

I am here.

Our society have change from a 'we are here' to a 'you are here' to a 'I am here' society. I (made on planet earth) am here (a coffee shop that stole its concept from a bar in Barcelona) in my Italian clothing (Made in Peru) talking on my cellphone (designed in Los Angles, conceptualised in Sweden, and made in China) to someone sitting 200 metres from me in different coffee shop (that will probably close down soon because the owners based it's concept on Pretoria.)

The global village we all occupy happened quite by chance. Not the big bang, but the big bucks... The birth of globalism can be explained by the story of a coffee shop franchise:

Two young and broke students bought a disused coffee mill in Seattle, started a coffee shop, and the moment it started making money locally, they opened thousands all over the US and eventually the world. They named their coffee shop Starbucks.

In countries where Starbucks did not react quickly enough, the locals opened their own versions. When talking about globalism people tend to think of that other Seattle based company: Microsoft. Microsoft makes much more sense than Starbucks. Virtually all computers work along the same principles and for software programs to be profitable to the software developers, software have to run off the same operating platform. Bill Gates provided that platform first (not literally, but we'll let that one slide),

and quite naturally consumers had to buy the program to get other software to work. It was never a cultural decision to work on computers and by extension Microsoft. But coffee shops are different.

Places where liquid beverage are consumed have been around for centuries, and have always been spaces for social interaction. From coffee shops in continental Europe and the Middle East to pubs in the UK, people like to meet and talk around a drink. Each of these drinking spots had their own identity in line with the local or regional identity. A coffee shop in Florence, Italy has it's own cultural identity, and is inexplicably part of the public sphere. People tend to linger in such coffee shop for hours.

Starbucks on the contrary, sold a completely new concept to the world: take your coffee and go drink it somewhere else: your car, your office, your hotel room. Take away coffee, the greatest assault on human interaction ever. Although most Starbucks shops have 3 or 4 tables, the overriding idea is that people drink their coffee outside the shop.

The effect of Starbucks does not stop here. Through clever marketing techniques and by being the preferred hang-out of Meg Ryan and Tom Hanks in various movies (in New York not Seattle!) Starbucks sold their way of consuming coffee to the planet. Even a traditionally conservative city like Paris, succumbed to the array of choice and fine coffee.

Fig 35: We should be 'taking a closer look' at how advertising are taking over public space.

Fig 36: Franchise supersedes national boundaries. It utterly dissolves local and regional thresholds.



Fig.37

Choice is the main element of success for Starbucks. People can order not only a cup of coffee but a skinny, no fun, hazelnut latte with wings. Tom Hanks probably sums it up best in **You've got Mail**:

.....**"The whole purpose of places like Starbucks is for people with no decision-making ability whatsoever to make six decisions just to buy one cup of coffee. Short, tall, light, dark, caf, decaf, low-fat, non-fat, etc. So people who don't know what the hell they're doing or who on earth they are, can, for only \$2.95, get not just a cup of coffee but an absolutely defining sense of self: Tall! Decaf! Cappuccino!"**.....

Although all Starbucks coffee shops look exactly the same the world over, the company sold one overriding idea to its consumers: You are individuals, with individual tastes and desires and we are going to make you feel like individuals. The culture of the collective have made way for the culture of the individual.

Ironically globalization's main spin-off is individualization.

The homogeneous society of the past now makes way for a society of difference.

Like an "open source" software program our lives are changed daily as ideas mutate from the ideas of other cultures and regions to fit locally. By placing Starbucks next to ten other global companies with their respective global images, one will never guess the location: It could be here, or anywhere...

Fig 37: A typical Starbucks interior - It could be here, it could be anywhere.

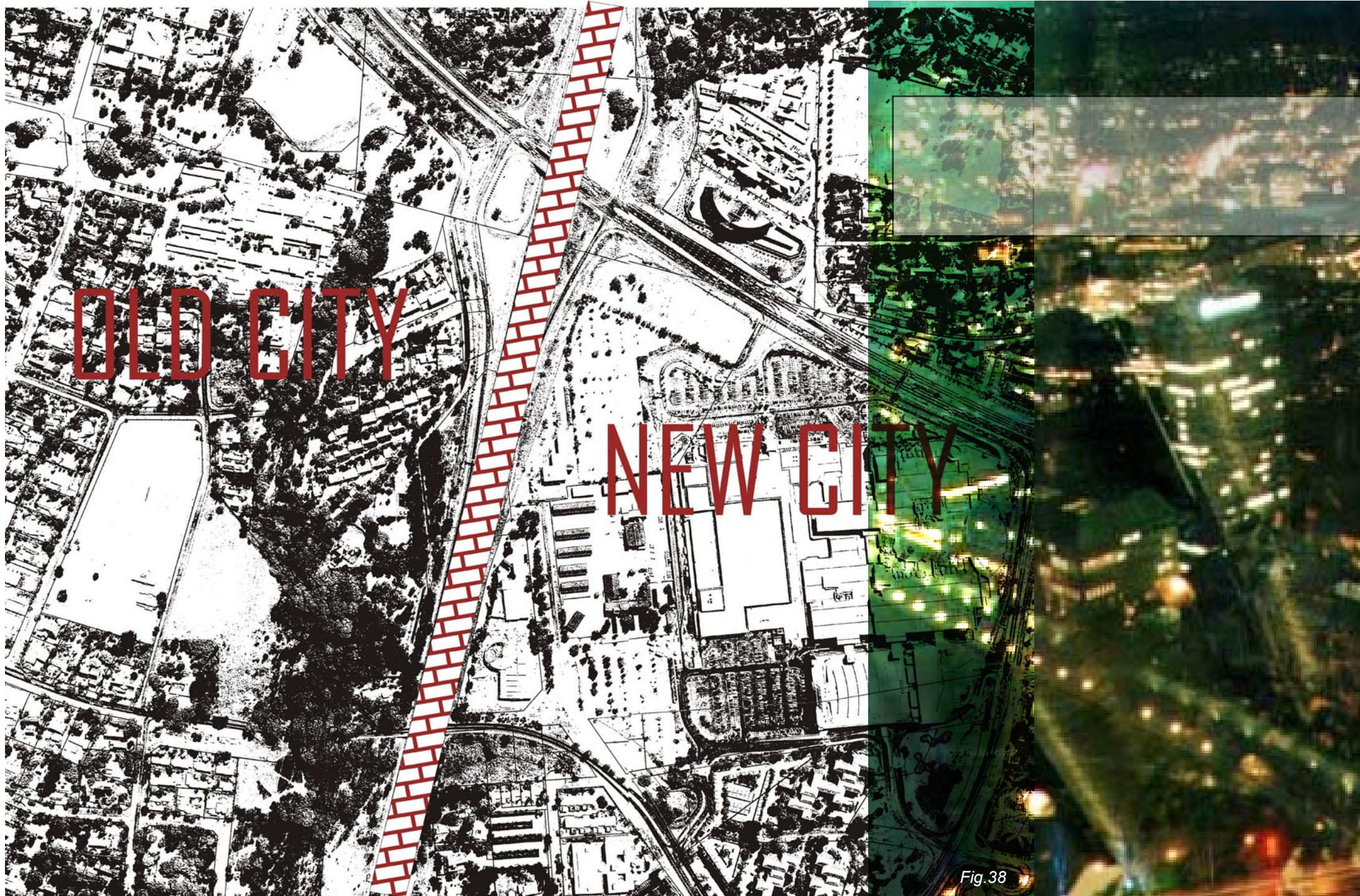


Fig.38



Fig.39

“The city is no longer” (KOOLHAAS, 1997: 1264)

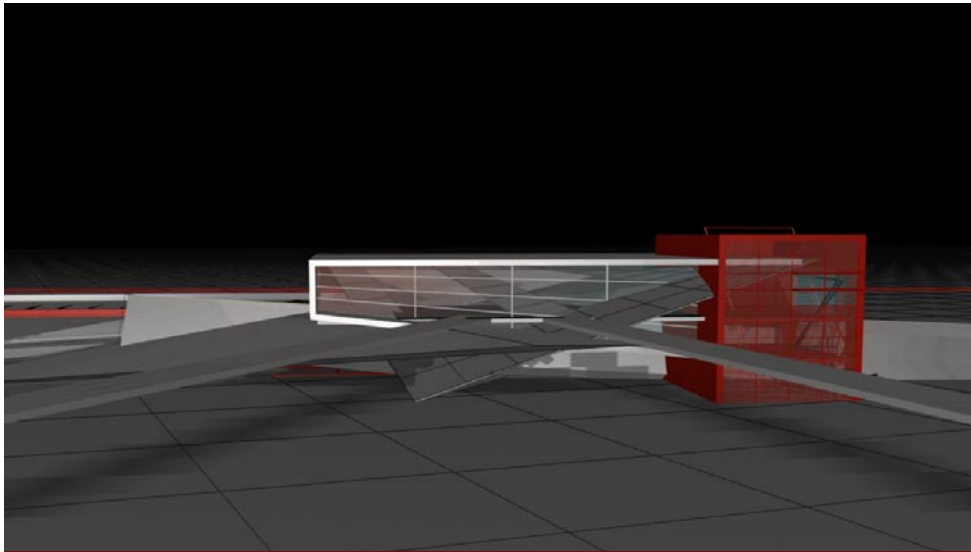
Rem Koolhaas gave us the text and theory of a new intellectual context: Globalism. Conceiving architecture in the context of globalization, where lifestyles become unilateral under the effects of a **total exploitation of the territory**, the distribution of functional zones between suburban dwellings, industrial estates, shopping malls, natural parks and wasteland waiting attention, is tantamount to accepting this de facto state of the physical complexity of architecture and city planning as a material that must be worked with. Architecture must deal with that: that is real, the city as it is , not as it should be.

Globalism and individualization made us rethink on how our cities should be perceived and what the response should be. The city is no longer synonymous with the spatial manifestation of one community with a clear - preferably hierarchical - structure. The growth of the city is no longer planned but fueled by a market economy serving a multi-cultural, multi-racial population.

We now know that our previous comprehension of city center, periphery and edge cities is invalid. The city has evolved to a new “generic state”(KOOLHAAS, 1997: 1249) of multiple centers or nodes that appear to function in isolation to the rest. Highways became no-go zones splitting the city into non-orthogonal pieces like rivers in the landscape. New centres appear almost magically next to the splits in these no-go zones for new horizontal suburbs to feed of. For the moment the horizontal has triumphed over the vertical.

Fig 38 & 39: Highways are like giant walls, cutting our cities into pieces. Next to these walls unplanned edge cities explode into being.

DESIGN DISCOURSE



April, 2004

Fig.43

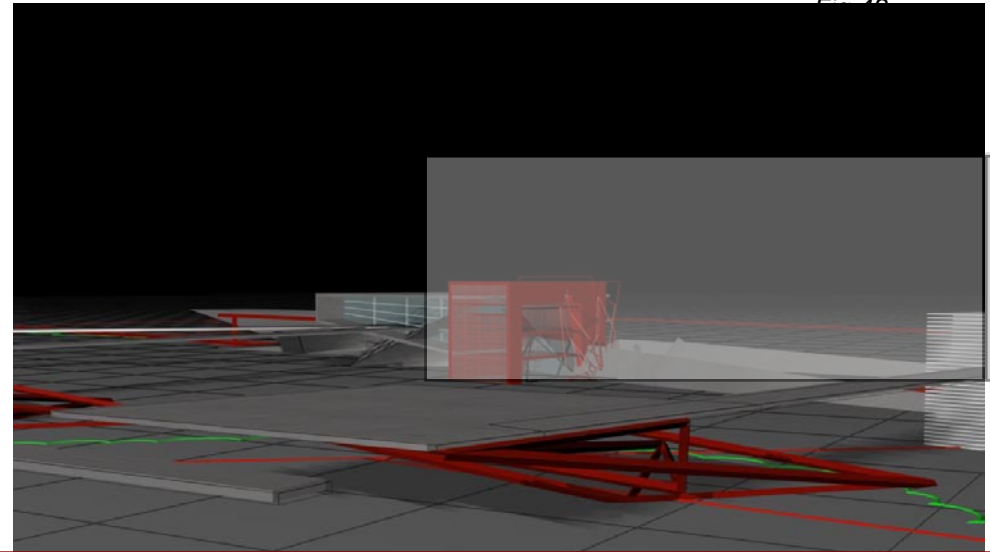
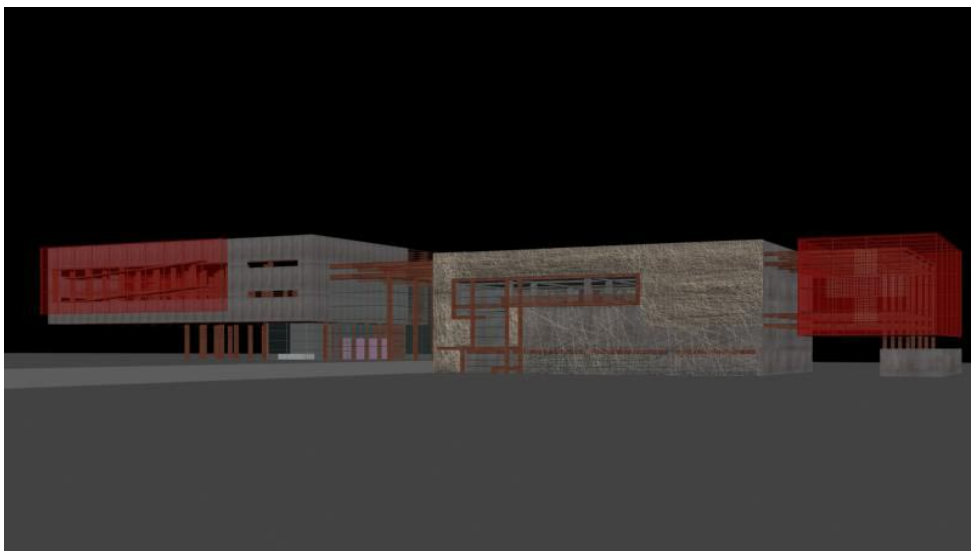


Fig.44



July, 2004

Fig.46

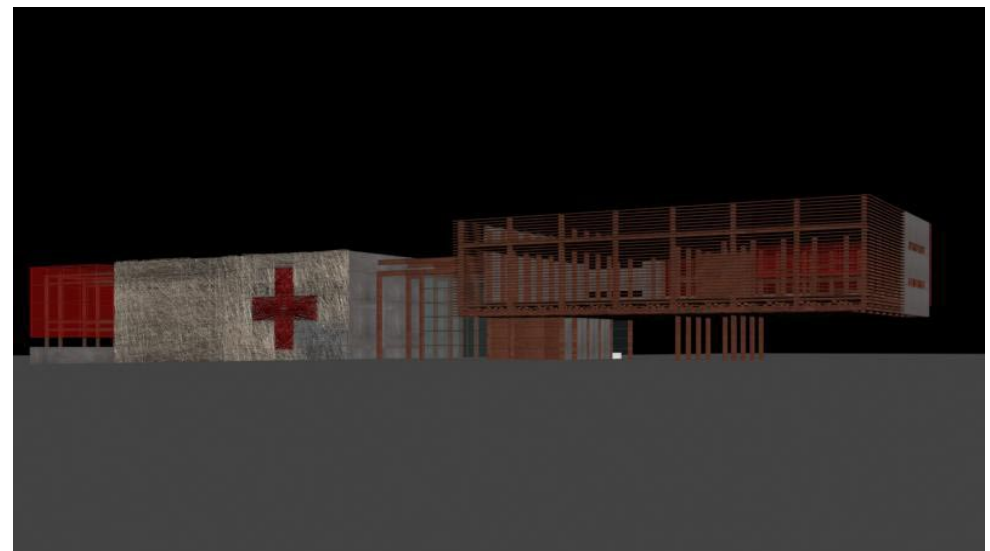


Fig.47

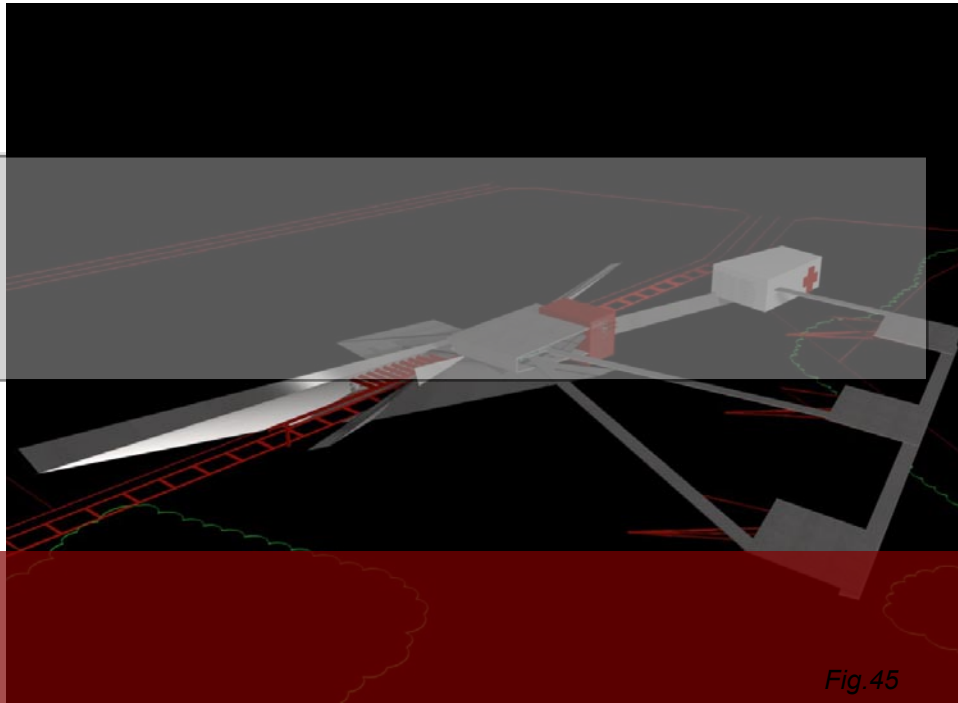


Fig.45

CONCEPT #01

The first concept was designed for the Ashley Gardens site. The site is substantially bigger than the Menlyn site of the final proposal, and offered different opportunities. Buildings were more spread out, and the helipads were placed away from the terminal building. By placing the helipads away from the building, the impact (noise, dust) of the helicopters were minimized.

The design was mainly a three dimensional exploration and a testing ground for later designs. Concepts like splitting the program over multiple floors; having more than one building; and views of the elevated helipads were already predominate in this proposal.

Fig 43 - 45. Concept 1: Three dimensional concept sketches.

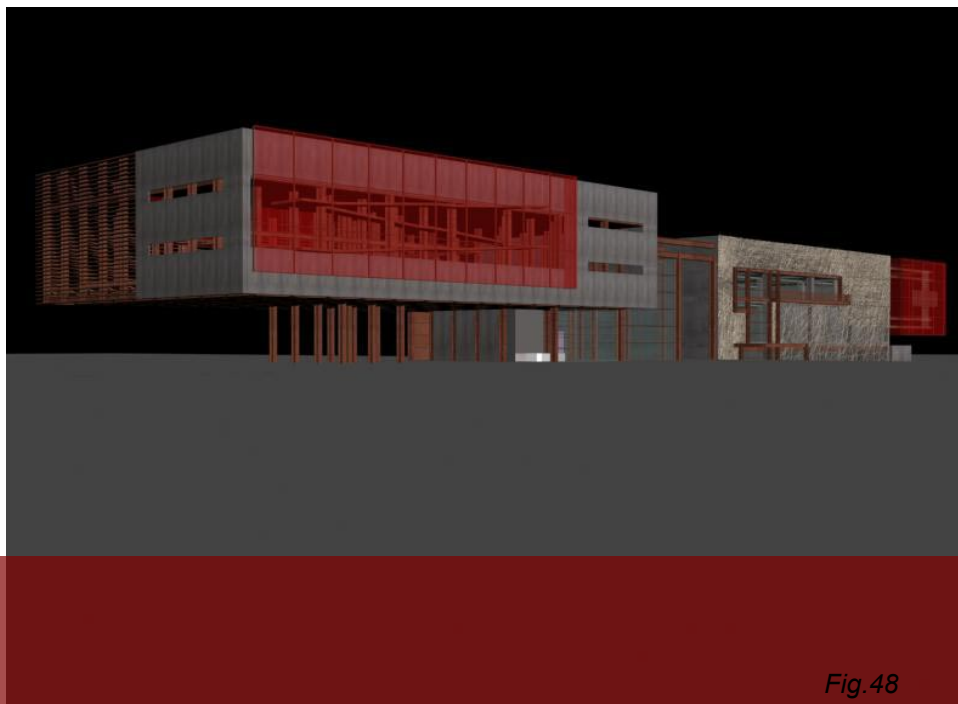


Fig.48

CONCEPT #02

The second concept, and first concept for the Menlyn site is an early version of the final design.

Various new constraints were placed on the building design. As result of the surrounding buildings being relatively high (Menlyn is +/- 30m high), the helipads had to be elevated. (Helicopters need a 1:8 approach and take-off angle). The helipads were hidden from view on the roof of the building, which resulted in a large section of the building being suspended above ground. At this stage the building was still within the site boundaries and the full potential of the highly visible site was not exploited. Although some aspects like the street café was taken to the final design, the design and theoretical approach changed considerably from here to the final proposal.

Fig 46 - 48. Concept 2: Computer model views. This design was taken to sketch plan stage before it was abandoned.

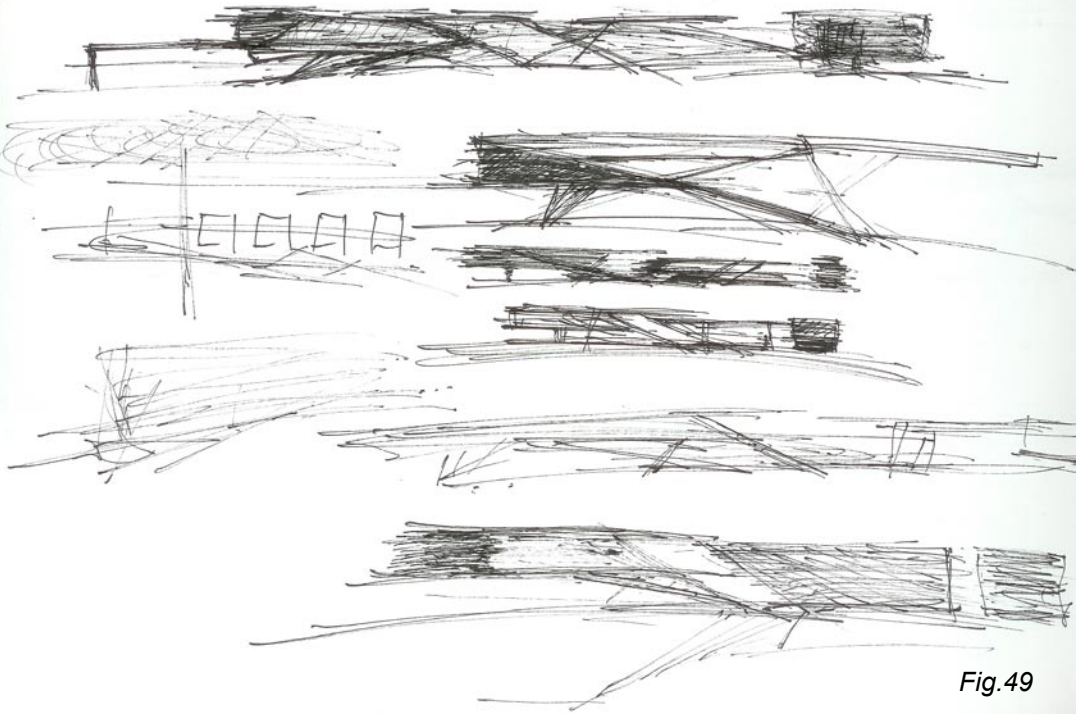


Fig.49

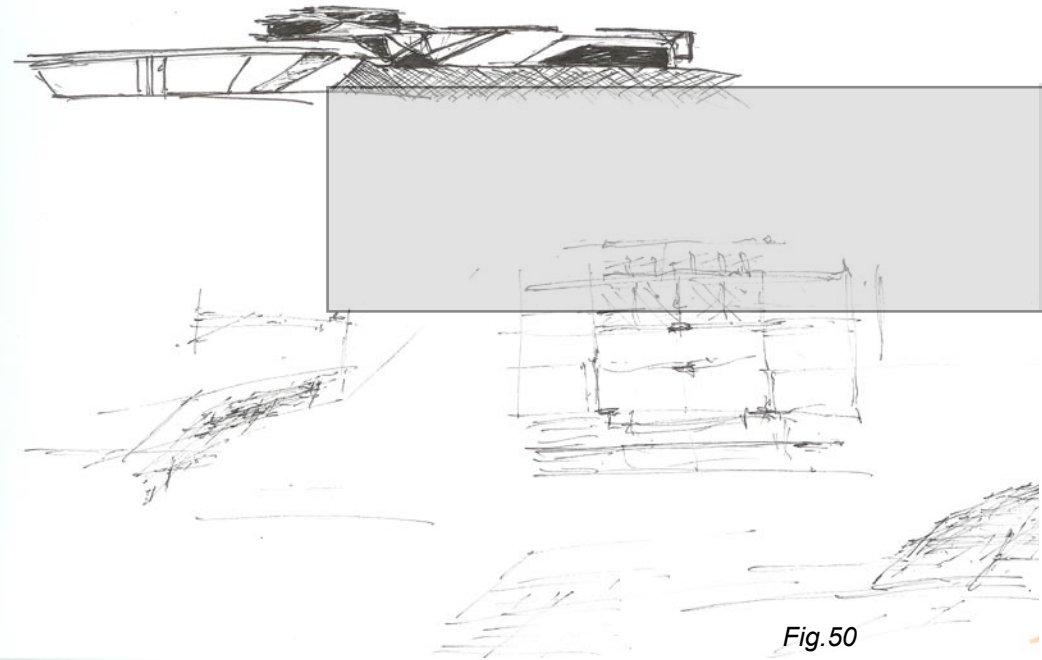


Fig.50

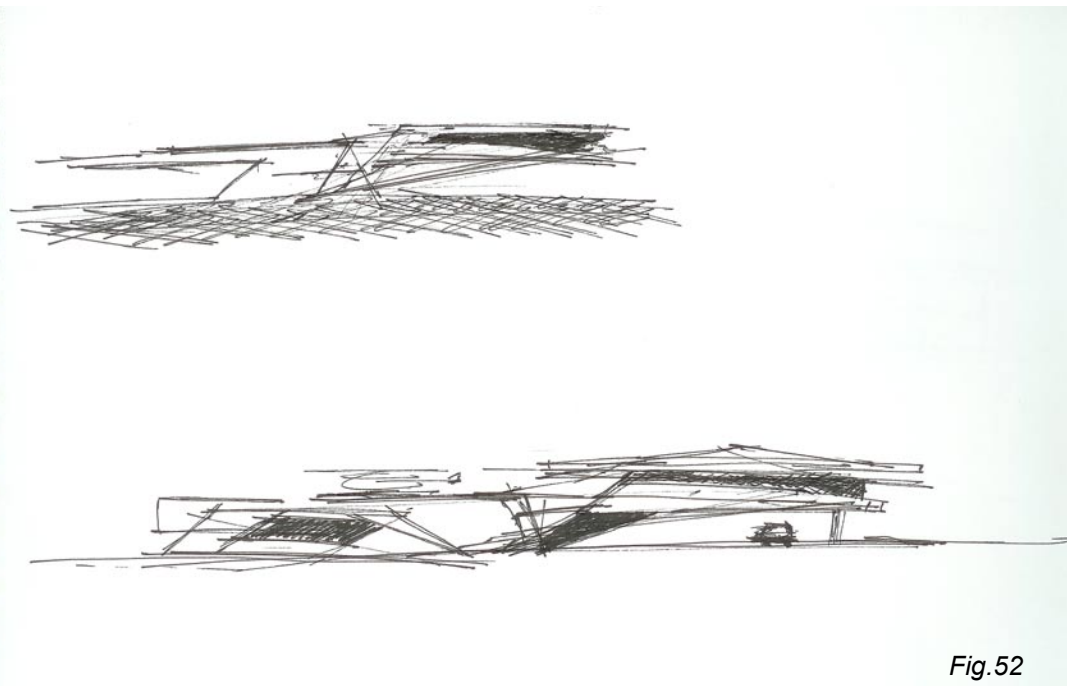


Fig.52

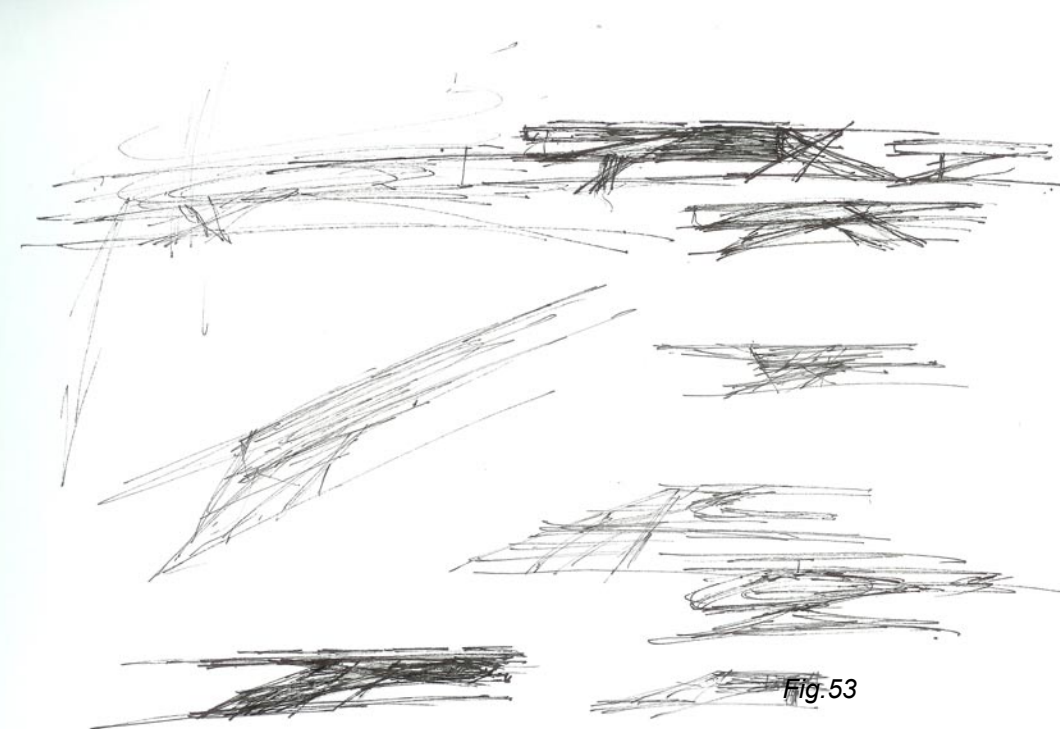


Fig.53

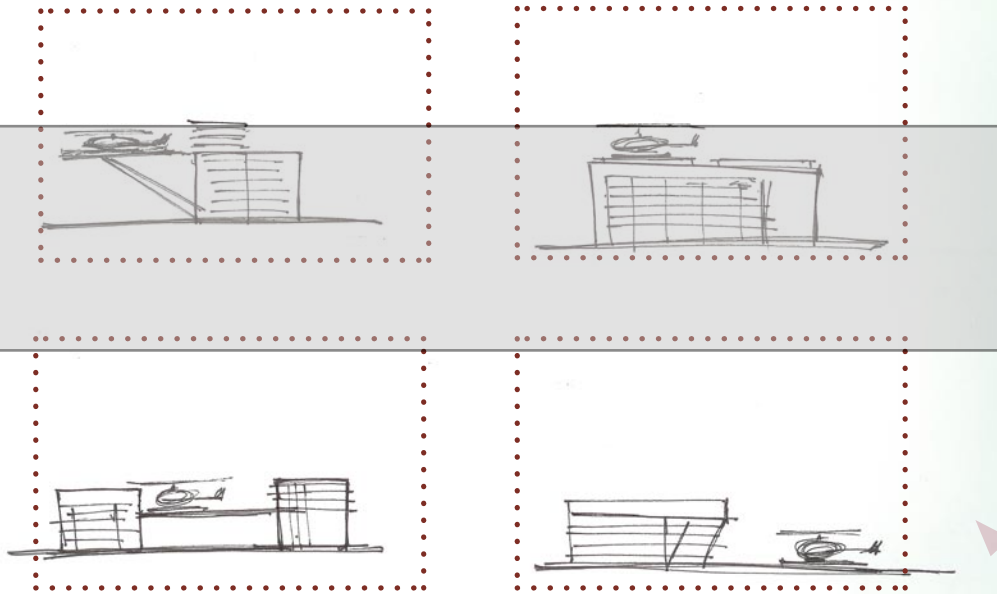


Fig.51

Freehand sketches

The freehand sketches are loosely based on a hybrid of concept #1 and concept #2. The visual importance of the highway has already been realized, and the sketches explore the possibilities of “borrowing” the unutilized space above the highway. The freehand sketch also explore form, and how the building will be perceived from different vantage points.

Fig 49 - 54. Freehand concept sketches.

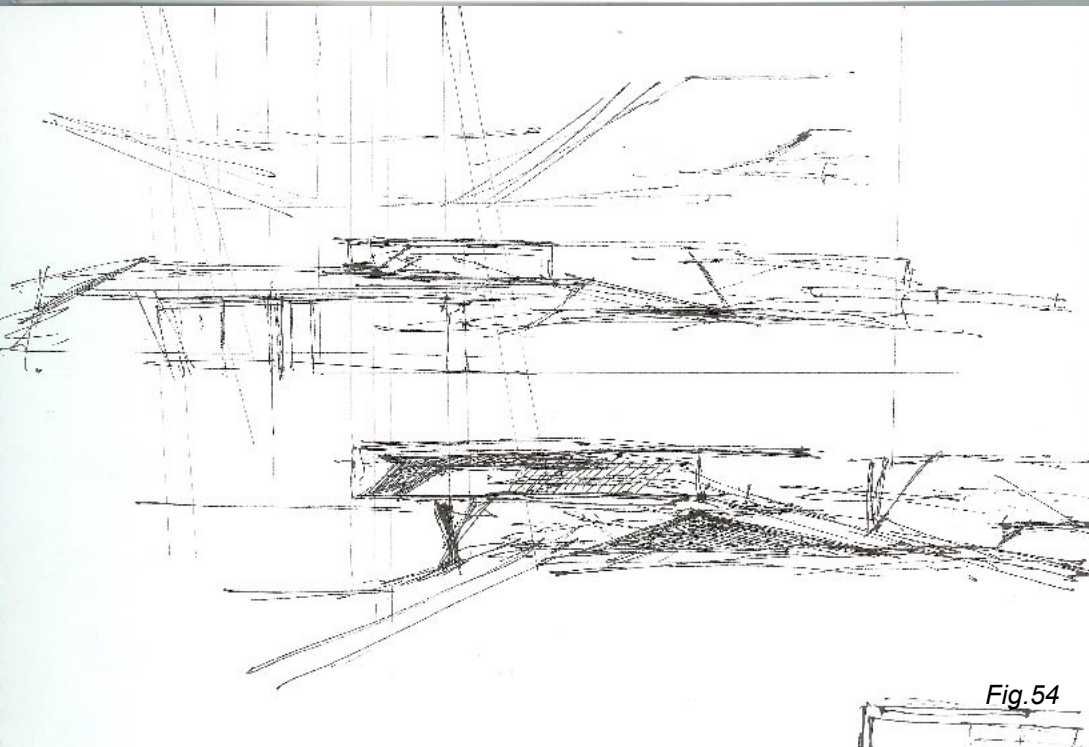


Fig.54

Ultimately the building's form and how the program responds to that form will be determined by the placement of the helipads. Different configurations were tried out, and a hybrid of the 'on the roof' and 'next to' options was used in the final proposal.

~~DESIGN DEVELOPMENT~~

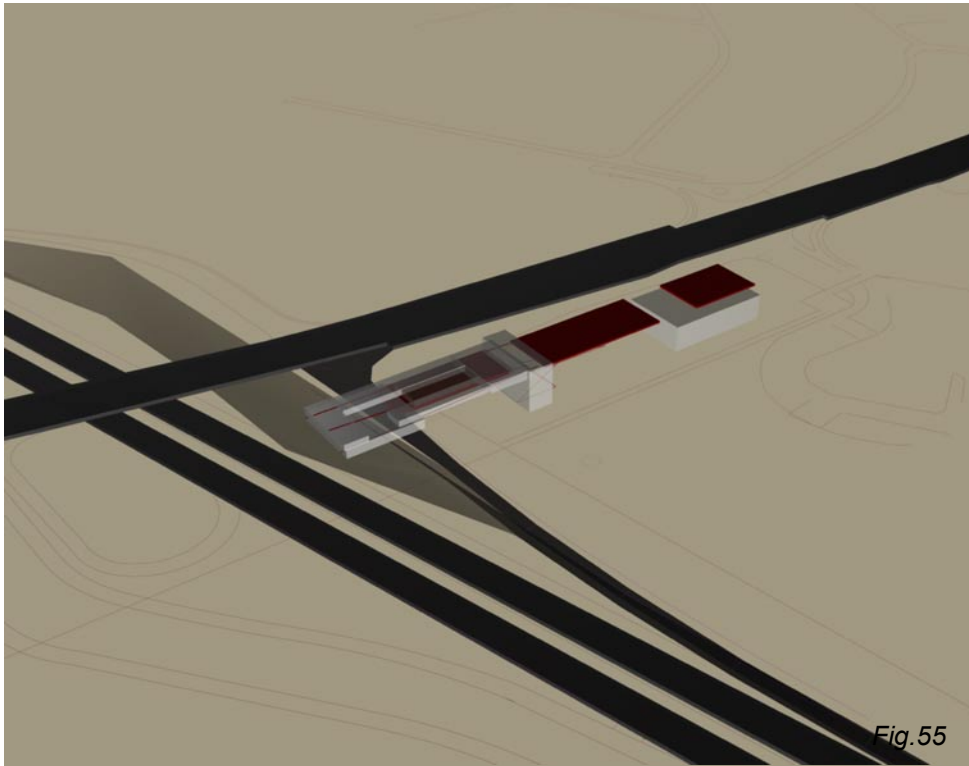


Fig.55

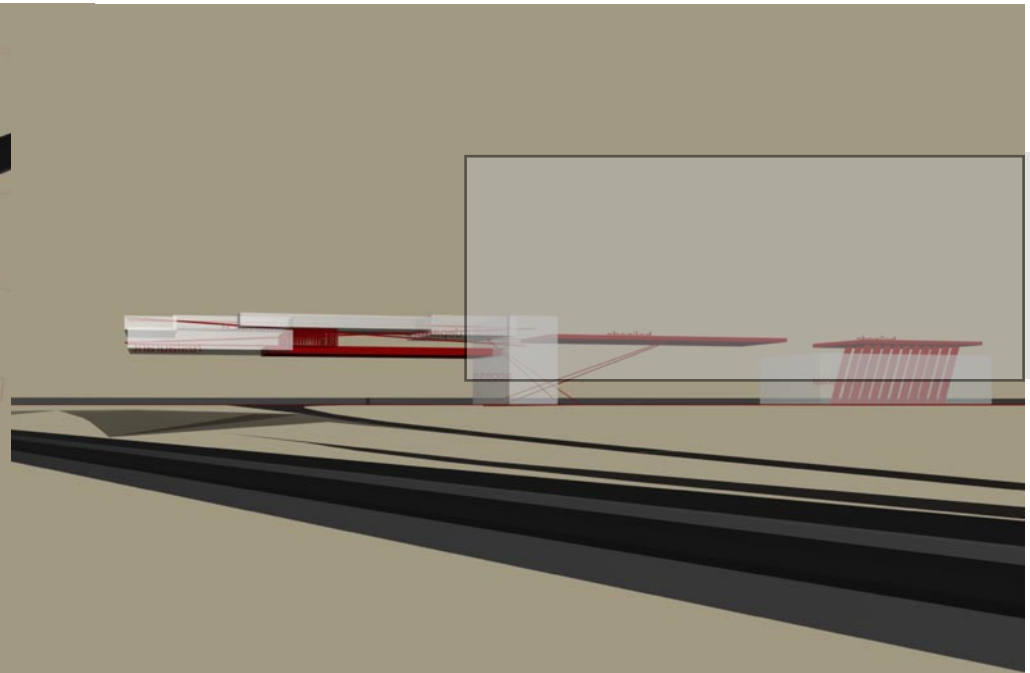
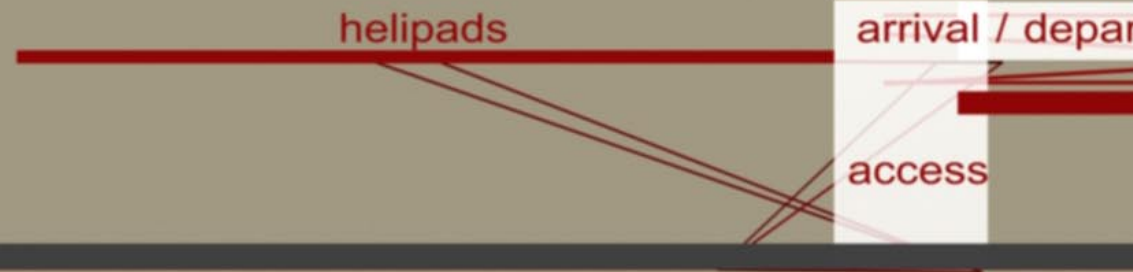


Fig.56



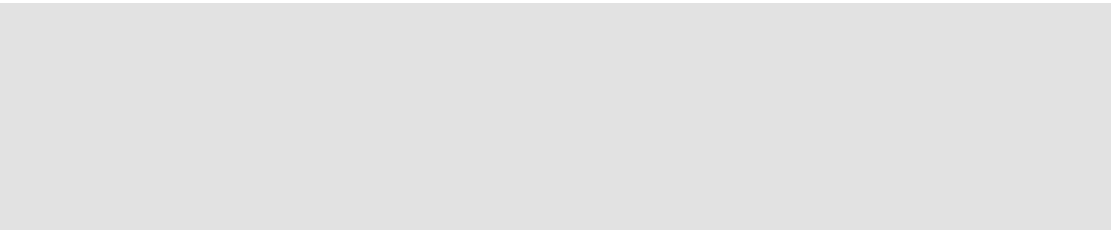


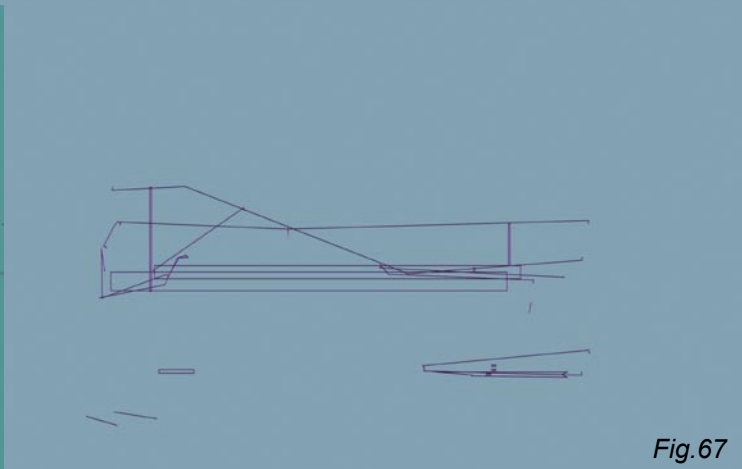
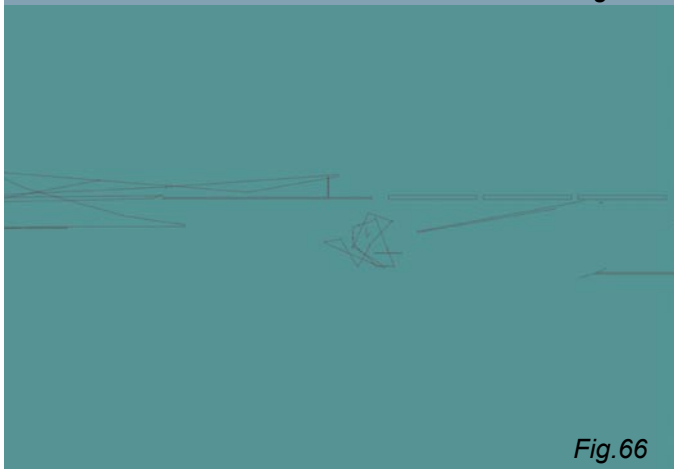
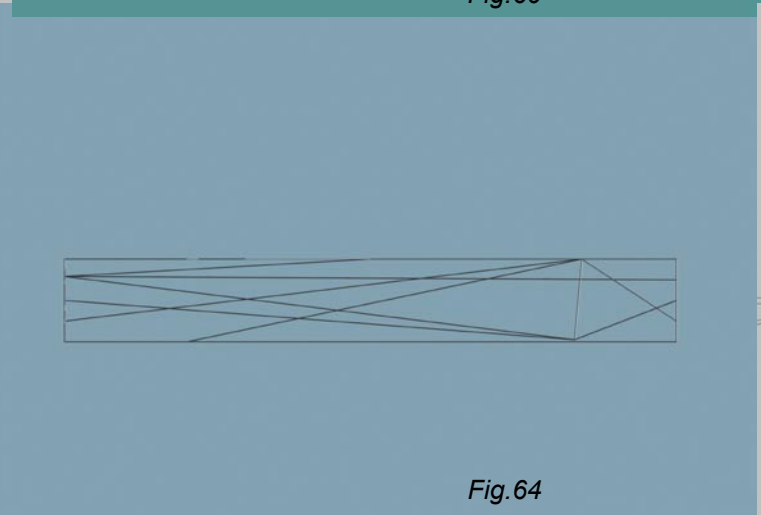
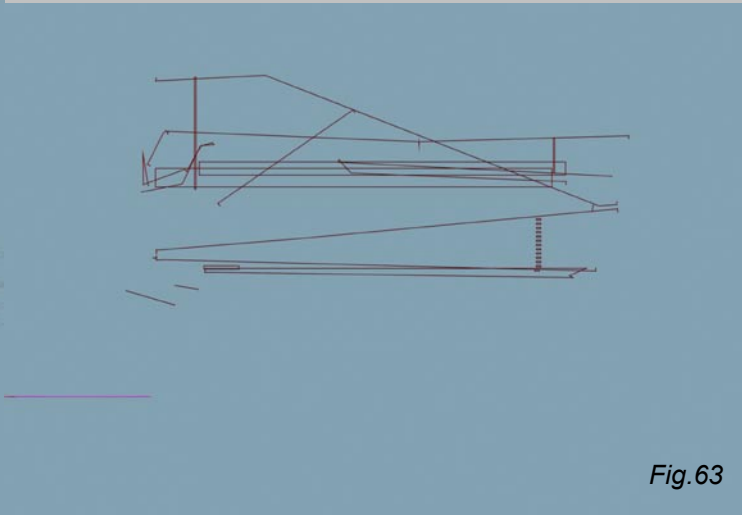
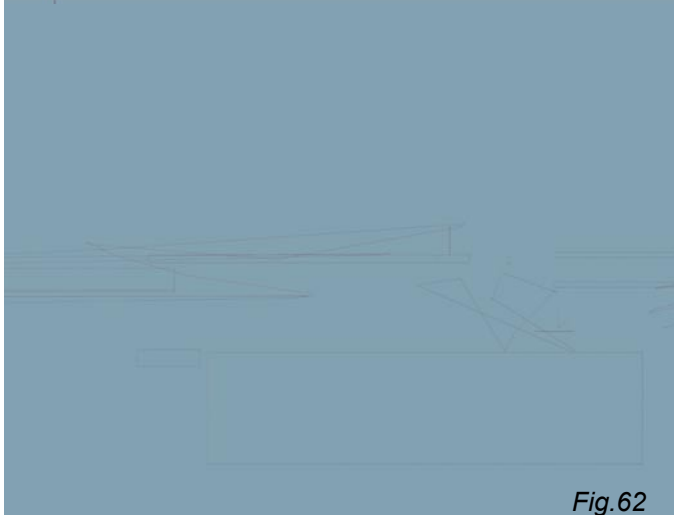
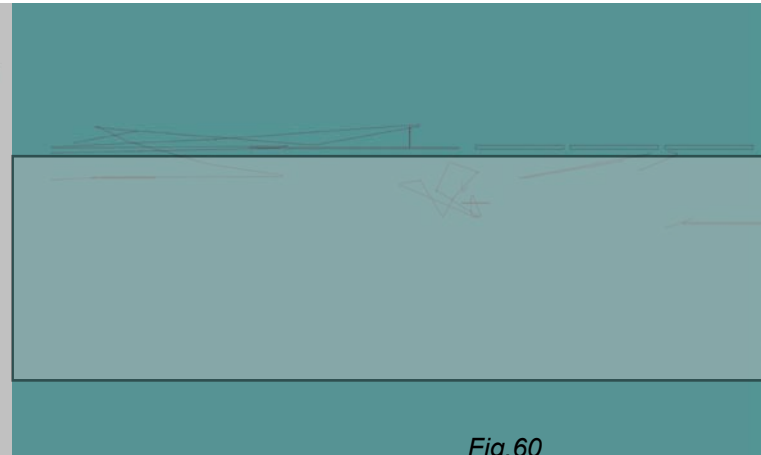
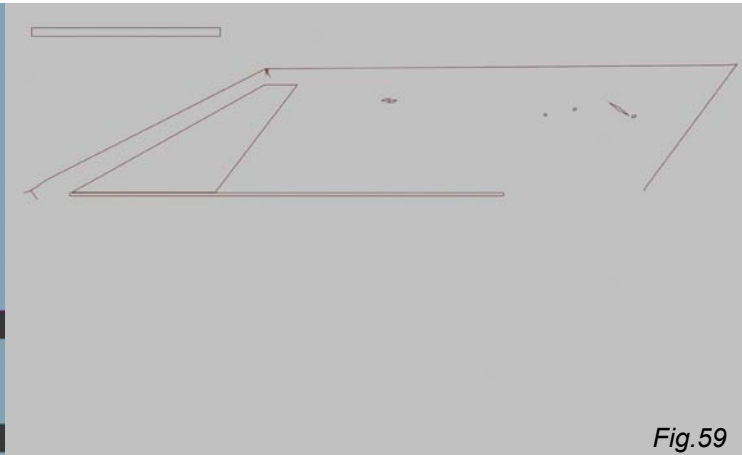
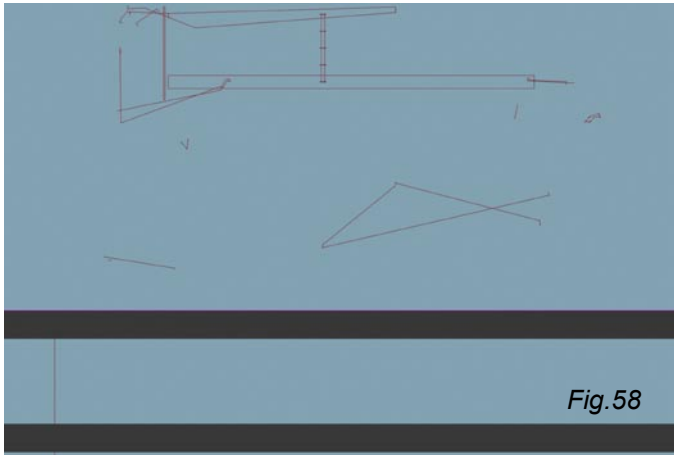
Fig.57

Block model

This spatial block model is one of a series of models exploring space and circulation versus the requirements stated in the brief. By reorganizing the blocks or spaces into different configurations, the best solution can be found for each space individually. Views can be maximized, and the relationship (horizontally and vertically) between different spaces can be explored. The block model is also useful for determining the bulk of the building, and how the building relates to the site and its surroundings.

Fig 55 - 57: Spatial block model exploring the three dimensional

~~**DESIGN DEVELOPMENT**~~



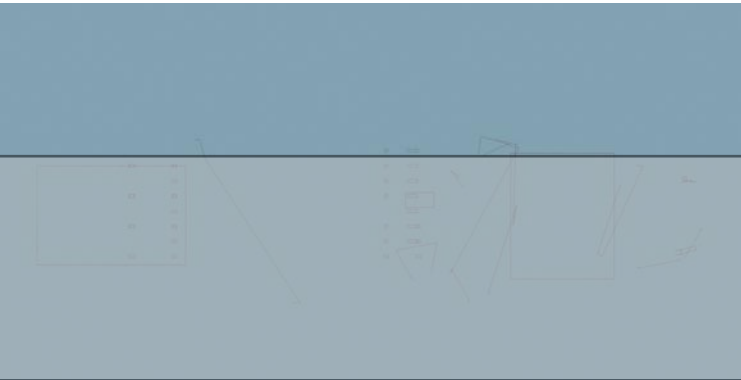


Fig.61

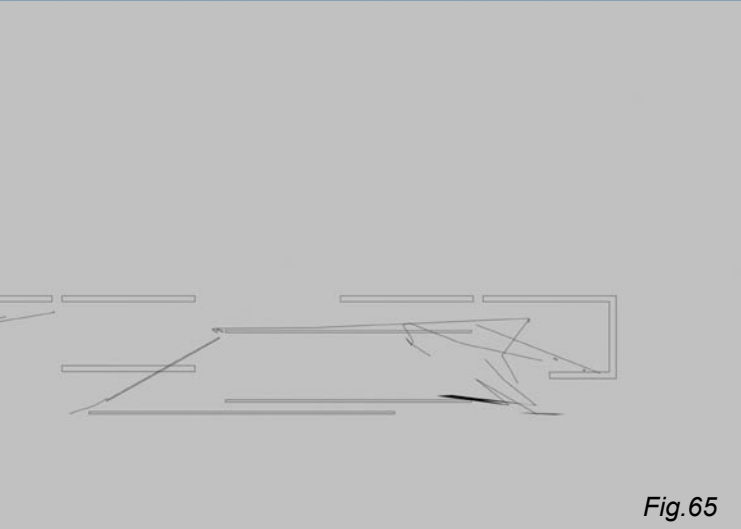


Fig.65

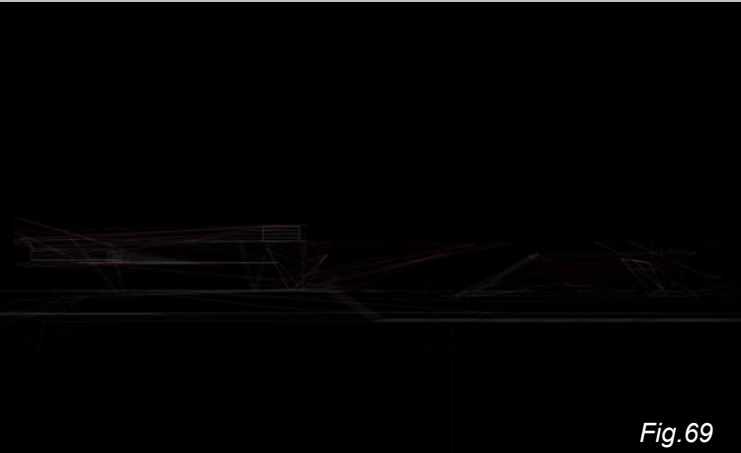


Fig.69

Software and free hand sketches:
3d Studio Max is a non-architectural software program that provides the freedom that only something not associated with architecture can provide. Ideas explored in freehand sketches can be expressed in three dimensions directly, without the influence of logic. By eliminating logic in the early stages of design, new opportunities are discovered and can be explored. The 3d model was derived from manipulating a spatial model by applying scanned lines from freehand sketches to the predominantly orthogonal model. The moment the model was satisfactory, it was taken apart again. A series of two dimensional diagrams was derived to develop rudimentary sections and plans. These sections and plans were further developed in conjunction with the brief and model to arrive at the final proposal.

Fig 59 - 69. Two dimensional line drawings derived from the model.

DESIGN DEVELOPMENT



Fig.70

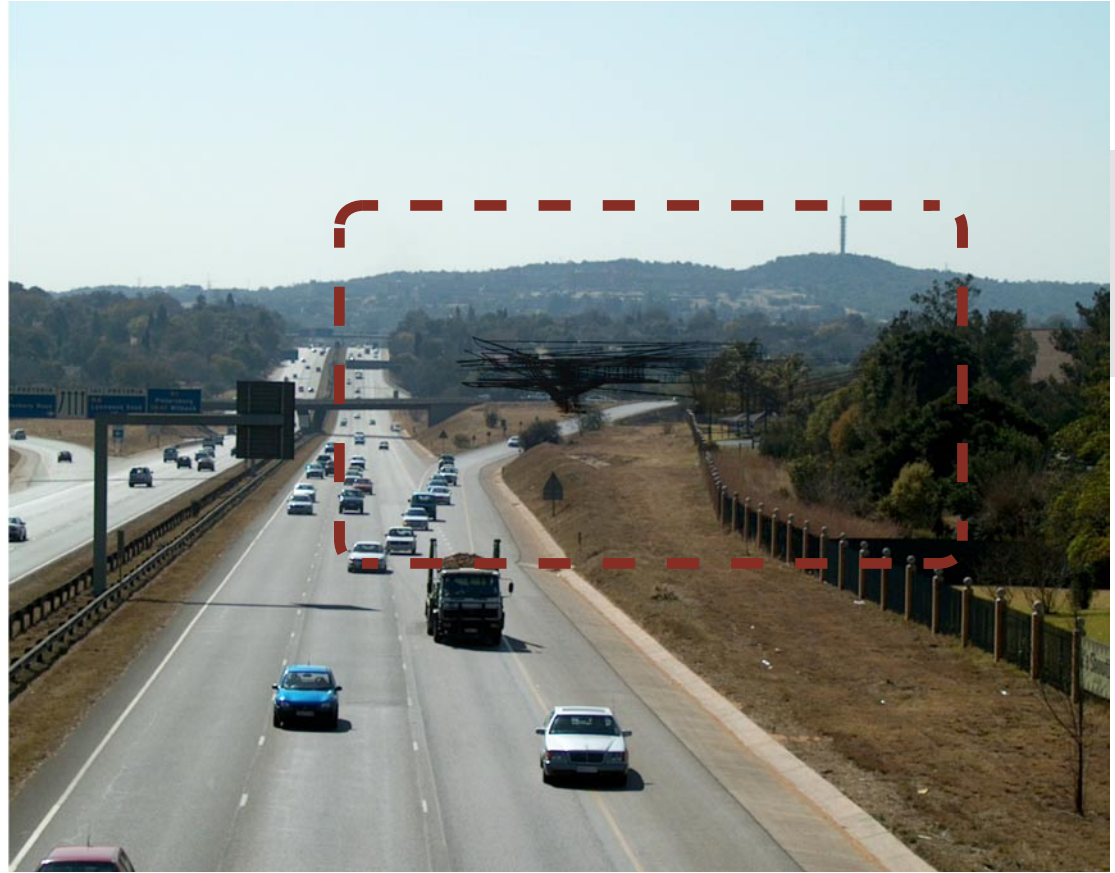


Fig.71



Fig.72

How the building will be perceived by motorists became an important design generator. Similar to billboards, the building will have to make an impact in a very short time. The form and elements aim to confuse and unsettle motorists, exactly the opposite of advertisements on billboards which are designed to be easily understood.

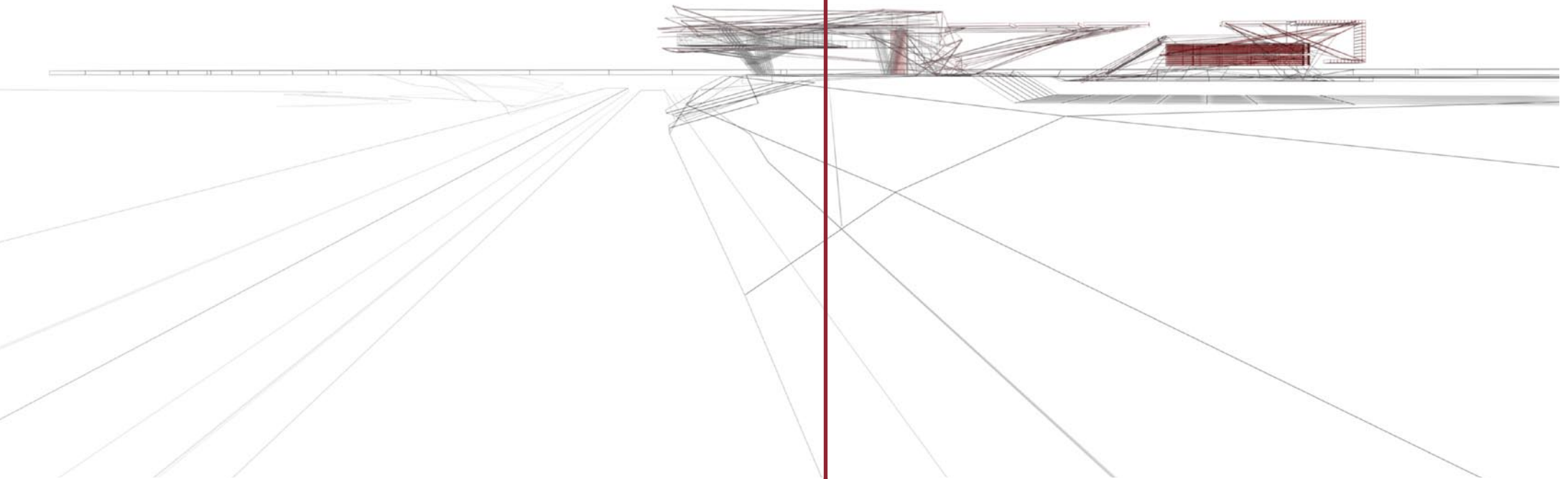
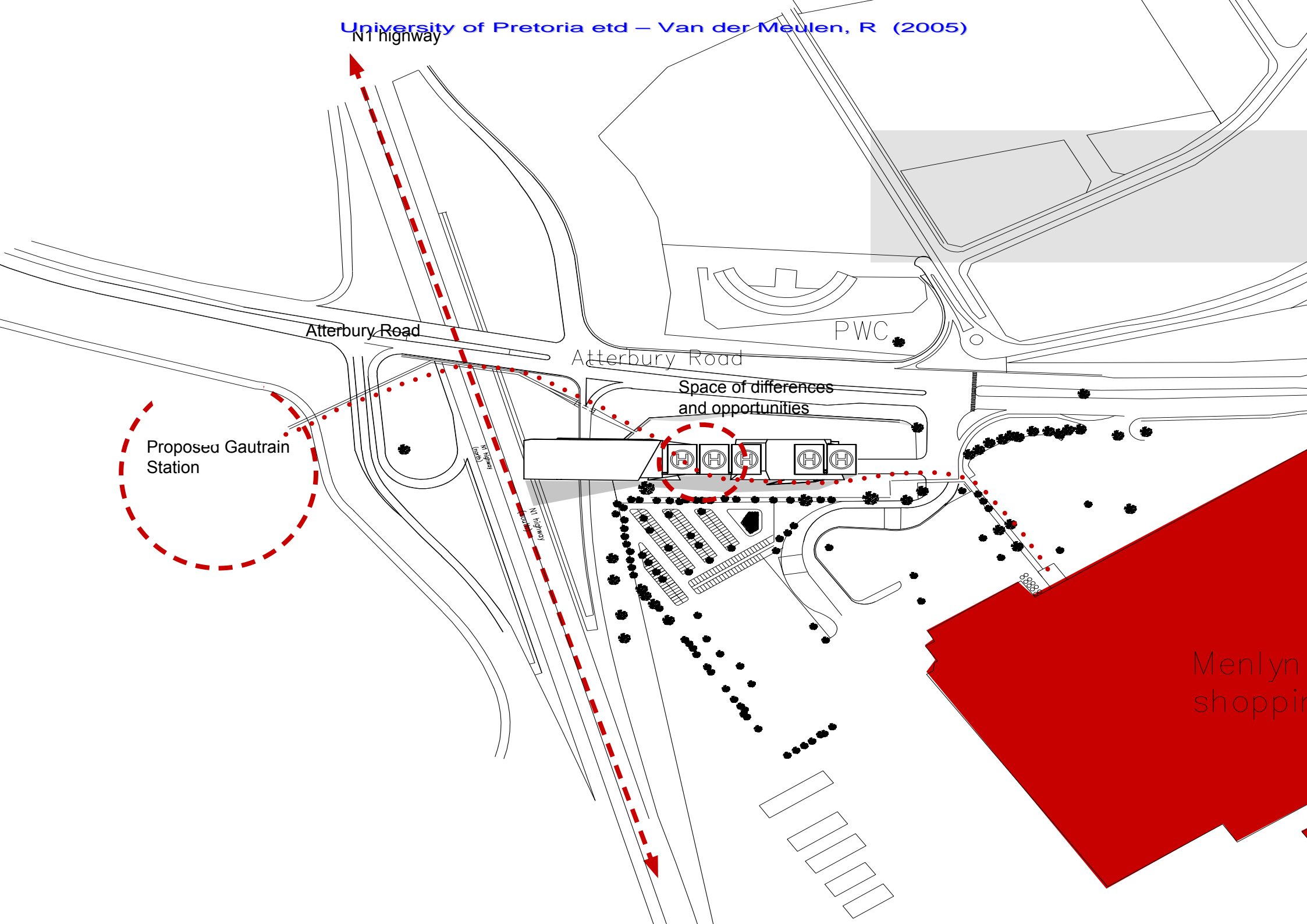
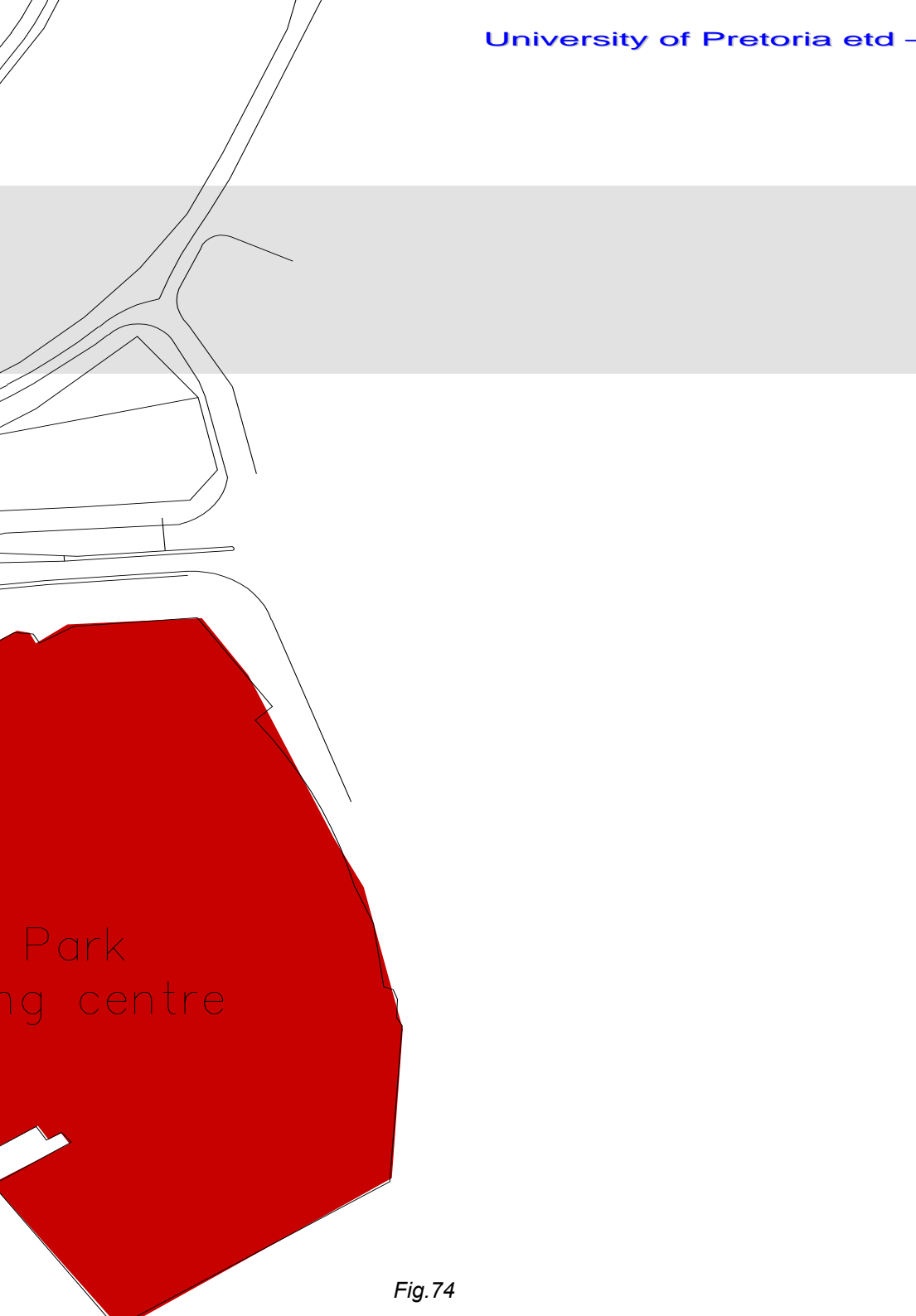


Fig.73





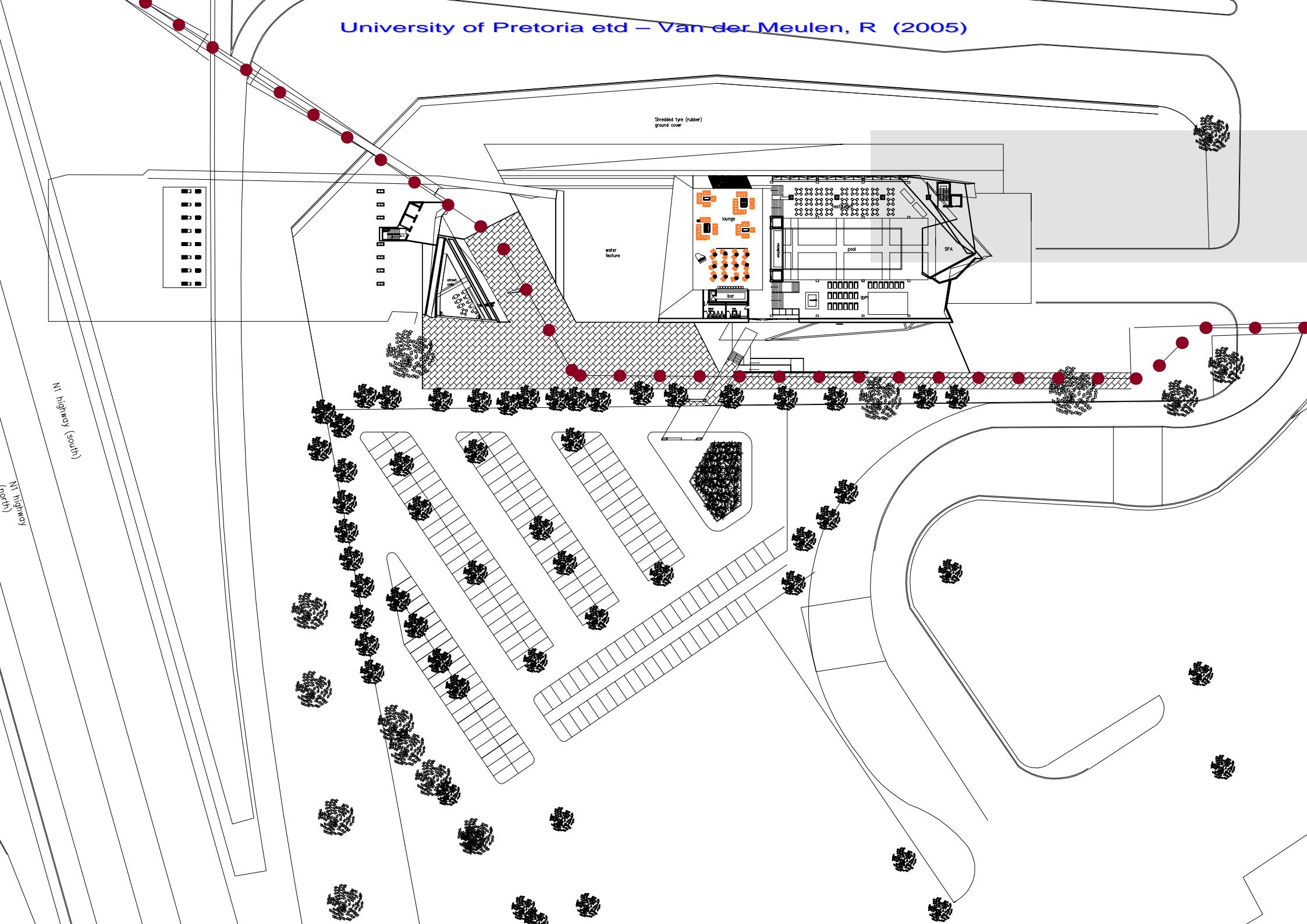
Pedestrians

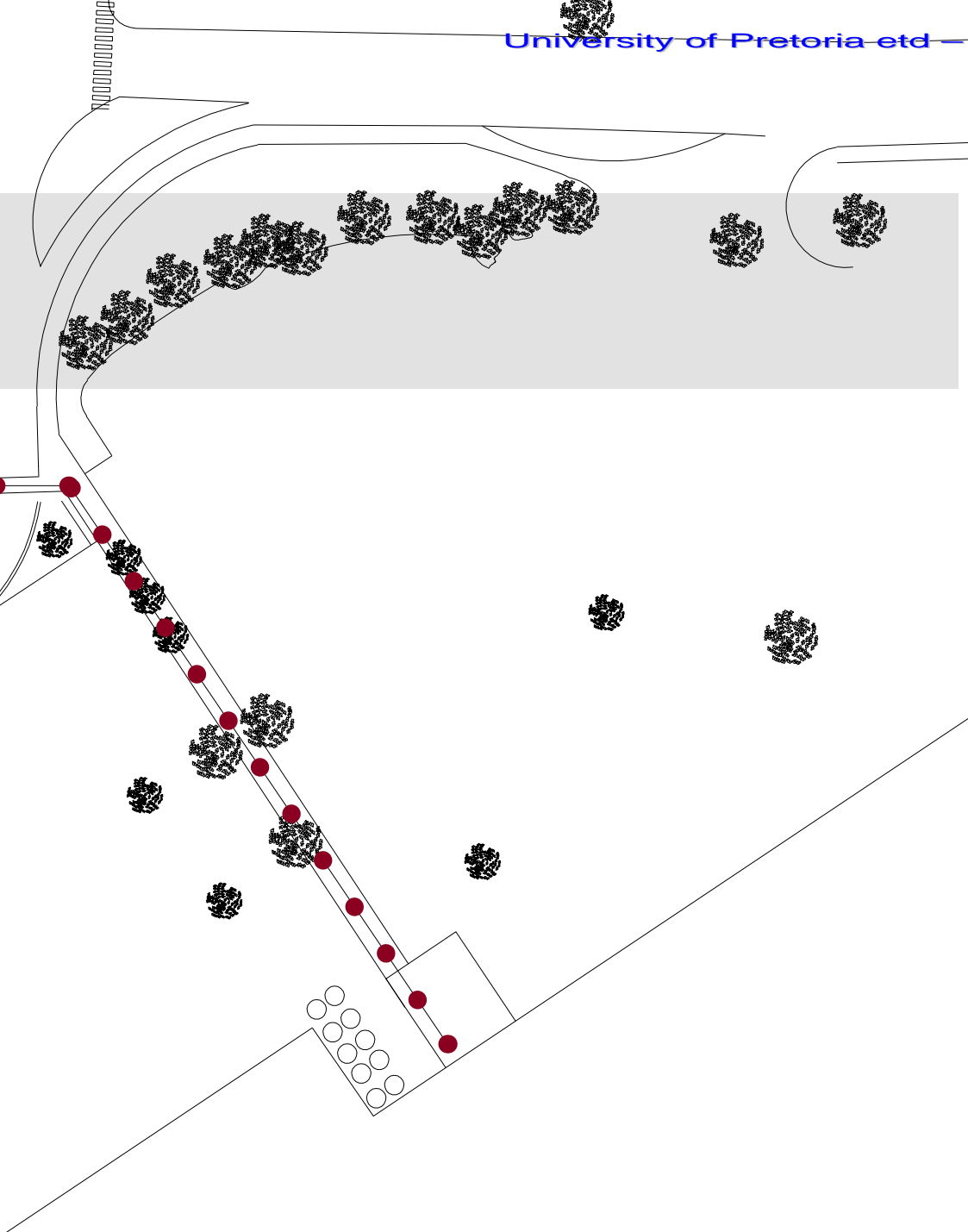
The building is positioned almost midway between Menlyn Park and the new Gautrain railway station. Originally the designed called for pedestrians to walk straight past the building, and cross the highway via a new pedestrian bridge. This line of thinking was questioned when it was decided that two buildings would serve the program better. Pedestrians will now move through the split between the buildings and reach the other side via a series of tunnels and the existing Atterburry road bridge.

Fig 74: Location plan & pedestrian movement

~~DESIGN DEVELOPMENT~~

Fig.74





Space of differences & opportunity
As different users with different agendas move through this space, the space will become a space of “differences and opportunities”. What it means is that individuals with different lifestyles, who would not normally mix, have the opportunity to meet and get to know each other. It might be optimistic given that this space only have a coffee shop and a pond, but you never know.

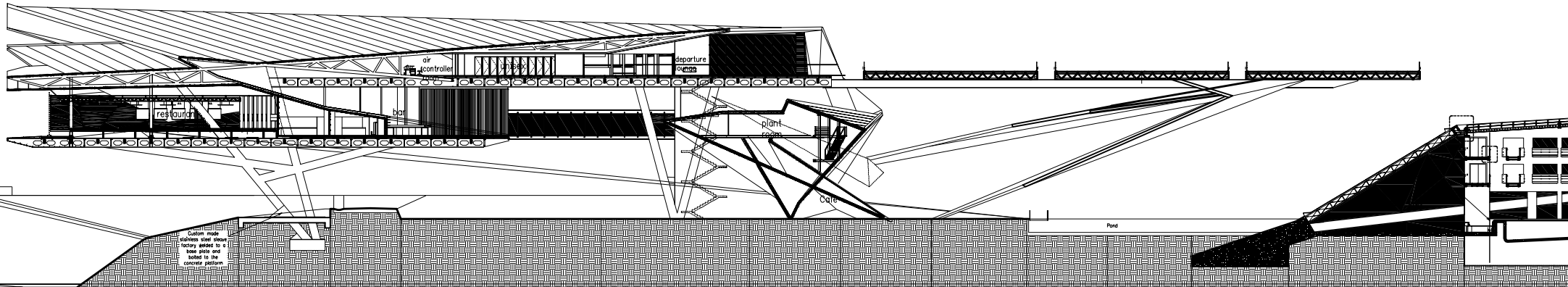
Fig 75: Pedestrian movement through the site.

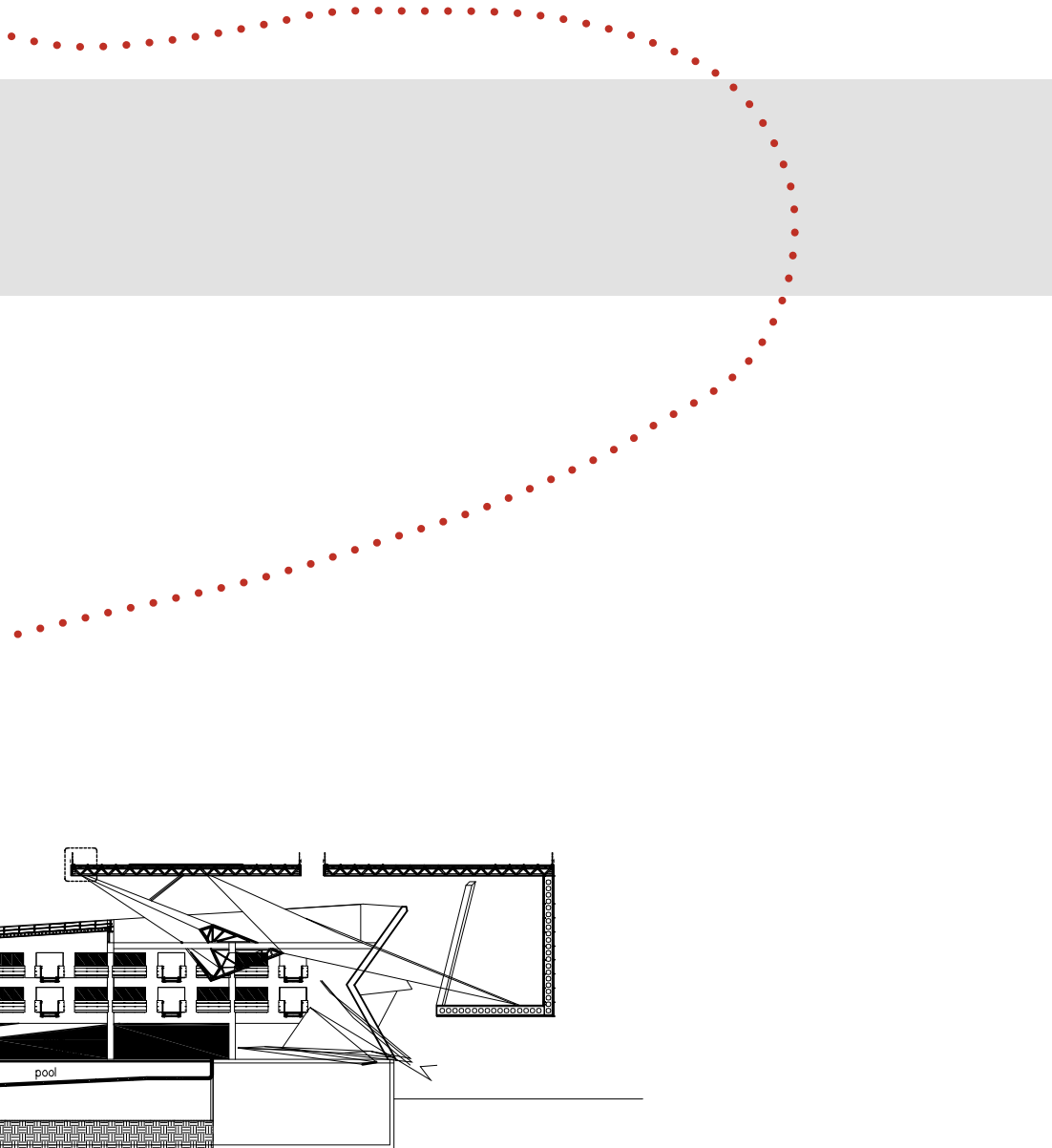
Fig.75

~~**DESIGN DEVELOPMENT**~~



Fig.76





Section A-A

Fig.77

The taller buildings in the immediate vicinity dictated that the helipads had to be above natural ground level (Helicopters have a 1:8 approach angle). It was decided to place the departure lounge and related functions on the same level as the helipads for the various reasons including:

- < It will speed up the boarding process.
- < Passengers and other visitors can become part of the 'helicopter experience'.
- < The views get better the higher you go.

As the air passenger and the business user will often be the same person, the business center was also placed on this level. The smell of food and noise generated by the restaurant and bar patrons were negated by placing these functions on a separate level away from the departure lounge and business center. The departure lounge is on the eastern side of the building to offer visitors views of the helipads, while the restaurant is on the western side to offer patrons views of the highway

Fig 76: An early free hand sketch: exploring the sectional relationships of spaces in the heliport building.

Fig 77: Section: Public space is elevated above ground level on the heliport side, while public space in the hotel building remains on and below ground level, with the private space above.

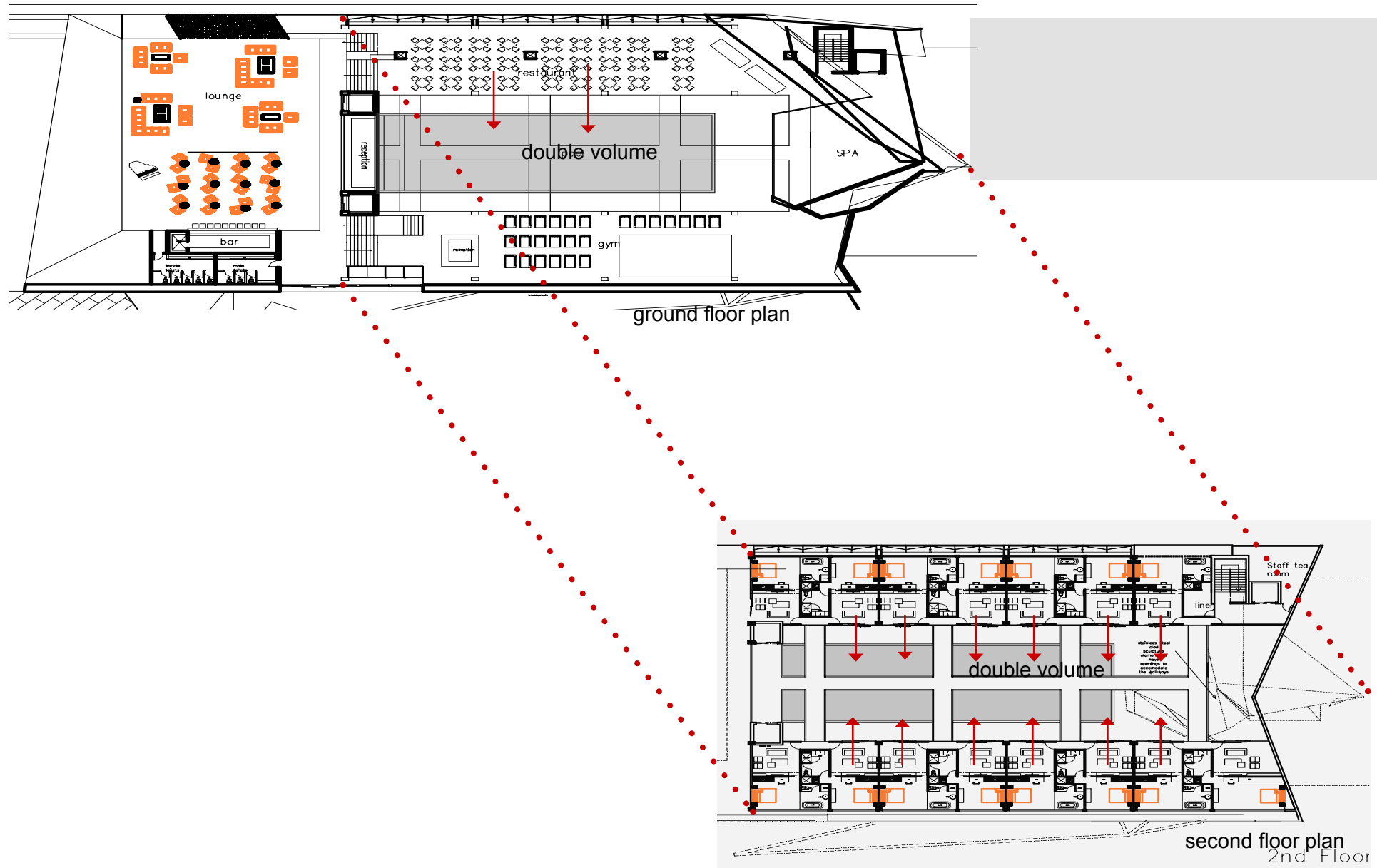


Fig.78

The hotel building.

The indoor swimming pool became the main feature of the hotel building, with public and private space living onto the pool area. This was achieved by creating a triple volume space above the pool, and by placing circulation between hotel rooms above the pool, away from the hotel rooms. In contrast to the exterior design of the building, the interior is geometric and symmetrical. A sculptural steel element behind the pool on the eastern side, is framed by the lift shafts in the foyer.

Fig 78: Exploded view of the hotel, explaining the triple volume space above the foyer and swimming pool.

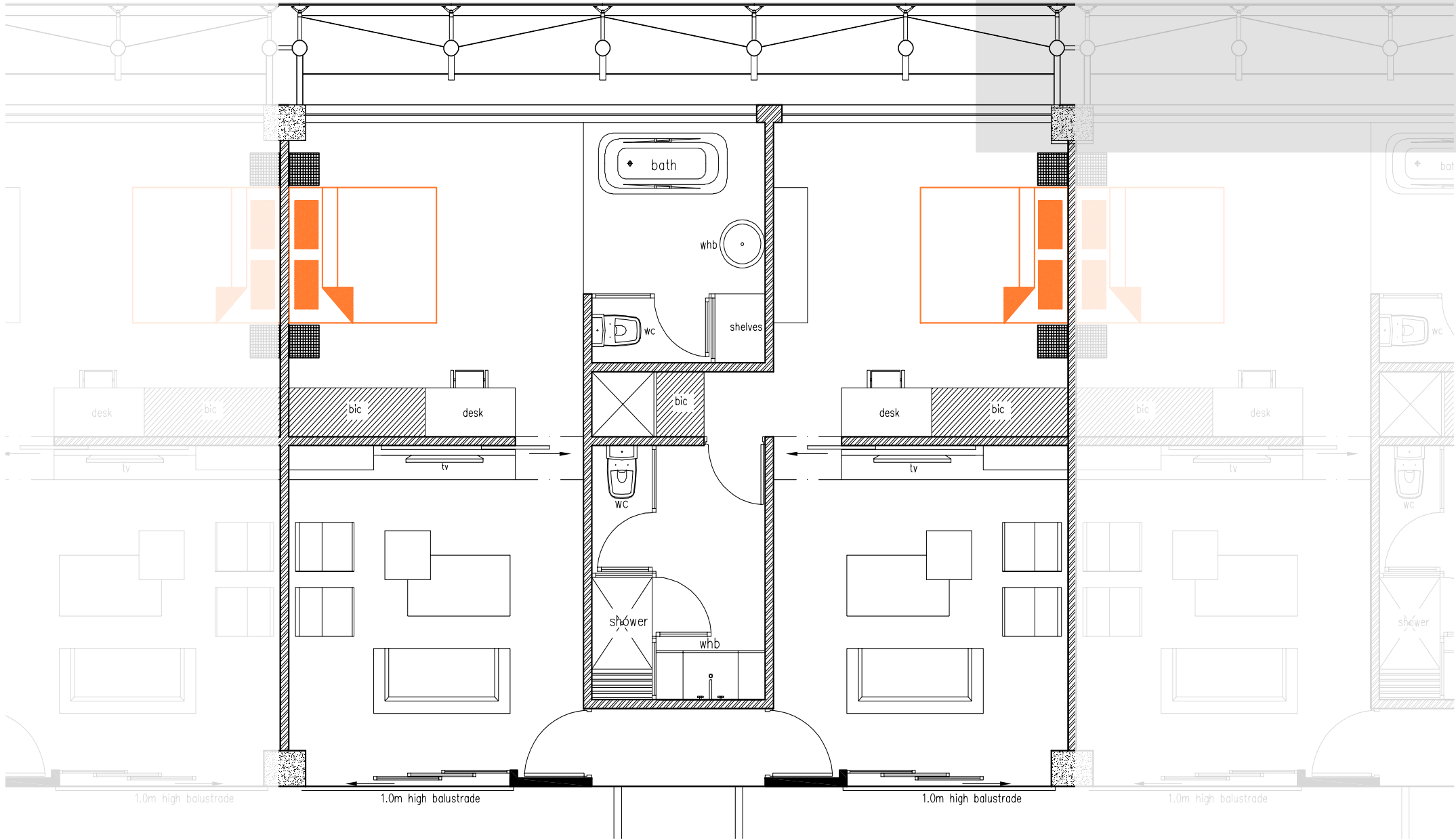


Fig.79

Hotel rooms

All hotel rooms have lounge areas with sliding doors that open inwards, into the triple volume space. This was achieved by placing the circulation away from the rooms. The typical “hotel claustrophobia “ is hopefully cured by this solution.

Privacy is achieved by using a high tech glass that changes transparency when an electric current is sent trough the glass. Floor to ceiling glazing offer views to the outside, and a double facade minimize solar gain and noise.

Fig 79: Detail plan of the hotel rooms.

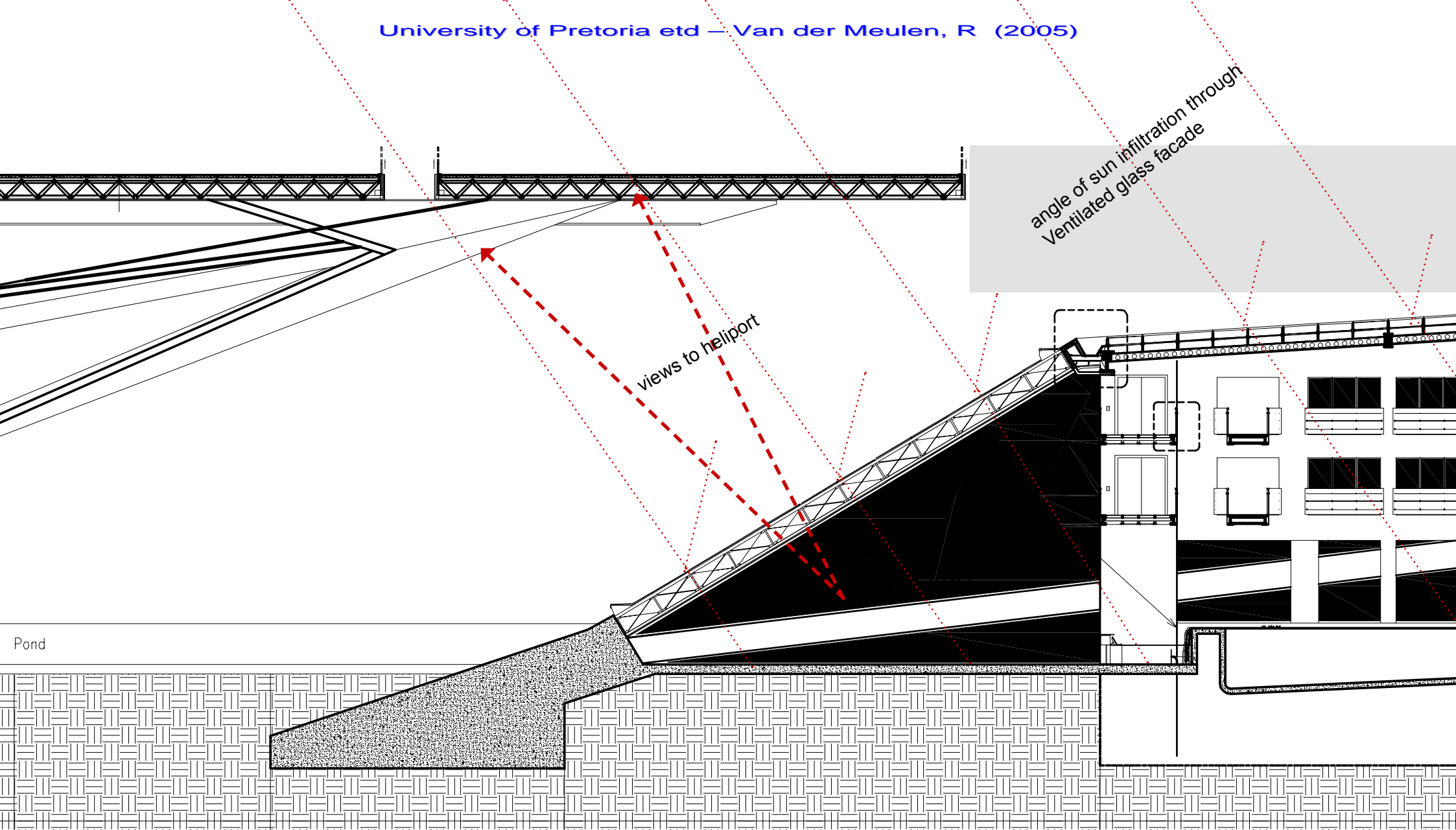




Fig. 80

Sunlight

Visitors to the hotel can view incoming helicopters through a triple volume sloped window in the hotel foyer. Natural light also enter through this window, and the helipads above block out direct sunlight. A skylight above the swimming pool allow filtered sunlight to enter deep into the interior of the hotel, including rooms on the south side of the building.

Fig 80: East west section explaining the penetration of sun light into the hotel foyer.

DESIGN DEVELOPMENT

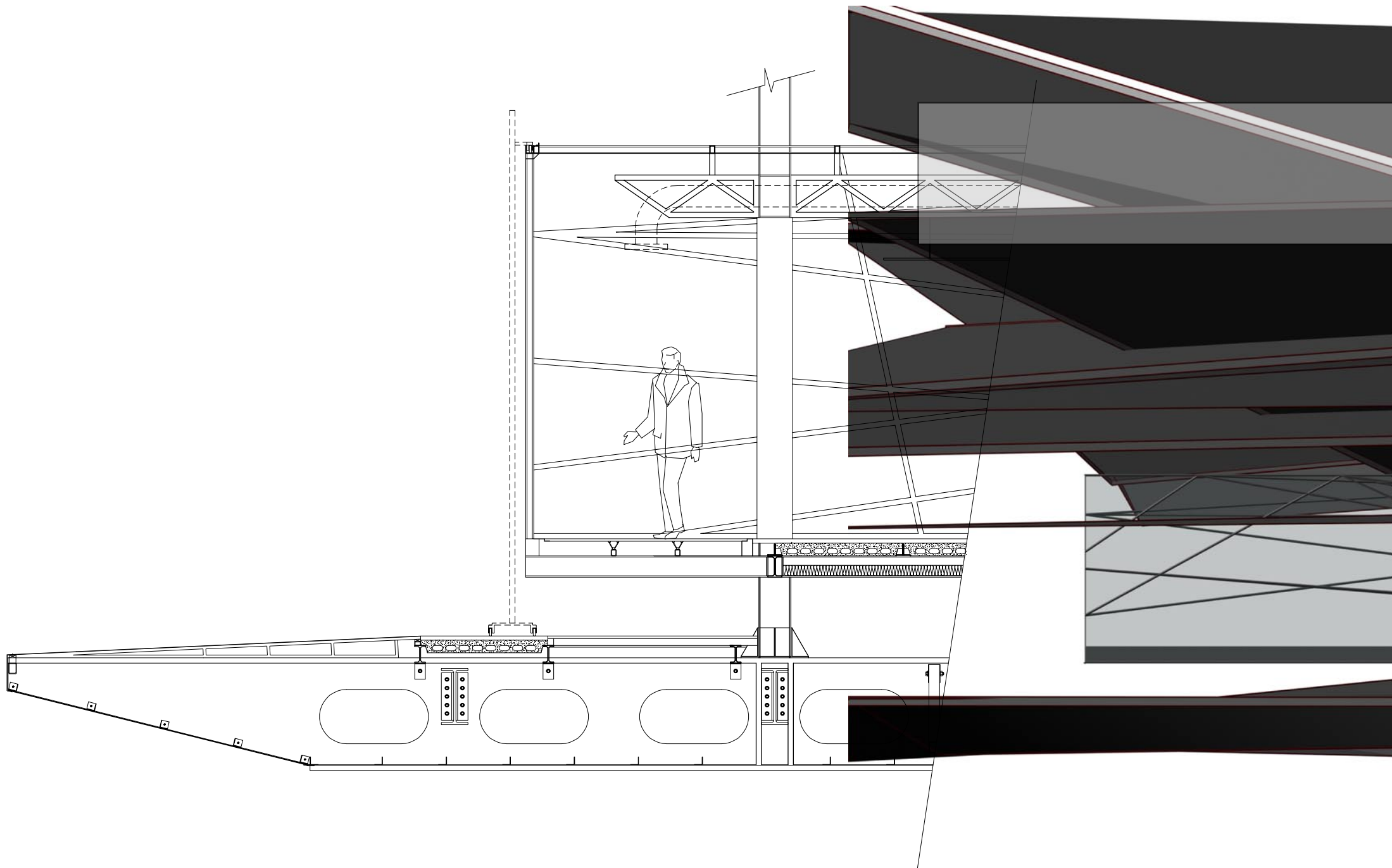


Fig.81

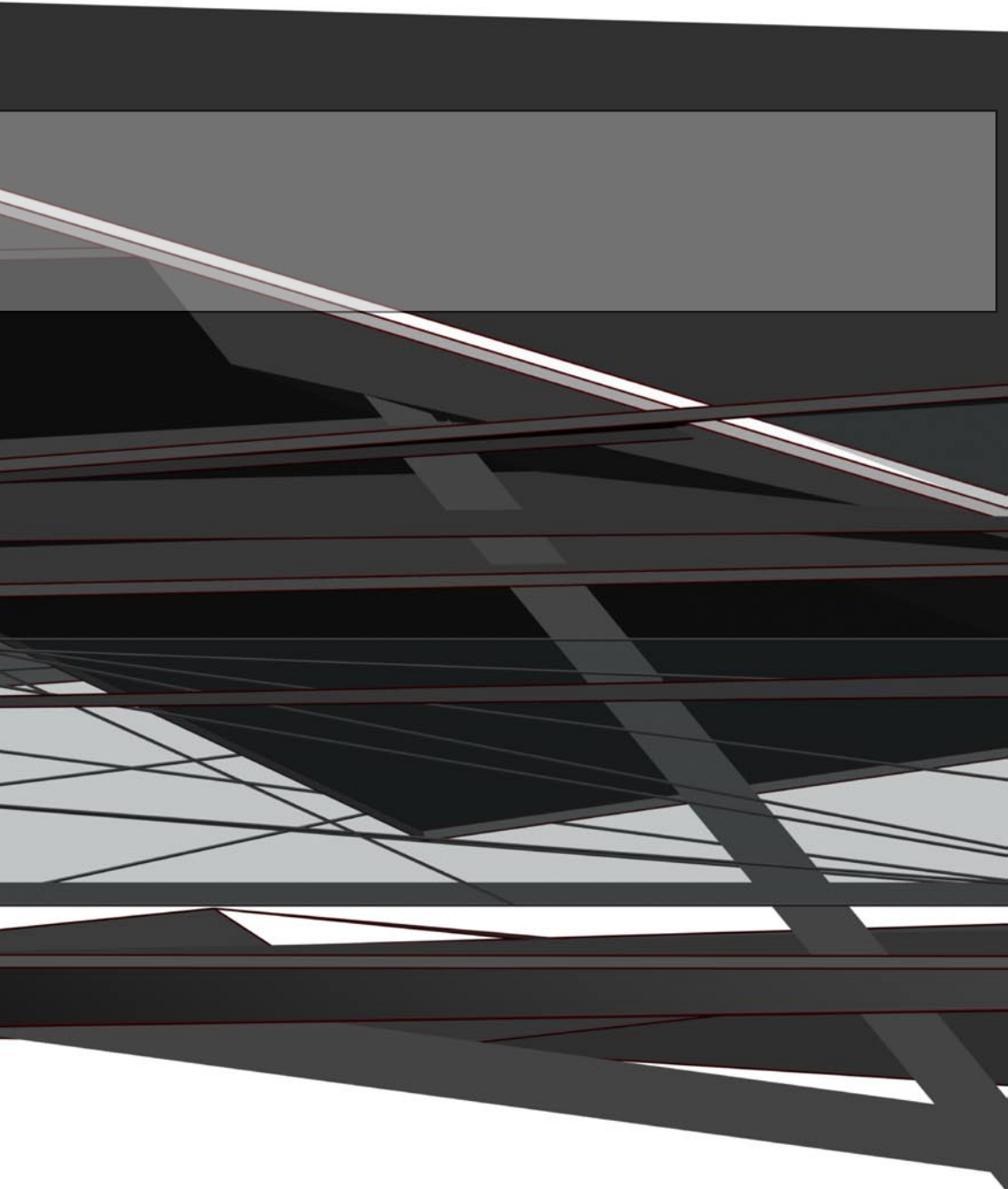


Fig.82

Restaurant

The restaurant “box” floats in the open, jagged edge of the building. The floor is suspended and part glass, and the glass ceiling does not touch the structure above. Visitors will get the feeling of floating in the space above the busy highway below. The box is almost disconnected from the rest of the building and this disconnectedness points at the future expansion of the building: The glass box can slide out of it’s slot and the building can keep on evolving.

Fig 81: Detail section of the restaurant ‘box’.

Although the glass walls are orthogonal, the frames holding the glass is not. The frames cut and intersect each other at odd angles, binding the restaurant with the rest of the building’s architecture.

Fig 82: Perspective of the restaurant box

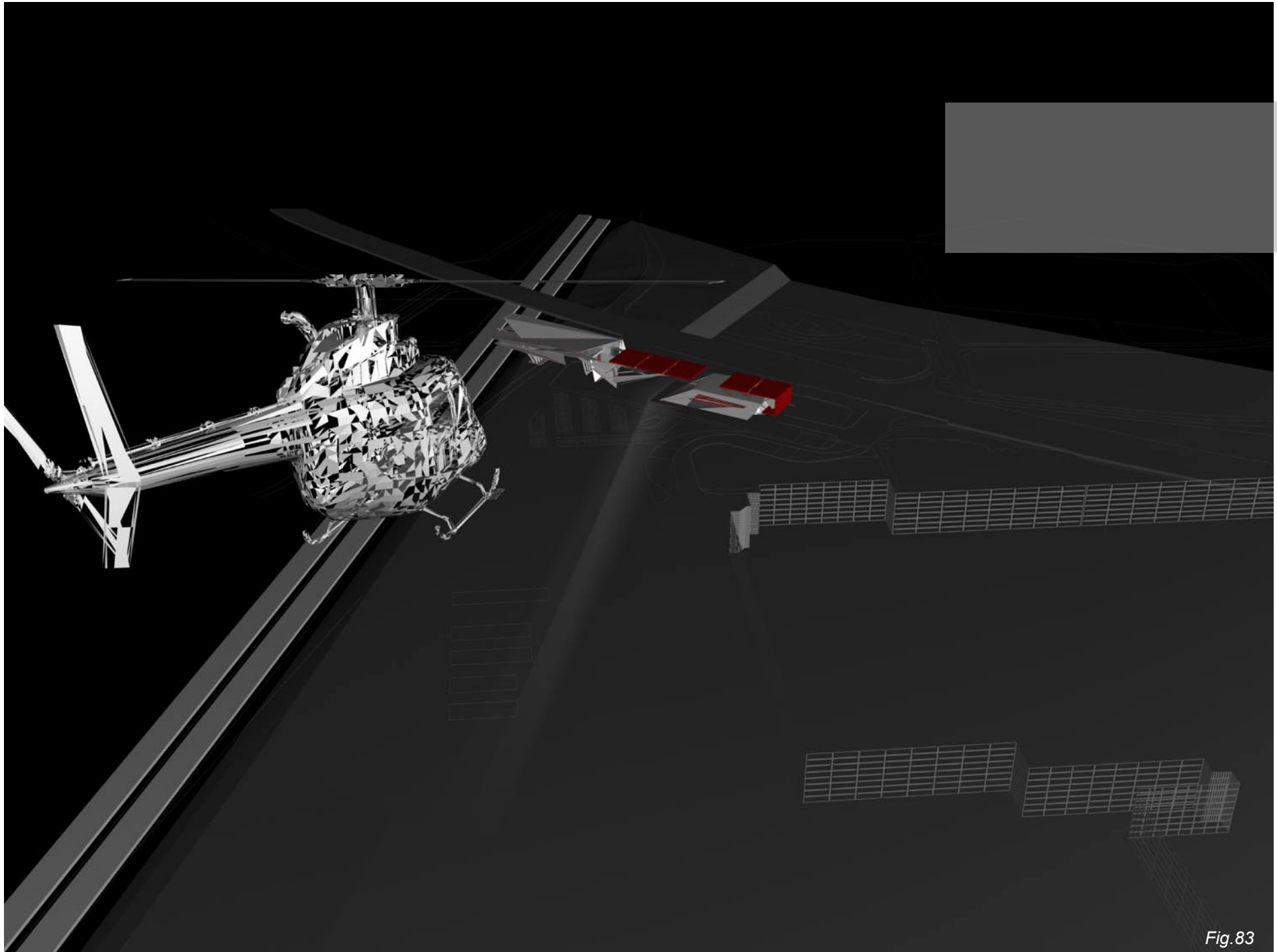


Fig.83

Red

An exclamation mark is placed over the helipads by painting them bright red. The function of the building is implied, and celebrated through obvious difference. (The rest of the building is grey) The five red squares improve the buildings visibility from the air, making it easier for pilots to orientate themselves.

Fig 83: H² as seen from the air, approaching from the south east (birds eye view)

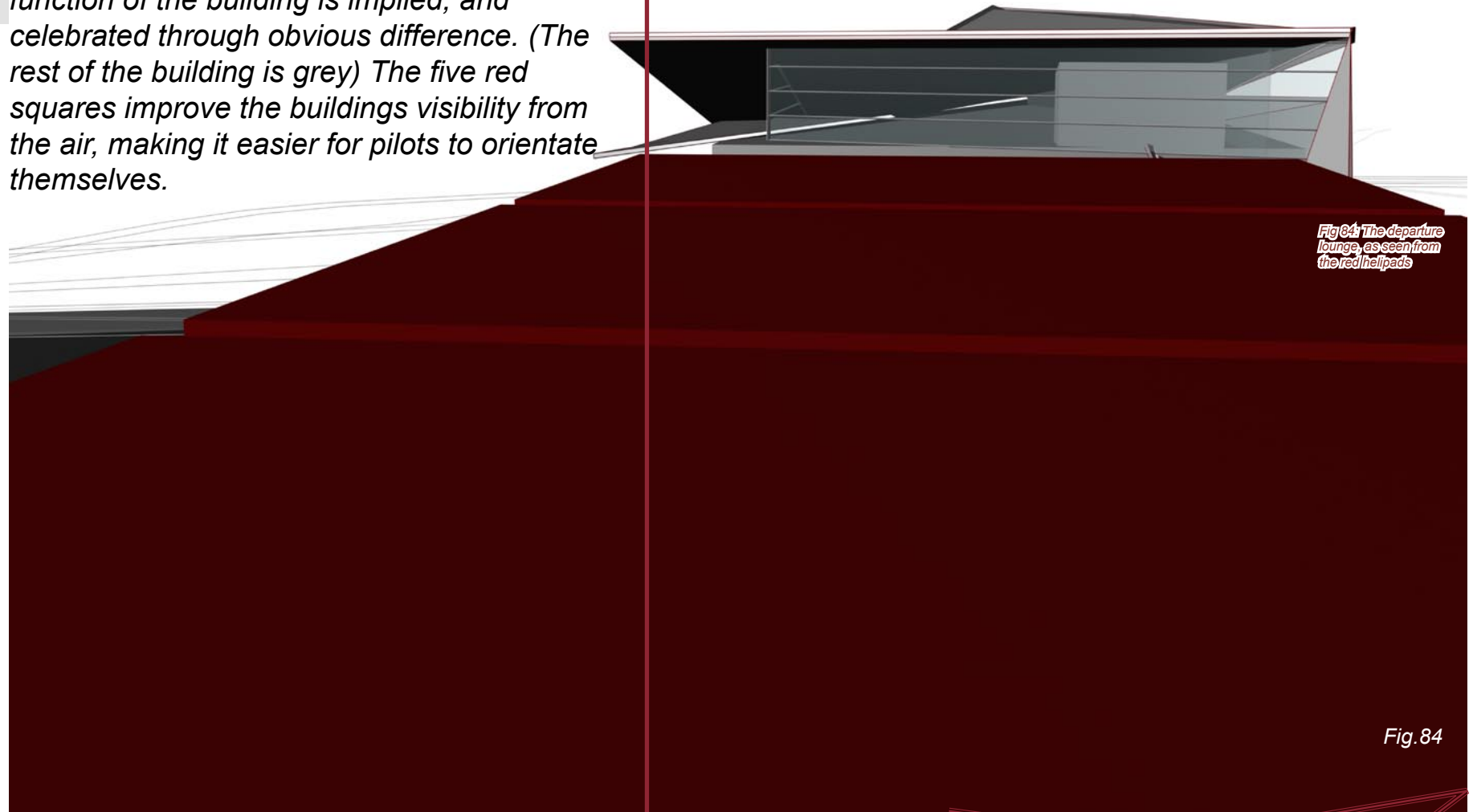


Fig 84: The departure lounge, as seen from the red helipads

Fig. 84

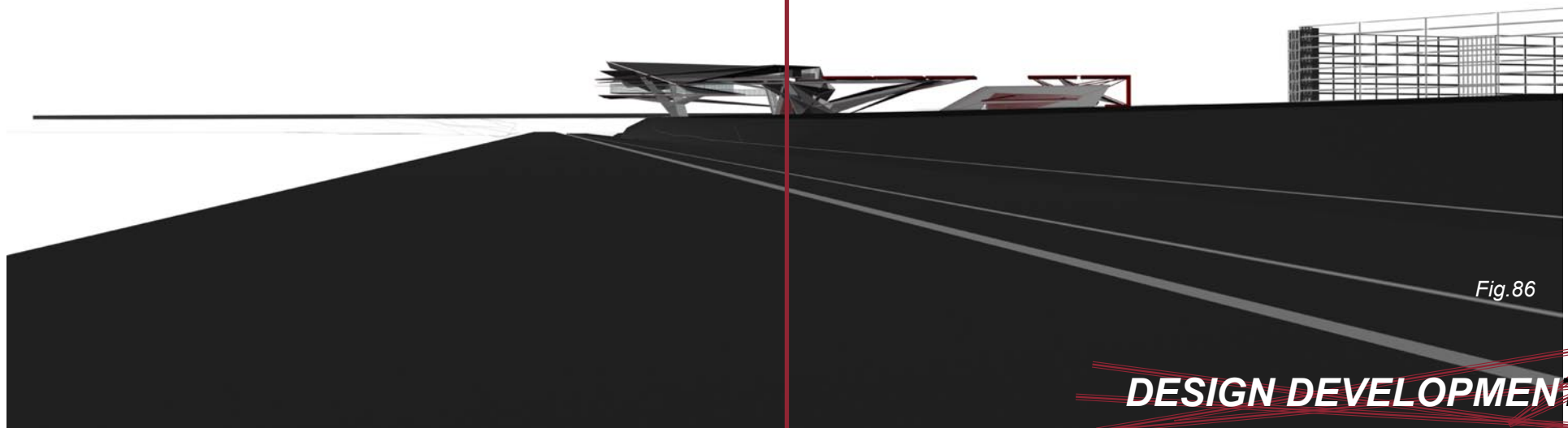


Fig.85

Billboard

Similar to billboard construction, the building's structure is made up of a space frame "floating" on thick columns. From far the silhouette of the building will be similar to that of a billboard, reinforcing the image of advertising and the consumer society. This does not mean that the building aim to communicate the meaning of "billboard", the comparison is purely on form.

Fig 86: H² as seen by motorists approaching from the south (south perspective)



DESIGN DEVELOPMENT

Temporary visual experiences

Motorists driving at high speed, view thousands of peripheral images that seldom enter their conscious minds. Seen in sequence these images might have a story to tell, we'll never know. The visual experience of H^2 for motorists on the N1 will be temporary, and fleeting. The building's fragments will become an indistinct blur, albeit an beautiful blur.

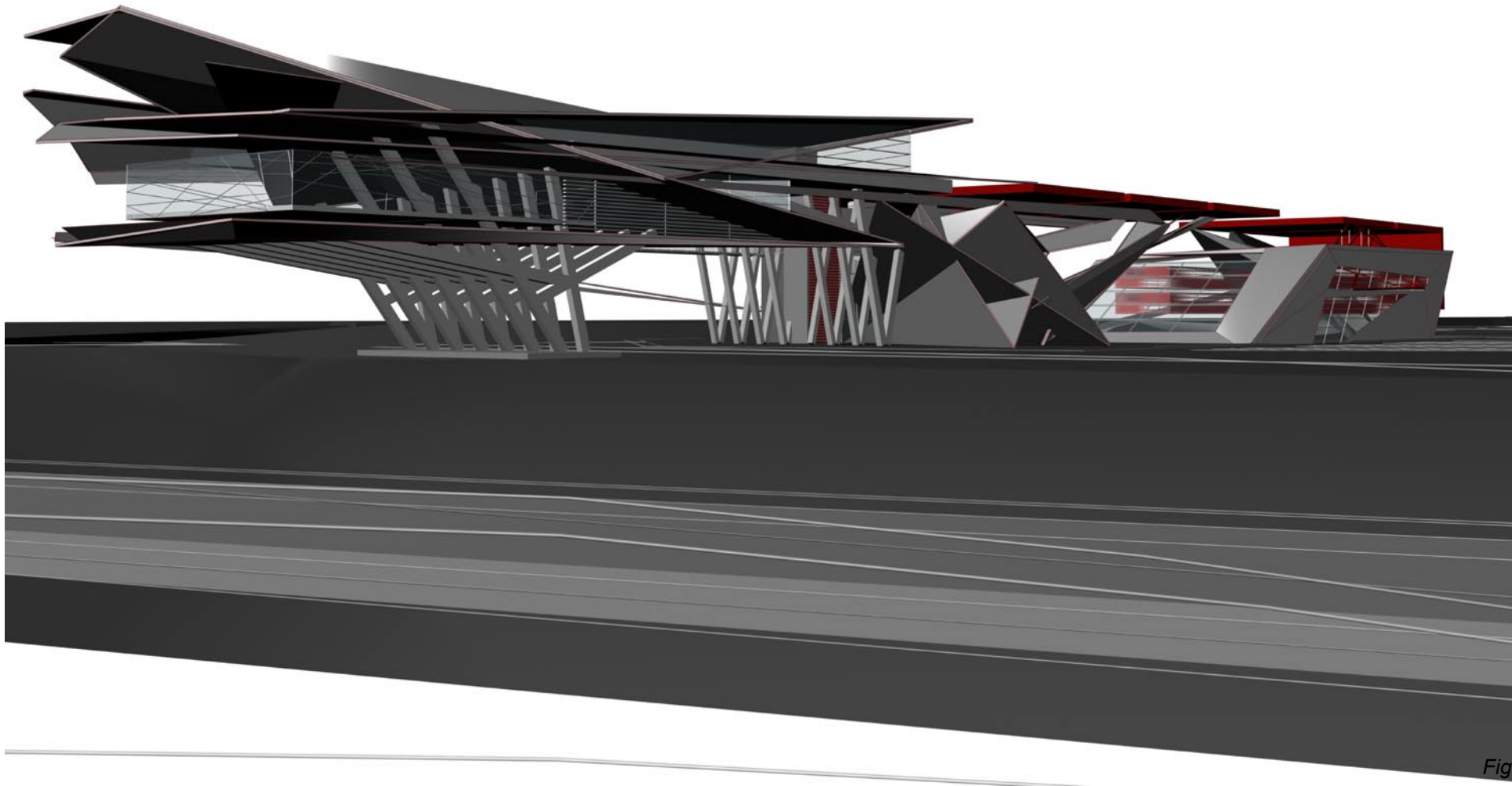


Fig.87

Context

The building's unusual form is comparable with placing a sign in quotation marks: Doing this changes the meaning of a given context completely; creating an infinity of new contexts in an unlimited manner. The elements and fragments of the building can be combined and recombined by the consumer to create a new subjective context.

Fig 87: H² (south west perspective)

Fig 88: H² (south perspective)

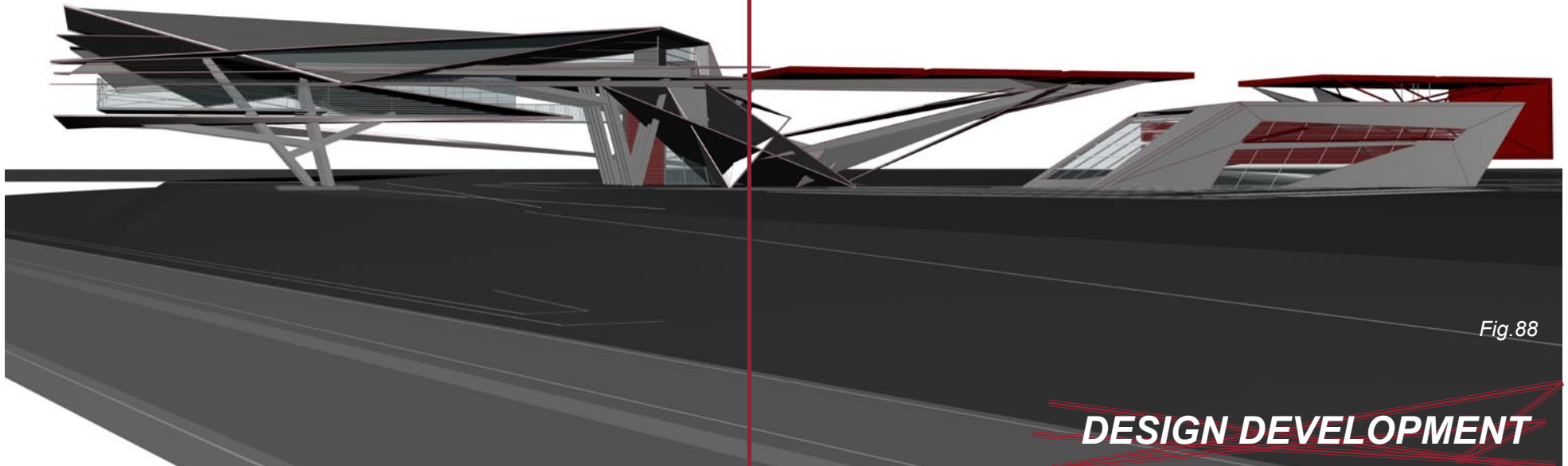


Fig. 88

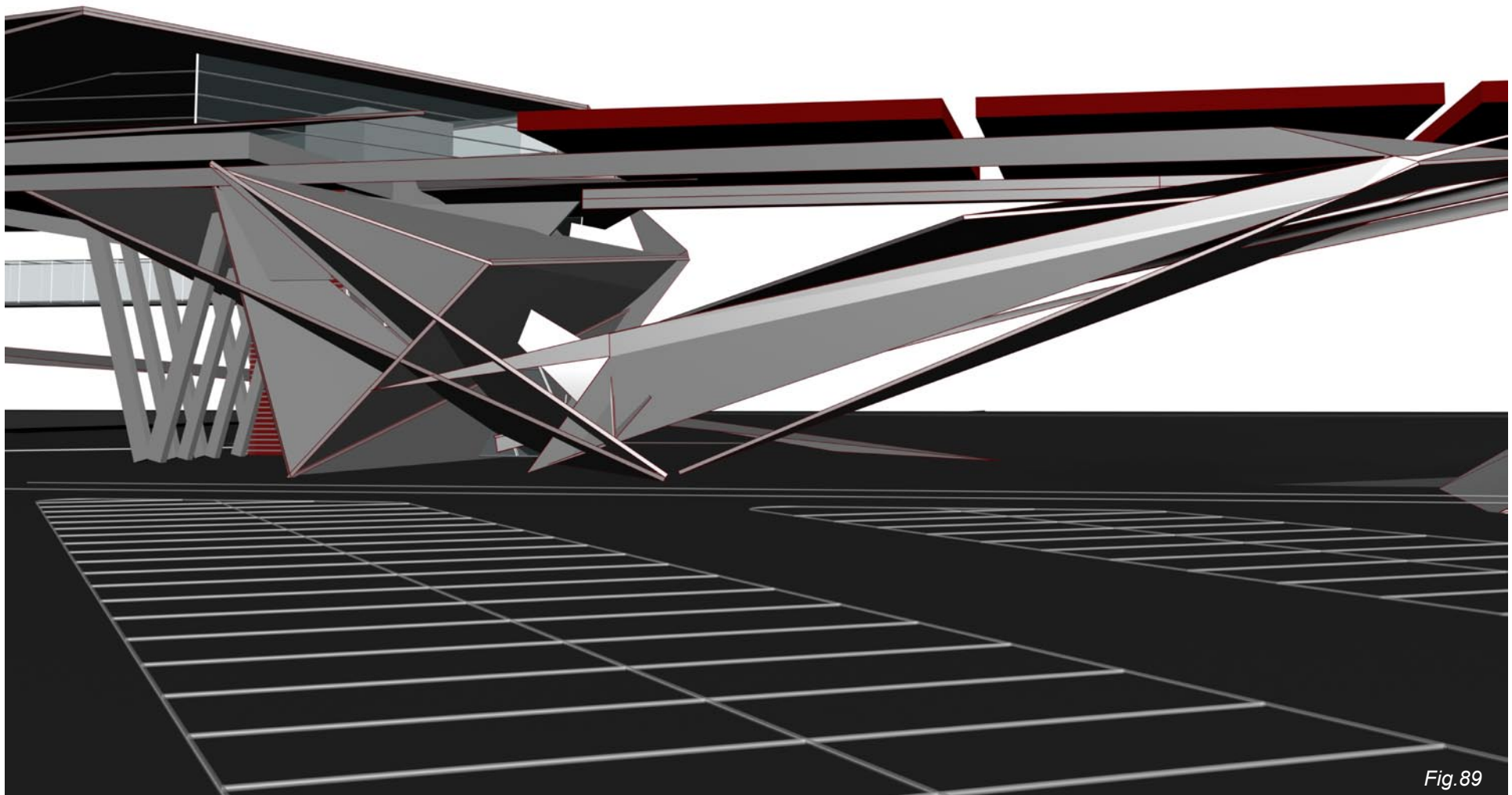


Fig. 89

Form

The building is a hybrid of form, function, and unconscious information, where neither the one or the other takes precedence. The program informs the design, but it does not dictate it. The form is open-ended and temporary (in seconds and years), eventually the building will morph into the landscape west of the N1 Highway and beyond.

Fig 89: Close up of the coffee shop and the 'space of differences' as seen from Menlyn Park (south perspective)

Fig 90: H² (west perspective)

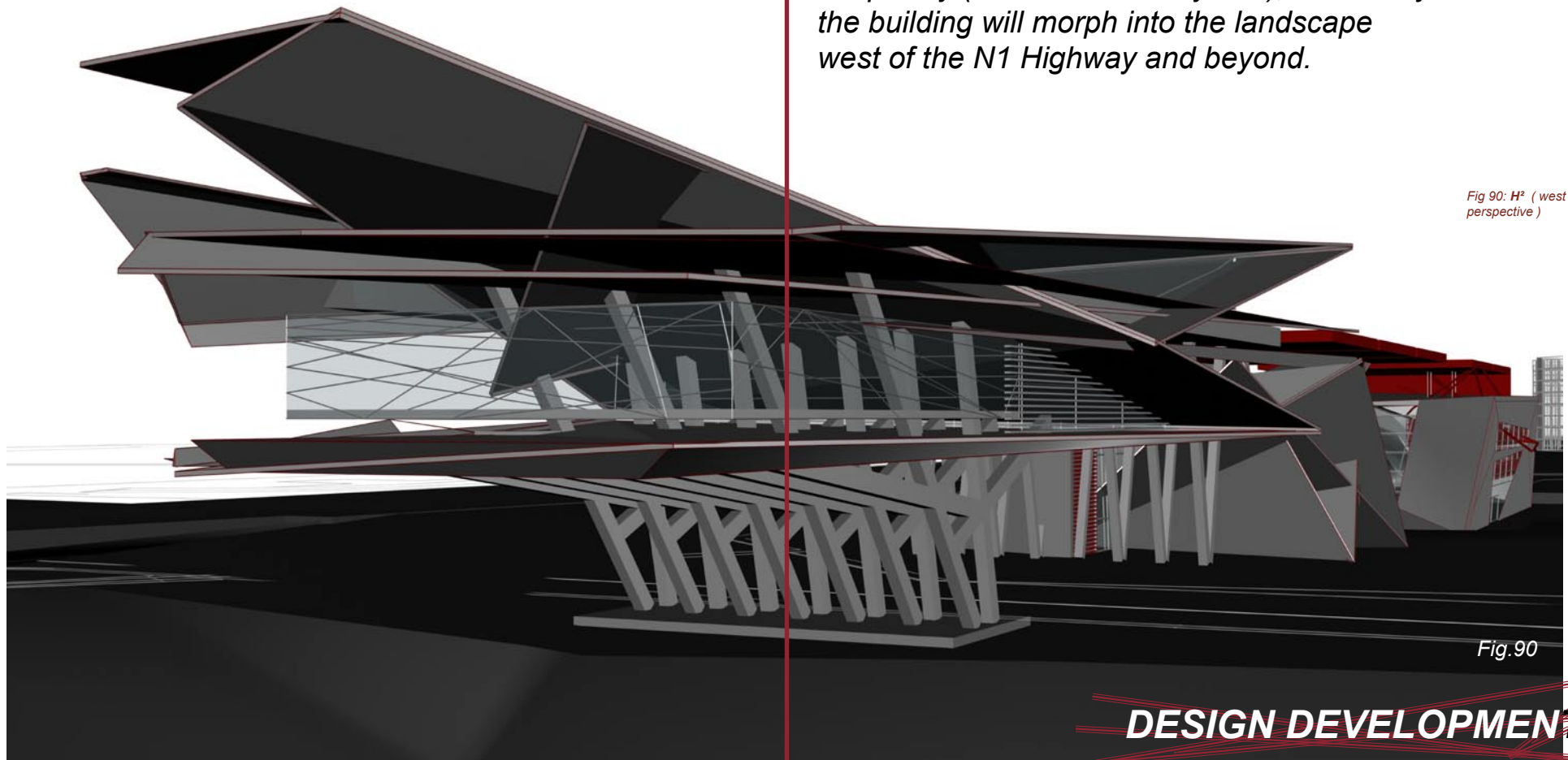


Fig.90

DESIGN DEVELOPMENT

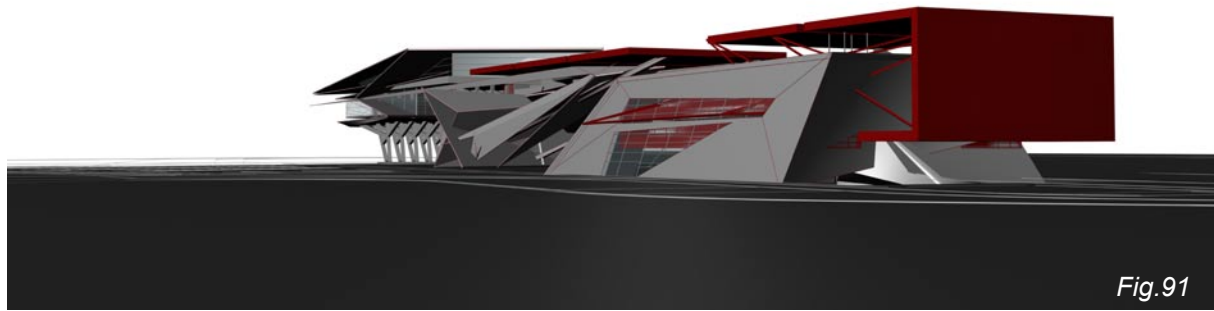


Fig.91

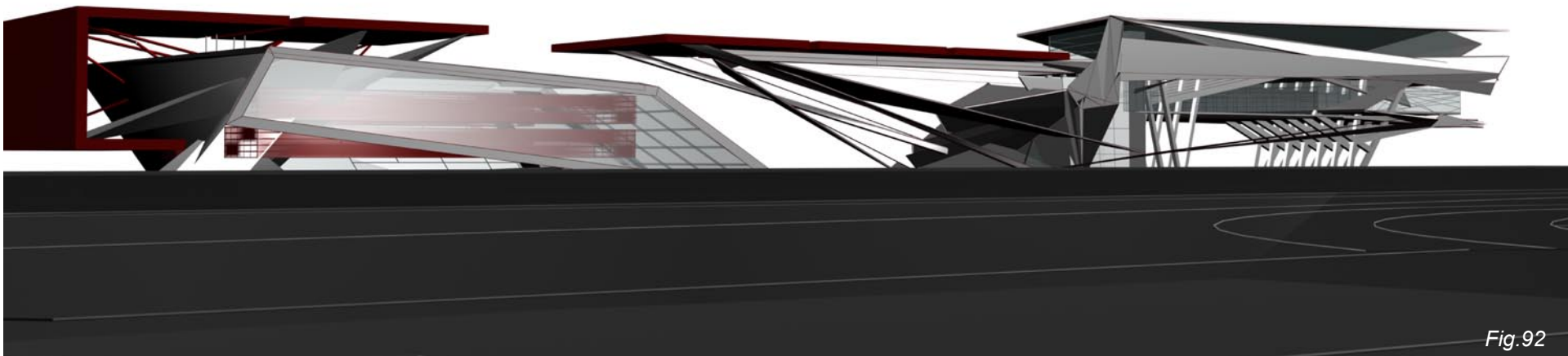


Fig.92

Roof space

If the void underneath the building is understood as an element crucial to the total understanding of the building, the space above the void becomes roof or attic space. People will then only be in the building (in the traditional sense) for a very short time. Motorists will “visit” the building every time they pass underneath it, and take the same enjoyment out of it, as those in the “roof”.

Fig 91: H² as seen from Menlyn Park (east perspective)

Fig 92: H² from Atterbury road (North east perspective)

Fig 93: H² (North perspective)

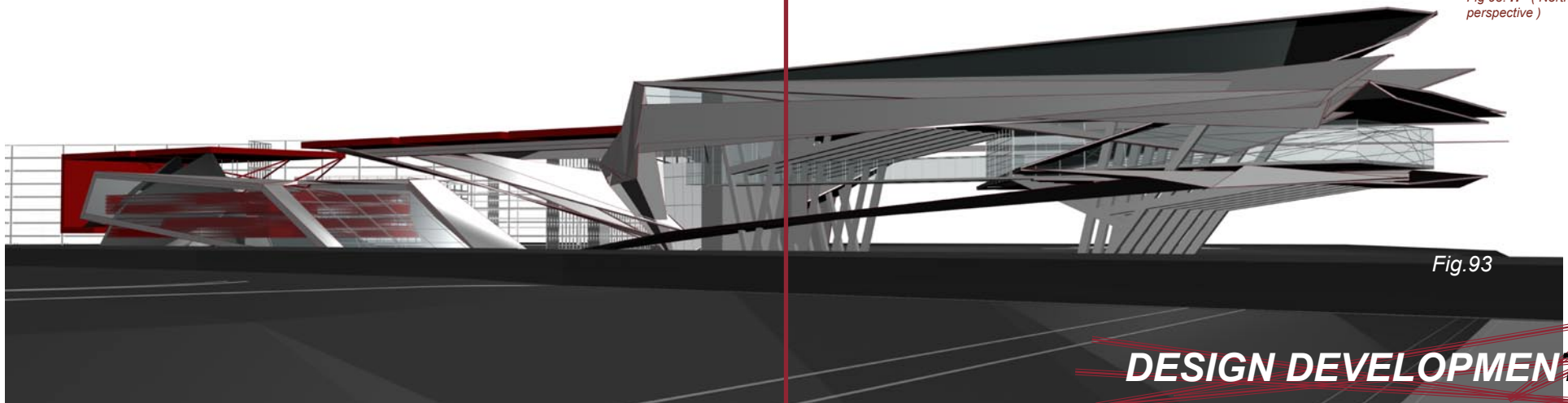


Fig.93

DESIGN DEVELOPMENT

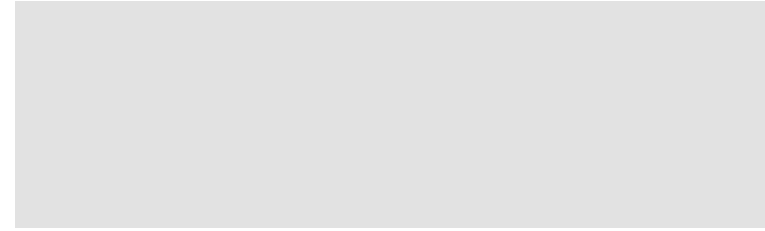


Fig.94

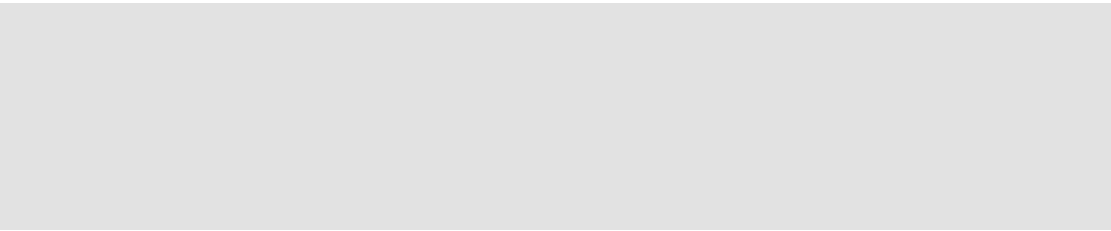


Fig 94: North elevation.

Fig 95: South elevation

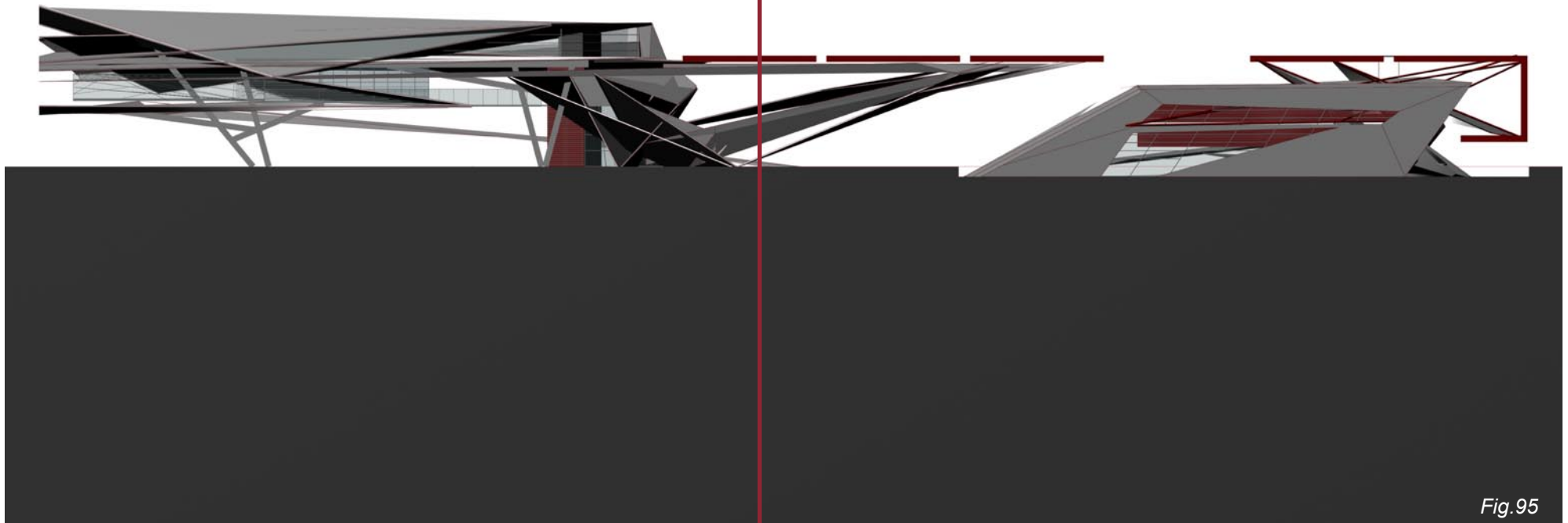


Fig.95

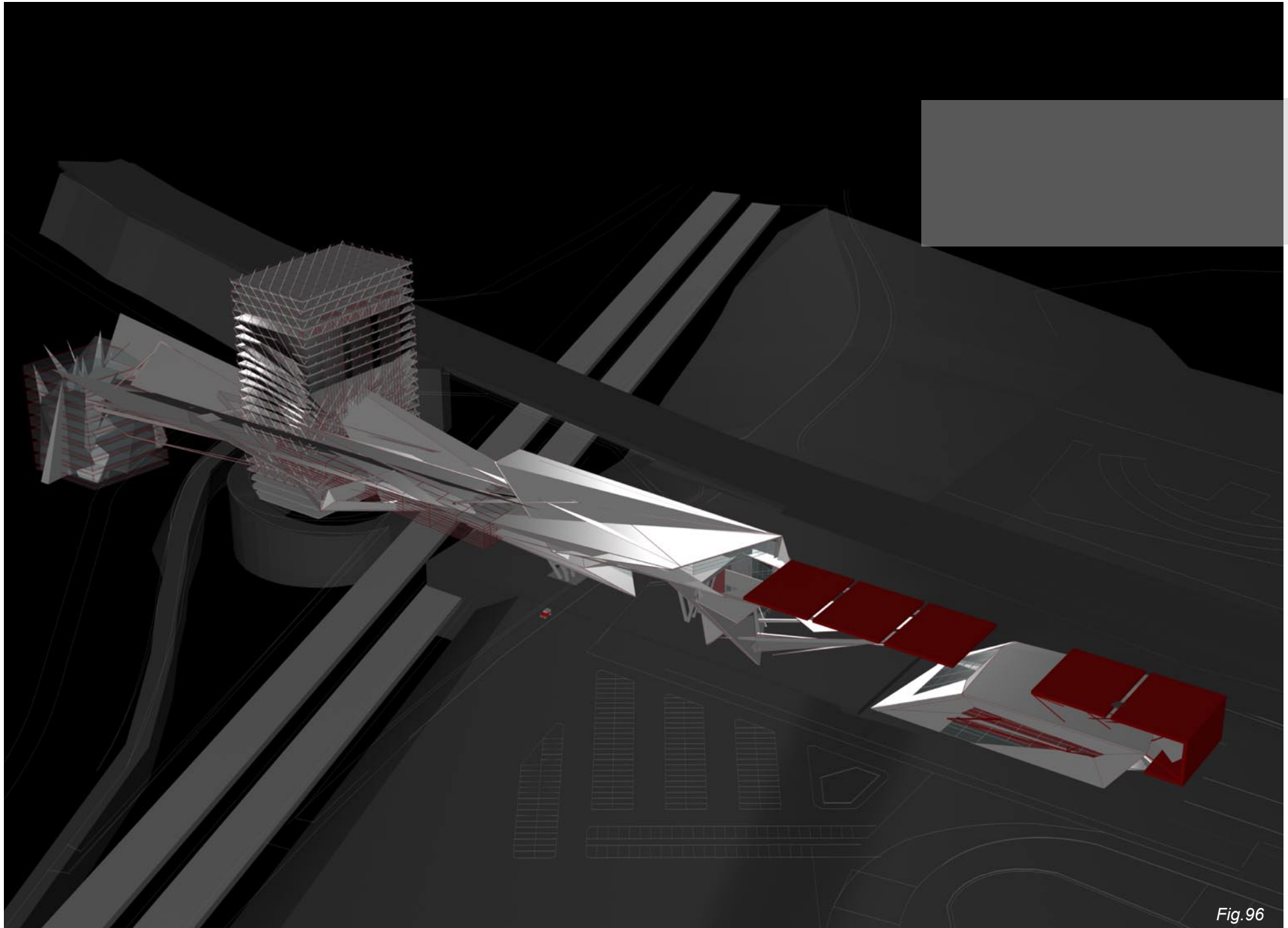


Fig.96

THE FUTURE

Ultimately the building will expand west over the highway and morph into the future Gautrain station. This envisioned mega-structure will have retail, commercial and residential components. The existing pedestrian route will be discarded for a new route through the building.

Fig 96: What the building could look like sometime in the future.

Fig 97: The mega structure as it might look in the future, as seen from the highway travelling north.

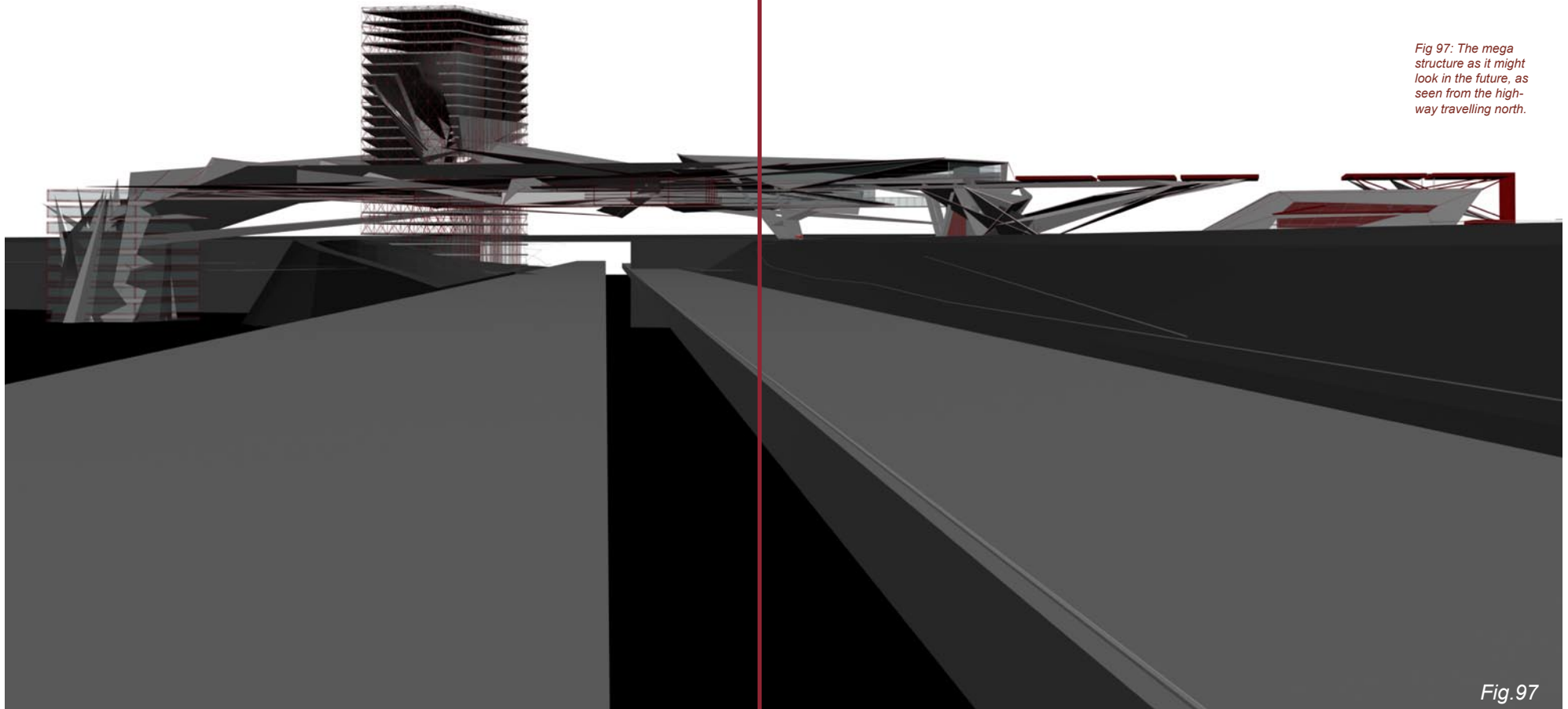
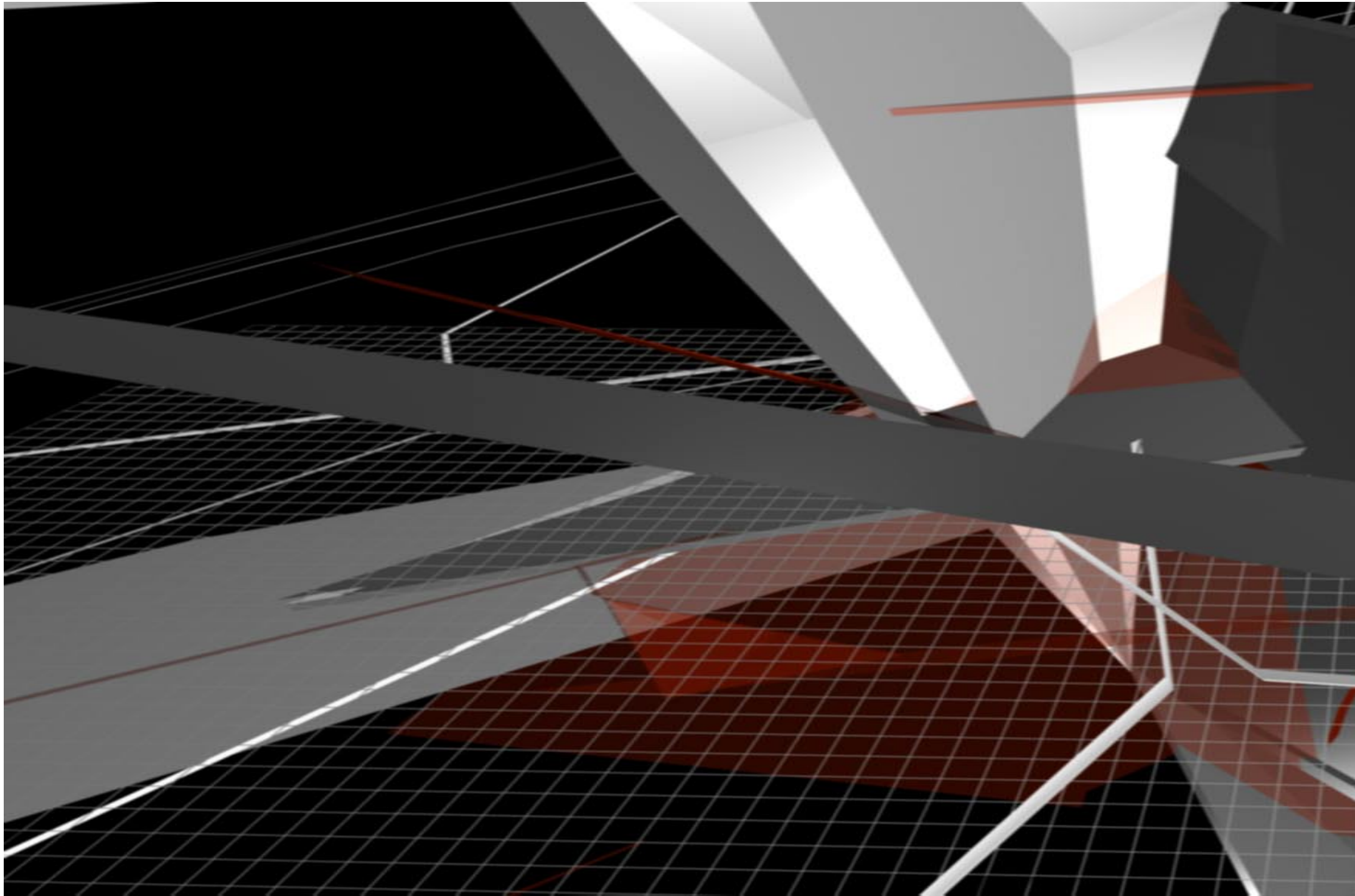


Fig.97



BASELINE CRITERIA





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Fig.118



Fig.119

#01 SOCIAL CRITERIA

#01.1 OCCUPANT COMFORT

The clients and visitors of the heliport and boutique hotel will mostly be wealthy individuals and tourists, politicians and employees of large multi-national corporations.

Occupant comfort are therefor particularly significant.

Visitors will tend to spend less time in uncomfortable spaces, which will impact the financial performance of the building negatively. Employees are also less likely to be productive in less comfortable spaces. Happy, content workers are productive workers.

#01.1.1 natural lighting

The use of light is an integral part of the design process. Not only can light create an array of moods and effects in or around a building, too little or too much light can be harmful to performance of a building. Long exposure to bad lighting conditions can even be detrimental to the occupant's health. Daylight have a positive effect on the physiological and psychological well-being of occupants and all interior space should receive daylight. Glare must be minimized by using screens or high tech glass. Where interior spaces receive little or no natural light, skylights should be used.

#01.1.2 noise

The N1 highway and Atterbury road already generates a substantial amount of ambient noise. Add the noise of helicopters coming and going all day long, and noise becomes a major issue for building occupants. The building must therefor be well insulated against airborne

sound. The amount that a building element (wall, roof, floor) reduces sound are determined by the type of material that the element is made of. Generally, materials with a high surface weight (concrete) have better sound reduction qualities than materials with a low surface weight (aluminium). Should light weight materials be used, it follows that insulation with superior sound reduction and absorption qualities be used.

#01.1.3 ventilation + air quality

As openings of any kind reduce the effectiveness of sound reduction and insulation, natural ventilation via openings (open windows and doors) will not be possible. This means that a mechanical ventilation system will have to be installed. The ventilation system will also have to serve as an air filter, as the air around the highway are highly polluted. (Another reason why natural ventilation is not viable.) Carbon dioxide fumes caused by vehicles are heavier than clean(er) air, and air intakes must therefor be higher than street level, preferably on the roof.

#01.1.4 views

The placement of the building and the interior layout of the building should exploit the views on offer, especially those views towards and along the highway. Views of incoming and outgoing helicopters will enhance the visitors experience and are also important.

All interior spaces must have views to the outside. Where this is impossible, spaces must be well lit and have higher than usual ceilings to counteract claustrophobia (designers of shopping centers employ this technique with great success).

Hotel rooms with its small windows and lack of doors opening to the exterior of the building, can be unpleasant

Fig 118 & 119: Occupant comfort is important to visitors, especially in the heliport waiting areas.



Fig.120

and claustrophobic. The design must address this issue, without sacrificing privacy for the occupants.

#01.1.5 Indoor / Outdoor connection

Access to outdoor space must be limited for previously stated reasons. The hotel with its envisioned atrium area will create the illusion of being outside and will enhance visitor experience.

#01.2 inclusive environments

All interior spaces accessible to the public should be wheel chair user friendly and accessible (this includes the provision of disabled toilet facilities and access to the helipads). It therefore follows that for vertical circulation lifts will be preferable to escalators.

Minor changes in floor levels must be facilitated with ramps and not stairs. The same applies for exterior circulation.

#01.3 access to facilities

The site is located next to a major regional shopping center and access to facilities are excellent. All major local banks and an array of shops and restaurants are 200 meters from the building. Access to existing public transport are also good as a taxi pick up / drop- off point are nearby (200m), and bus facilities are close by (400m). Access to the future Gautrain station on the opposite side of the highway should be facilitated by either a tunnel underneath the highway or by a pedestrian bridge. Child care facilities and schools catering for all ages are close-by (2km radius). The development will be within walking distance of numerous residential suburbs (houses) and high density developments (flats and townhouses).

On-site communication facilities must be in line with industry standards for this kind of development: (wireless Internet connection, video conferencing facilities and satellite connection.)

#01.4 participation and control

#01.4.1 environmental control

Ventilation, cooling and heating of the heliport building and communal spaces in the hotel building will be kept at optimal levels with by way of a central environmental management computer, but the “hot desk” office spaces and the hotel rooms must be adjustable by the occupants themselves. The hotel rooms will all be fitted with electronically adjustable blinds.

#01.4.2 social spaces

Social spaces must be created around the entrance of the building(s), and interior spaces must encourage human interaction. Waiting areas in the heliport and the hotel lobby are all areas that will encourage social interaction.

#01.5 health and safety

#01.5.1 Helipads

Various laws regulate air travel and facilities affiliated with air travel (see legislation). Access for pedestrians and vehicles to certain areas must be restricted. Fire control measures and balustrades are essential in the design of helipad's. The approach angle of helicopters (1:8) also dictates that helipads must be a certain height above ground level if higher structures exist in the immediate vicinity.

Fig 120: Signage can play a major role in the design of a building.

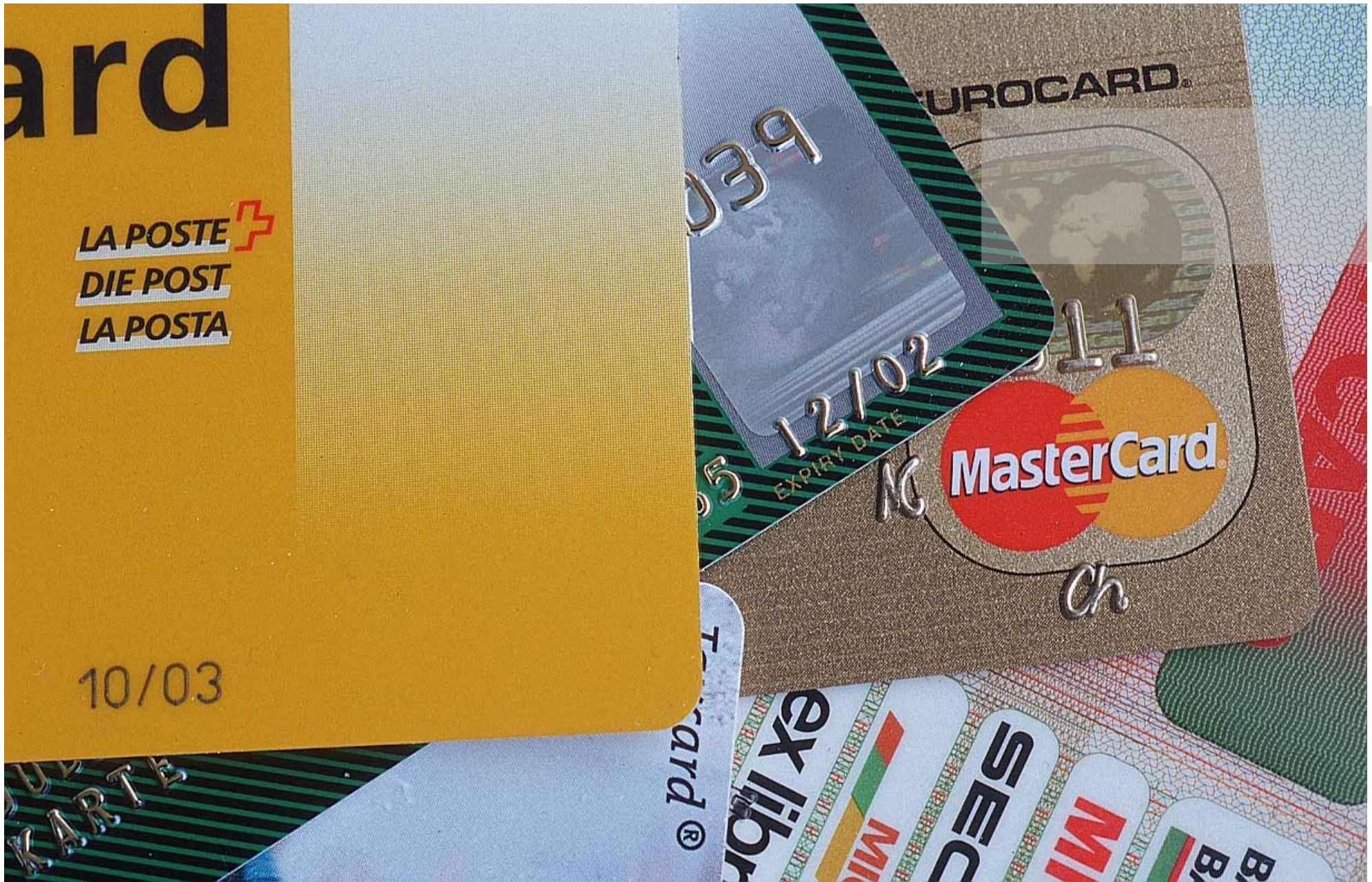


Fig.121

Points to consider for helipad safety include:

- < *Helipads size requirements (min 20m x 20m)*
- < *Public access to helipads must strictly be controlled*
- < *Automated fire fighting equipment must be designed and installed by a specialist*
- < *Re-fueling of helicopters will create a unnecessary fire hazard and should not be allowed on this building*
- < *Balustrades around the helipads are not allowed and safety nets should be installed*
- < *A wind sock or similar device must be present on site.*
- < *An air controller with a dedicated radio channel must be present on-site (or off-site in the immediate vicinity)*

#03.2.1 smoking

In line with existing and upcoming legislation no smoking inside buildings will be allowed and provision for smoking areas must be made. Outside areas (including balconies) with seating must provide for future lung cancer patients.

#03.2.1 signage

Signs and notice boards must inform the public of safety hazards and escape routes. These signs must be clearly visible and integrated in the total design. Examples of how signage can become part of the total design can be seen in recent buildings by Rem Koolhaas (Seattle library and the McCormick Tribune Campus Center).

#03.2.1 cleaning and maintenance

The safety of cleaning staff, especially those staff cleaning the exterior and high windows on the interior must be assured.

Safety hooks must be provided along all facades with glazing.

#02 economic issues

#02.1 local economy

The construction of the various buildings, the extra jobs created, and the eventual profits made, will all benefit the local economy directly. Indirectly, the development has the potential to create long term employment and extra economic opportunities through skills training, the improvement of infrastructure, and the improvement of Pretoria's image as a city.

#02.2 local contractors

The construction of the building(s) will be limited to large construction companies with extensive experience in large scale and high-tech buildings. To facilitate BEE and the development of the local construction industry, construction companies invited to tender, will have to take on smaller local and preferably black owned companies as limited partners.

Local contractors must be used where ever possible, especially for smaller elements of the building (i.e. specific interior elements like flooring and lighting).

Fig 121: Construction should benefit the whole community, not just those at the top.

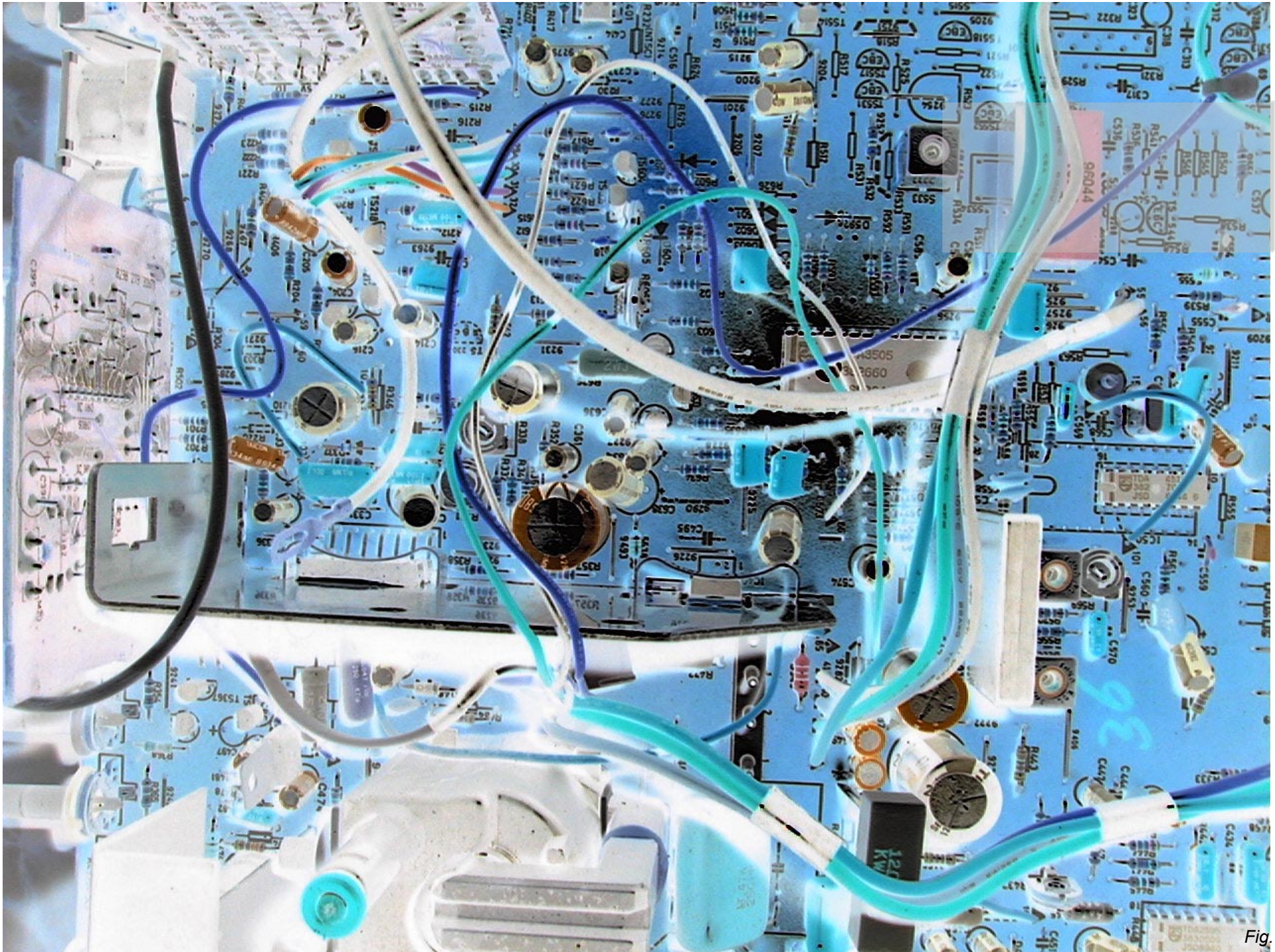


Fig.122

#02.3 local building material supply

An estimate has been set to use 80% of building construction material, manufactured and produced within 200km of the site. This includes pre-manufactured components, building systems or separate building components (e.g. wall unit, passive cooling device components). Where specified materials does not exist in the 200km radius, the set up cost of new workshops and factories locally, must be weighed against the costs of importing the materials from elsewhere.

#02.4 outsource opportunities

Small emerging businesses can be given a chance to establish a reputation, by providing an opportunity for them in the development, planning, construction and maintenance phases of the project. These provisions include the education and training of emerging businesses, outsourcing catering, cleaning services and security. The maintenance of the building and site can be through self-developed businesses, trained staff or the outsourcing to companies within 25km of the site. Outsourcing have the added bonus of not having to provide extensive staff facilities and store rooms.

#02.5 repairs and maintenance

All building systems and machinery must be serviceable by local contractors. Should this not be the case, local contractors must be trained to do so.

#02. disruption & downtime

An agreement with Menlyn Park must be secured for the use of the shopping center's back up power system during

power failures. A LED light system, that requires very little power and can be run of a normal car battery, can be installed to provide light for the helipads and interiors while power are being restored. A back-up system must be available for the air controller's room.

#02.7 adaptability and flexibility

Adaptability, flexibility, and the ability to expand in the future are one of the principle requirements of this building complex.

Similar to the structures found in informal settlements around our country, the building must be able to "re-adjust", "grow" and "shrink" by re-using and adding parts or elements. The building would therefor be better served by a "kit of parts", rather than a solid whole. A lightweight structure with a thin skin can easily be adapted to future functions, where a building with heavy load bearing partitions cannot.

Technology and the speed in which technology evolves have profound influences on contemporary buildings. The building must therefor be able to respond to new technology, and the replacement of out-of-date technology.

Points to consider include:

- < Vertical dimensions in especially the hotel building. The floor to underside of roof or slab above should have a larger than usual dimension.
- < Internal partitions should be non-load bearing (dry walls or light-weight wall construction)
- < Access to services: Exposed ducting, access flooring, and removable ceiling panels allow

Fig 122: To cater for future technology, the building should be highly adaptable.



Fig.123

services to be expanded and modified in quickly and easily.

#02.8 ongoing costs

To keep ongoing costs at a optimum (as low as possible) , materials and the finish of materials should be low maintenance or preferably maintenance free. The intensity of the sun in the Tshwane region have a profound influence on the long term performance of materials and more specifically the finish of materials and elements. Materials like wood and finishes like dark colored paints should be avoided. The interior fittings and materials must be hard wearing and easy to clean. Exterior cladding must be seamless or have very small joints. (To avoid the facade getting the same look as Vodaworld's facade)

#03 environmental issues

#03.1 water conservation

Where possible rainwater to be collected, stored and used later on. (For landscaping etc.)Speed and amount of runoff will be regulated by slope and surface materials. Other methods of conserving water include the use of dual flush toilets, and self cleaning windows.

#03.2 energy conservation

South Africa's Renewable Energy White Paper was approved by cabinet in November 2003. At the Renewable Energy Summit 2004, recently hosted by IQPC in Sandton, Johannesburg, Kevin Nassiep, Chief Director for Energy Planning at the Department of

Minerals and Energy (DME), presented an overview of the new policy. The subsequent panel discussion highlighted some of its merits and shortcomings.

The White Paper on Renewable Energy sets a target for SA to generate 10 000 GWh of electricity from renewable resources by 2013. Nassiep clarified this as a cumulative target, which envisages a growing contribution from renewable resources over the next ten years to reach the level of 10 000 GWh. Currently renewable resources account for less than 1 % of the 200 000 GWh of electricity generated annually in SA. It is estimated that the 2013 target would equate to about 4 % of the by-then increased total electricity output. The country's main renewable energy resources are identified as wind, solar, small-scale hydro and biomass.

The White Paper sets out government's long-term vision: "to establish an energy economy in which modern renewable energy increases its share of energy consumed and provides affordable access to energy throughout South Africa, thus contributing to sustainable development and environmental conservation."

#03.2.1 UV penetration

The amount of daylight penetrating the building should be carefully controlled. Enough daylight should penetrate the building to avoid using artificial lighting during daylight hours, but care should be taken to filter or reflect harmful UV rays and to provide sun control to regulate the amount of sunlight penetrating the building.

Fig 123: Although electricity is cheap in South Africa, renewable energy sources should be used where ever possible.



Fig.124

In order to maximize winter sunlight and minimize summer sunlight, the building should be orientated along the east-west axis with large overhangs or brise-souleils to protect glazing on the northern facade. (East and west facing windows should be avoided).

To avoid the “greenhouse effect” sunlight should not be allowed to pass through skylights unhindered. Sandblasted glass panels or other screens can be used to filter sunlight.

#03.2.2 Ventilation, heating & cooling system

To take the load of the ventilation and cooling system (air conditioning system), the building must be well insulated, and the penetration of harmful UV rays must be minimized. Strategies like ventilated and/or double facades prevent heat gain on the exterior surface of the building, and reduce the load on the cooling system. The use of alternative energy sources like solar and wind energy may also be viable.

Points to consider include:

- < The highway and incoming /outgoing helicopters will generate a substantial amount of wind and wind power can be utilized.*
- < Heating and cooling can be facilitated by using a radiator system in conjunction with airconditioning.*

- < The climate of Pretoria would render a passive system like evaporative cooling useless.*
- < An indoor swimming pool can be used as a giant heat store, and as the brief calls for such a feature in the hotel, the swimming pool can be used to regulate air temperature in the hotel building.*

#03.3 recycling and re-use

Raw materials and components should either already be recycled, or recyclable at the end of the building’s life. The building should be made up of re-usable components rather than the traditional “wet works” material. (It is much harder to re-use a brick or concrete wall, than a metal component.)

#03.4 site

As mentioned in the context study, the site has previously been cleared for construction and, with the exception of the limited alien vegetation in the middle of the site, existing vegetation should be retained. Additional planting should be limited to indigenous plant species only.

Fig 124: Materials used should be from recycled sources, or be recyclable at the end of the building's life.

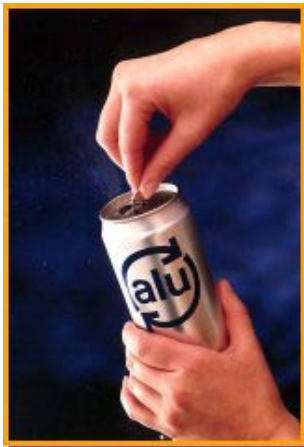
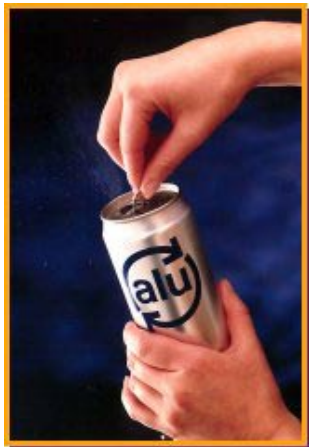


Fig.125

#03.5 materials and components

Based on the criteria already given in this document, the choice of materials and components will ultimately have a significant influence on the overall impact of the building. The ecological footprint of the building in the short and long term must be kept as small as possible.

Points to consider include:

- < Materials with high embodied energy can only be used if those materials come from recycled sources, or can be re-used or recycled with minimum effort at the end of the building's useful life.*
- < Materials must be manufactured and sourced locally. (Transport distance must be minimized).*
- < To minimize waste components must be pre-fabricated in factories, rather than on site.*
- < 90% of all materials used must be recyclable or re-useable.*
- < Materials must require low or no maintenance.*
- < The little vegetation that's currently on site should be protected against humans and vehicles during the construction phase of the project. (The trees on site are not to be used as firewood by security and other personnel).*
- < Access to the site must be placed to minimize*

damage to the vegetation on site. (Construction access must therefore rather be from the east and NOT from the south)

The impact and choice of materials are discussed in detail in the "Technical Inquiry."

Fig 125: Although aluminium has a high embodied energy, it is fully recyclable.

All images by author unless referenced.

Images marked with *, were based on aerial photographs obtained from Tswane municipal council.

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6. Map of South Africa. **Illustration**. www.maps.com (1997)
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15. Homer Simpson clinking a deal. **Cartoon image**. www.geocities.com/televisioncity/
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20. Pretoria land use map. **Illustration**. www.environment.gov.za/Maps (July 2000)
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Fig.126

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TECHNICAL DOCUMENTATION

The background of the slide is a dark, abstract technical illustration. It features a perspective view of a grid or mesh structure, with lines receding into the distance. The color palette is primarily dark greys and blacks, with a prominent red-orange glow emanating from the lower right quadrant, suggesting a technical or industrial environment. The overall aesthetic is clean, precise, and futuristic.

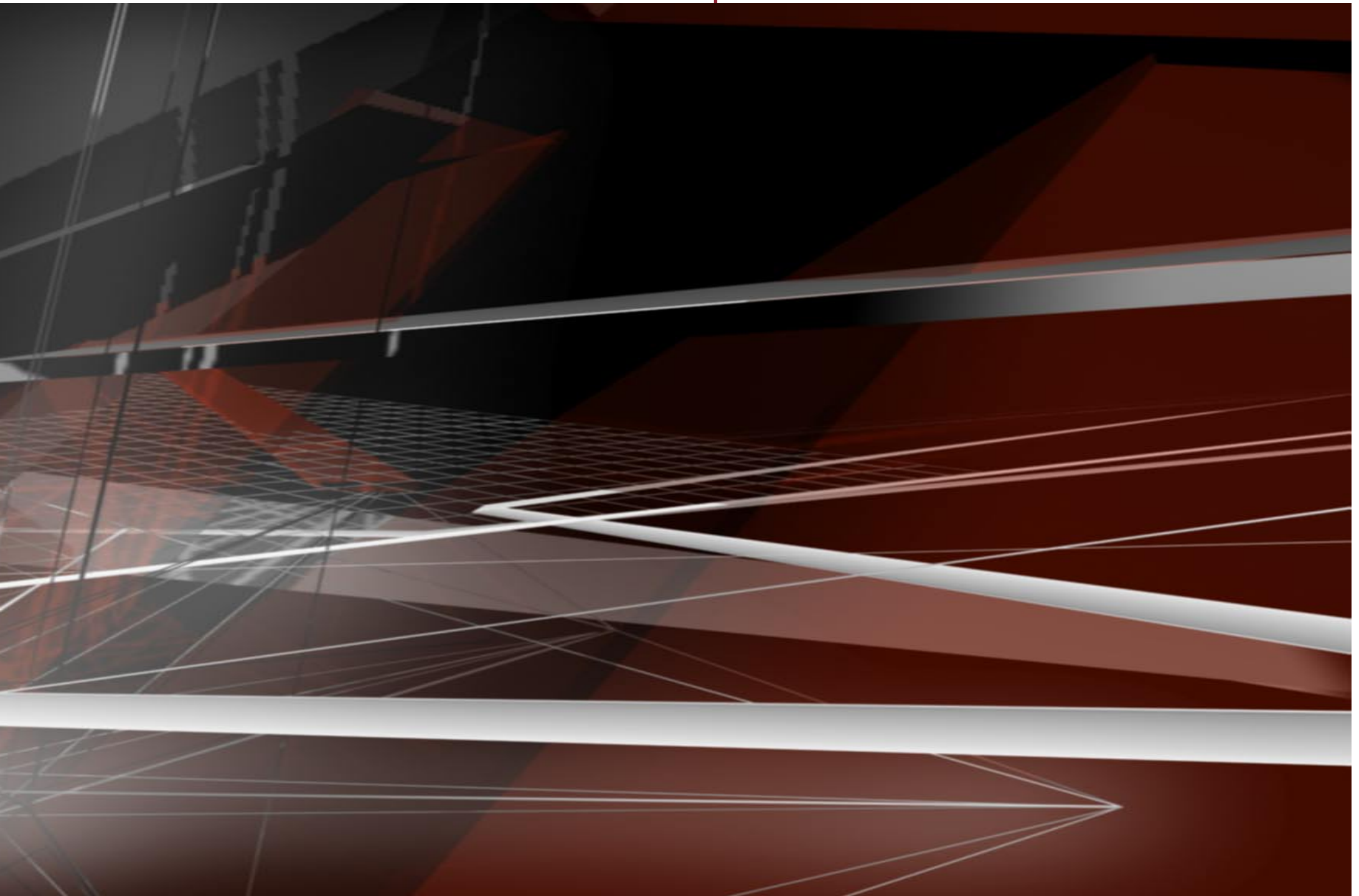




Fig.98

MATERIALS & ELEMENTS:

“For me metal is the material of our time, It enables architecture to become sculpture”

Frank Gehry. (OJEDA. 2003: 78)

The materials used in this project were chosen for pragmatic and aesthetic reasons.

Performance criteria includes: Weight, size (thickness) , potential environmental impact, availability, maintenance, speed of erection and finish.

As the building must be fully recyclable at the end of its useful life, the building must largely be made up of prefabricated elements that are assembled like an Mecano set on site. It therefor goes that the traditional “wet works” that are associated with the South African building industry, must be kept to a minimum.

The building cantilevers over an on-ramp and marginally over the highway and to keep the disruption to traffic caused by construction work to the absolute minimum, prefabricated elements (as in steel columns and beams) would make more sense than concrete. Where steel columns and beams can be placed in position by cranes in a hours, concrete columns and beams require extensive scaffolding that will definitely disrupt vehicular traffic.

Steel:

Steel is used extensively on the heliport section of the building. All steel members must be manufactured according to engineers details and numbered according to these drawings. Steel sections will thus arrive on site ready for assembly. (Drilling and cutting on-site must be kept to a minimum. Exposed steel sections (window frames included) will be 3CR12 stainless steel. It is less expensive than other stainless steels and weathers to the desired color.

Non -exposed steel must be treated with three hour fire-rated spray-on foam/paint.

Aluminium:

A metallic chemical element, symbol Al, atomic number 13, atomic weight 26.98154. It is silver(y), a code color for lightweight performance metals. Aluminium has a very high embodied energy , but this is offset by the fact that aluminium are fully recyclable. Additionally a metal cladding like aluminium also offers the flexibility needed for a sculptural design like this building.

All exterior cladding is aluminium composite panels. A typical panel will consist of two aluminium cover sheets (0,5mm) and a plastic core. The panels will be cut with a CNC machine and numbered, so that each panel has a specific position where it has to be fixed. (CNC technology is the process where an object are laser-cut according to co-ordinates given to the machine by a computer program.) By using CNC technology material wastage are cut down drastically. On-site installation are also more precise and installation time is improved.All aluminium will have a natural anodized finish.

Fig 98: Walt Disney concert hall by Frank Gehry (under construction)

TECHNICAL ENQUIRY



Fig.99

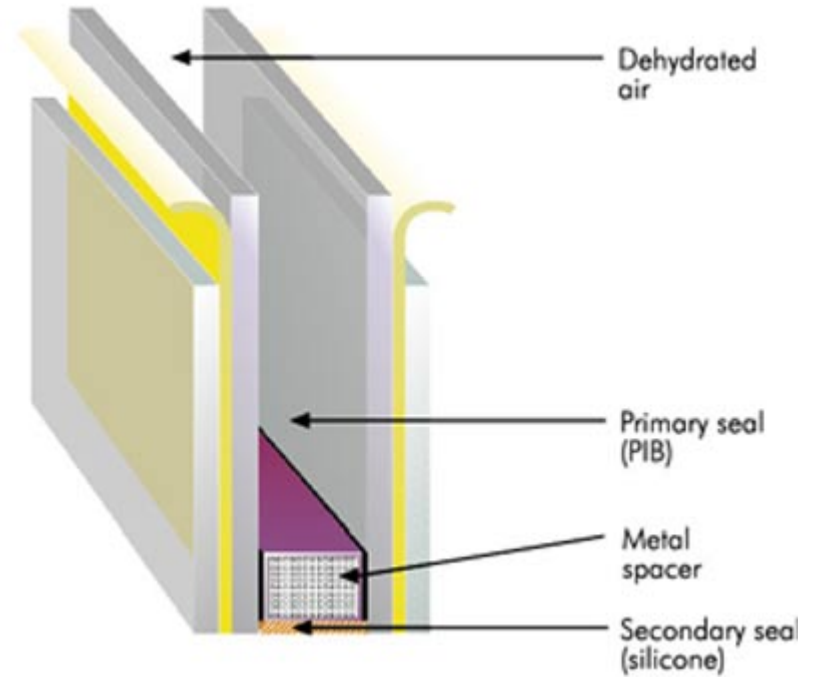


Fig.100

Glass:

A material made from hot liquid materials that, when cooled, do not crystalize but rather remain in an amorphous state. It is so viscous that it becomes solid, yet is completely transparent.

“Above all, though, glass is the most effective conceivable material expression of the fundamental ambiguity of atmosphere: the fact that it is at once proximity and distance, intimacy and the refusal of intimacy, communication and non-communication. Whether as packaging, window or partition, glass is the basis of a transparency without transition; we see, but cannot touch. The message is universal and abstract.”

(BAUDRILLARD. 1996:105)

Glass is the infill material in this building. It communicates the fact that the building is inhabited by people who needs protection and it communicates the context of the building to its inhabitants. It also acts as a divider of not only interior and exterior spaces but of interior space. As mentioned elsewhere, the heliport building's interior space are largely determined by the structure of the building. Where interior space needed to be divided further, glass is the main element. (Normally these dividers are white translucent safety glass, which look like sandblasted glass, but is in fact a laminated safety glass.)

Glass elements are also the weakest parts or worst performing parts of the building. Unwanted noise and heat are more likely to find its way into the building through

glass elements than anywhere else, and glass does not perform well during fires and other disasters.

Virtually all glazing will be double glazed (sealed insulated glass) to prevent noise levels (emanating from incoming helicopters and traffic) from reaching undesirable levels. To prevent solar energy from penetrating the building a tinted interlayer (Deep coolgrey, HPR) are incorporated. Where glass are used as free standing dividers, floor panels or as balustrades, it must be min 12mm toughened safety glass. Exterior glazing must be 1 hour fire-rated where specified.

Rubber:

The disposal of car tyres is of a major concern for environmentalists. Strategies and products exploring the re -use of rubber are therefor advantageous for all concerned. As the theme of the highway play a major role in the overall design theme, the use of recycled rubber and the recycle of tyres are particularly apt,

Recycled rubber mesh flooring will be used throughout the heliport building and on the ramps/passages between the hotel rooms. (This must not be confused with the rubber mats sold at local hardware stores.) The one of the major advantages of these rubber floors is its superior acoustic properties. Because of it's textured surface and the high density of the material it has high sound absorption and sound reduction qualities. It is also low maintenance and will outlast most other floor coverings.

Shredded tyres will also be used as a groundcover around the building base.

Fig 99: The window frames of the Splashback, Backlash building

Fig 100: A typical double glazed window section.

~~TECHNICAL ENQUIRY~~

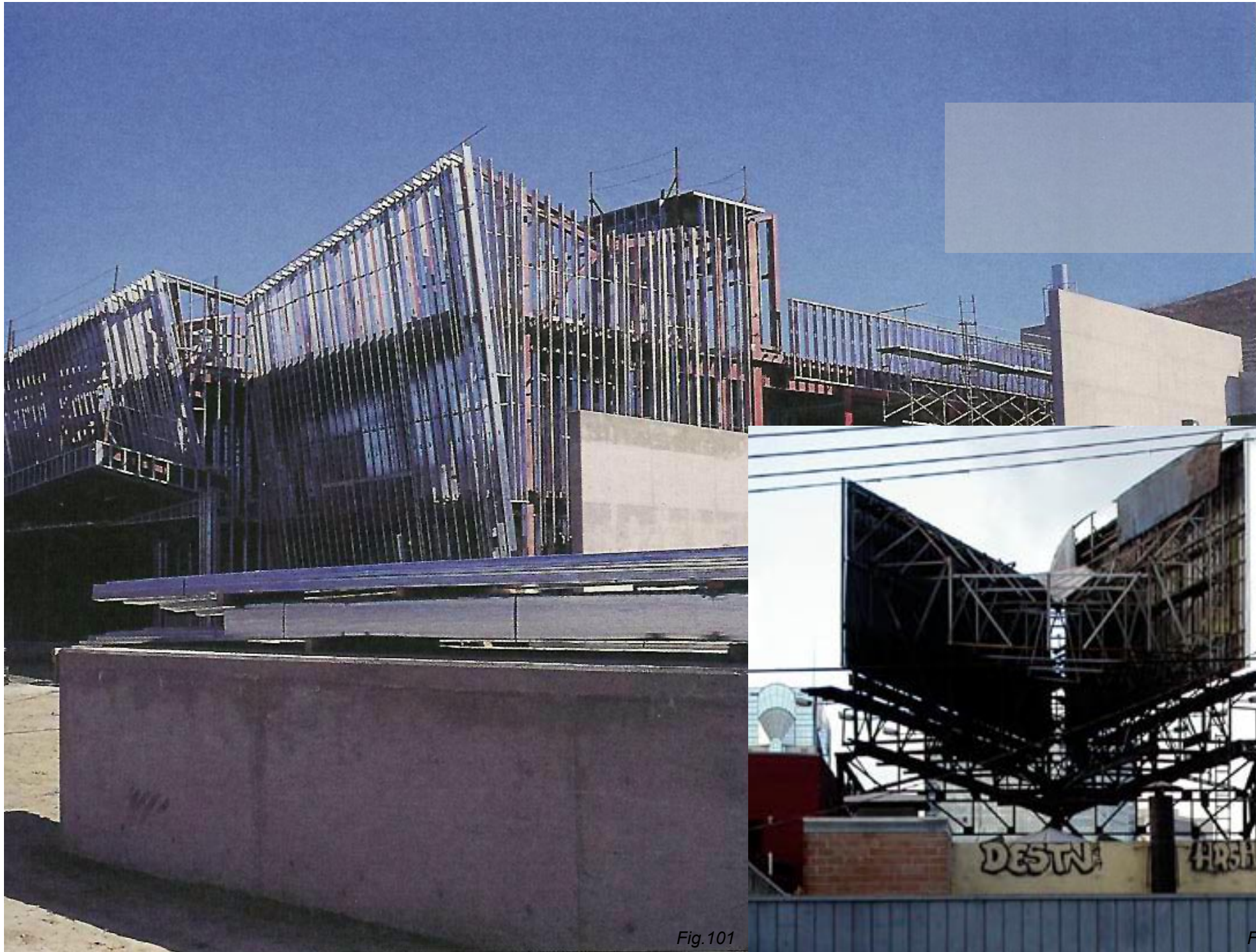


Fig.101



Fig.102

Concrete:

Concrete is used to encase and protect the fire escape routes in the Heliport, and as a structural material in the hotel building. In the spirit of the “shades of grey” and materials in their natural form theme that prevails throughout the project, all concrete will be off-shutter.

STRUCTURE

The structure of the heliport building is a hybrid of three systems: a rational column and beam system, a truss system and weight bearing skin system. The truss principle are present throughout the design. By fusing these systems the building communicates the idea of entropy and lightness. In contrast to the heliport building, the hotel are firmly grounded and the structural system are rather conventional: a concrete beam and column system.

The main columns are rectangular section steel columns filled with concrete. The concrete improves the compression strength of the columns, and prevent the steel from deforming during a fire. Each of the main columns consist of three elements: two columns connected at or below ground level, and a lateral brace or beam that transfers the weight more equally. The main floor beams runs longitudinally through the building and are connected with square section cross braces and I-beams to provide lateral support. Lateral support are also provided by the concrete encased fire escape staircase and lift shafts.

The structure resting on the main beams operates mostly on the truss principle. The program were fitted in and around this giant truss. Where space had to be “stolen” for programmatic reasons the roof structure were connected to the main beams. Stiffness and equilibrium are provided by cross-bracing and the skin of the building.

Contrary to popular believe, helicopters do have an approach angle for landings and take-offs. The South African Civil Aviation Authority requires a 1:8 approach angle to helipads. Menlyn Park shopping center is approximately 30 meters high on average which translates to 240 meters should the helipads be placed at ground level. The closest helipad is a 135 meters from the shopping center which translates to minimum required height of 13.1 meters above ground level.

As an additional safety factor the pads were designed at a landing platform height of 16,2 meters above natural ground level. (As helicopters land while flying into the wind and the prevailing summer wind are mostly from the north east, a lot of landing approaches will be made over Menlyn’s roof.

The helipads are kept in the air by non-orthogonal aluminium clad steel columns that cut back to the building at odd angles.

Climate & Occupant comfort:

The incoming helicopters, the location of the building next to the highway and high summer temperatures places a lot of emphasis on occupant comfort. Sites next

Fig 101: Construction of the Diamond Ranch High school.

Fig 102: The structure of the building is loosely based on the structures of billboards.

TECHNICAL ENQUIRY

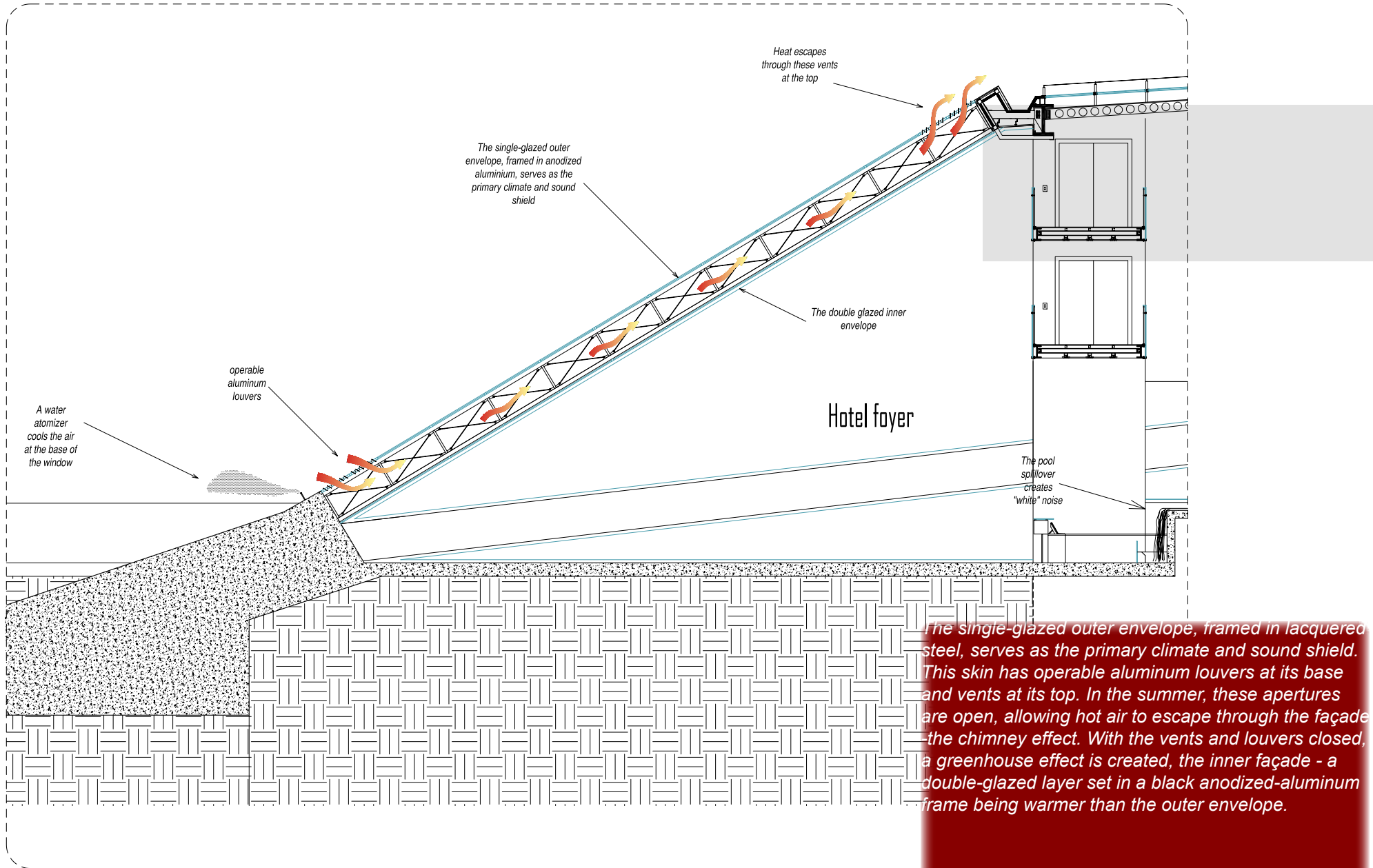


Fig.103

to highways are wind swept, dusty and noisy. These problems are compounded by the incoming helicopters.

Cooling and ventilation:

As noise, dust and wind will be prevalent on the site, natural ventilation via open-able windows will not be an option. The end-user of these buildings will expect maximum comfort, and a mechanical ventilation and cooling system thus becomes essential for this building. Further strategies had to be developed to reduce the load on the ventilation system,.

The centralized ventilation system located on the second floor of the heliport building will consist of the following components: A chiller plant with a buffer tank, medium sized air-handling units, and extractors.

Chilled water will cool the buildings via AHU's.

To reduce the load on the ventilation system water from the entrance pond will be pumped through the precast concrete floors. To cool this water the catchment pit of the spillover will be 4m below the spill over and evaporative cooling is used as the primary cooling system. After the water has circulated through the floors it returns to the pond and is re-circulated.

Double-skin ventilated facades are also used on the hotel building. (See detail) The sloping window over the foyer / lounge will have water-atomizers to cool the air and glass at the base of the window which will accelerate the chimney effect through the double skin. The water - atomizers will also create a pleasant environment for pedestrians and reduce airborne dust.

The indoor swimming pool acts as a giant heat store and

by keeping the pool at an optimum temperature (24deg C) the interior temperature of the hotel will be stabilized at that temperature. All hotel rooms will be mechanically ventilated.

During the winter the swimming pool can be heated via solar panels built into the two helipads directly above the hotel.

The restaurant box is designed to float between the main floor and roof structure thereby allowing air to flow unhindered above and below it.

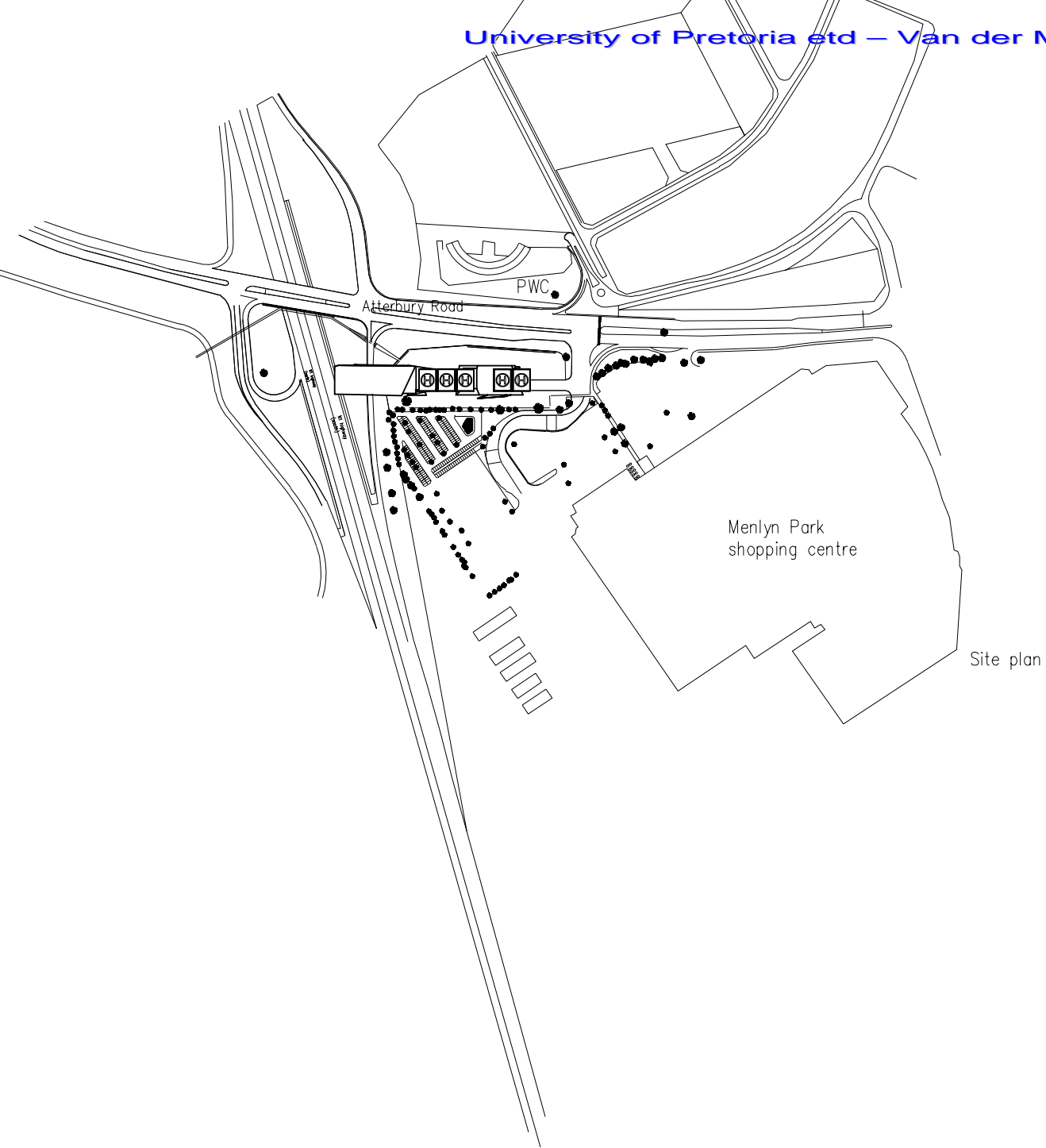
Insulation:

Insulation plays a dual role in the building: Insulation against unwanted heat gain/loss and insulation against unwanted noise. The roof insulation will consist of Woolblock panels, which is placed at least 50mm away from the exterior cladding, creating an air cushion, Where deep trusses are used, another layer of insulation is placed right above the ceiling plane, thus creating a giant air cushion between the outer skin of the building and the ceiling (see section - departure lounge)

As mentioned elsewhere, most if not all exterior glazing will be insulated and factory sealed. Double glazed sections perform substantially better than single glazed sections, for insulation against heat transfer and for insulation against noise.

Glazing in the heliport building are also protected by roof overhangs from the sun.

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Site plan

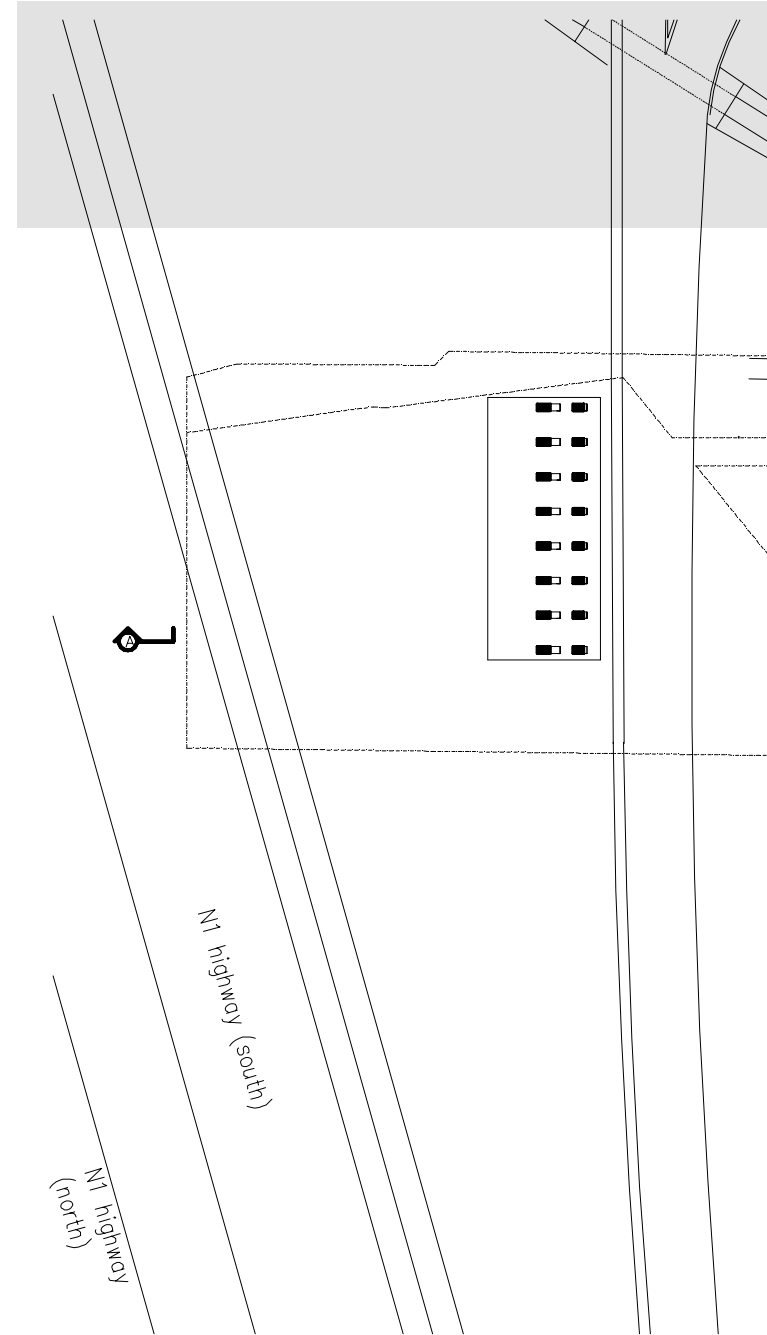


Fig.108

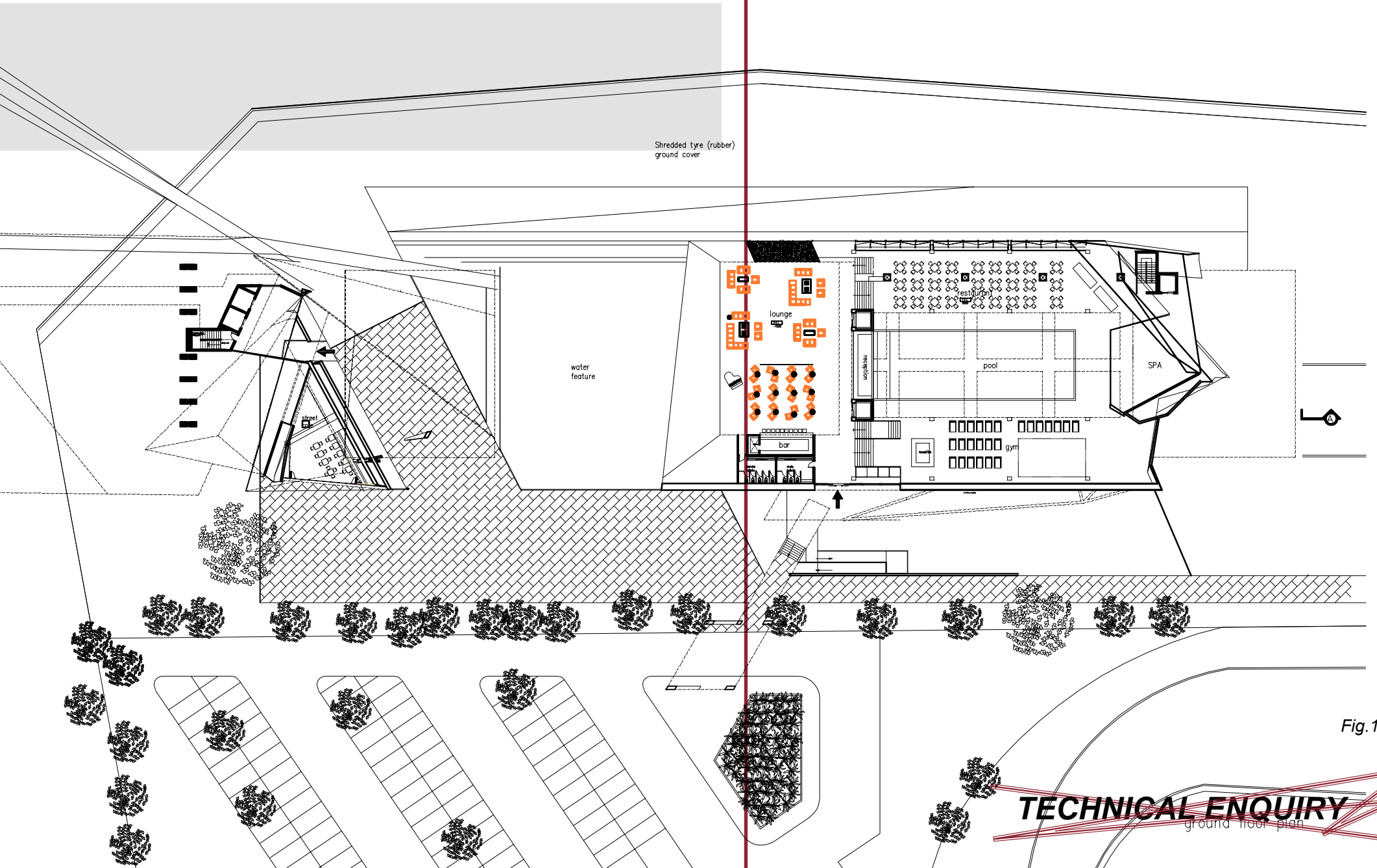
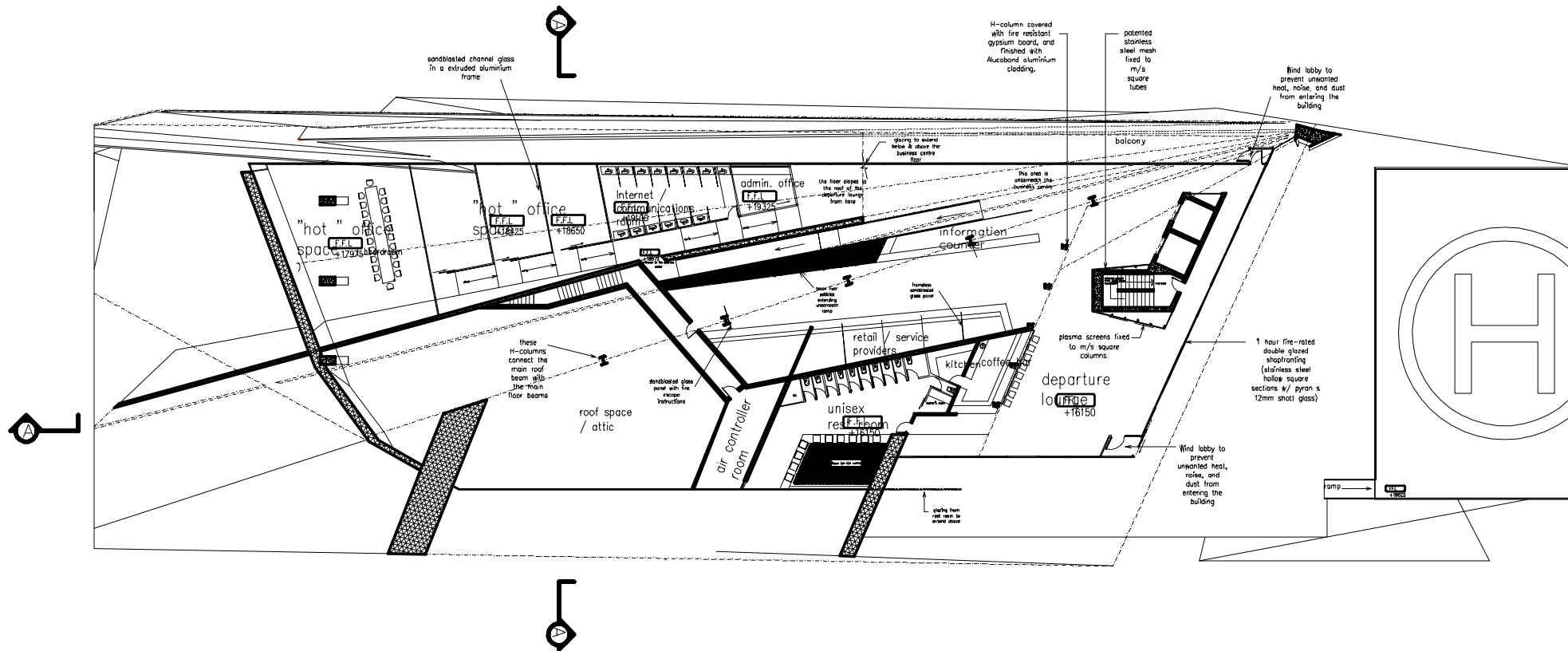
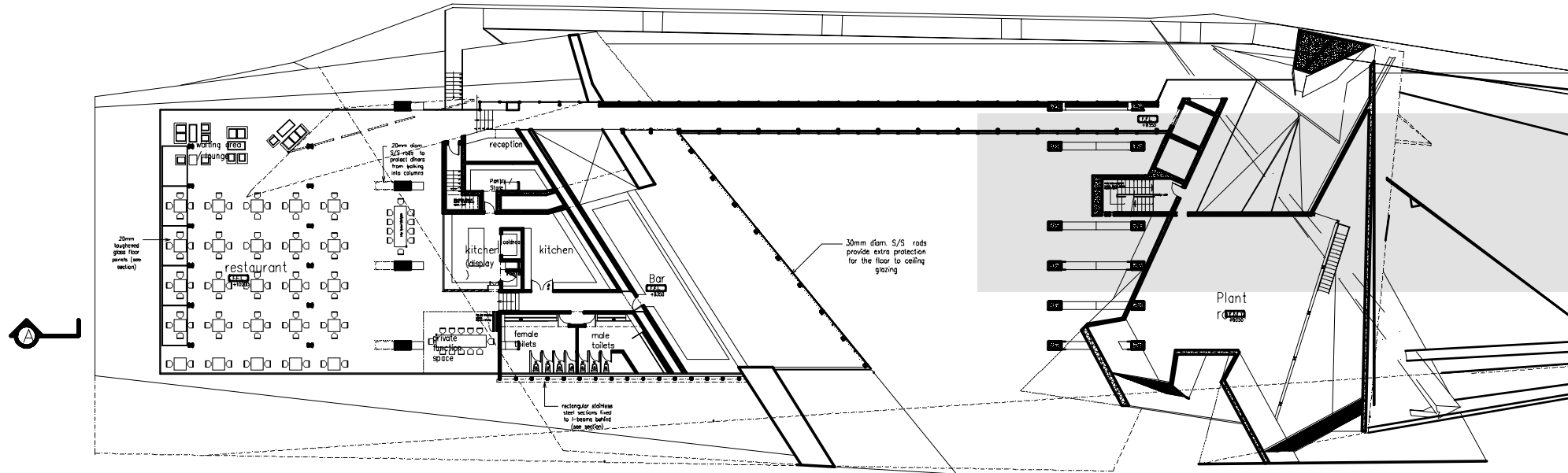


Fig.109

TECHNICAL ENQUIRY
ground floor plan



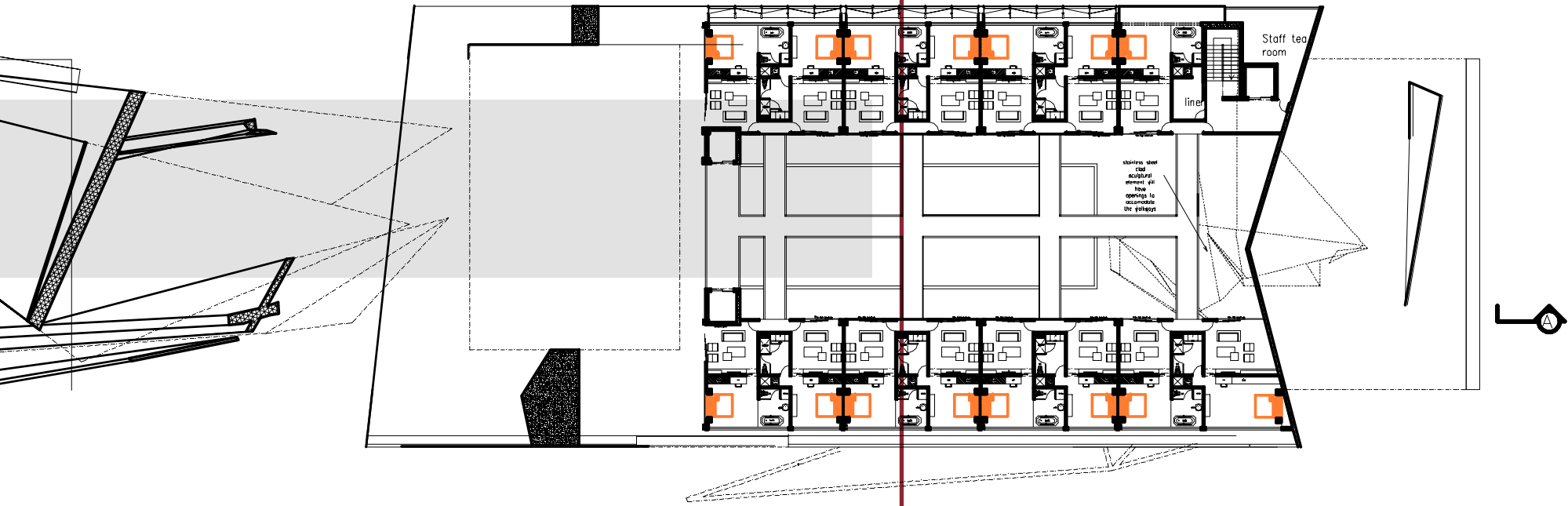


Fig.110

2nd Floor

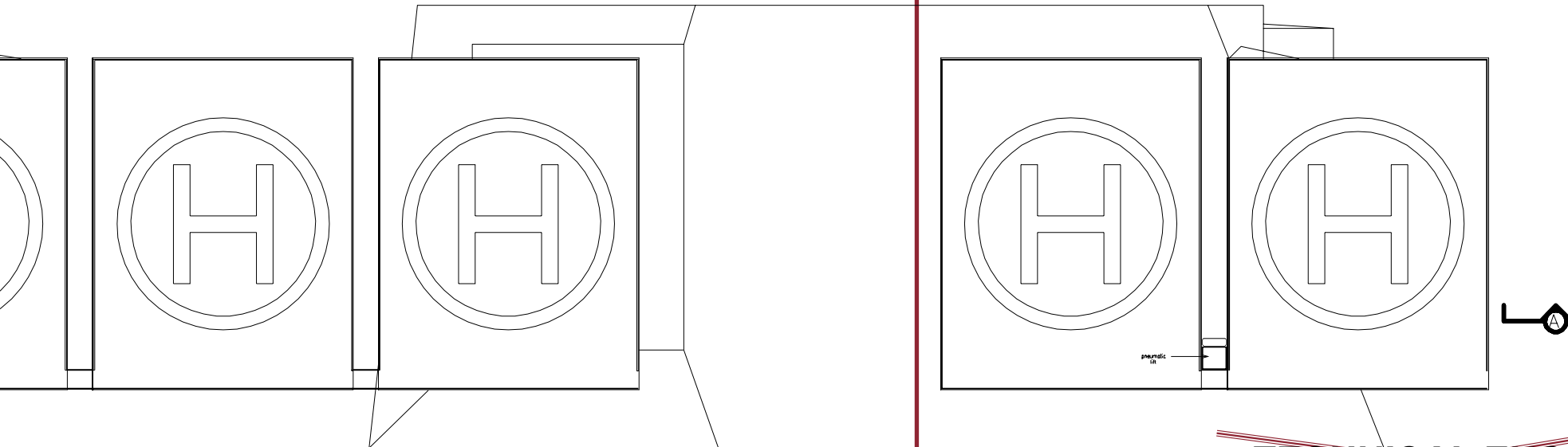
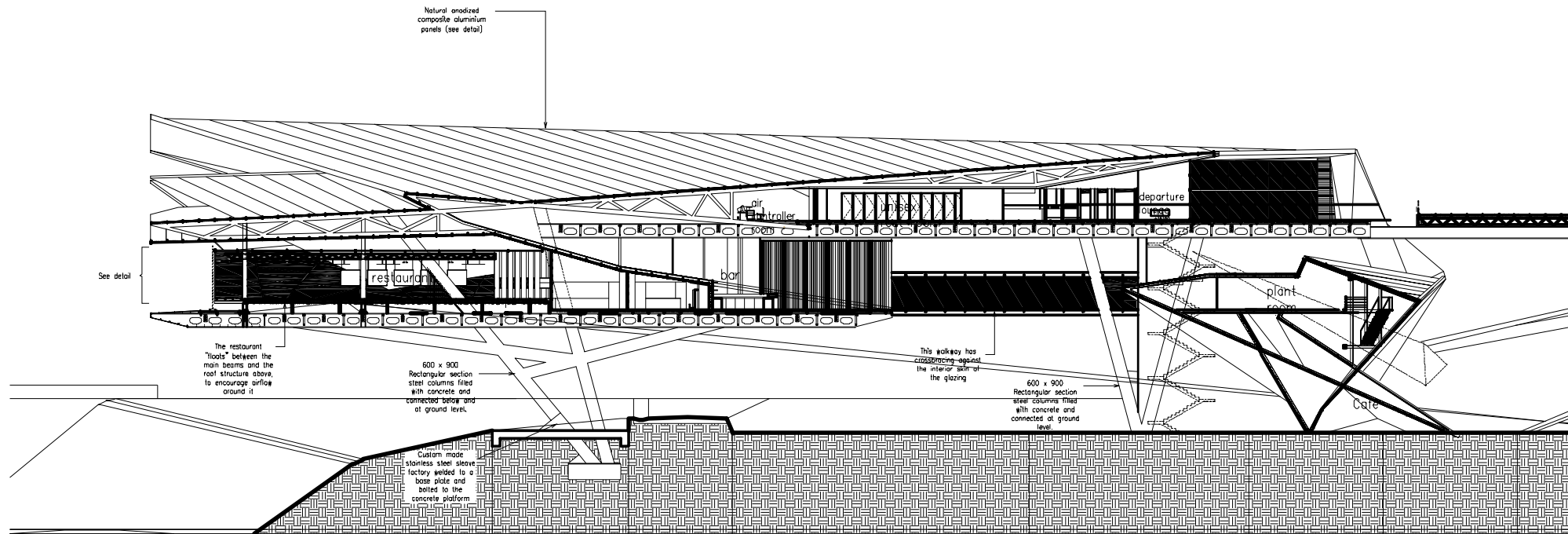


Fig.111

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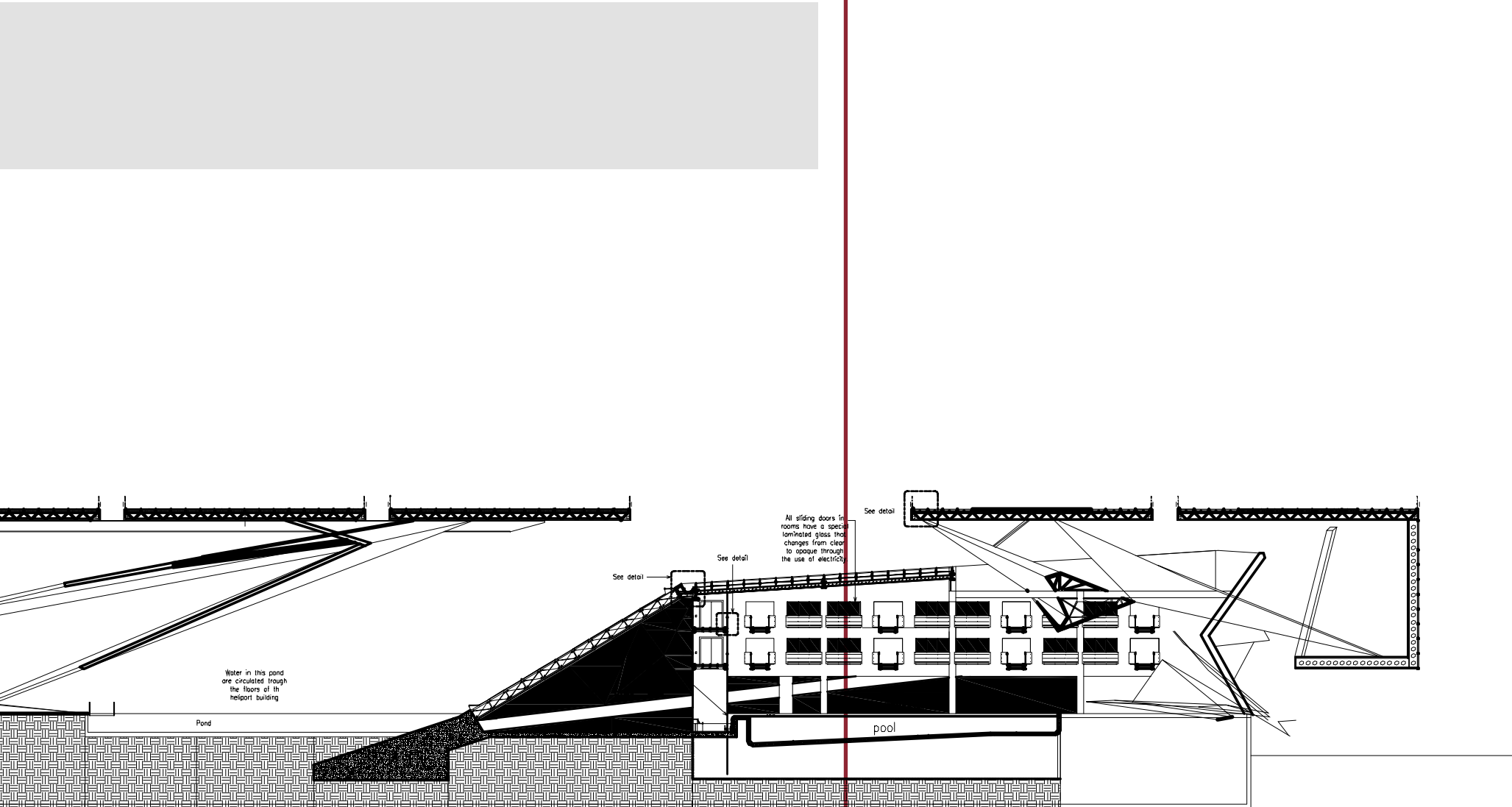
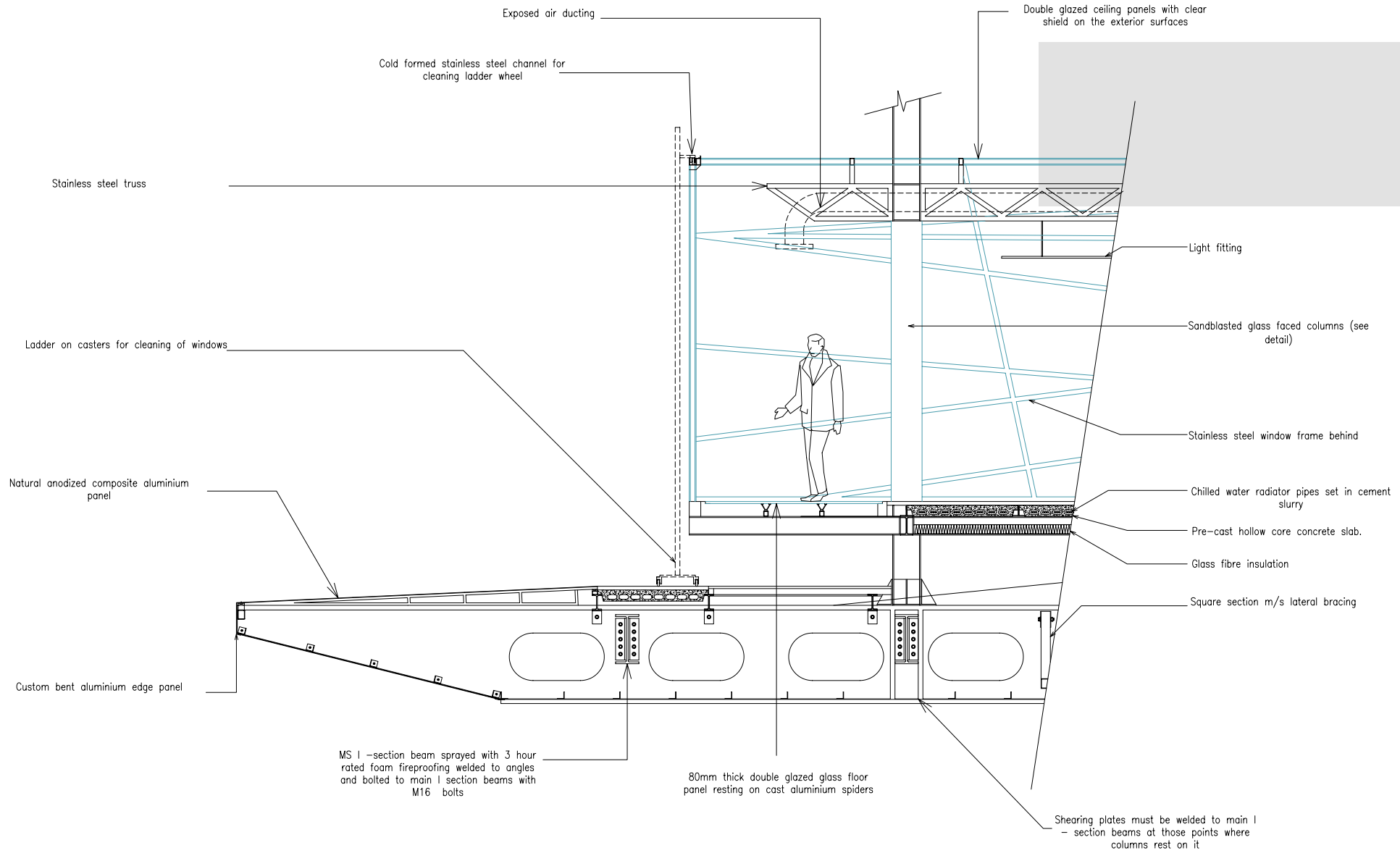


Fig.112

Section A-A

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Detail : Restaurant box

Fig.113

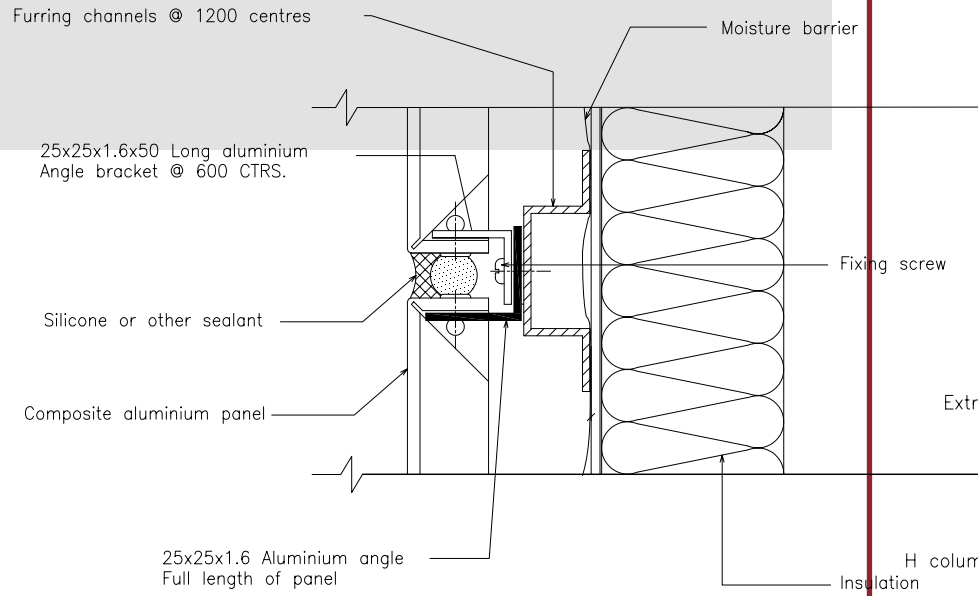
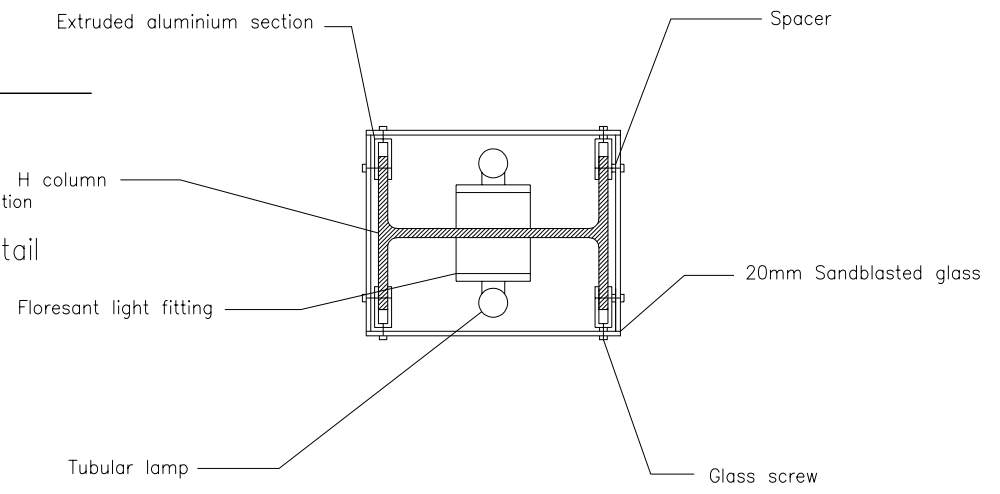


Fig.114



Plan detail : Glass column

Fig.115

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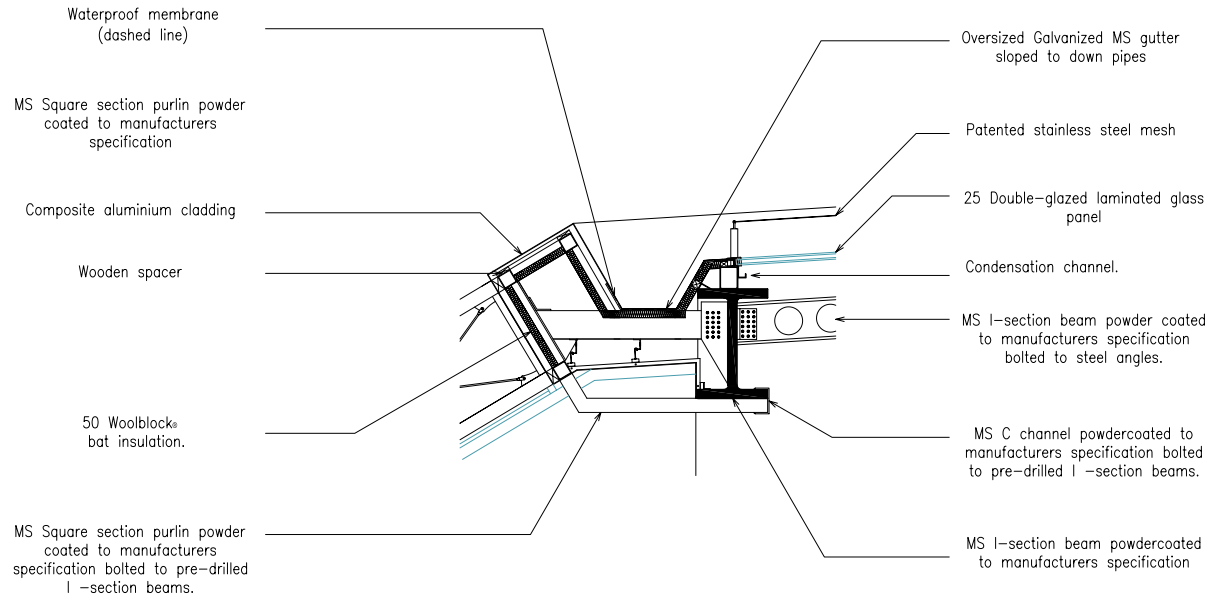
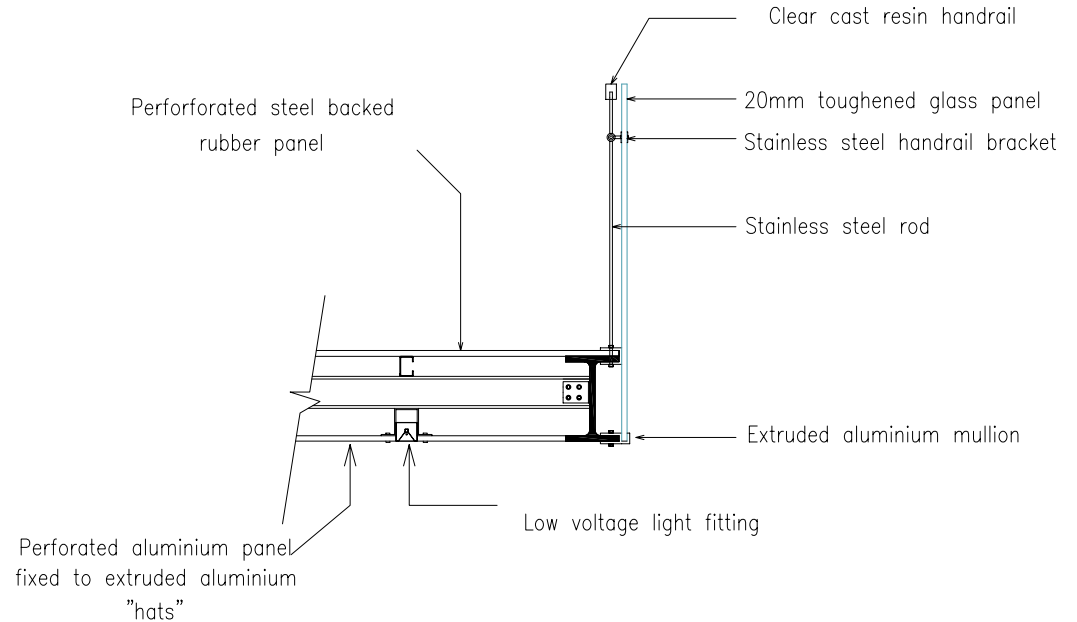


Fig.115

Detail : Hotel roof edge



Detail : Ramp

Fig.116

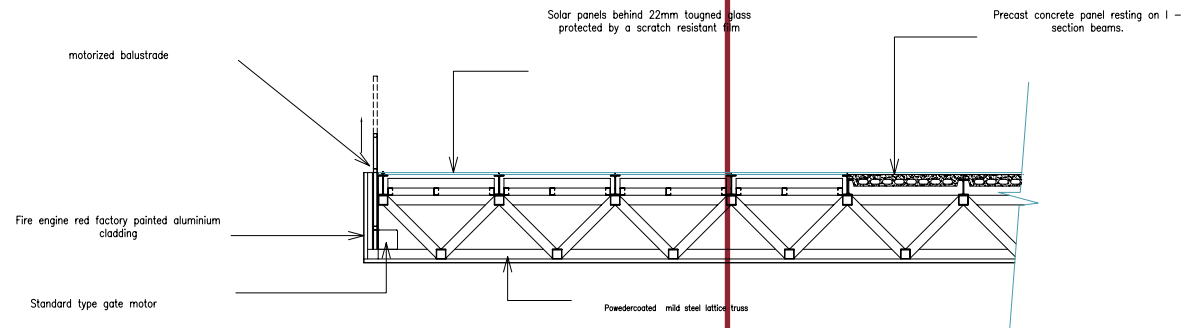


Fig.117