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This chapter illustrates decisions taken in response to the Sustainable Building Assessment Tool (SBAT) and should be read in conjunction with the Technical Report (Chapter 08). Many of the social sustainability issues have already been addressed in the Project Profile (02). This document mainly deals with sustainable responses pertaining the *Job Centre* part of the project.

7.1 SOCIAL RESPONSE

Occupant comfort

Quality Work Life (QWL) is primarily concerned with the humanization of the workplace. The *Job Centre*, as a supplier and promoter of work, will enhance the quality of work and life for all employees and recruits by ensuring maximum occupant comfort. This is a direct reaction to the brief and nature of the project, as its function is to promote and present work in a commuter node.

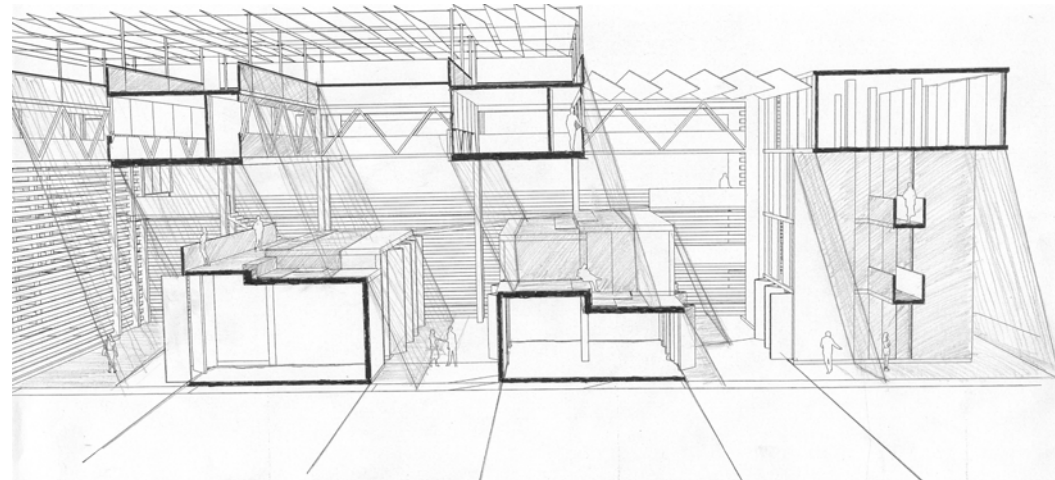
Ventilation. The project will make use of minimal mechanical ventilation to keep the operating costs down by ensuring a pleasant external microclimate.

The nature of the project, and the office spaces created, are such that the offices have a close link to the exterior space. With this aspect in mind the three office blocks form three courtyards to ensure maximum passive ventilation. Shadow lines, and the resultant temperature differences, are created mainly by the alignment of the overhead structure.

Lighting. The lighting requirements are designed so that no person will be further away from daylight than 6m. The general orientation of the units is east west to ensure maximum daylighting.

The lighting requirements during the night forms part of the requirements to promote safety in the area. Certain areas, such as the entrance and the adjacent bus terminal are well illuminated to provide passive surveillance. The filtering effect of lighting as a result of the brick screen system from inside the warehouse and the *Job Centre* office area outwards creates an interesting pattern resulting in a safe and approachable exterior space.

Baseline Response



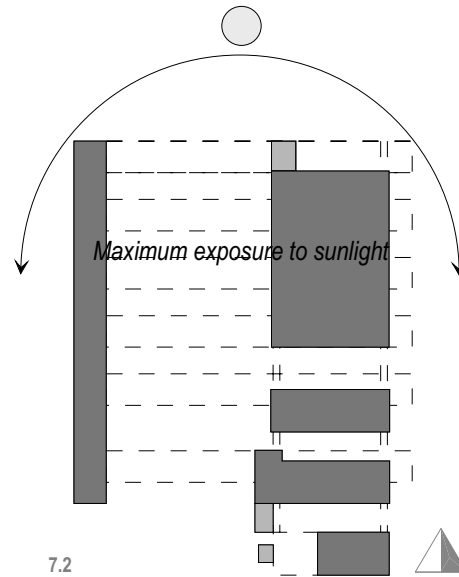
7.1

Thermal Comfort. To ensure thermal comfort, the materials and openings in the project were chosen to allow maximum natural light into the building, without the associated heat gain in summer and heat loss in winter. The Technical Report (Chapter 08) further elaborates on these aspects.

The thermal comfort of the accommodation units is largely dependent on the occupants' use of sliding screens to regulate the infiltration of sunlight during daytime.

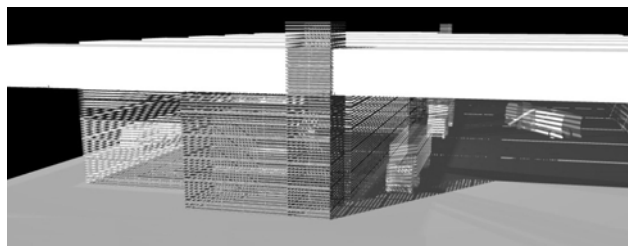
In the computer rooms it will be difficult to ensure a constant level of thermal comfort, implying a dependence on a Building Automated System (BAS) to regulate temperatures.

Views. The main aim of the positioning of the computer rooms on the southern side of the site is for it to have views out over the market and station area, enhancing its visibility among passers-by. Visibility from inside the courtyards and the office roofscape to the adjacent areas, such as the shuttle road, is also provided through the screens to eliminate any "dead walls" on these edges. The warehouse office units look into the warehouse from an elevated position. This regulates, and forms, a functional link with the activities.

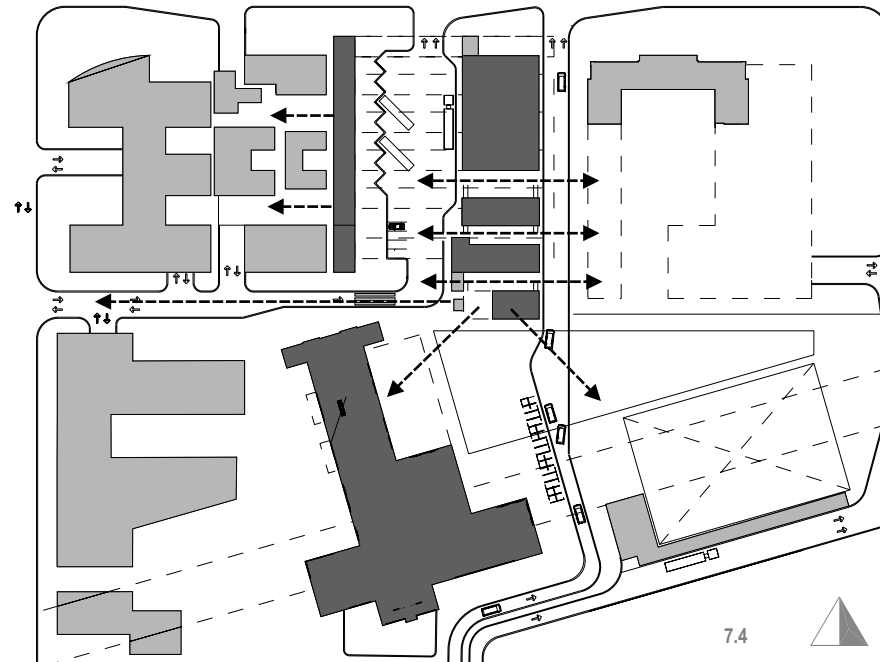


7.2

- 7.1 Perspective section through office units and the external space depicting courtyards and shadow lines to attain passive ventilation.
- 7.2 East-West orientation to maximize daylighting.
- 7.3 Nighttime filtered illumination of adjacent spaces from inside *Job Centre*.
- 7.4 Views towards adjacent facilities.



7.3



7.4

Baseline Response

Noise. The two road servitudes penetrating the site will generate a substantial amount of noise. The overnight accommodation units have been acoustically treated to limit noise levels.

The call centre will have to be treated to have acoustical performance levels suitable for its function as a telecommunication space. The call centre has been designated to the top storey of the computer room block, to ensure some distance from noisy activities on ground floor level.

The sound of water, as in the roof pond system, is also an attempt to filter the noise by substituting it with a more pleasant sound.

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Indoor / Outdoor connection . An instant indoor / outdoor connection is the result of the opening up of the workspaces through sliding door gear. This ensures a more natural environment for workers, especially since all circulation takes place outside. Relaxation spaces have been included for the main computer room areas in the form of the accessible roofscape with water ponds.

Inclusive Environments

Transport. The Gautrain development will also cater for disabled users, making the centre accessible through public transport. The service road for buses and trucks will also be accessible for private vehicles bearing the disabled sign.

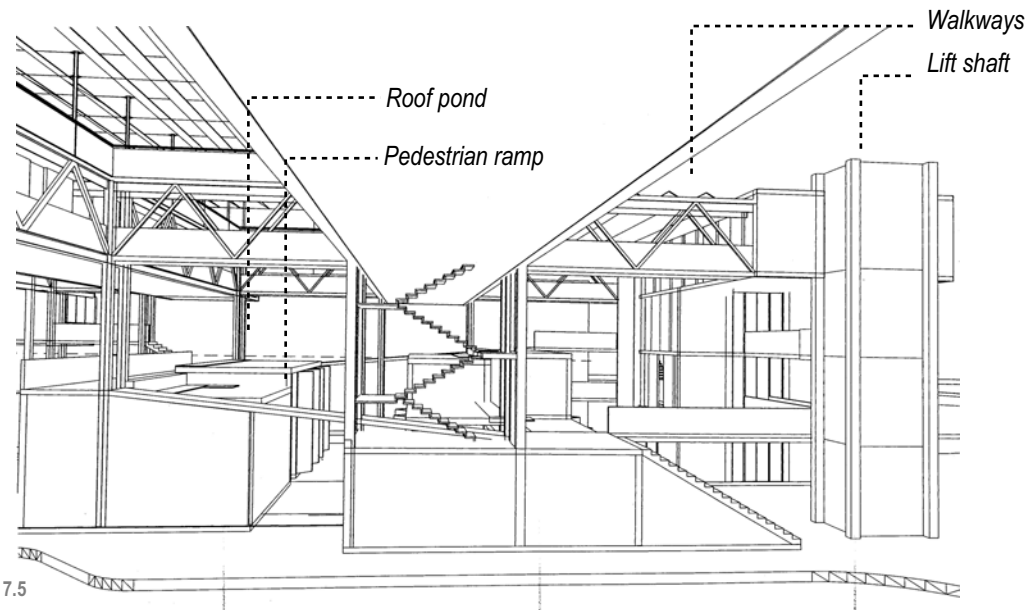
Entrance. The main entrance has been located to make it accessible from both the market and the Gautrans station. The project promotes usage and recruitment for disabled individuals. The building should appear accessible from all angles for wheelchair users and pedestrians. This was achieved by providing the lift shaft as a visual element next to the entrance.

From here wheelchair access is available to all areas of the centre, either through ramps or a lift.

Circulation. Main pedestrian access will be from the market area and the adjoining development to the south of the centre, while a secondary vertical transportation structure has been included on the northern side next to Schoeman Street.

Access to the overnight units can also be obtained from the bus terminal infrastructure. Providing the roofscape with a pedestrian ramp, linking the first and second storeys, ensured further accessibility.

7.5 Western perspective with screens taken off indicating internal circulation and the entrance.
7.6 Ablution facilities on ground floor.



Ablutions and Kitchen. Enough ablu-tion facilities are provided for workers and visitors, including disabled facilities. All these facilities are provided on the ground floor for technical reasons, and to ensure ease of use for disabled personnel.

Ablution facilities comprise:

- __Ablutions in the form of washing for workers doing shift work.
- __Communal ablutions for hostel type accommodation units.
- __Private ablutions for more private accommodation units.
- __Ablutions at the reception area.

A kitchenette has been provided on the first floor in office block 2, linked with a lounge.

__Participation and Control

Environmental control. Most of the office spaces are provided with sliding doors which can open up entirely to the outside, allowing variance and user participation and control in the operation of the passive ventilation of the spaces. The ventilation system in the larger volumes, such as the warehouse and the main computer rooms, will however be controlled by a BAS, which may be operated from a control room / switchboard.

User manual/training. The BAS will be largely computer operated, making use of advanced technologies to ensure peak performance of the HVAC and lighting system. To provide for manual input when the system might be dysfunctional, an operator will have to be trained. Alternatively, the system might be remote controlled via the internet or network. The programmer for the system will therefore have remote access to the computer system, making on-site maintenance only necessary in extreme cases.

Social spaces. One of the aims of the *Job Centre* is to create a sociable and relaxed atmosphere in which work does not become an aspect of life considered a burden, but rather be enjoyed.

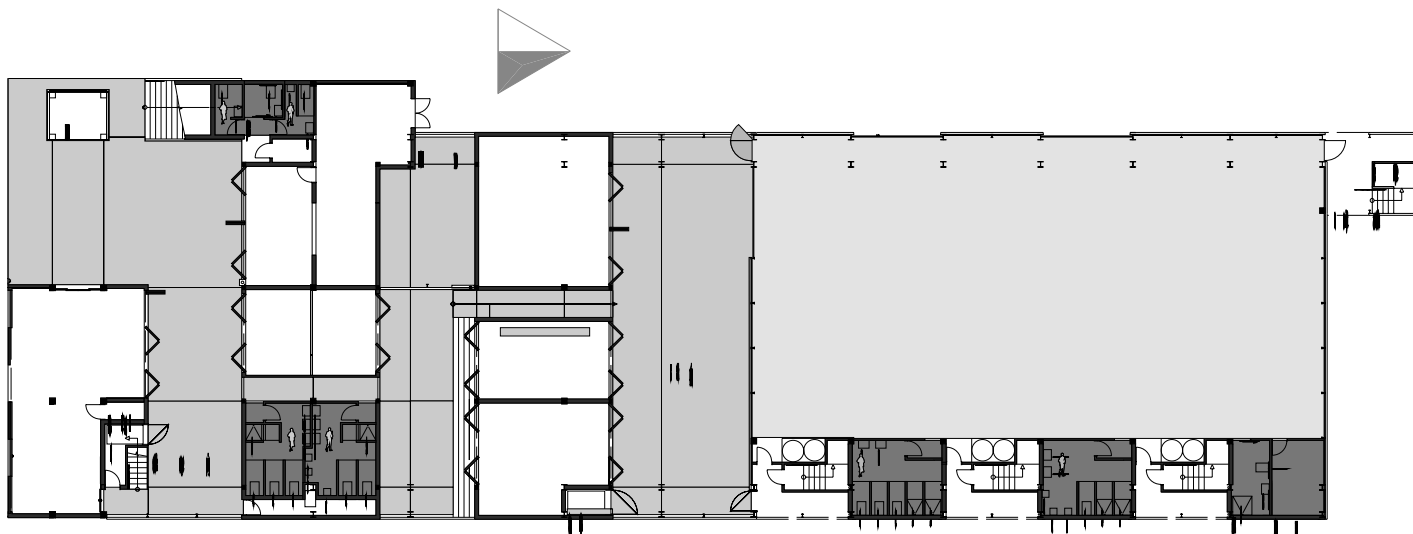
This argument, together with the interaction of different types of individuals working in different disciplines, determined the layout of the centre. The whole external volume is designed as an exterior social space, incorporating the Urban Design Concept (Chapter 05).

__Health and Safety

Safety and Security. The *Job Centre* will form an integral part of the safety and security scheme and brief for the Gautrans Station with regards to "eyes on the street" and 24 hour activity in the region. This will be achieved by means of night shift work available in the form of amongst other data entering in the main computer rooms. Some after hours shifts will be available in the form of picking and packing in the warehouse.

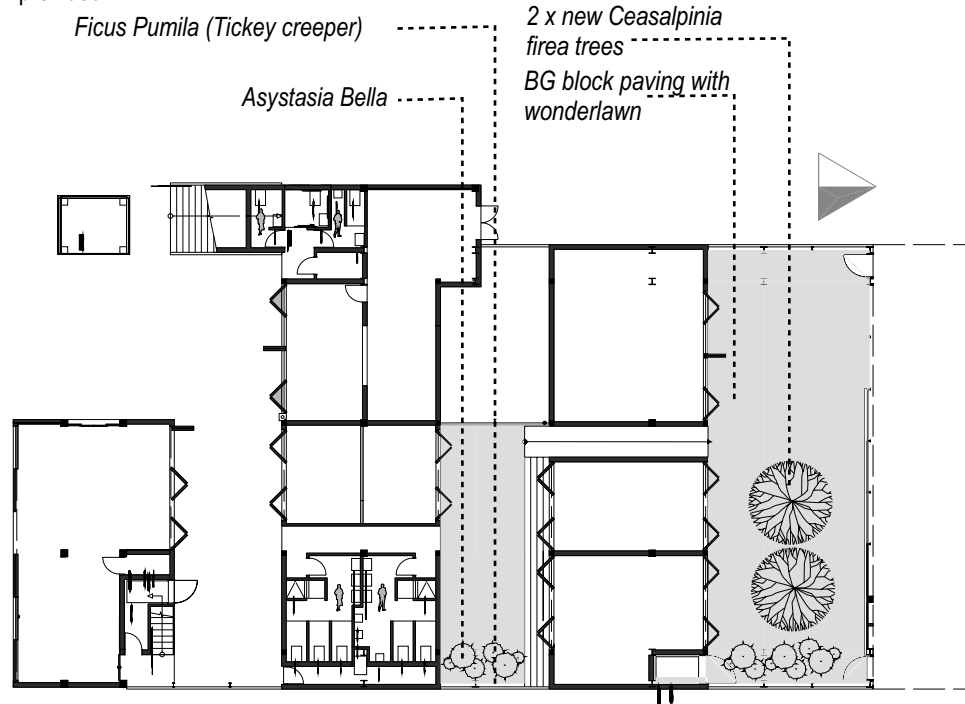
The presence of accommodation on the site will further enhance this aspect, ensuring a constant level of activity in the area. The reception and entrance area will therefore be open 24 hours a day. Illumination of certain areas will be required. Many of the spaces are semi-private due to the external nature of the circulation system. Security of private spaces will be through card-operated sliding doors.

7.6



Indoor air quality. As a result of the open character of the office spaces, indoor air quality will largely depend on the external quality of air. In an attempt to reduce pollutants in the area, planting is provided in the two northernmost courtyards in the form of shrubs and wall creepers forming an eastern border for these spaces. It will also be covered with BG –blocks with *Dichondra repens* (wonderlawn) infill. Two new *Ceasalpinia fireas* (Luipderd trees) will be introduced on the northernmost courtyard. It is a light, deciduous tree, growing well in confined spaces, and does not shed many leaves in winter.

The two road servitudes, frequented by motor vehicles at regular intervals, pose a problem as a result of the exhaust fumes. The harmful CO fumes are however denser than air, with the result that the fumes will stay on a low level, where it can be absorbed by the vegetation provided.



7.7

7.2 ECONOMICAL RESPONSE

Local Economy

Local contractors. Local contractors will be used as specified in the Project Profile (02) . Since the *Job Centre* is an initiative of the DOL, labour intensive techniques will be used to construct the centre, thereby creating even more work in the manufacturing process.

The concept behind the construction would be the manufacturing of custom made components using local building materials.

The contractors will therefore be chosen for their quality of workmanship, and understanding of building materials and its qualities. Specific training of the construction team will be required.

7.7 Planting in courtyards on groundfloor plan.

7.8 Building line recessed to respect historic building.

Repairs and maintenance. The use of low maintenance materials are maximized to ensure once-off costs won't be multiplied in the future. Concrete and bricks will form the basic building blocks for low maintenance materials. Due to the nature of the brief, labour intensive techniques often result in a high maintenance factor. This will be indicative in the use of timber, which will have to be weatherproofed at regular intervals, as well as the planting and roof ponds, requiring maintenance, creating jobs. A balance between labour intensive and low maintenance materials will be achieved.

Disruption and downtime. A backup power system in the form of a generator will be switched on as soon as a power failure is experienced. A UPS system will prevent any institutional memory loss when such a failure occurs.

Adaptability and Flexibility. The use and function of the initial spaces created in the centre are designed to be as flexible as possible to allow for future adaptability. The office blocks, warehouse, bus terminal and overnight accommodation units can therefore function separately. The offices are also robust in terms of their sizes and relation to the other spaces. The accommodation units have been designed to be adaptable to either private or hostel type housing.

Vertical Dimension. The warehouse's vertical dimensions have to allow for forklift movement and its two main entrances have sufficient height to allow the safe passing of a forklift.

M&E Services. The external channeling of services through ducts (required by exposed ceilings and floors for thermal reasons) allows for future adaptability of data technologies.

Ongoing Costs

Shared costs. A partnership will exist between the *Job Centre* and the adjacent Bus Terminal to maintain a clean and safe environment.

Cost monitoring. Costs, and the flow of information into the Job Centre will form part of a Knowledge Management System (KMS). In this way records can be kept as the centre evolves, thereby eliminating the risk of institutional memory loss.

Capital Costs

Use of Existing. The existing motor dealership's main showroom will have to be demolished to make way for the shuttle road on one side and the bus and service road on the other. The existing road infrastructure in the form of School Lane is however retained to gain access to the site.

The motor dealership showroom facades consist of lightweight aluminium structures which can be salvaged in the demolition of the building and reconstructed elsewhere. Other materials, such as paving stones which can be salvaged, will be recycled in the construction of the *Job Centre*.

Shared costs. The initiators for the project, the DOL, and the initiators for the adjacent bus terminal, the DOT, will share the initial costs of buying the site and the demolition of the existing infrastructure.

Plate Efficiency. The overhead construction covering most of the site ensures a sustainable way of building. By generating revenue from areas covered by road servitudes, which would normally have been seen as "dead spaces", the built area are will consequently be maximized.

Ratio of capital to ongoing costs. By making use of custom components, higher than normal capital costs will be expected as a result of labour intensive construction techniques. The operating and maintenance costs will be curtailed by using low maintenance materials such as concrete and face brick.

7.3 **ENVIRONMENTAL RESPONSE**

The Technical Report deals with the environmental issues in more detail.

Waste.

One of the functions of the warehouse will be to organize the storage and proper recycling of the waste generated by the adjacent HGSD. The warehouse will be the only space which could be serviced by waste removal trucks, allowing the centre to generate income from providing this service.

Site

Neighbouring buildings. The project responds to the adjacent heritage building in the form of a recess on the ground line to meet up with the north façade of this historical building.

Ecosystems. Historically, the site was part of the sports facilities for the Hatfield Primary School. The ecosystem generally constituted of grass sports fields. At present, the site is mostly covered by paved vehicle parking areas. The new development will create a more sustainable ecosystem within the centre, with considerable landscape input in the form of courtyards.

