

# BASELINE STUDY

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CRITERIA	TARGET SET	DESIGN PERFORMANCE	MEASUREMENT
<b>Social Issues</b>			
<b>1. Occupant Comfort</b>			<b>5.0</b>
<i>Lighting</i>	All work and living environments are well naturally lit. Day lighting control and glare minimised. No spaces require constant electrical lighting.	All public spaces and offices are naturally lit, although some of the service cores are reliable on artificial lighting.	1.0
<i>Ventilation</i>	Required ventilation provided by natural means. No mechanical ventilation used in building other than in toilets and kitchens.	All spaces are naturally ventilated, mechanical ventilation only used at central toilets.	1.0
<i>Noise</i>	Noise levels limited in work and living environments are to acceptable levels.	The campus is a pedestrian friendly environment with limited vehicular traffic. No noise, except for the usual building work in this up and coming area.	1.0
<i>Views</i>	All living and work areas have access to a view out. All users located in 6m or less from a window.	The building is designed for maximum views and natural sunlight.	1.0
<i>Access to green outside</i>	Access to green outside spaces.	Green space all over campus.	1.0
<b>2. Inclusive Environments</b>			<b>5.0</b>
<i>Public Transport</i>	Building is located within 100m to disabled accessible public transport.	Bus and taxi stops on campus periphery.	1.0
<i>Routes</i>	All routes between and within buildings are of a smooth and even surface.	The different levels are all wheelchair friendly.	1.0
<i>Changes in level</i>	No changes in level between or within buildings or, all changes in level catered for with appropriate ramps of 1:12 fall, or lifts.	Sufficient ramps and lifts are provided as required.	1.0
<i>Edges</i>	All edges are clearly distinguished through the use of contrasting colour.	Edges are treated in appropriate way.	1.0
<i>Toilets</i>	Required number of toilets for the disabled is provided.	Toilet for the disabled are provided.	1.0

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Figure 210: Japanese girl.

<b>3. Access to Facilities</b>			<b>5.0</b>
<i>Childcare</i>	Childcare is provided in building or within 3km.	Hatfield, Hillcrest and the university have childcare facilities.	1.0
<i>Banking</i>	Banking services are provided in building or within 3km.	Hatfield and new proposed student centre holds banking services especially for students.	1.0
<i>Retail</i>	Groceries or items required on a daily basis are available in the building or within 3km.	Hatfield and new proposed Student Centre have ample retail stores to choose from.	1.0
<i>Communication</i>	Postal, telephone or email facilities are provided in the building or within 3km.	Hatfield and new proposed student centre are catering for students who need these facilities frequently.	1.0
<i>Residential</i>	Home, for occupants of the building is within 12km.	UP residences and private lodgings are available in Brooklyn, Hatfield, Sunnyside and Arcadia.	1.0
<b>4. Participation &amp; Control</b>			<b>5.0</b>
<i>Environmental control</i>	Users of buildings have reasonable control over their environmental conditions.	Office and retail spaces have openable windows.	1.0
<i>User adaptation</i>	Furniture and fittings designed or specified to allow for arrangement by user. Provision are made for personalisation of spaces if desired.	Offices are designed for user adaptation.	1.0
<i>Social spaces</i>	Designed for easy informal/formal social interaction.	Office areas have tea rooms for staff, outside seating areas for students.	1.0
<i>Amenity</i>	Provide easy access to refreshment facilities and WCs for all users of the building.	These facilities are readily available for users.	1.0
<i>Community involvement</i>	Spaces or services shared or made available to local community.	The exercise studio is available for any student gathering and for public use if organised with building management.	1.0
<b>5. Education, Health and Safety</b>			<b>5.0</b>
<i>Education</i>	Access to support for learning provided.	The study area is on the campus of the University of Pretoria.	1.0

<i>Security</i>	Measures taken to ensure that areas of the buildings and routes to and from the building are safe and feel safe.	All walkways are overlooked by the offices and retail spaces. Movement routes within the building are visible from the outside.	1.0
<i>Health</i>	First aid kit provided in a central location. Information readily available on health, education and career development issues.	A Health building is proposed to be added on the university campus.	1.0
<i>Smoking</i>	No smoking in public spaces.	No smoking is allowed in public spaces by law.	1.0
<i>Safety</i>	Building complies with all health and safety requirements.	Fire regulations and provision for the disabled are part of the design requirements.	1.0

### **Economic Issues**

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#### **6. Local Economy** **0.0**

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<i>Local contractors</i>	80% of the construction has been carried out by contractors based within 40km of the building/refurbishment.	N.A.	0.0
<i>Local building material supply</i>	80% of construction materials; cement, sand, bricks etc produced within 200km of site.	N.A.	0.0
<i>Local component manufacturer</i>	80% of building components produced within 200km.	N.A.	0.0
<i>Outsource opportunities</i>	Opportunities created and provided for small emerging businesses.	N.A.	0.0
<i>Repairs and maintenance</i>	All repairs and maintenance required by the building can be carried out by contractors within 200km of site.	N.A.	0.0

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#### **7. Efficiency of Use** **2.0**

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<i>Useable space</i>	Non useable space such as plant, WCs and circulation does not make up more than 20% of total area.	Services are designed to the minimum.	1.0
<i>Occupancy</i>	Building and all working/living spaces are occupied for an average equivalent minimum of 30 hours per week.	The building would be in use for more than 40 hours per week.	1.0

<i>Space use</i>	Use of space intensified through space management approach and policy such as shared work spaces.	N.A.	0.0
<i>Use of technology</i>	Communication and information technologies used to reduce space requirements.	N.A.	0.0
<i>Space management</i>	Policy to ensure that space is well used.	N.A.	0.0
<b>8. Adaptability and Flexibility</b>			<b>3.0</b>
<i>Vertical dimension</i>	Structural dimension minimum of 3m	The minimum floor to underside of slab dimension is 3060mm.	1.0
<i>Internal partitions</i>	Internal partitions between living/work spaces are non-load bearing and can be 'knocked out' relatively easily.	The building has a concrete structure and all brickwork can be knocked out.	1.0
<i>Services</i>	Easy access provided electrical and communication services and HVAC in each useable space.	Easy access to all services available.	1.0
<b>9. Ongoing Costs</b>			<b>4.0</b>
<i>Maintenance</i>	Specification and material specification for low maintenance and/or low cost maintenance.	The building operates mainly through passive systems, therefor minimum maintenance is needed.	1.0
<i>Cleaning</i>	Measures taken to limit requirement for cleaning.	Floor finishes are limited to hard wood planks, epoxy finish and tiles. The offices have carpet as floor finish. Windows easily accessible.	1.0
<i>Security / care taking</i>	Measures taken to limit the requirement and costs of security.	The campus has 24 hour private security.	1.0
<i>Insurance / water / energy / sewerage</i>	Costs of insurance, water, energy and sewerage monitored.	N.A.	0.0
<i>Disruption and 'downtime'</i>	Electrical and communication services, HVAC and plant located where they can be easily accessed with a minimum of disruption to occupants of building.	All services are easily accessible. No air conditioning.	1.0

<u>10. Capital Costs</u>			<b>0.5</b>
<i>Consultant fees</i>	Consultant fees not just calculated on total project cost basis. Incentives provided to consultants to reduce capital cost and ongoing costs.	N.A.	0.0
<i>Build-ability</i>	Building designed to be easily and cheaply built. Building form simple. Replication of elements and components.	The structure and infill of the building have a simple form. The curved roof might be more complicated to build.	0.5
<i>Construction</i>	Construction approach designed to reduce initial capital cost of building. Building undertaken in a series of phases. Building built as shell first with finishes to be added later.	N.A.	0.0
<i>Shared costs</i>	Cost of building shared with other users.	N.A.	0.0
<i>Sharing arrangements</i>	Size and quantity of buildings reduced through arrangements to use existing spaces and buildings.	N.A.	0.0
<b>Environmental Issues</b>			
<u>11. Water</u>			<b>3.0</b>
<i>Rainwater</i>	Rainwater is harvested, stored and used.	This is a major feature of the design.	1.0
<i>Water use</i>	Water efficient devices.	N.A.	0.0
<i>Grey water</i>	Grey water recycled.	N.A.	0.0
<i>Runoff</i>	Run off reduced by using pervious or absorbent surfaces. Hard landscaping minimised, previous surfaces specified for car parking and paths.	Green spaces have been designed to the maximum, with minimum hard surfaces.	1.0
<i>Planting</i>	Plants has low water requirement.	The various gardens hold succulents and plant species indigenous to South Africa.	1.0
<u>12. Energy</u>			<b>4.0</b>

<i>Location</i>	Building located within 400m of public transport.	Public transport is available on the campus periphery.	1.0
<i>Ventilation System</i>	Passive ventilation system.	All spaces have cross ventilation.	1.0
<i>Heating and Cooling System</i>	Passive environmental control system use.	Evaporative cooling is part of the design.	1.0
<i>Appliances and Fittings</i>	Energy efficient fittings and devices specified. 80% of light fittings are fluorescent/low energy consumption.	N.A.	0.0
<i>Renewable Energy</i>	Building uses electricity generated from renewable sources.	Possibility for sun solar panels on curved roofs.	1.0
<b>13. Recycling and Reuse</b>			<b>2.0</b>
<i>Toxic waste</i>	Arrangements made for the safe disposal / recycling of toxic/harmful substances.	N.A.	0.0
<i>Inorganic waste</i>	Arrangements for sorting, storage and pick up of recyclable waste.	To be arranged by tenants.	0.5
<i>Organic waste</i>	Recycled on site i.e. compost.	To be arranged by tenants.	0.5
<i>Sewerage</i>	Contribution to main sewerage from toilet minimised through use of compost toilets, and other 'local' systems.	N.A.	0.0
<i>Construction waste</i>	Construction waste minimised through careful management of construction practices.	All dimensions to brick sizes to minimise waste.	1.0
<b>14. Site</b>			<b>4.5</b>
<i>Brownfield site</i>	Building constructed on a site previously built on.	The building is erected on an existing car park.	1.0
<i>Neighbouring buildings</i>	Building does not have a harmful effect on neighbouring buildings.	Special care has been taken not to overshadow the surrounding old buildings.	1.0
<i>Vegetation</i>	Site has extensive vegetation. Opportunities have been taken to plant in car parking areas and in and around buildings.	Vegetation is a main feature of the design.	1.0
<i>Habitat</i>	Site has provided habitats for animals.	Due to the high pedestrian number, it would be unlikely that animals would live on the site.	0.0

<i>Landscape inputs</i>	Landscape does not require heavy artificial input.	Plants include succulents and other indigenous plants.	0.5
<b>15. Materials and Components</b>			<b>1.0</b>
<i>Embodied energy</i>	80% of the building materials and components made from materials and components with low embodied energy.	Local timber and bricks are used, as well as concrete. Steel would be the only material with a higher embodied energy.	1.0
<i>Material / component sources</i>	90% of materials and resources from renewable resources.	N.A.	0.0
<i>Manufacturing processes</i>	Environmental damage limited during product component development. No green house gases released, no pollution caused.	N.A.	0.0
<i>Recycled / reused materials and components</i>	10% of building materials and components are reused or from recycled sources.	N.A.	0.0
<i>Construction processes</i>	Building and construction process designed to minimally impact the environment. Requirement for large scale vegetation clearing and earth movement minimised.	N.A.	0.0



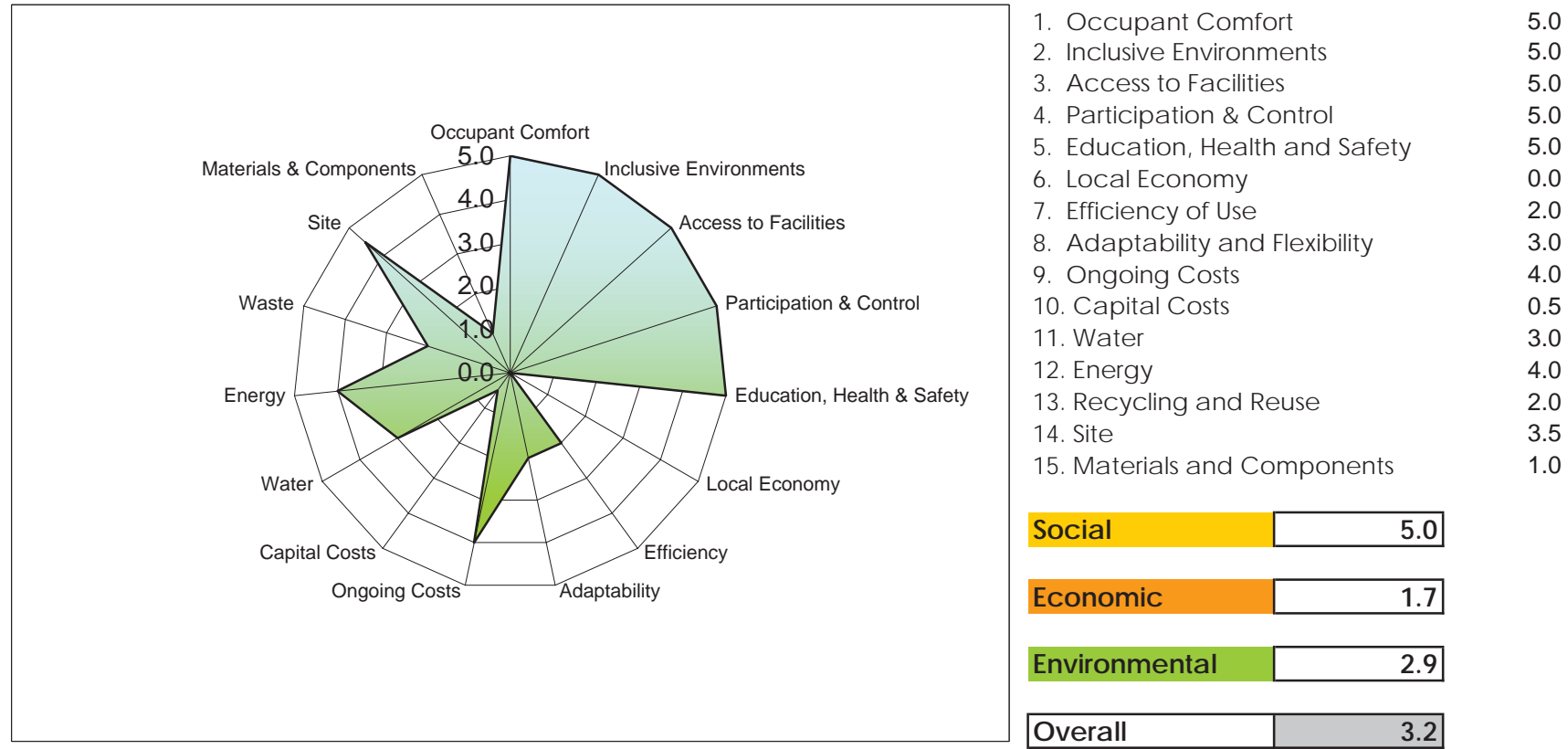


Figure 211

## Conclusion

The Sustainable Building Assessment Tool (SBAT) is specifically designed for buildings, such as schools, offices and residential buildings that have just been completed. If used in other stages, some of the criteria might not be relevant, as noted in this instance. Therefore the economical and some of the environmental aspects of this tool have shown to perform unsatisfactory. (Gibbert, J. 2004 CSIR)



# CONCLUSION

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**Figure 212:** Bohemian girl



Figure 213: Vegetables in the city.

There has always been an intricate relationship between man and architecture. This design has attempted to establish a renewed awareness of place, through identity and orientation. The intervention acts as a secondary boundary through which a student has to go, before reaching his primary destination. In other words a student has to clear his mind, body and soul from obstacles, before being able to continue with his responsibilities.

Architecture is the physical manifestation of how people perceive their environment. It is the duty of architects to influence the views of people regarding architecture to create a healthy, positive environment.