



Addendum 1 Baseline Criteria

Introduction

Non-renewable resources are being depleted and there is increasing environmental damage as a result of human activities. Therefore, sustainability becomes a vital issue in the way we live and work. Buildings can play an important role in supporting sustainability. This can be achieved by careful considerations in planning, design decisions, material specifications etc. are carefully evaluated in terms of their long term impact on the economic, social and environmental sustainability of a society and the natural environment (Gibbert, 2003 : 1). The baseline study is a target setting design guideline that has been considered prior to the conceptualizing of the project. In this chapter these targets will be discussed and the performance of each of these targets measured by making use of the Sustainable Building Assessment Tool (SBAT).



Figure 9.1

Social Issues

1) Occupant comfort

Target Set

All the interior spaces should well lit with natural light, ventilated, noise should be minimised, all spaces should have exterior views within six meters and there should be enough access to green outside space(Gibbert 2003 : 4).

Design Performance

The levels above the ground are very transparent and receive an abundance of natural light, controlled with louvers. As a result of the nature of the dark exhibition space emulating the cosmos, the lower sections receive less natural light, there are however access to outside space from this area.

The site is off the street and away from noise. The majority of staff workspace has external views.

rating: 4.5

2) Inclusive environments

Target Set

The building should be located less than 100m from disabled accessible public transport. All spaces in the building should be accessible by wheelchair, thus make use of appropriate ramps other technologies. Comprehensive information should be provided; toilets should be easily accessible within every 50m. Furniture and fittings should be easily accessible (Gibbert 2003 : 4).

Design Performance

The site is within 100m from the new proposed tram stop and

bus stop being proposed by the framework. The entire building is accessible by wheelchair. All toilets, furniture and fittings are easily accessible.

rating: 4.6

3) Access to facilities

Target Set

Childcare should be provided or be within 3km. Banking, retail and communication facilities should be nearby (within 3km). Homes for staff or alternatively public transport facilities should be within nearby(Gibbert 2003 : 5).

Design Performance

As the facility is located on the northern edge of the CBD banking, retail and communication facilities are within walking distance. Public transport facilities are also within walking distance

rating: 4

4) Participation and control

Target Set

Furniture and fittings should be adjustable by the user; this includes lighting and environmental fittings. There should be social spaces and easy access to refreshments. Spaces should be able to be shared (Gibbert 2003 : 5).

Design Performance

The furniture and fittings are adjustable throughout the staff spaces and where applicable in the visitor spaces. Within the admin section and the production section there are social spaces and kitchenettes. As the facility has a very specific function, most of the spaces cannot be shared. The auditorium however has a projection store that allows this space to be used alternatively.

rating: 3.6

5) Education, health and safety

Target Set

Access to support for learning should be provided. Measures should be taken to ensure that areas of the buildings and routes to and from the building are safe. The materials should have no negative effect on the indoor air quality (Gibbert 2003 : 6).

Design Performance

As the facility is off the street and part of the new upgraded zoo forecourt development, all the edges of the building and routes to and from the building are more transparent and will be visually supervised, creating a safe child friendly environment. None of the materials are hazardous and the conventions applied in the design complies with all the health and safety regulations applicable.

rating: 4.6

1) Local Economy

Target Set

The construction should be carried out by local contractors, 80% the construction should be

carried out locally and the materials, furniture and fitting should be sourced locally. Opportunities should be created for small businesses and maintenance should be carried out by local contractors (Gibbert 2003: 8).

Design Performance

The construction of the entire facility is designed to be easily constructed locally, instead of using the more popular geodesic dome system, the sphere has been designed to consist of a series of circular trusses that can be manufactured locally. The only fitting that will have to be sourced internationally is the star projector. All the materials used and all maintenance contractors can be sourced locally.

rating: 4.6

2) Efficiency of Use

Target Set

Minimise non-usable space. Building should be occupied toward all potential hours the building could be used. Building must be accessible to telephones and internet.

Building design should be

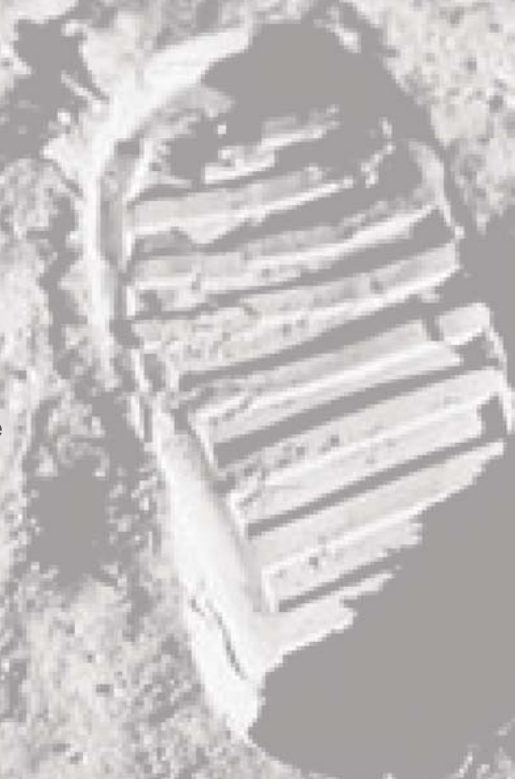


Figure 9.2

coordinated with material and component sizes in order to minimise wastage (Gibbert 2003 : 8).

Design Performance

The building and its nature as a public facility, therefore the public exhibition are designed larger that is specified by building regulations. All of the other areas, however minimises non usable space. The building, operating by day and night, will be used towards its full potential. With the exception of the sphere, the building's components and materials are coordinated to minimise wastage.

rating: 3.6

3) Adaptability and Flexibility

Target Set

The vertical dimensions of rooms should be a minimum of 3m. External space should be

accessible electrical and communication equipment should be installed for servicing (Gibbert 2003 : 9).

Design Performance

The vertical dimensions of 90% of the rooms exceed 3m. As the facility has a very specific function, the majority of spaces cannot be easily adapted. The auditorium however, has a projection store that allows this space to be used alternatively.

rating: 1.6

4) Ongoing costs

Target Set

Building must be able to be cleaned and maintained easily. New staff members must receive training on the building system. Water and energy must have easy metering systems. Materials used in the building on a daily and maintenance contractors basis must be sourced locally (Gibbert 2003 : 9).

Design Performance

The design allows for easy and accessible maintenance and cleaning. All materials used in the building on a daily and maintenance contractors can be sourced locally, such as that of telescopes and digital equipment. Projection material can be sourced through digital technologies.

rating: 3.9

5) Capital costs

Target Set

Ensure involvement from small local contractors. Make use of existing buildings. Allocate costs to sustainable technology and cost not more that 15% above national average cost for the building type (Gibbert 2003 : 10).

Design Performance

As the building is centrally located local contractors can be



used. The structure of the sphere is also deliberately designed to be easily constructed and assembled. The average building cost is not exceeded by more than 15%.

rating: 4.6

Environmental Issues

1) Water

Target Set

Rainwater should be harvested, stored and used. Use water efficient devices. Runoff should be reduced by absorbent surfaces and plants with low water requirement should be used (Gibbert 2003 : 11).

Design Performance

Rainwater is harvested from the sunken courtyard. Absorbent surfaces are used on the upper courtyards and no grass or other landscaping that requires a lot of water is used.

rating: 3.6

2) Energy

Target Set

The building should be at least 400m from public transport. Passive ventilation and environmental control system should be used. Energy efficient devices and fittings should be used. Renewable energy should be used (Gibbert 2003 : 11).

Design Performance

The building is within 100m of public transport. Appliances / lighting fixtures that are classed as highly energy efficient are used.

rating: 2.6

3) Recycling/Re-use

Target Set

Toxic, inorganic and organic waste should be recycled. Sewerage and construction waste should be recycled on site (Gibbert 2003 : 12).

All waste will be recycled either on the property of the Zoo or elsewhere.

rating: 2.3

4) Site

Target Set

The building must not have a harmful effect on neighbouring buildings. Site should have extension vegetation. Vegetation must provide habitat for animals

and must not require heavy artificial input (Gibbert 2003 : 12).

Design Performance

The building has no harmful effect on the Museum. A portion of this site has already been disturbed by zoo excavations. The site will have a fair amount of vegetation that will provide habitat for zoo birds and insects. The landscape has no lawns or other landscaping that requires mechanical maintenance.

rating: 2.1

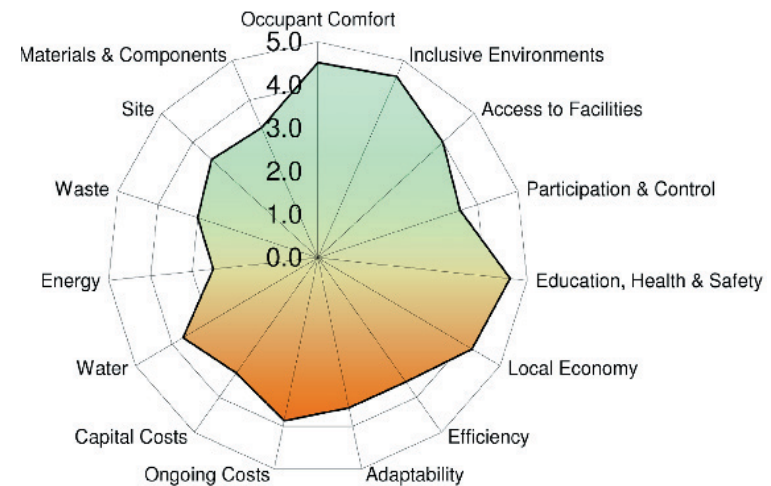


Figure 9.3 Indication of performance of design in terms of sustainability

5) *Materials and Components*

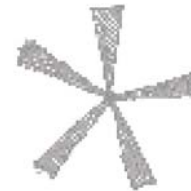
Target Set

Use a minimum amount of materials with high embodied energy. Do not use any material or components that require ozone depleting processes. Maximise amount of materials or components that are recycled sources. Minimise the volume / area of the site to be disturbed. (Gibbert 2003 : 13).

Design Performance

The majority of material used in the design has a low embodied energy, such as concrete and bricks. Materials such as aluminium on the other hand, are minimised and purely used in the public areas for aesthetic reasons.

rating: 2.6



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