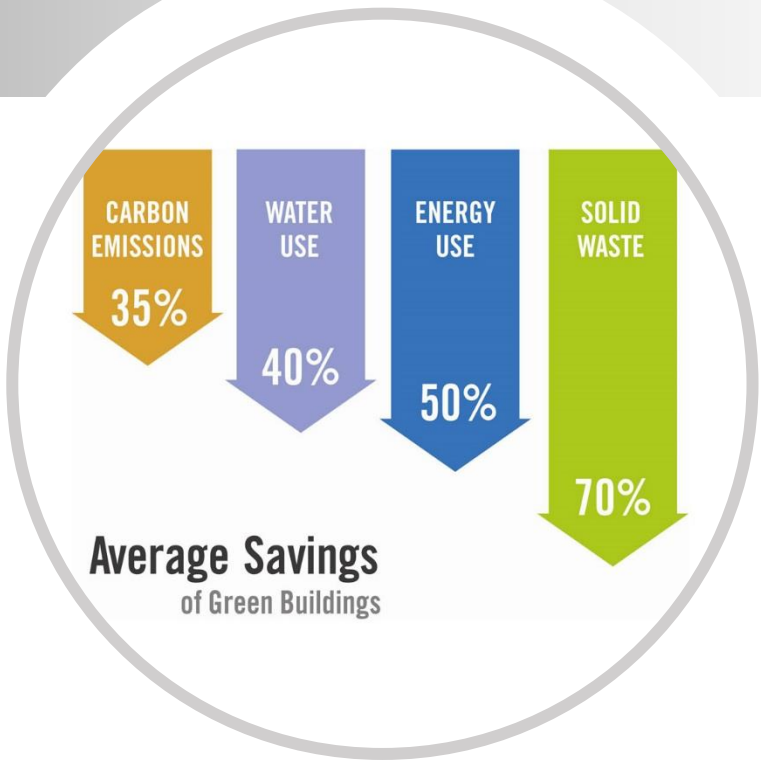

TECHNICAL NOTE #09

Green Building Credits in the context of clay brick masonry walling

This document summarises the Green Building Council of South Africa's Green Star rating system in the context of clay brick masonry.

It identifies the relevant credits made available in three categories of building, based on GBCSA assessment tools and technical manuals.

TECHNICAL CONTRIBUTORS

Technical Committee
Clay Brick Association of SA

THE VOICE OF THE CLAY BRICK INDUSTRY
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EXECUTIVE SUMMARY

Green Star SA is a rating system used to assess the design and construction of various building types, from an environmental and human health perspective, and is developed by the Green Building Council of South Africa.

The Green Star SA Rating System includes the following tools:

- Green Star SA - Office v1 & v1.1
- Green Star SA - Retail Centre v1
- Green Star SA – Multi-Unit Residential
- Green Star SA – Public & Education Building v1[#1]
- Green Star SA – Existing Building Performance [#2]

Each Green Star SA rating tool reflects a different market sector including office, retail, multi-unit residential, public and education buildings, as well as others that are in development like interiors and existing buildings performance.

GBCSA operates under license to the Australian Green Building Council. However, all categories and credits in the rating tools are researched, reviewed and written in a South African context by a technical working group of local industry experts.

GREEN STAR SA RATING SYSTEMS

Green Star SA rates buildings and does not certify individual products or technologies. The system is performance standards-based, and points are awarded on design measures and the performance standards thresholds met, as opposed to prescribed design solutions. It is therefore up to the design team to develop the best strategies for the building based on the particular site conditions, building orientation, local climate and occupancy. Thus, trade-off decisions between materials are required to be made.

By creating demand for green products, such resources become available for all other buildings to use, whether pursuing Green Star SA certification, or not. For example, Green Star SA creates demand for low-mass bricks (perforated), which require less energy to produce and less fuel to transport to site, as a result generating less harmful gasses into the atmosphere.

Over time, the entire property industry will become more environmentally conscious and move towards a lower energy usage. It is expected that as regulations close in on Green Star SA standards, the ratings tools will raise the benchmark so as to continually maintain a leadership position.

[1] Not reviewed in this report
[2] Not reviewed in this report

REGULATIONS AND STANDARDS

The GBCSA will develop rating tools for additional building types over the next few years, including Public Buildings (2012) and Commercial Interiors. The GBCSA is also creating and updating an energy and water benchmarking tool for the operational performance of existing buildings which acts as a plug-in to the Existing Building Tool.

Tool development is managed by the GBCSA. Each tool is appointed a voluntary Technical Working Group of South African industry experts, who provide the core information for all of the credits, and evaluate the appropriateness of the specific building type addressed by the tool. The GBCSA's rating tools can be downloaded from www.gbcsa.org.za.

GREEN STAR SA TECHNICAL MANUALS

Technical manuals have been developed for each rating tool. These manuals provide detailed information on all credits, including a list of documentation that must be submitted for each credit required for formal certification.

These manuals are available for purchase via the GBCSA website, and are also included in the package for the Green Star SA Accredited Professional course. An Errata sheet for each Technical Manual is also available on the GBCSA website, www.gbcsa.org.za.

POINTS SYSTEM IN SA GREEN STAR SYSTEM

The points allocated to each building tool contribute towards the total number of points for that tool. The weighting of each is a fraction of the total number of point expressed as a percentage that indicates the relevant Star Rating:

- Four Star 45 - 59%
- Five Star 60 - 74%
- Six Star 75 - 100%

The Green Star SA Rating System allows for additional points to be added, should masonry construction be used in the following tools. See Annexures for detail.

- Green Star SA - Office v1
- Green Star SA - Retail Centre v1
- Green Star SA - Multi Unit Residential

For further information:
The Clay Brick Association of South Africa
Website: www.claybrick.org

Green Star SA - Office V1 2008 Additional Points for Making use of Masonry Construction			
Points Category	**Description**	**Points**	**Explanation**
MAN7	Reuse of On-site Material 30%	1, 2 or 3	An additional point is added for each percentage value achieved for the three threshold levels of 30% / 50%/ 70% of reuse by mass
IEQ9	Thermal Comfort	2	An additional point is available if either 80% or 90% of persons are comfortable or satisfied per a comfort modelling for an artificially ventilated environment, or there is a predicted mean vote score of either 1.0 or 0.5
IEQ12	Internal Noise Levels	2	Two points are available if use is made of masonry walling as a noise control feature, plus other noise attenuation features, per expert evaluation
IEQ13	VOC Levels	1	If 95% of walls are face brick, a single point is achieved for reduced VOCs
IEQ14	Formaldehyde Minimisation	-	If no wood is used then this point is not available and therefore the total is reduced, and under which circumstances masonry contributes
ENE1	Greenhouse Gas Reduction	20	Masonry walling may contribute to achieving SANS 204 compliance via the CR-value
MAT2	Building Reuse	5 1, 2 or 3	Two points are available if 50% of a façade is reused. Progressively 1, 2 or 3 points are available if 30%, 60% or 90% of a structure is retained
MAT3	Reused Materials	1	A point is scored if 1% of the contract value is by way of materials saved from other sites
MAT10	Dematerialisation	1	A Technical Clarification may be needed to take advantage of this point if masonry is reduced in mass by virtue of a percentage of hollow core.
MAT11	Local Sourcing	2	A single point is available if 20% of all materials are sourced from within 400km. A further point is scored if 10% of materials are from within 50km

Green Star SA - Retail V1 2008 Additional Points for Making use of Masonry Construction			
Points Category	**Description**	**Points**	**Explanation**
MAN7	Reuse of On-site Material 30%	1, 2 or 3	An additional point is added for each percentage value achieved for the three threshold levels of 30% / 50% / 70% of reuse by mass
IEQ9	Thermal Comfort	2	An additional point is available if either 80% or 90% of persons are comfortable or satisfied per a comfort modelling for an artificially ventilated environment, or there is a predicted mean vote score of either 1.0 or 0.5
IEQ12	Internal Noise Levels	2	Two points are available if use is made of masonry walling as a noise control feature, plus other noise attenuation features, per expert evaluation
IEQ13	VOC Levels	1 of 2	If 95% of walls are face brick, a single point is achieved for reduced VOCs
IEQ14	Formaldehyde Minimisation	-	If no wood is used then this point is not available and therefore the total is reduced, and under which circumstances masonry contributes
ENE1	Greenhouse Gas Reduction	20	Masonry walling may contribute to achieving SANS 204 compliance via the CR-Value
MAT2	Building Reuse	5 1, 2 or 3	Two points are available if 50% of a façade is reused. Progressively 1, 2 or 3 points are available if 30%, 60% or 90% of a structure is retained.
MAT3	Reused Materials	1 2	A point is scored if 1% of the contract value is by way of materials saved from other sites
MAT10	Dematerialisation	1	A Technical Clarification may be needed to take advantage of this point if masonry is reduced in mass by virtue of a percentage of hollow core.
MAT11	Local Sourcing	2	A single point is available if 20% of all materials are sourced from within 400km. A further point is scored if 10% of materials are from within 50km

Residential Multi Unit Additional Points for Making use of Masonry Construction			
Points Category	**Description**	**Points**	**Explanation**
MAN7	Reuse of On-site Material 30%	1, 2 or 3	An additional point is added for each percentage value achieved for the three threshold levels of 30% / 50% / 70% of reuse by mass.
IEQ9	Thermal Comfort	2	If the building is naturally ventilated and the Deemed-to-satisfy compliance method shows that effective ventilation is demonstrated and the walls may contribute in three of the parts to this compliance tool: ENE1-Part A-Insulation and ENE1-Part B-Thermal Mass and ENE1-Part - Solar Heat Gain.
IEQ12	Internal Noise Levels	2	Two points are available if use is made of masonry walling as a noise control feature, plus other noise attenuation features, per expert evaluation
IEQ13	VOC Levels	1 of 2	If 95% of walls are face brick, a single point is achieved for reduced VOCs
IEQ14	Formaldehyde Minimisation	-	If no wood is used then this point is not available and therefore the total is reduced, under which circumstances masonry contributes
ENE1	Greenhouse Gas Reduction	10	Masonry walling may contribute to achieving SANS 204 compliance via the CR-Value
MAT2	Building Reuse	5 1, 2 or 3	Two points are available if 50% of a façade is reused. Progressively 1, 2 or 3 points are available if 30%, 60% or 90% of a structure is retained.
MAT3	Reused Materials	0	A point is scored if 1% of the contract value is by way of materials saved from other sites
MAT10	Dematerialisation	2	A Technical Clarification may be needed to take advantage of this point if masonry is reduced in mass by virtue of a percentage of hollow core.
MAT11	Local Sourcing	2	A single point is available if 20% of all materials are sourced from within 400km. A further point is scored if 10% of materials are from within a 50km radius.
MAT13	Perforated Clay Brick		One point is available for Clay Brick with at least 20% perforation to 50% of all masonry. A second point is available for Clay Brick with 20% perforation to 80% of all masonry.