

<b>Policy Title</b>	UCT Minimum Green Building Construction Standard
<b>Objective</b>	This policy states the requirements for meeting minimum green building standards for construction and refurbishment of buildings and civil / landscaping projects at UCT
<b>Scope</b>	This policy addresses the requirements for greening of all new buildings constructed at UCT as well as all refurbishments of buildings at UCT, as well as civil engineering/landscaping projects. There are different standards, as noted in the policy, that apply to different sizes of construction projects. Maintenance/operations of existing buildings is not covered within this policy, and will be covered by future additional policies – standard operating procedures exist in some instances where relevant.
<b>Applicable To</b>	New buildings constructed at UCT and refurbishments of existing buildings at UCT. It would also apply to external works projects, such as parking, paving, other civil works and landscaping projects at UCT, typically managed through UCT’s Properties & Services Department.

#### **Additional Information**

1. This policy is an update, clarification and formalisation of a policy decision made by Council in the June 2012 Council meeting, where it was “resolved to adopt the Green Star SA rating system and to build all new buildings to a minimum 4-star rating”.
2. This policy may need to be reviewed when GBCSA updates their version of the Green Star and Net Zero standards relevant to this policy.
3. This policy cannot be applied retrospectively to projects that have already appointed a main contractor by the time the policy is approved, as this will typically cause unplanned budget overruns, unless approved through normal projects processes and any additional budget required is allocated.
4. This policy directly support UCT’s [Vision 2030](#), of which sustainability is a key pillar, as well as UCT’s [Environmental Sustainability Strategy](#), including the goal of becoming a Net Zero Energy/Carbon and Water Campus by 2050 or sooner.

## Policy

### **Mandatory policy for all construction projects:**

1. All new buildings constructed at UCT or major refurbishments, where the construction value\* exceeds R 20 million (whether owned or leased-to-own by UCT) must achieve a minimum 4 Star Green Star SA Design rating from the [Green Building Council South Africa \(GBCSA\)](#) (if the project meets the GBCSA's eligibility criteria for certification) with the following design components for energy and water preferably achieved:
  - a. For construction start dates in 2023-2025 (3 years), energy and water consumption must preferably be at least 30% more efficient than the South African minimum (2022 SANS 10400 XA for energy) or current industry norms (water)
  - b. For construction start dates in 2026-2028 (3 years), energy and water consumption must preferably be at least 50% more efficient than the South African minimum (2022 SANS 10400 XA for energy) or current industry norms (water)  
*(These additional energy and water criteria are not hard and fast policy, but a guideline for projects, because project have unique constraints and these criteria will not always be possible to achieve.)*
2. All new buildings constructed or major refurbishments and civil works/landscaping where the construction value\* is less than R20 million (whether owned or leased-to-own by UCT), must meet UCT's green building standard for small projects (Appendix A).

*\*Construction value here excludes professional fees but includes VAT*

### **Selective policy for high visibility\* projects:**

3. High visibility\* new construction and refurbishment projects above R 20 million in construction value should also consider targeting a Net Zero Carbon (Level 1) and Net Zero Water (Level 1) certification from the GBCSA (if the project meets the GBCSA's eligibility criteria for certification). For a highly sensitive ecological site, a Net Zero Ecology or Net Positive Ecology certification should be considered. For all of these the user departments will need to provide the funding to cover the cost of the Net Zero certifications (consisting of the Net Zero consultant's fees and GBCSA certification fee).
4. High visibility\* new construction and refurbishment projects that are less than R 20 million in construction value should consider targeting a minimum 4 Star Green Star New buildings or 4 Star Interiors rating (whichever is determined to be more suitable by the professional team and if the project meets the GBCSA's eligibility criteria for certification). In this case the user departments will need to provide the funding to

cover the cost of the Green Star certification (consisting of the Green Star consultant's fees and GBCSA certification fee).

*\*High visibility projects refer to a projects/user departments that are or will often be profiled in the public domain, or where the user departments have a very close affinity to environmental sustainability in terms of the work they do, or where the site is particularly sensitive in terms of environmental sustainability. In this case, there must be agreement between the ED P&S and the relevant Dean/s that the project is a high visibility project according to this definition and the relevant user departments will provide the additional funding for the Green Star or Net Zero certifications as stated above, or alternatively funding has been sourced elsewhere and agreed between the ED P&S and the relevant Dean/s of the user departments.*

## Implementation Responsibility

The primary responsible party for implementing this policy is the UCT Properties & Services (P&S) Department: any persons involved in planning, specifying, designing, budgeting or managing construction projects (new or refurbishments) in P&S – the P&S project managers are the final implementing custodians to ensure this happens on their projects. The UB&DC (with its various sub-committees) play a governance oversight role in terms of this policy, but in terms of detailed project tracking of complying with this policy this would be done via the Project Management Committee (PMC) reporting into UB&DC – an ongoing summary project register showing all projects with their compliance to this policy must be monitored by the PMC. The Director for Environmental Sustainability is to provide strategic oversight during the implementation and provide technical advice to P&S during implementation of the policy.

## Contact

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<b>Policy category</b>	General
<b>Policy owner</b>	Chief Operating Officer (and Director: Environmental Sustainability)
<b>Responsible for update</b>	Director: Environmental Sustainability
<b>Original policy</b>	June 2012 (original policy approved by Council, only in the form of a Council minute)
<b>This review</b>	March 2023
<b>Approval</b>	UB&DC February 2023, Council June 2023
<b>Next review proposed</b>	2026



## Appendix 1:

### Context for the Policy: UCT’s Minimum Green Building Construction Standard

prepared by UCT’s Director: Environmental Sustainability (OVC), Manfred Braune (PrEng)

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#### 1. Introduction

In 2012 UCT’s Council approved a proposal that all buildings constructed at UCT must be built to a minimum 4-star Green Star standard for green buildings from the Green Building Council South Africa (GBCSA). This decision took the form of a minute in the Council meeting. There was no subsequent policy document that was prepared and published at the time, and so it was left to the Council minute to document the decision.

Having gone through a few years of applying this decision, with a number of buildings constructed to the Green Star standard, the university now has some experience in applying this standard and better understanding the implications of doing so (4 buildings at UCT have attained a 4-star Green Star certification, one is currently in the process of targeting a 6-star rating, namely the d-school). Based on the experience gained, it has become apparent that there is a need for a somewhat more specific policy that should be openly published and available to all staff and the public, to clarify some uncertainties and build on the existing policy decision from 2022.

#### 2. Cost and Return on Investment (ROI) of Green Buildings

Many people have a sense that certified green buildings cost significantly more to construct than a standard building. The GBCSA, through an extensive analysis<sup>1</sup> of Green Star certified projects, has demonstrated that the “green premium” is typically between roughly 1-12% depending on various factors on the project, especially how early on the project commits to using the Green Star standard.



Certification level – Green cost premium (%)	MIN	AVERAGE	MAX
<b>TOTAL</b>	<b>1,1%</b>	<b>3,9%</b>	<b>14,2%</b>
4 STAR	1,1%	3,9%	14,2%
5 STAR	1,8%	3,5%	11,7%
6 STAR	8,6%	10,2%	11,7%

UCT has found the same, and in fact UCT has found that its green premium has been lower than the industry norm in South Africa, as illustrated in the table below.

#### Green Premium on UCT projects

(measured by the project quantity surveyor and independently audited by the GBCSA):

<u>Avenue Road Residence (4 Star):</u>	<u>1,25%</u>
<u>School of Education (4 Star):</u>	<u>1,41%</u>
<u>d-school (targeting 6 Star):</u>	<u>2.25%</u>
<u>South African average</u>	<u>3,9%</u>

<sup>1</sup> Most recent analysis by GBCSA/ASAQS on green premium is available [here](#) and previous analysis [here](#)

Bearing this in mind, one must also consider the cost savings that are going to come from these green buildings that will consume less energy and water, thus having a better return on investment than non-green buildings.

The analysis on ROI from the GBCSA (done in collaboration with the MCSI) shows that certified Green Star buildings specifically have a greater ROI than non-certified buildings. UCT's Green Star buildings are demonstrating this, where this is illustrated as a simple pay back calculation for two of the projects:

Avenue Road Residence:

- Additional capital cost of R 2.5 million to target Green Star rating (1.25% green premium)
- 54% more energy efficient than SA's minimum standard
- R 1 million expected annual electricity cost saving as a result
- 2.5-year payback of additional capital (does not include water savings expected)

d-school:

- Additional capital cost of R 4.4 million to target Green Star rating (2.25% green premium)
- 85% more energy efficient than SA's minimum standard
- R 0.75 million expected annual electricity cost saving as a result
- 6-year payback of additional capital (does not include water savings expected)

### 3. The Value of Certification

One could say "why not just build the green building and avoid spending the additional money on certification?" - the answer lies in the fact that the certification process offers several very real benefits to UCT, as highlighted below:

- The certification process allows for an independent third-party form of assurance / verification of a project's green building credentials – one doesn't just take the project team's word, but there is an independent assessor who audits the project documentation to confirm the green building standard has been met. The independent assessor is anonymous to the project, and therefore cannot be influenced in any way by the project team or client.
- The green building standard is developed to align with international best practice for green buildings
- The university can use the fact that its buildings achieve a green building rating as a marketing opportunity – especially to attract students and staff, who have a growing desire for sustainability and a green campus.
- The Green Star standard is developed and maintained by a highly credible organisation: GBCSA is an independent non-profit industry body, set-up in 2007 to establish an industry standard for green buildings. It is part of a global network of green building councils (GBCs) that are members of the World Green Building Council. These GBCs typically collaborate and share knowledge to generally align green building standards globally but allow them to be locally relevant through the local GBC's adaptation of these standards. This global network provides excellent credibility to the local Green Star standard used, as well as the certification process that one must go through with the GBCSA to prove that the standard has been met.
- The certification process forces the project team to work in a more integrated way, which is essential to design and build more efficient and green buildings and ensures that there is a project team member on board to specifically coordinate these efforts (the Green Star Accredited Professional).

- Because of the audit process involved, the documentation on such projects has to be thorough and well structured, which is of great benefit to the university to have a full set of good quality documentation in one file location at the end of a project. This is often not the case on non-Green Star projects.

#### **4. Why Target the “Design” Rating and not the “As Built” Rating**

The GBCSA offers two kinds of Green Star certification for new buildings / major refurbishments, namely a “Design” rating and an “As Built” rating, which are separate independent certifications using the same standard, both using the construction documentation of a project to verify that the standard has been met. UCT has decided early on to target only the Design rating and not the As Built rating for the following reasons, which still makes sense to follow suit going forward:

- The Design Rating ensures that all specifications and designs are developed and included early on in construction documentation because they are required in the tender documentation – for an As Built rating the documents are only required at the end of the project which means that project teams don’t prioritise the correct documentation up front, which creates a huge risk that the Green Star certification might actually not be met because designs and documentation was not put in place at a time where it can give the correct direction to all parties involved.
- The Design rating uses construction documentation that is used when projects are given their instructions on what to build, whereas As Built documentation is typically the same documentation confirming what was finally built. There is sometimes a fear that As Built documentation is very different to Design documentation, but in UCT’s experience very little changes after the Design documentation has been issued to contractors for pricing and construction, because otherwise there are too many budget variations which UCT typically cannot afford. This has been checked on UCT projects, where the experience is that there is very little change to construction drawings (and budget) once contractors are appointed, meaning that the Design documentation is very close if not the same as As Built documentation. (This may be different for other types of clients but is the reality for UCT where the construction budget does not change much at all once a contractor is appointed).
- Targeting both the Design and As Built rating would double the GBCSA certification fee and the Green Star consultant fee – there is not sufficient additional value added by also targeting the As Built rating, which is money that could rather be spent on the building itself or on other UCT priorities.
- If UCT ever wanted to in future consider an additional Green Star certification layer after construction, it could consider the Green Star Existing Building Performance rating which certifies the building during operation, evaluating the actual 12-month performance of the building during operation. UCT currently does not have funding and capacity for this, but this is something to consider in future, rather than say targeting an As Built rating.

#### **5. The need to establish a cost threshold for when Green Star should be applied**

Previously there was no threshold as to what scale of construction project the Council decision would apply to. This has meant that the Council decision has largely been interpreted as only new buildings needing to be certified, and not necessarily some of the large refurbishment projects which may also have the potential for significant impact (such as for example the recent Chris Hani building refurbishment). The proposed policy provides the guideline that projects of R 20 million and above (which would be considered a large/significant project within the Properties & Services context),

whether new building or refurbishment, must target the 4-star Green Star certification, if eligible according to Green Star requirements. Certain projects might not be eligible to be certified even if they are larger than R 20 million, especially where they are spread across multiple buildings or not easily identifiable as a “distinct building” that is built or refurbished.

#### **6. The need to establish some aspirational targets and additional reference documents**

It is important to not only have a minimum standard for all construction projects but to also set some aspirational targets for some of the more visible or high-profile projects. These projects would also offer the university experience of what is to come in the near future in terms more stringent regulations, while also working towards UCT’s Vision 2030 goals of becoming a Net Zero Carbon, Energy, Water and Waste-to-Landfill campus by 2050 or sooner. In this regard, certain energy and water targets are also set for projects, but these are flexible due to each project’s unique site and budget constraints. Current examples of aspirational standards being targeted are: the d-school targeting a 6-star rating; the HW Pearson 5<sup>th</sup> floor post fire re-construction (likely below R20 million) that is targeting a Green Star Interiors rating, which will be a first for UCT and any university on the continent; the Nelson Mandela School of Governance, which is proposed on a very sensitive site and is proposed to target a Green Star certification, Net Zero Carbon/Energy/Water and a Net Positive Ecology certification. Where these aspirational certifications are proposed, any additional funding that might be required to achieve these must be agreed between the Dean/HOD and the Executive Director for Properties & Services, to ensure there is funding available to do so.

The policy also refers to more detailed specifications that will apply to non-Green Star projects – these appendices and references are lengthy and contain lots of details that may go through minor revisions year on year, which is why they do not specifically form part of the actual policy, allowing UCT to apply the policy without needing to come back to Council and UB&DC every time some of the detailed green building specifications go through minor changes.

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