Press release from Jan de Beer, cell 082 456 3677:

The Ultimate Challenge For A Quantity Surveyor: Building Almost Entirely With Scrap Materials

For many centuries, quantity surveyors were regarded as financial managers for conventional building projects. But the 'green revolution' has changed all that. Nowadays, a quantity surveyor has to be able to control costs for the most unusual type of structure - even one built almost entirely with scrap materials.

This has, in fact, been the highly unusual challenge for De Leeuw Namibia, a subsidiary of South Africa's renowned quantity surveyors, the De Leeuw Group, a long-standing member firm of the SA Association of Quantity Surveyors (ASAQS).

Chris de Wet, Chairman of the De Leeuw Group and former director of ASAQS, says the De Leeuw Group has in the past 58 years been involved in a wide variety of building projects ranging from elaborate and towering skyscrapers, multi-billion rand civil engineering contracts, to relatvely out-of-ordinary assignments like ship conversion or the building of a rose farm. For most of these projects, the quantity surveyor's tried and trusted Bills of Quantities formula applied. But now, in a new era, there are immense sustainability challenges to his profession that excite the veteran Quantity Surveyor.

De Wet explains: "'Green building' challenges the norm as never before, and calls for unique thinking from the entire project team - from the client all the way to the contractor. The quantity surveyor plays a leading and vital role in estimating the costs and managing financial control until completion of a project. So, when faced with a green project like no other, even the most experienced QS is literally thrown in the deep end with no previous records from which costing models could be drawn. Indeed, past experience was no guideline when my colleagues in Windhoek were appointed as quantity surveyors for the construction of a building that can best be described as a monument to alternative and cost-effective methods of building. It was a project that pushed the skills of the quantity surveyor to the limit," de Wet comments.

Designed by acclaimed sustainability architect, Nina Maritz, of Nina Maritz Architects in Windhoek, De Leeuw Namibia had to manage the total financial process applicable to the building of the new Habitat Resource & Development Centre on behalf of the Namibian Ministry of Regional & Local Government, Housing and Rural Development. "This project employed virtually revolutionary alternative building techniques that showed that not all man-made structures have to have an adverse impact on the environment, while emphatically endorsing the merits of recycling. It posed the kind of challenge a quantity surveyor seldom has to face: adherence to design while working with reclaimed material that had been destined for landfills or, in some cases, even physically retrieved from scrap heaps," de Wet recalls.

Comprising offices, a library, conversance centre, workshops and ablutions, the 2 110 square metgres structure in Katutura, on the outskirts of the Namibian capital, is used to advise and train the public on how to start small-scale businesses in the housing market.

Herman Martins, director of De Leeuw Namibia, says some of the innovative - and totally unexpected - materials required by the Nina Maritz design of this landmark structure included the use of:

1. Old motor vehicle tyres for both interior and exterior walls, retaining walls, roads, and flower beds.

2. Pre-owned hardware door and, window frames, ironmongery, and scrap sheeting for a variety of applications, including discarded fridge racks that form part of a decorative security gate, and steel sheeting that was used as the backing of fluorescent light fittings.

3. Bags filled with wool and lavender, stitched together to form an innovative wool and reed ceiling.

4. Bricks made from natural soil and as little cement as possible to reduce the overall embodied energy of the structure and its cost.

5. Recycled oil drums and dried branches of the Namibian prosopsis tree to make the roof of the Centre's refuse yards.

6. Sandbags used for wall building material - with viewing 'windows' to show the visitor the somewhat startling, but effective, contents, of the walls.

7. Gabion walls, made from concrete test cubes, concrete rubble and stone.

8. Droppers made from prosopsis tree trunks soaked in motor oil as protective coating instead of the more ecologically hazardous alternatives for wood protection.

9. Old beverage cans to build single-skin walls.

10. Recycled ceramic tiles applied as ablution décor , motor car oil filters and old printing plates used as lamp shades, and discarded CDs employed as part of novel lighting chandeliers.

Martins adds: "What is more, architect Nina Maritz came up with innovative ways to improve the building’s energy efficiency. All of its energy needs are supplied from a roof-top solar system. Her novel design to reduce the building’s total draw on energy furthermore includes a passive down-draft system that cools the conversance facility and library, while natural light and cross ventilation further reduce the structure’s electrical demand."

He says one of the challenges of the project De Leeuw Namibia faced was getting the professional team and the builders to break the norm, and think beyond construction conventions. Some of the challenges that had to be overcome included:

* An unusually high number of design changes caused by the fact that scrap dealers tend to sell to the first potential buyer so a lot of the windows and door frames originally selected for the building had been sold to a third party by the time a contractor was appointed;

* Estimating the cost of the building materials was extremely difficult. "We had to resort to informal discussions with contractors and our 'gut feeling' of how much some of the materials would cost," Martins recalls;

* The government tender insisted on transparency so the awarding of tenders could not be based on selection nor negotiations;

* De Leeuw Namibia had to undertake weekly site visits to assess the unpredictable waste factor of some materials, and to establish if some of the waste could be re-used to minimise the financial impact of the waste volumes; and

* The concept of 'actual-cost-plus-profit' had to be employed for items like old wheelbarrows which were cut in half, flattened and welded together to form screens.

Martins and his colleagues also organised a special workshop for tenderers who were in contention to handle the project to provide and share as much information as possible between the various parties so that an acceptable Bill of Quantities could be drawn up.

Other key members of the professional team for this landmark project were Burman & Partner, the civil and structural engineers; G.S. Fainsinger & Associates, the electrical and mechanical engineers; and Groenewald Properties, the main contractors.

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Caption for Images 040:

The Namibian Habitat Resource & Development Centre with its tyre retaining walls, rooftop solar installation and downdraft ventilation system.

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Caption for images 061 & 038:

Walls and retaining walls were built with old motor car tyres.

Ends

Caption for image 050:

Old beverage cans were used to build attractive single-skin perimeter walls.

Ends

Caption for image 006:

Painted Hydroform bricks reduced the need for cement, lowered the embodied energy of the building and its development costs.

Ends

Caption for image 56:

Metal sheets from old oil drums and dried tree branches were used as roofing materials.

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Issued for ASAQS, Midrand / Further info: Larry Feinberg, tel 011 315 4140 / www.asaqs.co.za