

Implementing a Rooftop Garden on the Prestwich Memorial Building



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A Vision for Rooftop Gardening



This proposal seeks funding to turn the Prestwich Memorial rooftop into a pilot garden as part of a larger rooftop gardening programme. The mission of this programme is to develop a job creation network of rooftop gardens producing oyster mushrooms and micro greens, such as alfalfa sprouts, mung bean sprouts, brussel sprout micro greens, baby spinach sprouts, and baby butter lettuce sprouts, within the Central Business District of Cape Town. The City's Office of Sustainable Livelihoods will appoint an NGO to bring this programme to life. The city will be responsible for overseeing and administering the programme and the NGO will be responsible for managing the construction, production, and the training of the gardeners.

Rooftop gardens convert unutilised space into areas suitable for food production within the city. With careful management to assure quality control and reliable distribution of the produce, such gardens can create jobs for the unemployed

while stimulating the economy and promoting environmentally friendly practices. This partnership intends to create 1000 m² of rooftop gardens in the CBD within 2 years after funding is acquired. We believe this programme has huge potential in Cape Town; within the Central Business District alone, there is 162 000 m² of flat rooftop space allowing the programme ample opportunity to expand.

The Prestwich Memorial rooftop garden is an instrumental step in reaching this vision. In order to get more accurate cost and revenue projections and establish appropriate training methods, the programme will construct a pilot garden on the Prestwich Memorial building. The use of this space has already been approved, designs for the space have been drafted, and construction will begin as soon as funding is acquired. For this space, we would employ two gardeners and one supervisor along with the appointed NGO.



A Vision for the Prestwich Memorial Rooftop

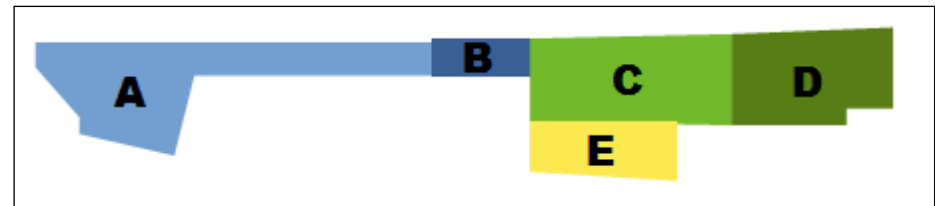
We are looking for funding to construct a rooftop garden on the

Prestwich Memorial building at 1 Somerset Road, Green Point 8005. This garden is to be used as a pilot to test various growing methods and techniques and to more accurately estimate costs and revenue projections for the rooftop gardening programme.

During the 1700s and 1800s much of the area that now makes up Green Point and the Waterfront was used as burial grounds. Slaves and other members of the colonial underclass were buried in unmarked graves outside of formal cemeteries. While developing this land in 2003, thousands of human remains were discovered. It was decided that Prestwich Memorial would be constructed to house and commemorate the exhumed remains. There are two ossuaries in the memorial building housing approximately 2 500 human remains. The construction of the

space is very symbolic; from inside the ossuaries, looking up at the skylights mimics looking up out of a coffin.

The Prestwich Memorial building was originally designed to have a rooftop garden on it; it is waterproofed, has both water and electrical access, and is structurally able to support a rooftop garden. Gardens are approved uses of memorial space. This rooftop will include a production space, a washing and packaging station, and an inoculation area. If the building owner is willing to provide the funding for a memorial space that will also be included.



Layout of the Prestwich Memorial rooftop

Staffing

Service Provider

The Office of Sustainable Livelihoods has been part of the planning and decision making regarding the beginning stages of this programme and will oversee the continuation of this programme. The management will be taken on by an NGO as a service provider.

The NGO will be responsible for coordinating all aspects of the programme and transferring all skills and knowledge to the supervisor. They must oversee all worker selection, planning, construction, and training needs of each garden for at least the first six months. They will also be responsible for any liability issues. All normal legal requirements apply to this programme; the NGO must take out liability insurance to cover any issues that may arise.



Supervisor

A supervisor will be selected to monitor the Prestwich Memorial rooftop garden. During the first six months, the service provider will be transferring all managing skills to the supervisor to ensure that they can adequately oversee the programme without assistance. The supervisor will monitor the gardens, make sure the gardeners are producing at an acceptable level, market the programme, and keep the records.

The supervisor will demonstrate strong leadership skills and have an educational background with expertise in gardening, business, and marketing. To further their garden management skills, the supervisor will be enrolled in a workshop addressing these skills.



Gardener

Two unemployed persons will be chosen to tend the Prestwich Memorial rooftop garden. The persons selected will have gardening experience and the entrepreneurial drive to make garden successful. The team will look into workers that have experience in other governmental work programmes and demonstrated a good work ethic and dependability. The service provider will select the gardeners through a formal application and interview process.

Since the rooftop gardens will not be growing a wide range of produce, intensive gardening training will not be necessary. The NGO and supervisor must be familiar with growing oyster mushrooms and micro greens, so they can provide all educational and training needs. The NGO will be responsible for conducting hands on training for three weeks during which the gardeners will be tending the gardens with supervision.

The gardeners will be responsible for preparing the substrate, prepping the soil, planting, tending, harvesting, washing and packaging the vegetables, and distributing. The daily tasks are dependent on the plant cycle and will vary. Since plants need to be cared for daily, the garden must be visited every day. The nature of this job prevents it from having set hours, but the gardeners will work about eight hours per day. The vegetables will be distributed by the gardeners.

Production Space (Sections C and D: 179.0 m²)

Sections C and D have been deemed suitable for production. The micro greens will be grown in plastic crates and flat trays, while the oyster mushrooms will be produced in growing bags in a large cabinet suitable for year round production. The medium for the mushrooms is a mixture of substrate and coffee grounds. The inoculation of substrate will occur on section E. A garden tool box, a washing station, and a packaging station will be included in the production space D.

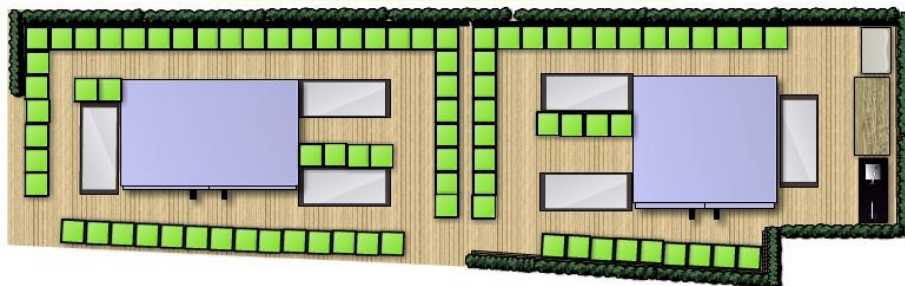
Area C



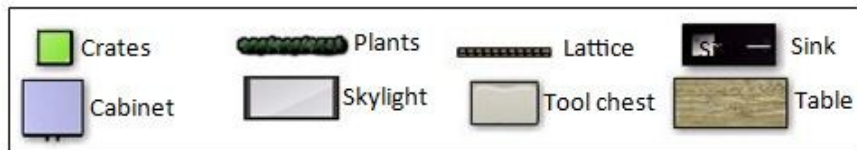
Area D



Aerial view of the production space



Key



Total Cost for Area C&D

Cost Factors	Price (Rand)
Garden Construction and Tools	112 354
Oyster Mushroom Production Area	39 060
Micro Green Production Area	0
Services	102 250
Annual Recurring Costs (For 2 Years)	68 800
Total	322 455

Cost Breakdown for Production Space (Section C and D)

Garden Construction and Tools

Cost Factors	Price (Rand)
Decking	89 500
Steel Spiral Stairs (1.1m)-2pcs	9 735
Packaging Table	1 000
Lattice	4 900
Bolts and Fixings	3 000
Hose and Spray nozzle	100
Tool Box & Tools	1 200
Baboon Grapes	2 910
Total	112 345

Services

Cost Factors	Price (Rand)
Labour for Construction	87 000
Training (Landscape Installation and Management)	10 000
Gardeners 3 Month Stipend (2)	3 000
Supervisor 3 Month Stipend	2 250
Total	102 250

Oyster Mushroom Production Area

Cost Factors	Price (Rand)
Waterproof Plywood (1.2mx2.4mx18mm) (38)	10 640
Wood Frame (50mmx76mmx3.6m) (60)	4 800
Fibre-coat (424 L)	12 000
Polyethylene Sheets	2 100
Silicone Caulk(2)	60
Screws & Nuts (M6x40 25pc) (20 pc)	400
Door Track and Wheels (2)	380
Insulation Foam for Door (2)	60
SolaHEAT Solar Water Heater	5 000
500 Gallon Plastic Drum	1 020
Wall Insulation (14.8m ²)	2 600
Total	39 060

Micro Green Production Area

Cost Factors	Price (Rand)
Soil	Donated
Crates	Donated
Total	0

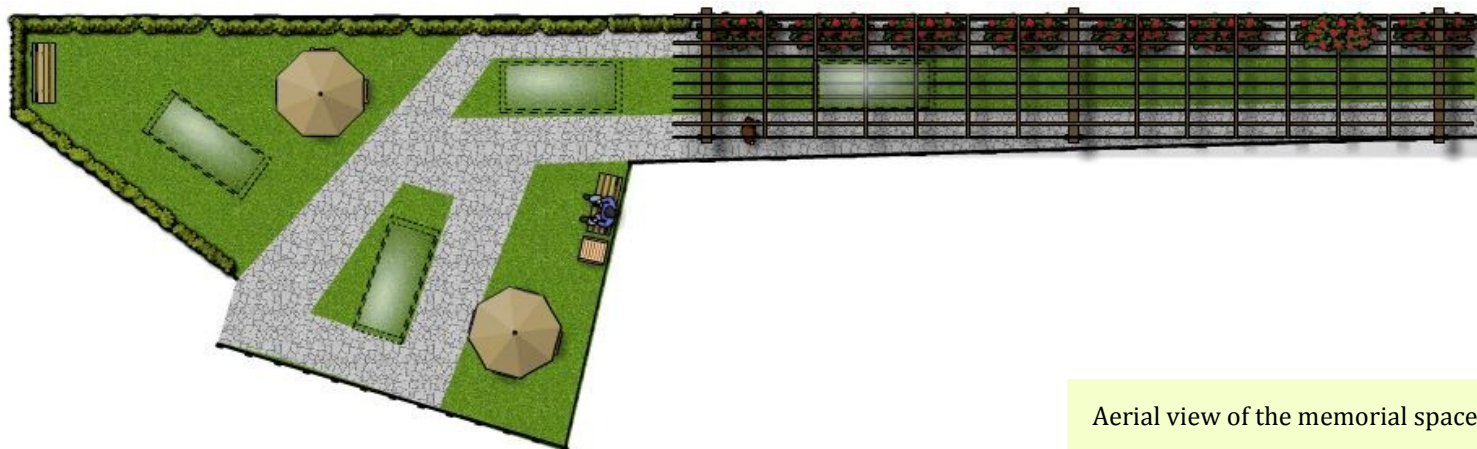
Annual Recurring Costs

Cost Factors	Price (Rand)
Maintenance	6 500
Brussel Sprout Seeds	3 700
Alfalfa Sprout Seeds	400
Lettuce Seeds	4 000
Spinach Seeds	4 000
Mung Bean Seeds	3 600
Oyster Mushroom Spores	1 700
Cleaning Supplies	200
Straw	200
Coffee Grounds	0
Mushroom Growing Bags	1 100
Water	9 000
Total	34 400
Total For 2 Years	68 800

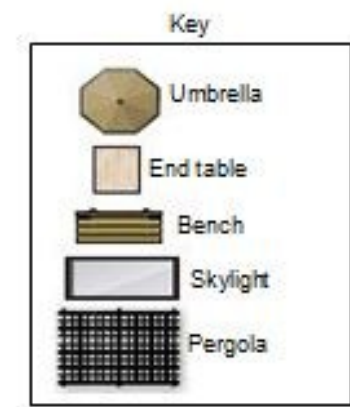
Memorial Garden (Section A and B: 117.2m²)



The building manager asked that the programme team include a memorial section in the rooftop garden design consistent with what the building represents. The team decided that this section of the rooftop should include beautiful flowers and plants as well as benches and umbrellas. This area will be a place of relaxation that is also respectful of the memorial. The team would like the furniture to have historical information linking to the memorial to educate the public on what the building represents. This section of the design must be funded by the building owner and will cost approximately R284 013.



Aerial view of the memorial space



Three dimensional view of the memorial space



Three dimensional view of the pathway from the production space to the memorial space

Cost Breakdown for Memorial Garden (Section A & B)

Cost Factor	Rooftop Space Projection (Rand)
Decking	178 880
Bolts & fixings	40 133
Memorial Space Decoration	65 000
Total	284 013

*The building owner must provide funding for the memorial space

Structural Designs

The main structural designs that need to be considered are stairs and walls. Currently, there is no way to access the rooftop space. Ideally, stairs would be constructed. If the rooftop is constructed for just a production space, one set of stairs will be constructed leading up to section D. If the memorial space is also created, two sets of stairs will be constructed; one set will lead to the memorial space and one will lead to the production area. This will allow the gardeners to have a direct route to their work space and allow the public to have a direct route to the relaxation space.

The building manager has requested that no walls or other large, distracting figures are constructed. He would like people to be able to recognize the space as a rooftop garden from ground level. For safety reasons, walls are necessary. To fit in with the requests, we are proposing to use lattices with climbing plants.



Revenue

The revenue chart below highlights the revenue generated by various types of micro greens and oyster mushrooms. The chart is generated by multiplying the estimated production yield by the wholesale price of each product. The estimated revenue R555 876. We realize that the garden will not produce on this scale and have therefore multiplied this estimate by 25% to get a more realistic revenue. This calculation gave us an estimation of R138 969.

In order for the programme to become self-sustaining, it must generate revenue for workers' and supervisors' income and the annual recurring cost of the programme. Given these values, the programme can cover its expenses and have reserve for future expansion. These values are only estimations and will be validated through the pilot rooftop garden research.

Returns on Investment	Soil Available for Growth (m ²)	Production Limitations (kg/yr)	Price per (Rand/kg)	Total Revenue (Rand/yr)	25% Revenue (Rand/yr)
Oyster Mushrooms	22	4 430	60	265 815	66 454
Alfalfa Sprouts	13	1 014	65	65 900	16 475
Mung Bean Sprouts	13	1 014	60	60 831	15 208
Brussel Sprout Micro Greens	13	1 014	29	28 996	7 249
Baby Butter Lettuce Sprouts	13	1 014	85	86 177	21 544
Baby Spinach Sprouts	13	1 014	48	48 158	12 039
Total Revenue				555 876	138 969



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The rooftop gardening idea is property of
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