AGRICULTURAL RESEARCH COUNCIL
NATURAL RESOURCES AND ENGINEERING
(Agricultural Engineering Campus)

Private Bag X519, Silverton, 0127

CLIENT REPORT: TENDER SPECIFICATIONS

ARC-TSC PEQ Laboratory renovation

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November 2022

AE Project No: **Pilot report**	

Table of contents

1. Background

ARC TSC (Tropical and Sub tropical Crops) need to convert an existing building into a Laboratory and upgrade 3 Glasshouse structures that need to comply with current Building regulations. All structures must be insect proof to mitigate the risk of insect pests entering the facilities. A maximum opening size of 0.36 mm^2 is allowed.

The renovations include Building of PEQ facility and Glasshouse 8 renovations

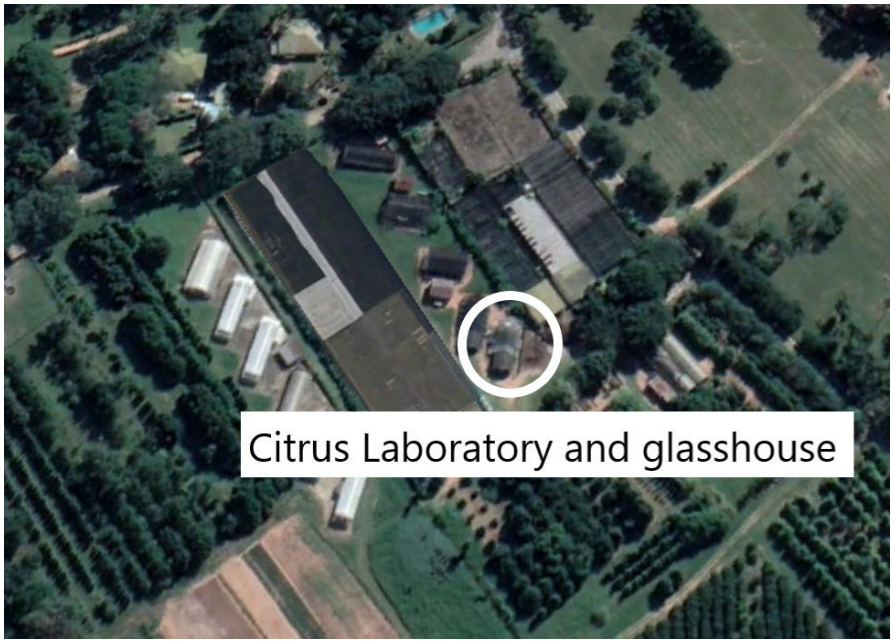
2. Locations

The glasshouses are located in the Agricultural Research Council, institutes of Tropical and Sub tropical crops (ARC-TSC) at Mpumalanga province, Nelspruit. The GPS coordinates are: -25.453699° S 30.969313° E.

2.1 GPS information

- GPS coordinates: -25.453699° 30.969313°

2.2 Map of site



3. Price breakdown

The ARC has a limited budget and thus the tenderer must give a price breakdown as shown in Table 1. The ARC has the right to choose only certain aspects of the quotation as set out in Table 1. One contractor will do all the selected work. The remaining work will go on a new tender process in the next financial year.

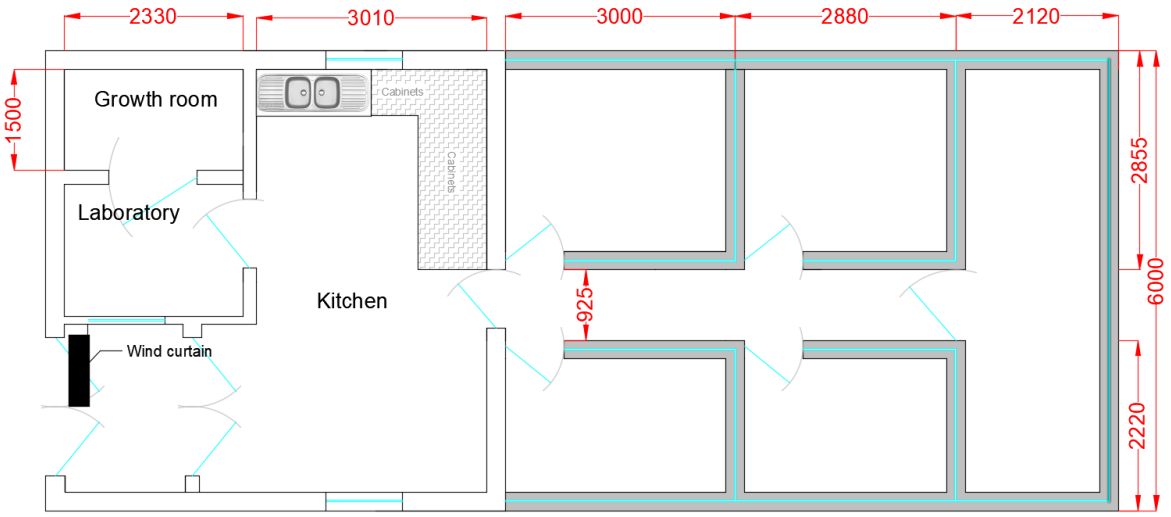
Table 1

	Item	Quoted price (VAT excluded
1.	Build and install everything in specification except the items below	R
2.	Burglar bars	R
3.	Kitchen cabinets	R
4.	Sign boards	R
5.	Room extractor for LPG gas	R
6.	Fire Extinguishers	R
7.	Temperature remote monitoring and alarm system	R11 419.50
8.	Contingency	R45 000
	Grand total	
	VAT	
	Total	

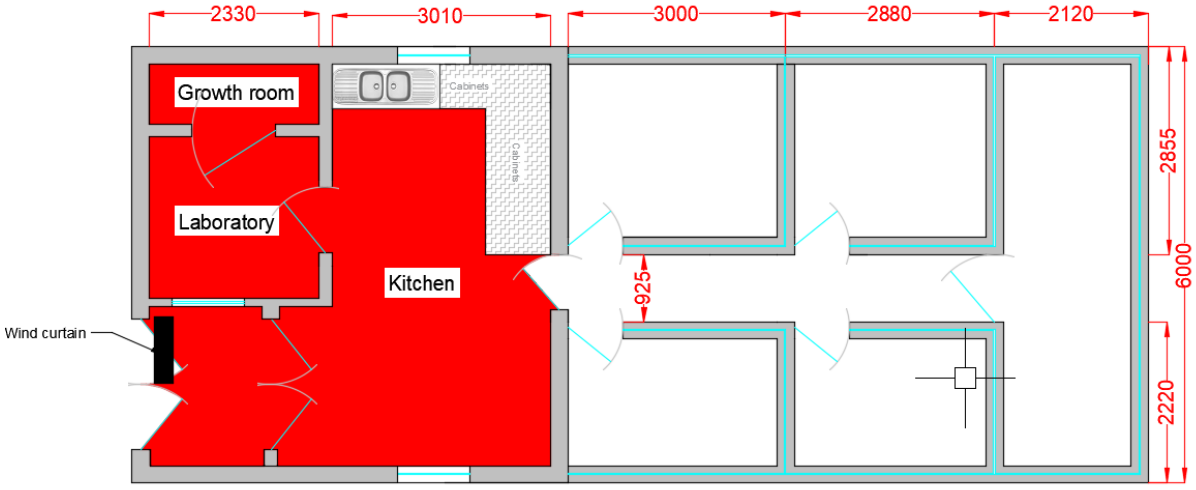
4. Conversion of Existing Building to Laboratory

4.1 Photo of Building

4.2 Floor plans



5. Floors



Drawing indicates tiled area. Red part in drawing indicate what floor must be refurbished.

5.1 Area to be refurbished

Area to be level and tiled: 30m²

5.2 Self-levelling cement

Place self-leveling cement to level floor

5.3 Tiles

5.3.1 Ceramic tiles

- Ceramic floor tiles. Contractor must submit sample of tile for approval
- To be laid according to SANS 1449
- Tile cement to be removed between tiles before grouting
- Grout with SANS approved grout
- Seal all gaps/grout with grout sealer, strictly to manufacturer specifications mixed with water proving reagent
- Gaps between tiles, 8mm
- Contractor must submit colour sample of grout for approval, preferably dove grey

5.3.2 Tile Skirting

- Use same tiles as above for the skirting, cut tiles in 3 strips
- Fix at floor level fixed to plastered walls with straight joints in both directions with the recommended tile cement
- Tiles to be fixed according to SABS 0170.
- Flush pointed with grout

6. Doors

- The second door of the double entrance will only be used to bring in big equipment
- All doors to be glass and aluminum doors
- Doors must be sealed at all 4 sides of the door with soft rubber seals
- Threshold will be allowed on the floor to act as door seal
- Doors must be 100% sealed
- A Wind curtain must be re- installed on top of the double door. ARC will provide this equipment
- The double door on the outside must be lockable
- Please note that the keyhole must not allow for opening to the inside as this will allow insect to enter the facility.

Number of glass doors	
Double aluminum door and glass	2
Single aluminum door and glass	3
Glass house compartment doors	5

6.1 Air curtain switch

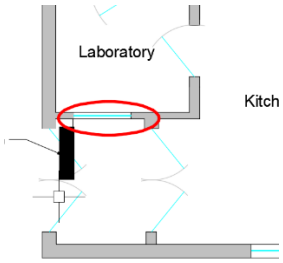
- The air curtain must be automatically switch on when the door is opened.
- Industrial metal magnetic switch for door. Similar or equal to https://www.acdc.co.za/pages/all-products#eyJjYXRlZ29yeSI6W10sImJyYW5kIjpbXSwic3BlY2lhbCI6W10sImNsZWFyYW5jZSI6W10sInNlYXJjaFNLVSI6ImZhbHNlIiwic2VhcmNoRGlzY3JpcHRpb24iOiJmYWxzZSIsInNlYXJjaE

NhdFBBR0UiOiJmYWxzZSIsImNvbnRhaW5zIjoidHJ1ZSIsInN0YXJ0c1dpdGgiOiJmYWxzZSIsIm9yZGVyQnkiOiIiLCJzZWFyY2giOiJtYWduZXRpYyBzd2l0Y2giLCJwcmljZSI6W119

- Current must flow thru a solid-state relay to switch on the fan.
- Ad electrical components as needed
- All electrical components must be in a box. Similar or equal to : https://www.googleadservices.com/pagead/aclk?sa=L&ai=DChcSEwj-tdH4jbL7AhVJtO0KHfsFBU4YABAPGgJkZw&ohost=www.google.com&cid=CAESbOD2npAs6lOI8JDJi8Ftw0nJP0tPuvvmOS5eMeASlHfjE3ORF8EZw4Z8aYrTJe3PEx1xjTEufEBHkL_PQ6Br1xALyMdQNWkWcjO2guxDs_fMgAF6fKK_cOdJx5gqAZArFjsboFo4MyQBlW6-7Q&sig=AOD64_0-JKdylw4yND0qnIoTyzPIVUaGpA&ctype=5&q=&ved=2ahUKEwjAysj4jbL7AhV_QEEAHeN2B8sQ9aACKAB6BAgHEA8&adurl=

7. Windows

7.1 New Lab window



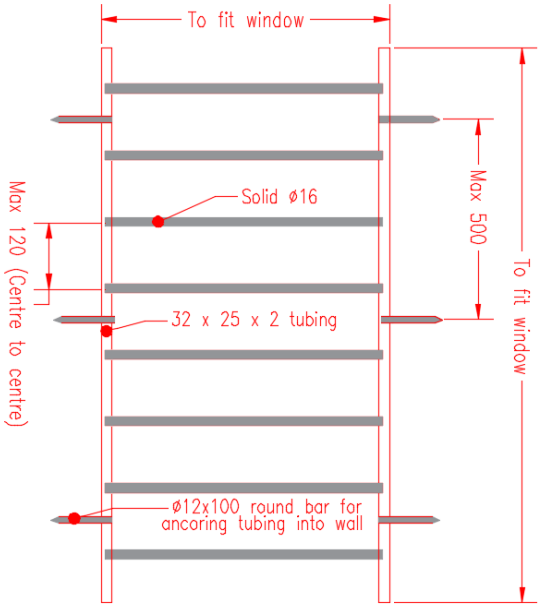
Drawing indicating new Lab window

- 1 x 0.5m window in aluminium frame (must not be openable)
- Safety glass
- Lowest level of the window must be 1m from the ground level
- All Aluminum glass frames
- Rubber gasket must be applied to ensure an insect, water and wind tight seal between the glass and aluminum

7.2 Existing windows (Quantity 2)

- Seal existing windows with silicon all round with paintable silicon that is UV resistance
- Redo all crack window putty
- Weld window shut in the closed position
- Paint window frames

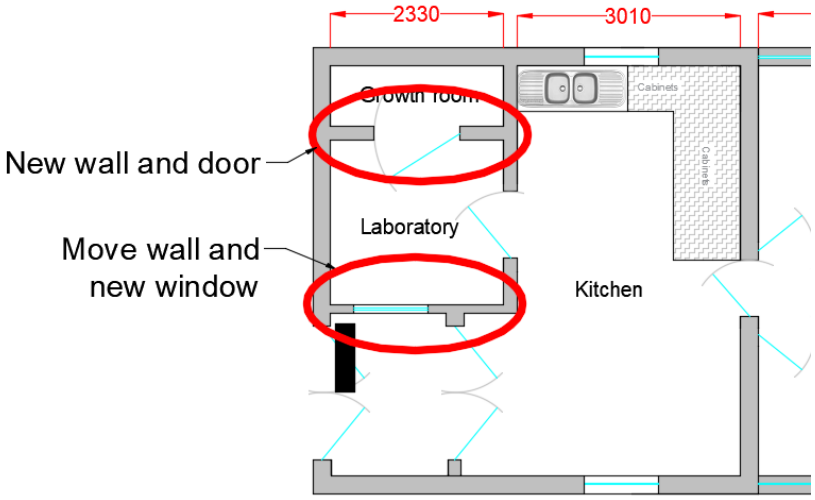
7.3 Burglar bars (2 existing windows)



8. Walls

- All brickwork must be in stretcher bond course with 10mm mortar joints.
- Brick force must be laid between every fourth course in walls, as well as in every layer for two layers below floor level, as well as every layer for three layers above the lintels in all the walls
- Refer also to SANS 073 for general guidelines.

8.1 In- and outside wall

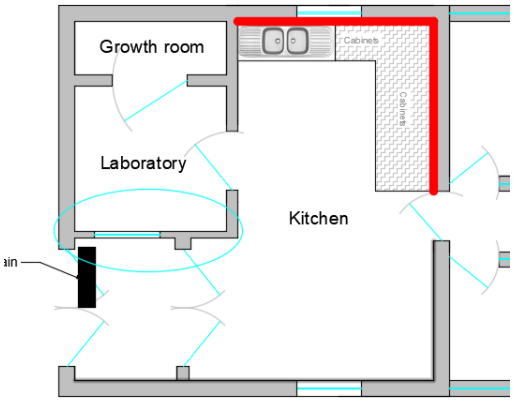


Drawing indicating walls

- Move wall as indicate in drawing
- The new wall must be built according to the layout drawing provide above
- Built new wall in front of Laboratory,
- Plaster and paint on all sides
- Must be properly cleaned and free of any flaking paint, dirt or dust. Apply two coats of exterior paint, similar to Plascon Wall
- Prepare & paint strictly to manufacturer's specification.
- Color: By Dr Elize Jooste (ARC)

8.2 Wall tiles

- Tiles above kitchenette
- 2 rows of tiles above kitchen racks



Red line drawing indicates tiles

9. Ceilings

9.1 Roof void

- Seal all holes, voids and place a strip between the sinks and the walls with expansion foam to prevent possible introduction of insects

9.2 Man hole

Install one ceiling trap door in ceiling

9.3 Isolation

- Insulation to complying with SANS 10400-XA
- R-Value required - 3.7 m^2.K/W
- Certificate of supplier require

9.4 Specification of PVC ceiling material

- All holes and crevices must be seal with silicon to prevent small insects entering the building from the Roof void
- Install wooden sub structure strictly to manufacturer specification
- 38x38 Timber brandering spacing should not exceed 500mm
- Anti-fungal
- Termite proof
- Fire retardant (Classification of B/B1/B2 SANS 428) (Provide a SABS certificate)
- Minimum width of panels 250mm
- Minimum thickness of panels 7mm
- Colour of panels and trimmings: White Matt
- No screws must be visible
- Install strictly according manufacturer instructions

9.4 Polystyrene Cornish

- Use Polystyrene Cornish Adhesive to install the Cornish.
- Paint white.

10. Roof

- Replace rotten 50x75 purlin
- Remove all gutters and downpipes. Do not install new gutters and downpipes

11. Signboards

- Full color printing material: 1.4 mm chromadek (CKS 191 standards)
- Size of sign: A2
- Chromadek, 0.6mm thick and printed at 300 dpi on a monomeric vinyl sticker
- Mounted with galvanized bolts
- The Chromadek label shall have a minimum guaranteed life of 10 years
- ARC will provide the Artwork in a Microsoft Word format
- Quantity: 1

12. Electricity

12.1 Pipe, Wire / cable management

- Medium duty cable tray, Equal or similar to Cabstrut
- Wire management with cable trays
- Wire diameter of trays 4mm
- Width of tray - to accommodate all cables/wires in a single layer

- All new and old 220v wires must be in conduit pipe incase below the plaster

Table 1:Wire management

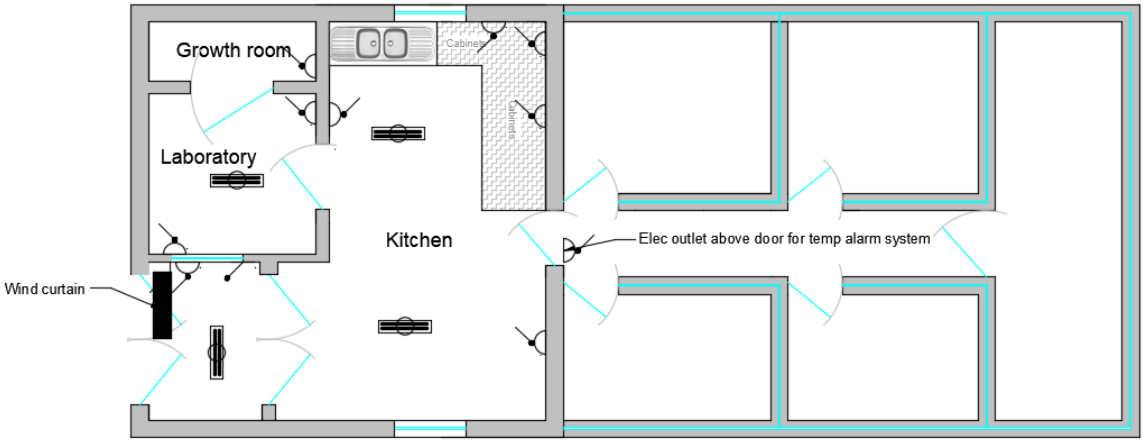
12.2 Cables for the glass house

- Re route all the electrical cables of the glass house thru the walls to create a clean looking area
- Repair wall to a smooth wall.

Photo indicating cables that must be re routed

12.3 Electrical plug points

- Install 1 new single waterproof outlet above door for air curtain and one for the Temperature alarm system in the Glass house side
- New legend for existing and new switch gear
- 8 x Wall sockets type 1
- 1 x Wall sockets type 2 (With USB)
- See: Labelling of electrical reticulation system



Drawing indicating position of wall sockets

12.4 Wall socket type 1

Drawing indicating wall sockets type 1

12.5 Wall socket type 2 with USB

Drawing indicating wall sockets type 2 require above kitchen top

12.6 Laboratory lights

- One enclosed double LED 1200mm fitting per room (Must be covered)
- Daylight LED tubes

12.7 New terrain lights

3 x 50 W LED flood lights around buildings
Automatically switchable with 25 A day/night control switch

13. Kitchen

13.1 5m Cabinets in kitchen area

- Supply and install new modular kitchen cabinets
- 900mm wide
- 4 x drawers
- Full length ball bearing slide
- Wite melamine side
- 32mm Post form tops

13.2 Cabinet in Laboratory

- Supply and install new modular kitchen cabinets
- 900mm x 900mm
- 1 top drawer and 1 door below
- Full length ball bearing slide
- Wite melamine side

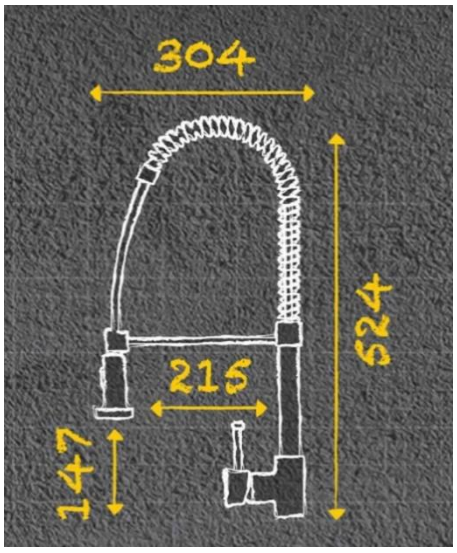
- 32mm Post form tops

13.3 Kitchen sink

- Size: 1160 * 460
- Complete with Waste strainer, P traps and outlet to existing gulley
- Similar or equal to: https://www.ctm.co.za/franke-nouveau-kitchen-sink-with-waste-fittings-nvn621-1160-x-460mm-product.html

13.4 Kitchen tap

- Tap must be sturdy, anker to basin with stainless steel plate (no movement when tap pipe is move)
- Similar or equal to ITD Chrome Besano Spring Sink Mixer Tap, https://www.ctm.co.za/itd-chrome-besano-spring-sink-mixer-tap-product.html



13.5 New warm water geyser

- 1 x 100 liter geyser mount under the roof on the outside.
- Valves must isolate new and old geyser in the instance of mall functional of one
- Complete with electrical isolator
- Complete with all safety valves as per manufacturer requirements
- Geyser and valves must be SABS approved

14. Growth room

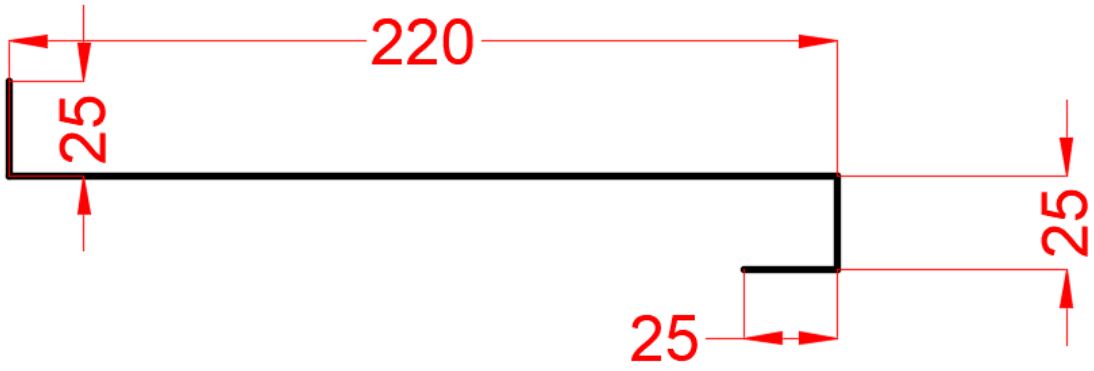
Drawing indicating the shelf mechanism

14.1 Bands & Shelfs brackets

- Supply and install 4 double wall Bands, ±2m high to the wall
- Supply 16 Double Slot wall band bracket 220mm

14.2 Shelfs

- Quantity = 4
- Manufacture Shelfs from Welded Mesh 0.9 x 25 x 13
- Welded mesh must be galvanized
- Lengths, 4m * 2.3m



Drawing indicates the bending of the Welded mesh

14.3 Grow Lights

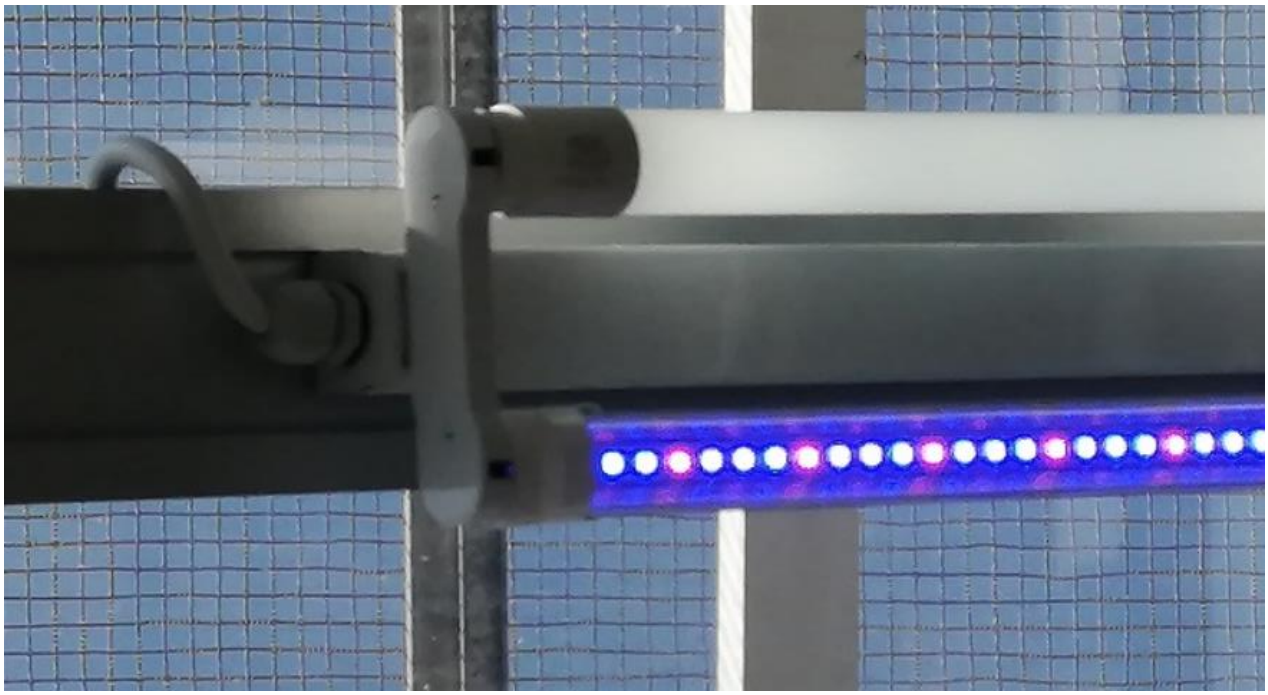


Photo indicates the Growth and normal LED light on each fitting

	Quantity requires	
	900mm	1200mm
Double T8 LED fitting	3	3
230v Daylight, frosted LED tube. Similar or equal to ACDC	5*	5*
230v Growing LED tube	5*	5*

(* 2 spare tubes of each length)

- Lights must be mounted underneath top 3 shelfs
- http://a365.acdc.co.za/Images//spec/LEDT8PG-A3FR.pdf
- Similar or equal to: https://www.acdc.co.za/pages/led-grow-lights
- Complete with T8 fittings, switch etc.

14.4 Light switches

- 24 hour geyser timer with 8 programs mounted to wall plate
- Timer must be mounted into wall switch plate
- All wire must be in plastic trunking
- 24 hour geyser timer with 8 programs mounted
- Timer front must flash with wall (Not protruding)
- 2 lever switch plate. (1) activate lights with timer (2) activate lights

Photos indicate light and timer configuration

15. Laboratory Room Air extractor for LPG gas

- Mounted at floor level to extract heavy LPG gas
- Switch automatically on when room light is switch on
- Filter class G3 on the inside (See: https://www.emw.de/en/filter-campus/filter-classes.html)
- Max air flow 47m3/h
- Similar or equal to FF12A230UFR, (https://www.em.co.za/core/media/media.nl?id=17315119&c=4501092&h=985eMb3--ejLFY4JBuVSpEPBdrSODMo1kxzshGNJ5XEt51rt)
- Mounted at floor level to extract heavy LPG gas

15.1 Frame on outside of building

- Install insect proof Psila netting in Aluminium frame on the outside to cover the hole.
- No insect must be allow to past between frame and wall.
- ARC will supply Psila netting.
- Drawing of frame must be provide for approval before manufacturing

16. Split Air conditioners

- Spit air conditioners will be installed by others

17. Temperature remote monitoring and alarm system

A dedicated glass house temperature monitor and cellular base alarm system was installed by Systeco Automation. A provisional amount of R11 491.50 + Vat must be paid to this installer for removing, re installation and commissioning of the existing system.

Quotation

Date	03/11/2022
Our Reference	SOQ0747
Order No	Quote
Invoice No	SOQ0747

From:

Systeco (Pty) Ltd
Vat No:4710272206

Physical Address
5 Meidlinger Street
Nelspruit Industrial
Nelspruit

Postal Address
P O Box 3534
Nelspruit
1200

To:

Agricultural Research Council
Vat No#140125313

Physical Address
ARC-ITSC
Cnr of Bosch Street and Kanyamazane rd
R2296

Postal Address
ARC-TSC
Private Bag X11208
Mbombela

Account	Date	External Order No	Delivery Note	Our Reference
ARC0001	03/11/2022	RELOCATE		SOQ0747

Item Description	Quantity	Unit Price	Disc %	Excl.Total
TRAVEL	5.00	9.50		47.50
CONS	1.00	500.00		500.00
LABOUR DAILY	3.00	3,840.00	5.00	10,944.00

TERMS AND CONDITIONS
- This does not include new cables / changes / replacement of damaged hardware. This will be handled as a new order.

Received by _____

Date _____

Signed _____

Discount	0.00
Total (Excl)	11,491.50
Vat	1,723.73
Total (Incl)	**13,215.23**
Total (Incl)	**13,215.23**

Page 1 of 1

18. LPG

18.1 Gas installation

- Installation to comply to SANS 10087-1
- Coper pipe installation from gas cylinder to Laboratory.

- ARC will supply 9kg gas cylinder
- COC for the installation before final payment will be consider

18.2 Gas cage

- 1 lockable steel cage for one 9kg gas cylinder
- ARC to supply gas cylinder
- Minimum size of cage 400x400x950mm
- Steel plate “roof”
- Expanded sheet metal for sides
- 70mm Discus Padlock to lock cage, See picture below

Regulation Pertaining To Gas Cylinder Cages.

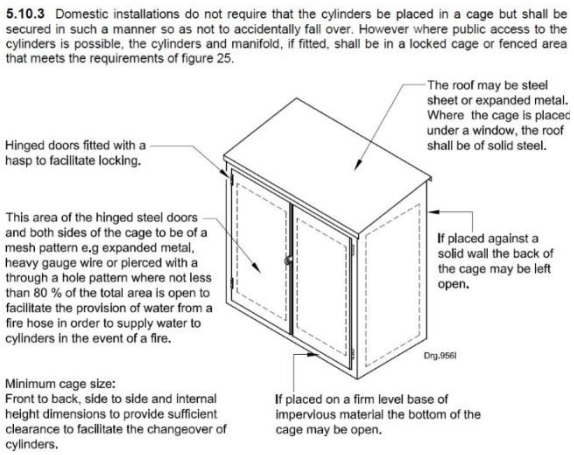


Photo from: http://www.registered-gas-installers.co.za/Gas-Cylinder-Cages-Regulations/

19. Fire extinguishers

- Portable fire extinguishers, SANS 1567 & SANS 1910.
- Two 9 kg or 9 Litre fire extinguishers.
- Appropriate signage must be mounted on the wall next to fire extinguishers.

20. Ownership

- The contractor will be responsible for safekeeping of all building materials and tools until the official completion of site handover.

21. Standards & dimensions

- All paint must comply with SANS standards.
- Clean the inside of the glasshouse & rooms.
- All potential air leaks must be sealed off in the whole glasshouse structure.
- All equipment and fittings supplied must be protected against corrosion. The greenhouse interior environment will be at a relative humidity of between 60% and 80%, therefore good protection against corrosion is of utmost importance.
- All work must comply with the National Building Regulations & Building Standards Act SANS 0400 1990 (or latest). Local council requirements & all relevant specifications and codes are to be adhered to.
- Indicated dimensions to be taken in preference to scaling. Overall dimensions (external) to take precedence.
- All dimensions, levels and heights must be checked on site and any discrepancies to be reported to the Engineers before any work takes place.
- All dimensions on drawings and documents must be checked before commencing of any work and/or compiling of tenders.
- Within 7 days of being issued with an order, the contractor must indicate what information, drawings or specification are still outstanding or needs clarification. After 7 days, it is assumed that the contractor knows exactly what must be done and no delays will result in this respect.

22. Warranty

- All equipment and works must carry a warranty of one year from date of final commissioning (final site handover back to the ARC).

23. Site survey

- The contractor is to determine the conditions before providing the ARC with a quotation.
- The contractor is to determine, prior to commencing work, the location of all underground services such as water, electricity and communication pipes or lines by engaging an authorized service locator, the cost of which is to be borne by the contractor.
- The contractor will make good any services, surfaces and finishing damaged during course of construction.

24. Site cleaning & safety

- The site must be clean at all times.
- The Contractor is liable for the safety of his workers and work conditions according to the OHS act.

- The Contractor is responsible to keep all equipment safe.
- Remove all building rubble and clean site after completion of work before final payment can be considered.

25. Contingency:

- An amount of R45 000 will be approved for variations and contingency.
- No variations or contingency will be valid, unless approved by the engineer in writing.
- The ARC has the right not to spend this contingency or only part of it.
- The R45 000 must be clearly stated in the quotation as Contingency.

1. SECTION 2: EVALUATION CRITERIA

The bid will be evaluated on four (4) stages:

Stage 1: Administrative compliance and screening mandatory documents

Stage 2: Mandatory requirements

Stage 3: Functionality evaluation

Stage 4: Price

2. STAGE 1: ADMINISTRATIVE COMPLIANCE CHECKS

Bidders must ensure that all standard bid documents are signed and the Central Supplier Database report or Unique Number or Supplier number from the CSD is attached to the proposal.

Table.1: Minimum compulsory requirements for all bidders. *Supplier completed table 1 must be included as part of the RFQ document for evaluation.*

No	Requirement	Comply in RFQ request Yes/No
Supply chain management requirements		
1	Valid tax PIN number from SARS	
2	CSD report (Current and updated Central Supplier Database report)	
3	Certified copy of company registration documents, such as CK certificate for Close Corporations.	
4	Completed and signed Standard Bidding Documents (1, 2, 3,4,6)	
5	Completed and signed form of *Offer and Acceptance*.	
6	Attendance of the compulsory briefing sessions at identified sites as specified in the advert	
Technical requirements		
9	CIDB GB (General building), Rating 1 (for building)	
10	Qualified Wireman's License Certificate (Electrical work)	
11	Short company profile demonstrating at least 2 years' experience in renovations of glasshouse structures/shop fronts using **Architectural Aluminum and glass** for construction and/or maintenance as required.	

12	Contactable recommendation letters on projects using architectural aluminium and glass (construction or maintenance) to be supplied (at least 1). The recommendation letters must include client company name, contact person, telephone number, type of work completed and period of completion. The value of the project must be over R500 000 each. (See: ANNEXURE A: Recommendation letter. These letters will be handled in compliance with the POPI Act)	

3. STAGE 2: MANDATORY REQUIREMENTS

CIDB (Construction industry Board)

GB 1

Electricity

Must submit the proof of registration to the **Electrical Conformance Board of South Africa (ECB)** of the person who will issue the COC - Electrical

4. STAGE 3: FUNCTIONALITY EVALUATION

Functionality will be scored against the following criteria.

Reference letters (Weight 40%) Bidder's Building renovation relevant experience for the assignment: (The bidder must attach duly signed recommendation letter(s) to qualify for the indicated points) (see: ANNEXURE A: RECOMMENDATION LETTER)	
Bidder with at least **3 RECOMMENDATION LETTERS** of **brick Building** over R300 000 each	3- Good
Bidder with at least **4 RECOMMENDATION LETTERS** of brick **Building over** R300 000 each	4- Very Good
Bidder with at least **5 RECOMMENDATION LETTERS** of brick **Building** over R300 000 each	5- Excellent

Company Experience/past performance (Weight 60%) - Use Annexure B to populate	
3 points will be allocated to a tenderer who has done project/s in **Brick building** with a **combined** value between **R1 000 000 and R2 000 000** in the last 7 years.	3- Good
4 points will be allocated to a tenderer who has done project/s in **Brick building** with a **combined** value between **R2 000 000 and R3 000 000** in the last 7 years.	4- Very Good
5 points will be allocated to a tenderer who has done project/s in **Brick building work** with a **combined** value above **R3 000 000** in the last 7 years.	5- Excellent

5. MINIMUM SCORING

Bidders that do not obtain a minimum score of 65% for functionality will be disqualified and will not be evaluated further on price as per the formula from National Treasury.

6. ANNEXURE A: RECOMMENDATION LETTER

<table>
<tr><th colspan="4">RECOMMENDATION LETTER FORMAT</th></tr>
<tr><td colspan="4">Bidder’s Letterhead

We are submitting a bid for the contract described below. We appreciate your assistance and effort in completing, on your letterhead, the reference as set out below on your experience with us.

RENOVATION OF PEQ FACILITY AND GLASSHOUSE 8.</td></tr>
<tr><td>Reference Letterhead</td><td colspan="3">Reference Legal Name</td></tr>
<tr><td colspan="4">The name of the company you are giving a reference for</td></tr>
<tr><td colspan="4">Describe the Contract / Project work and/or Service the above bidder provided to your organisation:</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td>Project period (start date)</td><td colspan="3"></td></tr>
<tr><td>Project period (end date)</td><td colspan="3"></td></tr>
<tr><td>Project cost that the bidder was responsible for (Vat Inc)</td><td colspan="3"></td></tr>
<tr><td colspan="4">Please rate the above bidder according to the following criteria by ticking the relevant column and providing comments / details in the space provided below if relevant:</td></tr>
<tr><td>Criteria</td><td>Doesn’t meet requirements</td><td>Meets requirements</td><td>Exceeds requirements</td></tr>
<tr><td>Project was completed within budget</td><td></td><td></td><td></td></tr>
</table>

Project was completed within the required **time frame**			
The bidder understood and delivered successfully on the **scope of work**			
Professionalism			
Quality of workmanship			
Quality of materials used / adherence to given specifications			
Availability of company resources			
Overall Impression / Satisfaction with bidder			
Further details on any of the points above, or any other comments			
Number of times used in the past years			
Would you use the provider again	Yes / No		
Completed by:			
Designation:			
Signature:			
Company Name:			
Contact Telephone Number:			
Date:			

7. ANNEXURE B: Company past 7 years performance

	Company	Description of work done for which your company was responsible for w.r.t. project/s in **Brick building in combination with aluminium glass/shopfronts and glass walls**	Name and Contact details of customer	Date of contract 2015 ->	Value of the work done for which your company was responsible for w.r.t. **Brick building in combination with aluminium glass/shopfronts and glass walls**
1					
2					
3					
4					
	Add rows as needed				
				Total	