

1. Description of Service/Product

- 1.1. The supply of 4x ISO standard Corten steel 12 m High Cube (HC) shipping container (grade: one tripper/first shipment)/prefabricated building units which are modified to a(n):
 - 1.1.1. Control Room.
 - 1.1.2. Office Block.
 - 1.1.3. Bathroom, Changing Room, Kitchen and Storage Room.
 - 1.1.4. Workshop.
- 1.2. The supply of 1x ISO standard Corten steel 12 m HC shipping container (grade: one tripper/first shipment) unit which is modified to a tunnel storage area.
- 1.3. The supply of 3x galvanised mild steel container ramps.
- 1.4. The supply of 30x concrete pads.
- 1.5. Delivery and placement of all modified shipping container/prefabricated building units and separate loose items/goods.

More detailed specifications and designs for all building units are given in Section 2.

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2. Detailed description of service

2.1. Overview

Section 2.2. covers the SANS standard references, ambient conditions and description of service to complete all modified shipping containers/prefabricated building units. Figure 1 gives a non-descriptive example of the internal and external layout/s for all the modified shipping container/prefabricated building units and must be used as a guideline for the final design and build of each unit. More detailed design drawings and specifications are given in this Section 2 for building units 1. to 5.

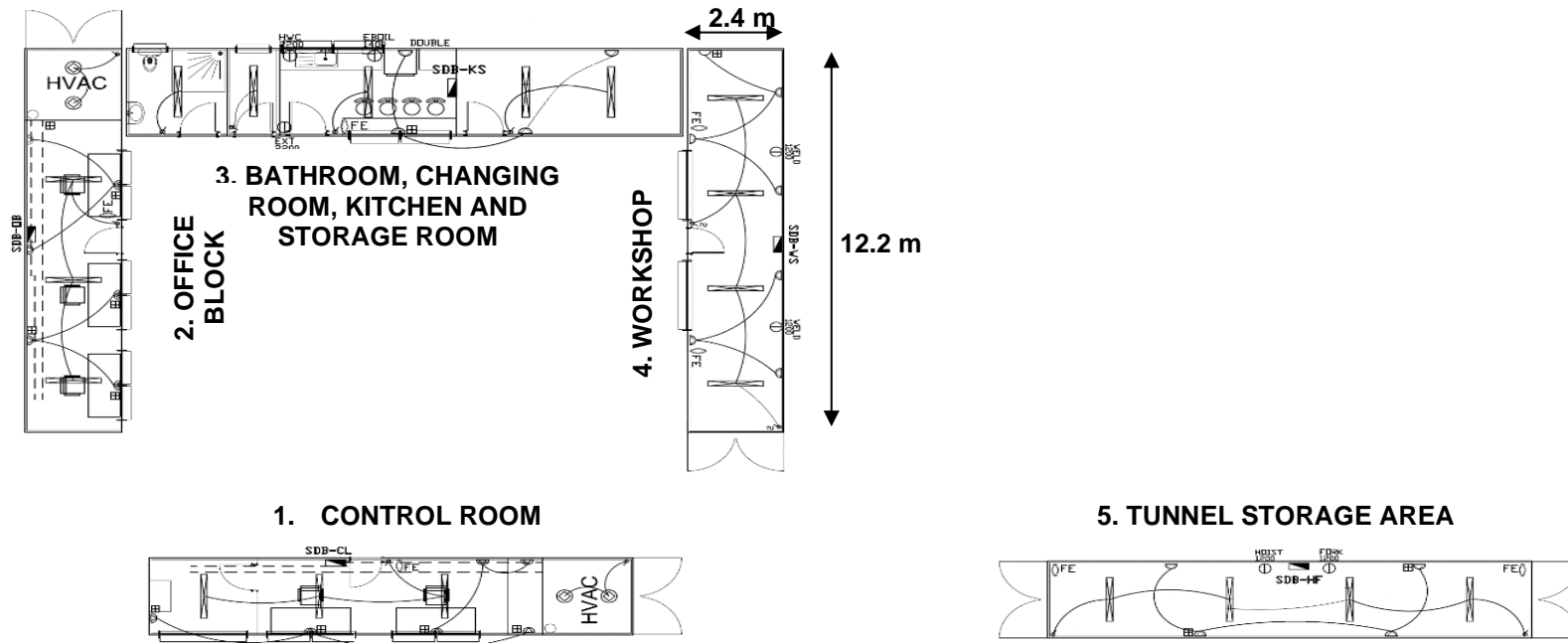


Figure 1: Non-descriptive example of the internal and external layouts for each modified shipping container/prefabricated building unit to be used as guideline for the final design and build of each unit.

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2.2. References

The electrical and plumbing installations, including the supply of all material and labour necessary to complete all modified shipping containers/prefabricated building units must be in accordance but is not limited to the following SANS publications:

CODES OF PRACTICE

SANS 10313:	Code of Practice for Protection of Buildings against Lightning.
SANS 10086-1:	The Installation and Maintenance of Electrical Equipment used in Explosive Atmospheres.
SANS 10108:	The Classification of Hazardous Locations and the Selection of Electrical Apparatus for use in such Locations.
SANS 10114-1:	Interior lighting Part 1: Artificial lighting of interiors.
SANS 10142-1:	The Wiring of Premises Part 1: Low-voltage installations.

SPECIFICATIONS

SANS 156:	Moulded-case circuit-breakers.
SANS 164-1:	Plug and socket-outlet systems for household and similar purposes for use in South Africa Part 1: Conventional system, 16 A 250 V a.c.
SANS 172:	Low-voltage fuses.
SANS 767-1:	Earth leakage protection units Part 1: Fixed earth leakage protection circuit-breakers.
SANS 950:	Unplasticized polyvinyl chloride rigid conduit and fittings for use in electrical installations.
SANS 1065:	Screwed metal conduit and fittings for electrical wiring.
SANS 1085:	Wall outlet boxes for the enclosure of electrical accessories.
SANS 1574:	Polyvinyl chloride (PVC)-insulated electric cables and flexible cords.
SANS 1663:	Wall and appliance switches.
SANS 60079-1:	Flameproof enclosures for electrical apparatus Part 1: International requirements.

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2.3. Ambient/Environmental Conditions:

All the modified shipping container/prefabricated building units, including materials where necessary, shall be designed and rated for continuous operation under the following conditions:

Altitude:	Sea level
Ambient temperature:	3° C to +45° C (daily average +30° C)
Relative Humidity:	As high as 98%
Environmental conditions:	Severe marine environment (corrosive)
Lightning conditions:	Low

2.4. All Building Layouts, Floor Areas and Specifications

This section summarises the basic building layouts, floor areas and specifications as seen in Figure 1.

Note: The following specifications are applicable to all building units:

- i. External paint/coating as per Section 2.11.
- ii. Roof sealant as per Section 2.12.

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2.5. Control Building

a) Building Layout

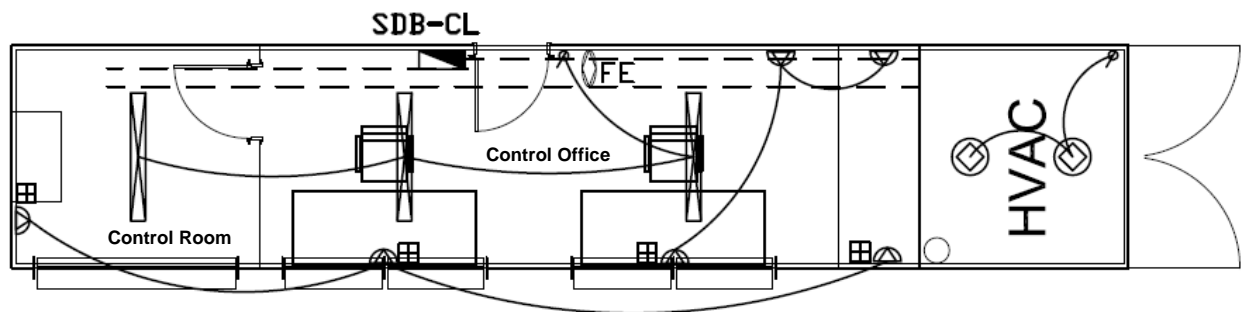


Figure 2: Control building layout.

b) Floor Areas

1. Control Room floor area $\approx 5 \text{ m}^2$.
2. Control Office floor area $\approx 22 \text{ m}^2$.
3. HVAC Room floor area $\approx 2.5 \text{ m}^2$.

c) Specifications

Building structure Type 1 as per Section 2.10.1.

2.5.1. Control Room

- i. Floor: Rubber flooring as per Section 2.13.1.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: Louvre ventilation fixed into wall between control- room and office as per Section 2.15.2.
- iv. Doors: 1x Internal Chromadek door as per Section 2.16.3.
- v. Windows: 1x Large aluminium top hung window as per Section 2.17.1.
- vi. Electrification:
 - a. 1x Distribution Board as per Section 2.18.1. The DB will be supplied by a primary one phase 2 wire 50 Hz a.c. source with earthed neutral at a nominal voltage of 400/230 V.
 - b. 1x Earthing strap as per Section 2.18.2.
 - c. 1x 220V 16 A double plug point as per Section 2.18.3.
 - d. 1x 230 V LED ceiling light as per Section 2.18.4.
 - e. 2x LED flood lights as per Section 2.18.6
 - f. Cable trunking and/or conduits as per Section 5.13.7.

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- g. 1x External polycarbonate enclosure installed to connect the future external power supply as per Section 2.18.8.
- h. 2x 5-Way cable entry boxes as per Section 2.18.9.

2.5.2.Control Office

- i. Floor: Rubber flooring as per Section 2.13.1.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: HVAC ventilation as per Section 2.15.1.
- iv. Doors: 1x External aluminium door as per Section 2.16.2.
- vii. Windows: 2x Large aluminium top hung windows as per Section 2.17.1.
- v. Electrification:
 - a. 5x 220V 16 A double plug points as per Section 2.18.3.
 - b. 2x 230 V LED ceiling lights as per Section 2.18.4.
 - c. Electrical connections for HVAC as per Section 2.15.1
 - d. Cable trunking and/or conduits as per Section 5.13.7.

2.5.3.HVAC Room

- i. Floor: None.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: Louvre ventilation as per Section 2.15.2.
- iv. Doors: 1x Set of standard shipping container doors as per Section 2.16.1.
- v. Windows: None.
- vi. Electrification:
 - a. Electrical connections for HVAC as per Section 2.15.1.
 - b. 2x Bulkhead CFL ceiling lights as per Section 5.13.5.
 - c. Cable trunking and/or conduits as per Section 5.13.7.

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2.6. Office Building

a) Building Layout

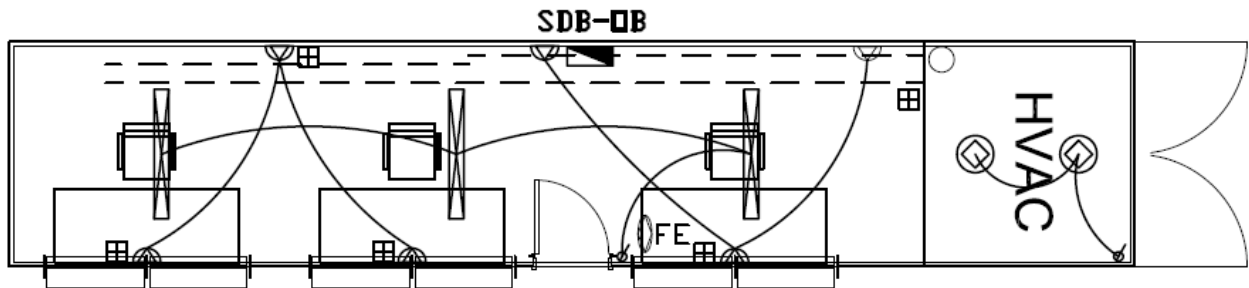


Figure 3: Office building layout.

b) Floor Areas

1. Office floor area $\approx 27 \text{ m}^2$.
2. HVAC Room floor area $\approx 2.5 \text{ m}^2$.

c) Specifications

Building structure Type 1 as per Section 5.5.1.

2.6.1. Office

- i. Floor: Rubber flooring as per Section 2.13.1.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: HVAC ventilation as per Section 2.15.1.
- iv. Doors: 1x External aluminium door as per Section 2.16.2.
- v. Windows: 3x Large aluminium top hung windows as per Section 2.17.1.
- vi. Electrification:
 - a. 1x Distribution Board as per Section 2.18.1. The DB will be supplied by a primary one phase 2 wire 50 Hz ac source with earthed neutral at a nominal voltage of 400/230 V.
 - b. 1x Earthing strap as per Section 2.18.2.
 - c. 6x 220V 16 A double plug points as per Section 2.18.3.
 - d. 3x 230 V LED ceiling lights as per Section 2.18.4.
 - e. Electrical connections for HVAC as per Section 2.15.1
 - f. 2x LED flood lights as per Section 2.18.6
 - g. Cable trunking and/or conduits as per Section 5.13.7.
 - h. 1x External polycarbonate enclosure installed to connect the future external power supply as per Section 2.18.8.

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- i. 1x 1-Way cable entry box for future fibre network connection as per Section 2.18.9.

2.6.2.HVAC Room

- i. Floor: Rubber flooring as per Section 2.13.1.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: Louvre ventilation as per Section 2.15.2.
- iv. Doors: 1x Set of standard shipping container doors as per Section 2.16.1.
- v. Windows: None.
- vi. Electrification:
 - a. Electrical connections for HVAC as per Section 2.15.1.
 - b. 2x Bulkhead CFL ceiling lights as per Section 5.13.5.
 - c. Cable trunking and/or conduits as per Section 5.13.7.

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2.7. Bathroom, Changing Room, Kitchen and Storage Room

a) Building Layout

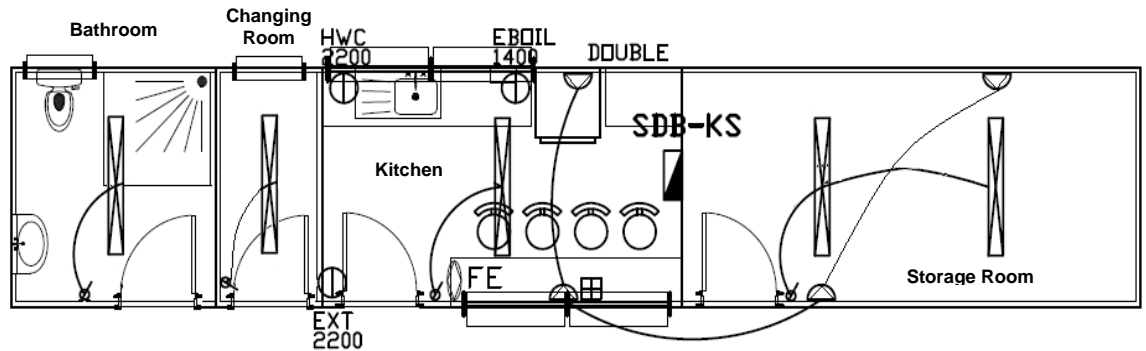


Figure 4: Bathroom, changing room, kitchen and storage room layout.

b) Floor Areas

1. Bathroom floor area $\approx 5 \text{ m}^2$.
2. Changing Room floor area $\approx 3 \text{ m}^2$.
3. Kitchen floor area $\approx 11 \text{ m}^2$.
4. Storage Room area $\approx 11 \text{ m}^2$.

c) Specifications

Building structure Type 1 as per Section 5.5.1.

2.7.1. Bathroom

- i. Floor: Pigmented screed flooring as per Section 2.13.2.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: None.
- iv. Doors: 1x External aluminium door as per Section 2.16.2.
- v. Windows: 1x Small aluminium top hung window as per Section 5.12.2.
- vi. Electrification:
 - a. 1x 230 V LED ceiling light as per Section 2.18.4.
 - b. Cable trunking and/or conduits as per Section 5.13.7.
- vii. Bathroom design and specification as per Section 5.14.

2.7.2. Changing Room

- i. Floor: Pigmented screed flooring as per Section 2.13.2.

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- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: Louvre ventilation as per Section 2.15.2.
- iv. Doors: 1x External aluminium door as per Section 2.16.2.
- v. Windows: 1x Small aluminium top hung window as per Section 5.12.2.
- vi. Electrification:
 - a. 1x 230 V LED ceiling light as per Section 2.18.4.
 - b. Cable trunking and/or conduits as per Section 5.13.7.

2.7.3. Kitchen

- i. Floor: Pigmented screed flooring as per Section 2.13.2.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: Louvre ventilation as per Section 2.15.2.
- iv. Doors: 1x External aluminium door as per Section 2.16.2.
- v. Windows: 2x Large aluminium top hung window as per Section 2.17.1.
- vi. Electrification:
 - a. 2x 220V 16 A double plug points as per Section 2.18.3.
 - b. 1x 230 V LED ceiling light as per Section 2.18.4.
 - c. Cable trunking and/or conduits as per Section 5.13.7.
- vii. Kitchen design and specification as per Section 5.15.

2.7.4. Storage Room

- i. Floor: Pigmented screed flooring as per Section 2.13.2.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: Louvre ventilation as per Section 2.15.2.
- iv. Doors: 1x External aluminium door as per Section 2.16.2.
- v. Windows: None
- vi. Electrification:
 - a. 1x Distribution Board as per Section 2.18.1. The DB will be supplied by a primary one phase 2 wire 50 Hz ac source with earthed neutral at a nominal voltage of 400/230 V.
 - b. 1x Earthing strap as per Section 2.18.2.
 - c. 2x 220V 16 A double plug points as per Section 2.18.3.
 - d. 2x 220 V LED ceiling lights as per Section 2.18.4.
 - e. 2x LED flood lights as per Section 2.18.6
 - f. Cable trunking and/or conduits as per Section 5.13.7.
 - g. 1x External polycarbonate enclosure installed to connect the future external power supply as per Section 2.18.8.

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- h. 1x 1-Way cable entry box for future fibre network connection as per Section 2.18.9.

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2.8. Workshop

a) Building Layout

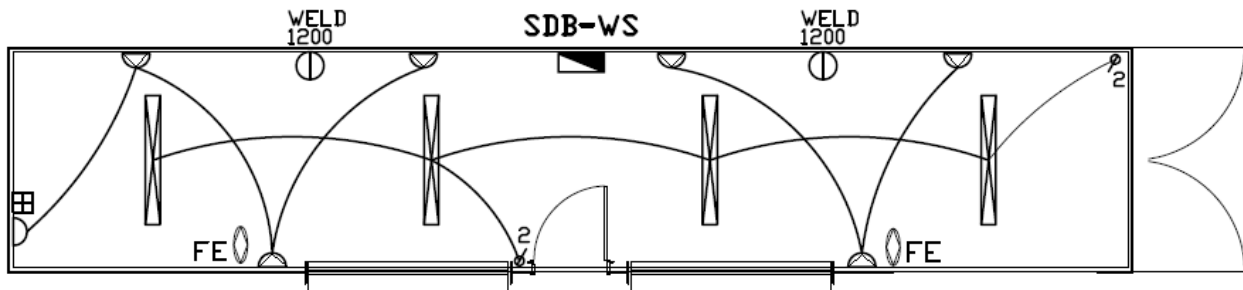


Figure 5: Workshop layout.

b) Floor Area

Workshop floor area $\approx 30 \text{ m}^2$.

c) Specifications

Building structure Type 1 as per Section 5.5.1.

- i. Floor: Rubber flooring as per Section 2.13.1.
- ii. Insulation: Thermal insulation as per Section 2.14. (50 mm total maximum thickness).
- iii. Ventilation: Louvre ventilation as per Section 2.15.2.
- iv. Doors: 1x Set of standard shipping container doors and 1x external aluminium door as per Section 2.16.1 and 2.16.2. respectively.
- v. Windows: 2x Large aluminium top hung windows as per Section 2.17.1
- vi. Electrification:
 - a. 1x Distribution Board as per Section 2.18.1. The DB will be supplied by a primary three-phase 4 wire 50 Hz a.c. source with earthed neutral at a nominal voltage of 400/230 V.
 - b. 1x Earthing strap as per Section 2.18.2.
 - c. 7x 220V 16 A double plug points as per Section 2.18.3.
 - d. 4x 220 V LED ceiling lights as per Section 2.18.4.
 - e. 2x LED flood lights as per Section 2.18.6
 - f. Cable trunking and/or conduits as per Section 5.13.7.
 - g. 1x External polycarbonate enclosure installed to connect the future external power supply as per Section 2.18.8.
 - h. 1x 1-Way cable entry box for future fibre network connection as per Section 2.18.9.
 - i. 2x Three-phase 400 V 16 A wall mounted electrical socket as per Section 2.18.10.

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2.9. Tunnel Storage Area

a) Building Layout

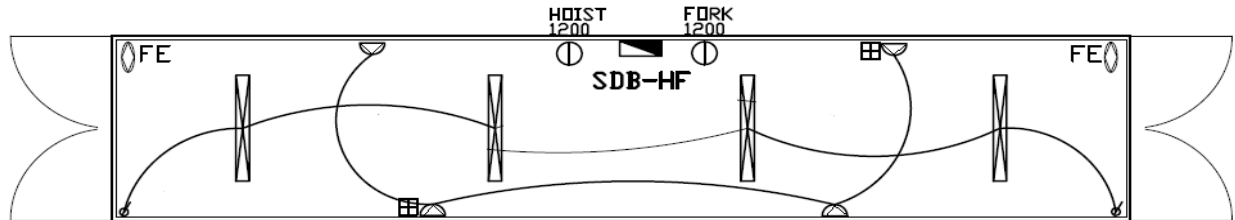


Figure 6: Tunnel storage area layout.

b) Floor Area

Tunnel Storage floor area $\approx 30 \text{ m}^2$.

c) Specifications

Building structure Type 2 as per Section 2.10.2.

- i. Floor: Rubber flooring as per Section 2.13.1.
- ii. Insulation: Thermal insulation as per Section 2.14. (25 mm total maximum thickness).
- iii. Ventilation: S-type- and louvre ventilation as per Section 2.15.2 and 2.15.3 respectively.
- iv. Doors: 2x Sets of standard shipping container doors as per Section 2.16.1.
- v. Windows: None.
- vi. Electrification:
 - a. 1x Distribution Board as per Section 2.18.1. The DB will be supplied by a primary three-phase 4 wire 50 Hz a.c. source with earthed neutral at a nominal voltage of 400/230 V.
 - b. 1x Earthing strap as per Section 2.18.2.
 - c. 4x 220V 16 A double plug points as per Section 2.18.3.
 - d. 4x 220 V LED ceiling lights as per Section 2.18.4.
 - e. 2x LED flood lights as per Section 2.18.6
 - f. Cable trunking and/or conduits as per Section 5.13.7.
 - g. 1x External polycarbonate enclosure installed to connect the future external power supply as per Section 2.18.8.
 - h. 1x 1-Way cable entry box for future fibre network connection as per Section 2.18.9.
 - i. Cable trunking and/or conduits for electric- forklift and scissor lift/hoist charging stations as per Section 2.18.11.

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2.10. Building Structure Types

2.10.1. Building Structure Type 1

ISO Standard Corten Steel High Cube (HC) shipping container (grade: first shipment/one-tripper) OR prefabricated building to be used as main building structure with the following dimensions: 12.2 m x 2.4 m x 2.9 m.

2.10.2. Building Structure Type 2

ONLY ISO Standard Corten Steel HC shipping container (grade: first shipment/one-tripper) to be used as main building structure with the following dimensions: 12.2 m x 2.4 m x 2.9 m.

2.11. External Paint/Coating

All external surface areas of the shipping container/prefabricated building unit must be sand-blasted before a primer is applied and coated to withstand SEVERE MARINE ENVIRONMENTAL CONDITIONS according to the Eskom Coastal specification (UI: 240-75655504) attached. All external welding seams and exposed metal must be treated and coated to prevent rust under severe marine environmental conditions. At least 3x layers of paint (colour: white) must be applied.

2.12. Roof Sealant

Poly rubber sealant must be applied on the entire HC shipping container/prefabricated building's roof to prevent water leaks during rain events. The supplier must use recognised sealant application practices.

2.13. Flooring Types

2.13.1. Rubber Flooring

An industrial grade diamond/stud rubber floor must be expertly installed with recognised practices on top of the entire existing container floorboard, with relevant contact adhesive and floor screws/bolts. The industrial rubber flooring must meet the following minimum specifications:

- i. Hardness = 70° Shore A \pm 5°
- ii. Thickness = 3 mm
- iii. Quality = SBR/NR
- iv. Colour = Black

2.13.2. Pigmented Screed Flooring

Durable interior pigmented screed flooring must be neatly poured, cured and sealed with recognised practices onto existing shipping container/prefabricated building floorboard with recognised practices.

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2.14. Thermal Insulation for Walls and Ceiling

All internal shipping container/prefabricated building's walls, including ceiling, must have thermal insulation neatly installed using mineral wool panels of high density (120 kg/m³) and white Chromadek cladding laminated together with recognized practices. All doors must remain functional with the installed internal thermal insulation structures.

Note: Rectangular/square/circular shapes must be neatly cut out within the relevant container mild steel walls, thermal insulation and Chromadek cladding areas to accommodate:

- a) Fitment of external electrical cable connections via cable entries.
- b) Ventilation functionality.

2.15. Ventilation Types

2.15.1. HVAC Ventilation

A heating, ventilation, and air conditioning (HVAC) system must be installed and be in a working condition when connected to an electrical supply. The HVAC's indoor unit must be installed at an appropriate location on the inner wall of the control office. The HVAC's outdoor unit needs to be installed/housed inside a separate room (area \approx 5 m²), separated with mineral wool panels and Chromadek cladding, within the shipping container/prefabricated building (see Figure 1). This is to protect the outdoor unit from the severe marine environment outside building. Fixed aluminium louvre/s ventilation units (see Figure 7) must also be installed in container steel walls/doors to promote air circulation/functionality of the HVAC's outdoor unit. The HVAC system must meet the following minimum specifications:

- i. Type: Wall Split Air Conditioner
- ii. Capacity: 18000 Btu/hr
- iii. Anti-corrosive coating needs to be applied on HVAC's outdoor unit.
- iv. The louvre vent/s must be severe marine weather, insect and rodent proof.

Note: The contractor is responsible for the provision and connection of electrical wiring and air tubing of the HVAC system. The termination and connection from HVAC indoor- and outdoor unit to DB main incoming isolating shall be the responsibility of the contractor. Power points for indoor air-conditioning units shall terminate in a 100mm x 100mm conduit box mounted adjacent to the unit and equipped with a 2 pole isolating switch.

2.15.2. Louvre Ventilation

Fixed aluminium louvre/s ventilation units (see Figure 7) must be installed in container steel walls/doors to promote air circulation within container unit. The louvre vents must be severe marine weather- and vermin proof with moisture filter.

Note: All the louvre vents are not indicated in the attached drawings and can be installed at the supplier's own discretion with recognised practices.

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Figure 7: Non-descriptive example of fixed aluminium louver.

2.15.3. S-type Ventilation

Shipping container S-type vents, as shown in Figure 8, must be fixed to the external shipping container sidewalls. The vents must have no moving parts, weather and insect/bird protected, have a moisture filter and be able to pull little air in and out of the container to reduce excessive heat build-up/prevent container rain events. The supplier is allowed to use his own discretion for the positioning of the S-type vents on shipping container walls.

Note: The relevant container mild steel wall, thermal insulation and chromadek cladding areas must be neatly cut out in rectangular/square/circular shapes to maintain the airflow functionality of the vents.

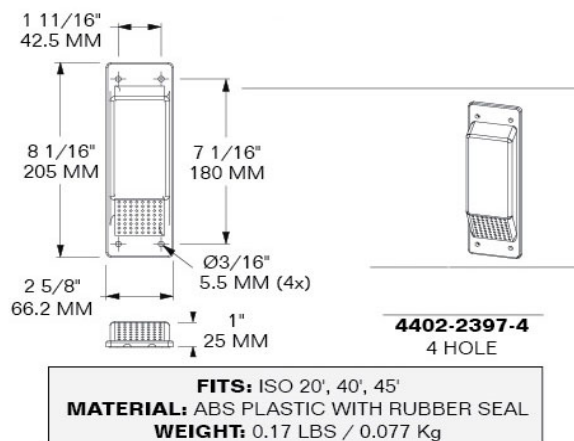


Figure 8: Non-descriptive example of shipping container S-type vent.

2.16. Access Door Types

2.16.1. Standard Shipping Container Double Doors

Standard shipping container double doors with lock rods must remain fitted and functional to provide access/entry to HVAC unit as shown in Figure 1. If a prefabricated building is used, a

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single standard aluminium door (severe marine coated) with lock and burglar gate must be installed to have access to HVAC rooms.

2.16.2. External Doors

Aluminium door (severe marine coated) with lock and burglar gate to be used as main entry to unit as shown in Figure 1.

2.16.3. Internal Doors

Standard Chromadek door with lock to be used as entry to control room as shown in Figure 1.

2.17. Window Types

Note: All windows must have safety glass with burglar bars and be fitted with silver aluminium window blinds.

2.17.1. Large Aluminium Window with Vents

Large aluminium top hung window (clear anodized) with dimensions 1800 mm x 1200 mm and two vents as seen in Figure 9. (Frame colour: white).

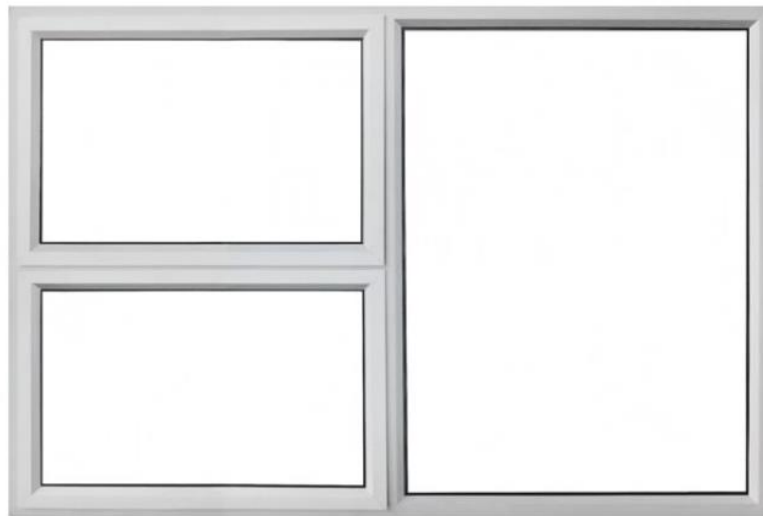


Figure 9: Non-prescriptive example of small aluminium window with one vent

2.17.2. Small Aluminium Window with Vent

Small aluminium top hung window (clear anodized) with dimensions 600 mm x 900 mm, one vent and obscure glass as seen in Figure 10. (Frame colour: white)

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Figure 10: Non-prescriptive example of small aluminium window with one vent.

2.18. Electrification

The modified shipping container/prefabricated building must have the following items installed with recognised practices by a qualified electrician with a valid wiremen's license and in accordance with SANS 10142-1 (Code of Practice for the Wiring of Premises):

2.18.1. Distribution Board (DB), clearly labelled, with earth leakage and main switch, fully equipped and mounted to an insulated wall in the control room.

- The DB shall comply with SANS 60439-1.
- Isolating switches shall comply with SANS 60947-3.
- Moulded case circuit breakers shall comply with SANS 156.
- Earth leakage protection units shall comply with SANS 767-1.

2.18.2. Earthing strap connected outside of the building's mild steel wall. The complete electrical installation shall be earthed in accordance with SANS 10142-1: Code of Practice for the Wiring of Premises.

2.18.3. 220V 16 A double plug points. The termination and connection from all plug points to DB main incoming isolating shall be the responsibility of the contractor as well. All plug points shall comply with SANS 164-1.

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2.18.4. 230 V, LED waterproof ceiling light (light and cover colour: white) (see Figure 11 as non-descriptive example). Wall switches must be surface mounted as shown in attached drawings, be functional and comply with SANS 1663. The termination and connections from all LED ceiling lights and wall switches to DB main incoming isolating shall be the responsibility of the contractor.



Figure 11: Non-descriptive example of 230 V, LED waterproof light.

2.18.5. Bulkhead 2x18W CFL round waterproof ceiling lights (light and cover colour: white). Wall switches must be surface mounted as shown in attached drawings, be functional and comply with SANS 1663. The termination and connections from all ceiling lights and wall switches to DB main incoming isolating shall be the responsibility of the contractor.

2.18.6. LED flood lights (cover colour: black; light colour: yellow) must be mounted on the outside of the modified shipping container/ prefabricated building on the main entry door's wall side. Wall switches must be surface mounted as shown in attached drawings, be functional and comply with SANS 1663. The termination and connections from all LED flood lights and wall switches to DB main incoming isolating shall be the responsibility of the contractor.

Note: The flood lights and positions are not indicated in the attached drawings and can be installed at the supplier's own discretion with recognised practices.

2.18.7. Cable trunking and/or conduits within insulation/fixed on top of Chromadek sheets must be used for all wiring. Colour identification of all conductors must also be used.

- Screwed metal conduit shall comply with SANS 1065.
- Non-metallic conduit and fittings shall comply with SANS 950.

2.18.8. An external weatherproof polycarbonate enclosure (IP67 rated), with glands, for future external three-phase or single-phase 400/230 V power supply connections must be fitted outside on a building wall, near the earthing strap. All necessary electrical connection points must already be installed to connect the on-site power supply cables. The termination/connection from enclosure to DB main incoming isolating shall be the responsibility of the contractor. The cable entry must be weather, insect, rodent and snake proof.

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Note: The installation of the power supply cable to each building and the termination/connection at polycarbonate enclosure shall be the responsibility of others and is not part of the service.

2.18.9. A 1-Way or 5-Way cable entry box (IP67 rated, polycarbonate material), with glands, for future external electrical/fibre network cables must be fitted next to the power supply polycarbonate enclosure on the outside wall of the building. The cable entry must be weather, insect, rodent and snake proof.

2.18.10. Three-phase 400 V 16 A wall mounted electrical socket with screw cap. Power points for three-phase electrical sockets shall terminate in a 100mm x 100mm conduit box mounted adjacent to the unit and equipped with an isolating switch.

Note: The three-phase electrical sockets and positions are not indicated in the attached Workshop drawings and can be installed at the supplier's own discretion with recognised practices.

2.18.11. Cable trunking and/or conduits within insulation/fixed on top of Chromadek sheets must be installed from DB main incoming to HOIST and FORK locations as shown in Tunnel Storage Area drawing. The cable trunking and/or conduits will be used for future electrical wiring of electric- forklift and scissor lift/hoist charging stations. Colour identification of all conductors must also be used.

- Screwed metal conduit shall comply with SANS 1065.
- Non-metallic conduit and fittings shall comply with SANS 950.

2.19. Bathroom Area Design

2.19.1. Plumbing

- i. Copper piping to be used for the water supply.
- ii. The water supply connection must be externally located to connect to the available water supply point on-site.
- iii. PVC fittings for sewerage and wastewater must be located externally to connect to the septic tank pipes available on-site.
- iv. Hand rails , towel rails and clothing hooks to be installed. Contractor discretion to be used.
- v. Handwash basin porcelain pedestal complete with plumbing to the hot water, cold water and wastewater.
- vi. Toilet WC porcelain close couple complete with plumbing to water supply point and sewerage.
- vii. Complete shower cubicle 900 mm x 900 mm x (1800 mm – 2000 mm) complete with plumbing to the hot water, cold water and wastewater.
- viii. Isolator for the electric geyser.
- ix. A 12 kW high pressure compact instantaneous water heater to supply the shower and handwash basin located within the bathroom. The contractor to use own discretion on where the install the water heater. Already connected to the DB and all plumbing completed.

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2.20. Kitchen Area Design and Appliances

- i. Sink: 1200 mm reversible drop in single end bowl sink with cupboards and 2 drawers. Plumbing complete with hot water, cold water tap and wastewater connections. Total length of cupboard top to be roughly 1800 mm. Contractor to use own discretion to make sure fridge fits in.
- ii. Table top with 4 chairs to be supplied. Table top length roughly 1800 mm long. Contractor to use own discretion.
- iii. 1x 30 A plug point for future oven and stove.
- iv. 1x Standard 180 L fridge needs to be fitted in kitchen.
- v. 1x Standard 1000 W Microwave needs to be supplied with kitchen.
- vi. E-boil instant boiling water (2.5 liter)

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Description of service for the supply and delivery of prefabricated or modified container buildings

2.21. Summary of the service and items required

Item Name	Specification	Quantity
1. Control Room	As per Section 2.5	x1
2. Office Block	As per Section 2.6	x1
3. Bathroom, Changing Room, Kitchen and Storage Room	As per Section 2.7	x1
4. Workshop	As per Section 2.8	x1
5. Tunnel Storage Area	As per Section 2.9	x1
6. Container Ramps	Supply and deliver galvanised mild steel (severe marine coated) container ramps as separate loose items. The container ramps must be able to be used as platforms for a forklift/scissor lift to drive into the workshop and tunnel storage areas.	x3
7. Concrete Pads	Supply and deliver concrete pads as separate loose items for each shipping container/prefabricated building. The concrete pads must be able to be used as flat surfaces for the building's low corner- and middle castings to rest on when delivered. The concrete pads must be able to withstand and share the weight of the entire modified building unit.	x30
8. Delivery and Placement	Delivery address: Eskom Holdings SOC Ltd Koeberg Nuclear Power Station R27 Road Melkbosstrand 7441 Building placement to be done as per attached drawing and Figure 1.	x1

Note: All furniture, tools, vehicles, fibre network cables/conduits/termination boxes and fire extinguishers are not included in this service.

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2.22. Specification of Product or Goods

- a) The shipping containers used for this project must be and ISO standard Corten steel first-shipment/one-tripper high cube containers. The shipping containers must be of such a quality to be modified into an office, kitchen, workshop, storage (forklift and scissor lift) and control room if used as a main building structure.
- b) Thermal insulation materials should be in compliance with appropriate national standards and regulations including fire safety requirements given in SANS 10400, SANS 428 and the recommended R values for the relevant climatic zones in accordance with SANS 204. The insulation material must also comply to SANS 1381-1 standard which relates to materials for thermal insulation of buildings.
- c) The coating/paint off all external equipment surfaces indicated in the description of service must be according to the Severe Marine Environmental Conditions Eskom Coastal Specification (UI: 240-75655504).
- d) All equipment and material used shall be of high quality and the work shall be of a high standard of workmanship carried out by qualified staff under proper supervision by experienced and competent officers.
- e) The entire modification process of all units must preferably be locally executed within the South African region.
- f) A Guaranteed warranty for all building units and a list of warranted delivered goods must be provided by the supplier during delivery.
- g) Insulation, continuity and earthing tests in accordance with SANS 10142-1 shall be carried out to the satisfaction and in the presence of the Engineer or authorised deputy on completion of the work.
- h) An installation Certificate of Compliance for the electrical installation issued by an accredited person as required by the Occupational Health and Safety Act, 1993 (Act 85 of 1993) shall be provided.
- i) Each distribution board shall be supplied with a test certificate. This certificate shall include all items as indicated in annexure 1 of SANS 1973-1 and annexure E of SANS 1973-3.

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