



public works
& infrastructure

Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

INTERNAL MEMORANDUM

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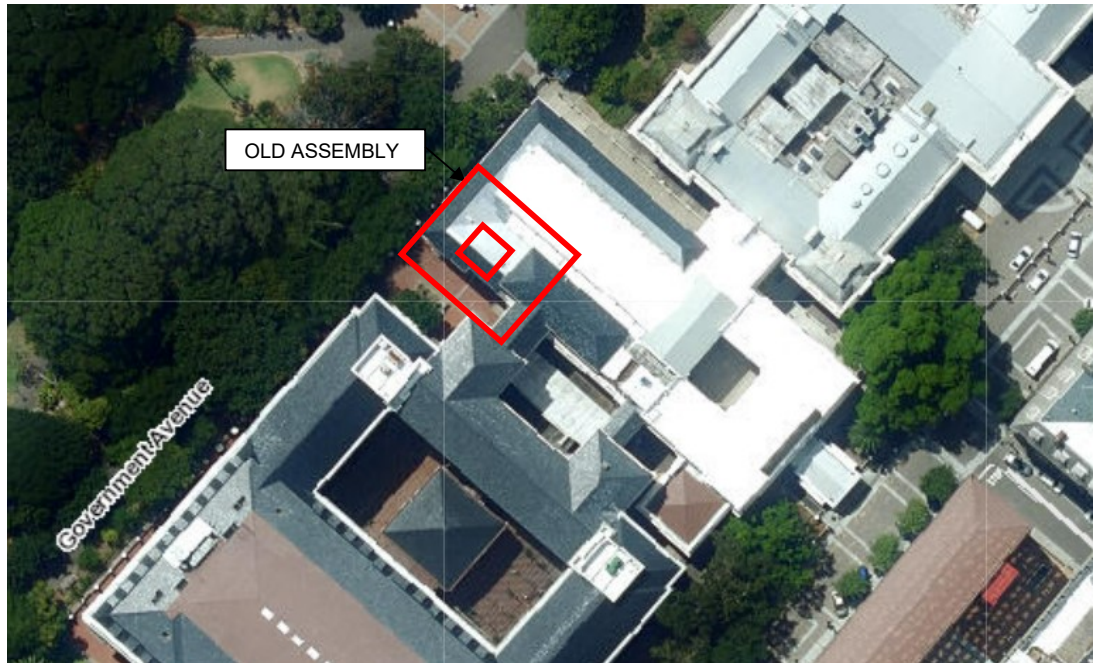
Subject:	Parliamentary Precinct : Old Assembly building-fire damage : Temporary Roof and gable stabilisation
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1. PURPOSE OF SUBMISSION.

- 1.1. Professional services from the Cape Town Regional Office of the National Department of Public Works and infrastructure (NDPWI) was requested to compile a scope of works and cost estimate for the construction of a temporary roof enclosure and the stabilization of the gable walls of the Old Assembly building in the Parliamentary Precinct. The recommendation for the temporary roof covering was made by Coega Development Corporation (CDC), who was appointed as the implementing agent to oversee the assessment process and who in turn appointed an independent specialist fire engineering task team appointed by *NDPWI*.
- 1.2. Professional services were instructed to source roofing contractors to quote for a design and supply temporary roof solution that is able to resist applied forces, is cost effective and can be done in the shortest possible period. This stemmed from a discussion with meeting brought about the decision to setup a high level scope of works/specification proposal Director Projects, Miss Thembeke Kolele. Following an online meeting on the 06th April 13, 2022, a decision was taken where th NDPWI structural engineer was instructed to compile a document with a high level cost estimate.
- 1.3. The meeting was attended by NDPWI officials that included (chief directors; Projects & Prestige), Professional services and Facilities management.

2. LOCALITY PLAN

- 2.1. The building is located between Parliament Street & Government Avenue. The affected area is highlighted in red in the image below. Access to the building is restricted therefore access should be arranged prior to visiting the site. See Annexure B for a locality plan of the Precinct



3. THE BUILDING

- 3.1. On Sunday, 2nd January 2022, a fire broke out in the Parliamentary Precinct in Cape Town. It is alleged that the fire started in the Old Assembly Building.

Assembly chambers. The South/East corner of the Old Assembly suffered severe damages to the 2nd floor level and the roof is completely gutted in the area surrounding the courtyard. It is prudent to protect the building in its current state by installing a temporary covering before winter. Preventing water ingress to the lower levels with little to no fire damage will limit future restoration costs. Several options/proposals have been explored and discussed during a coordination meeting with Prestige and NDPWI professionals 7th April 2022. The following options have been researched.

The affected area is approximately 650m² in plan area and the height is as follows. The 2nd floor internal floor to eaves level is about 5m and external ground floor to parapet height is approximately 13m.

4. PROPOSALS

Note: The temporary roof enclosure should last approximately 3 years or until the restoration construction project commences.

4.1. Option #1

- 4.1.1. Installation of a Bedouin tent, fixed at roof level
- 4.1.2. Advantages
 - Quick
 - Cost effective
 - Lightweight
- 4.1.3. Disadvantages
 - Not a durable solution – adding a tarp will exert additional lateral forces on a structure already compromised by fire.
 - Uncontrolled water drainage (problematic directional flow towards outlets)
 - Not an easy fix due to existing internal walls
- 4.1.4. Cost estimate
 - See cost estimate document from QS

4.2. Option #2

- 4.2.1. Renting props/scaffolding to support shutter board similar to deck staging equipment.
- 4.2.2. Advantages
 - No fixing to walls
- 4.2.3. Disadvantages
 - Expensive
 - Uncontrolled water drainage
 - Adding dead load to a slab that has not been declared structurally sound
 - Cast the area in darkness
 - Difficulty in access & circulation
 - Floor to be repaired prior to installation
- 4.2.4. Cost estimate
 - See cost estimate document from QS

4.3. Option #3

- 4.3.1. Providing a mono-pitched flat roof with sheeting supported on steel supporting members, draining water to the courtyard area with the necessary drainage elements.
- 4.3.2. Advantages
 - Provides weather protected covering
 - Lightweight
 - Installation is quick and easy
 - Timber members are readily available
 - Lower cost than dual pitch
 - Durable

- Design certification from a roofing contractor
- Option of using a combination of translucent polycarbonate sheeting together with galvanized corrugated metal sheeting to allow natural light to filter through.

4.3.3. Disadvantages

- None

4.3.4. Cost estimate

- See cost estimate document from QS

4.4. Option #4

Note: Both timber and lightweight steel support structures have been considered, however the timber supporting members is the preferred option.

4.4.1. Providing a mono-pitched flat roof with sheeting supported on timber rafters, draining water to the courtyard area with the necessary drainage elements.

4.4.2. Advantages

- Provides weather protected covering
- Lightweight
- Installation is quick and easy
- Lower cost than dual pitch
- Durable
- Design certification from a roofing contractor
- Option of using a combination of translucent polycarbonate sheeting together with galvanized corrugated metal sheeting to allow natural light to filter through.

4.4.3. Disadvantages

- None

4.4.4. Cost estimate

- See cost estimate document from QS

5. RECOMMENDATION

5.1. I recommend Option # 3 as the preferred option as it is the most viable solution however, in an emergency of this nature, its best to call upon professional roofing contractors who can not only install a temporary covering safely and quickly but also supply certification for the installation. There is a wide variety of solutions and they will be able to assist in choosing the best solution. In addition

5.2. Scope of works

It is important to note that an empirical design method was applied to select support members. See layout drawing attached in Annexure A

5.2.1. Brickwalls :

- Walls are to be repaired prior to roof installation. See crack repair spec attached.

5.2.2. Flat Roof :


- A combination of 0.47mm thick Galvanised Corrugated metal sheeting with 1mm Opal white corrugated polycarbonate sheeting to be used in an alternating sequence to allow for natural light.
- Sheeting supported on 76X50 Gr. 5 SAP timber battens (purlins) fixed to timber rafters with double hurricane clips
- Purlins supported on 228x76 Gr.5 SAP timber rafters to be spanning between walls.
- Eaves are completely destroyed therefore connection for rafters should be allowed for. Possibly strap rafters down a few brick course with steel strap chemically anchored to walls.
- Allowance should be made for closing up interface between new and existing roofs

5.2.3. Rainwater goods :

- An allowance to be made for gutters and rain water downpipes
- - An allowance to be made for galvanised waterproofing flashings at parapet walls and valleys.

5.2.4. Windows :

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- Windows to be closed up with shutter board

Sign 

Zelrise Sass
Chief Structural Engineer- NDPWI Cape Town Regional Office

DATE : 11 April 2022

CRACK REPAIR SPECIFICATION

The cracks in the walls can be repaired by means of the following methods:

SURFACE CRACKS

- Cracks that do not extend through the wall and terminate somewhere inside the wall can be considered as being surface cracks, as these cracks do not impair the structural integrity of the wall and can be repaired by means of normal cosmetic repair measures. (Typically, these cracks are less than 1,0mm in width)
- Repair measures for surface cracks consist of scraping the crack open with a sharp object, refilling it with flexible crack filler and repainting it. In face masonry raking out of joints to a depth of about 50mm and re-pointing with a polymer modified cement mortar may be necessary. Repairs to face masonry are inevitably visible. Some very fine cracks can be repaired by the application of a coat of paint.

SMALL CRACKS

- Cracks which are smaller than 2,0mm in width and extend through the width of the wall may be repaired in the following manner.
- Remove plaster for 200 to 300mm in the direct vicinity of the crack.
- Use a small angle grinder to cut a sharp edge where the existing plaster begins.
- Scrap the crack open and fill with cement mortar.
- Fix a piece of metal lath in this area using steel nails.
- Re-plaster and repaint the affected area.

MEDIUM TO LARGE CRACKS

- Cracks which are smaller than 10mm in width and where large deformations are expected in the future, may be repaired by stitching with steel reinforcement as described below.
- Remove plaster for 200 to 300mm in the direct vicinity of the crack.
- Use a small angle grinder to cut a sharp edge where the existing plaster begins.
- Bend a 500mm long, 6mm diameter rod into a staple so that the ends of the staple are about 100mm long and the staple has a length of about 300mm.
- Epoxy the ends of staples into predrilled holes in the wall on either side of crack so that the staple is approximately at right angles to the crack.
- Repeat steps 3 to 4 so that staples are installed along the length of the crack, about 200mm apart.
- Scrap the crack open and fill with cement mortar.
- Fix a piece of metal lath in the area using steel nails.
- Re-plaster and repaint the affected area.

8.4 EXCESSIVE CRACKS

- Where crack widths exceed 10mm or areas where the wall has crumbled into small blocks, it will require extensive repair work, or where walls have leaned or bulged, sections of walls should be broken out and replaced. Face bricks that are replaced with new face bricks might have a substantial difference in colour.

ANNEXURE A
(OLD ASSEMBLY FIRE DAMAGE-TEMPORARY ROOF
ENCLOSURE LAYOUT)

ANNEXURE B (LOCALITY PLAN)