

# Posmi Sweaters Ltd (10170)

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## Identified Priority 1 Concerns

- The structural system does not match the construction documentation and heavy localised loading.
- Beam locations and arrangements vary from floor to floor.

## 1<sup>st</sup> Priority 1 Concern



During our survey, we noted very heavy loading at certain levels, (roughly calculated at typically 5.4kPa), this included the flat slab floor. Considering that the Structural drawings originally specified down-stand beams and a slab of 165mm thickness, we are concerned with potential punching shear failure of the flat slab. The loading should be reduced immediately to a maximum load of 3.0kPa.



## 2<sup>nd</sup> Priority 1 Concern

During our survey, we found that the structural floor system varied from floor to floor.

A typical floor had transverse and longitudinal beam on main gridlines. Most floors had beams also around their perimeter.

At 3<sup>rd</sup> floor level there were no down-stand beams and other floors had different arrangements of beams.

When asked, the original Design Engineer confirmed that this should not be the case.

We require a full Detailed Engineering Assessment of the building to investigate these discrepancies.

## Identified Priority 2 Concerns

- Documentation not available for the structural steel shed at roof level and the utility building at ground floor level.



## 1<sup>st</sup> Priority 2 Concern

No construction documents were available for any of the structural steel sheds. A design check of all of the structural steel must be included in the Detailed Engineering Assessment. Furthermore, the original technical documents should be located or new As-Built drawings produced.



## Identified Priority 3 Concerns

- Reinforcement steel exposed at roof level.
- The roof 'Accent' parapet is weakly constructed.

## 1<sup>st</sup> Priority 3 Concern



At roof level, reinforcement steel is exposed on the surface of the roof slab. The concern must be corrected immediately in order to protect the reinforcement from corrosion and insure that the slab's strength is maintained.



## 2<sup>nd</sup> Priority 3 Concern

At roof level, the 'Accent' terracotta parapet is very poorly constructed. In a high wind or seismic situation the parapet would be at risk of collapse. It should be reinforced, strengthened or removed to prevent it from being a danger.



Terracotta 'accent' parapet

# Overall Stability System



We believe that the intent of the original structural design was to use the main grid line beams to provide some form of lateral stability via moment frame action.

However, as some of the beams are missing and there is one floor built as a flat plate with no beams, then the lateral stability strategy is greatly affected. Under lateral loads the additional loads attracted to columns may cause a risk of local punching shear failure.



We require that the lateral support system is investigated as part of a Detailed Engineering Assessment.

# Water Ingress at Roof Level



No waterproofing membrane was visible on the roofs. This means that any cracks in the surface will allow water to seep into the concrete slab and cause long-term soaking of the slab.

# Priority Actions

## Problems Observed Summary

- ITEM 1: Priority 1** – High concrete stress levels due to current loading – Column Design and Punching Shear concerns.
- ITEM 2: Priority 1** – Missing beams and varying positions between different floors – Stability Concerns.
- ITEM 3: Priority 2** - Documentation not available for the structural steel sheds located on the roof and utility building at ground floor.
- ITEM 4: Priority 3** - Exposed slab reinforcement at roof level.
- ITEM 5: Priority 3** – ‘Accent’ parapet at roof level.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	High concrete stress levels due to current loading – Column Design and Punching Shear concerns.	Reduce all floor loading down to 3.0kPa.	Immediate – Now
2	High concrete stress levels due to current loading – Column Design and Punching Shear concerns	Verify in situ concrete stresses either by existing cylinder strength data or 100mm dia. cores from 4 columns and slabs. Carry out a Detailed Engineering Assessment of the entire structure.	6-weeks
3	High concrete stress levels due to current loading – Column Design and Punching Shear concerns	Create and actively manage loading plans for all floors.	6-months
4	Missing beams and varying positions between different floors – Stability Concerns.	Perform a the previously mentioned Detailed Engineering Assessment and investigate the overall stability.	Immediate – Now
5	Missing beams and varying positions between different floors – Stability Concerns.	If deemed necessary by the DEA strengthen or carry out any remedial or new building works as recommended.	6-weeks
6	Missing beams and varying positions between different floors – Stability Concerns.	Complete, monitor and maintain any strengthening works.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
7	Documentation not available for the structural steel sheds located on the roof and utility building at ground floor.	The Factory Engineer is to carry out an assessment of the walls and steel roofs of the sheds and evaluate their capacities to resist uplift and lateral forces due to high winds.	6-weeks
8	Documentation not available for the structural steel sheds located on the roof and utility building at ground floor.	If deemed necessary by Factory Engineer, carry out any remedial works recommended.	6-months
9	Exposed slab reinforcement at roof level.	Factory Engineer to provide details to repair the slab and provide adequate cover and waterproof the bars.	6-weeks
10	Exposed slab reinforcement at roof level.	Carry out and complete the remedial works to protect slab.	6-months
11	'Accent' parapet at roof level.	The Factory Engineer must carry out an assessment of the design of the parapet.	6-weeks
12	'Accent' parapet at roof level.	The Factory Engineer must carry out an assessment of the design of the parapet.	6-months