

Chorka Textiles Ltd.

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Observations

Stability: lack of obvious restraint of typical building frame



- No bracing provided in shaded region.
- Building appears to be unable to resist horizontal load as indicated

- Concrete columns used throughout buildings on compound, with solid masonry façades.
- For Production and generator buildings, internal RC beams are provided in longitudinal direction only.
- No evidence of bracing or moment connections between outer face of building and internal frame in transverse direction.
- It is unclear how the structure can withstand transverse horizontal loading. Of particular concern are Production Buildings 1 and 3, as the height of the perimeter walls is 7m and therefore subject to high wind forces.

Observations

Columns out of plumb in Production buildings



- In several columns in both Production Buildings 1 and 3, columns appeared out of plumb. This was also visible in the façade on the eastern face of Building 3.
- This could be due to poor workmanship when the building was being constructed, or due to settlement of the foundations.

Observations

Cracking in Warehouse and Facility Buildings



- In the warehouse building, cracking was observed at the bottom corner of each of the windows on ground floor.
- A diagonal crack was also noticed on the inside of one of the wall panels on the northern side of the building.
- Some hairline cracking was noticed on the walls of the facility building.
- This cracking appeared from visual inspection to be due to settlement.

Observations

Anchorage of canopies in warehouse



Canopy bracket welded to rebar



- Metal canopies over each of the loading bays in the warehouse.
- Supporting trusses hung from the top where a bracket extended into the building column and was welded to the exposed rebar.
- This support mechanism is inadequate and could be unstable under wind loading/uplift

Observations

Documentation

- Four 10,000 litre water tanks on the roof of the warehouse.
- Building Owner advised that in the future this capacity was to increase to 60,000 litres.
- Structural drawings show six 5,000 litres tanks.
- Column head on gridline A1-01 has 9 bars, where the drawing calls for 12 bars.
- Services mast was observed on the roof of toilet block on the southern side of Production Unit 1. This was not present on any of the drawings.



Water tanks on warehouse



Mast structure

Observations

Non-engineered roof over stairwells in warehouse



A light metal roof was provided over each of the stairwells in the warehouse building. These appeared to be light and non-engineered.

Light section sizes used as purlins

Roof structure welded to exposed rebar in columns

Observations

Water damage in soffit of 1st floor below water tanks in warehouse



Water staining

- Under the water tank locations, staining of the soffit of the 1st floor beam was evident.
- During our inspection, there was a significant leak in these tanks. The building owner was notified of this leak and ensured us that this would be rectified.

Observations

Construction security/safety in warehouse



Lift shaft opening



First floor parapet missing

The first floor of the warehouse building is currently under construction. A number of observations were made in relation to construction security/safety. These are:

- The lift shaft on ground floor was left open. This should be blocked off.
- The stair well was not closed off. Only authorised staff should be allowed to the roof.
- No edge protection around perimeter of 1st floor.

These observations should be acted upon immediately.

Observations

Storage in eastern stairwell of warehouse



The stairwell on the northern side of the warehouse building is used for construction material storage.

Observations

Non-engineered roof over water treatment plant



A roof covering the water treatment plant appears to be non-engineered. The main issues observed are:

- No bracing provided to the structure.
- Structure does not appear to be designed to withstand wind load.
- Section sizes appear to be light.

Observations

Radio mast is unsecure



- The radio mast located on the Northern side of Production Building 3 is unstable.
- Three cables are currently in place but offer no structural support in their current state.

This mast requires urgent attention.

Observations

Problems Observed

1. Telecoms mast at the front of Building 3 to be made safe.
2. No edge protection at first floor of the warehouse.
3. Lateral load design for the production buildings.
4. Design strength of the columns to resist lateral loads in bending.
5. Documents do not match the as-built in the warehouse, or show masts.
6. Cracking noted in the wall panels of the warehouse.
7. Concrete internal columns noted off-plumb in production buildings.
8. Non-engineered roofs to the stair wells of the warehouse and over the water treatment plant.
9. Canopy fixings in the warehouse not properly engineered.

| Item No. | Observation | Recommended Action Plan | Recommended Timeline |
|----------|--|--|------------------------|
| 1 | The telecoms mast at the front of Building 3 to be made safe | The telecoms mast is currently un-restrained. Mast to be restrained/stayed or taken down immediately, stayed system to be engineered prior to placement. | Immediate - Now |
| 2 | The telecoms mast at the front of Building 3 to be made safe | Permit to be sought for mast | 6-weeks |
| 3 | No edge protection at first floor of the warehouse | Restrict access to 1st floor level of the warehouse building until construction is completed | Immediate - Now |
| 4 | The design for lateral loads within Buildings 1 and 3 | Building Engineer to carry out calculations with a model-based design check to assess the safety and serviceability of the building against loading as set out in BNBC-2006, | 6-weeks |
| 5 | The design for lateral loads within Buildings 1 and 3 | Lateral stability of the production buildings to be part of check. | 6-weeks |
| 6 | The design for lateral loads within Buildings 1 and 3 | The lateral stability system to be clearly laid out and member sizes checked for this loading condition. | 6-weeks |
| 7 | The design for lateral loads within Buildings 1 and 3 | Amend building as required from engineering assessment. | 6-months |

| Item No. | Observation | Recommended Action Plan | Recommended Timeline |
|----------|---|--|----------------------|
| 8 | Design strength of the columns to resist lateral loads in bending | Building Engineer to carry out calculations with a model-based design check to assess the safety and serviceability of the building against loading as set out in BNBC-2006. | 6-weeks |
| 9 | Design strength of the columns to resist lateral loads in bending | Adequacy of the RC columns in the production units and Facilities building to be part of check. | 6-weeks |
| 10 | Documents do not match the as-built in the Warehouse, or show Masts | Building Engineer to survey and amend drawings to include alterations to warehouse and additional structures such as the two masts. | 6-weeks |
| 11 | Cracking noted in the wall panels of the warehouse | Building Engineer to investigate wall panel cracking noted in the warehouse building. | 6-weeks |
| 12 | Cracking noted in the wall panels of the warehouse | Carry out any remedial / strengthening works following engineering investigation. | 6-months |
| 13 | Concrete internal columns noted off-plumb in production buildings | Building Engineer to investigate the cause and impact of the internal off-plumb RC columns. | 6-weeks |
| 14 | Concrete internal columns noted off-plumb in production buildings | Carry out remedial works as required by engineering investigation. | 6-months |

| Item No. | Observation | Recommended Action Plan | Recommended Timeline |
|----------|---|--|----------------------|
| 15 | Non-engineered roofs to the stair wells of the warehouse and over the water treatment plant | The roofs to the stair wells in the warehouse and the roof over the Water treatment plant to be assessed by Building Engineer. | 6-weeks |
| 16 | Non-engineered roofs to the stair wells of the warehouse and over the water treatment plant | Implement actions arising from assessment. | 6-months |
| 17 | Canopy Fixings in the warehouse not properly engineered | The canopy fixings to the warehouse building have not been properly engineered. Building Engineer to review and make recommendations | 6-weeks |
| 18 | Canopy Fixings in the warehouse not properly engineered | Carry out the above works | 6-months |