

**Majumder Garments Ltd (9380)**

**Majumder Knitwear Ltd (11563)**

**Majumder Packaging Ltd**

Plot #415-417, Hariarpara, Panchabati, Fatullah, Narayanganj

(+23.632002N, 90.476212E)

25.May.2014



## Identified Priority 1 Concerns

Main building –

Columns rebar does not match documentation provided;  
loading to be reduced to acceptable stress levels

Main building –

Brick columns shown on As-Built Drawings to support the  
roof

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



We surveyed a typical 250 mm x 300mm column. Two columns were Ferroscored. One showed 6 bars and the other showed 8 bars. We estimated the bars at 16mm, as per as-built drawings.

Loading on typical column reflects approx. 2 kPa. High brick partitions with plaster on both sides are also found certain areas of building.

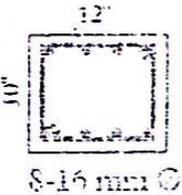
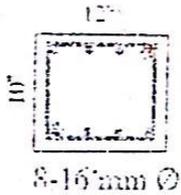
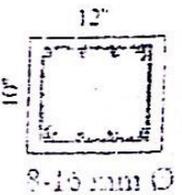
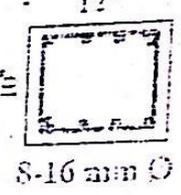
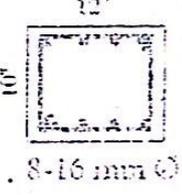
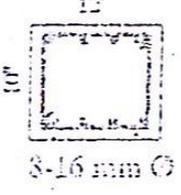
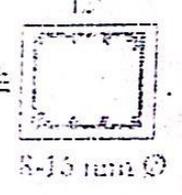
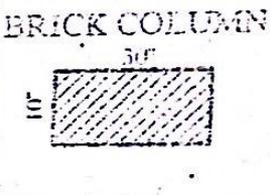
Both columns were in the new section of the building. We were unable to ferroscore a column in the original building due to all the partition.

We require a full Detailed Engineering Assessment.

Example of what we believe to be a column dated from 2001 that goes down to the foundation level

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

The As-Built drawings show brick columns from the 3<sup>rd</sup> to 4<sup>th</sup> floor. These would likely fail in a case of a major seismic event. As the column layout does not reflect the As-Built drawings, the whole third floor should extensively be reviewed during the Detail Engineering Assessment.

C-6	13"X15"				
C-6A	13"X15"				

Found in original building

## Identified Priority 2 Concerns

Auxiliary dormitory sheds in the courtyard are flimsy

Main Building - As-Built documentation is incomplete

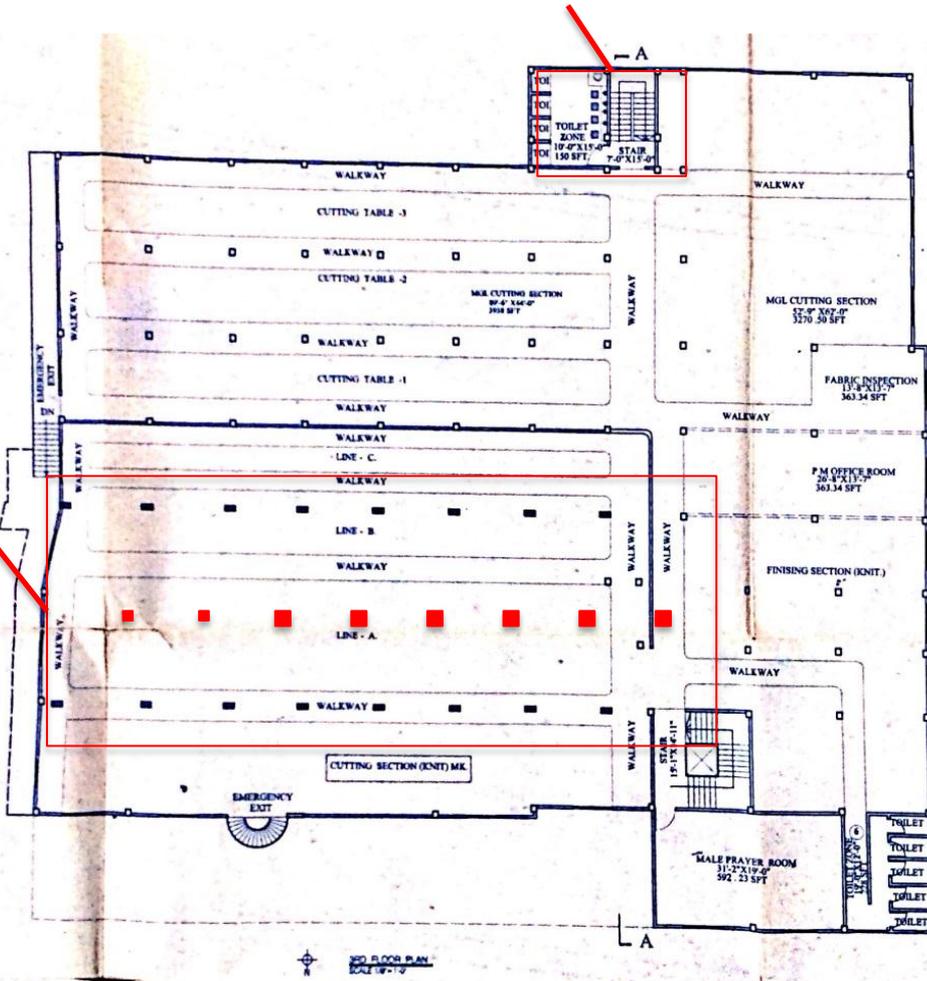


## 1<sup>st</sup> Priority 2 Concern

Since the sheds house workers of the factory and are poorly constructed. They should be reinforced or strengthened to prevent them from being a danger during high winds or earthquakes.

Water tank at roof

Column spacing is inaccurate



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

During our survey, we found that the As-Built drawings had some inaccurate information and missed some critical elements.

For example, we found a tighter grid spacing at the 3<sup>rd</sup> floor. We also found a water tank above one of the staircases.

Finally, the As-Builts should show the difference between the original building and the new building. The new drawings should also mention allowable loads of particular areas like the green roof which carry heavy loads like planters and trees.

# Overall Stability System



**We require that these items be investigated in a Detail Engineering Assessment**

Low sway stability of building could probably be expected from rigid frame system (beam and column participation) although no ductile detailing is provided in structural plans. Furthermore, due to the compression stress in the columns, we are concerned that there is no reserve for flexural stresses due to lateral loads.

Periphery brick infill walls are unrestrained and should not be considered.

Finally, the brick columns shown on the current As-Built drawings have limited ductility and are expected to fail in case of a major earthquake.

# Water Ingress at Roof Level



No waterproofing membrane was visible on the roof of the building. This means that any cracks in the surface finishes on the roof will allow water to seep into the concrete slab beneath the finishes, and cause long-term soaking of the slab. Same goes for water tanks at roof.

# Priority Actions

## Problems Observed Summary

**ITEM 1: Priority 1** - Main building – Columns rebar does not match documentation provided; loading to be reduced to acceptable stress level

**ITEM 2: Priority 1** - Main building – Brick columns shown on As-Built Drawings to support the roof

**ITEM 3: Priority 2** - Auxiliary dormitory sheds in the courtyard are flimsy

**ITEM 4: Priority 2** - Main Building - As-Built documentation is incomplete

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Main building – Columns rebar does not match documentation provided; loading to be reduced to acceptable stress level .	Reduce all storage on all floors to 2kPa. Verify in-situ stress and material properties by testing 100mm dia. Concrete cores of 4 columns. Commence Detailed Engineering Assessment.	Immediate - Now
2	Main building – Columns rebar does not match documentation provided; loading to be reduced to acceptable stress level .	Create and actively manage loading plan for all floors by putting a signage and have a factory warden to ensure that these rules are followed throughout the factory.	6-weeks
3	Main building – Columns rebar does not match documentation provided; loading to be reduced to acceptable stress level .	Maintain the loading plan.	6-months
4	Main building – Brick columns shown on As-Built Drawings to support the roof.	Engineer to verify the capacity of the brick columns to resist gravity and lateral loads. (Include in DEA).	Immediate - Now
5	Main building – Brick columns shown on As-Built Drawings to support the roof.	Carry out any remedial work deemed necessary by the DEA.	6-weeks
6	Auxiliary dormitory sheds in the courtyard are flimsy.	Reinforce structural elements to resist gravity loads & lateral loads for all sheds in the courtyard.	6-weeks
7	Main Building - As-Built documentation is incomplete.	Update As-Built drawing in order to provide more information with regard to the following elements: - Water tank at roof - Original vs Extension - 3rd Floor structural system (grid spacing, column size & materials) - Planter and tree loading information on 1st floor roofs.	6-weeks