GK Garments Ltd (10378)
Global Fashion Garments Ltd (10380)
Global Outerwear Ltd (9991)
Savar Shirts (10394)

89, Berulia Road, Tati, Savar, Dhaka, Bangladesh.

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20.MARCH.2014

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Identified Priority 1 Concerns

1st Priority 1 Concern

In many areas of the building, clothes have been stacked to unreasonably high levels despite there being plenty of space available to stack the clothes over a wider area.

The clothes should be stored such that the live load does not exceed 3kPa for any particular slab panel.

Excessive Storage Height of Garments

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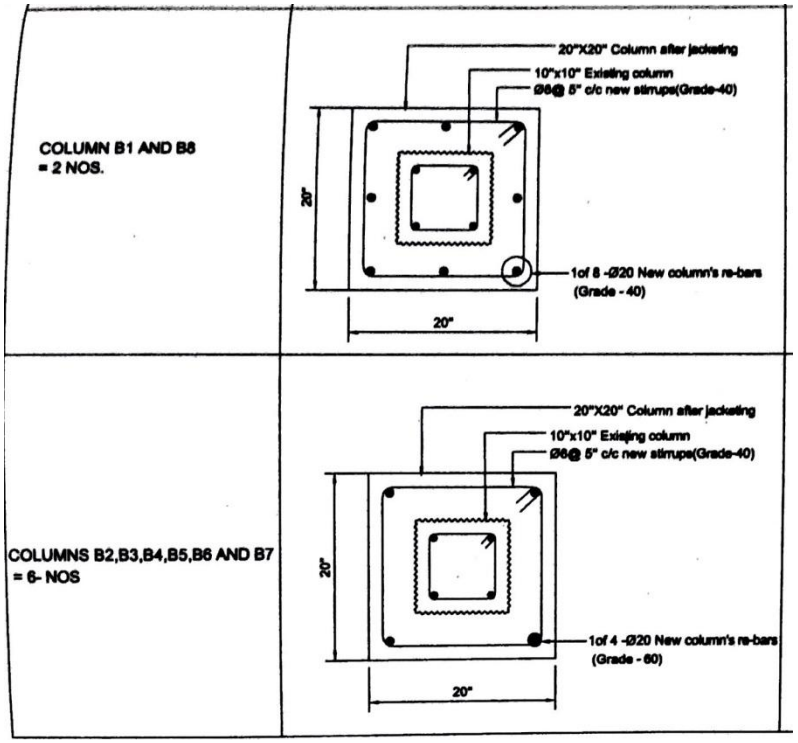
Identified Priority 2 Concerns



1st Priority 2 Concern

The drawings show that column B2 is a 508x508mm column, but the dimension on site only shows 381x381mm. As this is a supposedly “strengthened” column, we cannot see any evidence of this, even if the original column size was perceived to be 254x254mm. However, the building engineer has assured us that strengthening works have taken place.

Size of column B2 of Block B differs between site and drawings

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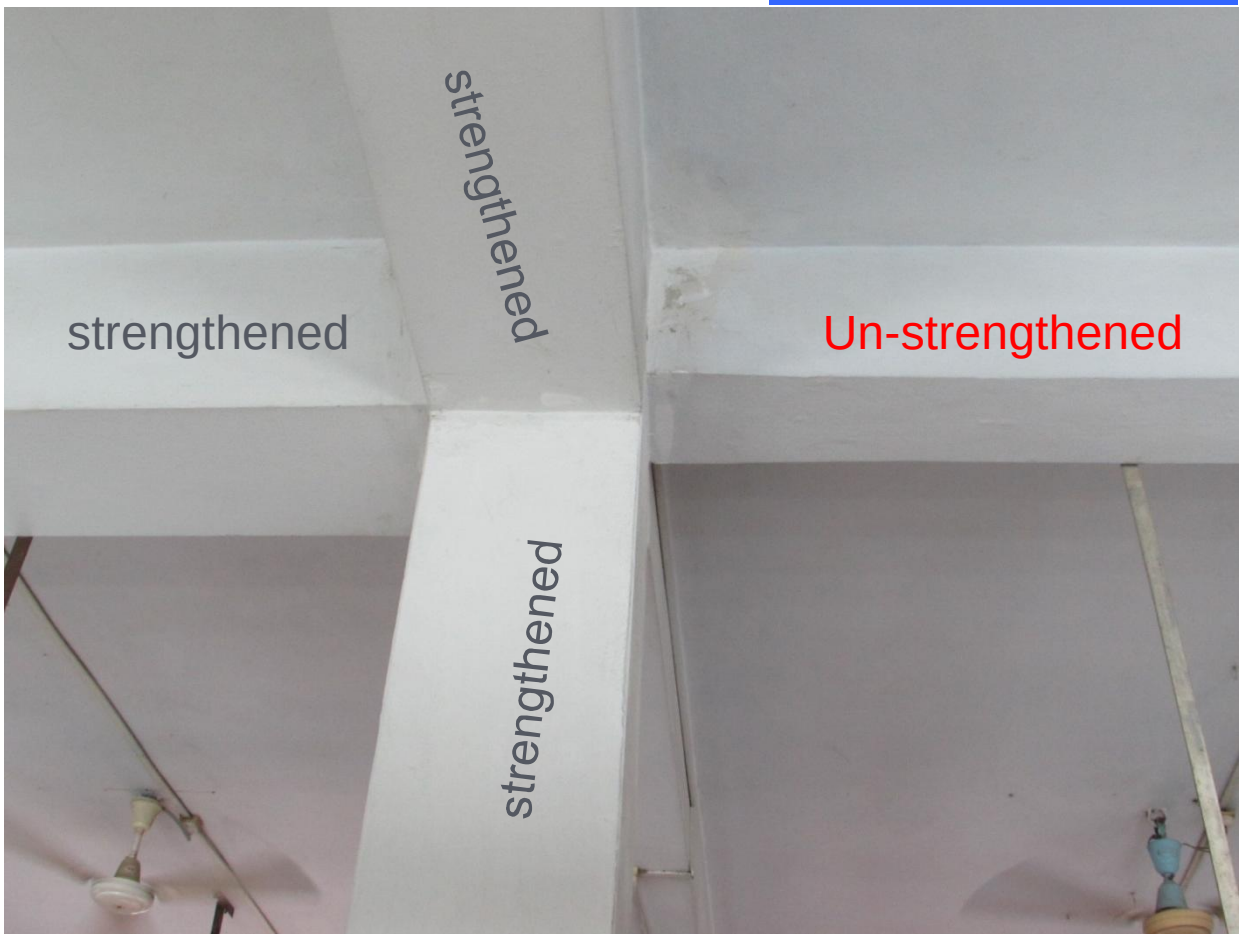
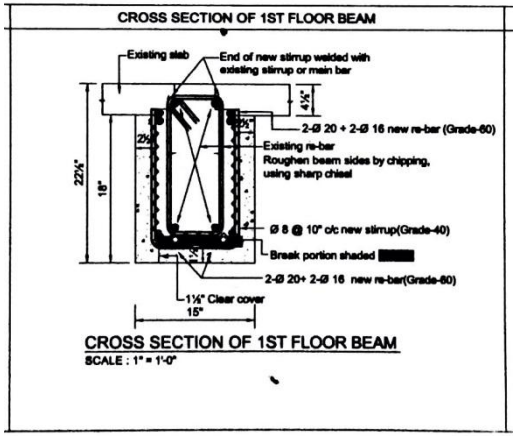
2nd Priority 2 Concern



The upgrade of the existing Block B included the strengthening of all the existing beams to upgrade the imposed load capacity, and to strengthen them to due to the increase in building height and increase lateral load resistance from wind and seismic forces. However, there are some beams on G/F ceiling which have been selectively omitted from strengthening, and there seems to be no reason for this.



Size of column B2 of Block B differs between site and drawings

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3rd Priority 2 Concern

This building has a total of three buildings joined together. Each building is separated by a movement joint. However, it can be seen at several locations that excessive deflection of the structure has caused significant differential settlement.

In other areas, the upper floors have smaller beams than the lower floors, and also thinner slabs (some as thin as 88mm). The upper floor beams of Block B only show significant signs of cracks.

Exposing one of the beams revealed that honeycombing of the concrete could be a reason for some cracks appearing.

Numerous Structural Defects have Appeared in Block B

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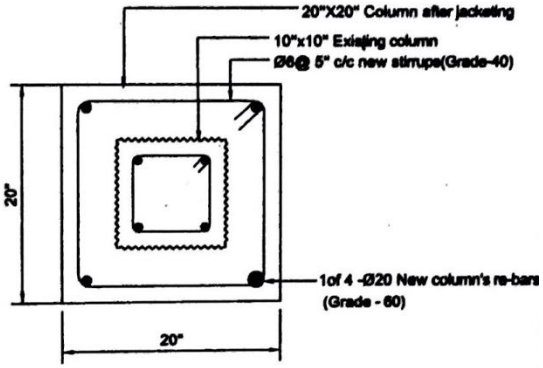
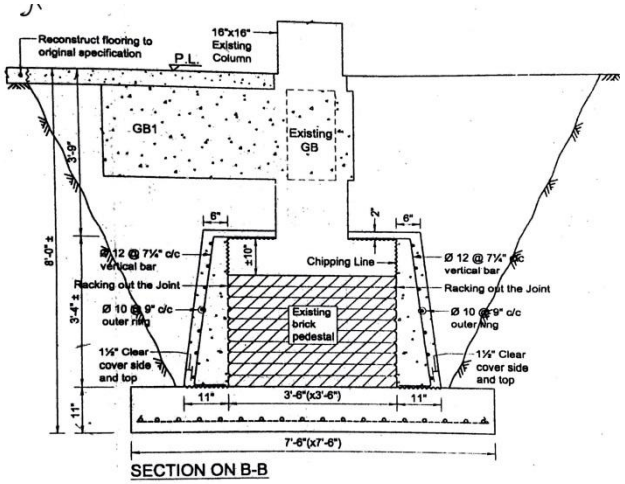
3rd Priority 2 Concern



- Rebar spacing exceeds maximum
- Concrete grade of new concrete and steel grade of new rebar maybe significantly stronger than the original concrete and rebar causing unbalanced stiffness distribution and possible concentration of stress at concrete interface



- It is considered that brick and mortar is not a suitable medium to transfer column loads from the original pad footing to the new pad footing.
- It is also considered that 11 inches for the new footing is too thin given that it would be almost impossible to guarantee even ground compaction underneath the footing

The perceived quality of the drawings, in particular for the strengthening works for Block B appear to be unsatisfactory. Although strengthening works have been proposed, it is felt that the design of the strengthening works is fundamentally flawed.

Strengthening Design Works Appear Fundamentally Flawed

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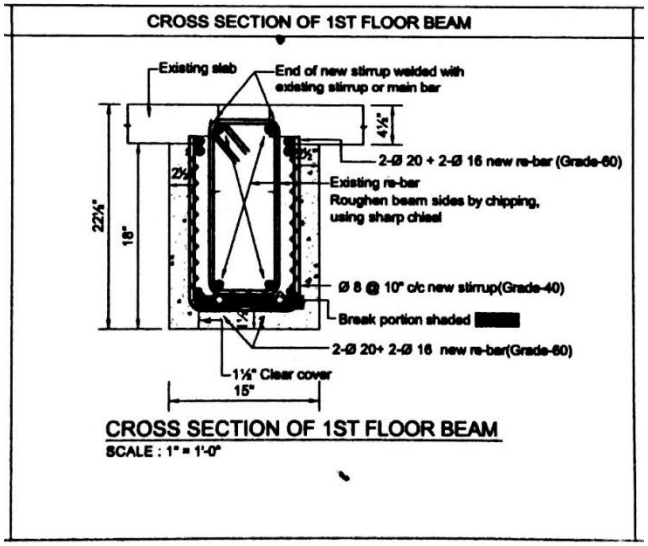
3rd Priority 2 Concern



- The new concrete jacket around the existing beam as well as the rebar may be significantly stronger than that of the existing beam, thus causing unbalanced stress distribution throughout the beam.
- The stirrup does not enclose the whole beam, and the jacket only relies on the bond between the old and new concrete, which may develop overstress due to the unbalanced stress distribution.
- There is insufficient bond length of the stirrup into the slab.

Strengthening Design Works Appear Fundamentally Flawed

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Identified Priority 3 Concerns

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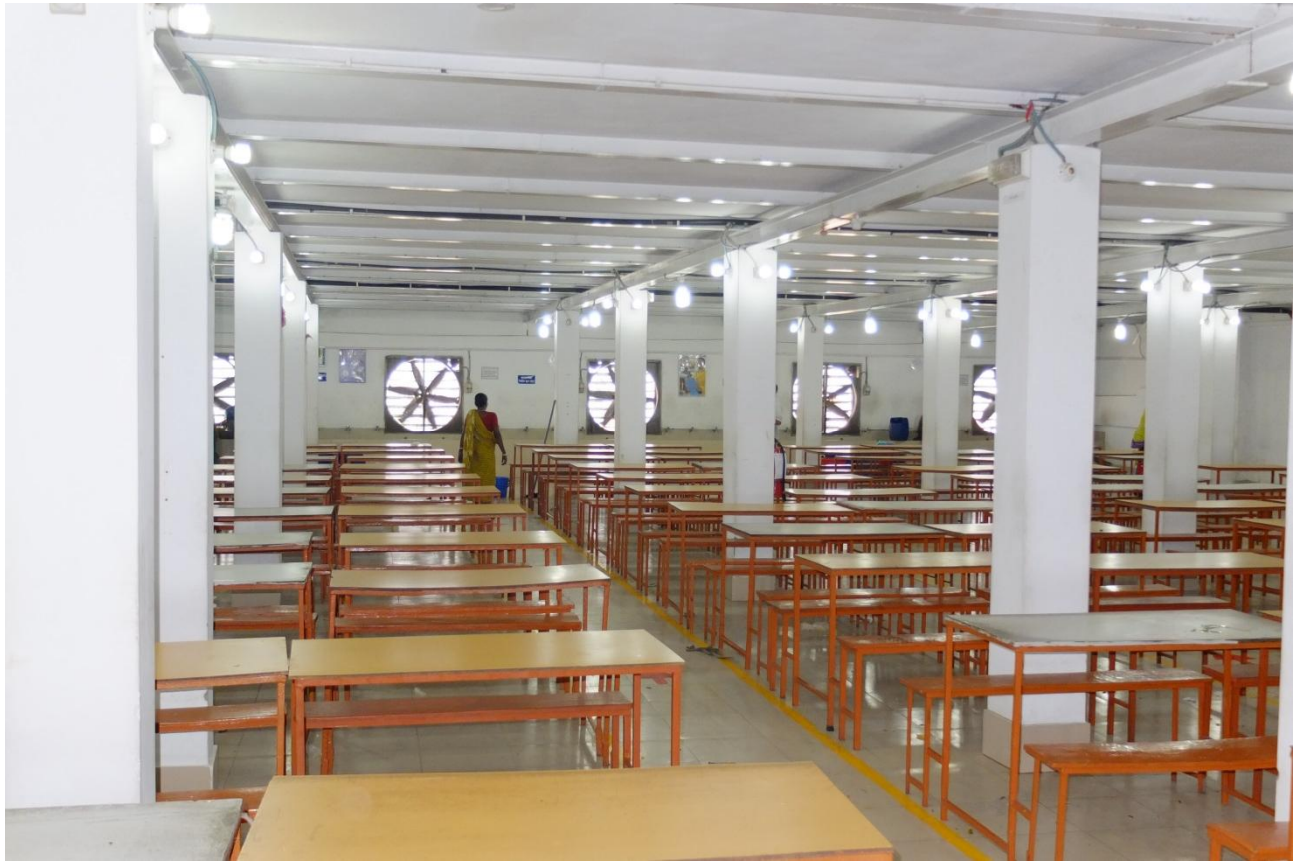
1st Priority 3 Concern



The roof slab of Block B is a 88mm concrete slab supported on steel members.

It appears that the steel members have not been treated with any fireproofing system.

In addition, it was noticed that some of the movement joints had disappeared from the roof floor.

Numerous Structural Defects have Appeared in Block B

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Problems Observed Summary

ITEM 1: (1st Priority 1) Excessive storage height of garments observed

ITEM 2: (1st Priority 2) Column size in Block 2 does not match with the as-built drawings

ITEM 3: (2nd Priority 2) Some beams at G/F ceiling (1/F beams) have been selectively left un-strengthened

ITEM 4: (3rd Priority 2) Numerous structural defects exist in Block B

ITEM 5: (4th Priority 2) Strengthening design works appear fundamentally flawed

ITEM 6: (1st Priority 3) Steel members of roof floor of Block B are not fire protected in any way

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Item 1 and actions

Excessive storage height of garments observed.

Priority 1 (Immediate – Now)	• Redistribute garments around the floor area to ensure that no stack exceeds 300kg/m^2
Priority 2 (within 6 – weeks)	• Implement loading plan and oversee that storage of finished goods and raw materials are stored in accordance with the loading plan.
Priority 3 (within 6-months)	• Maintain loading plan

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Item 2 and actions

Column sizes in Block 2 does not match with the as-built drawings

Priority 1 (Immediate – Now)	• Factory Engineer to review design, loads and columns stresses in all areas • Verify insitu concrete stresses either by 100mm dia. cores or existing cylinder strength data.
Priority 2 (within 6 – weeks)	• A full structural survey of the building is to be carried out using intrusive and non-intrusive methods to ascertain the overall accuracy of the existing record drawings.
Priority 3 (within 6-months)	• Prepare new as-built drawings and a new loading plan for each floor which should be maintained and monitored regularly

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Item 3 and actions

Some beams at G/F ceiling have been selectively left un-strengthened.

Priority 1 (Immediate – Now)	• None required
Priority 2 (within 6 – weeks)	• Building Engineer to carry out full assessment of structure to ascertain reason for the beam not strengthened. • A full structural survey of the building is to be carried out using intrusive and non-intrusive methods to ascertain the overall accuracy of the existing record drawings. • Carry out strengthening works if found necessary
Priority 3 (within 6-months)	• Update drawings in accordance with the as-built details

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Item 4 and actions

Numerous defects have been detected in Block B in particular

Priority 1 (Immediate – Now)	• Ensure the actions in Priority Actions 1, 2 and 3 have been carried out in full.
Priority 2 (within 6 – weeks)	• In accordance with the actions in Item 2, carry out survey to ascertain the reasons for the defects observed, • Propose remedial measures for the defects
Priority 3 (within 6-months)	• Carry out remedial works • Observe structure for continuing appearance of structural defects

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Item 5 and actions

Strengthening design appears fundamentally flawed

Priority 1 (Immediate – Now)	• None required
Priority 2 (within 6 – weeks)	• Building engineer required to produce full calculations and justifications for the entire strengthening works design
Priority 3 (within 6-months)	• If strengthening works are found to be unsatisfactory, then remedial proposals to be immediately discussed and implemented.

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Item 6 and actions

Steel members of roof floor of Block B are not fire protected in any way

Priority 1 (Immediate – Now)	• None required
Priority 2 (within 6 – weeks)	• None required
Priority 3 (within 6-months)	• Apply suitable fire-proofing system to the steel structure to protect it from fire for a period of 120 minutes.