

ARA/Apparel Export Co. Ltd. (10716)

2/C Darussalam rd., Mirpur, Dhaka, Bangladesh

(23.783062N, 90.351989E)

20.MARCH.2014

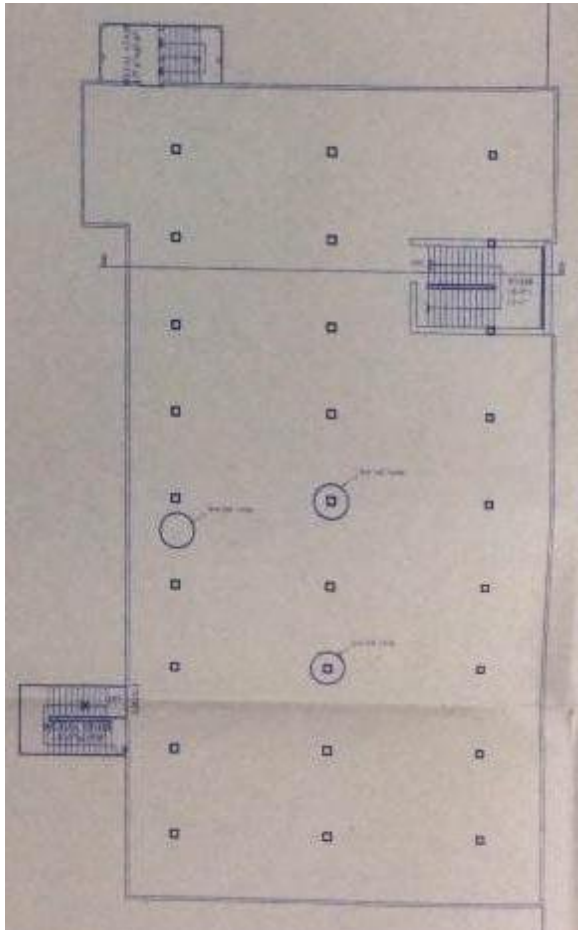


Identified Priority 1 Concerns

Adequacy of column and foundation capacity are required to be investigated.

Building 1:

Priority 1 Concern



Empty area for 4th and 5th floor.

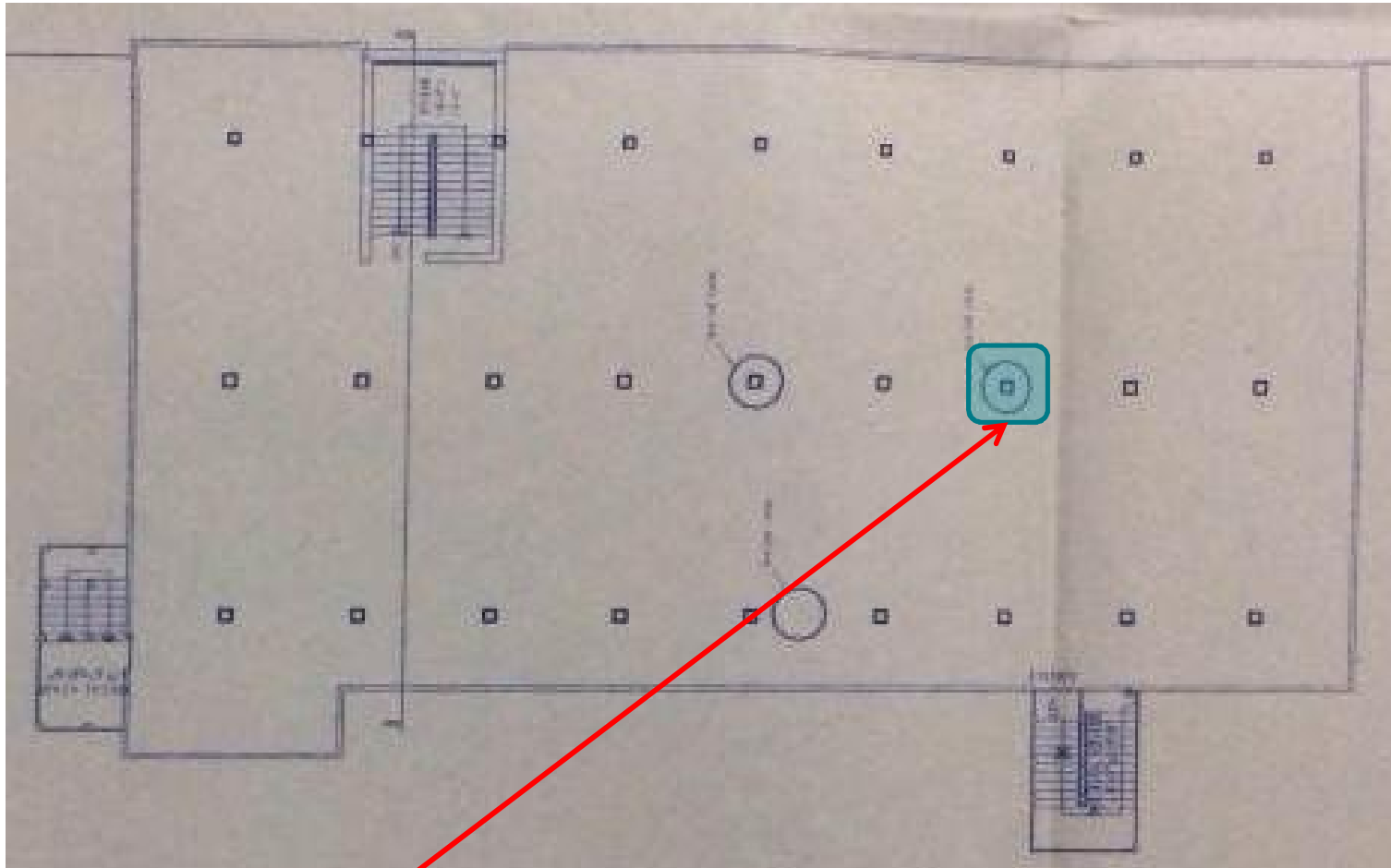


Column on ground floor.

- **NOTE:** The adequacy of column and foundation capacity are required to investigate further and must be kept empty until a Detailed Engineering Assessment is carried out and any remedial measures resulting are completed.

Building Extents

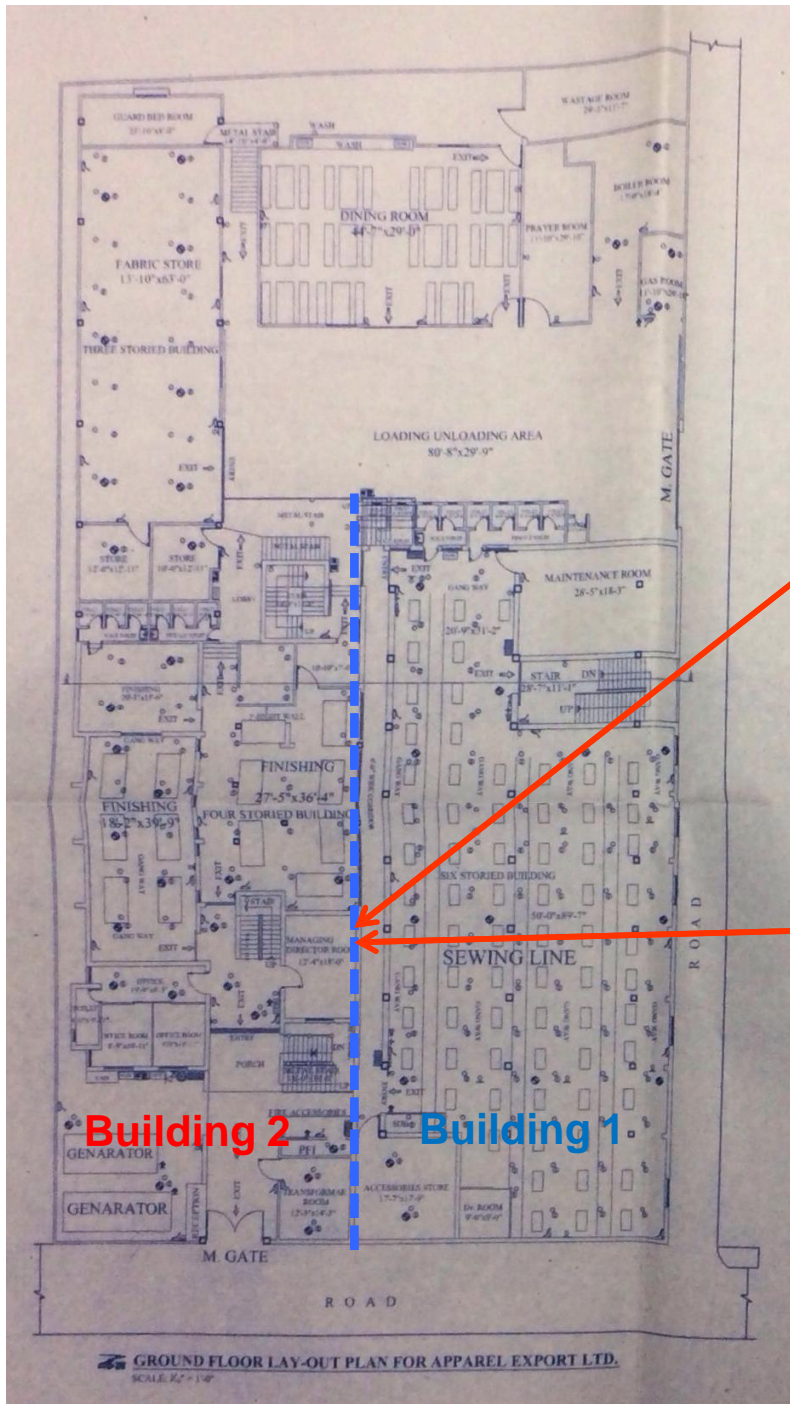
Key Column Check for Building 1:



Load rundown at the key steel column, it is found that the column is within the range of FOS less than 1.25 which is **RED** rating.

Internal Column Stress

No movement joint properly established
to separate Building 1 and Building 2



Priority 1 Concern



----- Movement joint to be established properly



This beam appeared to be supported by column from building 1

No movement joint established properly to separate building 1 and 2. Building assessment including column and foundation capacity check are required.

Identified Priority 2 Concerns

Uncontrolled Heavy Storage Loading

Building 2:

Priority 2 Concern



Uncontrolled heavy storage on third floor.
Reduce stacking height of storage to ensure
total load does not exceed 3.0kPa.

Building 3:

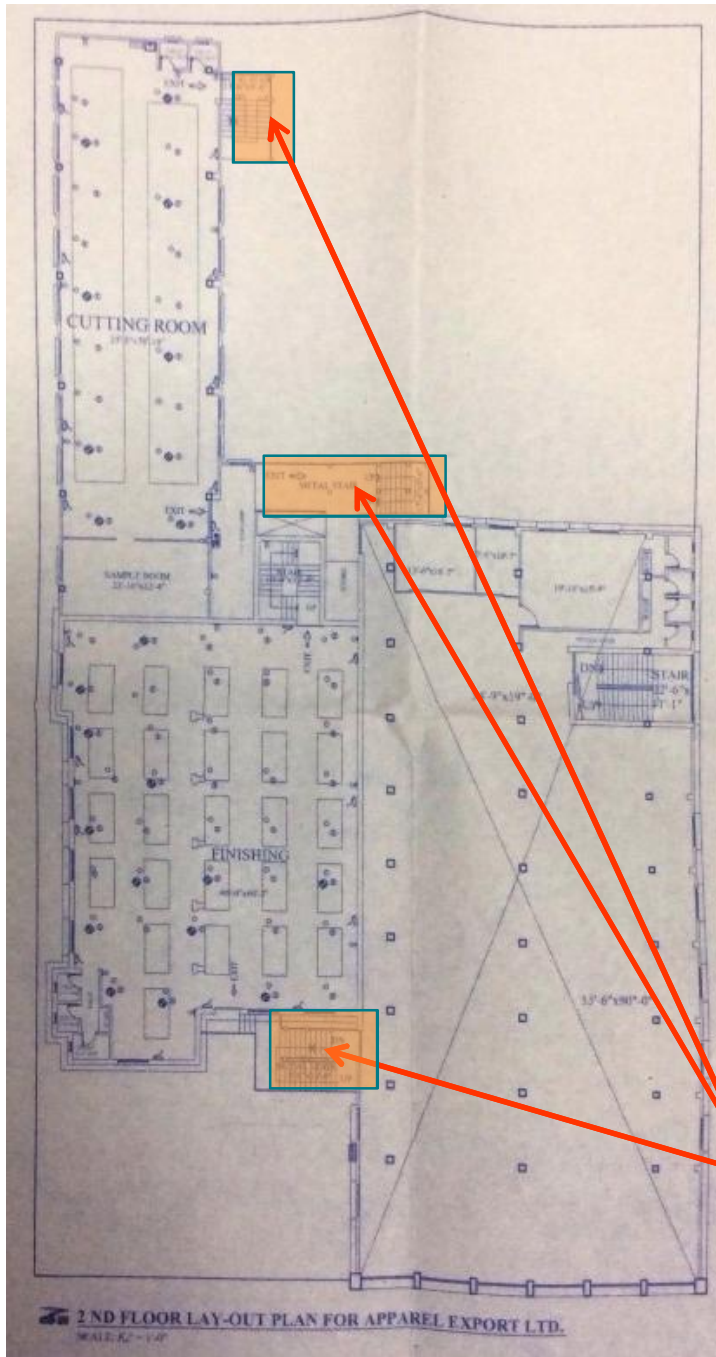
Priority 2 Concern



Uncontrolled heavy storage on ground floor.
Reduce stacking height of storage to ensure
total load does not exceed 3.0kPa

Capacity check for fire escape staircase

Priority 2 Concern



Capacity check for steel escaped staircase, especially at support connections.

Overall Stability System



Concerns on the stability system for lateral loading and seismic loading. Façade brickwork with little capacity; lack of moment capacity in connection between columns and beams.

Further Detail Engineering Assessment is required to establish whether such system can resist the lateral load from wind & earthquake.



Water Ingress

Building 2:



There is no evidence of water ingress on the roof surface, however a waterproofing layer should be applied.

Priority Actions

Problems Observed Summary

ITEM 1: (Priority 1) Adequacy of column and foundation.

ITEM 2: (Priority 2) Uncontrolled heavy storage loading.

ITEM 3: (Priority 2) Capacity check for steel staircase.

ITEM 4: (Priority 1) No movement joint established properly to separate Building 1 and Building 2.

ITEM 5: (Priority 2) No waterproofing material applied on the roof slab.

ITEM 6: (Priority 2) Stability system and foundations.

Item 1 and actions

Adequacy of column and foundation.

Priority 1 (Immediate – Now)

- Load run down at the key steel column, it is found that the column has FOS less than 1.25 which is **RED** rating.
- Detail Engineering Assessment of factory to be carried out and in particular column capacity and foundation aspects to be investigated in detail.

Priority 2 (within 6 – weeks)

- Do not operate any production line on 4th to 5th floor prior to structural design review.

Priority 3 (within 6-months)

- Continue to implement loading plan. Detail engineering assessment to be completed.

Item 2 and actions

Uncontrolled heavy storage loading on ground floor.

Priority 1 (Immediate – Now)

- None required.

Priority 2 (within 6 – weeks)

- Reduce stacking height of fabric rolls to ensure total load does not exceed 3.0kPa
- Adopt some sort of signage/staff guidance to ensure that the maximum weight of storage is not exceeded .

Priority 3 (within 6-months)

- Maintain standards of quality control to ensure that storage procedures are correctly followed so that overloading problems do not arise in the future.

Item 3 and actions

Check steel staircase capacity especially connections joint and stability.

Priority 1 (Immediate – Now)

- None required

Priority 2 (within 6 – weeks)

- Detail Engineering Assessment to be carried out particularly for steel column capacities including connection.

Priority 3 (within 6-months)

- Continue to implement loading plan. Detailed Engineering Assessment is to be completed.

Item 4 and actions

No movement joint established properly to separate building 1 and building 2.

Priority 1 (Immediate – Now)

- Building assessment including column and foundation capacity check is required.

Priority 2 (within 6 – weeks)

- Do not construct any further buildings, connected to the existing factory, without thorough structural design and full building approval.

Priority 3 (within 6-months)

- None required.

Item 5 and actions

No waterproofing material applied to the roof slab.

Priority 1 (Immediate – Now)

- None required

Priority 2 (within 6 – weeks)

- The existing roof level does not have any waterproofing material, therefore, it should be considered to apply waterproofing measures.

Priority 3 (within 6-months)

- Ensure that an appropriate layer of waterproofing is applied and its effectiveness is also maintained.

Item 6 and actions

Stability system / moment frame capacity.

Priority 1 (Immediate – Now)

- None required

Priority 2 (within 6 – weeks)

- Detail engineering assessment to be carried out in particular stability and foundation aspects to be investigated in detail.

Priority 3 (within 6-months)

- None required