

Surma Garments Ltd. #10261

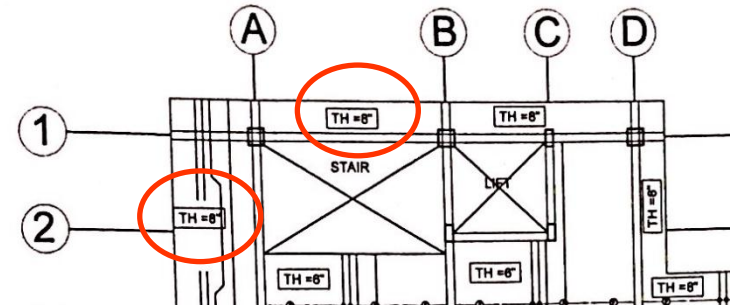
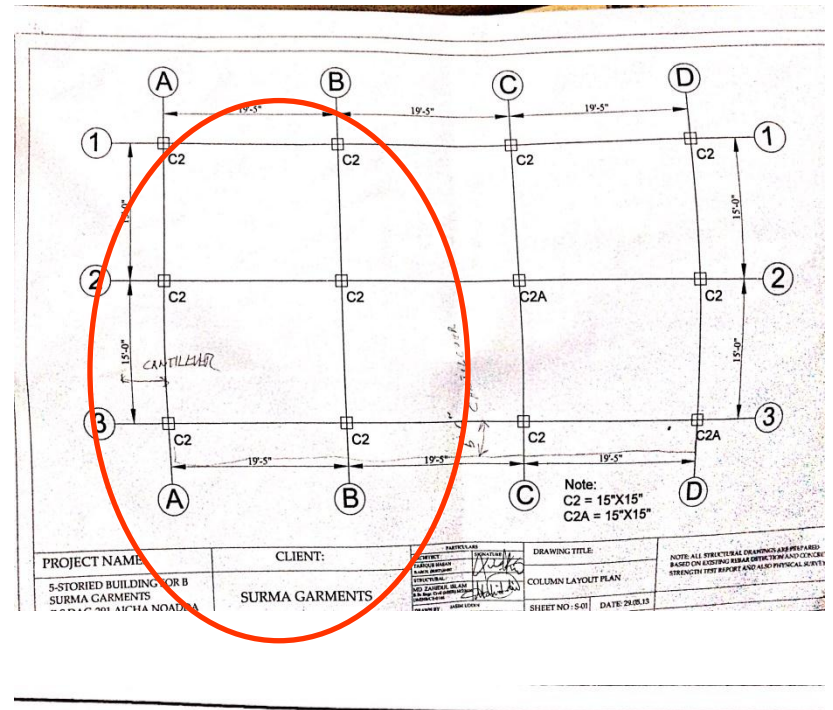
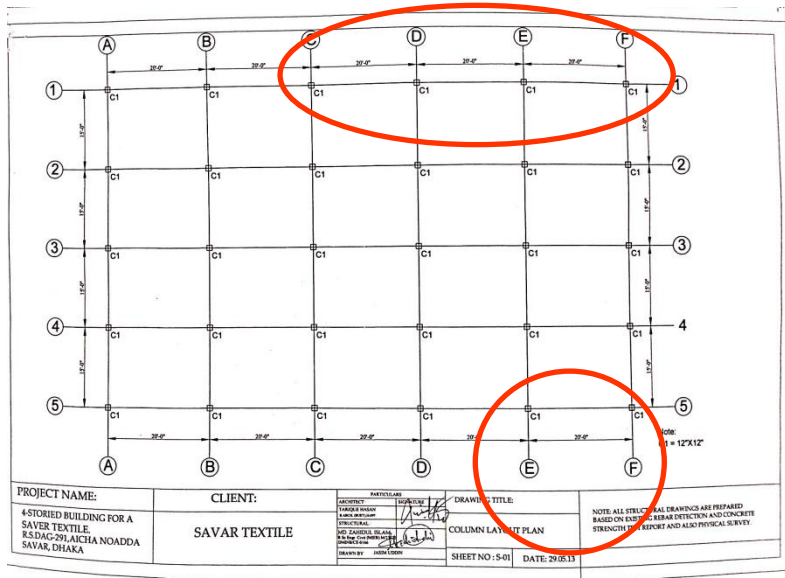
Supasox Ltd. #9535

Aicha Noadda, Rajashon Road Savar, Dhaka
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06.MAY.2014



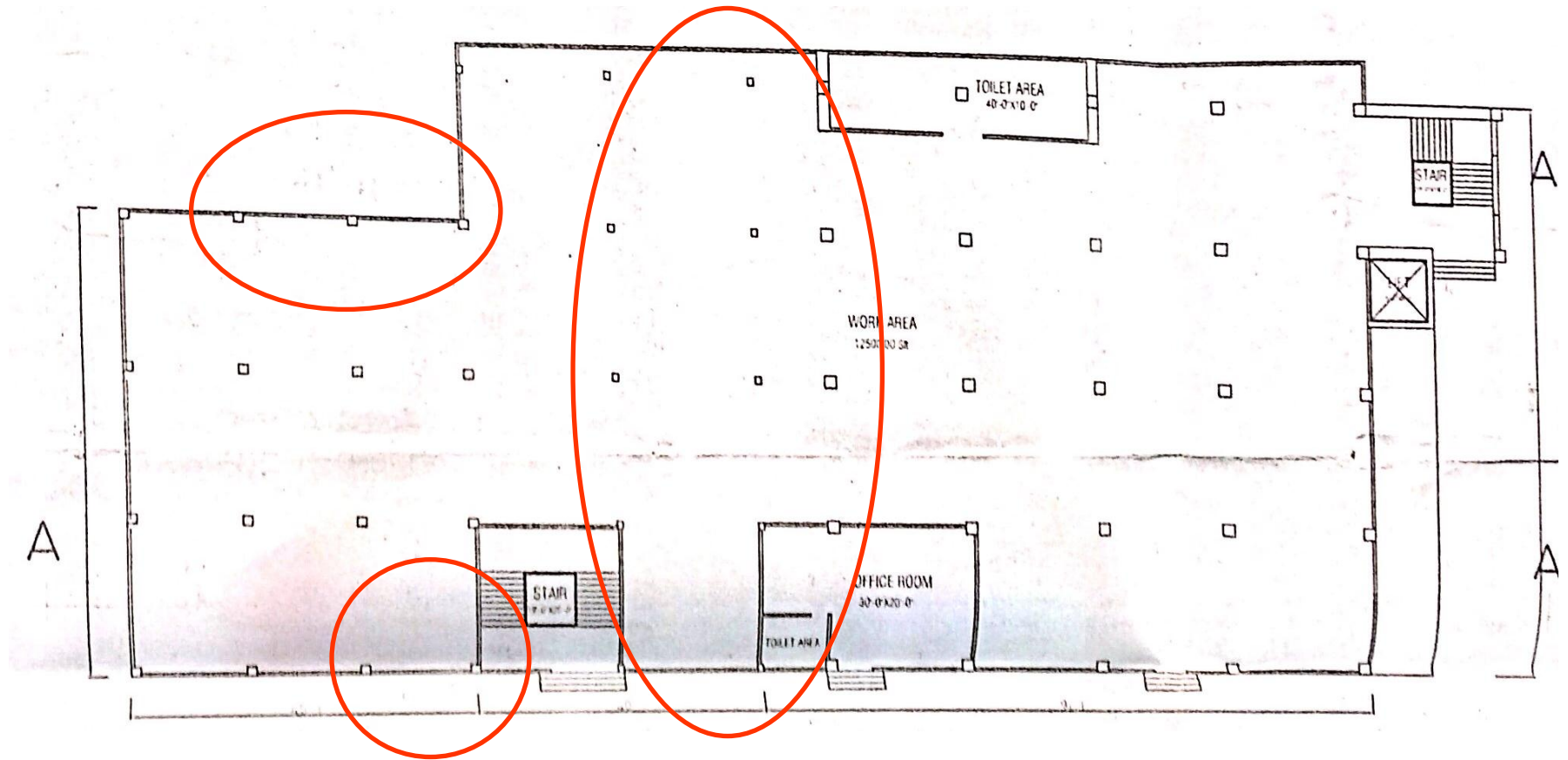
Identified Priority 1 Concerns

1st Priority 1 Concern



The structural drawings do not match the existing conditions for all buildings

2nd Priority 1 Concern



The permit drawings do not match the structural drawings or the existing conditions for buildings A and B.

3rd Priority 1 Concern

16.0 RECOMMENDATIONS:

On the basis of foresaid conclusions, the following recommendations are suggested for Multi Storied Garments Building at Dag No.- C. S. 63, R. S. 291, Mouza- Aicha Noadda, P. S.- Savar, Dist.- Dhaka, Bangladesh.

SHALLOW FOUNDATION as Isolated column footing:

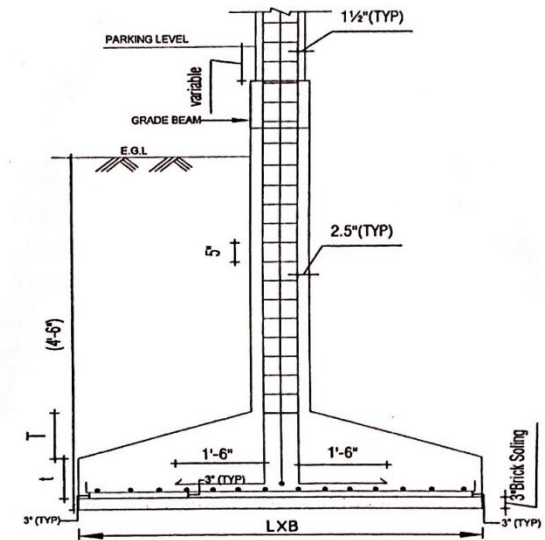
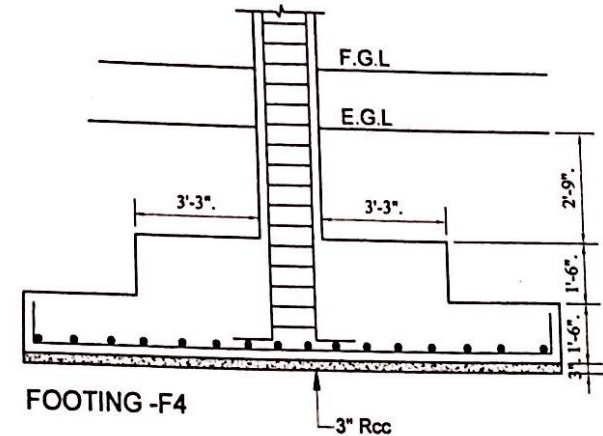
The average bearing capacity of the Shallow Foundation as Isolated column footing may be considered in the following way:

- To be considered **1.60 Tsf** (F.S. = 2.50) at a depth of **9 ft** measured from EGL particularly at and around for BH-1, BH-2, BH-3 & BH-4 only.
- To be considered **1.40 Tsf** (F.S. = 2.50) at a depth of **9 ft** measured from EGL particularly at and around for BH-5 only.

OR

- To be considered **1.60 Tsf** (F.S. = 2.50) at a depth of **12 ft** measured from EGL particularly at and around for BH-5 only.

The recommendations from the soils report were not executed. The footings were constructed between 3'6" and 4'9". The soils report recommended a footing depth of 9'.



TYP. SEC. OF R.C.C. FOOTING & PEDASTAL.

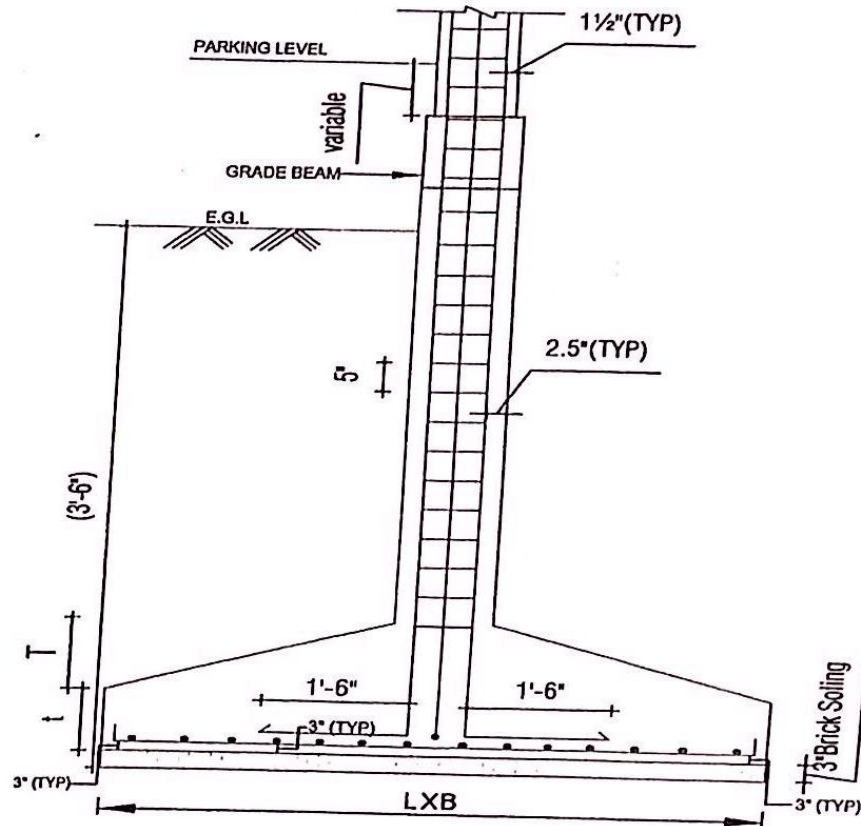
4th Priority 1 Concern



High loading was observed in buildings A, B, and D with no loading plans made available.

Identified Priority 2 Concerns

1st Priority 2 Concern



TYP. SEC. OF R.C.C FOOTING & PEDASTAL.

Footing size for critical column is 7' x 7'.

Load on critical column based on column rundown = 897 kN.

Pressure on soil = 197 kPa.

Allowable bearing capacity based on soils report = 150 kPa (FOS = 2.5).

Reduced FOS = 1.9.

Footing size at critical column appears too small for Building A.

2nd Priority 2 Concern



Poor steel detailing observed at steel roof partially covering 3rd floor of Building A.



3rd Priority 2 Concern



Poor steel detailing observed at steel emergency staircase on East side of Building A.



4th Priority 2 Concern



Portion of 1st floor concrete slab on West side supported by brick columns and walls at Building A. In addition, this portion is not shown on structural drawings.

Storage was also observed on the slab above.



5th Priority 2 Concern



Poor steel detailing observed at the steel roof on the 4th floor of Building C.



6th Priority 2 Concern



Poor steel detailing observed at the steel staircase on the South side of Building D.

7th Priority 2 Concern



Poor steel detailing observed for the steel roof trusses and mechanical units of Sheds 1 and 2.

8th Priority 2 Concern



High storage loads were on the steel and timber plank mezzanine.

Excessive deflection was observed in the steel C-channel supporting the mezzanine in Shed 3. In addition poor steel detailing was observed.



Overall Stability System



The building did not feature any core or shear walls. Stability was achieved through sway action between beams and columns and masonry infill walls.

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



Water Ingress at Roof Level



No waterproofing membrane was visible on the roof of any 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.

Priority Actions

Problems Observed Summary

ITEM 1: The structural drawings do not match the existing conditions for all buildings.

ITEM 2: The permit drawings do not match the structural drawings or the existing conditions for buildings A and B.

ITEM 3: The recommendations from the soils report were not executed (footings too shallow).

ITEM 4: High loading was observed in buildings A, B, and D with no loading plans made available.

ITEM 5: The following Detail Engineering Assessments are required:

- Footing size at critical column appears too small (FOS below 2.5) for Building A.
- Steel roof on portion of 3rd floor of Building A.
- Steel emergency staircase on East side of Building A.
- Portion of 1st floor concrete slab on West side supported by brick columns and walls at Building A.
- Steel roof on 4th floor of Building C.
- Steel staircase on South side of Building D.
- Steel roof trusses and mechanical units of Sheds 1 and 2.
- Mezzanine in Shed 3.

Item 1 and actions

The structural drawings do not match the existing conditions for all buildings. Extra bays were seen at the Est and West sides of building A. Concrete slabs between buildings A & B and B & C were not shown. Grid layout, number of columns and cantilevered slabs were incorrect for building B. Slab thickness and elevator beam depth were not accurately shown for building D. Finally, steel roofs were not shown on structural drawings for buildings A and C.

Priority 1 (Immediate – Now)

- Structural Engineer to survey existing conditions and update drawings to match actual condition.

Priority 2 (within 6 – weeks)

- Not applicable

Priority 3 (within 6-months)

- Not applicable

Item 2 and actions

The permit drawings do not match the structural drawings or the existing conditions for buildings A and B.

Priority 1 (Immediate – Now)

- Survey the existing conditions and produce new drawings for permit.
- Re-apply for permit with revised drawings.

Priority 2 (within 6 – weeks)

- Not applicable

Priority 3 (within 6-months)

- Not applicable

Item 3 and actions

The recommendations from the soils report were not executed. The footings for all four buildings varied between 3'6" and 4'9". The soils report recommended a footing depth of 9'. Based on conversation with the owners, however, it is believed the footings were poured deeper.

Priority 1 (Immediate – Now)

- We recommend a geotechnical investigation be completed to determine the exact footing depths of all buildings.

Priority 2 (within 6 – weeks)

- A second geotechnical investigation be completed to ensure adequate bearing capacity for all buildings.

Priority 3 (within 6-months)

- Not applicable

Item 4 and actions

High loading was observed in buildings A, B, and D and no loading plans were made available for any of the buildings. High loading was observed on floors 1 and 2 for building A, locally on floor 2 of building B, and locally on floor 1 of building D.

Priority 1 (Immediate – Now)

- Due to the lack of loading plans, the high local loading (up to 6.0 kPa) and the position of the loading (on cantilevered portion of slabs), all loading exceeding 2.0 kPa must be removed.

Priority 2 (within 6 – weeks)

- Loading plans to be designed by Structural Engineer based on maximum capacity for each floor.

Priority 3 (within 6-months)

- Post loading plans at each level of all buildings and manage accordingly.

Item 5 and actions

Various Detail Engineering Assessments are required including: footing size at critical column appears too small (FOS below 2.5) for Building A; Steel roof on portion of 3rd floor of Building A; steel emergency staircase on East side of Building A; portion of 1st floor concrete slab on West side supported by brick columns and walls at Building A; steel roof on 4th floor of Building C; steel staircase on South side of Building D; steel roof trusses and mechanical units of Sheds 1 and 2; mezzanine in Shed 3.

Priority 1 (Immediate – Now)

- Detail Engineering Assessments are required for the above mentioned items.

Priority 2 (within 6 – weeks)

- Recommendations outlined in the DEAs to be implemented.

Priority 3 (within 6-months)

- Not applicable