GREEN ARROW SWEATER IND.LTD

68/69, South Shampur, Hemayetpur, Savar, Dhaka.

(23.790549305693165, 90.26126907101467)

25 August 2025

RSC RMG SUSTAINABILITY COUNCIL

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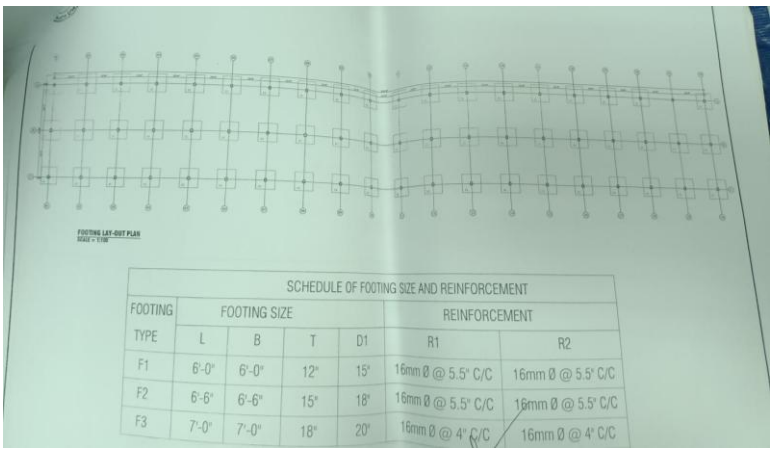
1. Building Information

1. Production Building
2. Shed 1
3. Shed 2
3. Shed 3

2. Observation:

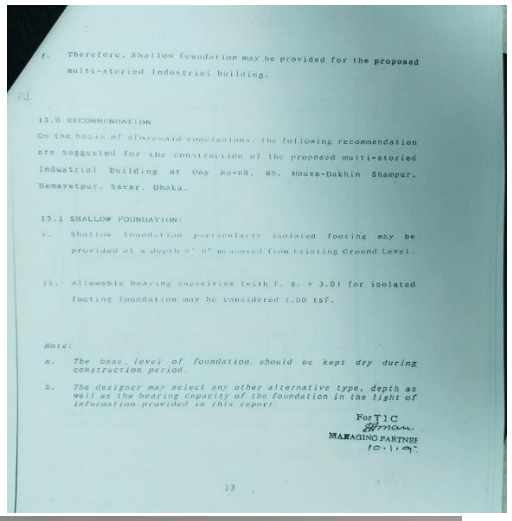
Observation-01: High Stress in column and foundation. (Production Building)



FOOTING LAY-OUT PLAN

SCHEDULE OF FOOTING SIZE AND REINFORCEMENT

FOOTING TYPE	FOOTING SIZE				REINFORCEMENT	
	L	B	T	D1	R1	R2
F1	6'-0"	6'-0"	12"	15"	16mm Ø @ 5.5" C/C	16mm Ø @ 5.5" C/C
F2	6'-6"	6'-6"	15"	18"	16mm Ø @ 5.5" C/C	16mm Ø @ 5.5" C/C
F3	7'-0"	7'-0"	18"	20"	16mm Ø @ 4" C/C	16mm Ø @ 4" C/C



7. Therefore, Shallow foundation may be provided for the proposed multi-storied Industrial building.

13.0 RECOMMENDATION

On the basis of aforesaid conclusions, the following recommendation are suggested for the construction of the proposed multi-storied Industrial Building at Dag No-68, 69, Mouza-Dakhin Shampur, Hemayetpur, Savar, Dhaka.

13.1 SHALLOW FOUNDATION:

i. Shallow foundation particularly isolated footing may be provided at a depth 5'-0" measured from Existing Ground Level.

ii. Allowable bearing capacities (with F. S. = 3.0) for isolated footing foundation may be considered 1.00 tsf.

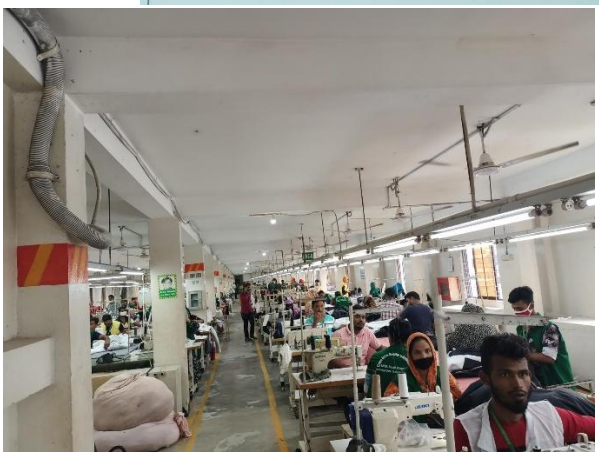
Note:

a. The base level of foundation should be kept dry during construction period.

b. The designer may select any other alternative type, depth as well as the bearing capacity of the foundation in the light of information provided in this report.

For T I C

MANAGING PARTNER



Description: Cursory calculation indicates the internal footings and columns under the toilet zone are highly stressed for allowable bearing capacity and minimum concrete strength of brick aggregate. We considered the observed live load 2 kPa for typical floor. Also, the ultimate bearing capacity of the soil was considered 2 ksf, as per the soil test report.

The building engineer is required to commence a Detailed Engineering Assessment (DEA) to which required immediate review of the design, load and foundation & column stresses.

Observation-02: Concrete condition assessment. (Production Building)

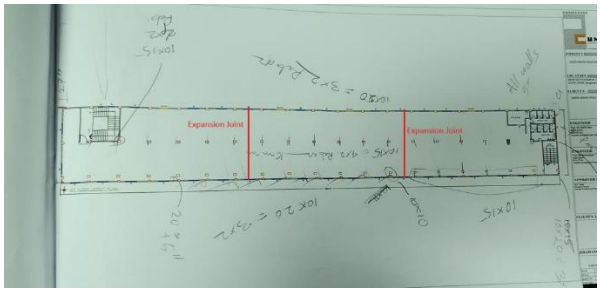
Description: During the preliminary visual inspection, it is apparent that the condition of the concrete structure is deteriorating. Some of the key signs of concrete deterioration include cracking, discolouration, leaks, damp patches. In these cases, further tests required to be of use to the Engineer in diagnosing the cause of deterioration and therefore in designing a method to prevent it from compromising the adequacy of the structure.

It is recommended that a qualified structural engineer conduct a thorough visual inspection of each floor to identify key signs of concrete deterioration, including cracking, spalling, discoloration, leaks, damp patches, reinforcement corrosion, and evidence of previous repairs. All findings should be photographed, mapped, and recorded.
Where deterioration is observed, further investigations shall be carried out using appropriate non-destructive and destructive testing methods, including:

- Full delamination (hammer tap) survey in accordance with ASTM D4580-23.
- Cover survey to confirm reinforcement depth.
- Ultrasonic pulse velocity (UPV) testing to identify voids or cracks.
- Half-cell potential survey in accordance with ASTM C-876-22b.
- Carbonation depth measurement.
- Chloride profile testing where necessary.

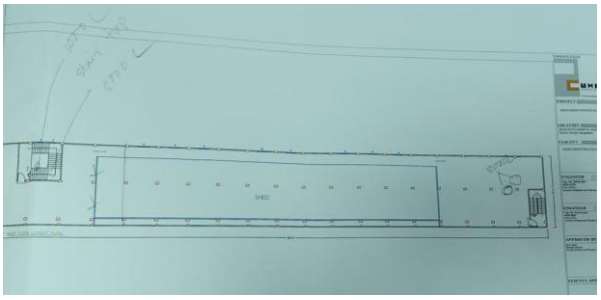
The results of these investigations should be used to determine the extent, cause, and severity of deterioration, thereby providing appropriate repair and remediation strategies.

Observation-03: Discrepancy in as-built drawing. (Production Building)









Description: Floor layouts are not fully matched with the as-built condition. PVC water tanks were not shown in drawings. No structural details were found for roof shed. Also, columns sizes, amount of rebar and orientation were not fully matched with structural drawings. Moreover, 2 nos of expansion joint were found on site which were not mentioned in any drawings. The building engineer is required to survey the full structure and prepare as-built drawing which reflects the on-site condition.

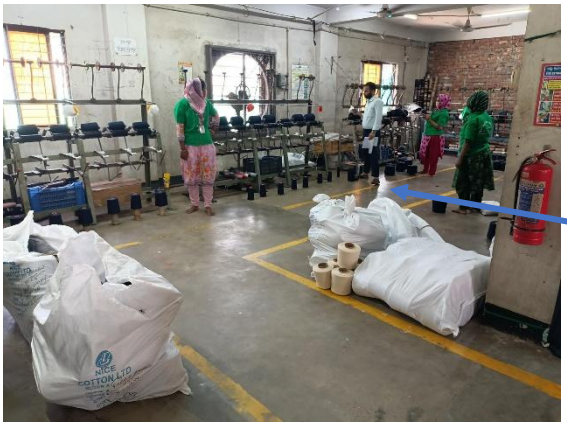
Observation-04: Lack of stability, Inadequate steel column & connection of roof shed. (Production Building)


Description: Truss frames were poorly connected with brick walls at the roof of Production Building. Also, incomplete lateral stability and inadequate steel box columns were observed. The building engineer is required to check the lateral stability, member & connection adequacy of the roof truss and suggest proper remedial measures.

Observation-05: Cracks on slab and beam (Production Building)

Description: Cracks were observed on stair beam and cantilever slab. Building engineer is required to investigate the cracks and suggest proper remedial measures. Carry out remedial work as per recommendation of the investigation report.

Observation-06: Vibration on floor due to operation of heavy machine. (Production Building)



Description: Significant vibration was felt on the 2nd floor due to the operation of winding machines. The building engineer is required to investigate the long-term effect of the vibration and suggest proper remediation accordingly.

Observation-07: Lack of water proofing and inadequate drainage. (Production Building)

Description: The slab of the building is constructed with MCAC. But water proofing layer has not been applied. Also, inadequate drainage was observed. The building engineer is required to provide a waterproofing layer with proper installation of the adequate number of drainage outlets.

Observation-08: Severe dampness in the slab and walls. (Production Building)

Description: Dampness was found in the floor slab and walls. Building Engineer is required to investigate the damped portion and repair accordingly

Observation-09: Non-structural elements not anchored or braced. (Production Building)

Description: Non-structural elements (PVC tank and Racks) were found on different floors of the building. Which were not properly anchored or braced. Building engineer is required to anchor or brace all non-structural elements to avoid falling hazard during earthquake or any lateral loading.

Observation-10: Exposed rebar on roof. (Production Building)

Description: During inspection, the exposed rebar was found on the roof. The building engineer is required to apply anti-rust proof coating on exposed rebar.

Observation-11: Lack of as-built drawings (Shed1: Washing)

Description: As-built structural & architectural drawings were not available for the structure. The building engineer is required to survey the structure and prepare as-built drawings.

Observation-12: Lack of lateral stability. (Shed1: Washing)

Description: Load transfer media (bracing & strut) were found missing along the perpendicular direction was of truss. The building engineer is required to carry out an Engineering Assessment (EA) to check the lateral stability, connection and member adequacy of these structures.

Observation-13: Lack of as-built drawings. (Shed 02 & Shed 03)

Shed 02

Shed 03

Description: As-built structural & architectural drawings were not available for those structures. The building engineer is required to survey the structures and prepare as-built drawings.

Observation-14: Incomplete framing and inadequate connection. (Shed 02 & Shed 03)

Shed 02

Shed 03

Description: Truss frames were poorly connected with brick walls. Also, incomplete farming and inadequate steel members were observed. The building engineer is required to check the framing system, member & connection adequacy of the sheds and prepare safety check report following Accord standard.

3. Action Plan

Item No	Observation	Action Plan	Timeline
1.	High Stress in column and foundation. (Production Building)	The factory must engage an expert structural and geotechnical consultant to prepare accurate as-built drawings, verify foundation size and thickness, conduct a Detailed Engineering Assessment (DEA), perform material testing (concrete and rebar), and carry out a geotechnical investigation.	Immediate
2.	High Stress in column and foundation. (Production Building)	Verify in-situ test from each class of concrete at least 4 nos. (column, beam & slab).	Immediate
3.	High Stress in column and foundation. (Production Building)	The building engineer is required to carry out Detail Engineering Assessment (DEA) to review the design, load and foundation stresses.	within 6 weeks
4.	High Stress in column and foundation. (Production Building)	Verify rebar tensile strength and incorporate the value in DEA.	within 6 weeks
5.	High Stress in column and foundation. (Production Building)	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column, and foundation capacity.	within 6 weeks
6.	High Stress in column and foundation. (Production Building)	Carry out the suggested remedial work if required.	within 6 months
7.	High Stress in column and foundation. (Production Building)	Implement floor loading plan.	within 6 months
8.	Investigation of concrete strength and deterioration. (Production Building)	It is recommended that a qualified structural engineer conduct a thorough visual inspection of each floor to identify key signs of concrete deterioration, including cracking, spalling, discoloration, leaks, damp patches, reinforcement corrosion, and evidence of previous repairs. All findings should be photographed, mapped, and recorded. (See details in observation-2 of this initial report)	within 6 weeks
9.	Investigation of concrete strength and deterioration. (Production Building)	Carry out the suggested remedial work if required.	within 6 months

10.	Discrepancy in as-built drawing. (Production Building)	The building engineer is required to survey the full structure and prepare as-built drawing which reflects the on-site condition.	within 6 weeks
11.	Lack of stability, Inadequate steel column & connection of roof shed. (Production Building)	The building engineer is required to check the lateral stability, member & connection adequacy of the roof truss and suggest proper remedial measures.	within 6 weeks
12.	Lack of stability, Inadequate steel column & connection of roof shed. (Production Building)	Carry out the suggested remedial work if required.	within 6 months
13.	Cracks on slab and beam (Production Building)	Building engineer is required to investigate the cracks and suggest proper remedial measures.	within 6 weeks
14.	Cracks on slab and beam (Production Building)	Carry out remedial work as per recommendation of the investigation report.	within 6 weeks
15.	Vibration on floor due to operation of heavy machine. (Production Building)	The building engineer is required to investigate the long-term effect of the vibration and suggest proper remediation accordingly.	within 6 weeks
16.	Vibration on floor due to operation of heavy machine. (Production Building)	Carry out the suggested remedial work if required.	within 6 months
17.	Lack of water proofing and inadequate drainage. (Production Building)	The building engineer is required to provide a waterproofing layer with proper installation of the adequate number of drainage outlets	within 6 months
18.	Severe dampness in the slab and walls. (Production Building)	Building Engineer is required to investigate the damped portion and repair accordingly	within 6 weeks
19.	Non-structural elements not anchored or braced. (Production Building)	Building engineer is required to anchor or brace all non-structural elements to avoid falling hazard during earthquake or any lateral loading.	within 6 weeks
20.	Exposed rebar on roof. (Production Building)	The building engineer is required to apply anti-rust proof coating on exposed rebar.	within 6 weeks
21.	Lack of as-built drawings (Shed1: Washing)	The building engineer is required to survey the structure and prepare as-built drawings.	within 6 weeks
22.	Lack of lateral stability. (Shed1: Washing)	The building engineer is required to carry out an Engineering Assessment (EA) to check the lateral stability, connection and member adequacy of these structures.	within 6 weeks

23.	Lack of lateral stability. (Shed1: Washing)	Carry out the suggested remedial work if required.	within 6 months
24.	Lack of as-built drawings. (Shed 02)	The building engineer is required to survey the structures and prepare as-built drawings.	within 6 weeks
25.	Incomplete framing and inadequate connection. (Shed 02)	The building engineer is required to check the framing system, member & connection adequacy of the sheds and prepare safety check report following Accord combination.	within 6 weeks
26.	Incomplete framing and inadequate connection. (Shed 02)	Carry out the suggested remedial work if required.	within 6 months
27.	Lack of as-built drawings. (Shed 03)	The building engineer is required to survey the structures and prepare as-built drawings.	within 6 weeks
28.	Incomplete framing and inadequate connection. (Shed 03)	The building engineer is required to check the framing system, member & connection adequacy of the sheds and prepare safety check report following Accord combination.	within 6 weeks
29.	Incomplete framing and inadequate connection. (Shed 03)	Carry out the suggested remedial work if required.	within 6 months