

# Vision Garments Ltd (New Building)

B-47, Purbo Rajashan, Savar, Dhaka.

(23.849939N, 90.286539E)

25-Sep-2023



# Executive Summary

**New Building-1:** Six storied with basement (B+G+5) building.

**Utility Building:** Two storied (G+1) building.

**Boiler Shed:** Single storied steel shed.

# Observations

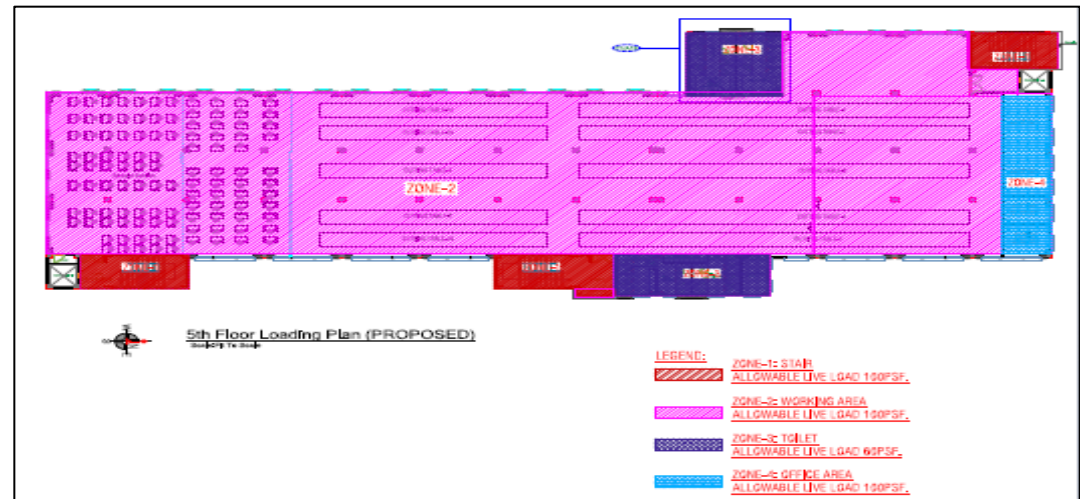
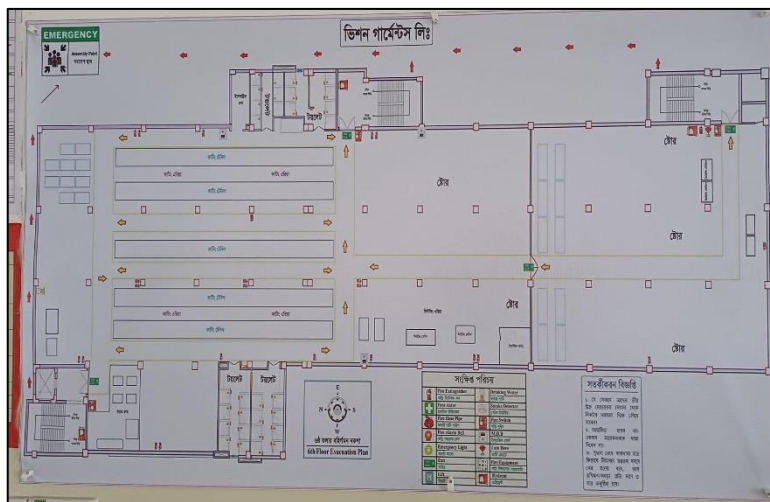
**Storage live load limit not comply BNBC requirement**

| INDUSTRIAL, STORAGE & HAZARDOUS<br>(Occupancy - G, H & J) | Workshop, factory, warehouse | 1 Light workroom without storage                              | 3.0  | 2.7                 |
|-----------------------------------------------------------|------------------------------|---------------------------------------------------------------|------|---------------------|
|                                                           |                              | 2 Machinery hall & circulation area                           | 4.0  | 4.5                 |
|                                                           |                              | 3 Factory, workshop etc.                                      | 5.0  | 4.5                 |
|                                                           |                              | 4 Manufacturing : light                                       | 6.0  | 4.5 <sup>(S)</sup>  |
|                                                           |                              | heavy                                                         | 12.0 | 9.0 <sup>(S)</sup>  |
|                                                           |                              | ice                                                           | 15.0 | 9.0 <sup>(S)</sup>  |
|                                                           |                              | 5 Printing plant :                                            |      |                     |
|                                                           |                              | Press room                                                    | 7.0  | 11.0 <sup>(S)</sup> |
|                                                           |                              | Composing and linotype room                                   | 5.0  | 9.0 <sup>(S)</sup>  |
|                                                           |                              | Paper storage room                                            | 12.0 | 9.0 <sup>(S)</sup>  |
|                                                           |                              | 6 Motor room, fan room etc. including the weight of machinery | 7.5  | 4.5                 |
|                                                           |                              | 7 Cold storage, grain storage                                 | 15.0 | 9.0 <sup>(S)</sup>  |
|                                                           |                              | 8 Storage warehouses : light                                  | 6.0  | 4.5 <sup>(S)</sup>  |
|                                                           |                              | heavy                                                         | 12.0 | 9.0                 |
|                                                           |                              | 9 Foundries                                                   | 20.0 | 12.0                |



Live load Table- BNBC 2006

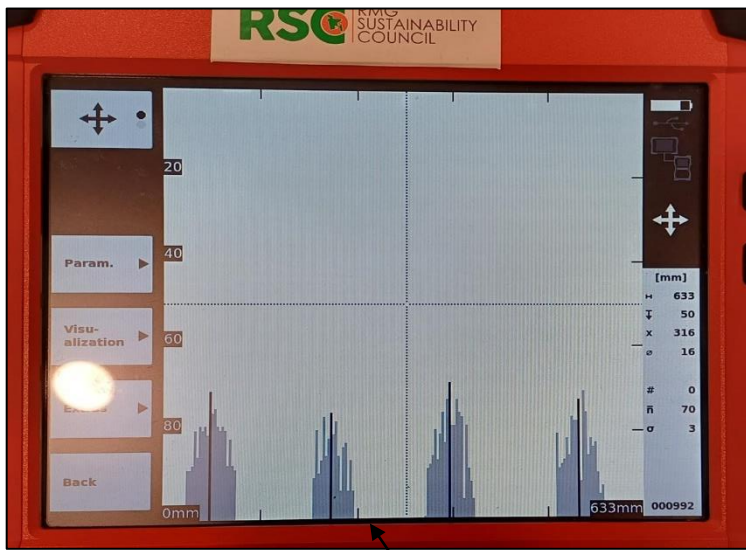
Storage area in 5<sup>th</sup> Floor



Prepared load plan for 5<sup>th</sup> floors. Floor loading has been considered 5kPa (100 psf) instead of 6kPa (125 psf) for storage areas.

As per BNBC, 6 kPa is required to consider as floor loading for the light storage facilities. During inspection, load plan was found posted considering (100 psf) 5kPa at 5<sup>th</sup> floor storage area. Also, 5 kPa live load considered in the software-based structural analysis. However, update the storage live load limit as per BNBC requirement, revise the structural analysis & design accordingly.

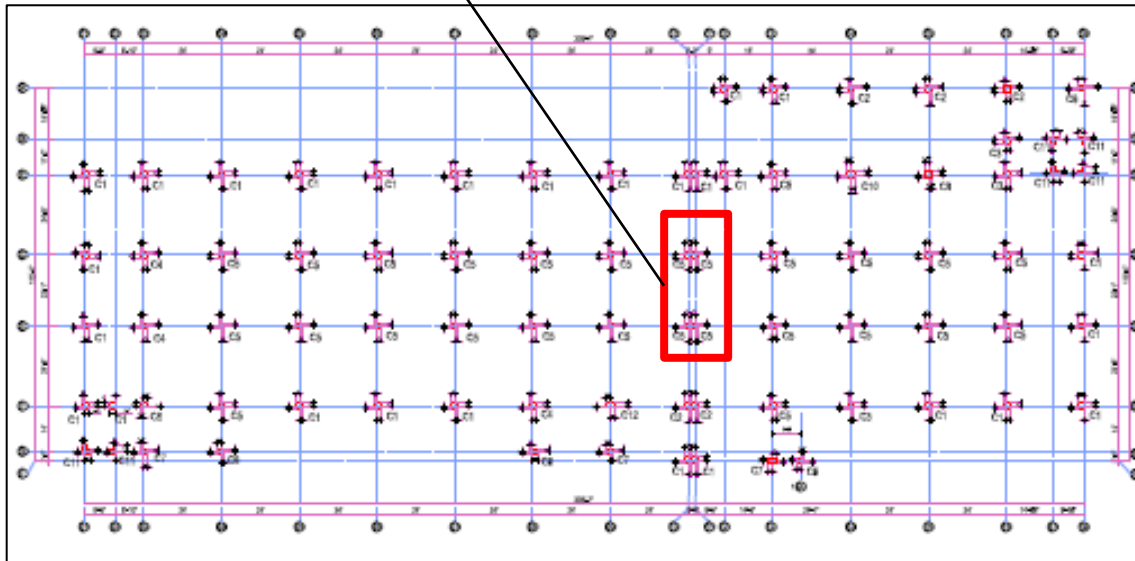
# Mismatch in as-built drawings



4 no's rebar each side at column C5

|                |          |          |          |          |              |
|----------------|----------|----------|----------|----------|--------------|
| C-5            |          |          |          |          |              |
| Column Size    | 24"X24"  | 24"X24"  | 24"X24"  | 24"X24"  | 24"X24"      |
| Number of Bars | 20-25mmØ | 26-25mmØ | 20-25mmØ | 16-25mmØ | 8-25+8-20mmØ |

Column schedule: Column rebar 5 no's each side



Column layout plan

Building engineer is required to survey the whole structure, update the as-built drawings and perform Engineering Assessment (EA)

## Observation: New Building-1

# **Lack of anchorage/bracing for non-structural elements**



Storage rack without anchorage

Racks on different floors are not adequately anchored or braced to resist lateral (earthquake) forces. Building Engineer is required to adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.

**Lack of design report**



Utility Building

As per BNBC (part-6), every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 & section 1.9.1.2 of BNBC (part-6).

At the time of inspection, no design report was available. Building engineer is required to prepare a set of design documents in compliance with BNBC.

**Lack of lateral stability of adjacent steel stair**



No vertical bracing provide for the stair

The steel stair was appeared to be unstable due to lack of vertical bracing. The building engineer is required to check the lateral stability of the steel stair, perform Engineering assessment (EA ) and suggest remediation if required.

**Exposed re-bar at roof**



Exposed rebar of Column

Exposed reinforcement was found on rooftop columns. Building engineer is required to take necessary measures to prevent corrosion in exposed rebar.

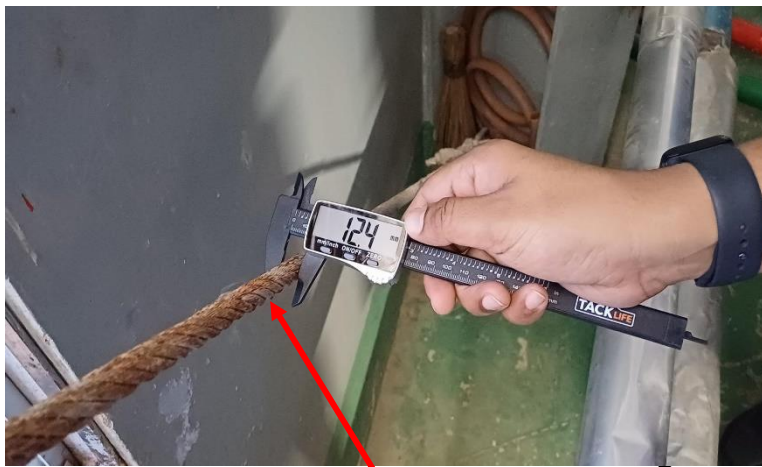
**Lack of lateral stability**



Horizontal compression members are not provided along long direction

load transfer media is not provided from frame to frame to transfer the lateral load at top at all sides. Hence, lateral stability system of structure is incomplete. The building engineer is required to check the lateral stability of the structure as part of EA and suggest proper remedial actions accordingly.

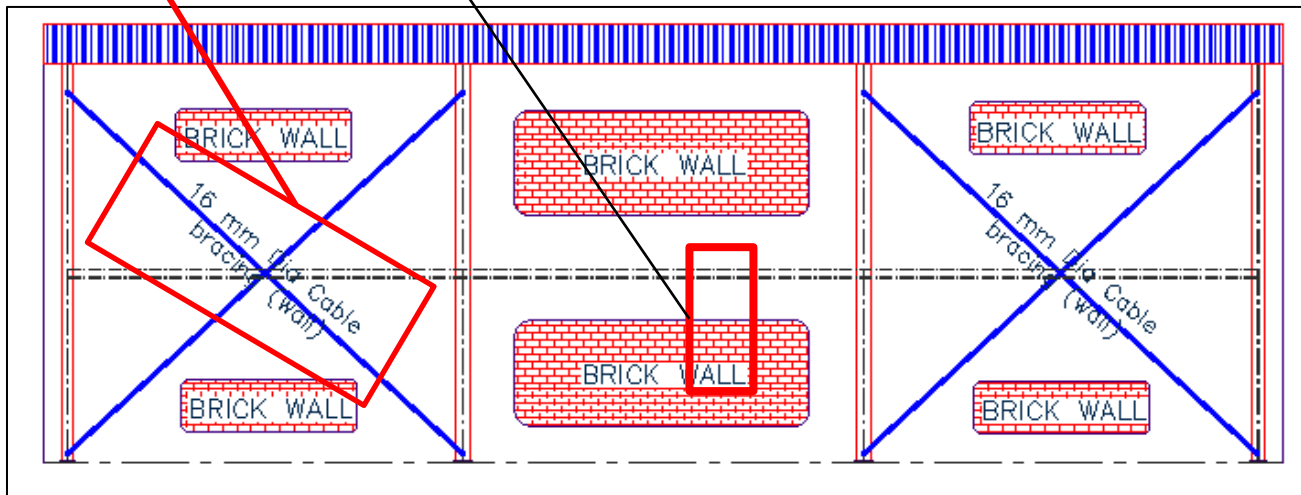
## **Mismatch in as-built drawings**



Wall bracing size 12.4 mm



Wall bracing



Wall bracing

Building engineer is required to survey the whole structure and update the as-built drawings as per site condition.

## Observation Boiler Shed

# Problems Observed

## **New building-1:**

Item 01: Storage live load limit not comply BNBC requirement .

Item 02: Mismatch in as-built drawings.

Item 03: Lack of anchorage/bracing for non-structural elements.

## **Utility building:**

Item 04: Lack of design report.

Item 05: Lack of lateral stability of adjacent steel stair.

Item 06: Exposed re-bar at roof.

## **Boiler Shed:**

Item 07: Lack of lateral stability.

Item 08: Mismatch in as-built drawings.

# Priority Actions

| Item No. | Observation                                                           | Recommended Action Plan                                                                                                                                                                                                     | Recommended Timeline |
|----------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 01       | Storage live load limit not comply BNBC requirement (New building-1)  | Revise storage live load limit as per BNBC requirement, update floor load plan and incorporate the changes in the structural analysis and design report. Design report shall be revised based on in situ concrete strength. | 6-weeks              |
| 02       | Storage live load limit not comply BNBC requirement (New building-1)  | Carry out suggested remedial works if required and provide implementation of load plan.                                                                                                                                     | 6-months             |
| 03       | Mismatch in as-built drawings (New Building-1)                        | Building engineer is required to survey the whole structure, update the as-built drawings.                                                                                                                                  | 6-weeks              |
| 04       | Lack of anchorage/bracing for non-structural elements(New Building-1) | Building Engineer is required to adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC                                                                                | 6-months             |
| 05       | Lack of design report (Utility Building)                              | Building engineer is required to prepare a set of design documents in compliance with BNBC.                                                                                                                                 | 6-weeks              |

| Item No. | Observation                                                          | Recommended Action Plan                                                                                                 | Recommended Timeline |
|----------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------|
| 06       | Lack of design report (Utility Building)                             | Carry out suggested remedial works if required.                                                                         | 6-months             |
| 07       | Lack of lateral stability of adjacent steel stair (Utility Building) | building engineer is required to check the lateral stability of the steel stair as part of Engineering assessment (EA). | 6-weeks              |
| 08       | Lack of lateral stability of adjacent steel stair (Utility Building) | Carry out suggested remedial works if required.                                                                         | 6-months             |
| 09       | Exposed re-bar at roof (Utility Building)                            | Building engineer is required to take necessary measures to prevent corrosion in exposed rebar.                         | 6-weeks              |
| 10       | Lack of lateral stability (Boiler Shed)                              | Building engineer is required to prepare a set of design documents in compliance with BNBC.                             | 6-weeks              |
| 11       | Lack of lateral stability (Boiler Shed)                              | Carry out suggested remedial works if required.                                                                         | 6-months             |
| 12       | Mismatch in as-built drawings (Boiler Shed)                          | Building engineer is required to survey the whole structure and update the as-built drawings.                           | 6-weeks              |