

Shanta Industries Ltd.

Plot # 198-201/220-223, DEPZ (Ext.), Ganakbari, Savar, Dhaka.

(23.943419N, 90.281417E)

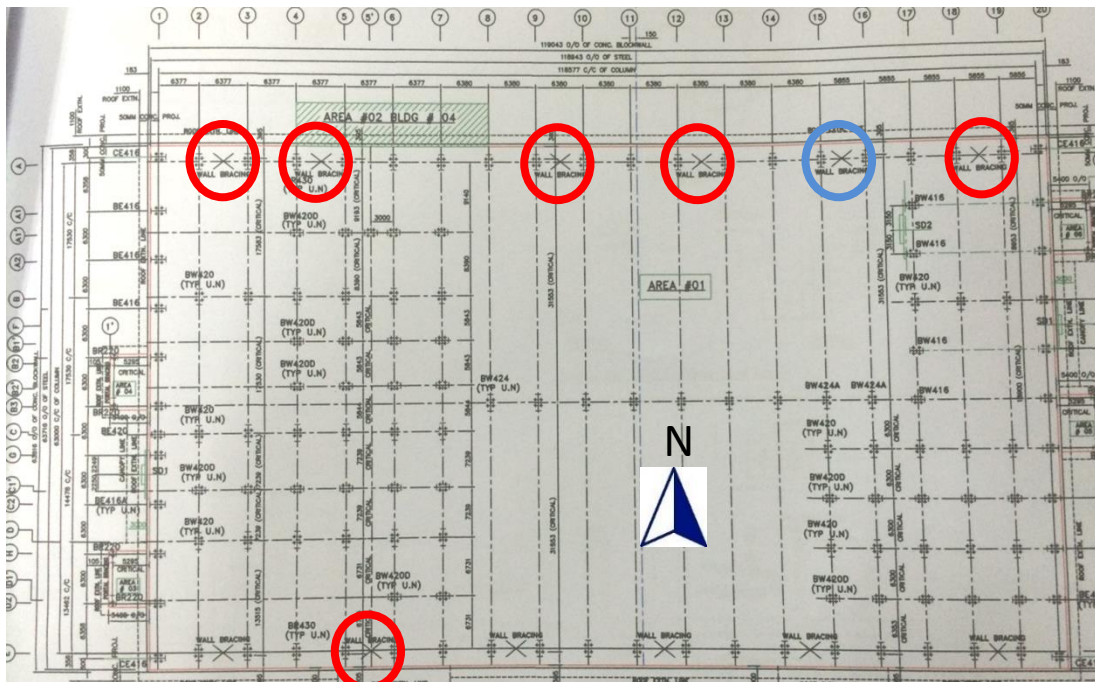
17th March 2015



Observations Building 1

Vertical tie bracing missing

Observations - Building 1



Plan of building 1 showing missing bracing

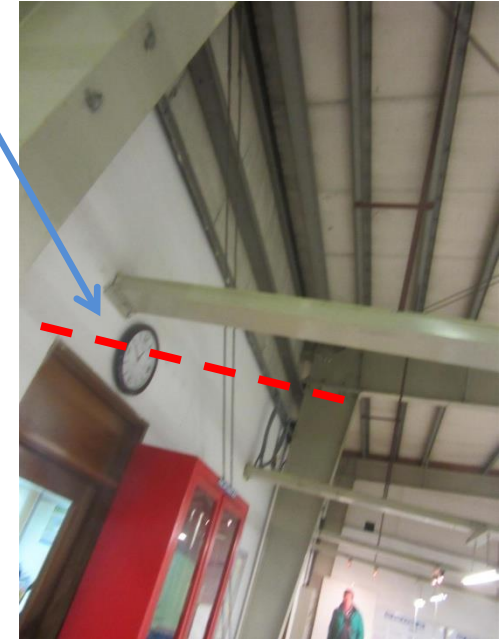
- Most of bracing shown on the North side of the building is not present in locations indicated on the drawings.
- Evidence that bracing has been removed.
- Building stability to be assessed by building engineer and bracing reinstalled so that it matches design drawing and calculations.

Vertical Ties missing

Observations - Building 1

Location of missing vertical bracing.

Bracing in 1 direction only



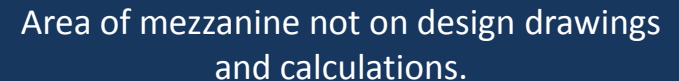
Extension of Mezzanine

Observations - Building 1



- **Extent of mezzanine differs between design drawings and observed structure.**
- **Building Engineer to verify that the resulting additional loading on the main structure (Portal frame) is within load capacity.**
- **Secondary beams not indicated in structural design calculations.**

Observations - Building 1



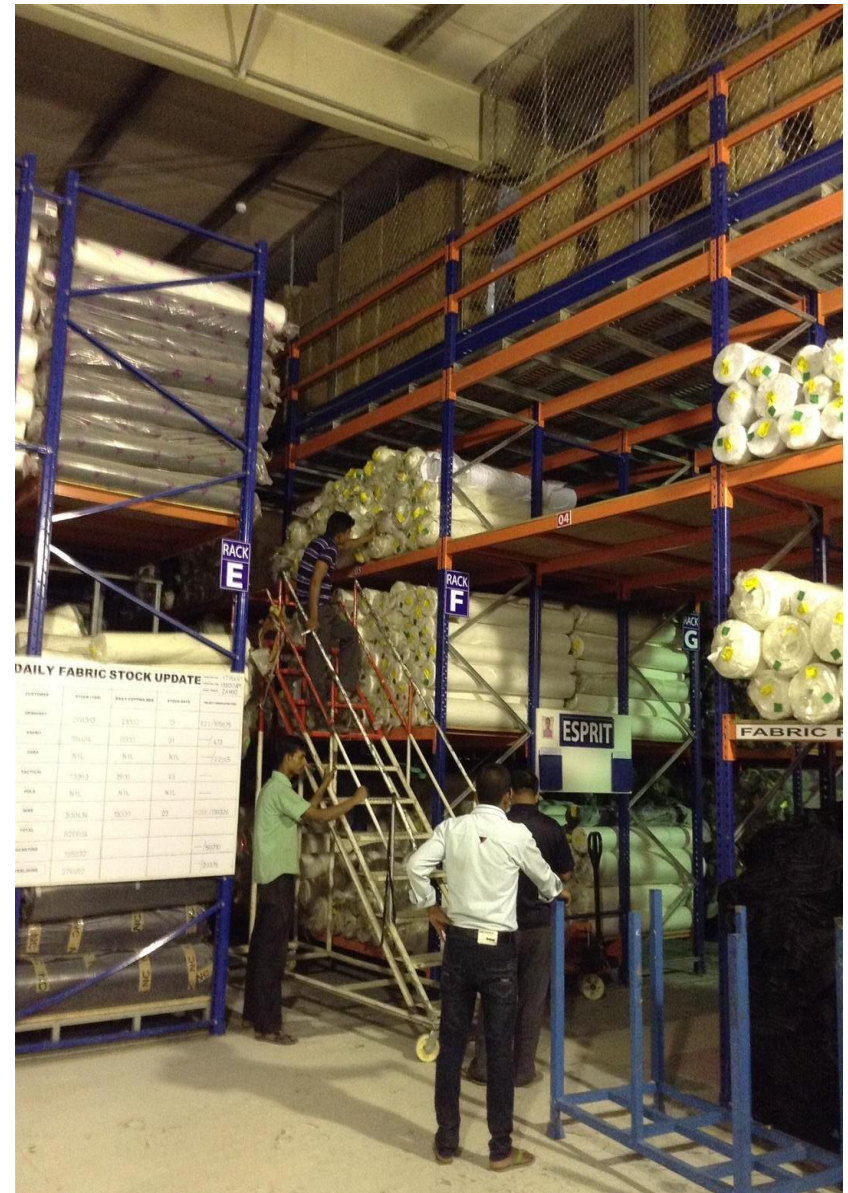
Extension of Mezzanine

Ground-bearing slab with high stacking loading

Observations - Building 1



- High stacking loading on ground bearing slab in highlighted area.
- Building Engineer to assess if slab has capacity for the additional loading taking into account slab thickness, reinforcement and allowable bearing pressure.



Ground-bearing Slab with stacking load

Observations - Building 1

Observations Building 2

Corrosion damage to base of columns

Observations - Building 2



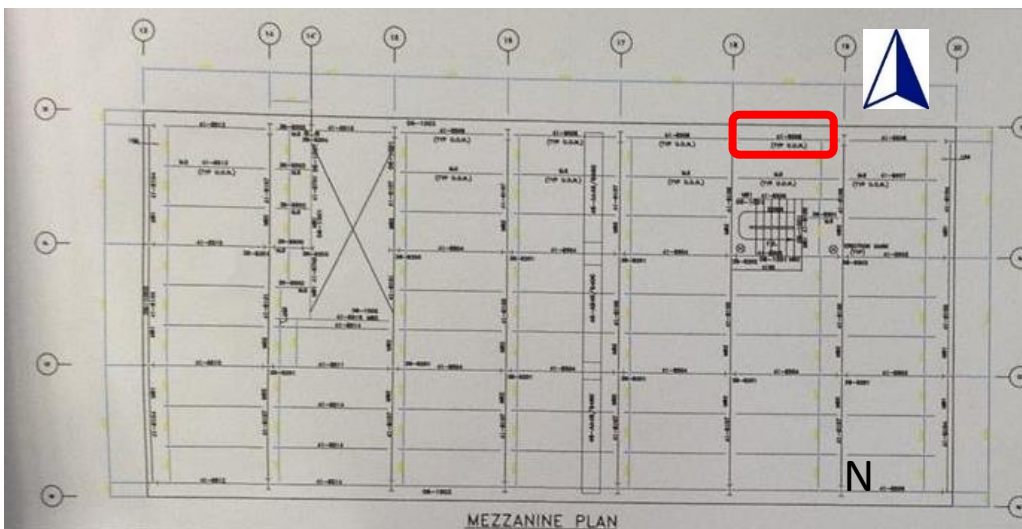
- Evidence of corrosion damage near the base of a number of columns on the ground floor
- Building Engineer to assess extent of corrosion, and specify preparatory work and protective coating to prevent further damage.



Corrosion of ground floor columns

Observations - Building 2

Vertical tie bracing missing



Location of missing vertical bracing.



Observations - Building 2

- Vertical tie bracing missing on the ground floor in location shown.
- Evidence that bracing has been removed.
- Building stability to be assessed by Building Engineer, and bracing reinstalled to match design drawing and calculations.

Vertical Tie missing

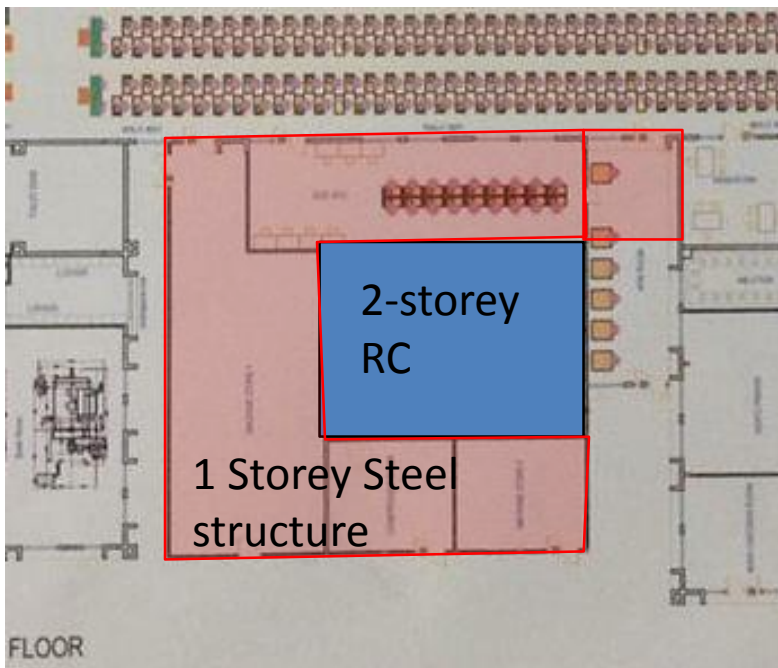
Observations Building 4

No design documentation for 2-Storey Chiller/AHU Building

- No design or permit documents available for two storey building
- As-built drawings to be produced
- Lightweight roof to be assessed



1 Storey Steel structure

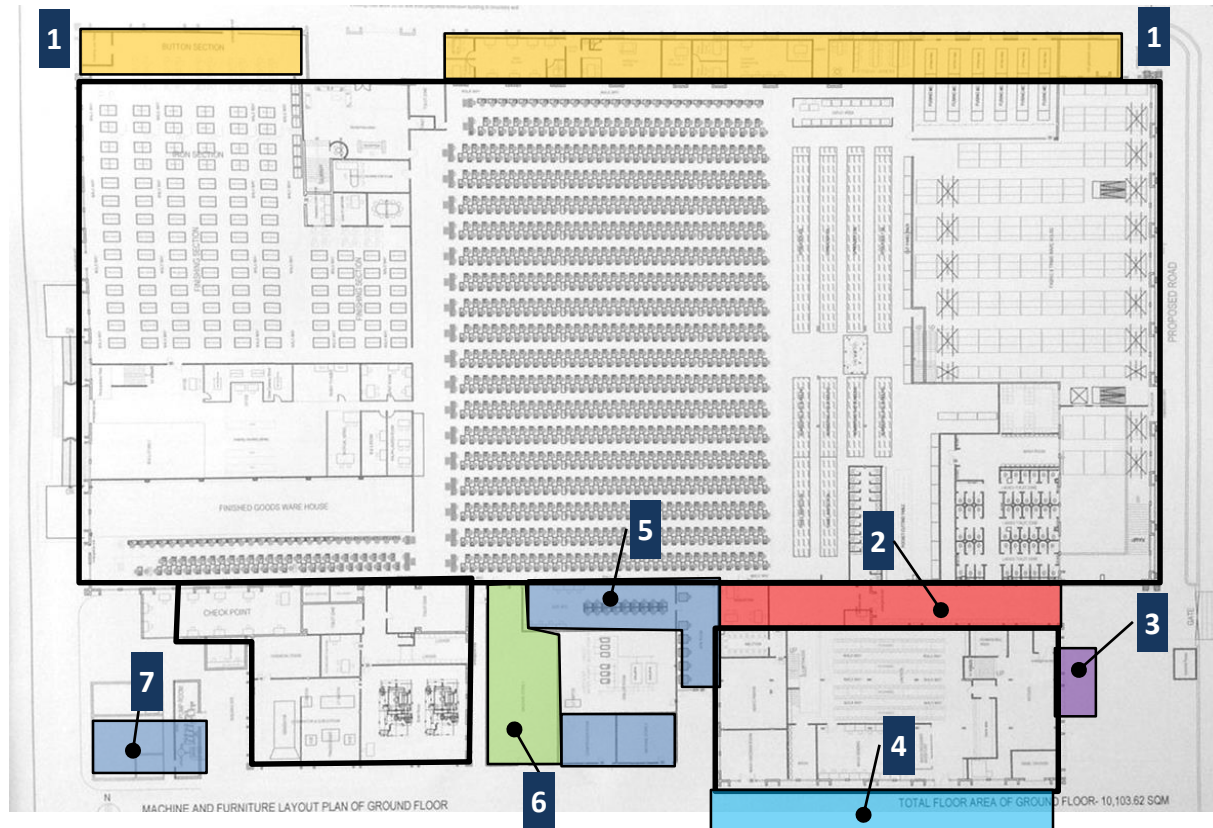


2 Storey RC Structure

No design documentation for 2-Storey Chiller/AHU Building
Observations - Building 4

General Observations

Non-engineered roof structures



- Undocumented and apparently non-engineered roof structures in locations shown.
- Lightweight roof structures subject to uplift in high winds
- Building Engineer to assess structures and outline strengthening measures as necessary.
- Refer to next sheets for examples.

Non-engineered Roof Structures

Observations



1. – Northern Extension of Building 1



2. – Infill roof between Buildings 1 & 2



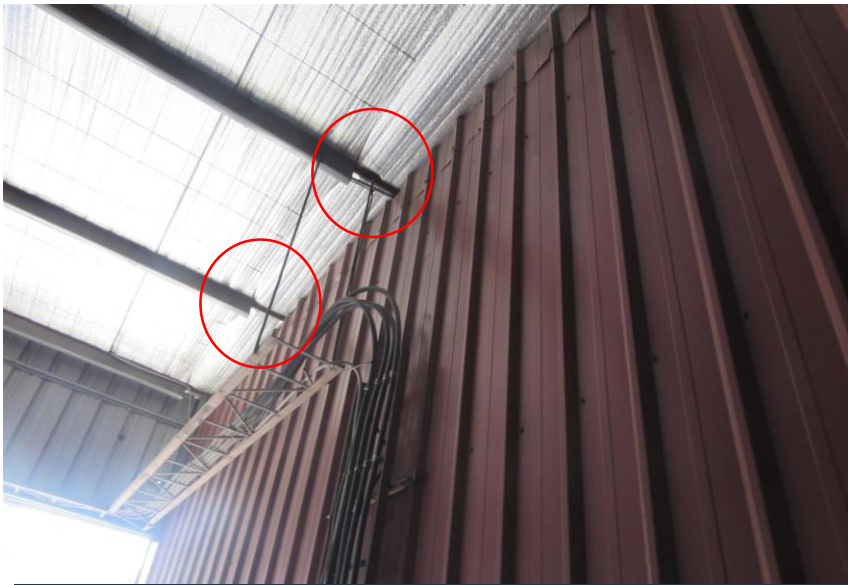
3. – Veranda on Building 2



4. – Infill between B2 and adjacent building

Non-engineered Roof Structures

Observations



6 .– Roof Between B3 & B4 above production zone



5. Lightweight Roof in Building 4



7. Storage Shelter

Non-engineered Roof Structures

Observations

Priority Actions

Problems Observed

1. Vertical ties missing in Buildings 1 and 2.
2. Extension to Mezzanine in Building 1.
3. Stacking loads on ground floor slab in Building 1.
4. Corrosion in columns in Building 2.
5. Non-engineered infill roof structures
6. No documentation for Building 4.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Vertical ties missing in Buildings 1 and 2	Building Engineer to assess lateral stability of Buildings 1 and 2.	6-weeks
2	Vertical ties missing in Buildings 1 and 2	Building Engineer to specify requirements for the replacement of missing ties, so that buildings withstand horizontal and vertical loads in accordance with statutory Codes.	6-weeks
3	Vertical ties missing in Buildings 1 and 2	Implement replacement of missing ties, as required.	6-months
4	Extension to Mezzanine in Building 1	Building Engineer to assess extension of Mezzanine structure in terms of additional loading on primary structure.	6-weeks
5	Extension to Mezzanine in Building 1	Building Engineer to prepare as-built drawings of the Mezzanine structure	6-months
6	Stacking loads on ground floor slab in Building 1	Building Engineer to assess ground floor capacity in terms of additional point loads from stacking structure.	6-weeks
7	Stacking loads on ground floor slab in Building 1	Implement any necessary structural works arising from assessment.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
8	Corrosion in columns in Building 2	Building Engineer to assess extent of corrosion in ground floor columns.	6-weeks
9	Corrosion in columns in Building 2	Carry out preparatory works and remedial corrosion protection to columns, arising from assessment.	6-months
10	Non-engineered infill roof structures	Building Engineer to perform design check for steel lightweight roofs for the infill and extension areas as well as for Buildings 3 and 4, taking into account vertical and horizontal load carrying capacity as well as uplift in high winds.	6-weeks
11	Non-engineered infill roof structures	Building Engineer to assess the main building frame structures for additional loading from the undocumented infill roofs.	6-weeks
12	Non-engineered infill roof structures	Carry out any strengthening or remedial works arising from assessments.	6-months
13	No documentation for Building 4	Building Engineer to prepare structural as-built drawings for Building 4.	6-months