

MHC WEARS (PVT.) LTD

Holding # 122 (new) 13/1 (old), word # 2, Sataish, Gazipura, Tongi Gazipur.

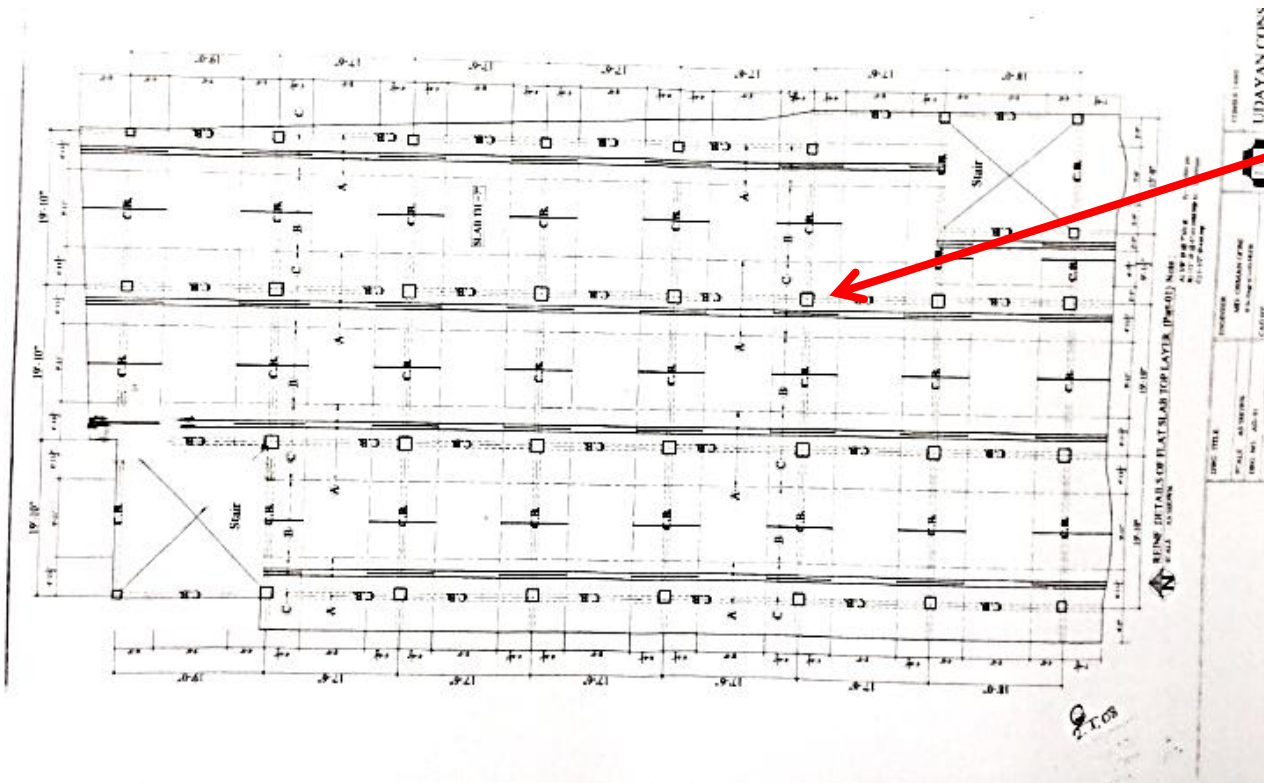
(23.9189N,90.3750E)

02 March 2014



Observations

Flat Slab Design



Cursory Calculations indicate high shear stress at column heads.

Shear reinforcement not indicated on the drawings presented for inspection.

Building Engineer to check punching shear for the slab at all levels



Flat Slab Design

Water tank on roof



Heavy Water tanks on Roof Slab

Building Engineer to check that beam and slab have been designed to accommodate loads.

Approx 5000 litre Fire water tanks

2000 and 1000 litre Fire water tanks



Heavy Water Tanks on Roof Slab

Water Proofing and Drainage at roof Level



Roof slab does not have any protection from water ingress and limited falls to small drainage outlets.

Potential for water load and damage in heavy rainfall



Water runs down the facade

Water Proofing and Drainage at roof Level

Water causing damage and corrosion



**Water runs down the
Façade damaging the structure**



**Water leaking from 1st floor in toilet
area**

Unmanaged toilet drainage system



Steam rejection causing constant wetting and corrosion.

Water causing damage and corrosion



Lightweight roof on Staircore

Light Roof



Lightweight construction on rooftop of staircores.
Inadequate tie-down details
open to wind uplift.
No stability system (thin brick walls)



Lightweight roof construction

Cracking in Brick Infill Wall in Staircore



Cracking in outer brick wall.

Stair Wall cracking

Priority Actions

Problems Observed

1. Flat slab design
2. Water tank on roof
3. Concrete strength to edge columns at Ground Level
4. Water proofing and drainage at roof level
5. Damage from Steam Pipes & Toilet drainage system
6. Lightweight roof on staircore

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Flat slab design	Engineer to carry out design check including punching shear calculations on the building floor slabs.	6-weeks
2	Flat slab design	Floor Loading plans to be created to indicate safe storage and building live load based on calculations to be prepared by the building engineer	6-weeks
3	Water tanks on roof	Building Engineer to check that slab has sufficient capacity to support fully filled water tanks. Punching shear at column heads to be checked (refer item 1 above)	6-weeks
4	Water tanks on roof	Relocate tanks if necessary	6-weeks
5	Verify concrete strengths in edge columns at Ground level	Factory Engineer to review design, loads and columns stresses in area identified above.	6-months
6	Verify concrete strengths in edge columns at Ground level	Verify insitu concrete stresses either by cores (4 no. 100mm dia. Min) or existing cylinder strength data for the identified columns.	6-months
7	Verify concrete strengths in edge columns at Ground level	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-months
8	Water proofing and drainage at roof level	Roof drainage system with adequate downpipes and gullies to be installed	6-months
9	Water proofing and drainage at roof level	Protective coating or membrane to be installed to prevent moisture ingress and damage to the concrete floor structure	6-months
10	Water proofing and drainage at roof level	Repair and seal all sources of steam and water leaks to prevent further moisture damage to structural concrete	6-months
11	Lightweight roof on staircore	Temporary roof to be assessed by Building Engineer and adequate tie downs installed.	6-months