

Apex Textile Printing Mills Ltd

Chandora, Kaliakoir, Gazipur, Dhaka
(+24.043819N, 90.260622E)

14 December 2013



Building Observations

**Columns appear to be stressed in excess of
normal design limits**



Cursory calculations indicate that column size appears to be smaller than required by code for the applied dead and live load, assuming typical concrete strength and reinforcement content.

Building Engineer to perform detailed calculations, concrete tests and verify reinforcement content to prove column size and (if required) :

- Reduce loads by preparation of allowable floor loading plans
- Carry out strengthening works

Columns appear to be stressed in excess of normal design limits

Load management of storage loads



Storage loads on 5th floor

Plan and height restrictions to be introduced to prevent future overloading.



Storage loads on 6th floor



Storage loads on 2nd floor

Floor Storage loads



Storage loads on 1st floor

Plan and height restrictions to be introduced to prevent future overloading.

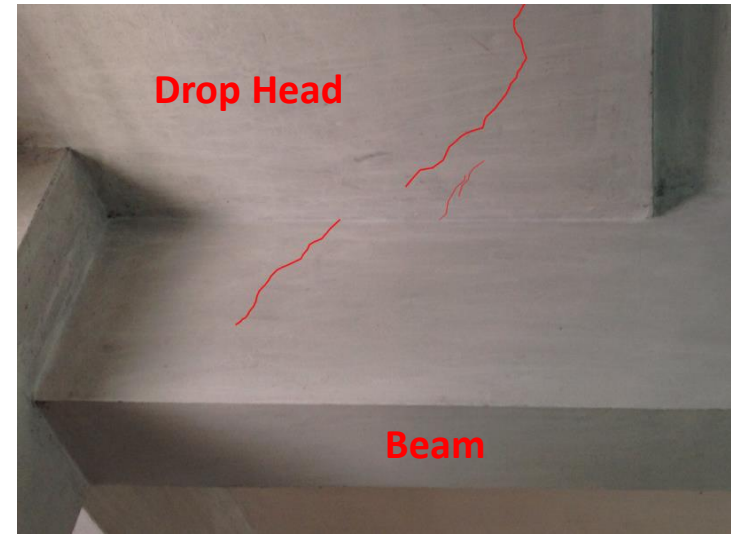
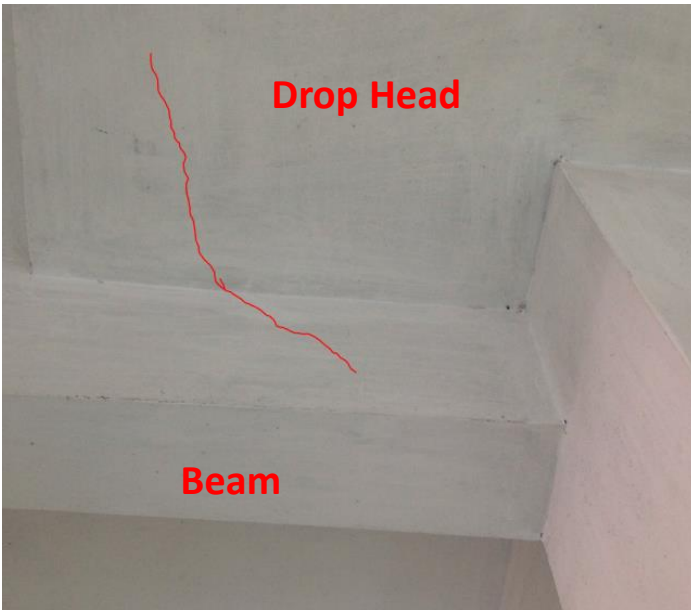


Storage loads on GF Mezzanine



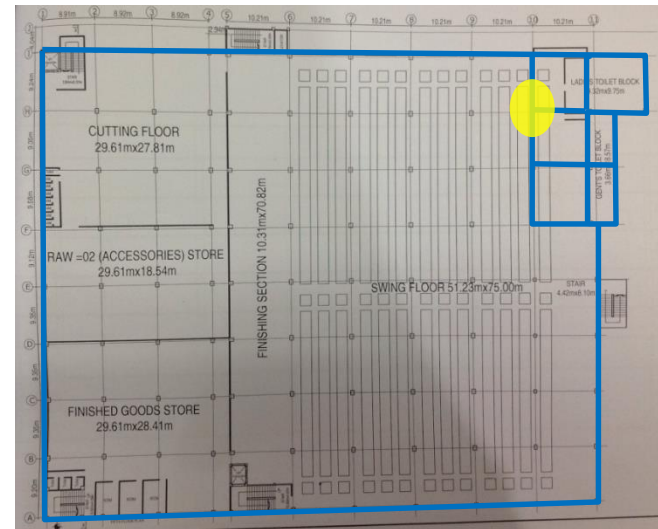
**Storage loads on 1st Floor
Mezzanine**

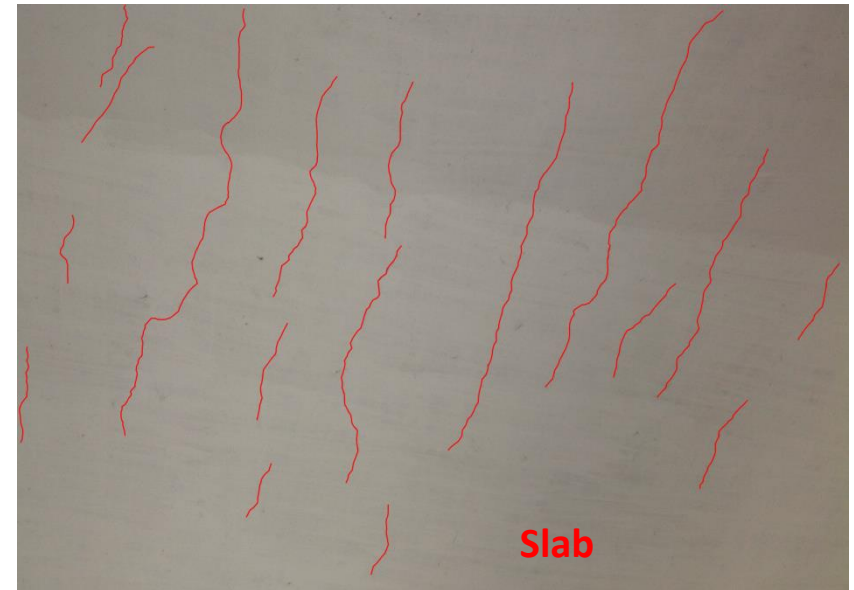
Cracking to Underside of Concrete Beams, Slabs, Drop Heads and Partitions



**Crack in beam and drop head –
u/side 6th floor**

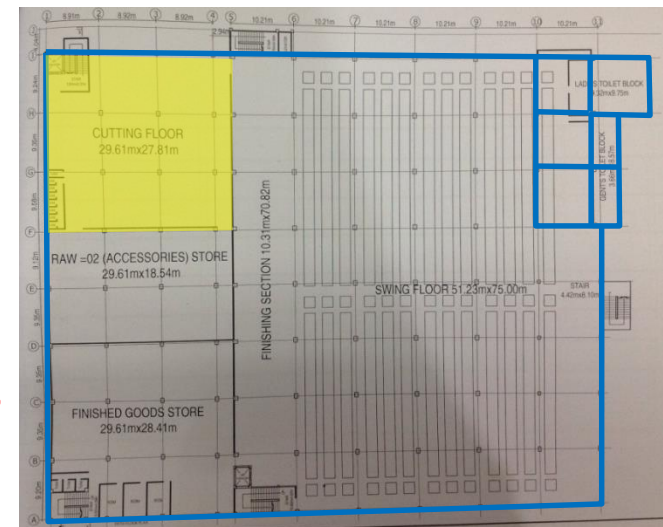
**Cracking pattern to concrete
beams and drop heads on the
underside of 6th floor slab**





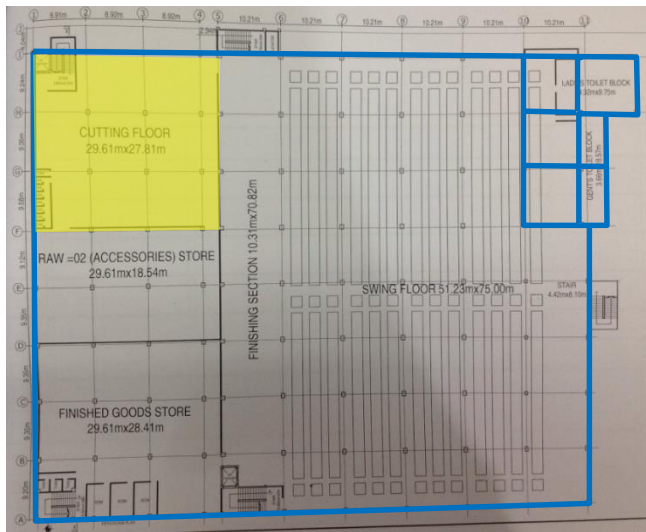
Crack in beams, slabs and drop heads at area highlighted in yellow – u/side 6th floor

5th floor



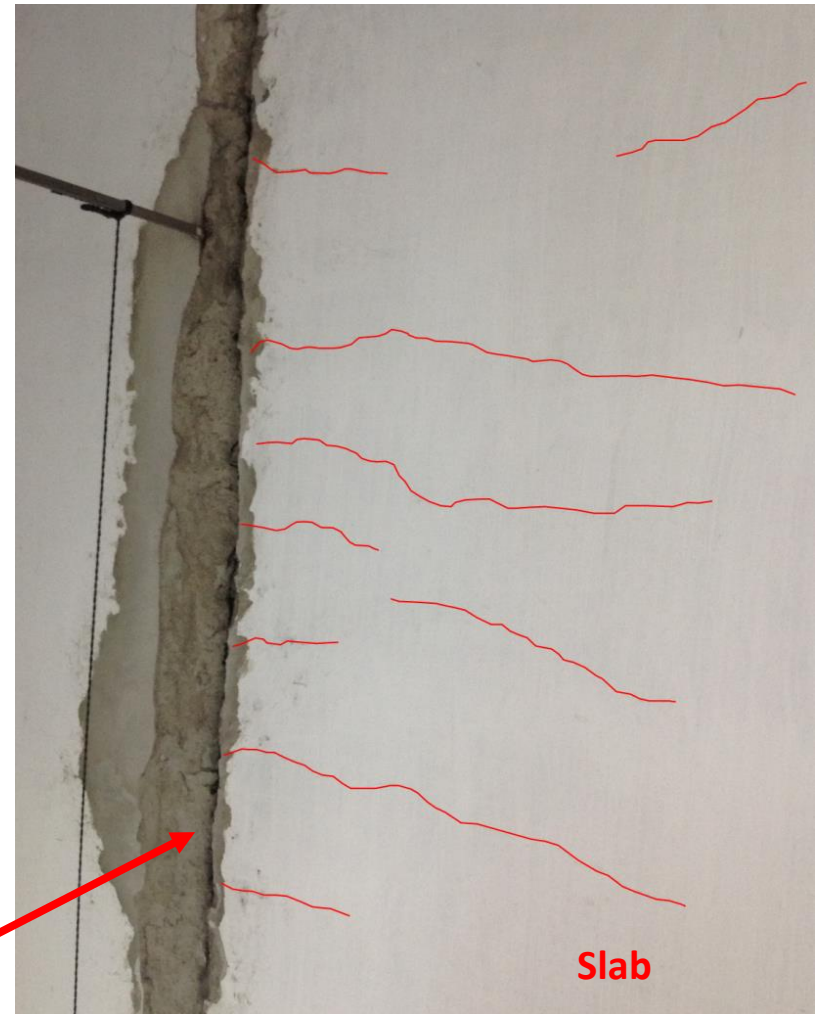
Cracks in beams/slabs/drop heads

Crack in slab at the movement joint at area highlighted in yellow – u/side 6th floor

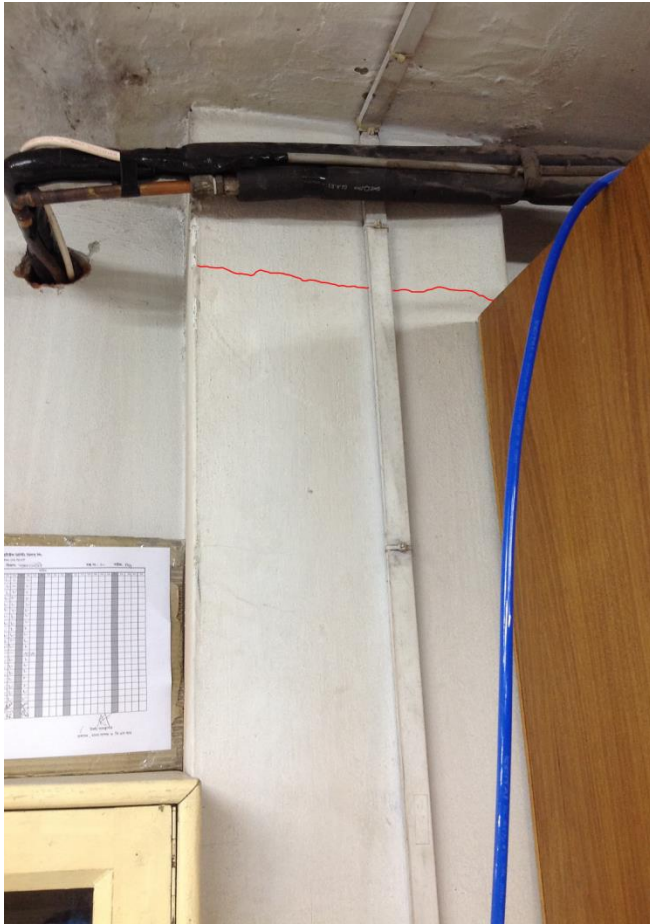


5th floor

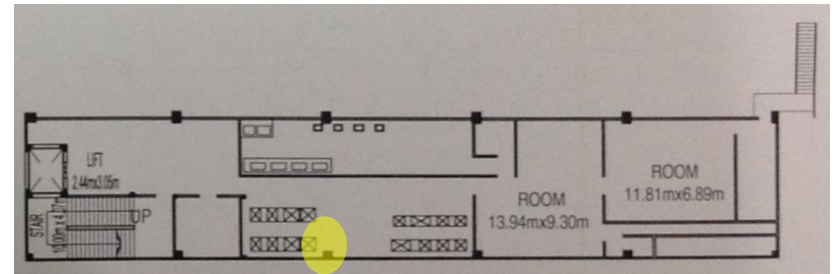
**Building
Movement
Joint**



Slab



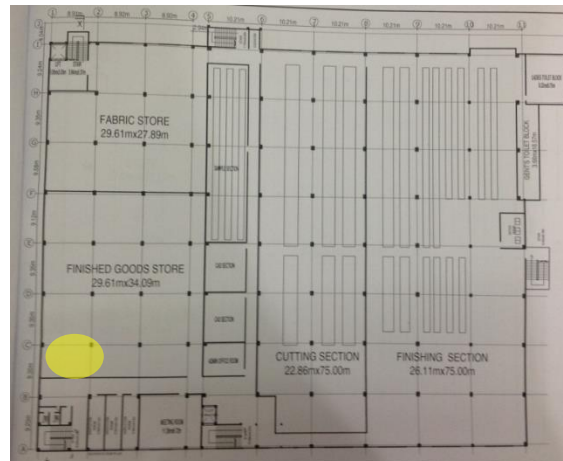
**Horizontal crack in column –
Ground Floor Mezzanine**



Crack in column

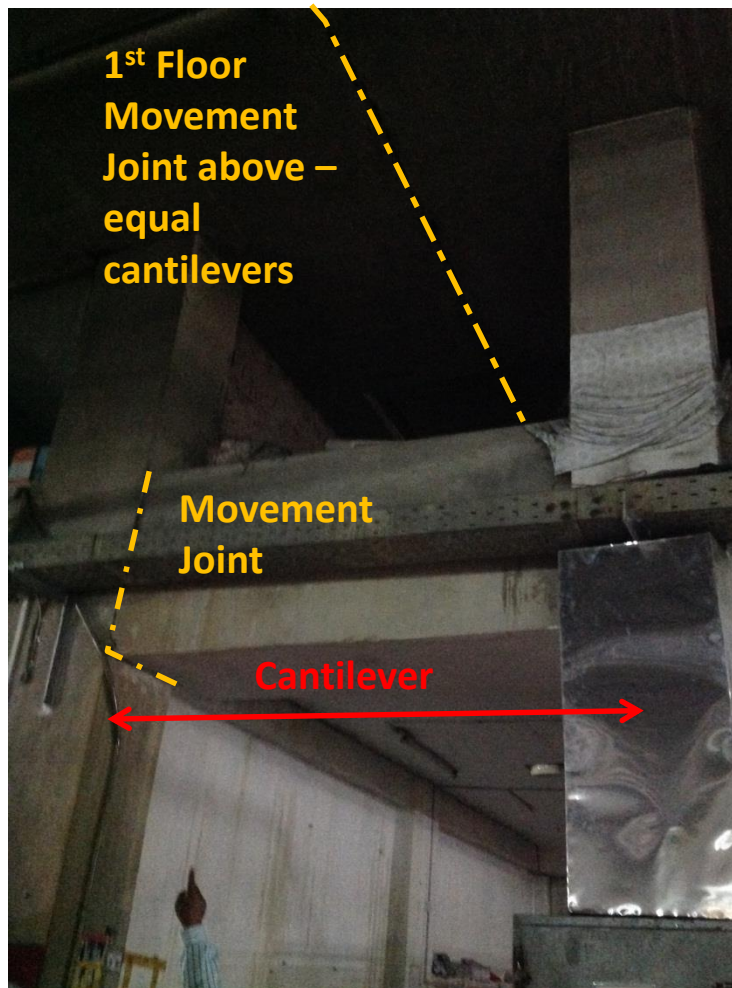


Crack in partition – 2nd floor

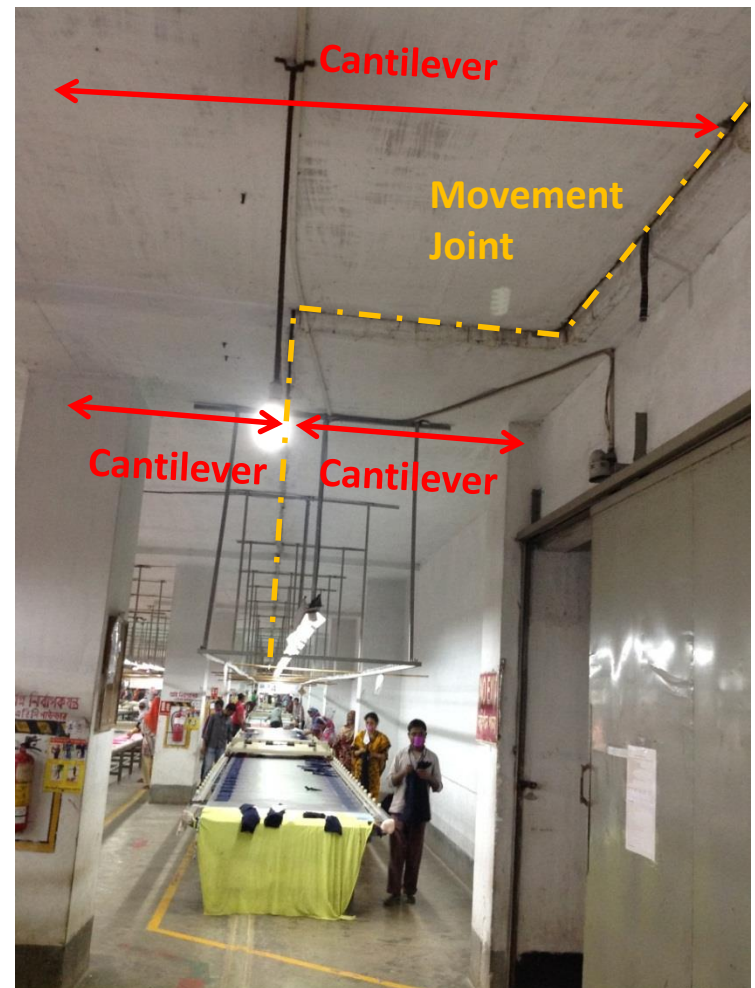


2nd floor

Stepped floor slab alignment at movement joint – capacity of cantilever floor slab to be checked



Ground Floor



4th Floor

Cantilever at Movement Joint

Water causing damage to building façade



South Elevation – Maintenance Required

**Water causing damage in the
façade**

Problems Observed

ITEM 1: Columns appear to be stressed in excess of normal design limits – Building Engineer to verify concrete stresses, in-situ concrete strength and reinforcement provided.

ITEM 2: Load management of storage loads.

ITEM 3: Cracking to underside of concrete beams, slabs, drop heads, and partitions.

ITEM 4: Stepped floor slab alignment at movement joint – capacity of cantilever floor slab and mezzanine beam to be checked.

ITEM 5: Water causing damage in the façade.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Verify the structural adequacy of columns at all levels based on as built dimensions, material properties and verified reinforcement content	Factory Engineer to review design, loads and columns stresses in area identified above.	6-weeks
2	Verify the structural adequacy of columns at all levels based on as built dimensions, material properties and verified reinforcement content	Verify insitu concrete stresses either by cores or existing cylinder strength data for 6 columns.	6-weeks
3	Verify the structural adequacy of columns at all levels based on as built dimensions, material properties and verified reinforcement content	Verify that reinforcement content in columns at 4 locations at ground floor is per the design drawings.	6-weeks
4	Verify the structural adequacy of columns at all levels based on as built dimensions, material properties and verified reinforcement content	Produce and actively manage Allowable Floor Loading plans for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
5	Load management of storage loads	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity, (including punching shear), and column capacity.	6-weeks
6	Cracking to underside of concrete beams, slabs, drop heads and partitions.	Sections of plaster finish to beams/slab to be removed to investigate if cracks penetrate the building structure.	6-weeks
7	Cracking to underside of concrete beams, slabs, drop heads and partitions.	Cracks in brick wall to be reviewed to identify the cause and confirm that it is non structural	6-weeks
8	Cracking to underside of concrete beams, slabs, drop heads and partitions.	Building Engineer to carry out design check on beams/slab to confirm that these cracks are non-structural.	6-months
9	Cracking to underside of concrete beams, slabs, drop heads and partitions.	Building Engineer to issue details of repair works to be completed	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
10	Stepped floor slab alignment at movement joint – capacity of cantilever floor slab and mezzanine beam to be checked.	Building Engineer to review typical floor plate design at the south east side of the movement joint and carry out design check calculations to confirm that slab is adequately designed for the increase cantilever span.	6-weeks
11	Stepped floor slab alignment at movement joint – capacity of cantilever floor slab and mezzanine beam to be checked.	If required the load capacity of the floor plate may be reduced locally - Refer to Item 1; requirement for Allowable Floor Loading Plans	6-weeks
12	Stepped floor slab alignment at movement joint – capacity of cantilever floor slab and mezzanine beam to be checked.	Design check required to confirm that north/south ground floor mezzanine beam is structurally adequate adjacent to movement joint.	6-weeks
13	Water causing damage to building facade	Engineer to inspect area of water damaged structure and identify remedial works – if required.	6-weeks
14	Water causing damage to building facade	Building owner to ensure that rainwater downpipes are maintained.	6-weeks
15	Water causing damage to building facade	Rainwater downpipes to be maintained on an on-going basis	6-months