Anupam Sweaters Ltd

South Panishail, Kashimpus Road Joydevpur, Gazipur, Bangladesh

(23.994365N, 90.260272E)

11 March 2015





Observations



Building 1 - Stress in façade columns in toilet area







- Initial calculations indicate that the highlighted columns appear to be stressed in excess of normal design limits.
- Heavy loads from façade, toilet floor and toilet walls.



Building 3 - Cracking in cantilever slab with no backspan





Cantilever roof slab appears to have no backspan. Cracking and distress visible at column connections.



Building 2 - Cracking to the underside of slabs







Crack in 2nd floor ceiling

Observations – Building 2



Loading at 3rd floor

Minor cracking in slabs appear to be bending cracks, possibly induced by loading on floors above.



Building 1 - Lightweight staircase with non-engineered connections













Fire escape stair very "bouncy", columns appear slender and some connections appear non-engineered.



Building 4 - Stability system not apparent





- Stability system is required in all three planes: (i) N/S walls, (ii) E/W walls and (iii) roof.
- Concrete columns may provide <u>some</u> stability in wall plane but there is no apparent continuation of the stability system into the roof diaphragm.
- Nor is it apparent that the columns have sufficient strength to provide the necessary bending resistance.





Building 5 - Lightweight non-engineered shed



- Building 5 appears susceptible to uplift and damage in strong winds It is large and lightweight and appears to have little positive tying back to a solid foundation structure.
- There is no clear stability system and no apparent crossbracing in any of the walls or in the roof.
- Typically the connections appear to be non-engineered.
- The non-engineered canopy structure at the south end of the shed appears to be particularly susceptible to uplift in strong winds.









Priority Actions



Problems Observed

- Item 1 Building 1 Façade columns in toilet area appear overstressed
- Item 2 Building 3 Cracking in cantilever slab with no backspan
- Item 3 Building 2 Cracking to the underside of slabs
- Item 4 Building 1 Lightweight staircase with non-engineered connections
- Item 5 Building 4 Stability system not apparent
- Item 6 Building 5 Lightweight non-engineered shed



ltem No.	Observation	Recommended Action Plan	Recommended Timeline
1	Building 1 - Stress in façade columns in toilet area	Building Engineer to review design, loads and column stresses in area identified above.	6-weeks
2	Building 1 - Stress in façade columns in toilet area	Verify in-situ concrete strength by 100mm dia. cores from min. 4 no. ground floor columns.	6-weeks
3	Building 1 - Stress in façade columns in toilet area	Produce and actively manage a loading plan for all floor plates within the factory, giving consideration to floor capacity and column capacity.	6-months
4	Building 1 - Stress in façade columns in toilet area	Implement any remedial measures recommended by Building Engineer.	6-months
5	Building 3 - Cracking in cantilever slab with no backspan	Provide temporary propping to suitable strong point as identified by Building Engineer.	6-weeks
6	Building 3 - Cracking in cantilever slab with no backspan	Building Engineer to review cantilever design and develop permanent solution.	6-weeks
7	Building 3 - Cracking in cantilever slab with no backspan	Implement remedial measures recommended by Building Engineer.	6-months



ltem No.	Observation	Recommended Action Plan	Recommended Timeline
8	Building 2 - Cracking to the underside of slabs	Building Engineer to investigate the penetration depth of cracks in slabs.	6-weeks
9	Building 2 - Cracking to the underside of slabs	Building Engineer to review design, loads and slab stresses, paying particular attention to weight of brickwork walls on slabs.	6-weeks
10	Building 2 - Cracking to the underside of slabs	Implement any structural remedial or strengthening works arising from Building Engineer's review.	6-months
11	Building 2 - Cracking to the underside of slabs	Produce and actively manage a loading plan for all floor plates within the building, giving consideration to floor capacity and column capacity	6-months
12	Building 1 - Lightweight staircase with non-engineered connections	Building engineer to check load capacity of fully loaded staircase, paying particular attention to: column buckling, connections to concrete structure, ability of concrete structure to carry applied loads.	6-weeks
13	Building 1 - Lightweight staircase with non-engineered connections	Implement any remedial measures recommended by Building Engineer.	6-months
14	Building 4 - Stability system not apparent	Building Engineer to carry out a stability analysis and determine additional stability structure required to meet building code.	6-months
15	Building 4 - Stability system not apparent	Implement remedial measures recommended by Building Engineer.	6-months
16	Building 5 - Lightweight non- engineered shed	Building engineer to carry out a stability analysis and review element capacities and connection design.	6-months
17	Building 5 - Lightweight non- engineered shed	Implement remedial measures recommended by Building Engineer, or consider replacing with a new shed meeting the requirements of the current building code.	6-months

