

Azmeri Composite Knit Ltd

199, Fayedabad, Uttarpara, Uttara, Dhaka-1230, Bangladesh.

23.883046, 90.413530

20th May 2014



Observations

Building 2

New steel frame in existing RC structure



Original Shed with new steel mezzanine infill.

- New steel columns appear to be founded on existing ground floor slab, i.e. not on new foundations.
- Connection details of steel frame are poor, with bent plates and gaps between connecting elements.
- There was no evidence of fireproofing to the steelwork supporting the mezzanine floors.
- No design details for the steel frame were available.

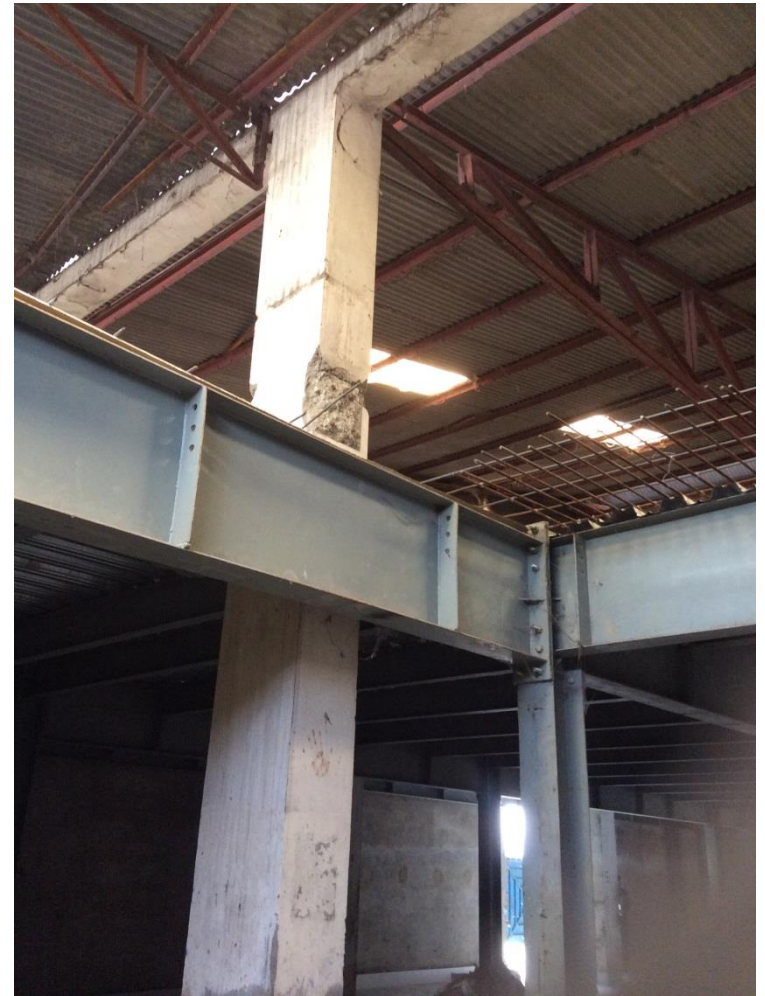


Large gaps between end plates and columns; generally poor connections throughout.

Building 2 – Observations



Corroded steel in concrete columns.

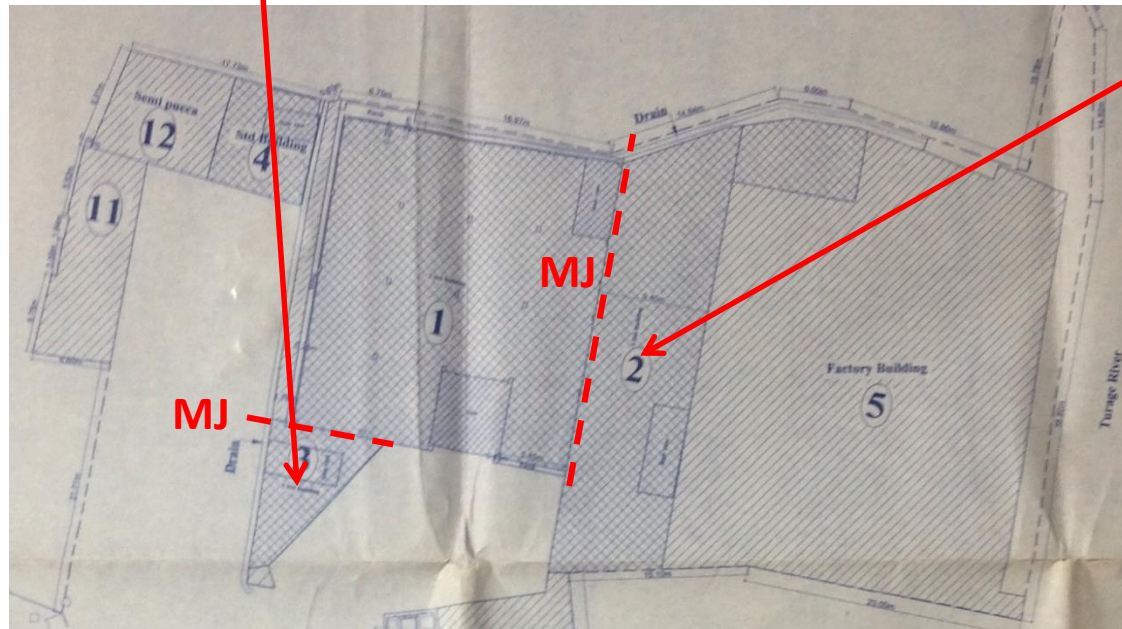
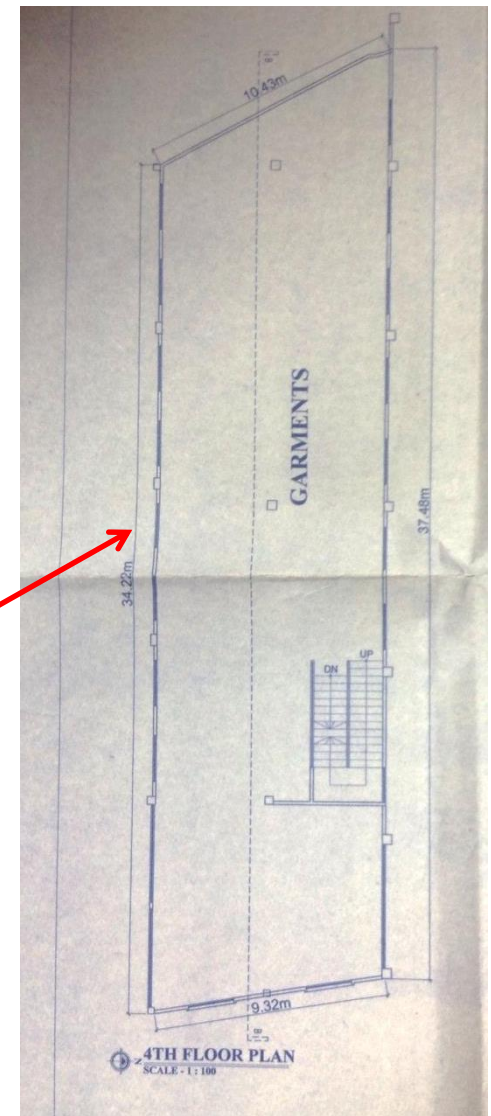
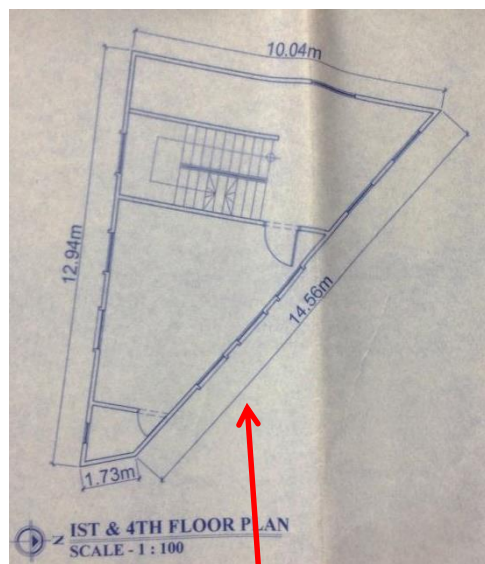


Concrete beam removed for installation of new steel.

Existing RC frame has been damaged.

Building 2 – Observations

Building 1 – Lateral stability of 5 storey narrow buildings



Building 1 – Lateral stability of 5 storey Narrow Buildings

Building 1

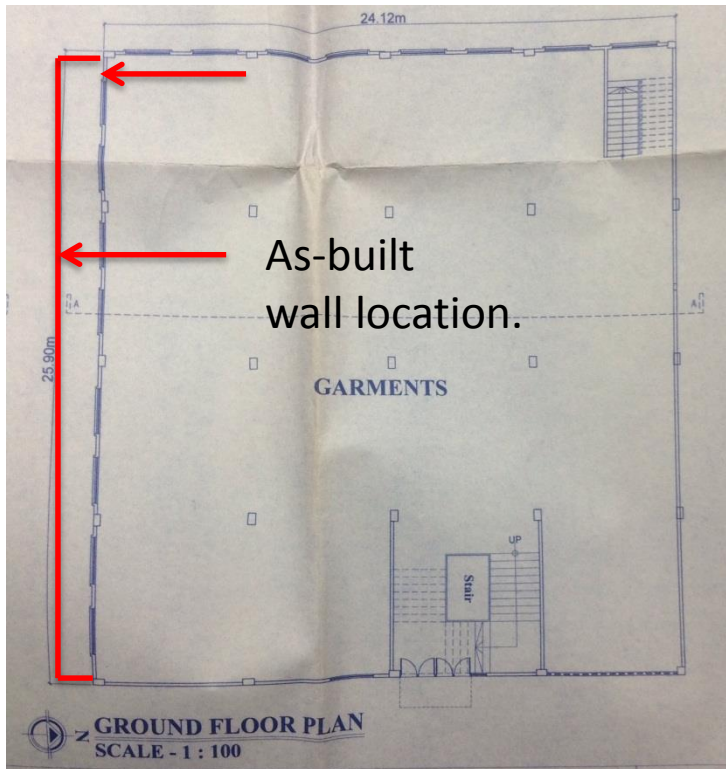
Building 1 – Possible punching shear in flat slabs



Building 1 – Possible punching shear in Flat Slabs

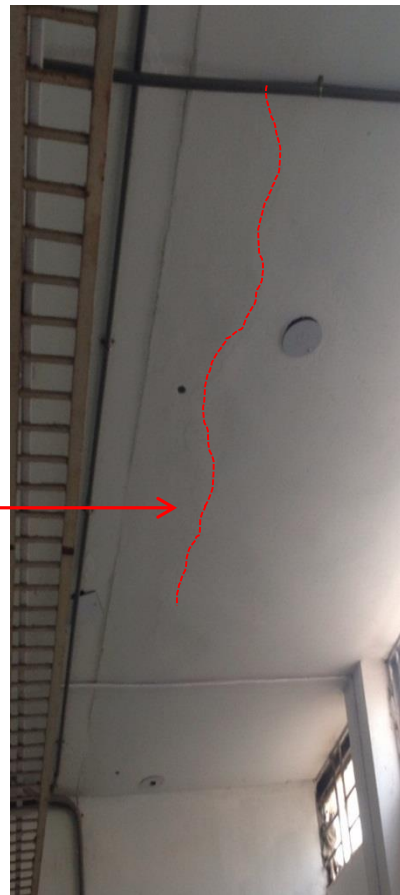
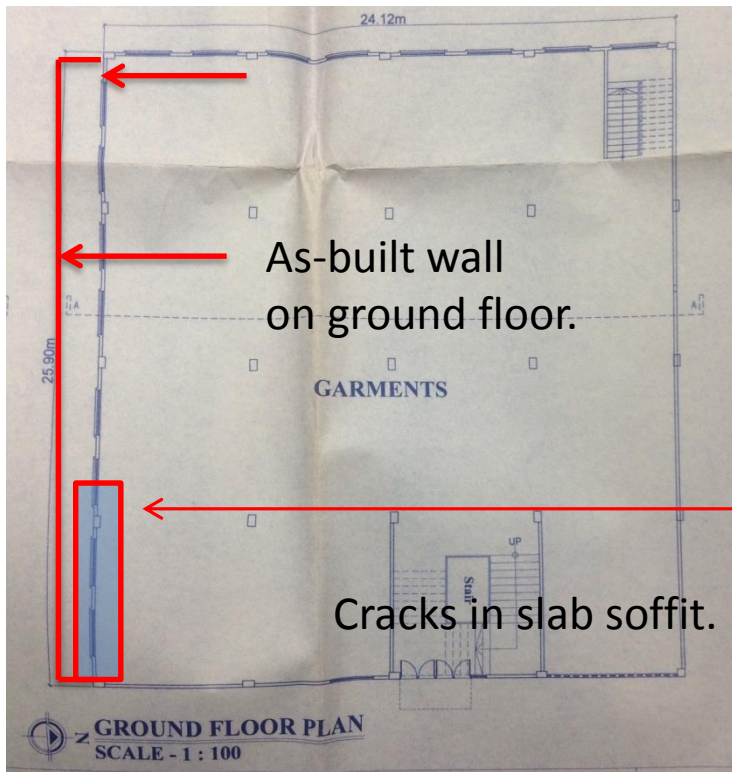
Building 1 - Discrepancies between Permit drawings and as-built structure

Building 1

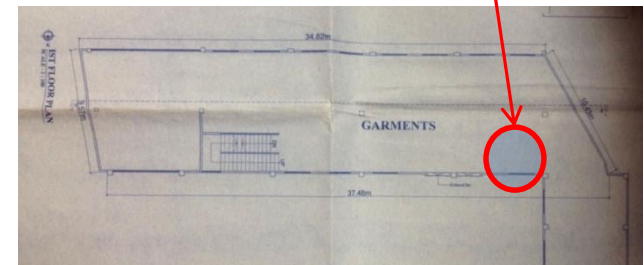


Building 1 - Discrepancies between Permit drawings and as-built structure

Building 1 - Localised cracks in slab



Cracks in slab.
These cracks should be monitored over time for any further signs of distress.



First floor

Building 1 - Localised cracks in slab

Building 1 - Localised cracks on the façade

Horizontal plaster cracking, possibility of exposed reinforcement in slab behind leading to possible corrosion of the reinforcement.

Vertical crack at movement joint. Joint should be sealed to avoid water ingress leading to possible damage to building structure.



Building 1

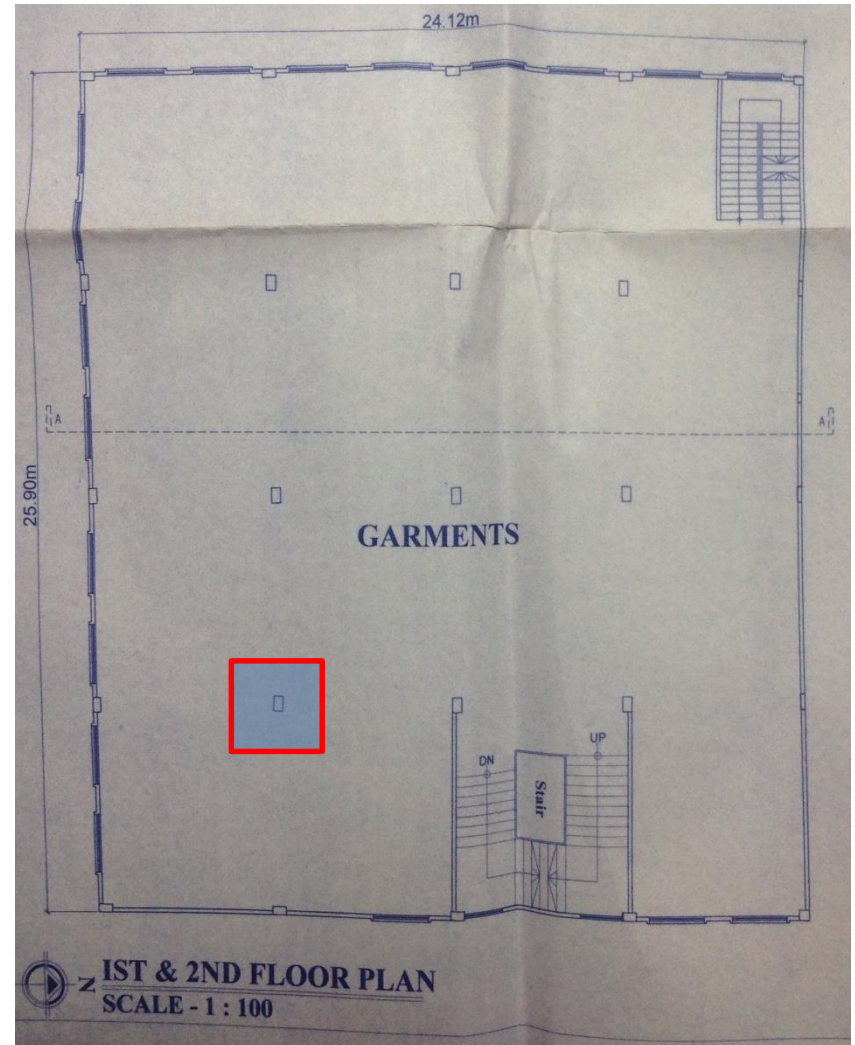
Localised cracks on the facade

Building 1 - Twisted column



Building 1

Twisted column on the second floor.



Twisted column

Building 1 - Lightweight corrugated steel roof to Stair core

Building 1 – Roof Level



Lightweight corrugated steel roof

Ancillary Buildings – non-engineered steel roofs



Ancillary buildings are brick construction with lightweight non-engineered steel roofs.

Ancillary Buildings – Observations

Problems Observed

1. Building 2 – Damage to structural concrete elements and lack of design information for new steelwork.
2. Building 1 – Lateral stability of narrow 5-storey buildings
3. Building 1 - Punching shear in flat slabs
4. Building 1 - Discrepancies between Permit and as-built structure.
5. Building 1 - Localised cracks in slab soffit and façade
6. Building 1 - Twisted Column
7. Building 1 - Non-engineered steel roof and metal roof over stair core
8. Ancillary Buildings - Non-engineered lightweight steel roof structures

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Construction work in Building 2 to cease immediately pending the outcome of the assessment / review.	Immediate - Now
2	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Building Engineer to assess the effect of the demolition of RC elements on the remaining structure, including the preparation of calculations.	Immediate - Now
3	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Building Engineer to review all steelwork details to check if the steel frame are capable of carrying the proposed building loads, both vertical and horizontal, including the preparation of calculations.	Immediate - Now
4	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Building Engineer to assess the requirement for providing fire protection to the steel frame.	Immediate - Now
5	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Building Engineer to check the need for pad footings under the steel columns, including the preparation of calculations.	Immediate - Now
6	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Carry out any necessary repairs / strengthening works to the RC structure arising from Building Engineer's assessment.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
7	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Carry out any necessary remedial works to steelwork, including new foundations, arising from Building Engineer's review.	6-weeks
8	Building 2 – Damage to structural concrete elements and lack of design information for new steelwork	Produce accurate as-built drawings for Building 2.	6-months
9	Building 1 – Lateral stability of narrow 5 storey buildings	Building Engineer to assess by calculation the capacity of the narrow 5-storey structures to withstand lateral loads in accordance with Code values.	6-weeks
10	Building 1 – Lateral stability of narrow 5 storey buildings	Implement any actions arising from assessment.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
11	Building 1 - Punching Shear in flat slabs	Building Engineer to review the design, loads and punching shear stresses of all flat slabs in the building.	6-weeks
12	Building 1 - Punching Shear in flat slabs	Verify insitu concrete stresses in the flat slabs either by 100mm diameter cores, or existing cylinder strength data for cores, from min. 4 locations that will not adversely affect the slabs.	6-weeks
13	Building 1 - Punching Shear in flat slabs	Produce and actively manage a loading plan for all floor plates within Building 1, giving consideration to floor capacity and column capacity.	6-weeks
14	Building 1 - Punching Shear in flat slabs	Following results of calculations/cores, any strengthening works required are to be completed.	6-months
15	Building 1 - Punching Shear in flat slabs	Continue to implement load plan.	6-months
16	Building 1 - Discrepancies between permit drawing and as-built structure	Building Engineer to survey the as-built structure.	6-weeks
17	Building 1 - Discrepancies between permit drawing and as-built structure	There should be no further additions to Building 1 without full design and approval documentation.	6-weeks
18	Building 1 - Discrepancies between permit drawing and as-built structure	Produce design calculations and accurate as-built drawings for Building 1.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
19	Building 1 - Localised cracks in slab soffit and facade	Building Engineer to confirm if cracks are of a structural nature	6-weeks
20	Building 1 - Localised cracks in slab soffit and facade	Carry out any structural repairs as deemed necessary.	6-months
21	Building 1 - Localised cracks in slab soffit and facade	Continue to monitor for cracking.	6-months
22	Building 1 - Twisted column	Building Engineer to assess by measurement whether the columns are aligned vertically.	6-weeks
23	Building 1 - Twisted column	Implement actions arising out of assessment.	6-months
24	Building 1 - Non-engineered steel roof and metal roof over stair core	Lightweight roof structure to be analysed by Building Engineer to ensure adequacy for code vertical and wind loads.	6-months
25	Building 1 - Non-engineered steel roof and metal roof over stair core	Implement any remedial / strengthening works arising from analysis.	6-months
26	Non-engineered steel roof and metal roof in Ancillary Buildings	Lightweight roof structures to be analysed by Building Engineer to ensure adequacy for code vertical and wind loads by the Building Engineer.	6-months
27	Non-engineered steel roof and metal roof in Ancillary Buildings	Implement any remedial / strengthening works arising from analysis.	6-months