Parkscene Bangladesh Ltd

Mouza Kunia . JL No,. 406, Gazipur Sadar. Gazipur

(23.934767N, 90.387349E)
20th April 2014

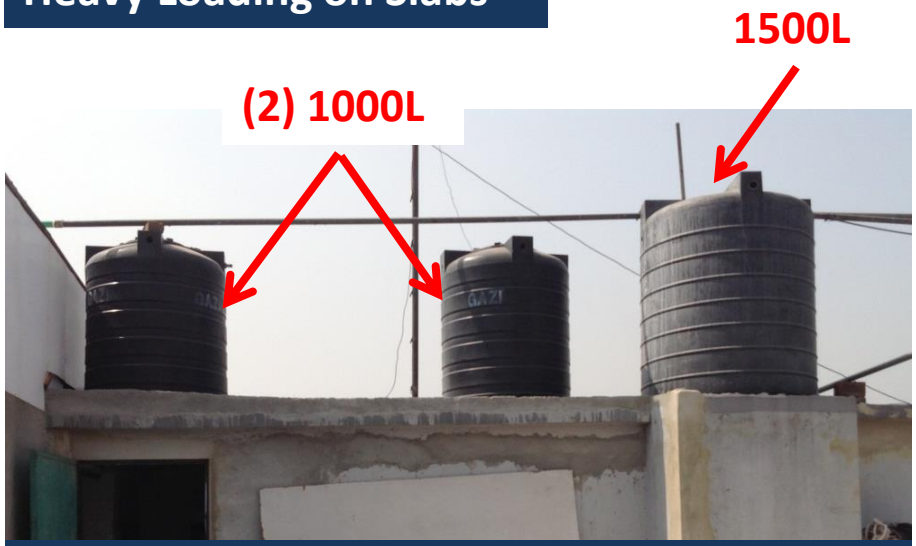
ACCORD on Fire and Building Safety in Bangladesh

ARUP

Observations

Heavy Loading on Slabs

Heavy Loading on Slabs

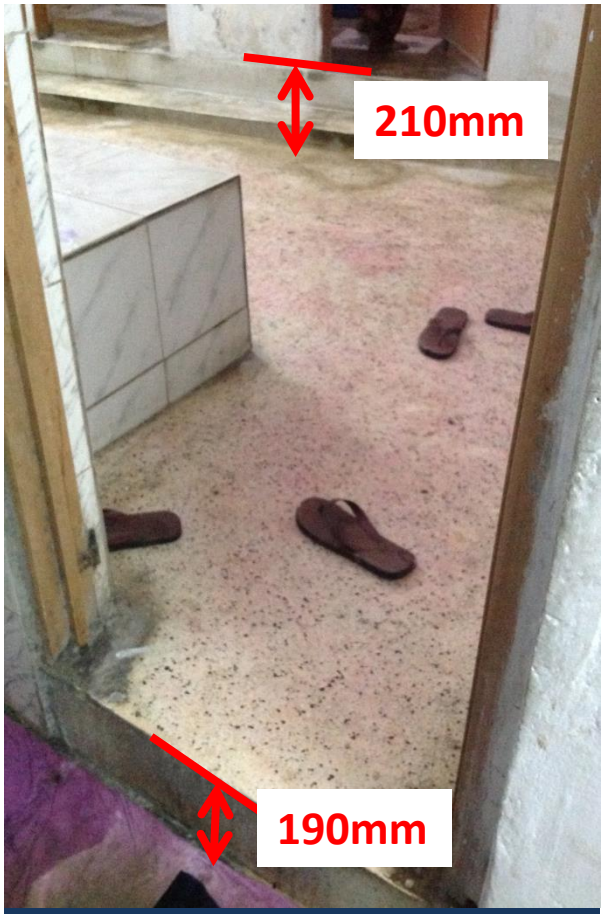


Water tanks on roof slab

Heavy loading was observed in several locations on floor and roof slabs:

- Water tanks on the roof slabs above stairs
- Toilet areas
- Storage areas
- Masonry partition walls at 2nd Floor

Heavy dead load due to toilet build-up



Toilet Areas

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Heavy Loading on Slabs

Storage areas

5 kN/m² estimated live load

Masonry partition walls

2 kN/m estimated superimposed dead load

Observations

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Heavy Loading on Slabs

Typical floor plan

- Not Built
- Toilet Areas Ground – 5th Floor
- Storage Areas Ground – 5th Floor
- Storage Areas 4th Floor
- Masonry Partition 2nd Floor
- Water tank Stair Roof, 6th Floor

Observations

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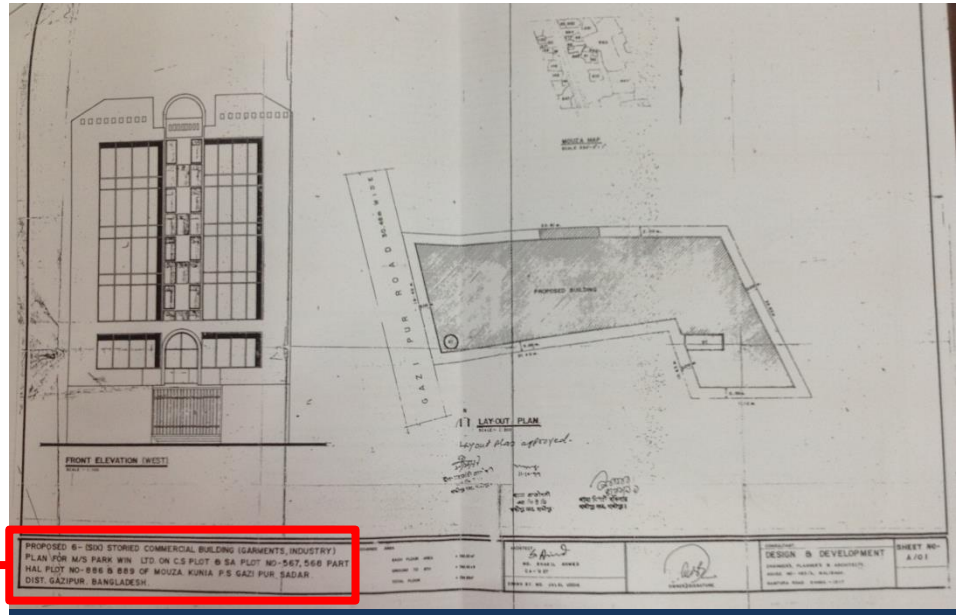
Non-Permitted Additional Storey

A shed roof has been erected over the former R.C. roof to create a usable floor space at the roof level (6th Floor), so the building now has seven (7) occupied storeys. The Building Permit is for a 6-storey building. The 6th Floor is currently being used for sewing and prayer, and it has also been used for dining.

Shed at roof level (6th Floor)



Permit drawing for 6-storey building

PROPOSED 6- (SIX) STORIED COMMERCIAL BUILDING (GARMENTS, INDUSTRY)
PLAN FOR M/S PARK WIN LTD. ON C.S PLOT 6 SA PLOT NO-567, 568 PART
HAL PLOT NO-886 & 889 OF MOUZA. KUNIA P.S GAZI PUR SADAR
DIST. GAZIPUR. BANGLADESH.

Observations

Verification of Roof Shed Engineering

Verification of Roof Shed Engineering

Lack of horizontal bracing in roof

Non-engineered connection to column

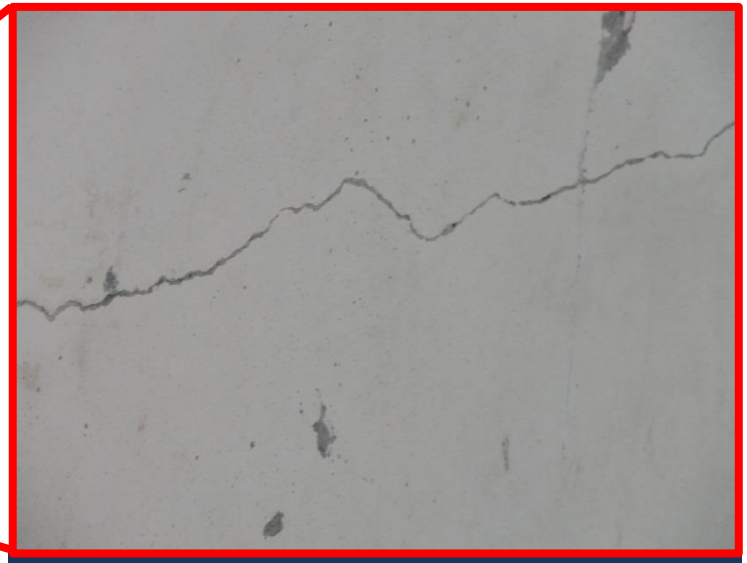
Two observations of the roof shed require engineering verification:

- **Lack of horizontal bracing in roof**
- **Truss connection to external concrete columns**

Crack in Wall Panel between Roof Trusses

A crack was observed in the masonry wall panel below a window between the roof trusses at the 6th floor. This was an isolated area

Wall panels at 6th floor

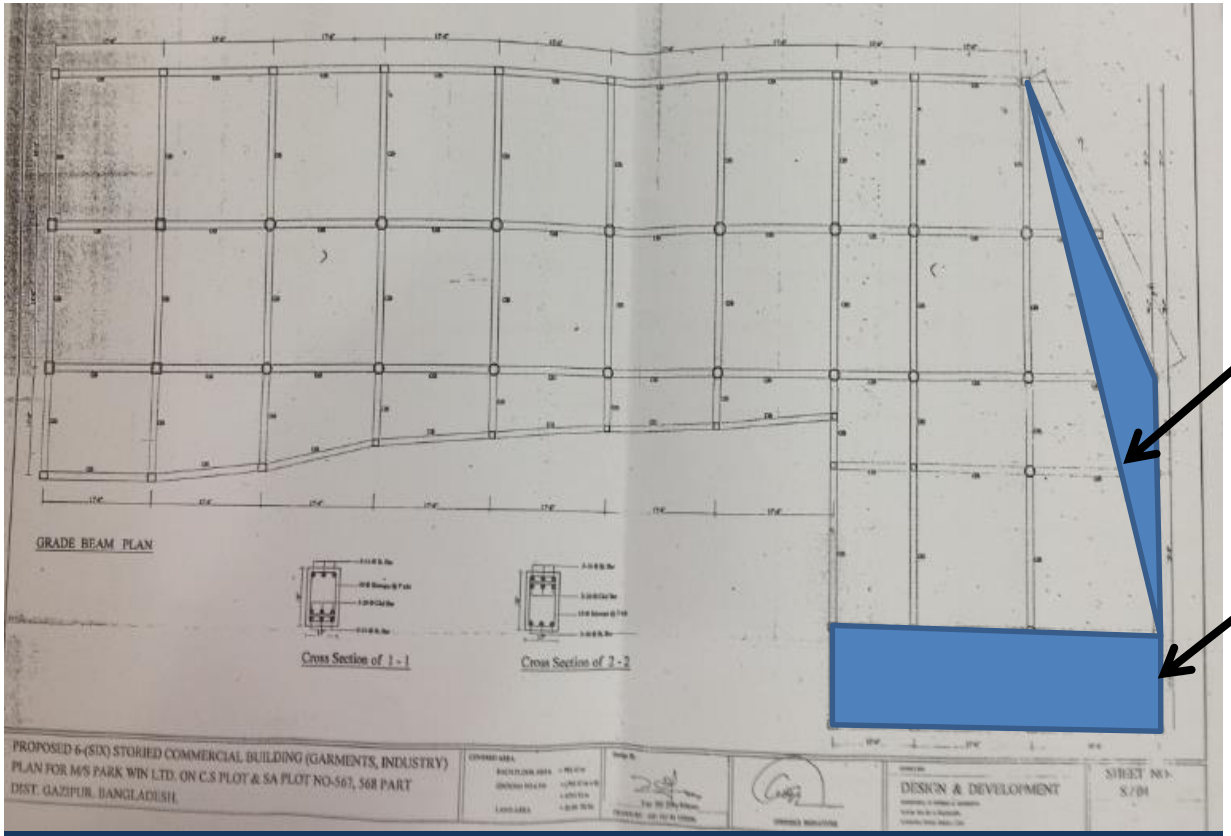


Crack in wall panel

Observations

Discrepancies between Drawings and Actual Observations

The typical floor plan which was built differs from the Permit Drawings. One bay at the south end of the building was not built, and the profile of the building edge to the east is skewed.



Typical floor plan

Not Built

Skewed building edge to the east

One bay not built

Observations

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Observed Aggregate

Brick aggregate was observed in the 6th Floor slab and in columns at the Ground Floor.

Brick aggregate in slab

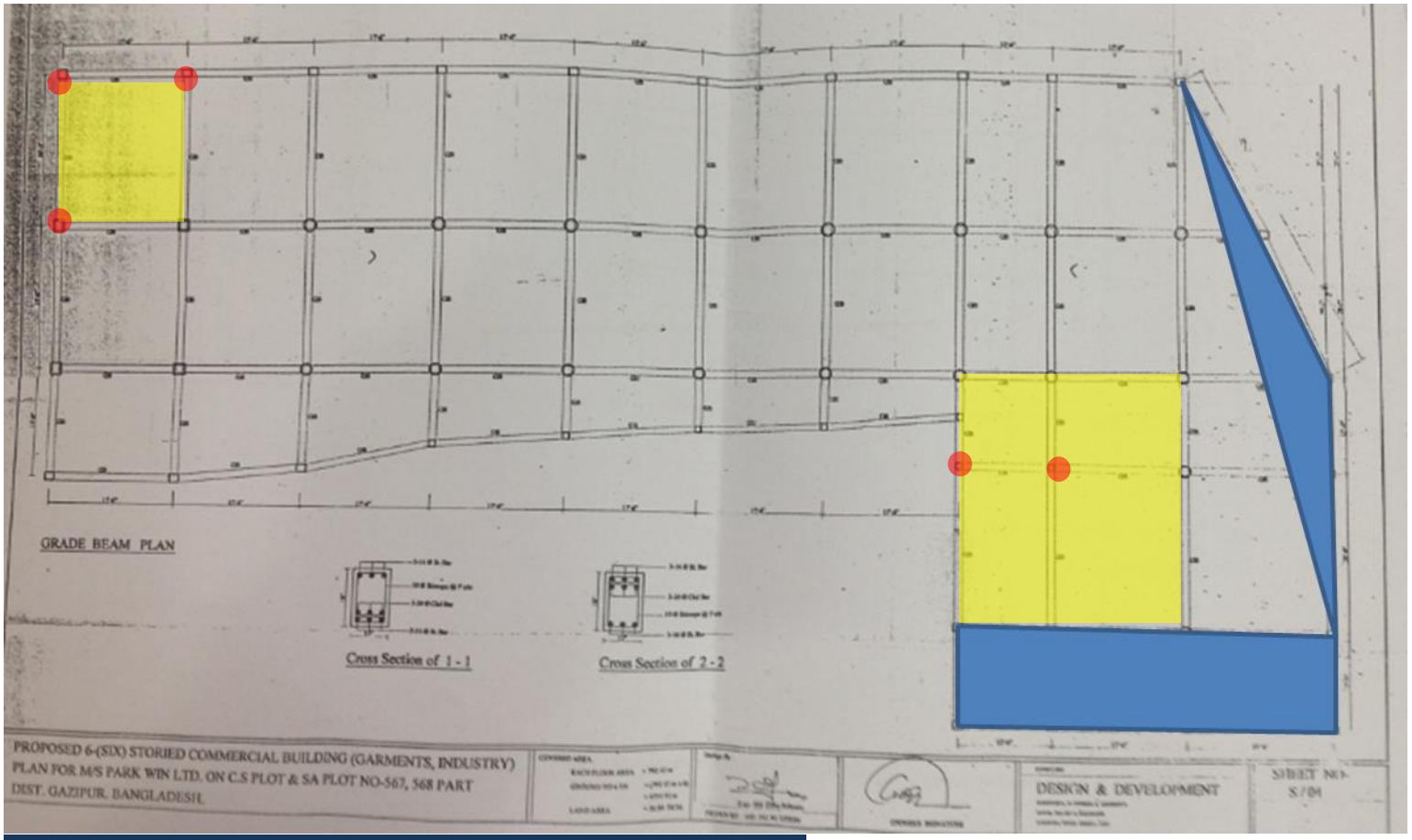
Brick aggregate in column

Observations

Problems Observed

1. Heavy loaded columns in toilet areas
2. Heavy loading noted in isolated areas of some floor plates
3. Heavy loading due to build up of material in toilets
4. Non – permitted additional storey and associated non engineered structure
5. Water tanks on stair core roof.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Heavily loaded columns in toilet areas	Live load to be controlled as per limits on following page	**Immediate - Now**
2	Heavily loaded columns in toilet areas	Detail Engineering Assessment of as-built structure to be commenced as per attached scope.	**Immediate - Now**
3	Heavily loaded columns in toilet areas	Verify insitu concrete strengths (using min. 4 no. 100mm dia. Cores and/or assessment of available concrete strength data) and existing reinforcement for all columns	**Immediate - Now**
4	Heavily loaded columns in toilet areas	Detail Engineering Assessment to be completed	**6-weeks**
5	Heavily loaded columns in toilet areas	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	**6-weeks**
6	Heavily loaded columns in toilet areas	Make alterations to the toilets as required.	**6-weeks**
7	Heavily loaded columns in toilet areas	Continue to implement load plan for all floor plates within the factory.	**6-months**
8	Heavy loading noted in isolated areas of some floor plates	Building engineer to produce loading plans to be displayed at each floor level.	**6-weeks**
9	Heavy loading noted in isolated areas of some floor plates	Factory manager to actively manage floor usage in accordance with the loading plan.	**6-months**



Heavy loaded columns

- Heavy Loaded columns

Area where loading is not to exceed 1.0kN/m2 prior to completion of DEA

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Detail Engineering Assessment

This Schedule develops a minimum level of information, Analysis and testing expected as part of a Detail Engineering Assessment.
The Building(s) have been visually assessed and it is deemed necessary that a detailed engineering assessment be carried out by a competent Engineering Team employed by the factory Owner.
This Request should be read in conjunction with the BUET developed Tripartite Guideline document for Assessment of Structural Integrity of Existing RMG Factory Buildings in Bangladesh (Tripartite Document), the latest version of this document should be referenced. T his document also gives guidance on required competency of Engineering Team.

We expect that the following will be carried out:

1. Development of Full Engineering As-Built Drawings showing Structure, loading, elements, dimensions , levels, foundations and framing on Plan, Section and Elevational drawings .
2. The Engineering team are to carry out supporting calculations with a model based design check to assess the safety and serviceability of the building against loading as set out in BNBC-2006, Lower rate provisions can be applied in accordance with the Tripartite Guidelines following international engineering practice, justification for these lower rate provisions must be made.
3. A geotechnical Report describing ground conditions and commenting on foundation systems used/proposed.
4. A report on Engineering tests carried out to justify material strengths and reinforcement content in all key elements studied.
5. Detailed load plans shall be prepared for each level showing current and potential future loading with all key equipment items shown with associated loads.
6. The Engineering team will prepare an assessment report that covers the following:
    - As-Built drawings including
        - Plans at each level calling up and dimensioning all structural components
        - Cross sectional drawings showing structural beams, slabs, floor to floor heights, roof build-ups and Basic design information of the structure
    - Highlight any variation between As-built compared to the designed structure
    - Results of testing for strength and materials
    - Results of geotechnical assessment and testing/investigation
    - Details of loading, inputs and results of computer modelling
    - Commentary on adequacy/inadequacy of elements of the structure
    - Schedule of any required retrofitting required for safety or performance of Structure

Any proposals for Retrofitting to follow guidance developed in the Tripartite Document

Item No.	Observation	Recommended Action Plan	Recommended Timeline
10	Heavy loading due to build up of material in toilets	As part of the DEA (see Item1)Engineer to carry out calculations to justify floor slab in the area of the toilets. Large build up of load noted as a result of raised floor	**Immediate - Now**
11	Heavy loading due to build up of material in toilets	Complete assessment	**6-weeks**
12	Heavy loading due to build up of material in toilets	Carry out alterations as a result of the engineering study	**6-months**
13	Non – permitted additional storey and associated non engineered structure	As-built documents to be completed as part of DEA	**6-weeks**
14	Non – permitted additional storey and associated non engineered structure	Engineer inspect and design and detail remedial works	**6-weeks**
15	Non – permitted additional storey and associated non engineered structure	Carry out remedial works as required	**6-months**
16	Water tanks on stair core roof	Engineer to check roof slab and columns under tanks	**6-weeks**
17	Water tanks on stair core roof	Move tanks if required to suitable location following Engineers study if required	**6-months**