Shin Shin Apparels Ltd. (9615)

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27.MAY.2014

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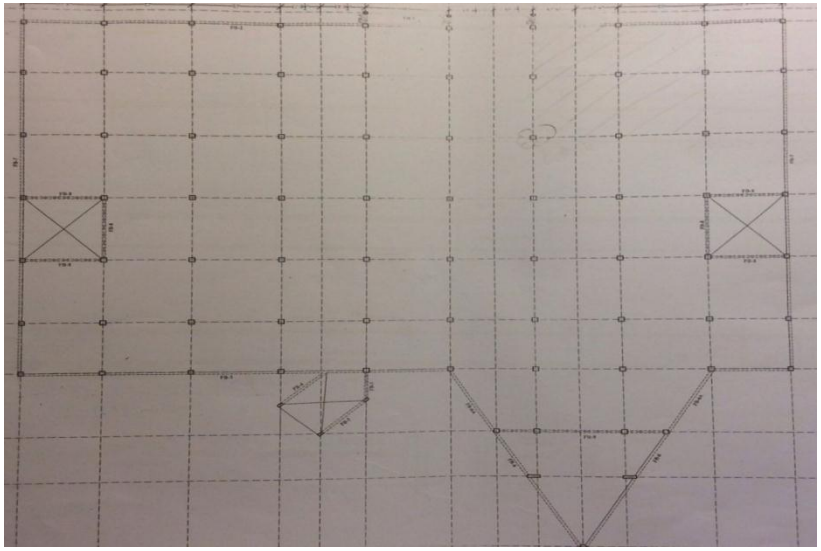
Identified Priority 1 Concerns

1st Priority 1 Concern



Based on the Detail Engineering Assessment report by BUET, the recommendation is using 1.5kPa (30psf) for live load for flat slab system due to the punching shear issued.

As per our calculation with the live load 1.5kPa for punching shear at the typical column, the shear stress at the first perimeter is higher than the design concrete shear stress. Based on the code, it must be increase the slab thickness or provide shear links for slab. However, the shear links have not provided as per structural drawing.

Furthermore, due to the lack of lateral stability system, the increase of un-balance moment due to lateral load need to be considered.

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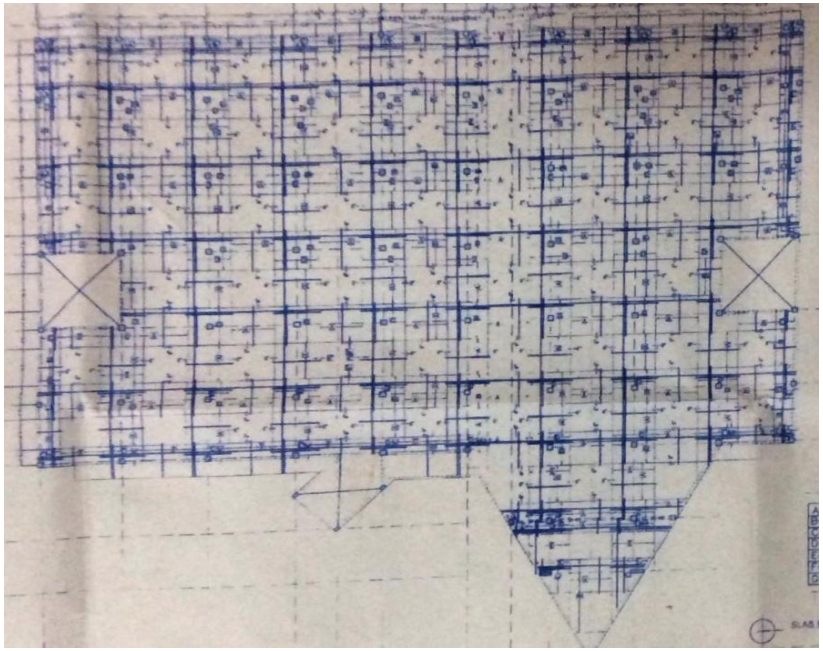
1st Priority 1 Concern (Continued)



The span/depth ratio for flat slab which controls the limit of deflection for an RC element is defined apparently as L/30. The ratio for 7.62m span and 200mm thickness slab is 38 which was higher than ratio requirement.

Thinner flat slab will lead to increase the deflection in short-term and long-term and reduce the punching shear resistant as well.

The thin flat slab without drop panel and may be without shear reinforcement is not sufficiency to resist the punching shear load in seismic load which will cause the slab fall down suddenly and the building will collapse subsequently.

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2nd Priority 1 Concern

The storage of Jean trousers layers seem to be heavier than the allowable loading 1.5kPa (30psf), as per our estimated, the live load for this area is 3.09kPa which is higher than the allowable loading 1.5kPa (30psf).

The maximum number of layers allowable should be reduced to a maximum of 1.5kPa (30psf), and spread evenly around the storage area.

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Identified Priority 3 Concerns

1st Priority 3 Concern

Main building

The steel truss need to have longitudinal bracing to combine the whole trusses as a one system to make the stability of the trusses and to resist the wind load.

The structure engineer need to review the calculation in the case with wind load applied to check the stability of the trusses under lateral wind load and uplift wind load.

The steel truss should be applied the fire proofing for long term used.

Dining room on the 2nd floor

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2nd Priority 3 Concern

Main building

There is two water tanks 2m3 per each tank which was put beside the column.

As the 2nd floor is the flat slab, so the tank put beside the column will cause the concentrate load to the slab, and this will potential increase the punching shear to the slab.

The tanks should be put directly on the main columns, that will help the load will transfer to the column, not to the slab.

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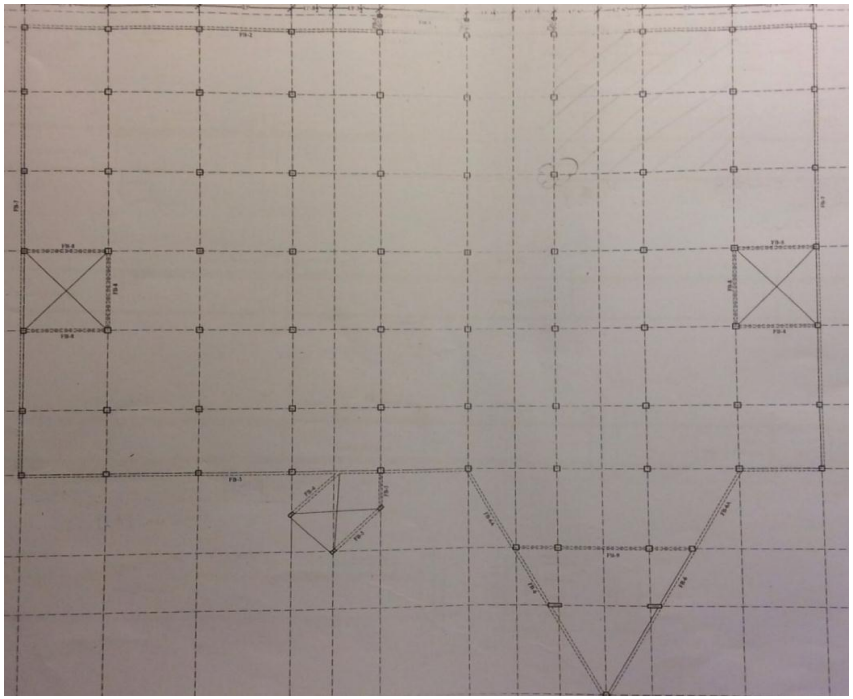
3rd Priority 3 Concern



The overall structural arrangement does not appear to have any rational form of lateral stability system to resist the wind or earthquake loads. A lateral load analysis is required to be carried out. Together with the very low factor of safety to resist punching shear, the building is at a very high risk of collapse if a significant event occurs.

The design engineer need to check the deflection and storey drift under lateral wind and seismic load.

We require that these items be investigated in a Detail Engineering Assessment

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4th Priority 3 Concern

Because of the building is not constructed up to the permitted level, no waterproofing was seen during the survey. Consequently, any cracks or damage in the surface finishes on the roof will allow water to seep into the concrete slab beneath the finishes, and cause long-term soaking of the slab.

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5th Priority 3 Concern

All the shed buildings seems to be a very simple structure, built without any calculation or design. There are no structural records to show the structural layout or connection details.

The steel truss and beams is not longitudinally braced and the steel connection needs to be reviewed and repaired properly according to the proper design.

We require that these items be investigated in a Detail Engineering Assessment

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Overall Stability System

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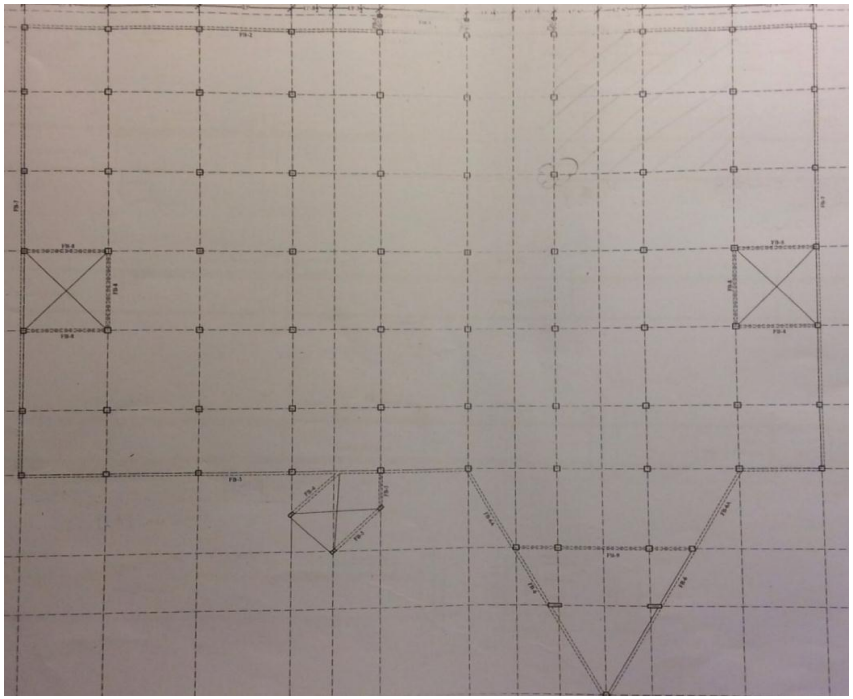

The overall structural arrangement does not appear to have any rational form of lateral stability system to resist the wind or earthquake loads. A lateral load analysis is required to be carried out. Due to the lack of lateral stability system, the increase of un-balance moment due to lateral load which will cause to increase the shear stress for punching shear at the column joint.

We require that these items be investigated in a Detail Engineering Assessment

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Priority Actions

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Problems Observed Summary

ITEM 1: (1st Priority 1) The flat slab is not sufficient to resist the punching shear force.

ITEM 2: (2nd Priority 1) Loading intensity appears to be greater than the allowable load in some locations.

ITEM 3: (1st Priority 3) The steel truss of the main building need to be braced in the longitudinal direction and should be applied the fire proofing for long term used.

ITEM 4: (2nd Priority 3) The water tank was putted directly on the flat slab beside the column.

ITEM 5: (3rd Priority 3) No lateral load resistance system.

ITEM 6: (4th Priority 3) There is no waterproofing provided on the existing roof of the main building.

ITEM 7: (5th Priority 3) Structural for the shed buildings need to be review and design for the longitudinal bracing and the connection of steel need to reviewed with proper detail design.

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Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	1st Priority 1 - The flat slab is not sufficient to resist the punching shear force.	Limit the average imposed load on the floor to a maximum of 1.5kPa (30 psf)	Immediate - Now
2	1st Priority 1 - The flat slab is not sufficient to resist the punching shear force.	Carry out intrusive testing of the structure to determine the actual concrete strength, rebar strength and rebar layout.	6-weeks
3	1st Priority 1 - The flat slab is not sufficient to resist the punching shear force.	If necessary, carry out the strengthening work to increase the punching shear capacity. Carry out the strengthening work to provide the lateral load resistance system.	6-months
4	2nd Priority 1 - Loading intensity appears to be greater than the allowable load in some locations.	Immediately reduce stacking height of fabric bag to ensure total load does not exceed 1.5kPa (30 psf)	Immediate - Now
5	2nd Priority 1 - Loading intensity appears to be greater than the allowable load in some locations.	Mark the maximum allowable height of fabric stacking to ensure full compliance	6-weeks
6	2nd Priority 1 - Loading intensity appears to be greater than the allowable load in some locations.	Ensure continued compliance to the loading intensity limitations on a long-term basis.	6-months
7	1st Priority 3 - The steel truss of the main building need to be braced in the longitudinal direction and should be applied the fire proofing for long term used.	The detail design for the Shed building need be carry out to have the stability structural under wind load. The bracing system need to be provided in longitudinal direction. Provide a fire proofing layer according to approved specification.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
8	2nd Priority 3 - The water tank was putted directly on the flat slab beside the column.	The tanks should be put directly on the main columns, that will help the load will transfer to the column, not to the flat slab.	6-months
9	3rd Priority 3 - No lateral load resistance system.	Building engineer to check and provide the solution for lateral resisting requirements of the structure	6-weeks
10	3rd Priority 3 - No lateral load resistance system.	As per the results of structural analysis, the building needs to be revised to accord with BNBC building codes with regard to lateral stability	6-months
11	4th Priority 3 - There is no waterproofing provided on the existing roof of the main building.	Provide a proper waterproof layer on the roof level	6-months
12	5th Priority 3 - Structural for the shed buildings need to be review and design for the longitudinal bracing and the connection of steel need to reviewed with proper detail design.	The detail design for the Shed building need be carry out to have the stability structural under wind load. The bracing system need to be provided in longitudinal direction	6-months