

ACS Textiles (Bangladesh) Ltd. (Extension)

Tetlabo, Barpa, Rupgonj, Narayangonj.

(23.754764N, 90.545948E)

10 March 2024



1. Building Information

Digital Printing building: Four-storied (G+3) RC building.

Weaving Building 4: Three-storied (G+2) RC building.

Sizing-3 (Re-Coning building): Two-storied (G+1) RC building.

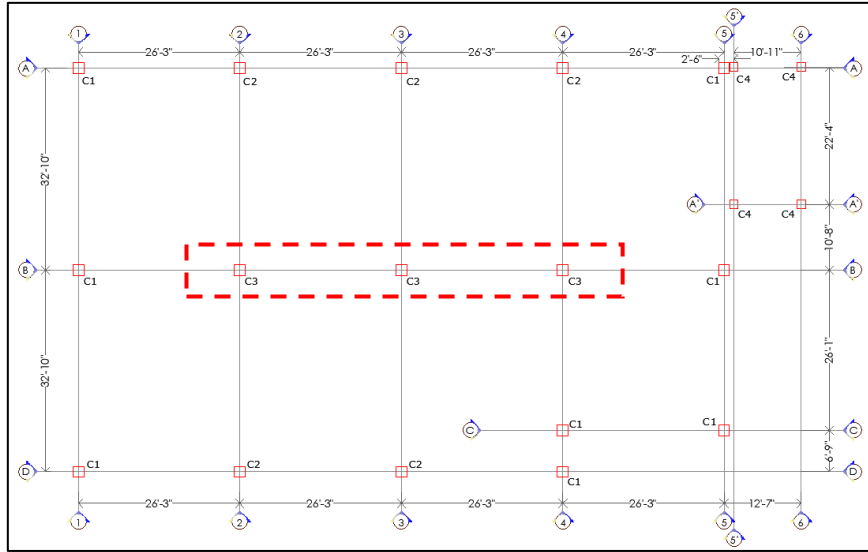
Dryer Shed (Washing Units): Single storied steel shed.

Medical Center: Two-storied (G+1) RC building.

Security Quarter: Three-storied (G+2) RC building.

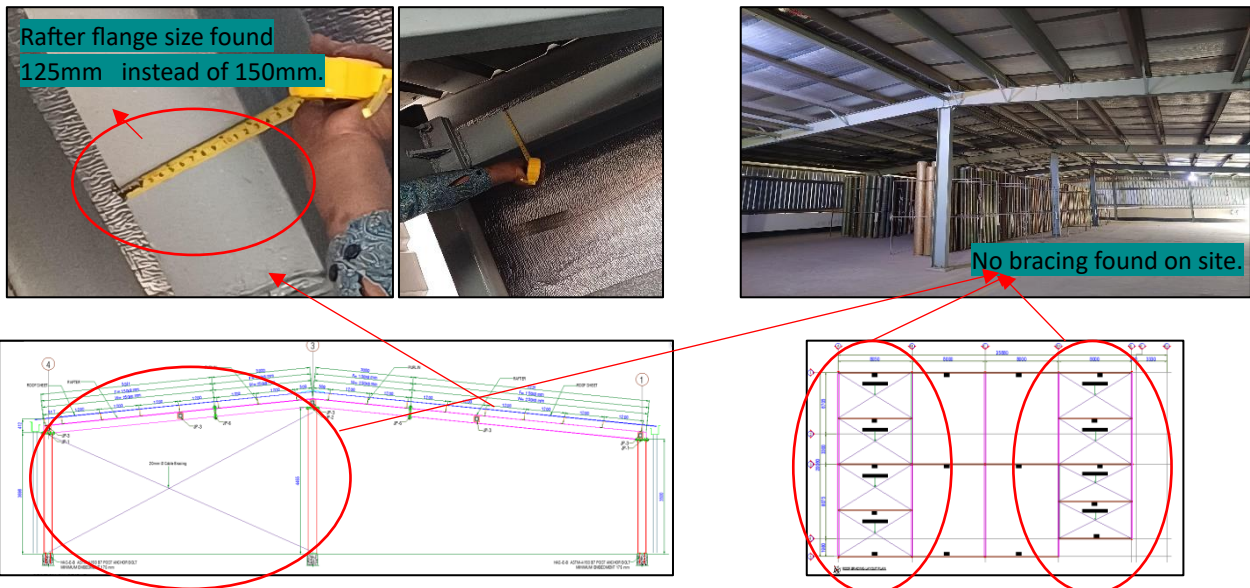
2. Observations

Observation-1: Marginal stress in column exceeds normal design limit (Digital Printing building).



Description: The cursory calculation indicates that stress in the marked column exceeds the normal design limit considering the floor live load of 3 kPa for the typical floor & 6 kPa for the storage area and concrete strength of 17.4 MPa. The building engineer is required to review the design, loads, and column stresses for the marked columns based on in-situ material strength. The building engineer is also required to Produce and actively manage a loading plan for all floor plates within the factory considering floor capacity and column capacity.

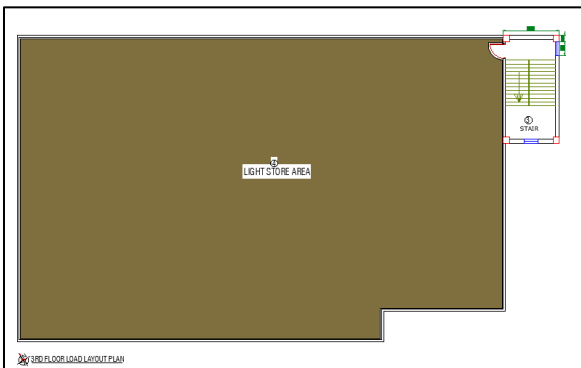
Observation-2: Mismatch in as-built drawings (Digital Printing building).



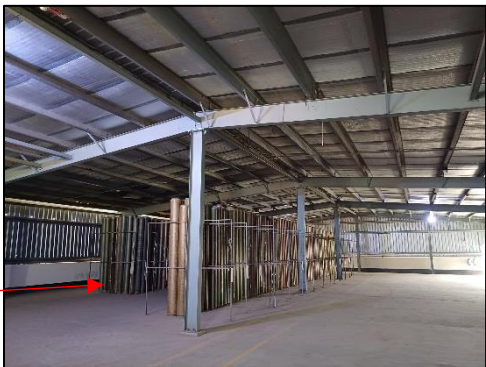
Description: During the inspection, some mismatch was found in the as-built drawings of the roof shed of the Digital Printing Building. The flange size of the rafter was found 125mm instead of 150mm along grid E. Furthermore, No bracing was found on-site at the roof and wall but as-built drawings are showing cable bracing at the roof and wall. The building engineer is required to survey the whole structure, update the as-built drawings, and perform an Engineering Assessment (EA).

Observation-3: Storage live load limit does not comply with BNBC requirement (Digital Printing building).

INDUSTRIAL, STORAGE & HAZARDOUS (Occupancy - G, H & J)	Workshop, factory, warehouse	1 Light workroom without storage	3.0	2.7
		2 Machinery hall & circulation area	4.0	4.5
		3 Factory, workshop etc.	5.0	4.5
		4 Manufacturing : light	6.0	4.5 ^(S)
		heavy	12.0	9.0 ^(S)
		ice	15.0	9.0 ^(S)
		5 Printing plant :		
		Press room	7.0	11.0 ^(S)
		Composing and linotype room	5.0	9.0 ^(S)
		Paper storage room	12.0	9.0 ^(S)
		6 Motor room, fan room etc. including the weight of machinery	7.5	4.5
		7 Cold storage, grain storage	15.0	9.0 ^(S)
		8 Storage warehouses : light	6.0	4.5 ^(S)
		heavy	12.0	9.0
		9 Foundries	20.0	12.0

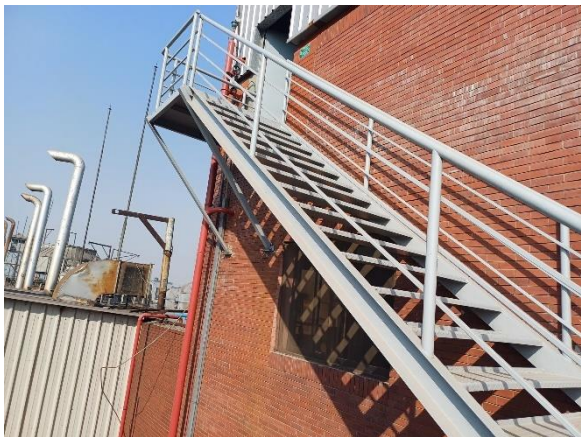
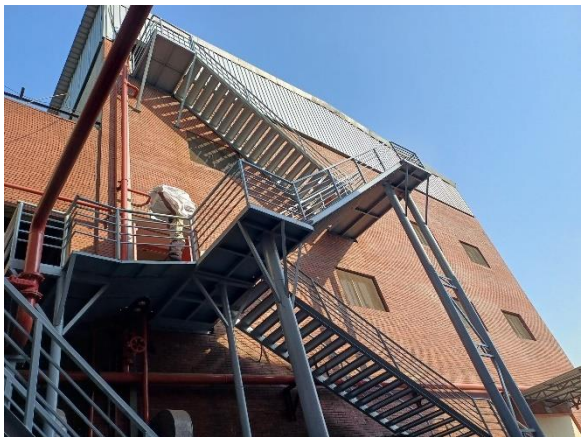


1ST FLOOR LOADING FOR THIS FLOOR				
NO.	TYPE	ITEM	MAX. LOAD IN PSF	DESCRIPTION
01	LIGHT	TUFTING SECTION	63	TUFTING SECTION
02	LIGHT	OFFICE ROOM	63	TYPICAL FURNITURE
03	LIGHT	STAIR	84	TYPICAL STAIR
04	LIGHT	LIGHT STORE AREA	63	TYPICAL STORE



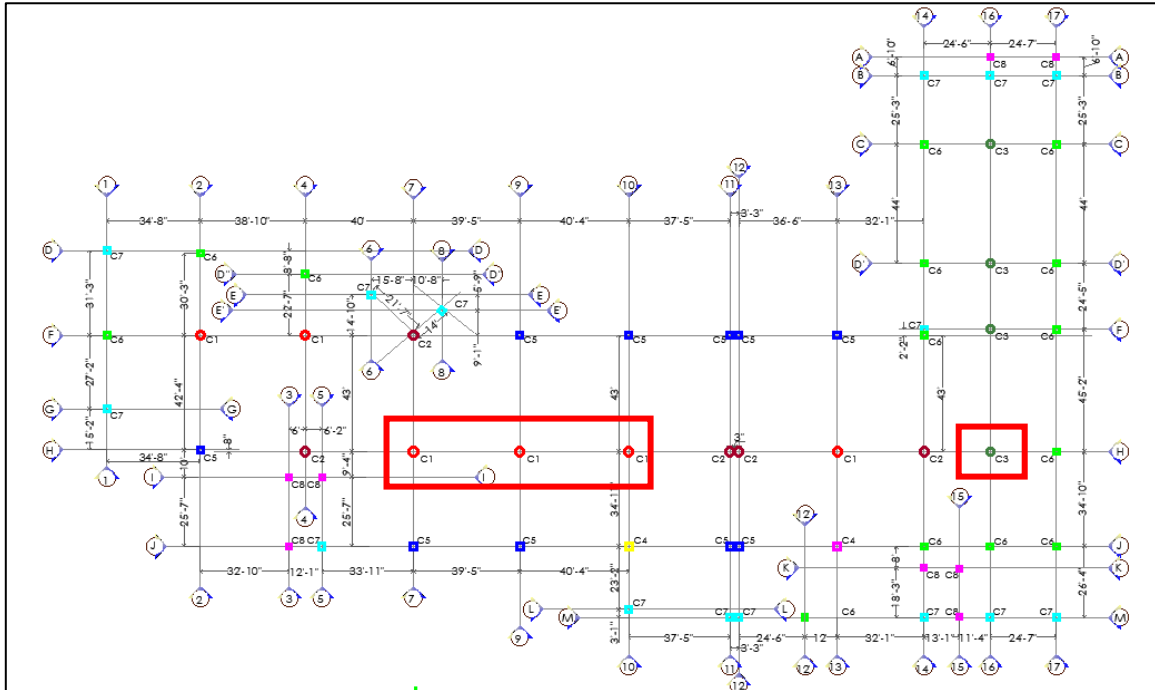
Description: As per BNBC, 6 kPa is required to be considered as floor loading for the light storage facilities. During the inspection, the load plan was found considering (63 psf) 3kPa at the 3rd floor (roof shed) storage area. However, the building engineer is required to update the storage live load limit as per BNBC requirements and revise the structural analysis & design accordingly.

Observation-4: Lack of lateral stability of adjacent steel stairs (Digital Printing building).



Description: The steel stair appeared to be unstable due to a lack of lateral load transfer media. The building engineer is required to check the lateral stability of the steel stair, perform an Engineering assessment (EA) and suggest remediation if required.

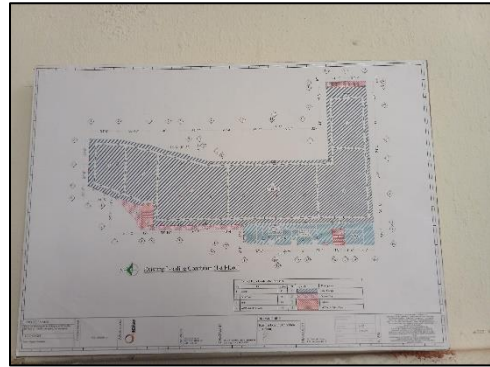
Observation-5: Marginal stress in column exceeds normal design limit (Weaving Building 4).



Description: The cursory calculation indicates that stress in the marked column exceeds the normal design limit considering the floor live load of 6 kPa for the storage area & typical floor and concrete strength of 18.4 MPa. The building engineer is required to review the design, loads, and column stresses for the marked columns based on in-situ material strength. The building engineer is also required to Produce and actively manage a loading plan for all floor plates within the factory considering floor capacity and column capacity.

Observation-6: Storage live load limit does not comply with BNBC requirement (Weaving Building 4)

INDUSTRIAL, STORAGE & HAZARDOUS (Occupancy - G, H & J)	Workshop, factory, warehouse	1 Light workroom without storage	3.0	2.7
		2 Machinery hall & circulation area	4.0	4.5
		3 Factory, workshop etc.	5.0	4.5
		4 Manufacturing : light	6.0	4.5
		heavy	12.0	9.0 ^(S)
		ice	15.0	9.0 ^(S)
		5 Printing plant :		
		Press room	7.0	11.0
		Composing and linotype room	5.0	9.0 ^(S)
		Paper storage room	12.0	9.0 ^(S)
		6 Motor room, fan room etc. including the weight of machinery	7.5	4.5
		7 Cold storage, grain storage	15.0	9.0 ^(S)
		8 Storage warehouses : light	6.0	4.5
		heavy	12.0	9.0
		9 Foundries	20.0	12.0



Typical Floor Loading for this Floor					
No	Item	Load psf	ID No.	Symbol	Descriptions
1	Storage	80	①		Fiber Storage
2	Open Space	30	②		Open to Sky
3	Stair	80	③		Typical
4	AC Plan & Office Area	42	④		AC Plan & Office Area



Description: As per BNBC, 6 kPa is required to be considered as floor loading for the light storage facilities. During the inspection, the load plan was found considering (63 psf) 3kPa at the 3rd floor (roof shed) storage area. However, the building engineer is required to update the storage live load limit as per BNBC requirements, and revise the structural analysis & design accordingly.

Observation-7: Lack of lateral stability of adjacent steel framing lift (Weaving Building 4).



Description: The steel framing lift appeared to be unstable due to a lack of lateral load transfer media. The building engineer is required to check the lateral stability of the steel lift, perform an Engineering assessment (EA) and suggest remediation if required.

Observation-8: Exposed rebar at ground floor beam & slab (Weaving Building 4).



Description: Exposed reinforcement was found at the ground floor roof slab. The factory is required to take necessary measures to prevent corrosion in the exposed rebar.

Observation-9: Storage rack without anchorage (Weaving Building 4).



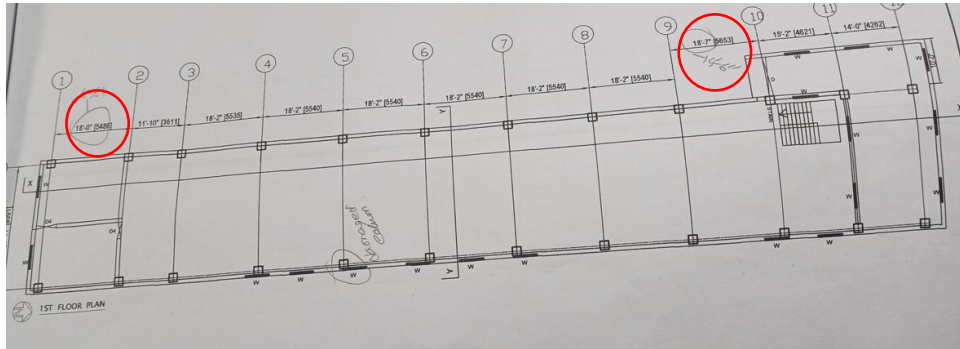
Description: Racks on ground floors are not adequately anchored or braced to resist lateral (earthquake) forces. The factory is required to adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.

Observation-10: Dampness on Wall & slab (Weaving Building 4).



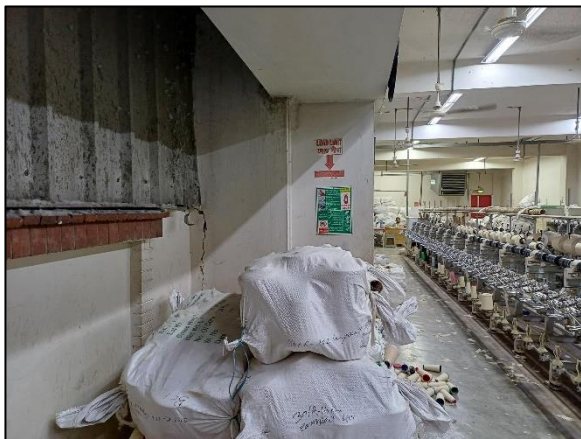
Description: Dampness was found on the wall and slab of Weaving Building 4. The building engineer is required to investigate the source of dampness and take necessary measures to prevent the dampness.

Observation-11: Mismatch in as built drawings - Sizing-3 (Re-Coning building).



Description: During inspection, a grid mismatch was found in the as-built drawings. The building engineer is required to survey the whole structure, update the as-built drawings, perform an Engineering Assessment (EA) and submit it to RSC for review.

Observation-12: Crack in brick wall - Sizing-3 (Re-Coning building).



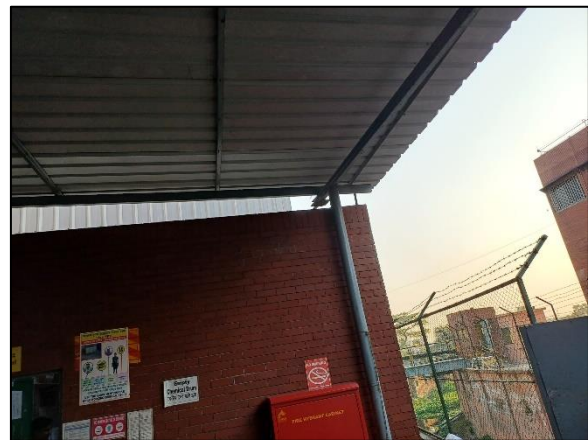
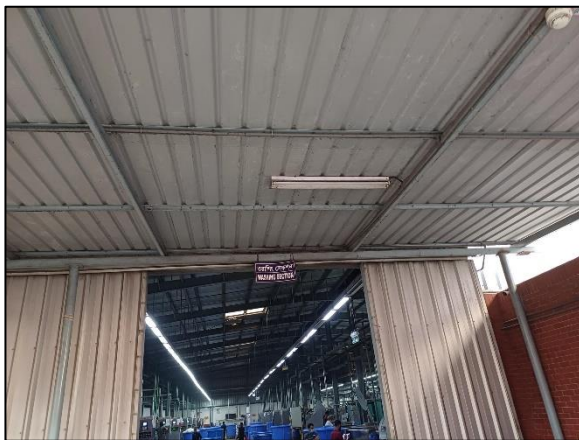
Description: During the inspection, a crack in the brick wall was observed on the first floor of Sizing-3 (Re-Coning building). The factory is required to repair the brick wall crack as per adequate technique.

Observation-13: Design documents need to be reviewed by RSC for lateral forces - Dryer shed (washing units).



Description: During the inspection, a design report and as-built drawings were available on site which need to be reviewed by RSC in depth for lateral forces. The building engineer is required to submit the design documents to RSC for review and implement remedial works If required.

Observation-14: Non-engineered lightweight roof shed - Dryer shed (washing units).



Description: During the inspection, a non-engineered lightweight roof shed was observed in front of the Dryer shed (washing units). The building engineer is required to suggest necessary alternatives for the structure.

Observation-15: Lack of design documents (Medical center).



Description: As per BNBC, every building or structure designed shall have its design documents prepared following the provision of Section 1.9.1. The design document shall include a design report, load plan and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC. At the time of inspection, a design report was not available which is required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC) and submitted to RSC for detailed review.

Observation-16: Design documents need to be reviewed by RSC for lateral forces (Security Quarter).



Description: During the inspection, a design report and as-built drawings were available on site which need to be reviewed by RSC in depth for lateral forces. The building engineer is required to submit the design documents to RSC for review and implement remedial works if required.

3. Action Plan

Observation	Action Plan	Timeline
Marginal stress in the column exceeds the normal design limit (Digital Printing building).	The building engineer is required to review the design, loads, and column stresses for the marked columns based on in-situ material strength.	within 6 weeks
	The building engineer is required to Produce and actively manage a loading plan for all floor plates within the factory considering floor capacity and column capacity.	within 6 weeks
	Implement remediation work if required.	within 6 months
Mismatch in as-built drawings (Digital Printing building).	The building engineer is required to survey the whole structure, update the as-built drawings, and perform an Engineering Assessment (EA).	within 6 weeks
Storage live load limit does not comply with BNBC requirement (Digital Printing building).	The building engineer is required to update the storage live load limit as per BNBC requirements, revise the structural analysis & design accordingly.	within 6 weeks
	Implement remediation work if required.	within 6 months
Lack of lateral stability of adjacent steel stairs (Digital Printing building).	The building engineer is required to check the lateral stability of the steel stairs and perform an Engineering assessment (EA).	within 6 weeks
	Implement remediation work if required.	within 6 months
Marginal stress in the column exceeds the normal design limit (Weaving Building 4).	The building engineer is required to review the design, loads, and column stresses for the marked columns based on in-situ material strength.	within 6 weeks
	The building engineer is also required to Produce and actively manage a loading plan for all floor plates within the factory considering floor capacity and column capacity.	within 6 weeks
	Implement remediation work if required.	within 6 months
Storage live load limit does not comply with BNBC requirement (Weaving Building 4)	The building engineer is required to update the storage live load limit as per BNBC requirements, revise the structural analysis & design accordingly.	within 6 weeks
	Implement remediation work if required.	within 6 months
Lack of lateral stability of adjacent steel framing lift (Weaving Building 4).	The building engineer is required to check the lateral stability of the steel lift and perform an Engineering assessment (EA).	within 6 weeks
	Implement remediation work if required.	within 6 months

Exposed rebar at ground floor beam & slab (Weaving Building 4).	The factory is required to take necessary measures to prevent corrosion in exposed rebar.	within 6 weeks
Storage rack without anchorage (Weaving Building 4).	The factory is required to adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.	within 6 months
Dampness on Wall & slab (Weaving Building 4).	The building engineer is required to investigate the source of dampness and take necessary measures to prevent the dampness.	within 6 months
Mismatch in as-built drawings - Sizing-3 (Re-Coning building).	The building engineer is required to survey the whole structure, update the as-built drawings, perform an Engineering Assessment (EA) and submit it to RSC for review.	within 6 weeks
	Implement remediation work if required.	within 6 months
Crack n brick wall - Sizing-3 (Re-Coning building).	The factory is required to repair the brick wall crack as per adequate technique.	within 6 weeks
Design documents need to be reviewed by RSC for lateral forces - Dryer shed (washing units).	The building engineer is required to submit the design documents to RSC for review.	within 6 weeks
	Implement remediation work if required.	within 6 months
Non-engineered lightweight roof shed - Dryer shed (washing units).	The building engineer is required to suggest necessary alternatives for the structure.	within 6 months
Lack of design documents (Medical center).	The building engineer is required to prepare a design report in compliance with section 1.9.1.1 (part-6, BNBC) and submit it to RSC for detailed review.	within 6 weeks
	Implement remediation work if required.	within 6 months
Design documents need to be reviewed by RSC for lateral forces (Security Quarter)	The building engineer is required to submit the design documents to RSC for detailed review.	within 6 weeks
	Implement remediation work if required.	within 6 months

Survey Limitations and Assumptions

This report is for the private and confidential use of RSC for whom it was prepared together with their professional advisors as appropriate. It should not be reproduced in whole or in part or relied upon by third parties for any use without the express written permission of RSC.

This report can be used in discussion with the supplier or factory owner as a means to rectify or address any observations made. The report is not comprehensive and is limited to what could be observed during a visual inspection of the building.

This Report is not intended to be treated as a generalized inspection and does not cover the deterioration of structural members through dampness, fungal or insect attack, nor does it deal with problems and defects of a non-structural nature. Other non-structural aspects of the building such as fire safety have not been assessed in this survey.

Except as otherwise noted, drains and other services were not viewed or tested during our inspection and are therefore similarly excluded from this Report. We have not inspected any parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

External inspection of the façade walls has generally been carried out from ground level only by visual sighting. No opening up works were carried out (except as noted) and we rely on the Architects and Engineers drawings provided to us for our views on concealed parts of the structure and in particular foundations. Strengths of materials and components are untested, and we recommend that the factory owners Building Engineer carries out in situ testing over and above those suggested to satisfy themselves with the material strengths and component details.

Recommendations, where given, are for the purpose of providing indicative advice only, are not exhaustive, relate solely to identifying key and obvious structural defects as identified in this presentation, and do not take the form of or constitute a specification for works. We take no responsibility for the works as constructed. This report does not interfere with the factory owners Building Engineers responsibility for the structural performance of this building, The Building Engineer remains fully responsible for the structural adequacy of the building.

This report does not comment in detail on the future seismic performance of the building and only highlights the fact that the building may experience significant damage or collapse in a seismic event along with many others in the Dhaka region.

The observations in this report are based on the Engineering Judgement of the lead surveyor/engineer at the time of the survey. We assume in making these observations that no covering up of faults defects, filling or plastering over cracking or significant repair work has been carried out by the building owner. Any future alteration or additional work by the building owner will void this report.