

Reedisha Knitex Ltd (Extension)

Dhanua, Nayanpor, Sreepur, Gazipur

(24.259207N, 90.396504E)

5 December 2023



1. Building Information

Dyeing Shed-01: This is a single storied Steel building.

Dyeing Shed Unit-02: This is a single storied Steel structure.

General Store Shed: A two-storied steel shed.

Utility Shed: This is a single storied Steel shed.

Printing Building: A five storied (G+4) reinforced concrete building.

Old Admin Building: A five storied (G+4) reinforced concrete building.

New Admin Building: A six storied (G+5) reinforced concrete building.

Main Gate Building: A three storied (G+2) reinforced concrete building.

Day-Care Center: A single storied steel shed.

Dyeing Shed-03 & Lab Section: This is a partially four storied (G+3) RC building with single storied Steel shed at west side.

B+8 Storied Building: This is a nine storied (B+G+M+7) RC building with a mezzanine on the ground floor and a basement.

ETP Building: A single storied reinforced concrete building.

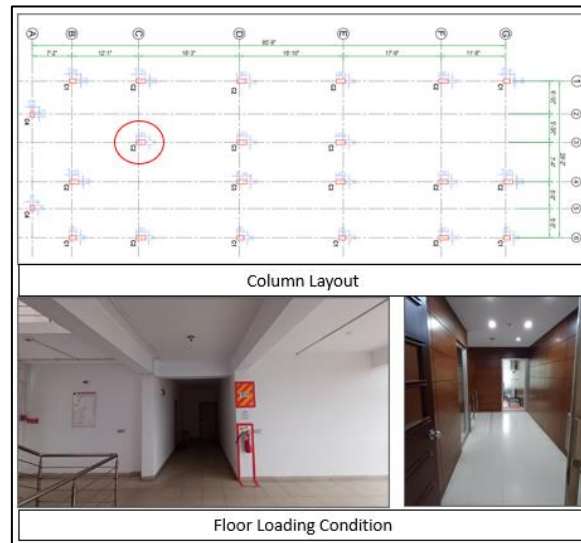
Compressor Building: A two storied (G+1) reinforced concrete building.

Utility Shed-2: A single storied steel shed.

Cooling Tower: This is a single storied RC structure.

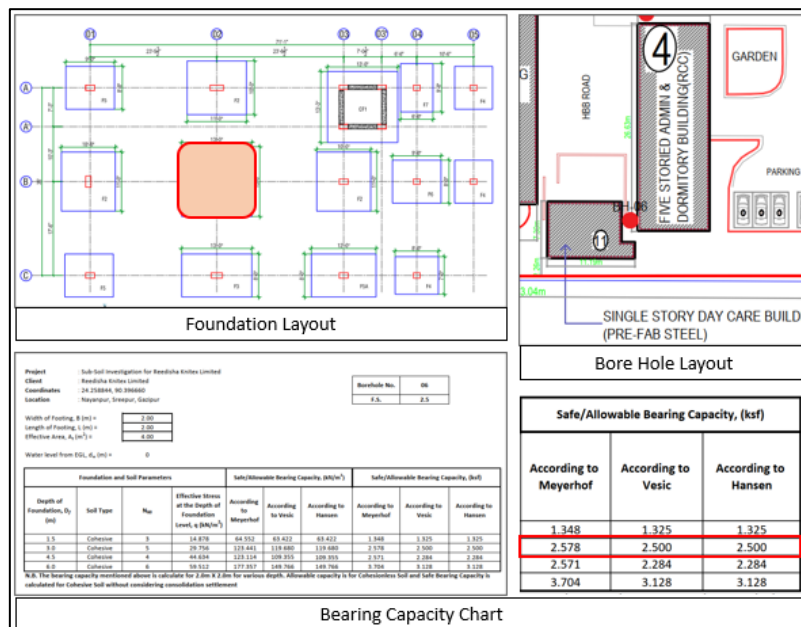
2. Observations

Observation-1: Stress in column exceeds normal design limit. (Old Admin Building)



Description: The cursory calculation indicates that column stress exceeds the normal design limit considering a typical floor live load of 3kPa, roof live load of 1.5 kPa, and minimum concrete strength based on aggregate type. The building engineer is required to review the design, loads, and column stresses for the marked columns based on in-situ material strength.

Observation-2: Stress in foundation exceeds normal design limit (New Admin Building)



Description: Cursors calculation indicates the highlighted foundation is inadequate for bearing. The loading is considered 3kPa for typical floor and allowable bearing capacity of soil is **1.25 tsf (FS: 2.5)** at 2.4 m depth. Building engineer is required to verify in-situ material strength and review the design load and foundation stresses.

Observation-3: Missing water tank load on FEM model (Printing Building).

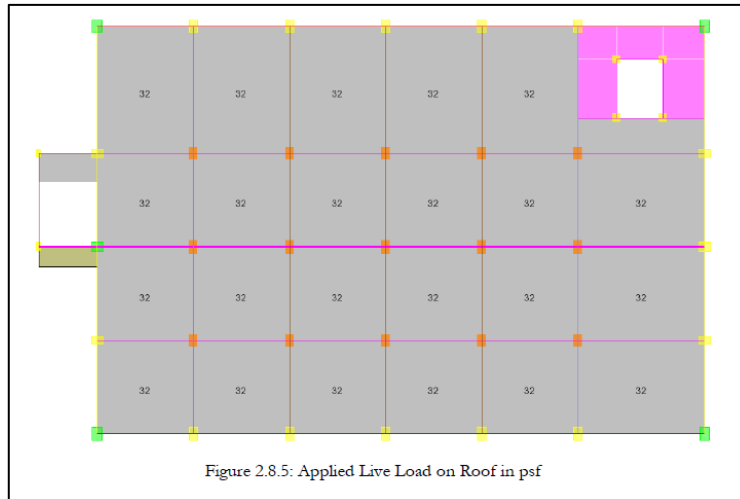
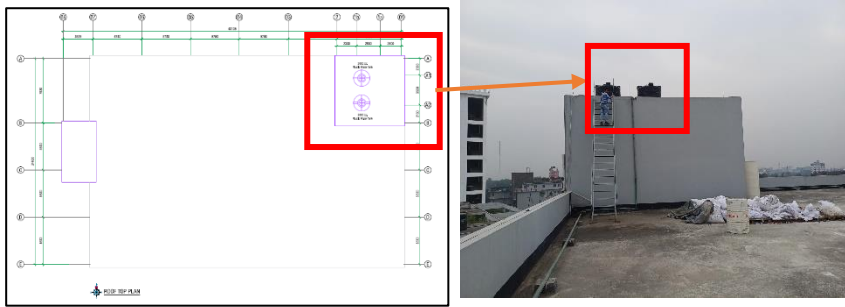


Figure 2.8.5: Applied Live Load on Roof in psf

Description: Two plastic water tanks (capacity of 2000L) were observed on the stair roof. In FEM model water tank load has not been applied on stair roof. Building engineer is required to apply water tank load on stair roof in the FEM model and incorporate the results in the design report.

Observation-4: Storage rack without anchorage (Printing Building & General Store Shed).



Printing Building storage rack



General Store Shed storage rack

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

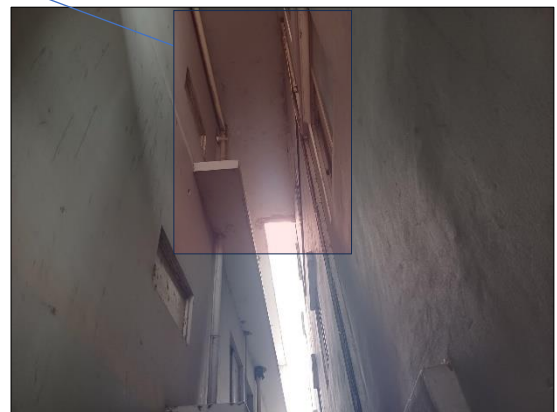
Observation-5: Trolley impact on column (Printing Building)



Description: Column on several floors has been affected by trolley impact. Factory is required to provide adequate barrier to prevent trolley impact.

Observation-6: Structural connection between two building (Old admin Building & New admin Building).

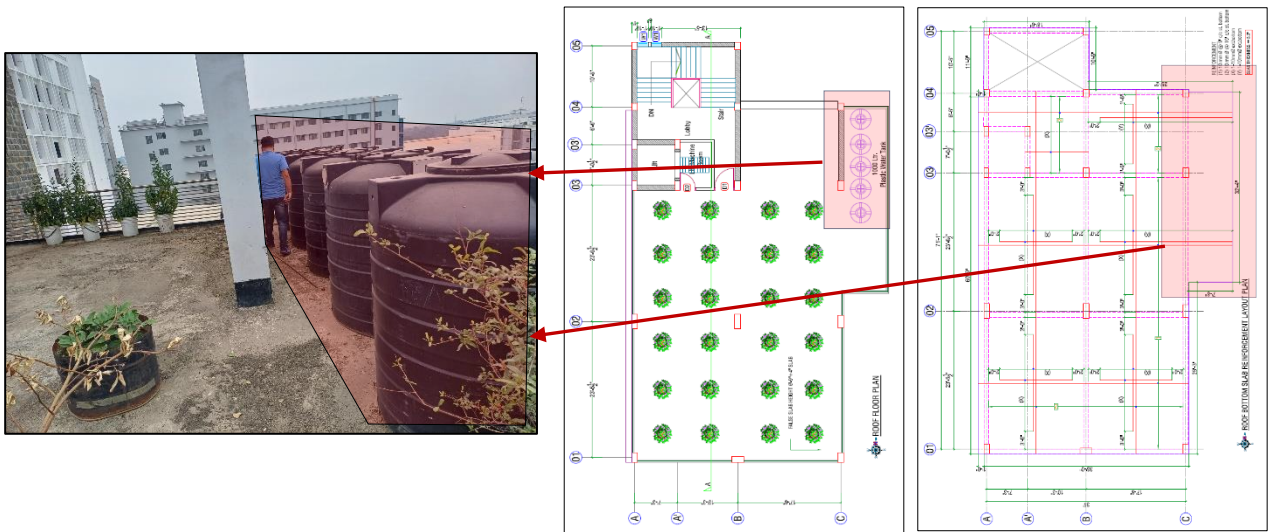
Structural Connection



Beam and slab are connected between Old Admin Building and New Admin Building

Description: During inspection it was found that beams and slabs are connected in the new admin building and old admin building. The Building Engineer is required to check the structural integrity of two buildings for the structural connections. Otherwise, separate the connections.

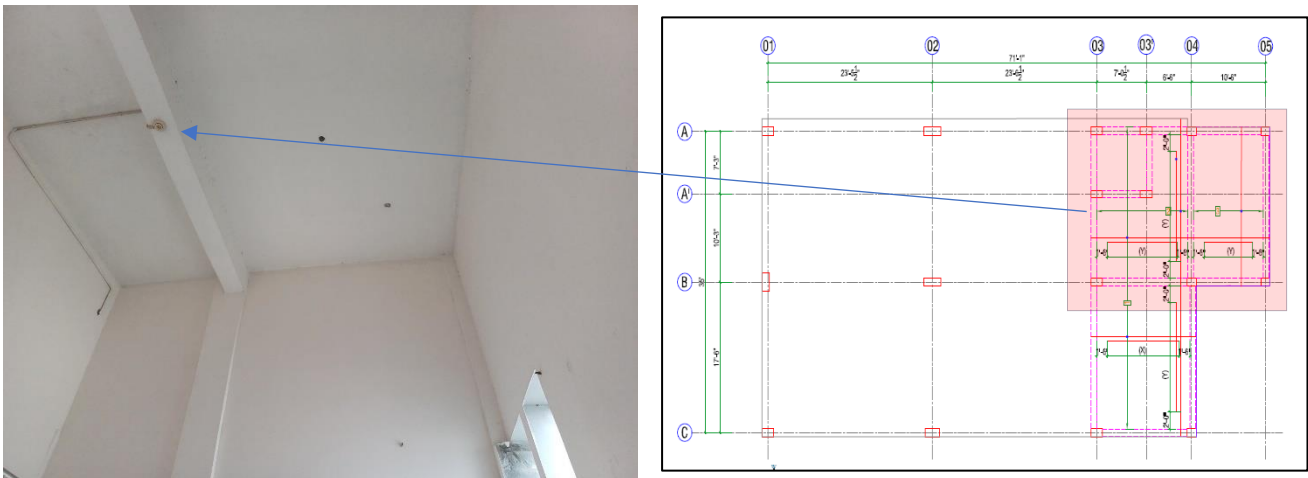
Observation-7: Water tank on cantilever slab (New Admin Building).



5 Nos 1000L water tank on roof slab at cantilever portion

Description: 5 no's water tank was found on roof slab which was placed on the cantilever portion of the slab. Building Engineer is required to check the slab adequacy of slab for water tank loading.

Observation-8: Discrepancies in as built drawings (New Admin Building).



Description: Beams in stair top are missing in as-built drawings. Building engineer is required to update the as built drawings as per site condition.

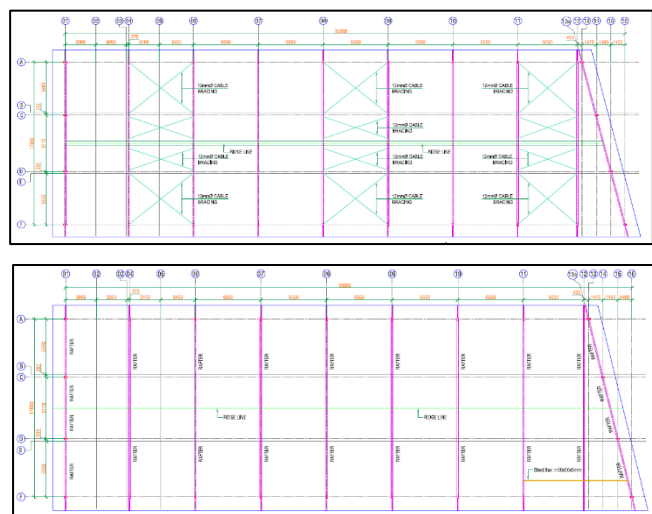
Observation-9: Lack of design documents (Old Admin Building, New Admin Building, General Store Shed, Main Gate Building).



Description: As per BNBC, every building or structure designed shall have its design documents prepared following the provision of Section 1.9.1. During inspection, the design report and load plan were not available on site.

The building engineer is required to prepare a set of design documents including live load plan and a design report based on in-situ material strength and software-based analysis which shall be prepared in compliance with section 1.9.1, part-6 of BNBC.

Observation-10: Lack of lateral stability system (General Store Shed).



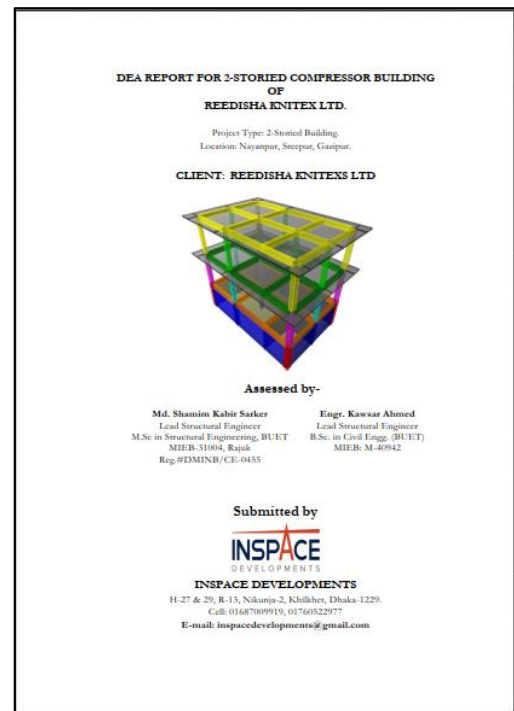
Description: Lack of lateral stability system (absence of compression strut member) was observed. The building engineer is required to check the stability system of the structure and suggest proper alternatives accordingly.

Observation-11: Lack of lateral stability system and non-engineered connection (Utility Shed-2).



Description: Lack of lateral stability system (strut and bracing), apparent inadequate members and non-engineered connection was observed. The building engineer is required to check the member, connection & stability system of the structure and suggest proper alternatives accordingly.

Observation-12: Design report needs to be reviewed (Compressor Building).

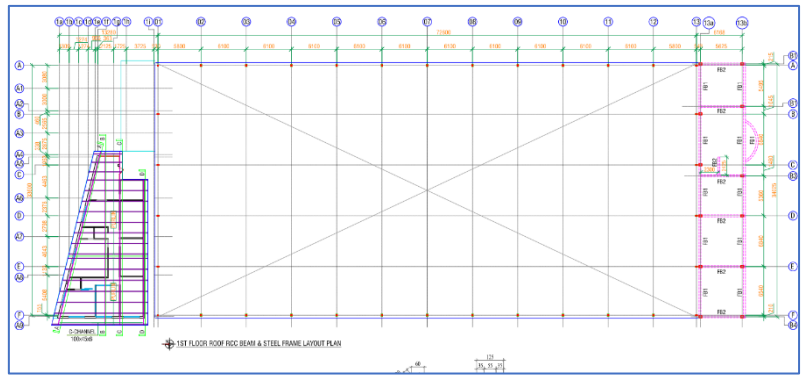


Description: Design report needs to be reviewed in-depth by RSC for lateral forces. The building engineer is required to submit the design report and necessary documents to RSC for review.

Observation-13: Lack of information in as-built drawing. (Dyeing Shed-1)



Layout



1st floor (North extension)

Description: No structural details were found for North side extension of 1st floor. The building engineer is required to survey the structure and prepare accurate as-built drawings.

Observation-14: Incomplete lateral stability system. (Dyeing Shed-1)



No compression strut on ridge



No compression strut on edge

Description: No compression strut was found along the long direction. Only cable bracings were found onsite. So, lateral stability in the long direction is incomplete. The building engineer is required to check the stability system of the existing structure.

Observation-15: Lack of lateral stability system. (Dyeing Shed-2)



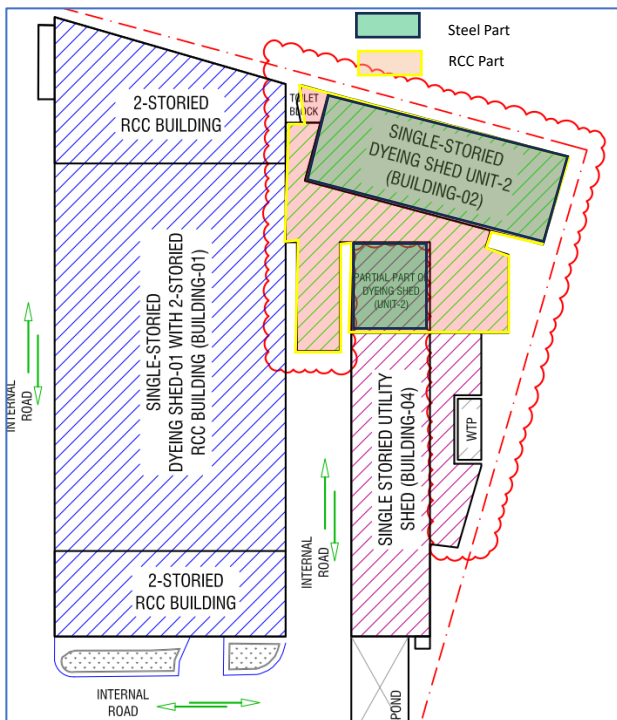
Dyeing shed-2 (Main Part Steel)



Dyeing shed-2 (Extension Part Steel)

Description: Load transfer media is not provided at ridge along long direction for this shed. Therefore, the lateral stability system of the roof is apparently incomplete. The building engineer is required to check the stability system of the existing structure.

Observation-16: Lack of design report. (Dyeing Shed-2)



Dyeing Shed-2 (full layout)



Dyeing Shed-2

Description: As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, 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, only as-built drawing and geotechnical report were available, but no design report & load plan were available which are required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC).

Observation-17: Incomplete lateral stability. (Utility Shed)



Utility Shed



Utility Shed

Description: Load transfer media is not provided at ridge along long direction for this shed. Therefore, the lateral stability system of the roof is apparently incomplete. The building engineer is required to check the stability system of the existing structure.

Observation-18: Corrosion in steel member. (Utility Shed)



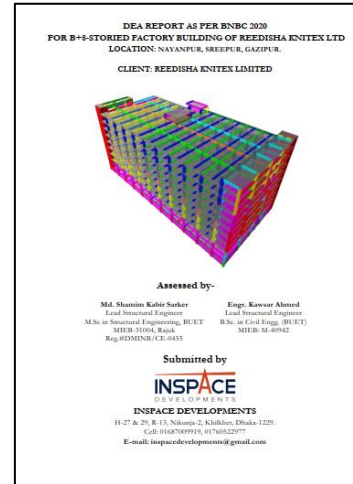
Corrosion



Corrosion

Description: Corrosion in steel member was observed in the several locations. The building engineer is required to remove the corrosion and apply anti-corrosive coating to the steel members.

Observation-19: Design report needs to be reviewed



B+ 8 Storied Building

Description: Design report needs to be reviewed in-depth by RSC for lateral forces. The Building engineer is required to submit the design report and necessary documents to RSC for review.

Observation-20: Construction Materials on the roof and 8th floor. (B+ 8 Storied Building)



Construction Materials & crane

Description: Stacking of construction materials and crane were found on the roof. Building engineer is required to remove construction materials from roof and others floor.

Observation-21: Lack of drawings design. (Cooling Tower)



Cooling Tower



Cooling Tower (roof)

Description: As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, 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, as-built drawings, design report & load plan were not available which are required to be prepared in compliance with section 1.9.1.1 (part-6, BNBC) and submit to RSC for detail review for lateral forces.

Observation-22: Cracks under beam soffit. (Cooling Tower)



Cracks on beam



Cracks on beam

Description: Crack found under beam soffit at North side of cooling tower. Building engineers are required to investigate the reason & extent of crack and prepare an investigation report with proper repair methodology.

Observation-23: Severe corrosion in steel member and dampness in RC frame. (Cooling Tower)



Corrosion



Corrosion

Description: Severe corrosion in steel member and dampness were observed in the several locations. The building engineer is required to identify the corrosion & dampness and apply proper remedial measures accordingly.

3. Action Plan:

Observation	Action Plan	Timeline
Stress in column exceeds normal design limit. (Old Admin Building)	Verify in-situ material strength.	within 6 weeks
Stress in column exceeds normal design limit. (Old Admin Building)	Building engineer is required to review the design load.	within 6 weeks
Stress in column exceeds normal design limit. (Old Admin Building)	Produce and actively manage a loading plan for all floor plates within the factory, considering floor and column capacity.	within 6 weeks
Stress in column exceeds normal design limit. (Old Admin Building)	Carry out the suggested remedial works if required.	within 6 months
Stress in foundation exceeds normal design limit (New Admin Building)	Verify in-situ material strength.	within 6 weeks
Stress in foundation exceeds normal design limit (New Admin Building)	Building engineer is required to review the design load and foundations stresses.	within 6 weeks
Stress in foundation exceeds normal design limit (New Admin Building)	Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column, and foundation capacity.	within 6 weeks
Stress in foundation exceeds normal design limit (New Admin Building)	Carry out the suggested remedial works if required.	within 6 months
Missing water tank load on FEM model (Printing Building).	Building engineer is required to apply water tank load on stair roof in the FEM model and incorporate the results in the design report.	within 6 weeks
Missing water tank load on FEM model (Printing Building).	Carry out remediation work if required.	within 6 months
Storage rack without anchorage (Printing Building & General Store Shed)	Building engineer is required to adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.	within 6 months
Trolley impact on column (Printing Building)	Factory is required to provide adequate barrier to prevent trolley impact.	within 6 months
Structural connection between two building (Old Admin Building & New Admin Building).	Building Engineer is required to check the structural integrity of two buildings considering the structural connections. Otherwise, separate the structural connections and check the structural integrity separately.	within 6 weeks

Structural connection between two building (Old Admin Building & New Admin Building).	Carry out remediation work if required.	within 6 months
Water tank on cantilever slab (New Admin Building).	Building Engineer is required to check the slab adequacy of slab for water tank loading.	within 6 weeks
Water tank on cantilever slab (New Admin Building).	Carry out remediation work if required.	within 6 months
Discrepancies in as built drawings (New Admin Building).	Building engineer is required to update the as built drawings as per site condition.	within 6 weeks
Lack of design documents (Old Admin Building, New Admin Building, General Store Shed, Main Gate Building).	The building engineer is required to prepare a set of design documents including live load plan and a design report based on in-situ material strength and software-based analysis which shall be prepared in compliance with section 1.9.1, part-6 of BNBC.	within 6 weeks
Lack of design documents (Old Admin Building, New Admin Building, General Store Shed, Main Gate Building).	Carry out remediation work if required.	within 6 months
Lack of lateral stability (General Store Shed)	The building engineer is required to check the member, connection & stability system of the structure and suggest proper alternatives accordingly.	within 6 weeks
Lack of lateral stability (General Store Shed)	Carry out remediation work if required.	within 6 months
Lack of lateral stability system and non-engineered connection (Utility Shed-2).	The building engineer is required to check the member, connection & stability system of the structure and suggest proper alternatives accordingly.	within 6 weeks
Lack of lateral stability system and non-engineered connection (Utility Shed-2)	Carry out remediation work if required.	within 6 months
Design report needs to be reviewed (Compressor Building)	The building engineer is required to submit the design report and necessary documents to RSC for review.	within 6 weeks
Design report needs to be reviewed (Compressor Building)	Carry out remediation work if required.	within 6 months

Lack of information in as-built drawing. (Dyeing Shed-1)	The building engineer is required to survey the structure and prepare full set of as-built drawings.	within 6 weeks
Incomplete lateral stability system. (Dyeing Shed-1)	Building engineer is required to check the lateral stability of the structure.	within 6 weeks
Incomplete lateral stability system. (Dyeing Shed-1)	Carry out remediation work if required.	within 6 months
Lack of lateral stability system. (Dyeing Shed-2)	Building engineer is required to check the lateral stability of the structure.	within 6 weeks
Lack of lateral stability system. (Dyeing Shed-2)	Carry out remediation work if required.	within 6 months
Lack of design report. (Dyeing Shed-2)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	within 6 weeks
Lack of design report. (Dyeing Shed-2)	Carry out remediation work if required.	within 6 months
Incomplete lateral stability. (Utility Shed)	Building engineer is required to check the lateral stability of the structure.	within 6 weeks
Incomplete lateral stability. (Utility Shed)	Carry out remediation work if required.	within 6 months
Corrosion in steel member. (Utility Shed)	Building engineer to remove the corrosion and apply suitable corrosion resistance coating.	within 6 weeks
Design report needs to be reviewed (B+8 Storied Building)	The Building engineer is required to submit the design report and necessary documents to RSC for review.	within 6 weeks
Design report needs to be reviewed (B+8 Storied Building)	Carry out remedial works after reviewing by RSC. (if required)	within 6 months
Construction Materials on the roof and 8th floor. (B+ 8 Storied Building)	Building engineer is required to remove construction materials from roof and others floor.	within 6 weeks
Lack of drawings design. (Cooling Tower)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	within 6 weeks
Lack of drawings design. (Cooling Tower)	Verify in-situ concrete stresses by 100mm dia. cores from minimum of 4 columns.	within 6 weeks
Lack of drawings design. (Cooling Tower)	Produce and actively manage a loading plan for all floor plates considering floor and column capacity.	within 6 weeks

Lack of drawings design. (Cooling Tower)	Carry out remedial works after reviewing by RSC. (if required)	within 6 months
Cracks under beam soffit. (Cooling Tower)	Building engineer is required to investigate the reason & extent of crack and prepare an investigation report with proper repair methodology.	within 6 weeks
Cracks under beam soffit. (Cooling Tower)	Carry out remedial works as per investigation report.	within 6 weeks
Severe corrosion in steel member and dampness in RC frame. (Cooling Tower)	The building engineer is required to identify the corrosion & damp areas and repair them with a suitable method.	within 6 weeks