KDS Textile Mills Ltd

251-252, Nasirabad I/A, Baizid Bostami Road, Chattogram, Bangladesh
(22.392529, 91.819859)
15 September 2022

RSC RMG SUSTAINABILITY COUNCIL

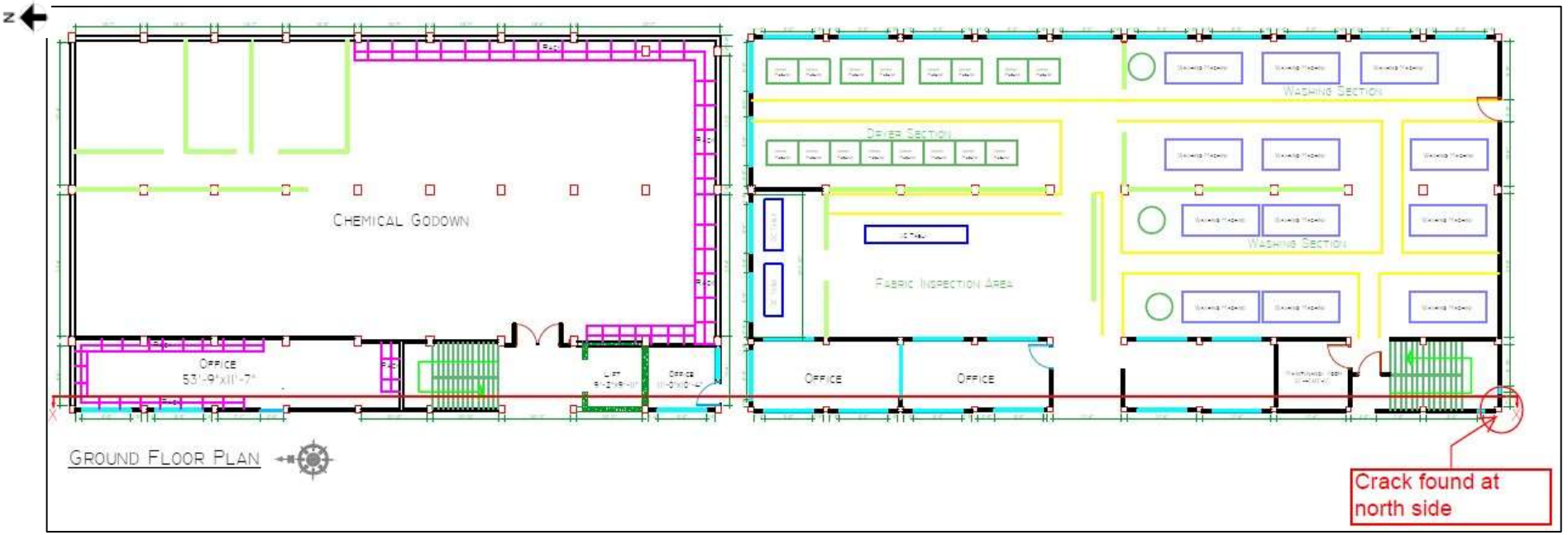
Buildings Information

1. Block-A Building six (G+4+Roof shed) reinforced concrete building with a rooftop shed.
2. Block-B Building seven (G+6) reinforced concrete building.
3. Block-C Building partially 6 storied (G+5) reinforced concrete building.
4. Biological Effluent Treatment Plant (BETP) (B+G+1) partially reinforced concrete and steel building.
5. Exhaust Gas Boiler (EGB) (G+1) steel building.
6. Security a single storied (G) Brick structure.
7. CMS is a single storied (G) steel shed.
8. Boiler building is a single (G) storied steel building.

Observations

Damaged column found at Factory Building

Observation: Block-B



Damaged Column

Damaged column was found on the south-west corner of the ground floor at the stair area (Marked in Figure-1) of the 7-storied factory Building (Block-B).

The factory must immediately engage a consultant to investigate the damaged column. Any safety measures, if required as suggested by the consultant must be taken immediately to ensure safety.

Observations: Block- B

Load plan not posted on floors

Observations: Block - B

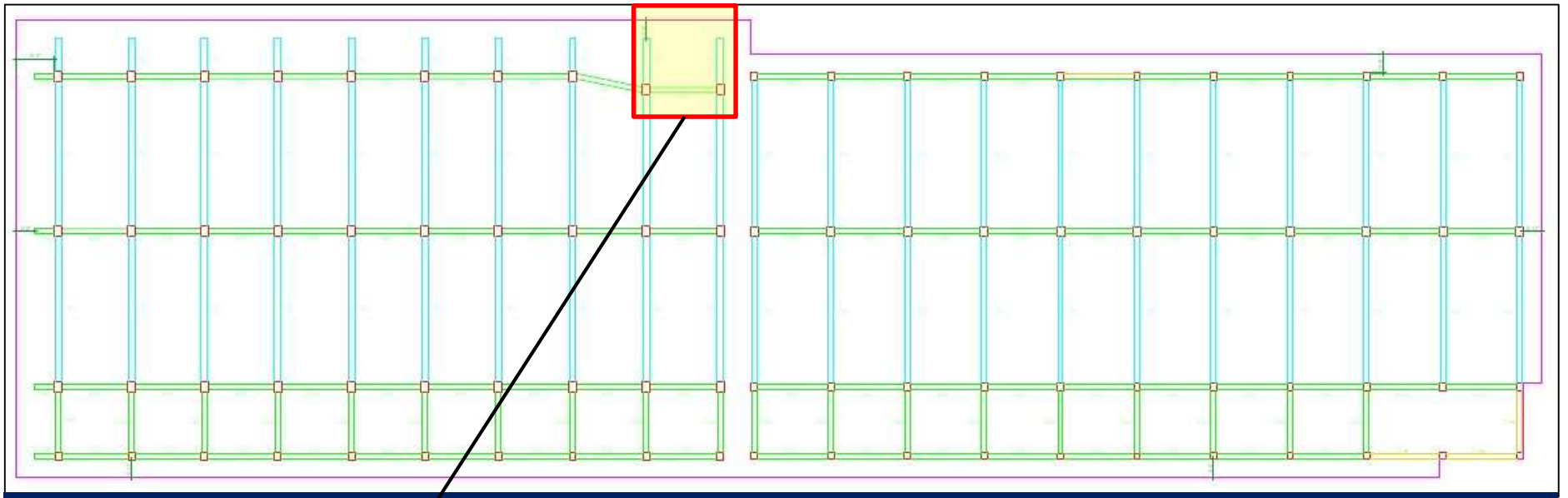
Storage loading

The floor load plan was accepted by Alliance as part of DEA. Factory completed the required retrofitting works. But load plan was not found posted in each floor. Factory engineer is required to post final load plan in each floor and maintain the floor loading accordingly.

Observations: Block- B

Mismatch in as-built drawings

Observation: Block- B



Beam Layout Plan

Additional room in front of stair

Undocumented toilet block was found at marked location. The toilet block was found with 225mm build up supported by cantilever beam. Factory engineer is required to update the as-built drawing and provide the adequacy of the cantilever beam and slab against the super imposed load from toiler block.

Observation: Block- B

Non-structural elements not anchored or braced

Observation: Block- B

Rack on floor level

Racks on different floors are not adequately anchored or braced to resist lateral (earthquake) forces. Adequately anchor and brace all non-structural elements (all buildings) to resist earthquake forces to comply with the BNBC.

Observation: Block- B

Trolly impact on Column

Observation: Block- B

RC Column was found damaged due to the impact with trolly. Factory engineer is required to investigate the damage and suggest a remedial action as well as provide suggestion to prevent such damages in future. Factory is required to follow the suggestion of the engineer for remedial actions.

Observation: Block- B

Water ponding at roof

Observation: Block- B

Water ponding at Roof

Water ponding was found on the roof slab due to inadequate slope. The factory is required to develop proper drainage system with adequate slope and water outlet on the roof.

Observation: Block- B

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Deflected beam and slab under the over head water tank (OHWT)

Observation: Block-C (RC Part)

Deflection at Inverted beam of OHWT

Deflection at slab

Deflection at Inverted slab of OHWT was observed. Building engineer is required to check whether the deflection cross the normal design limit or not and take necessary action as per engineer's guideline.

Observation: Block-C (RC Part)

Crack on brick wall

Observation: Block-C (RC Part)

Zoom view of crack

Cracks on wall

Zoom view of crack

Cracks on wall

Crack was observed at brick wall. Building engineer is required to check the intensity of crack and suggest proper repair methodology.

Observation: Block-C (RC Part)

Localized high loading on 2nd floor

Observation: Block-C

Yarn store (2nd Floor), RC part

As per prepared load plan, allowable live load limit of 2nd floor (Yarn store) is 7.5 kPa. But, at the time of inspection calculated localize loading was found more than 7.5 kPa.

Yarn store (2nd Floor), Steel part

Observation: Block-C

Storage rack (5th Floor), RC part

Storage rack has no allowable loading limit. Also, the rack has no adequate anchorage.

Observation: Block-C

Information missing in the design report

Observation: Block-C (Steel Part)

Design report

Production Building

A Detail Engineering Assessment (DEA) report was provided for the Block-C (Steel Part) at the time of inspection which was prepared based on software analysis. Adequacy of sub beams, vertical bracings (I-section) and serviceability checks as per BNBC were not incorporated in the DEA report.
Factory is required incorporate all type of adequacy check in the DEA report.

Observations: Block-C (Steel Part)

Standing water on the roof and floor of RO plant

Observation: Block-C (Steel Part)

Standing water on the roof of RO plant

Standing water on the floor of RO plant

Standing water & growth of algae/ vegetation on roof floor due to improper drainage system. Factory engineer is required to provide adequate slope to wash out the water.

Observation: Block-C (Steel Part)

Corrosion on steel column at toilet zone

Observation: Block-C (Steel Part)

Corrosion was found on steel column at toilet zone. The building engineer to investigate the reason of corrosion and suggest proper remedial measure accordingly.

Corrosion on steel column

Observation: Block-C (Steel Part)

Lack of information in as-built drawing

Observation: Block-C (Steel Part)

Vertical bracing (I-section)

Vertical bracing (Box-section)

No information related to vertical bracing details in the as built drawing of Block-C (Steel Part).

Observation: Block-C (Steel Part)

Wastage storage area

No information related to wastage storage area in the as built drawing of Block-C (Steel Part). Factory engineer is required to survey the whole structure and to prepare accurate as-built drawing. Also, check the connection adequacy for uplift forces.

Observations: Block-C (Steel Part)

Corrosion in steel elements

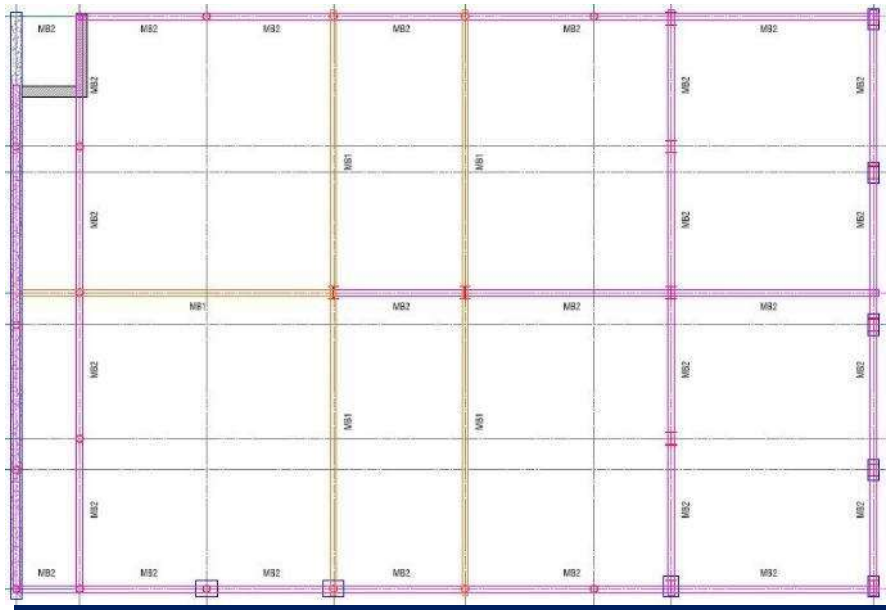
Observation: BETP Building

Corrosion on steel elements of deck slab and steel beam. Factory is required to investigate the reason of corrosion and provide remedial measure to remove corrosion.

Observation: BETP

Mismatch between drawing & as-built condition

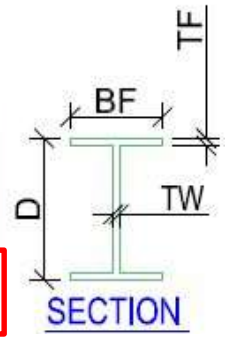
Observation: Boiler house



Floor beam layout

SCHEDULE OF MAIN BEAM

NAME	D (mm)	TW (mm)	BF (mm)	TF (mm)
MB1	500	8	150	10
MB2	300	6	150	8



MB2 beam section

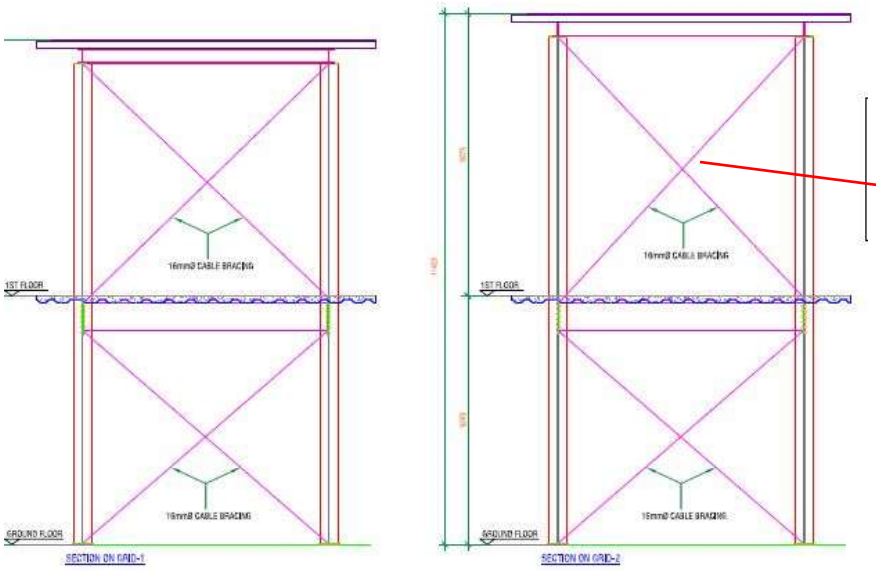
During inspection all MB2 floor beam size found W-300(6)mm X 100(8)mm instead of W-300(6)mm X 150(8)mm. The building is required to survey the structure and prepare accurate as-built drawings.

Onsite MB2 beam condition.

Observation: Boiler house

Mismatch between drawing & as-built condition

Observation: EGB building

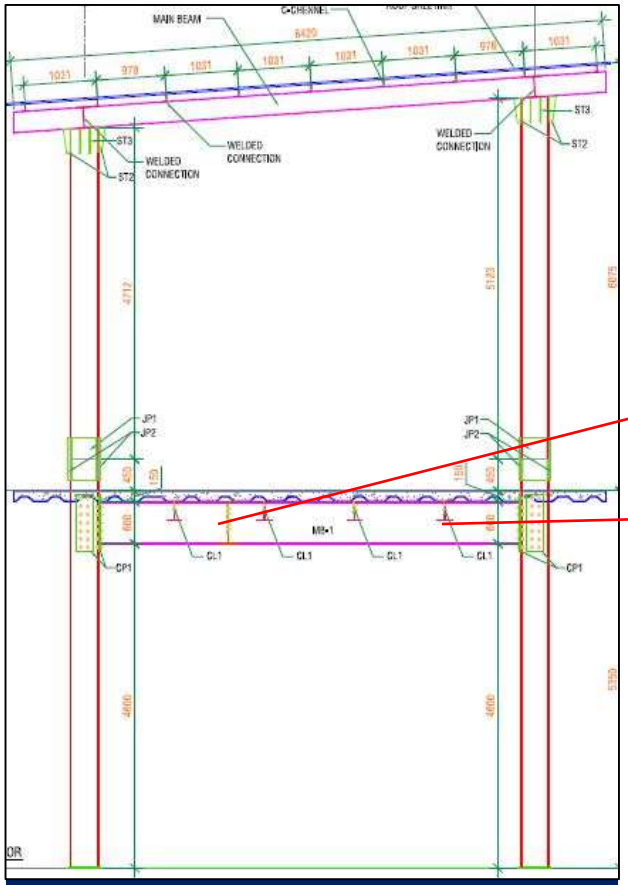


Bracing section.

Onsite bracing condition

During inspection, no cable bracing was found at any floor, but in as built drawing 16mm cable bracing has been shown.

Observation: EGB Building



section.

Onsite condition of 1st floor steel beam

In as built drawing there is no clear dimension has been provided for 1st floor MB1 and SB1. The building is required to survey the structure and prepare accurate as-built drawings

Observation: EGB Building

Problems Observed

Block-B:

Item-01: Damaged column found at Factory Building.
Item-02: Load plan not posted on floors.
Item-03: Mismatch in as-built drawings.
Item-04: Non-structural elements not anchored or braced.
Item-05: Trolly impact on Column.
Item-06: Water ponding at roof.

Block-C (RC part):

Item 07: Deflected beam and slab under the overhead water tank (OHWT).
Item 08: Crack on brick wall
Item 09: Localized high loading on 2nd floor.

Block-C (Steel part):

Item 10: Information missing in the design report.
Item 11: Standing water on the roof and floor of RO plant.
Item 12: Corrosion on steel column at toilet zone.
Item 13: Lack of information in as-built drawing.

BETP:

Item 14: Corrosion in steel elements

Boiler Building:

Item 15: Mismatch between drawing & as-built condition

EGB Building:

Item 16: Mismatch between drawing & as-built condition

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Damaged column found at Factory Building. (Block-B)	Factory is required to engage a qualified engineer to investigate the damaged column.	(Immediate - Now)
02	Damaged column found at Factory Building. (Block-B)	Factory engineer is required to investigate the adequacy of damaged column suggest for props if required.	(Immediate - Now)
03	Damaged column found at Factory Building. (Block-B)	Factory is required to provide props as per recommendation of investigation report.	(Immediate - Now)
04	Damaged column found at Factory Building. (Block-B)	Factory engineer is required to investigation the damage column including reason of damage, extend of damage and suggest proper remedial action.	6-weeks
05	Damaged column found at Factory Building. (Block-B)	Remediation work must be completed as per the recommendation of investigation report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Load plan not posted in floor (Block-B).	Post the floor live load plan in each of the floors and Implement the load management programs effectively.	6-weeks
07	Mismatch in as-built drawings (Block-B)	Building engineer is required to prepare accurate as-built drawing in compliance with section 1.9.1.2 (part-6, BNBC).	6-weeks
08	Non-structural elements not anchored or braced (Block-B)	Adequately anchor and brace all non-structural elements (all buildings) to resist earthquake forces to comply with the BNBC.	6-weeks
09	Trolley impact on Column. (Block-B)	Factory engineer is required to investigate the damage and suggest a remedial action as well as provide suggestion to prevent such damages in future.	6-weeks
10	Trolley impact on Column. (Block-B)	Carry out remedial works as per recommendation	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
11	Water ponding at roof. (Block- B)	The factory engineer to develop proper drainage system with adequate slope to resist water ponding on the roof.	6-months
12	Deflected of slab under the overhead water tank. [Block-C (RC part)]	Building engineer is required to check the adequacy of OHWT slab to confirm deflection is within the allowable limit.	6-weeks
13	Deflected of slab under the overhead water tank. [Block-C (RC part)]	Produce and actively manage a loading plan for the OHWT and maintain accordingly.	6-weeks
14	Deflected of slab under the overhead water tank. [Block-C (RC part)]	Carry out remedial works if required.	6-months
15	Deflected of slab under the overhead water tank. [Block-C (RC part)]	Continue to implement the load management plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
16	Crack on brick wall. [Block-C (RC part)]	Building engineer is required to check the extent of crack and suggest proper repair methodology.	6-weeks
17	Crack on brick wall. [Block-C (RC part)]	Carry out remedial works.	6-months
18	Localized high loading on 2nd floor. [Block-C]	Factory engineer to investigate the floor loading arising from storage and advise on any necessary alterations taking account of floor capacity and column capacity.	6-weeks
19	Localized high loading on 2nd floor. [Block-C]	Check the adequacy of steel storage rack.	6-weeks
20	Localized high loading on 2nd floor. [Block-C]	Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
21	Localized high loading on 2nd floor. [Block-C]	Make any structural alterations as advised by factory engineer.	6-months
22	Localized high loading on 2nd floor. [Block-C]	Continue to implement the load management plan.	6-months
23	Information missing in the DEA report. [Block-C (Steel part)]	Factory is required incorporate all type of adequacy check in the DEA report and the report should be in compliance with section 1.9.1 of BNBC (part 6).	6-weeks
24	Information missing in the DEA report. [Block-C (Steel part)]	Carry out remedial works (if any) after reviewed by the RSC.	6-months
25	Standing water on the roof and floor of RO plant. [Block-C (Steel part)]	Factory engineer is required to develop roof drainage system with adequate slope and outlets.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
26	Corrosion on steel column at toilet zone. [Block-C (Steel part)]	The building engineer to investigate the reason of corrosion and suggest proper remedial measure accordingly.	6-weeks
27	Corrosion on steel column at toilet zone. [Block-C (Steel part)]	Remove rust from affected steel member and apply corrosion resistance coating to the steel member.	6-weeks
28	Lack of information in as-built drawing. [Block-C (Steel part)]	Building engineer is survey the whole structure and prepare accurate as-built drawings with structural details.	6-weeks
29	Lack of information in as-built drawing. [Block-C (Steel part)]	Check for the connection adequacy of truss support for uplift forces and suggest proper remedial actions accordingly.	6-weeks
30	Lack of information in as-built drawing. [Block-C (Steel part)]	Carry out suggested remedial works if required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
31	Corrosion in steel elements(BETP building)	Factory is required to investigate the reason of corrosion and provide remedial measure to remove corrosion.	6-months
32	Mismatch between drawing & as-built condition(Boiler Building)	The building engineer is required to survey the whole structure and prepare accurate as-built drawings with structural details.	6-weeks
33	Mismatch between drawing & as-built condition(Boiler Building)	The building engineer is required to revise the design report of the building in compliance with section 1.9.1 of BNBC (part-6)..	6-weeks
34	Mismatch between drawing & as-built condition(Boiler Building)	Carry out suggested remedial works where required.	6-months
35	Mismatch between drawing & as-built condition(EGB Building)	The building engineer is required to survey the whole structure and prepare accurate as-built drawings with structural details.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
36	Mismatch between drawing & as-built condition(EGB Building)	The building engineer is required to revise the design report of the building in compliance with section 1.9.1 of BNBC (part-6).	6-weeks
37	Mismatch between drawing & as-built condition(EGB Building)	Carry out suggested remedial works where required.	6-months