Axis Knitwears Ltd (relocated)

Mawna, Sreepur, Gazipur
(24.253515N, 90.399563E)
17th June & 11th August 2021

RSC RMG SUSTAINABILITY COUNCIL

Buildings Information

1. Building-1 (Main Building) (G+4)
2. Building-2 & 3 (Generator and Sub-station Room) (single storied)
3. Building-4 (Fire Reservoir & Compressor Room) (single storied)
4. Building-5 (Domestic Reservoir & Boiler Room) (single storied)
5. Building-6 (Office Room) (single storied)
6. Shed-1 (Wastage Shed) (single storied)

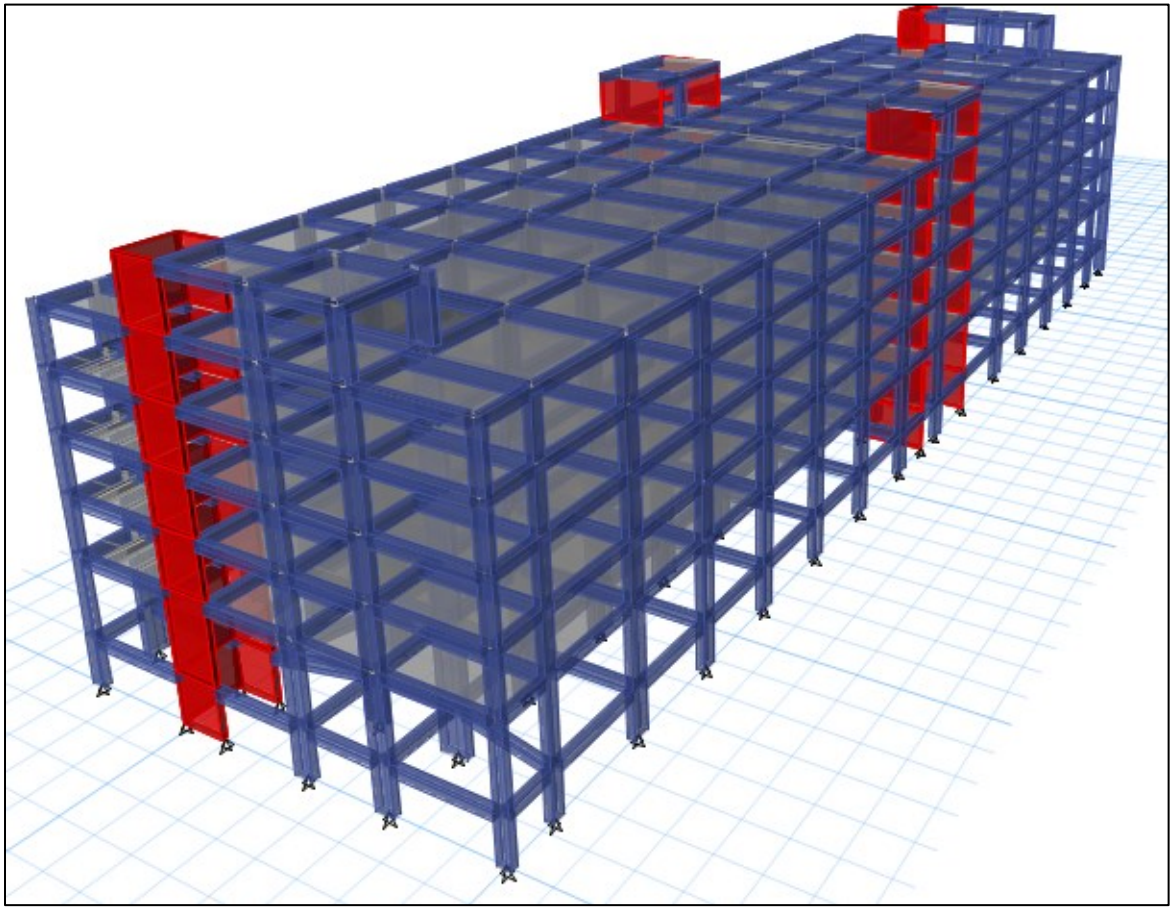
Observations

Poorly anchored tin shed and extended column on roof

Observations: Building-1 (Main Building)

Full height columns on roof

Tin roof on the existing staircase with poor anchorage



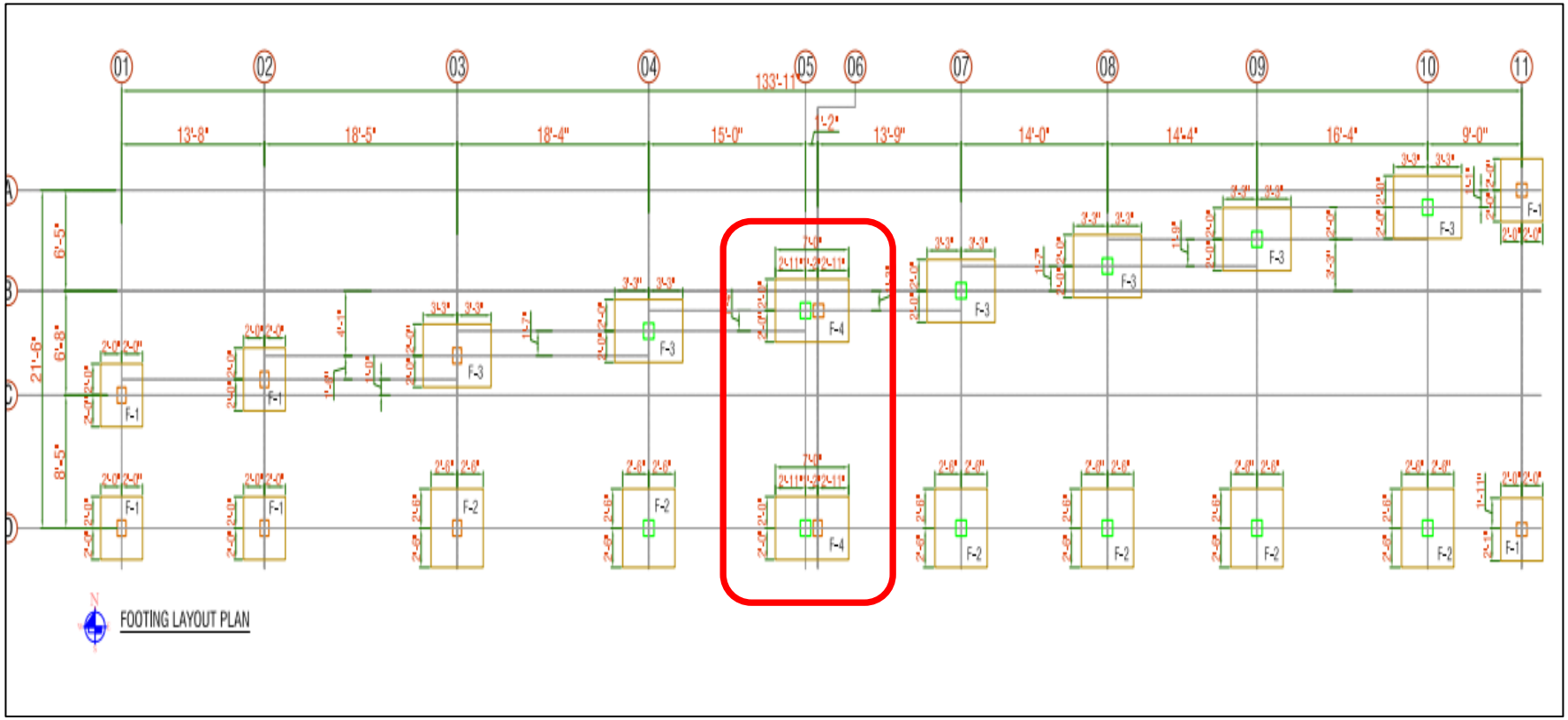
Design report prepared considering 5 storied

On roof, full height columns have been constructed which has not been incorporated in FEA model and as-built drawing. Moreover, in FEA model all staircase top has been assigned with RC Slab which does not match with existing condition. Factory engineer is required to revise the FEA model for roof top RC columns as per onsite condition and replace the tin shed with RC slab/engineered structure as per the FEA model and update the design documents accordingly.

Observation : Building-1 (Main Building)

Design report needs to be revised

Observations: Building-2 & 3 (Generator & Sub-station)



Combined footing F4 between Building-2 & 3 (Generator & Sub-station)

Observations: Building-2 & 3 (Generator & Sub-station)

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Table 3.1.1: Bearing Capacity Check of Footings

Joint Label	Foundation Type	Provided Foundation Size	Bearing Capacity	FoS (From Soil Test Report)	Ultimate Load Bearing Capacity	Reaction (DL + LL)	Available FoS (For Existing Foundation)	Remarks (Minimum FoS=2.5)
		sft	ksf		kip	kip		
1	F1	16.0	2.25	3	108.00	19.448	**5.55**	OK
2	F1	16.0	2.25	3	108.00	37.303	**2.90**	OK
3	F2	25.0	2.25	3	168.75	43.991	**3.84**	OK
4	F2	25.0	2.25	3	168.75	41.253	**4.09**	OK
5	F4	28.0	2.25	3	189.00	19.098	**9.90**	OK
13	F1	16.0	2.25	3	108.00	14.433	**7.48**	OK
14	F1	16.0	2.25	3	108.00	20.061	**5.38**	OK
16	F3	26.0	2.25	3	175.50	23.213	**7.56**	OK
17	F3	26.0	2.25	3	175.50	24.298	**7.22**	OK
18	F4	28.0	2.25	3	189.00	11.963	**15.80**	OK

Footing adequacy check (Building-2)

Table 3.1.1: Bearing Capacity Check of Footings

Joint Label	Foundation Type	Provided Foundation Size	Bearing Capacity	FoS (From Soil Test Report)	Ultimate Load Bearing Capacity	Reaction (DL + LL)	Available FoS (For Existing Foundation)	Remarks (Minimum FoS=2.5)
		sft	ksf		kip	kip		
1	F4	28.0	2.25	3	189.00	28.915	**6.54**	OK
10	F4	28.0	2.25	3	189.00	21.706	**8.71**	OK
25	F2	25.0	2.25	3	168.75	39.333	**4.29**	OK
26	F3	26.0	2.25	3	175.50	25.798	**6.80**	OK
27	F2	25.0	2.25	3	168.75	38.131	**4.43**	OK
28	F3	26.0	2.25	3	175.50	25.3	**6.94**	OK
29	F2	25.0	2.25	3	168.75	52.598	**3.21**	OK
30	F3	26.0	2.25	3	175.50	31.264	**5.61**	OK
31	F2	25.0	2.25	3	168.75	51.498	**3.28**	OK
32	F3	26.0	2.25	3	175.50	41.322	**4.25**	OK
33	F1	16.0	2.25	3	108.00	10.228	**10.56**	OK
34	F1	16.0	2.25	3	108.00	10.608	**10.18**	OK

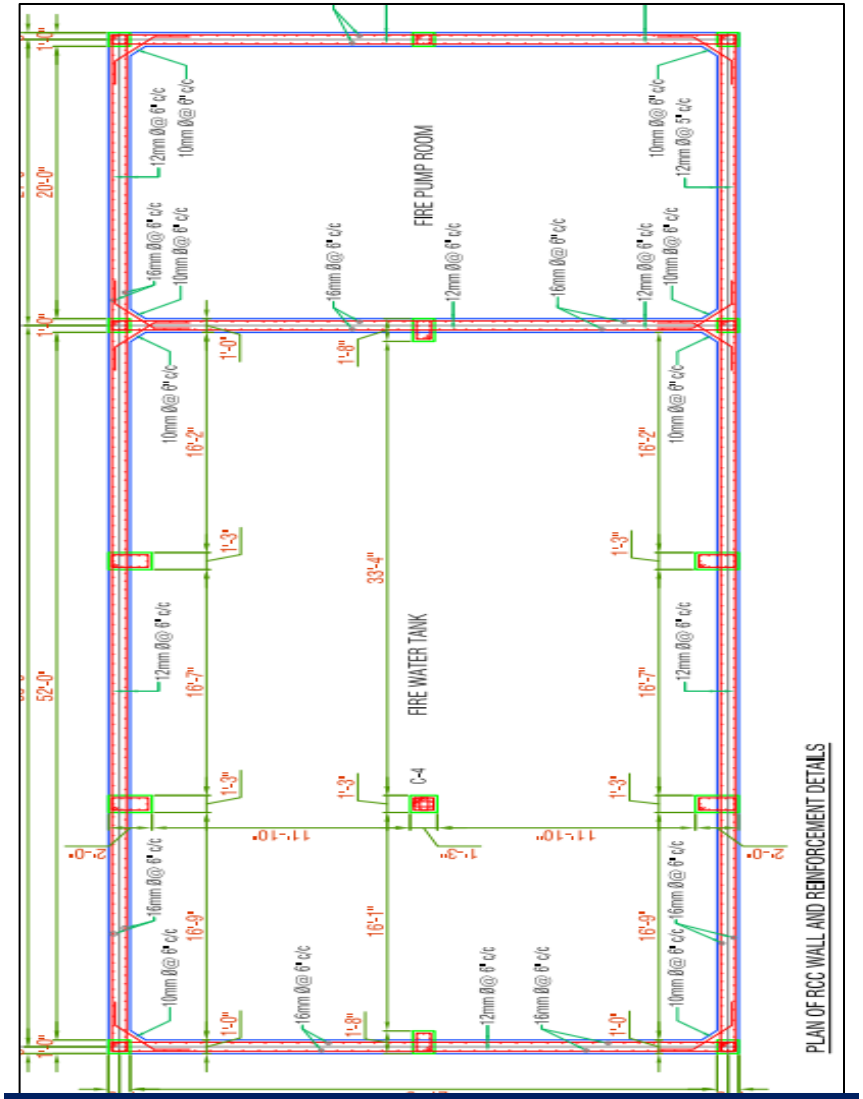
Footing adequacy check (Building-3)

In expansion joint between Building-2 & 3 (Generator & Sub-station), footing type F4 is being share between them according to drawing. But in foundation adequacy check axial load from single column has been considered. Factory engineer is required to check the adequacy of footing F4 considering loads from both columns and incorporate them in design report.

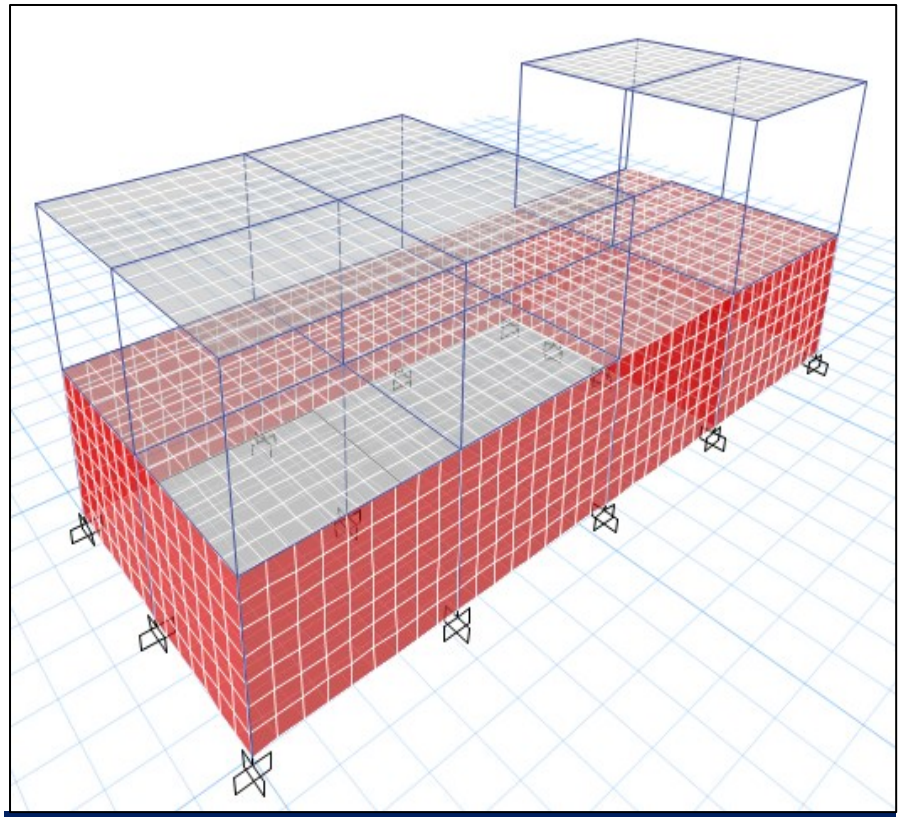
Observations: Building-2 & 3 (Generator & Sub-station)

Design report needs to be revised

Observations: Building 4&5: (Fire Reservoir & Compressor Room) & (Domestic Reservoir & Boiler Room):



Structural wall reinforcement details :Building-4 (Fire Reservoir & Compressor Room)



Structural wall assigned in FEA :Building-4 (Fire Reservoir & Compressor Room)

Observations: Building 4&5: (Fire Reservoir & Compressor Room) & (Domestic Reservoir & Boiler Room):

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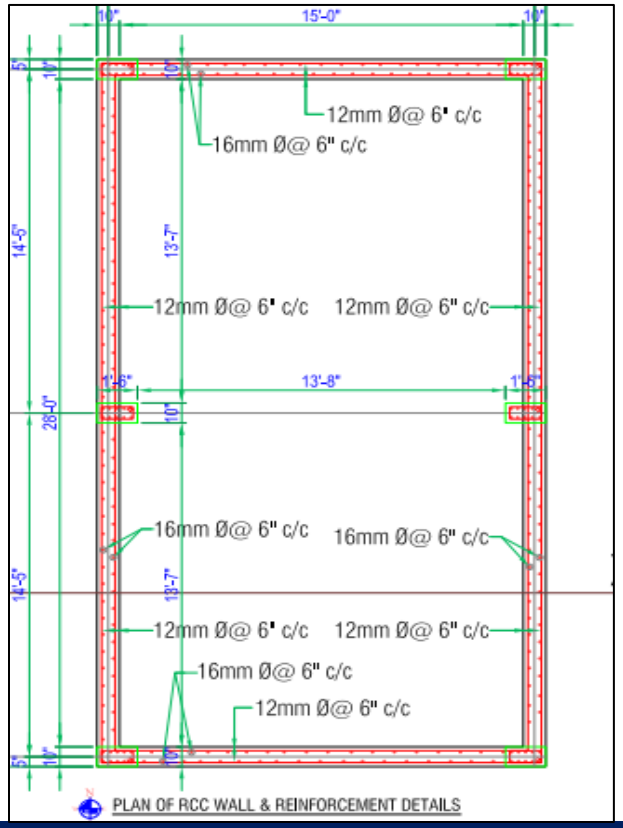
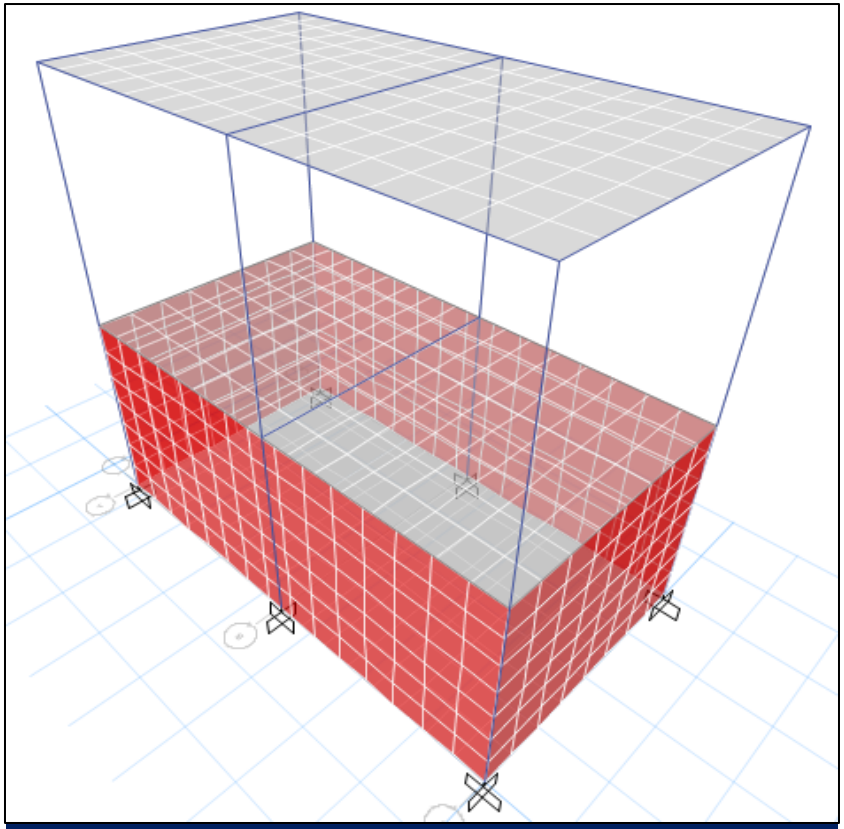


Structural wall reinforcement details :Building-5 (Domestic Reservoir & Boiler Room)



Structural wall assigned in FEA :Building-5 (Domestic Reservoir & Boiler Room)

These structures are combination of moment resisting frame and structural wall. These walls have been incorporated in FEA model and reinforcement details are also provided in drawing. However in design report no information has been provided regarding the adequacy of these structural walls. Factory Engineer is required to incorporate the adequacy check in design report.

Observations: Building 4&5: (Fire Reservoir & Compressor Room) & (Domestic Reservoir & Boiler Room):

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Lack of stability

Observations: Shed-1 (Wastage Shed)

Poor connection details

Apparently inadequate structural members

The steel roof shed made of angle section which is supported by brick wall in transverse direction. No horizontal bracing members are available for lateral stability. Apparently Inadequate structural member, poor connection details found. Building engineer is required to check the adequacy of the steel members & connection for uplift and lateral forces otherwise replace with engineered structure.

Observations: Shed-1 (Wastage Shed)

Priority Actions

Problems Observed

Building-1 (Main Building):

Item-01: Poorly anchored tin shed and extended column on roof.

Building-2 & 3 (Generator and Sub-station Room):

Item-02: Design report needs to revised.

Building 4&5: (Fire Reservoir & Compressor Room) & (Domestic Reservoir & Boiler Room):

Item-03: Design report needs to revised.

Shed-1 (Wastage Shed):

Item-04: Lack of stability.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Poorly anchored tin shed and extended column on roof (Main Building)	Factory engineer is required to revise the FEA model for roof top RC columns as per onsite condition and update the design documents in compliance with section 1.9.1 (Part-6, BNBC-2006).	6-weeks
02	Poorly anchored tin shed and extended column on roof (Main Building)	Factory engineer is required to replace the tin shed with RC slab/engineered structure as per the outcome of FEA analysis and update the design documents accordingly.	6-months
03	Design report needs to be revised. Building-2 & 3 (Generator and Sub-station Room)	Building engineer to update the design document including a design report, and a set of structural drawings in compliance with section 1.9.1 (Part-6, BNBC-2006).	6-weeks
04	Design report needs to be revised. Building-2 & 3 (Generator and Sub-station Room)	Complete implementation of any remedial works deemed necessary by the assessment report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Design report needs to be revised. Building 4&5: (Fire Reservoir & Compressor Room) & (Domestic Reservoir & Boiler Room)	Building engineer is required to incorporate the adequacy check of structural walls in design report update the design document including a design report, and a set of structural drawings in compliance with section 1.9.1 (Part-6, BNBC-2006).	6-weeks
06	Design report needs to be revised. Building 4&5: (Fire Reservoir & Compressor Room) & (Domestic Reservoir & Boiler Room)	Complete implementation of any remedial works deemed necessary by the assessment report.	6-months
07	Lack of stability. (Shed-1)	Building engineer is required to check the adequacy of the roof shed for uplift and lateral forces or replace with the engineered sheds.	6-weeks
08	Lack of stability. (Shed-1)	Carry out remedial works where necessary.	6-months