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RSC RMG SUSTAINABILITY COUNCIL

Buildings Information

1. Production Building (G+5)
2. Utility building (G+1)

Observations

Prepared DEA documents need to be revised.

Observations

Design Combinations

1.2DL+1.6LL
1.05DL+1.25LL+1Wx
1.05DL+1.25LL+Wx
1.05DL+1.25LL+Wy
1.05DL+1.25LL-Wy

Load combination in FEM

6. Load Combination

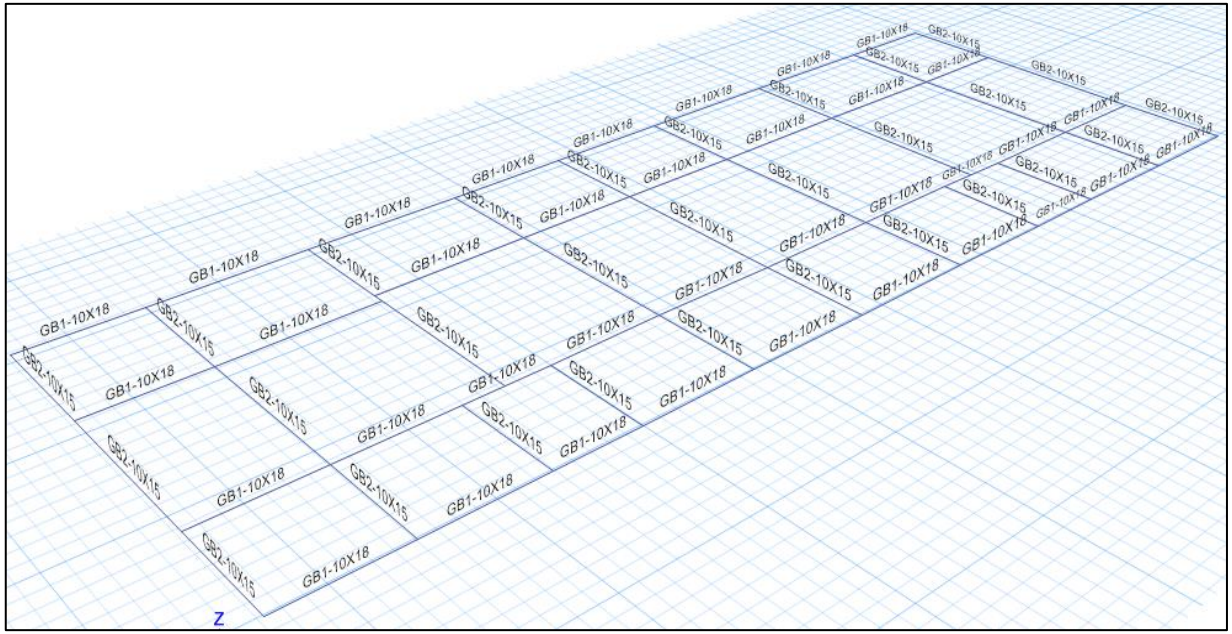
Table 8.1: Alternate Load Factors and Load Combinations

Reinforced Concrete Structures	Structural Steel Structures
1.2D + 1.6L	1.2D + 1.6Lf + 0.5Lr
1.05D + 1.25L + 1.0W	1.2D + 1.3W + 0.5Lf + 0.5Lr
	1.2D + 1.5E + 0.5Lf

D = Dead Load
L = Live Load
W = Wind Load from any direction
E = Seismic Load from any direction
Lr = Roof Live Load
Lf = Floor Live Load

Load combination in DEA Report

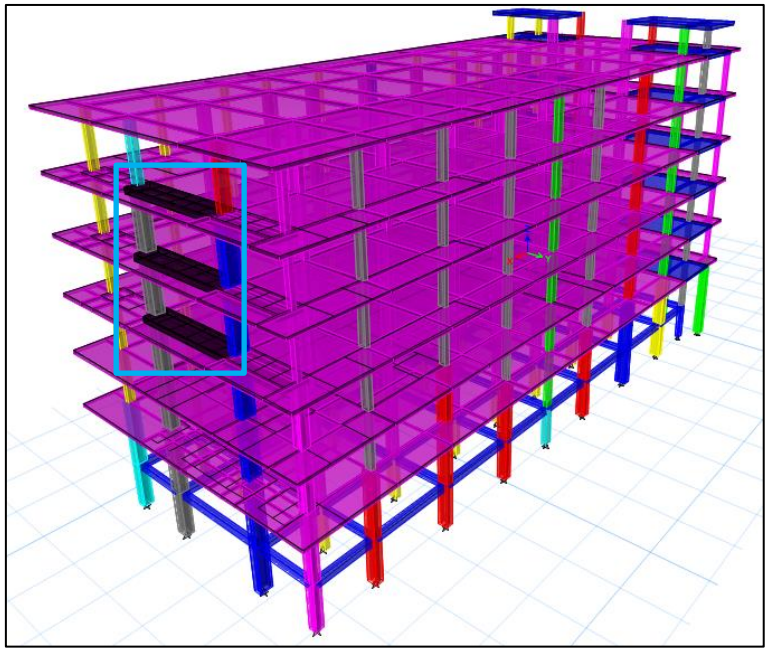
In prepared Detail Engineering Assessment (DEA) of the building, NTPA load combinations were considered for retrofitting. Grade beam is assigned in FEA which is also present in structural drawing. However no adequacy check for grade beam has been provided in Detail Engineering Assessment (DEA) report.



Grade beam assigned in FEM

Factory engineer is required to provide the justification for considering NTPA load combination to prepare the retrofitting design.

Observation :



Build-up assigned in FEA

Build-up in toilet area

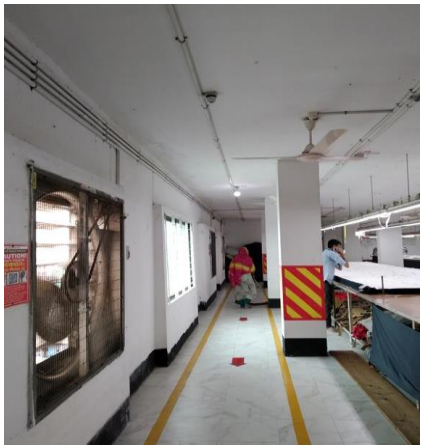
During inspection 400 mm build-up was observed in each floor toilet zone. However in FEM, build-up is assigned only in 3rd, 4th and 5th floor.

As per BNBC every building or structure 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 as per BNBC. Now factory engineer is required to incorporate the super imposed dead in FEA model accordingly and revise the DEA which is in compliance with section 1.9.1 (part-6, BNBC).

Observation :

Lack of information in as-built drawing

Observations :



Plastic water tank and Dimensions for the cantilever areas are not provided.

No joint details of the steel stair was available in drawing.

In as-built drawing sectional elevation of the building was not provided.

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 as per BNBC. During the inspection, the drawings were found incomplete which is required to be prepared in compliance with section 1.9.1.2 (Part-6, BNBC 2006).

Observations :

Poor connection & lack of lateral stability

Observations

Poor connection of bracing

Building engineer is required prepare as-built drawings and check adequacy of the members against lateral loadings as part of engineering assessment (EA) in compliance with section 1.9.1 (part-6, BNBC).

Lack of lateral stability was found against lateral load and poor connection was observed.

Observations

Non-Engineered shed over staircase

Observations

Poor connection details	Inadequate structural members

The steel roof shed made of angle section which is supported by brick wall over the staircase. Inadequate structural member, poor connection details found. The shed is apparently non-engineered. Building engineer is required to check the adequacy of the steel members & connection for gravity and lateral forces otherwise replace with the engineered sheds.

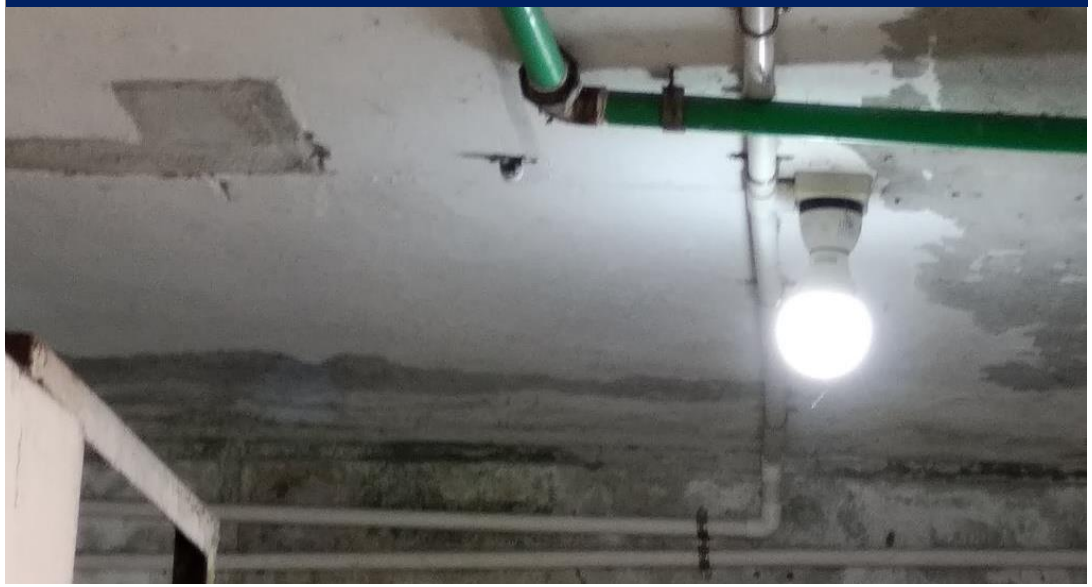
Observations

Dampness found on slab and wall at several locations

Observations :

Dampness was found on the wall of toilet zone.

Dampness was found on roof slab soffit at several locations.

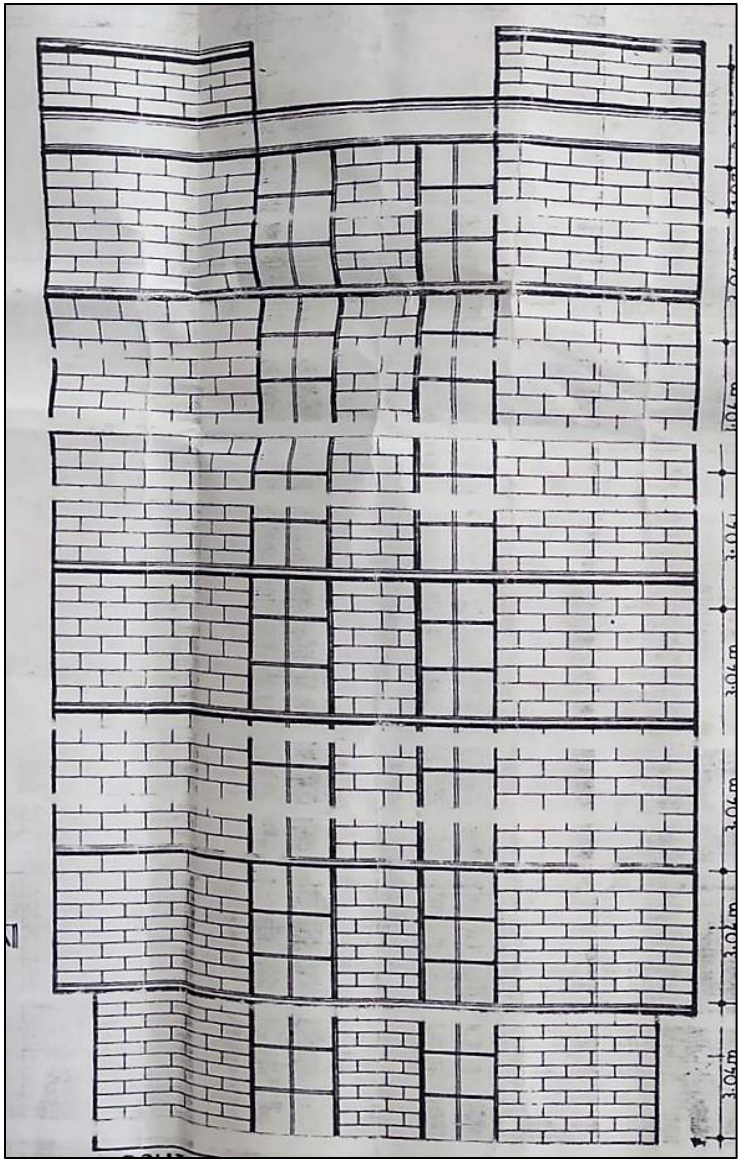


Dampness was found on slab at several locations.

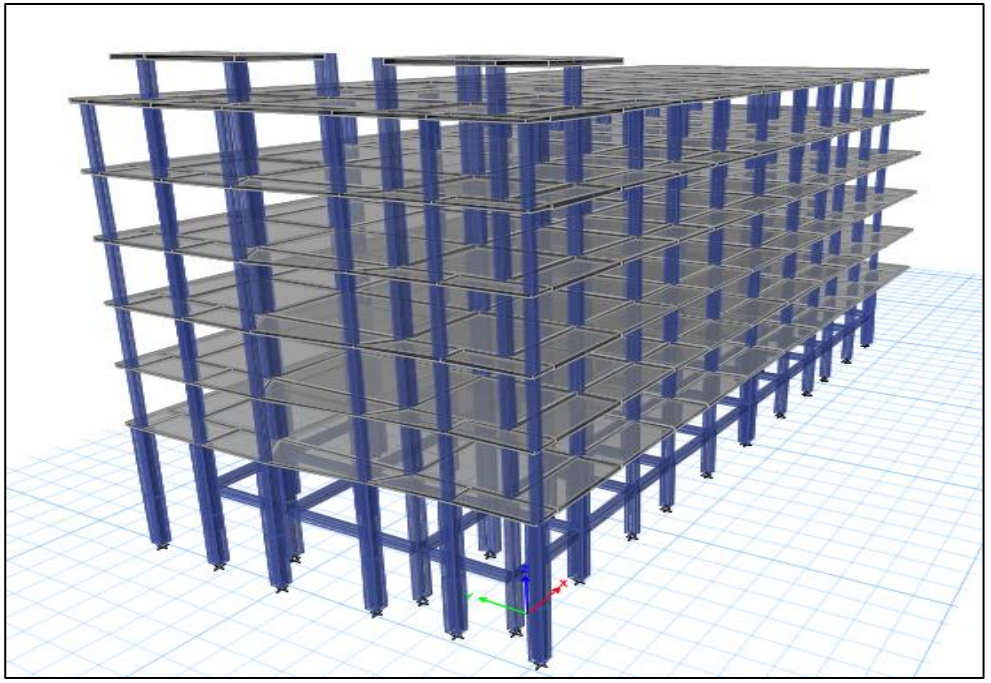
Observations :

Future Vertical Extension

Observation:



Permit layout from LGED for 7 storied building



Design report prepared considering 6 storied

The building permit layout is for seven storied structure. The building can be extended vertically in future. But the DEA of the structure was done for six storied structure and till the date of this inspection, building was constructed up-to six stories. Prior to vertical extension above six stories, factory engineer is required to produce Detailed Engineering Assessment (DEA) for the further vertical extension of the structure according to BNBC and submit to RSC for review.

Observation :

Priority Actions

Problems Observed

Production Building:

Item-01: Prepared DEA documents need to be revised.

Item-02: Lack of information in drawing.

Item-03: Apparently inadequate steel stair & lack of lateral stability

Item-04: Non-Engineered roof shed.

Item-05: Dampness found on slab and wall at several locations.

Item-06: Future Vertical Extension.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Prepared DEA documents need to be revised.	Building engineer to update the DEA document including a report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC.	6-weeks
02	Prepared DEA documents need to be revised.	Implement the recommendations of DEA	6-months
03	Lack of information in drawing.	Factory engineer is required to survey the whole structure and prepare “as constructed” drawings (Architectural & Structural), in compliance with section 1.9.1.2 as per BNBC 2006.	6-weeks
04	Apparently inadequate steel stair & lack of lateral stability.	• Factory engineer is required to prepare engineering assessment (EA) for the in compliance with section 1.9.1 (part-6, BNBC).	6-weeks
05	Apparently inadequate steel stair & lack of lateral stability.	Implement the recommendations of EA.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Non-Engineered roof shed.	Building engineer is required to check the adequacy of the roof shed for gravity and lateral forces or replace with the engineered sheds.	6-weeks
07	Non-Engineered roof shed.	Carry out remedial works where necessary.	6-months
08	Dampness found on slab and wall at several locations.	Building Engineer is required to investigate the reason of dampness & apply suitable method to repair dampness.	6-weeks
09	Future Vertical Extension.	Prior to vertical extension, factory engineer is required to produce Detailed Engineering Assessment (DEA) of the structure according to BNBC and submit to RSC for review.	6-weeks
10	Future Vertical Extension.	Carry out recommendation as outcome of the DEA.	6-months