

SHINE EMBROIDERY LTD

198 Gajirchat, Modhapara, Ashuliya, Savar, Dhaka
(23.935846, 90.281109)

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1. Building Information

Main Production Building: This is a three-storied (G+2) reinforced concrete (RC) building.

Security Building: It is a single-storied (G) reinforced concrete (RC) building.

Fire Control Room: It is a single-storied (G) masonry structure.

2. Observations

Observation-1: Inconsistencies in design report. (Main Production Building)

3.4.4 Earthquake Load (E)

Proper structural design of any building structure must include loads due to earthquake shaking. Although there has been no major incident of earthquake hazard in the recent past of Bangladesh, earthquakes are not uncommon in this area. Scientific geological study of the earth crust below Bangladesh shows that Bangladesh does fall in moderate to high seismic risk zone. Statistical evidence from past major and minor earthquake incidents shows that a major earthquake is overdue in the recent times of geological scale. Therefore, it is necessary to prepare against any possible earthquake hazard. It should be kept in mind that the objective of earthquake resistance building design is not to make a strong building which can resist any damage due to earthquake. Instead, earthquake resistant design basically aims at minimizing the possible damage and casualty to an acceptable level.

Regarding the earthquake resistant structural design, it is essential that the specific design code is followed. For the analysis and design checking of this building, *Equivalent Static Force Method* of BNBC (2006) is followed. The main considerations for calculation of earthquake load are given below.

- ❖ Zone co-efficient, $Z = 0.15$ (zone 2, As Per BNBC 2006)
- ❖ Structure importance co-efficient, $I = 1.0$ (Standard Occupancy, Table 6.2.23, BNBC)
- ❖ Response modification co-efficient, R (For RCC) = 08 (IMRF, Table 6.2.24, BNBC)
- ❖ Site co-efficient, $S_2 = 1.2$ (type 2 soil as suggested in Table 6.2.25, BNBC)

Description: Response modification co-efficient, R value considered as 8 for IMRF but no calculation/justification is provided for the consideration.

The building engineer is required to revise the design documents considering the inconsistencies and submit the documents to RSC for review.

Observation-2: Dampness at ceiling of roof floor. (Main Production Building)



Description: Dampness on ceiling of roof floor was observed. Building engineer is required to seal the source of water and repair the damp areas with suitable methods.

Observation-3: Inconsistencies in design report. (Security Building)

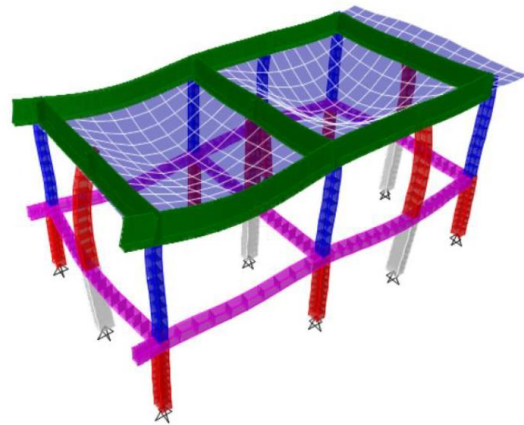
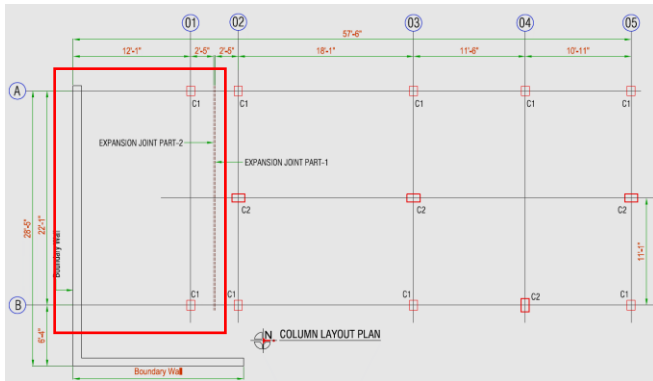


Figure 3.8.3: Deflected shape of the building.

Description: In security building there are two parts, separated by an expansion joint. But in the design report only one part was considered, red marked part was not considered.

The building engineer is required to revise the design documents considering the inconsistencies and submit the documents to RSC for review.

Observation-4: Non-engineered structure on the roof of security building. (Security Building)



Description: The structure is made of mild steel and the connection seems to be non-engineered. Building engineer is required to replace the structure with an engineering one.

Observation-5: Dampness at ceiling of roof floor. (Security Building)



Description: Dampness on ceiling of roof floor was observed. Building engineer is required to seal the source of water and repair the damp areas with suitable methods.

Observation-6: Cracks on beam-column joint and slab soffit. (Security Building)



Description: During the inspection, cracks were found on the beam-column joint and slab soffit at expansion joint. Building engineer is required to investigate and repair the crack with a suitable method.

3. Action Plan

Observation	Action Plan	Timeline
Inconsistencies in design report. (Main Production Building)	Building engineer is required to address the inconsistencies in the EA report.	within 6 weeks
	Carry out suggested remedial works if required.	within 6 months
Dampness at ceiling of roof floor. (Main Production Building)	Building engineer is required to seal the source of water and repair the damp areas with suitable method.	within 6 weeks
Inconsistencies in design report. (Security Building)	Building engineer is required to address the inconsistencies in the EA report.	within 6 weeks
	Carry out suggested remedial works if required.	within 6 months
Non-engineered structure on the roof of security building. (Security Building)	Building engineer is required to replace the shed with an engineering one.	within 6 months
Dampness at ceiling of roof floor. (Security Building)	Building engineer is required to seal the source of water and repair the damp areas with suitable method.	within 6 weeks
Cracks on beam-column joint and slab soffit. (Security Building)	Building engineer is required to investigate and repair the crack with a suitable method.	within 6 weeks