

Creative Collections Ltd. (Extension)

Nishatnagar, Tongi, Gazipur, Bangladesh.

(23.898144, 90.393584)

26 October 2023



1. Building Information

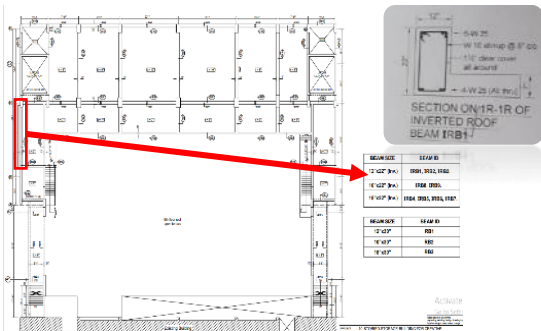
Main Building (Extension): 10-storied (G+9) reinforced concrete (RC) building.

Fire Pump Room with UGWR: The structure is an underground structure with a single-storied steel roof shed at ground level.

Boiler Room: Single-storied reinforced concrete building.

EGB Boiler: Two-storied reinforced concrete building including a rooftop shed.

2. Observations:

Main Building (Extension)	
Observation 1: Lack of calculation of material strength in design report.	
(a) Concrete strength, f_c 5,000psi (Test report shall be provided after completion of construction.) (b) Concrete strength, f_c 3,000psi (Test report shall be provided after completion of construction.)	(a) For Columns (b) For other R.C members 5.12.2 Frequency of Testing 5.12.2.1 Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 60 m³ of concrete, nor less than once for each 250 m² surface area for slabs or walls. 5.12.2.2 On a given project, if the total volume of concrete is such that frequency of testing required by Sec 5.12.2.1 above would provide less than three strength tests for a given class of concrete, tests shall be made from at least three randomly selected batches or from each batch if three or fewer batches are used. 5.12.2.3 When the total quantity of a given class of concrete is less than 20 m³, strength tests are not required when evidence of satisfactory strength is submitted to and approved by the Engineer. 5.12.2.4 A strength test shall be the average of the strengths of at least two 150 mm by 300 mm cylinders or at least three 100 mm by 200 mm cylinders made from the same sample of concrete and tested at 28 days or at test age designated for determination of f'_c.
Material Specification in Design Report	Cylinder Test Criteria as per BNBC
Description: A set of design reports was available for the Main Building (Extension) prepared following BNBC 2006. In the design report, the concrete strength has been considered of 5000 psi for the column and 3000 psi for other members based on cylinder test reports. The building engineer is required to verify the frequency of testing requirements as per BNBC (Part VI, Chapter 5, 5.12.2) and update the analysis & design report if required.	
Observation 2: Inconsistencies in design report.	
5.4 Seismic Load: As per BNBC-2006.(2.5.1) Base Shear $V = ZIC/R$ where Seismic Zone co-efficient $Z = 0.15$ for zone 2 for for Creative Collection Ltd. at Nishat Nagar, Tongi, Gazipur. Importance factor $I = 1.0$, $C = 1.25S/T^{(2/3)}$. $S = 1.2$, $T = Ct(hn)^{(3/4)}$ where $Ct = 0.073$ in SI unit for RC moment resisting frame. $R = 8$ for intermediate moment resisting RC frame.	
Seismic design criteria in the design report	
Description: A Design Report was provided for the Main Building (Extension) at the time of inspection which is prepared based on software analysis. Building engineer is required to provide detailed calculations regarding IMRF in the design report and submit to RSC for review.	
Observation 3: Inconsistencies in as-built drawings.	
	
Inverted beam IRB1 in Roof floor beam layout	163 mm d/s beam found on site
Description: In as-built drawing, inverted beam IRB1 is mentioned. But, instead of an inverted beam, a beam with a down stand 163 mm was found on site. Building engineer is required to survey the whole structure and update the as-built drawing.	

Fire Pump Room with UGWR	
Observation-4: Apparently inadequate connection.	
	
Improper Connection	
Description: Inadequate structural connection details were found. Building engineer is required to check the adequacy of the steel connection for uplift forces.	
EGB Boiler	
Observation 5: Lack of stability system.	
	
Portal frame	
Description: Roof bracing and wall bracing system was not observed in the roof shed of the EGB Boiler. Building engineer is required to requirement of bracing at the roof and suggest necessary alternatives accordingly.	

3. Action Plan:

Observation	Action Plan	Timeline
Main Building (Extension)		
Lack of calculation for material strength in design report.	The building engineer is required to verify the frequency of testing requirement as per BNBC (Part VI, Chapter 5, 5.12.2) and update the analysis & design report if required.	within 6 weeks
Inconsistencies in the design report.	Building engineer is required to provide detailed calculations regarding IMRF in the design report and submit to RSC for review.	within 6 weeks
	Implement the recommendations of the design report.	within 6 months
Inconsistencies in as-built drawings	The building engineer is required to survey the structure and produce accurate as-built drawings.	within 6 weeks
Fire Pump Room with UGWR		
Apparently inadequate connection	Building engineer is required to check the adequacy of the steel connection for uplift forces.	within 6 weeks
	Carry out remedial work where required.	within 6 months
EGB Boiler		
Lack of stability system	Building engineer is required to check the lateral stability of the shed as part of the Engineering Assessment (EA).	within 6 weeks
	Carry out remedial work where required.	within 6 months