Talisman Ltd. (New Unit)

Plot: 170-176, DEPZ (Extension Area), Ganakbari, Ashulia, Savar, Dhaka-1349

(23.945172, 90.278864)

6 May 2024

RSC RMG SUSTAINABILITY COUNCIL

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1. Building Information

Building-1 (Main Production Building): The structure is an existing two-storied (G+1) reinforced concrete (RC) building.

Building-2 (Utility Building): The structure is a partially two-storied (G+1) RC building.

Building-3 (Dining Building): The building is two-storied (G+1) RC structure.

Building-4 (Security & Fire Control Room): The building is a single-storied reinforced concrete building.

Building-5 (RMS Room): The building is a single-storied reinforced concrete building. The

2. Observations

Observation 1: In consistency in seismic design consideration of Building 1.

Main Production Building

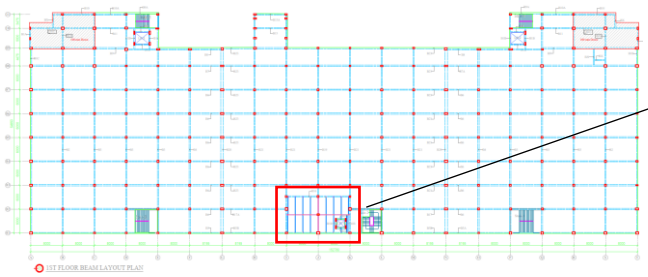
3.3.5 EARTHQUAKE LOAD:

Following are the basic parameters assumed for seismic analysis of buildings Zone Factor (Z): 0.15 (Zone II, BNBC)
Important Factor (I): 1.0
Response Modification Coefficient: 8 IMRF
Results have been scaled to have a minimum base shear as per formula
V= ZICW/R (Ref. BNBC)
The time period of the buildings has been adopted based on the formula
$T=C_t(h_n)^{3/4}$(Ref. BNBC)

INPUT

Building Height, h	=	52.2028 ft
Building Seismic Zone	=	2
Seismic Zone Coefficient,	Z =	0.15
Structure Importance Category	=	IV Standard occupancy structures
Structure Importance Coefficient,	I =	1
Building Type	=	Concrete moment resisting frames
C_t	=	0.032561
Building Period	T =	0.63
Soil Type		S2
Site Coefficient	S =	1.2
Numerical Coefficient,	C =	2.0
Response Modification Coefficient	R =	8

Seismic design consideration in DEA report

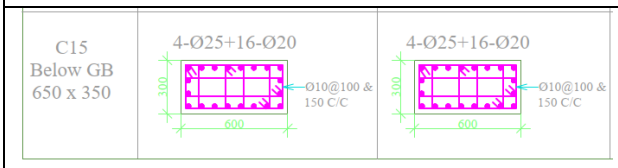


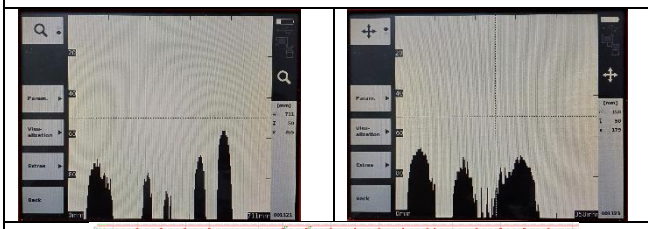
1st floor beam layout

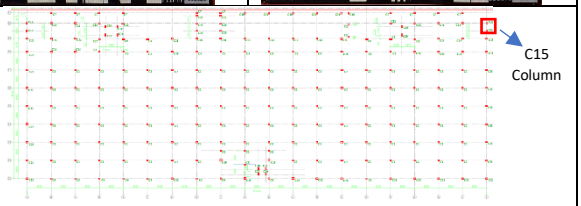
Steel beam column framing system

Description: A Detail Engineering Assessment (DEA) report was available for Building 1 where intermediate moment resisting frame (IMRF, R=8) was considered without any justification. In the analysis model, response modification coefficient for steel portion was not assigned. Also, connection adequacy of steel beam column was not provided in DEA report. The building engineer is required to revise the DEA report considering the actual framing system with proper justification and include all steel members and connection adequacy check in the design report and submit the revised DEA documents to the RSC for review.

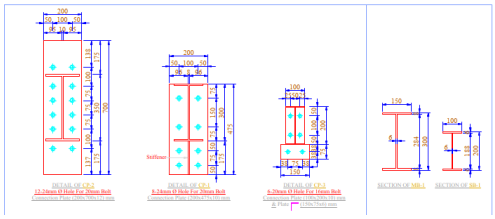
Observation 2: Mismatch in as-built drawing. (Building 1)







C15 column schedule and ferro scan report



Connection details

Description: During inspection, a few mismatches were found between the as-built drawing and onsite condition. In C15 column 14 rebar found instead of 20. Also, as built drawing of steel part was found incomplete (few connections detail & steel column schedule was missing). The building engineer is required to survey the full structure and update the as-built drawing accordingly.

Observation 3: Exposed rebar on roof. (Building 1)

Description: During inspection, exposed rebar was observed on the roof. The factory is required to provide anti-corrosive coating on the exposed re-bars.

Observation 4: Possible falling hazard at stair. (Building 1)

Description: During inspection, a possible falling hazard was observed at the stair location. The factory is required to install guardrails on stairs to prevent possible falling hazard.

Observation 5: Design report needs to be reviewed against seismic load for Building 2 (Utility Building).

3.2 MATERIALS CONSIDERED IN DESIGN

3.2.1 CONCRETE:

Compressive Strength of Concrete, fc' = 3600 psi for Beam & Slab
fc' = 4000 psi for Column & Shear Wall
fc' = 3000 psi for Foundation

Description: A design report was provided for Building 2 considering BNBC 2020 where intermediate moment resisting frame (IMRF, R=5) and dual intermediate moment resisting frame was considered (Dual IMRF, R=6.5). The building engineer is required to confirm design material strength and submit the design report to the RSC for detail review against lateral loads.

Observation 6: Design report need to be reviewed against seismic load for Building 3 (Dining Building).

DESIGN REPORT OF

PROPOSED 02 (TWO) STORIED DINING BUILDING OF TALISMAN LTD. AT PLOT NO. 170-176 AT DHAKA EPZ EXTENSION AREA, SAVAR, DHAKA.

DESIGN REPORT PREPARED BY:

ADVANCE ENGINEERING
HOUSE-34/1, ROAD-6,
DHANMONDI, DHAKA.

Following are the basic parameters assumed for seismic analysis of buildings
Zone Factor (Z) : 0.2 (Zone II, BNBC 2020)
Important Factor (I): 1.0
Response Modification Coefficient (X Direction): 5 (IMRF)
Response Modification Coefficient (Y Direction): 6.5 (DUAL: IMRF)

Results have been scaled to have a minimum base shear as per formula
V= Sa * W

Where, $S_a = \frac{2}{3}\frac{ZI}{R}C_t$ (Ref. BNBC 2020)

The time period of the buildings has been adopted based on the formula
$T = C_t(h_t)^n$ (Ref. BNBC 2020)

It may be mentioned here that IMRF detailing has been done and IMRF loading has been considered for conservative design approach.

3.2 MATERIALS CONSIDERED IN DESIGN

CONCRETE:

Compressive Strength of Concrete, fc' = 3500 psi

Description: A design report was provided for Building 3 considering BNBC 2020 where intermediate moment resisting frame (IMRF, R=5) and dual intermediate moment resisting frame was considered (Dual IMRF, R=6.5). The building engineer is required to confirm design material strength and submit the design report to the RSC for detail review against lateral loads.

4. Action Plan:

Item No.	Observation	Action Plan	Timeline
1	In consistency in seismic design consideration of Building 1 (Main Production Building).	The building engineer is required to revise the DEA report considering the actual framing system with proper justification and include all steel members and connection adequacy check in the design report. Submit the revised DEA documents to the RSC for review.	within 6 weeks
		Implement remediation work if required.	within 6 months
2	Mismatch in as built drawing. (Building 1- Main Production Building)	The building engineer is required to survey the full structure and update the as-built drawing of these structures.	within 6 weeks
3	Exposed rebar on roof. (Building 1- Main Production Building)	The factory is required to provide anti-corrosive coating on the exposed re-bars.	within 6 months
4	Possible falling hazard at stair. (Building 1- Main Production Building)	The factory is required to install guardrails on stairs to prevent falling hazard.	within 6 weeks
5	The design report needs to be reviewed against lateral loads for Building 2 (Utility Building).	The building engineer is required to confirm design material strength and submit the design report to the RSC for detail review against lateral loads.	within 6 weeks
		Implement remediation work if required.	within 6 months
6	The design report needs to be reviewed against lateral loads for Building 3 (Dining Building).	The building engineer is required to confirm design material strength and submit the design report to the RSC for detail review against lateral loads.	within 6 weeks
		Implement remediation work if required.	within 6 months