

Victoria Intimate Limited

Dakkhin Vangnahati, Boiragirchala, Sreepur Gazipur

(24.194246, 90.457199)

24th January 2022



Building information:

Production Building: Six storied (G+M+5) building with two mezzanine floors.

Admin Building: Seven storied (G+6) building.

Utility Building: Three storied (G+2) building.

Gate House 1: Single storied building.

Gate House 2: Single storied building.

Observations

Lateral load resisting system consideration in design

1.0 EXECUTIVE SUMMARY

SB Consultant Ltd. has engaged by HAMS GROUP to perform structural design of 7 (G+6) storied production building at Sreepur, Gazipur, Dhaka, Bangladesh. The main purpose of this analysis and design is to determine, whether the building will sufficient capacity to support the anticipated vertical and lateral loads as per BNBC-2006. The major descriptions about this building are listed below.

- The anticipated vertical and lateral loads are considered as per BNBC-2006. The basic structural system of this building is considered **DUAL SYSTEM.**
- According to soil test report, we are considered pile foundation. Pile type is pre-cast. All columns are supported by pile foundation. Provided pile size, length and pile cap depth, reinforcements are adequate to resist vertical and lateral loads.
- All columns have sufficient size and reinforcements to carry the vertical and lateral loads.
- All grade and floor beams are adequate in size and reinforcements to carry the flexure and shear forces.
- Provided slab thickness and reinforcements are adequate to resist vertical floor loads.

The basic structural frame system of this building is considered as DUAL system (R=9). But as per section 8.2 of the design report, the lateral load is resisted by the column only. The participation of shear walls to resist the lateral loads are not mentioned in the report. However, the building engineer is required to perform necessary checks to confirm that the DUAL framing system is functioning for this building structure.

8.2 LATERAL LOADS RESISTANCE SYSTEM

For the wind and seismic load, the sway resistance is provided by column.

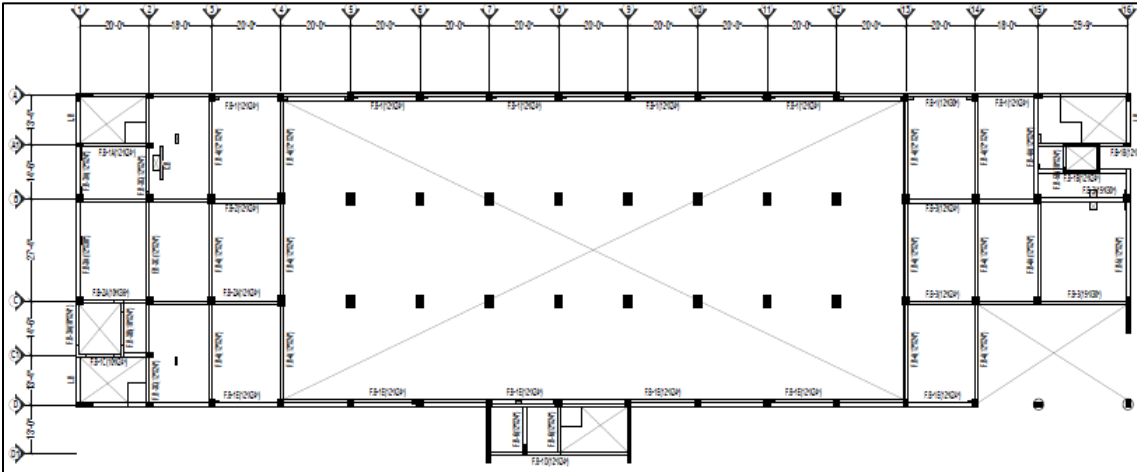
8.3 ANALYSIS PROCEDURE

Static Analysis procedure has been performed as there is no plan or elevation irregularity exist and as the proposed structure is regular and belongs to seismic Zone-II, equivalent static analysis is adequate to obtain design seismic forces as per section 2.5.5.1 of BNBC-2006

Where the seismic design parameters are set forth below.

Parameter	Category	Value
Seismic Zone coefficient, Z	Zone II	0.15
Structure Importance coefficient, I	Importance Class II	1.0
Response reduction factor, R	Dual system	9
Numerical coefficient, C	As per code prescribed	Section 2.5.6

Seismic parameters



Mezzanine floor level: have no slab in the middle portion and corner of the building. More than 50% diaphragm discontinuity.

All structural irregularities check have not provided in the design report. The building has diaphragm discontinuity, but structural analysis has not been performed considering this issue. However, the factory is required to check all irregularities and revise the design report accordingly.

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**No design documents available for
steel mezzanine floor**

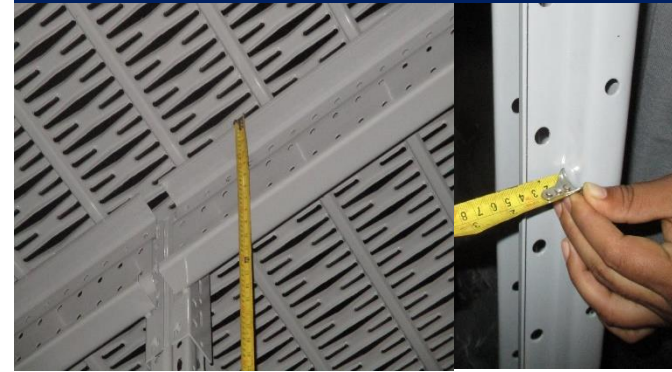


Column directly connected to ground slab; No foundation



Bracing in rack frame

Chequered plate, beam and column



As per BNBC, every building 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, material specifications and a set of structural drawings.

During inspection, the steel mezzanine floor was being used for storage. The structure has no foundation isolated foundation. However, the factory engineer is required to survey the structure and prepare a set of design documents in compliance of BNBC.



Storage on mezzanine floor



Roof system of mezzanine floor

8 Observations: Production Building

Lateral load resisting system consideration in design

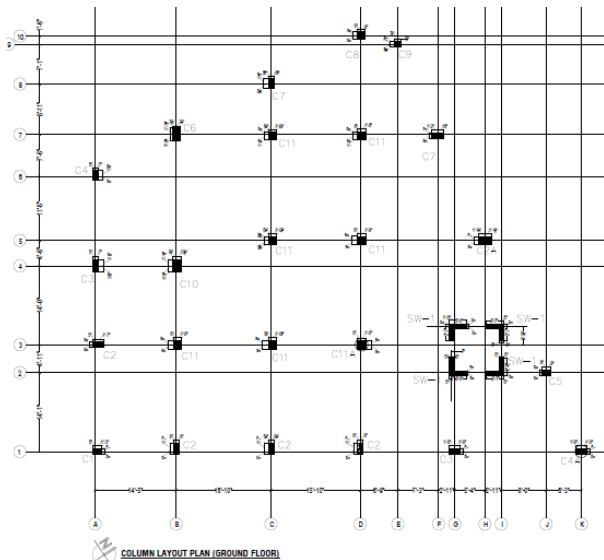
1.0 EXECUTIVE SUMMARY

SB Consultant Ltd. has engaged by HAMS GROUP to perform structural design of 7 (G+6) storied office building at Sreepur, Gazipur, Dhaka, Bangladesh. The main purpose of this analysis and design is to determine, whether the building will sufficient capacity to support the anticipated vertical and lateral loads as per BNBC-2006. The major descriptions about this building are listed below.

- The anticipated vertical and lateral loads are considered as per BNBC-2006. The basic structural system of this building is considered **DUAL SYSTEM.**
- According to soil test report, we are considered pile foundation. Pile type is pre-cast. All columns are supported by pile foundation. Provided pile size, length and pile cap depth, reinforcements are adequate to

DUAL system in the design report

The basic structural frame system of this building is considered as DUAL system (R=9). But in the super structure of the building there is no shear wall or bracing system. However, the building engineer is required to revise the design report considering actual framing system. Also, all irregularities checks are not added in the design report which needs to be incorporated.



Where the seismic design parameters are set forth below.

Parameter	Category	Value
Seismic Zone coefficient, Z	Zone II	0.15
Structure Importance coefficient, I	Importance Class II	1.0
Response reduction factor, R	Dual system	9
Numerical coefficient, C	As per code prescribed	Section 2.5.6
Total Seismic Weight, W		From FEM model
Site Coefficient	S3	

Seismic parameters from design report

Column layout: No shear wall or bracing in the building

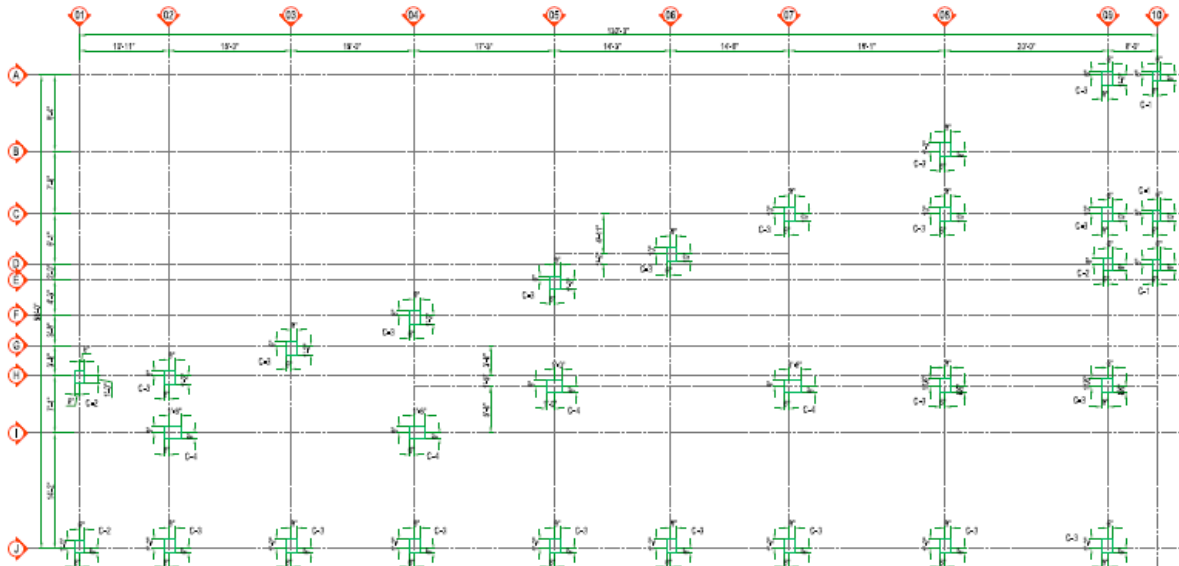
Design report to be revised

1.0 EXECUTIVE SUMMARY

SB Consultant Ltd. has engaged by HAMS GROUP to perform structural design of 3 (G+2) storied utility building at Sreepur, Gazipur, Dhaka, Bangladesh. The main purpose of this analysis and design is to determine, whether the building will sufficient capacity to support the anticipated vertical and lateral loads as per BNBC-2006. The major descriptions about this building are listed below.

- The anticipated vertical and lateral loads are considered as per BNBC-2006. The basic structural system of this building is considered **DUAL SYSTEM**.
- According to soil test report, we are considered pile foundation. Pile type is pre-cast. All columns are supported by pile foundation. Provided pile size, length and pile cap depth, reinforcements are adequate to resist vertical and lateral loads.

DUAL system in the design report



Column layout: No shear wall or bracing in the building

The basic structural frame system of this building is considered as DUAL system (R=9). But in the super structure of the building there is no shear wall or bracing system. However, the building engineer is required to revise the design report considering actual framing system. Also, all irregularities checks are not added in the design report which needs to be incorporated.

Where the seismic design parameters are set forth below.

Parameter	Category	Value
Seismic Zone coefficient, Z	Zone II	0.15
Structure Importance coefficient, I	Importance Class II	1.0
Response reduction factor, R	Dual system	9
Numerical coefficient, C	As per code prescribed	Section 2.5.6
Total Seismic Weight, W		From FEM model
Site Coefficient	S3	

Seismic parameter- design report

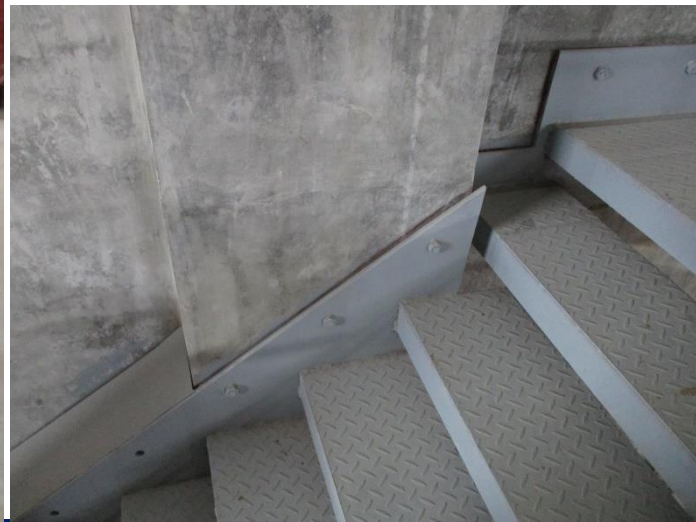
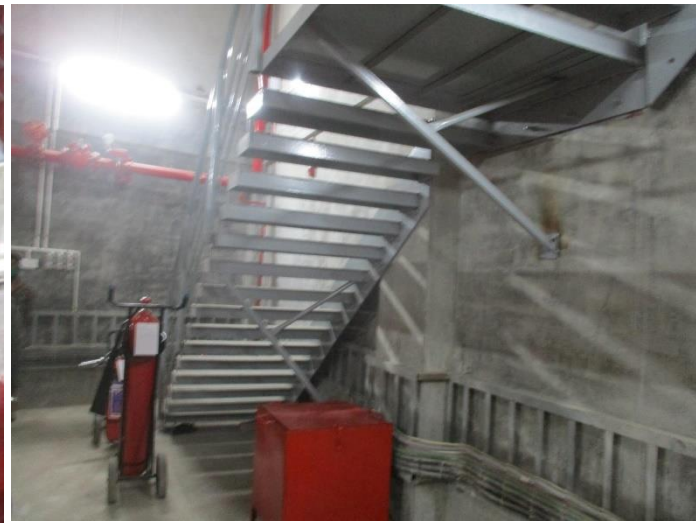


The long column of utility building

The column length is 7 m. The size of column is 375 mm x 500 mm. The building engineer to check the slenderness effect for the columns and incorporate the design in the report.

Apparently inadequate steel stair

Observation: Utility Building



Steel stair connected with the retaining wall of basement floor

The adequacy of the steel stair for design load is apparently inadequate. Building engineer is required to check the adequacy of the stair and suggest proper remedial actions accordingly.

Problems Observed

Production Building:

Item 01: Lateral load resisting system consideration in design

Item 02: No design documents available for steel mezzanine floor

Admin Building:

Item 03: Lateral load resisting system consideration in design

Utility Building:

Item 04: Design report to be revised

Item 05: Apparently inadequate steel stair

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Lateral load resisting system consideration in design. (Production Building)	The building engineer is required to check the lateral load resisting system and revise the design report in compliance of BNBC 1.9.1	6-weeks
02	Lateral load resisting system consideration in design. (Production Building)	Implement the remedial works where necessary.	6-months
03	No design documents available for steel mezzanine floor. (Production Building)	As part of Engineering Assessment (EA), the building engineer is required to survey the structure and prepare a set of design documents in compliance of BNBC.	6-weeks
04	No design documents available for steel mezzanine floor. (Production Building)	Produce and actively manage floor loading plan considering column, floor and ground bearing capacity.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	No design documents available for steel mezzanine floor. (Production Building)	Carry out remedial works where required.	6-months
06	No design documents available for steel mezzanine floor. (Production Building)	Implement final loading plan.	6-months
07	Lateral load resisting system consideration in design. (Admin Building)	The building engineer is required to check the lateral load resisting system and revise the design report in compliance of BNBC 1.9.1	6-weeks
08	Lateral load resisting system consideration in design. (Admin Building)	Implement the remedial works where necessary.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
09	Design report to be revised. (Utility Building)	The building engineer is required to revise the design report in compliance of BNBC 1.9.1.	6-weeks
10	Design report to be revised. (Utility Building)	Implement the remedial works where necessary.	6-months
11	Apparently inadequate steel stair. (Utility Building)	The building engineer is required to check the adequacy of the steel stair and suggest proper remedial actions accordingly.	6-weeks
12	Apparently inadequate steel stair. (Utility Building)	Carry out suggested remedial works where necessary.	6-months