

Joy Auto Garments Ltd.

B/274/1, Enayet Nagar Purbopara, Godnail, Siddirgonj, Narayanganj
(23.645665, 90.512449)

19th July 2022



Building Information

Building-1 (Production Building): (G+6)

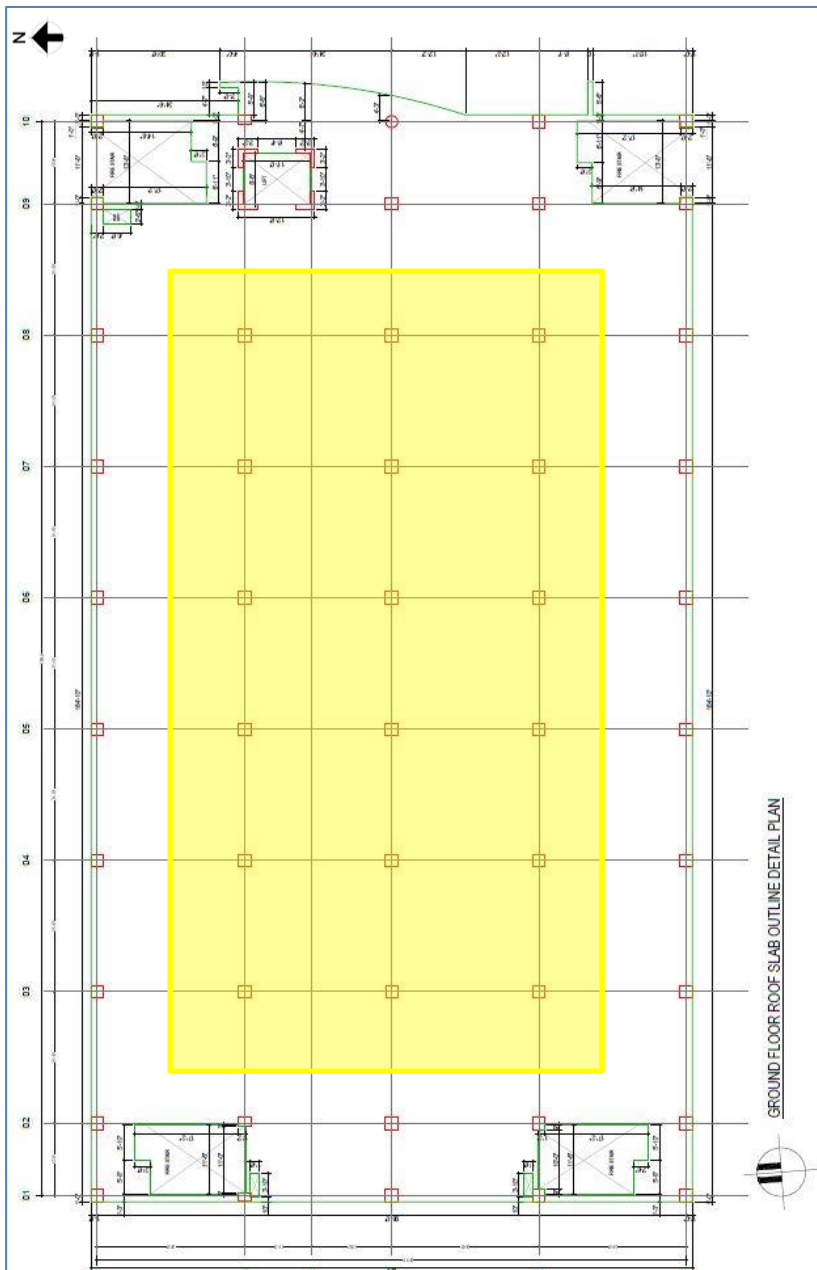
Building-2 (Utility Building): single storied

Building-3 (Fire Pump Room): single storied (B+G)

Building- 4 (Godown Shed): single-storied

Observations

Stress in column exceeds normal design limit



Stressed columns in layout (yellow marked)



Typical stressed columns

The cursory calculation indicates that some column's stress exceeds the normal design limit considering a typical floor live load 5kPa, roof live load of 1.5 kPa, and minimum concrete strength of 16.31 MPa. The building engineer is required to review the design, loads, and column stresses for the marked columns based on in-situ material strength.

Verify in-situ concrete stresses by 100 mm diameter cores from a minimum of 4 columns. Produce and actively manage a loading plan for all floors considering floor and column capacity.

Non-structural elements not anchored or braced

Some plastic tanks resting on the rooftop and racks on different floors are not adequately anchored or braced to resist lateral (earthquake) forces.

Adequately anchor and brace all non-structural elements (all buildings) to resist earthquake forces to comply with the BNBC.



Plastic water tank on roof



Rack on floor level

Columns & 1st floor Beams susceptible to vehicle impact

Observation: Building-1



Columns having no barrier/protection at ground floor



Beams are affected by the impact of vehicle

Ground floor columns and 1st floor beams of the loading un-loading area are susceptible to vehicle impact. The factory engineer is required to take necessary measures (by providing the barrier around the columns) to avoid possible vehicle impact.

Water ponding at roof



Water ponding at Roof

Water ponding was found on the roof slab due to inadequate slope. The factory is required to develop proper drainage system with adequate slope and water outlet on the roof.

Design report needs to be prepared



Utility Building

The utility building do not have any design document except structural drawing. 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. Factory engineer is required prepare the design documents including architectural drawing and design report based on FEA model in compliance with section 1.9.1 (part-6, BNBC).

Exposed column re-bar at roof



Exposed rebar of Column

Exposed reinforcement was found on roof top columns. Factory engineer is required to take necessary measures to prevent the corrosion of exposed rebar.

Design report needs to be prepared



Fire Pump Room

The utility building do not have any design document except structural drawing. 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. Factory engineer is required prepare the design documents including architectural drawing and design report based on FEA model in compliance with section 1.9.1 (part-6, BNBC).

Exposed column re-bar at roof



Exposed rebar of column

Exposed reinforcement was found on roof top columns. Factory engineer is required to take necessary measures to prevent the corrosion of exposed rebar.

Lack of lateral stability



Steel portal frame



No load transfer media and bracing

The steel roof portal frame is supported by steel column. There is no apparent load path to transfer the lateral loading along the long direction. The vertical & horizontal bracing was missing. Building Engineer is required to check the lateral stability system of the steel shed.

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 as built drawings & design report was not found. Now, the building engineer is required to prepare Engineering Assessment (EA) report for the structure in compliance with section 1.9.1 of part-6, BNBC.

Priority Actions

Problems Observed

Building-1 (Production Building):

Item-01: Stress in column exceeds normal design limit

Item-02: Non-structural elements not anchored or braced

Item-03: Columns & 1st floor Beams susceptible to vehicle impact

Item-04: Water ponding at roof

Building- 2 (Utility Building):

Item-05: Design report needs to be prepared

Item-06: Exposed column re-bar at roof

Building- 3 (Fire Pump Room):

Item-07: Design report needs to be prepared

Item-08: Exposed column re-bar at roof

Building-4 (Godown Shed):

Item-09: Lack of lateral stability

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Stress in column exceeds normal design limit (Building-1)	Factory Engineer to review design, loads and columns stresses in area identified above.	6-weeks
02	Stress in column exceeds normal design limit (Building-1)	Verify in-situ concrete stresses by 100mm dia. cores from minimum of 4 columns.	6-weeks
03	Stress in column exceeds normal design limit (Building-1)	Produce and actively manage a loading plan for all floor plates considering floor and column capacity.	6-weeks
04	Stress in column exceeds normal design limit (Building-1)	Carry out remedial works where required.	6-months
05	Stress in column exceeds normal design limit (Building-1)	Continue to implement floor loading plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Non-structural elements not anchored or braced (Building-1)	Adequately anchor and brace all non-structural elements to resist earthquake forces to comply with the BNBC.	6-weeks
07	Column susceptible to vehicle impact (Building- 1)	The factory engineer is required to take necessary measures to prevent the vehicle impact by providing barrier for column & beam.	6-months
08	Water ponding. (Building- 1)	The factory engineer to develop proper drainage system with adequate slope to resist water ponding on the roof.	6-months
09	Design report needs to be prepared (Building- 2)	Building engineer to prepare the design document including a design 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
10	Design report needs to be prepared (Building- 2)	Complete any remedial works arising from design report after reviewed by the RSC.	6-months
11	Corroded and exposed rebar at roof. (Building- 2)	All exposed reinforcement is to be protected from corrosion which may cause degradation of the concrete.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
12	Design report needs to be prepared (Building- 3)	Building engineer to prepare the design document including a design 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
13	Design report needs to be prepared (Building- 3)	Complete any remedial works arising from design report after reviewed by the RSC.	6-months
14	Corroded and exposed rebar at roof. (Building- 3)	All exposed reinforcement is to be protected from corrosion which may cause degradation of the concrete.	6-weeks
15	Lack of lateral stability (Building-4)	Building engineer to conduct Engineering Assessment (EA) to check the lateral stability of the structure and prepare design documents (report & drawings) in compliance with section 1.9.1, part-6 of BNBC.	6-weeks
16	Lack of lateral stability (Building-4)	Carryout suggested remedial works as per EA.	6-months