

Nemrac Design Ltd.

Plot: A-172, BSCIC I/A, Shanshongaon, Fatullah, Narayanganj.

(23.623221 N, 90.481546 E)

8th & 23rd December 2019





Observations

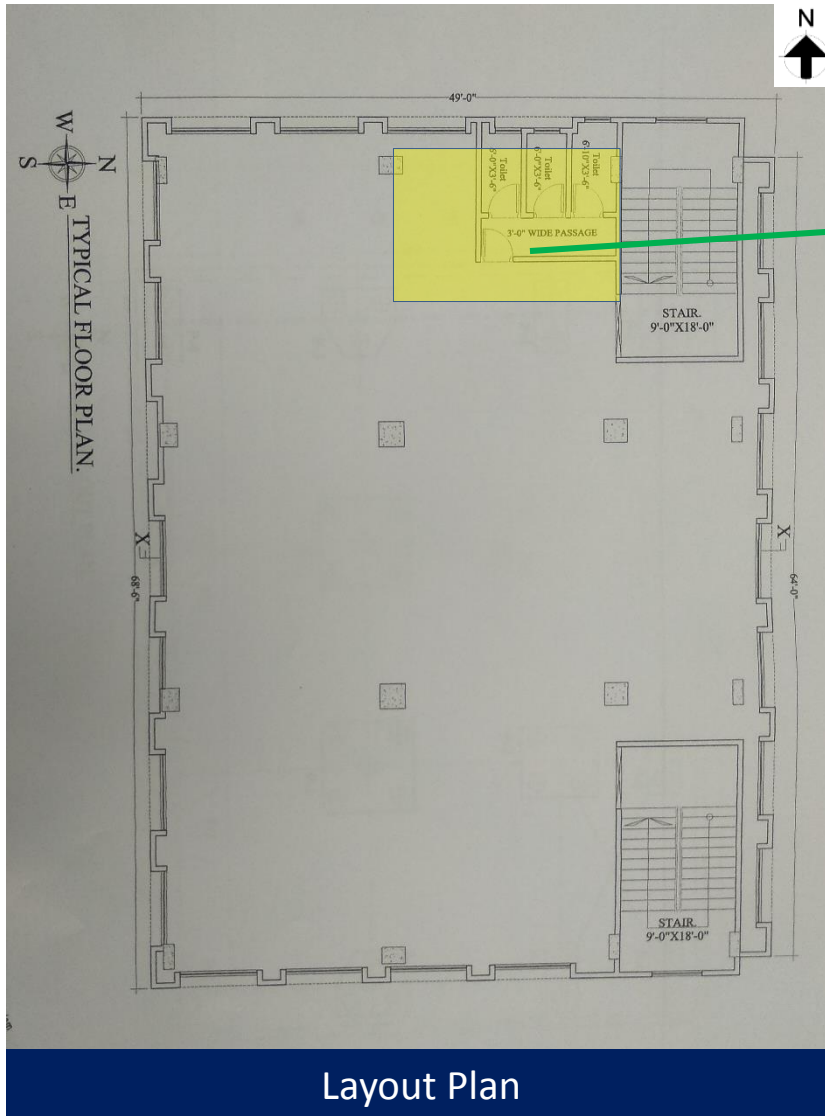


Column found to be stressed above normal design limits

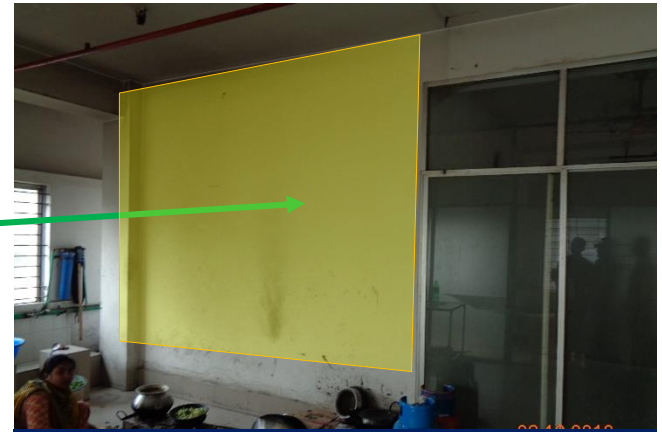
Observations: Building-1



Cursory calculations indicate that the working stress of the columns at Ground Floor level are above normal design limits.



Layout Plan



RC water tank at 7th floor

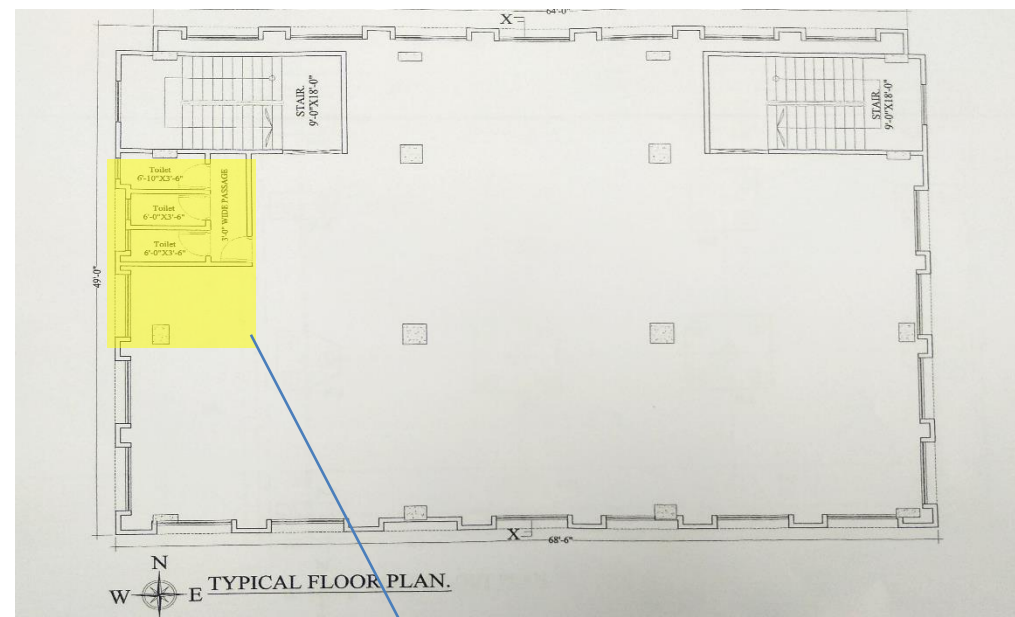
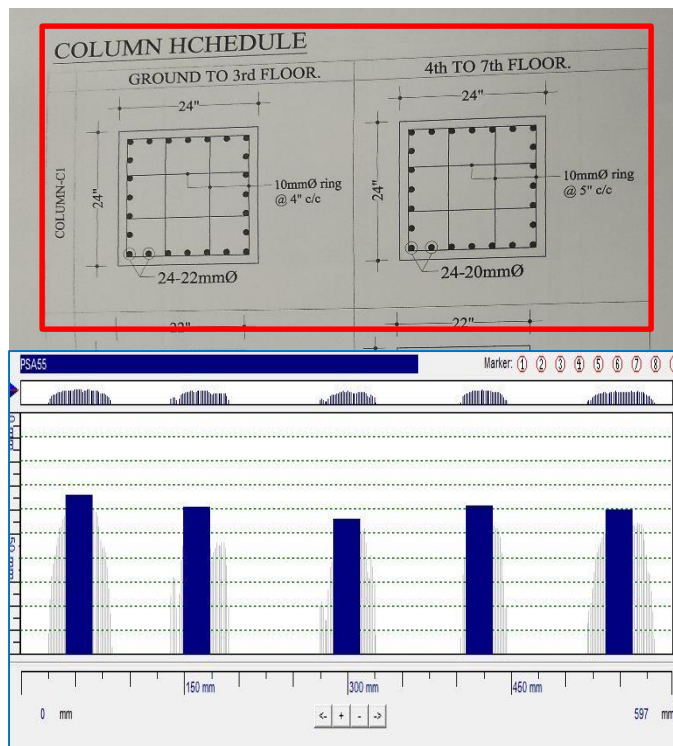


Toilet Build up



Discrepancies between provided drawings and on-site condition

Observations: Building-1



Number of rebar of C8 type column does not match with column schedule. 24 nos of rebar were shown in column schedule whereas 16 nos of rebar were found by ferro scanning. Moreover, architectural drawings did not fully match with as built condition.





Stacking of idle machine and wastage material at roof



Stacking of idle machine and wastage were found on roof at Building-1. Stacked materials need to be removed from roof.



Stacked wastage materials



Stacked idle machine

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Water damage at several locations



Dampness was observed on the beam, slab and peripheral wall. Water damage also observed on some of walls in the washroom zone.



Connection bridges between Building-1 and Building-2



Connecting bridges were found between building-1 and building-2 at level-6. The connection between two buildings is structural. Factory engineer is required to check the adequacy of the connection and prepare as-built drawings.



Connection with Building



Connection bridges at level-6



Undocumented retrofitting works and improper connection at beam column joint.

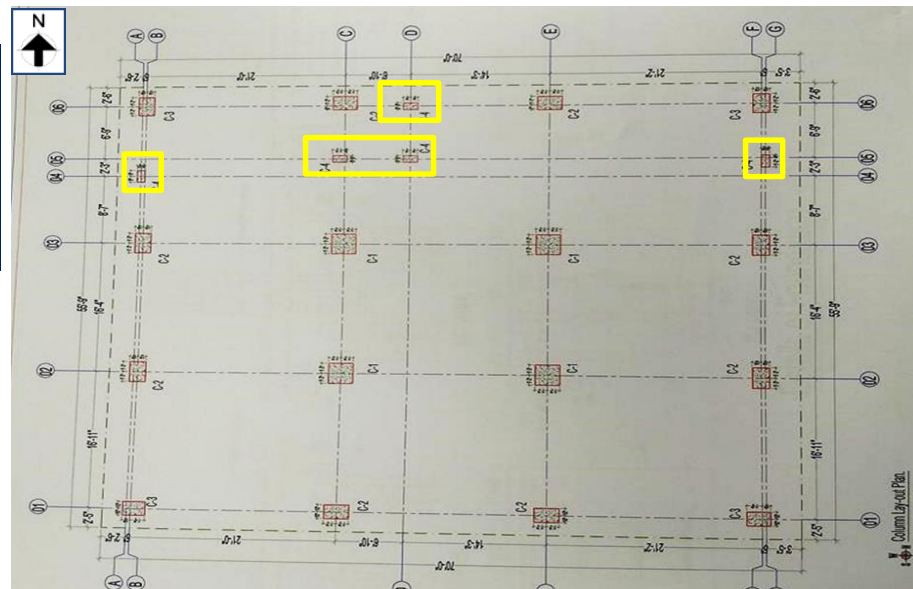


Factory has carried out retrofitting up to first floor of all columns. But no design drawings were available during inspection for retrofitting works.



Retrofitted column

Some new columns have been installed but the connection with existing beam up to 1st floor is not monolithic. Factory engineer is required to check the adequacy of the connection and suggest proper remedial measures.



New columns are marked as yellow on drawing



Improper connection with existing beam



Prepared load plan does not comply with BNBC

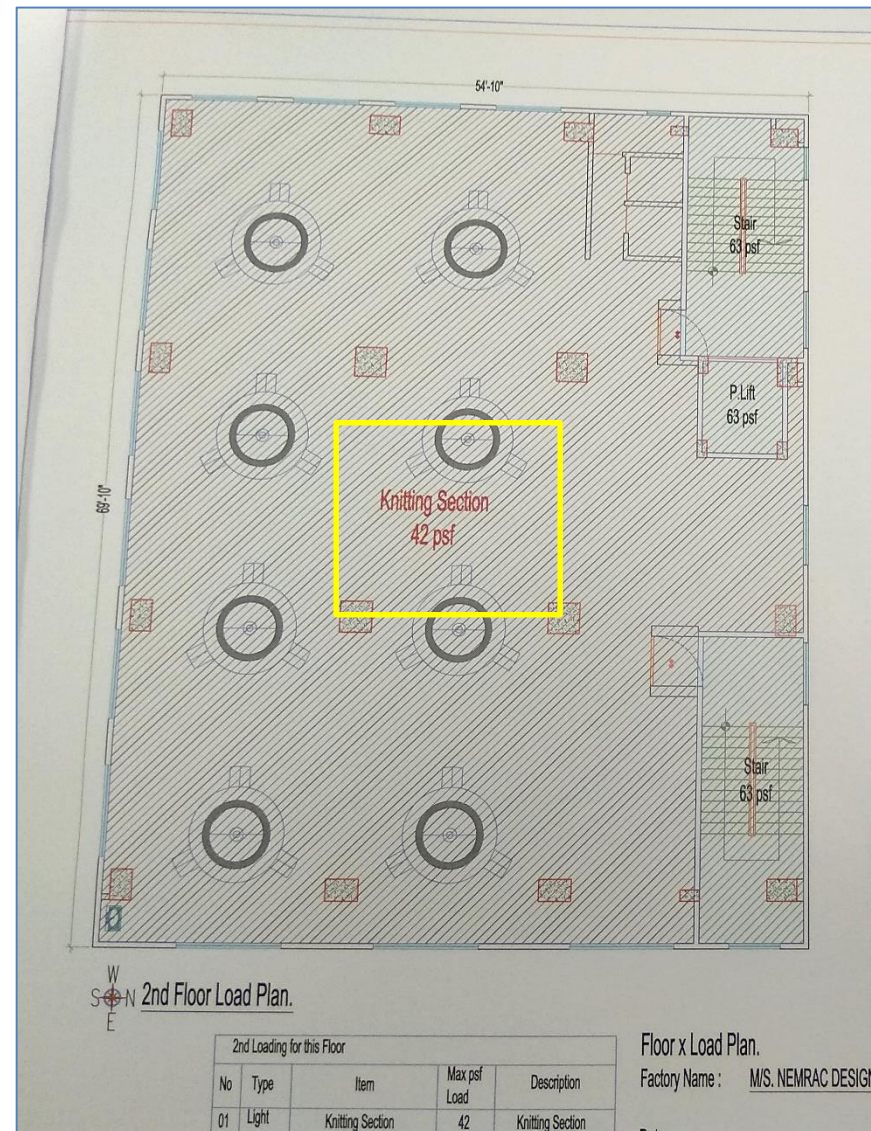


Prepared load plan does not comply with BNBC. Factory is required to revise the load plan that comply with the BNBC minimum requirement.

During inspection over loading wasn't found. Factor of Safety calculation for internal & external columns were found satisfactory considering 3kPa allowable floor live loading for the building.



Observed floor loading





Problems Observed

Building-1

- 01: Column found to be stressed above normal design limits.
- 02: Discrepancies between provided drawings and on-site condition.
- 03: Stacking of idle machine and wastage material at roof.
- 04: Water damage at several locations.
- 05: Connection bridges between Building-1 and Building-2.

Building-2

- 06: Undocumented retrofitting works and improper connection between beam column joint.
- 07: Prepared load plan does not comply with BNBC.



Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Column found to be stressed above normal design limits	Factory Engineer to review design, loads and columns stresses.	6-weeks
2	Column found to be stressed above normal design limits	Verify in-situ concrete stresses by 100mm dia. cores from min. 4 no. column from ground floor level.	6-weeks
3	Column found to be stressed above normal design limits	Produce and actively manage a loading plan for all floor plates considering floor capacity and column capacity.	6-weeks
4	Column found to be stressed above normal design limits	Make any structural alterations as advised by Building Engineer.	6-months
5	Column found to be stressed above normal design limits	Continue to implement loading plan.	6-months
6	Discrepancies between provided drawings and on-site condition	Building Engineer to survey the structure and prepare accurate as-built (both architectural & structural) drawings.	6-weeks



Item No.	Observation	Recommended Action Plan	Recommended Timeline
7	Stacking of idle machine and wastage material at roof	All kinds of stacked materials need to be removed.	6-weeks
8	Stacking of idle machine and wastage material at roof	Drainage system to be developed on roof.	6-months
9	Water damage at several locations	Investigate the cause of dampness on the beam, slab & wall and suggest suitable remedial method.	6-weeks
10	Water damage at several locations	Carry out required measures to remove dampness on beams, slab & walls as per recommendation of factory engineer.	6-months
11	Connection bridges between Building-1 and Building-2	Factory engineer is required to check the adequacy of the connection and prepare as-built drawings for the connecting bridge.	6-weeks



Item No.	Observation	Recommended Action Plan	Recommended Timeline
12	Undocumented retrofitting works and improper connection between beam column joint	Proper retrofitting drawings & design required to be prepared and submitted to Accord for further review.	6-weeks
13	Undocumented retrofitting works and improper connection between beam column joint	Factory engineer is required to check the adequacy of the connection and suggest proper remedial measures.	6-weeks
14	Undocumented retrofitting works and improper connection between beam column joint	Carry out remedial works if required.	6-months
15	Prepared load plan does not comply with BNBC	Implement floor load management program considering 3 kPa floor live load on typical floors.	6-weeks
16	Prepared load plan does not comply with BNBC	If the floor loading is considered more than 3 kPa on suspended floors an Engineering Assessment is required to be prepared to review the design of column and floor capacity.	6-weeks
17	Prepared load plan does not comply with BNBC	Continue to implement loading plan.	6-months