



PNG (BD) LTD

Korerhat, Shattaroa, Jorargonj, Mirsharai, Chittagong, Bangladesh

(22.941407N, 91.554947E)

9th January, 2018



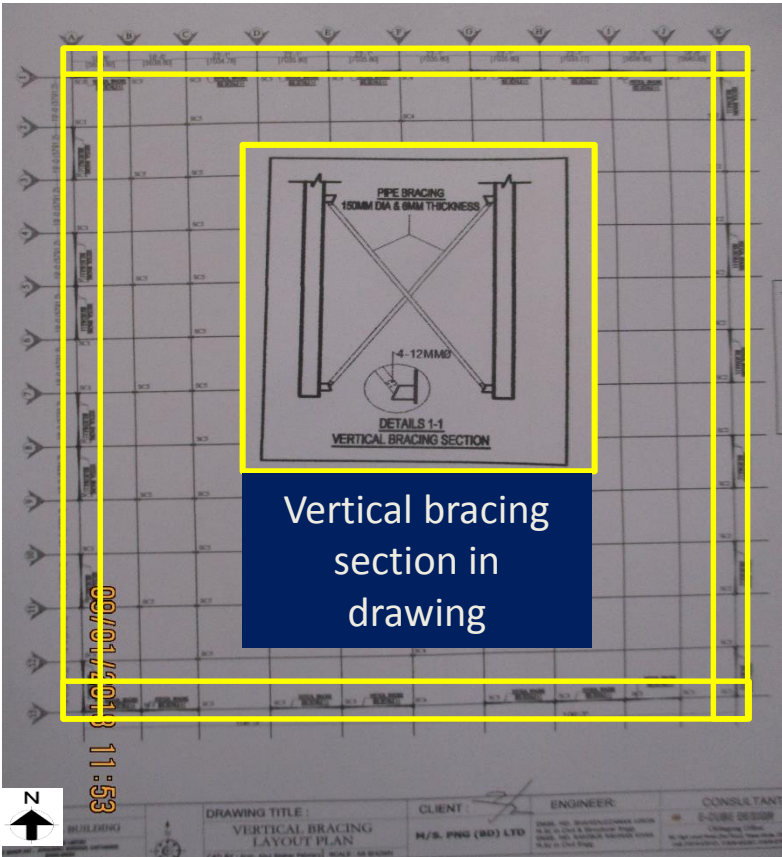


Observations



Lateral stability of Main Production shed

Observation: Shed#1 - Main Production Shed



Vertical bracing section in drawing

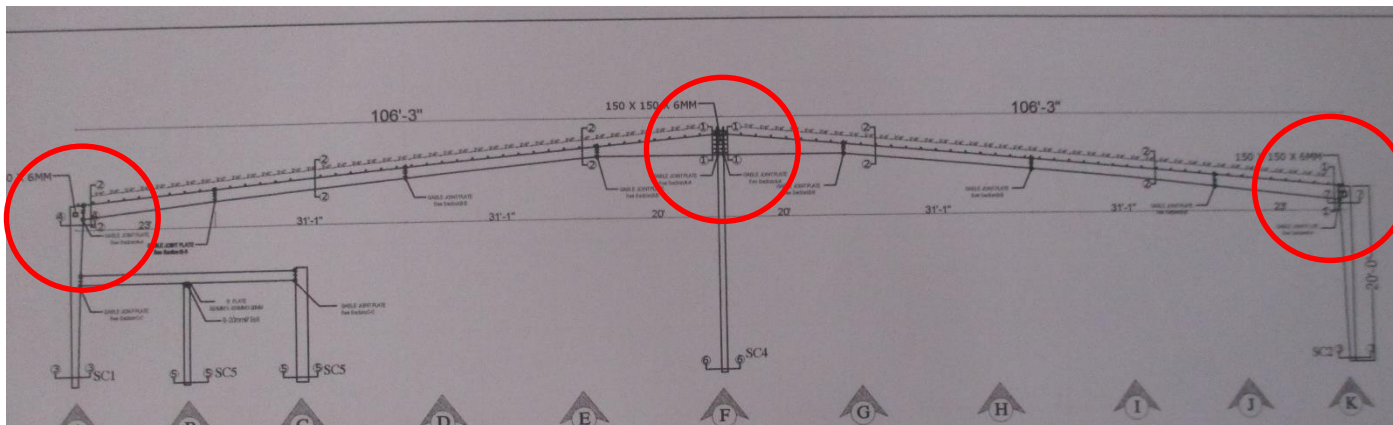
Vertical bracing layout

Vertical bracings have designed as stability system against lateral loading. On site no vertical bracings were installed.

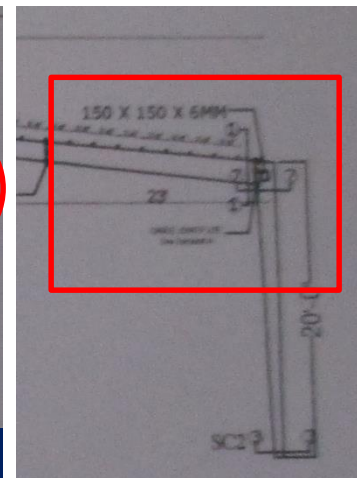


No vertical bracing on site

Observation: Shed#1 - Main Production Shed



Frame sectional drawing



Compression strut at Ridge and eave points



Missing strut member in eave level



Strut member in ridge level

Vertical bracings and struts members are part of lateral stability system. Vertical bracings and strut member at eave points were not installed as per drawing. Building engineer is required to check the lateral stability of the shed considering lateral forces as per BNBC provision.

Observation: Shed#1 - Main Production Shed



Significant gaps and missing bolts at several connections



Bolts missing in several location

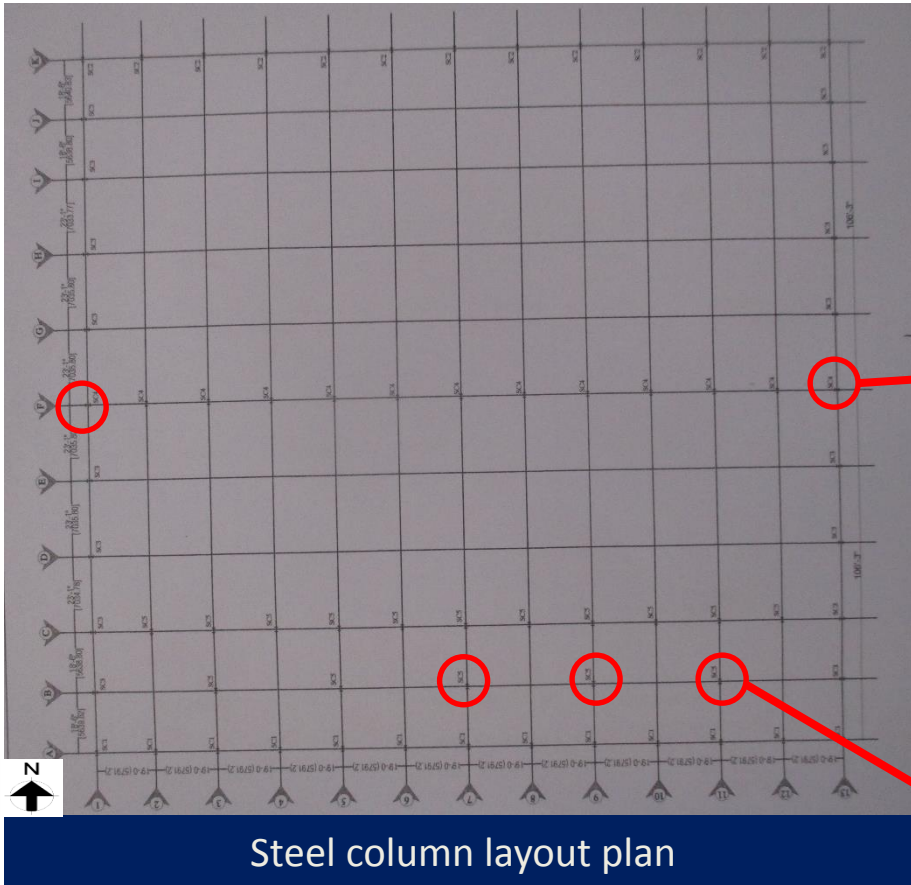


Existence of significant gap at connection

Significant gaps and bolts missing were observed in column rafter joint at several location. Building engineer is required to carry out suitable remedial works.

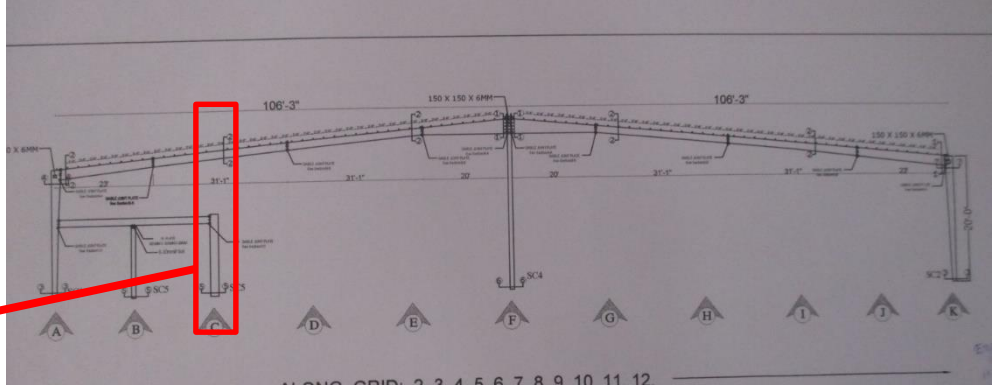


Discrepancies in as-built drawings

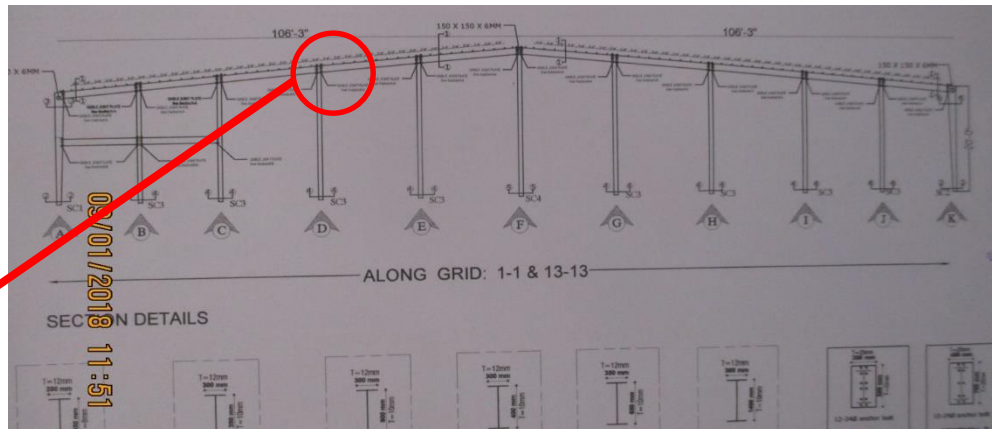




Column extended up to rafter with pin head not shown on drawing.



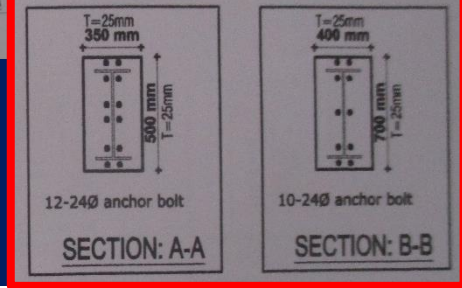
Section drawing



Connection of end frames are moment connection as per drawing. Onsite pin connection observed.



Change of connection type



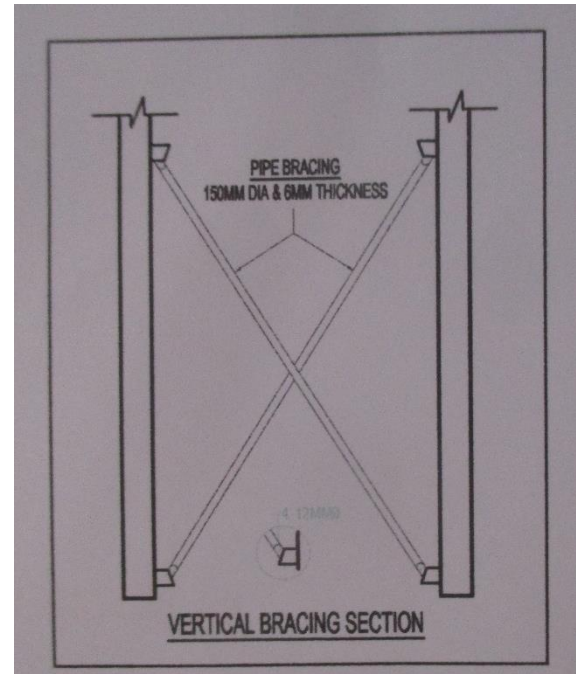
Observation: Shed#1 - Main Production Shed



Lateral stability of Finishing shed



Vertical bracing layout



Vertical bracing section



Vertical bracings have designed as stability system against lateral loading. On site no vertical bracings were installed.

Observation: Shed#2 – Finishing Shed



Significant gaps and missing bolts at several connections



Bolts missing in several location



Existence of significant gap at connection

Significant gaps and bolts missing were observed in column rafter joint at several location. Building engineer is required to carry out suitable remedial works.

Observation: Shed#2 – Finishing Shed



**No apparent lateral stability system of
canteen shed**



No bracing system was installed.

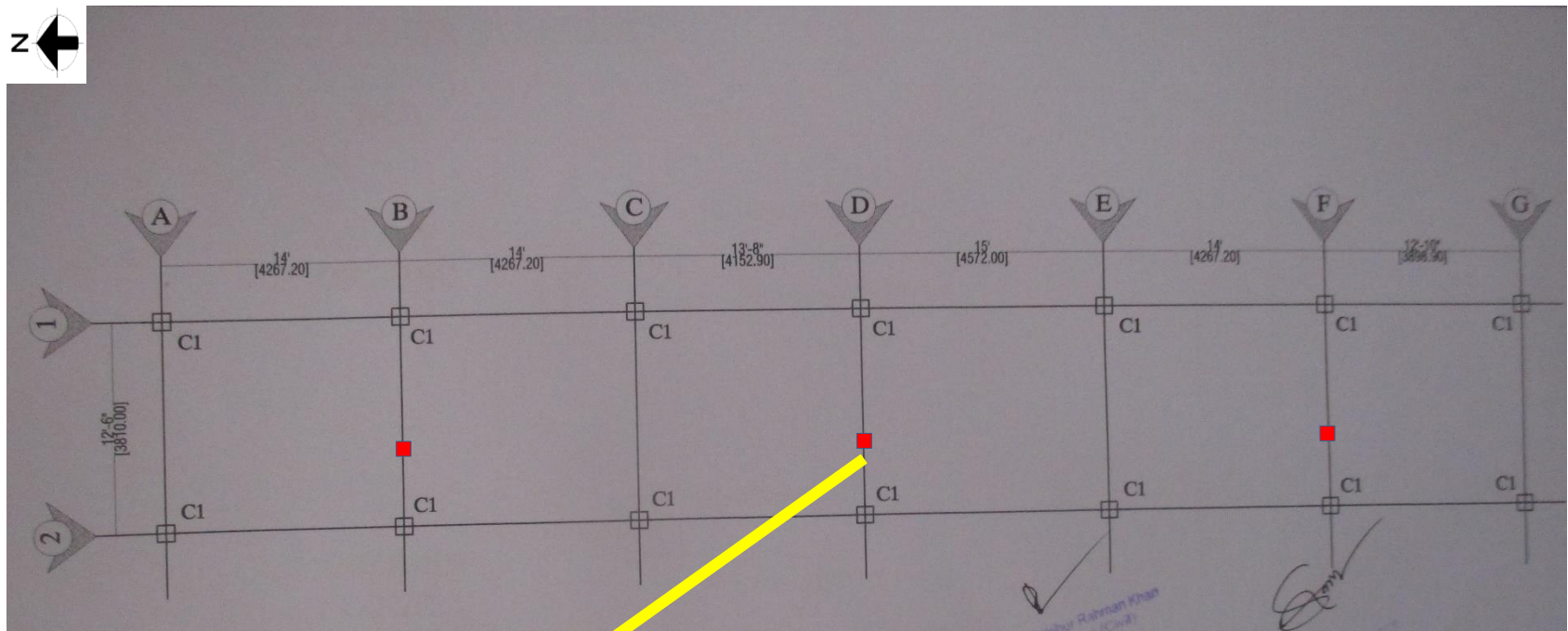
No structural drawings were available.

Apparently no lateral load resisting system was observed on canteen shed. Building engineer is required to check the lateral stability of this shed.

Observation: Shed#3 – Canteen Shed



Update as built drawings for all ancillary buildings



Column Layout



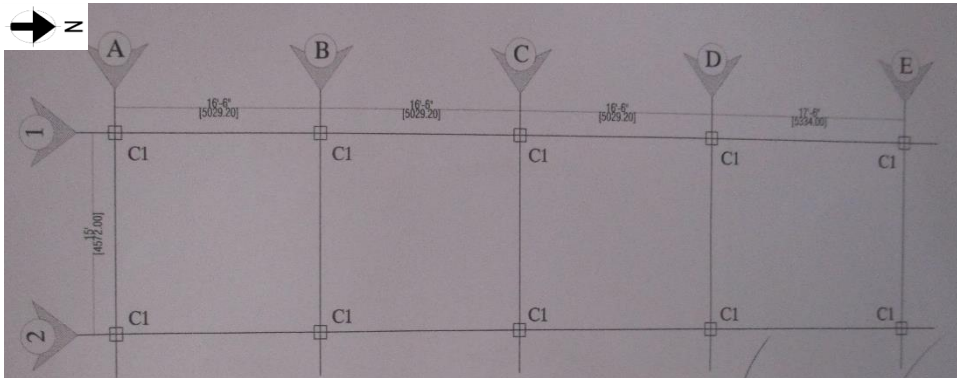
Extra Column

COLUMN SCHEDULE	
NO	C1
BELOW GROUND	
GROUND FLOOR	

Column Schedule

Column layout, number of rebar in column and grid dimension did not match with drawings. Red marked columns are not shown in drawings. 8 nos. of rebar were found in each column instead of 10. on drawings.

Observation : Sub-station Building



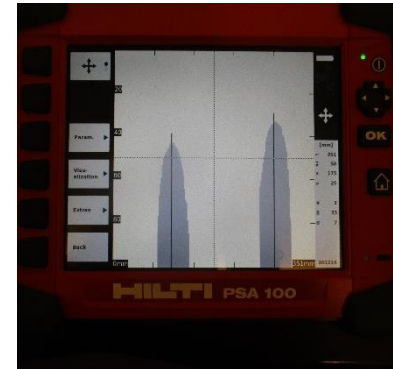
Column Layout

Nos of rebar in column and grid dimension did not match with provided drawings. 6 nos. of rebar were found by Ferro scanning in each column instead of 10.

Slab layout did not match with drawing. At west extended portions are not shown in drawing. Also, beam slab are shown in drawings whereas flat slab was found.

COLUMN SCHEDULE

NO	C1
BELOW GROUND	<p>10-16mm\varnothing ST 10mm\varnothing@5 1/4" C/C</p>
GROUND FLOOR	<p>10-16mm\varnothing ST 10mm\varnothing@5 1/4" C/C</p>



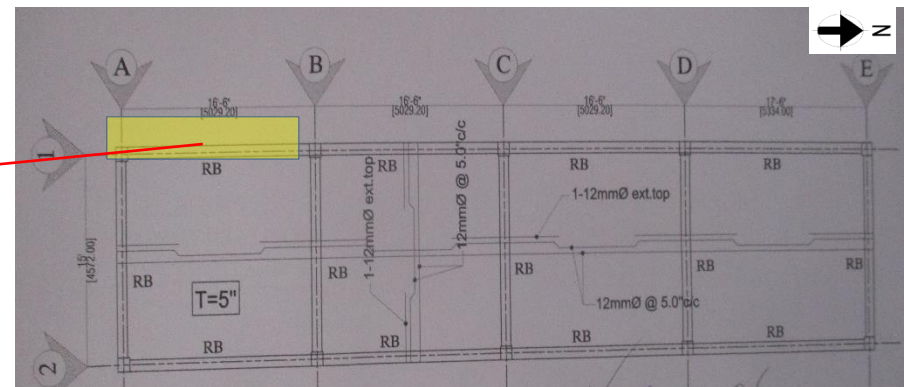
Scan result



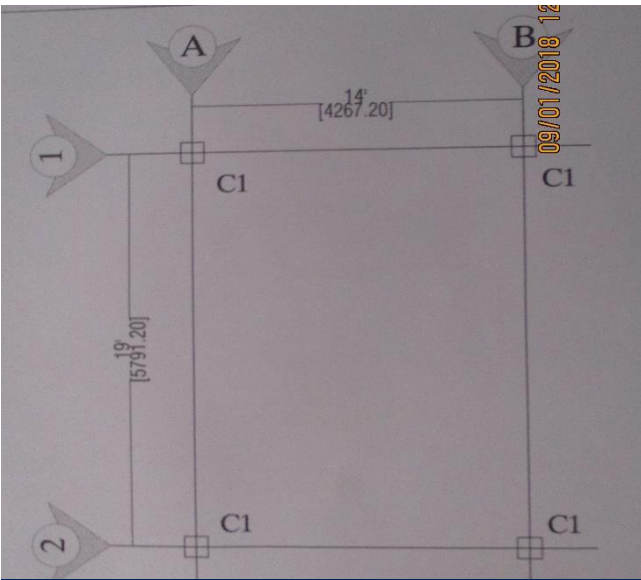
Flat slab



Extended slab



Slab Details with beam



Column Layout of Prayer Building



Orientation of column and grid dimension did not match with drawing. Also no over head RC water tank details were found.



Canteen shed adjacent to prayer building



Problem Observed

Shed#1 - Main Production Shed:

1. Lateral Stability of Main Production Shed.
2. Significant gaps and bolts missing in several connection.
3. Mismatched in as built drawings.

Shed#2 – Finishing Shed:

4. Lateral Stability of Finishing Shed.
5. Significant gaps and bolts missing in several connection.

Shed#3 – Canteen Shed:

6. No apparent lateral stability system.

Ancillary Buildings:

7. Update as built drawings for all ancillary buildings.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Lateral stability of Main Production Shed. (Shed#1 - Main Production Shed)	Factory engineer need to check stability system against lateral load and install bracing where required as per calculation.	6-weeks
2	Lateral stability of Main Production Shed. (Shed#1 - Main Production Shed)	Carry out remedial works where necessary.	6-months
3	Significant gaps and missing bolts at several connections. (Shed#1 - Main Production Shed)	Identify all the location and carryout suitable repair works where necessary.	6-weeks
4	Mismatched in as built drawings. (Shed#1 - Main Production Shed)	Building Engineer to survey as-built structure and prepare accurate as-built survey information with connection details for the building.	6-weeks
5	Lateral Stability of Finishing Shed. (Shed#2 – Finishing Shed)	Factory engineer need to check stability system against lateral load and install bracing where required as per calculation.	6-weeks
6	Lateral Stability of Finishing Shed. (Shed#2 – Finishing Shed)	Carry out remedial works where necessary.	6-months



Item No.	Observation	Recommended Action Plan	Recommended Timeline
7	Significant gaps and missing bolts at several connections. (Shed#2 – Finishing Shed)	Identify all the location and carryout suitable repair works where necessary.	6-weeks
8	No apparent lateral stability system. (Shed#3 – Canteen Shed)	Building engineer is required to check the lateral stability system against lateral loading.	6-weeks
9	No apparent lateral stability system. (Shed#3 – Canteen Shed)	Carry out remedial works where necessary.	6-months
10	Update as built drawings for all ancillary buildings. (All ancillary buildings)	Building Engineer to survey as-built structure and prepare accurate as-built survey information with connection details for the building.	6-weeks