

# Apex Yarn Dyeing Ltd.

Chandora, Shofipur, Kaliakoir, Gazipur

(24.042783, 90.260789)

18th October & 1st November 2021



# Building information

## Dyeing & Winding Shed:

The structure is partially three storied building. single storied steel shed and three storied RC building including a steel shed on the roof.

## Acid Shed:

The structure is a single storied steel shed supported by steel pipe.

## Generator & Substation Shed:

The structure has two parts. single storied steel trussed shed and single storied reinforced concrete (RC) structure.

## Pump Shed:

The structure is a single storied steel shed.

## Boiler Shed:

The structure is a single storied steel shed.

## Store Shed:

The structure is a single storied steel shed.

## RMS Room:

The structure is a single storied reinforced concrete (RC) building.

## Compressor Room:

The structure is a single storied reinforced concrete (RC) building.

# Observations

**Lack of lateral stability**



Winding portion



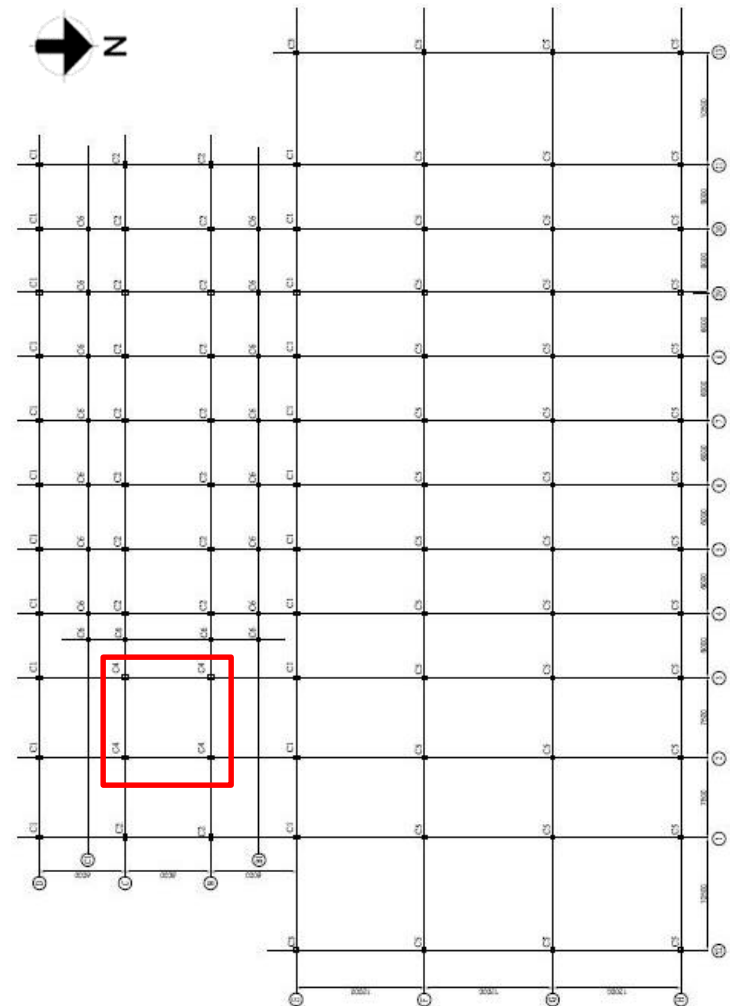
Dyeing portion

Roof bracing is not provided

Tie beam is provided along the long direction (periphery only). Some horizontal bracing are provided from truss to truss but roof bracing is not provided. Factory engineer is required to check the lateral stability system of the structure and review the design accordingly.

**Column appears to be slender**

**Observations: Dyeing & Winding Shed**



The column is 7.92m long with least dimension 390 mm which may be critical for slenderness effect. Factory engineer is required to check the adequacy of the highlighted columns considering slenderness effect.

## 7 Observations: Dyeing & Winding Shed

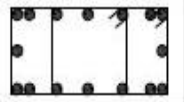
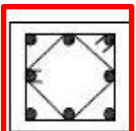
# Discrepancy in as-built drawing

**Observations: Dyeing & Winding Shed**



Ferro-scan shows 2-rebar along short face instead of 3-rebar (C-5)

## R.C.C. COLUMN SCHEDULE

COLUMN MARK	COLUMN SIZE		+0.00m Lev. to + 2.66m Lev.		
	Below +0.00 Level	ABOVE +0.00 Level	Vertical Rebar	Tie Spacing	Rebar Arrangement
C4	440 x 650	390 x 600	16 Nos-22 mm Ø	10mm Ø @ 250 c/c	
C5	350 x 430	300 x 380	8 Nos-22 mm Ø	10mm Ø @ 250 c/c	

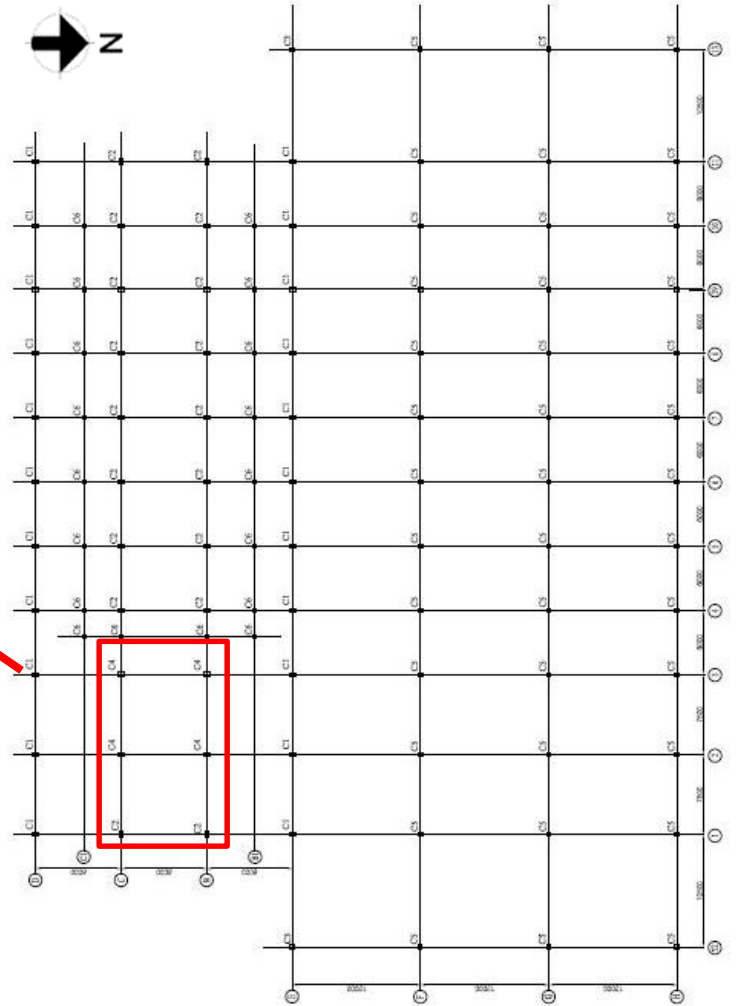
Column schedule

Number of rebar of column C-5 found 6 instead of 8. Factory engineer is required to survey the structure, update the structural drawing and check the column capacity accordingly.



Rectangular hole in the slab not shown in the drawing

A single storied isolated RC structure was found the highlighted area of Dyeing area which was not shown in drawing. Factory engineer is required to update the as built drawing showing this structure.



Undocumented isolated RC portion at highlighted area

## **Lack of lateral stability in steel stairs**



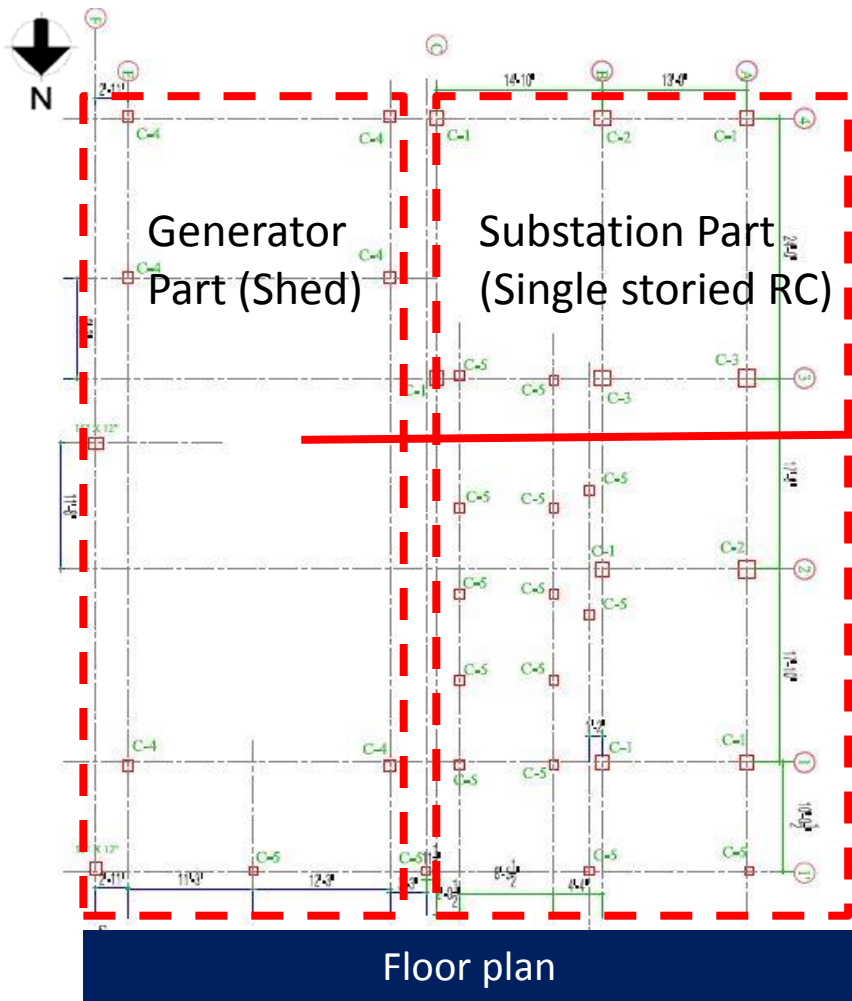
Steel stair at east side

Steel stair at west side

No bracing system is provided

Steel stair found at either side (East & West) of Dyeing & Winding Shed. No bracing system is provided to withstand the lateral load therefore there is no obvious stability system in those steel stairs. Factory engineer is required to check the lateral stability for both steel stair.

## **Lack of lateral stability**



Roof bracing is not provided (Generator part)

There is no bracing at roof. Factory engineer is required to check the lateral stability of the structure.

**Poor connection & out of plumb**



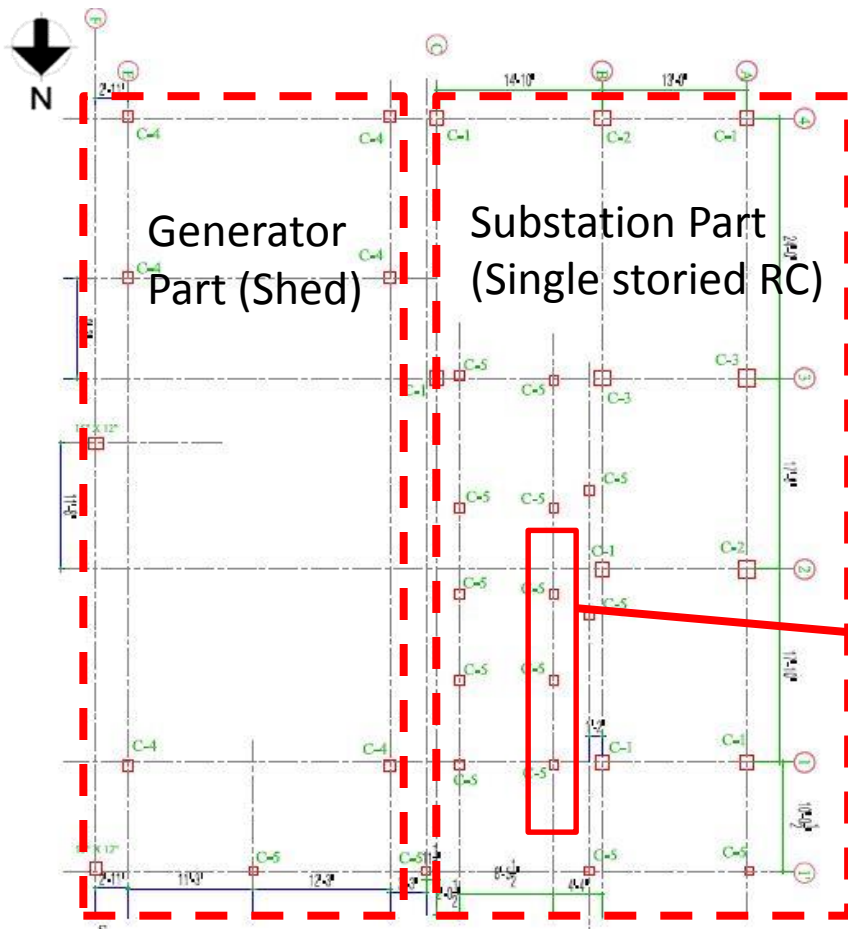
Truss found as out of plumb (Steel part)



Poor connection between truss and RC column (Steel part)

Truss was found out of plumb, and a poor connection was found between truss and RC column at Steel part. Factory is required to check the truss alignment, support condition and suggest proper remedial actions accordingly.

# Discrepancy in as-built drawing



Columns shown in layout



Columns not found on-site

Marked column were missing onsite but shown in drawing for RC part. Factory engineer is required to update the as-built drawings.

## Observation: Generator & Substation Shed

**Exposed rebar at roof level**



Exposed rebar at roof level (RC part)

Exposed reinforcement is left at roof level & staircase which was prone to corrosion. Factory is required to provide rust proof paint on exposed reinforcement to protect from corrosion.

# Lack of lateral stability



There is no bracing at roof level. Factory engineer is required to check the connections for uplift forces and lateral stability of roof truss. Suggest proper remedial suggestion if required.

**Truss bottom chord not uniform**



Bottom chord of truss is not uniform near support. Single angle bottom chord near support.

In some grid, double angled bottom cord discontinued before the support and continued as a single angle to the end. Factory engineer is required to check the truss system and review the design accordingly.



There is no bracing at roof level. Factory engineer is required to check the connections for uplift forces and lateral stability of roof truss. Suggest proper remedial suggestion if required.

## **Lack of lateral stability system**



No bracing system is provided

An undocumented canopy was found at west side of Store Shed which has no obvious lateral stability system. No compression member/bracing system is provided to withstand the lateral load therefore the canopy is appeared to be unstable. Factory engineer is required to check the lateral stability of the structure.

**Apparently non engineered shed**



No obvious stability system with poor connection

This shed was appeared to be non-engineered due to lack of obvious stability system with poor connections and undersized members. Factory engineer is required to check the lateral stability for this shed otherwise replace the shed with an engineered one.



This shed was appeared to be non-engineered due to lack of obvious stability system with poor connections. Factory engineer is required to check the lateral stability for this shed otherwise replace the shed with an engineered one.

# Problems Observed

## Dyeing & Winding Shed:

Item 01: Lack of lateral stability

Item 02: Column appears to be slender

Item 03: Discrepancy in as-built drawing

Item 04: Lack of lateral stability in steel stairs

## Generator & Substation Shed:

Item 05: Lack of lateral stability

Item 06: Poor connection & out of plumb

Item 07: Discrepancy in as-built drawing

Item 08: Exposed rebar at roof level

## Boiler Shed:

Item 09: Lack of lateral stability

## Store Shed:

Item 10: Truss bottom chord not uniform

Item 11: Lack of lateral stability system.

## Acid & Pump Shed:

Item 12: Apparently non engineered shed

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Lack of lateral stability. (Dyeing & Winding Shed)	Factory engineer is required to check the lateral stability of the structure.	6-weeks
02	Lack of lateral stability. (Dyeing & Winding Shed)	Implement remediation work if required.	6-months
03	Column appears to be slender. (Dyeing & Winding Shed)	Factory engineer is required to carryout adequacy check of the highlighted column considering slenderness effect.	6-weeks
04	Column appears to be slender. (Dyeing & Winding Shed)	Implement remediation work if required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
05	Discrepancy in as-built drawing. (Dyeing & Winding Shed)	Factory engineer is required to survey the structure and update the as-built drawings with structural details.	6-weeks
06	Lack of lateral stability in steel stairs. (Dyeing & Winding Shed)	Factory engineer is required to check the lateral stability for both steel stairs.	6-weeks
07	Lack of lateral stability in steel stairs. (Dyeing & Winding Shed)	Implement remediation work if required.	6-months
08	Lack of lateral stability. (Generator & Substation Shed)	Factory engineer is required to check the lateral stability of the structure (Steel Part).	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
09	Lack of lateral stability. (Generator & Substation Shed)	Implement remediation work if required.	6-months
10	Poor connection & out of plumb. (Generator & Substation Shed)	Factory engineer is required to check the truss alignment, support condition and suggest proper remedial actions accordingly (Steel Part).	6-weeks
11	Poor connection & out of plumb. (Generator & Substation Shed)	Implement remediation work if required.	6-months
12	Discrepancy in as-built drawing. (Generator & Substation Shed)	Factory engineer is required to survey the structure and update the as-built drawings with structural details (RC part).	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
13	Exposed rebar at roof level. (Generator & Substation Shed)	Factory is required to provide rust proof paint on exposed reinforcement to protect from corrosion (RC part).	6-weeks
14	Lack of lateral stability. (Boiler Shed)	Factory engineer is required to check the connections for uplift forces and lateral stability of roof truss.	6-weeks
15	Lack of lateral stability. (Boiler Shed)	Implement remediation work if required.	6-months
16	Truss bottom chord not uniform. (Store Shed)	Factory engineer is required to check the truss system and review the design accordingly.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
17	Truss bottom chord not uniform. (Store Shed)	Implement remediation work if required.	6-months
18	Lack of lateral stability system. (Store Shed- canopy)	Factory engineer is required to check the lateral stability of the structure.	6-weeks
19	Lack of lateral stability system. (Store Shed- canopy)	Implement remediation work if required.	6-months
20	Apparently non engineered shed. (Acid & Pump Shed)	Factory engineer is required to check the lateral stability of the sheds otherwise replace those with an engineered structure.	6-weeks