Topway Industries Limited

Plot no: 19-20, sector: 04, CEPZ, Chattogram, Bangladesh.
(22.283850, 91.775401)
27 September 2023

RSC RMG SUSTAINABILITY COUNCIL

Building Information

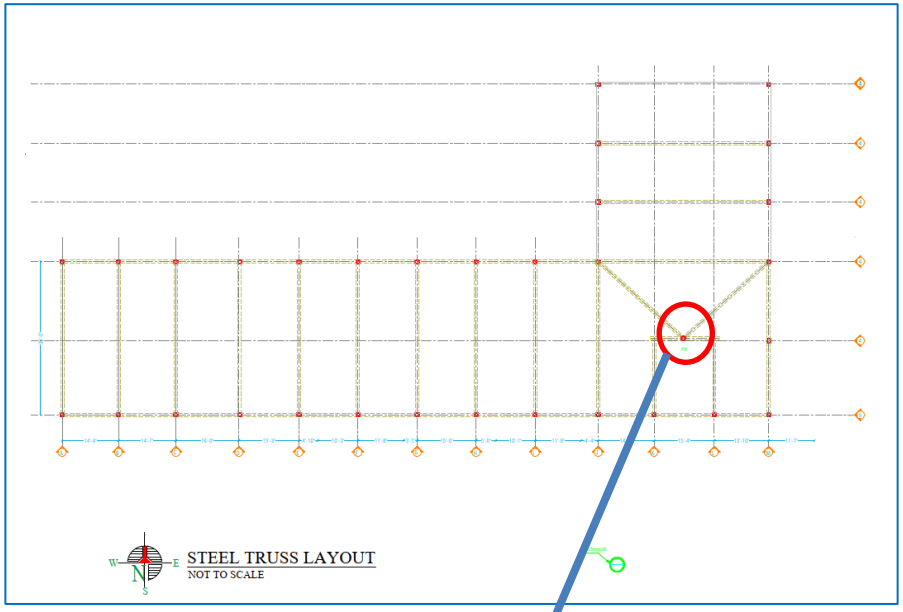
1. **B1: Production Shed-1:** Single storied shed building.
2. **B2: Production Shed-2:** Two storied (RC + Shed) building.
3. **B3: Warehouse Shed:** Single storied shed building.
4. **B4: Wastage Shed:** Single storied shed building.
5. **B5: Compressor & Boiler room:** Single storied RC building.
6. **B6: Sub-station room:** Single storied RC building.
7. **B7: Generator shed:** Single storied shed building.
8. **B8: Fire hydrant pump room:** Single storied shed building with a RC basement.
9. **B9: Chemical room:** Single storied RC building.
10. **B10: Security room:** Single storied RC building.
11. **B11: Childcare and doctor's room:** Single storied shed building.

Observations

Lack of lateral stability system

Observation: Production Shed-1

Typical truss frame without bracing



Load transfer media is not provided along long direction for this shed. Therefore, lateral stability system of the shed is apparently incomplete. The building engineer is required to check the stability system of the existing structure.

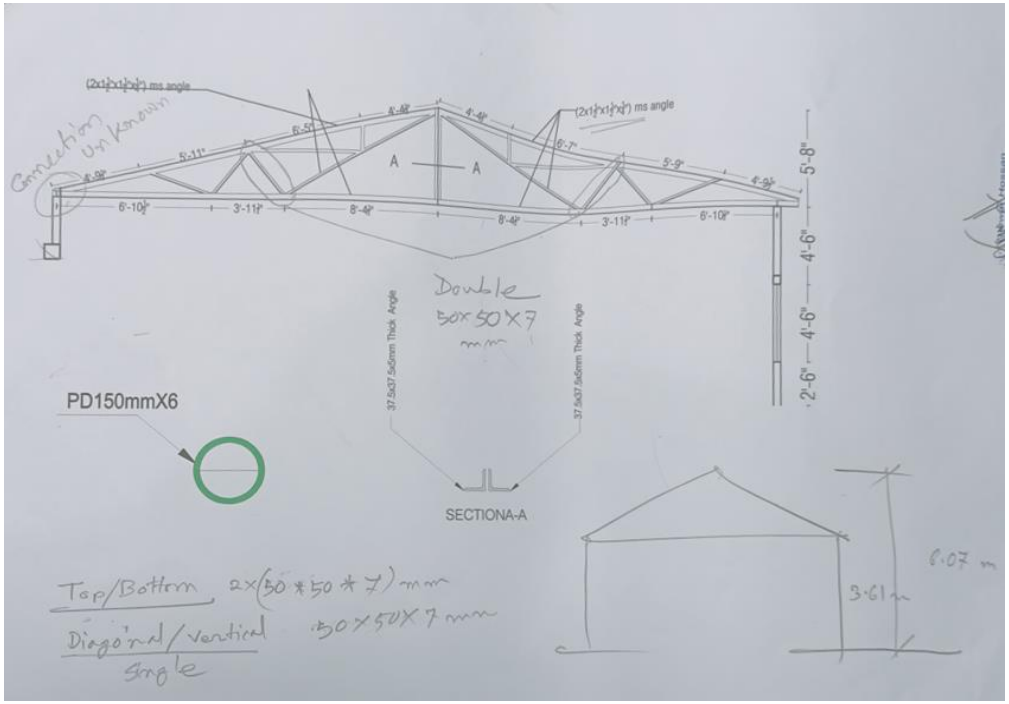
Truss junction on steel column

Observation: Production Shed-1

Paucity in as-built drawing

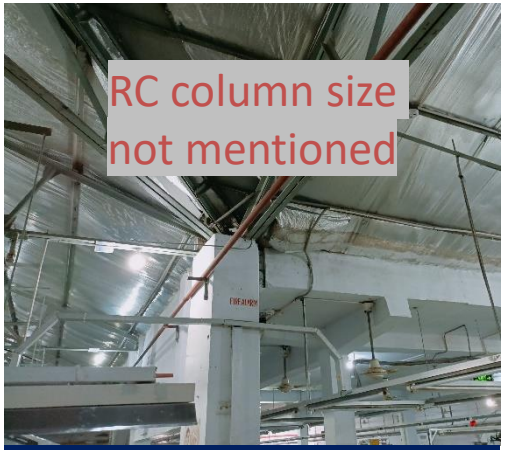
Observation: Production Shed-1

Truss on steel pipe column



Bottom & top member of truss was found 50 mm instead of 38mm. Also, RC column size, connection details and all section details were not found in the provided drawings.

Building engineer is required to revised the abovementioned information and incorporate the details in the as-built drawing.



Truss frame on RC column

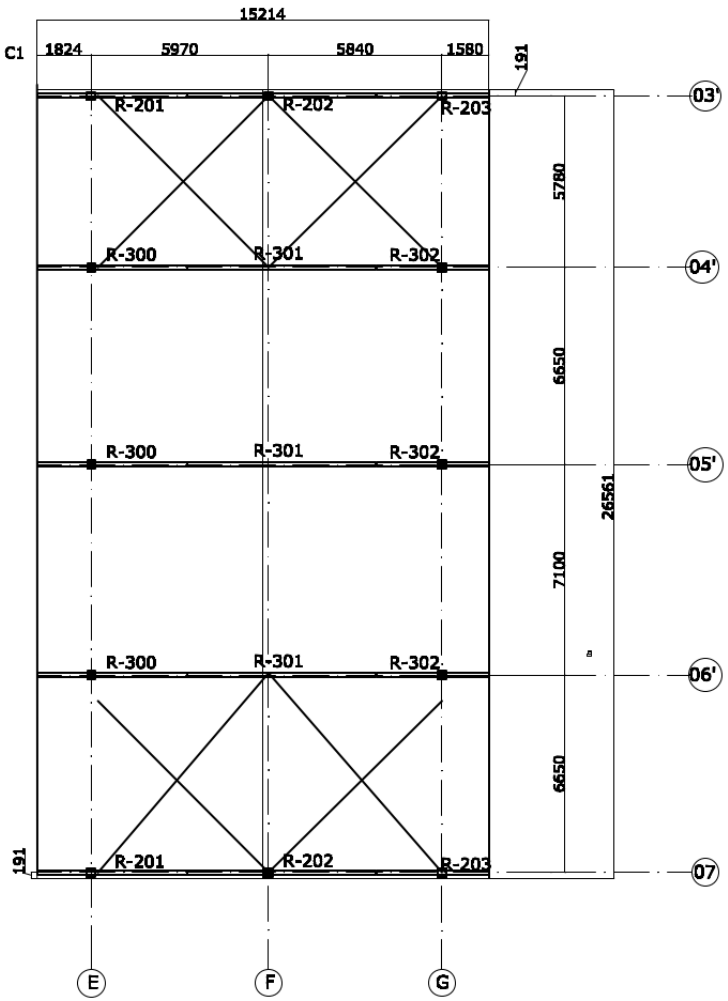
Bottom angle size 50 mm

Observation: Production Shed-1

Lateral stability system required review

Observation: Production Shed-2

No compression strut was found along the long direction. Also, bracings were found missing as per drawings. So lateral stability in the long direction is incomplete. The building engineer is required to check the stability system of the existing structure.

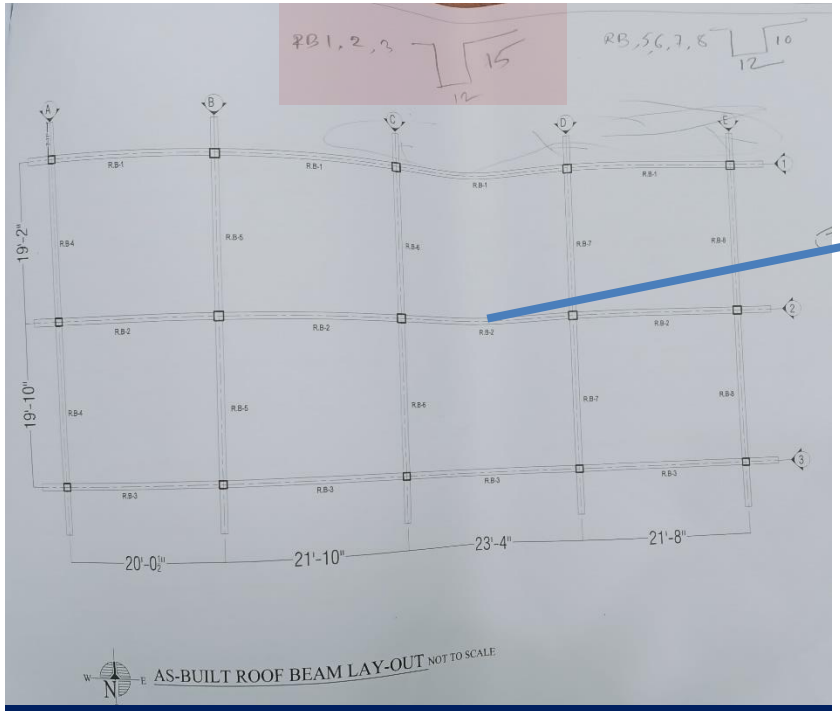


Bracing layout

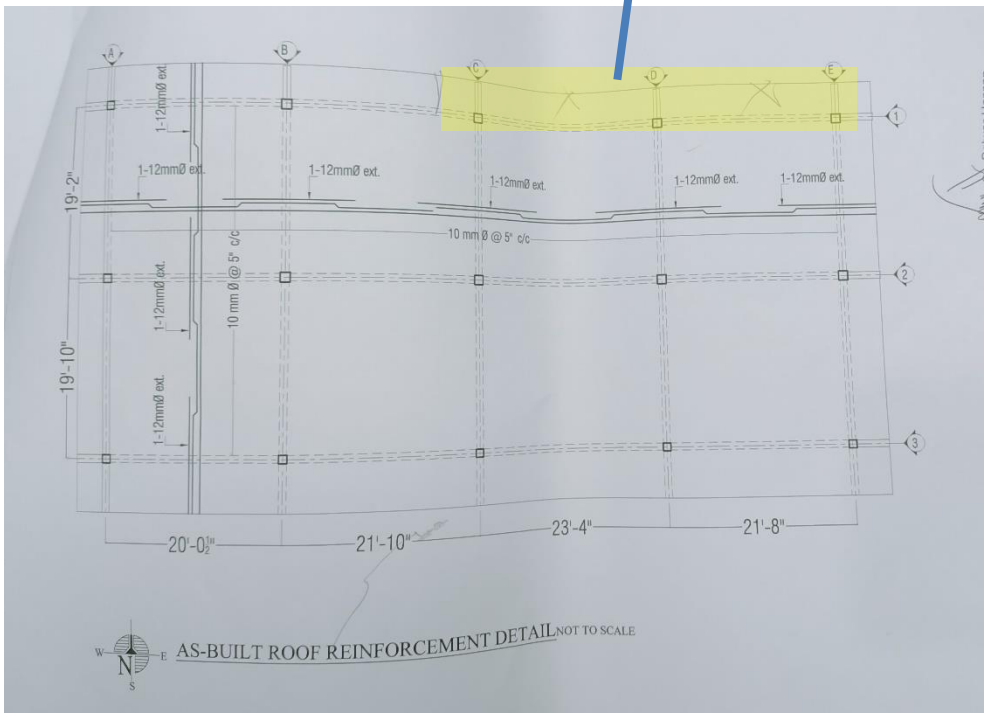
Observation: Production Shed-2

Discrepancies in as-built drawing

Observation: Production Shed-2



Beam Layout Plan



Longitudinal beam down stand was found 375 mm instead of 250 mm. Also slab and cantilever beam layout did match fully with as built condition. Building engineer is required to survey the structure and prepare accurate as-built drawings.

Observation: Production Shed-2 (RCC part)

Bolt missing

Observation: Production Shed-2

Bolt missing in rafter-column joint. Building engineer is required to install the missing bolts where necessary.

Bolt missing

Observation: Production Shed-2

Incomplete lateral stability system

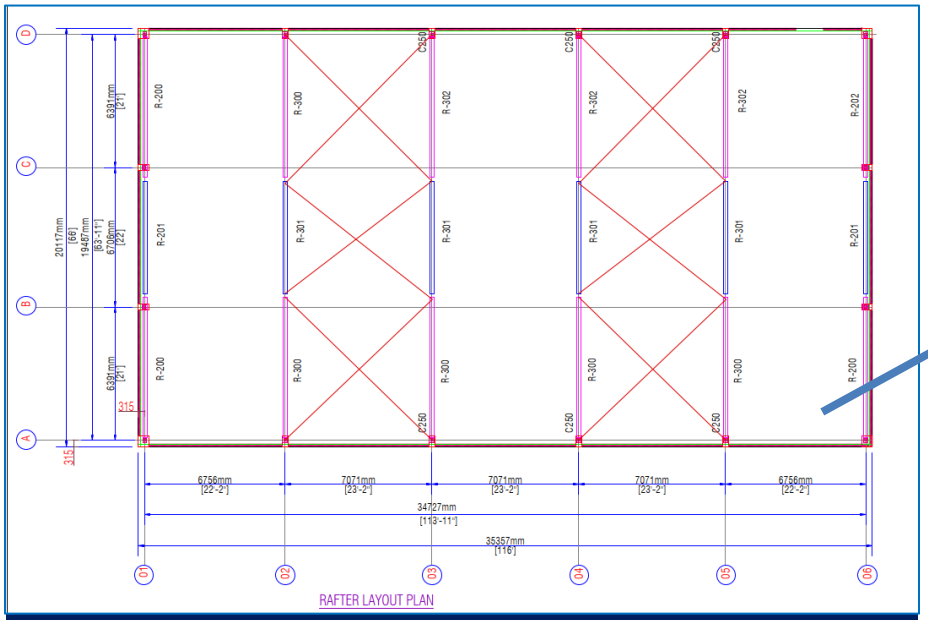
Observation: Production Shed-3

No compression strut was found along the long direction. Only cable bracings were found provided. So lateral stability in the long direction is incomplete. The building engineer is required to check the stability system of the existing structure.

Observation: Production Shed-3

Inconsistencies in as-built drawing

Observation: Production Shed-3



Bracing layout

On site bracing

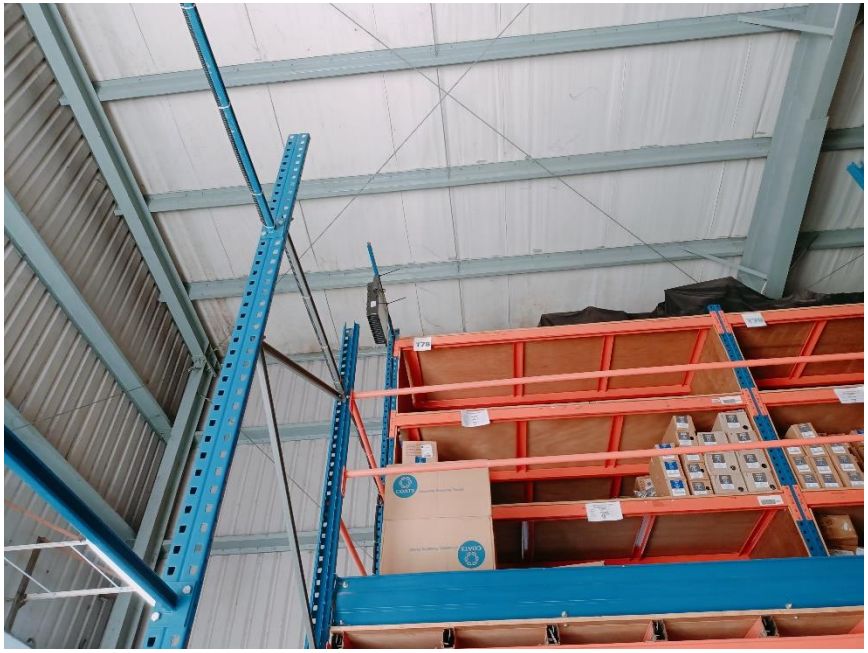
On site bracings were not matched with layout. Also, no drawing was available for the RC portion on ground floor.

RCC portion on ground floor

Observation: Production Shed-3

Racks not anchored or braced

Observation: Production Shed-3



Non-anchored storage rack at several floors

Some racks on floors are not anchored or braced to resist lateral (earthquake) forces. The factory is required to anchor/brace all non-structural elements adequately to resist earthquake forces.

Observation: Production Shed-3

Inconsistencies in as-built drawing

Observation: Ancillary structures

As-built drawings were not found for the Generator Shed, Chemical Room, Childcare room. The factory has provided a set of drawings which did not match fully with the structures. The building engineer is required to survey the whole structure and prepare a full set of as-built drawings in compliance with section 1.9, part 6 of BNBC.

Childcare Room

Generator Shed

Chemical Room

Observation: Childcare, Generator Shed, Chemical Room

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As-built structural drawings were not found for Compressor & Boiler Room, Security Room. Provided as-built drawings did not match with as-built condition. Brick columns were found instead of RC column on site. The building engineer is required to survey the whole structure and prepare a full set of as-built drawings in compliance with section 1.9.1.2, part 6 of BNBC.

Compressor & Boiler Room

Security Room

Observation: Boiler & Compressor, Security Room

Fire hydrant pump room

Wastage Shed

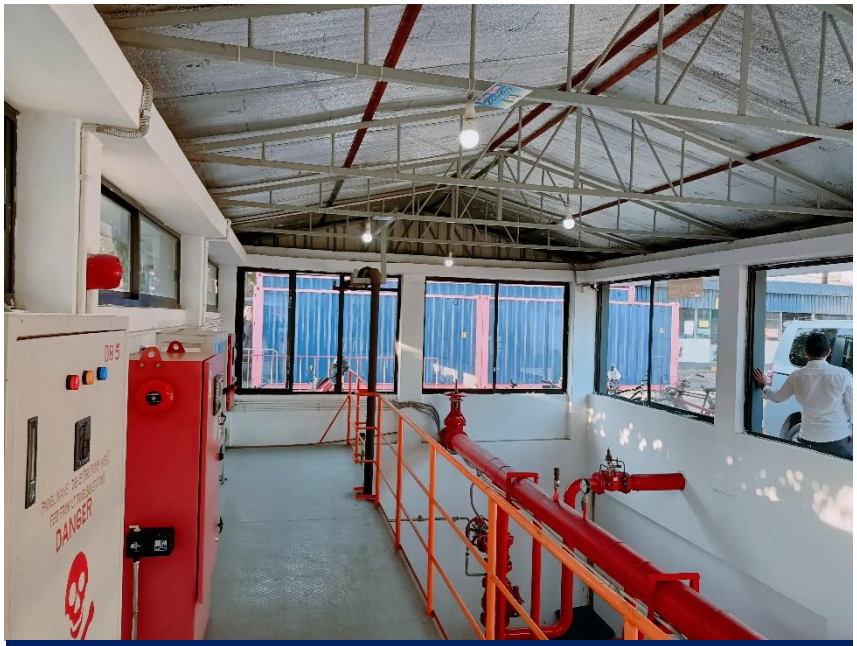
Full set of as-built structural drawings were not found for Fire hydrant pump room, Wastage Shed. Sectional details (truss & Rafter) were not found . Moreover, grid dimension and steel column size not match with as-built condition. The building engineer is required to survey the whole structure and prepare a full set of as-built drawings in compliance with section 1.9.1.2, part 6 of BNBC.

Observation: Fire Hydrant Pump Room, Wastage Shed

Apparently non-engineered connection/Shed

Observation: Ancillary structures

Truss and angle connected with the brick wall. No connection details were found in the drawings. The building engineer to checks the connection adequacy of the lightweight roof against the uplift pressure of the wind.



Fire Hydrant Pump Room

Childcare

Observation: Fire Hydrant Pump Room, Childcare

Apparently inadequate connections were observed at the lightweight roof of the single storied Sheds. The building engineer to check the connection adequacy of the lightweight roof against the uplift pressure of wind and suggest suitable remedial method. Otherwise replace with an engineered shed.

Generator Shed

Wastage Shed

Observation: Generator Shed, Wastage Shed

Cracks on brick wall

Observation: Boiler & Compressor, Chemical Room

The buildings were made of brick pier. During the inspection, cracks found on the brick walls both Boiler & Compressor, Chemical Room. Building engineer is required to investigate and repair the with a suitable method.

Compressor & Boiler Room

Chemical Room

Observation: Boiler & Compressor, Chemical Room

Problems Observed

Production Shed-1:

Item-01: Lack of lateral stability system.
Item-02: Paucity in as-built drawing.

Production Shed-2:

Item-03: Lateral stability system required review.
Item-04: Discrepancies in as-built drawing.
Item-05: Bolt missing.

Production Shed-3:

Item-06: Incomplete lateral stability system.
Item-07: Mismatches in as-built drawing.
Item-08: Racks not anchored or braced.

Ancillary Structures:

Item-09: Inconsistencies in as-built drawing.
Item-10: Apparently non-engineered connection/sheds. (Fire Hydrant Pump Room, Childcare Room, Generator Shed, Wastage Shed)
Item 11: Cracks on bricks wall. (Boiler & Compressor, Chemical Room)

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Lack of lateral stability system. (Production Shed-1)	Building engineer is required to check the lateral stability of the structure.	6-weeks
02	Lack of lateral stability system. (Production Shed-1)	Implement remediation work if required.	6-months
03	Paucity in as built drawings. (Production Shed-1)	Building engineer is required to survey the structure and prepare accurate as-built drawings.	6-weeks
04	Lateral stability system required review. (Production Shed-2)	Building engineer is required to check the lateral stability of the structure.	6-weeks
05	Lateral stability system required review. (Production Shed-2)	Implement remediation work if required.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Discrepancies in as-built drawing. (Production Shed-2)	Building engineer is required to survey the structure and prepare accurate as-built drawings.	6-weeks
07	Bolt missing. (Production Shed-3)	Building engineer is required to install the missing bolts where necessary.	6-weeks
08	Incomplete lateral stability system. (Production Shed-3)	Building engineer is required to check the lateral stability of the structure.	6-weeks
09	Incomplete lateral stability system. (Production Shed-3)	Implement remediation work if required.	6-months
10	Mismatches in as-built drawing. (Production Shed-3)	Building engineer is required to prepare the as-built structural drawing in compliance with section 1.9.1.1 as per BNBC.	6-weeks
11	Racks not anchored or braced. (Production Shed-3)	Building is required to adequately anchor/brace all non-structural elements to resist earthquake forces to comply with the BNBC.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
12	Inconsistencies in as built drawings. (Ancillary Structures)	Building engineer is required to prepare a full set of structural drawings in compliance with section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	6-weeks
13	Apparently non-engineered connection. (Fire Hydrant Pump Room, Childcare Room, Generator Shed, Wastage Shed)	Building engineer is required to check the connection of the steel roof for the uplift pressure of wind.	6-weeks
14	Apparently non-engineered connection. (Fire Hydrant Pump Room, Childcare Room, Generator Shed, Wastage Shed)	Otherwise replace the sheds with an engineering one.	6-weeks
15	Apparently non-engineered connection. (Fire Hydrant Pump Room, Childcare Room, Generator Shed, Wastage Shed)	Complete implementation of remedial works if required.	6-months
16	Cracks on bricks wall. (Boiler & Compressor, Chemical Room)	Building engineer is required to investigate and repair the with a suitable method.	6-weeks