# UTAH Fashions Ltd. (Extension)

South Salna, Salna Bazar, Gazipur
(24.016138, 90.383299)
10th February 2021


RSC RMG SUSTAINABILITY COUNCIL

# Building Information

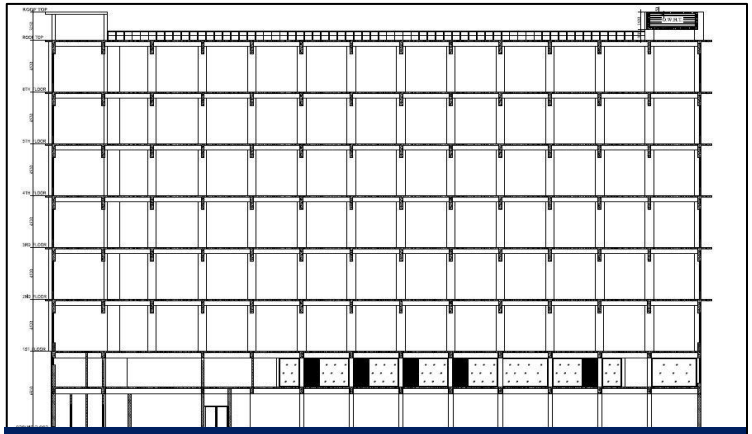
1. Building-2 (G+7)
2. Boiler building (Single storied)
3. Hanger Shed (Single storied)
4. Pump House (Single storied)
5. Diesel keeping area (Single storied)
6. ETP (Single storied)
7. ATM Booth (Single storied)

# Observations

**DEA documents need to be reviewed by RSC**

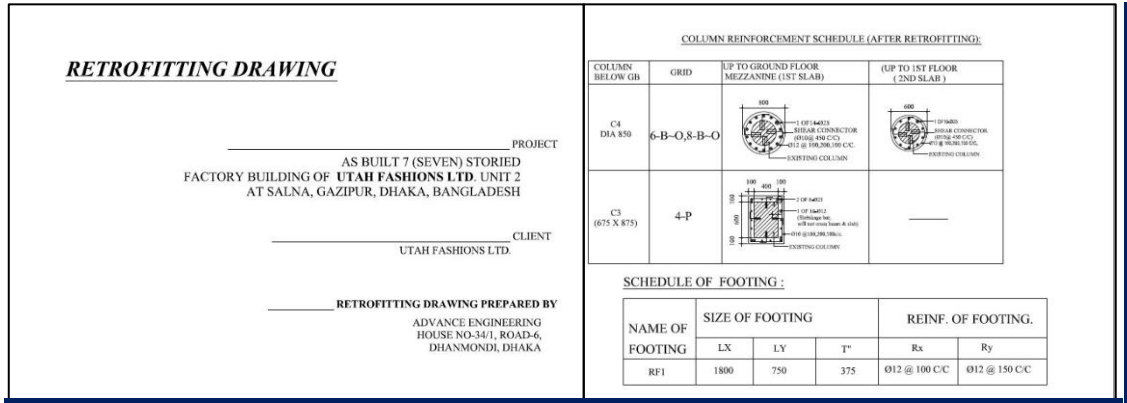


## Observation : Building-2



Sectional elevation for 8 storied Building

The building constructed up-to three storied and column re-bar was found extended at roof for the future vertical extension.



***RETROFITTING DRAWING***

PROJECT

AS BUILT 7 (SEVEN) STORIED
FACTORY BUILDING OF **UTAH FASHIONS LTD**. UNIT 2
AT SALNA, GAZIPUR, DHAKA, BANGLADESH

CLIENT

UTAH FASHIONS LTD.

RETROFITTING DRAWING PREPARED BY

ADVANCE ENGINEERING
HOUSE NO-34/1, ROAD-6,
DHANMONDI, DHAKA

COLUMN REINFORCEMENT SCHEDULE (AFTER RETROFITTING):

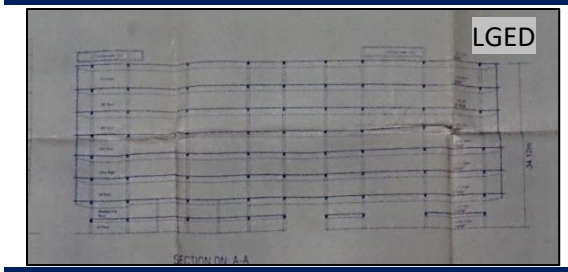
| COLUMN BELOW GB | GRID | UP TO GROUND FLOOR MEZZANINE (1ST SLAB) | (UP TO 1ST FLOOR ( 2ND SLAB ) |
|---|---|---|---|
| C4 DIA 850 | 6-B~O,8-B~O | | |
| C3 (675 X 875) | 4-P | | |

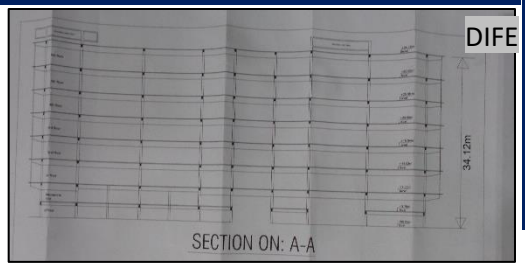
SCHEDULE OF FOOTING :

| NAME OF FOOTING | SIZE OF FOOTING | | | REINF. OF FOOTING. | |
|---|---|---|---|---|---|
| | LX | LY | T" | Rx | Ry |
| RF1 | 1800 | 750 | 375 | Ø12 @ 100 C/C | Ø12 @ 150 C/C |

Retrofitting drawing cover-page, retrofitting column & footing schedule.

The building permission layout and drawing is for 8 storied structure. Also, the Detail Engineering Assessment (DEA) was prepared for the structure 8 storied structure where retrofitting has been suggested for footing, column and grade beam. Till the date of this inspection, Building was constructed up-to three storied. Hence, there is a possibility of future vertical extension. Also, factory authority verbally confirmed that they are intended to conduct vertical extension.
Factory is required to submit the DEA documents to RSC for further review.




Sectional elevation of permit layout drawing from LGED & DIEF

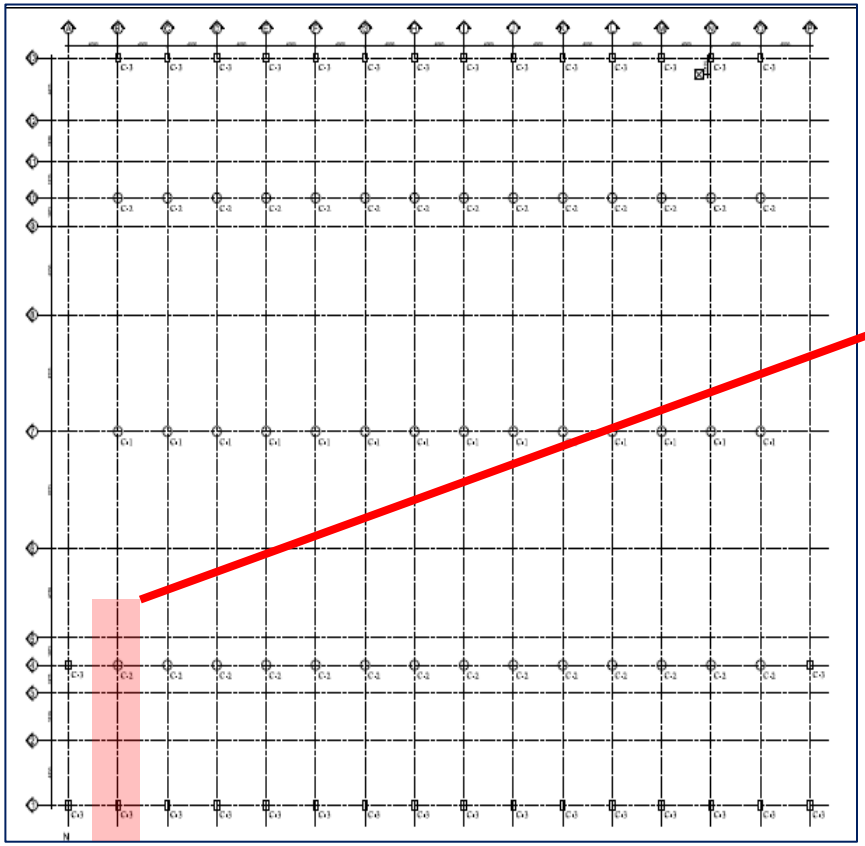


# Observation : Building-2

**Column to be stressed above normal design limit considering possible vertical extension**



## Observation: Building-2



Column layout plan


Toilet Zone area with built up at 1st floor.


This building is permitted for 8 storied (G+7) storied from local authority. Currently, the building is three storied (G+2). Extended portion of column rebar was found at roof level which indicates the possibility of vertical extension.

Cursory calculation indicates that the marked columns are stressed above normal design limit considering prepared live load plan and equivalent concrete strength from concrete core test value for the 8 storied building.

The factory engineer is required to carry out a Detail Engineering Assessment considering BNBC 2006 provision prior to any extension work.



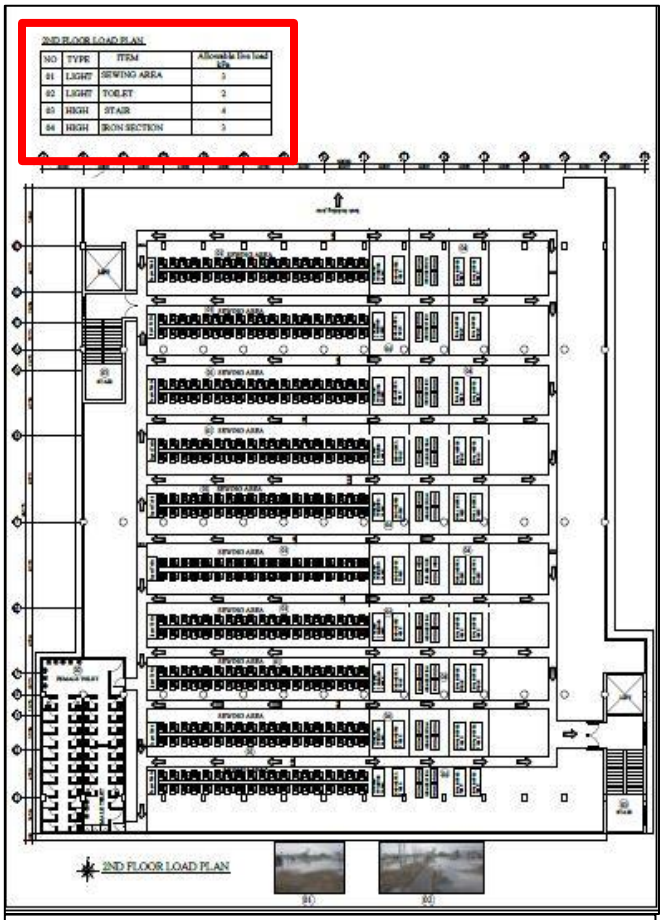
# Observation: Building-2

# Uncontrolled loading at 3rd Floor ( Existing Roof)

## Observations: Building-2


Overloading at Roof (3rd floor).

Uncontrolled loading was found at 3rd floor (Existing Roof) of the building due to stuck to the construction materials. Loading was found more than 3 kPa. Factory is required to maintain the floor live load within 3 kPa.




2ND FLOOR LOAD PLAN

| NO | TYPE | ITEM | Allowable live load kPa |
|---|---|---|---|
| 01 | LIGHT | SEWING AREA | 3 |
| 02 | LIGHT | TOILET | 2 |
| 03 | HIGH | STAIR | 4 |
| 04 | HIGH | IRON SECTION | 3 |



# Observations: Building-2

# Lack of lateral stability (Roof Shed)

## Observations: Building-2 (Roof shed)


Steel Shed at roof



Truss roof System


Poor connection details

The undocumented steel shed was found at roof. The steel roof truss is supported by steel C channel and re-bar of RC column. There is no apparent load path to transfer the lateral loading along the perpendicular direction of truss. Any vertical and roof bracing is not provided. Poor connection details observed at joints. Building Engineer is required to check the lateral stability of the steel shed. During the inspection, the as built drawings & design report were not available. The building engineer is required to prepare Engineering Assessment (EA) for the structure which compliance with section 1.9.1 (part-6, BNBC-2006).



# Observations: Building-2 (Roof shed)

**Apparently non-engineered shed over staircase**



## Observations: Building-2






The steel roof shed made of angle section is supported by brick wall over the staircase. Inadequate structural member, poor connection details observed. Apparently non-engineered shed. Building engineer is required to check the adequacy of the rooftop sheds for gravity and lateral forces otherwise replace with the engineered sheds.



# Observations: Building-2

Corrosion in re-bar at roof



## Observations: Building-2

Corrosion in column re-bar


Column Re-bar at roof

Column re-bar at roof exposed to environment for the further vertical extension of the building. Re-bar were found painted to prevent corrosion. But some of the re-bar were found corroded.

Factory is required to apply rust proofing on the corroded areas and do periodically maintenance to protect the re-bar from corrosion.



# Observations: Building-2

Signage of dampness at slab soffit



## Observation: Building-2




Dampness was found at 3rd floor (existing roof) slab soffit. Water proofing was not found at roof. So, this dampness may be due to any crack or damage in the surface on the roof allowed water to pond and seep into the concrete slab beneath the finishes and cause long-term soaking of the slab. Building engineer is required to provide water proofing at roof. Also investigate the damp area to verify if any damaged or crack occurred in slab.

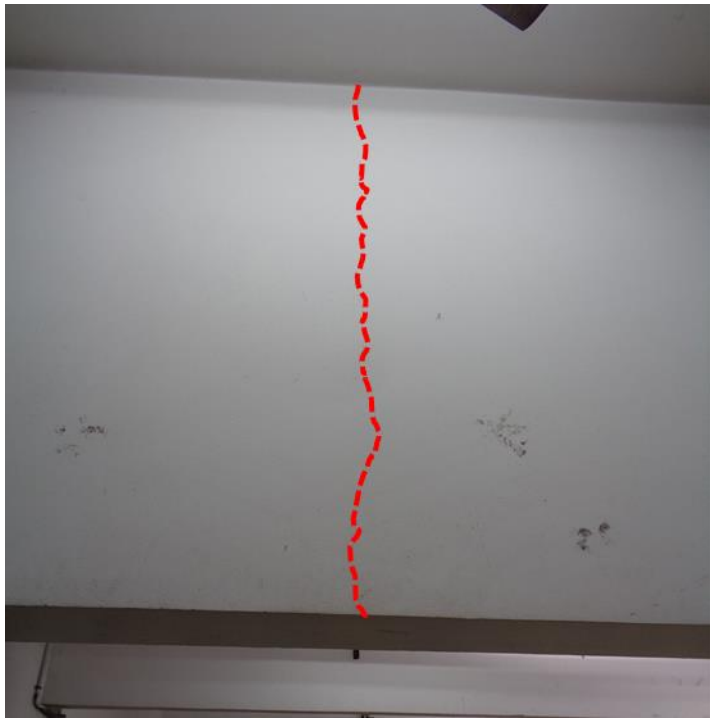


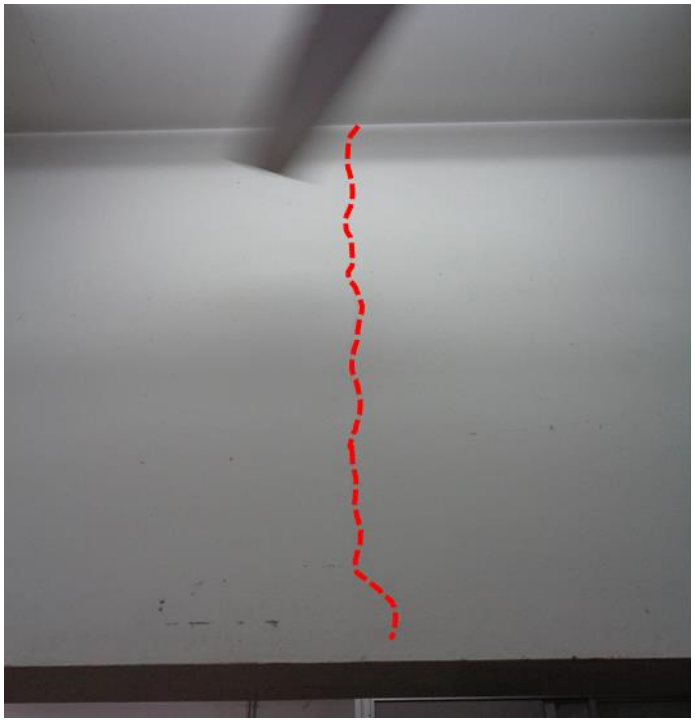
# Observation: Building-2

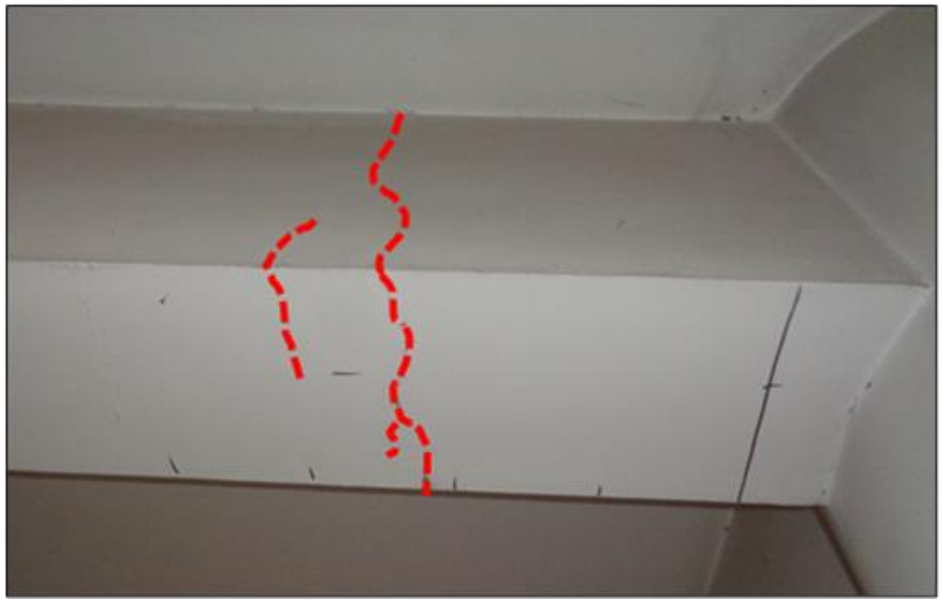
Hairline crack in beams



## Observations: Building-2







Hairline crack was found at several beams of 2nd floor. Building engineer is required to investigate the crack and carry out suitable repair works.



# Observations: Building-2

**Dampness found in brick wall**



## Observations: Building-2



Dampness was found on periphery brick wall at staircase & toilet zone.



# Observations: Building-2

# Problems Observed

**Building**

Item 01: DEA documents need to be reviewed by RSC.
Item 02: Column to be stressed above normal design limit considering possible vertical extension.
Item 03: Uncontrolled loading at 3rd Floor ( Existing Roof).
Item 04: Lack of lateral stability (Roof Shed).
Item 05: Apparently non-engineered shed over staircase.
Item 06: Corrosion in re-bar at roof.
Item 07: Signage of dampness at slab soffit.
Item 08: Hairline crack in beams.
Item 09: Dampness found in brick wall.

# Priority Actions

| Item No. | Observation | Recommended Action Plan | Recommended Timeline |
|---|---|---|---|
| 01 | DEA documents need to be reviewed by RSC (Building-2) | Factory engineer is required to produce Detailed Engineering Assessment(DEA) of the structure according to BNBC 2006 and submit to RSC for review. | 6-weeks |
| 02 | DEA documents need to be reviewed by RSC (Building-2) | Carry out recommendation as outcome of the DEA. | 6-months |
| 03 | Column to be stressed above normal design limit considering possible vertical extension (Building-2) | The factory engineer is required to carry out a Detail Engineering Assessment considering BNBC 2006 provision prior to any extension work. | 6-weeks |
| 04 | Column to be stressed above normal design limit considering possible vertical extension (Building-2) | Produce and actively manage a loading plan for all floor plates within the factory, considering floor, column and foundation capacity. | 6-weeks |

| Item No. | Observation | Recommended Action Plan | Recommended Timeline |
|---|---|---|---|
| 05 | Column to be stressed above normal design limit considering possible vertical extension (Building-2) | Complete implementation of any remedial works deemed necessary by the Detail Engineering Assessment (DEA). | 6-months |
| 06 | Column to be stressed above normal design limit considering possible vertical extension (Building-2) | Continue to implement loading plan. | 6-months |
| 07 | Uncontrolled loading at 3rd Floor ( Existing Roof) (Building-2) | Factory is required to maintain the prepared floor live load plan. | 6-weeks |
| 08 | Lack of lateral stability (Building-2: Roof Shed) | Building Engineer is required to check the lateral stability of the steel shed. | 6-weeks |

| Item No. | Observation | Recommended Action Plan | Recommended Timeline |
|---|---|---|---|
| 09 | Lack of lateral stability (Building-2: Roof Shed) | Building engineer to prepare the Engineering Assessment (EA) 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 2006. | 6-weeks |
| 10 | Lack of lateral stability (Building-2: Roof Shed) | Implement remediation works deemed necessary from EA. | 6-months |
| 11 | Apparently non-engineered shed over staircase (Building-2) | Building engineer is required to check the adequacy of the rooftop sheds for gravity and lateral forces or Replace with the engineered sheds. | 6-weeks |
| 12 | Apparently non-engineered shed over staircase (Building-2) | Carry out remedial works where required. | 6-months |

| Item No. | Observation | Recommended Action Plan | Recommended Timeline |
|---|---|---|---|
| 13 | Corrosion in re-bar at roof (Building-2) | Factory is required to take necessary actions to protect the re-bar from corrosion. | 6-weeks |
| 14 | Signage of dampness at slab soffit (Building-2) | Factory management is required to take necessary measures to provide water proofing with proper slope and improve drainage system. | 6-weeks |
| 15 | Signage of dampness at slab soffit (Building-2) | Factory engineer is required to investigate the damp slab to verify if any damaged occurred due to the presence of the moisture. | 6-weeks |
| 16 | Hairline crack in beams (Building-2) | Factory engineer is required to investigate the cause of crack and repair the crack as per recommendation from investigation report. | 6-weeks |
| 17 | Dampness found in brick wall (Building-2) | Building Engineer is required to investigate the reason of dampness & apply suitable method to repair dampness. | 6-weeks |