

Tanima Knit Composite Ltd. (Extension)

10/20, SOUTH DARIAPUR, SAVAR, DHAKA-1340
(23.833847, 90.254812)
10 October 2022



Buildings Information

1. Bulding-7 (ETP Building) is eight storied (B+G+7) reinforced concrete (RC) building.
2. Bulding-8 (Store Building) is a five-storied (B+G+4) reinforced concrete (RC) building.
3. Wastage Room is a single-storied reinforced concrete (RC) building.
4. Security Post is a single-storied reinforced concrete (RC) building
5. Car Parking Shed is a single-storied steel shed

Observations

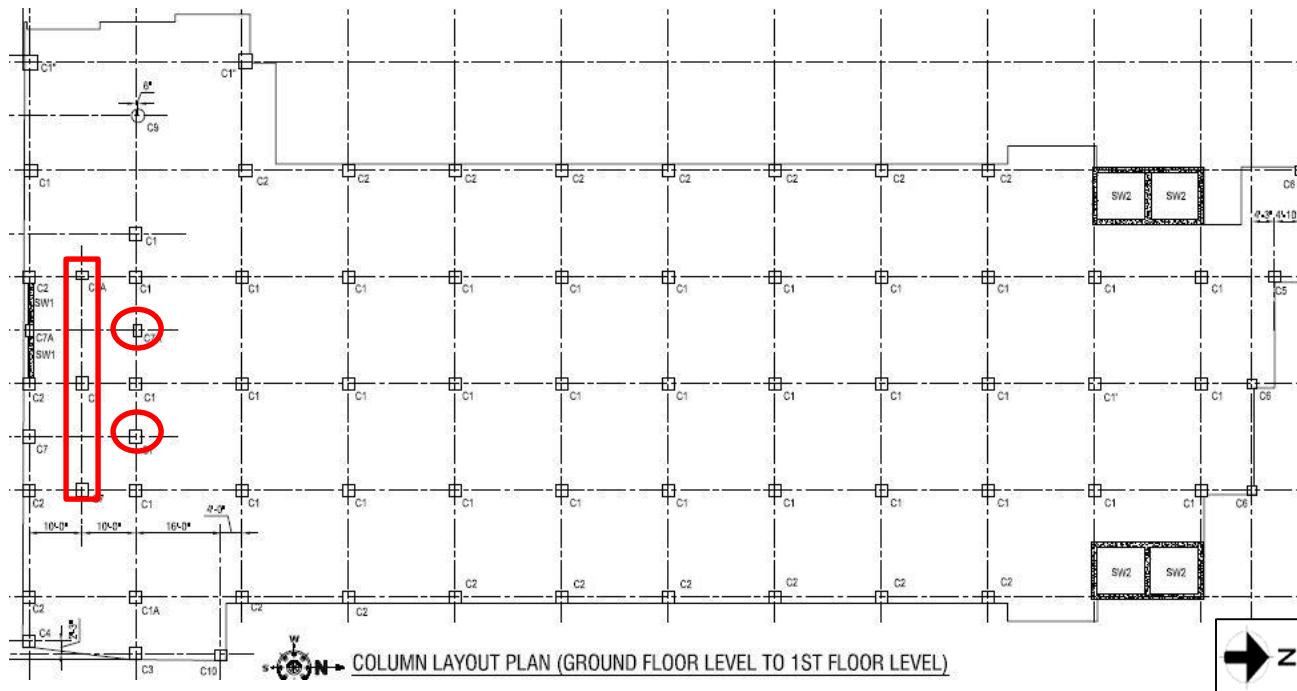
Mismatch between drawing & as-built condition

Observation: ETP Building



Marked columns were not found at ground floor to 1st floor level.

Missing columns locations



Column Layout plan for ground floor to 1st floor



Toilet false slab and built-ups was not shown in drawings.

The building engineer is required to survey the structure and prepare accurate as-built drawings. Also, revise the structural analysis and EA report accordingly.

Lack of floor load management



No load height marking on 2nd floor storage area



Storage in cutting table areas on 1st floor

The factory is required to implement floor load management program and maintain floor loading accordingly.

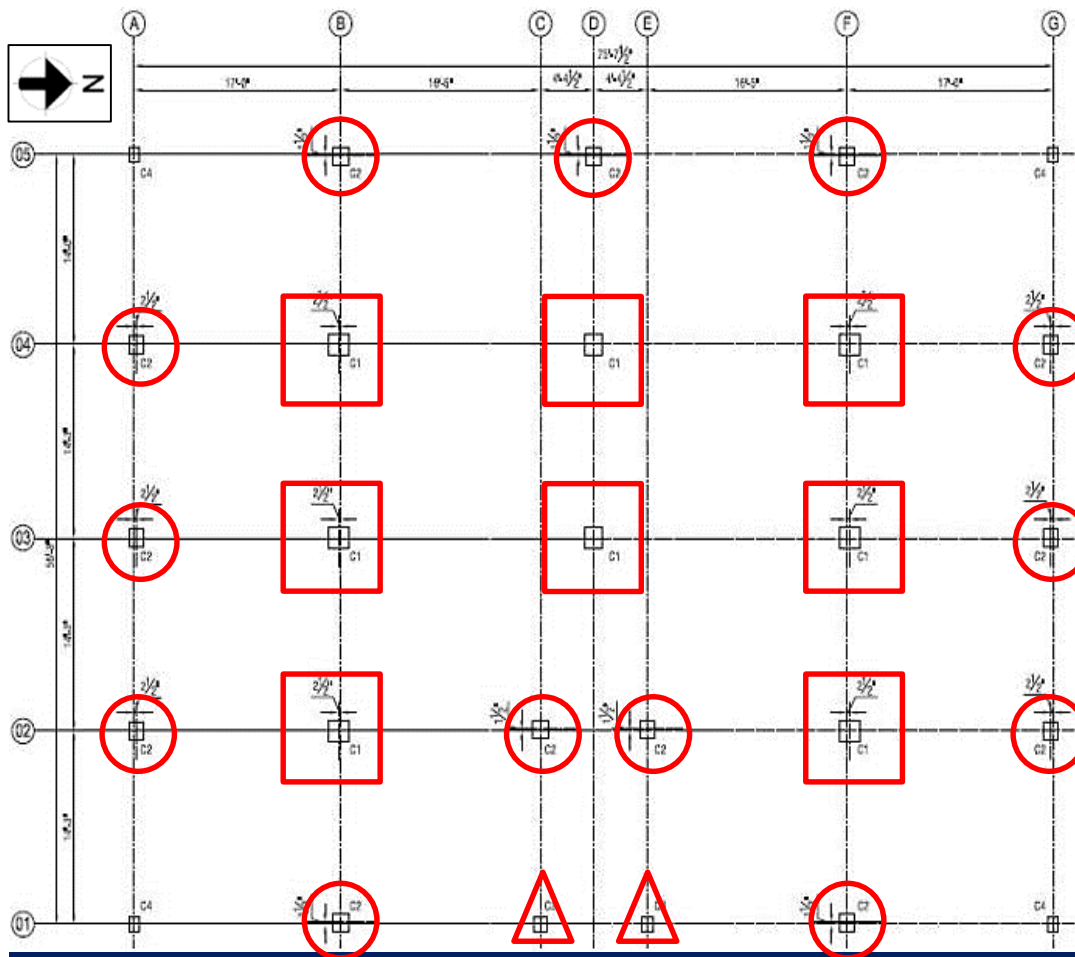
Anchorage of non-structural elements



Rack without lateral bracing or anchorage

Provide lateral bracing or anchorage to all non-structural elements of the building.

Mismatch between drawing & as-built condition



Column Layout plan for Basement to GF

C1

C1 column

C2

C2 column

C3

C3 column

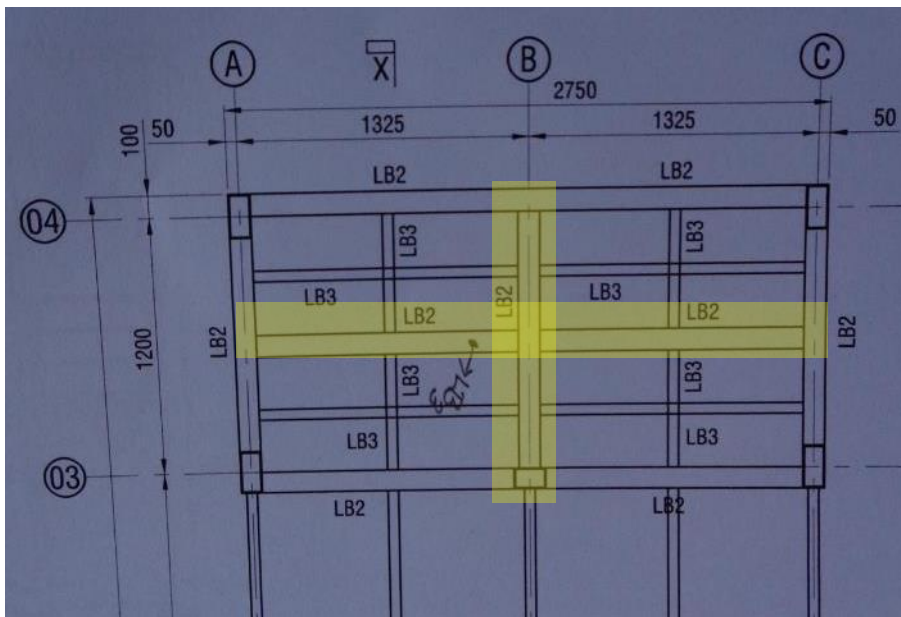
From basement to ground floor level:

C1 column was found 800 mm X 800mm instead of 575mm X 525mm.

C2 column was found 700 mm X 700mm instead of 450mm X 450mm.

C3 column was found 600 mm X 600mm instead of 300mm X 300mm.

The building is required to survey the structure and prepare accurate as-built structural drawings.



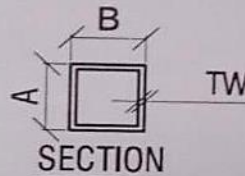
Steel landing beam layout (Middle beams are LB2)



Onsite condition (Middle beams are LB3)

SCHEDULE OF STEEL BEAM

NAME	A (mm)	B (mm)	TW (mm)
MB1	200	100	8
MB2	100	100	8
SB1	100	100	8
SB2	50	50	4
LB1	200	100	8
LB2	100	100	8
LB3	50	50	4

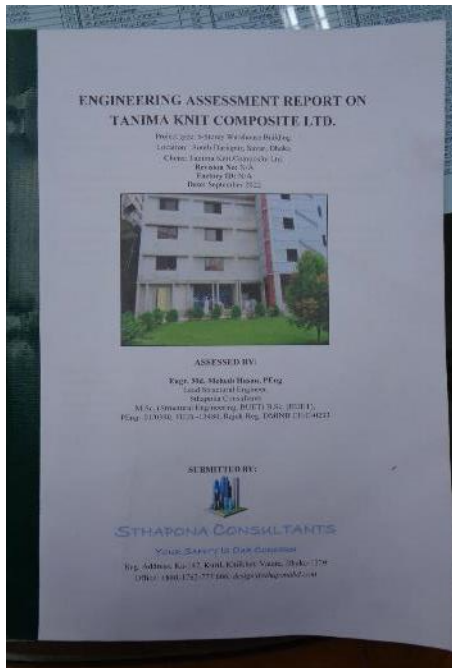


Landing beam layout

The middle beams of steel stair landing was mentioned as LB2 (100x100 mm box) but onsite the beam size was measured as 50x50 mm box (LB3).

The building is required to survey the structure and prepare accurate as-built structural drawings.

EA report & remedial scheme to be revised



Engineering Assessment (EA) report

Table 1.1-1: Basic information

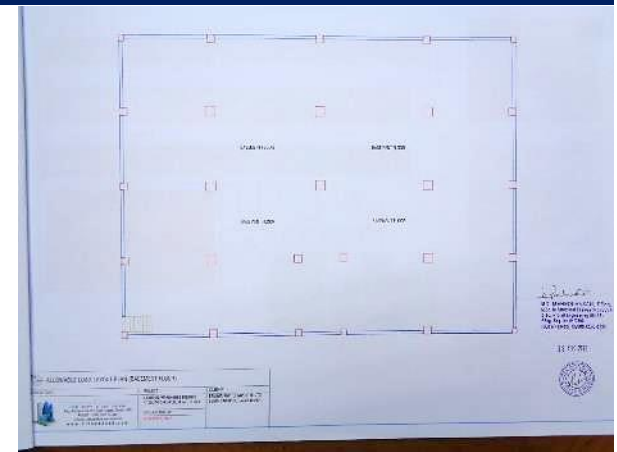
Information	Description
Structural System	The framework of the building is composed of R.C. column Beam and slab
Floor Area	±4300 sft (Approx.)
Number of Stories	5 Storied
Foundation Type	Single column footing
Construction materials	Concrete with stone chips for foundation, column, grade beam, floor beam and floor slab
Construction Year	2021

3.1 STRUCTURAL SYSTEM

The concerned building is a 5-Storey Warehouse Building. The frame system is combined Intermediate Moment Resisting Frame (IMRF) as per Table 6.2.24, BNBC-2006. A General 3D view of the building has been presented in Figure 3.1-1.

Building Information in the EA report

There are some mismatch between building information and onsite conditions. The flat plate framing system, basement floor and MAT foundation are not mentioned in the building information. Furthermore, construction year is mentioned as 2021 instead of 2006. Basement floor loading limit was not mentioned in the floor load plan.



Basement floor load plan.

Information	Description
Structural System	The framework of the building is composed of R.C. column Beam and slab
Floor Area	±4300 sft (Approx.)
Number of Stories	5 Storied
Foundation Type	Single column footing
Construction materials	Concrete with stone chips for foundation, column, grade beam, floor beam and floor slab
Construction Year	2021

Information from Engineering Assessment (EA) report

There are some mismatch between provided information of construction material and provided concrete core test report. As per EA report in general description the construction material was declared stone chips for foundation column, beam and slab but as per provided concrete core test aggregate types were shown brick chips. Building engineer is required to verify and confirmed the material type and material strength with correct material test report.

Quantity of Sample : 03 Nos
Aggregate Type : Brick Chips

2.1 Concrete Test Report (Client Provided):


Mipur Cantonment, Dhaka-1216

Centre for Advisory and Testing Services (CATS-MIST)
Military Institute of Science and Technology

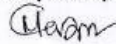
Compressive Strength of Concrete Drilled Cores

CATS Reference	: 2376/10202-10204/01/17	Date	: 08/01/2017
Client	: J.K Fabrics Ltd.		
Project Name & Address	: 5 Storied Quarter Building, South Daniaapur, Savar, Dhaka.		
Sample Brought By	: Mohiuddin Ahammad	Date of Receiving	: 21.12.2016
Test Method	: ASTM C 42/C 42-M	Date of Test	: 01/01/2017
Sample	: Drilled Core	Sample Condition	: Unsealed
Sample Location	: 4th Floor Column-3, 4 & 5		
Construction Year	: 2001	Quantity of Sample	: 03 Nos
No of Story	: 5 Storied	Aggregate Type	: Brick Chips

Sl No.	Sample Identification Mark	Original Length mm	Sawed Length mm	Diameter mm	Crushing Load kN	Crushing Strength MPa psi	Failure Type	Fracture Type
1	CORE-3	200.0	131.0	69.0	152.4	40.7 5900	Combined	Cone
2	CORE-6	225.0	133.0	69.0	144.5	38.6 5600	Combined	Cone
3	CORE-8	210.0	134.0	69.0	145.6	38.9 5640	Combined	Shear

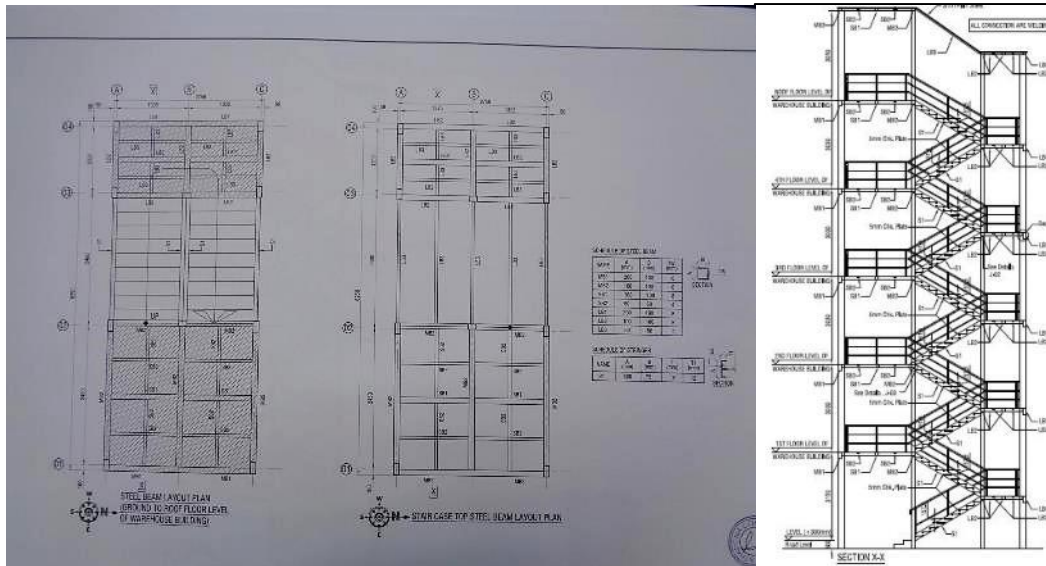
REMARKS:

1. Samples are received in unsealed condition without signatures from the competent authority. Therefore, authenticity of these samples and their history could not be verified.
2. High compressive strengths value may not be truly representative of the actual structural strength, and hence, for further confirmation new samples may be collected and tested under supervision of CATS-MIST.
3. Without further confirmation care must be exercised by engineer concern in the interpretation of the significance of high compressive strength obtained from these core tests.

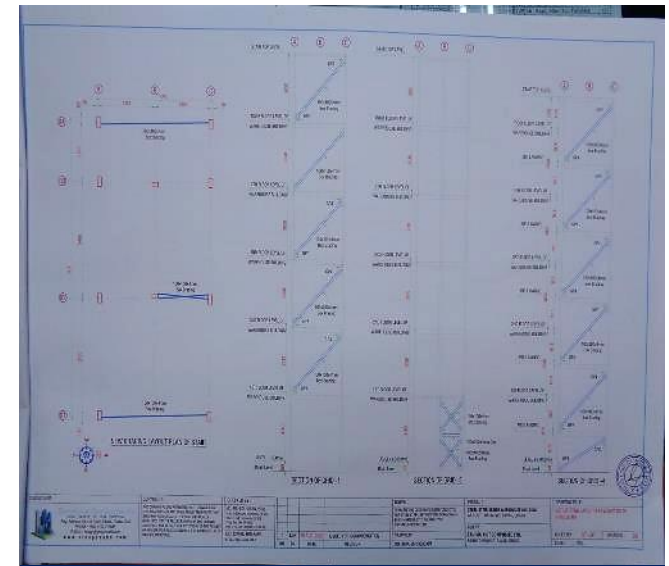
Test Supervised By: 
A.T.M. Masum
Captain
Inspector, Civil
Department of Civil Engineering
10/57, Mirpur Canton, Dhaka.

Countersigned By: 
SHAH MD. MUNIRUZZAMAN
Colonel
Head of the Department
Civil Engineering
M.I.S.T.

Core test report from EA report



As-built structural drawing of steel stair.



Retrofitting drawing of steel stair

Retrofitting of steel stair was suggested in the EA report which has not been implemented yet. During inspection lateral support between RC building and steel stair was observed. The building engineer is required to investigate the support connections and revise connection details.



Support to stair

The building engineer is required to revise the EA report of both RC building and adjacent steel stair, and submit the revised EA to RSC for further review.

Steel Stair of 3-Storey Warehouse Building	
Engineering Assessment Report	
Ratio	0.90
Global critical strength ratio	1.04
As we can allow 5% overstress, so we can say both type of base plates are adequate.	
10 RECOMMENDATION	
The building has been analyzed according to our best engineering judgment by applying the provisions of NBC-2006, ACI-318-08, and AISC-LRFD-93. Loading has been considered as per occupancy. For stabilizing the structure, some new members have been added.	
We recommend rectifying the overstressed member to meet the NBC-2006 requirement as per provided rectification design. So, the overstressed columns and rafters are no more overstressed.	

Recommendation of Engineering Assessment (EA) report

Dampness on brick walls



Dampness on wall of RC stair zone

Dampness observed on the brick wall in several locations of RC stair zone. The factory is required to identify the reason of dampness and repair the damp areas with suitable repair method.

Problems Observed

ETP Building:

Item 1: Mismatch between drawing & as-built condition.

Item 2: Lack of floor load management.

Item 3: Anchorage to the storage racks.

Store Building:

Item 4: Mismatch between drawing & as-built condition.

Item 5: EA report & remedial scheme to be revised.

Item 6: Dampness on brick walls.

Priority Actions

Item No.	Observation	Recommended Action Plan	Recommended Timeline
01	Mismatch between drawing & as-built condition. (ETP Building)	The building engineer is required to survey the whole structure and prepare accurate as-built drawings with structural details.	6-weeks
02	Mismatch between drawing & as-built condition. (ETP Building)	Revise the structural analysis and Engineering Assessment (EA) report based on updated as-built drawings and submit EA documents to the RSC for review.	6-weeks
03	Mismatch between drawing & as-built condition. (ETP Building)	Carry out remedial works if required.	6-months
04	Lack of floor load management. (ETP Building)	Remove the storage from cutting areas and provide signage and height marking in the storage areas.	6-weeks
05	Lack of floor load management. (ETP Building)	Continue to implement allowable floor loading plan.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
06	Anchorage to the storage racks. (ETP Building)	Provide lateral bracing or anchorage to all non-structural elements of the building.	6-months
07	Mismatch between drawing & as-built condition. (Store Building)	The building engineer is required to survey the whole structure and prepare accurate as-built drawings with structural details.	6-weeks
08	EA report & remedial scheme to be revised. (Store Building)	The building engineer is required to revise the EA report of both RC building and adjacent steel stair and submit the revised EA to RSC for further review.	6-weeks
09	EA report & remedial scheme to be revised. (Store Building)	Building engineer is required to verify and confirm the material type and material strength with correct material test report.	6-weeks
10	EA report & remedial scheme to be revised. (Store Building)	Carry out suggested remedial actions as per RSC accepted EA report.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
11	Dampness on brick walls. (Store Building)	The factory is required to identify the reason of dampness and repair the damp areas with suitable method.	6-months