

Graphic Textiles Ltd.

Sreeampur, Kalampur, Dhamrai, Dhaka
(23.919114N 90.124967E)

17th May 2014

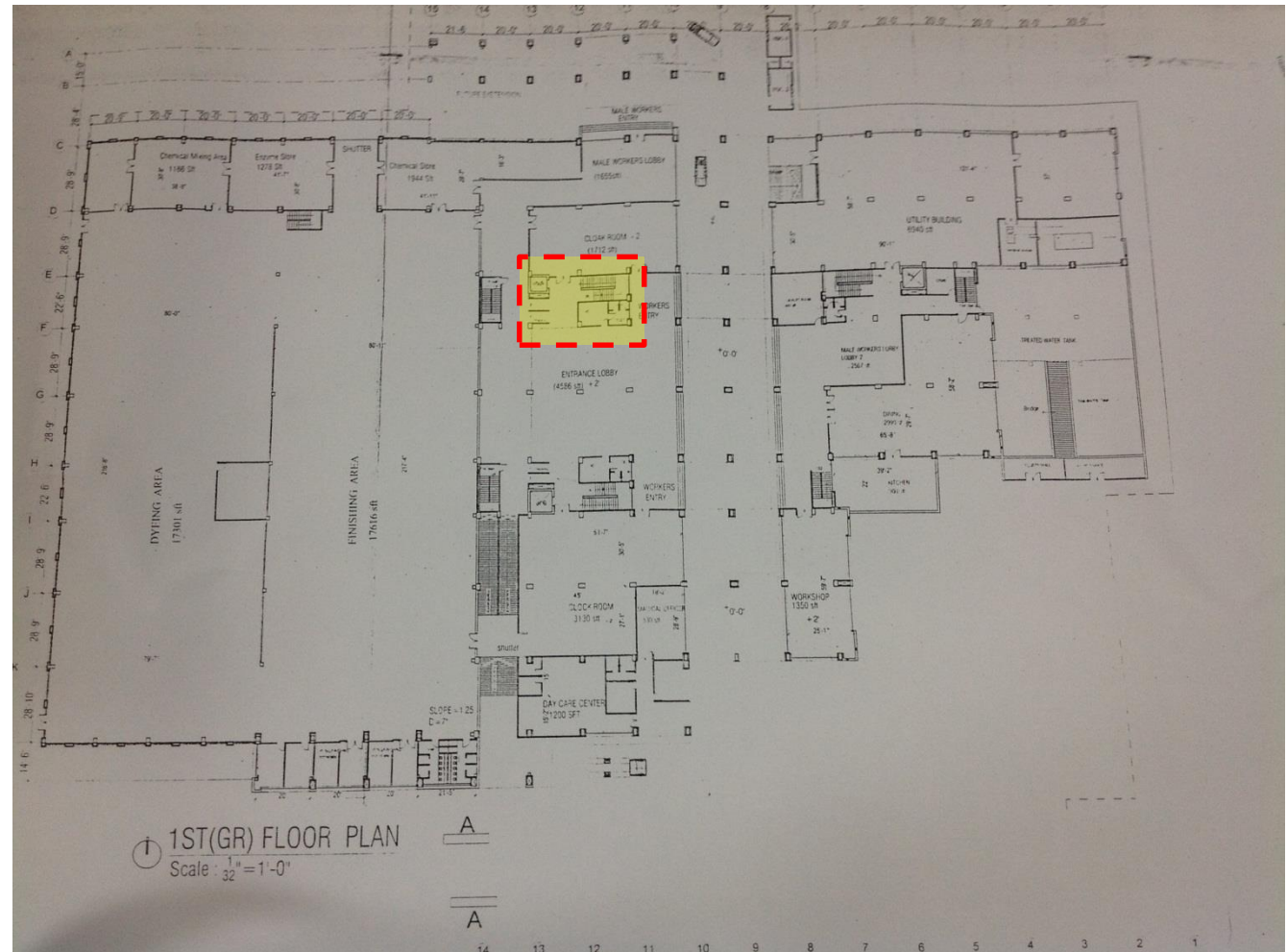


Observations

Column capacity to be reviewed

Preliminary calculations indicate that columns at Basement and Ground Floor are stressed to levels that require review. A suitably qualified engineer should confirm that all columns have sufficient capacity to support the applied loads. Columns in the area shaded (where the water tanks and toilets are located) are particularly highly stressed.

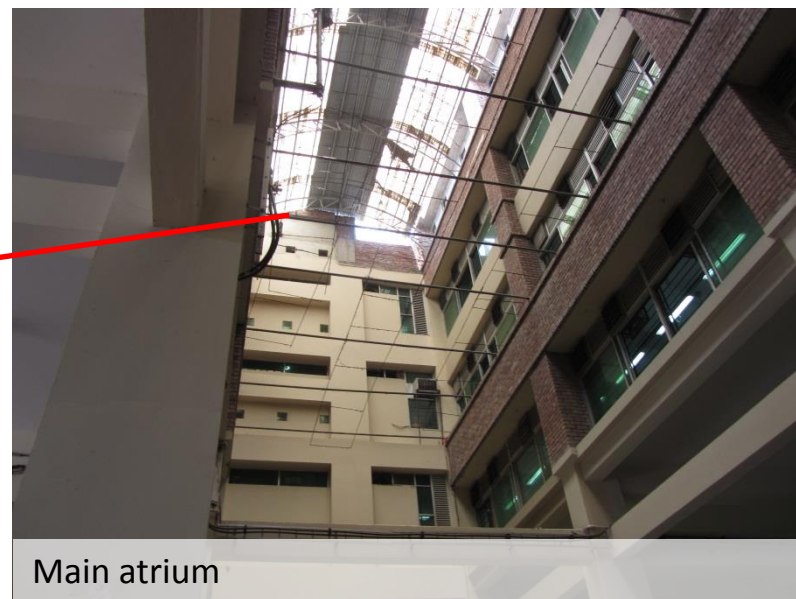
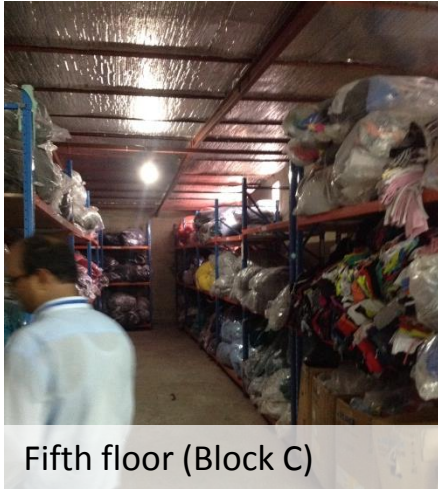
We understand that ultrasonic pulse velocity testing has been carried out in the past but that this has not been correlated with results from crushing concrete cores. Without correlation this gives an understanding of the degree of compaction but conclusions about the compressive strength of the concrete cannot be accurately drawn. We therefore suggest that cores be taken from a number of columns to determine the in-situ concrete strength as described in the priority actions later in this report



Column capacity to be reviewed

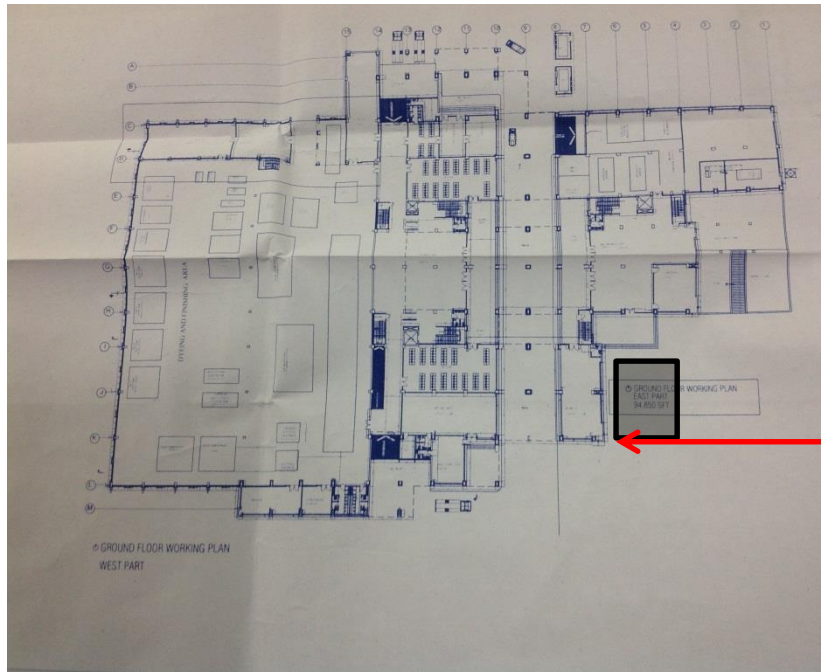
Non engineered lightweight steel roofs

There are a number of non-engineered lightweight steel roofs namely over the fifth floor of Block C, the main atrium between the blocks and the ancillary buildings at the rear of the building.



Non engineered lightweight steel roofs

**Load bearing masonry wall in auxiliary
building is cracked**

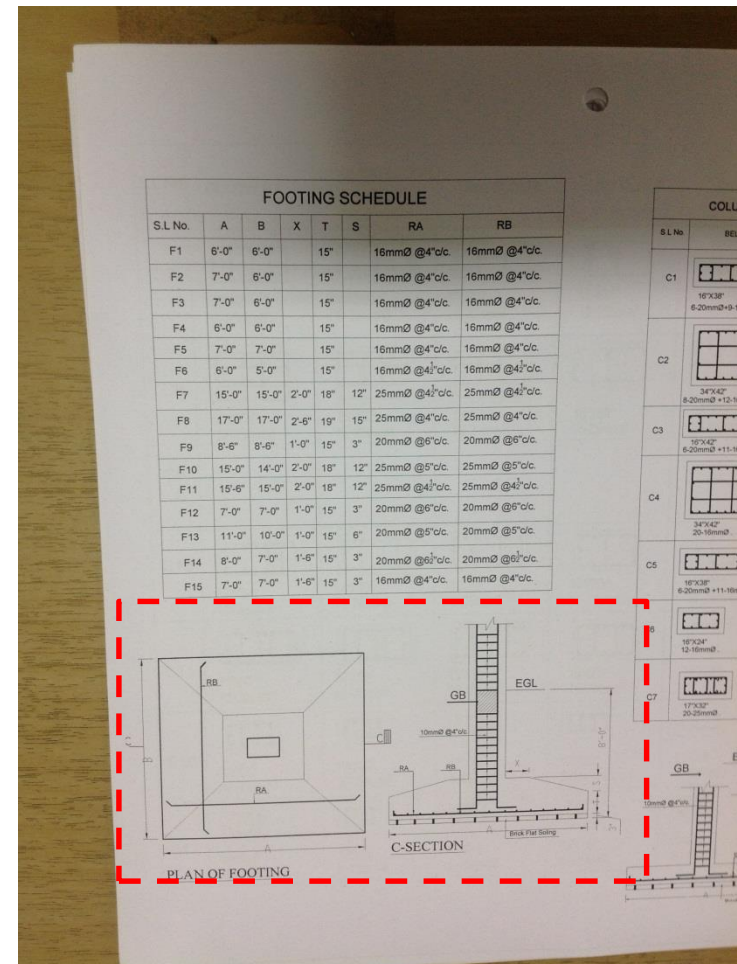
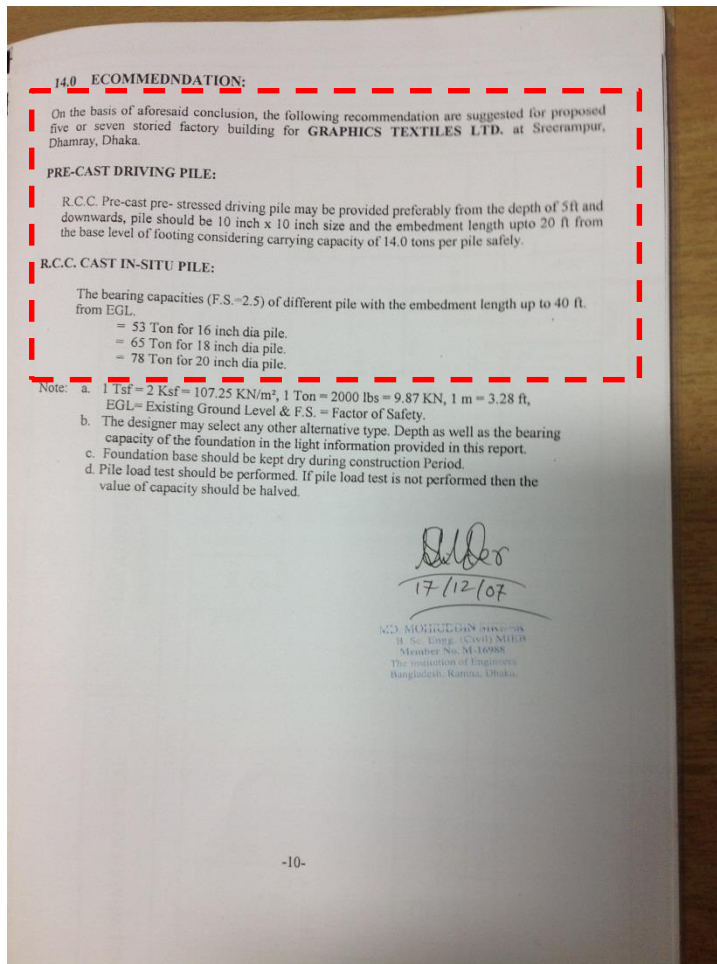


There is a crack in a load bearing wall on one of the auxiliary buildings (not shown on layout drawings). This may be caused by foundation settlement. The crack width should be monitored and, if it increases in size, advice should be sought from a qualified Structural Engineer. No materials should be stored against the wall.

Crack in load bearing wall

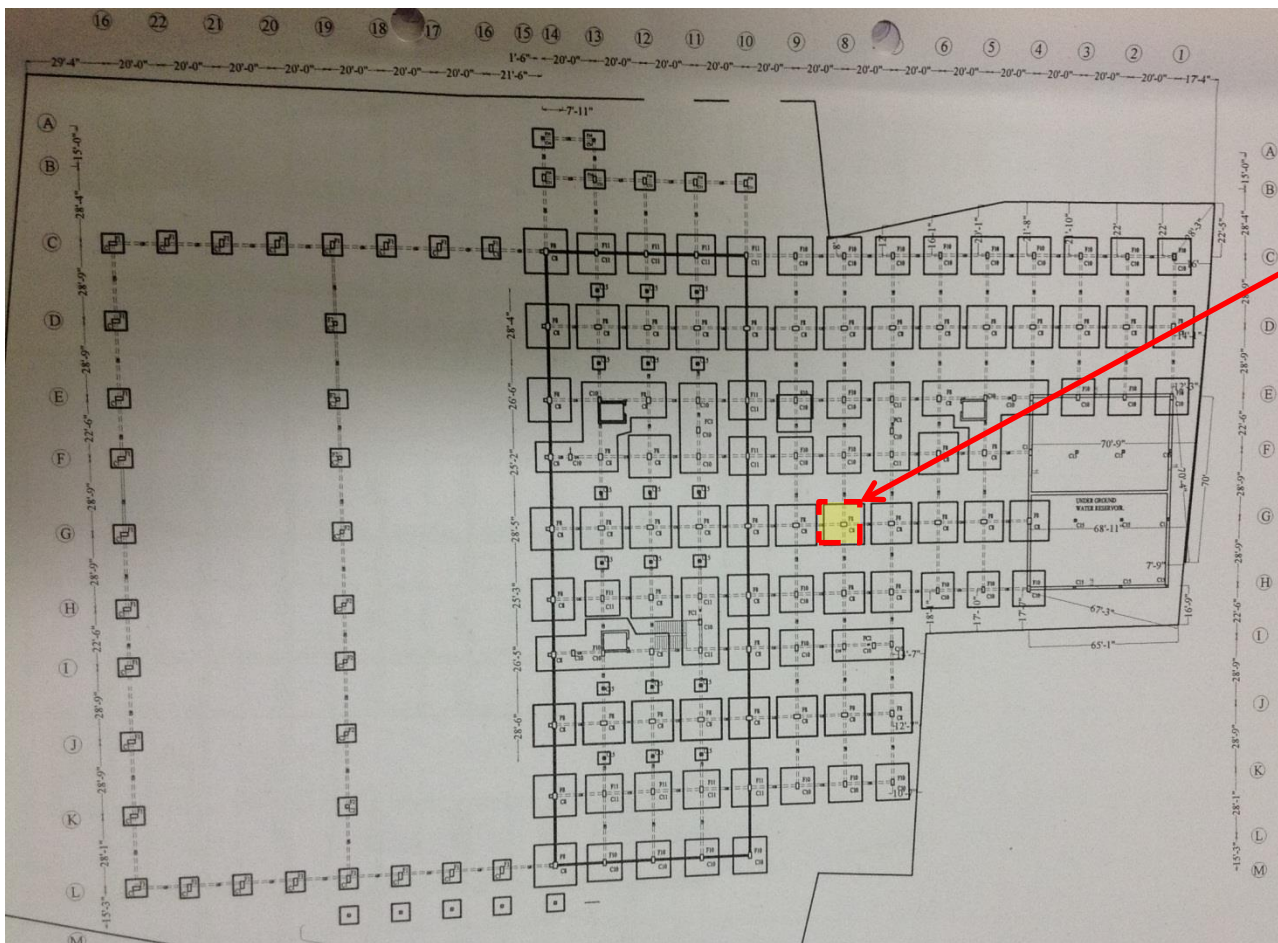
Inconsistencies in record information

The soils report suggests piled foundation while the record drawing show pad foundation. A suitably qualified structural engineer should confirm the foundation type and that the foundations have sufficient capacity for the applied loads.



Inconsistencies in record information

Differences between drawings and as built structure



The column shown here is a 'C8' on the column schedule (610mm x 760mm) at ground floor. This was measured as 800mm x 870mm (RC section size) on site.

Differences between drawings and structure

Columns constructed above sixth floor on Block B.

Columns have been constructed above the 6th floor on Block B slab level. We understand that construction for the 7th floor in this area is not planned following the results of ultrasonic pulse velocity testing.



Columns constructed above sixth floor on Block B.

Priority Actions

Problems Observed

ITEM 1: Column capacity requires review.

ITEM 2: Non engineered lightweight steel roofs.

ITEM 3: Load bearing masonry wall in auxiliary building is cracked.

ITEM 4: Inconsistencies in record information/differences between drawings and as-built structure.

ITEM 5: Columns constructed above sixth floor on Block B.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Review capacity of all columns at Basement and Ground Floor Levels. Note – core tests are required. It is understood that existing pulse wave velocity test results have not been correlated against core tests to determine in-situ strength	Verify insitu concrete stresses either by taking 100mm diameter cores from 4 columns (minimum)or using existing cylinder strength data if available. Vertical reinforcement should be exposed prior to coring to ensure it is not damaged by the coring. Suitably qualified structural engineer to confirm suitable positions for cores to be taken.	6-weeks
2	Review capacity of all columns at Basement and Ground Floor Levels. Note – core tests are required. It is understood that existing pulse wave velocity test results have not been correlated against core tests to determine in-situ strength	Suitably qualified structural engineer to review design, loads and columns stresses in locations specified.	6-weeks
3	Review capacity of all columns at Basement and Ground Floor Levels. Note – core tests are required. It is understood that existing pulse wave velocity test results have not been correlated against core tests to determine in-situ strength	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
4	Non-engineered lightweight roofs	Qualified structural engineer to check the design of both the elements and the connections in lightweight steel roofs for the design loads stated in BNBC-2006. This applies to the roof over the main atrium spaces, the roof over the over the fifth floor and the auxiliary buildings at the rear of the complex.	6-weeks
5	Non-engineered lightweight roofs	Strengthening works to be designed as required.	6-weeks
6	Crack in load bearing masonry wall of ancillary building, possibly due to foundation settlement.	Ensure no materials are being stored against cracked wall.	6-weeks
7	Crack in load bearing masonry wall of ancillary building, possibly due to foundation settlement.	Monitor crack to ensure that no further movements take place.	6-weeks
8	Crack in load bearing masonry wall of ancillary building, possibly due to foundation settlement.	If crack continues to grow, seek advice from a suitably qualified structural engineer.	6-months
9	Crack in load bearing masonry wall of ancillary building, possibly due to foundation settlement.	Continue to monitor crack and repair as necessary to avoid on-going maintenance issues.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
10	Inconsistencies in record information/differences between drawings and as-built structure	A suitably qualified Structural Engineer should confirm the foundation type and that the foundations have sufficient capacity for the applied loads	6-months
11	Inconsistencies in record information/differences between drawings and as-built structure	As built drawings should be updated to reflect exact construction dimensions	6-months
12	Columns constructed above sixth floor on Block B	Construction above roof on Block B should be removed.	6-months