

Nafa Apparels Ltd

Hijalhati, Bariopara, Kaliakoir, Gazipur, Dhaka
(+24.026926N, +90.239586E)

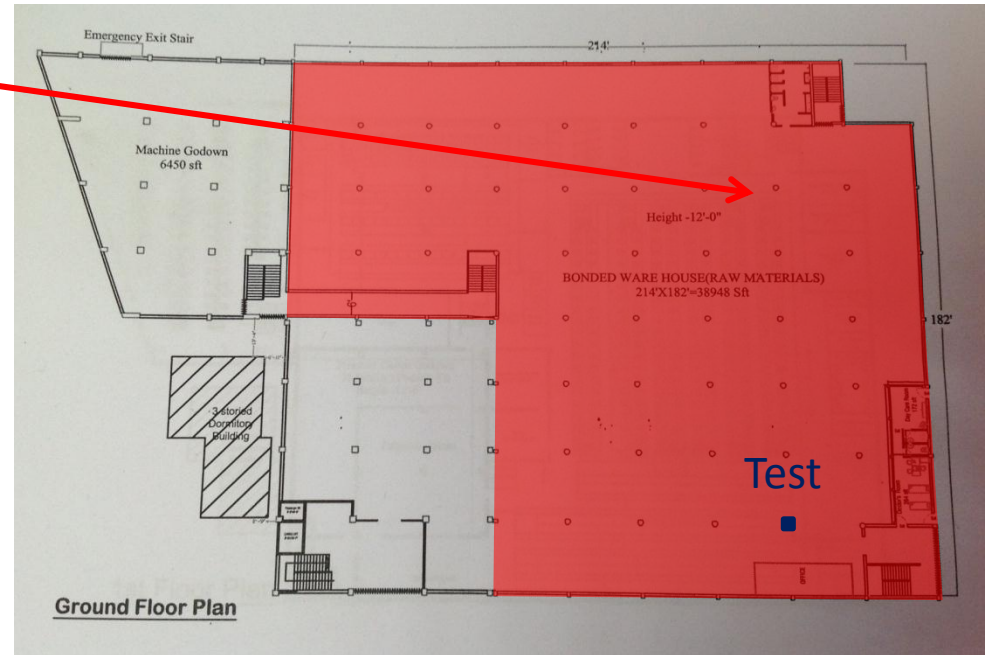
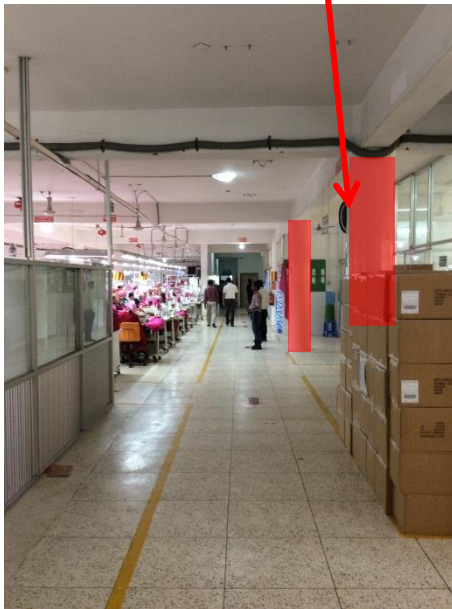
13 April 2014



Observations

**Columns, within the 3 storey Factory Building
appear to be stressed in excess of normal
design limits**

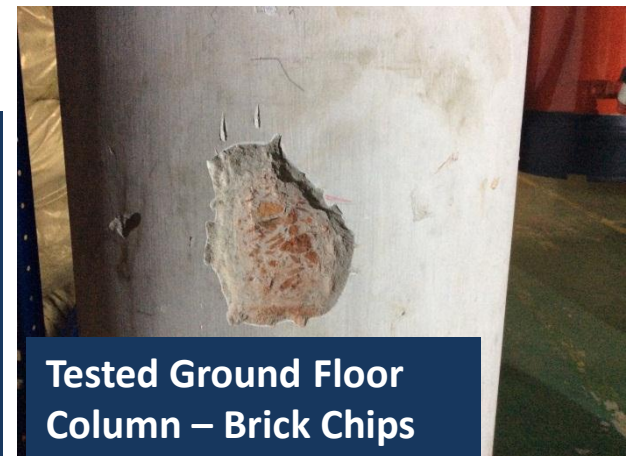
Specific design check to be carried out on columns in 3 storey Factory



Cursory calculations indicate that columns are stressed in excess of normal design limits

Building Engineer is to perform detailed calculations and concrete tests to prove column size and (if required):

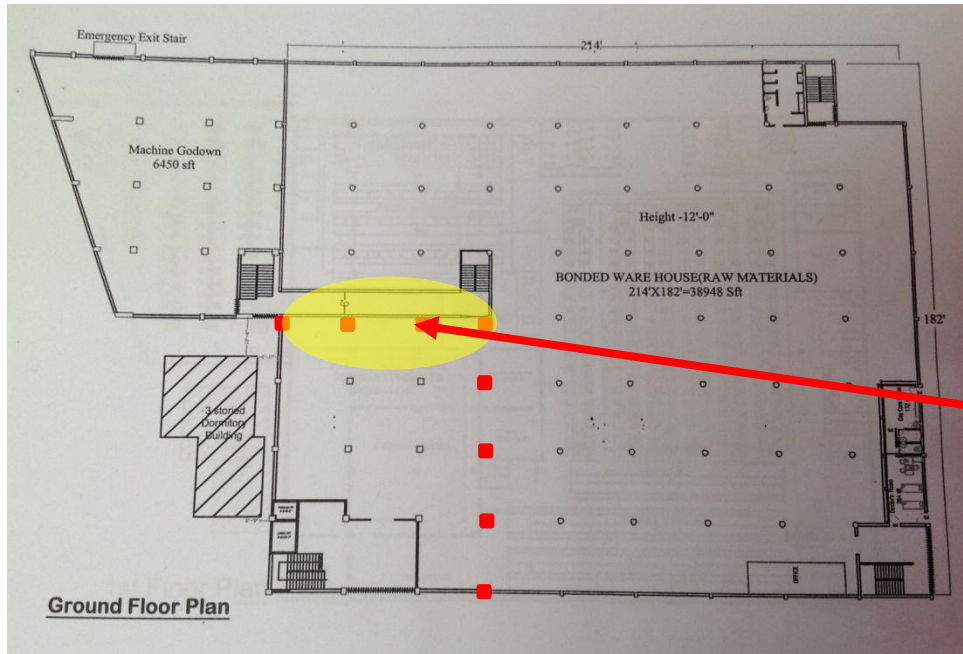
- Reduce loads by vacating floors
- Reinforce columns



Tested Ground Floor Column – Brick Chips

3 Storey Factory – Column Stresses

Evidence of repairs at base of inclined columns at ground floor west side of Block A



Evidence of repairs to base of inclined columns was noted in the highlighted area. Building Engineer to monitor and if cracks reappear – checks should be completed on the design and, if required, remedial measures should be carried out.

Evidence of repairs to inclined columns at ground floor west side of Block A

Cracking in RC beams, soffit of floor slabs and brick walls



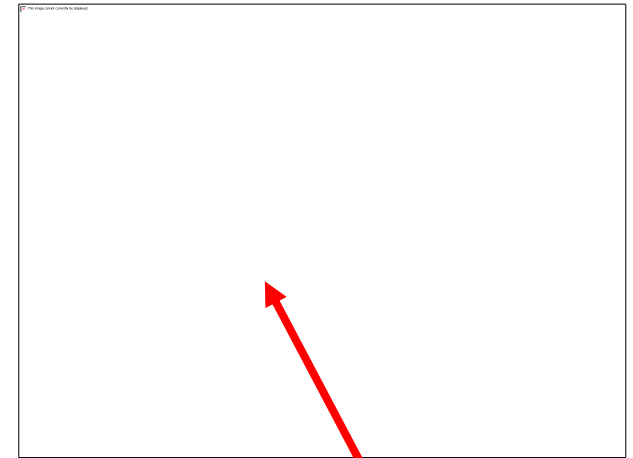
Cracks to be reviewed by Building Engineer and remedial measures carried out as required



Cracking in RC beams, soffit of floor slabs and brick walls



Brick supports to water tank and redundant concrete plinths at roof level of Block B



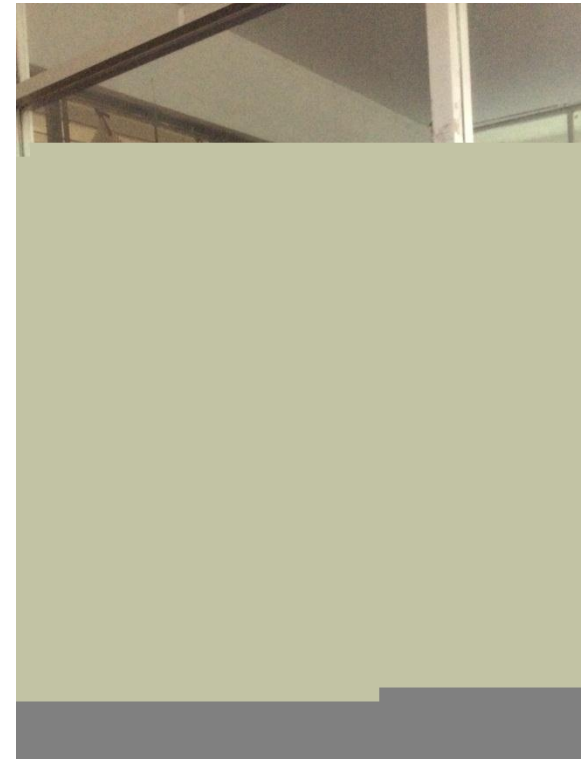
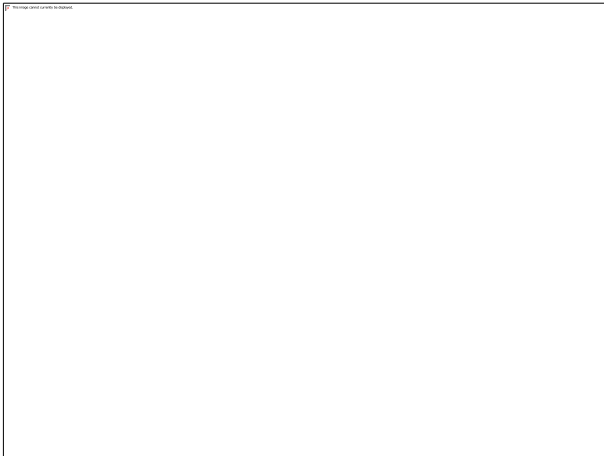
**Redundant water tank
support plinth –
approx 700mm high**



**Brick piers support concrete water
tank – applying point loads to roof
slab. Building Engineer to review
and if piers are not consistent
with the building design they
should be removed. Evidence of
previous water damage noted on
underside of roof slab**

Block B - Roof Level

Management of Storage Loads



Building Engineer to create controlled loading plans for all floors which will designate allowable storage density and where storage may be placed.

Management of Storage Loads

Cracks to building façade

Cracking of façade was evident. These cracks should be inspected and repaired as necessary, especially if they penetrate through the entire façade thickness

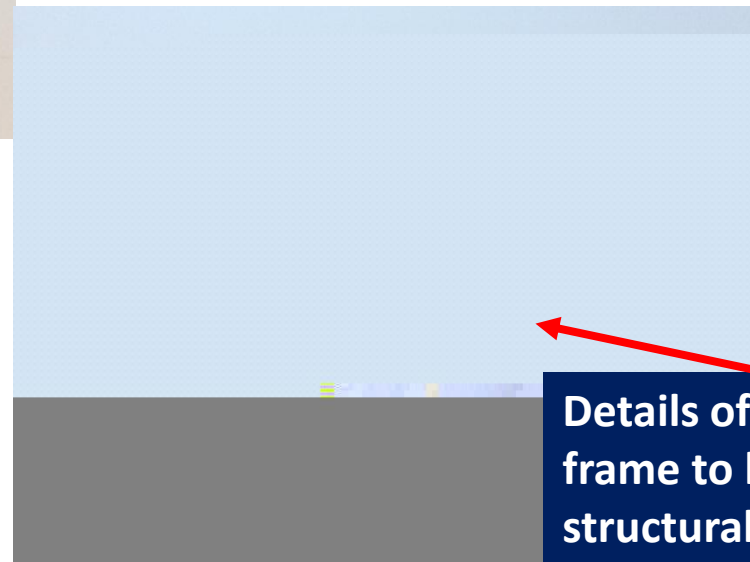


Cracks to building façade

Inconsistencies between structural drawings and the as-constructed arrangement of the factory

Block B

**Full extent of
cantilever to be
shown on structural
drawings.**



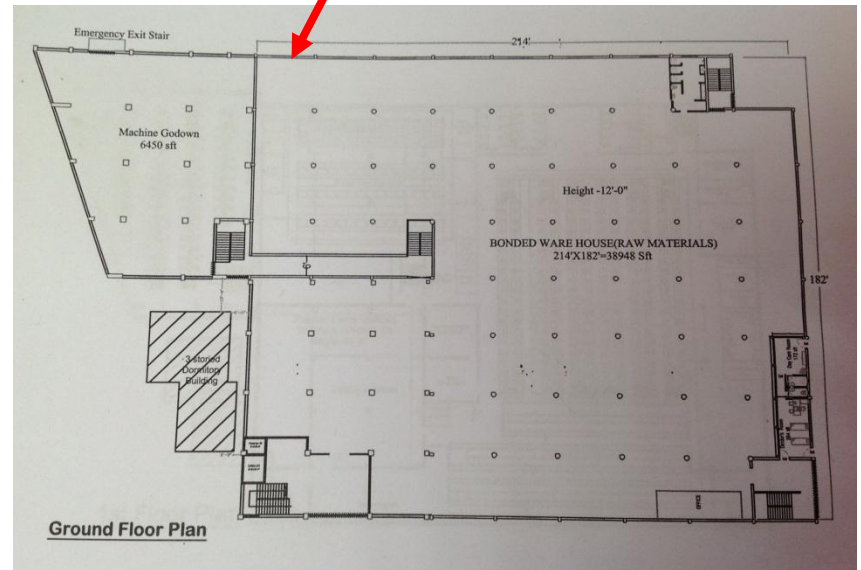
**Details of roof steel
frame to be shown on
structural drawings**

Structural Drawings

Steam and water drain at base of structural column



Steam outlet and open water drain at the base of a structural column. These should be diverted away from the building structure to avoid degradation over time.



Steam and water at base of column

Priority Actions

Problems Observed

ITEM 1: Columns within the 3 storey Factory Building appear to be stressed in excess of normal design limits

ITEM 2: Evidence of repairs at base of inclined columns at ground floor west side of Block A

ITEM 3: Cracking in RC beams, soffit of floor slabs and brick walls

ITEM 4: Brick supports to water tank and redundant concrete plinths at roof level of Block B

ITEM 5: Management of Storage Loads

ITEM 6: Cracks to building façade

ITEM 7: Inconsistencies between structural drawings and the as-constructed arrangement of the factory

ITEM 8: Steam and water drain at base of structural column

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Columns within the 3 storey Factory Building appear to be stressed in excess of normal design limits	Building Engineer to review design, loads and column stresses in area identified above	6-weeks
2	Columns within the 3 storey Factory Building appear to be stressed in excess of normal design limits	Verify insitu concrete strength either by 100mm diameter cores or existing cylinder strength data for cores from 4 columns	6-weeks
3	Columns within the 3 storey Factory Building appear to be stressed in excess of normal design limits	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity.	6-months
4	Evidence of repairs at base of inclined columns at ground floor west side of Block A	Building Engineer to review area of repairs on an on-going basis and propose further remedial works , if required. Structural design check to be carried out if cracking reoccurs	6-weeks
5	Evidence of repairs at base of inclined columns at ground floor west side of Block A	Continuous monitoring for evidence of cracking at the base of the inclined columns is advised due to the fact that these columns are key structural elements	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
6	Cracking in RC beams, soffit of floor slabs and brick walls	Building Engineer to review cracking on an on-going basis and propose further remedial works , if required	6-weeks
7	Cracking in RC beams, soffit of floor slabs and brick walls	Building Engineer to continue to monitor cracks	6-months
8	Brick supports to water tank and redundant concrete plinths at roof level to Block B	Building Engineer to confirm that brick piers to water tank are non structural and that they may be removed to avoid providing an alternative support point to the water tank above which will not have been allowed for by the building designer.	6-weeks
9	Brick supports to water tank and redundant concrete plinths at roof level to Block B	Circular water tank support plinths to be removed from northern end of roof to Block B.	6-weeks
10	Brick supports to water tank and redundant concrete plinths at roof level to Block B	Following confirmation by the Building Engineer, brick support piers to concrete water tank to be removed	6-months
11	Management of storage loads	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity	6-months
12	Cracks to building façade	Inspect façade to locate through thickness cracks. Repair cracks on both sides to avoid damp from penetrating the building	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
13	Inconsistencies between structural drawings and the as-constructed arrangement of the factory	Building Engineer to survey as constructed building. Updated drawings to be prepared showing the correct as constructed layout – in particular cantilever slabs and structural steel.	6-months
14	Inconsistencies between structural drawings and the as-constructed arrangement of the factory	Prepare/update calculations showing the structural adequacy of the building structure taking into account the factory design imposed loading and the as built structure.	6-months
15	Inconsistencies between structural drawings and the as-constructed arrangement of the factory	Prepare controlled loading plans for all floors designating allowable storage density and where storage may be placed	6-months
16	Steam and water drain at base of structural column	Divert steam outlet away from structural column	6-months
17	Steam and water drain at base of structural column	Divert drainage away from structural column	6-months