

Masco Industries Ltd Unit 2

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(+ 23.921041N,90.386399E)

12 December 2013



Building Observations Garment Factory

**Columns appear to be stressed in excess of
normal design limits**



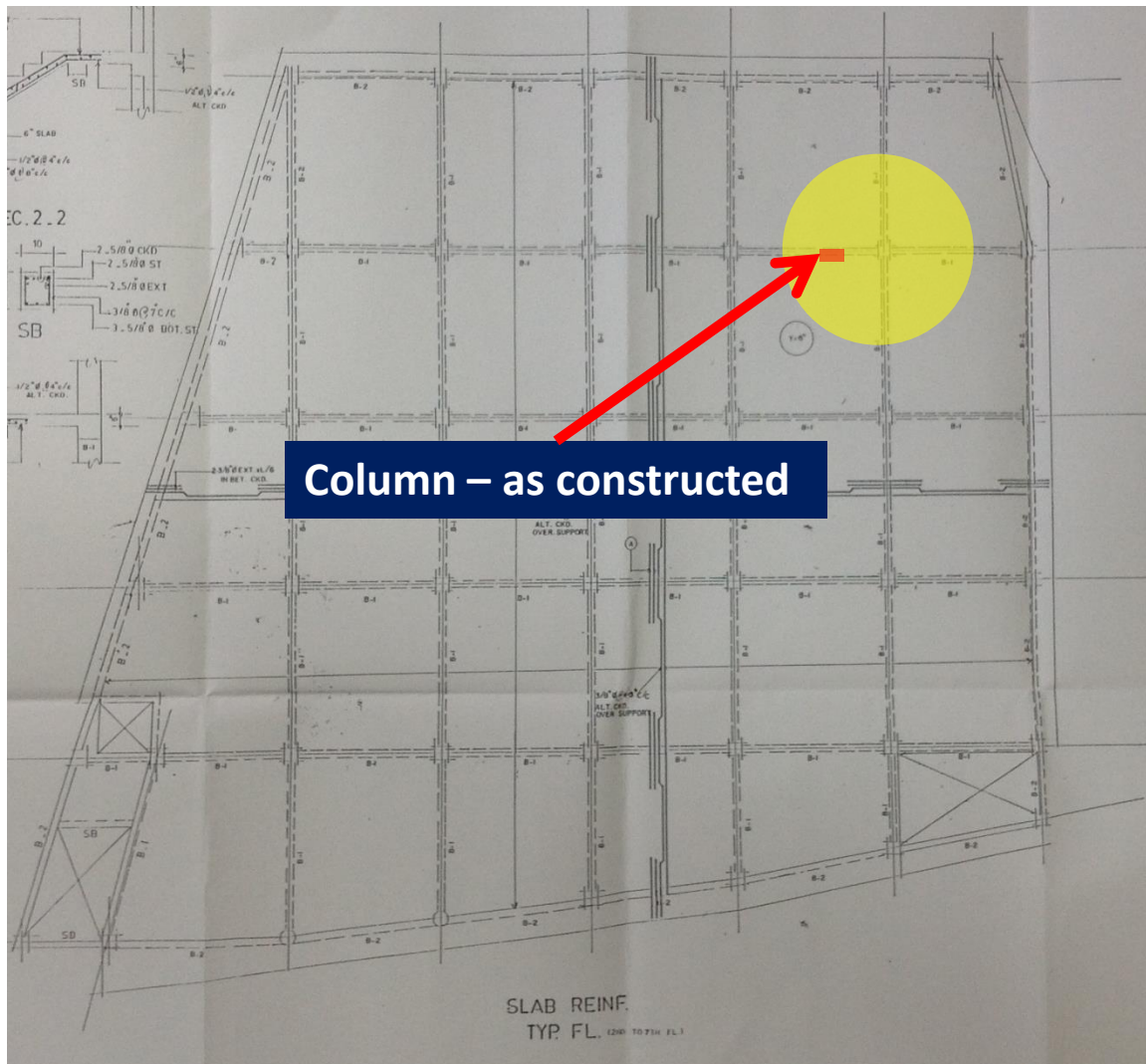
Cursory calculations indicate that column size appears to be smaller than required by code for the applied dead and live load, assuming typical concrete strength

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

- Reduce loads by preparation of allowable floor loading plans
- Carry out strengthening works

Columns appear to be stressed in excess of normal design limits

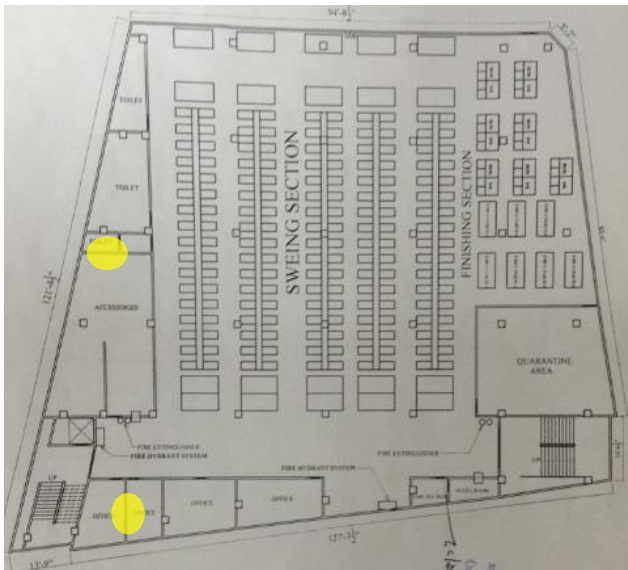
**Column at South West of building plan is not
constructed at the location shown on the
structural drawings**



The column is not constructed in the center of two beams

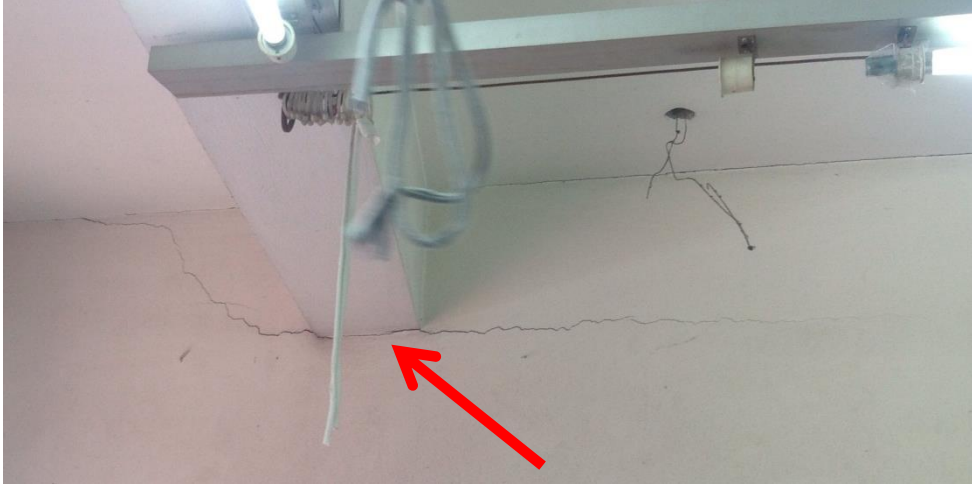
Column at South West of building

Cracking in internal brick wall on 7th and 5th floors at interface points with reinforced concrete beams above



Cracking in internal brick wall at points highlighted in yellow on 7th floor

Brick wall on 7th floor

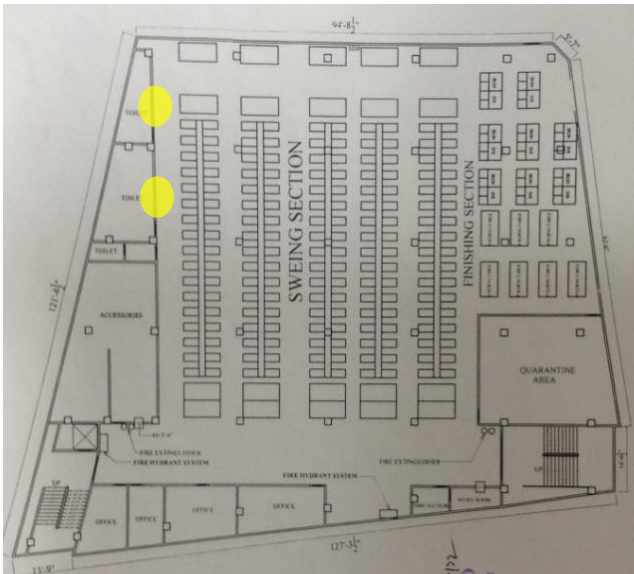


Cracking pattern to internal brick wall at points highlighted in yellow on 5th floor

Brick wall on 5th floor

Cracking in internal brick wall on ground floor and 6th floor

**Cracking to internal brick wall
at points highlighted in yellow
on 6th floor**



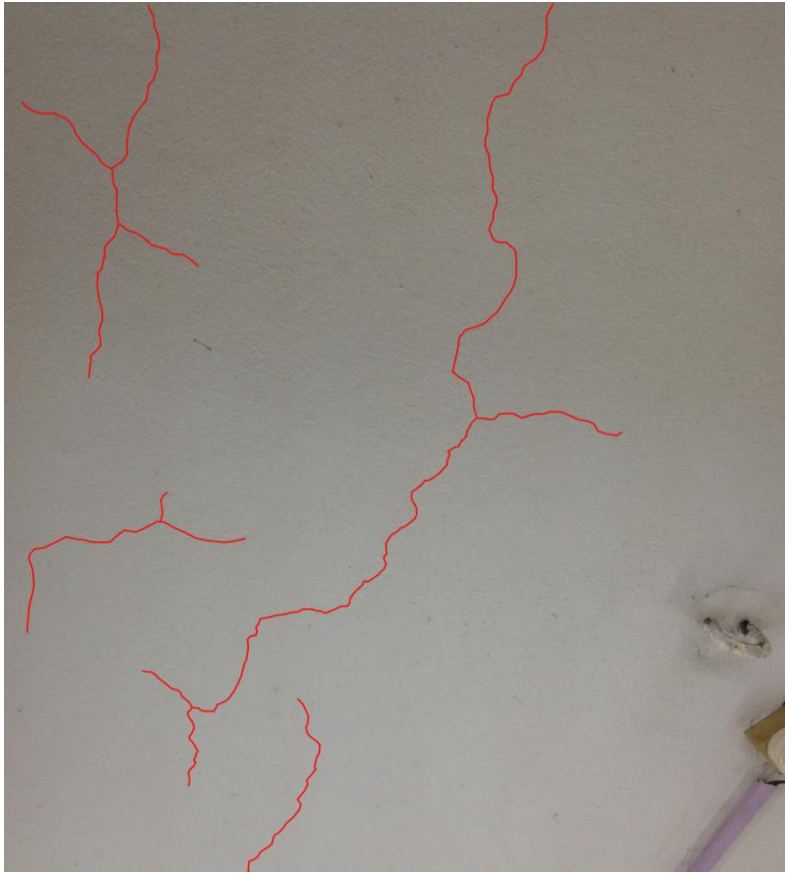
Brick wall on 6th floor



**Cracking to internal brick wall
on ground floor**

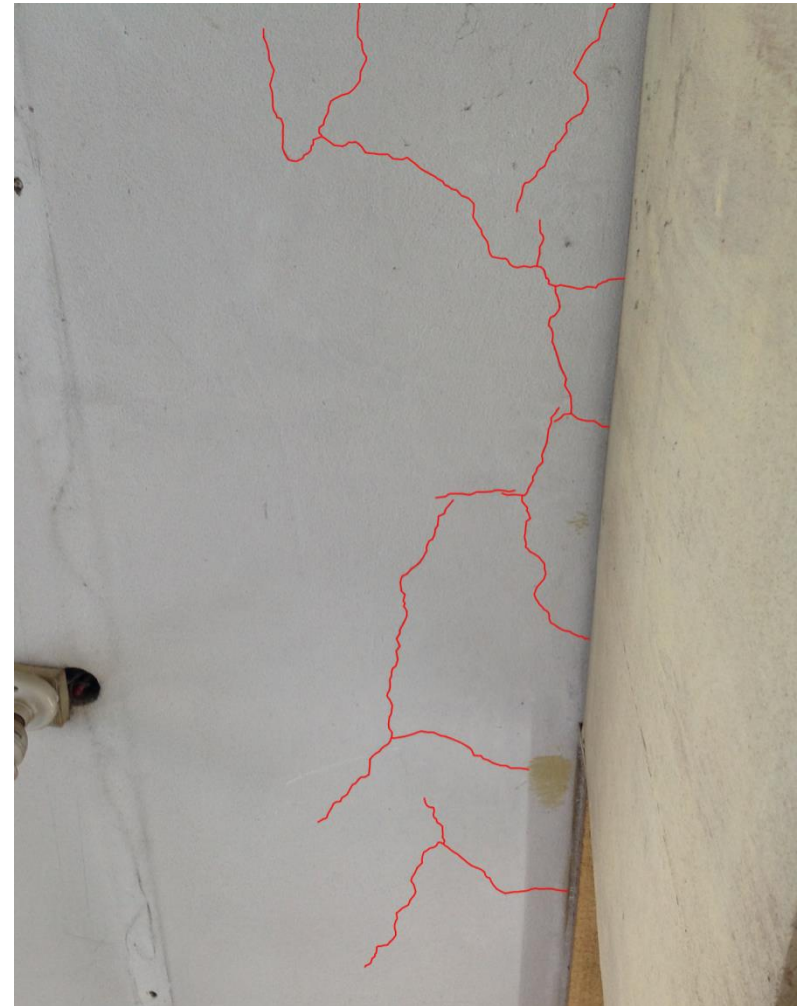
Brick wall on ground floor

Cracking to concrete beams and slabs on the underside of 4th, 5th, 6th, 7th and 8th floors



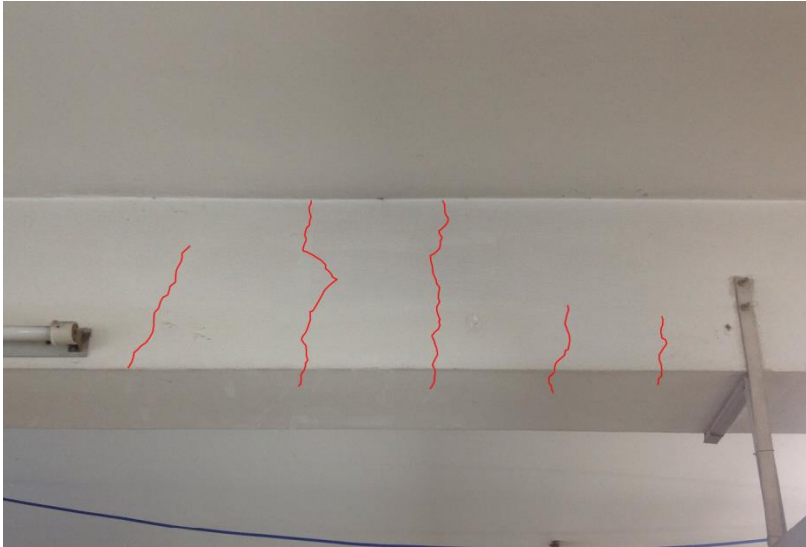
Crack in slab – u/side 8th floor

Cracking pattern similar to concrete slabs on the underside of 4th, 5th, 6th, 7th and 8th floor slabs



Crack in slab – u/side 5th floor

Crack in slabs



Crack in beam – u/side 4th floor



Crack in beam – u/side 8th floor

Cracking pattern to concrete beams on the underside of 4th, 5th, 6th, 7th and 8th floor slabs



Crack in beams

Load management of storage loads on 2nd Floor



Storage Loads
Plan and height restrictions to be introduced to prevent future overloading.

2nd Floor Storage loads

Building Observations Knitting & Fabric Store Building

Cracking to concrete slab on the underside of 2nd floor



**Cracking pattern to concrete slab –
u/side 2nd floor**

Slab Cracks

Load management of storage loads on 1st Floor



Storage Loads
Plan and height restrictions to be introduced to prevent future overloading.

1st Floor Storage loads

Check required to confirm that steel roof structure is adequate to resist high wind loads



**Lightweight roof steel structure over Knitting Section on the 2nd floor is not shown on the structural design drawings
No obvious stability system. Roof truss column support offset from node.**

Steel Roof to Knitting Section

Building Observations

Single Storey Sheds

Check required to confirm that steel roof structure is adequate to resist high wind loads



**Lightweight roof steel structure over Single Storey Sheds is not shown in the structural design drawings
No obvious stability system provided.**

Steel Roof to Single Storey Sheds

Priority Actions

Problems Observed – Garment Factory

ITEM 1; Columns, within the 9 storey factory, appear to be stressed in excess of normal design limits

ITEM 2; Column at south west of building plan is not constructed at the location shown on the structural drawings

ITEM 3; Load management of storage loads on 2nd Floor

ITEM 4; Cracking in internal brick wall on 7th and 5th floors at interface points with reinforced concrete beams above

ITEM 5; Cracking in internal brick wall on ground floor and 6th floor

ITEM 6; Cracking to concrete beams and slabs on the underside of 4th, 5th, 6th, 7th and 8th floors

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Garment Factory - Columns, within the 9 storey factory, appear to be stressed in excess of normal design limits	All loads, including equipment, garments and personnel, at each floor level, except ground floor, are to be reduced to 2.0kN/m ² pending completion of this design check. (equivalent 1 to 1.2m high of loose stacked garments or packed boxes)	Immediate - Now
2	Garment Factory - Columns, within the 9 storey factory, appear to be stressed in excess of normal design limits	Detail Engineering Assessment of as built structure to be commenced as per attached scope.	Immediate - Now
3	Garment Factory - Columns, within the 9 storey factory, appear to be stressed in excess of normal design limits	Verify insitu concrete strengths and existing reinforcement for all columns	Immediate - Now
4	Garment Factory - Columns, within the 9 storey factory, appear to be stressed in excess of normal design limits	Detail Engineering Assessment to be completed	6-weeks
5	Garment Factory - Columns, within the 9 storey factory, appear to be stressed in excess of normal design limits	Produce and actively manage a loading plan for all floors within the building giving consideration to floor capacity and column capacity.	6-weeks
6	Garment Factory - Columns, within the 9 storey factory, appear to be stressed in excess of normal design limits	Continue to implement load plan	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
7	Garment Factory - Column at south west of building plan is not constructed at the location shown on the structural drawings	Building Engineer to survey column locations and compare with structural drawings to identify this and any other discrepancies in column locations between the design and as- built structure. (refer to item 1 – Detail Engineering Assessment)	6-weeks
8	Garment Factory - Column at south west of building plan is not constructed at the location shown on the structural drawings	Building Engineer to review the design calculations and confirm that the design corresponds with the as-built structure.	6-months
9	Garment Factory - Column at south west of building plan is not constructed at the location shown on the structural drawings	Layout and structural drawings to be updated	6-months
10	Garment Factory - Load management of storage loads on 2nd Floor	Produce and actively manage a loading plan for all floor plates within the factory giving consideration to floor capacity and column capacity. (Refer to Item 1)	6-weeks
11	Garment Factory - Load management of storage loads on 2nd Floor	Continue to implement load management plan	6-months
12	Garment Factory - Cracking in internal brick wall on 7th and 5th floors at interface points with reinforced concrete beams above	Sections of plaster finish to wall to be removed and extent of crack to be reviewed by Building Engineer	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
13	Garment Factory - Cracking in internal brick wall on 7th and 5th floors at interface points with reinforced concrete beams above	Building Engineer to confirm that wall and floor slab structure above act separately	6-months
14	Garment Factory - Cracking in internal brick wall on 7th and 5th floors at interface points with reinforced concrete beams above	Remedial works to be completed including isolation of structure from brick wall	6-months
15	Garment Factory - Cracking in internal brick wall on ground floor and 6th floor	Sections of plaster finish to wall to be removed, extent and cause of crack to be reviewed by Building Engineer	6-months
16	Garment Factory - Cracking in internal brick wall on ground floor and 6th floor	Remedial works to be completed including isolation of structure from brick wall	6-months
17	Garment Factory - Cracking to concrete beams and slabs on the underside of 4th, 5th, 6th, 7th and 8th floors	Sections of plaster finish to beams and slabs to be removed to investigate if cracks penetrate the building structure.	6-months
18	Garment Factory - Cracking to concrete beams and slabs on the underside of 4th, 5th, 6th, 7th and 8th floors	Building Engineer to carry out design check on beams and slab to confirm that these cracks are non-structural. (refer to item 1 – Detail Engineering Assessment)	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
19	Garment Factory - Cracking to concrete beams and slabs on the underside of 4th, 5th, 6th, 7th and 8th floors	Building Engineer to prepare Allowable Floor Loading Plans (refer to Item 1)	6-months
20	Knitting Building & Fabric Store Building - Check required to confirm that steel roof structure is adequate to resist high wind loads	The steel roof over the Knitting Building & Fabric Store Building should be designed by the Building Engineer and, if required, upgraded to support code vertical and wind loads or they should be vacated and removed.	6-weeks
21	Knitting Building & Fabric Store Building - Load management of storage loads on 1st Floor	Produce and actively manage a loading plan for all floor plates within the Knitting Building & Fabric Store Building giving consideration to floor capacity and column capacity.	6-weeks
22	Knitting Building & Fabric Store Building - Load management of storage loads on 1st Floor	Continue to implement load management plan	6-months
23	Knitting Building & Fabric Store Building - Cracking to concrete slab on the underside of 2nd floor	Sections of plaster finish to slab to be removed to investigate if cracks penetrate the building structure.	6-months

Item No.	Observation	Recommended Action Plan	Recommended Timeline
24	Knitting Building & Fabric Store Building - Cracking to concrete slab on the underside of 2nd floor	Building Engineer to carry out design check on slab to confirm that these cracks are non-structural.	6-months
25	Knitting Building & Fabric Store Building - Cracking to concrete slab on the underside of 2nd floor	Building Engineer to prepare Allowable Floor Loading Plans	6-months
26	Single Storey Sheds - Check required to confirm that steel roof structure to the Single Storey Sheds is adequate to resist high wind loads	The steel roof over the Single Storey Sheds should be designed by the Building Engineer and, if required, upgraded to support code vertical and wind loads or they should be vacated and removed.	6-weeks