

Denim Fashions Ltd.

RS-370, CS-727, Sataish, Tongi, Gazipur, 1712

(23.918437N, 90.377678E)

22nd February 2015



Observations

Building 1

Roof steel trusses seem to be non-engineered



Very poor welds between truss members



The sizes of structural members are very small (L-shapes L50 x 5 to L70 x 7)



Supporting columns are NOT coincident with truss nodes



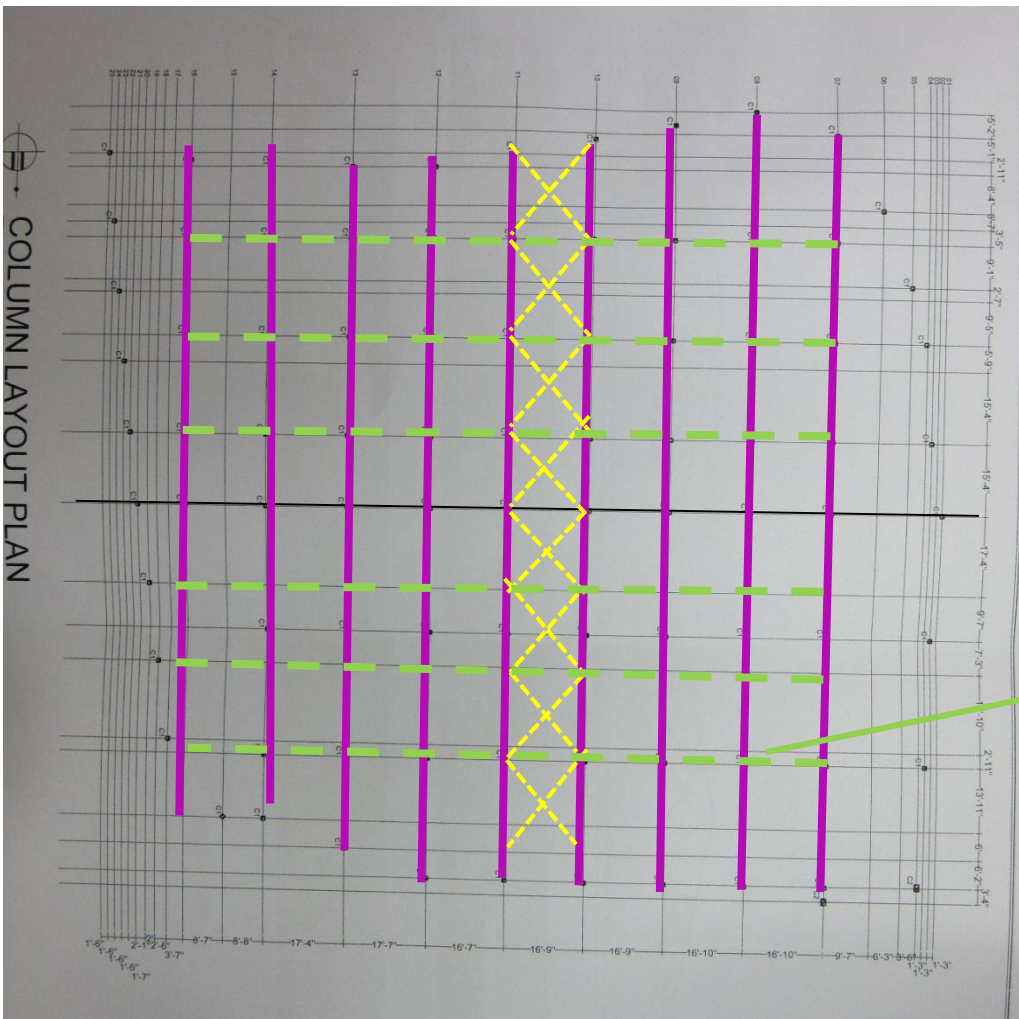
In general, no vertical truss members at bearing points

Roof steel trusses seemed to be non-engineered

Building 1

Building 1

No stability bracing at roof level



No horizontal bracing at roof level between steel trusses.
No vertical bracing between trusses to protect them against overturning.

No stability bracing at roof level

Building 1

Building 1

No structural connection between steel trusses and roof purlins



No structural connections observed between truss and purlins (critical for transfer of uplift and lateral loadings)

Non-engineered bearing and connection of purlins to outside walls



No structural connection between steel trusses and roof purlins

Building 1

Building 1

Bearing of trusses on columns seems to be non-engineered



Non-engineered bearing of
steel trusses on columns
(critical for transfer of uplift
and lateral loadings)

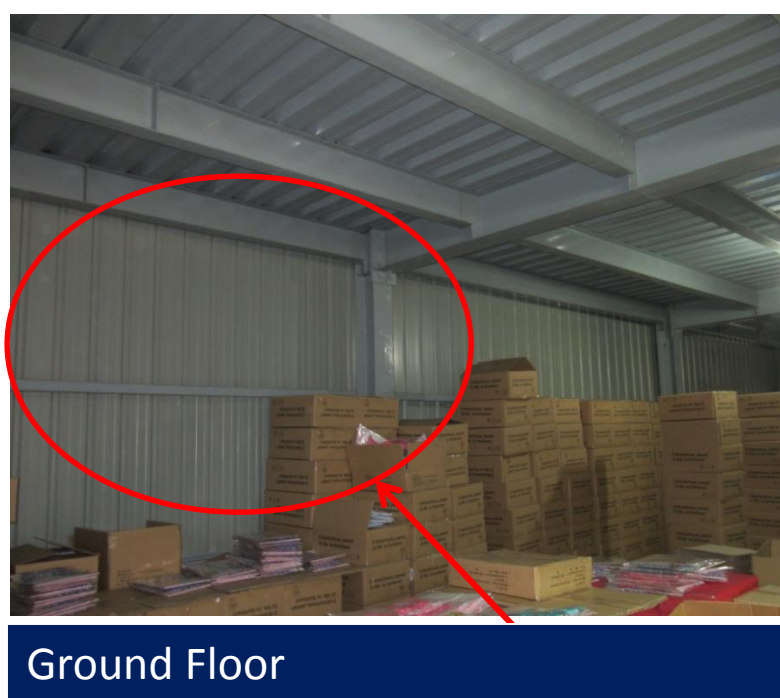


Bearing of trusses on columns seems to be non-engineered

Building 1

Building 2

No vertical stability system in longitudinal direction



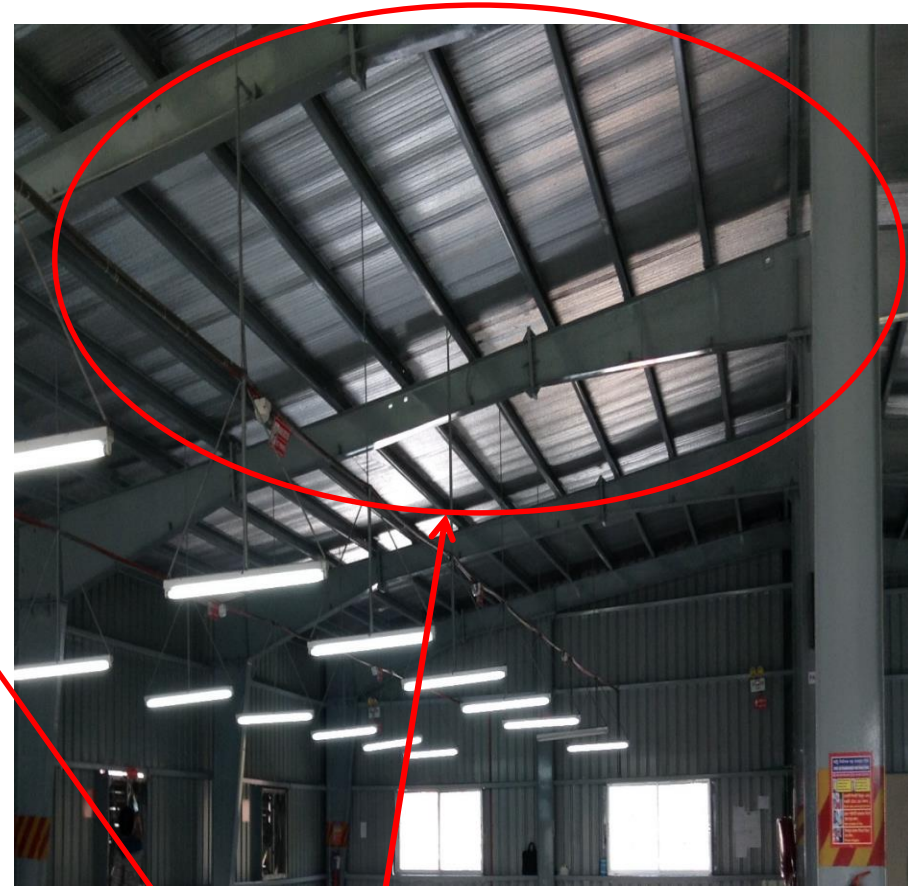
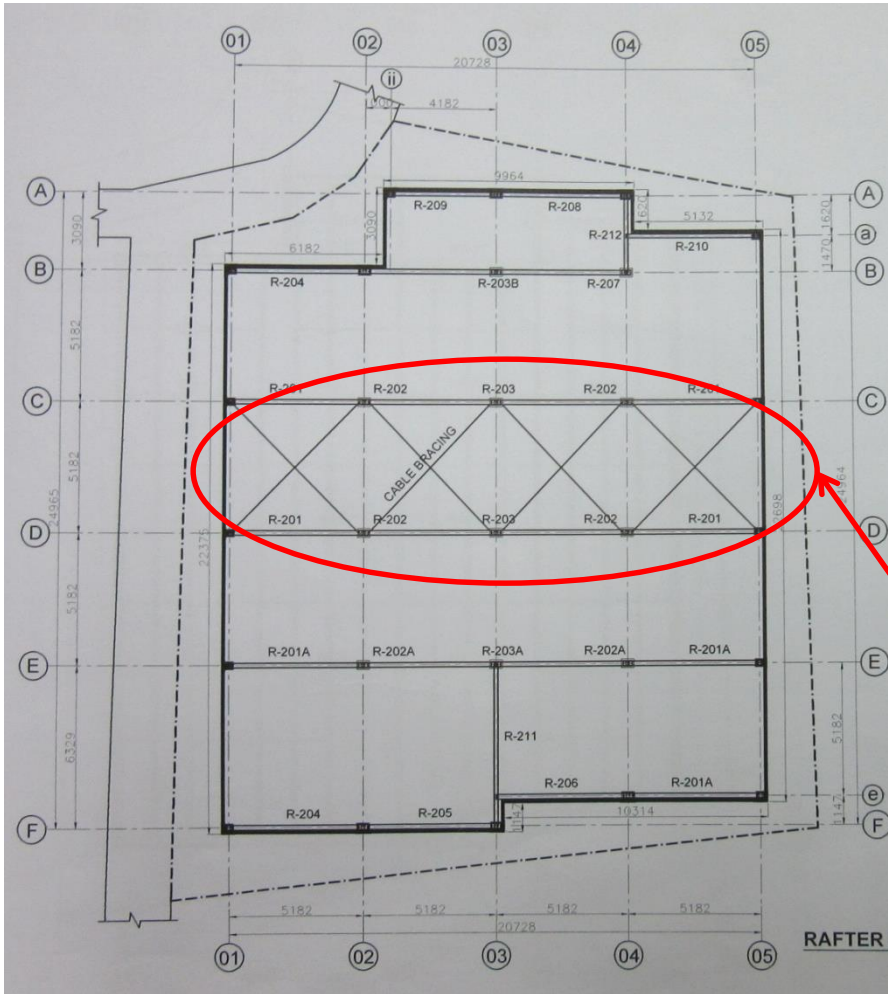
No vertical
bracing

No vertical stability system in longitudinal direction

Building 2

Building 2

Roof bracing is missing

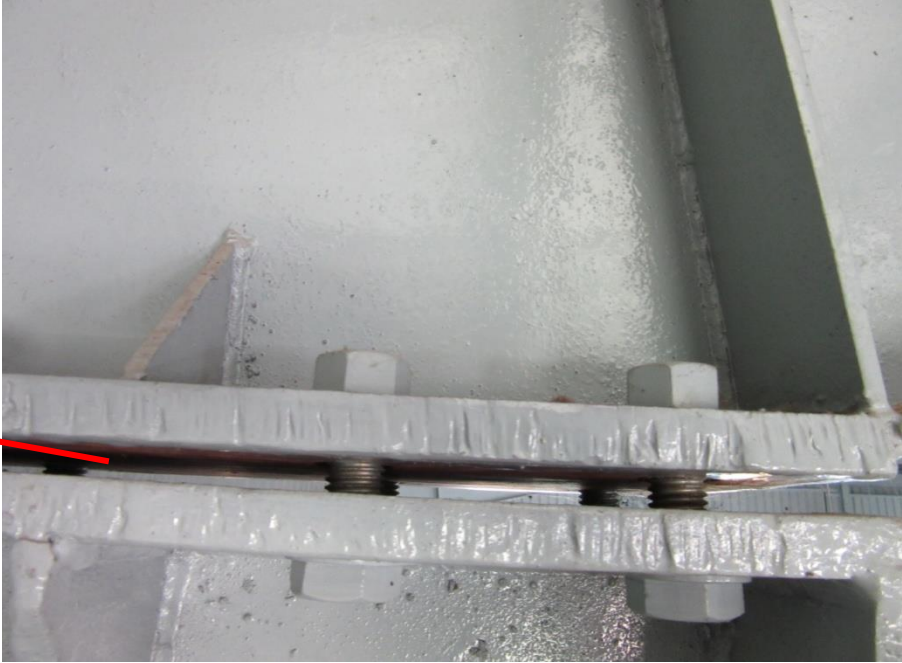


Bracing shown on drawing
but missing from roof

Roof bracing is missing
Building 2

Building 2

Semi-rigid connections at “rigid” moment frame corners



Semi-rigid connections

Semi-rigid connections at "rigid" moment frame corners

Building 2

Priority Actions

Problems Observed

BUILDING 1

ITEM 1: Steel roof appears to be non-engineered

ITEM 2: No stability bracing at roof level

ITEM 3: No structural connections between steel trusses and purlins

ITEM 4: Bearing of trusses on columns seems to be non-engineered

BUILDING 2

ITEM 1: No vertical stability system in longitudinal direction

ITEM 2: Roof bracing is missing

ITEM 3: Semi-rigid connections at "rigid" moment frame corners

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Steel roof appears to be non-engineered	Factory Engineer to carry out an Engineering design check for the Building 1 roof.	Immediate - Now
2	Steel roof appears to be non-engineered	Engineering design check to be completed.	6-weeks
3	Steel roof appears to be non-engineered	Make structural alterations as advised by Factory Engineer.	6-weeks
4	No stability bracing at roof level	Factory Engineer to review the stability of the steel roof structure with consideration of as-constructed joints, uplift forces, lateral loads and global stability.	Immediate - Now
5	No stability bracing at roof level	Factory Engineer to advise on any necessary alterations.	Immediate - Now
6	No stability bracing at roof level	Make structural alterations as advised by Factory Engineer.	6-weeks
7	No structural connections between steel trusses and purlins	Factory Engineer to review the design of the purlin connection to the trusses, with respect to the provision of engineered support points and withstanding uplift forces and lateral loads.	Immediate - Now
8	No structural connections between steel trusses and purlins	Factory Engineer to advise on any necessary alterations.	Immediate - Now
9	No structural connections between steel trusses and purlins	Make structural alterations as advised by Factory Engineer.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
10	Bearing of trusses on columns seems to be non-engineered	Factory Engineer to review the bearing of the steel roof trusses on the columns, with respect to the provision of engineered support points and withstanding uplift forces and lateral loads.	6-weeks
11	Bearing of trusses on columns seems to be non-engineered	Factory Engineer to advise on any necessary alterations to steelwork.	6-weeks
12	Bearing of trusses on columns seems to be non-engineered	Factory Engineer to advise on any necessary alterations to steelwork.	6-months
13	No vertical stability system in longitudinal direction	Factory Engineer to investigate the stability of the building in the longitudinal direction, and advise on any necessary alterations.	6-weeks
14	No vertical stability system in longitudinal direction	Carry out structural alterations as advised by Factory Engineer.	6-weeks

Item No.	Observation	Recommended Action Plan	Recommended Timeline
15	Roof bracing is missing	Factory Engineer to assess the lateral stability at roof level with respect to the transfer of lateral loads to the vertical structure.	6-weeks
16	Roof bracing is missing	Factory Engineer to advise on any necessary alterations to the steelwork in order to achieve lateral stability.	6-weeks
17	Roof bracing is missing	Carry out structural alterations as advised by Factory Engineer.	6-weeks
18	Semi-rigid connections at "rigid" moment frame corners	Factory Engineer to assess the stability system in cross direction of the building, taking into consideration the as-built details at the moment frame connections.	6-weeks
19	Semi-rigid connections at "rigid" moment frame corners	Factory Engineer to advise on any necessary alterations to the steelwork in order to achieve lateral stability.	6-weeks
20	Semi-rigid connections at "rigid" moment frame corners	Carry out structural alterations as advised by Factory Engineer.	6-weeks