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Building Observations

Adequacy of lightweight steel roofs to structures

Generally the single storey buildings have lightweight steel roofs which do not appear to be fully designed and verified by a Building Engineer due to lack of appropriate connection details between steelwork and concrete structure/ brick wall. Steelwork connections are all fully welded.

We recommend that a Building Engineer be engaged to review and verify that all of the steel roofs comply with code design load requirements – including wind loads.



Generator building



Pump building

On the Main factory building - the roof to the canteen/ dining area is of lightweight steel construction and we recommend that a Building Engineer be engaged to review and verify that all of the steel roof structures comply with code design load requirements – including wind loads.



Main factory building; Apparently non-engineered steel structure and roof construction. Steel connection details and steel members are to be verified by the Building Engineer.



Steel Roofs

**Antenna structure at roof level – design check
recommended**

Lightweight antenna structure at roof level. We recommend that this antenna structure and fixings to the concrete roof be reviewed and verified by the Building Engineer.



Antenna at roof level

Structural movement joint not reflected in building column

The movement joint detail on Level 1 has not been reflected on one side of the column as indicated in red below. It is possible that this movement joint may have been in-filled with plaster after construction. The other side of the column incorporates the movement joint detail (note; it does not line up with the joint on the slab). The factory manager cannot confirm if the column was constructed this way.

We recommend that the movement joint at this location should be reviewed by the Building Engineer and the joint be exposed in the column plaster to ensure free movement of the building.

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Structural Movement Joint

Connection details of steel stairs and deterioration of paint coating to welds

Steel stairs (emergency staircases for fire situation) located to the east and west elevation of the building. There are no steel drawings available for these stairs.

We note that all connection details appear to have been fully welded in-situ. Some of the welds which were available for inspection have rust marks. We also note that the paint protection for the steelwork has been touched up in the past, most probably because of premature failure.



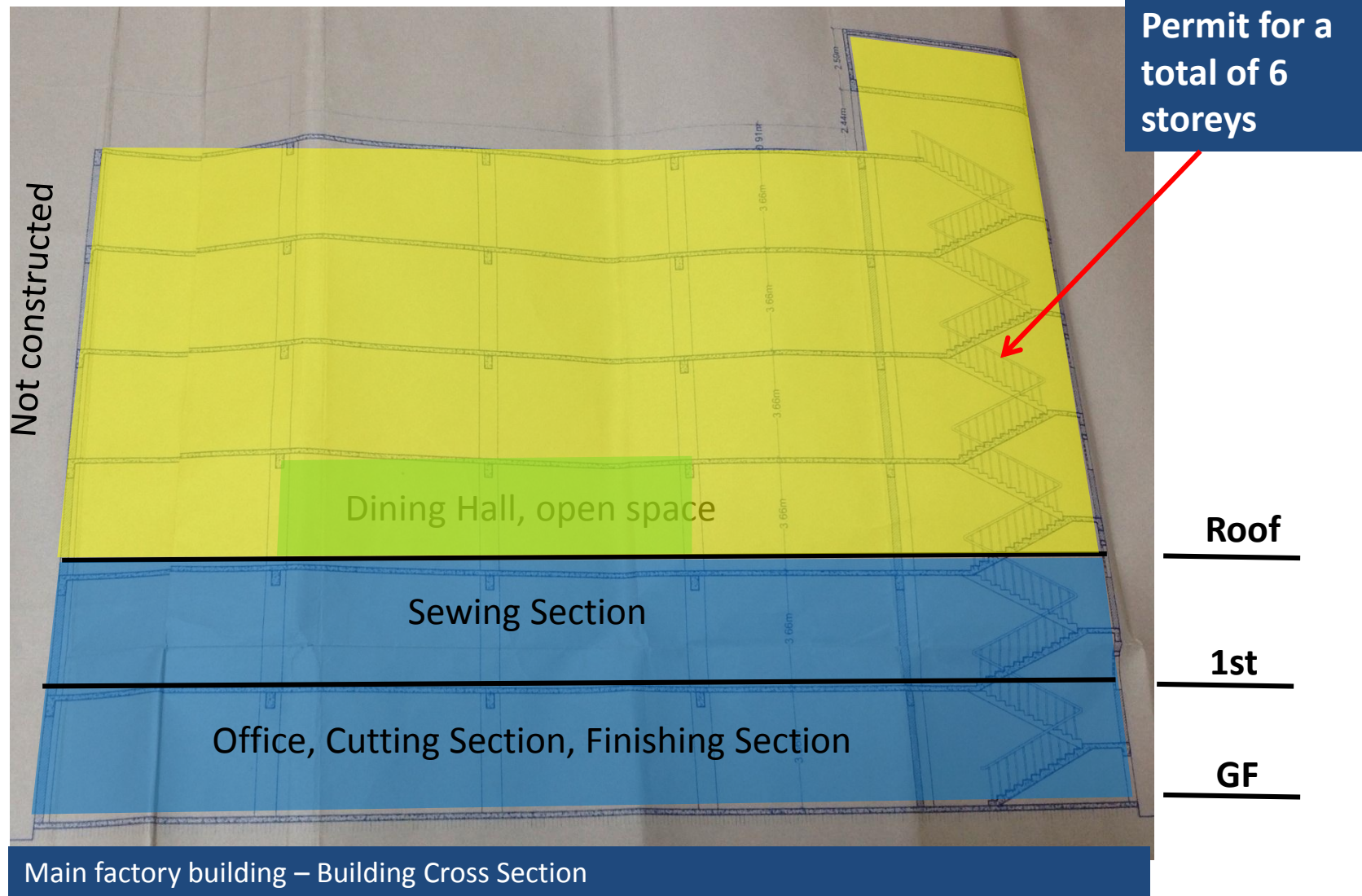
Steel stairs (west)



Steel stairs (east)

Steel Stairs

Any proposed additions to the existing building structure, including additional storeys, should be reviewed by the Building Engineer



Building Engineer to review structural design and concrete strength within existing columns prior to commencing construction of any further building extension.

Additional Building Storeys

Problems Observed

ITEM 1: Adequacy of lightweight steel roofs to structures

ITEM 2: Antenna structure at roof level – design check recommended

ITEM 3: Structural movement joint not reflected in building column

ITEM 4: Connection details of steel stairs and deterioration of paint coating to welds

ITEM 5: Any proposed additions to the existing building structure, including additional storeys, should be reviewed by the Building Engineer

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Adequacy of lightweight steel roofs to structures	Lightweight roof structures to be verified by the Building Engineer and upgraded as necessary to ensure adequacy for code vertical and wind loads.	6-months
2	Antenna structure at roof level – design check recommended	Building Engineer to review and verify antenna structure including fixings at roof level.	6-months
3	Structural movement joint not reflected in building column	Expose joint / remove plaster covering the building movement joint to allow building movement to occur at the intended location.	6-months
4	Connection details of steel stairs and deterioration of paint coating to welds	Engage a Building Engineer to review all weld details and conditions.	6-months
5	Connection details of steel stairs and deterioration of paint coating to welds	Monitor condition of paint to steelwork and touch up as necessary to maintain steelwork protection.	6-months
6	Any proposed additions to the existing building structure should be reviewed by the Building Engineer	If any additions to the building structure are proposed, the Building Engineer shall provide calculations showing the structural adequacy of all columns taking into account any additions to the existing structure, the loading plans and as built structure, including insitu concrete strength testing.	6-months