

Saiham Knit Composite Ltd (9520)

Saiham Nagar, Noyapara, Madhabpur, Hobigonj

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Identified Priority 1 Concerns

None Identified.

Identified Priority 2 Concerns

Inconclusive or incomplete lateral stability system in several buildings across the compound.

Several small, independent structures are not shown on structural drawings, appear not to have been designed, and do not seem structurally sufficient.

Lack of fireproofing evident throughout steel structures.

1st Priority 2 Concern



These images show two separate locations in the 'Green Floor' where the bracing system has either been modified from its original design or incorrectly detailed originally. In both cases the resulting stability gained from the bracing is insufficient.

Above, one of the cables from a cross-brace has been removed to allow for a doorway; and right, the horizontal bracing expressed along one bay is not continued into the vertical plane.



Bracing inadequacies such as these were visible in numerous locations around this building.

Concern continued over page...

1st Priority 2 Concern Continued



Left, the truss system supporting the roof of the '10 ton Building'. The trusses were very lightweight, and supported by 5m tall cantilever concrete columns. The anchorages to these as well as perimeter columns did not appear sufficient to transfer lateral loads.

Right, a portal frame detail utilised in several different buildings across the site, in this case the storage building adjacent to the office building. The detail is an arbitrary attempt to increase inertia of the main rafter, but uses very lightweight members. Furthermore, the connection does not appear stiff enough to provide lateral stability. In addition to this, the lightweight roof build-up is very unlikely to provide diaphragm action.

2nd Priority 2 Concern



Above, external view of a bamboo-framed shed structure, with evidence of damage and excessive deflection shown above right and right. Note also the fire extinguisher, contradicting the claims that this is only a temporary structure.

This building does not house any permanent staff, and therefore does not pose a major threat to life, however its instability is liable to cause injury if not amended.



3rd Priority 2 Concern

As indicated below, the vast majority of the roof steelwork, as well as that for floors and walls, was exposed and not protected against fire.



The appropriate local building codes should be consulted to ensure a sufficient level of fire resistance is implemented.

Identified Priority 3 Concerns

Modifications made to secondary structural elements within the '10 ton Building' resulting in incomplete structural system.

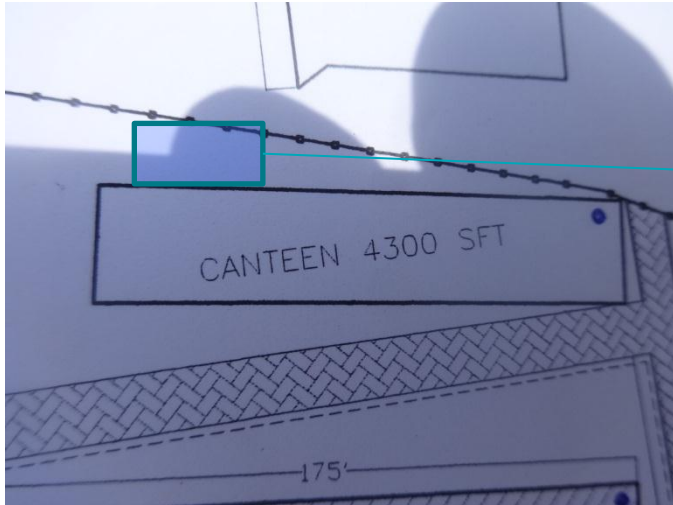
Structural and architectural drawings are incomplete in terms of reflecting the full extent of the site. Some buildings and small structures are missing from the drawings.

1st Priority 3 Concern



Both of these images show locations where a structural member has been cut to allow for the passage of a duct. Left, a purlin has been dismantled; while right, one angle from a section of cross bracing has been cut, rendering it useless.

2nd Priority 3 Concern



Above, layout drawing of the canteen (left) and an extension that was not indicated on this drawing, containing some insufficiently designed connections between this and the main building (right). Below right is an example of the poor connection details between the two phases of construction, and below left is an STP not indicated on the layout drawings.



None of these concerns present an immediate threat to safety, but it is important for future stages of work or inspections that drawings are updated to match reality.



2nd Priority 3 Concern Continued



The cantilever concrete columns supporting the steel trusses in the '10 ton Building' were found to have a highly variable number of reinforcing bars, following Ferros scanning. As well as inaccuracies in the drawings, this also reaffirms the requirement for further structural assessment of lateral stability systems across the site.

Overall Stability System

There are two main, generalised concerns regarding the stability of the building, both of which can be witnessed in several locations.

The first is the modified or removed sections of bracing from the 'Green Floor' building (below left), and the second is the apparent insufficiency in stiffness visible in several supposed portal-frame structures (below right). These portal frames are also generally poorly anchored and not supplemented by a rigid diaphragm roof.



Horizontal bracing not extended into vertical bracing in the same bay.



We require that these items be investigated in a Detail Engineering Assessment

Water Ingress at Roof Level

As is represented in these images of the '10 ton Building', the many structures on the site are all covered by pitched steel roofs. No signs of damage sufficient to allow water ingress were observed, and indeed no signs of water ingress internally were visible.



View from the perimeter of the '10 ton Building', where the roof of the 'Green Floor' building is also visible in the distance.



Roof of the '10 ton Building', looking East from the top of the external steel staircase.

Priority Actions

Problems Observed Summary

ITEM 1 (Priority 2): Lateral stability of several buildings is questionable, particularly where modified to remove designed bays of bracing.

ITEM 2 (Priority 2): Inadequate construction of some unlicensed buildings around the site, particularly the storage space of bamboo construction.

ITEM 3 (Priority 2): Lack of fire-proofing to exposed structural steel members.

ITEM 4 (Priority 3): Damaged secondary structural members in '10 ton Building' following modifications to allow passage of ductwork.

ITEM 5 (Priority 3): Incomplete or inaccurate structural and architectural drawings.

Item No.	Observation	Recommended Action Plan	Recommended Timeline
1	Lateral stability of several buildings is questionable, particularly where modified to remove designed bays of bracing.	Detailed Engineering Assessment to be carried out to determine lateral stability of buildings across the site, particularly those where existing bracing has been modified.	6-weeks
2	Lateral stability of several buildings is questionable, particularly where modified to remove designed bays of bracing.	Implement any structural changes deemed necessary by the DEA, including reinstatement of cross bracing and stiffening of portal frames/roof diaphragms if required.	6-months
3	Inadequate construction of some unlicensed buildings around the site, particularly the storage space of bamboo construction.	Structural Engineer to review construction of un-designed buildings, and carry out calculations to analyse existing capacity. Design remedial strengthening where required.	6-weeks
4	Inadequate construction of some unlicensed buildings around the site, particularly the storage space of bamboo construction.	Implement any strengthening works deemed necessary by the Structural Engineer.	6-months
5	Lack of fire-proofing to exposed structural steel members.	Factory Engineer to review BNBC requirements for fire protection. Investigate current arrangement to confirm compliance with code in this regard.	6-weeks
6	Lack of fire-proofing to exposed structural steel members.	If existing structure does not provide sufficient fire protection, suitable fire-proofing system to be designed and implemented under the supervision of a competent Structural Engineer and Fire Engineer.	6-months
7	Damaged secondary structural members in '10 ton Building' following modifications to allow passage of ductwork.	Structural Engineer to design remedial repairs where elements have been modified. Repair work to be completed under Engineer's supervision.	6-months
8	Incomplete or inaccurate structural and architectural drawings.	Factory Engineer to survey the actual site conditions. Structural and architectural drawings to be amended/updated to accurately reflect site conditions.	6-months