Kadena Sportwear Limited (Extension)

Standard Factory Building no. 5 & Plot no. 113-121, Comilla EPZ, Comilla

(23.443174, 91.183109)

6 & 31 December 2023

RSC RMG SUSTAINABILITY COUNCIL

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1. Building Information:

i. Production shed -1.

ii. Warehouse & Cutting shed.

iii. Printing shed.

iv. 116 Finished goods shed.

v. Chemical store shed.

vi. Sub store shed.

vii. Maintenance shed.

viii. Sub-station shed-2.

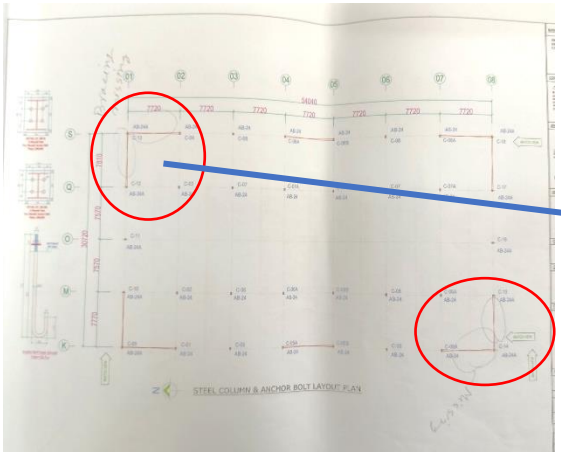
ix. MS SFB-2

x. Dining shed.

xi. Utility shed.

2. Observations:

Observation-01: Mismatch in as-built drawing. (Production Shed-1)



Bracing layout

Bracing missing

Description: Some bracings were found missing as per bracing layout. Connection details were not available in the provided drawings. Also, no structural details were found for steel stair.

Observation-02: Absence of design documents. (Production Shed-1)

Production Shed-1

Typical framing system

Description: As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. At the time of inspection, a design report was not available which is required to be prepared in compliance with BNBC 2006.

Observation-03: Significant connection gap and improper bracing connection. (Production Shed-1)

Connection gap

Improper bracing connection

Description: Significant gaps were observed in Rafter-column joint. Also, cable bracings were connected without hillside washer and nuts. Building engineer is required to carry out suitable remedial works for the gap and bracing connection.

Observation-04: Apparently inadequate platform for plastic water tank. (Production Shed-1)

Plastic water tank on roof

Plastic water tank on roof

Description: Apparently inadequate platform was found for plastic water tank. The building engineer is required to check the member adequacy of the structure and suggest suitable remedial works.

Observation-05: Lack of information in the drawings. (Warehouse and Cutting Shed)

Beam-column of mezzanine

Framing

Description: Full set of as-built drawings were not available. Beam layout for mezzanine, bracings, compression strut and connection details were not found in the provided as-built drawings. The building engineer is required to survey the structure and prepare a full set of as-built drawings in compliance with BNBC.

Observation-06: Overloading and absence of design documents. (Warehouse and Cutting Shed)

Loading

Framing of roof

Description: As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. At the time of inspection, a design report was not available which is required to be prepared in compliance with BNBC 2006.

Observation-07: Significant connection gap and bolt missing. (Warehouse and Cutting Shed)

Connection gap

Bolt missing

Description: Significant gaps and bolt missing were observed at several joints. Building engineer is required to carry out suitable remedial works for the gap and install the missing bolts.

Observation-08: Non-structural elements not anchored or braced. (Warehouse and Cutting Shed)

Unbraced racks

Unbraced racks

Description: Some racks on floors are not anchored or braced to resist lateral (earthquake) forces. The factory is required to anchor/brace all non-structural elements adequately to resist earthquake forces.

Observation-09: Lack of drawings for steel portion. (Printing Shed)

Printing Shed

Framing of Printing Shed

Description: As-built structural drawings were not found for the steel portion the shed. The building engineer is required to survey the structure and prepare a full set of as-built drawings for steel part.

Observation-10: Lack of lateral stability. (Printing Shed)

No load transfer media is provided along long direction

Description: Load transfer media is not provided along long direction for this shed. Therefore, lateral stability system of the shed is apparently incomplete. Building engineer is required to check the lateral stability of the structure.

Observation-11: Lack of drawings for steel portion. (116 Finished Goods Shed)

116 Finished Goods Shed

Framing of 116 Finished Goods Shed

Description: As-built **s**tructural and architectural drawings were not found for the steel portion the shed. The building engineer is required to survey the structure and prepare a full set of as-built drawings for steel part.

Observation-12: Absence of design report. (116 Finished Goods Shed)

116 Finished Goods Shed

Typical framing system

Description: As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. At the time of inspection, a design report was not available which is required to be prepared in compliance with BNBC 2006.

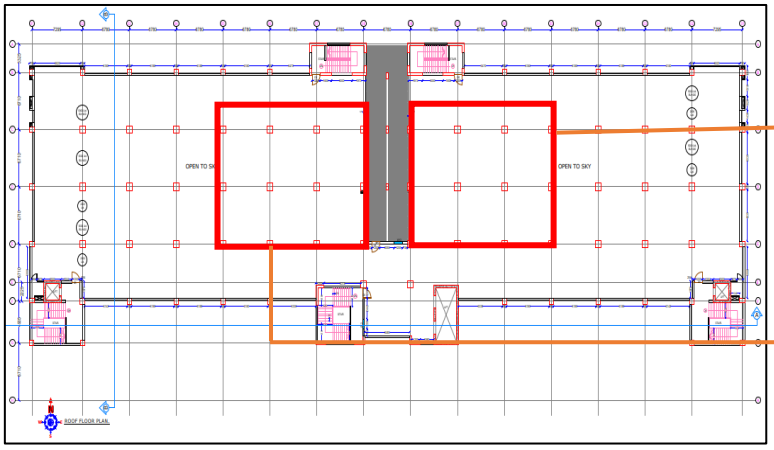
Observation-13: Lack of drawing. (Chemical Store Shed, Sub Store Shed, Maintenance Store Shed, Sub-Station Shed-2)

Description: As-built **s**tructural and architectural drawings were not found for these sheds. The building engineer is required to survey the structure and prepare a full set of as-built drawings.

Observation-14: Apparently non-engineered connection. (Chemical Store Shed, Sub Store Shed, Maintenance Store Shed, Sub-Station Shed-2)

Description: Apparently inadequate connections were observed on the lightweight roof of the single storied Sheds. The building engineer is required to check the connection adequacy of the lightweight roof against the uplift pressure of wind.

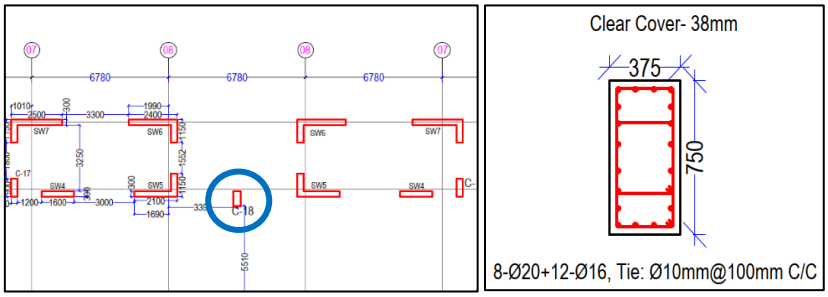
Observation-15: Discrepancy in as-built drawing. (MS SFB-2)

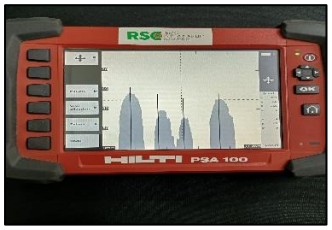


Roof Layout

Undocumented Roof Shed

Description: During inspection, two steel sheds were found on roof of MS SFB-2 building. But in as-built drawing no roof structure was mentioned.

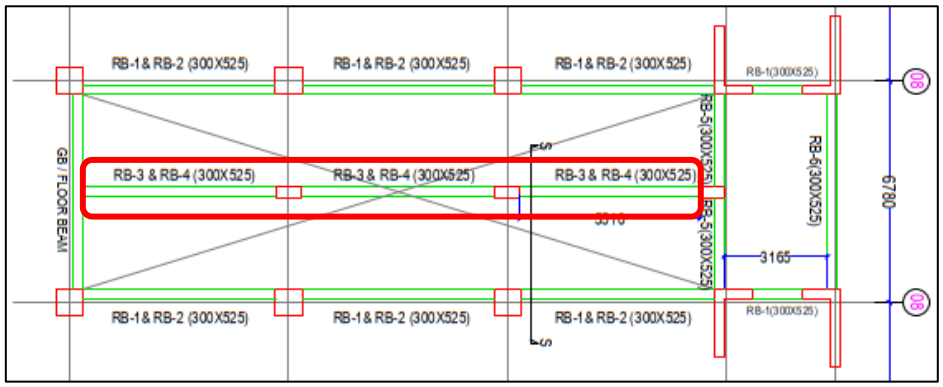




Column Layout & Rebar Details

Ferro-scan report

Description: During inspection, 16 nos. rebar of column C-18 at ramp area in 5th floor were found instead of 20 nos. rebar.



Ramp Beam Layout

Description: During inspection, ramp beam (RB-3 & RB-4) size was found 300X365 instead of 300X525 considering slab thickness 165 mm. The building engineer is required to update the as-built drawing as per actual site condition.

Observation-16: Cracks on slab & brick wall. (MS SFB-2)

Description: During inspection, some cracks were found on brick wall & slab sofit. The building engineer is required to investigate the reason of cracks and carry out remedial works as per investigation report.

Observation-17: Dampness on brick wall. (MS SFB-2)

Description: During the inspection, dampness was found on brick wall. The building engineer is required to investigate the reason of dampness & repair with suitable method.

Observation-18: Column susceptible to trolley impact. (MS SFB-2)

Description of observation: During inspection, some column of MS SFB-2 building had the sign of trolley impact. The building engineer is required to provide barriers around the column to avoid trolley impact.

Observation-19: Water ponding on roof. (MS SFB-2)

Description: During inspection, water ponding was found on the roof of MS SFB-2 building. The building engineer is required to develop the drainage system on the roof.

Observation-20: Absence of design document. (Dining Shed & Utility Shed)

Description: As per BNBC, every building or structure designed shall have its design documents prepared in accordance with the provision of Section 1.9.1. The design document shall include a design report, and a set of structural drawings, which shall be prepared in compliance with section 1.9.1.1 and section 1.9.1.2 as per BNBC. At the time of inspection, the design report was not available. The building engineer is required to prepare a design report in compliance with BNBC 1.9.1.

Observation-21: Connection gap & bolt missing in steel members. (Dining Shed)

Description: During inspection, connection gap & bolt missing was found on steel members in Dining Shed. The building engineer is required to repair the connection gap with suitable method & install missing bolts where necessary.

Observation-22: Corrosion on steel members. (Dining Shed)

Description: During inspection, steel members were found corroded in Dining Shed. The building engineer is required to apply rust proof paint on steel members.

3. Action Plan:

Observation	Action Plan	Timeline
Mismatch in as-built drawing. (Production Shed-1)	Building engineer is required to survey the structure and prepare accurate as-built drawings.	within 6 weeks
Absence of design documents. (Production Shed-1)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	within 6 weeks
	Carry out remediation work if required.	within 6 months
Significant connection gap and improper bracing connection. (Production Shed-1)	Building engineer is required to carry out suitable remedial works for the connection gap and bracing connection.	within 6 weeks
Apparently inadequate platform for plastic water tank. (Production Shed-1)	The building engineer is required to check the member adequacy of the structure and suggest suitable remedial works.	within 6 weeks
	Carry out remediation work if required.	within 6 months
Lack of information in the drawings. (Warehouse and Cutting Shed)	Building engineer is required to survey the structure and prepare full set of as-built drawings.	within 6 weeks
Overloading and absence of design documents. (Warehouse and Cutting Shed)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	within 6 weeks
	Produce and actively manage floor loading plan considering floor, column, and foundation capacities.	within 6 weeks
	Carry out remedial works (if any) after review by RSC.	within 6 months
	Implement floor loading plan.	
Significant connection gap and bolt missing. (Warehouse and Cutting Shed)	Building engineer is required to carry out suitable remedial works for the gap and install the missing bolts.	within 6 weeks

Non-structural elements not anchored or braced. (Warehouse and Cutting Shed)	The factory is required to anchor/brace all non-structural elements adequately to resist earthquake forces.	within 6 weeks
Lack of drawings for steel portion. (Printing Shed)	The building engineer is required to survey the structure and prepare a full set of as-built drawings for steel part.	within 6 weeks
Lack of lateral stability. (Printing Shed)	Building engineer is required to check the lateral stability of the structure.	within 6 weeks
	Carry out remediation work if required.	within 6 months
Lack of drawings for steel portion. (116 Finished Goods Shed)	The building engineer is required to survey the structure and prepare a full set of as-built drawings for steel part.	within 6 weeks
Absence of design report. (116 Finished Goods Shed)	Building engineer is required to prepare the design documents including a design report, and a set of structural drawings in compliance with section 1.9.1.1 and section 1.9.1.2, part-6 of BNBC and submit it to RSC for review.	within 6 weeks
	Carry out remediation work if required.	within 6 months
Lack of drawing. (Chemical Store Shed, Sub Store Shed, Maintenance Store Shed, Sub-Station Shed-2)	Building engineer is required to survey the structure and prepare full set of as-built drawings.	within 6 weeks
Apparently non-engineered connection. (Chemical Store Shed, Sub Store Shed, Maintenance Store Shed, Sub-Station Shed-2)	The building engineer is required to check the connection adequacy of the lightweight roof against the uplift pressure of wind.	within 6 weeks
	Carry out remediation work where necessary.	within 6 months
Discrepancy in as-built drawing. (MS SFB-2)	The building engineer is required to survey the whole structure & update the as-built drawing as per actual site condition.	within 6 weeks
Cracks on slab & brick wall. (MS SFB-2)	The building engineer is required to investigate the reason for cracks & repair with suitable method.	within 6 months
Dampness on brick wall. (MS SFB-2)	The building engineer is required to investigate the reason for dampness & repair with suitable method.	within 6 months
Column susceptible to trolley impact. (MS SFB-2)	The building engineer is required to provide barriers around the column to avoid trolley impact.	within 6 months
Water ponding on roof. (MS SFB-2)	The building engineer is required to develop the drainage system on the roof.	within 6 months

Absence of design document. (Dining Shed & Utility Shed)	The building engineer is required to prepare a design report in compliance with BNBC 1.9.1.	within 6 weeks
	Carry out remediation work if required.	within 6 months
Connection gap & bolt missing in steel members. (Dining Shed)	The building engineer is required to repair the connection gap with suitable method & install missing bolts where necessary.	within 6 months
Corrosion on steel members. (Dining Shed)	The building engineer is required to apply rust proof paint on steel members.	within 6 months

Survey Limitations and Assumptions

This report is for the private and confidential use of RSC for whom it was prepared together with their professional advisors as appropriate. It should not be reproduced in whole or in part or relied upon by third parties for any use without the express written permission of RSC.

This report can be used in discussion with the supplier or factory owner as a means to rectify or address any observations made. The report is not comprehensive and is limited to what could be observed during a visual inspection of the building.

This Report is not intended to be treated as a generalized inspection and does not cover the deterioration of structural members through dampness, fungal or insect attack, nor does it deal with problems and defects of a non-structural nature. Other non structural aspects of the building such as fire safety have not been assessed in this survey.

Except as otherwise noted, drains and other services were not viewed or tested during our inspection and are therefore similarly excluded from this Report. We have not inspected any parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

External inspection of the façade walls has generally been carried out from ground level only by visual sighting. No opening up works were carried out (except as noted) and we rely on the Architects and Engineers drawings provided to us for our views on concealed parts of the structure and in particular foundations. Strengths of materials and components are untested and we recommend that the factory owners Building Engineer carries out in situ testing over and above those suggested to satisfy themselves with the material strengths and component details.

Recommendations, where given, are for the purpose of providing indicative advice only, are not exhaustive, relate solely to identifying key and obvious structural defects as identified in this presentation, and do not take the form of or constitute a specification for works. We take no responsibility for the works as constructed. This report does not interfere with the factory owners Building Engineers responsibility for the structural performance of this building, The Building Engineer remains fully responsible for the structural adequacy of the building.

This report does not comment in detail on the future seismic performance of the building and only highlights the fact that the building may experience significant damage or collapse in a seismic event along with many others in the Dhaka region.

The observations in this report are based on the Engineering Judgement of the lead surveyor/engineer at the time of the survey. We assume in making these observations that no covering up of faults defects, filling or plastering over cracking or significant repair work has been carried out by the building owner. Any future alteration or additional work by the building owner will void this report.