Texeurop (BD) Ltd. (Extension)

Holding 19/1, Vogra, Ward-15, GCC, Bason PS, Gazipur-1702

(23.983317N, 90.382354E)

22 November 2023

RSC RMG SUSTAINABILITY COUNCIL

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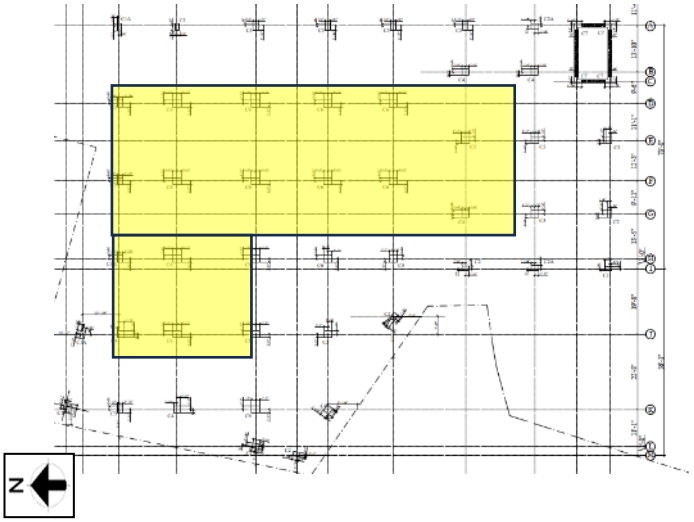
1. Building Information

Building No. 06 (New Building): Ten storied (B+G+9) reinforced concrete (RC) building with a basement floor.
Substation Building: Five storied (G+4) reinforced concrete (RC) building.

2. Observations

Building No. 06 (New Building)

Observation-1: Stress in column above normal design limit (Building No. 06: New Building)



Typical floor loading

Description: The cursory calculation indicates that columns are stressed above the normal design limit at the marked locations considering floor live load of 3 kPa for the typical floors, 6 kPa for storage area and 1.5 kPa for the roof. We have considered minimum concrete strength (16.3 MPa) and rebar strength 500 MPa from available rebar test report. The building engineer is required to review design and column stresses based on in-situ concrete strength at the marked location.

Observation-2: Inadequate number of concrete cylinder test report (Building No. 06: New Building)

2.1 MATERIAL STRENGTH

Considered material strengths are as follows,

(i) Concrete Strength for foundation is 4000 psi.
(ii) Concrete Strength for columns, shear walls is 5000 psi.
(iii) Concrete Strength for grade beams is 4000 psi.
(iv) Concrete Strength for floor beams is 4000 psi.
(v) Concrete Strength for the slab is 4000 psi.
(vi) Yield strength of rebar is 72,500 psi for columns, shear walls, beam

All the above material strength has been incorporated in the FEM of the building.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DEPARTMENT OF CIVIL ENGINEERING
CONCRETE LABORATORY
TEST REPORT
BRTC BUET

Description: Concrete compressive strength f'c considered 5000 psi (34.48 MPa) in the design. Adequate number of concrete cylinder test reports were not available onsite as per BNBC. 0nly 9 set cylinder test report was available from column for 10 storied building which does not comply frequency of testing requirement of BNBC. The building engineer is required to verify in-situ material strength by taking adequate number of concrete core sample to justify the design strength.

Observation-3: Incomplete as-built drawing (Building No. 06: New Building)

Description: Beam-slab layout/details were not shown in structural drawing. The building engineer is required to update the as-built drawing.

Observation-4: Construction material on roof slab (Building No. 06: New Building)

Description: Construction material was found on roof slab. The factory is required to remove all construction materials from roof slab.

Observation-5: Exposed rebar at roof level (Building No. 06: New Building)

Description: Exposed rebar at roof level. The building engineer is required to provide rust proof paint on all exposed rebar.

Observation-6: Falling hazard through hole inside floors (Building No. 06: New Building)

Description: Falling hazard was observed through hole inside floors. The building engineer is required to cover all hole to prevent falling hazard.

Observation-7: Nonstructural elements found not anchored/braced (Building No. 06: New Building)

Description: Nonstructural elements found not anchored/braced. The building engineer is required to brace/anchor all nonstructural elements including storage racks within the factory.

Observation-8: Absence of design report/ geotechnical investigation report/structural drawings (Substation Building)

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, no structural drawing/geotechnical investigation report/design report were available. The building engineer is required to prepare a Detailed Engineering Assessment (DEA) including a geotechnical investigation report for this structure.

3. Action Plan

Observation	Action Plan	Timeline
Building No. 06: New Building		
Stress in column above normal design limit (Building No. 06: New Building)	The building engineer is required to review design and column stresses based on in-situ concrete strength at the marked location.	within 6 weeks
Stress in column above normal design limit (Building No. 06: New Building)	Produce and actively manage load management plan.	within 6 weeks
Stress in column above normal design limit (Building No. 06: New Building)	Implement remediation work if required.	within 6 months
Stress in column above normal design limit (Building No. 06: New Building)	Implement load management plan	within 6 months
Inadequate number of concrete cylinder test report (Building No. 06: New Building)	The building engineer is required to take adequate number of concrete core sample to justify the design strength.	within 6 weeks
Incomplete as-built drawing (Building No. 06: New Building)	Building engineer is required to update the as-built drawings.	within 6 weeks
Construction material on roof slab (Building No. 06: New Building)	The factory is required to remove all construction materials from roof slab.	within 6 weeks
Exposed rebar at roof level (Building No. 06: New Building)	The building engineer is required to provide rust proof paint on all exposed rebar.	within 6 months
Falling hazard through hole inside floors (Building No. 06: New Building)	The building engineer is required to cover all hole to prevent falling hazard.	within 6 weeks
Nonstructural elements found not anchored/braced (Building No. 06: New Building)	The building engineer is required to brace/anchor all nonstructural elements including storage racks within the factory.	within 6 months
Substation Building		
Absence of design report/ geotechnical investigation report/structural drawings (Substation Building)	The building engineer is required to prepare a Detailed Engineering Assessment (DEA) including a geotechnical investigation report for this structure.	within 6 weeks
Absence of design report/ geotechnical investigation report/structural drawings (Substation Building)	The building engineer is required to produce as-built structural drawing including foundation details.	within 6 weeks
Absence of design report/ geotechnical investigation report/structural drawings (Substation Building)	Implement remediation work if required.	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 nonstructural 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.