# Alpha Clothing (New) (Extension)

Tenguri, BKSP, Ashulia, Savar

(23.989918,90.24376)

13 August 2025

## Structural Inspection Report

RMG SUSTAINABILITY COUNCIL

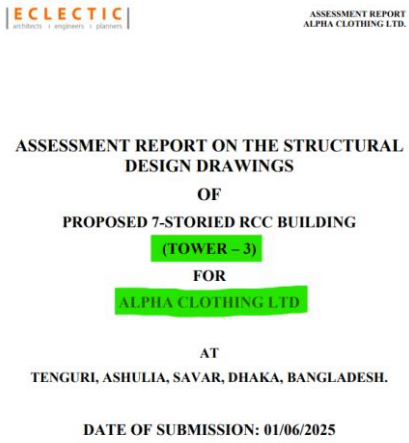
Level 5, Shanta Forum, 187, 188/B,
Bir Uttam Mir Shawkat Sarak, Tejgaon,
Dhaka- 1208, Bangladesh
PABX : +880 2 41081863-6
www.rsc-bd.org

# 1. Building Information

1. Tower-3: Seven storied (G+6) RC Building.
2. Compressor Room-2: Single storied RC Building

## 2. Observation

**Observation-01:** Inconsistencies in design report and material strength (Tower-3).



ECLECTIC
architects | engineers | planners

ASSESSMENT REPORT
ALPHA CLOTHING LTD.

**ASSESSMENT REPORT ON THE STRUCTURAL DESIGN DRAWINGS**

**OF**

**PROPOSED 7-STORIED RCC BUILDING**

**(TOWER – 3)**

**FOR**

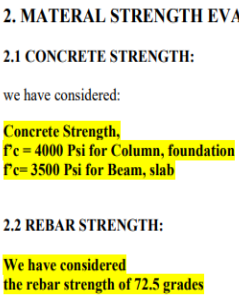
**ALPHA CLOTHING LTD**

**AT**

**TENGURI, ASHULIA, SAVAR, DHAKA, BANGLADESH.**

**DATE OF SUBMISSION: 01/06/2025**

Fig: Engineering Assessment (EA) report



**2. MATERAL STRENGTH EVALUATION**

**2.1 CONCRETE STRENGTH:**

we have considered:

**Concrete Strength,**
**f'c = 4000 Psi for Column, foundation**
**f'c= 3500 Psi for Beam, slab**

**2.2 REBAR STRENGTH:**

**We have considered**
**the rebar strength of 72.5 grades**

Fig: Material strength considers in EA report

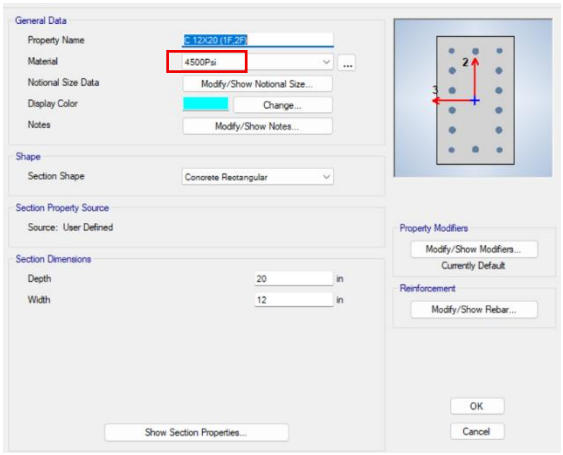
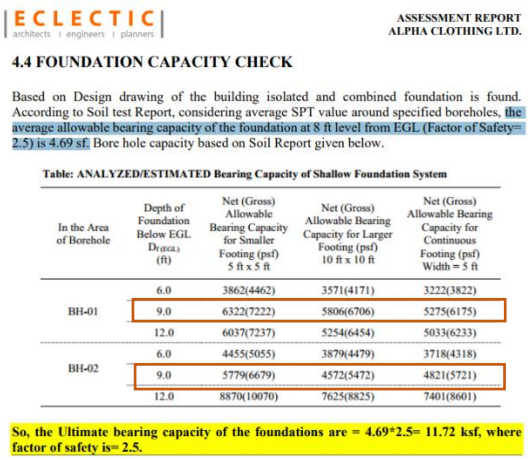



Fig: f'c consider in FEA model



ECLECTIC
architects | engineers | planners

ASSESSMENT REPORT
ALPHA CLOTHING LTD.

**4.4 FOUNDATION CAPACITY CHECK**

Based on Design drawing of the building isolated and combined foundation is found. According to Soil test Report, considering average SPT value around specified boreholes, the average allowable bearing capacity of the foundation at 8 ft level from EGL (Factor of Safety= 2.5) is 4.69 sf. Bore hole capacity based on Soil Report given below.

**Table: ANALYZED/ESTIMATED Bearing Capacity of Shallow Foundation System**

| In the Area of Borehole | Depth of Foundation Below EGL $D_{f(EGL)}$ (ft) | Net (Gross) Allowable Bearing Capacity for Smaller Footing (psf) 5 ft x 5 ft | Net (Gross) Allowable Bearing Capacity for Larger Footing (psf) 10 ft x 10 ft | Net (Gross) Allowable Bearing Capacity for Continuous Footing (psf) Width = 5 ft |
|---|---|---|---|---|
| BH-01 | 6.0 | 3862(4462) | 3571(4171) | 3222(3822) |
| | 9.0 | 6322(7222) | 5806(6706) | 5275(6175) |
| | 12.0 | 6037(7237) | 5254(6454) | 5033(6233) |
| BH-02 | 6.0 | 4455(5055) | 3879(4479) | 3718(4318) |
| | 9.0 | 5779(6679) | 4572(5472) | 4821(5721) |
| | 12.0 | 8870(10070) | 7625(8825) | 7401(8601) |

**So, the Ultimate bearing capacity of the foundations are = 4.69*2.5= 11.72 ksf, where factor of safety is= 2.5.**

Fig: Bearing capacity considered in the EA report

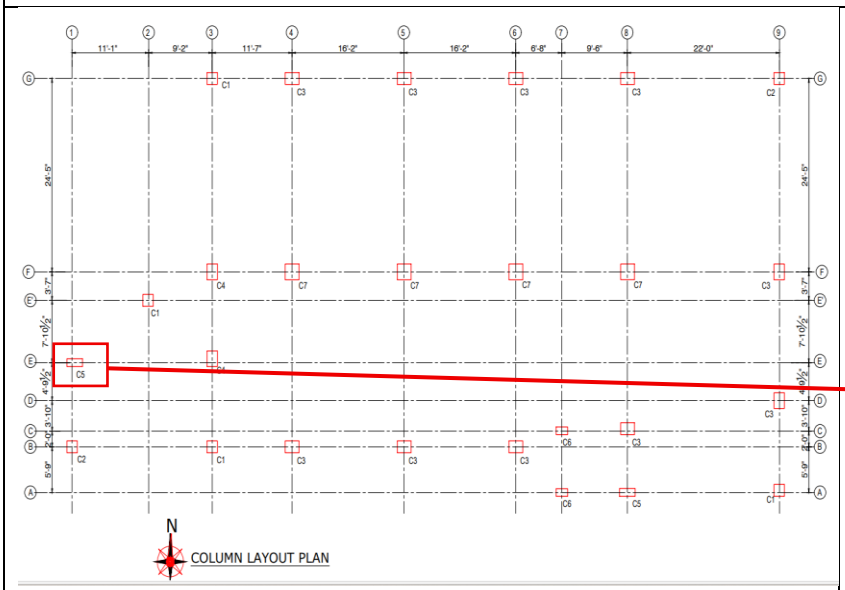
**Description:** During the inspection, the design report was found on-site, and the following observations were noted:

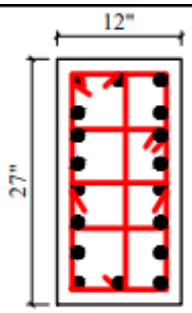
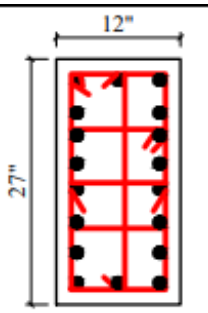
- The Response Modification Coefficient (R = 5) has been considered in the design which indicates the IMRF framing system, but the required detailing and serviceability checks were not provided in the report.
- Six sets of cylinder test reports (column=2 set, Beam & Slab = 1 set, Foundation=3 set) were available which does not comply with the testing-frequency requirements of BNBC 5.12.1. In the design report, f'c was considered 27.58 MPa for the column & foundation and 24.14 MPa for the beam & slab. The FEA model, however, f'c was considered 31 MPa.
- In the design report, the average allowable bearing capacity of the foundation at the 8 ft level from EGL (F.S.= 2.5) is considered 4.69 ksf. but the required calculations were not provided in the report, also the lateral load was not considered in the foundation adequacy check.

The building engineer is required to verify the in-situ concrete strength by extracting 100mm diameter cores from four columns (preferably from the lower tier of the building), as well as from the beam and slab, or by referring to existing cylinder test reports from the specific concrete mix ratio and address all the inconsistencies in the revised EA report and submit the revised EA to RSC.

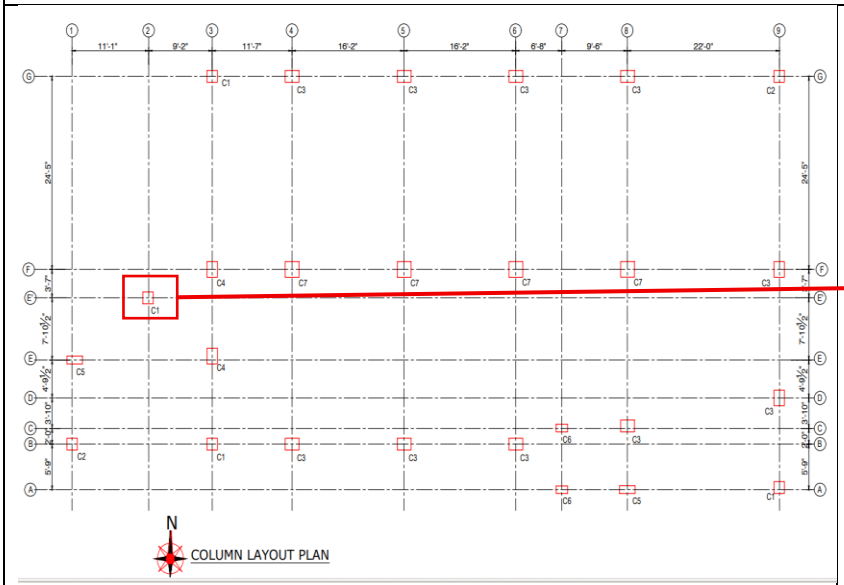
**Observation-02:** Mismatch in as-built drawing (Tower-3)

**Description:** At grid E-01, the C5 column at ground floor was found 15"x27" instead of 12"x27", and the rebar was found 20 nos instead of 18 nos.

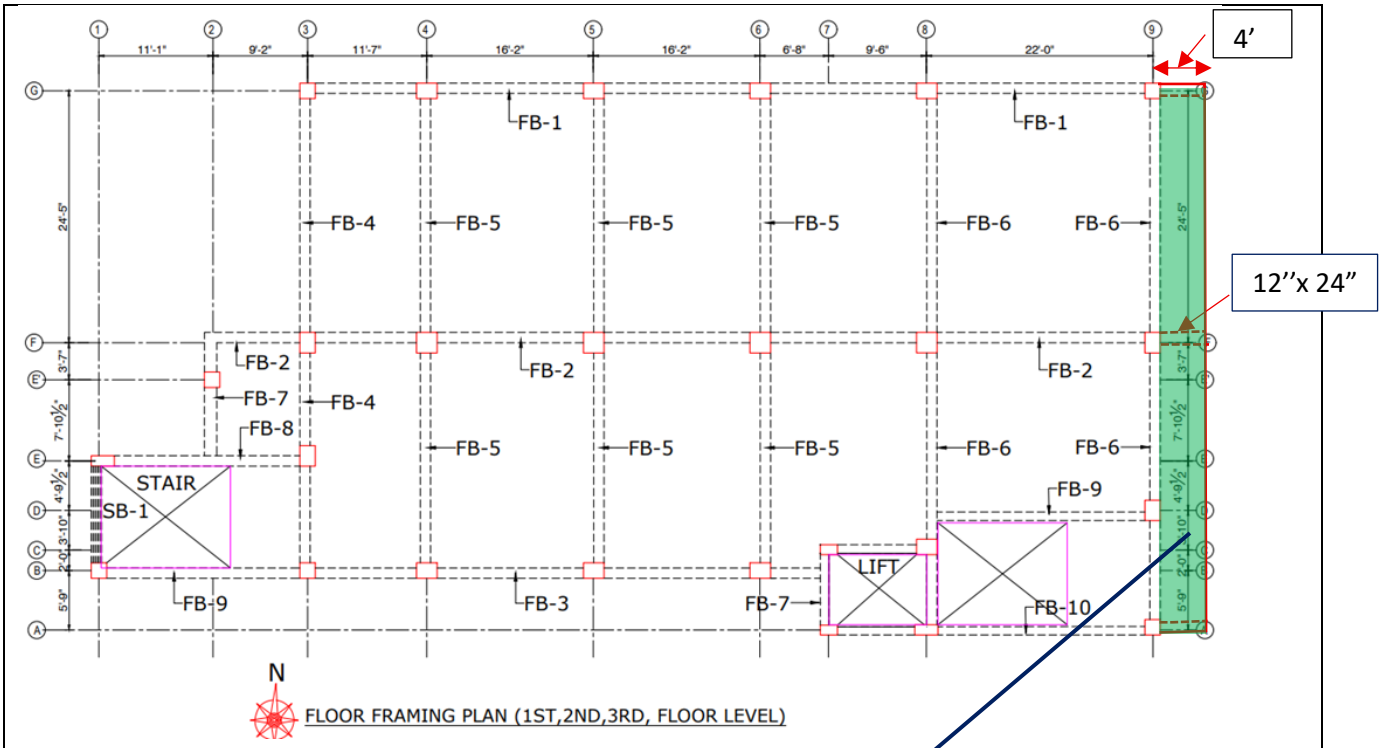



| | | | | |
|---|---|---|---|---|
| A8,E1, (C5) | 15"x30" | 12"x27" |   |   |

**Description:** At grid E'-02, the C1 column at ground floor was found 12"x18" instead of 18"x18", and the rebar was found 10 nos.. instead of 12 nos.



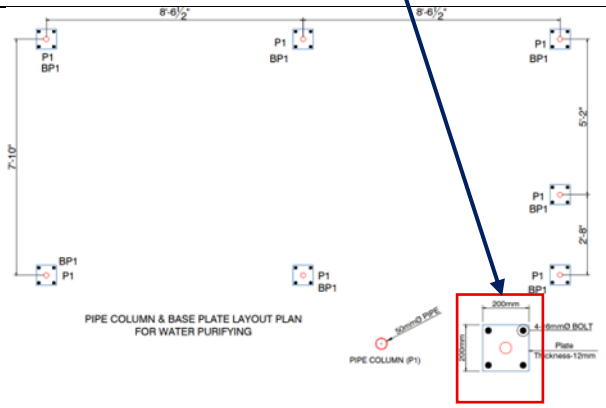

| COLUMN NOS. | COLUMN SIZE | | VERTICAL REINFORCEMENT | |
|---|---|---|---|---|
| | Below FGL | Above FGL | UP TO GR. FLOOR | 1ST FLOOR |
| A9, B3, E'2,G3 (C1) | 21"x21" | 18"x18" | 18" 18" 12 W25 W10 @ 5" c/c Wie | 18" 18" 8 W25 + 4W20 W10 @ 5" c/c Wie |




**Description:** A cantilever portion on the 1st floor was found on-site, which was not mentioned in the as-built drawings.
The building engineer is required to survey the structures and prepare comprehensive as-built drawings, including necessary foundation details.

**Observation-03:** Missing anchorage on column support and inadequate lateral stability features on the rooftop shed (RO plant).






**Description:** During the inspection, the RO plant was found on the roof of Tower-3, where anchorage was found missing.
The building engineer is required to install lateral stability features (bracing, connection improvement, etc.) to the shed. Also, provide anchorage to the column support.

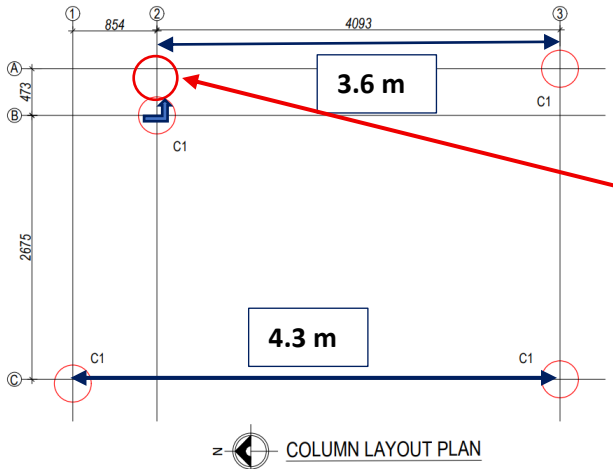
**Observation-04:** Non-structural elements not fully anchored or braced (Tower-3)

**Description:** Non-structural elements were found on different floors of the building which were not fully anchored or braced.
The building engineer is required to anchor or brace all non-structural elements to avoid falling hazard during earthquake.

**Observation-05:** Damage column due to trolley impact (Tower-3).

**Description:** Damage was observed on column due to trolley impact. The factory is required to provide column guards to protect the trolley impact.

**Observation-06:** Mismatch in as-built drawing (Compressor Room-2)




**Description:** During the inspection, mismatch was found in grid dimension and column layout. The building engineer is required to survey the structures and prepare comprehensive as-built drawings, including necessary foundation details.

## 3. Action Plan

| Item No | Observation | Action Plan | Timeline |
|---|---|---|---|
| 1. | Inconsistencies in the design report and material strength (Tower-3). | The building engineer is required to revise the design report as per the as-built condition and prepare the design report as per BNBC 1.9. | within 6 weeks |
| 2. | | The building engineer is required to verify the in-situ concrete strength by extracting 100mm diameter cores from four columns (preferably from the lower tier of the building), as well as from the beam and slab, or by referring to existing cylinder test reports from the specific concrete mix ratio. | within 6 weeks |
| 3. | | Produce and actively manage a loading plan for all floor plates within the factory, considering column capacity. | within 6 weeks |
| 4. | | Carry out the suggested remedial works. | within 6 months |
| 5. | Mismatch in as-built drawing (Tower-3) | The building engineer is required to survey the structures and prepare detailed & accurate as-built drawings. | within 6 weeks |
| 6. | Missing anchorage on column support and inadequate lateral stability features on the rooftop shed (RO plant). | The building engineer is required to install lateral stability features (bracing, connection improvement, etc.) to the shed. Also, provide anchorage to the column support. | within 6 weeks |
| 7. | Non-structural elements not fully anchored or braced (Tower-3) | The building engineer is required to anchor or brace all non-structural elements to avoid falling hazard during an earthquake. | within 6 weeks |
| 8. | Damage column due to trolley impact (Tower-3). | The factory is required to provide column guards to protect against the trolley impact. | within 6 weeks |
| 9. | Mismatch in as-built drawing (Compressor Room-2) | The building engineer is required to survey the structures and prepare detailed & accurate as-built drawings. | within 6 weeks |

# 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 as a 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 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 relied 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, 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 construction. 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.