

# Croydon Kowloon Designs Ltd. (Unit-2)

Plot no -136-139, Dhaka EPZ (Old Zone), Ashulia, Savar

(23.95293140, 90.2648963)

2 December 2025

## Structural Inspection Report

Authors: Maruf Zindanee and Md. Mehedi Hasan

Reviewed By: Md. Moshir Rahman

Approved By: Mohammad Ahsan Ullah



## 1. Executive Summary

On 02 Dec 2025 **Maruf Zindanee** and **Md. Mehedi Hasan** of RMG SUSTAINABILITY COUNCIL (**RSC**) carried out a visual structural survey of **Croydon Kowloon Designs Ltd. (Unit-2)** at the address and coordinates given on the cover page of this report.

We met with Major A S M Mahfuzur Rahman (Retd) (DGM - Admin & Compliance) Md. Samsul Alam (Manager-Compliance), Suman Pada Basu (Project Manager) and many more.

**Croydon Kowloon Designs Ltd. (Unit-2)** comprises Two structures:

1. Production Building,
2. Utility Building

The factory owned all the structures. We were allowed access to all the areas of the structures mentioned below.

**During the inspection, we were provided with the following documents for review:**

| Name of the Structure | No. of Story | Local Authority Approval (BEPZA) |
|-----------------------|--------------|----------------------------------|
| Production Building   | B+G+M+7      | 10-April-2024                    |
| Utility Building      | G+9          | 10-April-2024                    |

**During the inspection, we were provided with the following documents for review:**

| Production Building                        | Description                                                                                                                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| As-built Structural Drawings               | Prepared by "Development Design & Management"                                                                                                                                                       |
| As-built Architectural Drawings            | Prepared by "d. zignscape"                                                                                                                                                                          |
| Load Plan                                  | Prepared by "Development Design & Management."                                                                                                                                                      |
| Test Reports:<br>Soil Investigation Report | Prepared by "AIM Building Consultant" dated July-2024 based on 10 borehole data for whole premises, Pile foundation considering bearing capacity 235 tons for 800 mm cast in-situ pile at depth 30m |
| Cylinder Test Report                       | Pile-85 set, Pile Cap-32, Mat- 17set, Column-104 set, Retaining wall & Shear wall-62 Set, Beam & Slab- 136 set.                                                                                     |
| Rebar Test                                 | 415 MPa Achieve                                                                                                                                                                                     |
| Design Report                              | Prepared by "Development Design & Management", LL considered 12.6 kPa & 6 kPa, f'c 31 MPa (Column & Shear wall), f'c 28 MPa (Beam-Slab), fy 415 MPa                                                 |

| Utility Building                           | Description                                                                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| As-built Structural Drawings               | Prepared by “Development Design & Management”                                                                                                                                                        |
| As-built Architectural Drawings            | Prepared by “d. zignscape”                                                                                                                                                                           |
| Load Plan                                  | Prepared by “Development Design & Management.”                                                                                                                                                       |
| Test Reports:<br>Soil Investigation Report | Prepared by “AIM Building Consultant” dated July-2024 based on 10 borehole data for whole premises, Pile foundation considering bearing capacity 235 tons for 800 mm cast in-situ pile at depth 30m. |
| Cylinder Test Report                       | Pile-13 set, Pile Cap-7, Column & Shear wall -42 set, Beam & Slab- 22 set.                                                                                                                           |
| Rebar Test                                 | 415 MPa Achieve.                                                                                                                                                                                     |
| Design Report                              | Prepared by “Development Design & Management”, LL considered 7 kPa & 4.8 kPa, f’c 31 MPa (Column & Shear wall), f’c 28 MPa (Beam-Slab), fy 415 MPa.                                                  |

**We have checked the column capacity for the following structures**

| Name of the Structure | Live Load                                    | Material Strength                        |
|-----------------------|----------------------------------------------|------------------------------------------|
| Production Building   | As per prepared Load plan (12.6 kPa & 6 kPa) | 31 Mpa (equivalent) based on test report |
| Utility Building      | As per prepared Load plan (7 KPa & 4.8 kPa)  | 31 Mpa (equivalent) based on test report |

Based on the visual inspection, a list of non-exhaustive key concerns with associated action plans and timeframes is given at the end of this report. We see no reason to suspend operations in the facilities due to structural concerns (subject to the required immediate actions noted in this report). Please note that these actions should be completed as soon as practically possible and certainly within the time frame noted.

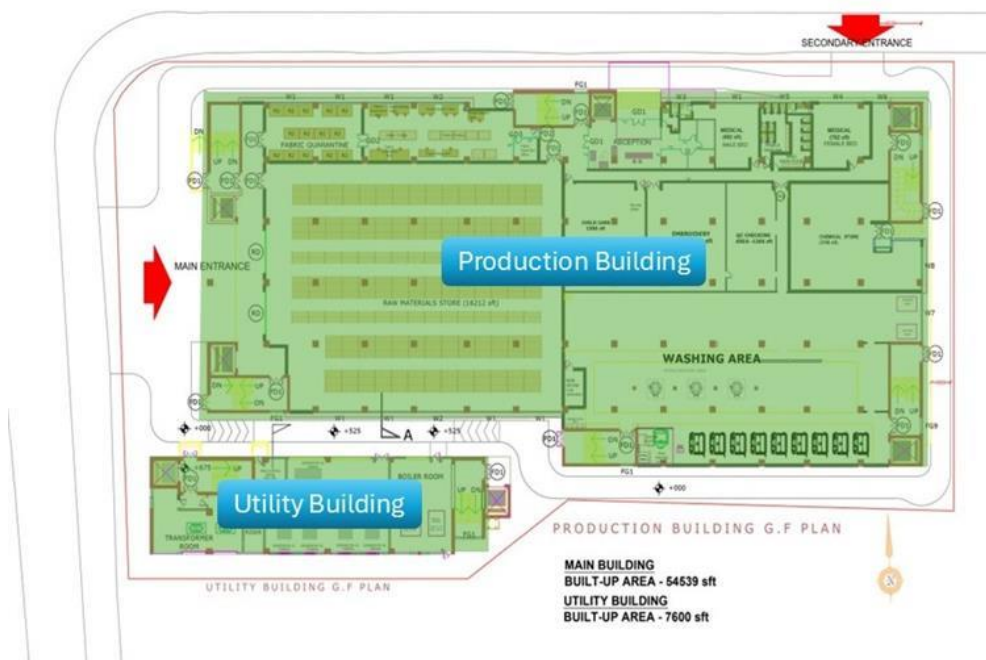
We have reviewed the property from an outline seismic perspective and would consider the building, along with many others in the Dhaka region, to be at significant risk of damage in a major Seismic event.

Our Limitations and Assumptions are also noted at the end of this report.

## 2. Building Extents



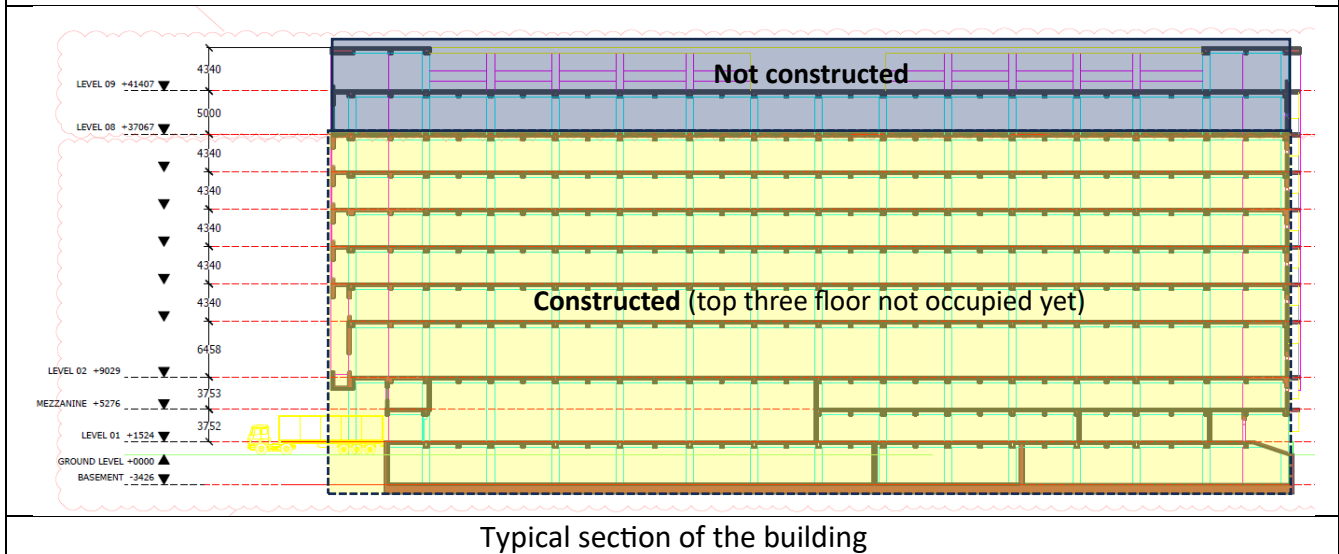
Geographical location of the factory



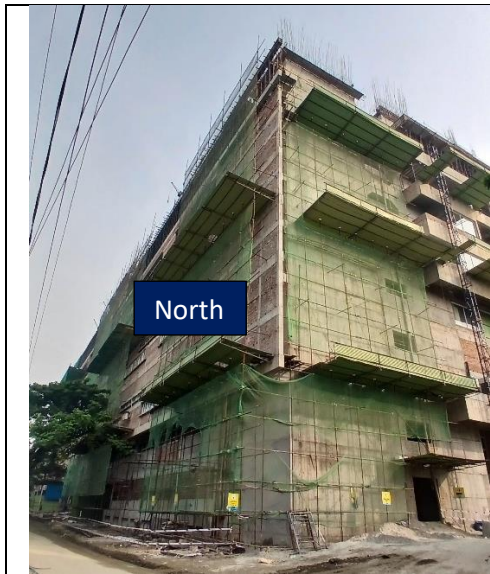
Master layout plan of the factory premises

**Production Building:**

The structure is an existing seven-storied (B+G+M+6) RC building with one basement and mezzanine floor. The building proposed for eight-storied (B+G+M+7) building. Construction started in May 2024, and building is now under construction. The factory started operation in the building in March 2025. Each typical floor area is 5496 sqm.



| Floor Level                | Floor Area (sqm.) | Purpose of floor use                                            |
|----------------------------|-------------------|-----------------------------------------------------------------|
| Basement                   | 3671              | Fire pump room, Wastage room, Utility Store, Water reservoir    |
| GF                         | 5078              | Raw materials store & Washing Plant                             |
| Mezzanine West & Northeast | 140 & 1515        | Sample & RND                                                    |
| 1                          | 5496              | Finished goods & Accessories store, Office & existing Cutting   |
| 2                          | 5496              | Sewing                                                          |
| 3                          | 5496              | Sewing partial vacant                                           |
| 4                          | 5496              | Sewing, not occupied                                            |
| 5                          | 5496              | Sewing, Under construction, Temp. PVC Tank 10000L Stair Landing |
| 6                          | 5496              | Cutting, Under construction, Temp. PVC Tank 5000L Stair Landing |
| 7                          |                   | Office, Sample, not constructed yet                             |



North-West Elevation



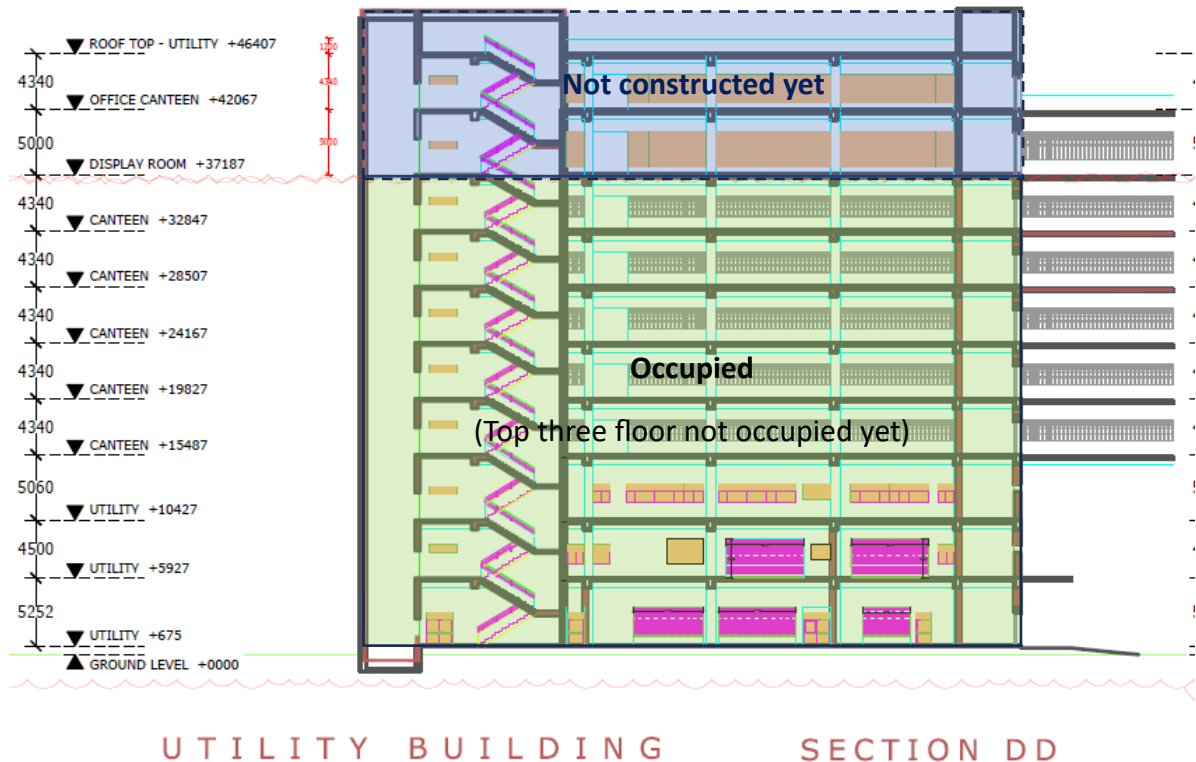
North Elevation



Existing Roof (7<sup>th</sup> floor)

### Utility Building:

The structure is an existing eight-storied (G+7) RC building. The building proposed a ten-storied (G+9) building. Construction started in May 2024, and building is now under construction. The factory started operation in the building in March 2025. Typical floor area is 805 sq. meter.



Typical Section and Floor Usages

| Floor Level | Floor Area (sqm.) | Purpose of floor use                                    |
|-------------|-------------------|---------------------------------------------------------|
| GF          | 706               | Generator, Boiler & Transformer room                    |
| 1           | 805               | Compressor Room, LT Pannel, Temp. RO                    |
| 2           | 805               | Chiller Room, Currently Vacant                          |
| 3           | 805               | Worker Canteen, Prayer Room                             |
| 4           | 805               | Worker Canteen, Training Room                           |
| 5           | 805               | Worker Canteen, Vacant                                  |
| 6           | 805               | Worker Canteen, Vacant                                  |
| 7           | 805               | Worker Canteen, Under construction                      |
| 8           | 805               | Display Room & Buyer Lounge, not constructed yet        |
| 9           | 805               | Staff Canteen, not constructed yet                      |
| Roof        |                   | Chiller cooling tower, RO, RO Tank, not constructed yet |



North-West Elevation



Connecting bridge between two building



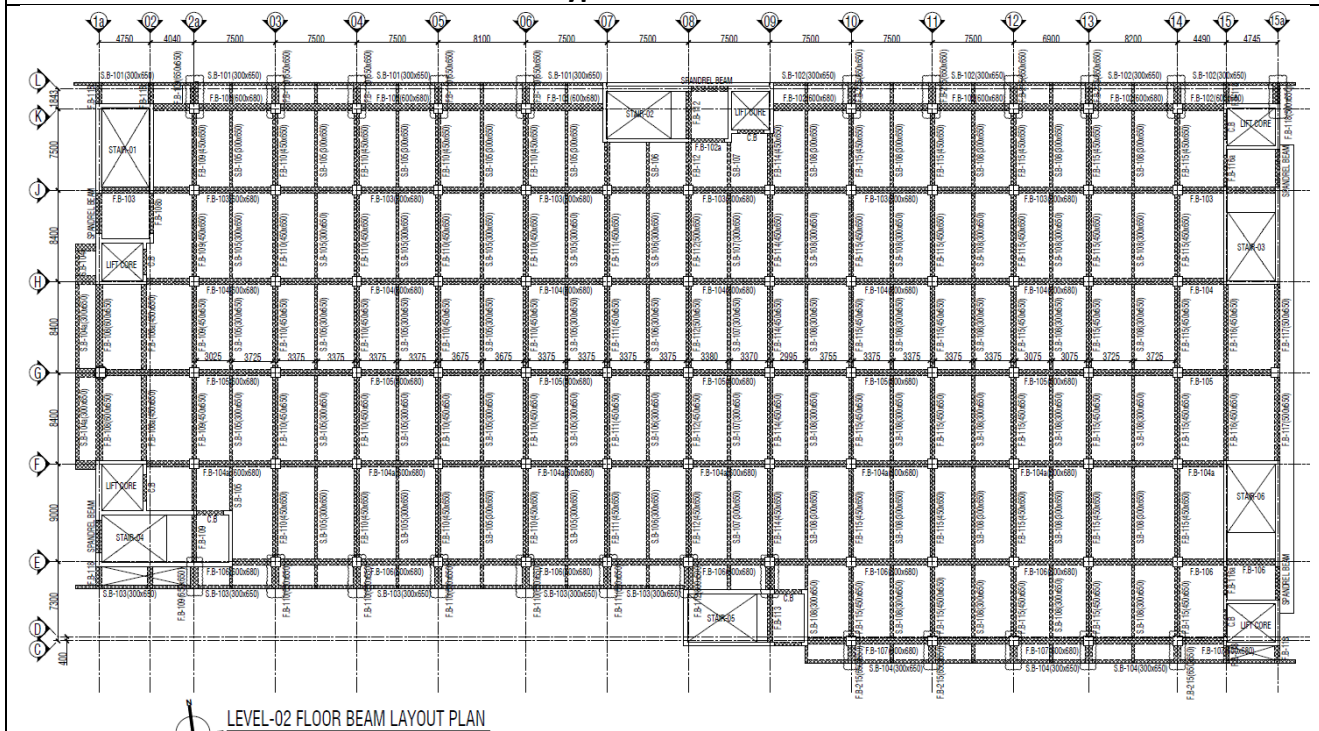
Existing Roof (7<sup>th</sup> Floor)

### 3. Structural System

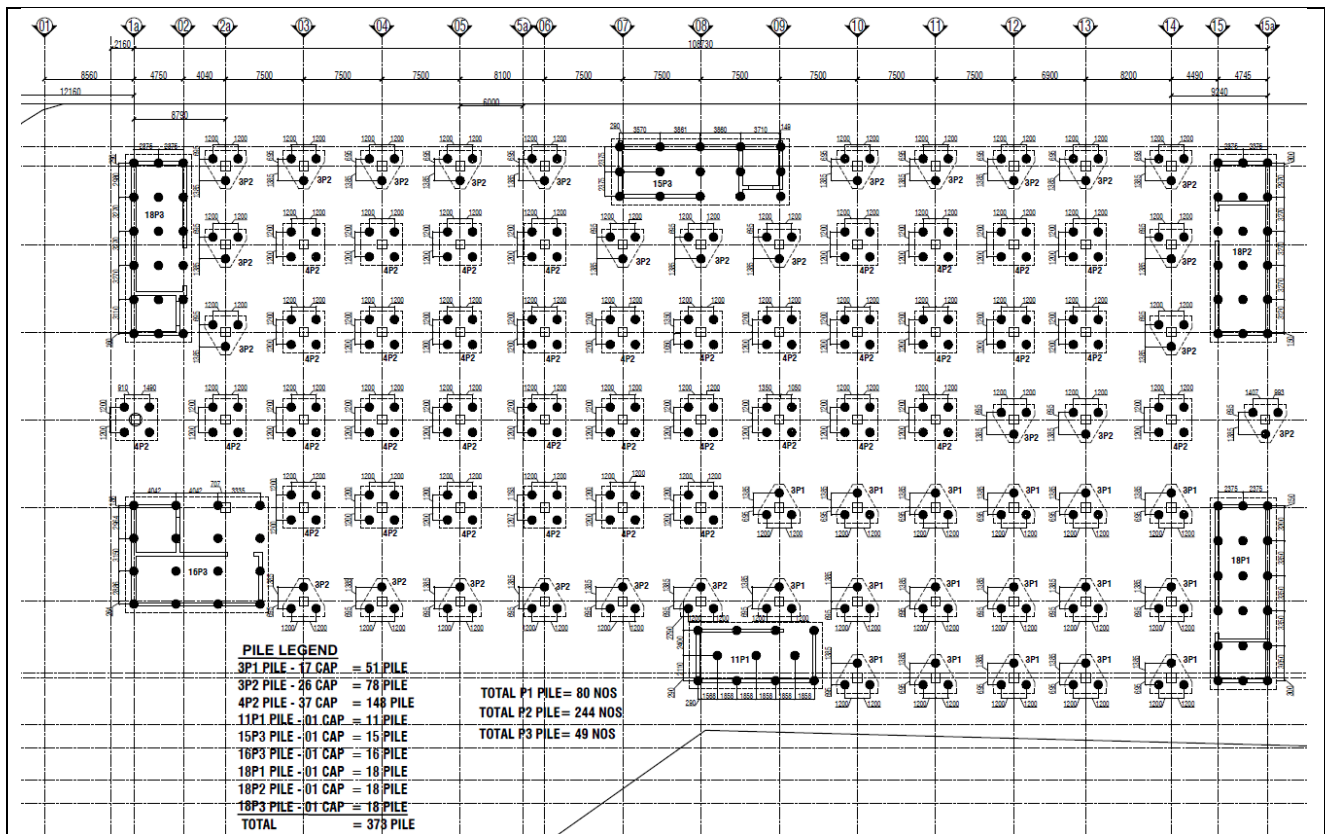
| Production Building: RC beam-column frame and shear wall with one-way slab.                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                             |
| <p style="text-align: center;"><b>Column Layout</b></p>                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                             |
| <p><b><u>Stability System:</u></b><br/>A combination of a moment-resisting frame and shear wall.</p> <p><b><u>Floor to Ceiling Height:</u></b><br/>GF = 7.504 m;<br/>1<sup>st</sup> F = 6.45,<br/>Typical floor = 4.34m</p> <p><b><u>RC Column Sizes (mm):</u></b><br/>875X 875, 1250 Dia.</p> <p><b><u>Shear wall thickness (mm)</u></b><br/>350</p> | <p><b><u>RC Beam Sizes (mm):</u></b><br/>Main Beam:<br/>450 (w) X 650 (h)<br/>600 (w) X 680 (h)<br/>Sub Beam:<br/>300 (w) X 650 (h)</p> <p><b><u>Floor Slab Thickness (mm):</u></b><br/>180 (without finish)</p> <p><b><u>Foundation Type:</u></b><br/>Pile foundation (as per drawing)</p> |
|                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                             |
| <p style="text-align: center;"><b>Typical RC Beam-Column Framing</b></p>                                                                                                                                                                                                                                                                              | <p style="text-align: center;"><b>Typical sub-beam</b></p>                                                                                                                                                                                                                                  |



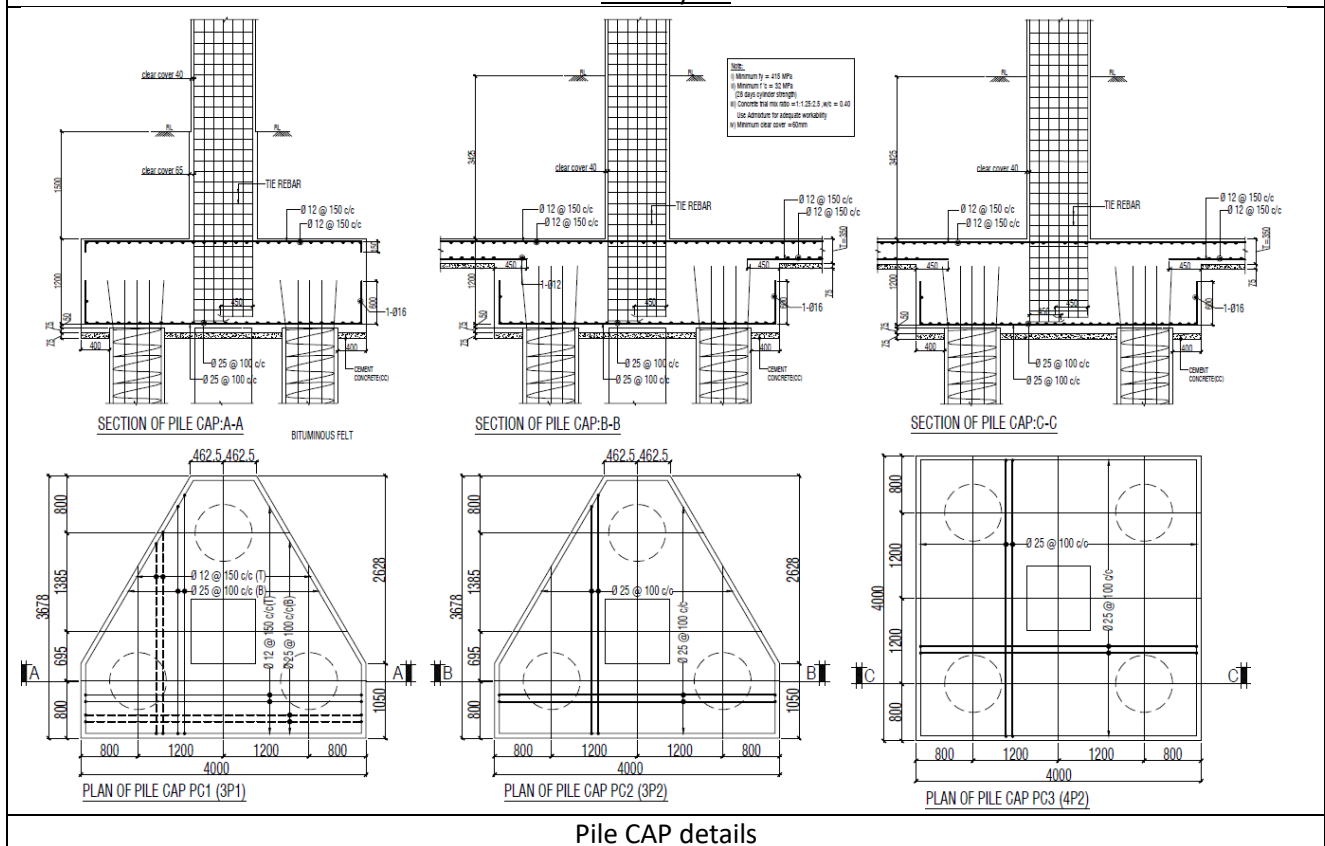
Typical shear wall



Typical Beam layout

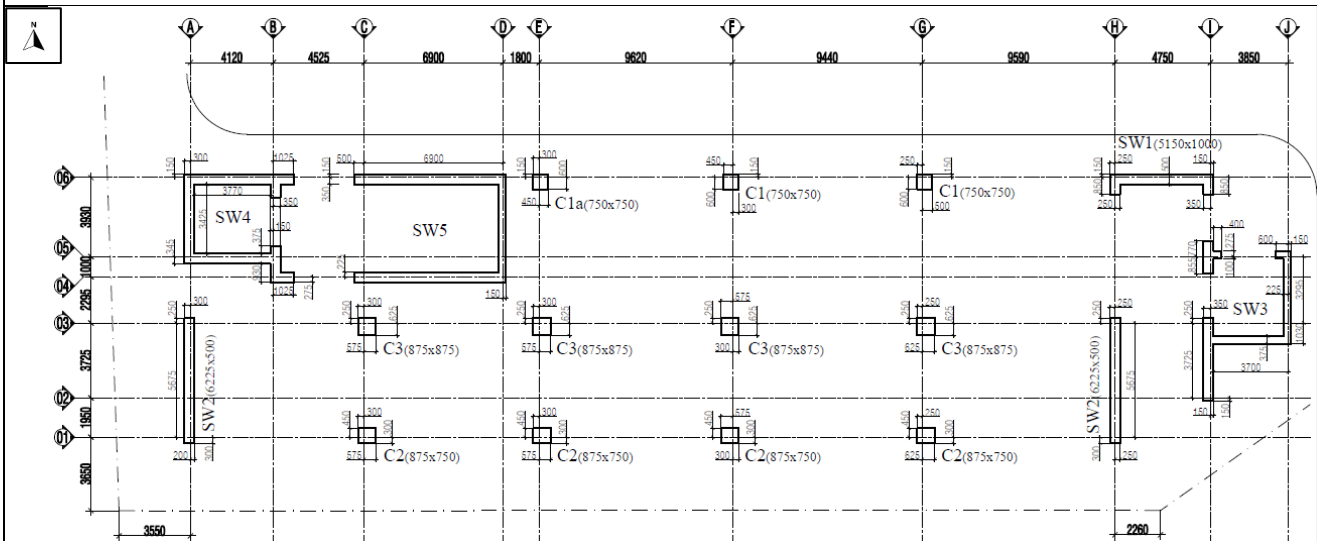


### Pile Layout



### Pile CAP details

**Utility Building:** The building consists of RC beam-column frame & shear wall with a two-way spanning slab.



Column Layout

**Stability System:**

A combination of a moment-resisting frame and shear wall.

**Floor to Ceiling Height:**

GF =5.2m;  
Typical floor =4.34m

**RC Column Sizes (mm):**

875X 875, 750x750

**Shear wall thickness (mm)**

500, 350

**RC Beam Sizes (mm):**

Main Beam:

500 (w) X 750 (h)

Sub Beam:

300 (w) X 750 (h)

**Slab Thickness (mm):**

220 (without finish)

**Foundation Type:**

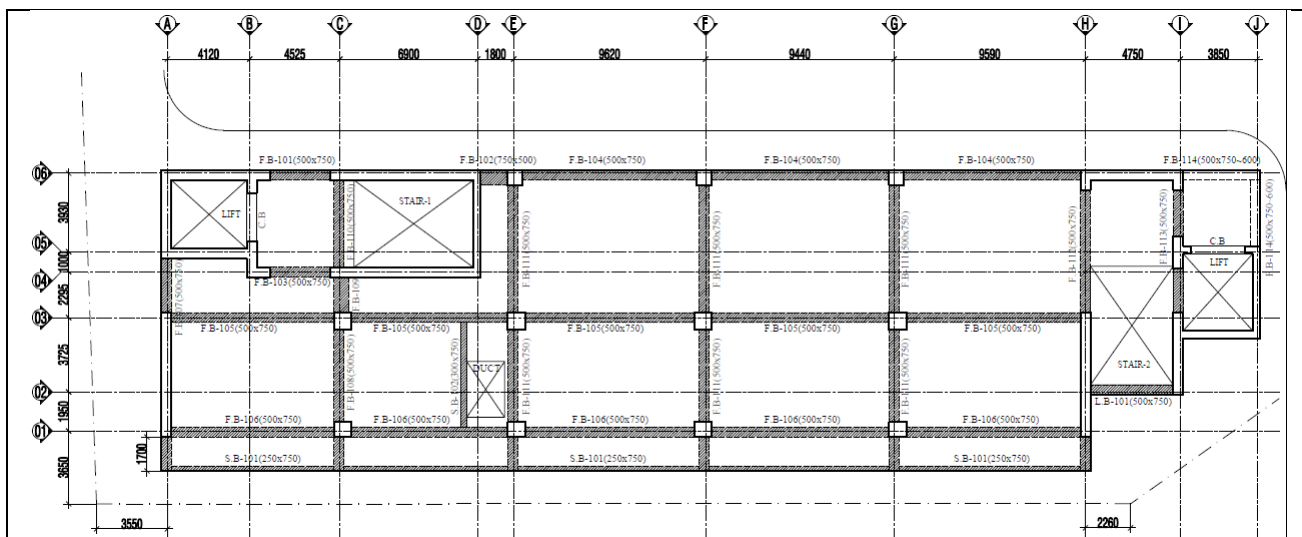
Pile foundation (as per drawing)



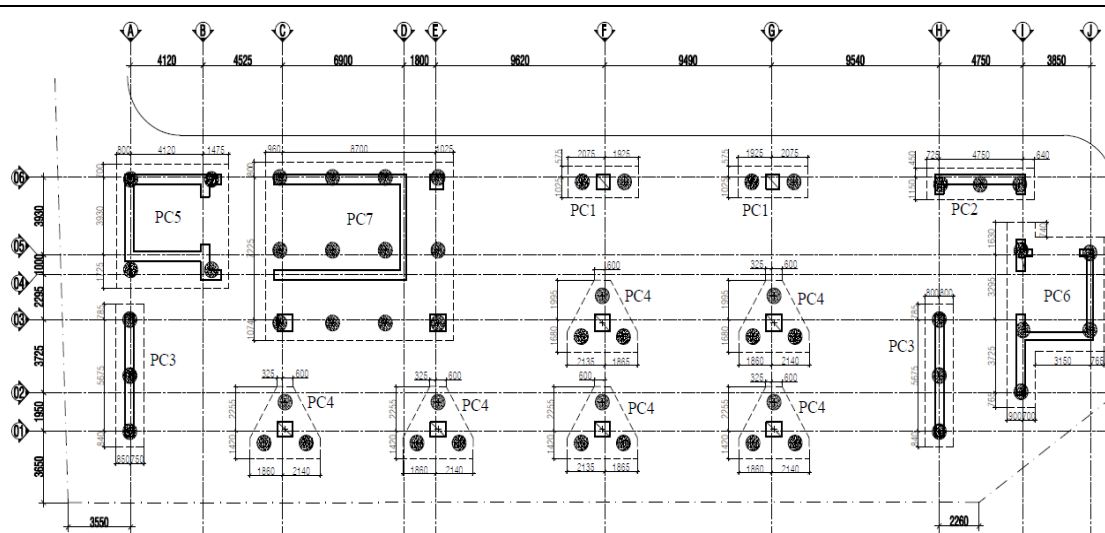
Beam column frame



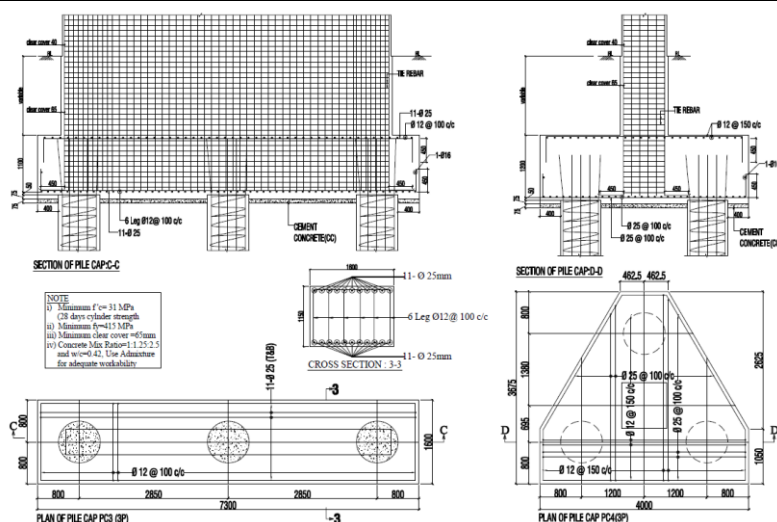
Shear wall



## Typical Beam Layout



## Pile Layout

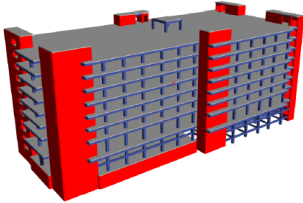


### Pile Cap details

## 4. Observation

### Observation-01: Inconsistencies in the design report. (Production Building)

**Structural Design Report**  
*of*  
**PROPOSED (SEVENTH) STORED WITH A BASEMENT & MEZZANINE FLOOR  
FACTORY BUILDING FOR CROYDON KOWLOON DESIGNS LTD. (CKDL)**  
AT PLOT NO#136-139 AND ADDITIONAL LAND ADJACENT  
TO THE SOUTH SIDE OF PLOT NO 136 IN DHAKA EPZ (OLD ZONE) DEPZ,  
GANAKBARI, ASHULIA, SAVAR, DHAKA-1349, BANGLADESH  
AT  
ASHULIA, SAVAR, BANGLADESH



NOVEMBER 25  
Client:  
**CROYDON KOWLOON DESIGNS LTD**

Consultant:  
  
Development Design  
and Management  
**Development Design and Management**  
46, Kazi Nazim Uddin Avenue (9<sup>th</sup> Floor), Kowloon Bazar, Dhaka-1121, Bangladesh.  
Phone: 01614098035, 9133366, Fax: 880-2-8130615, e-mail: mmha\_2001@yahoo.com  
Web: [www.ckdlbd.org](http://www.ckdlbd.org)



Structural Design Report of Proposed 08-Storeyed with a Basement & Mezzanine Floor Factory Building of CKDL-2

Structure importance co-efficient,  $III = 1.25$

**Table 6.2.17: Importance Factors for Buildings and Structures for Earthquake design**

| Occupancy Category | Importance factor I |
|--------------------|---------------------|
| I, II              | 1.00                |
| III                | 1.25                |
| IV                 | 1.50                |

Response modification co-efficient,  $R = 7$  (SMF with Special Shear Wall) (Table-6.2.19)

3. DUAL SYSTEMS SPECIAL  
MOMENT FRAMES  
CAPABLE OF RESISTING AT  
LEAST 2% OF  
PRESCRIBED SEISMIC  
FORCES  
(with bracing or shear wall)

|                                                  |   |     |     |    |    |    |
|--------------------------------------------------|---|-----|-----|----|----|----|
| 1. Steel eccentrically braced<br>frames          | 8 | 2.5 | 4   | NL | NL | NL |
| 2. Special steel concentrically<br>braced frames | 7 | 2.5 | 5.5 | NL | NL | NL |
| 3. Special reinforced concrete<br>shear walls    | 7 | 2.5 | 5.5 | NL | NL | NL |
| 4. Ordinary reinforced<br>concrete shear walls   | 6 | 2.5 | 5   | NL | NL | NP |

**Dual System check:**

Total base shear in X direction for Columns = 2108 kips  
So, in percentage =  $\frac{2108 \times 100}{8471} = 24.88\% - 25\%$

Total base shear in Y direction for Columns = 2080 kips  
So, in percentage =  $\frac{2080 \times 100}{8471} = 24.55\% - 25\%$

The dual system criteria for the building were assessed excluding the contribution of the retaining wall. The subsequent analysis confirmed that all beam-column frames comply with the structural performance requirements; therefore, we considered the dual system framing criteria for the structural design.




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

- No check was provided for the Special Shear Wall (Boundary Element, Confinement) as per BNBC 2020 section 8.3.6.2 & 8.3.6.6.
- No check was provided for Coupling Beam as per BNBC 2020 section 8.3.6.7 & 8.3.6.8.

The building engineer is required to address all the inconsistencies in the revised design report and submit the revised design report to RSC for detail review against lateral forces.

**Observation-02:** Construction safety practice for the factory premises. (Production Building and Utility Building)



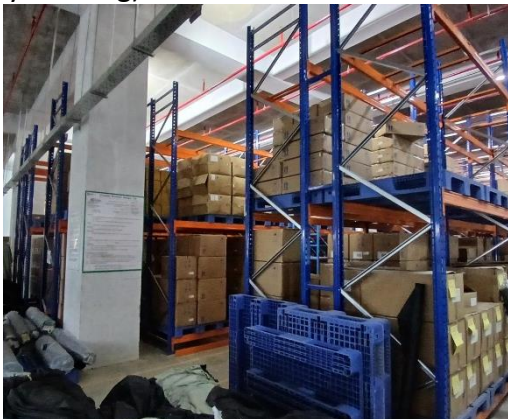
**Description:** Lack of construction safety practices observed in the Production & Utility Building. The building engineer is required to follow all the standard construction safety practices according to BNBC 2020, Part 7, Chapter 3.

**Observation-03:** Falling hazard on the existing roof. (Production Building and Utility Building)



**Description:** During inspection, falling hazard was found on the existing roof and floors. The building engineer is required to provide an adequate (height & spacing) barrier to avoid the falling hazard.

**Observation-04:** Non-structural elements found unbraced/unanchored. (Production Building and Utility Building)



**Description:** Non-structural elements (storage racks & locker racks) were observed on Production Building and Utility Building were found unbraced/unanchored. The building engineer is required to brace/anchor all non-structural elements within the building.

## Observation-05: Inconsistencies in the design report. (Utility Building)

|                                                                                                                                                                  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Structural Design Report                                                                                                                                         |  |
| Of                                                                                                                                                               |  |
| PROPOSED 10 STORED UTILITY BUILDING FOR CROYDON KOWLOON DESIGNS LTD. (CKDL)                                                                                      |  |
| AT PLOT NO-136-139 AND ADDITIONAL LAND ADJACENT TO THE SOUTH SIDE OF PLOT NO 136 IN DHAKA EPZ (OLD ZONE) DEPZ, GANAKBARI, ASHULIA, SAVAR, DHAKA-1349, BANGLADESH |  |
| At                                                                                                                                                               |  |
| ASHULIA, SAVAR, BANGLADESH                                                                                                                                       |  |
| NOVEMBER 13, 2025                                                                                                                                                |  |
| Client:                                                                                                                                                          |  |
| CROYDON KOWLOON DESIGNS LTD                                                                                                                                      |  |
| Consultant:                                                                                                                                                      |  |
|                                                                                 |  |
| Development Design and Management                                                                                                                                |  |
| 46, Kazi Nazim Islam Avenue (3rd Floor), Kottovin Bazar, Dhaka-1115, Bangladesh.                                                                                 |  |
| Phone: 01614098055, 9133366. Fax: 880-2-8130615, e-mail: mmha_2001@yahoo.com                                                                                     |  |
| Web: <a href="http://www.ckdl.org">www.ckdl.org</a>                                                                                                              |  |

|                                                                                     |                     |
|-------------------------------------------------------------------------------------|---------------------|
| Table 6.2.17: Importance Factors for Buildings and Structures for Earthquake design |                     |
| Occupancy Category                                                                  | Importance factor I |
| I, II                                                                               | 1.00                |
| III                                                                                 | 1.25                |
| IV                                                                                  | 1.50                |

Response modification co-efficient,  $R = 7$  (SMRF) (Table-6.2.19)

DUAL SYSTEMS SPECIAL MOMENT FRAMES CAPABLE OF RESISTING AT LEAST 2.5% OF DESCRIBED SEISMIC FORCES (with Bracing or shear walls)

|                                               |   |     |     |    |    |
|-----------------------------------------------|---|-----|-----|----|----|
| System                                        | R | Q   | NS  | NS | NS |
| 1. Steel moment-resisting frames              | 8 | 2.5 | 6   | NL | NL |
| 2. Special steel concentrically braced frames | 7 | 2.5 | 5.5 | NL | NL |
| 3. Special reinforced concrete shear walls    | 7 | 2.5 | 5.5 | NL | NL |
| 4. Ordinary reinforced concrete shear walls   | 6 | 2.5 | 5   | NL | NL |

Site Class, SD (type 2 soil as suggested in Table 6.2.13, BNBC-2020)

|       |             |                     |                |       |
|-------|-------------|---------------------|----------------|-------|
| Layer | Depth (m)   | SP <sub>1</sub> (%) | Q <sub>N</sub> | Avg N |
| 1     | 0-1.5       | 1.250               |                |       |
| 2     | 1.5-3.0     | 1.000               |                |       |
| 3     | 3.0-4.5     | 1.000               |                |       |
| 4     | 4.5-6.0     | 1.000               |                |       |
| 5     | 6.0-7.5     | 1.000               |                |       |
| 6     | 7.5-9.0     | 1.000               |                |       |
| 7     | 9.0-10.5    | 1.000               |                |       |
| 8     | 10.5-12.0   | 1.000               |                |       |
| 9     | 12.0-13.5   | 1.000               |                |       |
| 10    | 13.5-15.0   | 1.000               |                |       |
| 11    | 15.0-16.5   | 1.000               |                |       |
| 12    | 16.5-18.0   | 1.000               |                |       |
| 13    | 18.0-19.5   | 1.000               |                |       |
| 14    | 19.5-21.0   | 1.000               |                |       |
| 15    | 21.0-22.5   | 1.000               |                |       |
| 16    | 22.5-24.0   | 1.000               |                |       |
| 17    | 24.0-25.5   | 1.000               |                |       |
| 18    | 25.5-27.0   | 1.000               |                |       |
| 19    | 27.0-28.5   | 1.000               |                |       |
| 20    | 28.5-30.0   | 1.000               |                |       |
| 21    | 30.0-31.5   | 1.000               |                |       |
| 22    | 31.5-33.0   | 1.000               |                |       |
| 23    | 33.0-34.5   | 1.000               |                |       |
| 24    | 34.5-36.0   | 1.000               |                |       |
| 25    | 36.0-37.5   | 1.000               |                |       |
| 26    | 37.5-39.0   | 1.000               |                |       |
| 27    | 39.0-40.5   | 1.000               |                |       |
| 28    | 40.5-42.0   | 1.000               |                |       |
| 29    | 42.0-43.5   | 1.000               |                |       |
| 30    | 43.5-45.0   | 1.000               |                |       |
| 31    | 45.0-46.5   | 1.000               |                |       |
| 32    | 46.5-48.0   | 1.000               |                |       |
| 33    | 48.0-49.5   | 1.000               |                |       |
| 34    | 49.5-51.0   | 1.000               |                |       |
| 35    | 51.0-52.5   | 1.000               |                |       |
| 36    | 52.5-54.0   | 1.000               |                |       |
| 37    | 54.0-55.5   | 1.000               |                |       |
| 38    | 55.5-57.0   | 1.000               |                |       |
| 39    | 57.0-58.5   | 1.000               |                |       |
| 40    | 58.5-60.0   | 1.000               |                |       |
| 41    | 60.0-61.5   | 1.000               |                |       |
| 42    | 61.5-63.0   | 1.000               |                |       |
| 43    | 63.0-64.5   | 1.000               |                |       |
| 44    | 64.5-66.0   | 1.000               |                |       |
| 45    | 66.0-67.5   | 1.000               |                |       |
| 46    | 67.5-69.0   | 1.000               |                |       |
| 47    | 69.0-70.5   | 1.000               |                |       |
| 48    | 70.5-72.0   | 1.000               |                |       |
| 49    | 72.0-73.5   | 1.000               |                |       |
| 50    | 73.5-75.0   | 1.000               |                |       |
| 51    | 75.0-76.5   | 1.000               |                |       |
| 52    | 76.5-78.0   | 1.000               |                |       |
| 53    | 78.0-79.5   | 1.000               |                |       |
| 54    | 79.5-81.0   | 1.000               |                |       |
| 55    | 81.0-82.5   | 1.000               |                |       |
| 56    | 82.5-84.0   | 1.000               |                |       |
| 57    | 84.0-85.5   | 1.000               |                |       |
| 58    | 85.5-87.0   | 1.000               |                |       |
| 59    | 87.0-88.5   | 1.000               |                |       |
| 60    | 88.5-90.0   | 1.000               |                |       |
| 61    | 90.0-91.5   | 1.000               |                |       |
| 62    | 91.5-93.0   | 1.000               |                |       |
| 63    | 93.0-94.5   | 1.000               |                |       |
| 64    | 94.5-96.0   | 1.000               |                |       |
| 65    | 96.0-97.5   | 1.000               |                |       |
| 66    | 97.5-99.0   | 1.000               |                |       |
| 67    | 99.0-100.5  | 1.000               |                |       |
| 68    | 100.5-102.0 | 1.000               |                |       |
| 69    | 102.0-103.5 | 1.000               |                |       |
| 70    | 103.5-105.0 | 1.000               |                |       |
| 71    | 105.0-106.5 | 1.000               |                |       |
| 72    | 106.5-108.0 | 1.000               |                |       |
| 73    | 108.0-109.5 | 1.000               |                |       |
| 74    | 109.5-111.0 | 1.000               |                |       |
| 75    | 111.0-112.5 | 1.000               |                |       |
| 76    | 112.5-114.0 | 1.000               |                |       |
| 77    | 114.0-115.5 | 1.000               |                |       |
| 78    | 115.5-117.0 | 1.000               |                |       |
| 79    | 117.0-118.5 | 1.000               |                |       |
| 80    | 118.5-120.0 | 1.000               |                |       |
| 81    | 120.0-121.5 | 1.000               |                |       |
| 82    | 121.5-123.0 | 1.000               |                |       |
| 83    | 123.0-124.5 | 1.000               |                |       |
| 84    | 124.5-126.0 | 1.000               |                |       |
| 85    | 126.0-127.5 | 1.000               |                |       |
| 86    | 127.5-129.0 | 1.000               |                |       |
| 87    | 129.0-130.5 | 1.000               |                |       |
| 88    | 130.5-132.0 | 1.000               |                |       |
| 89    | 132.0-133.5 | 1.000               |                |       |
| 90    | 133.5-135.0 | 1.000               |                |       |
| 91    | 135.0-136.5 | 1.000               |                |       |
| 92    | 136.5-138.0 | 1.000               |                |       |
| 93    | 138.0-139.5 | 1.000               |                |       |
| 94    | 139.5-141.0 | 1.000               |                |       |
| 95    | 141.0-142.5 | 1.000               |                |       |
| 96    | 142.5-144.0 | 1.000               |                |       |
| 97    | 144.0-145.5 | 1.000               |                |       |
| 98    | 145.5-147.0 | 1.000               |                |       |
| 99    | 147.0-148.5 | 1.000               |                |       |
| 100   | 148.5-150.0 | 1.000               |                |       |



৩১৯৮ বাংলাদেশ গেজেট, অতিরিক্ত, সেপ্টেম্বর ১১, ২০২১

(ii)  $V_u$  and distributed shear reinforcement shall satisfy Sec 8.3.6.4.

(iii) Transverse reinforcement shall be in the form of hoops except it shall be permitted to use single-leg horizontal reinforcement parallel to  $l_w$ , where only one curtain of distributed shear reinforcement is provided. Single-leg horizontal reinforcement shall have 180° bends at each end that engage wall pier boundary longitudinal reinforcement.

(iv) Vertical spacing of transverse reinforcement shall not exceed 150 mm.

(v) Transverse reinforcement shall extend at least 300 mm above and below the clear height of wall pier.

(vi) Special boundary elements shall be provided if required by Sec 8.3.6.6(c).

(b) For wall piers at the edge of a wall, horizontal reinforcement shall be provided in adjacent wall segments above and below the wall pier and be proportioned to transfer the design shear force from the wall pier into the adjacent wall segments as shown in Figure 6.8.14.

Horizontal beam reinforcement all wall shear not develop  $F_y$

Transverse reinforcement spacing distributed perpendicular to the axis of the diagonal bars not exceed 200 mm

Section A-A

Horizontal beam reinforcement all wall shear not develop  $F_y$

Transverse reinforcement spacing not to be increased 200 mm

Section A-A

Figure 6.8.13 Coupling Beams with diagonally oriented reinforcement. Wall Boundary reinforcement shown on one side only for clarity.

BNBC 2020 Part VI Chapter 8

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

- No check was provided for the Special Shear Wall (Boundary Element, Confinement) as per BNBC 2020 section 8.3.6.2 & 8.3.6.6.
- No check was provided for Coupling Beam as per BNBC 2020 section 8.3.6.7 & 8.3.6.8.

The building engineer is required to address all the inconsistencies in the revised EA report and submit the revised EA to RSC.

**Observation-06:** Missing information in the as-built drawing. (Utility Building)



No water tank is shown

**Description:** Stiffener columns integrated with a false slab were observed on-site; however, no corresponding information was provided in the as-built drawings. The building engineer is required to survey the whole structure and produce an accurate as-built drawing.

## 1. Action Plan

| Item No | Observation                                                                | Action Plan                                                                                                                                                                     | Timeline        |
|---------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1.      | Inconsistencies in the design report. (Production Building)                | The building engineer is required to address all the inconsistencies in the revised design report and submit to RSC for detailed review against lateral forces.                 | within 6 weeks  |
| 2.      |                                                                            | Implement floor load management system on the floor.                                                                                                                            | within 6 weeks  |
| 3.      |                                                                            | Implement remediation work (if required).                                                                                                                                       | within 6 months |
| 4.      | Lack of standard construction safety practice in Production Building       | The building engineer is required to ensure the health & safety of the workers and follow the standard construction safety practices according to BNBC 2020, Part 7, Chapter 3. | Immediate       |
| 5.      | Falling hazard on the existing unoccupied floors. (Production Building)    | The building engineer is required to provide barrier (with adequate height & spacing) to avoid the falling hazard.                                                              | within 6 weeks  |
| 6.      | Non-structural elements found unbraced / unanchored. (Production Building) | The building engineer is required to brace/anchor all non-structural elements within the building.                                                                              | within 6 weeks  |
| 7.      | Inconsistencies in the design report. (Utility Building)                   | The building engineer is required to address all the inconsistencies in the revised design report and submit to RSC for detailed review against lateral forces.                 | within 6 weeks  |
| 8.      |                                                                            | Implement floor load management system on the floor.                                                                                                                            | within 6 weeks  |
| 9.      |                                                                            | Implement remediation work (if required).                                                                                                                                       | within 6 months |
| 10.     | Missing information in the as-built drawing. (Utility Building)            | The building engineer is required to survey the whole structure and produce an accurate as-built drawing.                                                                       | within 6 weeks  |
| 11.     | Lack of standard construction safety practice in Utility Building          | The building engineer is required to ensure the health & safety of the workers and follow the standard construction safety practices according to BNBC 2020, Part 7, Chapter 3. | Immediate       |
| 12.     | Falling hazard on the existing unoccupied floors. (Utility Building)       | The building engineer is required to provide barrier (with adequate height & spacing) to avoid the falling hazard.                                                              | within 6 weeks  |
| 13.     | Non-structural elements found unbraced / unanchored. (Utility Building)    | The building engineer is required to brace/anchor all non-structural elements within the building.                                                                              | 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 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 that 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 Architect's and Engineer's drawings provided for us for our views on concealed parts of the structure and, in particular, foundations. The strengths of materials and components are untested, and we recommend that the factory owners' Building Engineer carry out in situ testing over and above those suggested to satisfy themselves with the material strengths and component details.

Recommendations, where given, are to provide 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 owner's Building Engineer's 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.