

Cotton Club (BD) Ltd. (Extension - 3)

Jarun (South), Kashimpur, Gazipur.

(23.949376, 90.304885)

30 December 2025

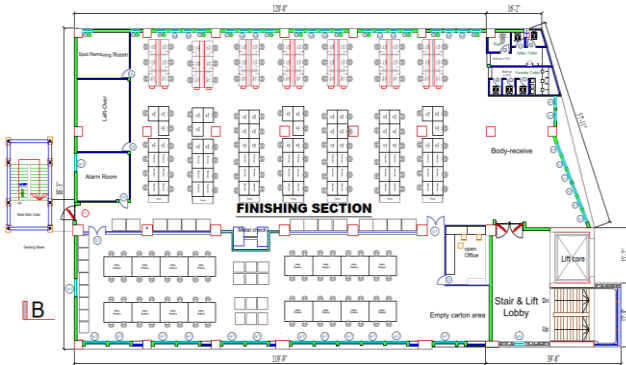


1. Building Information

SL	Building Name	Building Storey
1.	Building-10A	Six-storied (B+G+5) reinforced concrete (RC) building with a semi basement and mezzanine floor
2.	Building-15	Six-storied structure combined RC and steel structure
3.	Cooling Tower	Single-storied steel building
4.	WTP	Single-storied (B+G) RC structure
5.	LPG Shed	Single-storied steel shed
6.	LPG Tank	Underground RC structure
7.	Color Kitchen	Single-storied steel shed

2. Observation

Observation-01: Significant deviation between as-built condition and approved layout from local authority. (Building-10A)



As-Built Layout



Local Authority Approved Layout



Beam-slab re-bar kept exposed for future horizontal expansion

Description: During the inspection, deviations were observed between the as-built condition and the local authority approved layout of Building-10A, including changes in layout, floor area, storey (in proposed drawing) stair and lift core positions.

The building construction was started in August 2022. The approved layout was not followed and revised approval for the modified layout was missing. Also, there is possibility for horizontal expansion toward the west side; exposed beam-slab re-bar was also observed.

The building engineer is required to evaluate the building assessment following BNBC 2020 and prepare Engineering Assessment (EA) and obtain revised approval for the modified layout from the respective local authority.

Observation-02: Inconsistency in the design report. (Building-10A)

EA Report on Building-10A(G+9) for Cotton Club (BD) Ltd.



Dhaka University of Engineering & Technology, Gazipur
Department of Civil Engineering
Consultancy Research and Testing Services (CRTS)

Room No: 103, Old Academic Building, DUET, Gazipur, Mobile: +8801729020602, E-mail: cms_certs@duet.ac.bd, Web: http://cms.ce.duetbd.org

Memo No. : CRTS/CE/126/47, 18 November 2021
Ref. No. : Letter, 17 November 2021
Sent by : Engr. Md. Hasan Ali, Asst. Manager (Civil), Cotton Club (BD) Ltd.,
Jarun, Kashimpur, Gazipur.
Name of Work : Building No.-08, 09, 10, 11, 12, 13, 14 & 15 of Cotton Club (BD) Ltd. at
Jarun, Kashimpur, Gazipur.
Type of Specimen : Deformed MS Bar
Date of Testing : 21 November 2021
Test Standard : ASTM (E8M)
Samples Received : 18 November 2021 (Unsealed condition)

1637818853
Please scan the QR code for verification

Report on Tensile Strength Test of M. S. Bar

Sl. No.	Nominal Bar Dia. mm	Brand Name	Actual Bar Dia. mm	Weight Per Unit Length kg/m	Cross Sectional Area mm ²	Yield Load kN	Ultimate Load kN	Yield Strength MPa	Ultimate Strength MPa	Average Yield Strength MPa	Average Ultimate Strength MPa	Elongation %
1	10	ANWARS 500W	9.67	0.58	73.47	46.2	54.2	629	738	738	740	14.5
2	10	ANWARS 500W	9.64	0.57	73.02	46.4	54.4	636	745	745	740	15.0
3	10	ANWARS 500W	9.66	0.58	73.35	46.4	54.0	633	736	736	740	13.0
1	12	ANWARS 500W	11.60	0.83	105.61	68.0	77.2	644	731	731	729	11.5
2	12	ANWARS 500W	11.60	0.83	105.75	67.0	76.4	634	723	723	729	11.0
3	12	ANWARS 500W	11.61	0.83	105.79	67.6	77.6	639	734	734	729	11.0
1	16	ANWARS 500W	15.84	1.55	197.16	124.0	152.0	629	771	771	754	12.5
2	16	ANWARS 500W	15.82	1.54	196.52	124.0	152.0	631	774	774	754	15.0
3	16	ANWARS 500W	15.77	1.53	195.27	118.0	140.0	604	717	717	754	15.0
1	20	ANWARS 500W	20.16	2.51	319.38	186.0	224.0	582	701	701	694	18.5
2	20	ANWARS 500W	20.16	2.51	319.38	184.0	220.0	576	699	699	694	17.0
3	20	ANWARS 500W	20.16	2.51	319.27	185.0	221.0	580	692	692	694	15.5
1	25	ANWARS 500W	24.88	3.82	486.08	285.0	360.0	586	741	741	719	15.0
2	25	ANWARS 500W	24.74	3.77	480.77	265.0	345.0	551	568	568	719	15.0
3	25	ANWARS 500W	25.06	3.87	493.30	280.0	345.0	568	699	699	719	17.5

Countersigned By : Test Performed By :

4.4 MATERIALS CONSIDERED IN DESIGN

Concrete:

The concrete strength is considered from cylinder test performed in the structure. The calculation of compressive strength according to BNBC with correction factor.

BEAM:

Concrete strength, $f'_c = 5379$ psi according to cylinder test report. Design strength of concrete 3500 psi has been considered here.

SLAB:

Concrete strength, $f'_c = 5379$ psi according to cylinder test report. Design strength of concrete 3500 psi has been considered here.

COLUMN & FOUNDATION:

Concrete strength, $f'_c = 5336$ psi according to cylinder test report. Design strength of concrete 3500 psi has been considered here.

Reinforcement:

Deformed bar with minimum yield strength of 72,500 psi. (According to test report)

In the EA report, $f'_c = 3500$ psi (24.13 MPa), $f_y = 72,500$ psi (500 MPa); re-bar test report for 500 MPa

FOUNDATION
1) FOUNDATION TYPE -PILE FOUNDATION
2) DEPTH OF FOUNDATION AS PER SECTIONAL DRAWING.

CONCRETE :
TYPE -CONCRETE COMPRESSIVE STRENGTH CONSIDERED AS FOLLOWS :
FOR BEAM, COLUMN, SLAB : $f'_c =$ MINIMUM 4000 PSI
FOR Pile, $f'_c =$ MINIMUM 3500 PSI
FOR Pile Cap, $f'_c =$ MINIMUM 4000 PSI
MIXING RATIO =1:1.5:3 (Stone Chips)
AquaArm C-35 for as water proofing agent
FOR ETP WALL & Foundation, $f'_c =$ MINIMUM 4500 PSI
MIXING RATIO =1:1.25:2.5 (Stone Chips)
AquaArm C-35 for as water proofing agent

CURING OF R.C.C WORK :
1) CURING TIME MINIMUM 14 DAYS
2) METHOD OF CURING :
* HORIZONTAL SURFACE - BY PONDING OF WATER
* OTHER SURFACES-BY WRAPPING MOIST JUTE FABRIC AND SPRINKLING WATER BY HOSE PIPE FREQUENTLY.

CEMENT
PORTLAND COMPOSITE CEMENT CONFORMING TO BDS 232 : 1974/ASTM C150.

CONCRETE AGGREGATE
1) FINE AGGREGATES : SAND OF F.M 2.50 (Min.)
2) COARSE AGGREGATES : 20mm DOWN WELL GRADED STONE CHIPS TO BE USED AS COARSE AGGREGATE IN ALL R.C.C. WORK

WATER
POTABLE WATER TO BE USED IN CONCRETE MIX

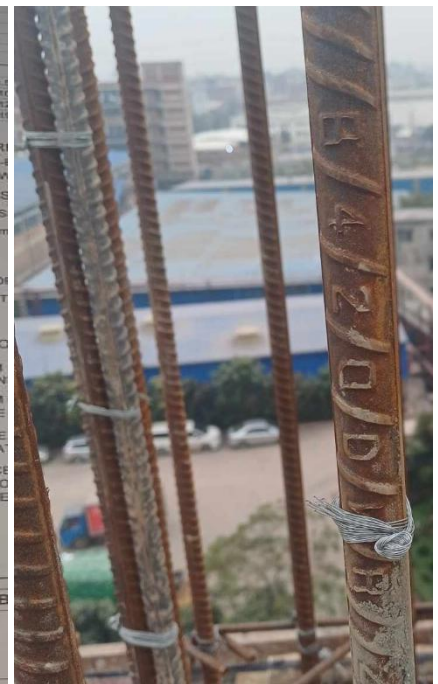
BONDING AGENT
PLEASE USE BONDING AGENT WHERE REQUIRED.

STEEL REINFORCEMENT
a) MINIMUM TENSILE YIELD STRENGTH OF STEEL $f_y = 60$ KSI (B420DWR)

Project Name & Address : ed Structural Drawing of 10 (Ten) Factory (Building-10A) at South Jarun, pur, Gazipur, Bangladesh.

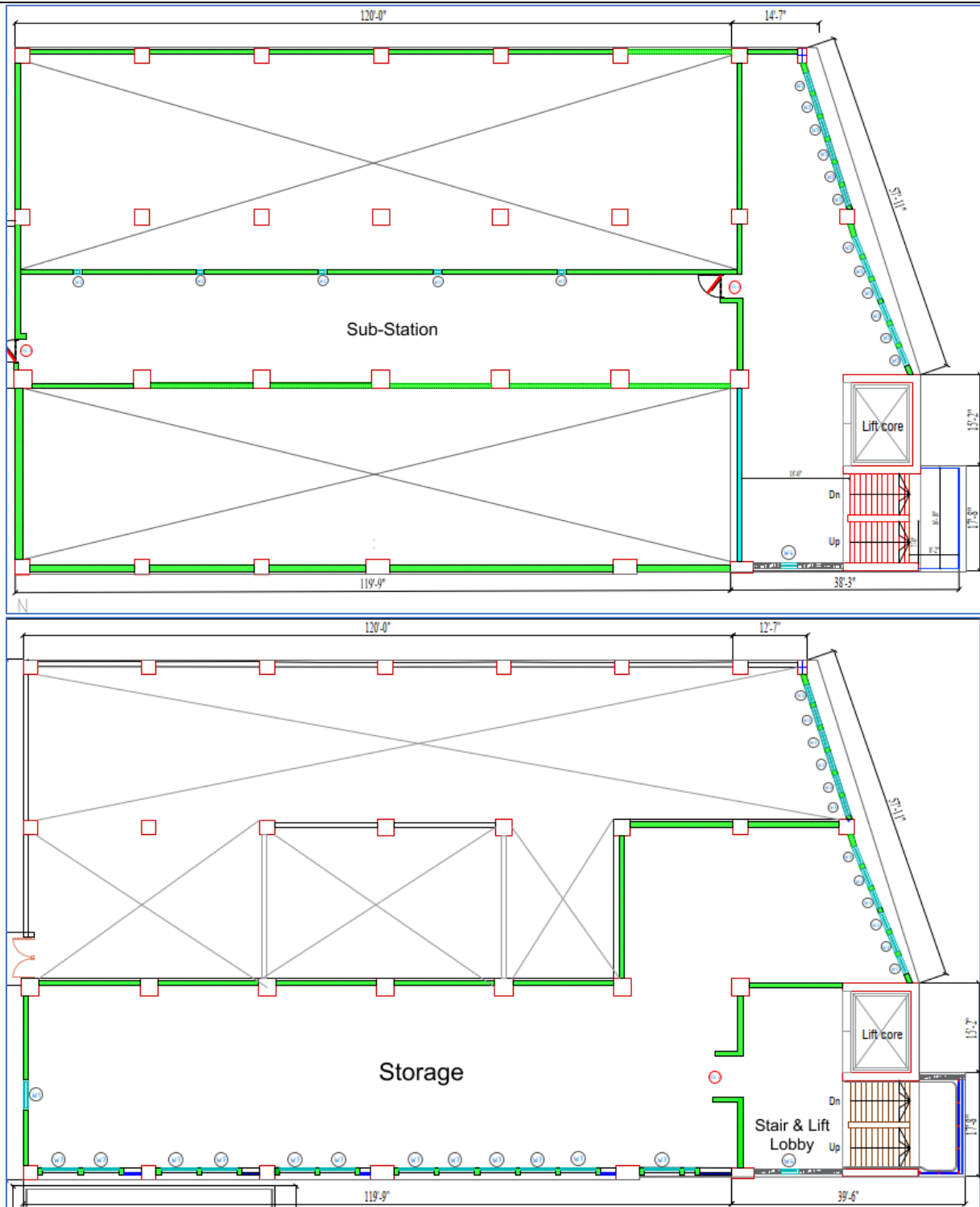
Owner of The Project : COTTON CLUB (BD) LTD.

Designed By : Md. Hasan Ali
B.Sc. Engg. (Civil), RUET, MIEB-39877.



In the construction drawing, $f'_c = 3500$ psi (27.58 MPa) and $f_y = 60000$ psi (B420DWR)

Description: Different material strength considered in EA report and construction drawing for the concrete and re-bar. The building engineer is required to consider uniform material strength as per the site condition and actual test report.



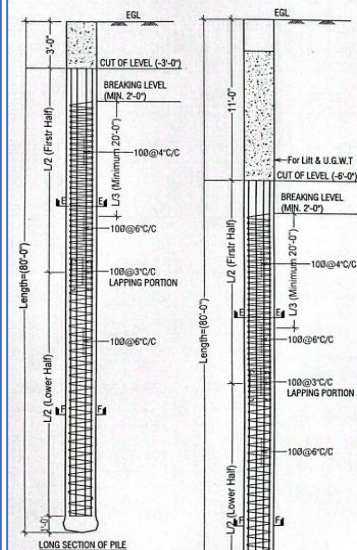
Description: There is diaphragm discontinuity on the 1st floor and 3rd floor which has not been incorporated in the EA report. The building engineer is required to check the diaphragm discontinuity irregularity and update the EA report.

The soil test report of this building is based on ten storied industrial building at Kashimpur, Gazipur. The sub soil exploration at the site consists of four boreholes i.e., BH 1,2,3,4. The boreholes consist of boring up to a depth of 70' below from EGL. The investigation was prepared by **MADINA ENGINEERS & FOUNDATION**.

6.1 ALLOWABLE BEARING CAPACITY OF SOIL:

The foundation of this building is based on pile foundation. The length of pile was provided 80'. The pile cap was provided at 5'-0" depth from EGL. The bearing capacity of soil for pile foundation was checked using SPT values. A factor of safety of 2.5 is considered to be adequate for pile foundation against bearing pressure of soil when service load is used.

Minimum pile capacity is 170 kips (**FOS = 2.5**). While checking for lateral load cases, 33% extra capacity has been considered. For lateral load case, allowable capacity is taken as 226.1 kips



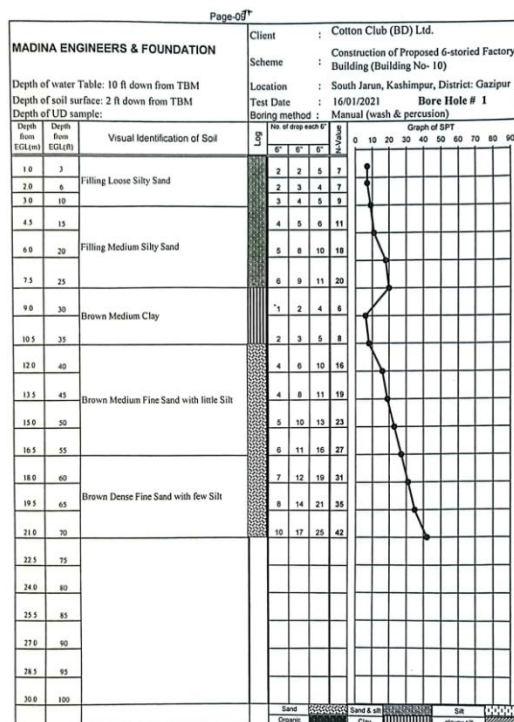
PILE SCHEDULE	
PILE-CAP NO.	NO. C
P-04	
P-04A	
P-06	
P-07	
P-08	
P-09	
P-10	
P-11	
P-12	
P-13	
P-13A	
P-14	
P-15	
P-16	
P-30	

***CUT OFF LEVEL DEPENDS ON**
**** FOR LIFT CORE AND**
FOR OTHER PILE CUT

NOTE FOR PILE (MAT
☐ Design $f_c = 28$ days
☐ Steel $f_y = 60,000$ psi. de
☐ Pile breaking will be de
☐ Cement, Coarse Sand
graded + 50% $\frac{1}{2}$ " down
☐ Slump = 125 mm.
☐ Clear cover 75 mm.
☐ Temporary Casing Le
☐ Use Bentonite Slurry.
☐ PILE BEARING CAP

	Owner of The Project	Designed By	Checker
ed	COTTON CLUB (BD) LTD.	Md. Hasan Ali B.Sc. Engg. (Civil), RUET MIEB-39877	Md. Bab B.Sc. En MIEB-19

In the EA report, pile capacity = 170 kip (756 kN) with FoS 2.5 for 24.4m long pile



Slit #	Depth of Fastening from OHS (in)	Fastening Size (in)	SFT value (kip) (S, 0.58 shows in 20 before fastening)	Allowable Bearing Capacity (kip)
1	0	5/8"	11.25	2.55
		3/4"	13.00	2.74
		10/16"	11.63	2.26
2	0	5/8"	8.25	1.87
		3/4"	9.80	2.06
		10/16"	9.00	1.82
3	0	5/8"	7.80	1.70
		3/4"	7.80	1.64
		10/16"	7.17	1.37
4	0	5/8"	7.50	1.70
		3/4"	7.40	1.60
		10/16"	7.33	1.40

Notes: 1. Year = 2009.

Page 4

1.4 RECOMMENDATION ON FOUNDATION TYPE

After thorough analysis of the available field and laboratory test results, this sub-investigation report has been prepared. Detail description of the soil profile as found from the sub-soil investigation is mentioned earlier along with analysis of field and laboratory test results. Calculation of allowable bearing capacity of different types of typical foundations has been shown earlier.

Justification of soil layer has been shown in bore logs. SPT value in all the boring are within range that means soil layer is uniform. From the previous analysis, it is concluded that isolation or spread footing in shallow depth can be provided for the proposed structure on that soil after improving EGL to 12m or 40 ft. depth by Load settlement or Sand pile or Pre-cast pile or Any other ways.

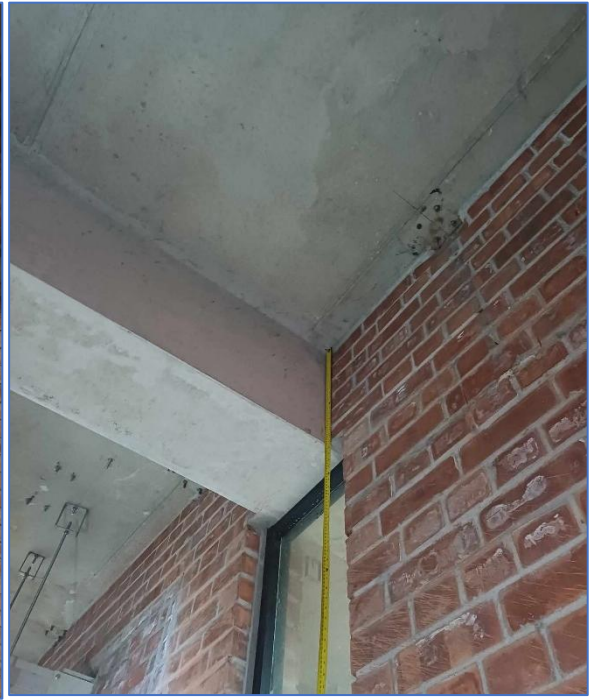
Allowable bearing capacity of different type of typical foundation has been shown in Page 6. The designers have to decide the TYPE, DEPTH, and SIZE of foundation depending on the load and they have to re-calculate the bearing capacity (since it depends on DEPTH, SIZE and other factor). The structural engineer may take preliminary value of bearing capacity (calculated herein) and fix up the final size and depth of the foundation. Hence the calculation shown earlier may help them in taking decision.

31/01/2022
(Mr. Pineda Barman)

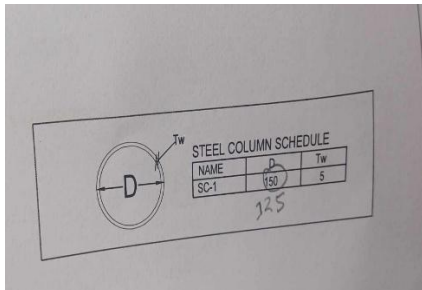
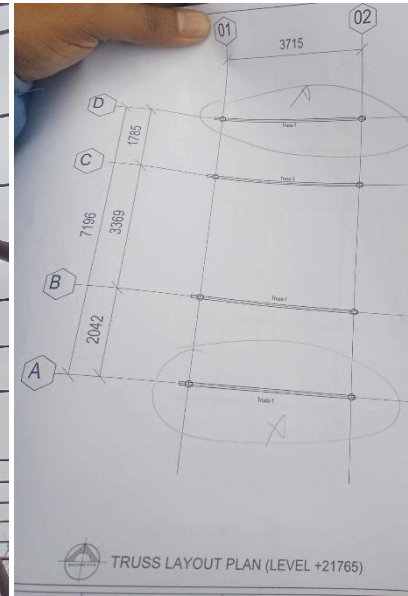
Pile bearing capacity was not incorporated in geotechnical investigation report. Bore hole depth 21m.

Description: The pile bearing capacity was not incorporated in geotechnical investigation report. Also, bore hole depth is 21m and there is no soil data at the pile depth at 24.4m. The building engineer is required to add necessary calculations in the EA report to confirm the pile capacity.

Observation-03: Discrepancy in the provided drawing. (Building-10A)



1st floor height found additional +150mm and all beam depth found additional 25mm



External Steel Stair mismatches: steel column size, connection bolt diameter and number, connection type, roof truss missing, bracing missing at 4th and 5th floor level

Description: During the inspection, mismatches were observed between the provided drawing and actual site condition. The building engineer is required to update the as-built drawing reflecting actual site condition and submit to RSC for detailed review.

Observation-04: Prepared load plan does not comply with BNBC live load requirement. (Building-10A)



Description: In the provided load plan, 5 kPa live load is considered in the 2nd floor and 3rd floor storage areas. As per BNBC, at least 6 kPa live load shall be considered for the light storage facilities. The building engineer is required to update the load plan as per BNBC live load requirements. The factory is required to post and maintain the load plan.

Observation-05: Lack of vertical and lateral stability. (External Steel Stair of Building-10A)



Description: The external steel stair structure exhibits significant stability deficiencies due to undersized structural elements and missing bracing systems. The steel columns are grossly inadequate in size and capacity to safely support the imposed loads.

The building engineer is required to provide necessary alternatives to make the structure stable, include this in the design report and submit it to RSC for detailed review.

Observation-06: Lack of construction safety practice. (Building-10A)



Description: During the inspection, lack of construction safety practices i.e. PPE, fall protection, safety training influence etc. were observed. The factory is required to immediately install fall protection guard and follow construction safety practice as per the BNBC-2020 Part-VII Chapter-3.

Observation-07: Trolley impact on column. (Building-10A)



Description: During the inspection, trolley impacts were observed on the column. The factory is required to identify the location and install column guard.

Observation-08: Inconsistency in the design report. (Building-15)

MATERIALS CONSIDERED IN DESIGN

Concrete:

The concrete strength is considered from cylinder test performed in the structure. The calculation of compressive strength according to BNBC with correction factor.

BEAM:

Concrete strength, $f_c' = 4563$ psi (According to design strength)

SLAB:

Concrete strength, $f_c' = 4563$ psi (According to design strength)

COLUMN & FOUNDATION:

Concrete strength, $f_c' = 4563$ psi (According to design strength)

Reinforcement:

Deformed bar with minimum yield strength of 72,500 psi. (According to test report)

Dhaka University of Engineering & Technology, Gazipur
Department of Civil Engineering
Consultancy Research and Testing Services (CRTS)

Room No. 103, Old Academic Building, DUET, Gazipur, Mobile: +880172920602, E-mail: crts_civil@duet.ac.bd, Web: http://crts.ce.duet.ac.bd

Memo No. : CRTS/CE/126/47, 18 November 2021
Ref. No. : Letter, 17 November 2021
Sent by : Engr. Md. Hasan Ali, Asst. Manager (Civil), Cotton Club (BD) Ltd.,
Jarun, Kashimpur, Gazipur.
Name of Work : Building No.-08, 09, 10, 11, 12, 13, 14 & 15 of Cotton Club (BD) Ltd. at
Jarun, Kashimpur, Gazipur.
Type of Specimen : Deformed MS Bar
Date of Testing : 21 November 2021
Test Standard : ASTM (ESM)
Samples Received : 18 November 2021 (Unsealed condition)

1637818853
Please scan the QR
code for verification

Report on Tensile Strength Test of M. S. Bar

Sl. No.	Nominal Bar Dia. mm	Brand Name	Actual Bar Dia. mm	Weight Per Unit Length kg/m	Cross Sectional Area mm ²	Yield Load kN	Ultimate Load kN	Yield Strength MPa	Average Yield Strength MPa	Ultimate Strength MPa	Average Ultimate Strength MPa	Elongation %
1	10	ANWARS 500W	9.67	0.58	73.47	46.2	54.2	629	738	740	14.5	
2	10	ANWARS 500W	9.64	0.57	73.02	46.4	54.4	636	632	745	15.0	
3	10	ANWARS 500W	9.66	0.58	73.35	46.4	54.0	633	633	736	13.0	
1	12	ANWARS 500W	11.60	0.83	105.61	68.0	77.2	644	731	729	11.5	
2	12	ANWARS 500W	11.60	0.83	105.75	67.0	76.4	634	639	723	11.0	
3	12	ANWARS 500W	11.61	0.83	105.79	67.6	77.6	639	734	734	11.0	
1	16	ANWARS 500W	15.84	1.55	197.16	124.0	152.0	629	771	771	12.5	
2	16	ANWARS 500W	15.82	1.54	196.52	124.0	152.0	631	621	774	754	
3	16	ANWARS 500W	15.77	1.53	195.27	118.0	140.0	604	717	717	15.0	
1	20	ANWARS 500W	20.16	2.51	319.38	186.0	224.0	582	701	701	18.5	
2	20	ANWARS 500W	20.16	2.51	319.38	184.0	220.0	576	579	689	694	
3	20	ANWARS 500W	20.16	2.51	319.27	185.0	221.0	580	692	692	15.5	
1	25	ANWARS 500W	24.88	3.82	486.08	285.0	360.0	586	741	741	15.0	
2	25	ANWARS 500W	24.74	3.77	480.77	265.0	345.0	551	568	718	719	
3	25	ANWARS 500W	25.06	3.87	493.30	280.0	345.0	568	699	699	17.5	

Countersigned By :  Test Performed By : 



In the EA report, $f_c' = 4563$ psi (31.46 MPa), $f_y = 72,500$ psi (500 MPa); re-bar test report for 500 MPa

3. CONCRETE :

a) TYPE CONCRETE COMPRESSIVE STRENGTH CONSIDERED AS FOLLOWS :

i) FOR COL. & WATER RESERVOIR WALL, LIFT CORE, SHEAR WALL, RETAINING WALL, DESIGN $f_c' = 4500$ psi.

ii) FOR FOOTING & MAT DESIGN $f_c' = 4500$ psi.

iii) FOR SLAB & BEAM.

DESIGN $f_c' = 4500$ psi.

WHICH ARE TO BE CONFIRMED BY TRIAL MIX DESIGN.

b) MINIMUM CYLINDER STRENGTH : BASED ON CYLINDER TEST OF

DIAMETER $D = 150$ mm & HEIGHT $H = 300$ mm ($D/H = 1/2$)

i) 28 DAYS STRENGTH = AS SPECIFIED IN 3(a)

ii) 7 DAYS STRENGTH = 70% OF THE 28 DAYS STRENGTH.

c) CURING OF R.C.C. WORK :

i) CURING TIME MINIMUM 28 DAYS

ii) METHOD OF CURING :

* HORIZONTAL SURFACE - BY PONDING OF WATER

* OTHER SURFACES - BY WRAPPING MOIST JUTE FABRIC AND

SPRINKLING WATER BY HOSE PIPE FREQUENTLY.

d) SLUMP MAXIMUM 2" FOR SLAB, BEAM & COLUMN AND 2 1/2" FOR RCC WALL.

e) W/C MAXIMUM 0.5

6. COARSE AGGREGATES : 20mm DOWN WELL GRADED STONE CHIPS TO BE USED FOR PILECAP, MAT, SHEAR WALL & COLUMN FOR SLAB, BEAM & OTHERS MAIN STRUCTURAL WORKS 20mm DOWN GRADED (STONE CHIPS) EXCEPT RAILING, DROP WALL FINS FOR WHICH 12mm DOWN GRADED BRICK CHIPS TO BE USED.

6. WATER

POTABLE WATER TO BE USED IN CONCRETE MIX

7. STEEL REINFORCEMENT

a) ALL REINFORCEMENTS ARE 60 GRADE HIGH STRENGTH DEFORMED BAR

MADE FROM BILLET STEEL EXCEPT FOR TIES & RINGS ARE 40 GRADE

b) YIELD STRENGTH OF STEEL $f_y = 415$ MPa (60000 psi) CONFORMED TO

ONE OF THE FOLLOWING SPECIFICATIONS : IS 606 1313 : 1961,

AS 415 1998

c) THE FOLLOWING TESTS FOR REINFORCING BARS FROM RANDOM

SAMPLES SHALL BE

TO THE ENGINEER FOR CHECKING AND RECORD :

i) TENSILE STRENGTH TEST

ii) PERCENTAGE ELONGATION TEST

iii) BENDUREBEND TEST

13. DEVELOPMENT LENGTH

ALL BEAM AND SLAB REBARS SHOULD BE EXTENDED INTO THE SUPPORT UP TO DEVELOPMENT LENGTH

14. ADMIXTURE

AS MENTIONED IN THE RESPECTIVE DRAWINGS AND IN THE SPECIFICATION AFTER

APPROVAL BY THE ENGINEER

WATER PROOFING ADMIXTURE, PLASTICISER AND JOINTING ADMIXTURE SHALL BE USED

15. WATER STOPPER

300 mm WIDE PVC WATER STOPPER TO BE USED AT ALL CONSTRUCTION JOINTS

BELOW GROUND IN MAT, SHEAR WALL, WATER TANK WALL ETC.

16. SHUTTERING

a) SHUTTERING - STEEL

17. MASONRY WORK

a) SOLID BRICKS

& Address	Owner of The Project	Prepared By	Checked By
IRIED STRUCTURAL BUILDING-15 HIMPUR,GAZIPUR.	Cotton Club Bd. Ltd.	Md. Hasan Ali B.Sc. Engg. (Civil), RUET MIEB-39877	Md. Babul Akter B.Sc. Engg. (Civil), MIEB-19413

In the construction drawing, $f_c' = 4500$ psi (31 MPa) and $f_y = 415$ MPa

Description: Different material strength considered in EA report and construction drawing for the concrete and re-bar. The building engineer is required to consider uniform material strength as per the site condition and actual test report.

6 GEOTECHNICAL INVESTIGATION REPORT

The soil test report of this building is based on ten storied industrial building at Kashimpur, Gazipur. The sub soil exploration at the site consists of four boreholes i.e., BH 1,2,3,. The boreholes consist of boring up to a depth of 70' below from EGL. The investigation was prepared by **MADINA ENGINEERS & FOUNDATION**.

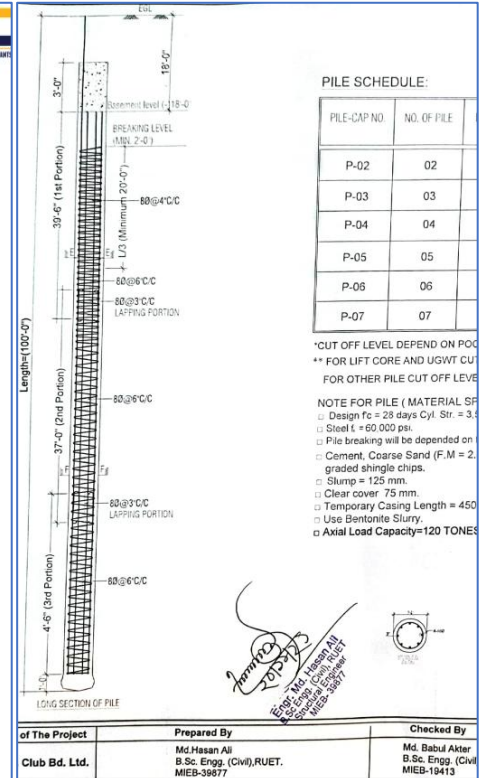
(Soil Test Report is attached in Annexure B)

ALLOWABLE BEARING CAPACITY OF SOIL:

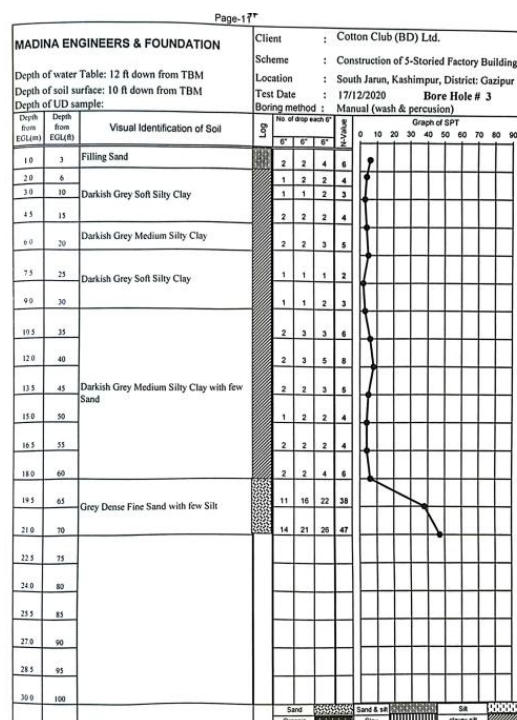
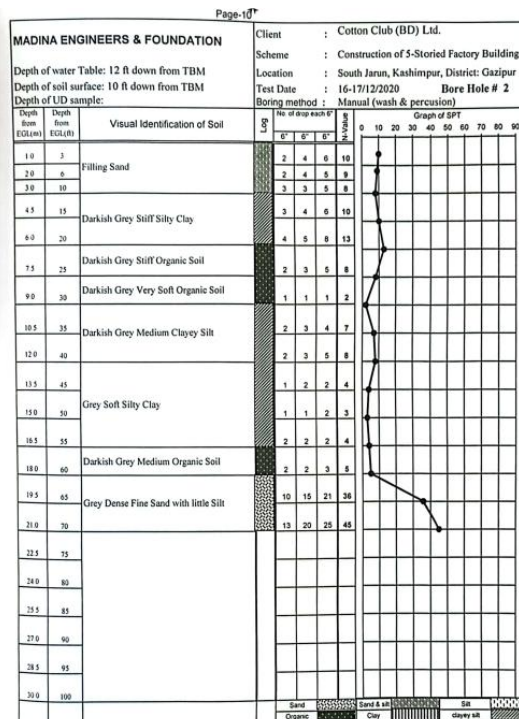
The foundation of this building is based on pile foundation. The length of pile was provided 80'. The pile cap was provided at 5'-0" depth from EGL. The bearing capacity of soil for pile foundation was checked using SPT values. A factor of safety of 2.5 is considered to be adequate for pile foundation against bearing pressure of soil when service load is used.

Alpha+Beta method has been used to evaluate the ultimate capacity.

Minimum pile capacity is **240 kips (FOS = 2.5)**. While checking for lateral load cases, 33% extra capacity has been considered. For lateral load case, allowable capacity is taken as 300 kips



In the EA report, plie capacity = 240 kip (1067 kN) with FoS 2.5 for 30m long pile



Pile bearing capacity was not incorporated in geotechnical investigation report. Bore hole depth 21m.

Description: The pile bearing capacity was not incorporated in geotechnical investigation report. Also, bore hole depth is 21m and there is no soil data at the pile depth at 30m. The building engineer is required to add necessary calculations in the EA report to confirm the pile capacity.

Observation-09: Material strength test report does not comply with the BNBC criteria. (Building-15)

DEPARTMENT OF CIVIL ENGINEERING
Mobile: 01819557964, PABX: 55167100 Ext. 7226
CONCRETE LABORATORY

BRTC No.: 1102-72495 /22-23/CE; Dt: 5/10/2022
Sent by: Cotton Club BD Ltd
Jarun South Kashimpur Gazipur
Ref. No.: Club/0013/2022/08; Dt: 5/10/2022
Project: Building-15 Cotton Club BD Ltd Jarun South Kashimpur Gazipur
Sample: Concrete Cylinder [Mix proportion (as quoted): 1:1.5:3, Aggregate Type: Stone chips]
Location: Pile Cap PC-4 F6 [Admixture Added (as per letter): Not mentioned]
Test: Compressive Strength Test of Concrete Cylinder [ASTM C39]
Date of Test: 10/10/2022

SL No.	Date of Casting as per the letter	Specimen Designation/ Frog Mark	Specimen Area (sq. in)	Maximum Load (lb)	Crushing Strength (psi)	Average Crushing Strength	Mode of Failure
1	13/9/2022	---	12.67	53,812	4,247	---	Combined *
2	(27 days test)	---	12.67	39,037	3,091	---	Combined *
3	---	---	12.67	50,403	3,976	---	Combined *

* Combined = Mortar and Aggregate Failure.

Countersigned by: Dr. A. B. M. Badruzzaman
Test Performed by: Dr. Md. Mafizur Rahman

DEPARTMENT OF CIVIL ENGINEERING
Mobile: 01819557964, PABX: 55167100 Ext. 7226
CONCRETE LABORATORY

BRTC No.: 1102-69884 /22-23/CE; Dt: 4/9/2022
Sent by: Mr. Md. Hasan Ali, Manager Civil, Cotton Club (BD) Ltd.
Jarun (South), Kashimpur, Gazipur.
Ref. No.: Letter; Dt: 4/9/2022
Project: Cotton Club (BD) Ltd., Jarun (South), Kashimpur, Gazipur.
Sample: Concrete Cylinder [Aggregate Type: Stone chips]
Location: Building No-15, Pile Casting. [Mix proportion (as quoted): 1:1.5:3]
Grid: (C-2) [Admixture Added (as per letter): Not mentioned]
Test: Compressive Strength Test of Concrete Cylinder [ASTM C39]
Date of Test: 7/9/2022

SL No.	Date of Casting as per the letter	Specimen Designation/ Frog Mark	Specimen Area (sq. in)	Maximum Load (lb)	Crushing Strength (psi)	Average Crushing Strength	Mode of Failure
1	10/8/2022	Building No-15, Pile, Grid: (C-2)	12.67	47,771	3,770	---	Combined *
2	(28 days test)	Building No-15, Pile, Grid: (C-2)	12.55	49,971	3,982	---	Combined *
3	---	Building No-15, Pile, Grid: (C-2)	12.55	60,972	4,858	---	Combined *

* Combined = Mortar and Aggregate Failure.

Note: Samples were received in unsealed condition.

Countersigned by: Dr. A. B. M. Badruzzaman
Test Performed by: Dr. Abu Siddique

DEPARTMENT OF CIVIL ENGINEERING
Mobile: 01819557964, PABX: 55167100 Ext. 7226
CONCRETE LABORATORY

BRTC No.: 1102-69884 /22-23/CE; Dt: 4/9/2022
Sent by: Mr. Md. Hasan Ali, Manager Civil, Cotton Club (BD) Ltd.
Jarun (South), Kashimpur, Gazipur.
Ref. No.: Letter; Dt: 4/9/2022
Project: Cotton Club (BD) Ltd., Jarun (South), Kashimpur, Gazipur.
Sample: Concrete Cylinder [Aggregate Type: Stone chips]
Location: Building No-15, Pile Casting. [Mix proportion (as quoted): 1:2:4]
Grid: (F-4) [Admixture Added (as per letter): Not mentioned]
Test: Compressive Strength Test of Concrete Cylinder [ASTM C39]
Date of Test: 6/9/2022

SL No.	Date of Casting as per the letter	Specimen Designation/ Frog Mark	Specimen Area (sq. in)	Maximum Load (lb)	Crushing Strength (psi)	Average Crushing Strength	Mode of Failure
1	9/8/2022	Building No-15, Pile, Grid: (F-4)	12.55	40,199	3,203	3580 psi	Combined *
2	(28 days test)	Building No-15, Pile, Grid: (F-4)	12.67	46,308	3,655	(24.7 MPa)	Combined *
3	---	Building No-15, Pile, Grid: (F-4)	12.42	48,119	3,874	(252 kg/cm ²)	Combined *

* Combined = Mortar and Aggregate Failure.

Note: Samples were received in unsealed condition.

Countersigned by: Dr. A. B. M. Badruzzaman
Test Performed by: Dr. Abu Siddique

DEPARTMENT OF CIVIL ENGINEERING
Mobile: 01819557964, PABX: 55167100 Ext. 7226
CONCRETE LABORATORY

BRTC No.: 1102-99708/CE /23-24/; Dt: 4/9/2023
Sent by: Mr. Md. Hasan Ali, Manager Civil, Cotton Club (BD) Ltd.
Jarun (South), Kashimpur, Gazipur.
Ref. No.: Club/04/09/2023/15; Dt: 4/9/2023
Project: Building No-15 of Cotton Club (BD) Ltd., Jarun (South), Kashimpur, Gazipur.
Sample: Concrete Cylinder [Aggregate Type: Stone chips]
Location: 3rd Floor Column Casting, C-03 Grid: (C-4) [Mix proportion (as quoted): 1:1.5:3]
Grid: (C-4) [Admixture Added (as per letter): Not mentioned]
Test: Compressive Strength Test of Concrete Cylinder [ASTM C39]
Date of Test: 5/9/2023

SL No.	Date of Casting as per the letter	Specimen Designation/ Frog Mark	Specimen Area (sq. in)	Maximum Load (lb)	Crushing Strength (psi)	Average Crushing Strength	Mode of Failure
1	8/8/2023	3rd Floor Column Casting, C-03 Grid: (C-4)	12.30	61,883	5,031	---	Combined *
2	(28 days test)	3rd Floor Column Casting, C-03 Grid: (C-4)	12.18	47,606	3,909	---	Combined *
3	---	3rd Floor Column Casting, C-03 Grid: (C-4)	12.30	51,685	4,202	---	Combined *

* Combined = Mortar and Aggregate Failure.

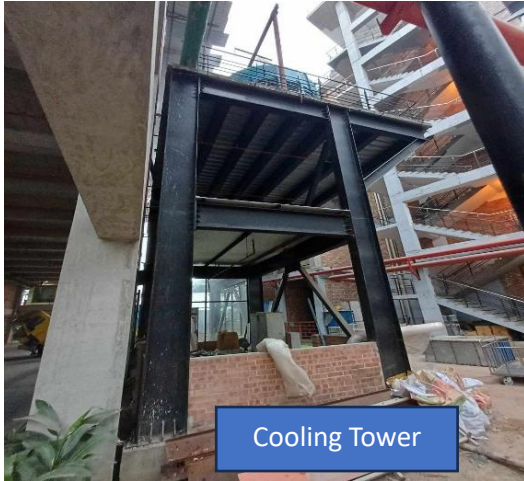
Note: Samples were received in unsealed condition.

Countersigned by: Prof. Dr. Hasib Mohammed Ahsan
Test Performed by: Dr. Sumaiya Afroz

Description: The concrete design strength was considered 4500 psi (31 MPa) for all class (foundation, column, beam, wall etc). For foundation, 11 no's cylinder test reports were available, of which 6 test results did not achieve the specified design strength. For column concrete, 19 no's cylinder test reports were available, where 1 test report result did not achieve the specified design strength. Which indicates that the acceptance criteria of BNBC 2020 Part-VI Section 5.12.3.3 are not satisfied.

Verify in-situ concrete strength by taking 4-100 mm diameter cores from the structural elements (mat foundation, column, shear wall).

Observation-10: Lack of design documents. (Cooling Tower; WTP; LPG Shed; Color Kitchen)



Description: 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 & section 1.9.1.2 of BNBC (part-6).

At the time of inspection, no design report was available for captioned structures. The building engineer is required to prepare a set of design documents in compliance with BNBC and submit to RSC for detailed review.

3. Action Plan

Item No	Observation	Action Plan	Timeline
1.	Significant deviation between as-built condition and approved layout from local authority. (Building-10A)	The building engineer is required to evaluate the building assessment following BNBC 2020 and prepare Engineering Assessment (EA).	within 6 weeks
2.		Implement remediation work (if required) after acceptance from RSC.	within 6 months
3.		Obtain revised approval for the modified layout from the respective local authority.	within 6 months
4.	Inconsistency in the design report. (Building-10A)	The building engineer is required to consider uniform material strength based on site conditions and actual test reports, check diaphragm discontinuity irregularity, and update the EA report with necessary calculations to confirm pile capacity.	within 6 weeks
5.		Implement remediation work (if required) after acceptance from RSC.	within 6 months
6.	Discrepancy in the provided drawing. (Building-10A)	The building engineer is required to update the as-built drawing reflecting actual site condition and submit to RSC for detailed review.	within 6 weeks
7.	Prepared load plan does not comply with BNBC live load requirement. (Building-10A)	The building engineer is required to update the load plan as per BNBC live load requirements.	within 6 weeks
8.		The factory is required to post and maintain the load plan.	within 6 months
9.	Lack of vertical and lateral stability. (External Steel Stair of Building-10A)	The building engineer is required to provide necessary alternatives to make the structure stable, include this in the design report and submit it to RSC for detailed review.	within 6 weeks
10.		Implement remediation work (if required) after acceptance from RSC.	within 6 months
11.	Lack of construction safety practice. (Building-10A)	The factory is required to immediately install fall protection guard and follow construction safety practice as per the BNBC-2020 Part-VII Chapter-3.	Immediate

Item No	Observation	Action Plan	Timeline
12.	Trolley impact on column. (Building-10A)	The factory is required to identify the location and install column guard.	within 6 months
13.	Inconsistency in the design report. (Building-15)	The building engineer is required to consider uniform material strength based on site conditions and actual test reports and update the EA report with necessary calculations to confirm pile capacity.	within 6 weeks
14.		Implement remediation work (if required) after acceptance from RSC.	within 6 months
15.	Concrete compressive strength test results not meeting acceptance criteria. (Building-15)	Verify in-situ concrete strength by taking 4-100 mm diameter cores from the structural elements (mat foundation, column, shear wall).	within 6 weeks
16.	Lack of EA report. (Cooling Tower)	The building engineer is required to prepare a set of design documents in compliance with BNBC and submit to RSC for detailed review.	within 6 weeks
17.		Implement remediation work (if required) after acceptance from RSC.	within 6 months
18.	Lack of design documents. (WTP)	The building engineer is required to prepare a set of design documents in compliance with BNBC and submit to RSC for detailed review.	within 6 weeks
19.		Implement remediation work (if required) after acceptance from RSC.	within 6 months
20.	Lack of design documents. (LPG Shed)	The building engineer is required to prepare a set of design documents in compliance with BNBC and submit to RSC for detailed review.	within 6 weeks
21.		Implement remediation work (if required) after acceptance from RSC.	within 6 months
22.	Lack of design documents. (Color Kitchen)	The building engineer is required to prepare a set of design documents in compliance with BNBC and submit to RSC for detailed review.	within 6 weeks
23.		Implement remediation work (if required) after acceptance from RSC.	within 6 months