

COVER



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
(Est U/s(3) of UGC Act, 1956) Accredited with Grade "A" by NAAC (A Christian Minority Institution)

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHEMMENCHERY, CHENNAI – 600119. TAMILNADU.
PHONE: 2450 1443/9941912481 INTERNET: www.sathyabama.ac.in
E-mail: archhod@sathyabama.ac.in



**SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF ARCHITECTURE
M. Arch (Building management)**

**PROFESSIONAL TRAINING (S84 INT)
DEC- JAN 2020**

Name of the Student :LISHALI.K

Semester : III

Reg No. :39840011

Batch : 2019-2021



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DEPARTMENT OF ARCHITECTURE
M. Arch (Building management)

VIVA-VOCE EXAMINATION

This is to certify that the Professional Training (S84 INT) is the work of _LISHALI.K_ who had undergone training in __CRN Architects__ and has been monitored by the continuous assessment during **Dec 2020 to Jan 2021.**

A handwritten signature in blue ink, appearing to read "Devyani", is written over a light blue circular stamp.

Dr. Devyani Gangopadhyay
HOD AND DEAN

Submitted for Viva voce Examination held on _____

Internal Examiner

External Examiner

(Annexure III)



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E-mail: archhod@sathyabama.ac.in



DECLARATION

I __LISHALI.K_ hereby declare that the Professional Training Report _10th Dec 2020 to 20th Jan 2021_ done by me under the guidance of Ar.K.Chandrasekaran_ is submitted in partial fulfillment of the requirements for the completion of practical training session.

DATE :20/01/2021

PLACE :Chennai

SIGNATURE OF CANDIDATE

(Annexure –IV)

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to Board of Management of **SATHYABAMA INSTITUTE OF SCIENCE & TECHNOLOGY** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr.Devyani Gangopadhyay Dean, School of building and Environment** for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to **PM --K.Chandrasekaran--** for his valuable guidance, suggestions and constant encouragement paved way for the successful completion of my Training.

I would also like to express my sincere thanks to Ar. Sukirtha Suresh (Internal Co-Ordinator) for her valuable guidance, during the entire Professional Training period.

I wish to express my thanks to all Teaching and Non-teaching staff members of the Department of Architecture who were helpful in many ways for the completion of the project.

(Also thank Architect of the firm)_**G.Ravi , CRN Architects , New no 10 , Old no 5 , Karpagambal Nagar ,Luz , Mylapore, Chennai - 600004_**

(Family and Others) _____

CONFIRMATION LETTER & JOINING (Annexure–V &VI)

Founder:
C. R. Narayana Rao
B.E., F.I.E., M.A.E., M.Cons.E., F.I.V.

Managing Directors:
Dr. C. N. Srinivasan
B.Tech., (Hons.), M.S. (ILL.), Ph.D., M.Am. Soc.C.E.,
F.I.E., F.I.V., Chartered Engineer-Regd. Architect

C. N. Raghavendran
B.Arch. (Hons.), M.Arch. (CALIF.), F.I.I.A.,
Intl. Assoc. A.I.A., Regd. Architect

C. R. NARAYANA RAO (CONSULTANTS) PRIVATE LIMITED



CIN: U01212TN1975PTC006890
Registered Office: No. 10, Karpagamal Nagar, Mylapore, Chennai - 600 004, India.
T: +91-44-43441100 F: +91-44-24991318 E: crn@crn.co.in W: www.crn.co.in

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Jan 22, 2021.

The Head of Department
Department of Architecture, School of Building & Environment
Sathyabama Institute of Science & Technology
No. 1, Rajiv Gandhi Salai, Jeppiar Nagar
Chennai 600 119.

Dear Sir / Madam,

This is to certify that **Ms LISHALI** (Regn. No.39840011) M Arch. 2nd Year, III Semester, student of your Sathyabama Institute of Science & Technology has successfully completed his practical training in our organization from 10th December 2020 to 20th January 2021.

During the above period, he was involved in the following project:

- 1) A project for Chennai Metro Rail Ltd, Nandanam, Chennai – Project consists of a High Raised Building, Basement + Ground + 12 levels and currently shell & core and civil works are in progress.

Ms LISHALI was actively involved the various construction management related activities in the above project during the said period.

Wishing her for success and future endeavors.

Thanking you,

Yours faithfully,

For **M/s.C.R.Narayana Rao (Consultants) Private Limited**


Authorized Signatory


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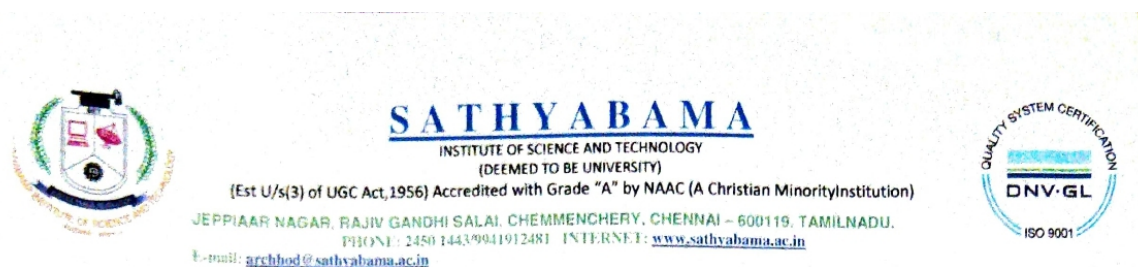
Yours faithfully,

For **M/s.C.R.Narayana Rao (Consultants) Private Limited**


Authorized Signatory


MONTHLY REPORT

(Annexure –VII)



DEPARTMENT OF ARCHITECTURE M. Arch (Building management) Continuous Assessment Report for Professional training

(Continuous progress report of the trainee architect/Project Manager for the period of 15 working days in the office to be submitted to HOD by the Trainee in Charge of the Organization)

1. Name of the office / organization : C R Narayana Rao Architects
2. Address & Contact Number : no 10, Karpagambal Nagar, Luz, Mylapore, Ch-600004
044-24991676
3. Name of the student : LISHALI . K
4. Duration : From 10-12-2020 To 24-12-2020
5. Total No. of days : 14

6. Evaluation of Performance criteria shall be on

* Note: Kindly grade the student as per his/her overall performance in the office during the assessment month; which will be converted to the allotted 40 marks by the department.

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓				
Skillsets related to project management	✓				
Design Management		✓			
Understanding the Triple Constraints		✓			
Observation during Site Visits	✓				
Understanding of construction details	✓				
Understanding of Construction sequences	✓				
Site Supervision / Discussion with clients	✓				
Adherence to Time schedule	✓				
Quantitative aptitude	✓				
Documentation skills		✓			
Coordination with other consultants	✓				

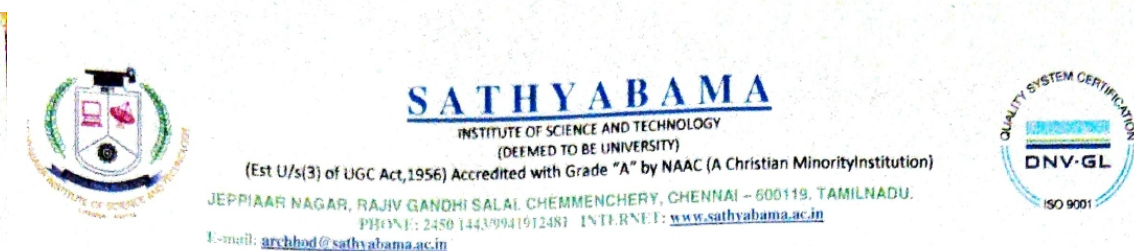
Overall Grading*

(A - 8.0, B - 7.0, C - 6.0, D - 5.5, E - 5.0, F - <5)

7. Any other Remarks :

8. Signature of the Head of the Office / Organization (With Seal)

Ch. Chandrasekaran
22/01/2021
AUP (Projects)



DEPARTMENT OF ARCHITECTURE M. Arch (Building management) Continuous Assessment Report for Professional training

(Continuous progress report of the trainee architect/Project Manager for the period of 15 working days in the office to be submitted to HOD by the Trainee in Charge of the Organization)

1. Name of the office / organization : C R Narayana Rao Architects
2. Address & Contact Number : no 10, Karpagambal Nagar, Luz, Mylapore, Ch-600004
044-24991676
3. Name of the student : LISHALI . K
4. Duration : From 25-12-2020 To 20-1-2021
5. Total No. of days : 16

6. Evaluation of Performance criteria shall be on

* Note: Kindly grade the student as per his/her overall performance in the office during the assessment month; which will be converted to the allotted 40 marks by the department.

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓				
Skillsets related to project management	✓				
Design Management		✓			
Understanding the Triple Constraints		✓			
Observation during Site Visits	✓				
Understanding of construction details	✓				
Understanding of Construction sequences	✓				
Site Supervision / Discussion with clients	✓				
Adherence to Time schedule	✓				
Quantitative aptitude	✓				
Documentation skills		✓			
Coordination with other consultants	✓				

Overall Grading*

(A - 8.0, B - 7.0, C - 6.0, D - 5.5, E - 5.0, F - <5)

7. Any other Remarks :

8. Signature of the Head of the Office / Organization (With Seal)

Ch. Chandrasekaran
22/01/2021
AUP (Projects)



WORK DIARY

(Annexure –VIII)

DAY	PROJECT NAME	WORK DONE	DAY	PROJECT NAME	WORK DONE
01	MHQ - Nandhanam	Site visit and site study	16	MHQ - Nandhanam	Monthly report - preparation
02	MHQ - Nandhanam	Joint inspection, checking of the plans as per execution, labour checking	17	MHQ - Nandhanam	Material inspection of LT cables
03	MHQ - Nandhanam	Labour checking and management	18	MHQ - Nandhanam	Tracking daily activities(Pour 1&2) and material checklist
04	MHQ - Nandhanam	Inspection of safety and quality of concreting	19	MHQ - Nandhanam	Checking of reinforcement before concreting
05	MHQ - Nandhanam	Pour 4 - Shuttering and reinforcement for slab inspection and quality checking	20	MHQ - Nandhanam	Labour checking and quality inspection
06	MHQ - Nandhanam	Pour 4 - Slab reinforcement Office (10 th - 11 th) wall shuttering and reinforcement execution	21	MHQ - Nandhanam	Reinforcement inspection for pour 1&2 slab
07	MHQ - Nandhanam	Tracking of daily activities and labour analysis	22	MHQ - Nandhanam	Concreting checking -pour 1
08	MHQ - Nandhanam	Pour 2 - PT Stressing inspection Lift wall alignment and reinforcement checking	23	MHQ - Nandhanam	Labour checklist , concreting quality measurements, inspection during concreting
09	MHQ - Nandhanam	Collection of documents and tracking of daily activities	24	MHQ - Nandhanam	Safety inspection at site
10	MHQ - Nandhanam	Concreting of pour -1&2 (Quality and safety) 11 th floor	25	MHQ - Nandhanam	Site instruction memo
11	MHQ - Nandhanam	Tracking of activities at Pour 1&2 (Starter marking and curing)	26	MHQ - Nandhanam	12th Floor Centre Tower(Pour 2) Area –Beam & slab shuttering & reinforcement work
12	MHQ - Nandhanam	Marking of drawing and handing over checking to JLL	27	MHQ - Nandhanam	Weekly report preparation
13	MHQ - Nandhanam	Checking of the marked drawing by JLL and tracking of activities at Pour 1 and Pour 5	28	MHQ - Nandhanam	Quality checking while concreting
14	MHQ - Nandhanam	Tracking of daily activities - Pour 2 and 5	29	MHQ - Nandhanam	Tracking of auditorium head room area work
15	MHQ - Nandhanam	Joint inspection meeting for site clearance	30	MHQ - Nandhanam	Safety inspection at JLL

Chief Architect Signature:

Office seal:

Consolidated Certificate (Experience)

Annexure – IX

Founder:

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Yours faithfully,

For **M/s.C.R.Narayana Rao (Consultants) Private Limited**


Authorized Signatory



design | interiors | engineering | construction management

Branch Office: No. 23, 5th Main,
Malleshwaram, Bangalore - 560 003, India.
T: +91 80 23369237 F: +91 80 23569890
E: crnbir@crn.co.in W: www.crn.co.in



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GENERAL

CRN Architects has been one of the well known architects in Chennai.



C R NARAYANA RAO ARCHITECTS

About the firm

CRN Architects is an ISO-9001-2008 Certified firm of reputed architects and engineers in , Chennai. They have done a major role in urban landscape in India and cities around world. They provide innovative design solutions in Architecture. In India each of their project stands as a unique monument. Have executed many iconic buildings in Chennai such as (ITC Grand Chola, Aquatic complex etc).

Vision

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Services

Architecture

Planning and urban design

Interior design

Sustainable design

Construction management

History of the firm

CRN developed its expertise in industrial architecture, specifically the Automobile, Auto Ancillary Units, Textile and Sugar Industries in association with prestigious names like Dunlop, Amalgamations Group, TI Group, Ashok Leyland, Ennore Foundries and the Rane Group of Industries.

It was also the perfect time to launch out into the Middle East. CRN's overseas branch at UAE was an active participant in the growth of the United Arab Emirates, successfully executing several commercial, industrial and housing projects in Dubai, Abu Dhabi and Ras Al Khaima.

Since the beginning of the nineties, CRN has made its presence strongly felt in the Sports Facilities sector having designed at least six Sports Stadiums for major sporting events, all conforming to International Standards.

Today CRN stands as a monument of trust that integrates related areas of architecture to offer clients a superior experience at every stage in the life-cycle of a project, from conceptualization through execution to delivery.

CONCEPT



COMMISSIONING

AWARDS



Brookefields Mall - Images Shopping Centre Award 2012 in the category of Most Admired Shopping Centre of the Year: tNon - Metros - SOUTH.

Certificate of Appreciation received from Toyota Kirloskar Motor in recognition of their Best Effort & Commitment for the successful completion of projects under the category of FACILITY FOR THE YEAR 2004.

Mr.C.N.Raghavendran was conferred the distinction of being ONE OF INDIA'S TOP TEN ARCHITECTS AT THE CONSTRUCTION WORLD TOP ARCHITECTS AND BUILDERS AWARD - 2007

Mr. C. N. Raghavendran was the recipient of the Indian Institute of Architects award for 'Excellence in Design' for Public Building category for the Jawaharlal Nehru Stadium at Chennai - 1995.

Dr.C.N.Srinivasan was awarded the CNBC AWAAZ CRISIL REAL ESTATE AWARDS 2007 for Best Commercial Buildings.

CLIENTS

BIAL ELCOT APOLLO TIDEL PARK ltd NIT
 TAFE INFOSYS WIPRO TCS TVS HCL MRF

Typology	Projects	Location
Retail	ITC Grand chola (multi-use luxury hotel)	Chennai
Commercial	Anna centenary library	chennai
Office	Tata consultancy services	Chennai
Sports	Jawaharlal nehru stadium	Chennai
Interior	Zoho	Chennai
Health care	Appollo hospital	Vizag

REASON FOR CHOOSING

In this firm they practise both Architecture and Mnagement , so it would be useful for me to analyse both the aspects and understand the process of co-ordination of the projects. And they mostly undertake government and central government projects ,I would like to explore the tracking process of the such projects .

I was more interested to explore the office building and understand detailly the various activities involved in the civil works of the building at a large scale

ROLES AND RESPONSIBILITIES

During the period of 30 working days , i was working as a project manager in MHQ , Nandanam. The entire project was allocated . I was involved in tracking of the excecution of the work as per the schedule and quality and safety checks at various levels



Apollo - Vizag



Satyam - Hyderabad



ITC CHola , chennai



NIT -Noida

PROJECT DETAILS

METRO HEAD QUARTERS , NANDANAM , CHENNAI



Client	Chennai metro rail limited
Architect	CRN Rao private limited
Contract value	Rs. 1,47,80,68,566/-
Type of contract	Item rate contract
Duration	55 months



Team / group:

Contractor (civil works)



Project management consultancy



Contractor (Interior works)



Architecture drawings , structural , approval drawings



Sub contractor -
Artizen

Services contractor



Contractual start
16-10-2016

Type of structure
RCC Framed structure

Contractual Finish
08-05-2021

Project status
On going (shell and core development)

BUILT UP AREA

Residential -

Type A - 2571.54 sqm

Type B - 5340.96 sqm

Security -

Type 1 - 116.96 sqm

Type 2 - 46.24 sqm

Utility

1058.62 sqm

MHQ (Metro head quarters)

43352.97 sqm

TOTAL = 62663.99 sqm

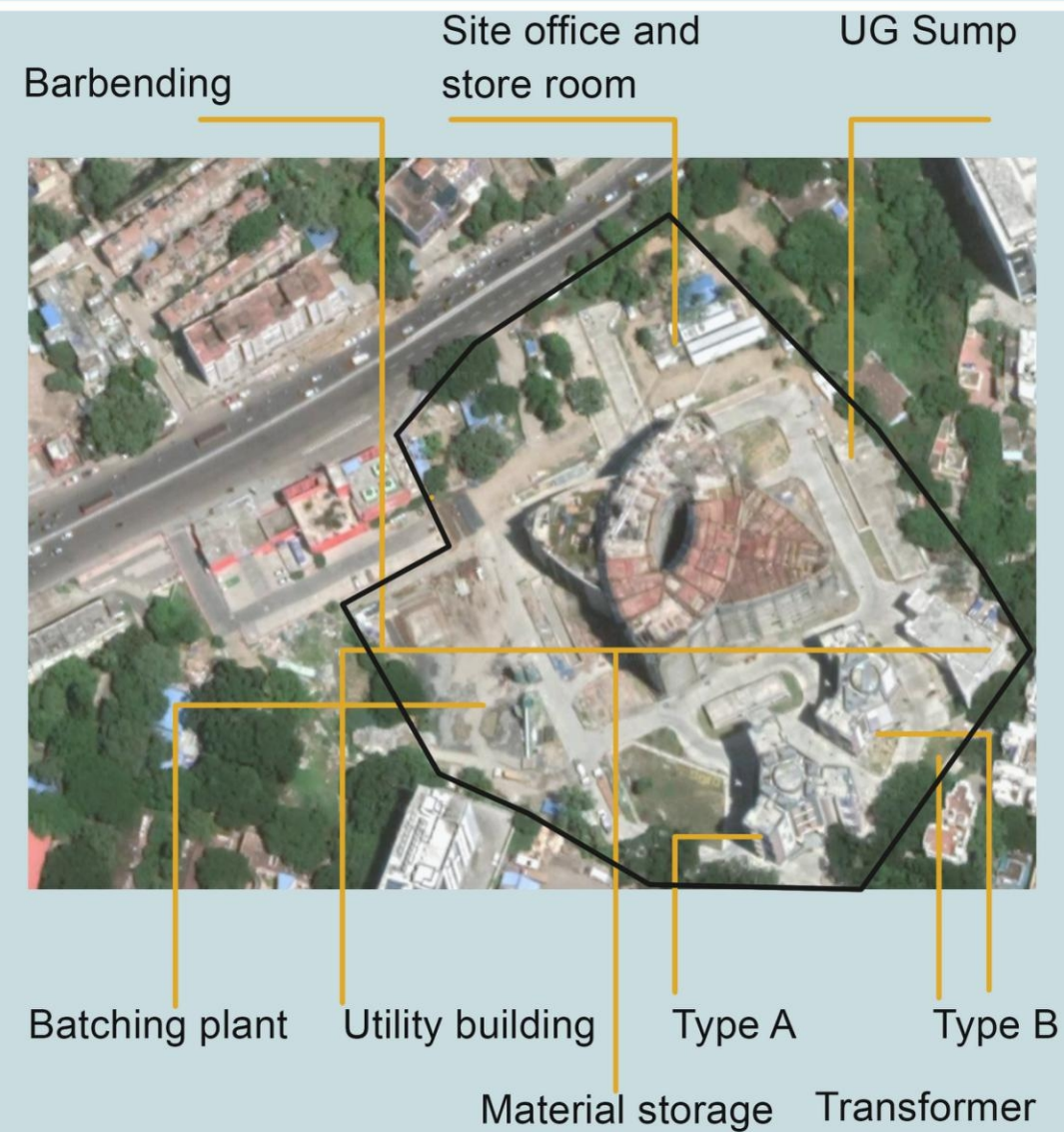
FSI

Achieved FSI Area =

41237.79 / 36265.65 = 1.14

Plot coverage =

4061.75 / 36265.5 = 11.20 %



STATUS OF THE PROJECT

The status of the work as on 20-01-2021 is:

MHQ :

Basement , Shell and core development completed till 11th floor

RESIDENTIAL:

Type A : G+5 Completed in all aspects

Type B : G+9 Completed in all aspects

External development completed

Utility building G+1 completed UG Sump , sewer line and metro water connection are completed

STRUCTURAL DETAILS

Pile strcuture 836 pile totally

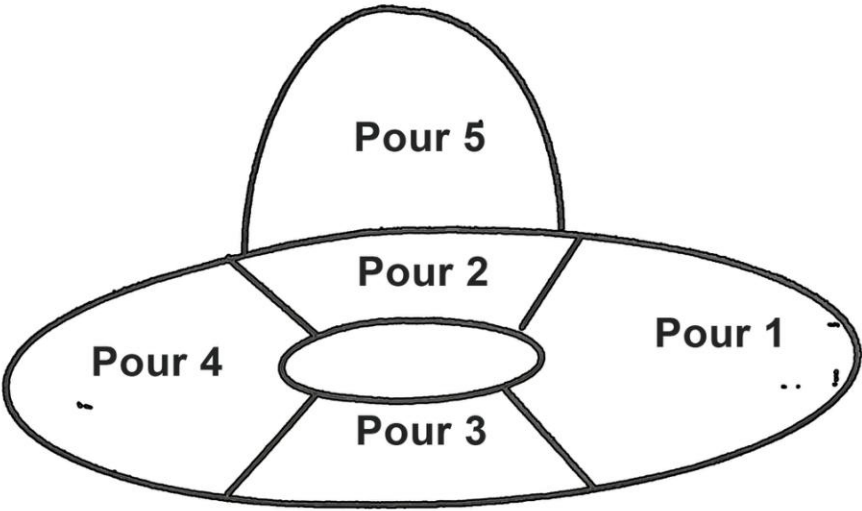
PT Beam structure

Ready mix concrete used (M40)



OSR

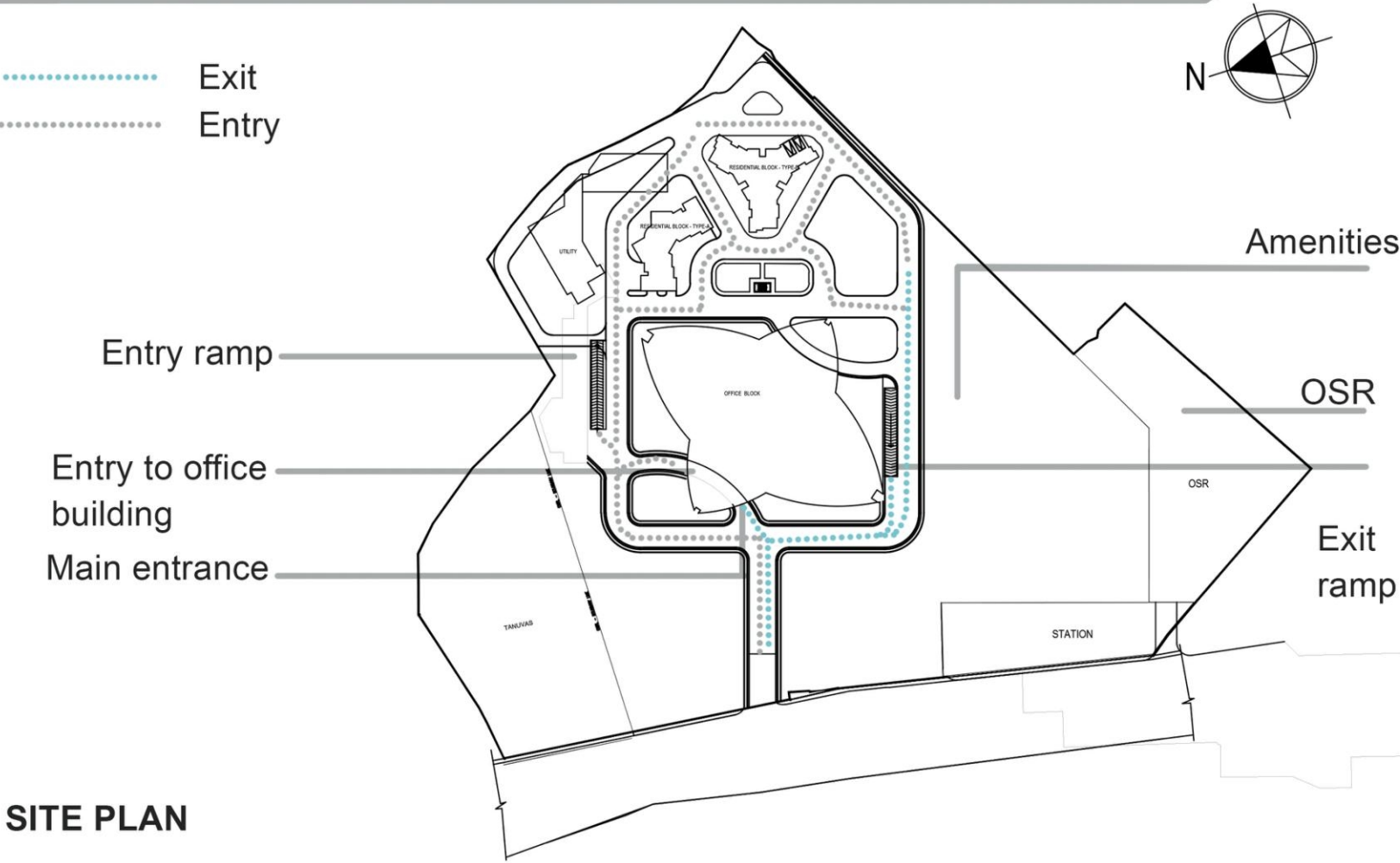
Required =3577.90 sq.mts



S.NO	DESCRIPTION	COMMERCIAL AREA	COMMON AREA (sqm)	PARKING AREA (sqm)	TOTAL BUILDING AREA (sqm)
1	Basement floor	—	457.6	8539.13	8996.74
2	Ground floor	3411.2	369.99	—	3781.99
3	First floor	2750.81	1010.39	—	3781.2
4	Second floor	3115	666.2	—	3781.2
5	Third floor	2535	1245.84	—	3481.18
6	Fourth floor	2657.3	1123.89	—	3781.19
7	Fifth floor	2630.26	409.85	—	3040.11
8	Sixth floor	2630.26	409.85	—	3040.11
9	Seventh floor	2630.26	409.85	—	3040.11
10	Eighth floor	2630.26	409.85	—	3040.11
11	Nineth floor	2630.26	409.85	—	3040.11
12	Tenth floor	2630.26	409.85	—	3040.11
13	Eleventh floor	2630.26	409.85	—	3040.11
14	Tweleth floor	2630.26	409.85	—	3040.11
15	Terrace floor- head room	0	88.03	—	88.03
16	Terrace floor-OHT	0	38.1	—	38.1
TOTAL		35531.73	7821.24	8539.13	43352.97

Division of area as construction joints

AREA

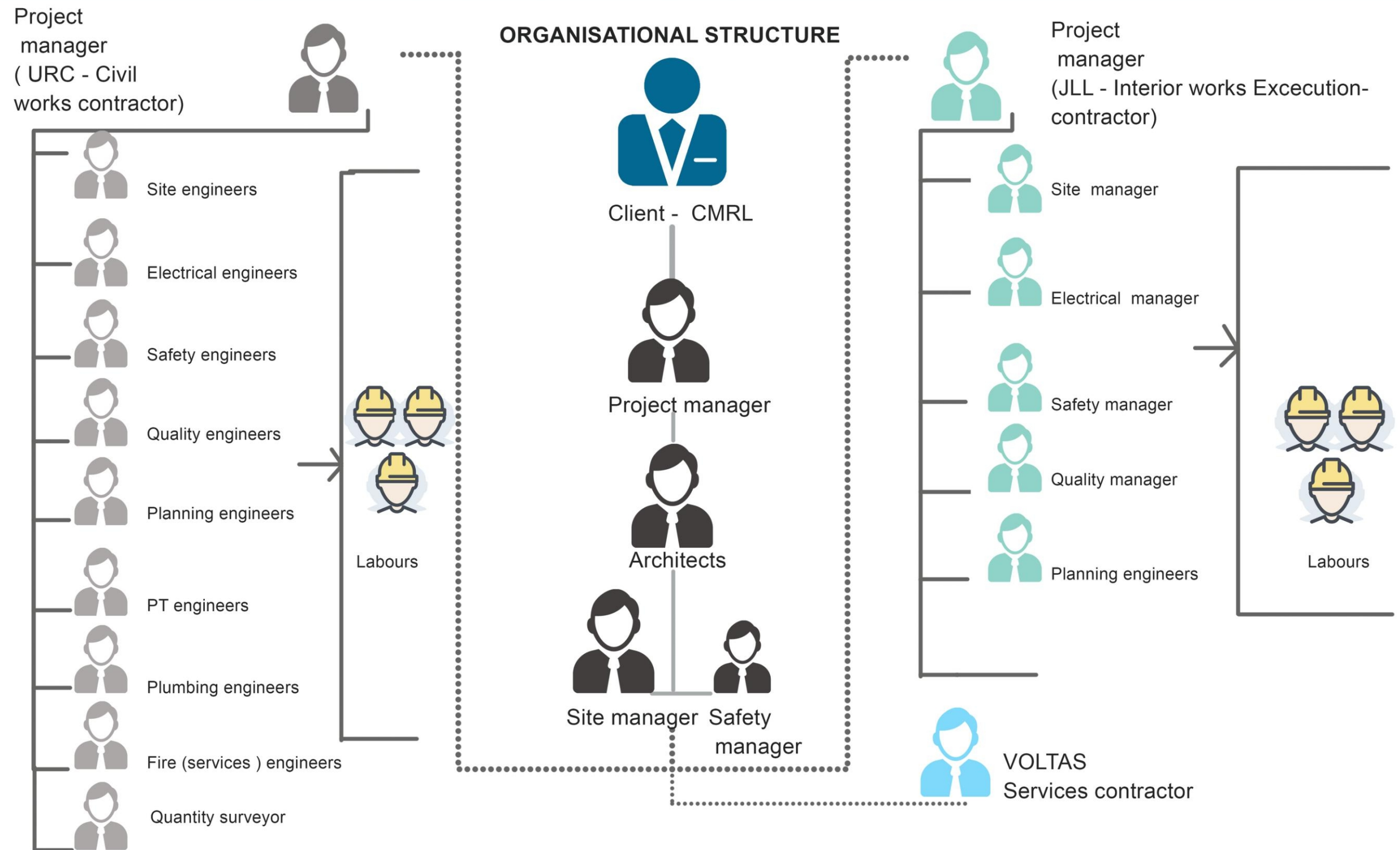


SITE PLAN

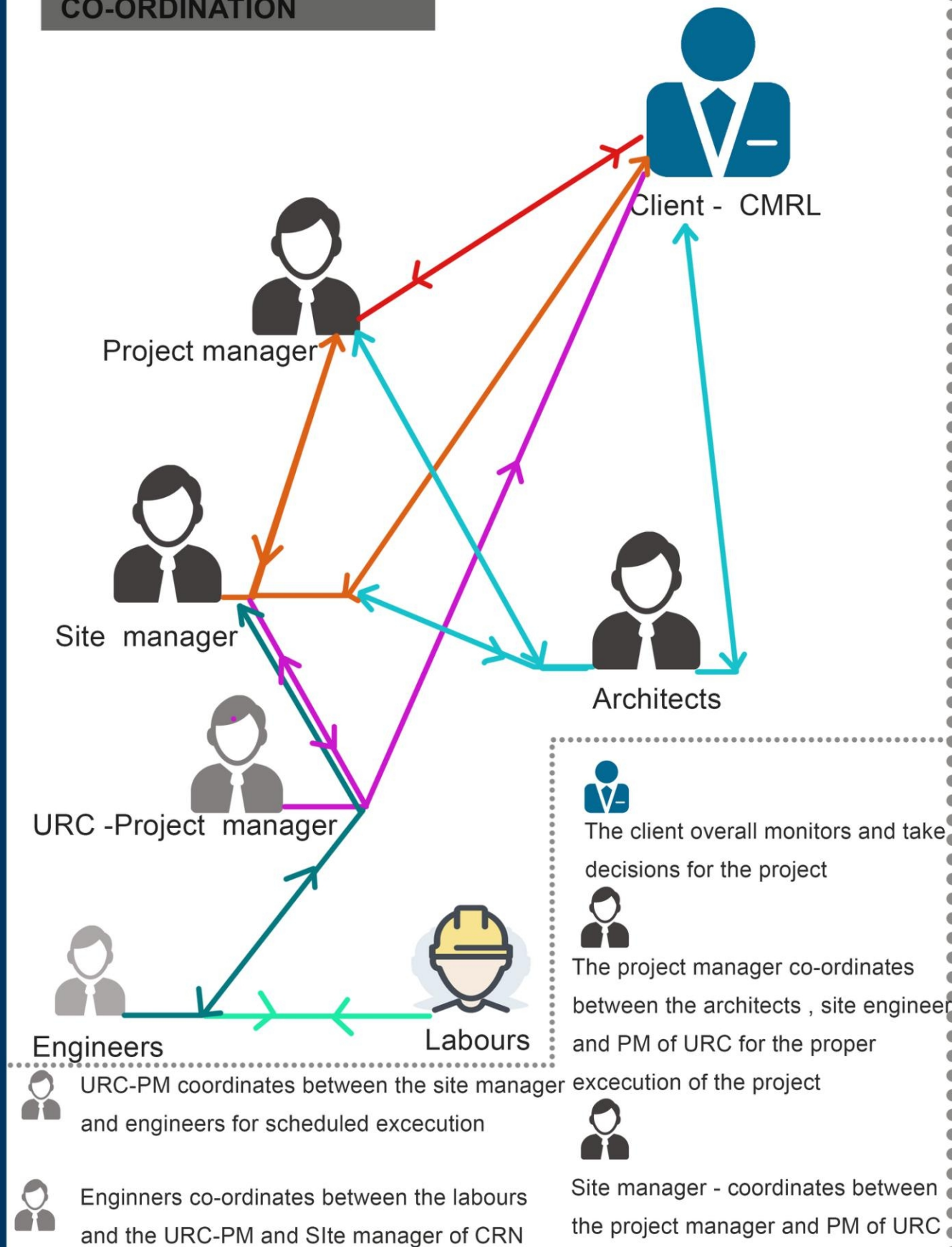


SCOPE OF THE PROJECT

MHQ , Nandanam was started at 16-10-2016 and has a duration of about 4.5 years at present .The scope lies at the completion of the project as per scheduled time . Since it is a large scale project it involves management of time , cost and material is a crucial function large



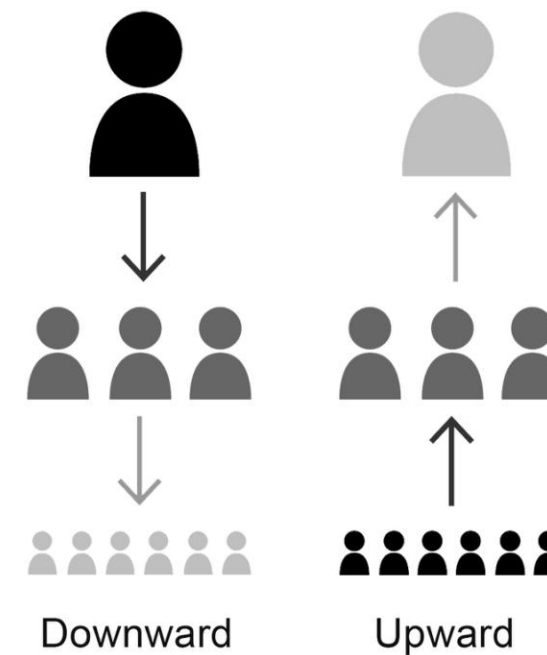
CO-ORDINATION



COMMUNICATION

The communication is one of the most effective way for an good project management .Effective communication skills are the foundation of the project sucess.

In this project the communication is mostly in written and verbal .



Vertical communication happens in this project from a higher level authority to a lower level and from lower level authority to higher level in an organization.

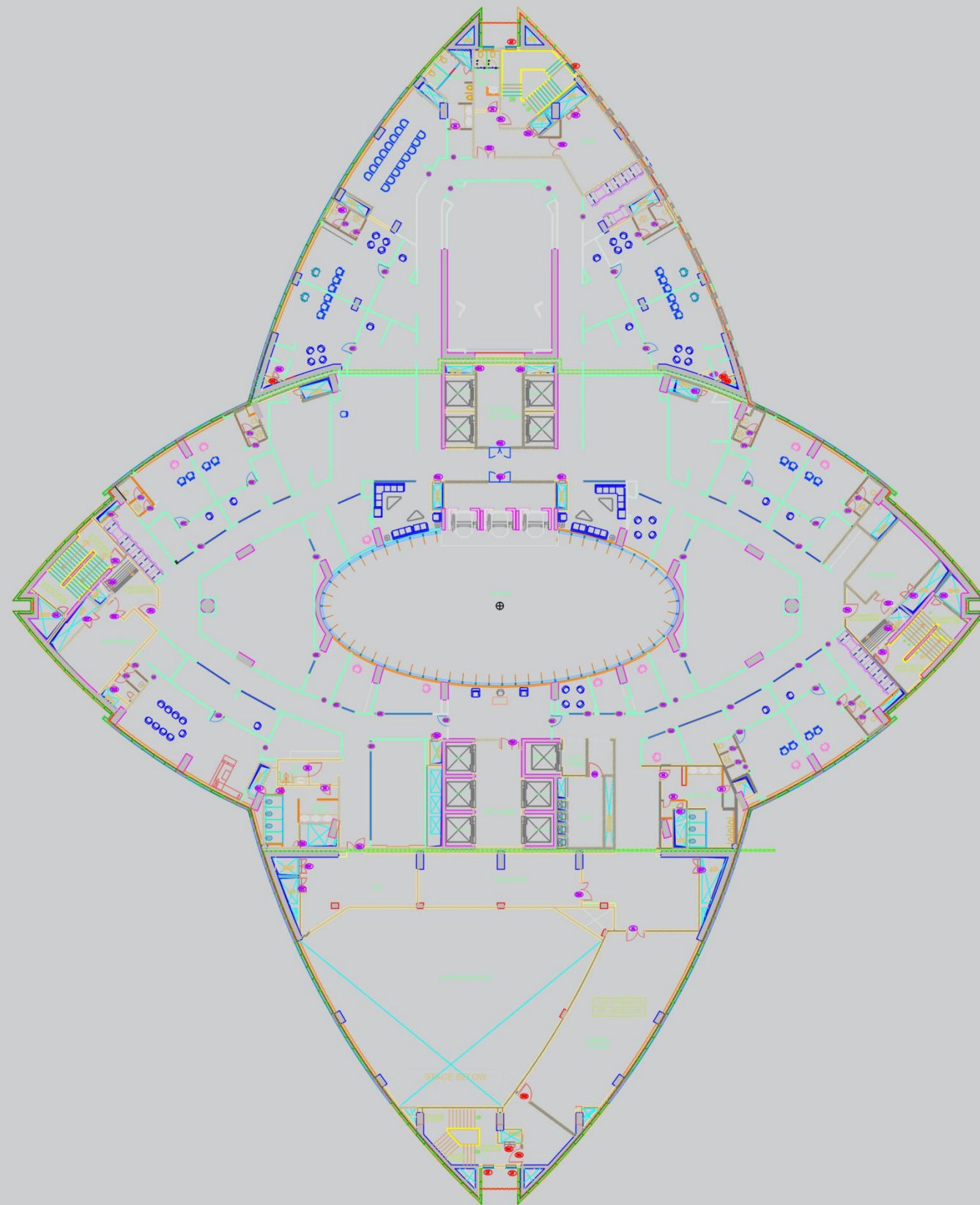
Since the organisation has larger levels of communication it is easy to transfer information through vertical communication



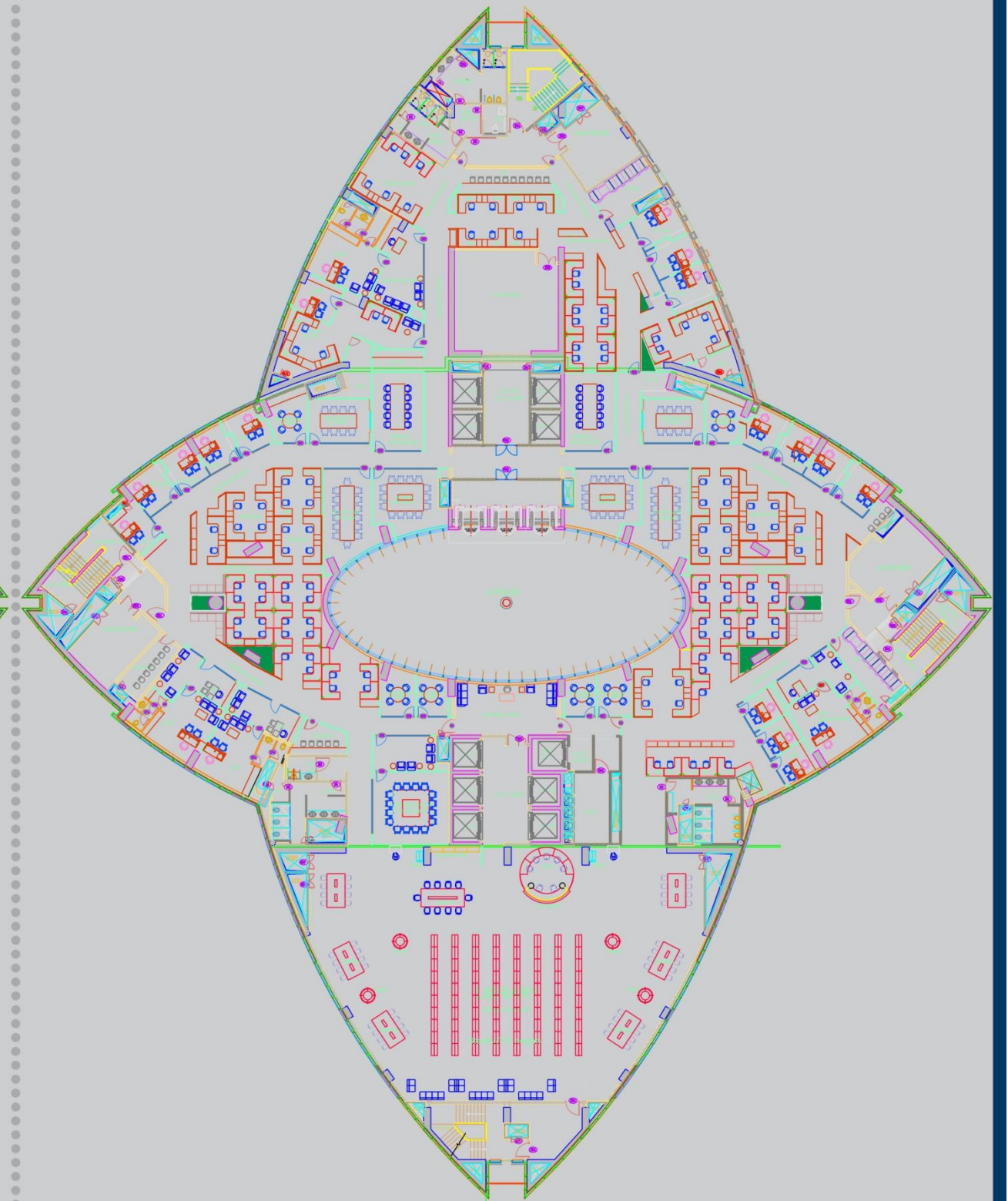
Most of the report generated falls under formal communication. The issues identified , extra works , deviation from works are reported formally



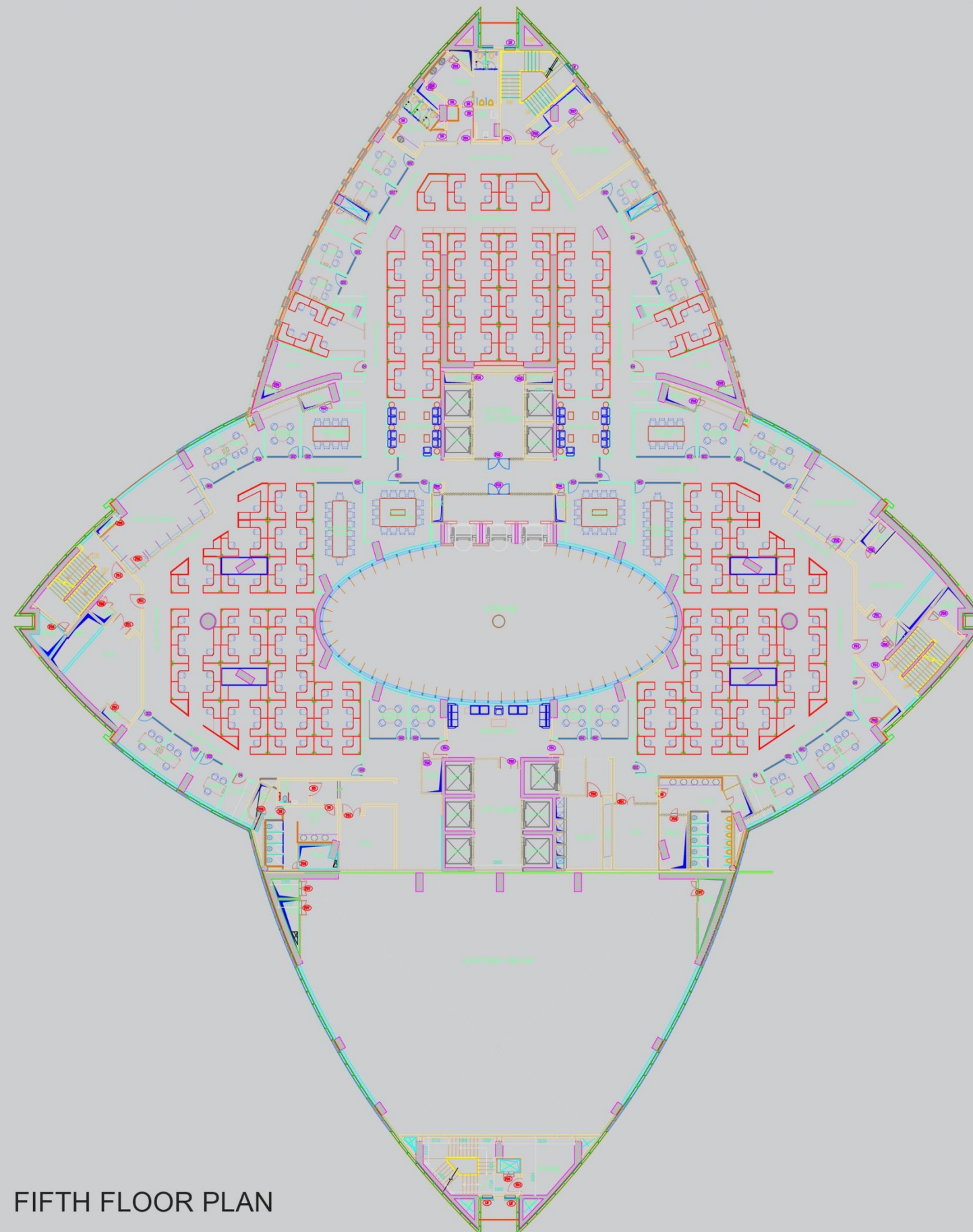
Informal communication also happens between the contractors to the project manager



FIRST FLOOR PLAN



SECOND FLOOR PLAN



FIFTH FLOOR PLAN

CONSTRUCTION SEQUENCE

The MHQ is a G+12 with one basement , It is piled structure

Total 832 piles of 3 different sizes:

450mm,600mm,1000mm

Larger dia piles are given to the area of shear wall

Retaining wall size : 350 mm

S.no	Activities	Duration	Start	Finish
	CONSTRUCTION OF METRO HEAD QUARTERS	626 Days	Thu 10/6/16	Fri 10/5/18
1	Award of work	1	Thu 10/6/16	Fri 10/5/18
2	Pre-construction activities-Mobilisation of project team	20 days	Mon 10/17/16	Tue 11/8/16
3	P & M Mobilisation	135 days	Wed 11/9/16	Fri 4/14/17
	DG Set	6	Wed 11/9/16	Tue 11/15/16
	Batching plant	29	Wed 11/16/16	Mon 12/19/16
	Transit mixers	1	Tue 12/20/16	Tue 12/20/16
	Concrete pump	1	Wed 11/16/16	Wed 11/16/16
	Tipper	1	Wed 11/16/16	Wed 11/16/16
	Barcutting Machine/Bending Machine	1	Thu 11/17/16	Thu 11/17/16
	2 MT Roller/Plate Compactor	1	Fri 11/18/16	Fri 11/18/16
	Tower Crane	30	Sat 3/11/17	Fri 4/14/17
	Project Boundary Marking Getting approval from CRN/CMRL	6	Wed 11/9/16	Tue 11/15/16
	Release of GFC Drawings By CRN/CMRL (Civil ,Electrical & Plumbing drawings)	40	Tue 11/22/16	Fri 1/6/17
	Shifting of Utilities {Electrical,Data}	10	Wed 11/30/16	Sat 12/10/16
4	Metro Head Quarter Structural and Finishing Works	574	Tue 12/6/16	Fri 10/5/18

The basement has been divided as tower and non tower area

for pile cap with raft concreting

M25 concrete for pile

The basement has been divided into grids and worked for easier completion of work.

FOUNDATION PREPARATION WORK

Marking out for excavation Compacting

Excavation of earth

Checking of levels

Levelling

PILE WORK

- Marking of pile
- Excavation
- Anti termite solution
- Reinforcement
- Concreting
- Block work for pile
- Shuttering for raft

- Filling and pcc for raft
- Base plastering
- Water proof coating
- Protective plastering

RETAINING WALL

- Reinforcement steel works
- Shuttering works
- Joint grouting
- External water proofing
- Plastering
- Backfilling

BASEMENT FLOOR SLAB

Column

- Level marking
- Column starter
- Vertical reinforcement and lateral ties
- Shuttering oil
- Shuttering fixing

- Tie rod fixing with PVC pipes
- Ring nut and wallers for support
- Concreting
- Vibrating
- De-shuttering in 24 hrs
- curing

Beam - PT

- Level checking of column
- Support fixing - scaffolding ,U jack, Runner , aluminium doka , RHS
- Shuttering for beam bottom - plywood shuttering
- Formwork oil
- Beam bottom reinforcement
- 2nd layer of reinforcement
- PT insertion
- Additional rod , stirrups and cover block
- Side shuttering
- Nailing the formwork
- Instering tie rod with PVC
- Concreting
- Level checking

- De-shuttering after 7 days
- Curing

Slab

- Slab bottom shuttering oil
- Slab bottom shuttering
- Level checking
- Bottom matt reinforcement
- Top matt reinforcement
- Cover blocks
- Filling of the gaps with cellotapes
- Filling of the gaps with cellotapes
- Cleaning with blower / compressor
- Concreting
- De-shuttering
- Curing
- Scaffolding removal

This sequence is followed for all floors , the works are divided among each floor by various POURS

Staircase

Staircase wall marking

Starter

Fixing of reinforcements

Shuttering oil

Fixing of shuttering

Tie rod fixing

Shuttering for staircase

Concreting

De-shuttering

Footer and header

Post Tensioning

Laying aluminium duct beam

Inserting PT Rod

Pipe for grouting

Fixing thermocol at the end for PT grouting

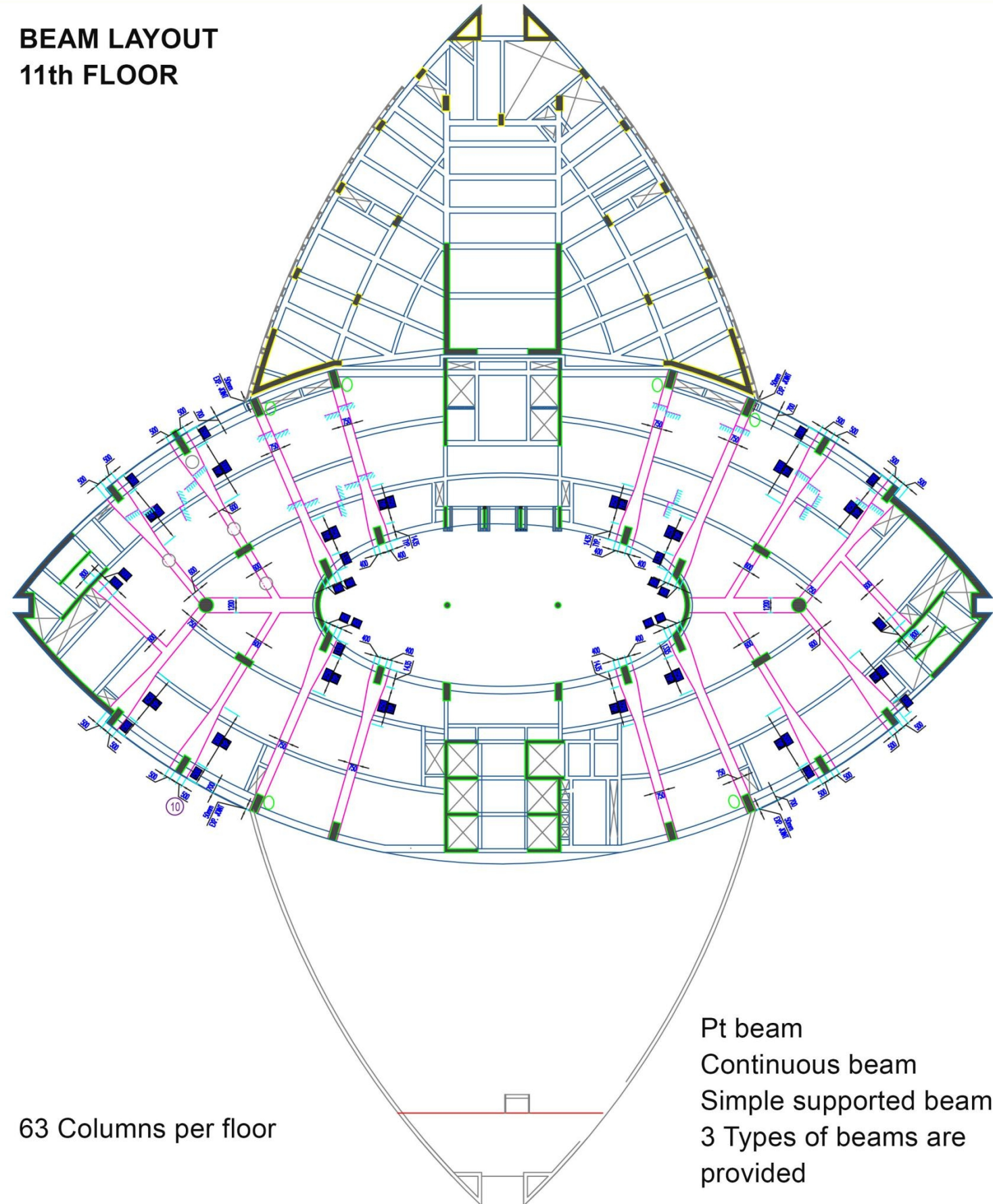
Fixing thermocol at the end for PT grouting

Stressing of tendons and packing after 7 days of concreting

Grouting after 2 days of stressing



BEAM LAYOUT 11th FLOOR



Before concreting activities

Sieve analysis

Density check of aggregates

Density check of M-sand

Checking of calibration certificate of batching plant

Checking of manufacturing date of cement

Checking of moisture

Checking of PH Value of water

Mix design approval by third party

Post concreting activities/sequence

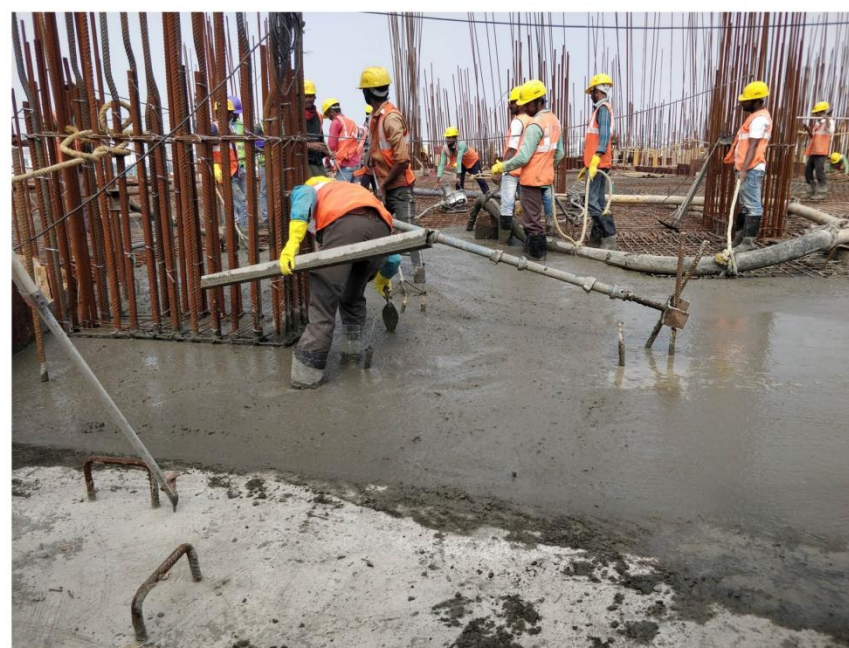
cube test

Compressive strength test

During concreting activities

Level checking

Vibrating



List of equipments that are used in this project

Tower Crane

Batching plant

RMC

RMC

Traction lift

Hydraulic Pump

Surveying equipments (theodometer)

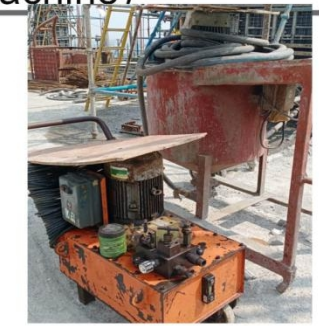
Compressor

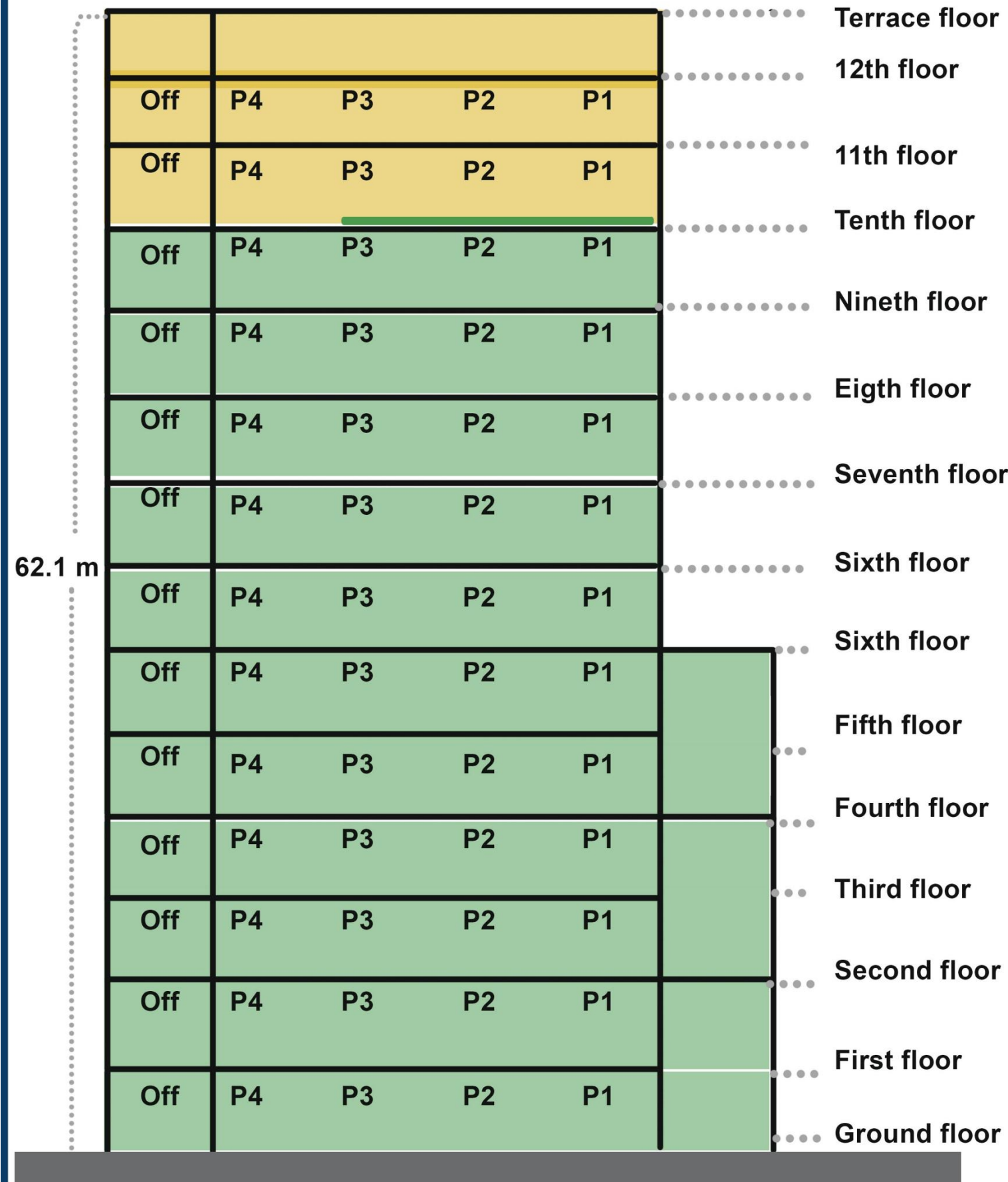
Bar bending machine

Grouting equipment

Baby mixers

Quality check equipments (hot air oven, compression testing machine)





Status of the project in 10-12-2020

The status of the project is - till 10th floor slab pour 1 , pour 2 , pour 3 has been completed, pour 4 yet to complete , and office area column work is in progress

Contract key dates and completion dates actual vs covid 19 impact:

S.NO	Description of stage	Actual date as per contract	Revised date due to Covid 19	no: days
1	Completion of RCC Structure Upto 10th Floor Level	14-07-2020	14-11-2020	123
2	Completion of RCC Structure Upto 12th Floor Level	04-11-2020	22-02-2021	110
3	Completion of RCC Structure Upto Terrace Floor Level Including Staricase Head Rooms & RC Parapet Walls	20-02-2021	08-05-2021	139

Each floor is 2.4m height
Ground floor , first floor and second floor height is 5.2 m

The activities to be completed between 10-12-2020 TO 20-1-2021:

The activities that are planned are 10th to 11th floor pour 3 , pour 4, pour 5 and 11th to 12th floor , pour 1 , pour 2 , pour 3 slab shuttering.

Tracking of work(time):

PARALLEL ACTIVITIES

HEAD ROOM - 5 th floor

COMMENCEMENT OF WORK BY JLL 20-12-2020

SNACK WORK - Ground floor, 1st floor , 2nd floor

S.NO	TASK	ACTIVITIES	PLANNED START DATE	PLANNED END DATE	NO OF PLANNED DAYS	ACTUAL START DATE	ACTUAL END DATE	ACTUAL DURATION	DIFF
1	10th TO 11th Floor	Center tower Pour 5	11-11-2020	28-12-2020	47	11-11-2020	12-30-2020	49	2
2	11th TO 12th FLOOR	Center tower Pour 1	25-11-2020	09-01-2021	45	12-02-2020	13-01-2021	41	-4
3		Center tower Pour 2	13-11-2020	02-01-2021	45	01-12-2020	17-01-2021	48	3

Tracking of QTY of work done from 12-12-2021 TO 15-1-2021 (POUR 1)

S.No	Description Of Activities	Unit	Total Qty															
	11th to 12th Floor																	
	Shuttering of Column & Wall	Sqm	443.6	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79
	Shuttering of Slab	Sqm	1034.96	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57
	Shuttering of Staircase	Sqm																
	Reinforcement of Column & Wall	MT	30.138	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
	Reinforcement of Slab & Beam	MT	40					1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
	concrete For Column & Wall	Cum	92.66	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56
	Concrete For Slab	Cum	190															

Daily checking of quantity of activities as per planned

14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79	14.79										
29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57	29.57
1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16										
1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56										
																			190.00

Tracking of QTY of work done from 18-12-2021 TO 05-1-2021 (POUR 2)

S.No	Description Of Activities	Unit	Total Qty																		
	11th to 12th Floor																				
1	Shuttering of Column & Wall	Sqm	260.23	8.67	8.67	8.67	8.67														
2	Shuttering of Slab	Sqm	622.35	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78	17.78
3	Shuttering of Staircase	Sqm																			
4	Reinforcement of Column & Wall	MT	8.927																		
5	Reinforcement of Slab & Beam	MT	21.935	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
6	concrete For Column & Wall	Cum	43.52	1.67	1.67	1.67	1.67														
	Concrete For Slab	Cum	120																		120.00

The tracking of quantity of work done from site engineers daily inorder to track the work process

Materials

Cement:

Brand Ultratech cement
Cement type OPC 53
Initial setting time 30 mins
Final setting time 10 hrs

Checking at site :

- Color light grey
- Checking for lumps
- checking of MFG Date(expiry date 3 months from manufacturing date)
- Weight = 50 kg

MTC Certificate for material purchase

Steel:

Steel Fe500D

MTC Certificate for material purchase

Third party test certificate documentation for:

Physical test
yeild test
tensile , elongation test
Chemical test
Weight checking

Shuttering :

Plywood shuttering

Coarse aggregate : 12mm ,20 mm

Fine aggregate : 40 mm

M-sand is used

The Quality engineer visits the Quarry located in Ennore the physical and chemical properties of the materilas is on the third party

Tracking of resources and quantity

S.NO	DATE	CEMENT - BULKER	CEMENT - BAG	M- SAND	METAL -12mm	METAL - 20mm	STEEL
1	10-12-2020	23.68		30.943	40.62		
2	11-12-2020			61.437	36.64	80.25	
3	12-12-2020		2.15	67.479			
4	13-12-2020	47.76				57.12	
5	18-12-2020			44.737	41.18		79.64
6	19-12-2020			130.963	78.73		

Tracking of SNAG Works :

S.NO	DESCRIPTION OF ITEMS	END DATE	ACTUAL COMPLETION DATE
1	Ground floor	11-12-2020	23-12-2020
2	First Floor	22-12-2020	12-12-2020
3	Second Floor	02-01-2021	29-12-2020
4	Third Floor	13-01-2021	31-12-2020
5	Fourth Floor	24-01-2021	10-01-2021

The works are completed before the planned completion date

Work between 14-12-2020 TO 21-12-2020

S.No	DESCRIPTION OF ITEMS	Unit	Qty	Productivity as Per IS7272	No of Workers Req	No of Workers req per day
1	Shuttering of Column & Wall	Sqm		1.705	0	0
2	Shuttering of Slab	Sqm		1.946	0	0
3	Shuttering of Staircase	Sqm		1.735	0	0
4	Reinforcement of Column & Wall	MT		0.075	0	0
5	Reinforcement of Slab & Beam	MT		0.075	0	0
6	concrete For Column & Wall	Cum		2.2	0	0
7	Concrete For Slab	Cum		2.6	0	0

Tracking of DELAYS DUE TO RAIN :

S.NO	DATE	START TIME	END TIME	DURATION
1	16-12-2020	5:00 PM	5:30 PM	00:30
		7:00 PM	8:00 PM	01:00
2	17-12-2020	7:00 AM	8:00 AM	01:00
		9:00 AM	9:30 AM	00:30
3	30-12-2020	3:30 PM	4:00 PM	00:30
		5:30 PM	6:30 PM	01:00
		7:30 PM	10:30 PM	03:00
4	03-01-2021	6:30 AM	8:00 AM	01:30
		6:00 PM	7:30 PM	01:30
5	02-01-2021	9:30 AM	2:00 PM	04:30
		4:30 PM	5:00 PM	00:30
6	05-01-2021	2:30 AM	8:00 PM	17:30
		9:30 PM	11:30 PM	02:00

The labour productivity has been checked and documented weekly based on daily works .

S.No	Description of Items	Unit	Qty	Productivity as Per	No of Workers Req	No of Workers req per day
1	Shuttering of Column & Wall	Sqm	74.83	1.705	44	7
2	Shuttering of Slab	Sqm	177.81	1.946	91	15
3	Shuttering of Staircase	Sqm		1.735	0	0
4	Reinforcement of Column & Wall	MT	3.654	0.075	49	8
5	Reinforcement of Slab & Beam	MT	7.08	0.075	94	16
6	concrete For Column & Wall	Cum	16.34	2.211	7	1
7	Concrete For Slab	Cum		2.6	0	0

STAKEHOLDER INTERACTION

THE STAKE HOLDERS INVOLVED IN THE CONSRUCTION PHASE ARE;

Stakeholders

CRN

CLIENT

URC

ARCHITECTS

CMRL

PM TEAM

JLL

SUPPLIERS
&
CONTRACTORS

ARTIZENS

SUPPLIERS

UTTRACON

The other stakeholders involves the TEAM MEMBERS

1

Method of statement

The method of statement should be submitted by the contractors before excecution of the work to the PMC

URC

METHOD STATEMENT FOR COLUMN CONCRETE

GVK

SCOPE:

To pour concrete for the columns as per the required specifications

REINFORCEMENT & FORMWORK:

- Upon completion of concrete pour for the footings, the stirrups will be fixed on to the starter bars of the columns, up to the bottom level of the tie beam.
- The position of the columns will be marked on to the surface of the footing concrete. Column starters will be positioned over the marked column position, and concrete will be poured.
- Upon completion of the starter concrete for the columns and proper setting the column starter frames will be removed.
- The fixed column reinforcement will be checked and approval obtained from the Project Management Consultant after their approval.
- After approval of Column reinforcement, Column box will be positioned over the column starter concrete.
- It would be ensured that required cover of 40mm is available for the Column reinforcement.
- The Column box will be checked for proper plumb, alignment and levels. Proper supports will be given to the column.

CONCRETE POUR:

- We propose to use Site Machine mixed concrete by weigh batching for Column concrete. We propose to use M25 grade of concrete for the Columns.
- After approval of the Column formwork by the Consultant, concrete will be mixed at site as per the approved design mix.
- The slump of the concrete will be checked for slump and concrete sampling will be done as per the specifications. Six cubes shall be cast 3 numbers for 7 days strength and 3 numbers for 28 days strength.

The method of statement shall be approved by CMRL before commencing the work .

Each and every work should be provided MOS

URC and JLL has provided method of statement, and document is stored for future references

2

Request for inspection

REQUEST FOR INSPECTION(RFI No:MHQ-)	
Project : Metro Head Quarters and Other Metro Rail Amenities	Date:
Employer: M/s Chennai Metro Rail Limited	Consultant : M/s CRN
Contractor : M/s. URC Construction (P) Ltd	Contract No:ACHQ-02
1.We request your attendance to inspect the following work:	
Type of Element :	
Location to be Inspect:	
Work Description:	
Quantity:	
2. Requested By Name: Signature: Date& Time:	
3. Comments by Engineer:	
Name: Signature: Date:	
4. Enclosures (If Any):	
5. Reference:	
6. Comments by Resident Engineer:	
The works are: ☐ Proceed ☐ Rectify ☐ Objection ☐ Redo	
Name: Signature: Date:	
Note: RFI Shall be submitted at least 24 hours prior to inspection	

The request for inspection RFI Should be provided by the contractors to the PMC , for inspection of the work or th quantity of material

The RFI should be provided before commencing the work at site for inspection as per drawing

The RFI is submitted by URC and JLL

These RFI Documents are stored and shared among the PMC team members for future consultations

SITE INSTRUCTION MEMO

REF NO: SIM NO 11	Date :08-01-2021
From : CRN	To : The project In charge, Urc constructions PVT Ltd CMRL head quarters Site

Dear sir,

Sub - Site cleaning, Staging of materials at 11th floor auditorium head room constructions , Road cleaning , Improper curing of columns at 11th floor , and wall surface cleaning reg..

1. Auditorium head room construction activity not started .The same same has been reported and discussed in the site instruction memo of december 2020.
2. MHQ Floor cleaning -All floors are full of waste materials ,waste binding wire , U Bend rod , waste ply woods , nails are scattered . The same time in and around wall cement slurry has been spreaded and is accumulated in layers . In room slab form sheets , nails , waste ply and cellotapes are not yet being properly removed . Kindly engage additional man power to remove as early as possible .
3. Marking of floor numbers on every floor
4. The column CT-6 is being let dried for a long time and improper curing for other columns.Kindly do it as early as possible.
5. Should clean the road surface and accommodate separate labours for it

Preparation of site instruction memo

JOINT INSPECTION

Joint inspection along with URC , JLL to handover the completed floors
- ground floor , first floor , second floor , and third floor

Marking the changes in the plan and as per executed

Marking the areas to be removed and destructed by URC

Marking the areas to be altered and done by JLL

Checking of the marked layout for block work by JLL for corrections



Handing over the respective floors to JLL



LABOURS

The labours are accomodated at a separate place at teynampet near by the site
.The working hours of labour is from morning 8:30 - evening 7 .In certain cases overnight works also done and compensated

Site Name: CMRL-Metro HeadQuarters At Nandhanam							Site Name: CMRL-Metro HeadQuarters At Nandhanam						
Location: Nandhanam,Chennai							Location: Nandhanam,Chennai						
Weekly Report 15.12.2020 TO 21.12.2020							Weekly Report 04.01.2020 TO 10.01.2020						
S.No	Category of labour	Unit	Planned Man Days	Deployed Man Days	% of Achievem ent	Remarks	S.No	Category of labour	Unit	Planned Man Days	Deployed Man Days	% of Achievem ent	Remarks
1	Mason	Days	72	40	56%		1	Mason	Days	49	14	29%	
2	Unskilled	Days	270	274	101%		2	Unskilled	Days	182	98	54%	
3	Carpenter with helper	Days	855	978	114%		3	Carpenter with helper	Days	770	492	64%	
4	Barbender with helper	Days	576	632	110%		4	Barbender with helper	Days	399	321	80%	
6	Scaffolder	Days	108	97	90%		6	Scaffolder	Days	49	34	69%	
7	Painter	Days		0	0		7	Painter	Days		0	0	
8	Fabricator & Welder	Days	18	19	106%		8	Fabricator & Welder	Days	14	11	79%	
9	Mechanic	Days	0	0	0		9	Mechanic	Days	0	0	0	
10	Firefighting	Days		0	0		10	Firefighting	Days		0	0	
11	Driver	Days		0	0		11	Driver	Days		0	0	
12	Rigger	Days		0	0		12	Rigger	Days		0	0	
13	Operator & helper	Days		0	0		13	Operator & helper	Days		0	0	
14	Pipeline	Days	45	51	113%		14	Pipeline	Days	35	29	83%	
15	Electrical	Days	27	32	119%		15	Electrical	Days	21	17	81%	
16	Sub Contractor		45	28	62%		16	Sub Contractor		70	37	53%	
17	Chipper			0	0		17	Chipper				0	
18	Sewer Line						18	Sewer Line					
	TOTAL	Hrs	2016	2151	107%			TOTAL	Hrs	1589	1053	66%	

Site Name: CMRL-Metro HeadQuarters At Nandhanam

Location: Nandhanam,Chennai

Weekly Report 01.12.2020 TO 31.12.2020

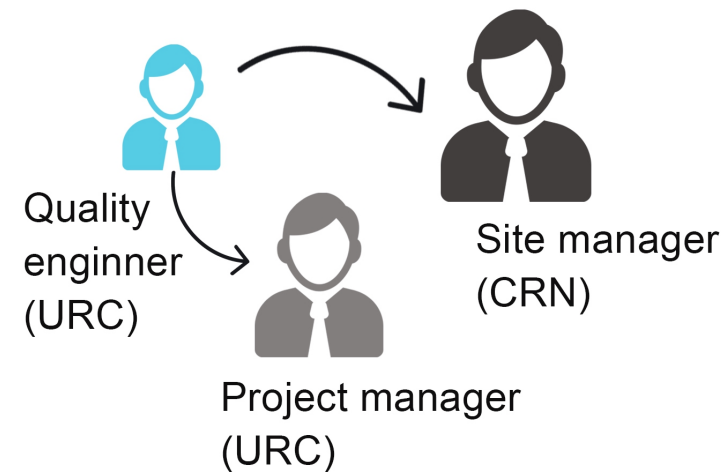
S.No	Category of labour	Unit	Planned Man Days	Deployed Man Days	% of Achievem ent	Remarks
1	Mason	Days	186	111	60%	
2	Unskilled	Days	790	707	89%	
3	Carpenter with helper	Days	3025	2815	93%	
4	Barbender with helper	Days	1871	1824	97%	
6	Scaffolder	Days	227	225	99%	
7	Painter	Days	0	41	0	
8	Fabricator & Welder	Days	58	57	98%	
9	Mechanic	Days	0	0	0	
10	Firefighting	Days	0	0	0	
11	Driver	Days	0	0	0%	
12	Rigger	Days	0	0	0%	
13	Operator & helper	Days	0	0	0%	
14	Pipeline	Days	145	149	103%	
15	Electrical	Days	90	138	153%	
16	Sub Contractor	Days	235	105	45%	
17	Chipper	Days				
18	Sewer Line	Days				
	TOTAL	Days	6627	6172	93%	
NOTE:	Without considering Over time					



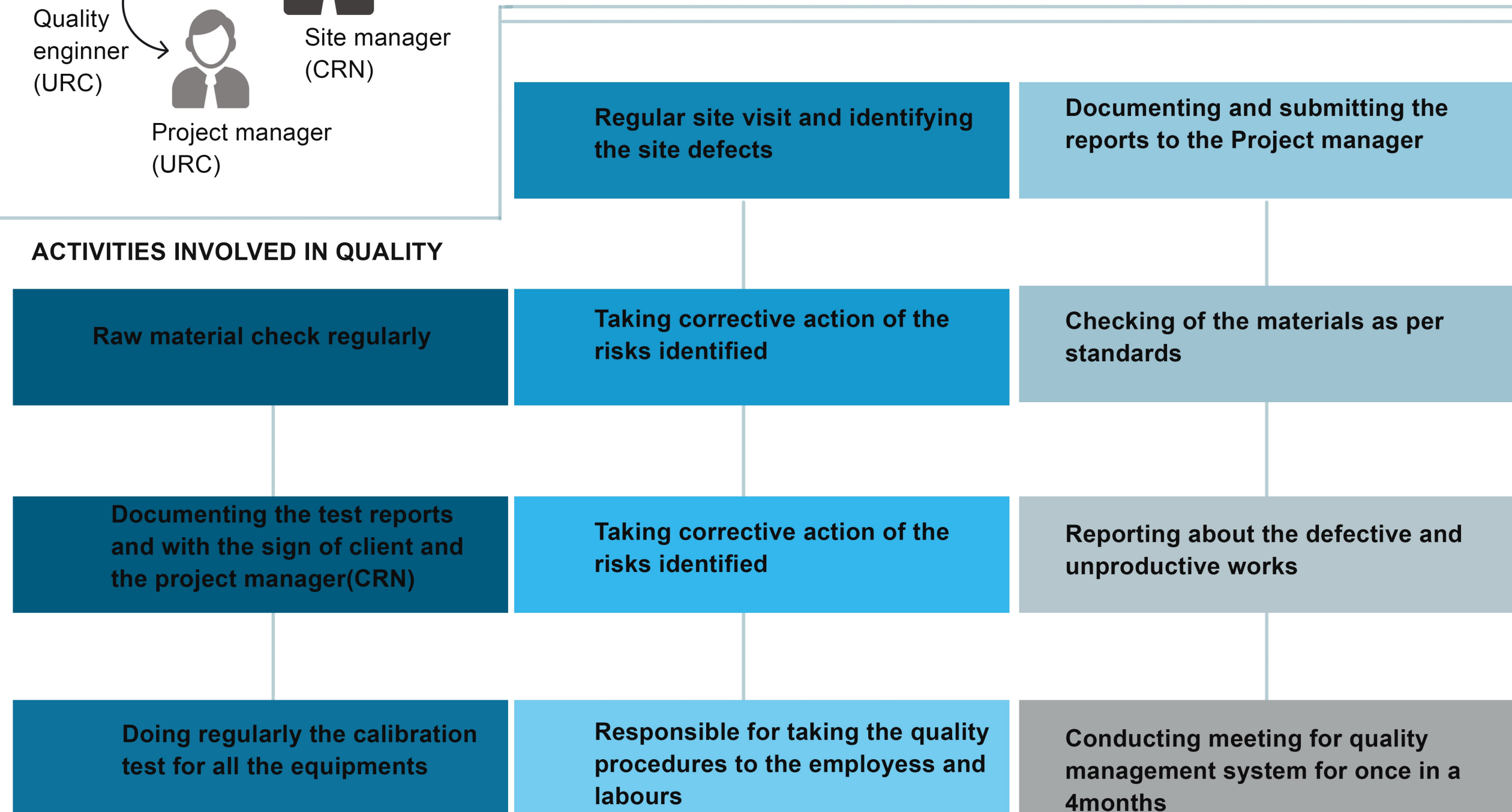
QUALITY

One quality engineer was appointed to maintain the over all quality of the construction process

The quality is maintained at every process of construction. The quality engineer should report at every status of the work



ACTIVITIES INVOLVED IN QUALITY



SAMPLE AND TESTING

Sample and testing is done prior concreting in QC Lab . Seive analysis are done before concrete mix and checking of the moisture content of the aggregate , sand and cement with the help of an hot air oven

Based on the moisture content on that day the concrete mix is slightly altered. And slump test for workability

Compressive test - sample cubes of the concrete is taken to check whether the concrete has achieved the appropriate compression during the 7th and 14th day

CONCRETING

CHECKING DETAILS FOR SLAB AND BEAM CONCRETING :

After approval of reinforcement and formwork, Inspecting whether the slab surface is cleaned and foreign particles, if any, has been removed.

Pre -pour inspection is done along with the project manager and URC manager .

The concreting is done in the presence of Project manager of URC and Site manager of CRN

After the concrete reaches the site,checking whether the slump of the concrete will be checked for slump and concrete sampling is done as per the specifications. Totally Six cubes shall be cast, 3 numbers for 7 days strength and 3 numbers for 28 days strength.

QUALITY CHECKLIST FOR SITE WORKS							
CONCRETE POUR CARD							
☐	ARCHITECTURAL	☐	STRUCTURAL	☐	INTERIOR	☐	SERVICES & UTILITY
Name of the Customer: Chennai Metro Rail Limited				Date:			
Project Name: Metro Head Quarters and Other Metro Rail Amenities				Project ID:ACHQ 02			
Name of the Contractor: URC CONSTRUCTION (P) LTD				Location:			
Drawing Reference	Ref. No.:		Quantity:				
	Rev. No.:	Date :	Grade of Concrete: M				
CL : 03							
Sl.No.	Description	YES	NO	NA			
A.	FORM WORK:						
1	Level	☐	☐	☐			
2	Plumb	☐	☐	☐			
3	Cutouts	☐	☐	☐			
B.	Reinforcement:						
1	As per bar bending schedule	☐	☐	☐			
2	Dowel bars	☐	☐	☐			
3	Links	☐	☐	☐			
4	Binding/ Welding	☐	☐	☐			
C.	Services:						
1	Position	☐	☐	☐			
2	Size	☐	☐	☐			
3	Trimming bars	☐	☐	☐			
D.	General						
1	Embedments	☐	☐	☐			
2	Water proofing	☐	☐	☐			
3	Construction Joint	☐	☐	☐			
E.	Sampling:						
1	Mix as per design ____M ____	☐	☐	☐			
2	No. of sample & Identity ____ REFER QC ____	☐	☐	☐			
CORRECTIVE ACTION PROPOSED- Item wise. If 'No' is marked, please specify reasons and thereafter corrective action proposed. (Add additional sheets, if necessary)							
Comments:							

Concreting shall be thoroughly compacted, using 40mm and 60mm dia. Vibrator needles. Prior to concreting it would be ensured that all vibrators are in working condition. Standby vibrators will also be provided.

Inspection whether the Concrete is being poured and finished up to the required thickness of the slab.

Checking whether the Tarpaulins are kept in good condition to cover the concrete in case of unexpected rains

After the concrete has sufficiently set, curing shall be carried out using ponding or Hessian cloth, to maintain the surface damp. These vibrators shall be immersed not more than 450 mm apart and withdrawn when air bubbles cease to come to the surface.

CHECKING DETAILS FOR COLUMN CONCRETING :

After approval of the Column formwork by the Consultant, concrete will be mixed at site as as per the approved design mix.

The slump of the concrete will be checked for slump and concrete sampling will be done as per the specifications. Six cubes shall be cast 3 numbers for 7 days strength and 3 numbers for 28 days strength.

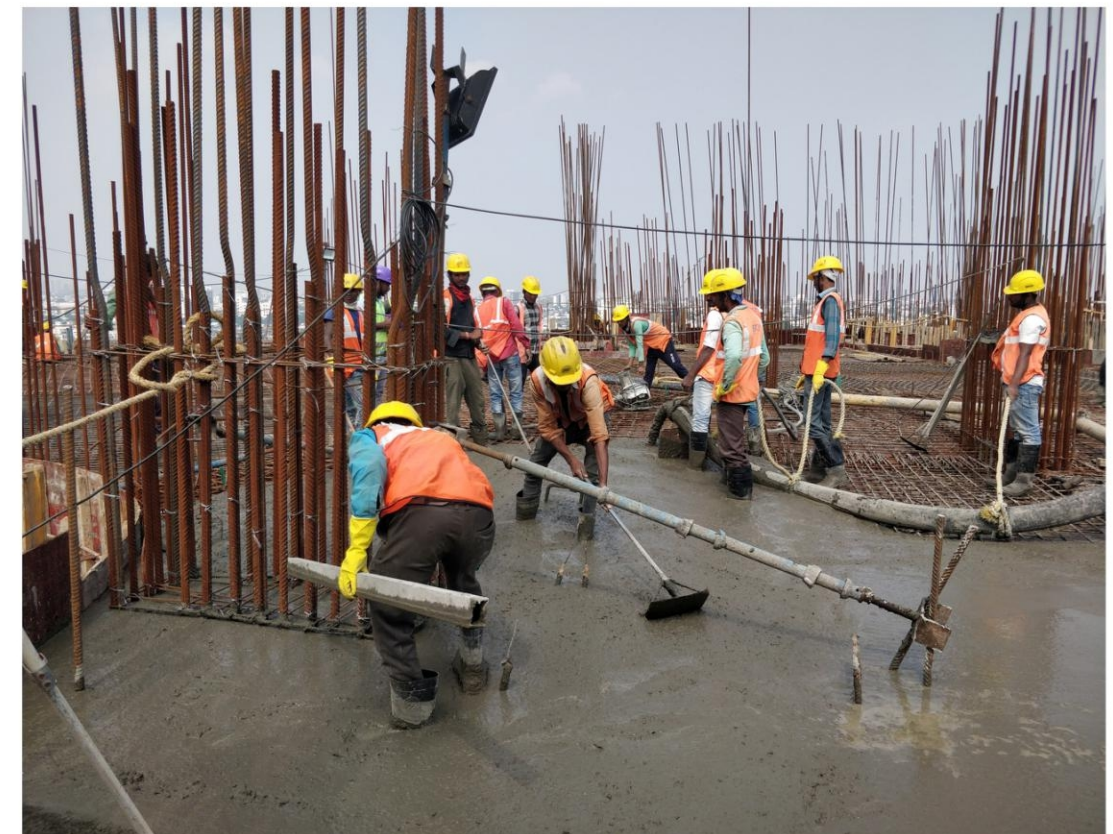
After the completion of concrete for the columns, the column will be checked for verticality and alignment.

Removal of formwork will be 12 hours after the placing of concrete

After the concrete has sufficiently set, curing shall be carried out by covering the entire columns using gunny bags, to maintain the surface damp



Curing using gunny bags



Concreting of slab

SHUTTERING

CHECKING DETAILS:

- Quality of shuttering material
- Whether the shuttering are cleaned before fixing
- Proper application of oil

FIXED SHUTTERING:

- Fixing of shuttering as per design
- Alignment checking
- Checking level and rigidity
- Checking supports and braces supports
- Checking sealents and joints
- Checking for any alterations and re works

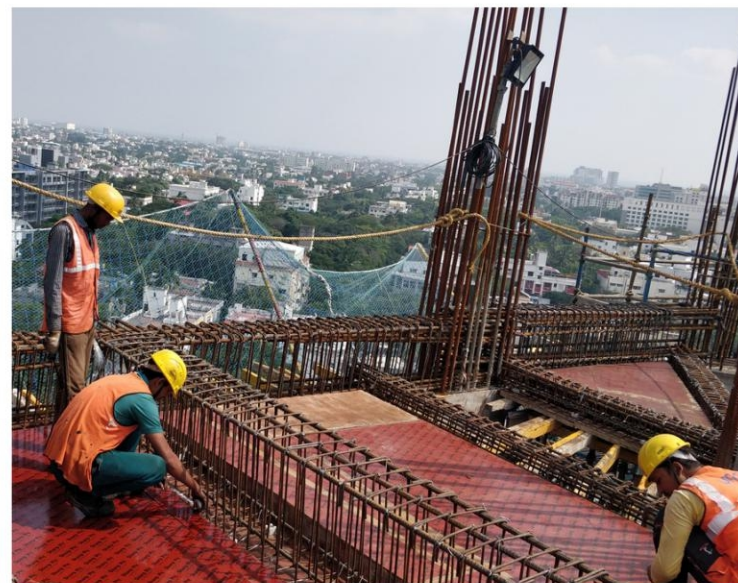
CHECKING OF SLABS AND BEAMS:

- Checking the alignment , level and diagonals of beam bottom and beam sides
- Checking the vrticality of beam and slab shuttering
- Check the line and level of the slab
- Checking whether the holes are filled with cellotape



Flat section for scaffolding ledger

The Aluminium should be provided 300mm once
Scaffolding should be provided 1 m once



Slab shuttering



Column shuttering



Waller

Tie rod

Ring nut

All the joints and bolting are checked , before concreting

Ensure that all the shuttering are placed above a wodden plank

These quality inspection are conducted on daily basis , inorder to maintain quality in the overall construction process.

These reports are submitted to the project manager.

Quality inspection of various elements and frequency

Work Item & Inspection Schedule			Required values	Frequency	Inspection Witness (W) & Hold Point (H)				Records	Remarks
Sl No	Work Item	Application of Standards & Documents			CCCL		GC			
					Inspection Point	Performed by	Inspection Point	Performed by		
1	Preparation Work									
a	Approval of survey and setting out	Approved construction drawings	Nil tolerance	Each Element	H	Surveyor	W	ER	Site Register	
2	Reinforcement									
a	Installation of reinforcement with necessary hooks, laps, etc.	Construction drawings	Approved drawings and reinforcement record	Each Element	H	Site engineer	W	ER	As per BBS	
	Check for cover distance & of spacing ties	Construction drawings	Approved drawings and reinforcement records	Each Element	H	Site engineer	W	ER	As per BBS	
3	Formwork									
a	Verticality Check	IS 4990	12mm	Each Element	W	Site engineer	W	ER		
b	Support Check	IS 806, 1161,1239, 2750		Each Element	W	Site engineer	W	ER		
4	Concrete									
a	Slump before pour	IS 456	80 to 130mm	Each supply	W	QA/QC	W	ER	Concrete Pour card	
b	Casting of Concrete Cube samples	IS 456	As reqd.	Each set	W	QA/QC	W	ER	Site Cube register	
c	Compression strength of cubes	IS 456	As per design mix	Each set	W	QA/QC	W	ER	Test report	
d	Concrete pour record	Concrete pour card & Method statement		Each Element	W	Site engineer	W	ER	Concrete Pour card	
e	Curing	CMRL -EAS 06 Vol.5 OCS Sec1.5.11.6	Physical/Visual	100%	W	Site engineer	W	ER	Curing Register	

SAMPLING AND TESTING REPORTS

URC Monthly Performance

QUALITY ASSURANCE (QA) REPORT FOR THE MONTH OF DECEMBER- 2020

S.NO	DESCRIPTION	TEST DONE
1	Moisture correction	Daily
2	Sieve analysis	Weekly once
3	Specific gravity	Monthly once
4	Water test	One
5	Cement Ultratech	Three
6	Daily cube testing	Daily

Seive analysis report

CRN Sieve Analysis-Coarse Aggregate - TR01 **URC** Building Values

C. R. NARAYANA RAO

Name of the Customer:	M/s Chennai Metro Rail Limited	Location	Nandhanam, Chennai			
Project Name:	Metro Head Quarters and Other Metro Rail Amenities	Date of Report				
Name of the Contractor:	M/s URC Construction Pvt.Ltd	Source	Lalith Trading Company			
Project ID:	CMRL-HQ (ACHQ-02)	Sample From	Batching plant			
20 MM		Sample Taken	2000 grams			
IS Sieve Size	Wt.Retained	Cum Retained	% Retained	% Passing	LIMITS	
mm	grams	grams	%	%	Single size IS:383-1970	Graded IS:383-1970
20					85-100	-
16					-	-
12.5					-	90-100
10					0-20	40-85
4.75					0-5	0-10
PAN						
TOTAL WT	2000 grams					

Contractor's Client

Compressive strength test



Checking of tendons PT Beam



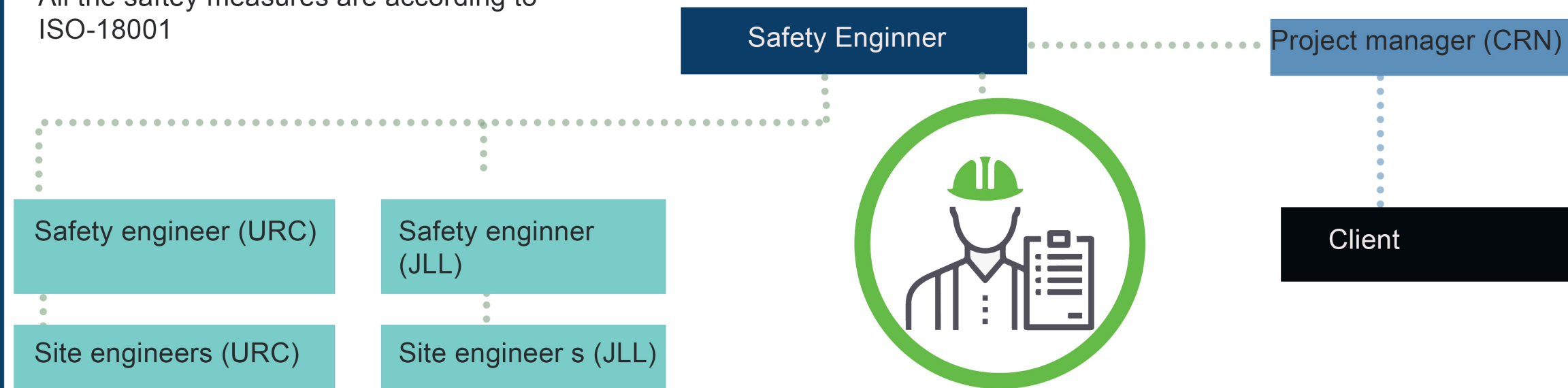
Cube Testing



SAFETY

The safety is carried out in all construction works . The safety enginner works under the project manager of CRN and ensures that all the safety measures and precautions are carried out daily.

All the saftey measures are according to ISO-18001



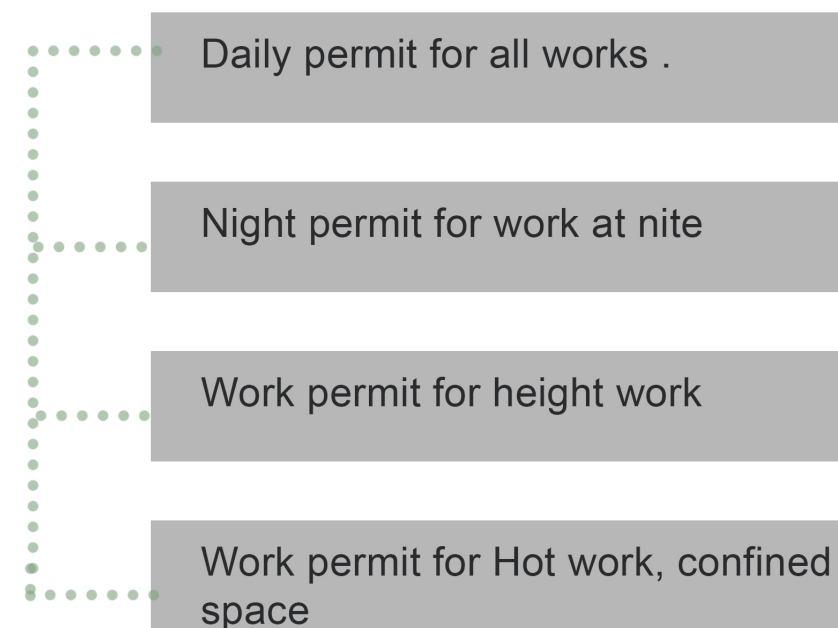
DAILY ACITIVITIES IN SAFETY (CHECKING DATAS):

Inspecting Safety of labours:

Inspecting of safety helmet, masks , boots, ear plug , gloves , eye glass and safety jackets



Checking Work permit for labours:



Inspecting whether all the acitivities are conducted with work permit.

Safety at construction site :



Inspecting whether safety nets are provided all around the working area



Inspection whether the site is clean to work and all the materials and waste are stacked at one side



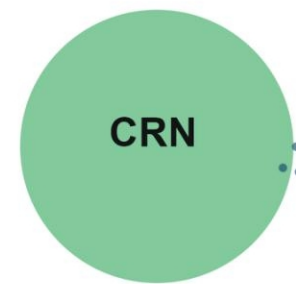
Inspecting whether all the lighting provisions are provided for night work



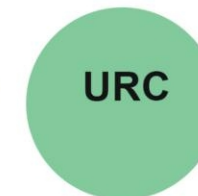
Checking of safety belt for workers for working at height



PERMITS

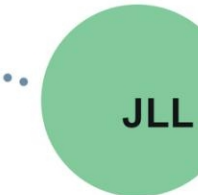


Permit issuer



Receiver

For commencement of all activities and input of new labours



Receiver

For commencement of all activities and input of new labours

Internal audit

Weekly once

Weekly checked by URC and CRN

External audit

Monthly once

Submitted by URC - CRN -CMRL

3 months once external audit has been conducted by CMRL by approved agencies

Checking of safety precautions due to COVID-19 :

Daily temperature report , Disinfecting spaces , Kabasura kudineer provisions



SAFETY

Safety checking for equipments :

All the equipments are checked for proper working conditions and reported to the client .

Checking the green tag on the equipments prior working for latest safety checklist

Inspection of the equipment callibration certificate.

Equipment safety is done monthly once

Daily tool box meeting :

For electrical safety

For Working at height

For Scaffolding fixing

For material handling and home keeping description

For chemical handling safety

For chemical handling safety



CRN C B NARAYANA EAO		SAFETY CHECKLIST FOR BATCHING PLANT			Doc No:CRN/EHS/CL:15C	
Name of the Project:		CMRL - MHA			Issued date:	
Name of the Contractor:		Eqpt. Sl. No. :			Checklist Sl. No.:	
SL NO	DESCRIPTION	OBSERVATION			REMARKS	
		OK	NOT OK	N/A		
1	Trained operators are engaged?	✓				
2	Regular pep talks on safety are conducted for Batching plant operators and maintenance crew?	✓				
3	Work permit system is followed with LOTO?	✓				
4	Lock out and Tag out system in place?	✓				
5	Limit switch for mixer drum is functional?	✓				
6	Emergency stop push button at mixer drum is functional?	✓				
7	Emergency stop push button at skip bucket area is functional?	✓				
8	The guarding/ fencing for skip bucket area are available? The fencing doors are fitted with limit switch cut off and is functional ?	✓				
9	Is the hooter to warn the transit mixer driver is functional?	✓				
10	Is the siren is blown before starting the plant to warn the workmen?	✓				
11	Pressure relief valve available for (compressor outlet)?	✓				
12	Is the pressure relief valves are set to working pressure and 5% more than working pressure?	✓				
13	Screw feeder drive motor fan guard is available?	✓				
14	Compressor drive belt guard is available?	✓				
15	Is there any spillage of oil and grease on the mixer drum platform/	✓				
16	Is the Skip bucket is locked during skip bucket area cleaning?	✓				
17	Is there proper approach for the vehicle movement?	✓				
18	Housekeeping around batching plant is maintained?	✓				
19	Water sprinkling is in practice for dust control?	✓				
20	Workmen shelter is provided and used by workmen?	✓				

Prakash

Monthly safety report

MONTHLY SAFETY PERFORMANCE REPORT FOR THE MONTH OF DECEMBER '2020				
PROJECT: Construction of Metro Head Quarters and other metro rail amenities for CMRL at Nanfangu, Chennai			Date: 04.01.2021	
Particulars	Nos.	HSE Performance Indicator Sheet		
Average No. of Staff (Avg per day)	31	KEY PERFORMANCE INDICATOR (KPI)	For the Month	Cumulative till date
Average No. of labour & Worker (SG) (Avg per day)	214			
Total strength at site (Avg per day)	245			
Total Man hours worked for the month	63700			
SITE SAFETY BRIEFING				
No. of Tool Box Talk conducted	26	Near Miss/ Close calls	0	2
HSE TRAININGS		First Aid Injuries (resumes duty instantly)	0	57
Induction Trainings (Workers)	87	Minor Injuries (resumes duty within 48 hours)	0	13
On Trainings (Staff)	0	Loss Time Injuries (Absent more than 48 hours)	0	0
Specialized Trainings (Give Details in Annex. 1)	6	FATAL (Loss of Life, Death)	0	0
External Trainings (Give Details in Annex. 2)	0	TOTAL Strength at site (Avg per day)	245	14956
		TOTAL Man Hours Worked	63700	3819970
		TOTAL Man Day Lost	0	0
MOTIVATION / PROMOTION		Frequency Rate	0	0
Awareness programme held (Give details in Annex.3)	1	Severity Rate	0	0
Name of best safety performer (worker)	0			
Name of best safety performer (Staff)	0			
SAFETY INSPECTIONS		SURVEILLANCE ACTIVITIES (Safety Non-Compliances)		
Electrical Inspections	4	Raised	Closed	Open
Fire Inspections	2			Compliance Percentage
Lifting Tools & Tackles Inspections	4	6	6	0
Plant & Machinery Inspections	4			0.00%
AUDITS		SAFETY COMMITTEE MEETING		
Safety Audit Conducted	1	Issues Discussed	Issues Closed	Issues Open
		7	7	7
DECLARATION				
A. Requisite Personal Protective Equipments (PPE's) have been provided to all concerned & usage ensured.				
B. Necessary Safety Training is provided to all concerned staff.				
SAFETY INCHARGE SIGNATURE:		PROJECT INCHARGE SIGNATURE:		

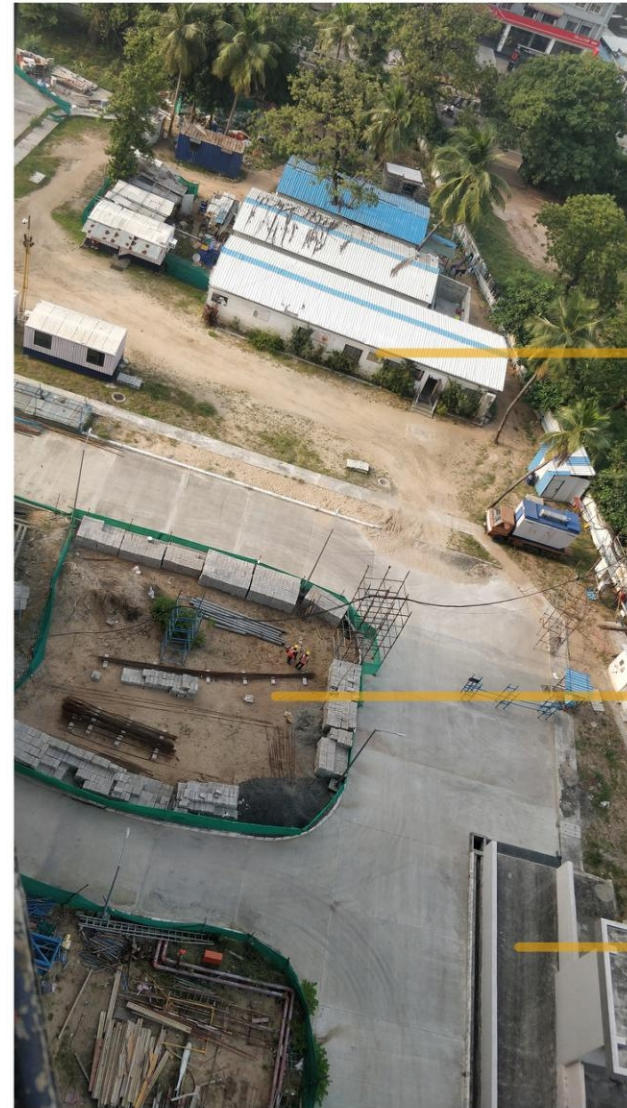


Safety measures





ENTRANCE TO THE SITE



SITE OFFICE

MATERIAL STORAGE AREA

ENTRY RAMP

STORAGE OF MATERIALS AND SITE OFFICE



BASEMENT





FIRE STAIRCASE



TYPE A AND TYPE B RESIDENTIAL



BACTHING PLANT AND STEEL YARD



TYPE A AND TYPE B RESIDENTIAL AND UTILITY BUILDING



BASEMENT STAIRCASE AND AMENITIY AREA



UTILITY BUILDING AND TRANSFORMER



UTILITY BUILDING



SITE PHOTOS

