SOBHA

CONSTRUCTIONS

CONSTRUCTION TECHNOLOGY AWARDS 2025

CONTRACTOR OF THE YEAR

VISION

"Redefine the international quality standards and become the pioneer in transforming the construction industry"

MISSION

"To always uphold Sobha Values and deliver exceptional construction projects ontime with the trusted partnership with all our stakeholders"


OUR CORE
VALUES
Innovation
Ownership
Think Big
Empowerment
Courage
Empathy
Trust
Transparency
Uncompromising in Actions
Customer Focus
Passion for Excellence
Integrity & Fairness
Resilience

SUBMISSION EVIDENCE

IDEA MANAGEMENT SOFTWARE

To ensure continuous improvement in planning, delivery, safety and quality of our operations we introduced a 360° Innovation Management platform - INDONIS ensuring 100% engagement of our employees in the process of crowdsourcing smart and innovative ideas that deliver sustainable growth.

TECHNOLOGY PARTNER:

INDONIS

Generate Ideas → Collect & Refine → Evaluate → Prioritize → Validate & Test → Implement

FEATURES:

Efficient and faster evaluation

Divergent thinking

Enhanced Collaboration

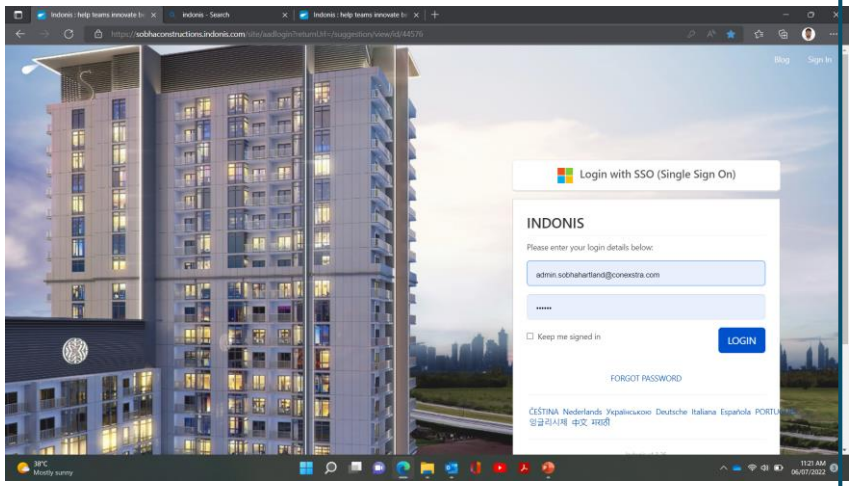
Better Focus on Employees' Efforts

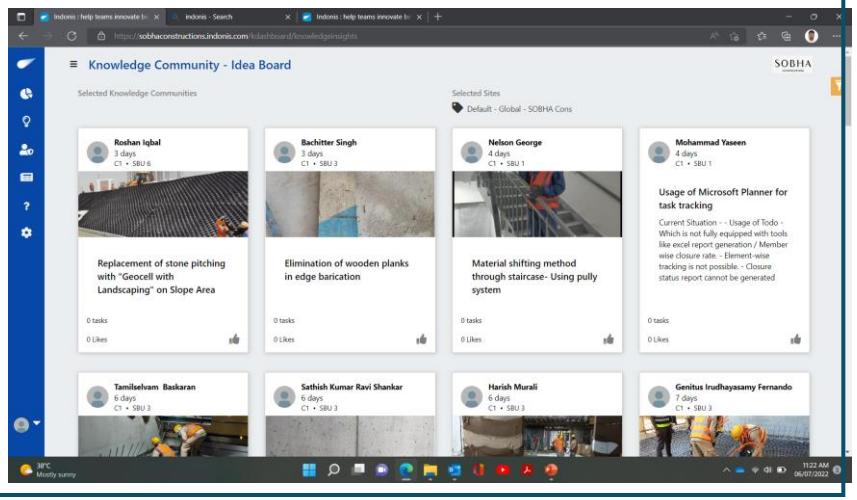
Foster Innovation

Thought Mapping

BENEFITS:

1. Build a robust "innovation culture" (bottom floor to top floor and supplier to customer)
2. Help discover solutions quicker through "crowdsourcing of ideas" (100% coverage)
3. Deliver maximum "Return on Innovation (RoInn)" across all innovation projects
4. Develop highest levels of employee engagement and connect (reward & retain best people)
5. Drive sustainable growth through improved quality, productivity and cost / time savings





1 DESIGN TO PRODUCTION TO INSTALLATION | OFFSITE CONSTRUCTION

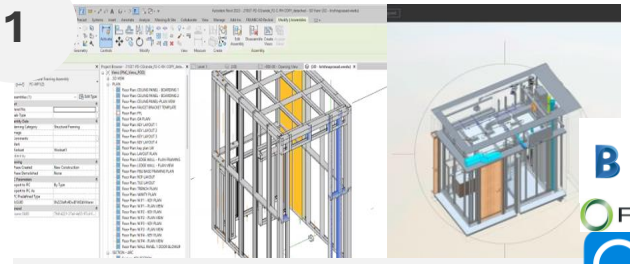
SOBHA CONSTRUCTIONS

PLANGRID UPDATES

BIM 360 USAGE

FRAMECAD USAGE

1



AUTODESK BIM 360

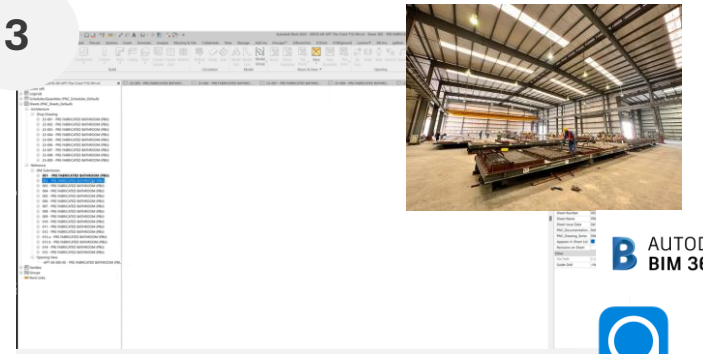
FRAMECAD

***PODs** are **designed** and drawings are issued to factory & site*

2

*Steel structure drawings are then uploaded to the roll forming machine for **production**.*

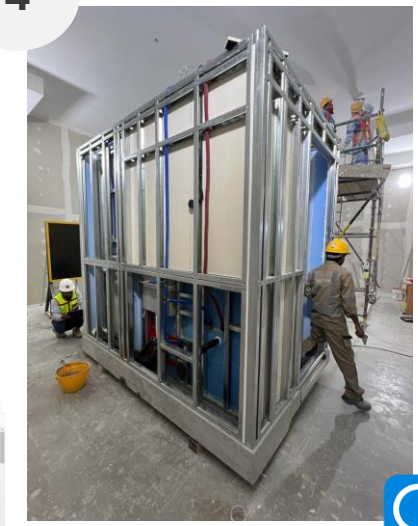
3



AUTODESK BIM 360

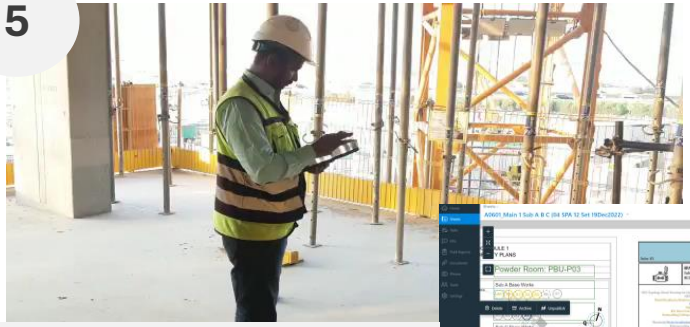
***Assembly of the POD** as per the construction sequence including MEP services in factory*

4



***Installation of POD** at site*

5

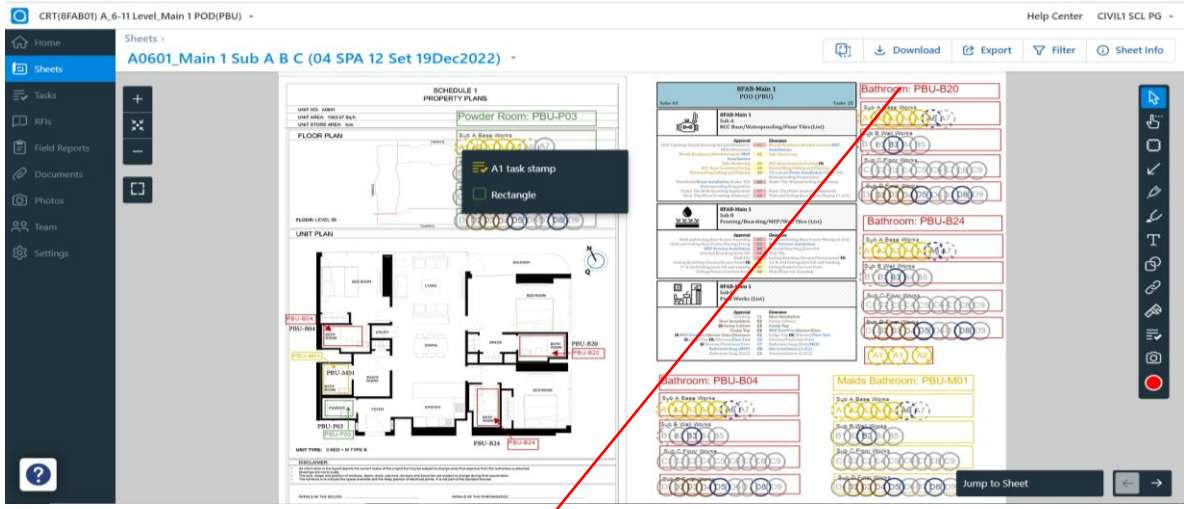


*Engineer reviews and provides **clearance** to the next activity*

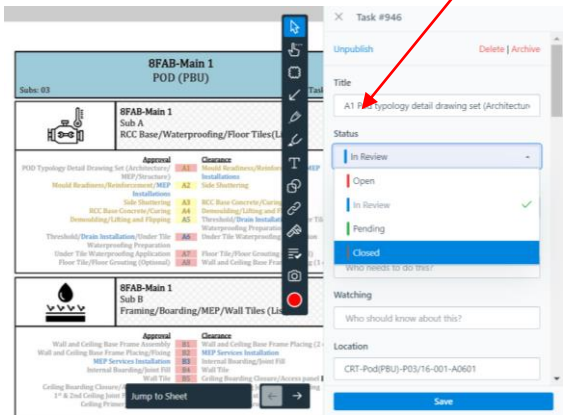
1.1 MAINTAINING PROGRESS THROUGH PLANGRID

Tasks stamps are maintained in PlanGrid across functions (consultants, contractors, audit) so that the progress is maintained and ensured at all stages from design to realization.

OVERVIEW OF A PLANGRID SHEET



The above rounded figures shows '**stamps**' that are to be updated at every stage.

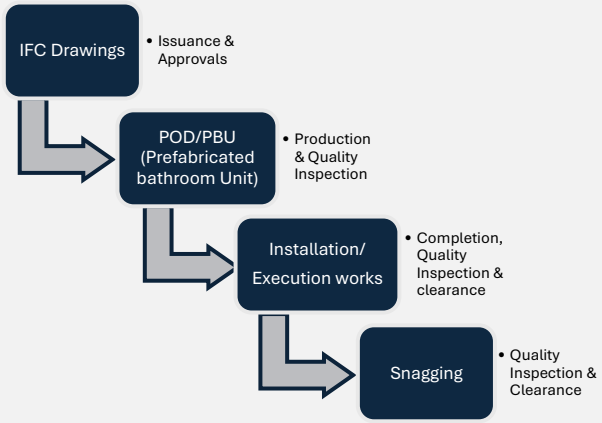


Clicking on each stage lets the user know the status of the particular stage.

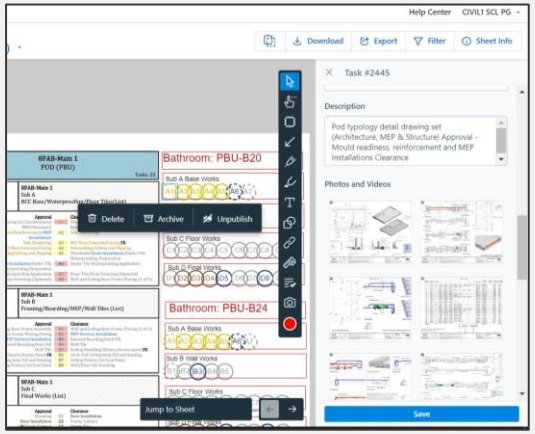
The respective person responsible for the activity updates the status at each stage.

Any stakeholder can see the status at any point of time reducing the need for follow-ups,

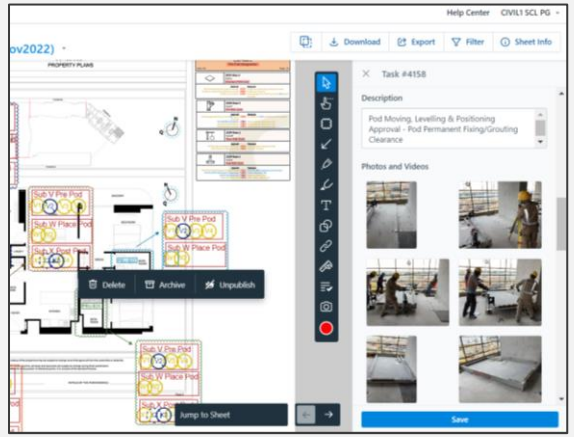
STAGES OF PLANGRID USAGE



SAMPLE PLANGRID UPDATES



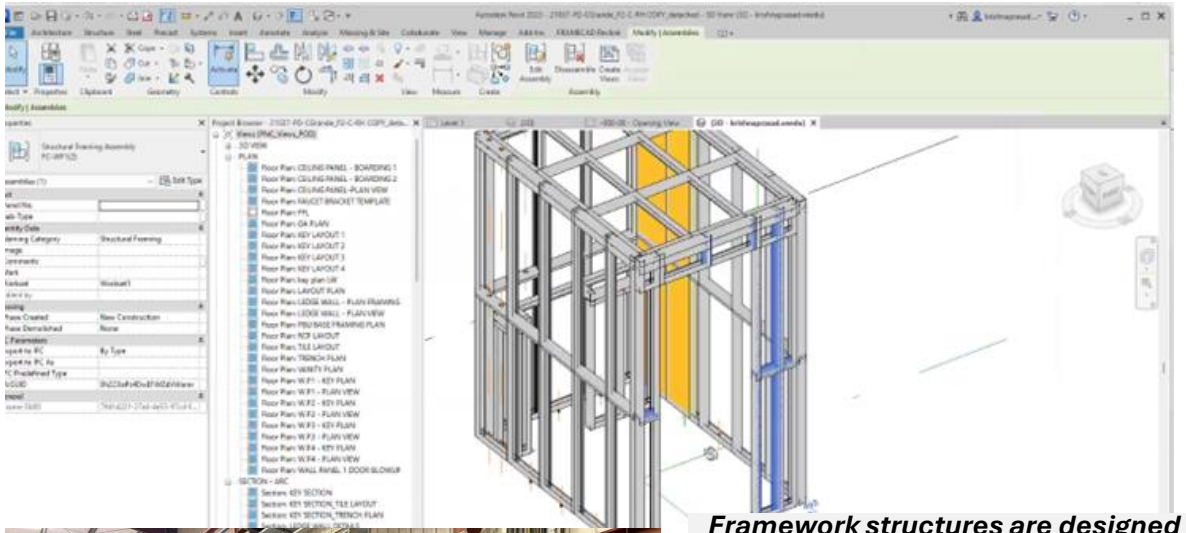
*Sample **stamps marking the detailed drawings issuance** with pictures indicating the same.*

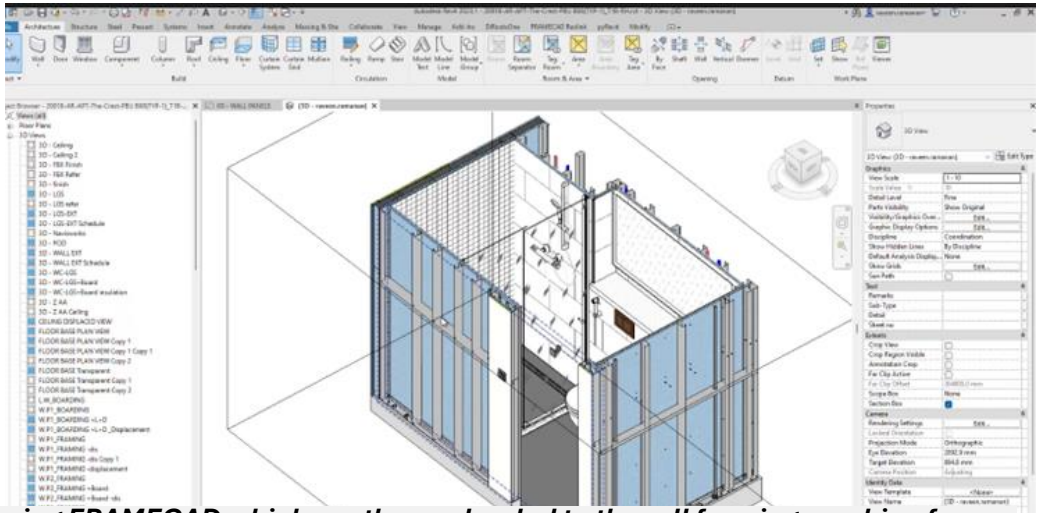


*Sample **stamps marking the progress of the execution** with pictures indicating the same.*

1.3 FRAMECAD – DESIGN TO PRODUCTION OF PREFABRICATED PODS | OFFSITE CONSTRUCTION

Designed using specialist computer-aided CAD design and engineering software, the FRAMECAD system allows for cold formed steel to be implemented for the fabrication of our bathroom PODs. Our **Modular Factory** produces pre-engineered bathroom units and delivers them to site. They're then assembled as large elements of a building, forming complete rooms.





Framework structures are designed using FRAMECAD which are then uploaded to the roll forming machine for production.

Framework production at our Modular Factory using roll forming machine

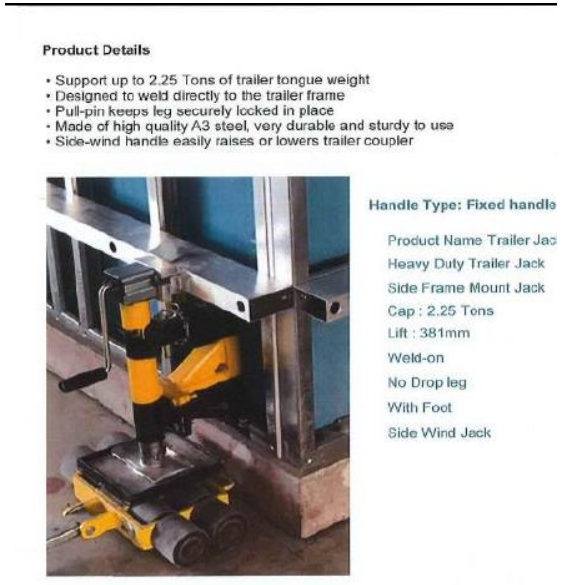
The FRAMECAD System unlocks the ability to design and construct web joists, trusses, structural framing and internal partitioning suitable for a diverse range of construction types.

FRAMECAD's roll forming machine integrates innovative engineering, design and production software to produce frames, trusses and joists that are ready to be assembled with ease.

1.4 ROBOTS – DESIGN TO PRODUCTION OF PREFABRICATED PODS | OFFSITE CONSTRUCTION

Streamlining operations and limiting manual work was of prime importance and hence, we introduced robotization and automation techniques.

- We used robots and machines such as **welding robot, co-bot, pick & place robot ensuring products are delivered with high efficiency (5x improvement in cycle time)**



Logistic system contains a high size threaded bars and bespoke **pod movement jack system** that ensures that product slides through the construction site with ease.

Success factors

- **The use of these robots are a first in the construction industry in UAE and we are among the first few to implement in the middle east.**
- Welding Robot - Quality, Precision of Welding is improved with 600 seconds cycle time in manual process is reduced to 80 seconds with **9X speed improvement.**
- Pick & Place Robot - Ease of handling - what takes 4 people to do a job is now done by 1 person, with speed increased by **3X.**

A separate robot is procured and placed only for training purpose

- Cobot for Welding – **Collaborative robots** for automating the routine welding processes, with manual intervention. It **increases overall efficiency by 100% with improved ergonomics**.
- **Passive Learning** – **Movable Giant LED Screens** with audio speakers are used inside the factory to teach technicians and percolate the right information.

2 DWM APPLICATION

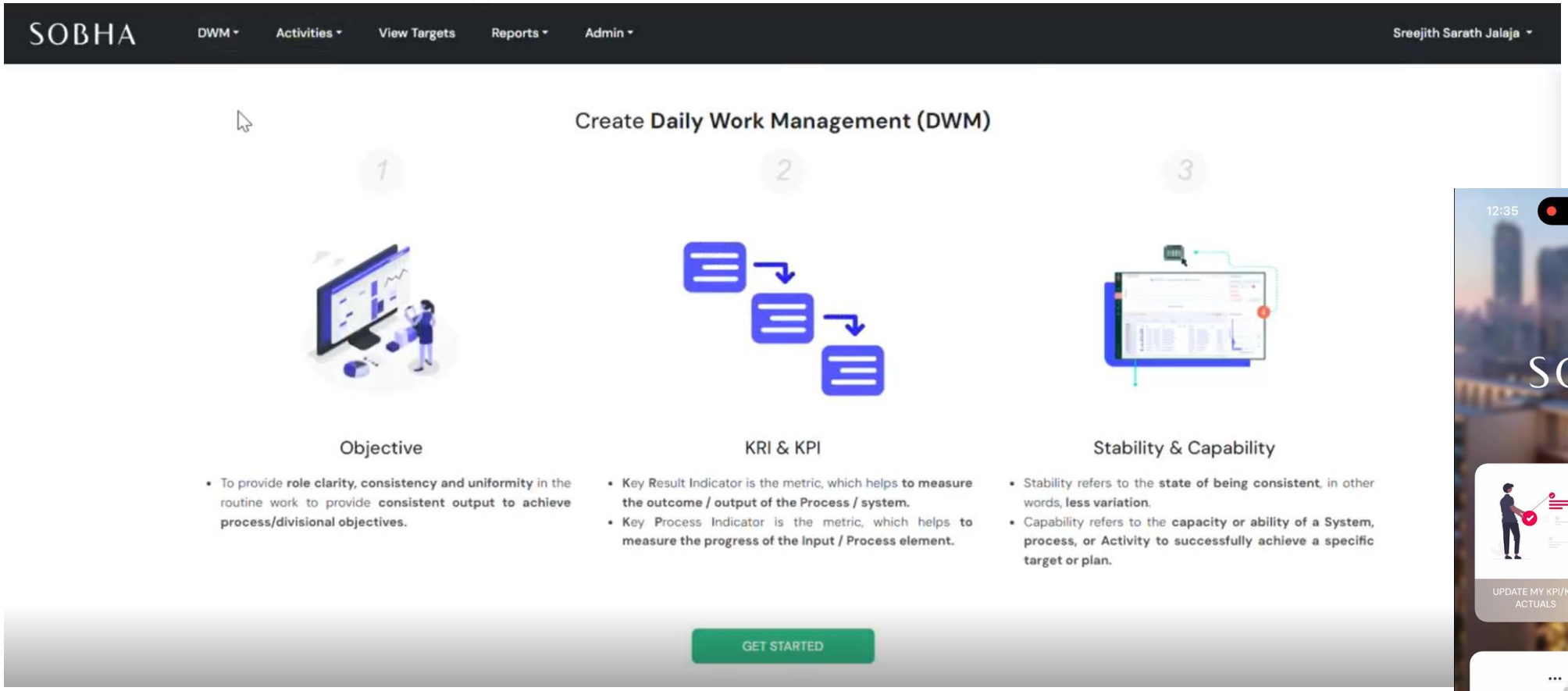
Our end objective of the concept was for the management to have a **robust and dynamic view of the business metrics** tracked at the ground level – with insights developed every day based on the analytical tools and logics such as pareto.

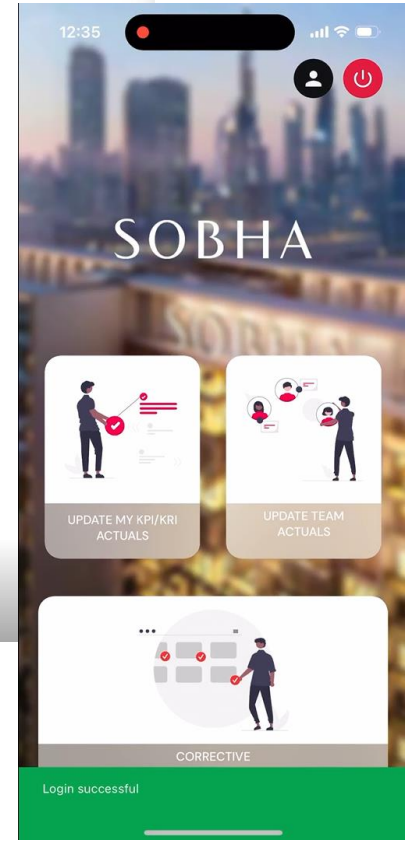
This concept being very new to construction industry - we drew inspiration from automative and manufacturing sectors to implement this concept in Sobha Constructions.
To have the birds eye view on the implementation plan – a team of TQM experts evaluated and derived 180 areas of implementation in each construction project with **500 monitoring metrics** in terms of both result and process.

These metrics, which are **derived based on our Company Business Objectives** and year on year targets - are spread across all business users to ensure **ground level problems are highlighted** for necessary immediate action.

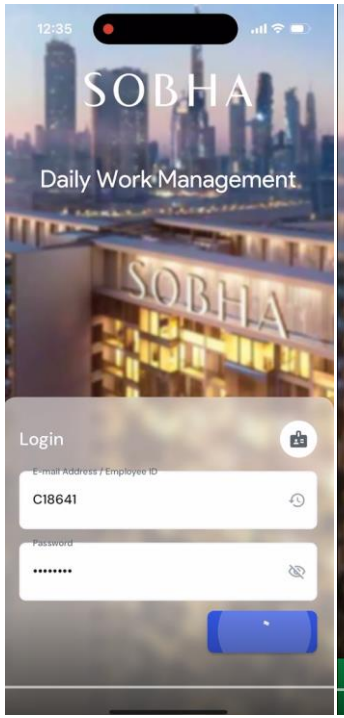
Some examples of project monitoring metrics are productivity – no. of blocks per mason, productivity – tile laid in sqm No. of quality rejections, defect per flat, no. of near miss reported (safety) etc
Some examples of business support functions monitoring metrics – recruitment & onboarding of employees' plan vs actual, purchase order release as per SLA etc.

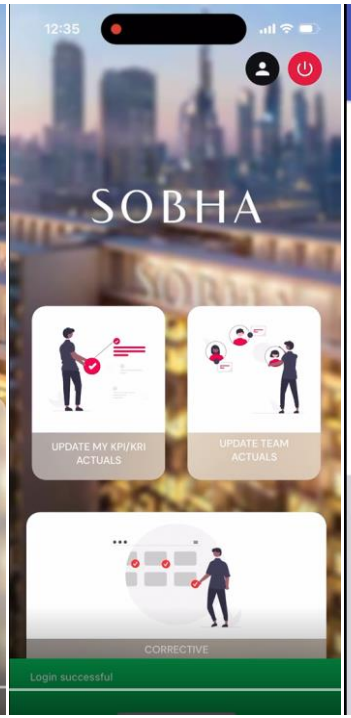
2 DWM APPLICATION | APPLICATION SNAPSHOT

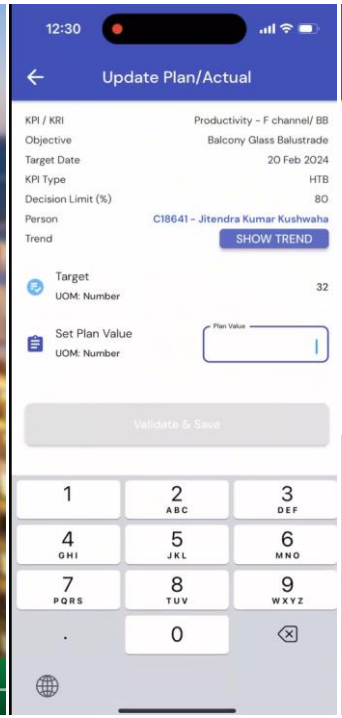


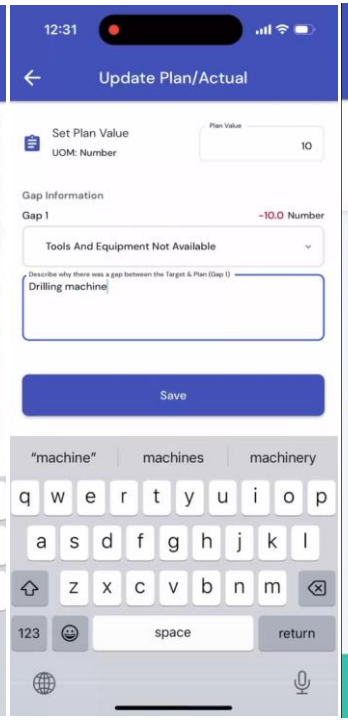


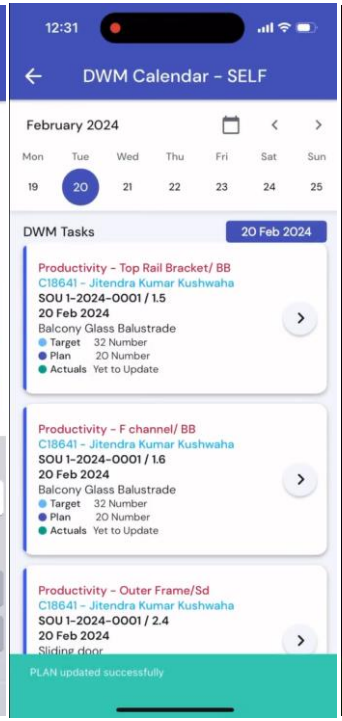
2 DWM APPLICATION | APPLICATION SNAPSHOT

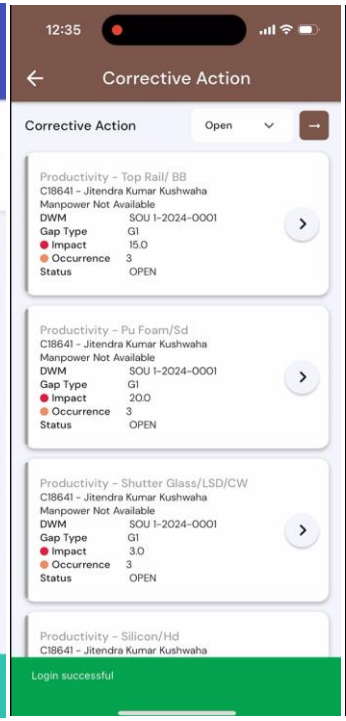


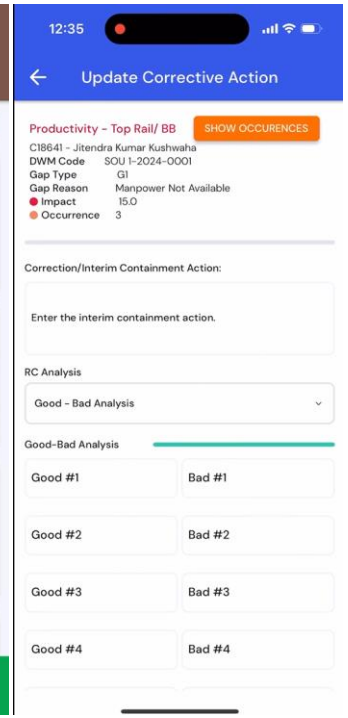


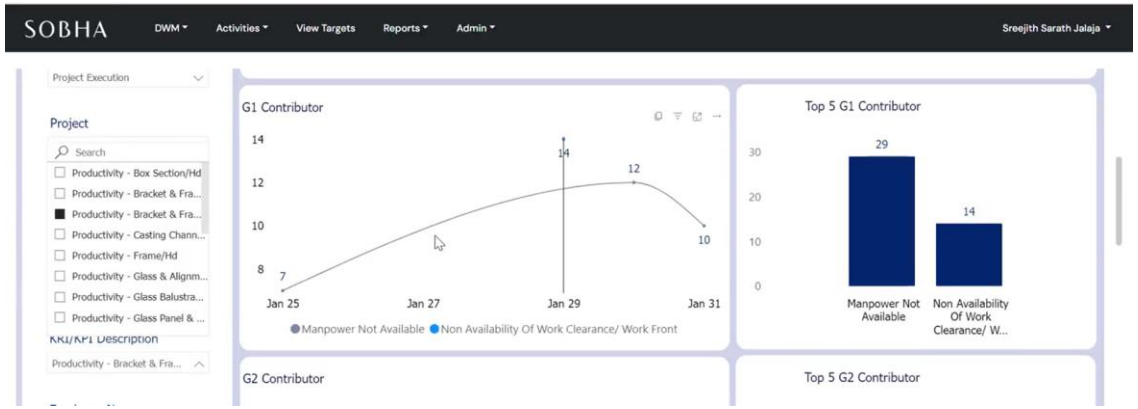












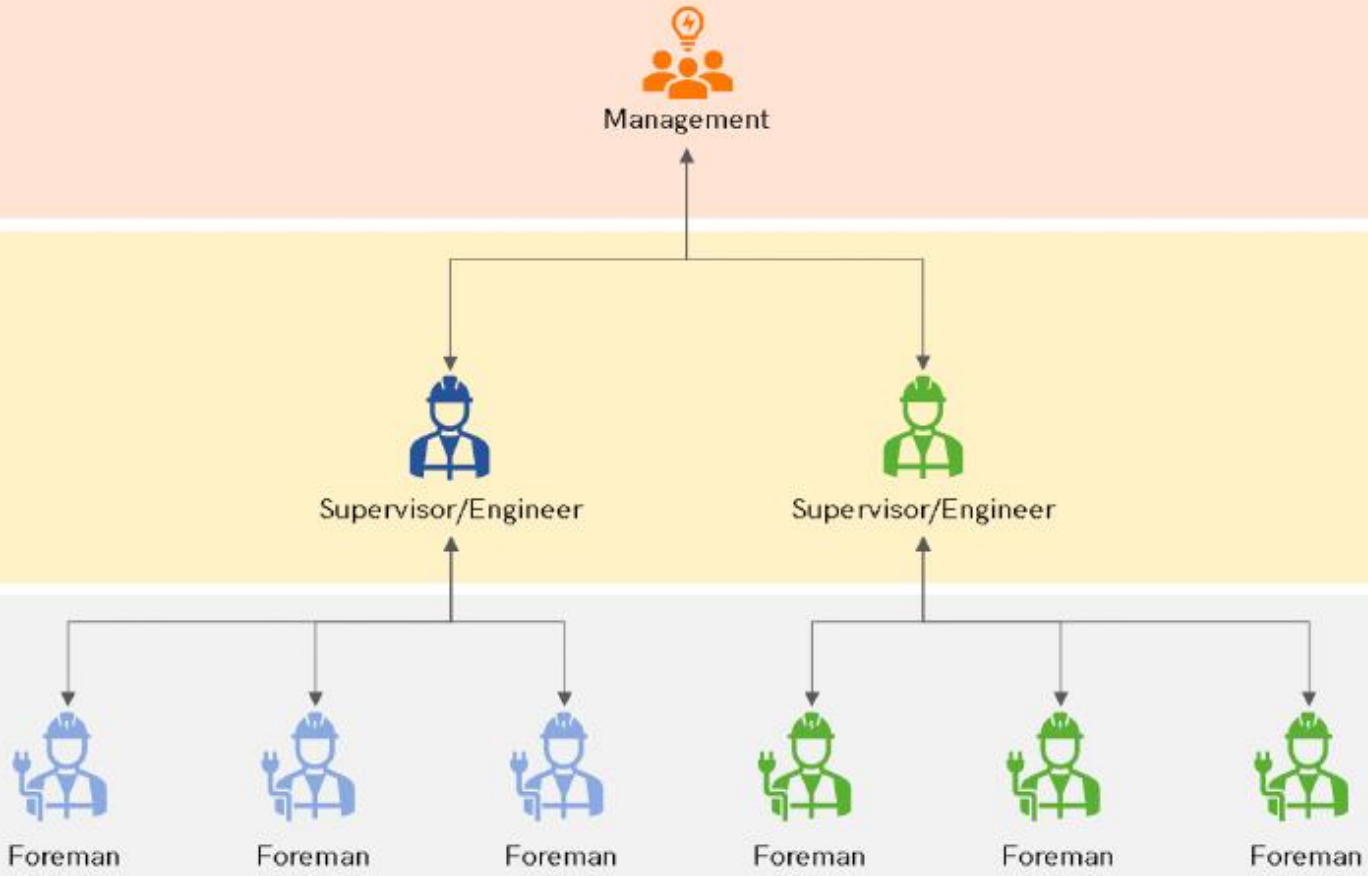
- We strongly believe in data driven decision making and that is the foundation for the development of this application.
- Concepts such as control charts and pareto graphs are used to depict the data collected for taking the necessary corrective actions. These are then consolidated into our lessons learnt archives to be used for our other projects.

2 DWM APPLICATION | TEAM ENGAGEMENT

- Review Supervisor/Engineer Gap & RCA
- Gap & RCA Workflow (Approve/Reject/Resend)
- Set Targets & Allocations
- Manage Master Data
- Reporting & Dashboard

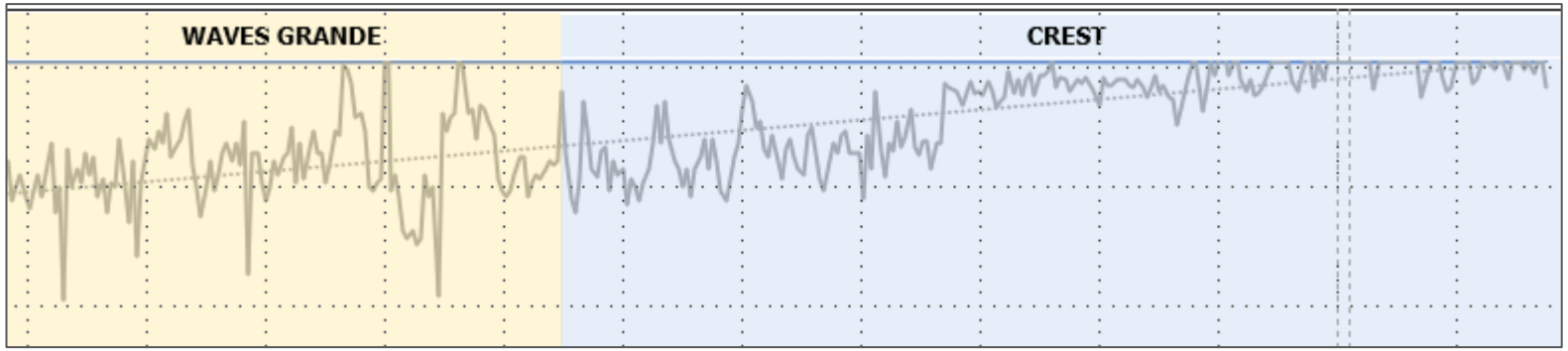
- Submit Plan, Actuals, Gap Inputs (daily work)
- Set Foreman Target (Monthly)
- Review Foreman Actuals & Gap Info
- Threshold-based Root Cause Analysis & Action

- Submit Plan, Actuals, Gap Inputs (daily work)



2 DWM APPLICATION | IMPROVEMENT

- Business Metrics Monitoring and Reporting adapted from the Japanese concept of DWM – this is typically used in manufacturing and industrial engineering and new to construction industry, particularly in the middle east.
- Dashboards are currently available for **150 Activities** which are particularly derived from project Critical path activities.
- All these activities were daily monitored, action initiated, and **50% of activities** are achieved the target with the consistency (Example: This is relatively a challenging and wow factor that has been achieved, considering the industry dynamics. Significant improvement by 20%, was observed for the GYPSUM process in the Waves Grande to Crest project)
- This helped to achieve the targeted project handover timeline



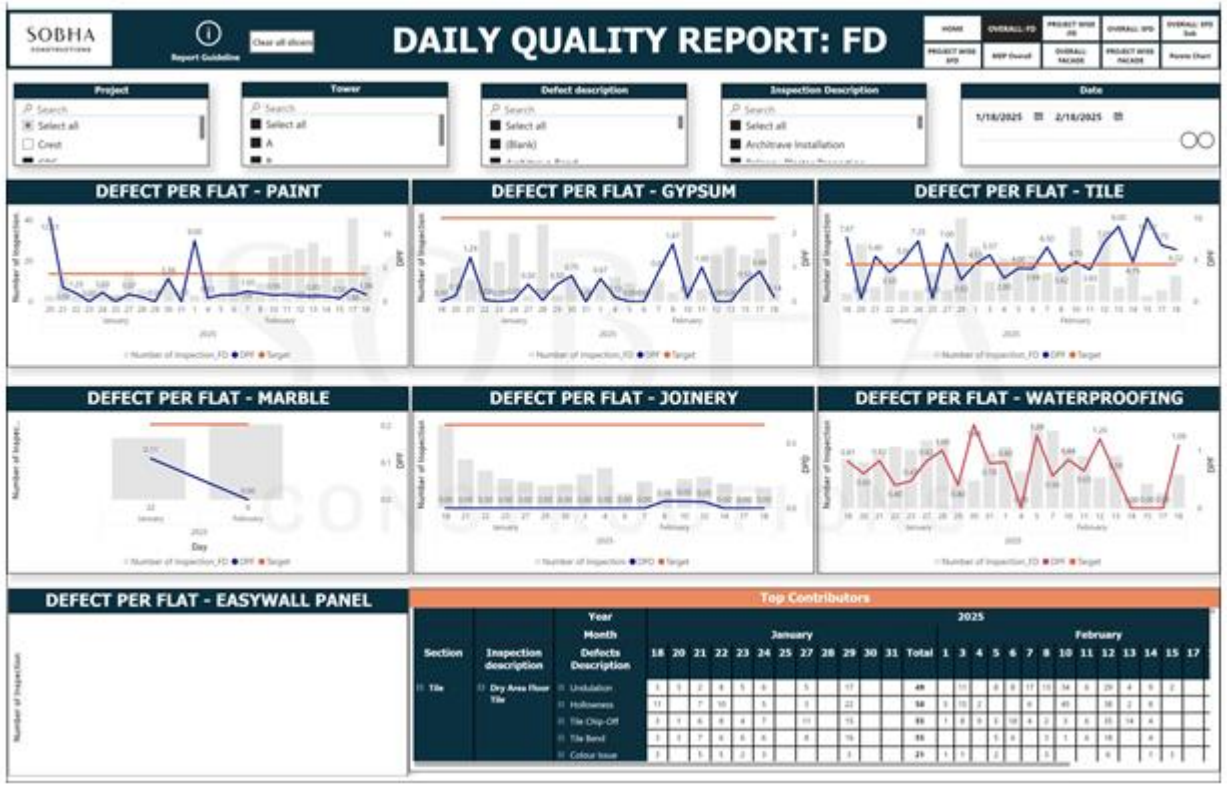
Example of control chart usage in productivity metrics

3 FTR APPLICATION

FTR: The quality system in Sobha is like no other and hence we needed a customized application that could cater to our needs; designed based on our workflow.

The primary objective of this project is to implement and establish a comprehensive Application First Time Right (FTR) in construction processes.

Designed Procedure: Incorporate Inspection Management to ensure compliance with quality standards at various stages of construction. Foreman will access a secure platform to raise inspection and receive feedback for defects within a hierarchy system for approvals. Meanwhile Engineers/QCS/QAQC team will utilize platform to inspect, review, approve/reject, and provide feedback to foreman for rework and record. A CAPA can be opened based on the repeated complaints by the QAQC team to review and suggest rework



Dashboard Generated through FTR

4 PAINTING ROBOT

OVERVIEW

In line with our vision of integrating technology into our operations, we have acquired the Fangshi Robot Painting Machine, which was initially brought in for a trial in June 2024.

This investment aims to leverage automation and technology to reduce manpower hours and enhance the efficiency of our painting processes.

WORKING PRINCIPLE & BENEFITS

Painting Process

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
Primer Application (Wall & Ceiling)	1st & 2nd Coat Stucco (Wall & Ceiling)	Ceiling Sanding	Wall Sanding	1st Coat Paint (Wall & Ceiling)	Topcoat Paint (Wall & Ceiling)
YES	YES	NO	YES	YES	YES

***YES / NO – Scope of Robot**

Productivity Table

S. No.	Activity	Robot's Target (sq. m.)	Manpower	Increase in Productivity (compared to Manual ASTP)
1	Ceiling Stucco	408	4	**14%**
2	Wall Stucco	434	4	**16%**
3	Sanding	161	1	**79%**
4	Ceiling Paint	657	2	**266%**
5	Wall Paint	926	2	**381%**

- A team of two representatives from Fangshi Technologies, China, visited our site and conducted a comprehensive 12-day training program for our Technicians, Foreman and Engineers.
- Currently, the Robot is deployed at Crest Grande site.

Fig.1 : Painting Robot

5 CM BUILDER

OVERVIEW

The CMBuilder software is a **4-D logistics and progress tracking software**

WORKING PRINCIPLE & BENEFITS

- The Software allows us to **create a site logistics plan** and **run simulations** for the same to **see feasibility of routes selected within the construction project.**
- The **positions for the crane** can be identified and **to identify all blind spots and hinderances** to movement.
- The **reach and accessibility** for the concrete pumps can be determined through simulations.
- The software allows multiple users to view **real time footage of site progress**.
- Equipment can be inbuilt into the software, scaling them down as per their actual dimensions and arresting these set dimensions to give a proper overview of the entire work.

USE-CASE TO SOBHA

- **SOBHA Mall is the pilot project** which will be executed with the software.
- Current progress for the same can be viewed in the attached video file.

cmBuilder.io

6 ACUBE: ASSET MANAGEMENT

RFID BASED FAÇADE MATERIALS & ASSET TRACKING:

Tracking construction materials, and assets is always a challenging activity in the construction area, and manually managing the same will always lead to inaccurate data because of human error, no ontime compliance to the timely reporting, and error in the data, making people accountable & liable for the material & asset, spending more time & manpower to control and manage everything.

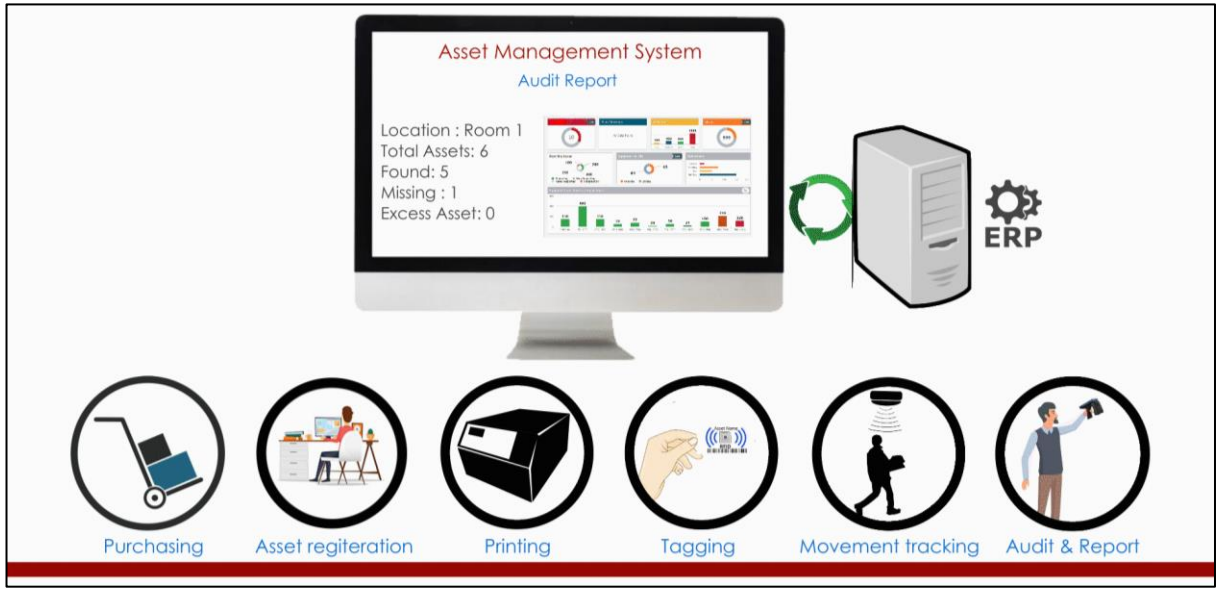
TECHNOLOGY PARTNER:

ACUBE
REDEFINING INNOVATION

BENEFITS OBSERVED

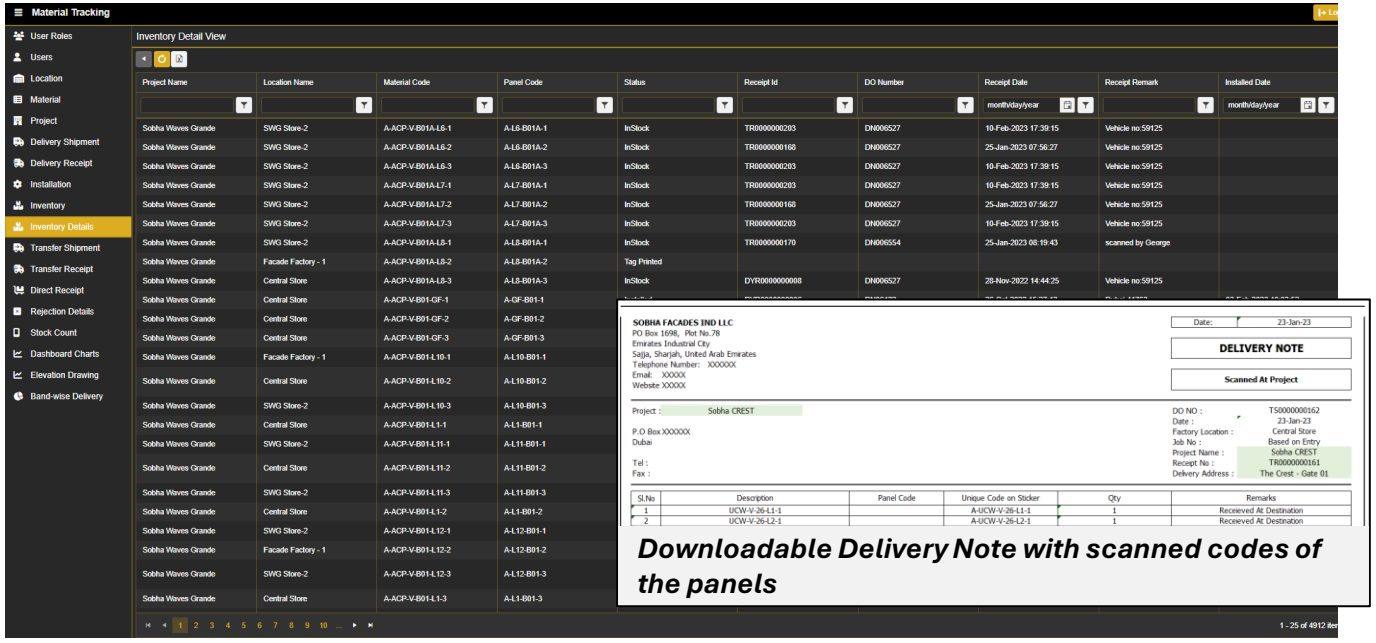
1. RFID automates GRN, inventory inward, and inventory transfer.
2. Advanced data capture technology improves visibility across logistics, provides proof of returned items' condition, and eliminates customer disputes.
3. Minimizes time consumed in manual inventory audit.
4. Improved staff productivity with reduced errors.
5. Enhanced staff allotment in every area within a warehouse.
6. Creates a safer workplace with controlled on-site accidents.

RFID SYSTEM FEATURES:



6 RFID SECURITY TAGS

- Inventory management using RFID security tags is initiated and implemented for our **façade panels**.
- RFID technology automates data collection and vastly reduces human effort and error
- These readers can read multiple RFID tags simultaneously, thereby increasing efficiency
- All RFID tags within range can be detected instantly and matched with information in database
- Assets can be tracked and located automatically and can used for managing delivery, transfer, rejection, and monthly audit purposes.



SOBHA FACADES IND LLC
PO Box 1698, Plot No.78
Emirates Industrial City
Sajja, Sharjah, United Arab Emirates
Telephone Number: XXXXXX
Email: XXXXX
Website XXXXX

Date: 23-Jan-23

DELIVERY NOTE

Scanned At Project

Project : Sobha CREST

P.O Box XXXXXX
Dubai

Tel :
Fax :

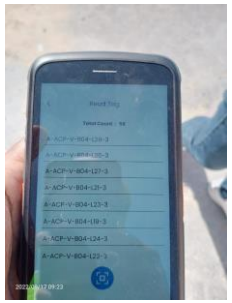
DO NO : TS0000000162
Date : 23-Jan-23
Factory Location : Central Store
Job No : Based on Entry
Project Name : Sobha CREST
Receipt No : TR0000000161
Delivery Address : The Crest - Gate 01

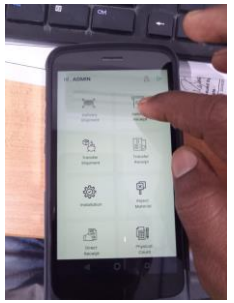
Sl.No	Description	Panel Code	Unique Code on Sticker	Qty	Remarks
1	UCW-V-26-L1-1		A-UCW-V-26-L1-1	1	Receieved At Destination
2	UCW-V-26-L2-1		A-UCW-V-26-L2-1	1	Receieved At Destination

Downloadable Delivery Note with scanned codes of the panels

The Inventory-stock gets updated in the software application upon scanning each panel during transit, delivery, installation/rejection with details of its location

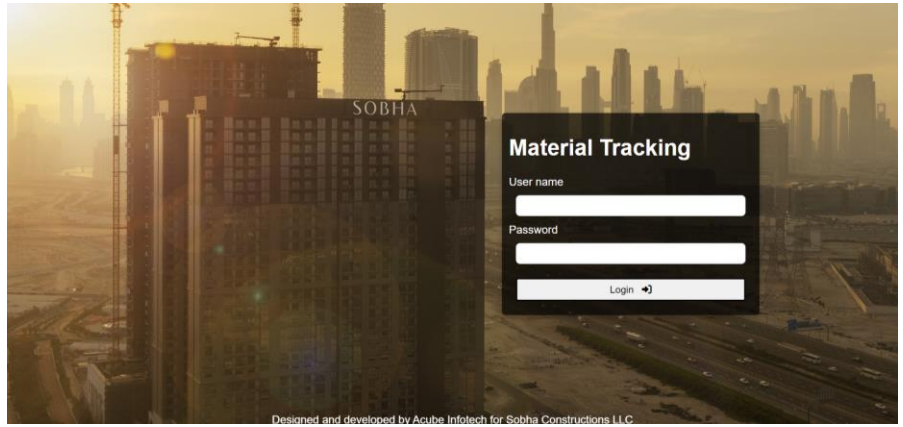
RFID Tags are embedded in the façade panels

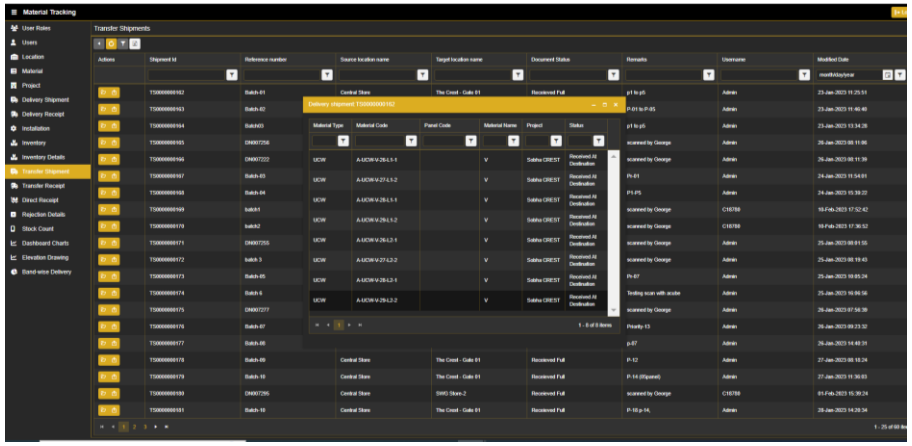




Handheld RFID enabled Scanner

6 ASSET MONITORING & ANALYTICS APPLICATION





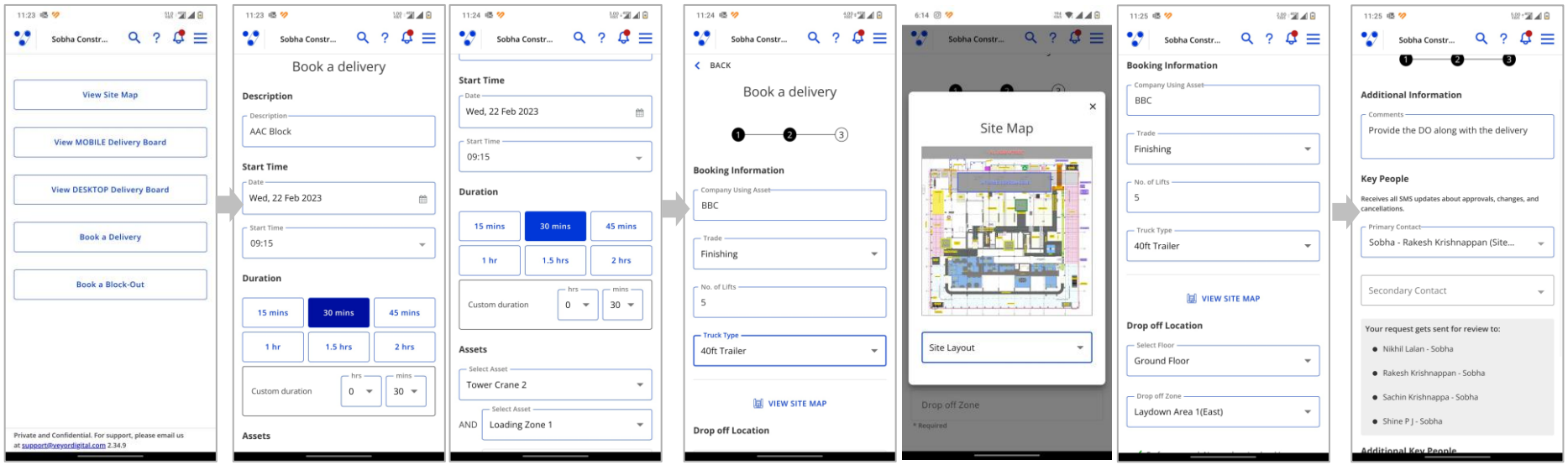
Material shipment details and live status updates

The above pictorial representation shows the building elevations sides indicating the façade panel in-transit, delivery, installation, Rejected status

Dashboard with analytics on delivery, installed and pending panels.

7 VEYOR LOGISTICS & DELIVERY MANAGEMENT

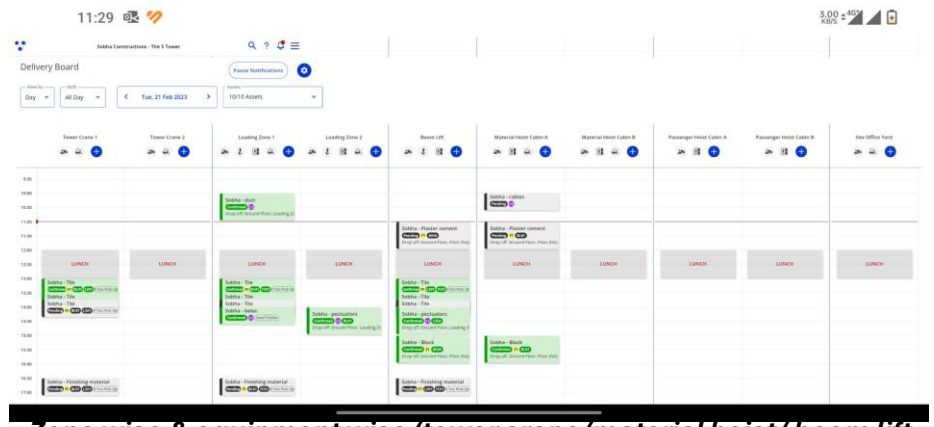
Veyor is the digital conveyor belt that helps streamline operations by connecting teams, allowing real-time collaborative scheduling, and digitizing our logistics and delivery management.



Process of booking the material delivery by the vendor.

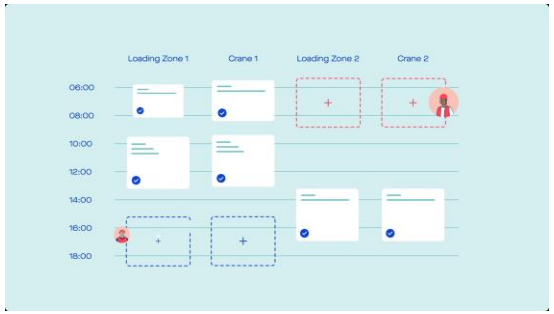
The delivery for the respective materials can be booked through the app by the subcontractors as per the available schedule (including date, time and duration). The material, truck type, no. of lifts, drop off zone etc. is also added while booking the request.
Additional feature of viewing the site map is also available for the vendor.

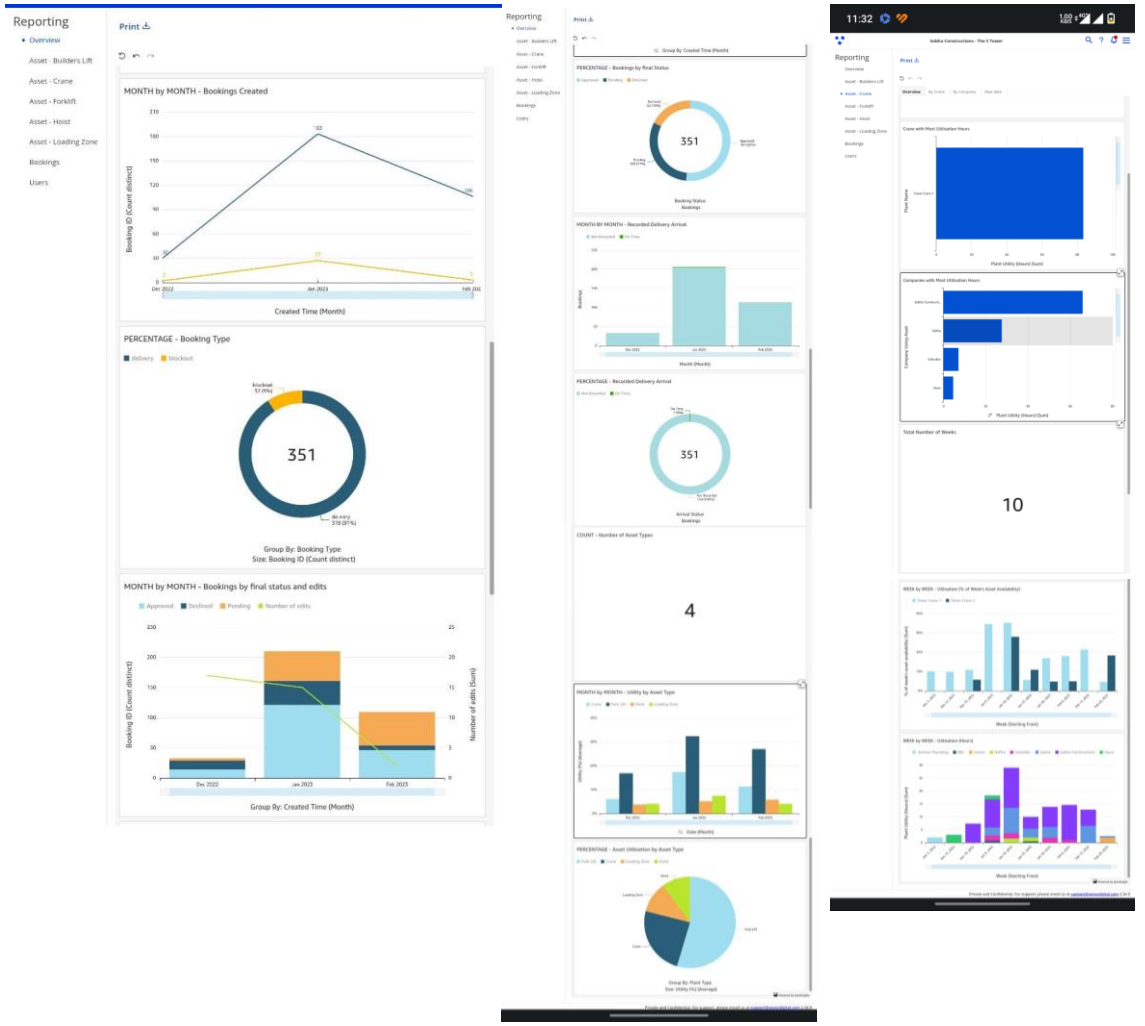
Notification then goes to our logistics coordinator for approval



Zone wise & equipment wise (tower crane/material hoist/ boom lift etc.) delivery schedule showing the bookings with details on the material

7 VEYOR LOGISTICS & DELIVERY MANAGEMENT: ANALYTICS





Overview of analytics provided to logistics and site team for data-driven decision making

8 WORK ALLOCATION MANAGEMENT SYSTEM (WAMS)

Using technology solutions for implementing the concept

WAMS *(Work Allocation Management System),* a custom-made application that provides the daily Manpower allocation, Productivity Monitoring, and shortfall analysis

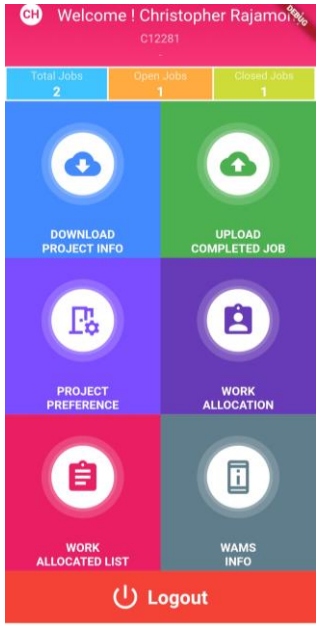
Real time project productivity tracking

Immediate trouble shooting for gaps identified in app

Activity wise, Technician wise and Project wise productivity & progress insights

CHALLENGE OBSERVED (BEFORE WAMS)

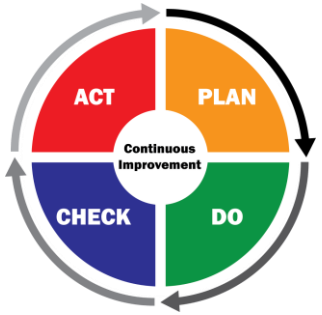
- Conventional manual daily productivity tracking of construction activities becomes cumbersome overtime when dealt with 500+ activities.
- The productivity is in turn linked with the revenue which would further require manual intervention for a company tracking its revenue and costing on a daily basis.
- Difficulty in tracking real time progress
- Difficulty in tracking the technician wise productivity data.



Idea/concept behind the application: DWM or Daily Work Management is the Japanese concept of routine management of activities across the organization for consistent result following the management tool of PDCA (Plan – Do – Check – Act)

Process steps in DWM

Role identification	Target and plan setting	Actuals update and subsequent review/analysis	Initiation of action against the gaps identified and execution with respect to the actions initiated
Clarity and demarcation of roles for each level of management	**Target** indicates the original plan for the project and **plan** indicates the plan created for the day	Level 1(Engineers) and Level 2(Management) **reviewing and analyzing the data**	**Resolution of gaps** by the engineer/Management (based on level of gaps)



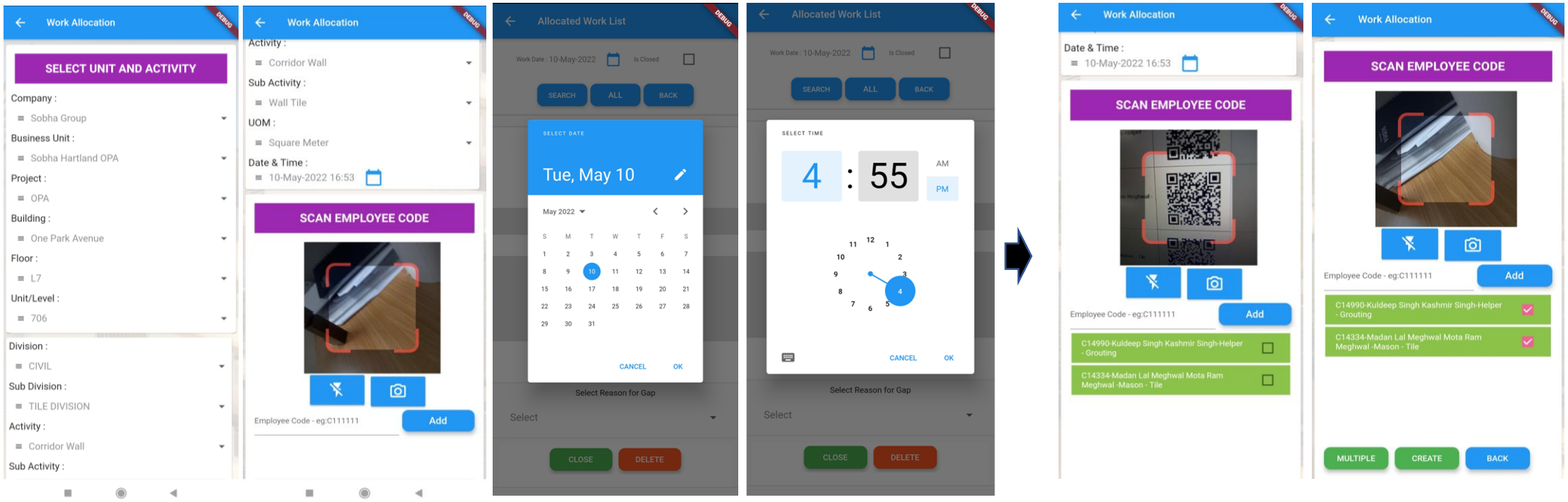
Application use and steps

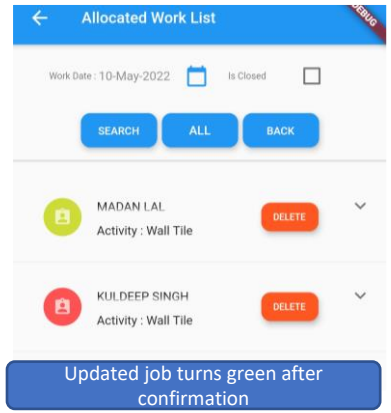
Parameter and Target Setting	Deployment of targets as per designation/role	Updating actuals by the assigned employee	Monitoring of actuals, progress and deviations by management
Foreman allocates the work under technician name in the WAMS mobile app including level, flat no, activity , sub activity & time details		Foreman enters the actuals of the completed activity.	Management analysis the data and takes improvement action where gap is observed

8.1 WORK ALLOCATION MANAGEMENT SYSTEM (WAMS)

SOBHA CONSTRUCTIONS

WORK ALLOCATION





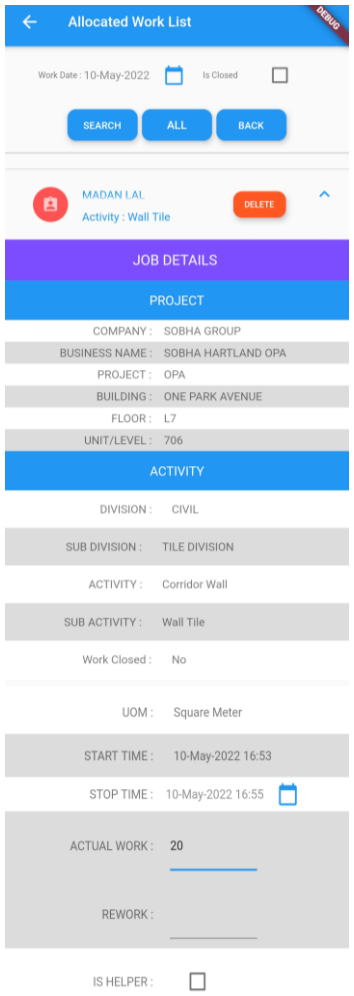
Updated job turns green after confirmation

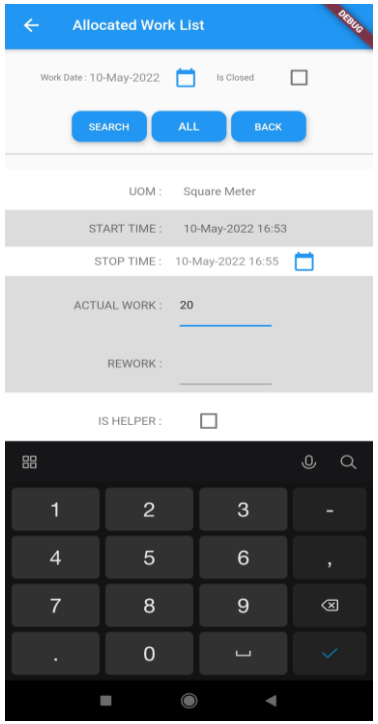
Parameter and Target Setting → Deployment of targets as per designation/role → Updating actuals by the assigned employee → Monitoring of actuals, progress and deviations by management

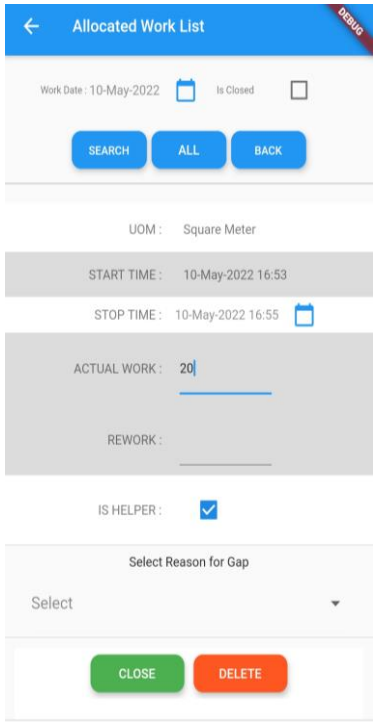
8.2 WORK ALLOCATION MANAGEMENT SYSTEM (WAMS)

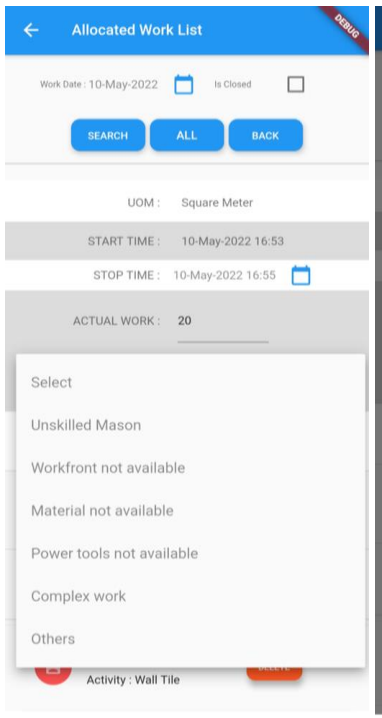
SOBHA CONSTRUCTIONS

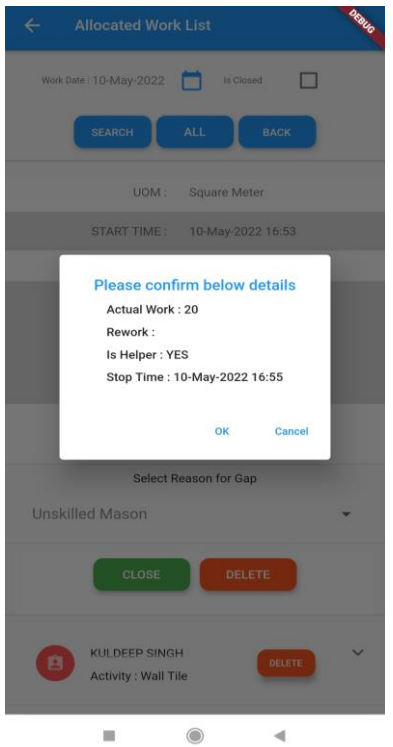
TRACKING

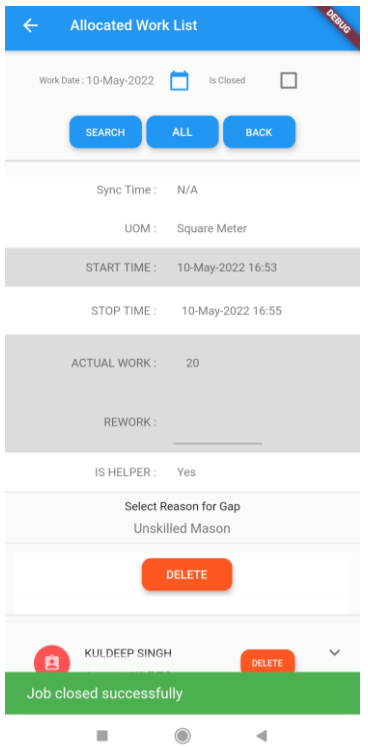












Update actuals with respect to the project, building, activity and sub activity	Identify and mention the reason for gaps (deviation from target, if any)	Confirm details and submit

9 AI IN SAFETY MANAGEMENT (INCIDENT REPORTING)

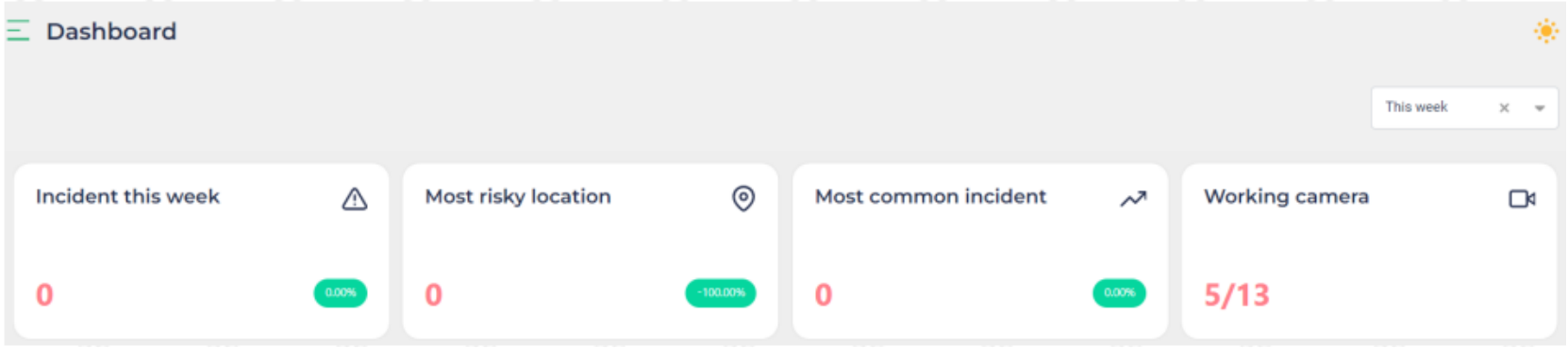
Traditional practices often fall short in addressing the complexities and evolving challenges of modern workplaces and therefore, with the changing dynamics of work environments necessitate a more **adaptive and proactive approach to safety.**

Hence **cameras integrated with AI technology** are placed in our sites for faster and precise detection of violations without the need for human intervention

Information available through the dashboard

- Number of incidents in a day, week and month.
- Most risky location
- Most common incident
- All incidents
- Summary report and Detailed report

Sample Dashboard Only



In our construction sites, safety is our top priority. Identifying safety incidents promptly is important in construction sites to prevent accidents and ensure worker well-being
Traditional methods rely on manual observation which may cause for missing out on observations or even prone to delays. Implementing an automated safety incident detection system leveraging AI and video analytics can significantly enhance safety protocols.

Access to real-time site safety alerts is crucial for us – to address issues promptly and make informed decisions. However, obtaining timely updates and insights often proves challenging, especially for geographically dispersed projects. Implementing a live-view dashboard that integrates data from various sources with a comprehensive overview of site activities is important for 100% safe site.

9 AI IN SAFETY MANAGEMENT (INCIDENT REPORTING)

PPE Compliance

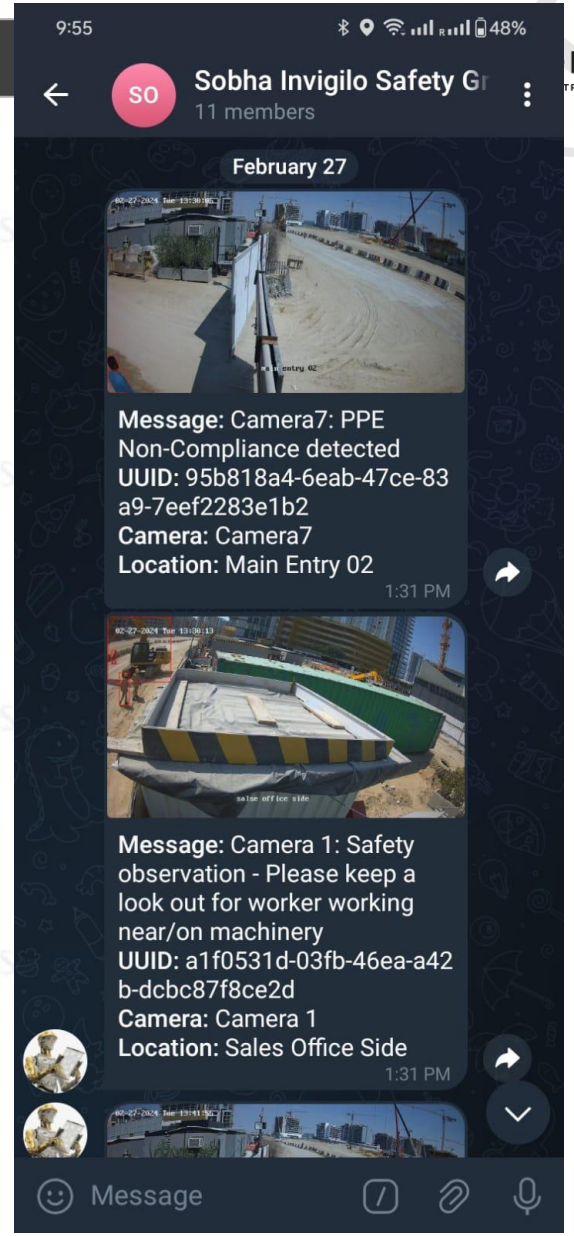
Proximity to Machine

Overcrowding

Fire Detection (Night)

Fire Detection (Day)

Smoke Detection (Day)



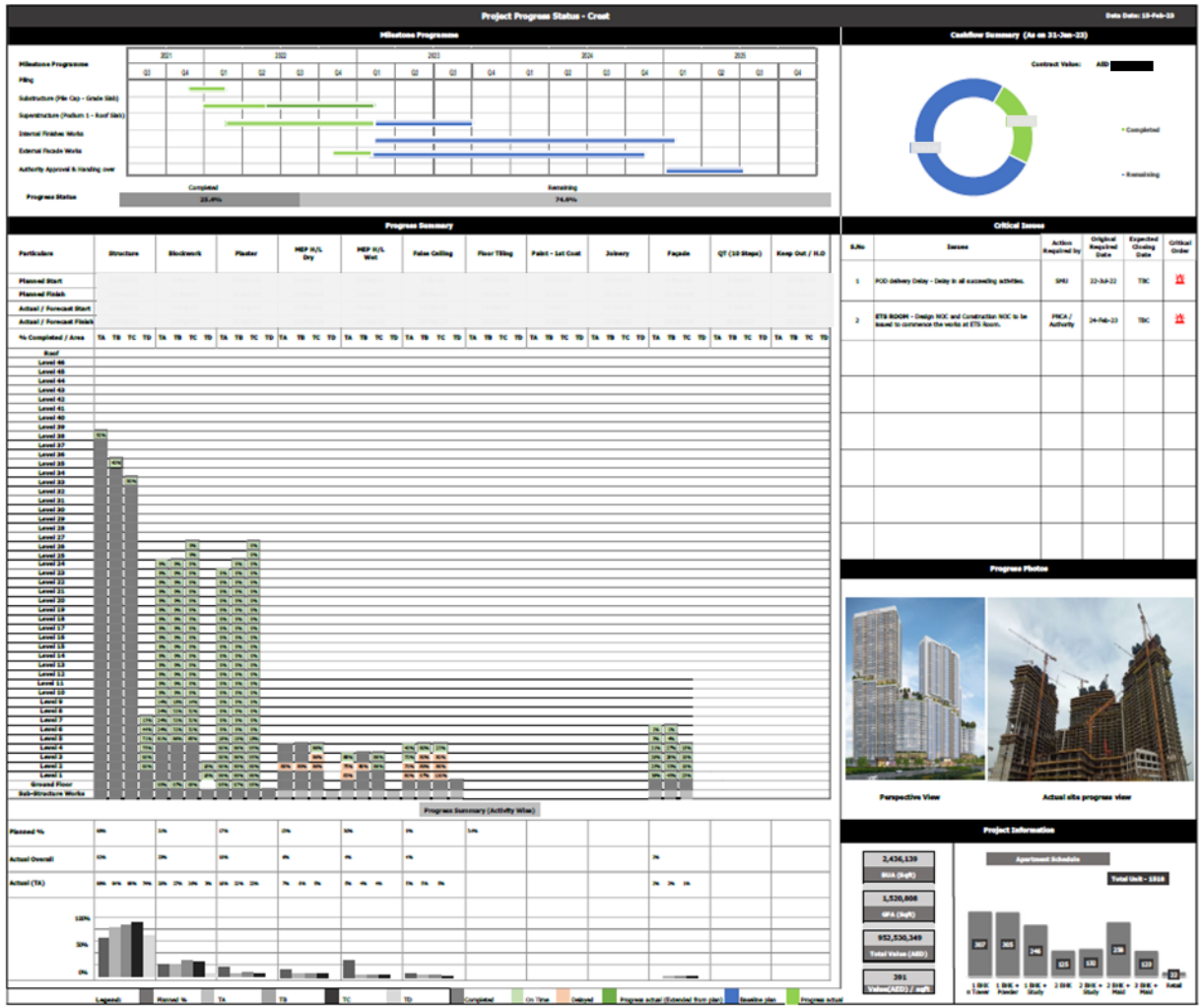
10 PROGRESS DASHBOARD

- The project progress BI dashboard is a daily updated information system which provides an overall insight to the Management and Client on the current progress of the project with respect to the baseline plan, discipline wise progress, delays, project on-site photo, revenue achieved till date, critical issues/orders and its alerts.

Progress with respect to overall progress

Discipline/Activity -wise progress

Summary



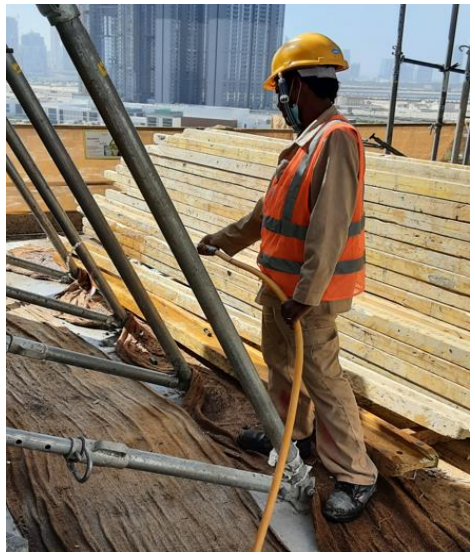
Revenue progress

Alerts/Critical issues

On site progress photo

Project information

11 ONLINE TRACKING OF MOISTURE CONTENT USING IoT SENSORS



1. Positector CMM moisture meter will be fixed inside the shear wall
2. Moisture level can be monitored on Android/IOS application and standard levels are ensured.