# "CORPORATE TECHNICAL TRAINING FOR CIVIL / STRUCTURAL ENGINEERING STUDENTS"

ECONSTRUCT
DESIGN & BUILD PVT. LTD.

DESIGN. BUILD. DELIVER.

# SERVICES

ENGINEERING CONSULTANCY

CONSTRUCTION

CORPORATE TRAININGS

ECONSTRUCT
DESIGN & BUILD PVT LTD

e-construct.in

## Sandeep Pingale

### Founder & MD
Econstruct Design & Build Pvt Ltd

81 STOREY HIGH-RISE STRUCTURE DESIGNED IN DUBAI

200+ PROJECTS DELIVERED

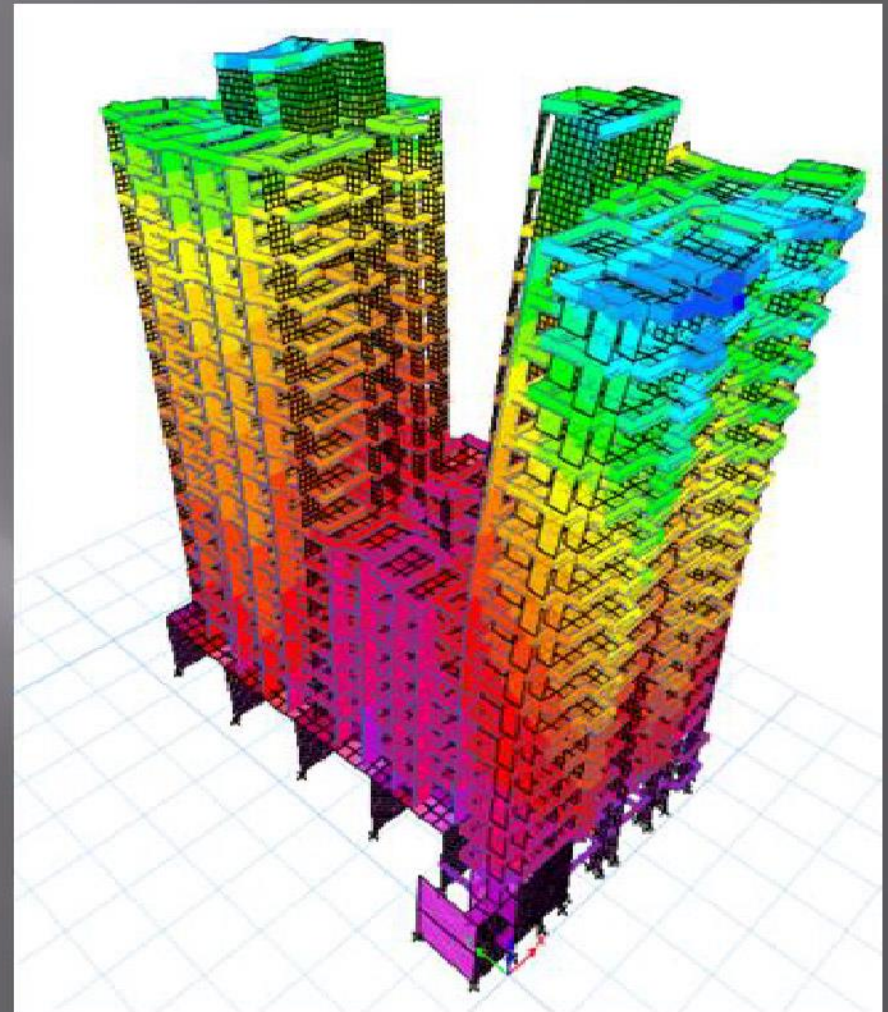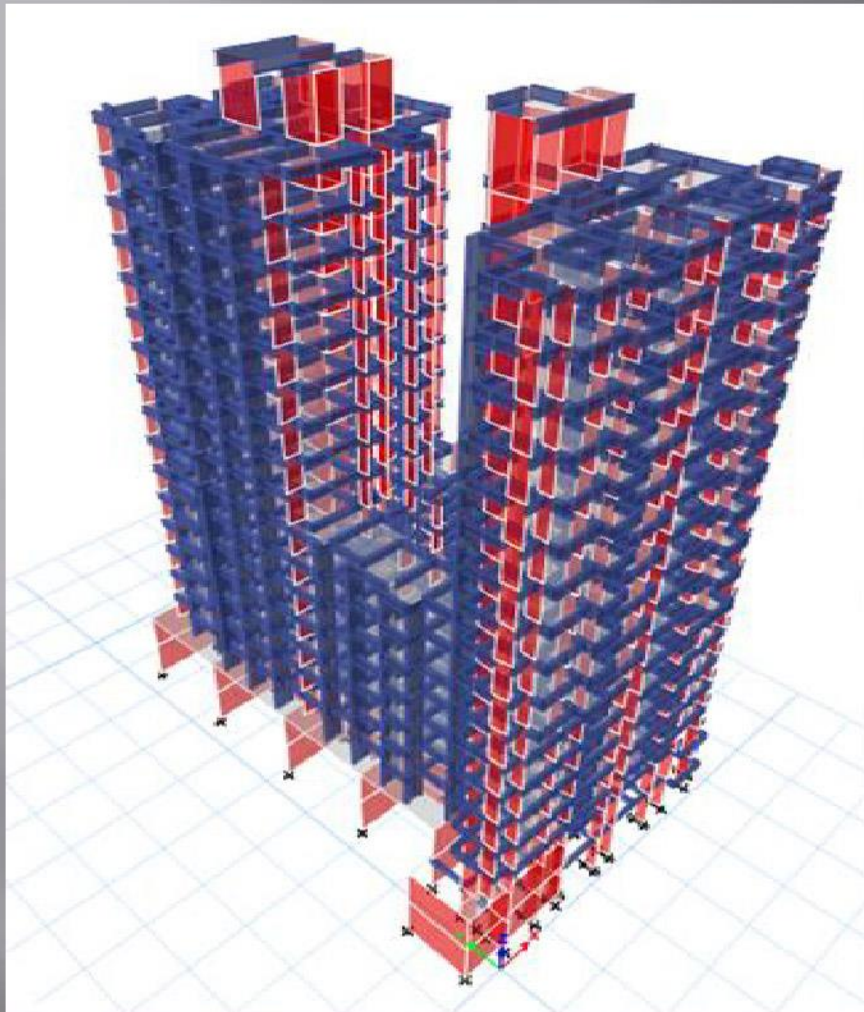700 CRORES WORTH PROJECTS DESIGNED & DELIVERED

250+ WORKSHOPS DELIVERED

**81**

**200+**

**700+**

**250+**

**PROJECT NAME : CHRIS HOSPITAL, Bengaluru**
**PLOT SIZE : 60 X 65 ft**
**PROJECT COST : Rs. 70,00,00,000 /-**
**PROJECT DESCRIPTION : Commercial, Hotel, Hospital**
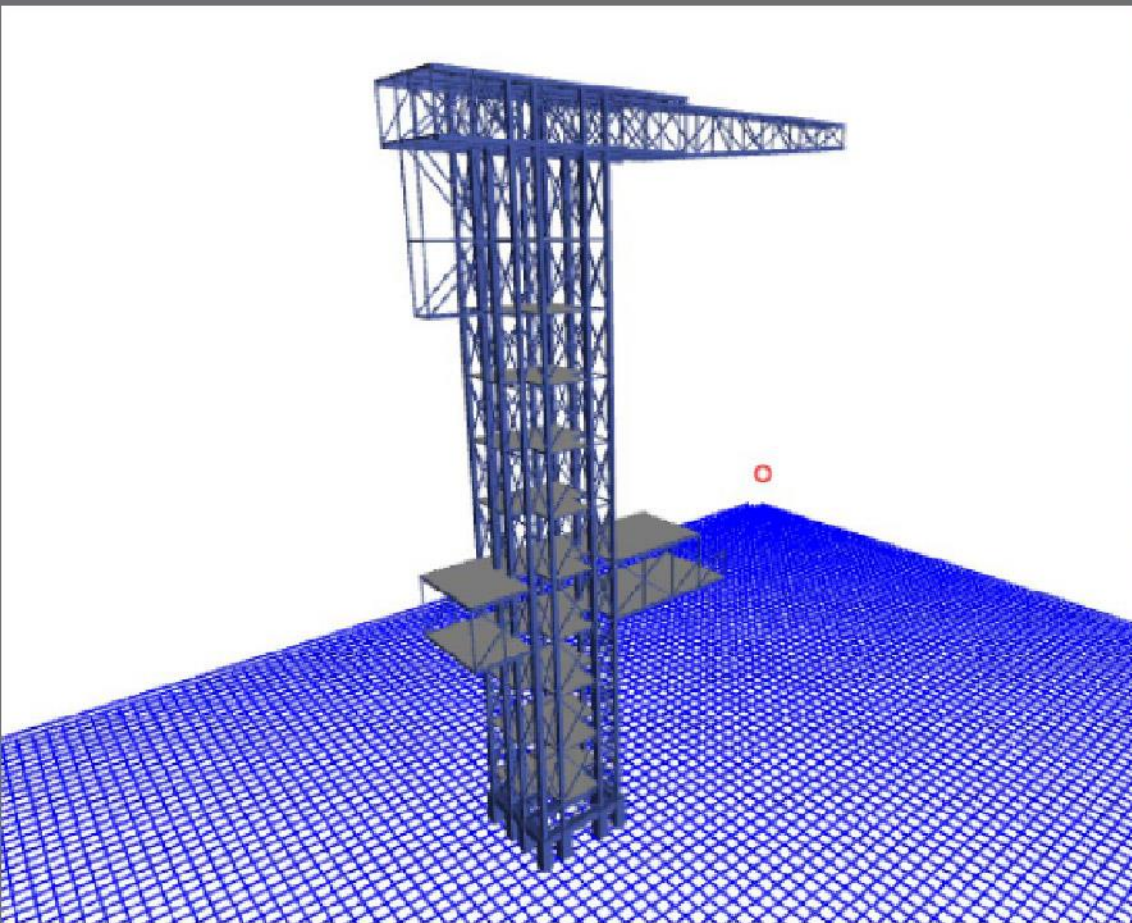
# STRUCTURAL DESIGN PROJECT



**PROJECT NAME:** KRUPA PRASAD, Mumbai

**FLOOR DESCRIPTION:** G + 21.

**PROJECT DESCRIPTION:** The structure comprises of 2B+2p+17 floors intended with the usage for car parking, residential apartments. The whole structure has been designed to withstand lateral forces.

# STRUCTURAL DESIGN PROJECT



**PROJECT NAME : BUNGEE JUMPING, GOA**

# STRUCTURAL DESIGN PROJECT



**PROJECT NAME:** DILESH BHAI , Mumbai
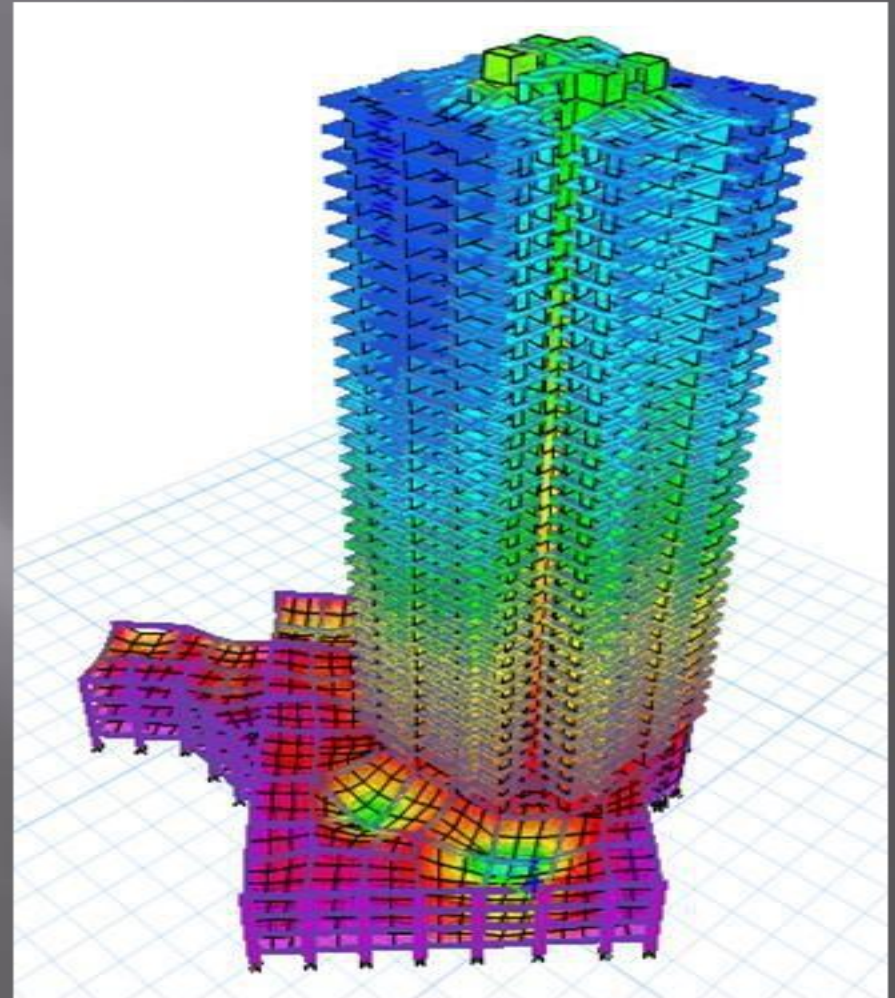**FLOOR DESCRIPTION:** G + 42
**PROJECT DESCRIPTION:** The structure comprises of 3B+3p+36 floors intended with the usage for car parking, residential apartments. The whole structure has been designed to withstand lateral forces.

# STRUCTURAL DESIGN PROJECT
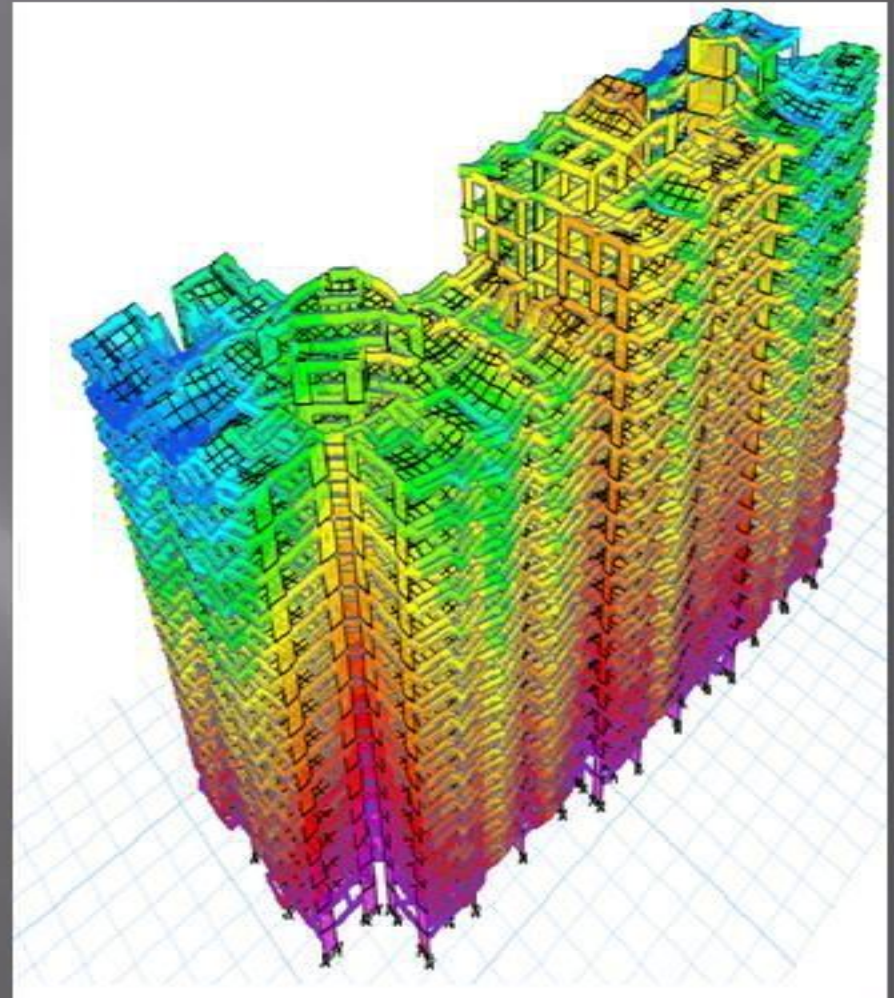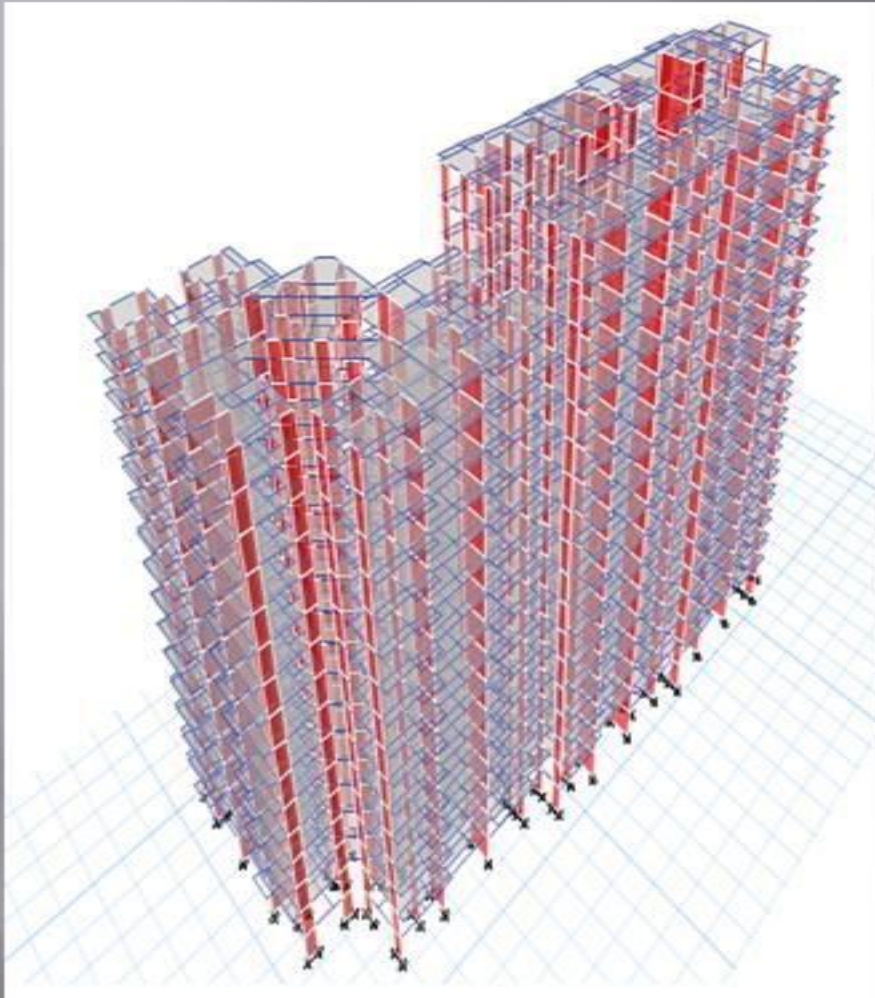


**PROJECT NAME:** KAVESAR, Mumbai.
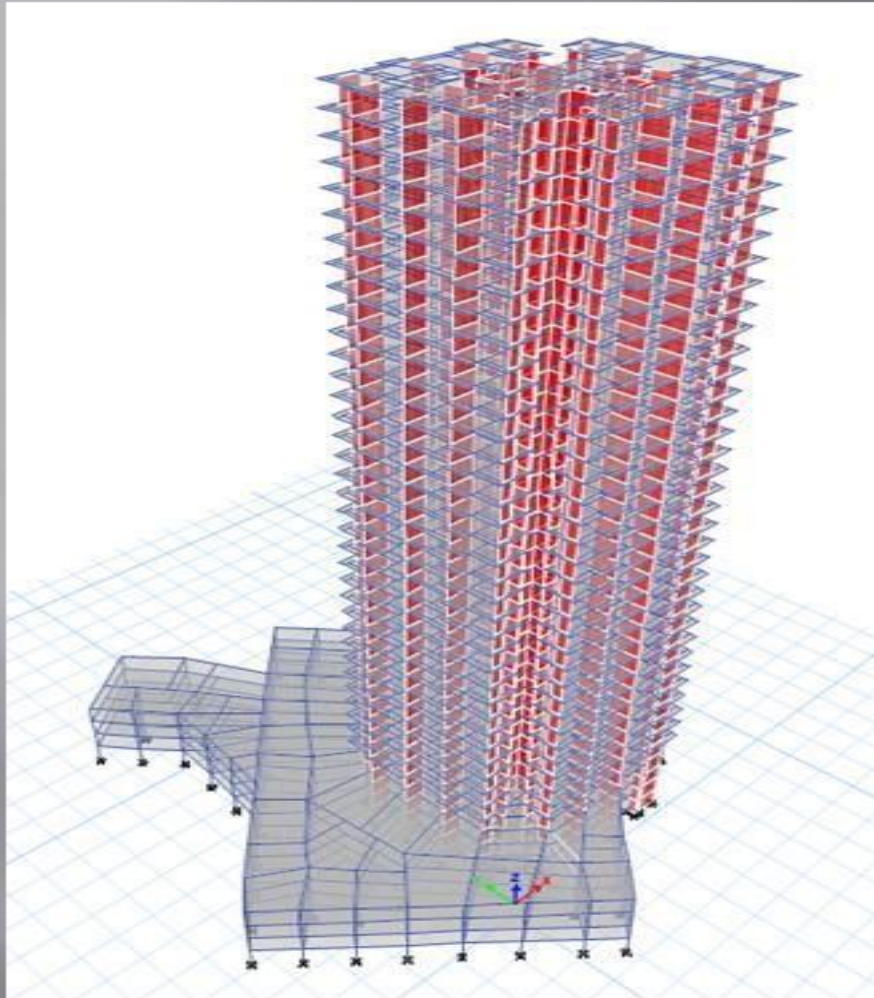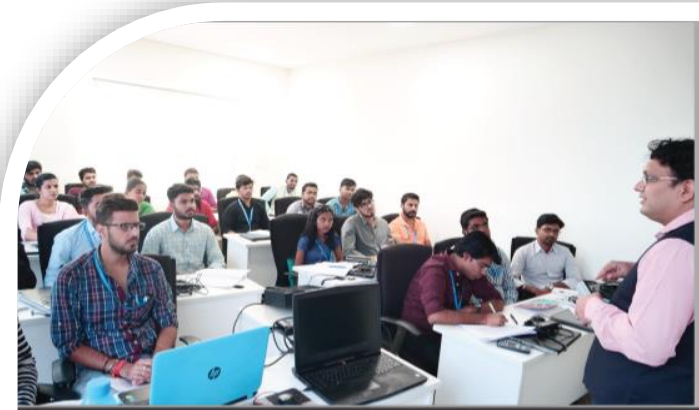**FLOOR DESCRIPTION:** G+18STORIED BUILDING.
**PROJECT DESCRIPTION:** The structure comprises of G+18 floors intended with the usage for car parking, residential apartments. The whole structure has been designed to withstand lateral forces..
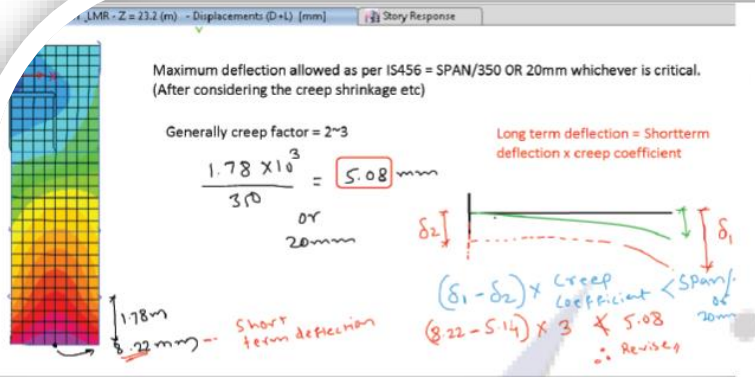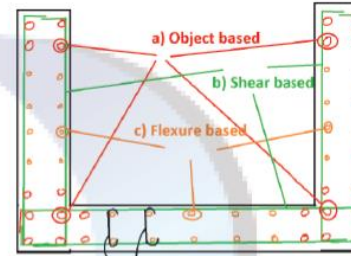
# Classroom Sessions

# Workshop at Mumbai
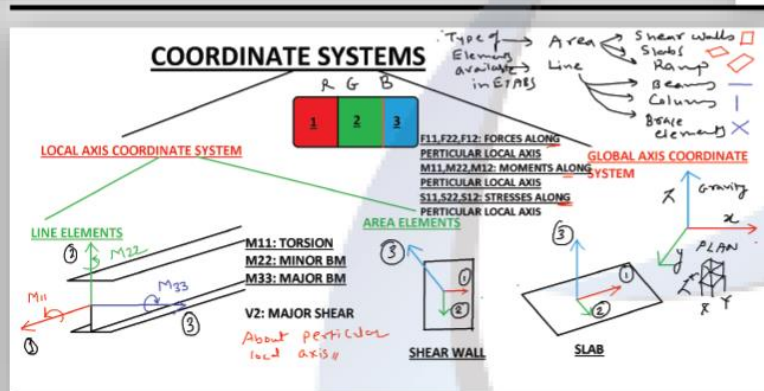
# Glimpse of Digital / White Board

## Panel 1 (Top Left)

LMR - Z = 23.2 (m) - Displacements (D+L) [mm] | Story Response

Maximum deflection allowed as per IS456 = SPAN/350 OR 20mm whichever is critical.
(After considering the creep shrinkage etc)

Generally creep factor = 2~3

Long term deflection = Shortterm deflection x creep coefficient

$$\frac{1.78 \times 10^3}{350} = 5.08 \text{ mm}$$

or

20mm

$(\delta_1 - \delta_2) \times \frac{creep}{coefficient} < SPan/ _{or} ^{350}$ 20mm

$(8.22 - 5.14) \times 3 \ngtr 5.08$

∴ Revised

1.78m
8.22mm — short term deflection

## Panel 2 (Top Right)

### U shape or any Irregular shape shear wall design Idealizations

a) Object based
b) Shear based
c) Flexure based

Higher diameter main vertical rebars (Object based Idealisation)

Lower diameter main vertical rebars (Flexure based Idealisation)

:— Horizontal shear rebar (Shear based Idealisation)

Based on IS13920 or from site requirement based

## Panel 3 (Middle Left)

### COORDINATE SYSTEMS

R G B   1 2 3

Type of Elements available in ETABS → Area → Shear walls, Slabs, Ramp
→ Line → Beams, Columns, Brace elements

**LOCAL AXIS COORDINATE SYSTEM**

F11,F22,F12: FORCES ALONG PERTICULAR LOCAL AXIS
M11,M22,M12: MOMENTS ALONG PERTICULAR LOCAL AXIS
S11,S22,S12: STRESSES ALONG PERTICULAR LOCAL AXIS

**GLOBAL AXIS COORDINATE SYSTEM**

**AREA ELEMENTS**

**LINE ELEMENTS**

M11: TORSION
M22: MINOR BM
M33: MAJOR BM

V2: MAJOR SHEAR

About perticular local axis

SHEAR WALL    SLAB    PLAN    Gravity

## Panel 4 (Middle Right)

### GRAVITY LOADS
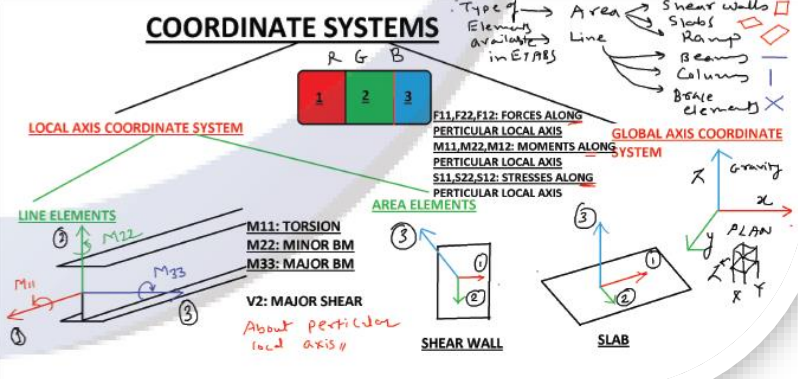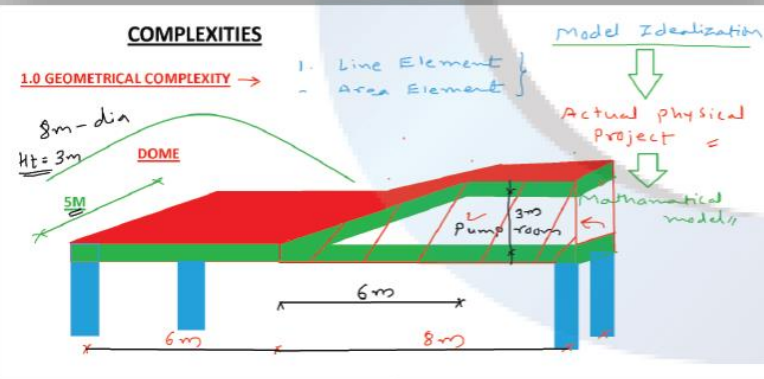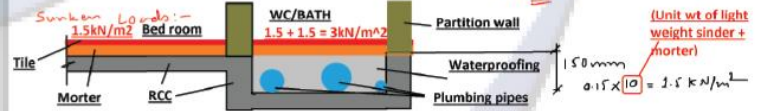
**1.0 DEAD LOAD:**

**AREA LOADS** (General)

a. SELF WEIGHT SHALL BE CALCULATED BY ETABS AUTOMATICALLY { By selfweight multiplier=1.0 in Dead load case }

b. LOAD COMMING FROM TILES AND SCREED = (Density of Tile X Thickness of Tile) + (Density of Screed (or morter) x Thickness of Morter)
This value generally varies between 1kN/m^2 to 2kN/m^2

$1.5 \text{ kN/m}^2$

**2.0 LIVE LOAD: AS PER IS 875 PART 2 FOR RESIDENTIAL BUILDINGS LIVE LOAD= 2kN/m^2**

Sunken Loads:- 1.5kN/m2 Bed room

WC/BATH 1.5 + 1.5 = 3kN/m^2

Partition wall

(Unit weight of light weight sinder + morter)

Tile    Morter    RCC    Waterproofing    Plumbing pipes

150mm

$0.15 \times 10 = 1.5 \text{ kN/m}^2$

## Panel 5 (Bottom Left)

### COMPLEXITIES

**1.0 GEOMETRICAL COMPLEXITY** →

1. Line Element
   Area Element

Model Idealization

Actual physical Project =

Mathematical model ||

8m - dia
Ht = 3m   **DOME**

5M

3m Pump room

6m

6m    8m

## Panel 6 (Bottom Right)

### COORDINATE SYSTEMS

R G B   1 2 3

Type of Elements available in ETABS → Area → Shear walls, Slabs, Ramp
→ Line → Beams, Columns, Brace elements

**LOCAL AXIS COORDINATE SYSTEM**

F11,F22,F12: FORCES ALONG PERTICULAR LOCAL AXIS
M11,M22,M12: MOMENTS ALONG PERTICULAR LOCAL AXIS
S11,S22,S12: STRESSES ALONG PERTICULAR LOCAL AXIS

**GLOBAL AXIS COORDINATE SYSTEM**

**AREA ELEMENTS**

**LINE ELEMENTS**

M11: TORSION
M22: MINOR BM
M33: MAJOR BM

V2: MAJOR SHEAR

About perticular local axis

SHEAR WALL    SLAB    PLAN    Gravity

# OPPOURTUNITIES AVAILABLE FOR CIVIL / STRUCTURAL ENGINEER

econstruct.in

BIM SPECIALIST

SITE / PROJECT MANAGER

STRUCTURAL DESIGN ENGINEER

TENDERING & ESTIMATION ENGINEER

# JOB POSITION V/S EXPECTED CORPORATE SKILLSET

**JOB POSITION**

**Skill set**

## Draftsman / BIM Manager

**Skill set**

CAD Software
REVIT
ARCHICAD

## Structural Design Engineer

**Skill set**

ETABS
SAFE
SAP2000
RCDC
PROKON
CSI BRIDGE

## Project Manager

**Skill set**

MSP
SOLIBRI
NAVISWORKS
Sophisticated
Excel Sheets

## Tendering and Estimation Engineer

**Skill set**

Rate Analysis
QE Pro
Tender Bid Skills
MS Office

onstruct.in

# HOW TO GET CORE TECHINICAL JOBS

e-construct.in

**05** MAKE A PRESENTATION VISUAL/ VIDEO RESUME/ PORTFOLIO.

**04** LEARN TECHNICAL REPORTING/ PRESENTATION SKILLS/ IMPROVE BUSINESS WRITING/ SPEAKING SKILLS.

**03** ACQUIRE TECHNICAL SKILLS AS PER INDUSTRY STANDARD ON PROJECT BASED LEARNING PATTERN THROUGH ON JOB INTERNSHIPS/ WORKSHOPS ETC.

**02** DO MARKET RESEARCH ON JOB POSITIONS v/s SKILLSETS.

**01** KNOW THE OPPORTUNITIES AVAILABLE IN THE MARKET. IDENTIFY YOUR AREA OF INTEREST.

# AGENDA FOR TIE UP BETWEEN
# ACADEMICS & CORPORATE TRAININGS

econstruct.in

## 01

Bridging the gap between
Academics & Company Expectations.
Strive for Skills.

## 03

Making the best use of Semester
Breaks for Technical Trainings.
Special attention to drop
out students.

## 05

Teach the technique, not just software.
Each student must know set of softwar
corresponding to the Job positions cho

## 02

Make sure that Final year projects
are Live Projects & not dummy project
Encourage Patents & research &
Inter-Disciplinary projects.

## 04

Technical interview cracking sessions on each softw
Learnt during our corporate training.
Special Guidance for Personal Portfolio creation.
Encouraging Entreprenuership among students.

# WHY CHOOSE US FOR TRAINING ?

**01** Learn from Industry Experts

**03** Learn Technical Presentation & Reporting Skills

**05** Project Based Learning/ Varied Variety of Projects

**02** Mock Technical Interview Sessions

**04** Acquiring Tech Skillsets as per Industry Requirements

# Fast Track Project based Training Program

## Combination of Classroom + Online Training on

**Structures Softwares** (1)

1. **ETABS** (3 Day)
2. **SAFE** (2 Day)

**BIM Softwares** (2)

3. **AutoCAD** (2 Day)
4. **Revit** (3 Day)

**Classroom Training** (3)

**Classroom Training** = 4 Workshops
= 88 hrs

**Online Training** (4)

**Online Training** = 16 hrs for 1 month

e-construct.in

# OTHER SERVICES

## 01. Structures

### Software Knowledge
ETABS Basic
ETABS Advance
SAP2000
SAFE
CSI Bridge
Prokon
RCDC

### Code Based Knowledge

**Indian Codes**
IS-456-2000
IS-800
IS-1893 2016
IS-13920
IS-16700

**International Codes**
BS 8110
ACI 318
CEBFIP 2010
UBC 97

### Structural Engineering Fundamentals
- FEM Concepts
- Linear & Non-Linear analysis
- PBD - (Performance Based Design)
- Static & Dynamic linear & non-linear analysis.

### Corporate Work Experience
- Working on Industry Live Projects
- RCC Structures
- Flat Slabs
- Steel Structures
- Composite Structures
- Case studies upto 100 storey buildings

## 02. Project Management & BIM Specialist

### Software Knowledge
AutoCAD
ArchiCAD
Revit
NavisWorks
Spreadsheets
MSP

### BIM Concepts
2D - Plans, Elevations & Sections
3D - Perspective View
4D - Time Model
5D - Cost Model
6D - Energy Model
7D - Hospitality/ Maintenance Model/RERA compliance
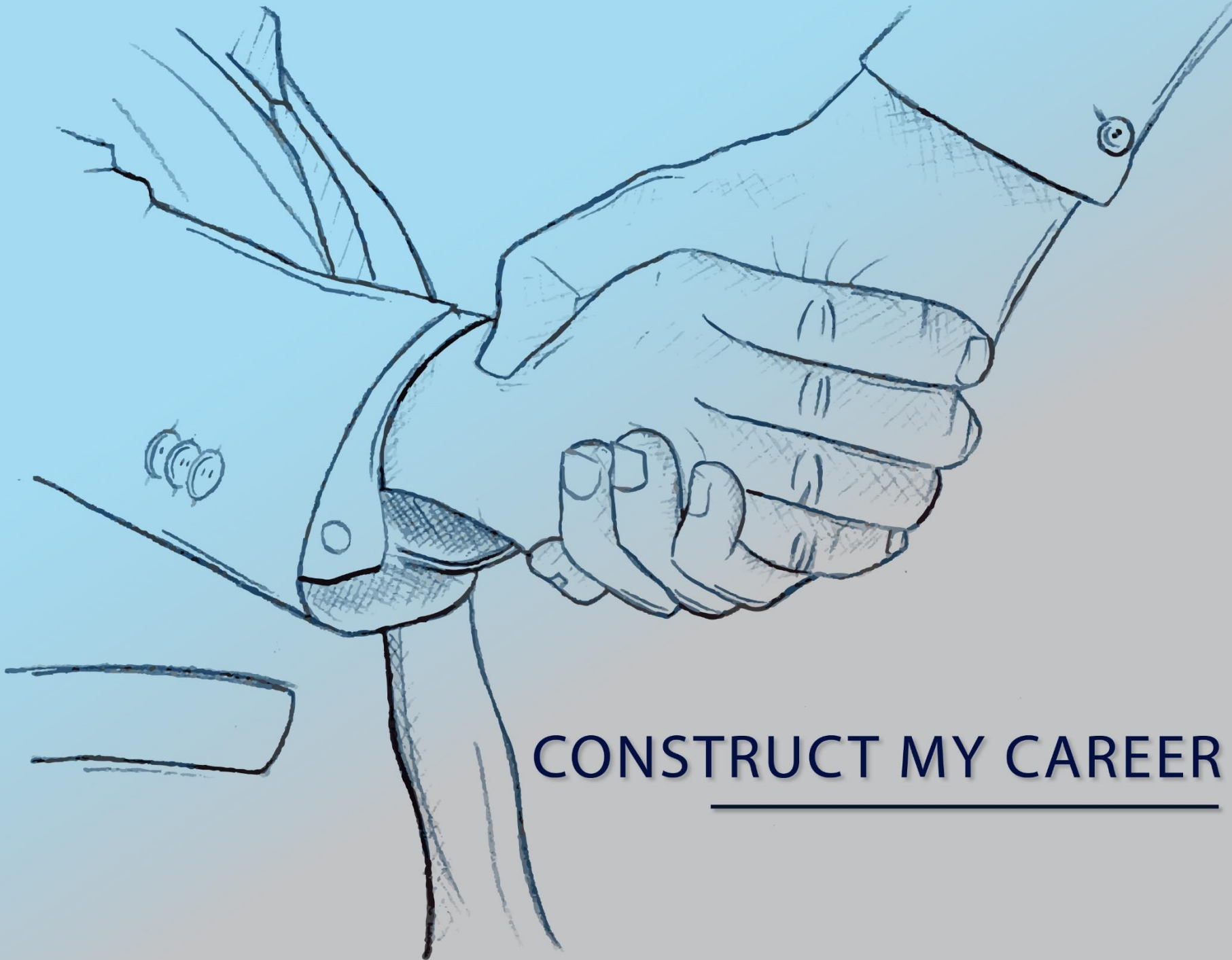
### Project Management Concepts & Fundamentals
- Bar Charts
- Critical Path methods
- Scheduling
- Monitoring
- Investment v/s Rate of Returns Ratio (IRR)
- Profitability v/s Investment Charts

### Live Project Corporate Work Experience
- Small Villas
- Highrise Buildings
- Industrial Building
- Cluster Project

*Thank you*

CONSTRUCT MY CAREER