

MEMORANDUM OF UNDERSTANDING (M.O.U) FOR FAST TRACK TRAINING PROGRAM

This Memorandum of Understanding entered on 31st March 2019 between **College name and address**, which expression shall unless repugnant to the contest means and include its successors and assigns of the ONE PART.

AND

ECONSTRUCT DESIGN & BUILD PVT. LTD.(EDBPL) Bangalore, having its office at Venkatdhari Heights, 2nd Floor, Parappana Agrahara Main Road, Bangalore -560068 which expression shall unless repugnant to the contest means and include its successors and assigns of the OTHER PART.

WHERE AS

EDBPL and College have decided to tie up to execute a training program for Civil Engineering students.

- 1.1. This MOU shall be effective from _____.
- 1.2. EDBPL has assigned Shraddha Pingale - Jt. Managing Director as a main focal point of contact and College has identified Mr.Mrs. _____ (Dept of Civil Engineering) for all communications going forward.

RESPONSIBILITIES OF EDBPL

1. EDBPL shall provide industry experienced trainer for providing such value-added courses in the campus for carrying out the classroom training.
2. EDBPL shall also provide online training or doubt clearing sessions after the classroom training is over as a complimentary training support (handholding support after classroom training)
3. EDBPL shall provide the relevant material to the students required for better understanding of the software / project execution etc.
4. EDBPL shall give all the relevant certificate to all the students who participate in this training program after successful completion of training.
5. EDBPL shall provide the best possible knowledge and skill sets available in the industry along with project-based learning experience.
6. EDBPL shall bear their own travel expenses.

RESPONSIBILITIES OF COLLEGE

1. College will provide all the necessary facilities at the college campus to EDBPL, so that they are able to execute the aforesaid services in efficient manner.
2. Classroom / Auditorium or seminar hall for the students with mic & speaker, white board and projector facility.
3. Infrastructure & Admin support for conducting such courses in the most efficient manner. WIFI if needed.
4. Accommodation for 3 people. (Two guest rooms) within the campus or nearby to the campus.
5. Visa for 3 Trainers to be provided by the college. (For international colleges)

Training program will contain 4 Modules:

Module 1: ETABS offers 3D object-based modelling and visualization tools, fast linear and nonlinear analytical power, comprehensive design capabilities and insightful graphic displays, reports, and schematic drawings that allow users to quickly and easily decipher and understand analysis and design results.

Module 2: SAFE is tool used for designing concrete floor and foundation systems. From framing layout all the way through to detail drawing production, SAFE integrates every aspect of the engineering design process in one easy and intuitive environment.

Module 3: AutoCAD is a 2-D and 3-D computer-aided drafting software application used in architecture, construction, and manufacturing to assist in the preparation of blueprints and other engineering plans.

Module 4: Autodesk Revit Architecture is a Building Information Modelling software for architects, landscape architects, designers and contractors.

The software allows users to design a building and structure and its components in 3D, annotate the model with 2D drafting elements, and access building information from the building model's database.

Type of Projects covered:

- 1). Residential
- 2). Commercial,
- 3). Industrial and
- 4). Infrastructure

Software's Covered in Classroom Training in the form of Workshop

- 1). ETABS – 3 Day workshop = 24 hrs.
- 2). SAFE – 2 Day workshop = 16 hrs.
- 3). AutoCAD – 2 Day workshop = 24 hrs.
- 4). REVIT – 3 Day workshop = 16 hrs.

Detailed syllabus of all the 4 software is attached to this document.

Complimentary Online training support after the classroom training (Dates and time can be mutually decided after classroom training is over)

- 1). ETABS – 4 hrs.
- 2). SAFE – 4 hrs.
- 3). AutoCAD – 4 hrs.
- 4). REVIT – 4 hrs.

Fees structure:

- 1). There is no restriction on number of students who can attend the training and the fees is charged on Lumpsum basis all inclusive.
- 2). Dates for classroom training @ campus and Complimentary Online support trainings will be decided mutually based on academic calendar of the college in advance by both the parties.
- 3). EDBPL would charge a lumpsum amount of Rs 6,00,000 + 18 % GST for the whole training (classroom + online + certification)
- 4). College shall pay 50 % fees upon signing and accepting of this mou
- 5). Remaining fees shall be paid immediately after the Classroom training is over.

ACCOUNT DETAILS: -

BANK NAME	HDFC BANK
BANK ACCOUNT NUMBER	50200000209630
BANK ACCOUNT HOLDER NAME	ECONSTRUCT DESIGN AND BUILD PVT LTD
IFSC CODE	HDFC0000885
BRANCH NAME	BTM LAYOUT, BANGALORE, KARNATAKA

In witness where of the parties have signed this MOU on dated _____ Place - Bangalore.

HOD

Principal

For Econstruct Design & Build Pvt Ltd

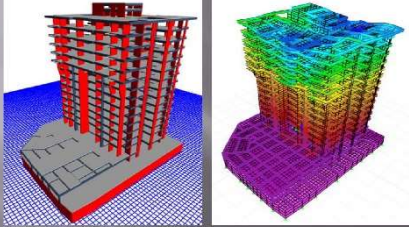
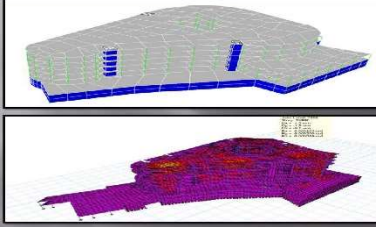
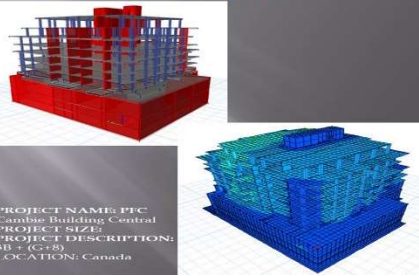
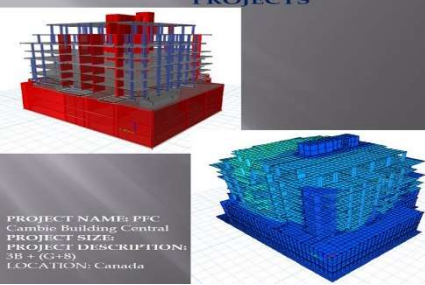
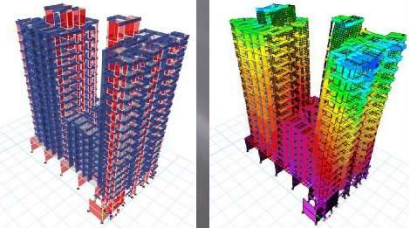
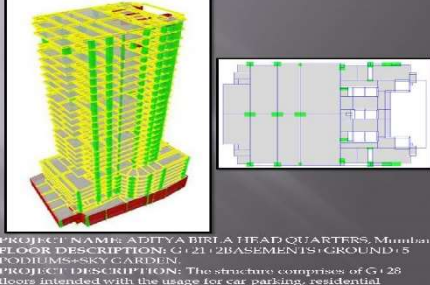
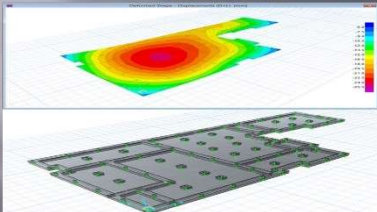
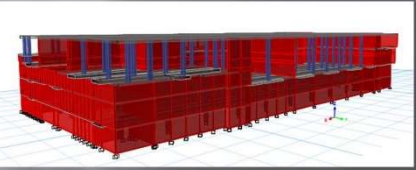
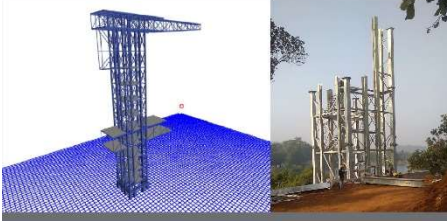
Shraddha Sandeep Pingale

Sandeep D Pingale

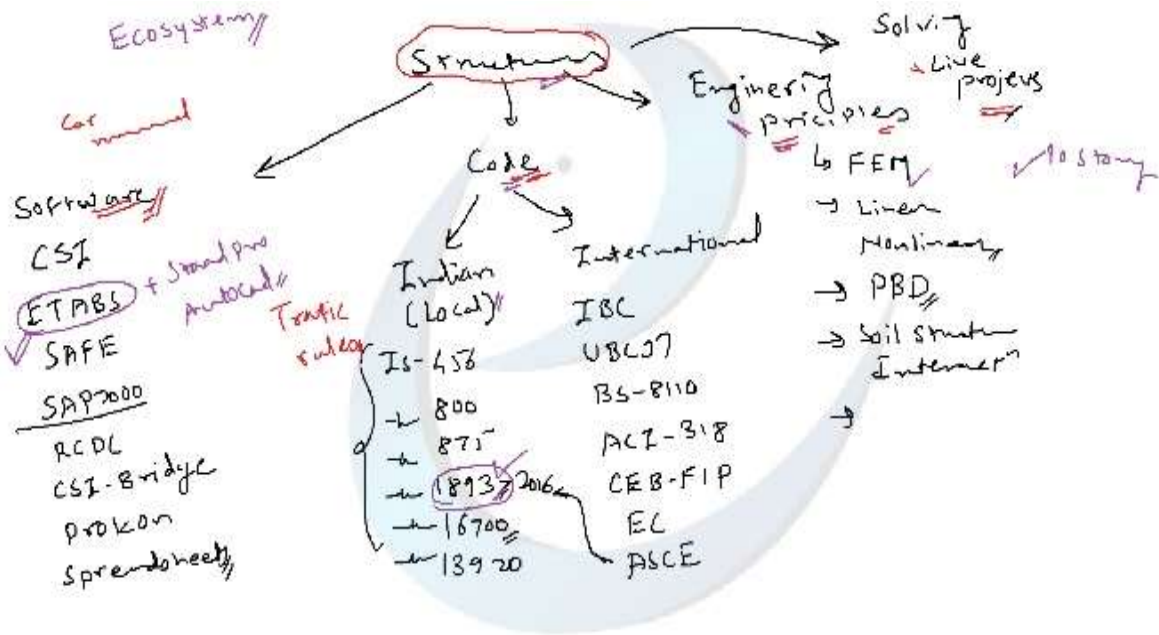
Jt..Managing Director

Founder & M.D

PROJECTS : STRUCTURES

<p>STRUCTURAL DESIGN PROJECT</p>  <p>PROJECT NAME: Konesoema, Mumbai PROJECT SIZE: 77,010 Sqft or 7,157 Sqm. PROJECT CODE: 26, 9, 24, 12,007/ PROJECT DESCRIPTION: The structure comprises of Ground floor + 18 floors with the provision for car parking at basement and podium levels.</p>	<p>STRUCTURAL DESIGN PROJECT</p>  <p>PROJECT NAME: RELIANCE, MANGALORE. PROJECT DESCRIPTION: RELIANCE MALL.</p>	<p>ON GOING INTERNATIONAL PROJECTS</p>  <p>PROJECT NAME: PFC Cambie Building, Central PROJECT SIZE: PROJECT DESCRIPTION: 3B + (G+8) LOCATION: Canada</p>
<p>ON GOING INTERNATIONAL PROJECTS</p>  <p>PROJECT NAME: PFC Cambie Building, Central PROJECT SIZE: PROJECT DESCRIPTION: 3B + (G+8) LOCATION: Canada</p>	<p>STRUCTURAL DESIGN PROJECT</p>  <p>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.</p>	<p>STRUCTURAL DESIGN PROJECT</p>  <p>PROJECT NAME: ADITYA BIRLA HEAD QUARTERS, Mumbai FLOOR DESCRIPTION: G + 21 (2BASEMENTS+GROUND) + 5 POBIUMS+SKY GARDEN. PROJECT DESCRIPTION: The structure comprises of G+ 28 floors intended with the usage for car parking, residential apartments. The whole structure has been designed to withstand lateral forces.</p>
<p>ON GOING INTERNATIONAL PROJECTS</p>  <p>PROJECT NAME: Grandville Avenue Richmond PROJECT SIZE: PROJECT DESCRIPTION: G+2 Wooden Frame LOCATION: Canada</p>	<p>ON GOING INTERNATIONAL PROJECTS</p>  <p>PROJECT NAME: Ortho PROJECT SIZE: PROJECT DESCRIPTION: 2B+MEZZANINE+(G+5) LOCATION: Canada</p>	<p>STRUCTURAL DESIGN PROJECT</p>  <p>PROJECT NAME : BUNGEE JUMPING, GOA</p>

GLIMPSE OF TRAINING / WHITEBOARD



Plan View - OHT_LMR - Z = 23.2 (m) - Displacements (D+L) [mm] Story Response



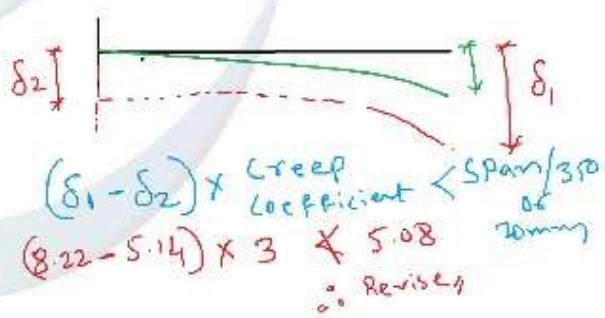
Maximum deflection allowed as per IS456 = SPAN/350 OR 20mm whichever is critical.
(After considering the creep shrinkage etc)

Generally creep factor = 2~3

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

or 20mm

Long term deflection = Shortterm deflection x creep coefficient



P-DELTA ANALYSIS

1.0 P-Delta analysis is geometric non-linear second order analysis

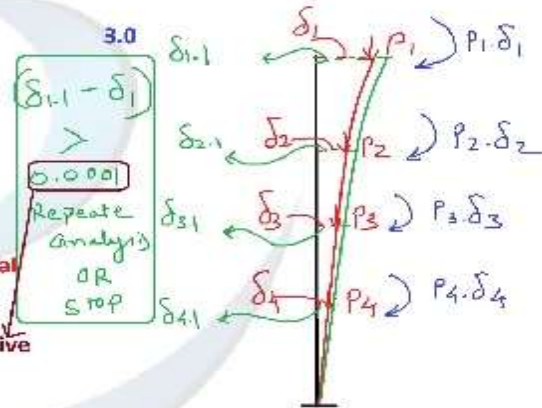
2.0 All P-Delta Options



1.5 D
Or
1.2 D + 1.2 L

Whichever is critical

Tolerance for iterative analysis.



4.0 P-Delta analysis is getting used in various other types of analysis also. Like for e.g. Buckling analysis, Construction sequence analysis, Pushover analysis etc.

WIND LOAD COEFFICIENT CALCULATION:

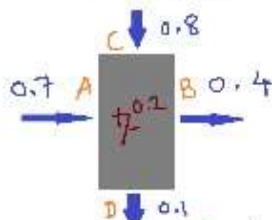
$h = 23.2 - 2.9 \sim 20\text{m}$

$h/w = 1.57$

$w = 12.7\text{m}$

$l/w = 1.74$

$l = 22.16\text{m}$



± 0.2 Internal pressure coefficient need be considered for glass facade bldgs.

θ indicates the angle of the force acting on it.

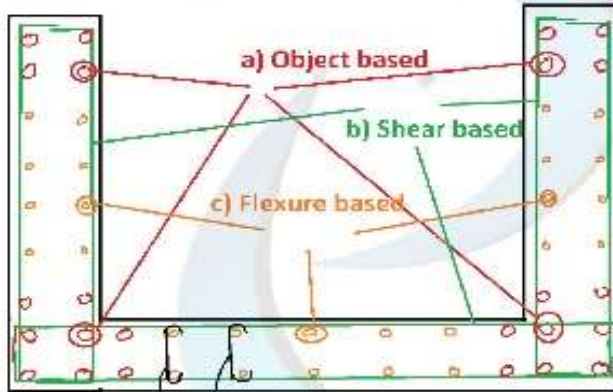
+ sign indicates that the force is acting towards the body




- sign indicates force acting away from body

	A	B	C	D	
0	+0.7	-0.1	-0.7	-0.7	} -1.2
90	-0.5	-0.5	+0.8	-0.1	

(Continued)

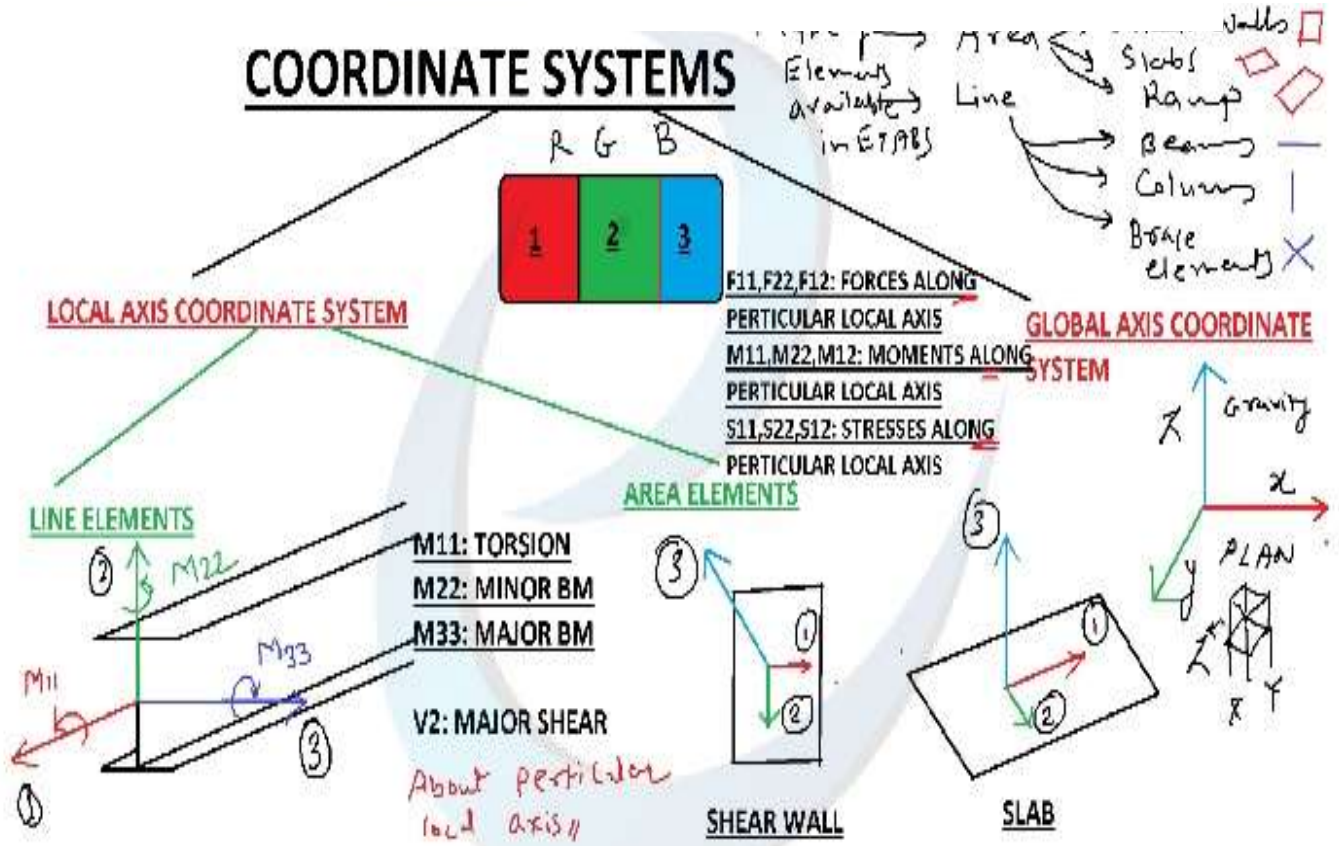
U shape or any Irregular shape shear wall design Idealizations



-  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

COORDINATE SYSTEMS



EARTHQUAKE ENGINEERING AS PER IS 1893-2016 & 2002

Static Base shear
 $V_B = Ah \cdot W$

$Ah = Z / 2 \times I / R \times Sa/g$

$Z =$ Zone factor
 $I =$ Importance factor
 $R =$ Ductility Or Response Reduction Factor

$Sa/g =$ Spectral Acceleration with respect to Acceleration

$W =$ Seismic weight of the building
 $Ah =$ Horizontal acceleration Coefficient

0.1	0.16	0.24	0.36	Zone factors
II	III	IV	V	zones

1.0	1.2	1.5
General low-rise	Population 200	Special Build-up

3	4/4.5	5
OMRF	IMRF	SMRF

$T = 0.09h / \text{Sqrt}(d)$
↳ Infill wall panels

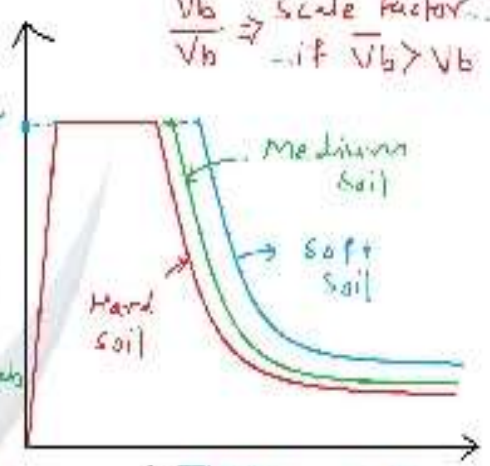
$T = 0.075 h^{0.75}$
↳ Infill wall panels

$T = 0.08 h^{0.75}$ → Composite Structures

$T = 0.085 h^{0.75}$ → Steel Structures

$T = 0.1 N$ → T=Tabls

$V_b =$ Dynamic Base Shear
 $\frac{\bar{V}_b}{V_b} \Rightarrow$ scale factor...
 ...if $\bar{V}_b > V_b$



Time period (s) →

Hard Soil, Medium Soil, Soft Soil

For chng Deflections & drifts

1.0D + 0.75L --- if LL ≤ 3 kN/m²

1.0D + 0.5L --- if LL > 3 kN/m²

1.0 EXPOSURE FROM THE EXTENT OF DIAPHRAGM } & analysed as per static

2.0 EXPOSURE FROM THE SHELL OBJECTS }

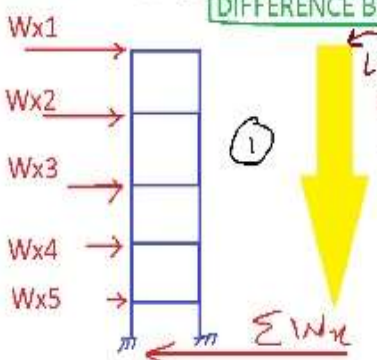
3.0 GUST FACTOR CALCULATION. (CHAPTER 7 OF IS875 PART 3) calculated as per dynamic & analysed as per static

4.0 WIND TUNNEL ANALYSIS

Wind Dynamic analysis

DIFFERENCE BETWEEN WIND LOADS AND EARTHQUAKE LOADS

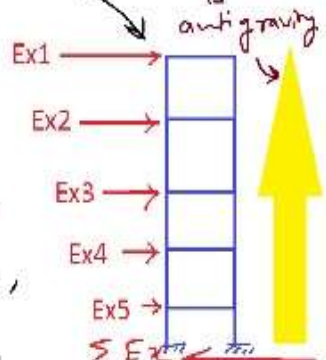
①



Load path as per gravity

$\sum W_x$

②



Earthquake Load path is anti-gravity

$\sum W_x = \sum W_y$

$W_{x1} = E_{x1}$

\vdots

$E_{x5} = E_{x5}$

Deflect, Drifts, Vibrations

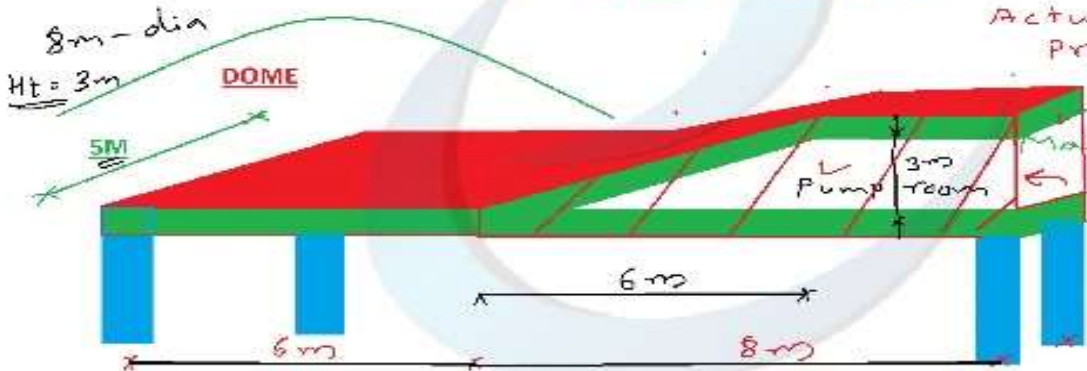
Ductility factor,

Response reduction factor,

Soft story, IS-13970

COMPLEXITIES

1.0 GEOMETRICAL COMPLEXITY →



Model Idealization

Actual physical Project

Mathematical models

GRAVITY LOADS

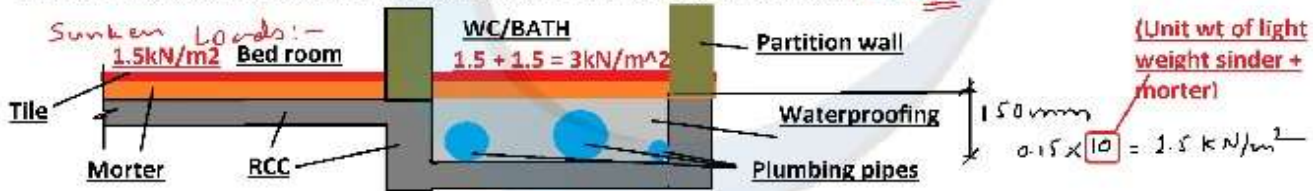
1.0 DEAD LOAD:

AREA LOADS (General)

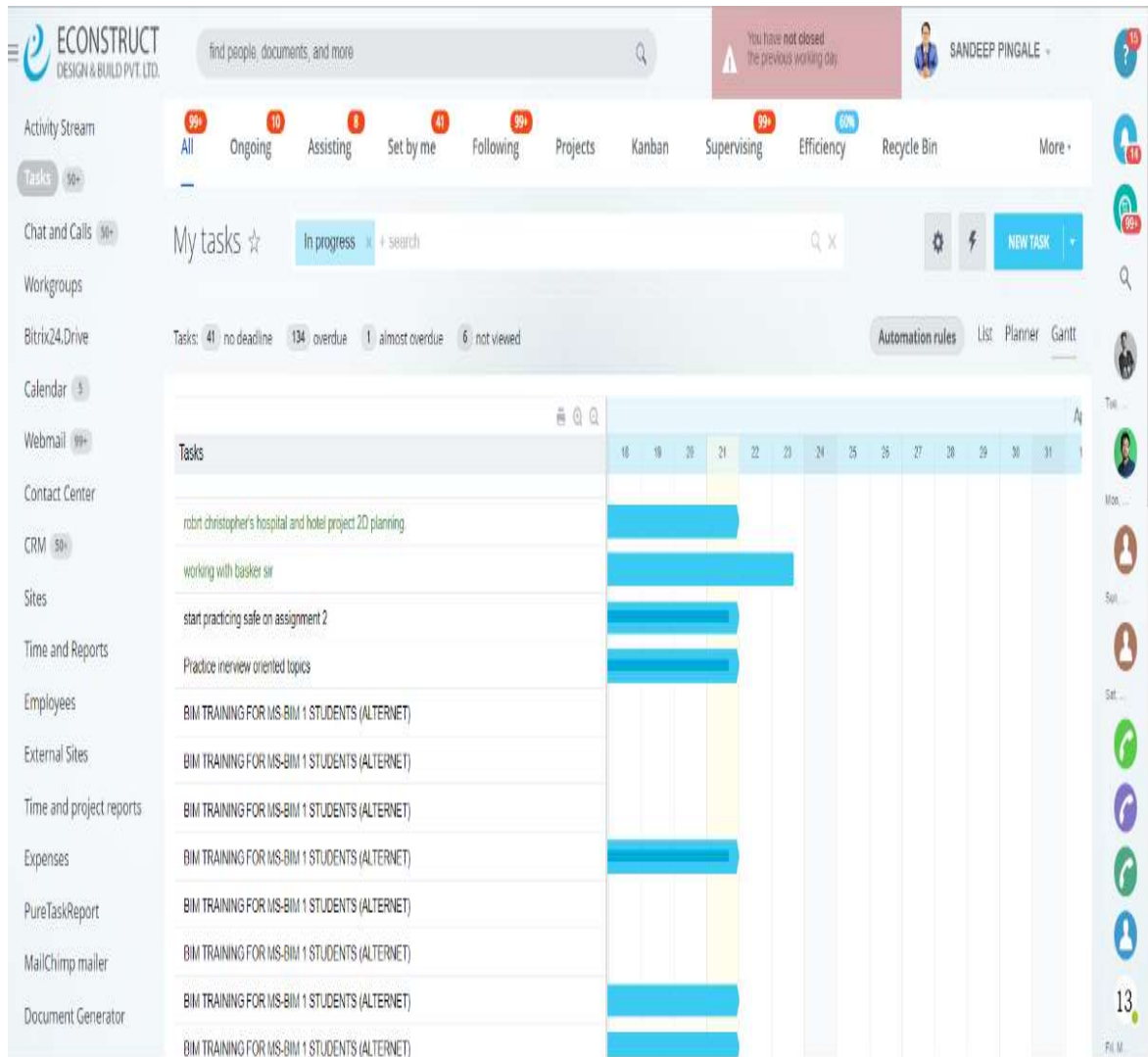
a. SELF WEIGHT SHALL BE CALCULATED BY ETABS AUTOMATICALLY { By selfweight multiplier=1.0 in Dead load case }

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

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

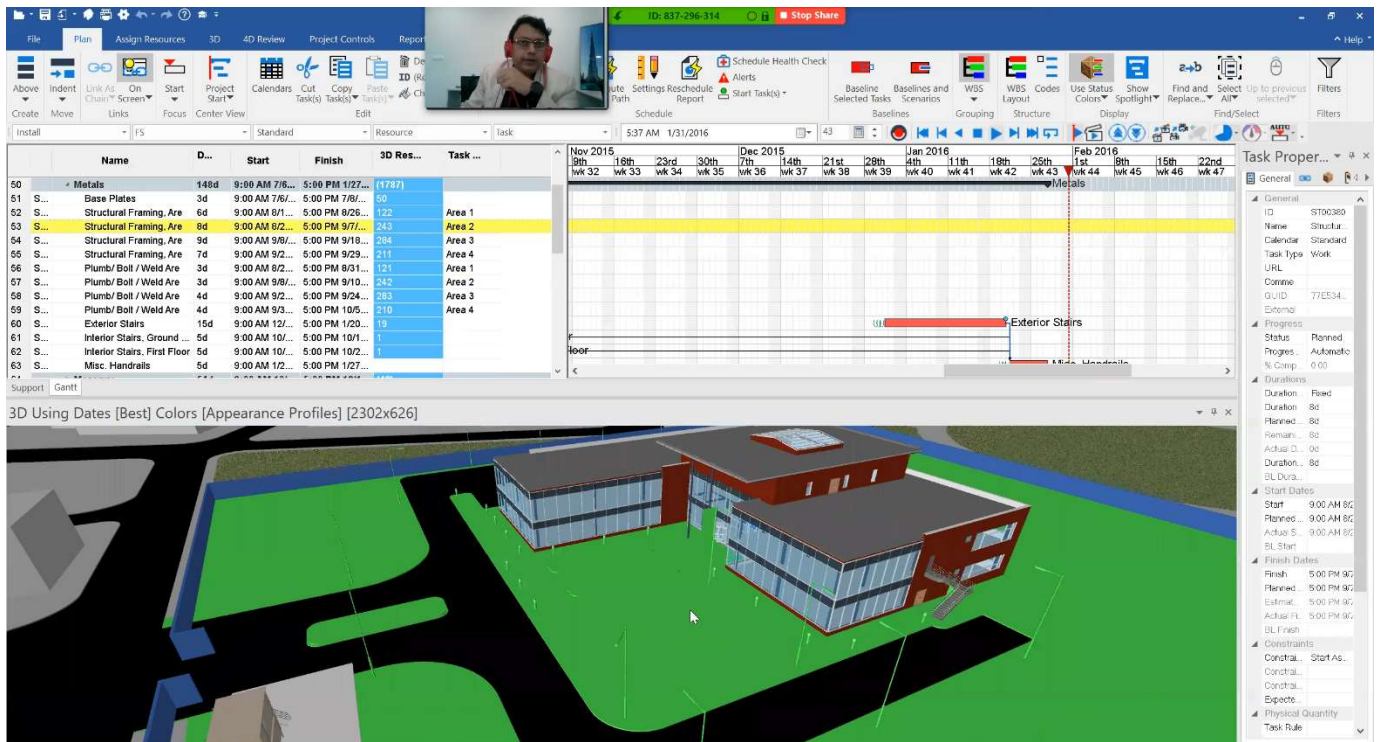
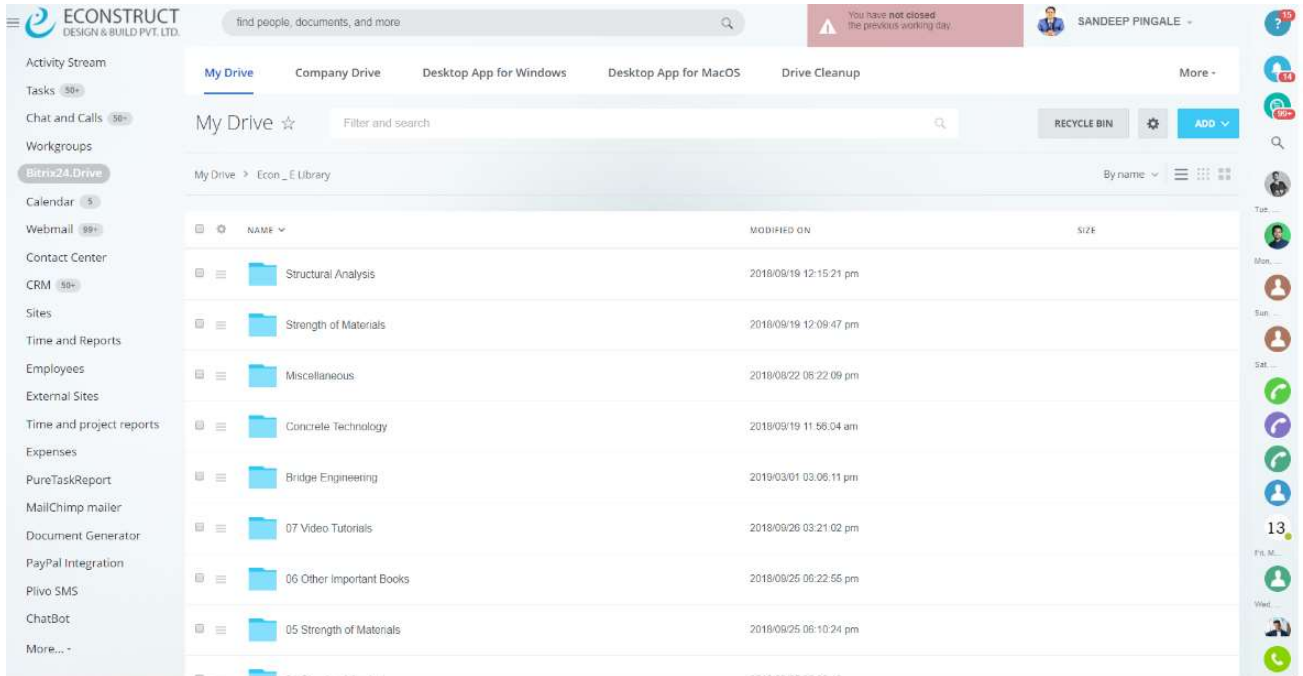


Screenshot of ONLINE Training ERP. Each student would get a Log in and password for this type of Online doubt clearing sessions and trainings



The screenshot displays the ECONSTRUCT ONLINE Training ERP interface. The top navigation bar includes the company logo, a search bar, a notification for an uncompleted working day, and the user profile for SANDEEP PINGALE. The main dashboard features a 'My tasks' section with a search bar and a 'NEW TASK' button. Below this, a Gantt chart visualizes task progress over a 31-day period. The tasks listed include:

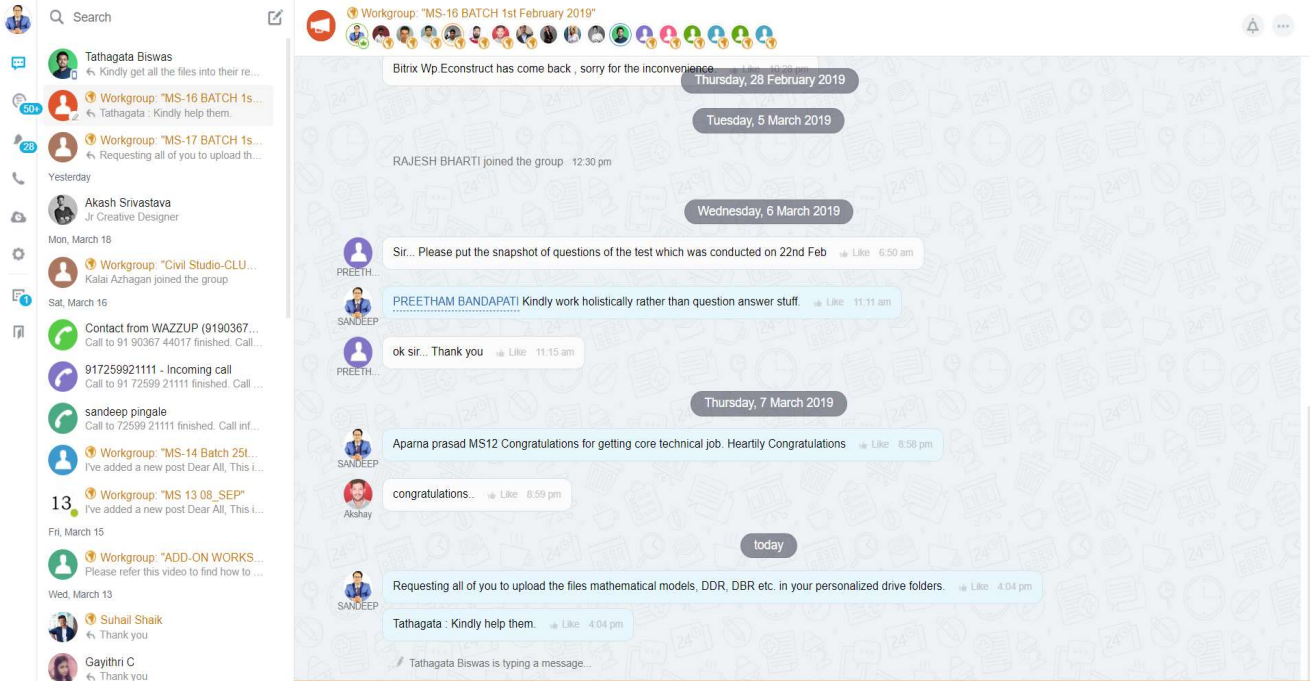
Task Name	Start Date	End Date	Progress
robt christopher's hospital and hotel project 2D planning	18	21	100%
working with basker sir	18	23	100%
start practicing safe on assignment 2	18	21	100%
Practice interview oriented topics	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%
BIM TRAINING FOR MS-BIM 1 STUDENTS (ALTERNET)	18	21	100%



Bangalore Address: Venkatdhari heights, 2nd floor Parappana Agrahara main road, Kudlu, Bangalore-560068

Mobile: 9036744017 | 7259222888 Email: shraddha@e-construct.in

www.e-construct.in | www.civilstudio.in



The screenshot shows a WhatsApp group chat interface. On the left is a sidebar with a search bar and a list of contacts and groups. The main chat area is titled "Workgroup: 'MS-16 BATCH 1st February 2019'". The chat history includes:

- A system message: "Bitrix Wp.Econstruct has come back , sorry for the inconvenience" (Thursday, 28 February 2019).
- A date separator: "Tuesday, 5 March 2019".
- A system message: "RAJESH BHARTI joined the group" (12:30 pm).
- A date separator: "Wednesday, 6 March 2019".
- Message from PREETHI: "Sir... Please put the snapshot of questions of the test which was conducted on 22nd Feb" (Like 6:50 am).
- Message from SANDEEP: "PREETHAM BANDAPATI Kindly work holistically rather than question answer stuff" (Like 11:11 am).
- Message from PREETHI: "ok sir... Thank you" (Like 11:15 am).
- A date separator: "Thursday, 7 March 2019".
- Message from SANDEEP: "Aparna prasad MS12 Congratulations for getting core technical job. Heartily Congratulations" (Like 8:58 pm).
- Message from Akshay: "congratulations..." (Like 8:59 pm).
- A date separator: "today".
- Message from SANDEEP: "Requesting all of you to upload the files mathematical models, DDR, DBR etc. in your personalized drive folders." (Like 4:04 pm).
- Message from Tathagata: "Kindly help them." (Like 4:04 pm).
- A typing indicator: "Tathagata Biswas is typing a message..."