

PROGRAM
BOUCHER
2023



Master Certification Program
High Rise & Tall Structure

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INTRODUCTION

we are designer engineer architecture planner technical specialists and trainer. we operate in the innovation and revolutionary changing field of designer and engineering construction installation and infrastructure educational services rank top in relate with civil/structure/infrastructure



We have a global community of engineers, technician and expert to deliver quality of training and services

community of 10000+ and still counting
Our trainee are from South east Asia
Europe, Australia and UAE.

Our corporate training program and engineering educational services ranked top in INDIA and all over the world by most recognized organizations. We provide courses relate with civil/structural/infrastructure engineering.

ABOUT PROGRAM

Master Certification in High Rise & Tall Structure

is a full flange training program designs for civil and structural engineer which enable to Analysis Design and Research of High Rise and Tall Structure. As we increase height of building structure engineer faces various extreme challenge some time its due to natural conditions like earthquake wind and site conditions and some time due to Architectural Demand. In this program we follow steps by steps analysis and design



process with theory codes concept and software. We also focus on sustainable technology and digital twins, Based on current industry Demand . Performing Deep Research with various national& International Code of Practice , Research and J o u r n a l s .

Earthquake Engineering

Seismic analysis of structure is most important part of program. Earthquake engin. with advance analysis both in linear and non-linear static and dynamics analysis i.e. Base shear method , Response Spectrum Method and Time History Method. PBD (Performance Based Design) is new method to design structure in seismic assessment with FEMA guideline.

Wind Engineering is play a vital role in high rise and tall structure analysis and design Taking wind load over structure and performing wind tunnel test is a part of program Wind simulation/wind tunnel test is also taking effectively in program.

EXCLUSIVE CAREER SUPPORT



Live Career-Oriented Webinars

Live webinar sessions that include curriculum and career services walkthrough to help learners understand their learning objective and expectations of hiring managers.



Leadership Skill Development Sessions

Recurring training sessions with experts to help learners develop Interpersonal and Leadership Skills.



1-on-1 Career Mentoring Sessions

One-on-one Career Mentoring sessions on how to develop the right skills and attitude to secure a dream job.



Exhaustive Interview Preparation

Expert tips, sample interview questions, mock interviews with constructive feedback from industry experts to gain hands-on experience of technical rounds, HR round, and more.



Job Search Assistance & Job Feeds

Access to multiple job portals to help learners navigate through thousands of jobs including global remote jobs.



Profile Building Assistance

A dedicated Career Coach will provide expert tips on how to create an attractive, relevant resume and LinkedIn Profile.

Significance of high rise & Tall structure

Significance of high rise & Tall structure

One thing is for sure and that's that the 20th century was surely the century for high-rise buildings.

And how do you define high-rise buildings? – Simply put they are buildings greater than 75 feet or 7-10 story high buildings



More space



Less utilization of land



Lesser energy demand



Less Noise pollution /Peaceful



Ideal for green building



Tall Buildings Have Great Views

Therefore, developing high rise & tall structure gives so many benefits over low rise structure. So civil/structural engineers must be able to design and develop tall structure.

Current Trends in Structural Engineering/ Design Engineer worldwide

As our global development of infrastructure

The average annual salary of an Structural/Civil Engineer in India is

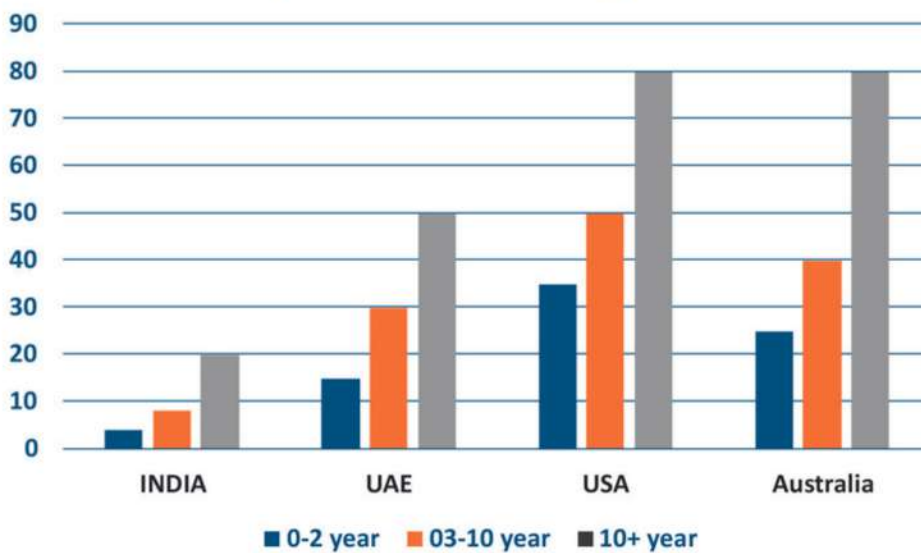
Fresher's: Between ₹ 4,00,000- 6,00,000 Experienced: Between

₹ 6,00,000 – 20,00,000

(Salary per annum)

Structural/Civil Engineer Salaries across different countries in world:

Salary of structural engineer's



Key Highlights



**06 - Month Live Online
Training**



**Master certification in high
rise & tall structure**



**1 Year of on job
training experience**



**Curriculum Designed by
professional worldwide**



200+ Hours of intensive earning



10+ Project



High Technical support



Live Project

Technical Highlights

Ultimate Level of learning

Analysis and Design of Mid to High rise structure

Starting with G+5 to G+25 Conventional structure i.e. residential, Institutional, Commercial Building.

Analysis and Design Tall to Super-Tall Structure

Starting with G+25 To G+52 Tower Building structure with different type of framing

Analysis and Design Tall to Super-Tall Structure

Starting with G+25 To G+52 Tower Building structure with different type of framing

Research and Development for Different type of structural System

G+50 and Above Diagrid Structure Tube and Bundle Tube, Outrigger , Dampers , Wind Simulation

Report and Finalization for Project

Detailing of structure and making report and presentation

Code of Practices and Research Bodies

Indian Standard Code (IS-CODE)

American Standard Code

Euro-Code and British Standard Code

Research Bodies and International Journal

Federal Emergency Management Agency (FEMA) and others

Pre-steps before starting of program

Setup and Technical Support

01

- Software installation
- Technical support
- Access of e-learning <https://structurex.online>
- Introduction
- Reading out Architecture plan(RCC)
- Extracting information via DWG/DXF file

SOFTWARE

02

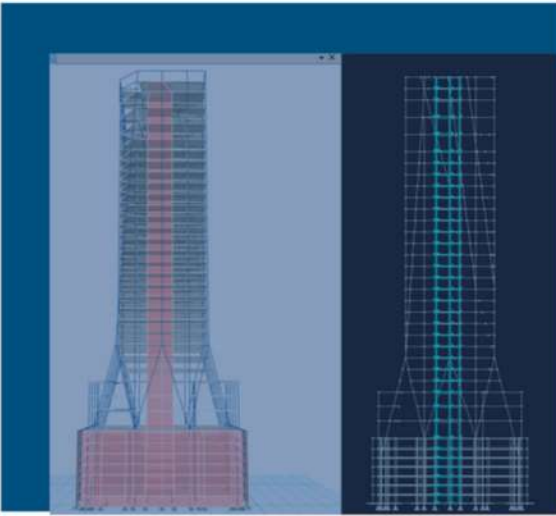
- CSI ETABS/SAP2000
- CSI SAFE
- CSI DETAILER
- DUBAL RWIND
- PERFORM 3D

The logo for ETABS software, featuring the word "ETABS" in a bold, blue, sans-serif font.The logo for SAFE software, featuring the word "SAFE" in a bold, blue, sans-serif font with a registered trademark symbol.The logo for CSI Detail Structural Detailing, featuring the text "CSI Detail" in a bold, white, sans-serif font above "STRUCTURAL DETAILING" in a smaller, white, sans-serif font, all on a dark blue background.The logo for RWIND Simulation, featuring a stylized "RWIND" in white on a dark blue background with an American flag icon, and the word "Simulation" below it.The logo for PERFORM 3D, featuring the text "PERFORM 3D" in a bold, white, sans-serif font with a registered trademark symbol, and "Performance Based Design of 3D Structures" below it.

MODULE: 01

Topic: Analysis and Design of High Rise Structure with codes concept and software.

Software: CSI ETABS



1.1 Introduction

- Basic Concept designing of Tall building..
- Reading the Architectural, Elevation, Sections for Tall Building.
- Selecting the Structural System.
- Making the structural framing in Auto Cad
- Tall Building Codes

1.2 Specialized Modelling For Tall Building In ETABS

- Tall Building Model Generation.
- Podium Modelling
- Multi tower Modelling
- Basement Modelling
- Core Wall Positioning

1.3 Finite Element Method

- Prepare the FE Model
- I.A discretized (mesh) the structure
- II. Prescribe loads
- Prescribe supports



1.4 Gravity & Lateral Loading Resisting Structural System

- Lateral Load System
- Moment Resisting Frames
- Shear Wall System
- Shear Wall & Frame system
- Frame-Tube System
- Tube in Tube system
- Core wall Positioning
- Gravity Load System
- Flooring System

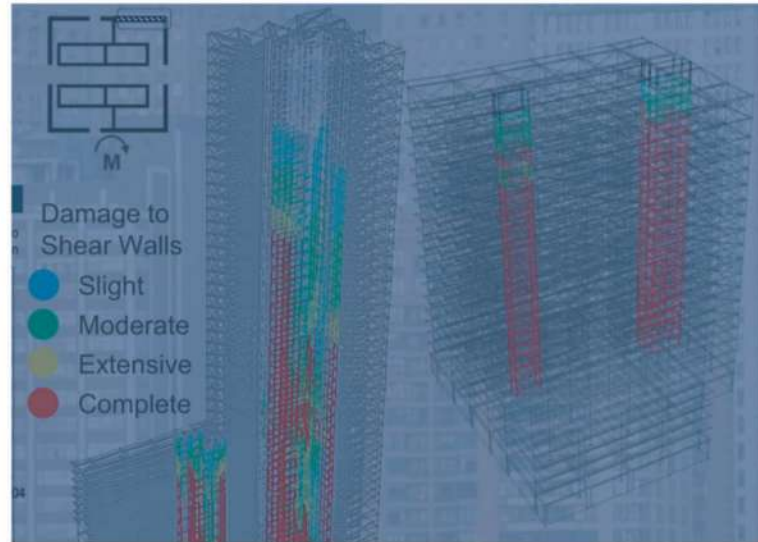
1.5 Podium Diaphragm, Collectors, Backstay Effects

- Podium & Backstay Effects
- Structural Element of Podium
- Consideration of Backstay Effects
- Design of Diaphragm & Collectors
- Recommendations properties for Modelling of Backstay Effects
- Diaphragm Flexibility.

MODULE : 01

1.6 Non Linear Modelling

- Basic Approach for Nonlinear Modelling of Structure.
- An introduction to fiber Modelling Approach
- Nonlinear Modelling of material (fibers).
- Fiber modelling of RC Beam.
- Fiber modelling of RC Column.
- Fiber modelling of RC Shear Wall.
- Stress-Strain Relationship-Confined Concrete.
- Stress-Strain Relationship- Cyclic Load.
- The Moment Curvature Curve.
- Hinge Properties.
- Plastic Hinges.



1.7 Wind Analysis –Gust Factor

RC Frame Subjected to Earthquakes

Lumped Plasticity Model

1.8 Modal Analysis, Damping & Vibration Modes of Tall Building.

1.9 Earthquake engineering of tall building

- Response Spectrum Modal Analysis
- Static Earthquake Analysis.
- The Modal separation of seismic Analysis.
- Conceptual seismic design of Tall buildings
- Seismic Dynamic Behavior of Tall Building
- Seismic Dampers
- Elastic and design demands at the Design Basis
- Earthquake Level Using RS method

2.1 Mastering the analysis & interpreting the results

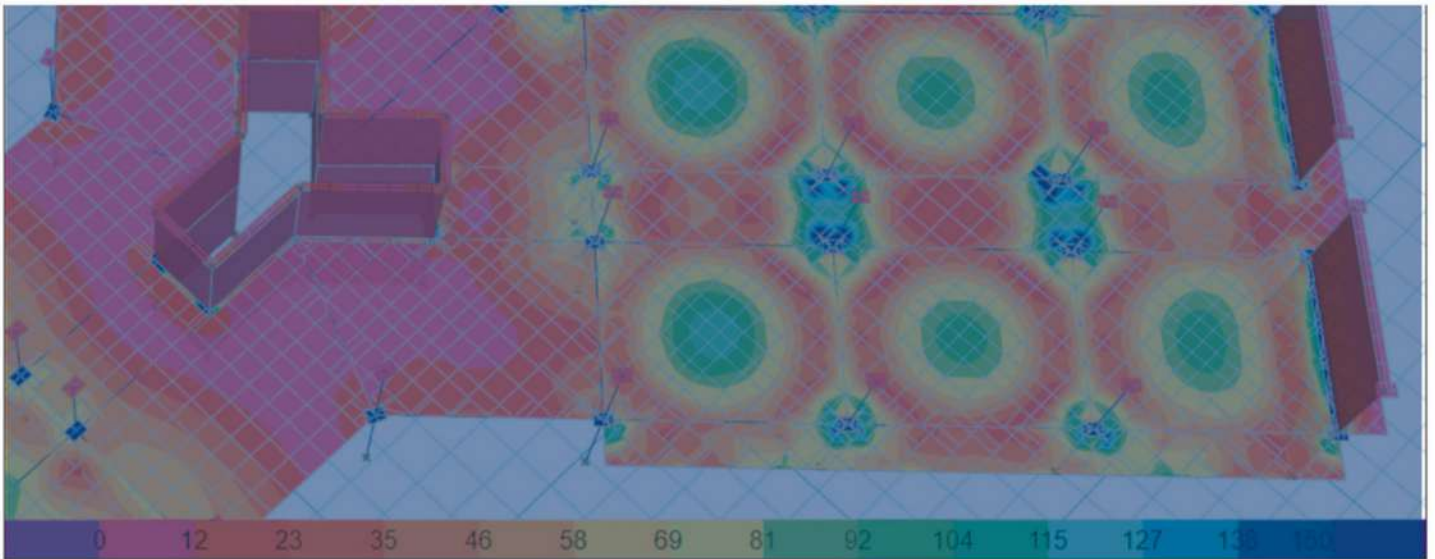
- Stability check as per code
- Check on lateral Stability
- Check on Vertical Deflection
- Check on Story Drift
- Torsion Irregularities Check
- Soft Story Check
- Check for Over turning Moment
- Check for Control of Deflection

2.0 Performance Based Design for Tall Building Design

- Performance Based Design Process
- Ritz Vector
- Fast Nonlinear Analysis
- Energy Diagram
- Hysteretic Behavior
- Moment Rotation Relationship
- Capacity Based Design
- Displacement Based Design
- Energy Based Design
- Performance Levels
- Performance Objective
- Performance Parameters
- F-D Relationship
- Backbone Curve
- Hysteresis Loop Model
- ADS Spectrum
- Push Over Analysis
- Time History Analysis



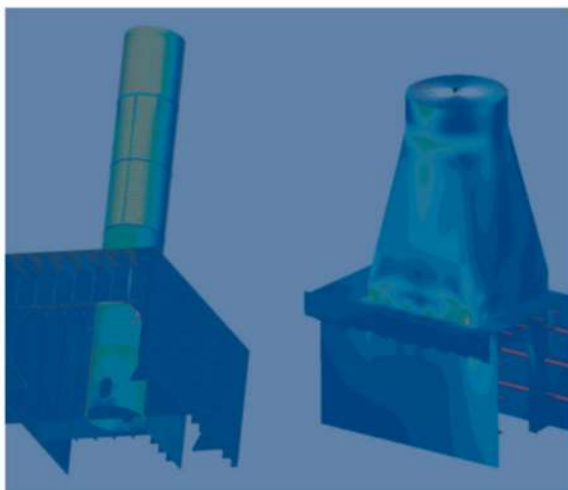
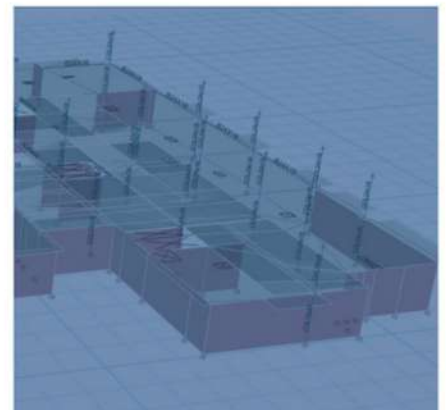
MODULE:02



Topic: Design and Analysis of foundation

Software used: CSI SAFE and MS-EXCEL

- Isolated Footing
- Combined Footing
- Raft Foundation
- Pile Foundation
- Raft + Pile
- Software algorithm, capabilities, strength and weaknesses
- Modelling of foundations, basements, footings.
- Design of stirrups .



Design methodology

- Design of fem based slabs.
- Design of slabs, raft & pile .
- Design of punching shear reinforcement (stud rails).
- Detailing, reporting techniques.
- Differential settlement of foundation and its control.
- Combined complex foundation system.
- Punching Shear
- Nonlinear Uplift
- Soil Structure Interaction

MODULE: 03

Topic: Research and Development of different type of structural system with wind simulation.

1.1 Braced Frame and Diagrid System

Braced Frames have much better strength and stiffness Bracing is a much effective than rigid joints at resisting racking deformation of the frame.

1.2 Tube System

The tube is the name given to the systems where in order to resist lateral loads (wind, seismic, etc.) a building is designed to act like a three-dimensional hollow tube

1.3 Braced Tube System

Also known as 'Trussed Tube' or 'Exterior Diagonal-tube System' utilized for greater heights, and allows larger spacing between the columns.

1.4 Out trigger structure system

The outrigger truss is a simple trusses spanning over the full height of that story and across the full width of building.

1.5 Diagrid Structure system

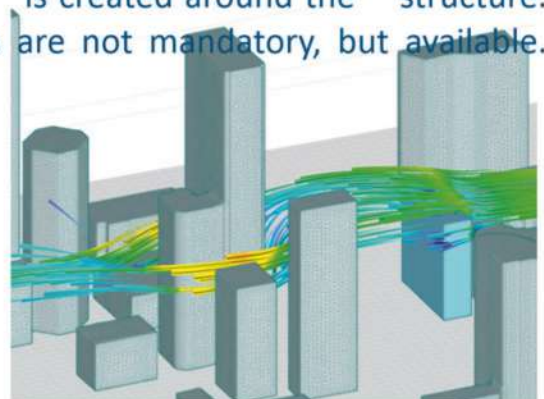
The diagrid (a portmanteau of diagonal grid) is a framework of diagonally intersecting metal concrete or wooden beams that is used in the construction of buildings and roofs.

1.6 Wind Test/Wind Simulation in DUBAL RWIND

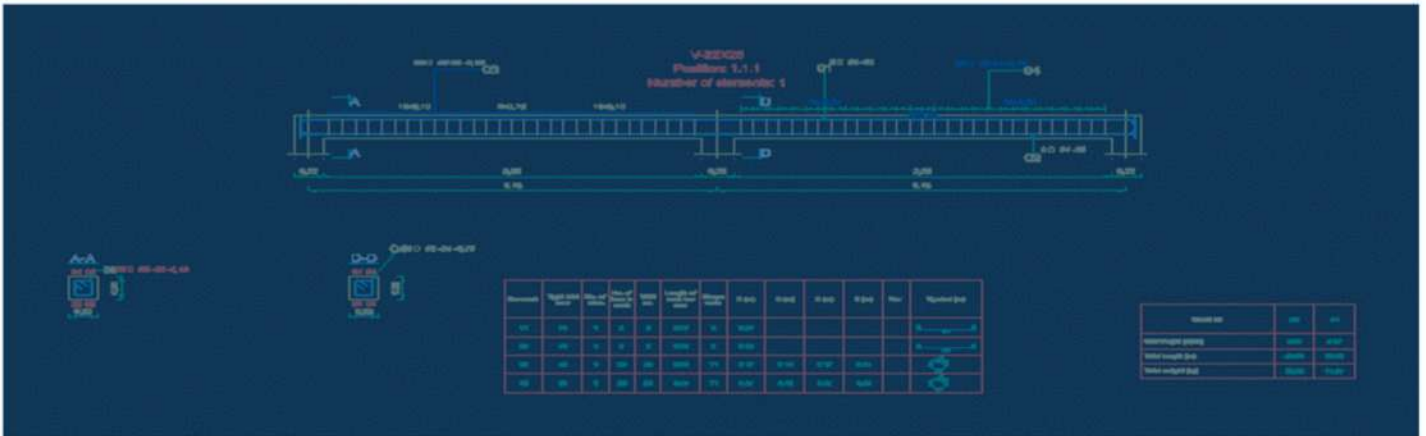
RWIND Simulation Case Setup RWIND Simulation software, developed by companies PC-PROGRESS and DLUBAL, was designed as specialized tool for rapid CFD simulations of wind load on large variety of structures. RWIND Simulation works as standalone software or it can be directly connected with structural design software RFEM or RSTAB. RWIND Simulation user interface is super ease of use with minimal necessary settings and user skills. The work flow is very simple. The input for RWIND Simulation is the surface model of the structure(CAD,.STL). The virtual wind tunnel is created around the structure. Wind speed is set. There st of the parameters are not mandatory, but available.

Wind simulation of following type of software

- Low Rise RCC Structure
- High Rise RCC Structure
- Tall Structure
- Tube Structure
- Iconic Structure



MODULE: 04

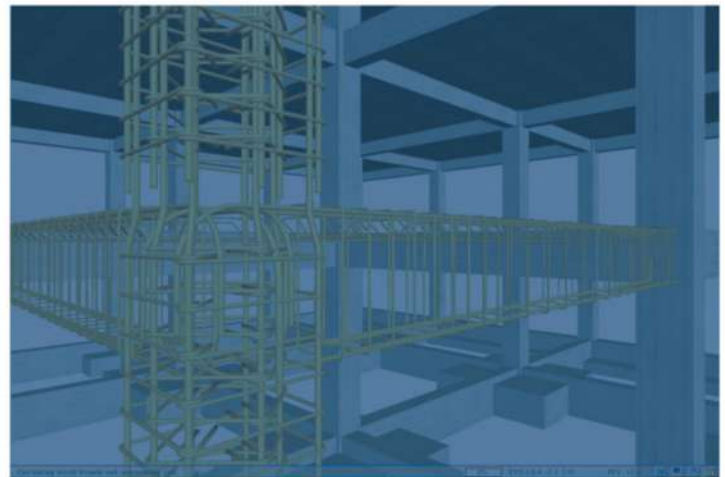


1.1 Reinforcement detailing

Reinforcement details are presented in the form of tables and schedules for groups of components,

as well as drawn in plans, elevations, and sections for individual elements.

Detailing technique according to different CODES (IS, AISC, BS etc.)



1.2 Proof checking for RCC structure

- Structural Forms
- Floor systems (concrete & steel)
- Requirements
- ETABS model checks
- Safe model checks for slab design
- Safe model checks for foundation design

ADMISSION PROCESS

Enrolment Form

A one-on-one chat with our SME to understand your basic knowledge, prior work experience, and your expectations from the course. After your interview assessment,

Interview and offer letter

A one-on-one chat with our SME to understand your basic knowledge, prior work experience, and your expectations from the course. After your interview assessment, you will receive an offer letter from us.

Payment

Based on your interview performance, you would receive an offer letter and an fee payment as per option choosed

Batch Allotment

After the payment formalities, you will be given course credentials and your learning journey will begin!

SAMPLE CERTIFICATE



1st September 2022

This certifies that

Mr. M.K Arora

has successfully completed
Master Certification Program In

HIGH RISE & TALL STRUCTURE

A Program that include analysis & design of high rise, tall & super tall building structure

from period of March 2022 to Aug. 2022



Program Director

Program Coordinator

Certificate Id:
MS-23658-208
www.structurex.live/verify/

FEATURES , ELIGIBILITY & FEE STRUCTURE

Key Features:

1. Mode of Program: Online Live
2. Platform : Zoom Meeting
3. Duration: 06 Month
4. Recording of live class
5. Access of E-Library
6. 1 Year access of www.structurex.online for learning

Bachelor/Master/PHD in civil engineering or relevant work experience in AEC Industry

Program Fee:

INR 63,000 (53,000+18% GST)

Other than Indian & African subcontinent : USD 1,000/-

Contact Us:

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THANKS FOR BEING WITH US