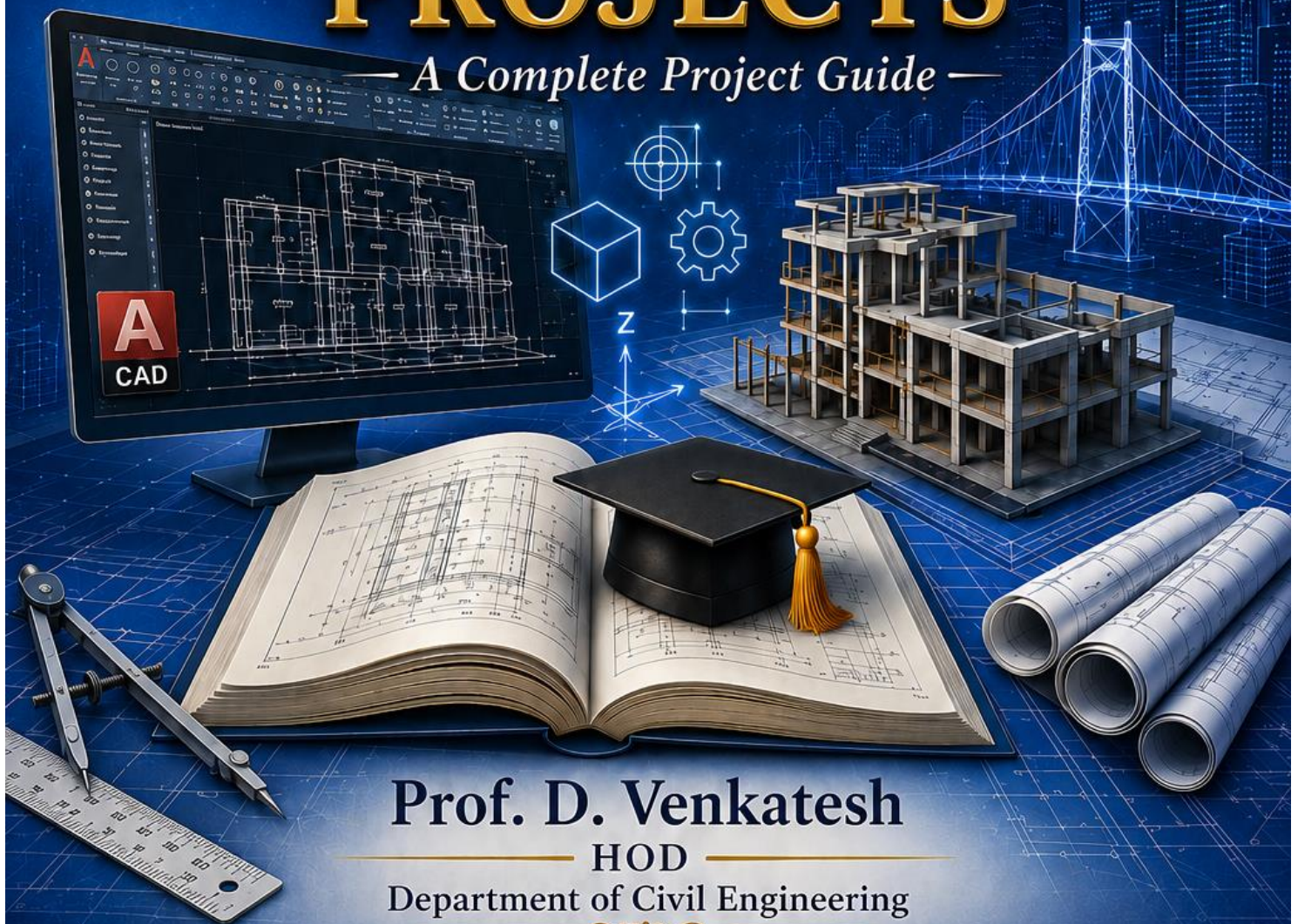




**NARSIMHA REDDY
ENGINEERING COLLEGE**
— (AUTONOMOUS) —

COMPUTER AIDED DRAFTING (CAD) PROJECTS

— *A Complete Project Guide* —



Prof. D. Venkatesh

HOD

Department of Civil Engineering



www.nrcmec.org



principal@nrcmec.org



Kompally, Hyderabad,
Telangana - 500100

Computer Aided Drafting Software Projects

A Collection of CAD Design Projects

S.No	Project Title	Page Number
1	RCC Framed Structure Detailing Using AutoCAD	1
2	Residential Building Planning and Drafting Using AutoCAD	10
3	RCC Column and Footing Detailing Using AutoCAD	18
4	G+1 Residential Building Design and Drawing Using AutoCAD	23
5	Staircase Design and Reinforcement Detailing Using AutoCAD	33
6	Isolated Footing and Combined Footing Detailing Using AutoCAD	40
7	2BHK Residential Building Plan with Structural Details Using AutoCAD	48
8	Water Tank Design and Drafting Using AutoCAD	58
9	Retaining Wall Structural Detailing Using AutoCAD	65
10	Industrial Shed Structural Drawing Using AutoCAD	73

1. RCC Framed Structure Detailing Using AutoCAD

ABSTRACT

Reinforced Cement Concrete (RCC) framed structures are the most widely used structural systems in modern buildings due to their strength, durability, and cost-effectiveness. AutoCAD is one of the most popular computer-aided drafting software applications used for preparing accurate structural drawings. This project focuses on creating detailed RCC framed structure drawings using AutoCAD, including foundation layout, column reinforcement, beam reinforcement, slab detailing, and sectional views. Proper dimensions, reinforcement details, and construction specifications are incorporated to meet engineering standards. The project demonstrates how AutoCAD improves drafting accuracy, reduces design errors, and enhances productivity in structural engineering.

INTRODUCTION

Reinforced Cement Concrete (RCC) combines concrete and steel reinforcement to withstand both compressive and tensile forces. In modern construction, RCC framed structures are commonly used for residential, commercial, industrial, and institutional buildings.

AutoCAD software provides engineers with a powerful platform for preparing structural drawings, reinforcement detailing, dimensions, annotations, and construction layouts. Structural drawings prepared in AutoCAD ensure proper communication between structural engineers and construction professionals.

The project illustrates the preparation of RCC framed structural drawings for a G+1 residential building.

DRAWING - 1

Foundation Layout Plan

Building Size

- Length = 12 m
- Width = 9 m

Columns are arranged in a grid.

Foundation Details

Item	Dimension
Isolated Footing	1800 × 1800 mm
Footing Thickness	450 mm
PCC Thickness	100 mm
Concrete Grade	M25
Steel Grade	Fe500
Bottom Reinforcement	12 mm @150 mm c/c both ways
Column Size	300 × 450 mm

AutoCAD Drawing Includes

- Grid lines
- Footing layout
- Column positions
- Centre lines
- Dimensions
- Footing numbering
- Section marks

DRAWING - 2

RCC Beam and Slab Reinforcement

Beam Details

Item	Size
Beam Size	230 × 450 mm
Main Bars	4-16 mm

Item	Size
Top Bars	2-16 mm
Bottom Bars	2-20 mm
Stirrups	8 mm @150 mm c/c
Concrete Cover	25 mm

Slab Details

Item	Value
Slab Thickness	150 mm
Main Steel	10 mm @150 mm c/c
Distribution Steel	8 mm @200 mm c/c
Concrete Grade	M25

The drawing contains

- Beam layout
- Reinforcement detailing
- Slab reinforcement
- Beam sections
- Bar markings
- Dimensions

DRAWING - 3

Column Reinforcement Detail

Column Size

300 × 450 mm

Reinforcement Details

Item	Value
Longitudinal Bars	8 Nos 20 mm
Lateral Ties	8 mm @150 mm c/c
Lap Length	1000 mm

Item	Value
Clear Cover	40 mm
Concrete Grade	M25

The drawing includes

- Front elevation
- Cross-section
- Reinforcement arrangement
- Tie spacing
- Dimensions
- Bar labels

DRAWING DETAILING WITH MEASUREMENTS

Building Dimensions

Overall Length = 12000 mm

Overall Width = 9000 mm

Room Sizes

Living Room = 4500 × 4000 mm

Bedroom = 3600 × 3600 mm

Kitchen = 3000 × 3000 mm

Toilet = 1800 × 2100 mm

Staircase Width = 1500 mm

Wall Thickness

External Wall = 230 mm

Internal Wall = 115 mm

Floor Height

Plinth Height = 600 mm

Floor Height = 3000 mm

Roof Slab Thickness = 150 mm

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Circle
- Arc
- Rectangle
- Polygon
- Hatch
- Ellipse
- Spline
- Donut

Modify Tools

- Move
- Copy
- Rotate
- Mirror
- Offset
- Trim
- Extend
- Scale
- Stretch
- Array
- Fillet
- Chamfer

- Break
- Join
- Explode

Annotation Tools

- Dimension
- Multiline Text
- Leader
- Table
- Revision Cloud

Layer Management

- Layer Properties
- Layer Freeze
- Layer Lock
- Layer Color
- Lineweight

Object Snap (OSNAP)

- Endpoint
- Midpoint
- Centre
- Intersection
- Perpendicular
- Tangent

Plotting

- Layout
- Viewport
- Plot Style
- PDF Export
- Scale Setting

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Drafting Standards

- IS 456:2000
- IS 875
- SP 34
- IS 13920

Hardware

- Intel Core i5 Processor
- 8 GB RAM
- 512 GB SSD
- Dedicated Graphics Card

APPLICATIONS

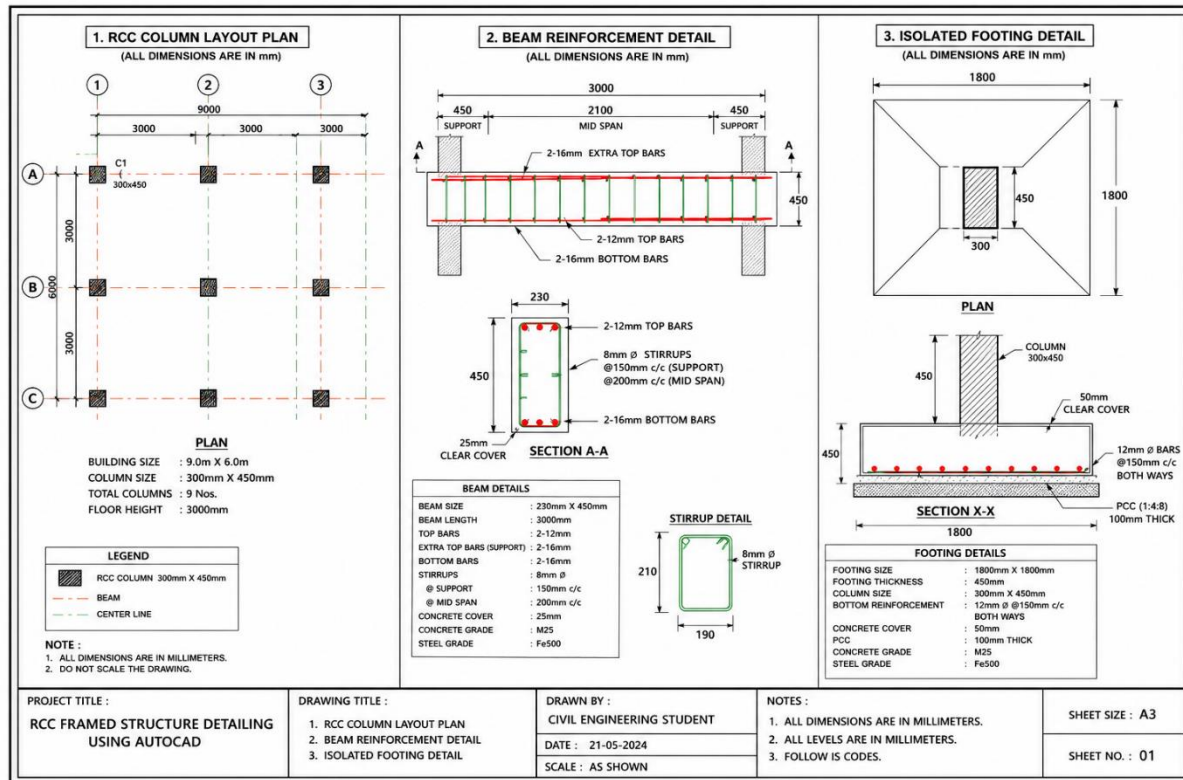
- Residential Buildings
- Commercial Buildings
- Hospitals
- Schools
- Industrial Buildings
- Shopping Complexes
- Apartment Buildings
- Office Buildings
- Structural Consultancy
- Construction Projects

ADVANTAGES

- High drafting accuracy
- Faster drawing preparation
- Easy modification of drawings
- Better reinforcement detailing
- Reduced human errors
- Professional documentation
- Improved construction quality
- Better communication among engineers
- Time-saving
- Cost-effective drafting

CONCLUSION

The project demonstrates the preparation of RCC framed structural drawings using AutoCAD. The software enables engineers to produce accurate and professional structural drawings with proper reinforcement detailing, dimensions, and annotations. The use of AutoCAD significantly reduces drafting errors, saves time, and improves productivity. RCC framed structures prepared using AutoCAD meet engineering standards and provide reliable construction documentation. Therefore, AutoCAD remains one of the most essential tools for civil engineers involved in structural planning, detailing, and execution.



2. Residential Building Planning and Drafting Using AutoCAD

ABSTRACT

Residential building planning and drafting are fundamental tasks in civil engineering that involve designing a building layout with proper room arrangements, structural elements, and construction details. AutoCAD is widely used to prepare accurate 2D drawings, including floor plans, elevations, and sectional views. This project focuses on the planning and drafting of a **2BHK residential building** using AutoCAD. It includes detailed drawings with dimensions, wall thicknesses, doors, windows, and floor levels. The project demonstrates how AutoCAD improves drafting accuracy, reduces design errors, and helps engineers communicate construction details effectively.

INTRODUCTION

A residential building is designed to provide a safe, comfortable, and functional living space. Proper planning ensures efficient use of available land while maintaining ventilation, lighting, and structural stability.

AutoCAD is one of the most widely used drafting software applications in civil engineering. It allows engineers and architects to prepare professional building drawings with precision. In this project, a **single-storey 2BHK residential building** is planned and drafted using AutoCAD, including a floor plan, front elevation, and sectional view.

DRAWING - 1

Floor Plan (2BHK Residential Building)

Overall Building Size

- **Length:** 12.0 m (12000 mm)
- **Width:** 9.0 m (9000 mm)

Room Dimensions

Room	Size (mm)
Living Room	4500 × 4000
Bedroom 1	3600 × 3600
Bedroom 2	3600 × 3300
Kitchen	3000 × 3000
Dining Area	3000 × 3000
Toilet 1	1800 × 2100
Toilet 2	1500 × 2100
Veranda	1800 × 4500

Wall Thickness

- External Wall = 230 mm
- Internal Wall = 115 mm

Door Schedule

Door	Size
Main Door	1200 × 2100 mm
Bedroom Door	900 × 2100 mm
Toilet Door	750 × 2100 mm

Window Schedule

Window	Size
Living Room	1800 × 1200 mm
Bedrooms	1500 × 1200 mm
Kitchen	1200 × 1200 mm
Toilets	600 × 450 mm

Floor Plan Includes

- Room layout
- Walls
- Doors and windows
- Dimension lines
- Centre lines

- Room names
- Furniture layout (optional)

DRAWING - 2

Front Elevation

Building Heights

Item	Height
Plinth Height	600 mm
Floor Height	3000 mm
Lintel Level	2100 mm
Roof Slab Thickness	150 mm
Parapet Wall	900 mm

Elevation Details

- Main entrance
- Windows
- Sunshade (Chajja)
- Roof slab
- Parapet wall
- Ground level
- Plinth level
- Decorative finishes

DRAWING - 3

Sectional View (A-A Section)

Structural Details

Component	Size
Foundation Width	1500 mm
Foundation Depth	1200 mm
PCC Thickness	100 mm
Footing Thickness	450 mm
Wall Thickness	230 mm

Component	Size
Floor Slab	150 mm
Roof Slab	150 mm

Section Shows

- Foundation
- PCC
- Footing
- Plinth beam
- Floor finish
- Brick wall
- Roof slab
- DPC
- Ground level
- Ceiling level

DRAWING DETAILING WITH MEASUREMENTS

Building Size

- Length = 12000 mm
- Width = 9000 mm

Structural Dimensions

- Column Size = 300 × 300 mm
- Beam Size = 230 × 450 mm
- Slab Thickness = 150 mm
- Stair Width (if provided) = 1500 mm

Wall Thickness

- External Wall = 230 mm
- Internal Wall = 115 mm

Door Sizes

- Main Door = 1200 × 2100 mm
- Bedroom Door = 900 × 2100 mm
- Toilet Door = 750 × 2100 mm

Window Sizes

- Living Room = 1800 × 1200 mm
- Bedroom = 1500 × 1200 mm
- Kitchen = 1200 × 1200 mm
- Toilet = 600 × 450 mm

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Polygon
- Hatch
- Text (MTEXT)
- Dimension
- Leader

Modify Tools

- Move
- Copy
- Mirror
- Offset
- Trim
- Extend
- Rotate
- Scale
- Stretch

- Array
- Fillet
- Chamfer
- Explode
- Join

Layer Tools

- Layer Properties
- Layer Colour
- Line Type
- Line Weight
- Layer Lock

Annotation Tools

- Dimension Style
- Multiline Text
- Leader
- Table

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Drafting Standards

- IS 456:2000
- National Building Code (NBC) 2016
- IS 962

Hardware

- Intel Core i5 Processor
- 8 GB RAM
- 512 GB SSD
- Dedicated Graphics Card

APPLICATIONS

- Residential house construction
- Building approval drawings
- Architectural planning
- Interior space planning
- Municipal approval submissions
- Construction documentation
- Quantity estimation
- Building renovation projects
- Educational and training purposes

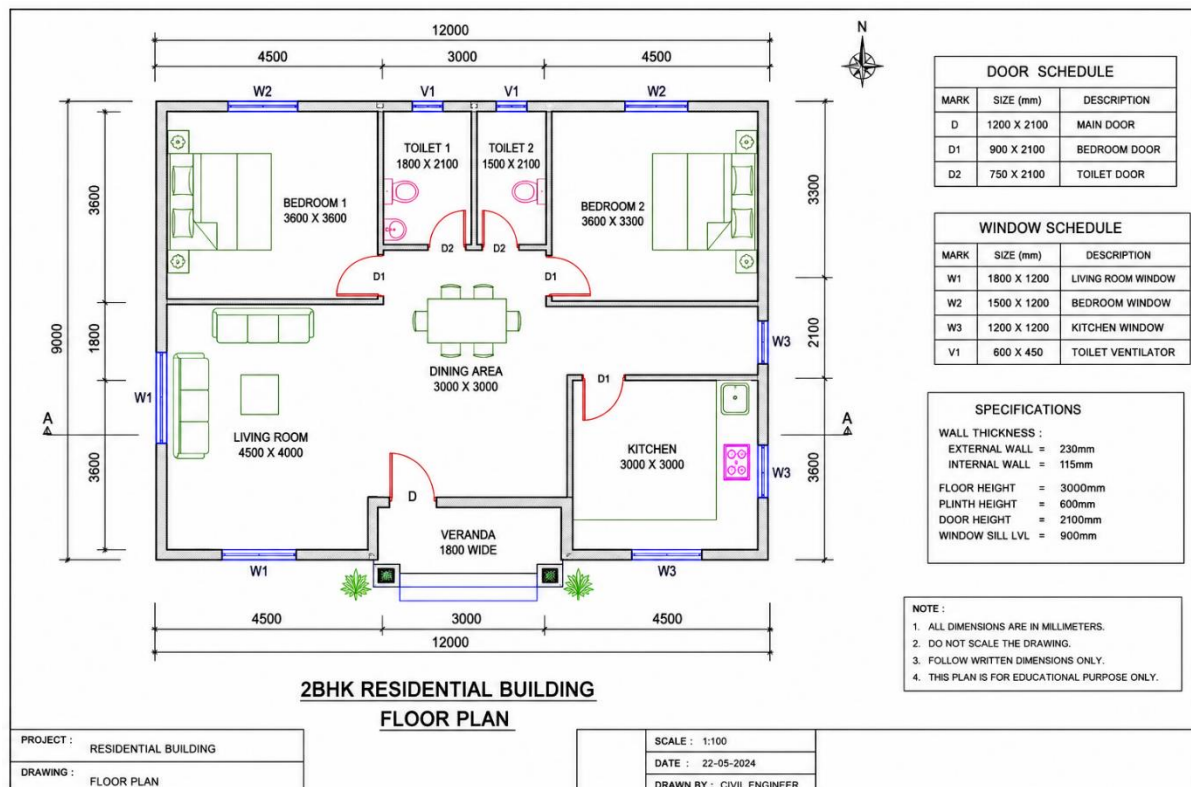
ADVANTAGES

- Accurate building planning
- Easy modifications to drawings
- Saves drafting time
- Professional-quality documentation
- Better communication with clients and contractors
- Reduces construction errors
- Easy printing at different scales
- Improves project management
- Supports future renovations and extensions

CONCLUSION

This project demonstrates the planning and drafting of a residential building using AutoCAD. The software enables engineers and architects to prepare accurate floor plans, elevations, and sectional views with proper dimensions and annotations. AutoCAD improves drafting efficiency, minimizes errors, and ensures compliance with engineering standards.

Residential building planning using AutoCAD plays a vital role in modern construction by producing clear and professional construction drawings.



3. RCC Column and Footing Detailing Using AutoCAD

ABSTRACT

Reinforced Cement Concrete (RCC) columns and footings are the primary structural components that safely transfer building loads to the soil. Proper detailing of columns and footings is essential for the stability, strength, and durability of any structure. AutoCAD is widely used to prepare accurate structural drawings with reinforcement details, dimensions, and annotations. This project presents the detailing of an RCC column with an isolated footing using AutoCAD, following standard engineering practices and Indian Standards (IS Codes).

INTRODUCTION

Columns are vertical structural members that transfer loads from slabs and beams to the foundation. Footings are foundation elements that distribute these loads safely to the soil. Proper detailing ensures structural safety and simplifies construction.

AutoCAD provides a precise drafting environment for preparing column layouts, footing plans, reinforcement details, and sectional views. This project demonstrates the complete detailing of an RCC column with an isolated footing.

DRAWING - 1

Isolated Footing Plan

Footing Details

Item	Size
Footing Type	Isolated Footing
Footing Size	1800 × 1800 mm
Footing Thickness	450 mm
PCC Thickness	100 mm
Column Size	300 × 450 mm
Concrete Grade	M25

Item	Size
Steel Grade	Fe500

Reinforcement

- Bottom Reinforcement: 12 mm Ø @ 150 mm c/c (Both Directions)
- Clear Cover: 50 mm

Drawing Includes

- Footing outline
- Column position
- Reinforcement layout
- Centre lines
- Dimensions
- Section marks

DRAWING - 2

Column Reinforcement Detail

Column Size

- 300 × 450 mm

Reinforcement Details

Item	Value
Main Bars	8 Nos - 20 mm Ø
Ties	8 mm Ø @ 150 mm c/c
Lap Length	1000 mm
Clear Cover	40 mm

Drawing Includes

- Front elevation
- Cross-section
- Bar arrangement
- Tie spacing
- Dimensions

- Bar labels

DRAWING - 3

Footing Section (Section A-A)

Structural Details

Component	Dimension
Excavation Depth	1500 mm
PCC Thickness	100 mm
Footing Thickness	450 mm
Pedestal Size	450 × 450 mm
Column Size	300 × 450 mm
Earth Cover	As per site

Reinforcement

- Bottom Bars: 12 mm Ø @ 150 mm c/c
- Distribution Bars: 12 mm Ø @ 150 mm c/c

Section Includes

- Natural ground level
- Excavation
- PCC layer
- RCC footing
- Pedestal
- RCC column
- Reinforcement
- Dimensions
- Level markings

DRAWING DETAILING WITH MEASUREMENTS

Column

- Size = 300 × 450 mm
- Height = 3000 mm

Footing

- Size = 1800 × 1800 mm
- Thickness = 450 mm

Pedestal

- Size = 450 × 450 mm
- Height = 450 mm

PCC

- Thickness = 100 mm

Reinforcement

- Main Bars = 8 Nos - 20 mm Ø
- Ties = 8 mm Ø @ 150 mm c/c
- Footing Steel = 12 mm Ø @ 150 mm c/c

Concrete Cover

- Column = 40 mm
- Footing = 50 mm

AUTOCAD DRAWIN TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle

- Arc
- Hatch
- Text
- Multiline Text
- Dimension
- Leader

Modify Tools

- Move
- Copy
- Mirror
- Offset
- Trim
- Extend
- Rotate
- Scale
- Stretch
- Array
- Fillet
- Chamfer
- Explode
- Join

Layer Management

- Layer Properties
- Layer Colour
- Line Type
- Line Weight

Annotation Tools

- Dimension Style
- Leader
- Table

- Text

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Standards

- IS 456:2000
- SP 34
- IS 875
- IS 13920

Hardware

- Intel Core i5 or above
- 8 GB RAM
- 512 GB SSD
- Graphics Card (Recommended)

APPLICATIONS

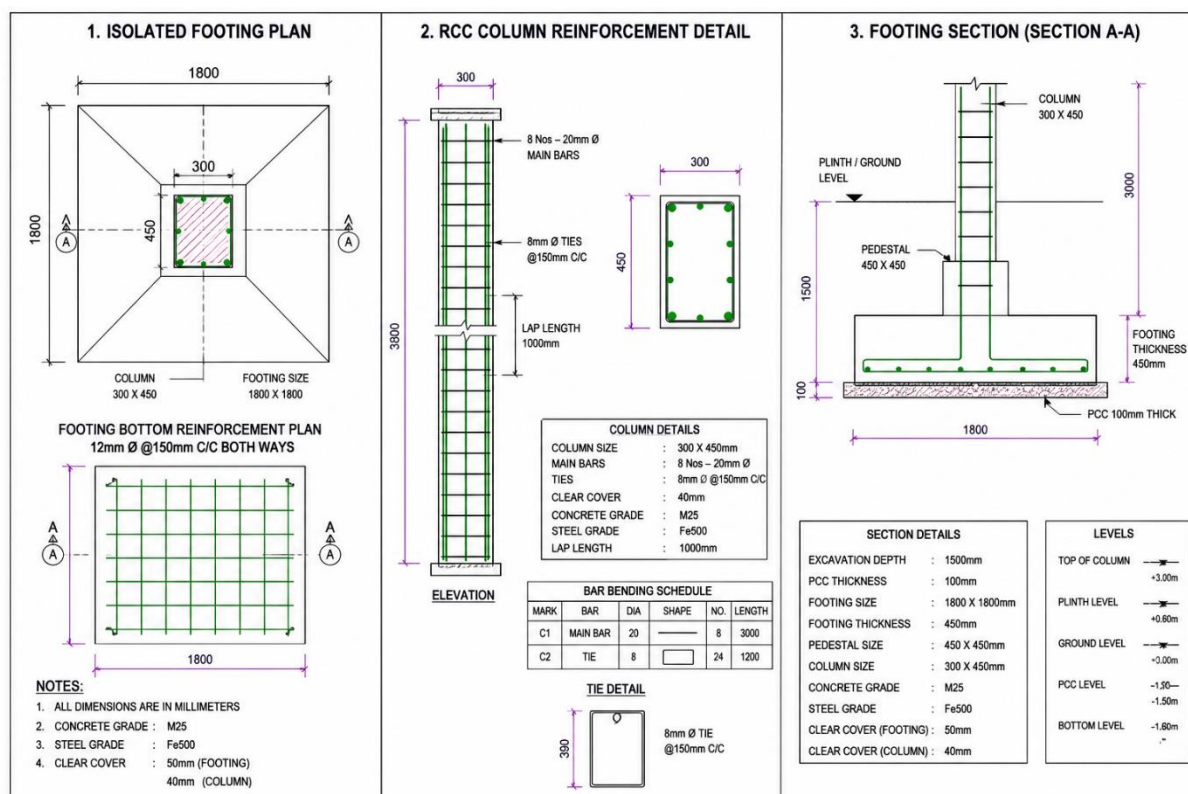
- Residential Buildings
- Commercial Buildings
- Office Buildings
- Apartment Construction
- Industrial Structures
- Educational Buildings
- Structural Consultancy
- Foundation Design Documentation
- Construction Site Execution

ADVANTAGES

- Accurate structural detailing
- Easy drawing modifications
- Improved construction quality
- Faster drafting process
- Better communication between engineers and contractors
- Reduced drawing errors
- Compliance with IS standards
- Easy quantity estimation
- Professional documentation

CONCLUSION

This project demonstrates the preparation of RCC column and footing detailing using AutoCAD. Accurate reinforcement details, dimensions, and sectional views help ensure safe and efficient construction. AutoCAD enhances drafting quality, reduces errors, and improves productivity in structural engineering. Proper RCC detailing is essential for the stability and durability of buildings.



4. G+1 Residential Building Design and Drawing Using AutoCAD

ABSTRACT

A G+1 residential building consists of a ground floor and one upper floor, providing efficient use of land and comfortable living space for a family. AutoCAD is widely used to prepare accurate architectural and structural drawings, including floor plans, elevations, sections, and structural layouts. This project demonstrates the planning and drafting of a G+1 residential building using AutoCAD with complete dimensions, room layouts, construction details, and engineering standards.

INTRODUCTION

A G+1 residential building is one of the most common types of residential construction in urban and suburban areas. Proper planning ensures adequate ventilation, natural lighting, circulation, and structural safety.

AutoCAD enables engineers and architects to prepare accurate building drawings with dimensions, annotations, and detailing. This project includes the preparation of the Ground Floor Plan, First Floor Plan, Front Elevation, and Sectional View.

DRAWING - 1

Ground Floor Plan

Overall Building Size

- **Length:** 12.0 m (12000 mm)
- **Width:** 10.0 m (10000 mm)

Room Details

Room	Size (mm)
Living Room	4500 × 4000
Drawing Hall	3600 × 3600

Room	Size (mm)
Kitchen	3000 × 3000
Dining Room	3000 × 3000
Bedroom	3600 × 3600
Common Toilet	1800 × 2100
Staircase	3000 × 4500
Sit-out	1800 × 4500

Drawing Includes

- Column layout
- Room layout
- Doors and windows
- Staircase
- Dimensions
- Centre lines

DRAWING - 2

First Floor Plan

Room Details

Room	Size (mm)
Master Bedroom	4200 × 3600
Bedroom 2	3600 × 3300
Family Hall	3600 × 3600
Balcony	1800 × 4500
Attached Toilet	1800 × 2100
Open Terrace	Remaining Area

Drawing Includes

- Balcony
- Family hall
- Bedrooms
- Attached toilet

- Staircase
- Terrace
- Complete dimensions

DRAWING - 3

Front Elevation

Building Heights

Component	Height
Plinth Height	600 mm
Ground Floor Height	3000 mm
First Floor Height	3000 mm
Roof Slab Thickness	150 mm
Parapet Height	900 mm

Elevation Includes

- Main entrance
- Balcony
- Windows
- Chajjas (Sunshades)
- Parapet wall
- Decorative façade
- Floor levels

DRAWING - 4

Section A-A

Structural Details

Component	Dimension
Foundation Width	1800 mm
PCC Thickness	100 mm
Footing Thickness	450 mm
Column Size	300 × 450 mm
Beam Size	230 × 450 mm

Component	Dimension
Slab Thickness	150 mm

Section Shows

- Foundation
- Footing
- Plinth beam
- Ground floor
- First floor
- Roof slab
- Staircase
- Column
- Beam
- Floor levels

DRAWING DETAILING WITH MEASUREMENTS

Building Size

- Length = 12000 mm
- Width = 10000 mm

Structural Members

- Column = 300 × 450 mm
- Beam = 230 × 450 mm
- Slab = 150 mm
- Stair Width = 1500 mm

Wall Thickness

- External Wall = 230 mm
- Internal Wall = 115 mm

Door Sizes

Door	Size
Main Door	1200 × 2100 mm
Bedroom Door	900 × 2100 mm
Toilet Door	750 × 2100 mm

Window Sizes

Window	Size
Living Room	1800 × 1200 mm
Bedrooms	1500 × 1200 mm
Kitchen	1200 × 1200 mm
Toilet Ventilator	600 × 450 mm

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Hatch
- Text
- MText
- Dimension
- Leader

Modify Tools

- Move
- Copy
- Mirror
- Offset
- Trim
- Extend
- Rotate

- Scale
- Stretch
- Array
- Fillet
- Chamfer
- Explode
- Join

Layer Management

- Layer Properties
- Layer Colour
- Line Weight
- Linetype

Annotation Tools

- Dimension Style
- Multiline Text
- Leader
- Table

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Standards

- IS 456:2000
- National Building Code (NBC) 2016
- IS 875
- IS 13920

Hardware

- Intel Core i5 or above
- 8 GB RAM
- 512 GB SSD
- Graphics Card (Recommended)

APPLICATIONS

- Residential Building Construction
- Duplex Houses
- Apartment Planning
- Building Approval Drawings
- Structural Design Documentation
- Quantity Estimation
- Construction Execution
- Civil Engineering Education

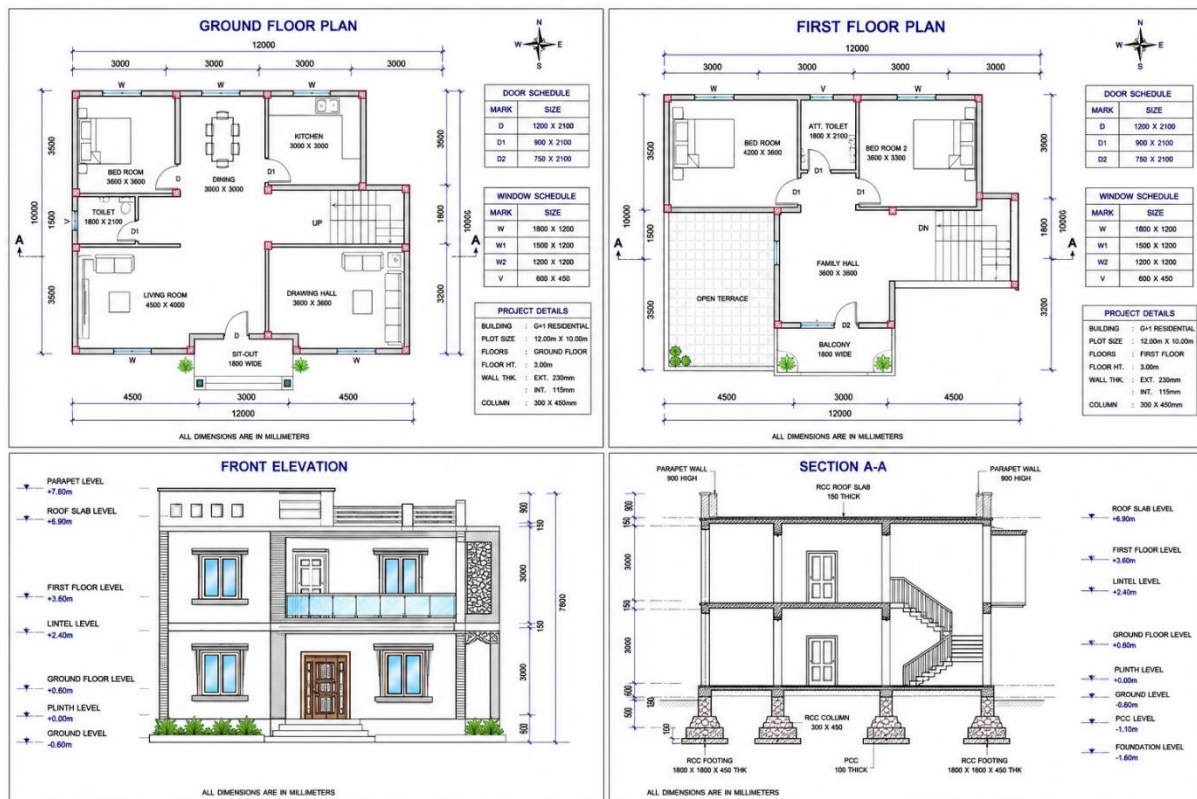
ADVANTAGES

- Efficient land utilization
- Comfortable living space for families
- Accurate and professional drawings
- Easy modifications in AutoCAD
- Reduced drafting errors
- Faster project completion
- Better communication between architects, engineers, and contractors
- Supports future expansion
- Compliance with engineering standards

CONCLUSION

The G+1 residential building design prepared using AutoCAD demonstrates the importance of accurate planning and drafting in civil engineering. The project includes complete floor plans, front elevation, and sectional view with proper dimensions and structural details.

AutoCAD simplifies the drafting process, improves accuracy, and enhances the quality of construction documentation, making it an essential tool for modern building design.



5. Staircase Design and Reinforcement Detailing Using AutoCAD

ABSTRACT

A staircase is one of the most important structural components in a building, providing safe and convenient movement between floors. Proper staircase planning and reinforcement detailing are essential for strength, safety, and durability. AutoCAD is widely used to prepare accurate staircase plans, sectional views, and reinforcement drawings with dimensions and annotations. This project presents the design and detailing of an RCC dog-legged staircase using AutoCAD as per standard engineering practices.

INTRODUCTION

An RCC staircase is designed to safely transfer loads while providing comfortable access between floors. The design depends on the building height, available space, and user comfort.

AutoCAD enables engineers to prepare detailed staircase drawings, reinforcement layouts, and sectional views with high accuracy. This project includes the staircase plan, longitudinal section, and reinforcement detailing for a G+1 residential building.

DRAWING - 1

Staircase Plan (Dog-Legged Staircase)

Staircase Dimensions

Item	Dimension
Stair Width	1500 mm
Total Rise	3000 mm
Number of Risers	20
Number of Treads	19
Riser Height	150 mm

Item	Dimension
Tread Width	300 mm
Landing Width	1500 mm
Waist Slab Thickness	150 mm

Staircase Plan Includes

- Flight-1
- Landing
- Flight-2
- Direction Arrow (UP)
- Step Numbering
- Centre Line
- Dimensions

DRAWING - 2

Longitudinal Section (Section A-A)

Section Details

Component	Size
Waist Slab	150 mm
Floor Finish	20 mm
Riser	150 mm
Tread	300 mm
Landing Slab	150 mm

Section Includes

- Ground Floor Level
- Landing Level
- First Floor Level
- Stair Flights
- Waist Slab
- Reinforcement
- Floor Finish
- Dimensions

DRAWING - 3

Staircase Reinforcement Detailing

Reinforcement Details

Item	Value
Main Bars	12 mm Ø @150 mm c/c
Distribution Bars	8 mm Ø @200 mm c/c
Landing Reinforcement	10 mm Ø @150 mm c/c
Concrete Grade	M25
Steel Grade	Fe500
Clear Cover	25 mm

Reinforcement Drawing Includes

- Bottom Reinforcement
- Top Reinforcement
- Bar Bending Details
- Development Length
- Anchorage
- Dimensions

DRAWING DETAILING WITH MEASUREMENTS

Overall Staircase

- Width = 1500 mm
- Total Height = 3000 mm
- Total Length = 6000 mm

Step Details

- Riser = 150 mm
- Tread = 300 mm
- No. of Risers = 20
- No. of Treads = 19

Landing

- Width = 1500 mm

Thickness = 150 mm

Waist Slab

- Thickness = 150 mm

Reinforcement

- Main Steel = 12 mm Ø @150 mm c/c
- Distribution Steel = 8 mm Ø @200 mm c/c

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Hatch
- Text
- MText
- Dimension
- Leader

Modify Tools

- Move
- Copy
- Mirror
- Offset
- Trim
- Extend
- Rotate

- Scale
- Stretch
- Array
- Fillet
- Chamfer
- Explode
- Join

Layer Management

- Layer Properties
- Layer Colour
- Line Weight
- Linetype

Annotation Tools

- Dimension Style
- Leader
- Table

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Design Standards

- IS 456:2000
- IS 875
- SP 34
- NBC 2016

Hardware

- Intel Core i5 Processor
- 8 GB RAM
- 512 GB SSD

APPLICATIONS

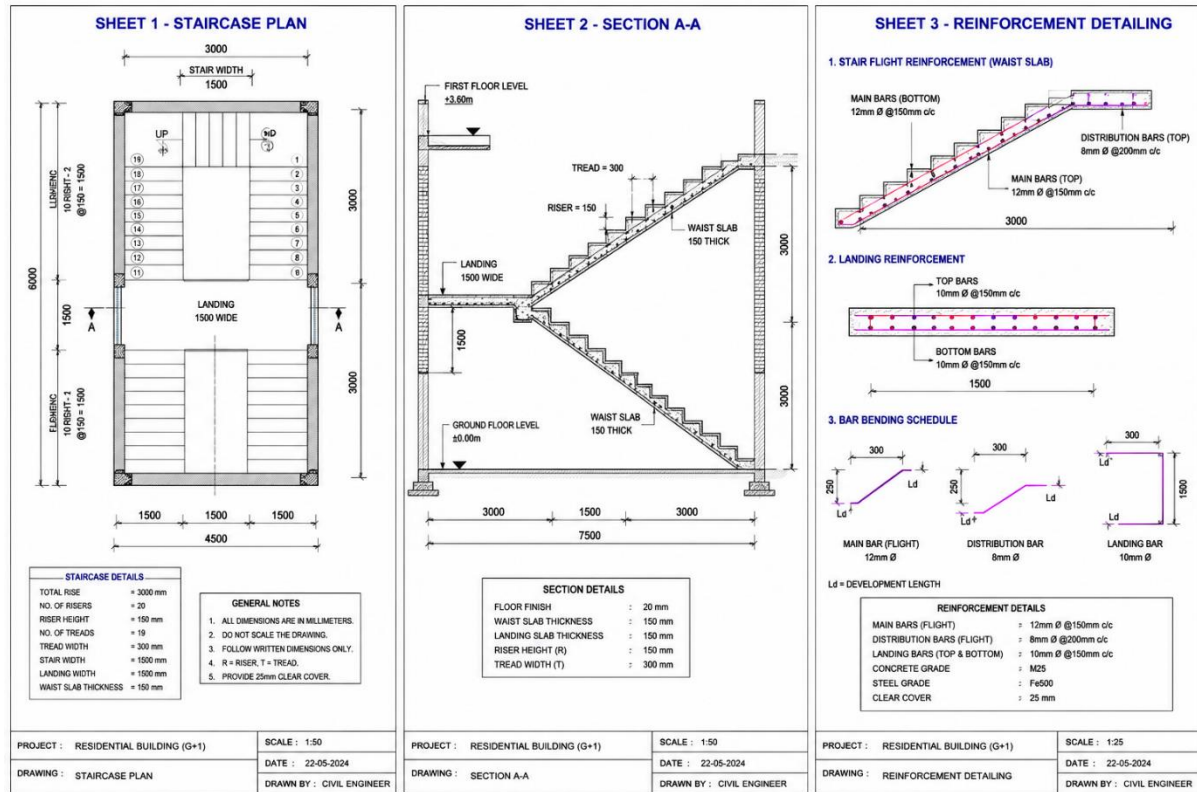
- Residential Buildings
- Commercial Buildings
- Apartments
- Schools
- Hospitals
- Office Buildings
- Shopping Complexes
- Industrial Buildings

ADVANTAGES

- Comfortable movement between floors
- Strong and durable RCC structure
- Easy reinforcement detailing
- Accurate AutoCAD drawings
- Saves drafting time
- Reduces construction errors
- Professional documentation
- Easy quantity estimation
- Better construction quality

CONCLUSION

The staircase design and reinforcement detailing prepared using AutoCAD demonstrate the importance of accurate drafting in structural engineering. Proper dimensions, reinforcement detailing, and sectional views help ensure safe construction and long-term performance. AutoCAD simplifies the preparation of professional staircase drawings, making it an essential tool for civil engineers.



6. Isolated Footing and Combined Footing Detailing Using AutoCAD

ABSTRACT

Footings are the foundation elements that safely transfer structural loads from columns to the soil. Among the various types of foundations, **isolated footings** are commonly used for individual columns, while **combined footings** are adopted when two columns are close together or when property line restrictions prevent the use of separate footings. AutoCAD is widely used to prepare accurate footing plans, reinforcement details, and sectional drawings. This project focuses on the detailing of isolated and combined footings using AutoCAD with complete dimensions, reinforcement details, and construction specifications as per IS standards.

INTRODUCTION

The foundation is the most important structural element of any building. Proper footing design ensures safe load transfer and minimizes settlement.

- **Isolated Footing:** Supports a single column.
- **Combined Footing:** Supports two columns sharing one footing.

AutoCAD helps engineers prepare professional foundation drawings with dimensions, reinforcement layouts, and sectional details.

DRAWING - 1

Isolated Footing Plan

Footing Details

Item	Value
Footing Type	Isolated Footing
Footing Size	1800 × 1800 mm
Footing Thickness	450 mm

Item	Value
PCC Thickness	100 mm
Column Size	300 × 450 mm
Concrete Grade	M25
Steel Grade	Fe500

Reinforcement

- Bottom Bars = 12 mm Ø @150 mm c/c (Both Ways)
- Clear Cover = 50 mm

Drawing Includes

- Footing layout
- Column location
- Reinforcement
- Centre lines
- Dimensions
- Section mark A-A

DRAWING - 2

Combined Footing Plan

Footing Details

Item	Value
Footing Type	Combined Footing
Footing Size	4500 × 1800 mm
Footing Thickness	500 mm
PCC Thickness	100 mm
Column Size	300 × 450 mm
Column Spacing	3000 mm

Reinforcement

- Main Bars = 16 mm Ø @150 mm c/c
- Distribution Bars = 12 mm Ø @200 mm c/c

- Clear Cover = 50 mm

Drawing Includes

- Two columns
- Combined footing outline
- Reinforcement
- Centre line
- Dimensions
- Section A-A

DRAWING - 3

Footing Section (Section A-A)

Structural Details

Component	Dimension
Excavation Depth	1500 mm
PCC Thickness	100 mm
RCC Footing Thickness	450-500 mm
Pedestal Size	450 × 450 mm
Column Size	300 × 450 mm

Section Includes

- Natural ground level
- Excavation
- PCC
- RCC footing
- Pedestal
- Column
- Reinforcement bars
- Dimensions
- Levels

DRAWING DETAILING WITH MEASUREMENTS

Isolated Footing

- Size = 1800 × 1800 mm
- Thickness = 450 mm

Combined Footing

- Size = 4500 × 1800 mm
- Thickness = 500 mm

Column

- Size = 300 × 450 mm
- Height = 3000 mm

Pedestal

- Size = 450 × 450 mm
- Height = 450 mm

Reinforcement

- Isolated Footing = 12 mm Ø @150 mm c/c
- Combined Footing = 16 mm Ø @150 mm c/c
- Distribution Bars = 12 mm Ø @200 mm c/c

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Hatch
- Text

- MText
- Dimension
- Leader

Modify Tools

- Move
- Copy
- Offset
- Trim
- Extend
- Mirror
- Rotate
- Scale
- Stretch
- Array
- Fillet
- Chamfer
- Explode
- Join

Annotation Tools

- Dimensions
- Leader
- Tables
- Multiline Text

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Standards

- IS 456:2000
- IS 875
- SP 34
- IS 13920

Hardware

- Intel Core i5 Processor
- 8 GB RAM
- 512 GB SSD

APPLICATIONS

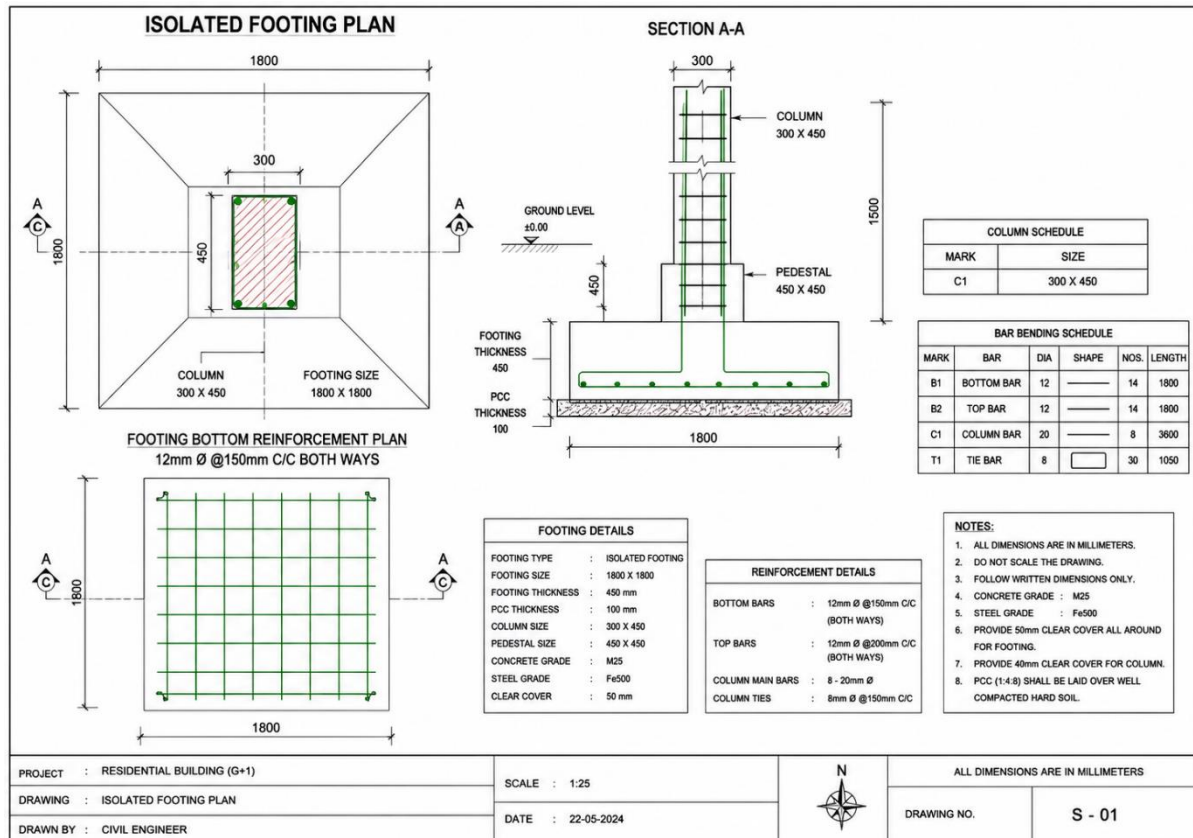
- Residential buildings
- Commercial buildings
- Industrial buildings
- Apartment projects
- Schools and hospitals
- Office buildings
- Structural foundation design
- Construction documentation

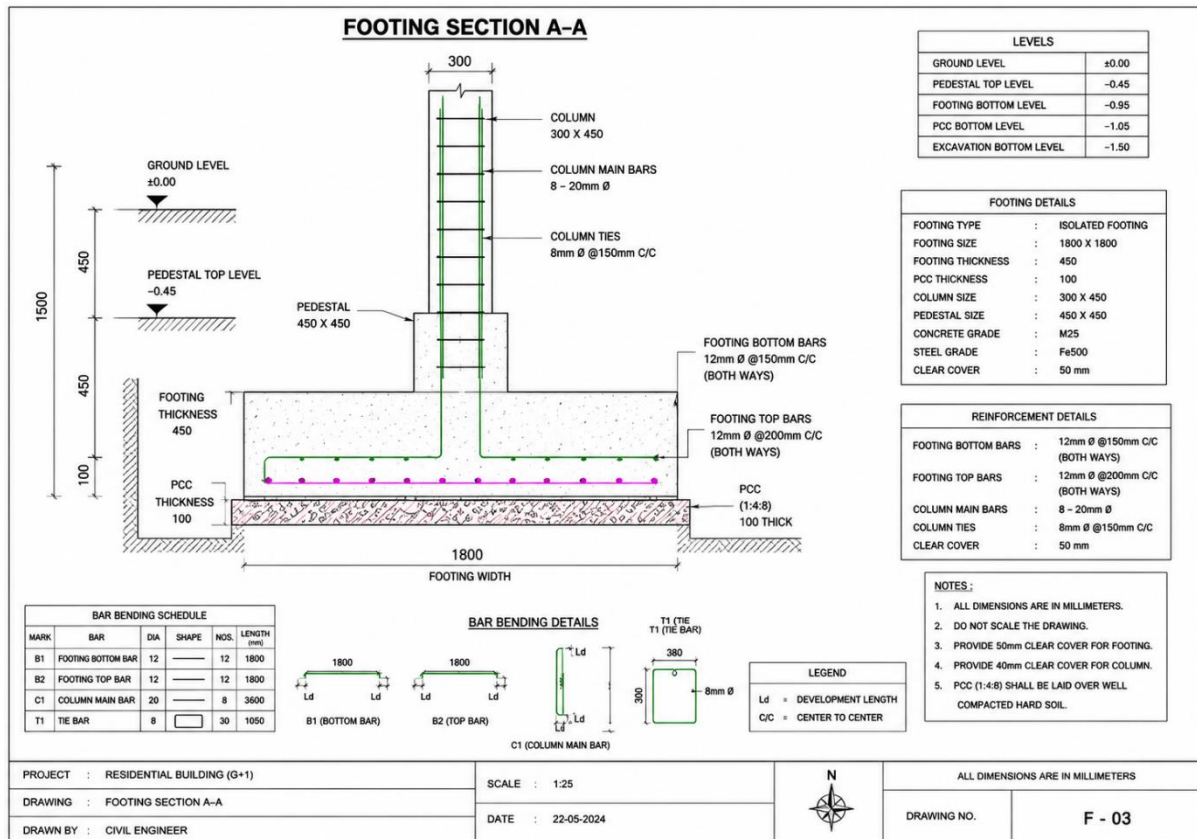
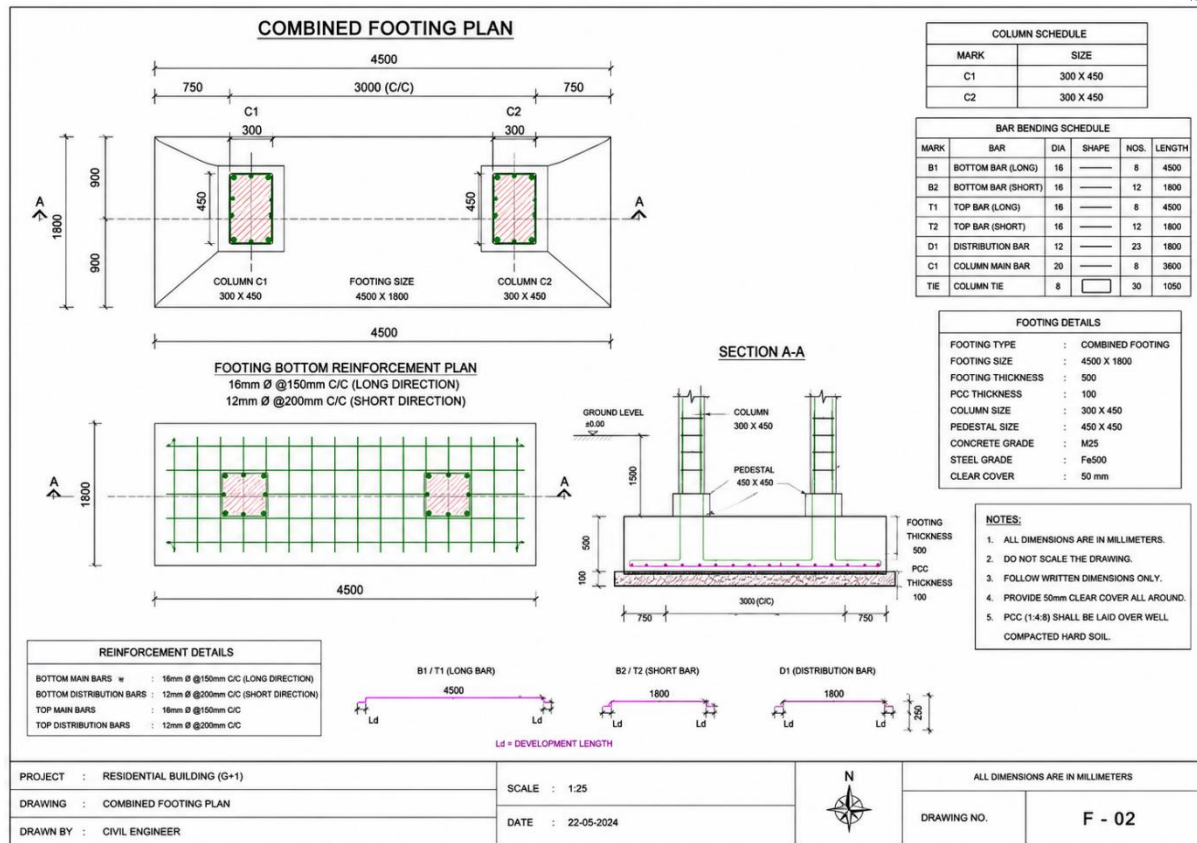
ADVANTAGES

- Accurate foundation detailing
- Safe load transfer
- Reduced construction errors
- Faster drafting process
- Easy drawing modifications
- Better communication among engineers
- Professional documentation
- Compliance with IS standards
- Easy quantity estimation

CONCLUSION

This project demonstrates the preparation of isolated footing and combined footing detailing using AutoCAD. Proper reinforcement layouts, dimensions, and sectional views ensure safe and economical foundation construction. AutoCAD simplifies drafting, enhances accuracy, and improves the overall quality of structural documentation.





7. 2BHK Residential Building Plan with Structural Details Using AutoCAD

ABSTRACT

A 2BHK (Two Bedroom, Hall, and Kitchen) residential building is one of the most commonly constructed housing types due to its efficient space utilization and economical construction. AutoCAD is extensively used for preparing accurate architectural and structural drawings such as floor plans, column layouts, beam layouts, footing layouts, and sectional views. This project demonstrates the planning and drafting of a 2BHK residential building with complete structural details using AutoCAD. The project includes dimensions, reinforcement details, construction specifications, and drafting standards in accordance with Indian Standards (IS Codes).

INTRODUCTION

Residential buildings require proper planning to ensure safety, comfort, ventilation, and efficient use of available space. Structural detailing is equally important to ensure the building can safely withstand all applied loads.

AutoCAD provides a precise platform for preparing architectural and structural drawings. This project presents a complete **2BHK residential building plan** with structural components including columns, beams, slabs, footings, and reinforcement details.

DRAWING - 1

2BHK Floor Plan

Overall Building Size

- **Length:** 12.0 m (12000 mm)
- **Width:** 10.0 m (10000 mm)

Room Dimensions

Room	Size (mm)
Living Hall	4500 × 4000
Master Bedroom	3600 × 3600
Bedroom 2	3300 × 3600
Kitchen	3000 × 3000
Dining	3000 × 2500
Common Toilet	1800 × 2100
Attached Toilet	1500 × 2100
Sit-out	1800 × 3000

Wall Thickness

- External Wall = **230 mm**
- Internal Wall = **115 mm**

Door Schedule

Door	Size
Main Door	1200 × 2100 mm
Bedroom Door	900 × 2100 mm
Toilet Door	750 × 2100 mm

Window Schedule

Window	Size
Living Room	1800 × 1200 mm
Bedroom	1500 × 1200 mm
Kitchen	1200 × 1200 mm
Toilet Ventilator	600 × 450 mm

Floor Plan Includes

- Room layout
- Doors and windows
- Furniture layout
- Centre lines
- Dimension lines
- Grid lines

DRAWING - 2

Structural Layout

Column Details

Item	Value
Column Size	300 × 450 mm
Number of Columns	12
Concrete Grade	M25
Steel Grade	Fe500

Beam Details

Item	Value
Beam Size	230 × 450 mm
Main Reinforcement	4-16 mm Ø
Stirrups	8 mm Ø @150 mm c/c

Slab Details

Item	Value
Thickness	150 mm
Main Bars	10 mm Ø @150 mm c/c
Distribution Bars	8 mm Ø @200 mm c/c

Structural Layout Includes

- Column grid
- Beam layout
- Slab panel

- Centre lines
- Column numbering
- Beam numbering

DRAWING - 3

Foundation Layout

Footing Details

Item	Value
Footing Type	Isolated Footing
Footing Size	1800 × 1800 mm
Thickness	450 mm
PCC Thickness	100 mm
Pedestal	450 × 450 mm

Reinforcement

- Bottom Steel = 12 mm Ø @150 mm c/c
- Concrete Cover = 50 mm

Foundation Drawing Includes

- Footing layout
- Column position
- Centre lines
- Reinforcement
- Dimensions
- Section mark

DRAWING DETAILING WITH MEASUREMENTS

Building

- Length = 12000 mm
- Width = 10000 mm

Structural Members

- Column = 300 × 450 mm
- Beam = 230 × 450 mm
- Slab = 150 mm
- Footing = 1800 × 1800 × 450 mm

Foundation

- PCC = 100 mm
- Excavation Depth = 1500 mm

Reinforcement

- Column = 8 Nos - 20 mm Ø
- Beam = 4 Nos - 16 mm Ø
- Slab = 10 mm Ø @150 mm c/c
- Footing = 12 mm Ø @150 mm c/c

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Hatch
- Text
- MText
- Dimension
- Leader

Modify Tools

- Move
- Copy
- Mirror
- Offset

- Trim
- Extend
- Rotate
- Scale
- Stretch
- Array
- Fillet
- Chamfer
- Explode
- Join

Layer Management

- Layer Properties
- Line Type
- Line Weight
- Layer Lock

Annotation Tools

- Dimensions
- Multiline Text
- Leaders
- Tables

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Design Standards

- IS 456:2000

- IS 875
- IS 13920
- SP 34
- National Building Code (NBC) 2016

Hardware

- Intel Core i5 Processor
- 8 GB RAM
- 512 GB SSD

APPLICATIONS

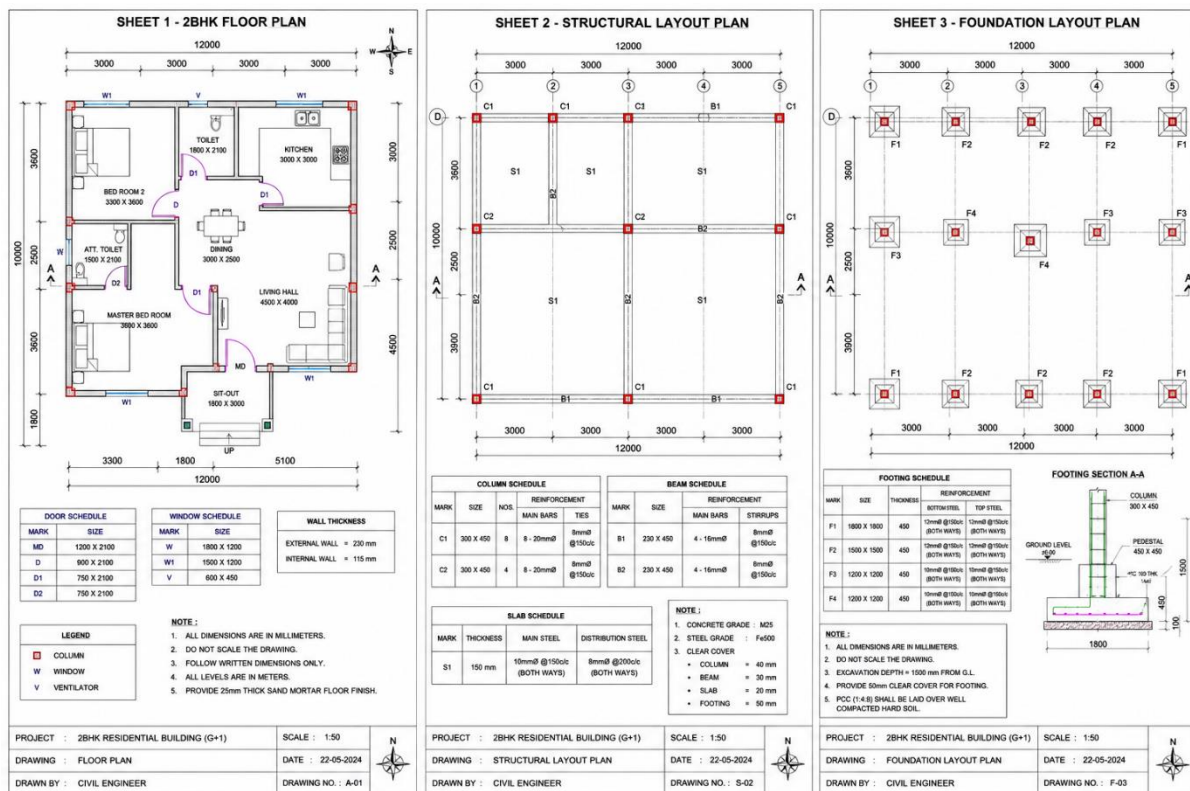
- Residential house construction
- Duplex house planning
- Municipal approval drawings
- Structural engineering documentation
- Quantity estimation
- Construction execution
- Civil engineering education
- Architectural planning

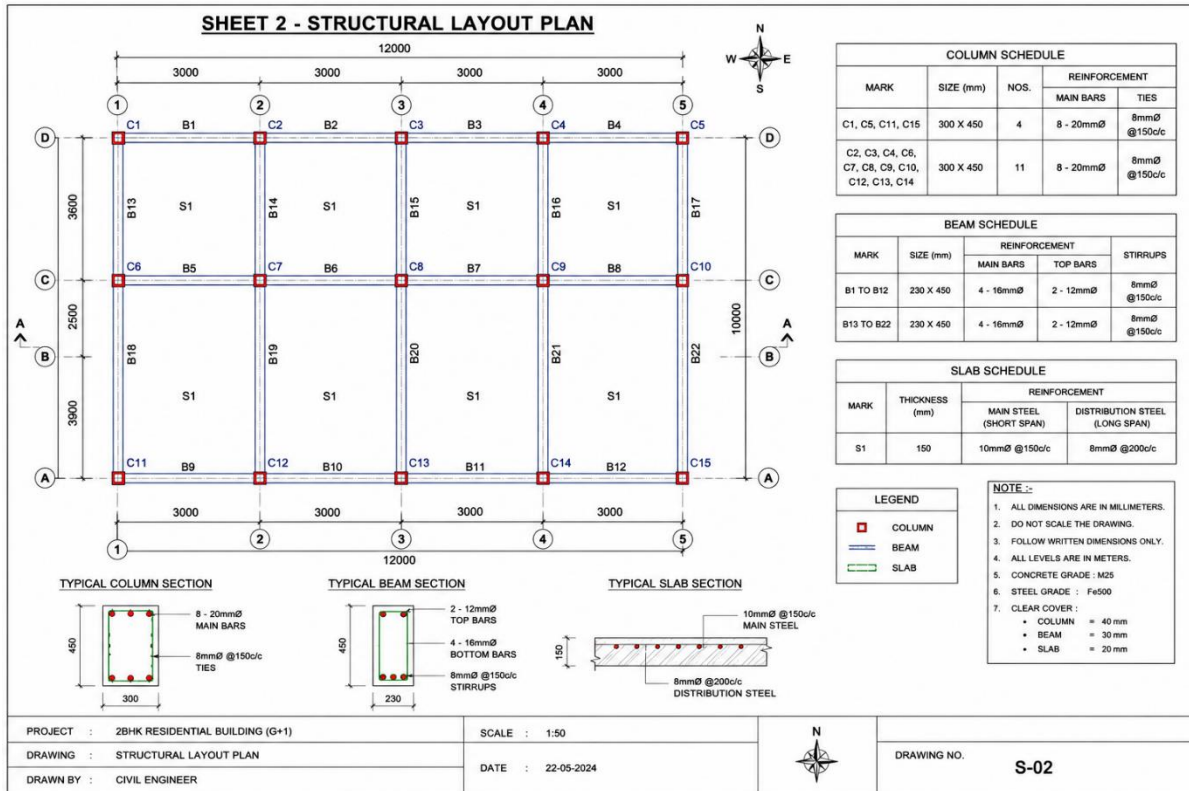
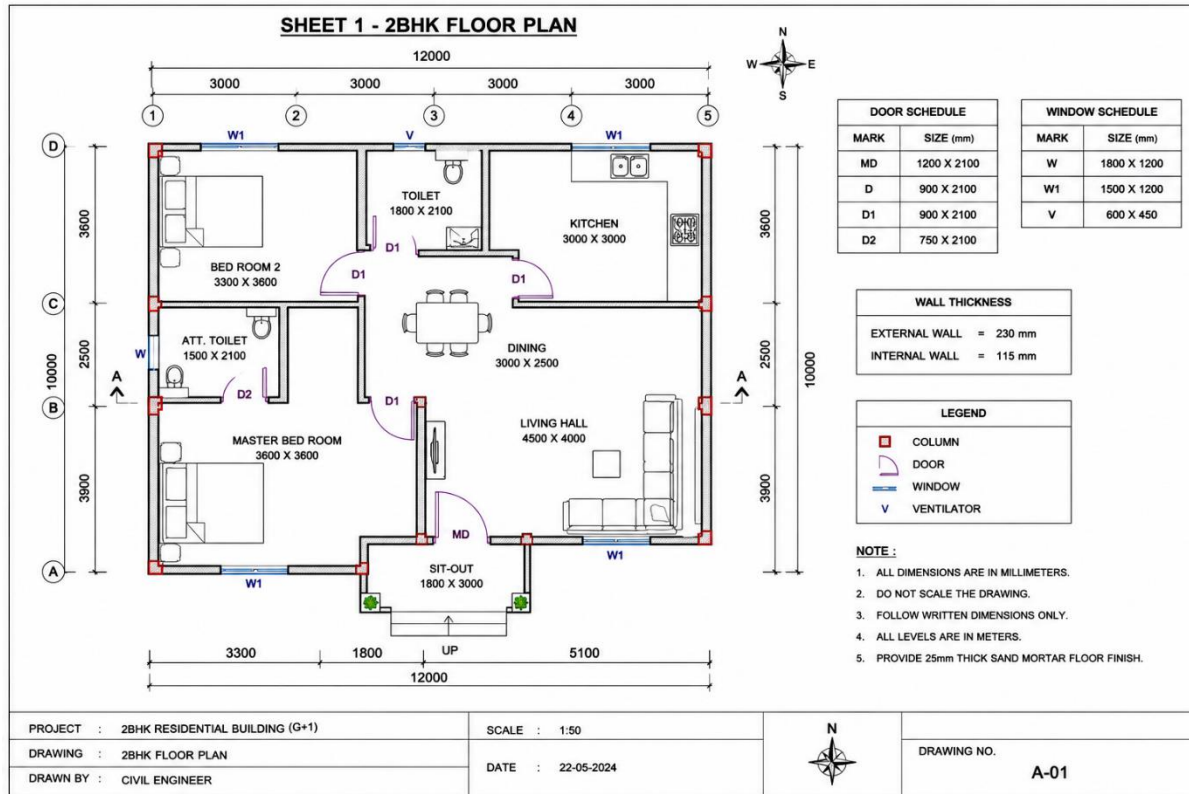
ADVANTAGES

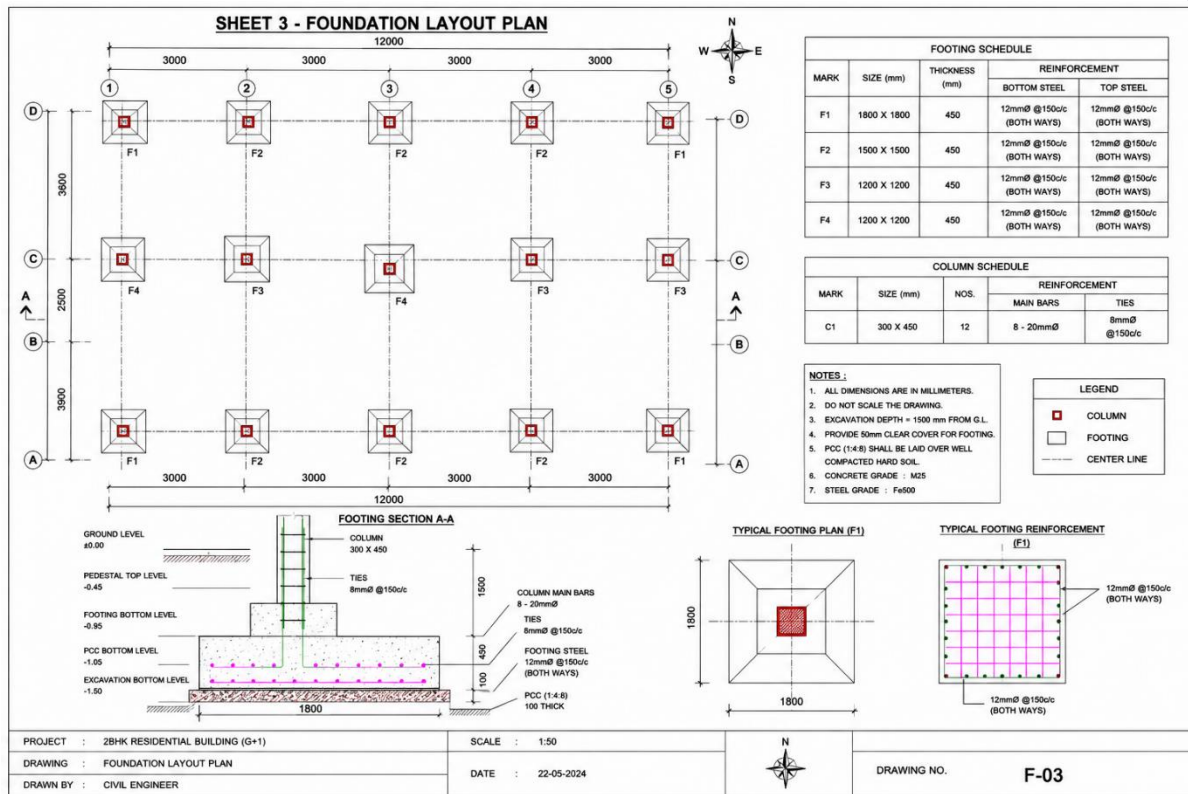
- Efficient use of available space
- Accurate structural detailing
- Reduced drafting errors
- Easy modifications in AutoCAD
- Professional documentation
- Better communication between engineers and contractors
- Time-saving
- Cost-effective planning
- Compliance with Indian Standards

CONCLUSION

This project demonstrates the planning and structural detailing of a 2BHK residential building using AutoCAD. The drawings include architectural planning, structural layouts, and foundation details with proper dimensions and reinforcement specifications. AutoCAD enhances drafting accuracy, simplifies modifications, and ensures professional-quality construction documentation, making it an essential tool for civil engineering projects.







8. Water Tank Design and Drafting Using AutoCAD

ABSTRACT

Water tanks are essential structures used to store potable water for residential, commercial, industrial, and public water supply systems. Proper planning and structural detailing ensure durability, water tightness, and safety. AutoCAD is widely used to prepare accurate engineering drawings, including plans, elevations, sections, and reinforcement details. This project presents the drafting and detailing of an RCC overhead water tank using AutoCAD with complete dimensions and structural specifications.

INTRODUCTION

An RCC overhead water tank stores water at an elevated level to provide adequate water pressure through gravity. The tank consists of the foundation, columns, braces, container, staircase, and top cover.

AutoCAD enables engineers to prepare professional structural drawings with accurate dimensions and reinforcement details, making it one of the most important software applications in civil engineering.

DRAWING - 1

Water Tank Plan

Tank Details

Item	Dimension
Tank Type	RCC Overhead Water Tank
Capacity	10,000 Litres
Internal Length	3000 mm
Internal Width	3000 mm
Internal Depth	1500 mm
Wall Thickness	200 mm
Bottom Slab	200 mm

Item	Dimension
Top Slab	150 mm

Drawing Includes

- Tank plan
- Wall thickness
- Inlet pipe
- Outlet pipe
- Overflow pipe
- Washout pipe
- Manhole
- Vent pipe
- Dimensions

DRAWING - 2

Front Elevation

Elevation Details

Component	Dimension
Staging Height	6000 mm
Column Size	300 × 300 mm
Number of Columns	4
Brace Beam	230 × 300 mm
Top Slab	150 mm

Elevation Includes

- RCC columns
- Brace beams
- Water tank
- Ladder
- Manhole
- Ground level
- Overall height

DRAWING - 3

Section A-A

Structural Details

Component	Size
-----------	------

Wall Thickness	200 mm
----------------	--------

Bottom Slab	200 mm
-------------	--------

Top Slab	150 mm
----------	--------

Base Beam	300 × 450 mm
-----------	--------------

Column	300 × 300 mm
--------	--------------

Reinforcement

- Wall Steel = 12 mm @150 mm c/c
- Slab Steel = 10 mm @150 mm c/c
- Column = 8 Nos 16 mm Ø
- Stirrups = 8 mm @150 mm c/c

Section Includes

- Water level
- Bottom slab
- Wall reinforcement
- Roof slab
- Manhole
- Ladder
- Staging
- Foundation

DRAWING DETAILING WITH MEASUREMENTS

Tank

- Length = 3000 mm
- Width = 3000 mm
- Height = 1500 mm

Structural Members

- Wall = 200 mm
- Bottom Slab = 200 mm
- Roof Slab = 150 mm
- Column = 300 × 300 mm
- Brace Beam = 230 × 300 mm

Foundation

- Footing = 1800 × 1800 × 450 mm
- PCC = 100 mm

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Hatch
- Text
- MText
- Dimension
- Leader

Modify Tools

- Move
- Copy
- Offset
- Mirror
- Trim
- Extend
- Rotate
- Scale
- Stretch

- Array
- Fillet
- Chamfer
- Explode

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Design Standards

- IS 3370 (Water Tanks)
- IS 456:2000
- SP 34
- IS 875

APPLICATIONS

- Residential buildings
- Apartments
- Schools
- Hospitals
- Industrial plants
- Commercial complexes
- Municipal water supply systems
- Rural water supply projects

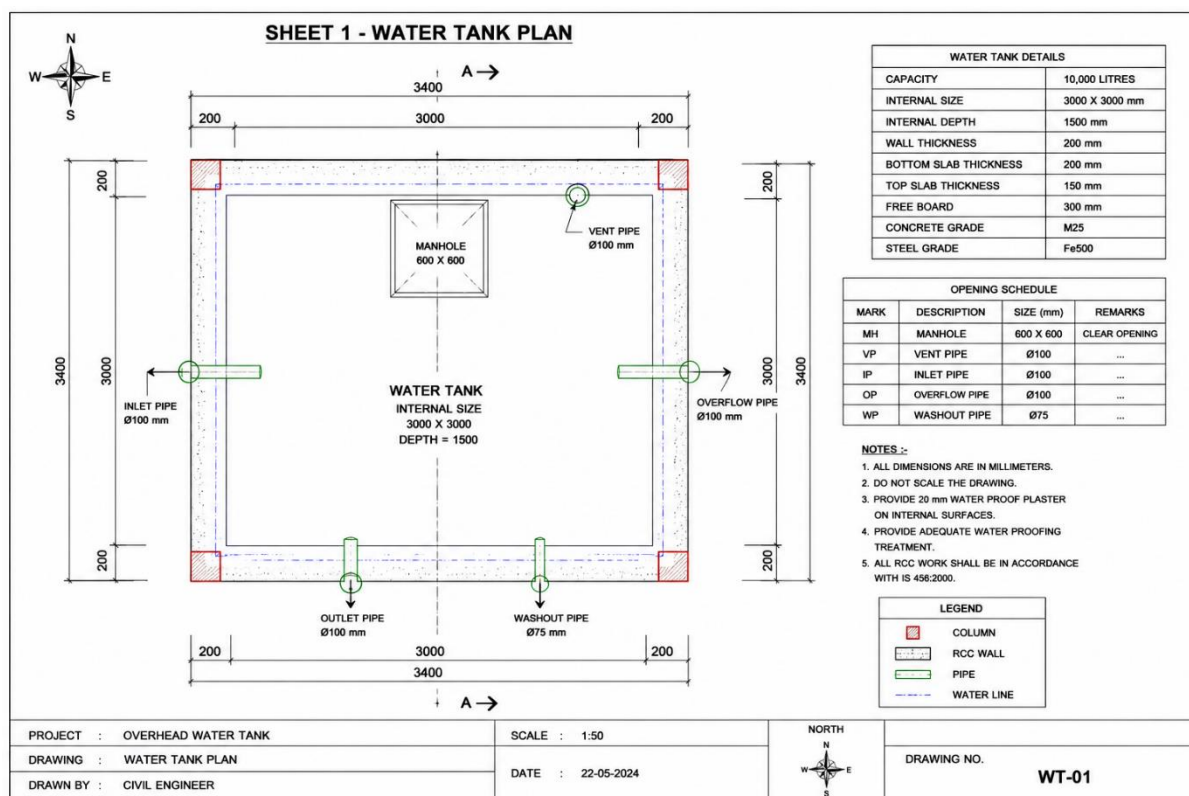
ADVANTAGES

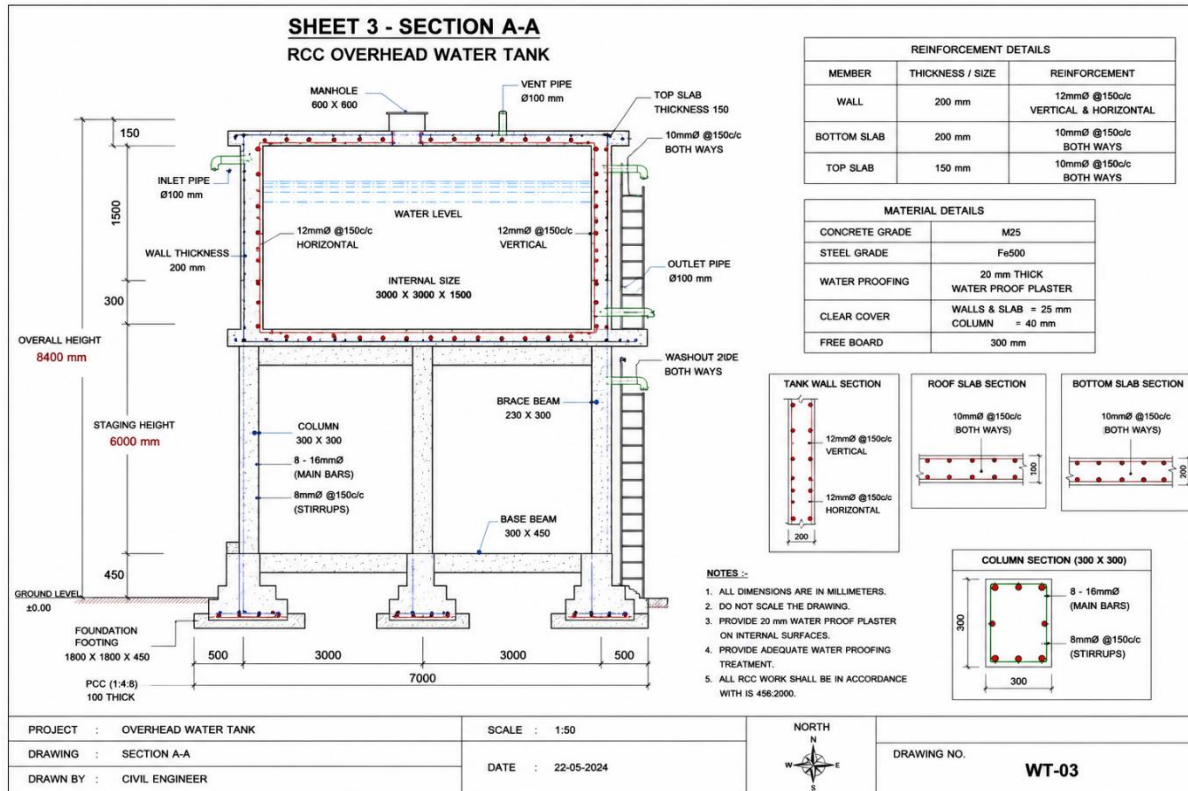
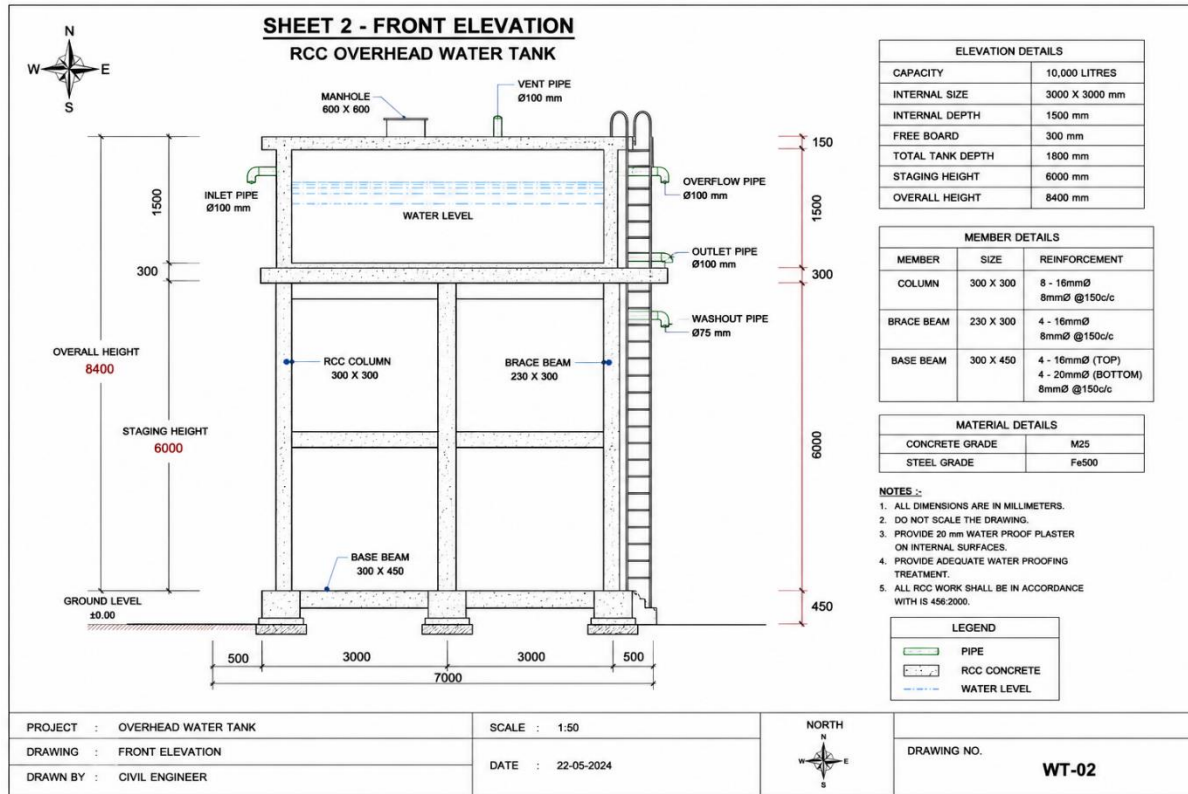
- Safe water storage
- Durable RCC construction

- Easy maintenance
- Leak-resistant design
- Accurate drafting using AutoCAD
- Professional construction drawings
- Easy future modifications
- Better structural safety

CONCLUSION

The project demonstrates the planning and detailing of an RCC overhead water tank using AutoCAD. It includes complete structural drawings, reinforcement details, and dimensions that comply with standard engineering practices. AutoCAD helps engineers prepare accurate and professional drawings, reducing errors and improving construction quality.





9. Retaining Wall Structural Detailing Using AutoCAD

ABSTRACT

A retaining wall is a reinforced concrete structure used to retain soil at different ground levels and prevent soil erosion or collapse. It is widely used in highways, basements, bridges, and residential construction. Proper structural detailing ensures the wall can safely resist lateral earth pressure and maintain long-term stability. AutoCAD is used to prepare detailed structural drawings, including plans, elevations, sections, and reinforcement layouts. This project presents the complete structural detailing of an RCC cantilever retaining wall using AutoCAD.

INTRODUCTION

Retaining walls are designed to support soil where there is a difference in ground elevation. The wall resists lateral earth pressure and transfers loads safely to the foundation.

A **cantilever retaining wall** consists of a stem, heel slab, toe slab, and base slab reinforced with steel bars. AutoCAD provides an efficient platform for preparing accurate engineering drawings with proper dimensions, reinforcement details, and annotations.

DRAWING - 1

Retaining Wall Plan

General Details

Item	Dimension
Wall Type	RCC Cantilever Retaining Wall
Total Length	6000 mm
Wall Height	4000 mm
Base Width	3000 mm
Stem Thickness (Top)	200 mm
Stem Thickness (Bottom)	400 mm
Heel Width	1800 mm
Toe Width	1200 mm

Drawing Includes

- Wall layout
- Stem position
- Heel and toe slabs
- Expansion joints (if required)
- Drainage pipe locations
- Weep holes
- Centre lines
- Dimensions

DRAWING - 2

Section A-A

Structural Details

Component	Size
Wall Height	4000 mm
Base Slab Thickness	500 mm
Stem Thickness	200-400 mm
PCC Thickness	100 mm
Foundation Depth	1000 mm

Reinforcement

- Stem Vertical Bars = **16 mm Ø @150 mm c/c**
- Stem Horizontal Bars = **12 mm Ø @200 mm c/c**
- Base Slab Main Bars = **16 mm Ø @150 mm c/c**
- Distribution Bars = **12 mm Ø @200 mm c/c**

Section Includes

- Backfill soil
- RCC stem
- Heel slab
- Toe slab
- Base slab
- PCC

- Drainage layer
- Weep holes
- Ground level
- Reinforcement
- Dimensions

DRAWING - 3

Reinforcement Detailing

Stem Reinforcement

Item	Reinforcement
Vertical Bars	16 mm Ø @150 mm c/c
Horizontal Bars	12 mm Ø @200 mm c/c

Base Slab Reinforcement

Item	Reinforcement
Main Bars	16 mm Ø @150 mm c/c
Distribution Bars	12 mm Ø @200 mm c/c

Additional Details

- Concrete Grade = **M30**
- Steel Grade = **Fe500**
- Clear Cover = **50 mm**

Drawing Includes

- Stem reinforcement
- Heel reinforcement
- Toe reinforcement
- Bar bending details
- Anchorage length
- Lap splice details
- Reinforcement labels

DRAWING DETAILING WITH MEASUREMENTS

Wall Dimensions

- Height = 4000 mm
- Length = 6000 mm

Base Slab

- Width = 3000 mm
- Thickness = 500 mm

Heel Slab

- Width = 1800 mm

Toe Slab

- Width = 1200 mm

Stem

- Top Thickness = 200 mm
- Bottom Thickness = 400 mm

Foundation

- PCC Thickness = 100 mm
- Foundation Depth = 1000 mm

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Hatch
- Text
- MText
- Dimension

- Leader

Modify Tools

- Move
- Copy
- Offset
- Mirror
- Trim
- Extend
- Rotate
- Scale
- Stretch
- Array
- Fillet
- Chamfer
- Explode
- Join

Annotation Tools

- Dimension Style
- Leaders
- Tables
- Multiline Text

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Design Standards

- IS 456:2000
- IS 875
- SP 34
- IS 14458
- IRC Guidelines (where applicable)

APPLICATIONS

- Highway retaining structures
- Bridge approaches
- Basement walls
- Residential plots with level differences
- Railway embankments
- Industrial sites
- Landscaping projects
- Hill roads

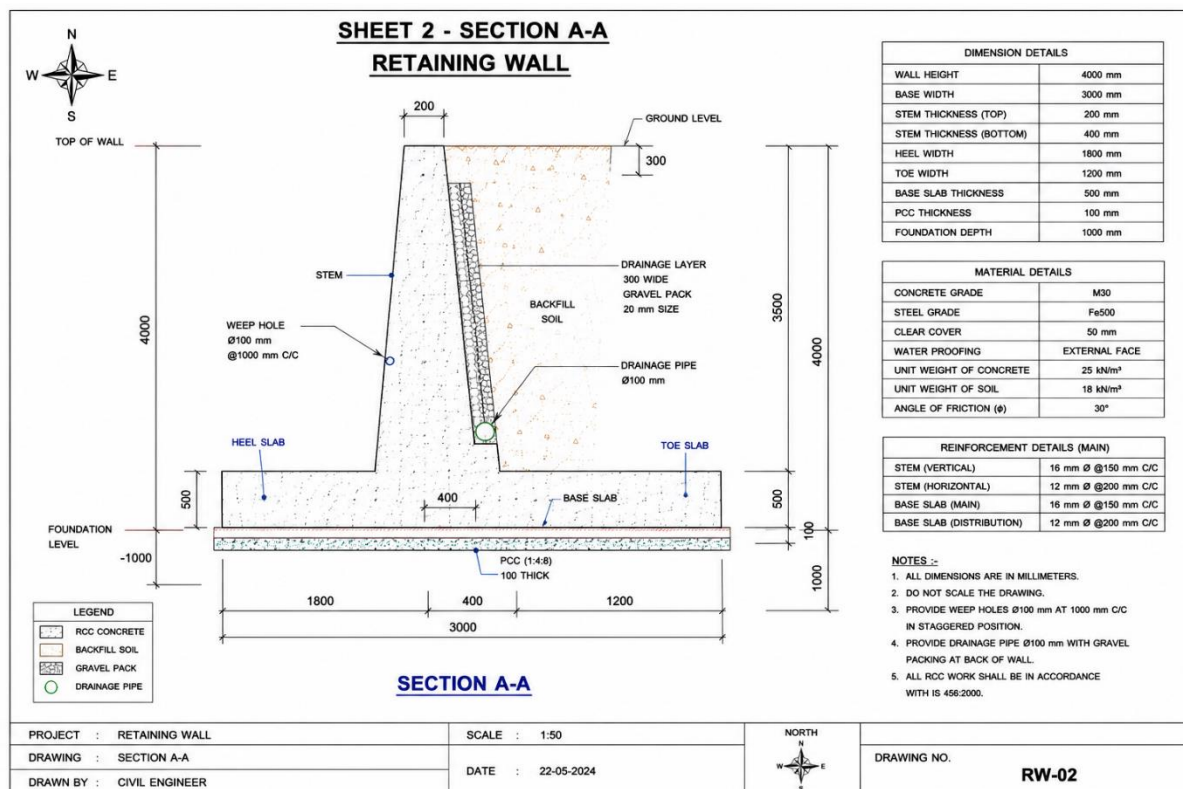
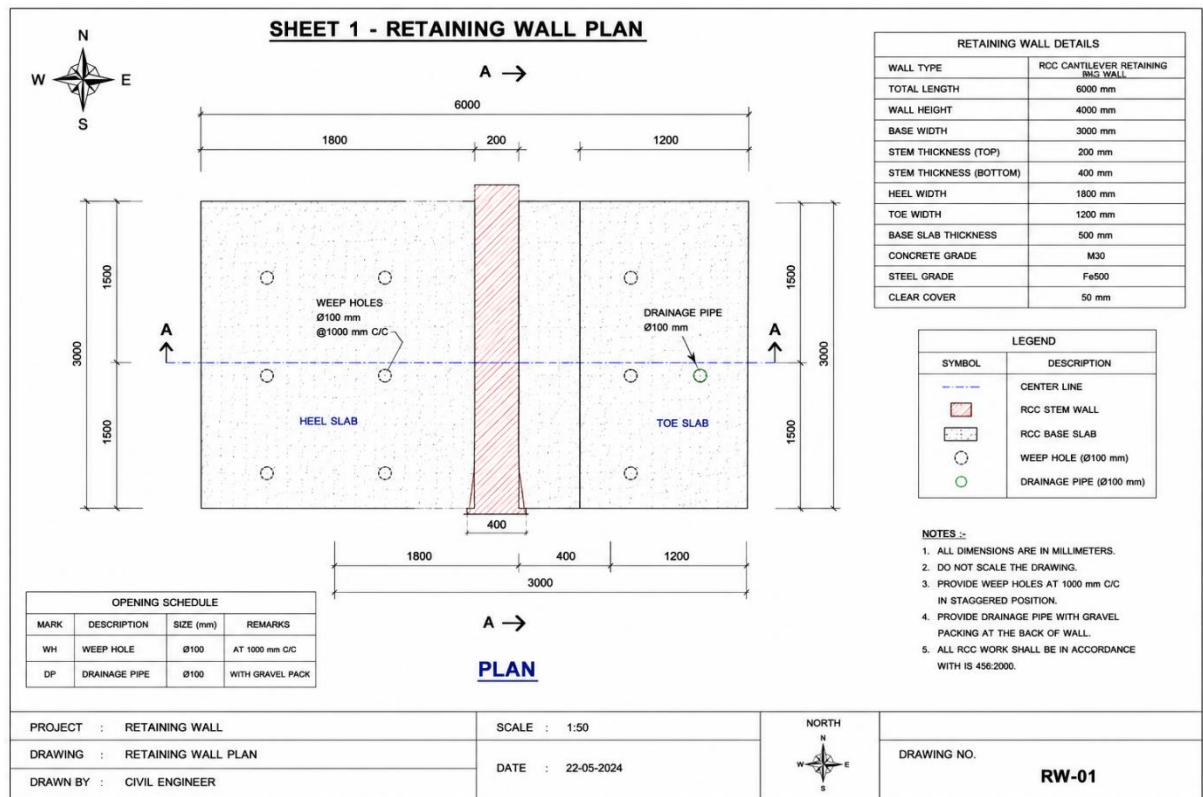
ADVANTAGES

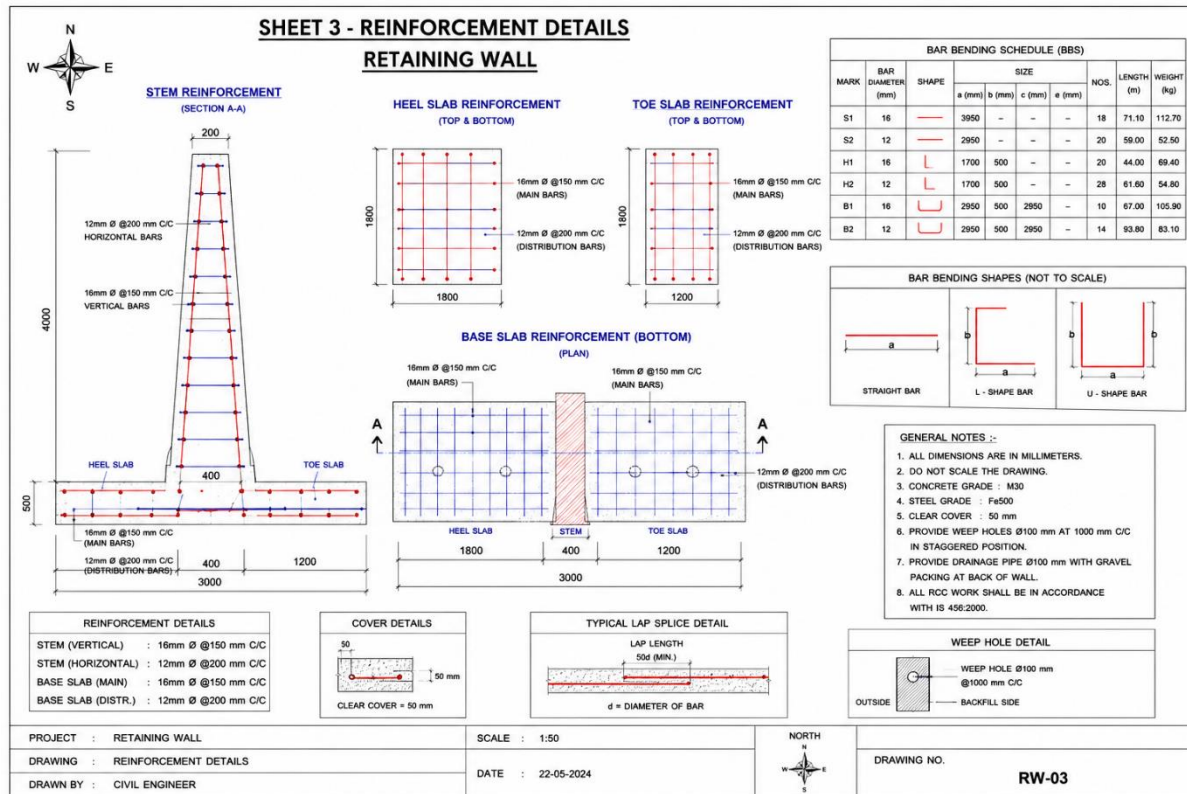
- Prevents soil erosion
- Supports earth pressure safely
- Durable RCC construction
- Long service life
- Easy drafting and modification using AutoCAD
- Accurate reinforcement detailing
- Professional engineering documentation
- Reduces construction errors

CONCLUSION

This project demonstrates the structural detailing of an RCC cantilever retaining wall using AutoCAD. It includes plan, section, and reinforcement drawings with complete dimensions

and reinforcement specifications. AutoCAD enables engineers to prepare accurate and professional structural drawings, ensuring safe and economical retaining wall construction.





10. Industrial Shed Structural Drawing Using AutoCAD

ABSTRACT

Industrial sheds are widely used for factories, warehouses, workshops, and storage facilities. They are generally constructed using steel structures because of their high strength, durability, and ease of construction. AutoCAD is an important drafting software used to prepare accurate structural drawings such as layout plans, elevations, frame sections, foundation layouts, and steel connection details.

This project demonstrates the structural detailing of a steel industrial shed using AutoCAD. It includes the preparation of a layout plan, front elevation, and typical frame section with complete dimensions, member specifications, and construction details. The project follows standard engineering practices and relevant Indian Standards (IS Codes), making it suitable for academic and practical applications.

INTRODUCTION

An industrial shed is a large-span steel structure designed for industrial operations, manufacturing, storage, and commercial purposes. Steel sheds are preferred because they are economical, lightweight, and can cover large areas without intermediate columns.

AutoCAD is widely used in civil and structural engineering to prepare professional engineering drawings with accurate dimensions, structural member layouts, and detailing. Proper structural drawings reduce construction errors, improve communication between engineers and contractors, and ensure safe construction.

This project presents the complete structural drawing of a steel industrial shed, including plan, elevation, and sectional details.

DRAWING - 1

Industrial Shed Layout Plan

Overall Dimensions

Item	Value
Shed Length	25000 mm
Shed Width	20000 mm
Grid Spacing	5000 mm
Number of Bays	5
Number of Frames	6

Plan Includes

- Grid Lines (A-E and 1-6)
- Steel Column Locations
- Foundation Positions
- Roof Bracing Layout
- Centre Lines
- Overall Dimensions

DRAWING - 2**Front Elevation****Structural Dimensions**

Item	Value
Eave Height	8000 mm
Ridge Height	10300 mm
Roof Slope	1:10
Column Height	8000 mm
Bay Width	5000 mm

Elevation Includes

- Steel Columns
- Rafters
- Roof Purlins
- Ridge Ventilator
- Roof Sheeting
- Foundation Level

- Ground Level
- Overall Dimensions

DRAWING - 3

Typical Frame Section

Structural Members

Member	Section
Steel Column	ISMB 250
Steel Rafter	ISMB 250
Purlin	C150 × 50 × 20 × 2 mm
Girt	C150 × 50 × 20 × 2 mm
Roof Bracing	ISA 60 × 60 × 6 mm

Foundation Details

Component Size

RCC Footing	1500 × 1500 × 450 mm
Pedestal	450 × 450 × 600 mm
PCC	100 mm Thick

Section Includes

- Steel Column
- Rafter
- Roof Slope
- Base Plate
- Anchor Bolts
- RCC Footing
- Ground Level
- Dimensions

DRAWING DETAILING WITH MEASUREMENTS

Building Dimensions

- Length = 25000 mm
- Width = 20000 mm

- Eave Height = **8000 mm**
- Ridge Height = **10300 mm**

Structural Members

Member	Size
--------	------

Steel Column	ISMB 250
--------------	----------

Steel Rafter	ISMB 250
--------------	----------

Purlin	C150 × 50 × 20 × 2 mm
--------	-----------------------

Girt	C150 × 50 × 20 × 2 mm
------	-----------------------

Roof Bracing	ISA 60 × 60 × 6 mm
--------------	--------------------

Foundation

Item	Size
------	------

Footing	1500 × 1500 × 450 mm
---------	----------------------

PCC	100 mm Thick
-----	--------------

Pedestal	450 × 450 × 600 mm
----------	--------------------

Roof

- Roof Slope = **1:10**
- Roofing Sheet Thickness = **0.50 mm GI Sheet**

AUTOCAD DRAWING TOOLS USED

Drawing Tools

- Line
- Polyline
- Rectangle
- Circle
- Arc
- Polygon
- Hatch
- Text
- MText
- Dimension
- Leader

- Table

Layer Tools

- Layer Properties
- Line Type
- Line Weight
- Colour Management

MODIFY TOOLS USED

- Move
- Copy
- Mirror
- Offset
- Trim
- Extend
- Rotate
- Scale
- Stretch
- Array
- Fillet
- Chamfer
- Break
- Explode
- Join

TECHNOLOGY USED

Software

- AutoCAD 2024

Operating System

- Windows 10 / Windows 11

Design Standards

- IS 800:2007 (General Construction in Steel)
- IS 875 (Loading Standards)
- IS 456:2000 (Concrete)
- National Building Code (NBC) 2016

Hardware

- Intel Core i5 Processor or above
- 8 GB RAM
- 512 GB SSD
- Dedicated Graphics Card (Recommended)

APPLICATIONS

- Industrial factories
- Warehouses
- Manufacturing plants
- Automobile workshops
- Agricultural storage sheds
- Logistics and distribution centers
- Aircraft hangars
- Commercial storage buildings

ADVANTAGES

- Large column-free working space
- Faster construction
- High structural strength
- Lightweight steel structure
- Easy future expansion
- Economical for long spans
- Easy maintenance
- Accurate drafting using AutoCAD
- Reduced construction errors

- Professional engineering documentation

CONCLUSION

The Industrial Shed Structural Drawing Using AutoCAD project demonstrates the preparation of accurate structural drawings for a steel industrial shed. The project includes the layout plan, front elevation, and typical frame section with complete dimensions, member specifications, and foundation details. AutoCAD improves drafting accuracy, reduces construction errors, and provides professional engineering documentation. This project helps civil engineering students understand industrial steel structures and structural detailing techniques used in real-world construction projects.

