QIS COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous & NAAC 'A+' Grade)

(Approved by AICTE, New Delhi & Affiliated to JNTU Kakinada)

(An ISO 9001:2015 Certified Institution)

VENGAMUKKAPALEM, ONGOLE-523272, A.P., INDIA

Internship Report on G+1 Residential Building Project-AutoCAD

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DURATION	12th JULY - 2023 to 15th JUNE -2023

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DEPARTMENT OF CIVIL ENGINEERING

BONAFIDE CERTIFICATE

This is to certify that the **"Internship Report"** submitted by **Tampara. Jagadish Kumar-20491A0130,** during academic Year 2023 – 2024, in partial fulfilment of the requirements for the award ofthe degree of BTech, QIS College of Engineering and Technology (Autonomous), Ongole.

Department Internship Coordinator **Head of the Department**

Signature of Principal

ABSTRACT

A crucial experience that helped me close the gap between academic understanding and real-world application in the construction business was my one-month internship on a G +1 Residential Building design Project. It provided a thorough awareness of the complexities related to building projects. I actively participated in the project's design during the internship, which helped me develop a comprehensive understanding of residential building. We learned the AutoCAD from the basics itself. The abilities I was able to build as a result of this experience included teamwork, problem-solving, and time management. It also made me more aware of the rules and regulations that apply to safety in the construction industry. The internship also taught me the value of flexibility and good communication as well as the changing nature of building projects. We are able to design plan according to the vastu.

OUTLINE

1. Overview of AutoCAD
2. Concepts of AutoCAD
3. Vastu Theory
4. Design according to Vastu
5. Column Alignment
6. Design according to the road face
7. Floor Planning of G+1

OVERVIEW OF AUTOCAD

AutoCAD is a commercial software application for 2D and 3D computer-aided design (CAD) and drafting available since 1982 as a desktop application and since 2010 as a mobile web and cloud- based app marketed as AutoCAD 360. Developed and marketed by Autodesk, Inc., AutoCAD was first released in December 1982, running on microcomputers with internal graphics controllers. Prior to the introduction of AutoCAD, most commercial CAD programs ran on mainframe computers or minicomputers, with each CAD operator (user) working at a separate graphics terminal. AutoCAD is used across a wide range of industries, by architects, project managers, engineers, graphic designers, and other professionals. It is supported by 750 training centres worldwide as of 1994. As Autodesk's flagship product, by March 1986 AutoCAD had become the most ubiquitous CAD program worldwide. As of 2014, AutoCAD is in its twenty-ninth generation, and collectively with all its variants, continues to be the most widely used CAD program throughout most of the world

CONCEPTS OF AUTOCAD

The concepts of AutoCAD includes :

1. Learning about User Interface
2. Unit Conversions
3. Basic Commands
4. Annotations
5. Layers
6. Group
7. Blocks
8. Array

Learning about User Interface:

In the upper-left corner of the AutoCAD program window, the red AutoCAD icon displays the Application menu, which offers a set of options not directly related to drawing; we'll elaborate on this menu in the next section. The Quick Access toolbar at the top of the drawing area includes the basic file-handling functions, which you find in nearly all Windows programs.

The Application menu offers tools to help you manage your AutoCAD files. It is basically the File pull-down menu from earlier versions of AutoCAD.

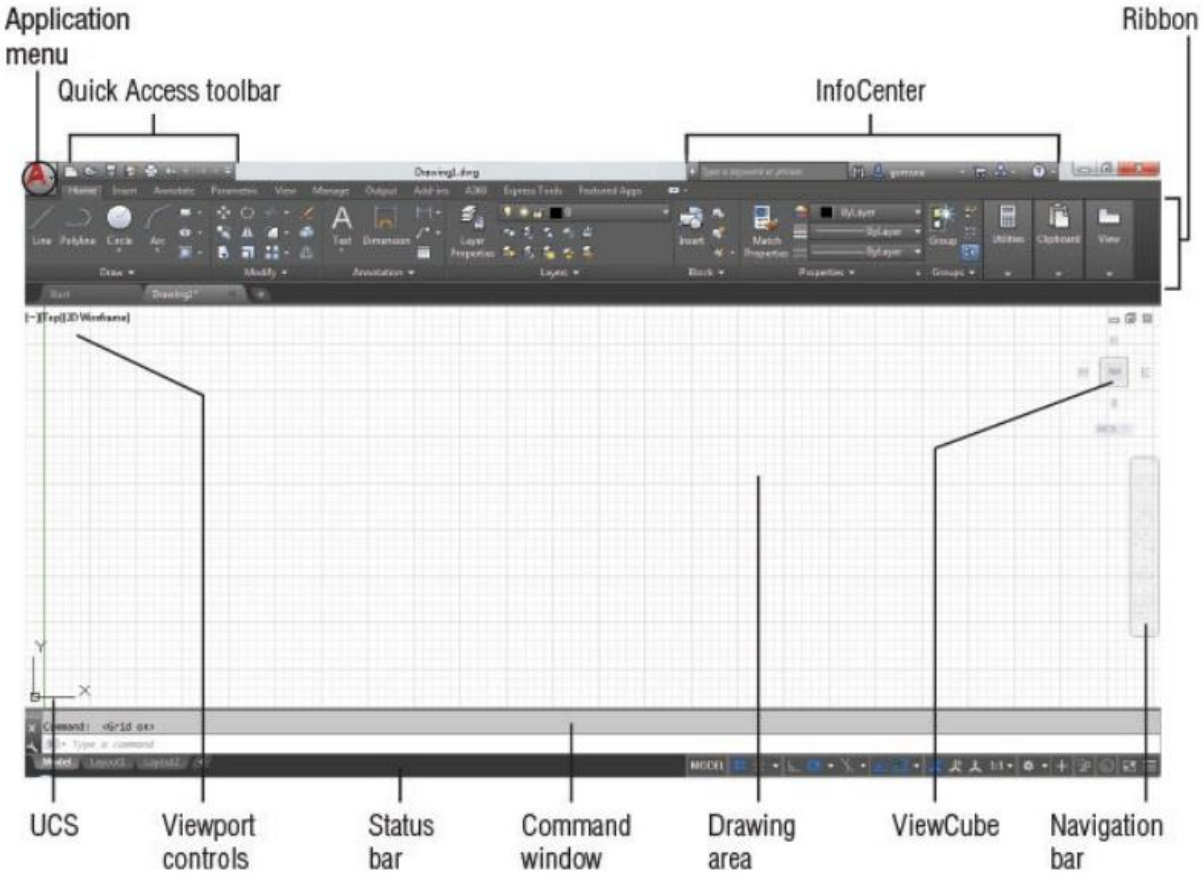
1. Click the Application menu icon in the upper-left corner of the AutoCAD window. A list of options appears.

2. Move the cursor slowly down the list of options in the left column. As you highlight the options, additional options appear in a column to the right.

3. Highlight the Export option to see the various formats available for export

The Application menu also gives you a convenient way to find recently used files or to get to a file you already have open. If you move your cursor away from the list of options to the left in the Application menu, you'll see Recent Documents in the upper-left portion of the menu. You'll also see two icon tools, named Open Documents and Recent Documents. The Quick Access toolbar, featuring basic Windows file-handling functions, appears above the Ribbon. The drawing area occupies most of the screen. Everything you draw appears in this area. As you move your mouse around, crosshairs appear to move within the drawing area. This is the drawing cursor that lets you point to locations in the drawing area. You'll get your first chance to work with the drawing area later in the section "Picking Points in the Drawing Area." Below the Command window is the status bar. The status bar gives you information at a glance about the state of the drawing. The tools in the status bar offer aids to the drafting process. The drawing area occupies most of the screen. Everything you draw appears in this area. As you move your mouse around, crosshairs appear to move within the drawing area. This is the drawing cursor that lets you point to locations in the drawing area. You'll get your first chance

to work with the drawing area later in the section “Picking Points in the Drawing Area.” Just above the drawing area are the Drawing tabs that let you create new drawings or switch between open drawings in a way similar to popular web browsers. Notice the X in the current tab, which lets you close the current drawing, and the plus icon just to the right of the tab, which lets you create a new drawing or open an existing one. When you click the plus icon, a new drawing tab appears that you can save as a new file. Right-click the plus icon and a context menu opens that offers you the option to open an existing drawing or to create a new one in the form of an additional tab by using a template. If you hover over the Drawing tab, you’ll see preview images of the model and layouts of the drawing.



You’ll learn more about model and layout spaces later in this chapter. Within the drawing area, you see several items along the side and in the corners. The UCS icon appears in the lower-left corner. You’ll learn more about the UCS icon in a moment. In the upper-right corner, you see the ViewCube.

Below the Command window is the status bar. The status bar gives you information at a glance about the state of the drawing. The tools in the status bar offer aids to the drafting process.

COMMANDS

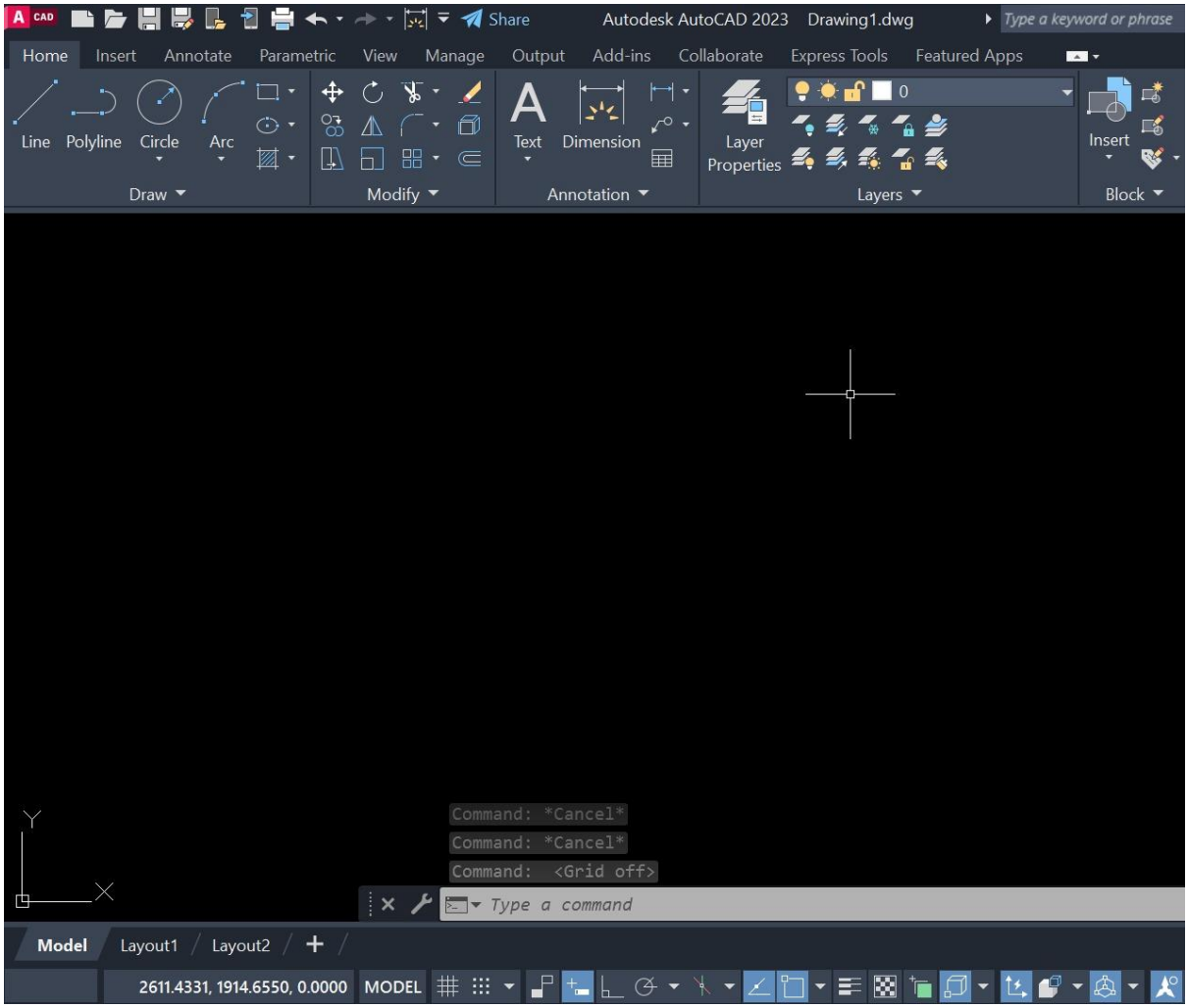
Basic Commands:

Measuring Commands:

GRID: Displays a grid of dots at a desired spacing on the screen.

Command: GRID (enter)

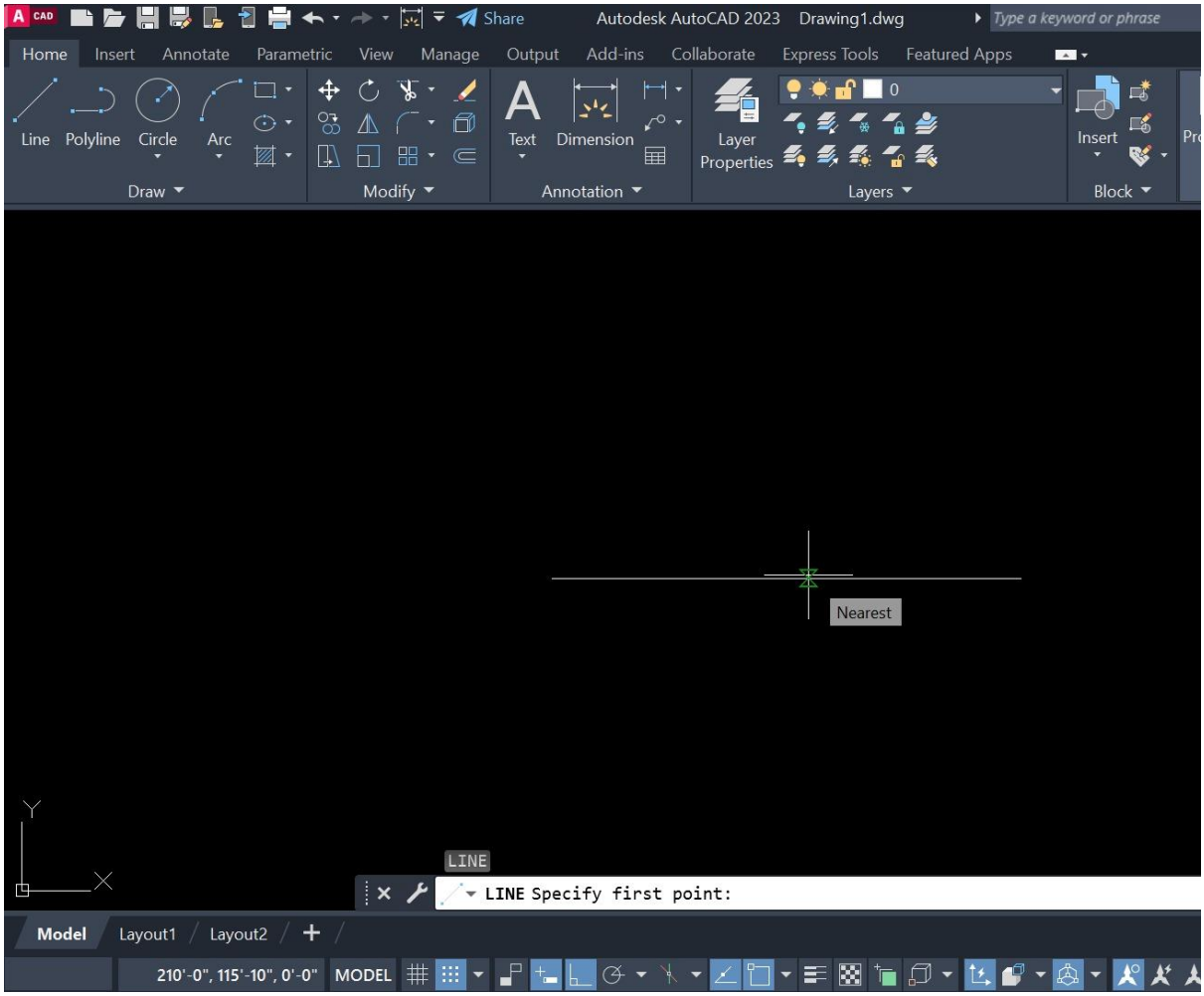
On/Off/Tick spacing(x)/Aspect: (enter value) (enter)



SNAP: Specifies a "round off" interval so that points entered with the mouse can be locked into alignment with the grid spacing.

Command: SNAP (enter)

On/Off/Value/Aspect/Rotate/Style: (enter value) (enter)



Basic Draw Commands:

CIRCLE: Draws circles of any size.

Command: Circle (enter) 3P/2P/TTR/: (pick a center point)

Diameter or : (Pick a point on the circle)

LINE: Draws straight lines between two points

Command: LINE (enter) From Point: (pick a point using the mouse)

To Point: (Pick a point using the mouse)

To Point: (Press return to end the command)

ARC: Draws an arc (any part of a circle or curve) through three known points.

Command: ARC (enter)

Center/ < Start point > : (pick the first point on the arc)

Center/End/ < Second point > : C

Center: (pick the arc's center point)

Angle/Length of chord/ : (pick the arc endpoint)

Display Commands:

LIMITS: Sets the size of the drawing paper. For size "A" drawing paper the limits should be set for 10.5 x 8.

Command: LIMITS (enter)

On/Off/Lower left corner (enter)

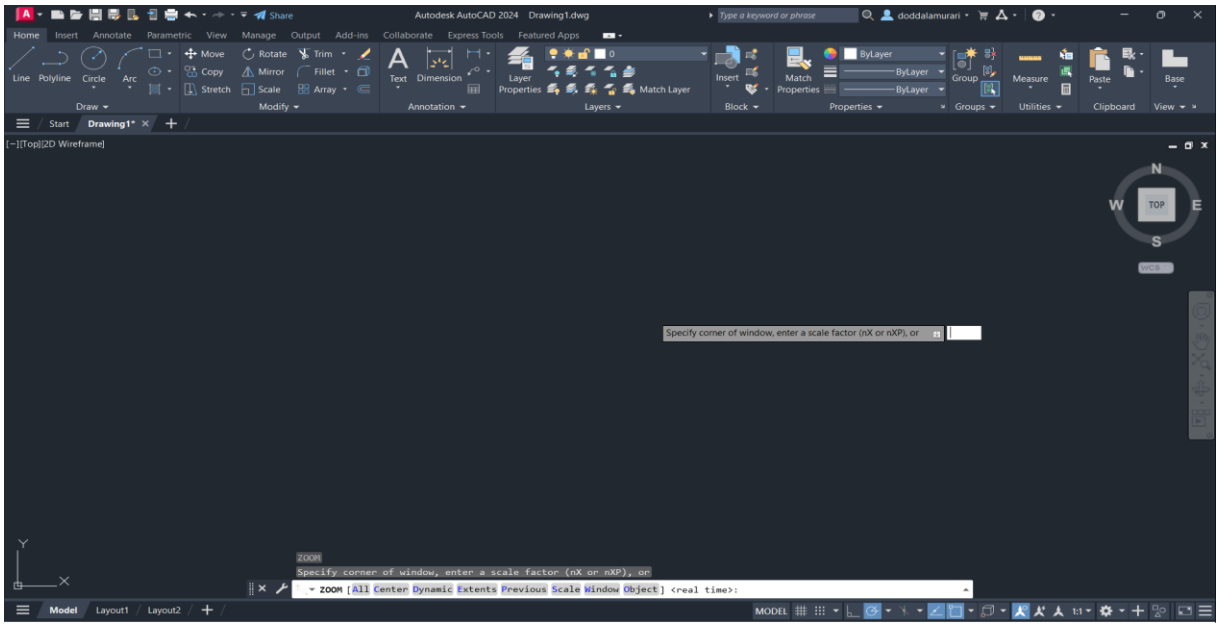
Upper right corner: 10.5,8 (enter)

ZOOM: Enlarges or reduces the display of a drawing.

Command: ZOOM (enter)

All/Center/Dynamic/Extents/Left/Previous/Vmax/Window/: (pick a point to define one corner of a rectangular viewing window then pick a point to define the second point to define the opposite diagonal corner of the viewing window)

Note: To return the picture to its original viewing size enter ALL and press the enter key when prompted instead of defining a window.



PAN: Allows you to move your view point

Editing Commands

CHANGE: Alters properties of selected objects

Command: CHANGE (enter)

Select objects or window or Last (select objects to be changed) Properties/: (type P) Change what property (Color/Elev/LAyer/LType/Thickness)? (type Layer)

New Layer: (enter new layer name and press enter)

ERASE: Erases entities from the drawing.

Command: ERASE (enter)

Select objects or Window or Last: (Select objects to be erased and press enter when finished)

EXTEND: Lengthens a line to end precisely at a boundary edge.

Command: Extend (enter)

Select boundary edge(s)...

Select Objects (pick the line which represents the boundary edge which lines will be extended to)

(press enter when finished selecting cutting edges)

TRIM: Trims a line to end precisely at a cutting edge.

Command: Trim (enter)

Select cutting edge(s)...

Select Objects (pick the line which represents the cutting edge of line in which objects will be trimmed to

(press enter when finished selecting cutting edges)

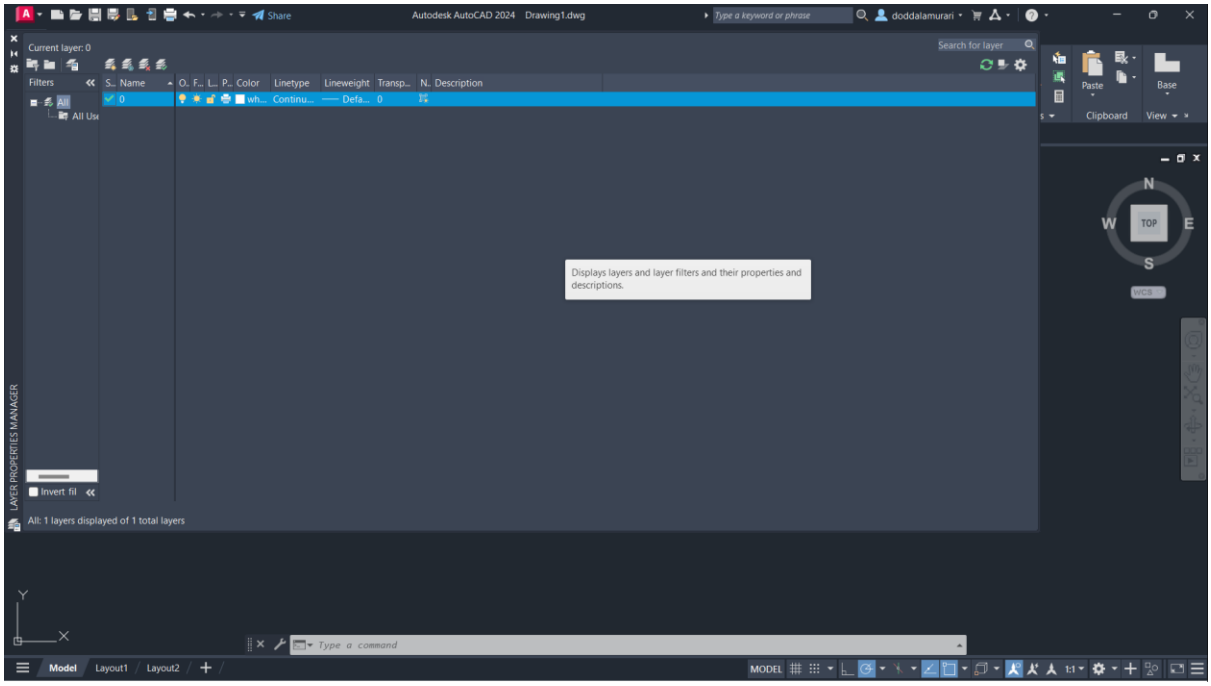
LAYERS:

Creates named drawing layers and assigns colour and line type properties to those layers. Command: LAYER (enter)

A Layer & Line type Properties dialog box will be displayed. To add a new layer, pick the New button. A new layer listing appears, using a default name of Layer1. the layer name can be changed by highlighting the layer name. Colours and line types can be assigned to each new layer by picking the colour box to assign a colour and picking the line type box to assign a line type.

Standard AutoCAD colours

1= red 2= yellow 3= green 4= cynn 5=blue 6=magenta 7=white



ARRAY: Makes multiple copies of selected objects in a rectangular or circular pattern
Command: ARRAY (enter)
Select objects or Window or Last: (select object to array)
Rectangular or Polar array (R/P) : (P) Center point of array: (pick the point around which to form the array)
Angle to fill (+=CCW, -=Cw) : (enter

COPY: Draws a copy of selected objects.
Command: COPY (enter)
Select objects or Window or Last: (select objects to be copied)
Base point or displacement: (pick a point on the object to be use as a reference point)
Second point of displacement: (pick a point which represents the new location of the copied object)

MIRROR: Makes mirror images of existing objects.
Command: MIRROR (enter)
Select objects or Window or Last: (select objects to be mirrored)
First point of mirror line: (pick a point on top of the mirror line)
Second point: (pick a point on the bottom of the mirror line) Delete old objects? y or n (enter)

MOVE: Moves designated entities to another location.
Command: MOVE (enter)
Select objects or Window or Last: (select objects to move)
Base point or displacement: (pick a point on the object to be use as a reference point)
Second point of displacement: (pick a point which represents the new location of the object)

OFFSET: Constructs an entity parallel to another entity at a specified distance. Offset can be used with lines, circles, arcs, and polylines.
Command: OFFSET (enter)
Offset distance or Through: (enter a distance value) Select object to offset: (select object to offset)

Side to offset: (Pick any point on the side of the object you wish to offset

FILLET: Changes any corner to a rounded corner.

Command: FILLET Polyline/Radius/Angle/Trim/Method/<select first line> (pick the first line)

Select second line (pick the second line)

SHORTCUT KEYS (CUSTAMISED TOOLS)

Gird mode = F7

Snap mode = F9

Dynamic mode = (x,y values)

Orthomode = F8

Polar tracking = F10

Object tracking(Auto snap) = F11

Object snap (2D O snap) = F3

3D Object snap (3D O snap) = F4

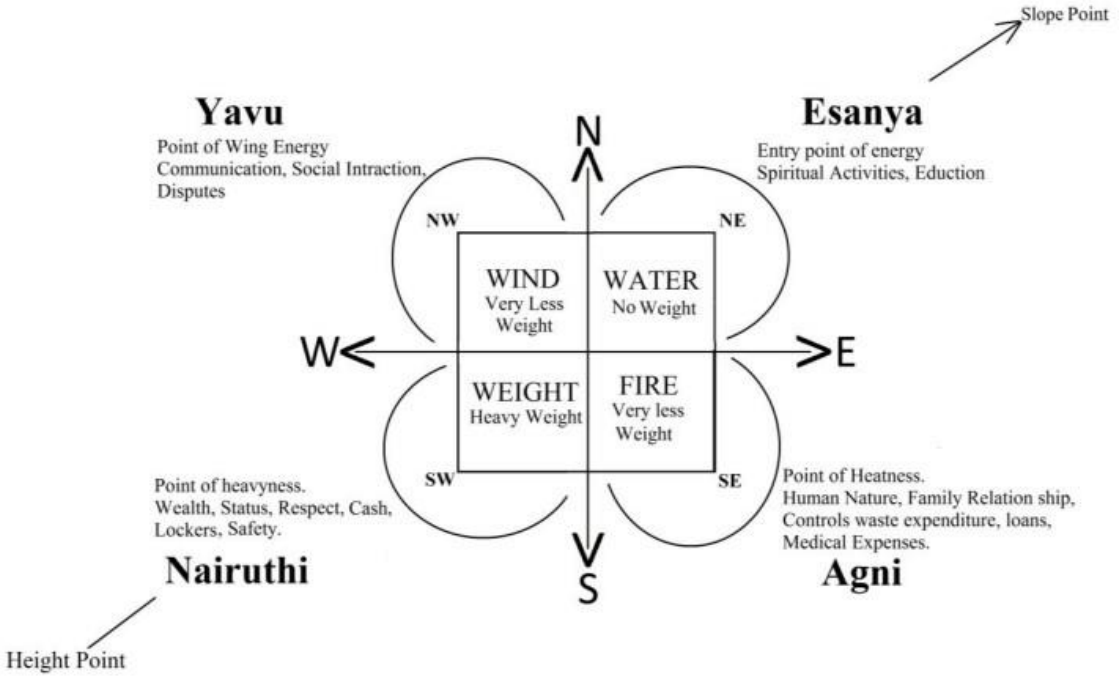
Dynamic UCS = F6

VASTU THEORY

Vastu it is ancient science where it is used in many types of constructions like residential houses, corporate buildings, temples etc., basically it is depending upon the sun light and air flow. It is also called as science of architecture. It has its own importance in civil constructions where an engineer should know about it. Vastu the word is an ancient method where the ancient engineer Vishwakarma used it in all types of constructions like forts, temples and old historical monuments.

Vastu is a part of civil engineering as the ancient engineer Vishwakarma words it is said that the vastu is used in every part of civil structure, and it has no expire date. Now a day's civil engineer is particular about the construction as per vastu.

In civil engineering point of view vastu helps the engineer to show the proper direction of doors, windows, bed directions, bedroom design, interior and entrance. All living beings in this universe is moulded by nature with 5 elements like earth, water, fire air and sky and these elements should be balanced for a harmonium to live in. It is a science of architectural in construction balancing all these five elements for good health and prospects of wealth of any living being. It also helps to give information about the house or building facing. The change in direction gives the change in vastu for the building or house.



Location of Rooms as Per Vastu In East Facing House/ Building:

- Entrance, Hall, Puja Room should be at north-east corner or east.
- Dining, balcony should be at south side • Kitchen, stair case and bath room should be at south-east corner.
- Master bed room should be at south-west corner.

- Children bed room, bath room and stair case should be at north-west corner
- Second entrance for east facing house/building should be in the north side towards east corner.
- Balcony may be at north-west corner.
- The flooring height should be more at south-west corner when compared to other sides or directions.
- There should be more loads like cupboards or lockers in south-west.
- Cupboards or shelves for all the rooms should be for west side or south side walls.
- The door for children bed room should be at south side towards the south-east corner.
- The door for master bed room should be at east side towards north east corner.
- Bath room doors should be towards south or north-east corner.
- The bed in bed room should touch the south side wall and the facing for sleeping must to head at south side and legs towards north side.
- The main gate entrance should be at north-east corner.
- The height of compound wall should be more height at south-west corner when compared to other sides.
- We need to turn to words right side when we are moving up on to the stairs.
- Comparing to all the rooms the master bed room should be bigger.
- Overhead tank should be placed at south-west corner because the corner should take more loads to balance the vastu.
- The underground tank should be place at north-east corner.

Location of Rooms as Per Vastu in West Facing House/ Building:

- The points which are mentioned in East facing Plan will be applicable for West and North facing houses.
- In the north facing house the main entrance should be place at north-east corner or at the centre of north wall.

Location of Entrance Door as Per Vastu in South Facing House/ Building:

The main entrance or the main gates place a main role in a building/house. As it is said by Vishwakarma the god of Indian architectural, in the south facing house the main door should not be place in the centre of the south wall because the centre position of south wall is called as yama dhawar, and the main entrance should not be placed at the south-west corner because the negative energy travels from south-west corner. The correct place to place the main door is southeast corner because the positive energy travels from southeast corner.

- Positive energy means good health, wealth and good relationship in family and business. • Negative energy means the disturbances in family, health and wealth.

• Placing main door in centre of south wall results in the death of head in the family or in the house/building.

DIMENSIONS AND PLACING OF DOORS AND WINDOWS AS PER VASTU

• The standard size of main door should be 4 x 7 feet. This allows the furniture safely inside the house.

• The standard size of windows should be 4 x 4 feet. This helps for good ventilation.

• The standard size of ventilators in bath room should be 1.5 x 1 feet.

• The standard size of ventilator in kitchen should have a diameter of 1feet (if circle) 1 x 1 feet (if it is square).

• Door and window should be exactly opposite for free flow of air and light.

• No two windows or no two doors should not fall at the center of opposite window or door.

• No low roofs should be constructed.

THINGS THAT SHOULD NOT BE KEPT / SHOULD NOT TO BE DONE IN HOUSE AS PER VASTU

• Never keep medicines in kitchen because kitchen is place where health environment takes place but when we keep medicines in kitchen it provides negative energy which effects the healthy environment. • Never keep a mirror in front of bed in bed room because the person when sleep goes into subconscious states where sole moves out and comes in when we wake up. When the sole comes out of body when we reach subconscious state the sole should not see the mirror if the sole sees the mirror as soon as it comes out from the body it results death.

• Plants should not be kept in bed room because it produces carbon dioxide. This is not good for health.

• No devil paintings or un natural arts should not be in house.

• Broken mirror, Painting of Maha Bharata, painting of horse which has one or two legs in air, sinking boat.

COLUMN ALIGNMENT

Size of the Column:

The size of columns is 9”x9” with the use of M20 grade of Concrete

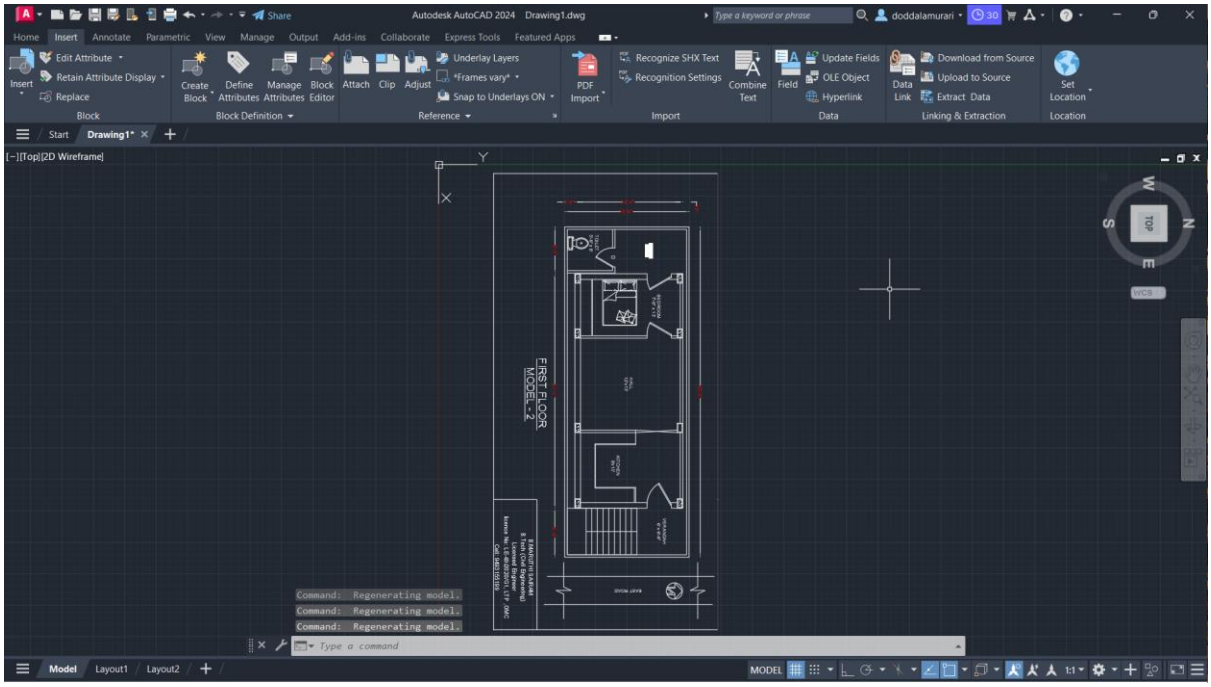
Distance between the columns:

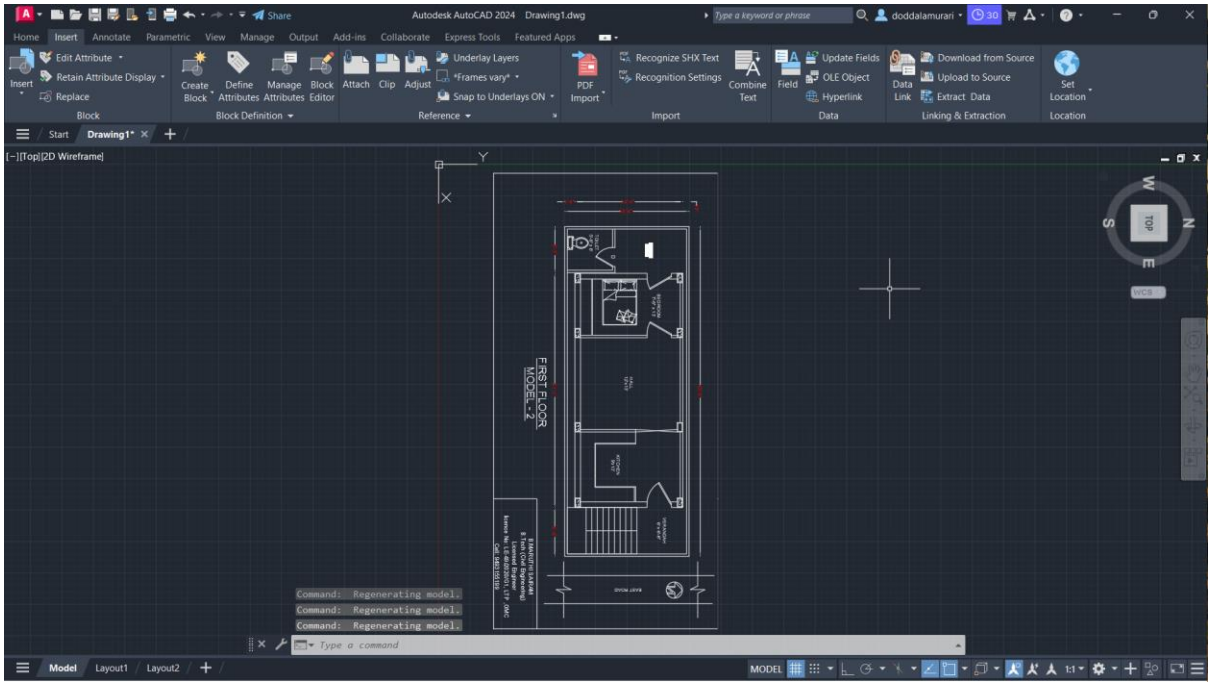
The distance between the columns does not exceed 4.5m

Alignment of Columns:

The columns have been araanged on a iron grid pattern. So there is absolutely no question of zigzag beams which reducing complications in the structure.

FLOOR PLANNING




Autodesk AutoCAD 2024 Drawing1.dwg
Home Insert Annotate Parametric View Manage Output Add-ins Collaborate Express Tools Featured Apps
Edit Attribute
Retain Attribute Display
Replace
Block
Create Block
Define Attributes
Manage Attributes
Block Editor
Block Definition
Attach
Clip
Adjust
Underlay Layers
Frames vary*
Snap to Underlays ON
Reference
PDF Import
Recognize SHX Text
Recognition Settings
Combine Text
Import
Field
Update Fields
OLE Object
Hyperlink
Data
Data Link
Download from Source
Upload to Source
Extract Data
Linking & Extraction
Set Location
Location
Start
Drawing1*
[-][Top][2D Wireframe]
FIRST FLOOR
MODEL - 2
Command: Regenerating model.
Command: Regenerating model.
Command: Regenerating model.
Type a command
Model
Layout1
Layout2
MODEL