Malnad College of Engineering,

Hassan

[An Autonomous Institution Affiliated to VTU Belagavi]

Autonomous Programme

Bachelor of Engineering in Civil Engineering

Digital Drafting for Civil Engineers

LAB MANUAL

Prepared by: Dr. Sumana Jayaprakash

III Semester

Academic Year: 2024-25

Department of Civil Engineering

Vision of the Department

The Department of Civil Engineering will be a centre of excellence in industry-oriented teaching, training, research, professional ethics, social responsibility, and continuing education for practicing engineers through sponsored research and consultancy services

Mission of the Department

1. To improvise the curriculum to include contents pertaining to situational experience of a variety of sites and develop a sense of social responsibility and to enhance research orientation of students through internship programs.
2. To enhance sponsored research and consultancy works to achieve effective industry-institute-interaction and conduct Continuing Education Programme for practicing engineers.
3. To inculcate professional ethics through quality and modern construction practices.
4. To switch over to modern methods of material testing, Engineering analysis and design.

Program Educational Objectives (PEOs)

PEO1: The graduate will be successful professionally and contribute to core civil engineering construction projects, infrastructure projects, alternative construction technology projects, green buildings towards environmental sustainability for academic domain as well as for research and pursue higher studies.

PEO2: The graduate will be professionally sound in a broad area of knowledge of various dimensions of civil engineering and allied fields.

PEO3: The graduate will be a team leader/effective team member with ethical values, versatile, quick learner will adapt to given professional context with lifelong learning capability.

PROGRAM OUTCOMES (POs)

1. **Engineering knowledge**: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
3. **Design/Development of solutions**: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
4. **Conduct investigations of complex problems**: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).
5. **Engineering tool usage**: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
6. **The engineer and the world**: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
7. **Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
8. **Individual and collaborative team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary settings.
9. **Communication:** Communicate effectively and inclusively within the community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.
10. **Project management and finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
11. **Life-long learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

PROGRAM SPECIFIC OUTCOMES

PSO1: The Graduates will demonstrate ability to design a civil engineering system, components or process to meet desired Project needs.

PSO2: Graduates will be familiar with civil engineering professional software tools and demonstrate their ability in applying them for the solution of design situations.

Knowledge Profiles (WK)

Washington Accord's Knowledge Profiles (WK) are a set of eight defined knowledge areas that engineering graduates are expected to master, encompassing essential theoretical and practical expertise necessary for global engineering practice.

WK1	Understanding of natural and social sciences.
WK2	Mathematics, numerical analysis, data analysis, and computing.
WK3	Engineering fundamentals.
WK4	Specialized engineering knowledge.
WK5	Engineering design and operations, including sustainability.
WK6	Engineering practice (technology).
WK7	Role of engineering in society, sustainability, and professional responsibility.
WK8	Current research literature and critical thinking.
WK9	Ethics, professional responsibilities, and inclusive behavior.

Program Outcome (PO)

The revised Program Outcomes (POs) are a streamlined set of eleven competencies that engineering graduates must achieve, aligning with international standards to ensure a comprehensive and globally recognized engineering education.

PO1	Engineering Knowledge.
PO2	Problem Analysis.
PO3	Design/Development of Solutions.
PO4	Conduct Investigations of Complex Problems.
PO5	Engineering Tool Usage.
PO6	The Engineer and The World.
PO7	Ethics.
PO8	Individual and Collaborative Teamwork.
PO9	Communication.
PO10	Project Management and Finance.
PO11	Life-Long Learning.

BCVL358B DIGITAL DRAFTING FOR CIVIL ENGINEERS

Course Code	BCVL358C	Year	2nd	Semester	3
Course Category	AEC/ SEC	Branch	CIVIL	Course Type	Lab
Credits	01	L-T-P	0-0-2		
Continuous Internal Evaluation:	50 marks	Semester End Evaluation:	50 marks	Total Marks:	100

Course objective	**This Course will enable the students to** 1.Interact with the user interface and the basic building components of the software that make powerful and flexible modeling tool. 2.Familiarize with the tools necessary to create, modify, and document parametric model.

Course Outcomes	At the end of the course the student will be able to:	Mapping to POs
CO1	Read and interpret building drawings in a professional setup using 3 dimension digital drafting tools	**PO3, PO5, PO8**
CO2	Develop 3D model of a residential and commercial building with all the building elements as per the given requirements	**PO1, PO5, PO9, PO10**

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)

Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation

* - Average value indicates course correlation strength with mapped PO

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1			1		3	2		1						
CO2	1				3				2	2				
Average	1		1		3	2		1	2	2				

Prerequisite for the course: No pre-requisites

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List of Exercises:

1. Introduction to BIM. Understanding building drawings in a 3d environment (CO1)
2. Using 3D tools creation of Levels and Grids. (CO1, CO2)
3. Application of various techniques used in the modeling of walls. (CO1, CO2)

4. Using 3D tools components of doors and windows, and floor slabs. (CO1, CO2)
5. The modeling of staircases and railings. (CO1, CO2)
6.3D Modeling of a single storied two-bedroom house with plumbing and sanitation details. (CO1, CO2)
7.Generation of Topo surface and contours using site tool for a given project.
(CO1, CO2)
8.Placing room tags and room legend options. (CO1, CO2)
9.Create new sheet and place views such as floor plans and plot the sheet. (CO1, CO2)

Self-study component: Each student shall on the internet observe and understand spatial characteristics of architecturally designed Buildings, download and document the same. Relate and create similar features in the lab exercises. The students shall visit- ongoing project sites and study for real time experience of BIM.

Text Books:

1. Linkan Sagar, Sristry Rawal REVIT 2019 Architecture step by step. BPB Publications. 2019
2. S.P Arora, S.P.Bindra The Text book of Building Construction, Dhanpat Rai Publications.

Reference Books:

1. Shah. M. H. and Kale. C.M. "Building Drawing" Tata Mc Graw Hill Publishing Co, New Delhi.
2. Linkan Sagar, Sristry Rawal REVIT 2019 Architecture Training Guide, BPB Publications. 2019.
3. REVIT ARCHITECTURE lab manual.

LAB SESSION 1

INTRODUCTION TO REVIT ARCHITECTURE

1. What are the categories on the Revit opening screen? Explain the categories?

Models and family two categories ready opening screen. Readymade features like furniture etc can be used for creating projects. Families include walls windows doors floors tags furniture. This families are used in making projects without this no project can be created in Revit. This family can also be created and there is an option for it and the created families can be used for project also**.**

2. How to open a template file? How many types are there?

Template file can be opened by selecting the option "new" on the screen. Then the template file is opened. There are three types of templates.

3. What is B I M? What does B I M model contain?

Building information model is a model which contains all the information and details of a building.

B I M models contain plans furniture plans elevations sections area plans schedules sheets 3D views render's structural designs walkthrough and MEP details

4. What is quick access toolbar. Explain the parts.

Quick access toolbar is at the top of the screen which has shortcuts provisions in it. It is a collection of shortcuts to the features options commands or option groups that are used frequently.

The parts are –

'OPEN' which is used to open the file.

'SAVE' which is used to save the file.

'3D' which is used for 3D viewing of the building.

'SECTION VIEW' is used for the view of the section.

'TEXT' which is used at text annotations to the current views.

'TAGS' which is used to attach tags to an element based on the element.

'ALIGNED DIMENSION' which places dimension between parallel references or between multiple points.

'MEASUREMENT' which measures the distance between two elements or other references.

'PRINT' which sends the current drawing area or selected views and sheets to a printer or a printable file.

5. Explain the parts of panel/tabs (Ribbon).

* **FILE TAB :** this tab has the option for creating new project by new option and it also has the option to open. Save, save as, expert and print and close the project. Export also has the option for different formats.

* **ARCHITECTURE TAB** : it has all the modelling related options like wall, door, window, component, column, roof ceiling, curtain, floor system, curtain grid, Ramp stair, and also some extra annotations which are used for creating the project.

* **STRUCTURE TAB**. This type contains the members like beam wall column floor truss brace beam system connection isolated wall and slab rebar area path fabric area fabric sheet covers all the structures related to components and all the load bearing options.

* **STEEL TAB.** It includes all the Steel related components like connections plates bolts welds corner act, cope skewed, sharter, contorcut cope miles cut through cut by set show rough plane using which Steel works can be done.

* **SYSTEM TAB.** This can be used to do system work using options like duct duct place holder HVAC flex duct Airtel mineral, fabrication part compi and ID modeler mechanical equipments pipe place holders sprinkler etc used to do Mechanical plumbing and electrical work.

* **INSERT TAB**. It includes like rabbit common link IFC common link CAD Link topography, DWF markup, detail point cloud, coordination model managing import CAD import insert inform file PDF image load family by which porters can be inserted and PDF import can also be done and converted into 3D drawing.

* **ANNOTATED TAB** . It includes all the dimensions related to all the details and also all the 2D related options like aligned linear angular dimension, spart elevation and slope, detail line reset, region a component tag by category and all check for spelling.

* **ANALYSE TAB.** It is used to analyse the structure used in building like boundary conditions load cases load combinations adjust reset supporter, consistency space commerce space separator come naming chromosome heating and cooling tag panel schedules.

* **MASSING AND SITE**. It includes in place mass contain system, roof, wall topography, site component, parking component which is used to prepare the surface, grand surface and also the locate contour and also site information and to draw complicated components.

* **COLLABORATION TAB** this tab includes the settings.

* **VIEW TAB** . This includes you related options like to review elevation, section drafting view, schedule duplicate views, render.

* **MANAGE TAB .** This tab has all the settings like additional setting come a location, structural settings MEP settings project units design options position project units and also the material settings.

* **ADD INS TAB**. It has about format convert r e a to format which is of no more use.

* **ESCAPE TAB.** It is used for rendering and also the advance rendering.

* **MODIFY TAB** it includes all the basic options like AutoCAD like more copy paste offset mirror rotate options which is also oftenly used

(6) How to convert Revit file to dug format (AUTOCAD)?

Revit file can be converted to dug format by selecting the 'file' option on the screen &selecting the 'Export' option in it then in it converted from revit file to the AUTOCAD format.

(7)What is the difference between Quick properties and type properties panel on are Revit Interface?

Quick properties are used if Quick changes are to be carried out and type properties are used if changes are to be made in type of editing.

(8) What Is the project Browser used for?

Project Browser is word for sing the created documents. Any document of the building created can be seen through project browser like floor, place, ceiling plans, Elevations (Fout North, South Wall). Legends Schedule/Quantities, streets families, groups Revit Links by double clicking option.

9) Where the display related options located ? What are the various options available. Explain Display related options are available at the bottom of the screen.

The various options available one-

(1)SCALE: This is wed to lot with which the kale accordingly with which we need to see the building /plan.

(2)VISUAL STYLE : It includes wireframes, hidden line, shaded, consistent, realistic which is also graphic display.

(3) SHADOW AND SUN: These options are also available for providing the effect is the plan if needed.

(4) HIDE SHOW OPTION: Option is also available and also the reveal constraints which gradually used in the planning.

(10) Where should the project be located on the screen?

The project should be located in between the four icons / cameras present on the window.

(11) What is the use of the four cameras on the screen?

The 4 cameras on the screen are used for the Elevation (East , North, West ,South) of the building for the view.

(12) What are the various options available in the architectural tab ?

The various options available in the architectural tab are wall, door, window, components column, roof ,ceiling , floor ,curtain system , curtain grid ,million , railing , ramp , stair.

(13) How to draw wall? How to change size of a 'default wall'?

A wall is drawn by clicking on the wall option in the tab & selecting the type of the wall among various other sizes of the wall in the properties.
The size of the default volcan be changed by selecting the structure column in which the size/thickness is changed and 'OK' option is clicked.

(14) How to make the temporary dimension face to face?

Temporary dimensions are made face to face by selecting manage tab and their additional setting to be clicked in which temporary dimensions settings to be selected their walls can be changed to face and doors and windows to options and editing with ok.

(15) How to set location line? What are the 6 options available?

A location line is the set by using the location line option under the small option and selecting the required type in it the 6 types of options available are all centre line core centre line finish face exterior finish face interior face interior and core face interior.

(16)How to flip the wall location line?

The wall location line can be flipped using the space button.

(17)How to edit the dimensions of the wall already drawn?

The dimensions of the wall already drawn can be Edited by selecting the drawn wall and clicking on the displaying dimensions of that wall and changing & entering the required dimension and directly Edited.

(18)What is the file extension for REVIT FILE and FAMILY FILE?

The file extension for REVIT file RVt, RTE & for family file is

(19) How to save project ? Save your project in D-Drive in a folder ?

A project is saved by firstly selecting the 'D-Drive' in this PC and creating a 'New Folder' in it and saving it with the required / sutaible naming and clicking on the save button.

LAB SESSION 2

DOORS , WINDOWS AND LEVELS

PART-1: DOORS AND WINDOWS

(1)How to locate doors/windows?

Doors/windows from the architecture options is selected and is the properties required type and size of door/window is selected then the door/window is selected then the door/window is placed on the wall required for choosing the wall and it can be flipped if needed.

(2) How to flip the direction of the door/window ?

By using the space bar we can flip to direction of door /window.

(3) How to Edit type of doors/windows?

To customise or edit the window or door 6 and create new type of door/ window.

From the properties select edit type to access trip properties palette.

Click the duplicate option which duplicate already selected door or windows default one and then rename slt accordingly.

Now again go to the edit type in the palate and change the parameters of doors and windows such as with height etc now click ok to the type properties dialogue box.

PART-2: LEVELS

(1) What are levels? How to remove the levels?

Levels are finite horizontal plains that act as reference for level hosted Elements ,such as roofs, floors and ceilings

By double clicking on the text box of the respective level line we can remove the levels accordingly.

(2) How to shorten the length of levels on either sites?

To alter the length/size of levels on either side we can use circles present on either sites and by dragging it towards each other we can certain the length of levels on either side.

(3)How many default levels are present in REVIT?

There are two default floor levels are present in Revit.

(4) How to look at 3D view?

In the view panel there is an option known as 3D view,by clicking it we can look at 3D view.

(5) How to change the virtual style? How many types of virtual styles are there?

To change the virtual style we have to click the virtual style icon at the bottom of the interface & change the virtual style according to own need there are 6 types of virtual styles are there.

(6) How to rotate the 3D- model. Explain the two types.

There are two ways to rotate the 3D-Models one is by using view cube and other is very free hand orbiting.

In the view cube there will be option such as front, top, left and right by clicking on these faces of the cube we can see the respective you if we want isometric view then by just clicking the corners of the cube we can see the isometric view of a project.

In free hand orbiting we have to plus 'shift' key in keyboard& simultaneously holding the scholar of the mouse we can rotate to see different views similar to AutoCAD.

(7) How to go to the ground floor plan from 3D view?

In order to go to the ground floor plan from 3D view ,we need to double click on the GROUND FLOOR option within in floor plan present on the project Browser palette.

LAB SESSION 3

RESIDENTIAL PROJECT - WALLS

1. How to open a new project ? Which template have you chosen and why?

In the welcome screen under the model category select new project to open it.

We have chosen 'Architectural template', we have chosen architectural template as it does not needs any further settings and we can directly start the work is ensures consistency and accuracy in project execution & can help to reduce one time and resources needed for each project.

2. Write all the steps in doing a residential coork.

Firstly the default levels present or renamed accordingly and for plines a level is added the wall option is selected & the doors and windows are located in the plan.

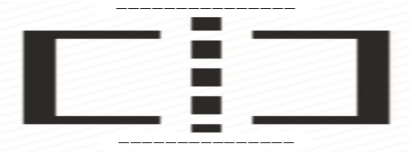
Walls(or)Shortcut (WA) → Connected (1st floor)→Location Linc (Finish face interior)→Rectangle→ Division Wall→ Trim(creating corner)→Split(needed)→ Align(if needed)→Change of Dimension →doors →windows.

3. How to change text size in levels ? In order to change the text size in levels we have to change the scale accordingly using scale options.

4. Which location line have you chosen and why?

Finish face interior option in chosen since it is very convenient to draw the room giving the precise world to all inside dimension.

5. What is the icon of split element? What is the use of it ?



It is used to cut the wall from centre(or)at a selected part and to repare a segment between 2 points.

(6) What is the icon of align option ? What is its use?

It is used to align one (or) more Elements with a selected element.

(7) What is the keyboard shortcut for wall / Align and split?

Keyboard shortcut for wall is WA , Align(Al)and split (SL).

(8) Which opening command is used to create opening in wall?

'SPLIT' command is to be used to create opening in the wall.

SESSION – 4

RESIDENTIAL PROJECT : DOORS AND WINDOWS.

1.How to locate doors/ Windows in project.?

Doors/windows from the architecture option is selected and in the properties required type and size of door /windows is selected then the door windows is placed on the wall required by choosing the wall and it can be flipped if needed.

2.How to change size of doors/windows? The size of the doors/windows can be done by edit type or even while loading the family, the size required can be changed.

3.What is the difference between US metric and Imperical in Libraries?

US metric has the elements with the metre unit , US Imperial has the elements with the feet and inch unit.

4.How can a door be moved a little after placement?

A door can be moved a little after placement by selecting the door and by clicking the arrow on it and also by using the space bottom.

5.Explain how to load four sliding windows from family into the project?

Four sliding windows can be loaded by selecting the load family option there by selecting the load family option there by selecting US Imperial / US metric will get various folders among them windows folder is selected and the four sliding window is selected among various other types of the required size and is loaded to the project.

6.Show 3-D of the project. Explain.

3-D of the project is seen by using the 3-D option present in Quick access.

LAB SESSION – 05

RESIDENTIAL PROJECT :- ROOM LEGENDS/TAGS

(1) What is the command for placing room legends? How do you room tag?

The command for placing room legend is 'Room' to place the room tag ; click on room option from 'Architecture' Tab → click in a room to place the room tag.

(2) What is the use of room separator?

We can separate the rooms and place different room tags for the rooms in plan

(3) What is 'tag on placement' when it is used?

Tag on placement : when we are adding an element in a view , use the tag on placement tool to automatically tag the element as it is placed.

Tag on placement is used while placing the room tag and it should be kept 'on' white placing the room tag.

(4) How to increase / decrease text size in tags?

By increasing / decreasing the scale option available is displaying related option.

LAB SESSION 6:

RESIDENTIAL PROJECT : FURNITURES/PLUMBING FIXTURES

(1) Explain how to copy ground floor plan.

Go to project browser template, ground floor gives a right click on it, then select duplicate view, then duplicate with details

(2) What is library how to occur it. Explain.

From the tool panel select the architecture, then select place a component, then select lord family, there we find the library

A library is a folder in which different components like furniture, a plumbing fixtures are available.

(3) How to place a component? Explain the process.

In order to face a component, open architecture panels and choose place a component and then we can choose the selected (or)required component.

(4) Can we edit type the furniture. Explain the process.

Yes, we can edit type the furniture after placing the furniture then go to edit type duplicate the furniture & give the required dimension.

(5) How can a bed in one room be hidden?

Select the bed in one room and right click on it, then in hide in view option choose element

(6) How can all furniture be hidden?Will plumbing furniture also get hidden?

Right click on the furniture then choose category option from hide in view option. Plumbing furniture is also hidden in same manner.

LAB SESSION – 7

RESIDENTIAL PROJECT : FLOOR (PARAPET AND RAILINGS)

(1) How to create floor table? Explain

In project browser go to their first floor and detect floor option from architecture tool and select line and draw the boundary all out the plan and that's how floor table is created.

(2) What is the thickness of floor table?Why is thickness taken as 0.6 m for ground floor table?

The thickness of flower table is 400 m to receive heavy loads thickness is taken as 0.6 m for ground floor table.

(3) How to create elevation? How to rename?

Elevation are created by creating new one in project browser tab and by double clicking on the particular we can rename it.

(4) How to create section? How to rename?How to change direction?

In quick tool by select section then cut the section which we want to views then in project browser find sections and double click on that rename it.

(5) How to create parapet wall & railing?

Go to first floor detect wall from architecture panel let it be unconnected keep the height about 1 m select finish face exterior and at the wall around the boundary that is how carpet wall is created in order to create railing select sketch path railing.

(6) How to control view range of section?

From properties select section by then use can see or view on range by moving the middle arrow marks of the section bar.

LAB SESSION 8

RESIDENTIAL PROJECT TAG OF DOORS AND WINDOWS, HATCH OF PORTICO AND CREATING COLUMN FOR PORTICO.

1. How to do the type of mark for doors , windows and ventilators?

Type mark for doors, windows and ventilators

A.

- Click on '**windows'** from '**architecture'** tab.
- Select the **window/ ventilator.**
- Click on '**edit type'** enter the type mark at "**type mark'** option, then click **OK**.
- Repeat the procedures for all windows and ventilators.

B.

- Select the **door**.
- Enter the type mark at '**mark'** option in '**properties'** panel.

2. How to add cost factor/name of manufacturer for doors and windows?

To add cost factor or name of manufacturer for doors and windows

- Select the doors/ windows .
- Click on "edit type".
- Enter the cost factor at cost option and name of manufacturer at manufacturer option.
- Click ok.

3. What is the use of tag all?

The use of tag all every element of the selected categories (doors, windows) will be tagged and it helps in identifying elements in the drawing.

4. What is the difference in the procedure to tag doors and windows?

Procedure to tag **doors** :

- Select the door and enter the **type mark** at **mark** option in **properties** panel

Procedure to tag windows :

- Select the **window**, click on edit type and enter the type mark at mark option, then click ok.

5. **How to create region for portico?**
    - Click on region option from annotate tab.
    - Select line / rectangle option and draw the required region.
    - Then click on finish.

6. **How to create architectural column? Which key to be used to move already placed column?**
    - Select ground level from project browser
    - Click on column from architectural tab
    - Select column: architectural option, select the required type of column
    - Select height of first floor, place to column in required position.

    The arrow key is used to move the column which is already placed.

LAB SESSION – 9

RESIDENTIAL PROJECT : CEILING PLAN AND SCHEDULE OF DOORS AND WINDOWS

1.Explain how to create ceiling plan

- Select 'ground floor' past 'ceiling plan' option at 'project browser'.
- Click on the 'Ceiling' from 'Architecture tab' select the required type of 'ceiling'.
- Click on the rooms to place the ceiling.

2.What is the difference between Automatic ceiling and sketch ceiling ?

Automatic Ceiling	**Sketch Ceiling**
This will make revit detect where there are bounding walls that enclose potential ceiling spaces	This allows us to sketch using lines or rectangular where we want our ceiling elements created

3.Explain the procedure to do light fitting in ceiling plan.

a. Click on **'component'** pass **'Architecture'** tab select **'place component'.**
b. Select '**load family'**select '**lightning'** folder '**Architectural' 'Internal' lighting** select the required type of **lightning** '**click open'.**
c. Select the type of lighting and place at required location in the ceiling plan.

4. What is section box ? Where is it located ?

A section box is a tool that allow you to isolate (cut) a part of our model and view it in more details . It is a 30 cube that we can resite to enclose the area we want to view.
To enable a section box – open a 3D view. It is located on the '**properties'** palette.

5. **How to do schedule of windows / doors ?**

- Click on schedule passed view tab select schedule/ quantities option.
- Select windows and doors pass category, click ok.
- Select all the required field, schedule this fields, click ok.

6. **How to edit fields in window scheduling ? What are the options available ?**

In properties browser click on '**edit'** which is next to the fields, the options available are :

a. **FIELDS**
b. **FILTER**
c. **SORTING/GROUPING**
d. **FORMATING**
e. **APPEARANCE**

LAB SESSION – 10

RESIDENTIAL PROJECT: SHEETING MASSING AND SITE TOP SURFACE AND SITE COMPONENT

1. **How to load sheet site?**

    - Right click on sheets pass 'Project browser' click on 'New sheet'.
    - Click on ‘load’ option - select ‘title blocks’ and pan libraries - select the required sheet site click ‘open’ - click ‘ok’

2. **How to rename sheet ?**

    - Right click on sheet to be renamed - Enter the name - click ok

3. **How to place the plan on the sheet ?**

    - To place that on the sheet drag the plan pass project browser and drop it in the sheet .

4. **If because of camera’s placement entire sheet gets covered , what should be done ?**
    a. Click on plan pass ‘**Project Browser’** – Drag The cameras near to the plan.
    b. Now drag the plan and place it on the sheet

5. **How can cameras be hidden ?**
    - Click on plan pass ‘Project Browser’ – right click on one of the cameras – click ‘Hide’ in view .
    - Select ‘category’ option.

6. **How to reduce size of level lines in elevation ?**

   To reduce the risk click on the level line and drag it to the required size

7. **After sheets are ready, can mistakes be corrected how?**

   Yes mistakes can be corrected we can correct any mistakes in the respective plants and it will be automatically corrected in the sheets in all documents in revit is corrected to one automatic.

8. **How to increase size of 30 image click on the 30 image?**
   a. Click on the size crop option plan modify tab
   b. Select scale option change the width ok

9. **How to set camera and create 30 View ?**

   Click on the plan select 30 view access toolbar camera place the camera to get the required view and ab 30 view will be created

10. **How to create a counter counter at 2 m ?**
    - Select site level from project browser click maning and site tab select Topsurface
    - Keeping elevation as zero m mark points to create ground surface
    - Enter elevation a 2m and mark the points to create contour - click finish

11. **How to increase ground thickness?**

    Check the mark friction box from the properties panel Drag the arrow downwards increase the ground thickness

12. **How to view section box ? Where it is located ?**

    Checks from properties panel section box is located at properties panel

13. **How to hide section box ? How to unhide the section box ?**
    - Select section box and right click – click on the 'Hide in view' - select elements option unhide - click on bulb - select the section box and right click - on 'unhide in view' - select 'elements' option - click on bulb towards.

LAB SESSION – 11

RESIDENTIAL PROJECT : APPLICATION OF MATERIALS CREATION OF NEW MATERIALS,TILES

(1) **How to change materials of the wall / floor ?**

Steps to change : Click on wall, Edit type, Click edit, Click on three dots and materials browser will appear, Select the required type of material, Click ok.

(2) **How to apply point to a wall surface?**

To apply point to a wall surface select point option from modified tab, select required point colour, click on the wall surface to apply the point.

(3) **How to remove the point from wall surface?**

To remove find from wall surface select remove point option from modified tab click on the wall surface to remove the point.

(4) **How to create new material with required text time? Steps to create new materials**

- Click on materials from manage tab.
- Click on create and duplicate materials from materials browser select create new material option.
- Right click on default new material and rename it.
- Click on appearance to view the materials.
- Click on a set browser select category of materials from appearance library double click on the required material click ok.

(5) **How to apply paint with the raw material?**

To apply paint with the raw material

- Click on the materials to select create new materials Click on asset browser select wall paint past appearance library double click on required colour click ok
- After creating new wall paint select paint option pass modify tab select the new wall paint and click on the wall surface

(6) **How to edit type and applies a new material created by paint?**

To edit type and apply the material created by paint select a wall, edit type from properties browser, edit, click on the three dots in the material option, select the material click ok.

(7) **How to create files?** Steps to create files:

- Click on the materials from manage tool select create new material from material browser.
- Right click and rename the default new material open asset browser select files and click ok.
- Select paint option on modified tab click on the wall to apply the tiles.
- Click on the materials from manage tab select create new materials right click and rename the default new material.
- Click on appearance, click on image selected select required materials from folder, click open, click ok.
- Select ‘paint’ option pass modify tab, click on the wall to apply the tiles.