



Training Course: Getting Started with PlansXpress

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HOW TO WORK THROUGH THIS COURSE

It is essential that you work through this course in sequence, as each exercise relies on knowledge gained in previous exercises. As you complete each exercise, you will build up a set of house plans. Each exercise requires you to have all of the elements from previous exercises completed, otherwise the instructions may not make sense.

Spend as much time as you need on exercises 2 and 3, until you feel confident using the mouse and keyboard in PlansXpress. These exercises are especially important as they introduce core skills which are crucial to using PlansXpress successfully. The core skills you learn during these exercises are used time and again throughout the course.

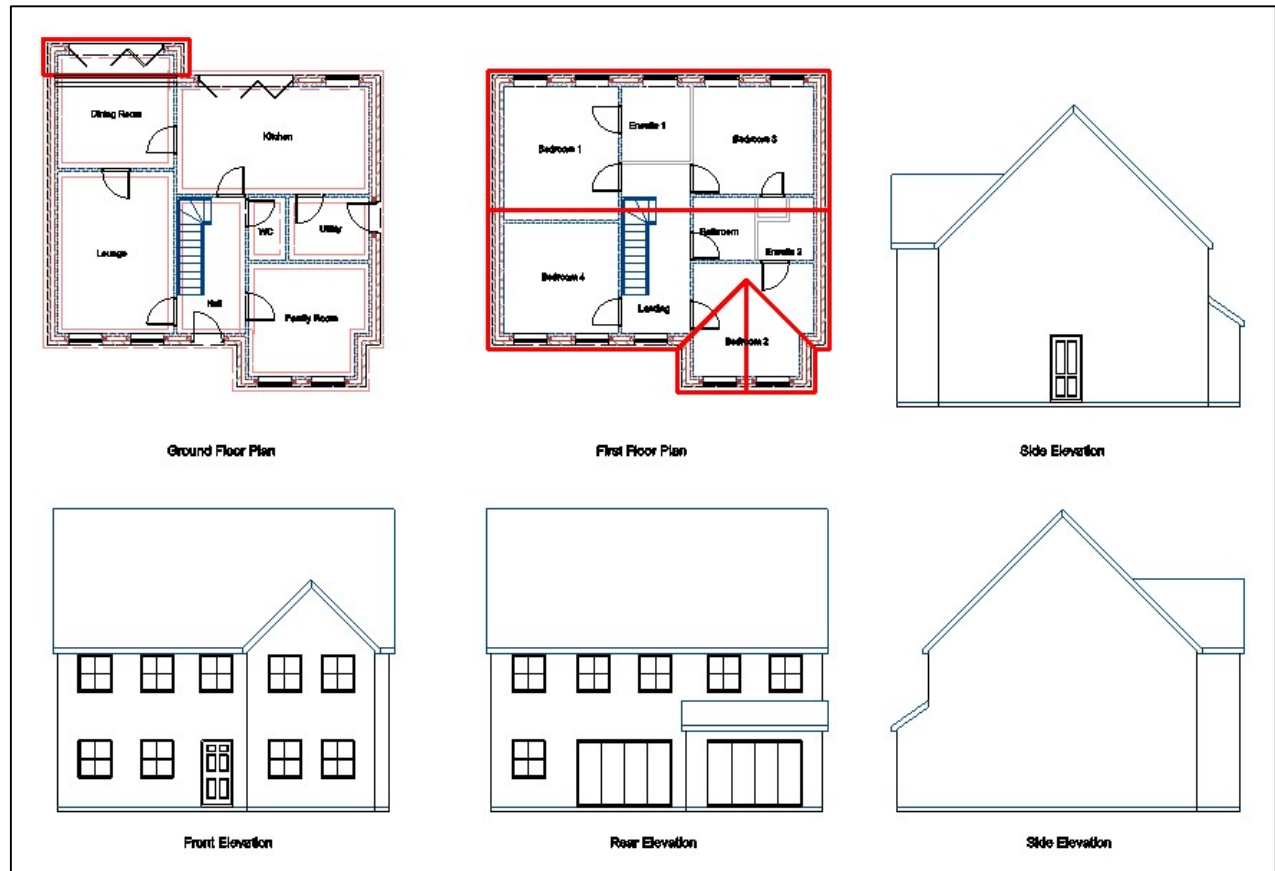
You may find it helpful to print out the House Plans (page 4) and the Shortcut Key Guide (page 5) to refer to as you complete the exercises.

In each exercise, you'll find a brief introduction to the exercise. You'll then see a list of the skills you'll practise during the exercise. Finally, you'll see step by step instructions for completing the exercise. As it's good practice to save your project regularly, you'll be prompted to save your project at the end of each exercise.

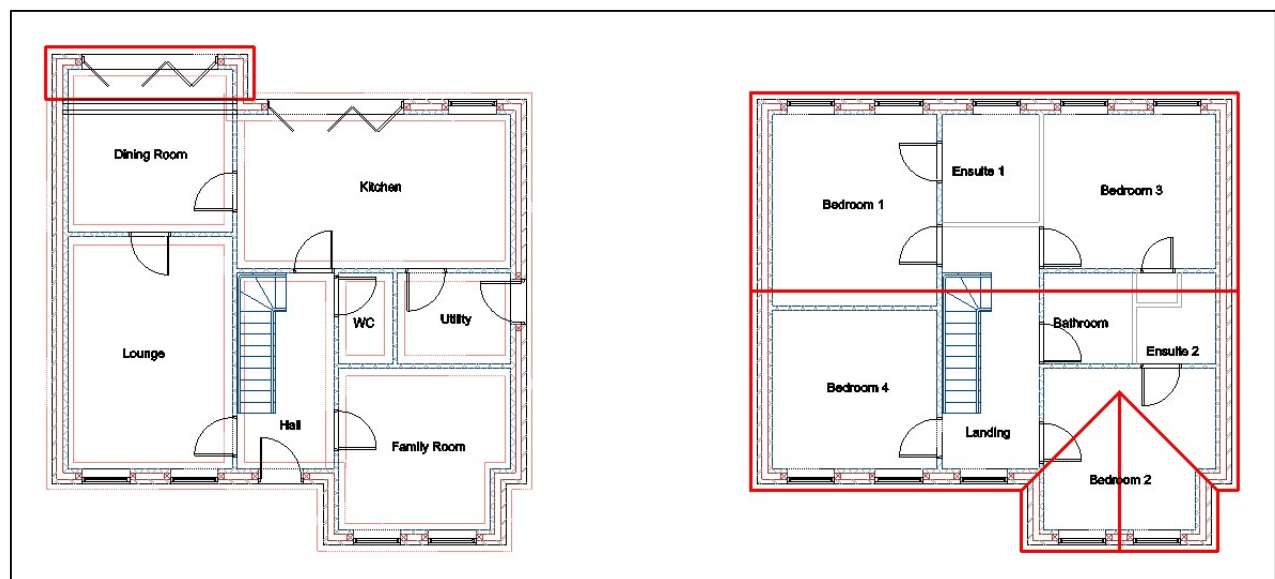
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HOUSE DESIGN









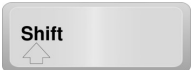






Drawing Layout



Ground Floor and First Floor Layout

PLANSXPRESS DRAWING SHORTCUT KEY GUIDE

Key	What does it do?	How do I use it?
	Switch on Snap mode	Press F7 to switch to Snap mode in order to snap to End, Intersection and Perpendicular points etc.
	Switch on Dimension mode	Press F8 to switch on Dimension mode in order to place items by measuring or using X and Y coordinates.
	Enter Relative input	First indicate the point you want to be relative to. Hover the cursor over an existing snap point (End, Nearest etc.) and press the R key to select the point you want to be relative to. Then press an arrow key to enter the distance to the point you are placing. Snap mode must be enabled.
	Change the Justification of a wall	When drawing walls, press the J key to specify which side of the wall to place with your mouse clicks.
	Flip the walls	Press the F key to Flip a multi-leaf wall, or in other words change the external side of the wall, whilst drawing it.
	Fill an enclosed space	Press the F key to fill an enclosed space, for example when placing an area of slab or ceiling within a room. Hover your cursor over the area you want to fill and press the F key.
	Tee into an existing roof or wall, when drawing roofs	When prompted by the onscreen instructions, press the T key, then click on the wall or roof you want to tee into.
	Enter direction and distance	Press one of the arrow keys to specify the direction of the next point, and to enter the distance into the dialog box.
	Draw straight line	Hold down the Shift key to draw a straight or diagonal line, including walls. As you move your cursor, it will be restricted to drawing lines at 0°, 45°, 90°, 135°, 180° etc.
	Delete one or multiple items	Press the Delete key to delete items you have selected.
	Cancel the current action	Press the Escape key to cancel the current action.
	Move to next input box in Component Builders	Press the Tab key to move to the next input box in Component Builder dialog boxes, in order to enter dimensions.
	Change active dimension when placing windows and doors	When placing windows or doors, press the Tab key to change the end of the wall PlansXpress is measuring from.

MODULE 1: GETTING STARTED

Exercise 1: Starting Your Drawing

Introduction:

To begin your drawing, you first need to select a drawing template. The template you select controls the page size, scale, and orientation. Some drawing templates also include a notes block.

Key skills you will be practising:

- Selecting a drawing template
 - Saving your drawing
-

Instructions:

1. When PlansXpress first launches, the **New Drawing** dialog box opens up. This contains drawing templates which control the page size, scale, and orientation.
2. Click on the **A1 1:50 Plain Page** drawing template from the list.
3. Click **OK**.
4. Now let's give the drawing file a name. Click on the **File** button near the top left of the screen.
5. On the **File** menu, hover your cursor over the **Save** option and then click the **Save As** button.
6. Find a suitable location to save the file on your computer.
7. Type in the Project Name: **Upton Fields 1**.
8. Click **Save**.

A Quick Introduction to the PlansXpress Screen

All of the tools you need to draw your plans can be found on the toolbar – officially known as the ribbon - at the top of the screen. There are several tabs on the ribbon and you'll be using several of them of the course of this training.

The main part of the screen is known as the Drawing Area.

Underneath the Drawing Area is the Command Window. The Command Window gives instructions on how to draw or place each item.

On the right-hand side of the screen, you may be able to see the 3D Preview. Other windows such as the Properties Explorer and Notes Picker can also appear on this side of the screen and are accessed using the tabs at the bottom of the window.

These windows can be shown or hidden using the settings on the Views & 3D tab. To switch on the 3D Preview, click the 3D Preview button. To switch on the Properties Explorer or Notes Picker, in the Show/Hide section of the tab, tick the windows you want to see. You can also switch on the Command window from here.

Exercise 2: Using the Mouse

Introduction:

There are a few essential mouse skills you need to master to be able to draw effectively in PlansXpress. In this exercise, you'll practise a number of key mouse skills.

Note: The scroll wheel is an essential tool when drawing in PlansXpress. If you haven't got a mouse with a scroll wheel, you can pick one up from a PC shop or local supermarket.

Key skills you will be practising:

- Locating the Architectural elements for your design
 - Zooming in and out
 - Dragging the page around (also known as panning)
 - Using the undo/redo buttons (and Ctrl+Z and Ctrl+Y shortcut keys)
 - Selecting items
-

Instructions:

Zooming and dragging the drawing page/panning

1. Place your cursor over the corner of the drawing page. Scroll the scroll wheel towards the screen. PlansXpress zooms in around the original cursor position.
2. Scroll the scroll wheel away from the screen to zoom out again.
3. Move your cursor to a new position. Scroll towards the screen to zoom in on the new position.
4. Pan or drag the drawing page by holding down the scroll wheel on your mouse. If you have a mouse with a separate middle click button, you'll will need to use the middle click button instead of the scroll wheel. A hand icon appears on screen.
5. Move the mouse around the drawing area until you're happy with the position of the page.

Locating the architectural elements

6. Click on the **Architectural** tab. Here you'll find all of the building elements you'll need on your drawing, such as walls, windows, staircases and roofs.
7. Click on the **External** button.
8. Select the **Brick & Block Cavity Wall** type.
9. Select one of the templates – it doesn't matter which for now.
10. To skip through the Wall Dimensions Wizard dialog boxes so that we can focus on the mouse skills needed to draw the walls, click **Accept Defaults**.

Drawing a rectangle of walls

11. PlansXpress is now ready for you to draw your walls. For this example, we're going to draw a rectangular building.

The Command Window prompts: Give Start Point.

Click and release your left mouse button on the drawing area, to place the first point of the walls.

! Remember to click and release the left mouse button; don't hold it down.

12. The Command Window prompts: Give Next Point.

To ensure your walls are straight, hold down the **Shift key** on your keyboard. As you move your cursor, you'll see that PlansXpress is restricted to drawing the walls at a 90 degree, or 45 degree, angle.

13. Holding down the **Shift key**, move your cursor to the right of the first point.
14. Once you've positioned your cursor where you want to place the next point of the walls, click your left mouse button to place it.
15. Hold down the **Shift key** once again and move your cursor down the screen.
16. Click the left mouse button to place the next point of the walls.
17. The Instructions now tell you to: Give Next Point or (U)ndo, (C)lose, (S)quare or (Escape) to End. Hover your cursor over the first point of the walls, the word Endpoint will appear on screen.
! If dimensions are showing at this point, you'll need to press the **F7 key** on your keyboard to switch to Snap mode, allowing you to snap to points on the drawing. Alternatively, click the **Snap** button at the bottom right of the Drawing Area. The **Snap** button has an icon of 4 green arrows pointing to a square. When in Snap mode, the button becomes highlighted in blue.
18. Once the Endpoint turns pink, move your mouse down the screen. A line will appear linking the Endpoint and the cursor. Move your cursor to roughly where you want to place the next point, and then hold down the **Shift key**. PlansXpress will ensure the wall you're drawing is at right angles, whilst using the X coordinate of the Endpoint to place the latest point.
19. Click the left mouse button to place the point.
20. The Command Window prompts: Give Next Point or (U)ndo, (C)lose, (S)quare or (Escape) to End. To complete your walls, hover over the first point of your walls to locate the Endpoint once again.
21. Click the left mouse button to place the final point of the wall.
22. Now press the **Escape key** on your keyboard to finish drawing the walls.

Undoing an action

23. If you make a mistake or want to undo something you've just done, click the **Undo** arrow button at the top of the screen. You can use the **Undo** button to undo anything – you can even undo a delete. You can click the **Undo** button repeatedly to undo several actions.
24. On the other hand, you can click the **Redo** arrow button to redo the last action.

Selecting an item

25. If you want to select an item on screen, simply click on it using the left mouse button. Once an item is selected, it will be displayed with dashed lines. You'll also notice red and blue handles which can be used to move and modify the item.

Selecting multiple items

26. If you place your cursor to the top left of a group of items you want to select, hold down the left mouse button and drag your mouse down and to the right, a purple/blue selection box will appear. Only the items full enclosed within the box will be selected.
27. If you place your cursor to the bottom right of the items, hold down the left mouse button and drag your mouse up and to the left, a green selection box will appear. Any item partially or fully enclosed by the box will be selected. Note that items don't have to be entirely enclosed to be selected.
28. Using either method, select and delete the walls you've drawn.

Exercise 3: Using Shortcut Keys

Introduction:

This exercise builds on the mouse skills taught in exercise 2, introducing a number of shortcut keys to speed up your drawing. You may find it useful to refer to the PlansXpress Drawing Shortcut Key Guide on page 4 during this exercise.

Key skills you will be practising:

- Drawing walls at right angles using the Shift key
 - Closing a wall via the shortest right-angled route using the S key
 - Drawing walls using the arrow keys
 - Closing a wall via the shortest route using the C key
 - Undoing and redoing actions using the Ctrl+Z and Ctrl+Y keys
 - Switching on Dimension mode using the F8 key
 - Switching on Snap mode using the F7 key
 - Repeating the last action by middle clicking
 - Using the R key to place a new item relative to an existing one
 - Finishing doing an action using the Escape key
 - Deleting items using the Delete key
-

Instructions:

Recap: Drawing walls at right angles using the Shift key

1. On the Architectural tab, click the wall icon on the External Wall dropdown menu.
2. PlansXpress remembers the previously used external wall specification and, when you click the icon at the top of the menu, will prepare to draw the same type of wall again.
The Command Window prompts: Give Start Point.
Drag the drawing page so that you can see a clear area by holding down the scroll wheel and dragging the page across.
3. Click the left mouse button to place the first point of the wall.
4. The Command Window prompts: Give Next Point.
! Remember, if you hold down the **Shift key** on your keyboard and move your cursor, the wall is locked so you can draw it at either a 90 degree or 45 degree angle.
Holding down the **Shift key**, move your mouse to the right.
5. Click the left mouse button to place the next corner of the building.
6. Draw the second side of the rectangle in the same way.

Closing a wall via the shortest right-angled route using the S key

7. The Command Window prompts: Give next point or (U)ndo, (C)lose, (S)quare or (Escape) to End.
! This instruction indicates some shortcut keys you can use at this point – the U key to undo, the C key to close the walls, the Escape key to end drawing the walls etc. Look out for these

shortcut key prompts on the Command Window, as you're drawing. When you've got two walls left to draw, you can also use the S key to complete your walls.

Press the **S key** on your keyboard. PlansXpress automatically completes the walls by joining them up to the starting point, via the shortest right-angled route. Pressing the **S key** works when you want to draw the final two, perpendicular, walls of your building. After you press the **S key**, PlansXpress will assume you've finished drawing the walls and will drop the wall drawing tool.

Drawing walls using the arrow keys

8. You can also set out your walls by entering the length of each wall. To do this, you'll need to use the arrow keys, which you can find at the bottom right of your keyboard.
To draw the same type of wall again, right click with your mouse. When you right click, PlansXpress repeats your last action – in this case, drawing a Brick & Block Cavity Wall with the chosen specification.
9. You can see that PlansXpress is ready to draw another wall. The Command Window prompts: Give Start Point.
Click the left mouse button to place the first corner of the walls.
10. Press the **right arrow key** on your keyboard.
11. The distance dialog box pops up, prompting you to enter the distance to the next point. Type the length of the wall into the distance dialog box: **10500**. You can see that the software is working in mm.
12. Click **OK** to confirm the distance.
PlansXpress automatically places the next point of the wall 10500mm to the right.
13. Now click the **down arrow key** on your keyboard.
14. Type the length of the wall into the distance dialog box: **8500**.
15. Click **OK** to confirm the dimension (alternatively, press the **Return** key on your keyboard).
16. Continue in this way, pressing the **left arrow key** and entering a dimension of **10500** into the distance dialog box.

Closing walls via the shortest route using the C key

17. Once you've placed the third side of the rectangle, press the **C key** on your keyboard to close the walls.
C stands for close. The C key can be used to close any item and it will always close the item by the shortest possible route. After you press the C key, PlansXpress will assume you've finished drawing the walls and will drop the wall drawing tool.

Undoing and redoing actions using the Ctrl+Z and Ctrl+Y keys

- ! If you make a mistake, the quickest way to undo the mistake is to hold down the Ctrl and Z keys on your keyboard. When you hold down Ctrl and Z, PlansXpress will automatically undo the last action. To redo the last action, hold down the Ctrl and Y keys on your keyboard.

Using the R key to place a new item relative to an existing one

Another really useful shortcut key is the R key. You can use the R key to place an item relative to an existing point on the screen. For example, you could use R key to place a garage wall a certain distance from the corner of the house.

18. Right click to draw the same type of wall again.
19. Hover your mouse over the back-right corner of the house until the Endpoint appears.
20. Press and release the **R key** on your keyboard.
21. You'll notice that dimensions once again appear on screen, this time linking the Endpoint with your cursor. Now you can use your arrow keys to tell PlansXpress where to place the start point of your new walls.
22. Press the **up arrow key** on your keyboard.
23. Type in the dimension: **3000**.
24. Click **OK**.
25. PlansXpress will start the new wall the given distance above the Endpoint on the existing wall. Continue drawing a rectangle to add a garage to the drawing.

Finishing doing an action using the Escape key

- ! If you want to stop drawing your walls at any point, simply press the **Escape** or **Esc key** on your keyboard. Pressing the **Escape key** will drop the wall drawing tool.
- ! To resume drawing your walls, right click to draw the same type and specification of wall again. Hover your cursor over the last point of the wall you placed, until Endpoint appears. Click the left mouse button to continue drawing your walls from this point.

Deleting items using the Delete key

26. Delete all of the items on screen by drawing a left to right selection box which encloses every item.
27. Press the **Delete key**.

Exercise 4: Drawing Construction Lines

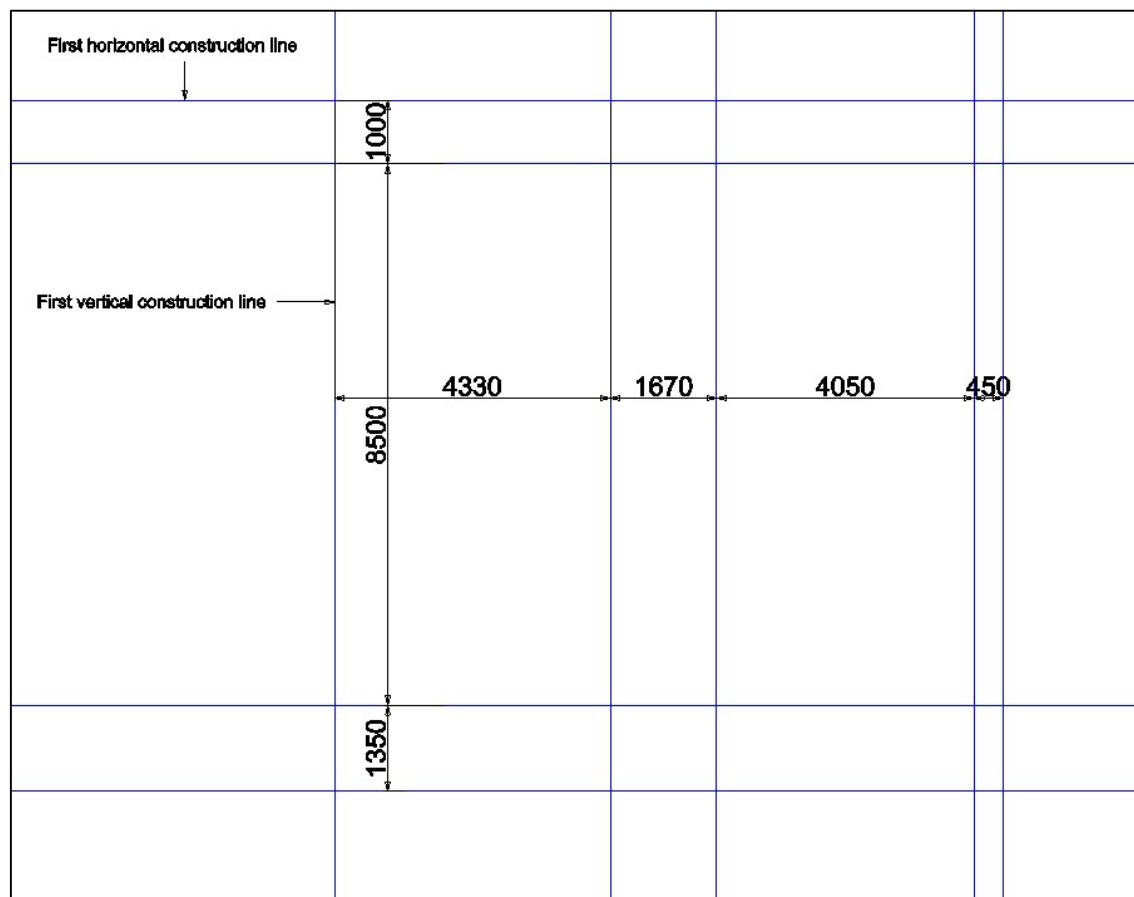
Introduction:

Construction lines can be used to help you set out elements of your design. You may want to use construction lines as a reference for drawing the overall footprint of your building or for creating a drainage layout, for example.

Key skills you will be practising:

- Placing construction lines
- Switching on Snap mode using the F7 key
- Switching on Nearest snap
- Using the R key and arrow keys to place items relative to existing items on the drawing area
- Dropping a tool using the Escape key
- Hiding and deleting construction lines

Refer to the diagram below to complete this exercise:



Instructions:

Drawing horizontal and vertical construction lines

1. Click on the **Drawing & Annotation** tab at the top of the screen. In the middle of the **Drawing & Annotation** tab, you'll see a range of construction line tools. To set out the external walls of a house, you'll usually just need horizontal and vertical construction lines.
2. Select the **Horizontal** construction line tool. Once you've selected a construction line tool on the ribbon, you'll see that you are effectively holding the construction line with the cursor - all you need to do is click to place it.
3. The Command Window prompts: Give Point.
Zoom in on the top left-hand corner of the drawing page. To zoom in, place your cursor on the area of the page you want to zoom into and scroll the mouse wheel towards the screen.
4. Place your cursor where you want to position the construction line.
5. Click the left mouse button to place the construction line.
6. Now we're going to place a vertical construction line to set out the left-hand wall. Click the **Vertical** construction line button on the **Drawing & Annotation** tab.
7. The Command Window prompts: Give Point.
Place your cursor to the left of the drawing page.
8. Click the left mouse button to place the construction line.

Placing a construction line relative to a construction line you've already drawn

9. Now place another vertical construction line 4330mm to the right of the first vertical construction line.
Hover your cursor over the vertical construction line you've already drawn. A message pops up next to your cursor saying "Nearest". This means your cursor is snapping to this construction line. If "Nearest" doesn't appear, click the **Nearest Snap** button at the top right of the screen.
! Don't click on the Nearest snap point, just hold your cursor over it.
10. To position the next vertical construction line relative to this one, press the **R key** on your keyboard.
11. PlansXpress now shows some measurements relative to the point on the construction line. To place the next construction line to the right of the first one, press the **right arrow key**. This indicates that the next construction line is to the right of the first one.
12. The Distance dialog box will pop up.
Type in the distance to the next construction line: **4330**. This figure is given in mm.
13. Click **OK** to confirm the distance.
PlansXpress automatically places the construction line 4330mm to the right of the first vertical construction line.
14. After entering a dimension, the software returns to dimension mode. To use the Relative tool again, switch back to Snap mode. To select Snap mode, click the **F7 key** on your keyboard or press the **Snap** button at the bottom right of your screen.
15. Continue placing your vertical construction lines in this way, repeating steps 10 to 14 and referring to the diagram at the start of this chapter.
16. Once you've placed the final one, press the **Escape** key to drop the tool.
17. Now let's place a horizontal construction line 1000mm below the first horizontal construction line, as shown on the diagram.
Click the **Horizontal** construction line button to select the horizontal construction line tool.

18. Hover your cursor over the existing horizontal construction line to find the **Nearest** snap point.
Remember, you don't want to click on the Nearest snap point, just hover your mouse over it.
19. Press the **R key** to use the Relative tool.
20. Press the **down arrow key** to indicate that you want to place the next construction line below the existing construction line.
21. Type the distance into the Distance dialog box: **1000**.
22. Click **OK**.
The construction line appears 1m below the original construction line.
23. Referring to the diagram, place the other horizontal construction lines. Switch on Snap mode, hover over the **Nearest** snap point on an existing construction line, press the **R key** and then the **down arrow key**, and enter the distance in the Distance dialog box.
24. To tell the software you've finished placing the construction lines, simply click the **Escape key** on your keyboard to drop the construction line tool.

Hiding the construction lines

25. To hide the construction lines, click the **Toggle Visibility** button on the **Drawing and Annotation** tab.
You may want to do this to make your drawing look tidier, once you've set out the external walls.
26. To show the construction lines, just click the **Toggle Visibility** button again.
! To permanently delete all of your construction lines, you can press the **Delete All** button. You might want to do this once your design is complete. You can also select and delete individual construction lines by clicking on them and pressing the **Delete key** on your keyboard.

Saving your project

- ! Don't forget to Save your project. If you select the **Save As** save option, you can number your drawings each time, then if you make a mistake or need to make a design change, it'll be much easier to retrace your steps.
27. Click on the **File** button near the top left of the screen.
28. On the **File** menu, hover your cursor over the **Save** option and then click the **Save As** button.
29. Type in the Project Name: **Upton Fields 2**.
30. Click **Save**.

MODULE 2: DRAWING THE GROUND FLOOR

Exercise 5: Drawing External Walls

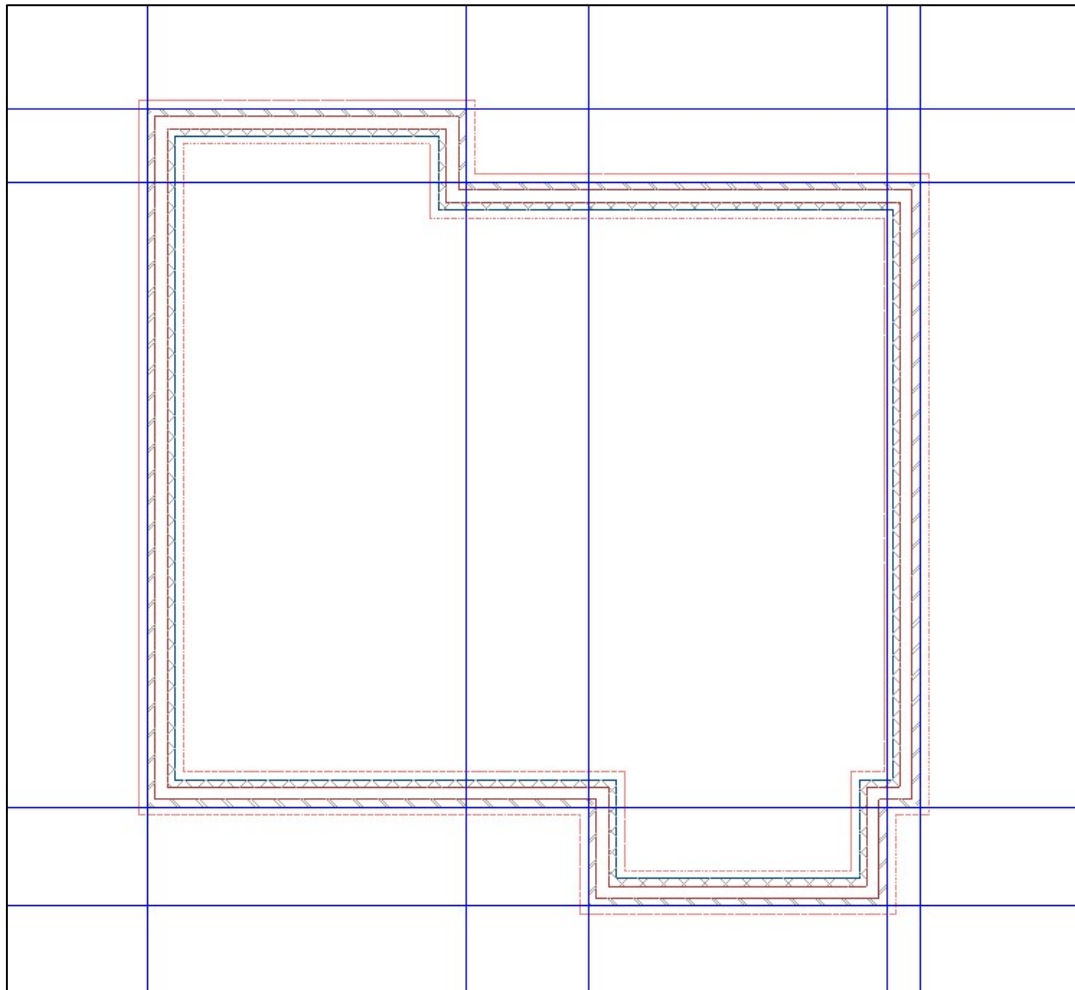
Introduction:

Once you've set out your construction lines, you're ready to start drawing the footprint of your design. In this exercise, you'll learn how to select a type and specification of external wall, how to input your foundation and footing details and wall height, and how to draw the walls by clicking on the intersection points of the construction lines.

Key skills you will be practising:

- Selecting a type and specification of external wall
- Changing the justification and external side of the walls
- Zooming in and out of your drawing
- Placing points on Intersection points
- Completing or closing items using the C and S keys

Refer to the diagram below to complete this exercise:



Instructions:

Specifying the external walls

1. Click on the **Architectural** tab at the top of the screen.
2. Click on the **External Walls** dropdown menu.
3. Select the **Brick and Block Cavity Wall** type.
4. Select the **Ground floor cavity wall for 2.475 high floor to joist height (Multi storey)** template. The multi storey templates add 225mm for the floor above so the total wall height for a 2.475m high template is 2.7m.
5. The Brick and Block Cavity Walls Dimensions Wizard opens up. Look at the wall height and leaf thicknesses.

Important Note:

If you don't intend to estimate your design using EstimatorXpress, you only need to review the yellow dimension input boxes in the Dimensions Wizard. Only the dimensions highlighted in yellow – such as the wall height, external and internal leaf thicknesses and so on – are required to draw your plans and elevations. The white dimension input boxes are required for estimating purposes. Therefore, if you aren't going to import the drawing into EstimatorXpress to estimate the job, you can ignore the white dimension input boxes. For this training course, we will focus on the dimensions required to draw your design (the yellow boxes) and will skip over the estimating input boxes (the white boxes).

6. Click **Next** and look at the foundation details. The **Foundation Width** is highlighted in yellow as the foundations are shown on your plans. You can change this dimension if needed.
7. Click **Next** and look at the footing details.
8. Change the **Cavity Width** to 0.140. The **Splash Course Depth** is also highlighted in yellow as the splash course is shown on any elevations you draw.
9. Click **Next**. The final page deals exclusively with finishing options which are only relevant if you're estimating the job.
10. Click **Finish**.

Drawing the external walls

11. You're now ready to begin plotting out your walls.
When drawing each of your building components, refer to the Command Window. The instructions explain how to draw or insert each part of your design.
12. The Command Window prompts: Give Start Point.
Hover your cursor over the point where the vertical and horizontal construction lines meet at the top-left of the page. The word **Intersection** should appear next to your cursor.
13. Click on this intersection point to begin drawing the walls. Click and release the left mouse button to place the point.
! Don't hold down the left mouse button, just click and release.
14. The red line on the wall highlights which side of the wall you're placing while the arrow identifies the external side of the wall.
! A set of Wall tools appear on the ribbon towards the top of the screen when you're drawing your walls. From here, you can change the external side of the wall by selecting either right or

left from the External Side drop down box. You can also change the external side of the wall, as you're drawing, by clicking the F key on your keyboard.

- ! The Justification drop down box tells PlansXpress which side of the wall to place with your mouse clicks. You can also change the justification of the walls by pressing the J key on your keyboard – press the J key repeatedly to toggle through the justification settings.

In the Justification drop down box, set the Justification to **left** so that you're drawing the left side of the walls, thus placing them inside the construction lines.

15. The Command Window prompts: Give Next Point.

It can help to zoom in and out of your page when you're placing several points on your drawing. Remember, one of the easiest ways to do this is to zoom in and out using the scroll wheel on the mouse. Place your cursor over the point you want to zoom in on, and scroll the mouse wheel towards the screen to zoom in. Scroll away from the screen to zoom out again.

16. Referring to the diagram at the start of this exercise, hover your cursor over the next **Intersection** point where you want to place your walls. If dimensions appear, rather than the word Intersection, press the **F7 key** on your keyboard to switch on snap mode.

17. Click the left mouse button to place the next corner of the walls.

18. Follow the diagram to place all but the last length of wall.

19. Once you've placed the second to last point, you can click the **C key** on your keyboard to close the walls.

Checking your walls

20. You can check your walls have been drawn correctly using the 3D Preview. For most wall types, the colour and hatching of the walls will tell you if the external and internal leaf are in the correct place.

21. Click on the **3D View** tab to open the 3D Preview window.

- ! If the 3D Preview window isn't visible on screen, go to the **Views & 3D** tab and click on the **3D Preview** button.

22. Place your cursor over the 3D model, hold down the left mouse button, and move your mouse to drag the model around.

Save your project

31. Click on the **File** button.

32. Hover your cursor over the **Save** option and then click the **Save As** button.

33. Type in the Project Name: **Upton Fields 3**.

34. Click **Save**.

Exercise 6: Drawing Internal Walls

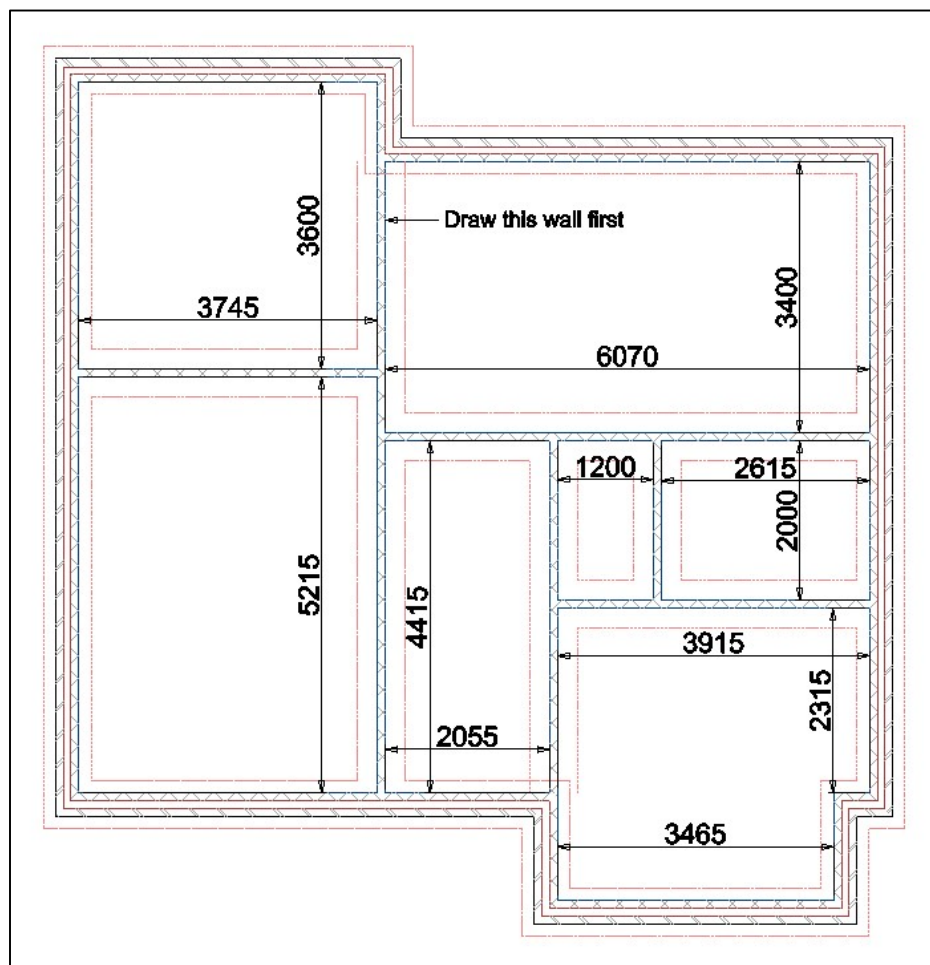
Introduction:

Once your external walls are in place, you're ready to begin drawing your internal walls. In this exercise, you'll practise drawing internal walls by measuring from existing points on your external walls. The process is the same whatever type of internal wall you're drawing but, in this exercise, we'll be drawing single skin block walls.

Key skills you will be practising:

- Selecting a type of internal wall
- Changing the justification of the walls
- Zooming in and out of your drawing
- Using the R key to place an item relative to another item
- Using the measure tool

Refer to the diagram below to complete this exercise:



Instructions:

Specifying the internal walls

1. If you have any construction lines on your drawing, from plotting out your external walls, delete them now.
To do this, click on the **Drawing & Annotation** tab.
2. Click the **Delete** button in the Construction Lines section of the tab.
3. A dialog box pops up asking if you're sure you want to delete the construction lines.
Click **Yes**.
4. To draw your internal walls, click back onto the **Architectural** tab.
5. Click on the **Internal** dropdown menu.
6. Select the **Block Wall** type.
7. Select the **Ground floor block wall for 2.475 high floor to joist height (Multi storey)** template.
8. The Block Wall Dimensions Wizard opens up. Remember, you only need to review the yellow dimensions for drawing purposes. Check the **Wall Height**.
! Tick the Show Tech Tip box at the bottom of the Dimensions Wizard. A Tech Tip appears at the top right of the window giving an explanation of the dimension you need to enter. Each input box has its own Tech Tip and they're a helpful point of reference if you come across any dimensions you're unsure of.
9. Click **Next** and look at the foundation details. The **Foundation Width** is highlighted in yellow as the foundations are shown on your plans. Leave this set to the default figure of 450mm.
10. Click **Next** and look at the footing details. The **Overall Wall Width** and **Splash Course Depth** are the only dimensions you need to consider. Leave these set to the default figures.
11. Click **Next**. The final page deals exclusively with finishing options which are only relevant if you're estimating the job.
12. Click **Finish**.

Drawing the internal walls

13. The Command Window prompts: Give Start Point.
Start by placing the wall which spans the house from the back to the front. Refer to the diagram at the start of this chapter for guidance.
Hover your cursor over the internal corner at the back of the house to locate the **End** point.
14. Click the left mouse button to place the start of the wall.
15. We need to change the justification so that the wall is drawn in the correct position.
Using the **Justification** dropdown box on the **Wall** tab at the top of the screen, set the justification to **Right**.
16. The Command Window prompts: Click to place the next point.
17. Hover your cursor over the front wall of the house until you locate the **Perpendicular** point.
18. Click the left mouse button to place the end of the wall.
19. Now this wall is complete, PlansXpress prompts you to place another wall.
The Command Window prompts: Give Start Point.
Zoom into the right corner of the rear projection of the house, by placing your cursor in this area and scrolling the mouse wheel towards the screen.

An accurate way of placing your internal walls is to measure a distance from an existing point on an external wall. You do this using the Relative tool.

To do this, hover your cursor over the **End** point on the internal corner on the right of the rear projection.

! Don't click on this point; just hover your cursor over it.

20. Press the **R key** on your keyboard to select the Relative tool.

21. Press the **down arrow key** on your keyboard to indicate the position of the internal wall relative to the End point.

22. In the Distance dialog box, enter the distance to the start of the internal wall. Type **3600**.

23. Click **OK**.

24. The first point of the wall appears on the drawing.

The Instructions now ask us to: Give Next Point.

Press the **F7 key** to switch on Snap mode. You'll see that the Snap mode button is highlighted at the bottom right of the Drawing Area.

25. Find the **Perpendicular** point on the opposite wall by hovering over the wall until the message Perpendicular appears. Finding the **Perpendicular** snap point will ensure your wall is drawn at right angles to the external wall.

26. Click the left mouse button to place the end of the wall.

27. PlansXpress is now ready to draw another wall.

The Command Window prompts: Give Start Point.

28. Zoom out by scrolling your mouse wheel away from the screen.

29. Use the scroll wheel to drag the page and zoom into the back-right corner of the house by placing your cursor in this area and scrolling the mouse wheel towards the screen.

30. Now draw the next internal wall. Start by hovering your cursor over the **End** point on the internal corner at the back right of the house.

31. Press the **R key** on your keyboard to select the Relative tool.

32. Press the **down arrow key** to indicate the position of the internal wall relative to the End point.

33. The Distance dialog box opens up.

Type in the distance to the internal wall: **3400**

34. Click **OK**.

The first point of the wall appears on the drawing.

35. Press the **F7 key** to switch on Snap mode.

36. Find the **Perpendicular** point on the opposite wall.

37. Click the left mouse button to place the end of the wall.

38. Continue to draw the walls as laid out in the diagram. Remember to check the justification as you draw your walls as, if it isn't correct, your walls could be out by 100mm.

! You can press the **Escape key** on your keyboard, at any time, to drop the internal wall tool and stop drawing your walls. If you've just stopped drawing your walls, and decide you want to draw another one with the same specification, click the right mouse button. This will repeat the last action.

35. Review your work in 3D using the **3D View** window.

Checking the walls have been placed correctly

39. If you want to measure your room to check the justification of a wall is correct, you can use the Measure tool. The **Measure** button can be found on the **Modify & Selection** tab. Alternatively, press the **Ctrl** and **M** keys on your keyboard to summon the Measure tool.
40. The Command Window prompts: Give First Point.
Click on a snap point at one end of the room.
! If, when you move your mouse, there are dimensions linked to your cursor, this means you're in Dimension mode. To switch to Snap mode, press the **F7** key on your keyboard.
41. The Command Window prompts: Give Second Point.
42. Find and click on the **Perpendicular** snap point to place the second point.
43. The Measure Info dialog box pops up, showing some key measurements.
If you refer to the Length measurement, you can see the length of the room you've measured. Once you've checked the measurement.
44. Click **Close**.

Changing the justification

45. If your wall dimensions aren't correct, it may be that you need to change the justification.
46. Click on the wall.
! Justification means the side of the wall you're placing with your cursor clicks. This will affect room dimensions, so it's important to get it right. The justification of a wall is indicated by red and blue handles which appear on the wall when it is selected. You can easily change the justification of a wall by selecting a different option on the **Justification** dropdown menu. You can find this on the **Wall** tab, whenever you're drawing and modifying walls.

Checking the walls have heeled in correctly

47. If you notice that your walls haven't heeled in properly, simply click the **Refresh** button at the top right of the screen, and your walls should appear correctly.
48. Save your project as before.

Exercise 7: Placing Doors

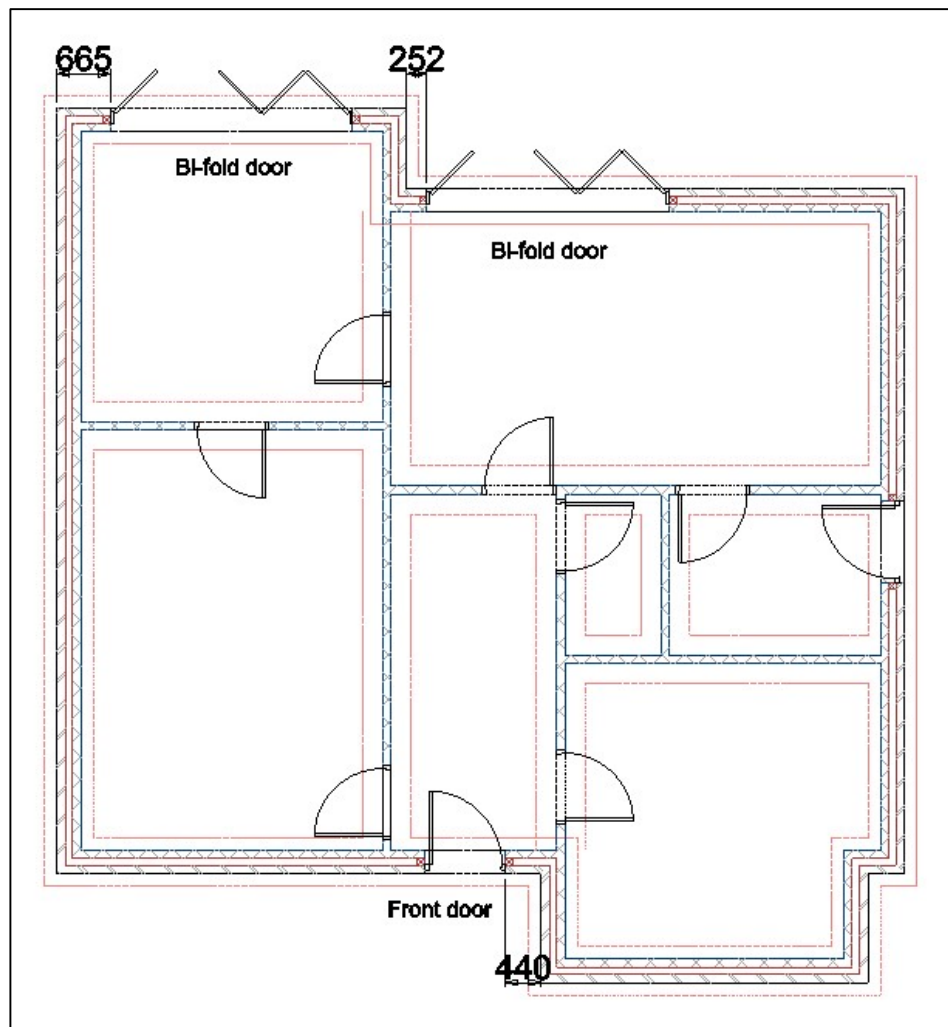
Introduction:

In this exercise, you'll practise selecting a door type and placing door symbols on your plans.

Key skills you will be practising:

- Selecting a type of door
- Changing the justification of a door using the J key
- Selecting the orientation of a door
- Placing a door by measuring from one end of a wall

Refer to the diagram below to complete this exercise:



Instructions:

Specifying the front door

1. Click on the **Architectural** tab.
2. Click on the **Doors** dropdown menu.
3. Select **External Doors**.
4. Select the **Front Doors** type.
5. Select the 838 4 Panel Glazed Door
6. The Front Door Dimensions Wizard opens up. Check the **Door frame dimensions**.
7. Click **Next**. Review the **Reveal and door jamb details** as required.
8. Now click **Accept Defaults**. The remaining screens deal with estimating options.

Placing the front door

9. The Command Window prompts: Give insertion point on wall.
Refer to the diagram at the start of this exercise.
Hover your cursor over the section of wall you want to insert the front door into.
10. You may want to zoom in by scrolling the mouse wheel towards the screen.
11. If snap points appear next to your cursor, you're in Snap mode. This means you can place your doors by locating and clicking on snap points, such as Mid points. However, often you'll want to place your doors by measuring from the ends of your walls.
To switch to Dimension mode, press the **F8 key** on your keyboard.
12. By default, PlansXpress measures to the centre of the door when placing doors. To measure to one side of the door, change the Justification.
Click the **Justification** drop down box on the **Insert** tab and click **Left**.
! The justification of the measurement is dependent on the way the wall is facing, so it may, at first, appear back to front! Imagine you're standing inside the house, facing towards the wall you're working on – this will give you your left and right justification.
13. To place the door 440mm from the projecting wall, type 440 into the **Distance** input box at the bottom right of the Drawing Area.
14. Press the **Enter** key on your keyboard.
15. Hold your cursor over the external side of the wall, so that PlansXpress measures from the outer corner of the wall, and the measurement you entered appears externally.
16. Once the door is in the correct place, click the left mouse button to place the door.
17. The Command Window prompts: Give door alignment
You can determine the orientation, or hinge side, of the door by the placement of your cursor. When inserting some doors, you can also determine the direction the doors open in, at this point.
However, for some doors, the hinge side and direction of opening are predetermined and cannot be changed.
18. Move your cursor inside the house and to the left of the door, so the door opens to the left.
19. Click the left mouse button to confirm the orientation and direction of opening.
20. Press the **Escape key** on your keyboard to finish inserting external doorsets with the selected specification.

Inserting the bi-fold doors

21. Now select the bi-fold doors for the rear of the house.

Click on the **Doors** dropdown menu.

22. Select **Bi-fold Doors**.
 23. Select the **Bi-fold Patio Door PVCu** type.
 24. Select the **Bi-fold 3000mm x 2100mm 4 Panel door**.
 25. The Bi-fold Door Dimensions Wizard opens up. Check the **Door frame dimensions**.
 26. Click **Next**. Review the **Reveal and door jamb details** as required.
 27. Now click **Accept Defaults**. The remaining screens deal with estimating options.
 28. Place two of these bi-fold doors as laid out in the diagram at the start of this exercise. Refer to steps 9 to 20 if you need any help doing so.
- Note: The bi-fold doors will appear slightly differently to the ones shown on the diagram. A wider range of bi-folds can be found by selecting the Crystal Direct Bi-fold Door option.

Inserting the internal doors

29. Click on the **Doors** dropdown menu.
30. Select **Internal Doors**.
31. Select the **Typical Fire Doors** type.
32. Select the **762mm Door into blockwork** template.
33. Click **Accept Defaults**.
34. Place the internal fire doors on your plans by eye, referring to the diagram.

Inserting the back door (access to utility)

35. Select **External Doors** then **Back Doors** to select and place the back door (which opens into the utility room at the side of the house).

Viewing the 3D model

36. Once you've inserted your doors, you can take a quick look at a 3D model to check they've been drawn correctly.
37. Click on the **3D View** tab or window.
38. Hold down the left mouse button to drag the model around and view the entire building. Use the scroll wheel on your mouse to zoom in and out of the 3D model.
39. Now save your drawing using the **Save As** button.

Extension Activity

Comfortable doing that? Fancy a challenge?

Replace the internal door between the Dining Room and Lounge with a double door.

Alternatively, have a go at using the **Openings and Steelwork** menu to place the structural opening over the rear projection in the dining room (refer to the diagram on page 28).

Exercise 8: Placing Windows

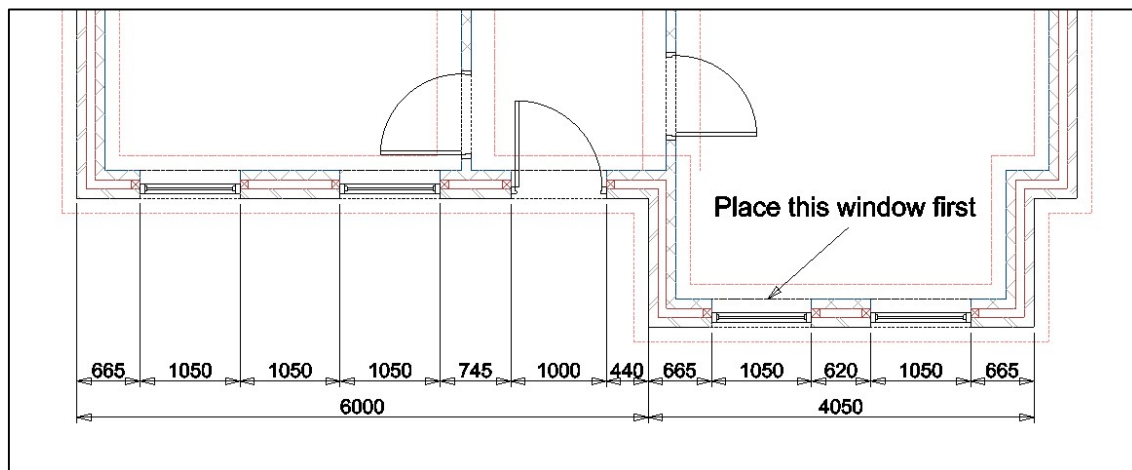
Introduction:

Once you've drawn your walls, one of the next jobs on your list will be adding windows to your plans. In this exercise, you'll practise placing windows by measuring from the end of a wall, or from a door or a window you've already placed.

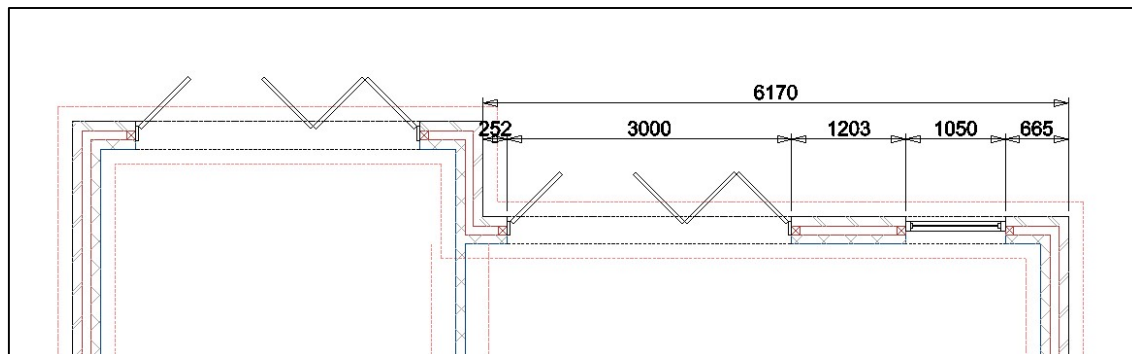
Key skills you will be practising:

- Selecting a type of window
- Placing a window by measuring from one end of a wall
- Changing the justification of a window using the J key
- Using the Tab key to change which end of the wall you're measuring from
- Switching on Dimension and Snap mode

Refer to the diagrams below to complete this exercise:



A: Front of house



B: Rear of house

Instructions:

Specifying the windows

1. Click on the **Architectural** tab.
2. Click on the **Windows** dropdown menu.
3. Select the **PVCu Standard Windows** type.
4. Select **Crystal Direct PVCu Windows** then **Choose Window**.
5. The Window Specifier opens up.
The first screen asks you to select the window you want to use.
Filter the windows by width to show only windows with a **1038mm** width.
6. Filter the windows by height to show only windows with a **1338mm** width.
7. Filter the windows by colour to look at only **white** options.
! You can remove a filter at anytime by clicking the adjacent Clear Filter button.
8. Click on the **White PVC-U Window Type Centre Bar 1338 (high) x 1038mm - 1.4 uValue** window.
9. Click **Select Window**.
10. As we're not estimating the window, there's no need to worry about reviewing the lintel options.
Select **Not Required** and click **Select Lintel**.
11. Click **Accept Defaults** to accept the default dimensions.

Placing the windows

12. The Command Window prompts: Give insertion point on wall
Zoom in on the front projection of the house by placing your cursor over the wall and scrolling the mouse wheel towards the screen.
Refer to diagram A at the start of this chapter. We're going to place the left-hand window 665mm from the left corner of the wall.
13. If snap points, such as Nearest points, appear next to your cursor when it's hovering over the wall, you're in Snap mode, and you'll need to switch over to Dimension mode.
To do this, press the **F8 key** on your keyboard. Dimension mode allows you to place your windows by measuring from the ends of your walls.
14. Once in Dimension mode, you'll see that PlansXpress is, by default, set up to measure to the centre of the window. To measure to one side of the window, you need to change the justification.
! The justification of the measurement is dependent on the way the wall is facing, so it may, at first, appear back to front! Imagine you're standing inside the house, facing towards the wall you're working on – this will give you your left and right justification.
Change the justification to right by selecting **Right** from the justification dropdown box on the **Insert** tab.
15. Hold your cursor over the external leaf. PlansXpress shows the dimensions from the ends of the external leaf to the right side of the window (as viewed from inside the building). If you hold your cursor over the internal leaf, it measures to from the ends of the internal leaf to the right side of the window. Ensure your cursor is over the external leaf.
16. The active dimension is the one displayed in square brackets.
To change which dimension is active – or in other words, controlling the position of the window - press the **Tab key** on your keyboard, until the square brackets appear where you want them.
17. You can place the window by eye, using the on-screen dimensions to guide you, or alternatively you can type in a dimension.

To position the window by entering a dimension, click into the **Distance** input box at the bottom right of the screen.

18. Type the distance from the end of the wall into the input box: **665**

19. Press the **Enter** key on your keyboard.

20. Click the left mouse button to place the window once you're happy with its position.

21. PlansXpress now invites you to place another window with the same specification.

The Command Window prompts: Give insertion point on wall

PlansXpress retains the window insertion settings from the window you've just placed. So, in this case, the justification is set to right and the active dimension is the one measuring from the left end of the wall. Of course, you can change any of these settings as you place each window. Use the **Justification** dropdown box to change the justification and the **Tab key** to change the active dimension.

22. Type **620** into the **Distance** input box.

23. Press the **Enter** key on your keyboard.

24. Hover your cursor over the front projection of the house, to the right of the first window.

25. Click the left mouse button to place the window.

PlansXpress places the window 620mm from the window you've just placed.

26. Continue placing your windows, following the dimensions on the diagrams at the start of this exercise.

Viewing the 3D model

27. Once you've inserted your windows, you can take a quick look at the 3D model to check they've been drawn correctly.

28. Click on the **3D View** tab or window to view the 3D model.

29. Hold down the left mouse button to drag the model around and view the entire building.

30. Save your project using the **Save As** option.

Extension Activity

Keen to add a different type of window?

Try swapping the windows in the gable for a bay window.

Exercise 9: Inserting Stairs

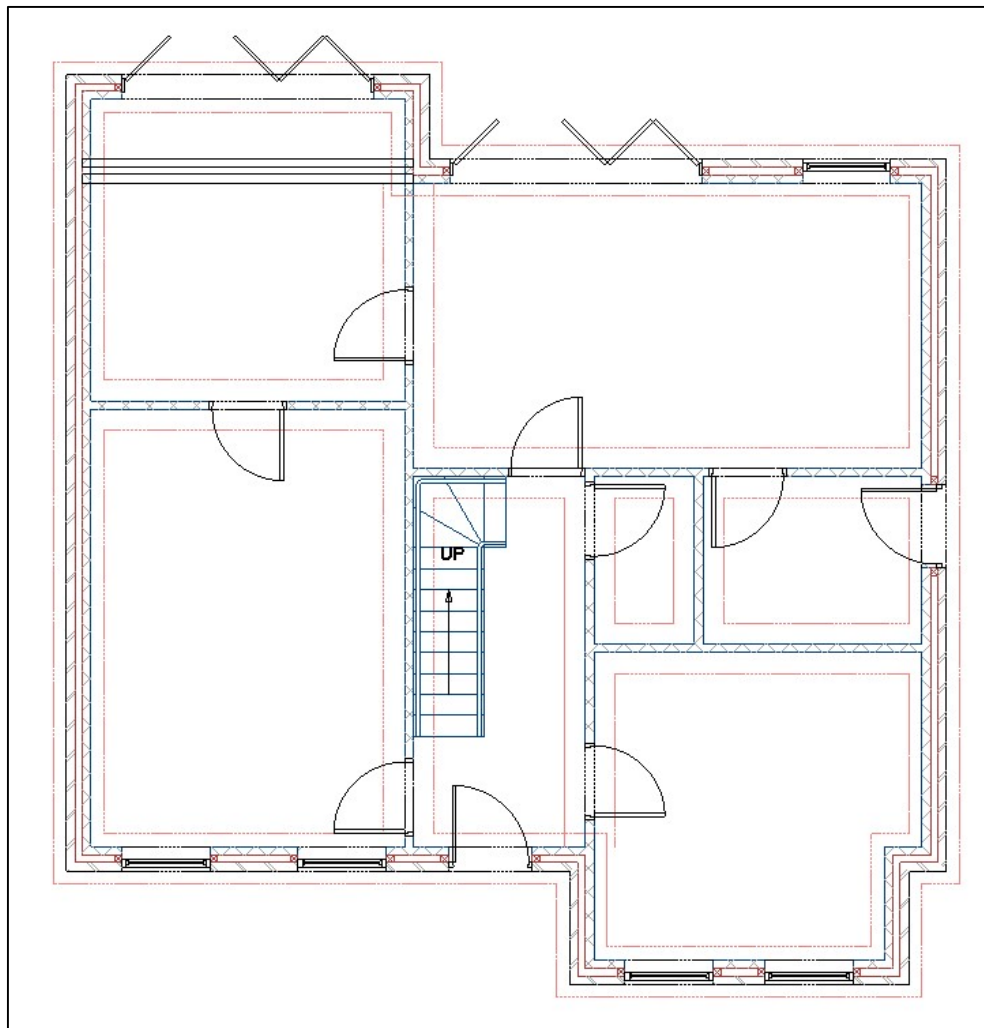
Introduction:

In this exercise, you'll learn how to add a staircase to your drawing.

Key skills you will be practising:

- Selecting a type of staircase
- Placing a staircase
- Adding sundry items

Refer to the diagram below to complete this exercise:



Instructions:

Specifying the stairs

1. Go to the **Architectural** tab.
2. Click on the **Stairs** button.
3. Select **Quarter Turn Staircase**
4. Select the **14 riser quarter turn staircase main flight against wall, first flight free standing** template.
5. The Quarter Turn Staircase Dimensions Wizard opens up.
Change the number of risers in the first flight to **10**.
6. Change the total number of risers to **14**.
7. Change the number of steps in landing (winders) to **3**.
8. Change the width of the staircase to **850**.
9. Leave the going length set to **250**.
10. Enter a floor to floor height of **2700**.
11. Click **Next**.
12. Leave the handrail settings as they are.
13. Click **Accept Defaults**.

Placing the stairs

14. PlansXpress is now ready to place the staircase on the drawing.
The Command Window prompts: Give top point for the first landing.
Using the Justification dropdown box at the top of the screen, change the Justification to Left. This will help you to place the staircase on the left-hand wall of the Hall.
15. Place your cursor at the back left corner of the hall. Your cursor should snap to an Endpoint.
16. Click the left mouse button.
17. The Command Window prompts: Give control point for bottom of the staircase.
You're now determining the orientation of the staircase.
Hold down the **Shift key** to lock the rotation to 45 degree increments.
18. The stairs go up from the front to the back of the house, so move your cursor down the screen to indicate where the bottom point of the stairs is.
19. Left click to position the bottom of the stairs.
20. The Command Window prompts: Give control point for top landing.
In the case of a quarter turn staircase, this next step determines the direction of the turn at the top of the staircase.
Move your cursor to the right of the staircase to indicate that they turn right.
21. Left click to position the top of the stairs and finish placing the staircase.

Adding a label and arrow

22. Now you can add a label and arrow to show the direction of the stairs.
Click on the **Drawing & Annotation** tab.
23. Click the **Text** button.
24. Type **UP** into the text box.
25. Click **OK**.
26. You're now ready to place the text on your staircase.

Zoom into the staircase by placing your cursor over it and scrolling the mouse wheel towards the screen.

27. Position the text towards the top of staircase. You may want to change the horizontal alignment of the text to Centre using the options on the ribbon at the top of the screen.
28. Click the left mouse button to place the text.
29. Now add the arrow.
On the **Drawing & Annotation tab**, click the **Arrows** button.
30. Select the **Leader Arrow** option.
31. Find a **Midpoint** of one of the stairs to place the leader (head) end of the arrow.
32. Click the left mouse button to place the arrow head.
33. Find another midpoint for the tail end of the arrow.
34. Click the left mouse button place the tail.
35. Press the **Escape key** to finish drawing the arrow.
36. Save your drawing using the **Save As** button.

Exercise 10: Adding the Ground Floor Slab

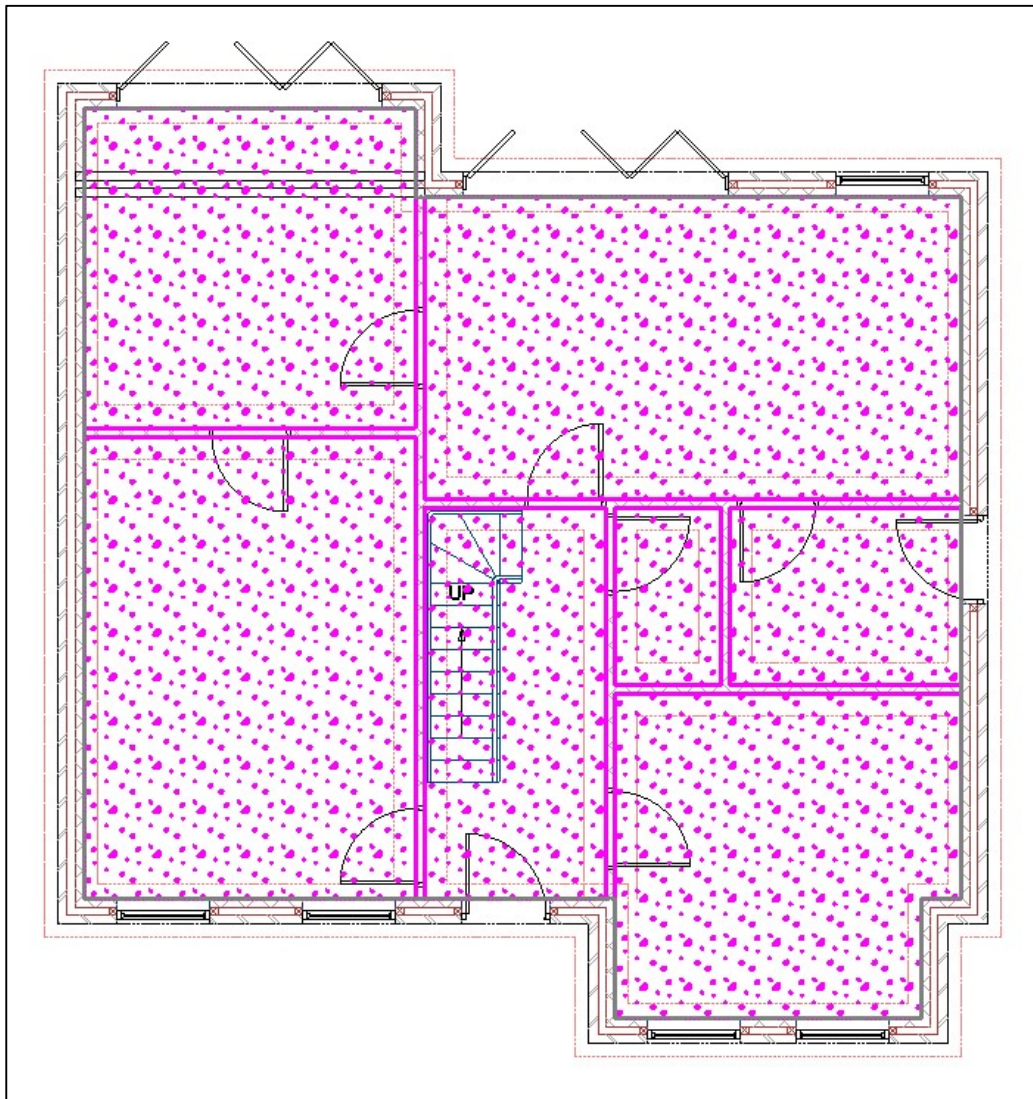
Introduction:

In this exercise, you'll have a go at adding a ground floor slab and perimeter insulation to your design.

Key skills you will be practising:

- Selecting a type of flooring
- Drawing a section of flooring
- Using the F key to fill an area with flooring
- Adding sundry items

Refer to the diagram below to complete this exercise:



Instructions:

Specifying the ground floor slab

1. Go to the **Architectural** tab.
2. Click the **Flooring** button.
3. Select the **Floor Slabs** type from the dropdown menu.
4. Click on **House Slab** then select the **Reinforced Slab** template.
5. The Slab Dimensions Wizard opens up.
Click **Accept Defaults**.

Drawing the ground floor slab

1. Now PlansXpress is ready to draw the first section of slab.
We're going to draw the slab in sections.
2. The Command Window prompts: Give Start point of press {F} to fill the space at the mouse location.
This means you can use the **F key** to fill an enclosed space, such as a room. This is the quickest way of drawing an area of slab with a perimeter which has already been defined. Simply place your cursor in the room where you want to draw the slab, then press the **F key** on your keyboard.
3. Place your cursor in the front-left room.
4. Press the **F key** your keyboard.
PlansXpress automatically draws the slab to fill the room. You'll see the slab is now visible in the 3D View of the design.
5. Click **No** to the dialog box asking if you want to place perimeter insulation.
6. To draw another section of slab, right click anywhere on the Drawing Area. Right clicking repeats the last action.
7. Click **Accept Defaults** on the Dimensions Wizard.
8. Place your cursor over the back-left room.
9. Press the **F key** on your keyboard.
10. Continue drawing the sections of slab in this way, referring the diagram at the start of this exercise.

Switching off the floor layers

11. Now hide the floor layers.
Go to the **Views & 3D** tab.
12. Click the **Layers** button.
13. The Layers dialog box opens up.
Click the **Find** button.
14. Type in **floor** and click **Find**.
15. Untick the **Lightbulb** button next to the **Floor** layer – it's the pink one.
16. Click **OK**.
You'll see the slab is no longer visible on screen, but you can switch the layer back on at any point by clicking the **Layers** button and ticking the **Lightbulb** button next to the **Floor** layer.
17. Now save your drawing.

MODULE 3: DRAWING THE FIRST FLOOR & ROOF

Exercise 11: Creating an Additional Storey

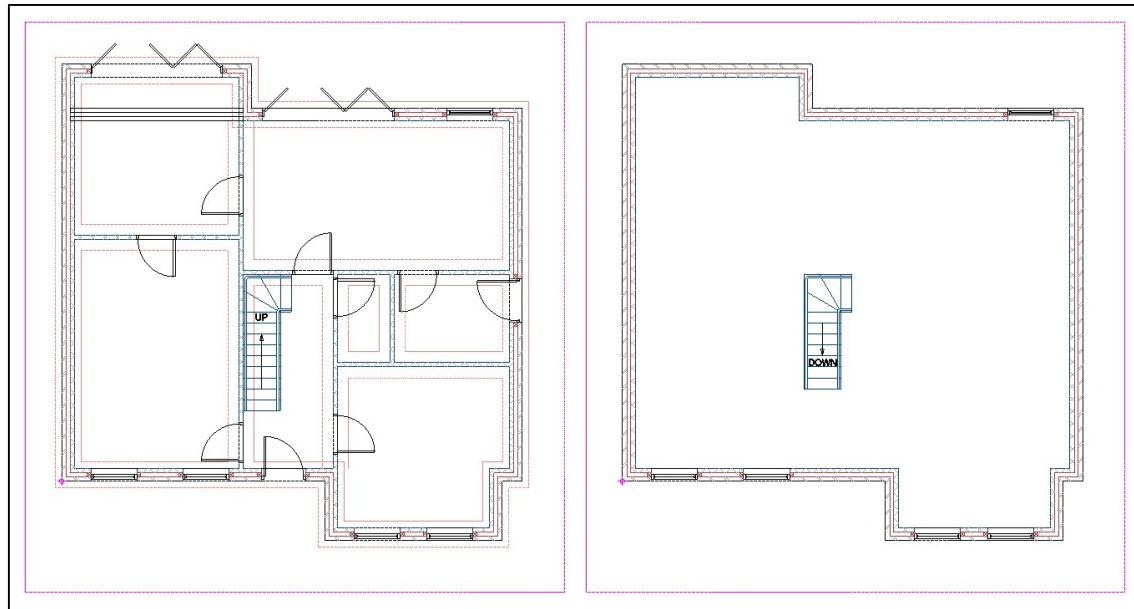
Introduction:

Rather than having to draw each storey of your building from scratch, you can copy and adapt your ground floor plan to create an upper floor. In this exercise, we'll practise creating a first-floor plan by copying the ground floor plan.

Key skills you will be practising:

- Setting up the levels
- Selecting a level
- Copying the level
- Selecting which components to copy over to the new level

Refer to the diagram below to complete this exercise:



Instructions:

Creating the ground floor level

! You first need to set up the ground floor plan as a level of the building. Once PlansXpress knows the order and height of each level, it can stack them together to create elevations and 3D views of your building.

1. Click on the **Views & 3D** tab.
2. Click the **Level** button.
3. The Level dialog box opens up.
For the ground floor, the Base Height is simply the ground level, so leave that set to 0.
Use the **Tab key** on your keyboard to move down the input boxes.
4. Set the Wall Height to **2700**.
5. Ensure the Level is set to **1**. This means the ground floor is the first Level in our building. The first floor will be Level 2 and so on.
6. Click **OK**.
7. Now PlansXpress will prompt you to select a reference point and define the boundaries of the level.
The Command Window prompts: Give Reference Point.
The reference point is a point you select on the building which is the same all the way through, so you can stack the floors, or levels, on top of each other to create your elevations and 3D views.
Position your cursor over bottom left hand corner of the external wall. You should find an **Endpoint**.
8. Click the left mouse button to select this point as the reference point
9. Next, the Command Window prompts: Give first point of the box to define the level.
You're going to draw a box around the ground floor plan to set the boundaries of the level.
Position your cursor slightly above and to the left of the plan.
10. Click the left mouse button.
11. Finally, the Command Window prompts: Give second point of the box to define the level
Move your cursor below and to the right of the plan.
12. Click the left mouse button.
This creates a boundary around the ground floor level, which appears in pink.

Copying the ground floor level

13. Now you've defined the ground floor level, you can copy it and use it to create the first floor.
Click on the level boundary to select the level.
14. Now click the scroll wheel on your mouse (or middle click button if you have one).
15. A menu appears.
Select the **Copy Selection** option.
16. We're going to place the copy to the right of the ground floor, as shown in the diagram at the start of this exercise.
The Command Window prompts: Give Reference Point.
Click on the bottom left hand corner of the level.
17. The Command Window prompts: Give Point To Copy To.
Click on the bottom right corner of the level.

Creating the first floor level and defining which components to copy across

18. The Copy Plan Options dialog box opens up as PlansXpress creates level 2.

The first screen allows you to set the heights of the level.

19. The base height for level 2 has been taken from the wall height of the ground floor level, so it should be correct at **2700**.

20. Use the **Tab** key to move into the next input box.

21. The level height has been copied from the ground floor level and may need changing.

Change the level height to **2550** as this is the height of the first floor walls.

22. The level has automatically been numbered 2, which is correct in this scenario.

23. Next you'll find a list of all the components which you can copy across to your new level. You can choose to leave or remove the various components.

Leave **External Walls** ticked. Note that the option below is removing the foundations and footings by default.

24. Untick **External doors** so they are removed from the first floor.

25. Leave **Windows** ticked so that they are copied across to the first floor. You can always delete them at a later point.

26. We don't have any **Openings** in this design so can ignore this option.

27. Untick **Internal walls** to remove all of the internal walls.

28. All of the other Internal wall options will automatically be greyed out.

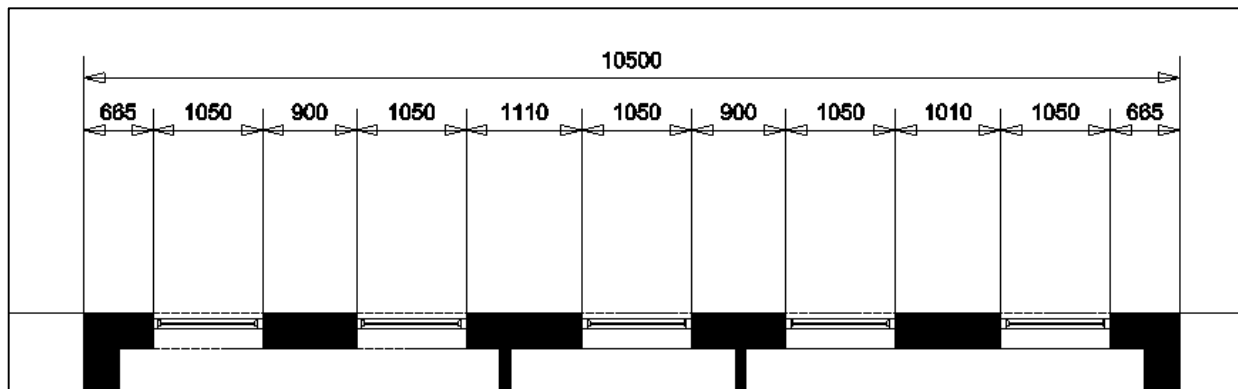
29. Click **OK** to confirm your selections.

30. After a few moments, the first floor level appears with external doors and internal walls removed in line with your selections.

31. Now save your project.

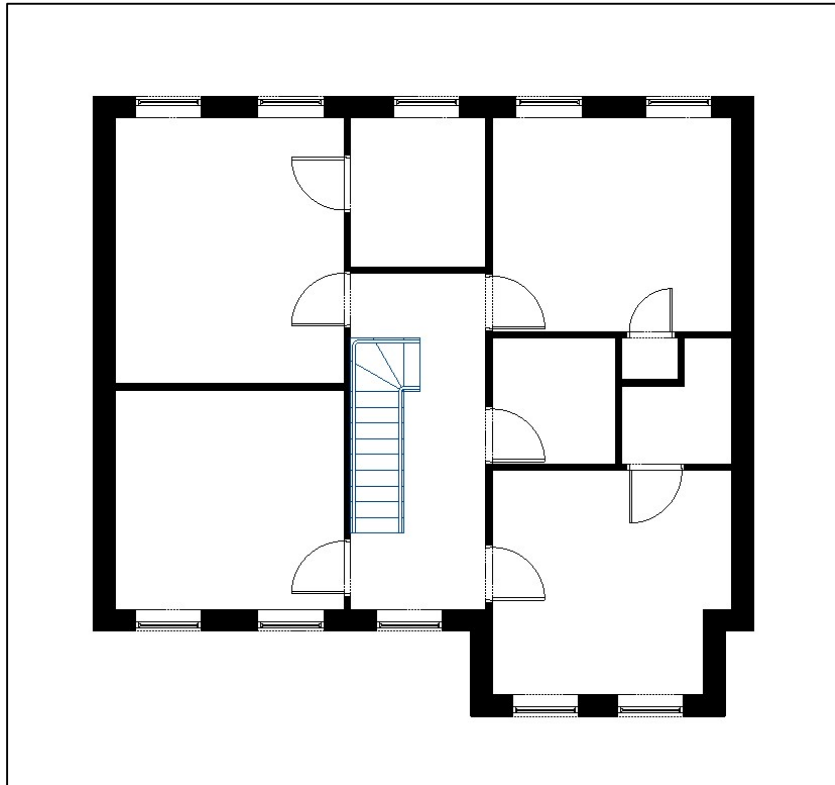
Have a go at finishing the first floor layout on your own:

- Adapt the rear wall of the first floor to remove the rear projection.
- Add 4 windows to the rear of the house using the dimensions on the diagram below. These can be the same specification as the windows you've already placed (Hint: Press the icon on the Windows menu to draw windows of the same size and specification as the downstairs ones you've already placed.)

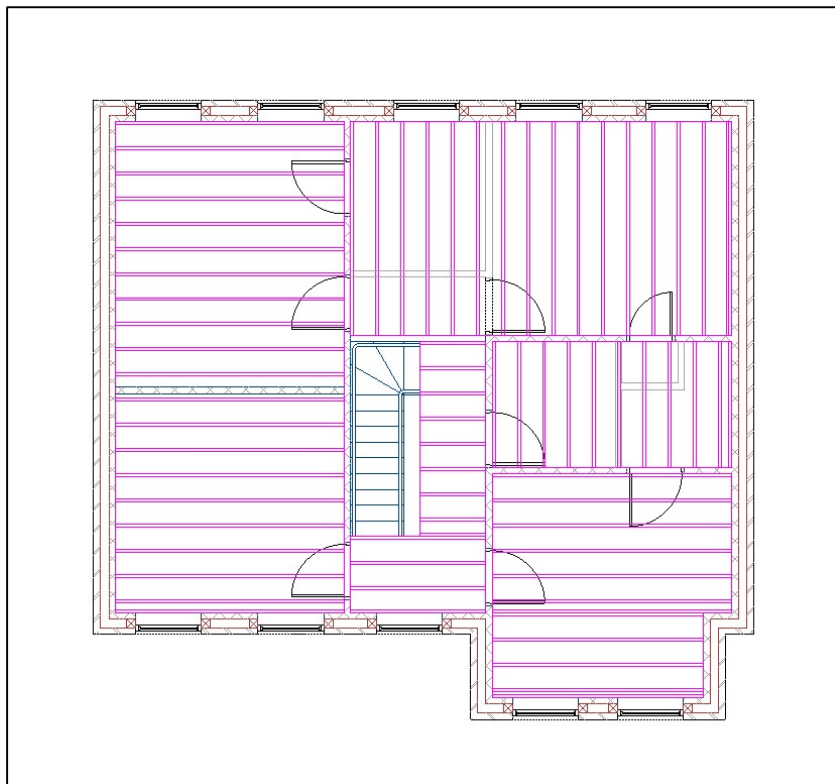


- Add 1 window to the front to replace the front door. Place it 450mm from the gable on the right.

- Place the internal stud walls. Select the 2.550 high template. Add the internal doors.



- Draw the suspended floor using the Suspended Floor option in the Flooring menu.



Exercise 12: Drawing the Lean-to Roof

Introduction:

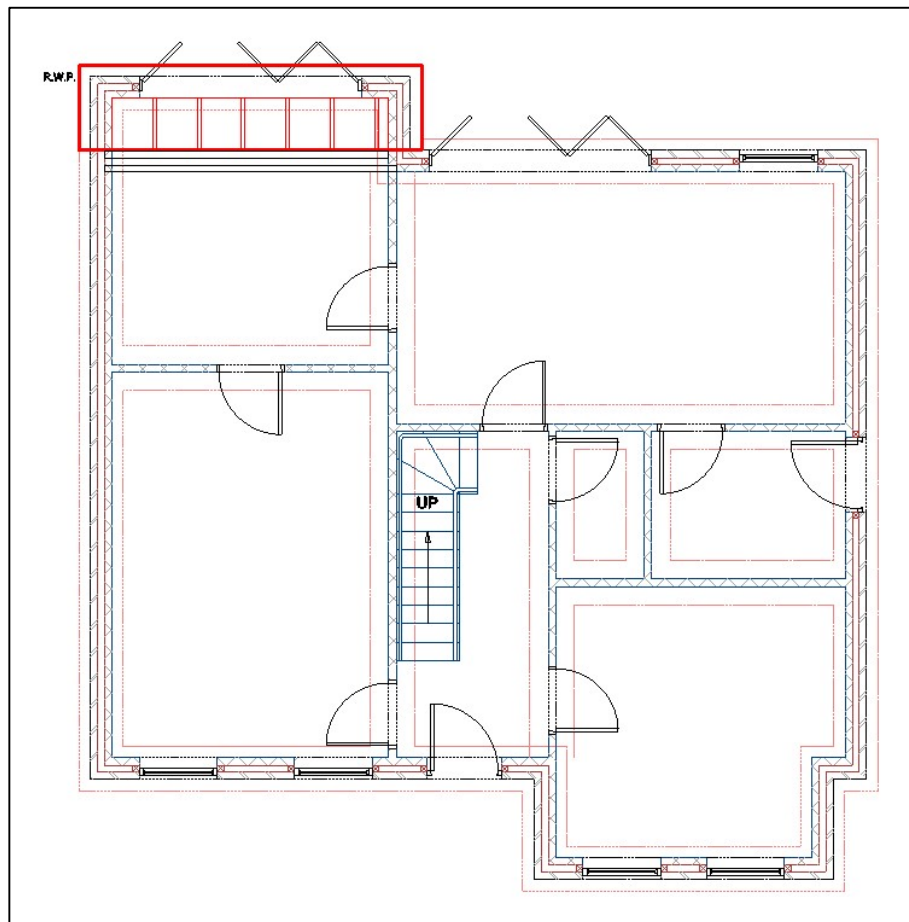
In this exercise, you'll practise adding a lean-to roof to your drawing.

Key skills you will be practising:

- Selecting a type, specification and configuration of roof
- Drawing a lean-to roof using the rectangular method
- Drawing a ceiling

Refer to the diagram below to complete this exercise:

Please note the roof lines and ceiling hatching will appear slightly different in PlansXpress 2022.



Instructions:

Specifying the roof

1. Go to the **Roofs & Attics** tab.
2. Click on the **Roofs** dropdown menu.
3. Select **Tiled Cut Roof**.
4. Select the **Typical 30 Degree Cut Roof** template.
5. The Roof Dimensions Wizard opens up.
Remember, only the dimension input boxes highlighted in yellow will impact on your drawing.
The pitch of the roof is already set to 30 degrees. On page 1, you can also edit the thickness of the roof covering and structure.
Click **Next**.
6. On page 2, review the **soffit width to gables** and the **soffit width to eaves**.
7. Review the **height and thickness of bargeboard** and the **height and thickness of fascia board**.
8. Click Next.
9. Page 3 relates to flat roofs and gablets so can be skipped. Click Next.
10. On page 4, **check the tile overhang beyond fascia board**.
11. You have now reviewed all of the dimensions which affect the drawing of the roof, so now click **Accept Defaults**.
12. The Roof Type window opens up. This is where you select the roof shape you want to draw.
Select the **Lean to or Mono Pitch Roof** option. Click anywhere on the diagram or text to select the roof type.
13. The Roof Drawing Method window opens up. When drawing a lean-to roof, there are multiple ways you can draw the roof. Read through the guidance notes on this screen to develop your understanding of when to use each method.
 - ! Use the **Draw a rectangular section of roof** method when the roof is rectangular but isn't sitting on walls on all sides – as in the case of a porch or lean-to.
 - ! Use the **Draw a roof the shape of a closed circuit of walls** method for a mono-pitched roof.
This one-click roof method works for mono-pitched roofs as they sit on a complete circuit of walls. In our example, the roof isn't sitting on walls on all sides so this method won't work.
 - ! Use the **Draw a polyline** method to draw a more complex shape of lean-to, for example a wrap-around lean-to.
14. Select the top option, **Draw a rectangular section of roof**. Click on the button or anywhere on the diagram or text to make your selection.
15. Click **Finish**.

Drawing the roof

16. PlansXpress is now ready to draw the roof. There are three steps to drawing a lean-to roof using the rectangle method. You will mark out two opposite corners of the roof, then indicate where the eaves line is. Follow the instructions on the command window.
17. The Command Window prompts: Give first corner of roof (use outer face of the wall)
Click on the top left corner of the lean-to.
18. The Command Window prompts: Give opposite corner of roof
Click on the bottom right corner of the lean to, on the external side of the main wall.
19. The Command Window prompts: Give roof orientation – blue line indicates eaves position

Your cursor controls the blue line and thus the position of the eaves. Place your cursor over the rear wall of the lean-to.

20. Click to position the eaves.

After a few moments, the lean-to roof appears on the drawing and a dialog box opens up asking if you want to add any additional items. The options available here will vary depending on whether you've selected a cut or truss roof.

Drawing the ceiling

21. Select the option to add a **Flat Ceiling for Cut Roof**. The ceiling appears in the 3D view, so it's a good idea to place it even if you're not estimating the plans.

22. The Ceiling Dimensions Wizard opens up.

Set the **Height of ceiling above floor level** to 2.475

23. Click **Finish**.

24. The Command Window prompts: Give Start Point.

Locating appropriate snap points, click around the perimeter of the lean-to ceiling.

25. Once complete, press the **Escape** key.

26. The Additional Items dialog box opens up again.

Click **Done**.

Viewing the 3D model of the roof

27. Click on the **3D View** tab.

28. Once you can see the 3D View window, click and hold down the left mouse button on the 3D Model, and move your mouse to drag the 3D model around.

29. Now save your drawing.

Extension Activity

Place rainwater pipe symbols using the **Rainwater Pipe for Sloping Roof** option. You can find this in the Additional Items window. Alternatively, go to the **Roofs** dropdown menu, select **Sloping Roof Accessories** and select the **Rainwater Pipe for Sloping Roof** option.

Exercise 13: Drawing the Main Roof

Introduction:

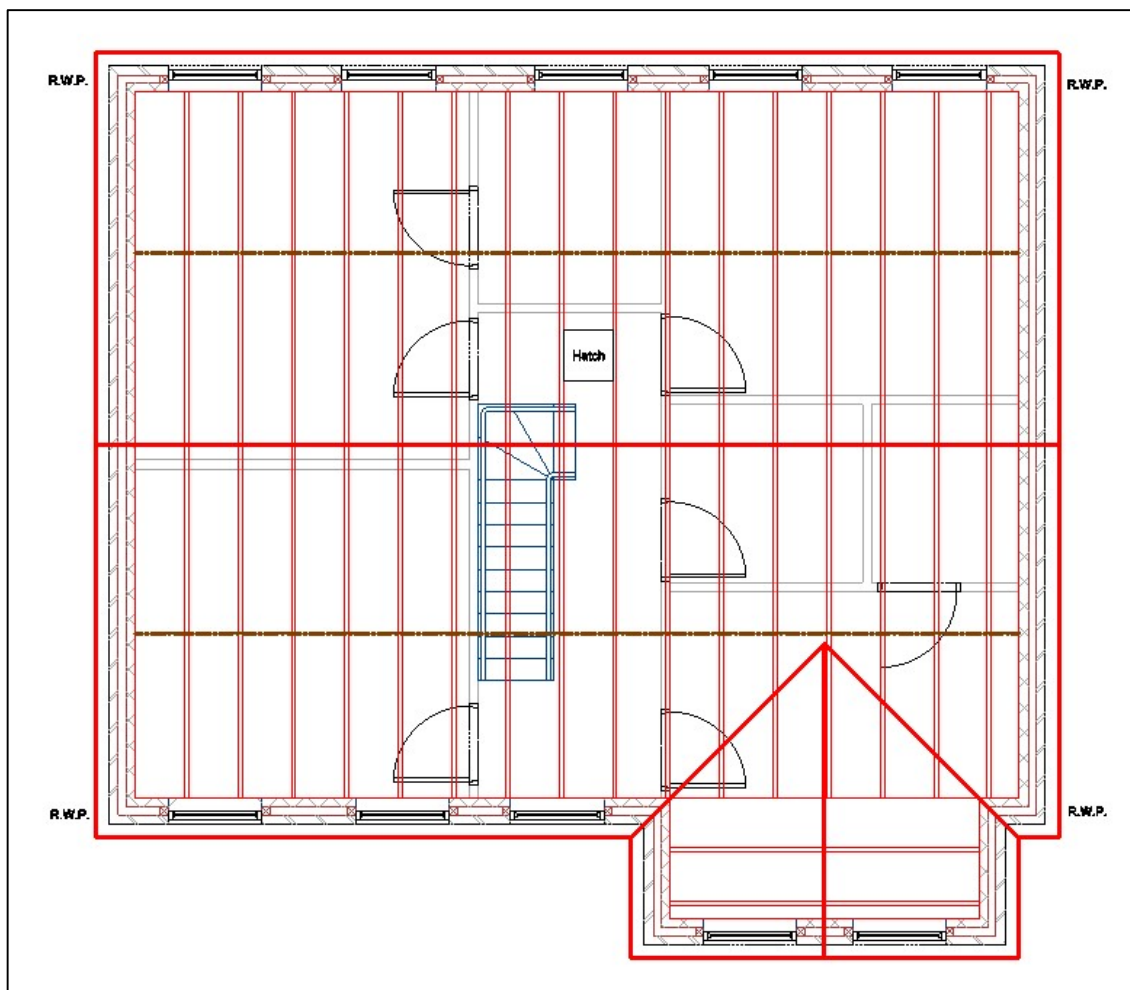
In this exercise, you'll practise drawing an apex roof and an apex valley roof. When drawing an apex roof with valleys, always start by drawing the main section of roof. You can then add any valleys as required.

Key skills you will be practising:

- Selecting a type, specification and configuration of roof
- Drawing an apex roof and a valley roof using the rectangle method
- Drawing a ceiling

Refer to the diagram below to complete this exercise:

Please note the roof lines and ceiling hatching will appear slightly different in PlansXpress 2022.



Instructions:

Specifying the roof

1. Go to the **Roofs and Attics** tab.
2. Click on the **Roofs** dropdown menu.
3. Select **Tiled Truss Roof**.
4. Select the **Typical Truss Roof** template.
5. The Roof Dimensions Wizard opens up.
Set the pitch of the roof to 45 degrees. Tweak the thickness of the roof covering and structure if desired.
6. Click **Next**.
7. On page 2, review the **soffit width of gables** and the **soffit width to eaves**.
8. Review the **height and thickness of bargeboard** and the **height and thickness of fascia board**.
9. Click Next.
10. Skip page 3. Click Next.
11. On page 4, **check the tile overhang beyond fascia board**.
12. You have now reviewed all of the dimensions which affect the drawing of the roof, so now click **Accept Defaults**.
13. The Roof Type window opens up.
This time, select the **Apex Roof** option.
14. The Roof Drawing Method window opens up.
! Depending on the type of roof you're drawing, different drawing methods are available to you. To draw a roof made up of apex roof sections, you will use the rectangular method. As you did in the previous exercise, you will draw each section of roof by placing two opposite corners of the rectangle. You will then select the direction of the ridge. For our L shaped roof, we will need to draw two sections of apex roof – one for the main apex roof and one for the apex valley.
As there's only one drawing method, it's already been selected. Click **Finish**.

Drawing the apex roof

15. PlansXpress is now ready to draw the roof. Zoom in on the first floor plan.
16. There are 3 steps to drawing an apex roof. Follow the instructions on the command window.
The Command Window prompts: Give first corner of roof (use outer face of the wall)
Place the first corner of the rectangle by clicking on the bottom left corner of the building. You should find an End point on the outside of the wall.
17. The Command Window prompts: Give opposite corner of roof
Place the opposite corner of the rectangle by clicking on the top right corner of the building.
18. The Command Window prompts: Give roof orientation
Your cursor now controls the direction of the ridge.
Move your cursor so the ridge is running horizontally. Click to place the ridge.
19. The outline of the apex roof will appear on screen and the Draw Additional Items window will open up.
Click **Done** for now. You can add the ceiling once you've drawn the valley roof.

Drawing the valley roof

20. Click the icon on the Roofs menu to draw another section of roof with the same specification.

21. The Roof Type window opens up.
Select the **Apex Roof** option. This option can be used to draw an Apex Valley or Apex Roof Abutting a Wall.
22. As before, you're going to draw apex valley roof using the rectangular drawing method.
Click **Finish**.
23. The Command Window prompts: Give first corner of roof (use outer face of the wall)
Click to place the first corner of the roof on the front right corner of the projection.
24. The Command Window prompts: Give opposite corner of roof
! Take care on this step. When drawing valley roofs, make sure you extend the rectangle right up to the main roof ridge. This will ensure PlansXpress draws a full valley. If the rectangle doesn't go far enough up the slope of the main roof, you might end up with a squared off top to your valley.
Hover your cursor over the front left corner of the projection until the snap point turns pink. PlansXpress will use this corner as a reference point for the width of the roof.
25. Move your cursor up to the main ridge. Click to place the opposite corner of the rectangle.
26. Finally, click to select the ridge direction for the valley.

Drawing the ceiling

27. The outline of the valley appears on screen and the Additional Items window opens up. Now is a good opportunity to draw the ceiling.
Select **Flat Ceiling for Truss Roof**.
28. The Ceiling Dimensions Wizard opens up.
Set the Height of ceiling above floor level to **2.475**.
29. Click **Finish**.
30. Locating appropriate snap points, click around the perimeter of the main apex ceiling.
31. Once complete, press the **Escape** key.
32. The Additional Items window opens up again. Select **Flat Ceiling for Truss Roof** again.
Repeat steps 28 to 31 to draw the remaining area of ceiling underneath the valley roof.
33. Click **Done** when the Additional Items window appears again.

Extension Activities

Place rainwater pipe symbols, as shown in the diagram at the start of this exercise, using the **Rainwater Pipe for Sloping Roof** option. You can find this in the Additional Items window. Alternatively, go to the **Roofs** dropdown menu, select **Sloping Roof Accessories** and select the **Rainwater Pipe for Sloping Roof** option.

If you're keen to play around some more, delete the roof and re-draw it using the **Tiled Cut Roof** option in the **Roofs** dropdown menu. Referring to the diagram, add purlins and binders using the options in the Additional Items window.

MODULE 4: ADDING DETAIL TO YOUR PLANS

Exercise 14: Drawing 2D Elevations

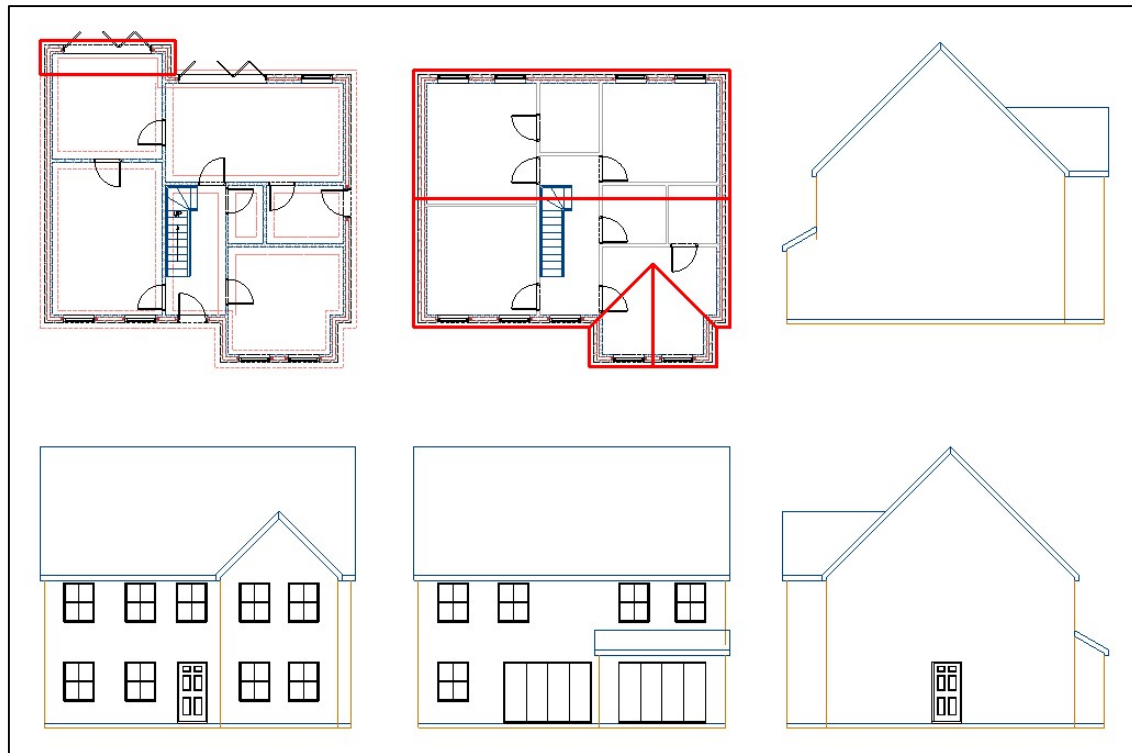
Introduction:

Once you've completed your plans, you're ready to create some elevation views of your design. You can create multi-story elevations using the Draw Elevation button. In this exercise, I'll show you how to draw and place elevations.

Key skills you will be practising:

- Creating elevations views
- Redrawing or "recalculating" an elevation

Refer to the diagram below to complete this exercise:



Instructions:

Marking out what to include in the elevation

1. Go to the **Views & 3D** tab.
2. Click the **Draw Elevation** button.
3. Start by drawing the front elevation of the building.
 - ! Use points on the first floor plan to help you mark out the elevation. By using the plan which shows the roof, you can make sure the depth of the elevation extends beyond the roof ridge. This will ensure that the roof appears correctly in the elevation. The ground floor will be included automatically in the elevation too - you'll be given the option of creating the elevation for all levels of the design at the end of elevation drawing process.

The Command Window prompts: Give wall on which elevation will be based.
For a front elevation, click on one of the front walls of the house.
4. The Command Window prompts: Give observation point for elevation.
For a front elevation, you'd be stood in front of the building, so click there.
5. The Command Window prompts: Give depth of view point for elevation.
This needs to be a point beyond the ridge to ensure the whole roof is drawn.
Click beyond the roof ridge.
6. The Command Window prompts: Give left extent point for the elevation.
Click to the left of the left wall of the house.
7. The Command Window prompts: Give right extent point for the elevation.
Click to the right of the right wall of the house.
8. The Command Window prompts: Give reference point for elevation
Click on the bottom left corner of the first floor plan.
This means when you place the elevation on the page, you'll be placing the bottom left corner of the building.

Placing the elevation

9. The Command Window prompts: Give relative point for elevation.
You now need to place the elevation view on the drawing, below the ground floor plan. You can use intelli-snap points to help place your elevation in the line with the plan.
Hold your cursor over the Endpoint on the bottom left corner of the ground floor plan, until Endpoint turns pink.
10. When you move your cursor down the screen, a dashed line appears. PlansXpress is snapping the elevation to the X coordinate of the point you hovered over on the plan.
Move your cursor to the position where you want to place the bottom of the elevation.
11. Click to place the elevation.
12. A dialog box opens up asking if you want to create the elevation for all levels of the design.
Click **Yes**.
After a moment, the elevation appears on screen.
 - ! On occasion you may find that internal doors or other internal features show up in the elevation. This is because when you indicated the depth of the elevation beyond the ridge, some internal walls may have been included. You can edit the elevation to remove any unwanted features by first "exploding" the symbol. To do this, select the elevation, go to the

Modify & Selection tab and click Explode. The elevation will be broken down into individual lines which can be edited and deleted as required.

13. Draw your rear and side elevations in the same way. Start by clicking the rear or side wall of the house, then follow the onscreen instructions, imagining you're standing looking at the wall you've clicked on.

! You don't have to draw an elevation from scratch if you make any changes to your plans; you can update the elevation using the **Recalculate elevation** tool.

Click on the elevation containing the change, to select it.

Click the scroll wheel on your mouse. A menu appears.

Select the **Recalculate elevation** option. The elevation will be updated to reflect the changes you've made.

14. Once complete, save your project.

Extension Activity

Why not add some detail to your elevations?

Go to the Non-Estimated Symbols tab and click on the Landscape menu. Select from a range of trees, fences, people and vehicles to add detail to your elevations.

Instructions:

Using the Automatic Wall Dimension tool

1. First, let's look at the Automatic Wall Dimension tool. The Automatic Wall Dimension tool allows you to quickly measure and display dimensions for an entire wall, including each length of wall and all the openings within the wall. It also gives the dimension for the entire length of wall.
Select the wall containing the front door, by clicking on it with the left mouse button.
2. Click the **Dimension Wall** button on the **Wall** tools which appear when a wall is selected.
3. At the bottom of the screen, in the Layer dropdown box, select Dimensions. This will ensure the dimension lines are placed on the dimensions layer.
4. Move your cursor onto the Drawing Area to position the dimension lines.
5. Click to place the dimension lines.
PlansXpress inserts multiple dimensions for the wall, windows and door.
6. The automatic wall dimension tool can also be found on the middle click menu.
Select the front projecting wall, by clicking on it with the left mouse button.
7. Click the middle mouse button (scroll wheel).
8. Select the **Dimension** option on the menu which appears.
9. To line your dimensions up with the dimension lines you've already placed, hover your cursor over the **Endpoint** of the adjacent 6000mm dimension line.
10. Click the left mouse button to position the dimension lines.
11. Using either the **Dimension Wall** button on the **Wall** tools, or the middle click **Dimension** option, continue to add dimension lines to each of your external ground floor walls.

Adding linear dimension lines

12. Now let's look at the linear dimension tool. You can use the linear dimension tool to add dimension lines showing the internal dimensions of the rooms.
Click on the **Drawing & Annotation** tab to view the dimension tools.
13. Click the **Linear Dimension** button.
14. Zoom in on the room at the front left of the house.
15. Locate the **Nearest** snap point on the inside of the wall you're measuring from.
16. Click the left mouse button to indicate the first dimension point.
17. Locate the **Perpendicular** snap point on the inside of the opposite wall.
If you use the **Perpendicular** point for your second dimension point, you can be sure that your dimension lines are straight and that your dimension is accurate.
18. Click the left mouse button to indicate the second dimension point.
19. Now place the dimension line. Move your cursor to position the dimension line.
20. Click the left mouse button to place the dimension line.
21. Right click to indicate that you want to add another linear dimension line.
22. Repeat steps 16 to 20 to add another dimension line to the room.
23. Repeat this process to add dimensions to every room in your design.
! You can move a dimension line, if it's not positioned ideally.
Click on the dimension line to select it.
Click on the blue handle which appears on the dimension line (not the measurement).
Move your mouse to move the dimension line to its new position and left click to place it.
24. Once complete, save your project.

Exercise 16: Adding Labels

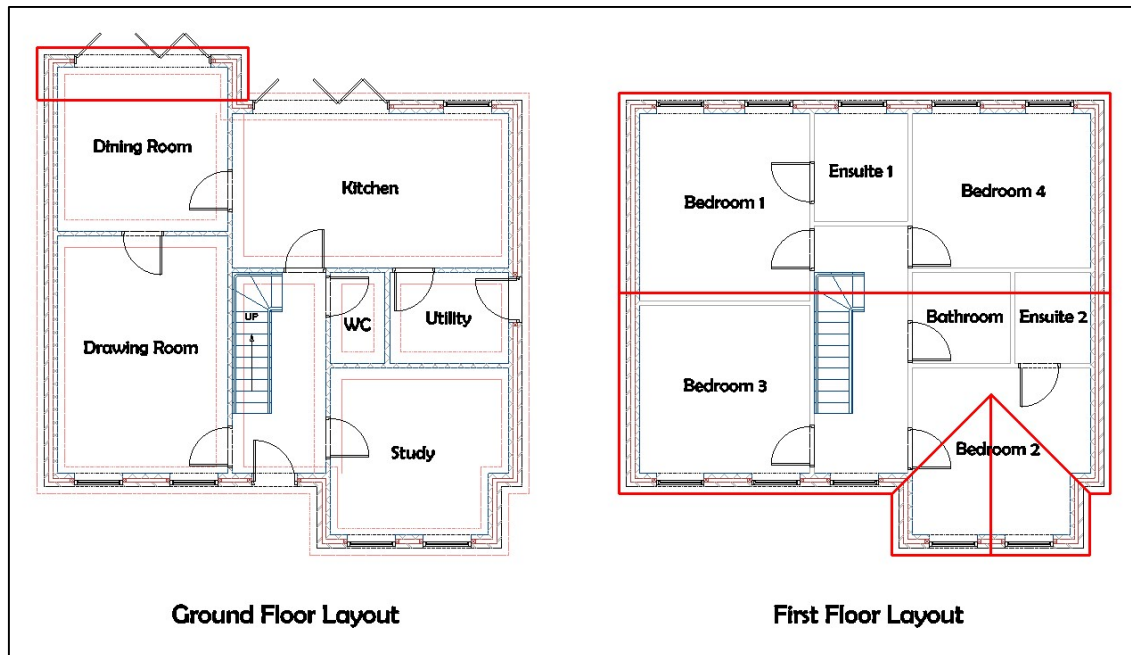
Introduction:

In this exercise, you'll learn how to use the Notes Picker to select labels and place them on your drawing. You'll also learn how to change the font style and size of your labels.

Key skills you will be practising:

- Adding labels to your drawing from the Notes Picker
- Changing the font style of labels
- Changing the font size of labels

Refer to the diagram below to complete this exercise:



Instructions:

Placing a label and changing the font style

1. Click the **Notes Picker** tab to open the **Notes Picker** window.
 - ! If the **Notes Picker** tab isn't currently visible on screen, click on the **Views & 3D** tab and tick the **Notes Picker** option to open the **Notes Picker** window.
2. The **Notes Picker** window comes prepopulated with a list of labels which you may find useful for your drawing.
 - Scroll down the list until you locate the **Kitchen** label.
3. Double click on the **Kitchen** label to select it.
4. Move your mouse onto the drawing area.
 - You'll see that your cursor is controlling the position of the label.
5. Once a label is selected, **Text** options appear on the ribbon. From here, you can change the font style.
 - ! To change the font, click on the **Font** dropdown box and select an alternative font.
 - ! To change the font size, use the **Height** setting. To increase the font size, enter a larger number. To decrease the font size, you would enter a smaller number.
 - ! You can also set the font to be **Bold**, *italicised*, underlined and so on.
6. Once you're happy with the font style, click the left mouse button to place the label.
 - PlansXpress will remember the font settings for any labels you subsequently add to the drawing.
7. Repeat this process to label each of the rooms on your plans, referring to the diagram at the start of this exercise. Double click on the label on the **Notes Picker** window, place your cursor where you want to place the label on the drawing, then click the left mouse button.

Adding a label to the list

8. If the label you want isn't in the list, you can easily add it.
 - Click into the Add text box at the top of the **Notes Picker** window.
9. Type the label using your keyboard: **Music Room**.
10. Click the **Add** button.
 - Your new label will then appear in the list. You can select the label by double clicking on it, and add it to your drawing by left clicking, as before.
11. Once complete, save your project.