

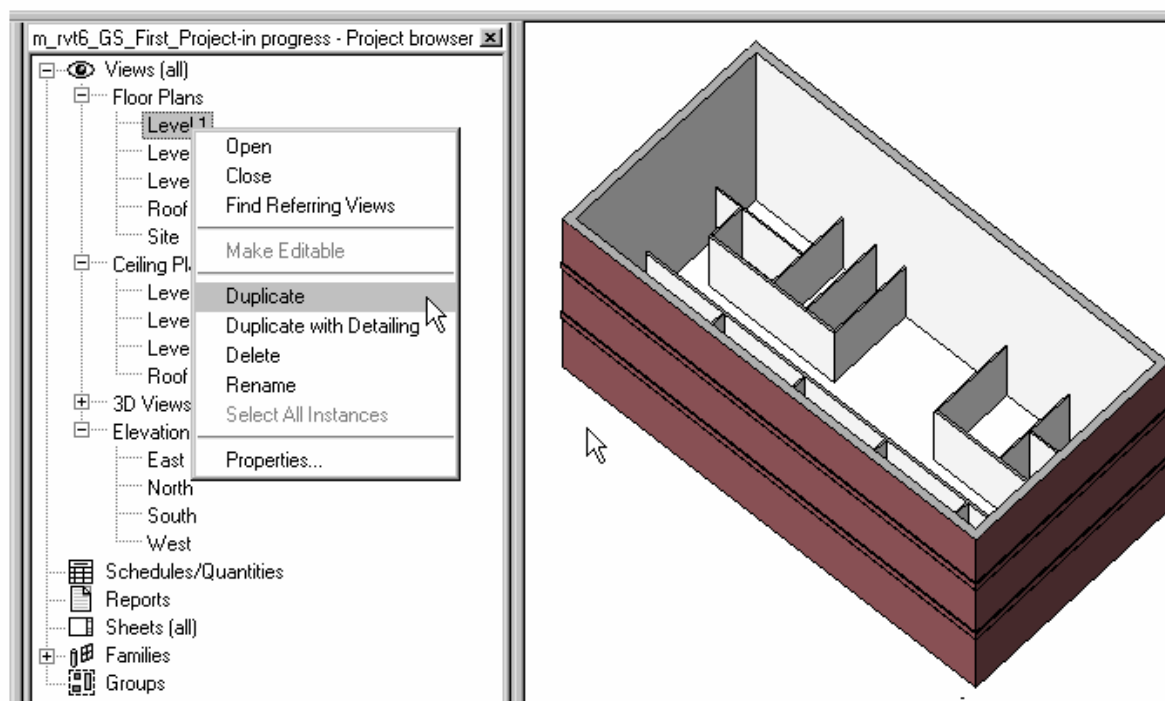
3 - Dimensioning the Building Model

In this exercise, you add dimension lines to the building model. You begin by adding a simple dimension between two walls. Next, you add a multi-segmented dimension string to modify the witness lines. In the final section of this exercise, you constrain the building model using equality and locking constraints.

This exercise requires the completion of the previous exercises within this lesson. You must use the project file that you saved at the end of that exercise.

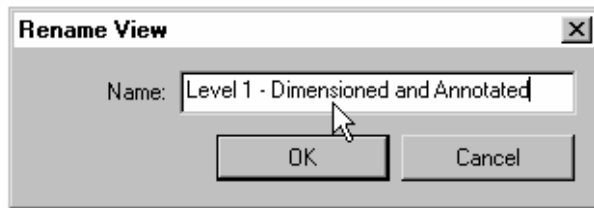
Create and rename copy of Level 1

1. In the Project Browser, under Views (all), under Floor Plans, right-click Level 1 and click Duplicate.



2. In the Project Browser under Floor Plans, right-click Copy of Level 1 and click Rename.

3. Enter **Level 1 - Dimensioned and Annotated**, and click OK.



When you duplicate a view, it opens automatically in the Project Browser. The floor plan, Level 1 - Dimensioned and Annotated, should be open.

Add a dimension line between two walls

4. On the Basics tab of the Design Bar, click Dimension.

You create a dimension by selecting the dimension type, options, and components that require dimensioning. Permanent dimensions can appear in two different states: modifiable and non-modifiable. A permanent dimension is considered modifiable when one or more of the components that it references is selected for modification. In that case, the dimension value displays in blue and can be modified directly by clicking the value. When geometry is selected for modification, both permanent dimensions and temporary dimensions display, ready for modification.

If the geometry referenced by a permanent dimension is not selected for modification, the dimension value is displayed at its true size and is not selectable for modification.

5. On the Options Bar, specify the dimension parameters:

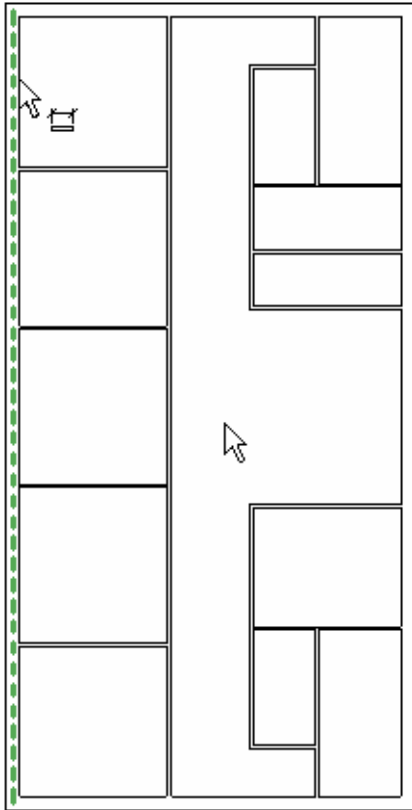
- Click.  This is the linear dimension option.

The dimension styles available in the Type Selector are dependent on the type of dimension selected on the Options Bar.

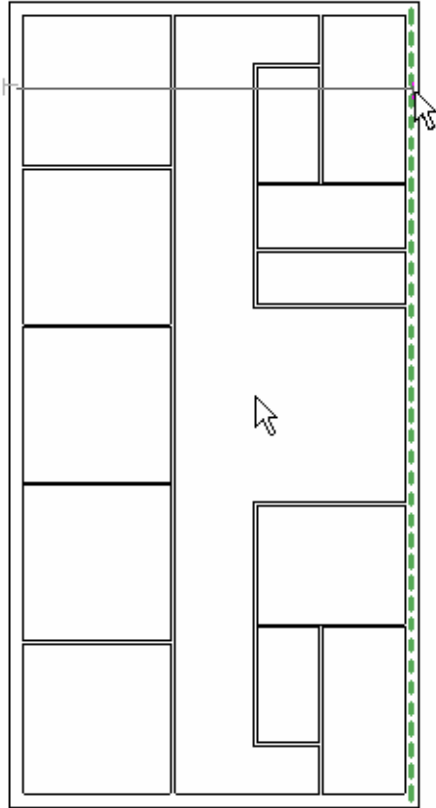
- Select Prefer wall centrelines.
- Select Individual References for Pick.

6. In the Type Selector, select Linear Dimension Style: Diagonal - 2.5mm Arial.

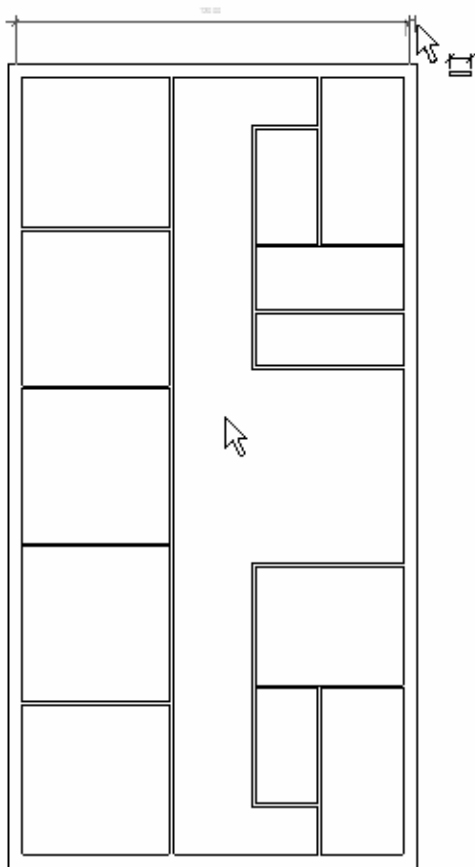
7. In the drawing area, move the cursor over the west exterior wall. When a dashed line is displayed on the wall centreline, click to select it.



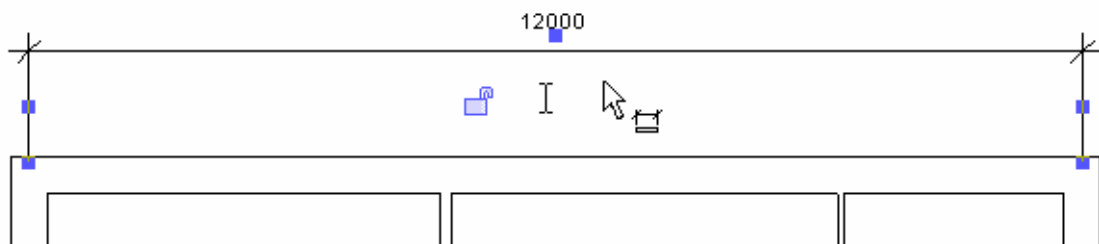
8. Move your cursor over the east exterior wall. When a dashed line displays on the wall centreline, click to select it.



9. Move your cursor just above the north wall and click to place the dimension line.



10. Enter **ZR** and sketch a zoom region around the north wall and dimension line.



Notice that the cursor still has a dimension symbol next to it. This indicates that dimension mode is still active. Also notice that the dimension has active controls on each witness line and a blue padlock is displayed. These are modifiable immediately after you add a dimension. These same controls display when you select a dimension.

Notice that the dimension value is not blue. In its current state, the value is not modifiable.

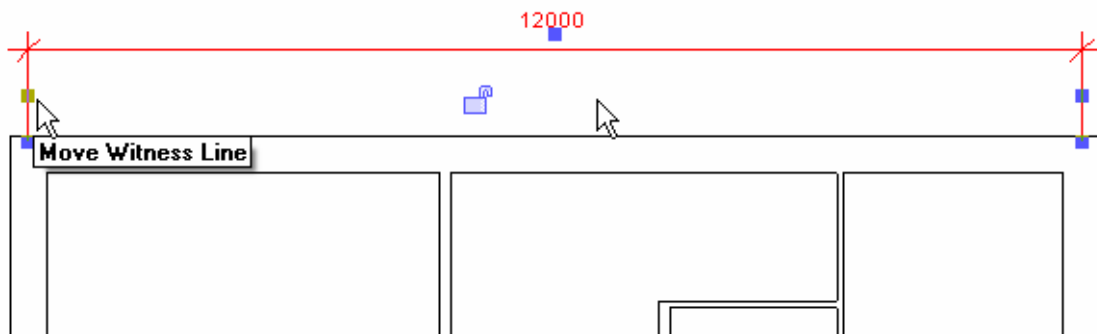
11. On the Basics tab of the Design Bar, click Modify.

12. Select the dimension you added in the previous steps.

Notice that the dimension is displayed in red, and the same controls you noticed previously are displayed.

13. Place the cursor over the blue control in the centre of the left witness line.

Information is displayed in a tool tip or in the status bar of the drawing window, indicating that the control moves the witness line.

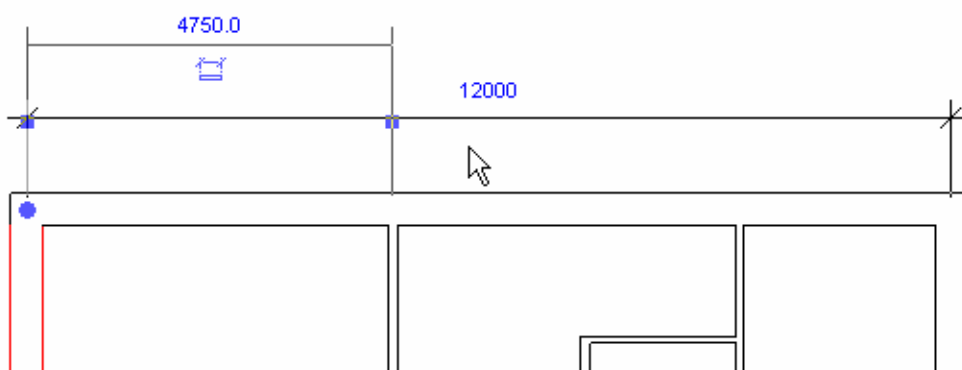


14. Click the control once and the witness line moves to the interior face of the wall. Click the control a second time and the witness line moves to the exterior face. Click it a third time to return the witness line to the wall centreline.

This behaviour is similar to the witness line control on temporary dimensions.

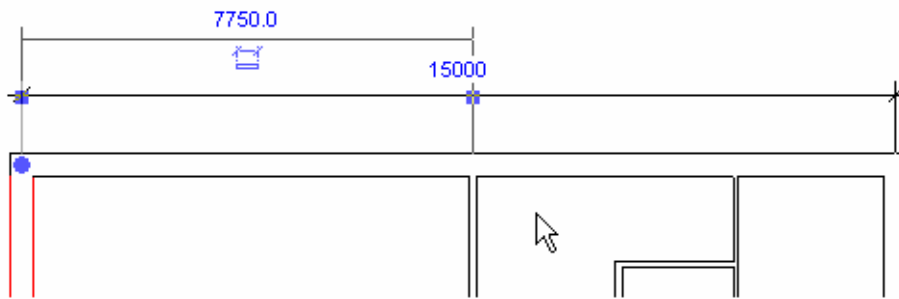
The control at the bottom of each witness line controls the gap between the end of the witness line and the component it references.

15. Select the West exterior wall.

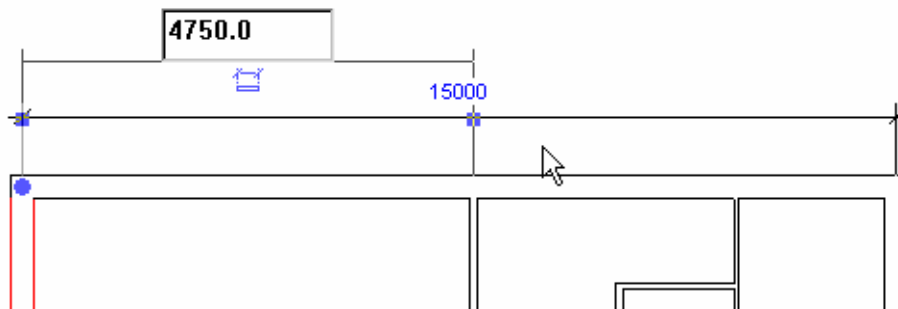


When you select a component referenced by a dimension witness line, the dimension value displays as modifiable. Notice that a temporary dimension also displays.

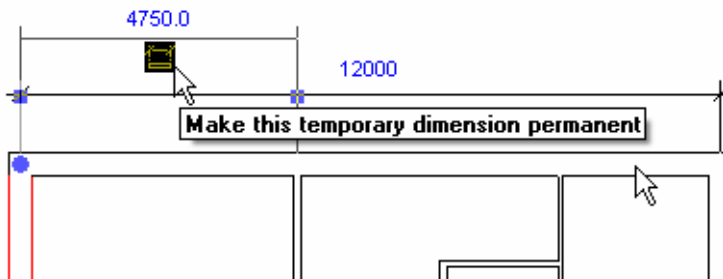
16. Click the permanent dimension value, change it to 15000, and press ENTER.



17. Click the temporary dimension value, change it to 4750, and press ENTER.

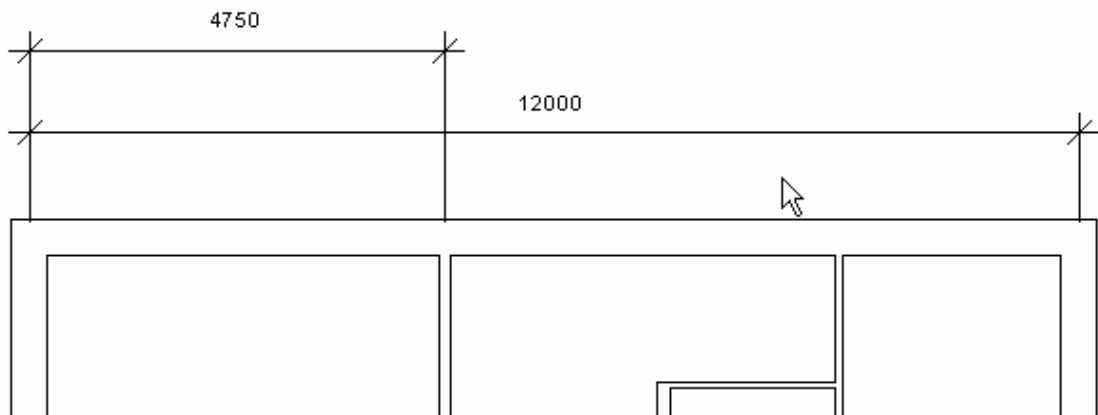


18. Place the cursor over the dimension symbol located beneath the temporary dimension value. Click the symbol to make the temporary dimension permanent.



19. On the Basics tab of the Design Bar, click Modify.

Notice that the temporary dimension is now permanent.



Add a multi-segmented dimension

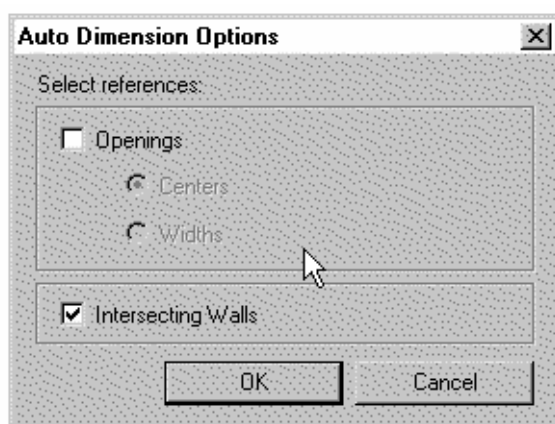
20. Zoom out so that you can see the entire building model.

21. On the Basics tab of the Design Bar, click Dimension.

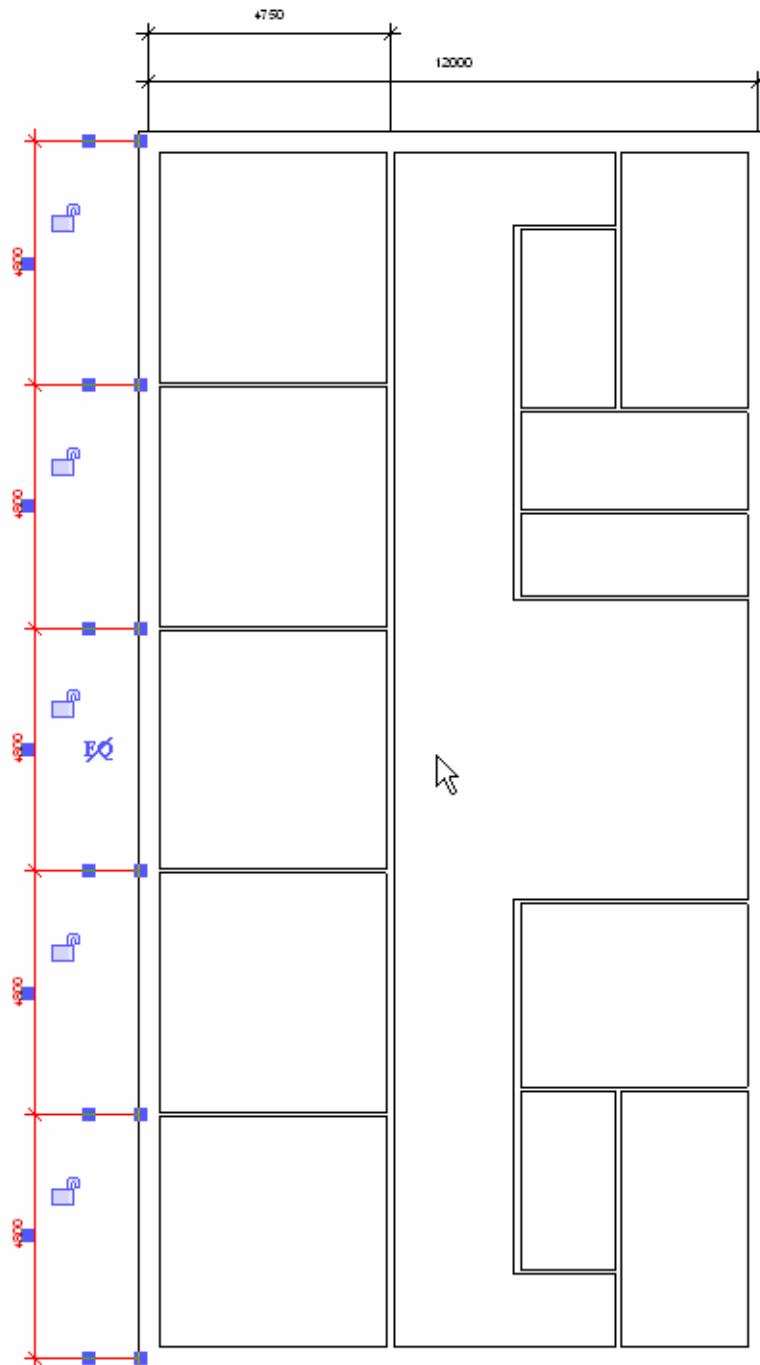
22. On the Options Bar, do the following:

- Select Prefer wall centrelines.
- Select Entire Walls for Pick.
- Click Options.

23. In the Auto Dimension Options dialog box, select Intersecting Walls and click OK.



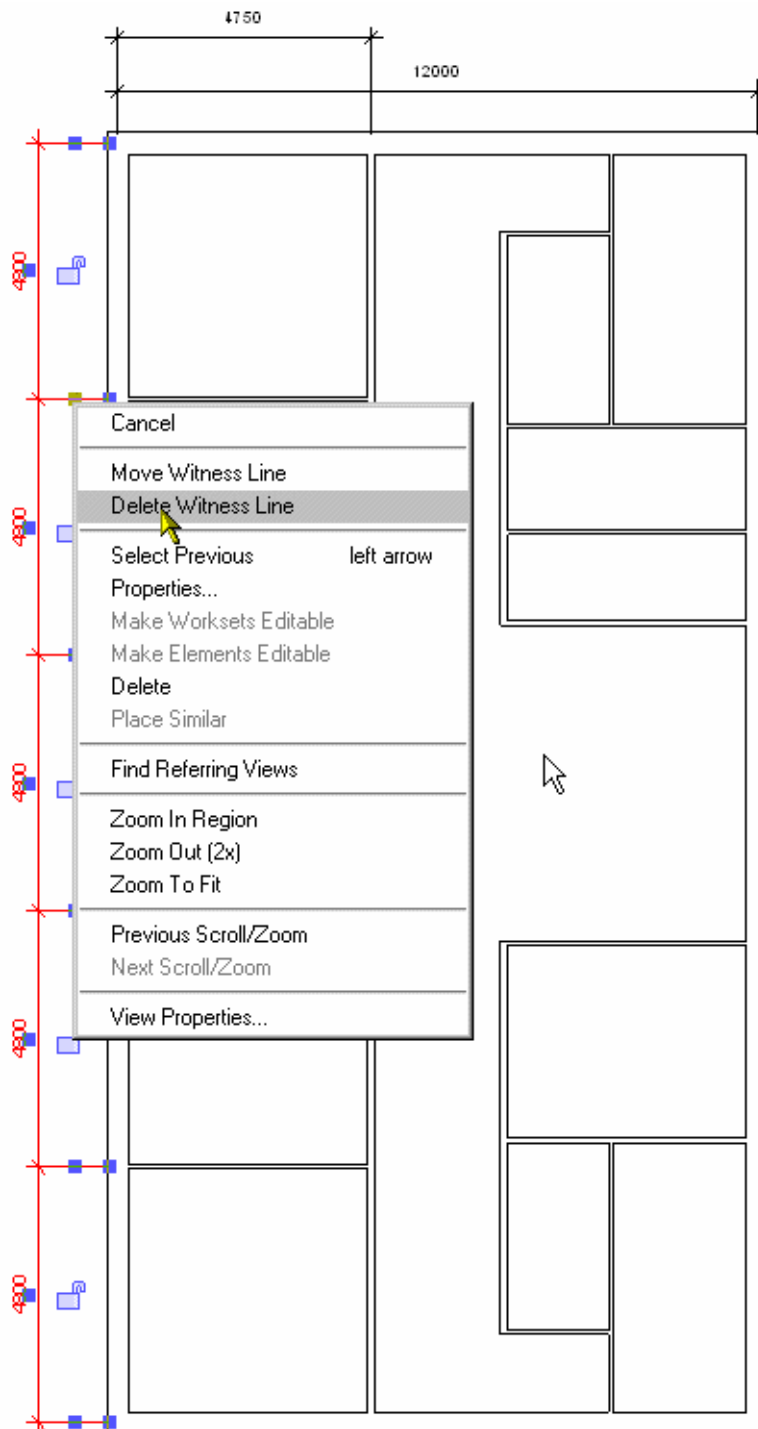
24. Select the west exterior wall, move your cursor to the left, and then click to place the dimension.



25. On the Basics tab of the Design Bar, click Modify.

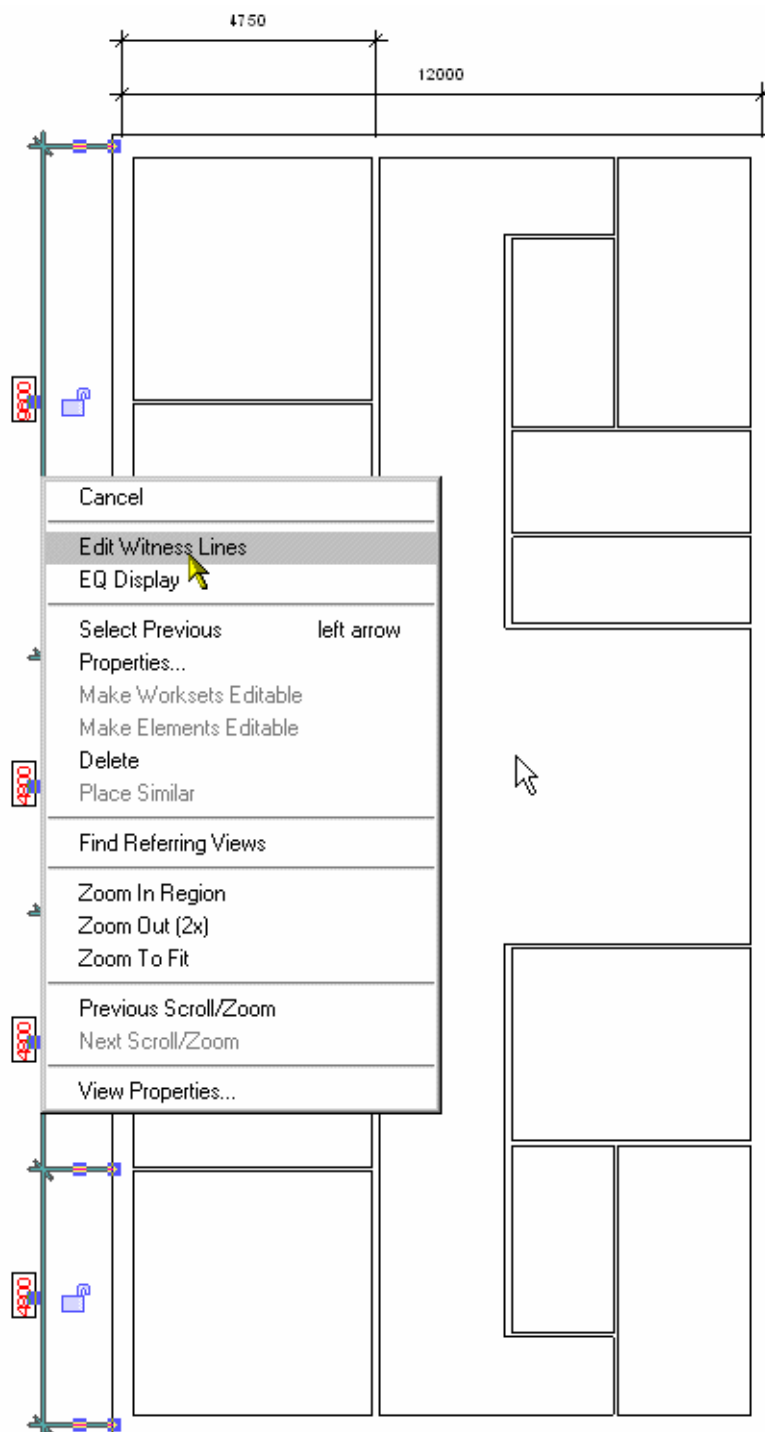
26. Select the multi-segmented dimension you added in the previous steps.

27. Using the following illustration as a guide, right-click the blue control on the witness line second from the top, and click Delete Witness Line.

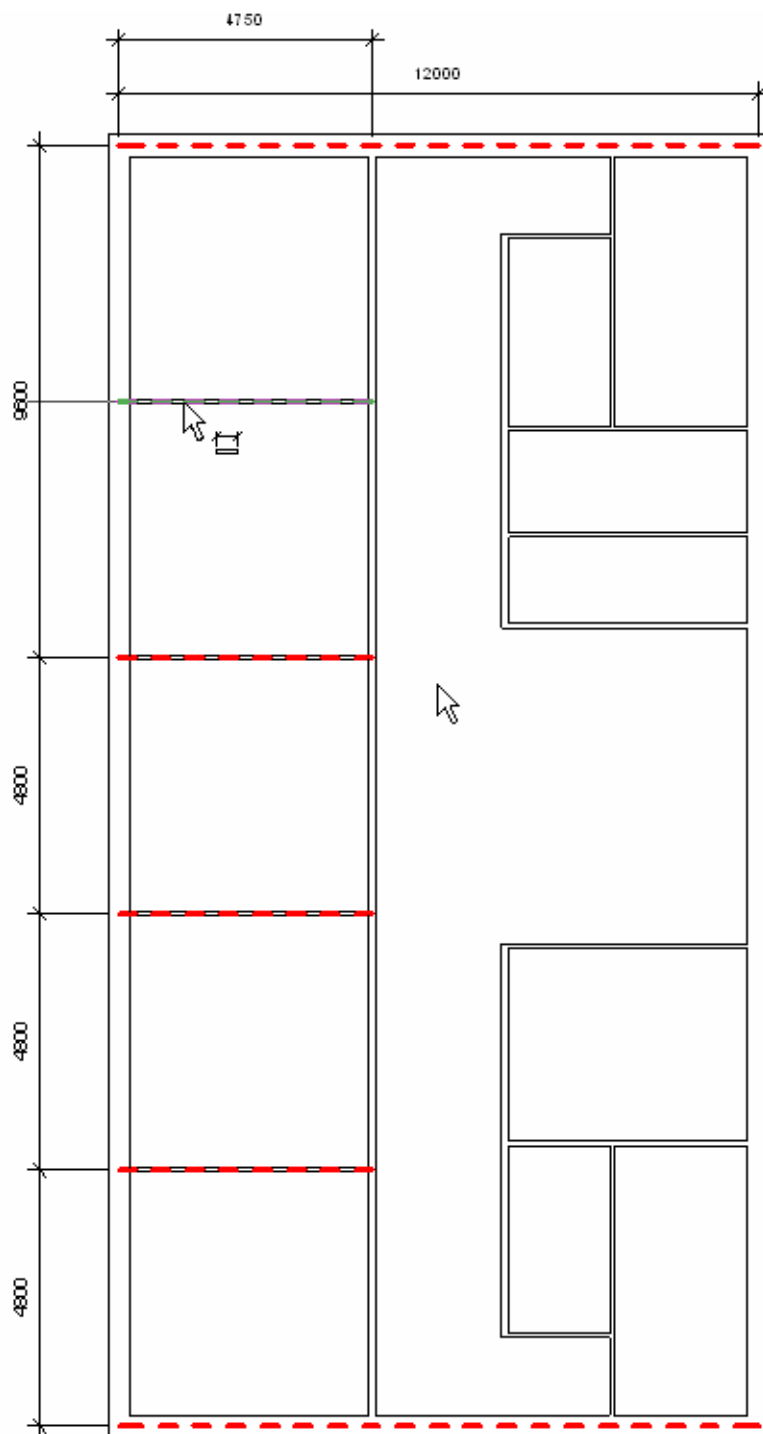


28. Right-click the dimension line and click Edit Witness Lines.

Warning! Do not right-click the blue control; it provides a different set of options on the shortcut menu.



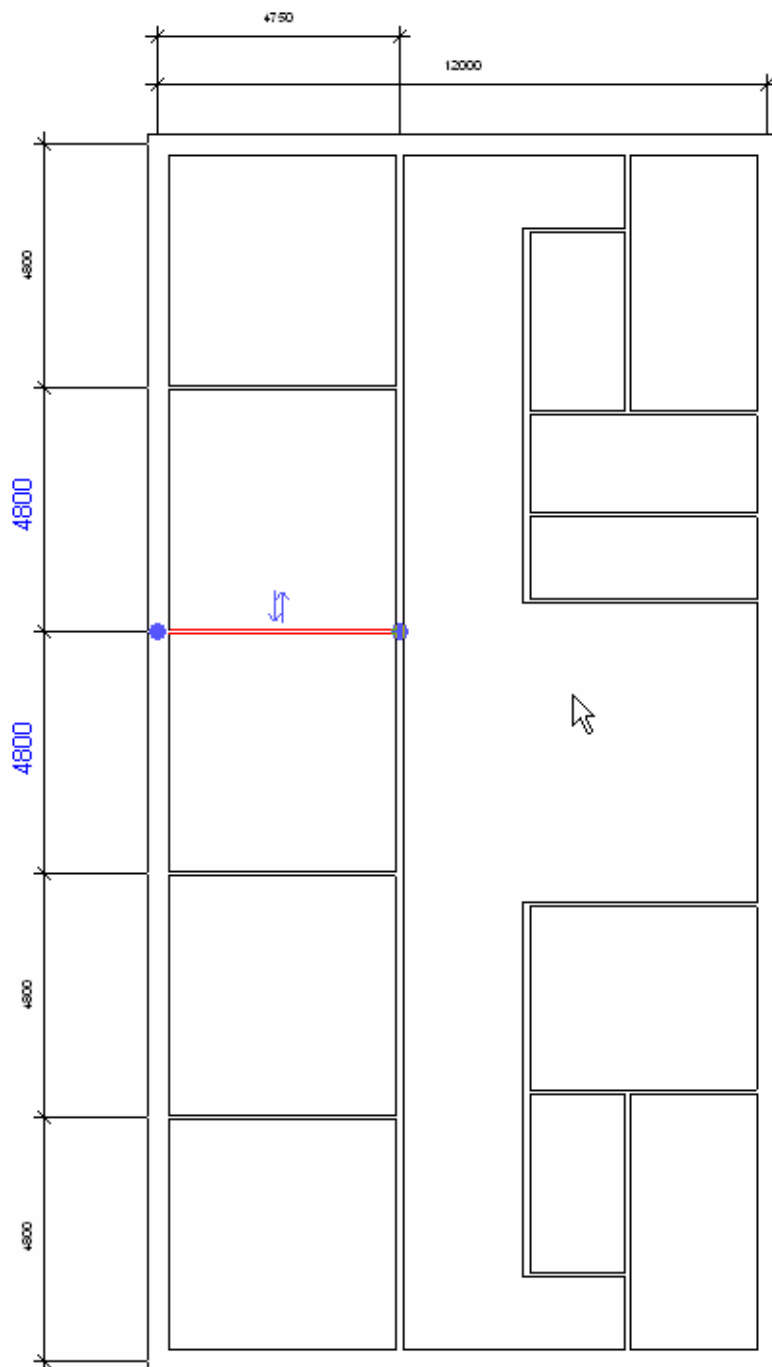
29. Select the centreline of the wall where you previously deleted the witness line.



30. After selecting the wall, click in the empty space of 0 mm 0 mm the drawing area to complete the editing process.

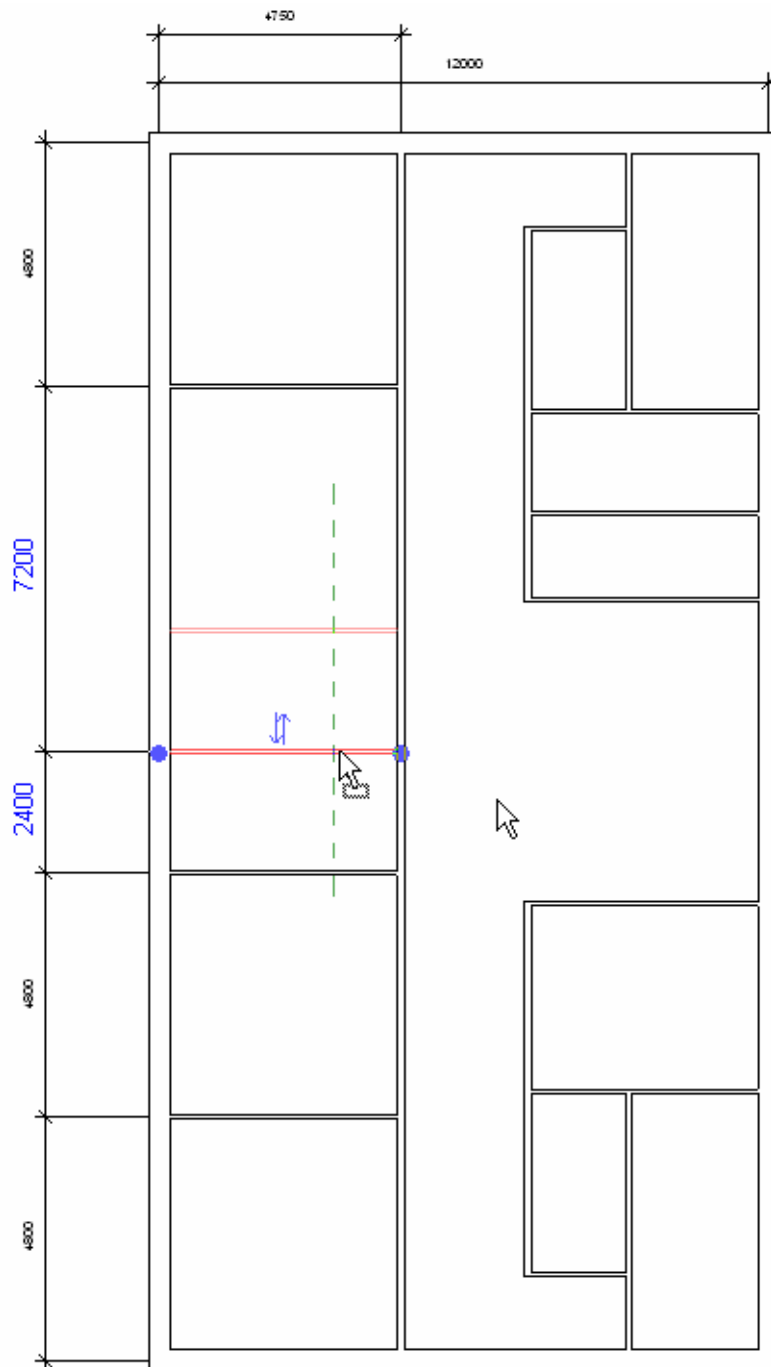
Using dimensions to constrain the building model

31. Select the second interior wall from the top to the left of the corridor.



Notice that the dimension values become modifiable on each side of the witness line that refers to the selected wall.

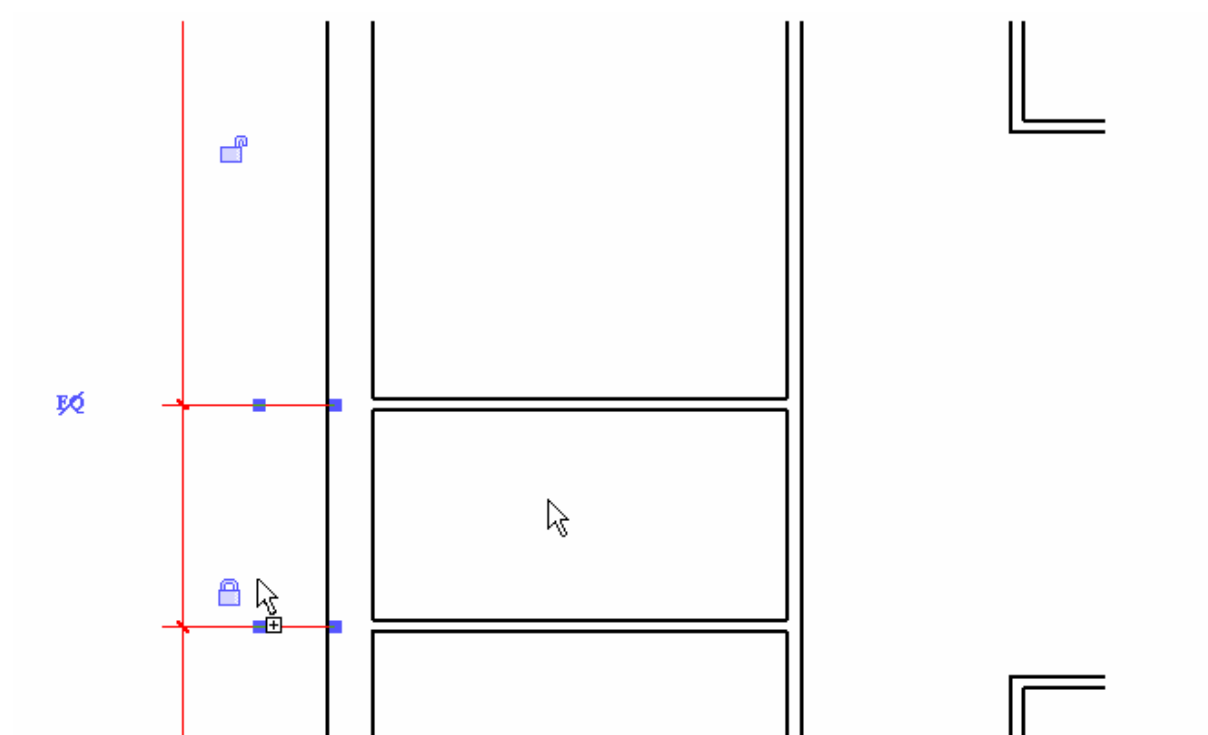
32. Click the wall and drag it downward approximately 2400 mm.



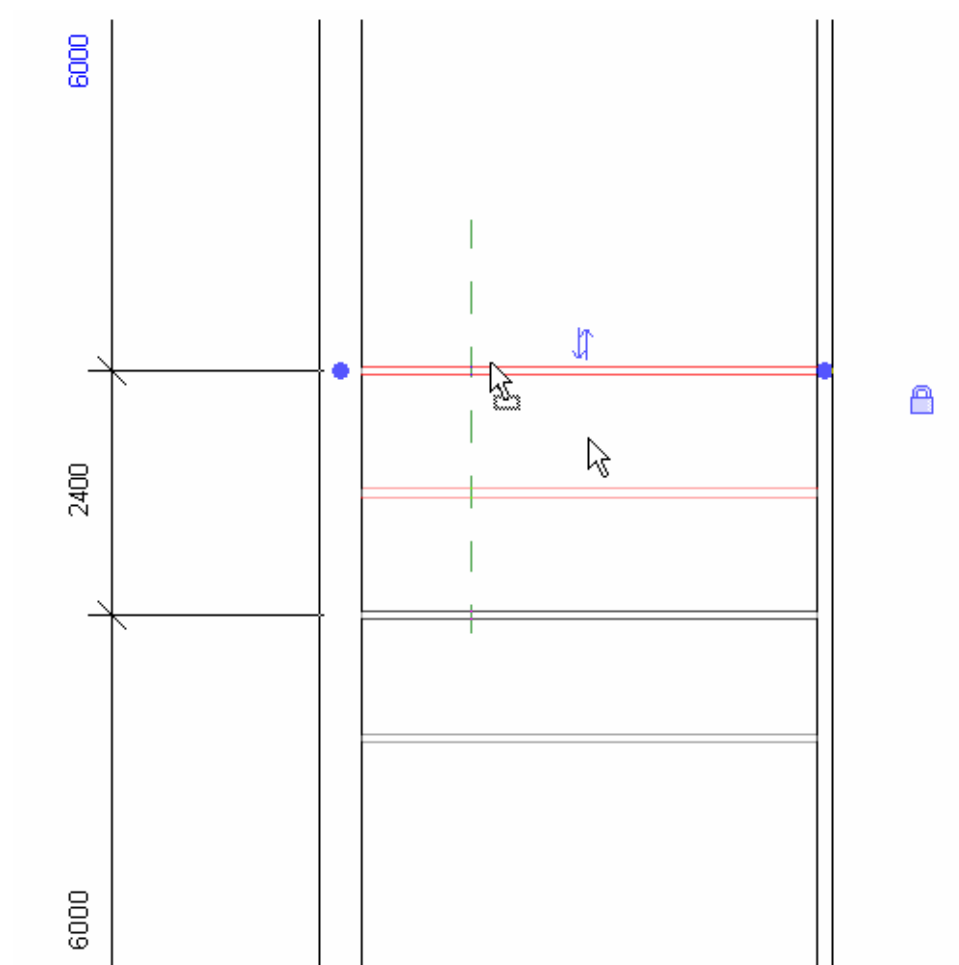
33. Select the multi-segmented dimension line.

Notice a lock appears for each segment. Lock symbols offer the opportunity to constrain the building model by locking a dimension value or an alignment. Clicking the lock symbol turns the lock on and off.

34. Click the lock on the 2400 mm segment of the dimension.



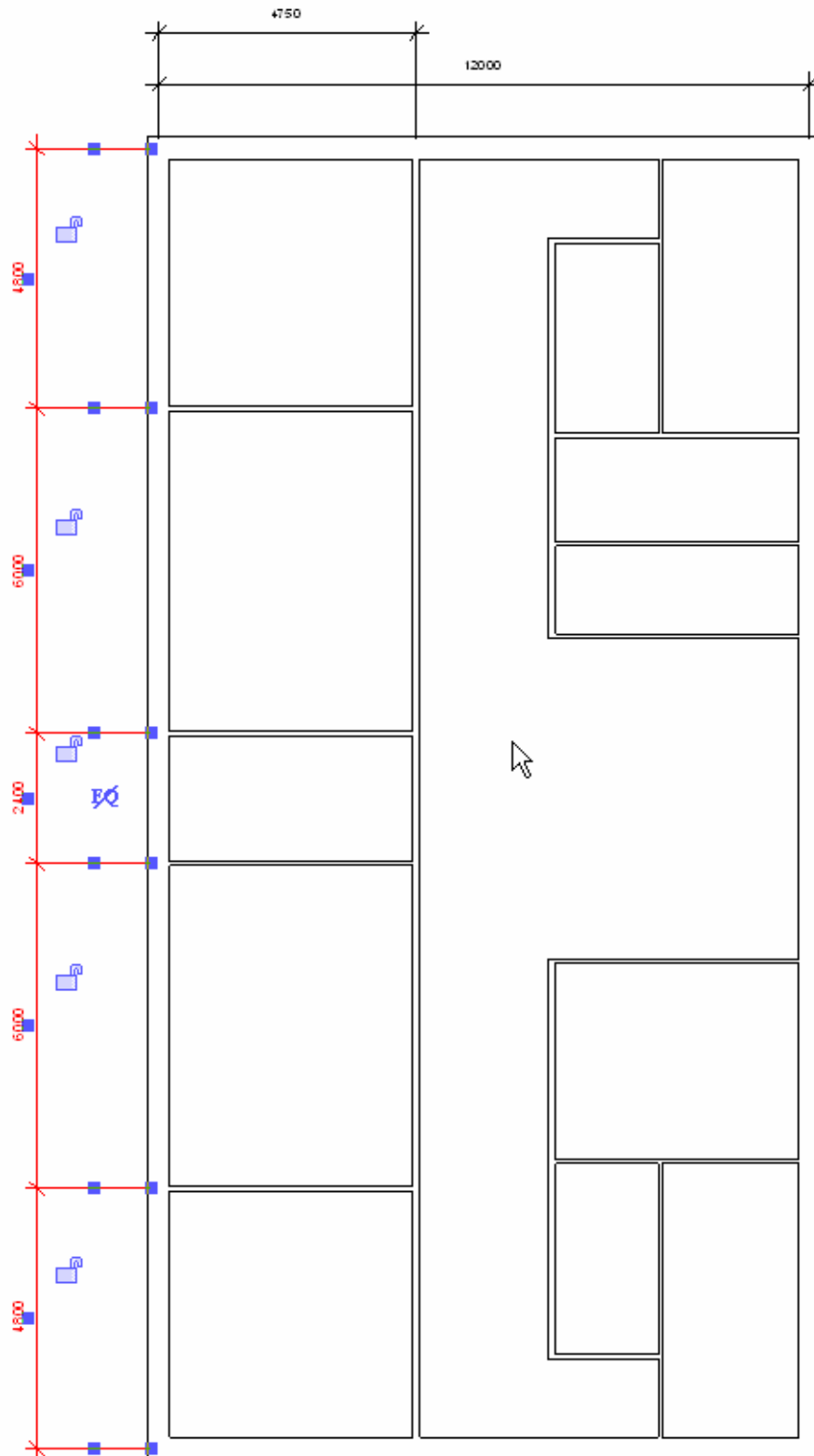
35. Select the same wall you moved previously and drag it upward 1200 mm.



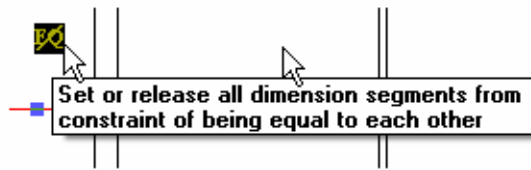
36. Notice that the dimension value for the locked segment remains unchanged as you move the wall. The relationship between these components is constrained, and a lock symbol is displayed between the two components, indicating that they are locked.

37. Select the multi-segmented dimension.

38. Click the lock symbol on the 2400 mm segment to remove the constraint between the two walls.



Notice that there is a EQ symbol with a slash through it. This is an equality constraint that makes all dimension segments equal.



39. Click the equality constraint to activate it.

Notice that each segment is now equally spaced and the dimension values display EQ.

40. On the Options Bar, click. 

41. Select Value for Equality Display, and click OK.

The dimension value is displayed rather than the EQ symbol.

42. In the Project Browser, under Views (all), under Floor Plans, double-click Level 1.

43. On the File menu, click Save.

In this exercise, you added a simple dimension between two walls. You then added a multi-segmented dimension line and used constraints to control the building model.