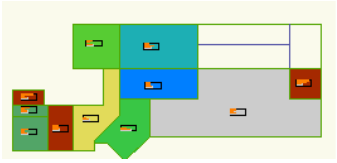
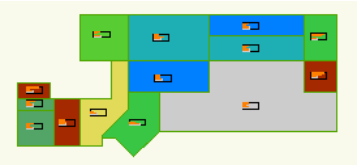
# Contents

# Working with Space Plans in AutoCAD 2009 (Metric)

**Exercise - Start**



**Exercise - End**



This exercise will lead you through the steps of adding three hatches to the upper right portion of the building. These hatches will be associated with polyline boundaries and the space tags will report the area of the polyline using a field in the attribute of the space tag block.

**Audience:** Architects who want to work with the new AutoCAD 2009 interface

**Prerequisites**: Working knowledge of hatches

## Tasks Covered in This Tutorial

1. Adding Spaces As Polylines And Hatches
2. Adding Space Tags With Area Fields

# Tutorial Files

All the necessary files for this tutorial can be found in http://www.autodesk.com/autocad-tutorials.

**Recommended**: Before starting the tutorials:

1. Download the *space_m_plan.zip* file from http://www.autodesk.com/autocad-tutorials.
2. Unzip *space_m_plan.zip* to C:\My Documents\tutorials.

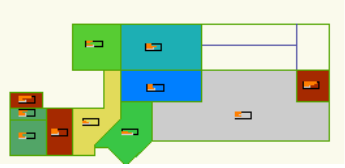
# In This Tutorial

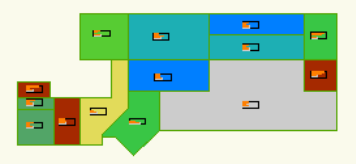


# Before You Begin

The intent of this tutorial is not to teach you how to draw lines and work with blocks, but rather to introduce the new AutoCAD 2009 interface. This tutorial assumes that you are familiar with a previous version of AutoCAD and familiar with basic AutoCAD commands such as POLYLINE, HATCH, and BLOCK INSERT.

# Lesson 1: Adding Spaces As Polylines And Hatches





The preceding images show the drawing as viewed at the start and end of this exercise.

**File Name**: *1st_floor_space_plan_m_start.dwg*

**Commands used:** BOUNDARY, make region or BPOLY, HATCH, INSERT, INSERT FIELD

In this portion of the lesson, you will use the make region command or BPOLY to create polylines to represent the spaces. These polylines will act as the boundary edges of the associative hatches you add in the next part of the lesson. The layout linework (in blue) is already completed for you. These layout lines are on the layer A-AREA-SPCE-LOUT. This layer will be frozen once the polylines are in place.

1. Click Start menu ➤ Programs ➤ Autodesk ➤ AutoCAD 2009 ➤ AutoCAD 2009.

2. Click ➤ File menu ➤ Open.

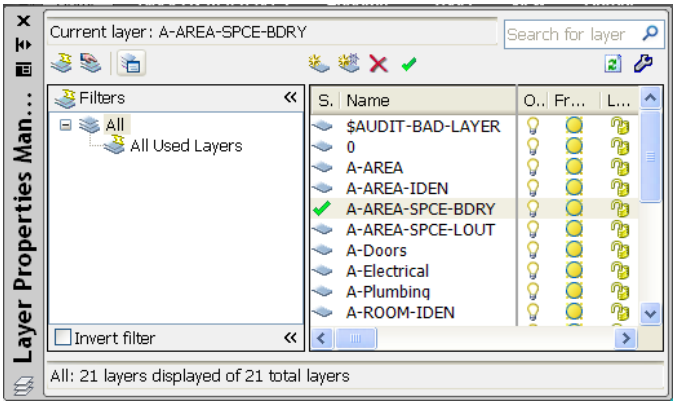
3. Navigate to the folder, C:\My Documents\tutorials\1st_floor_space_plan_i_start.dwg, and click Open.

4. Click ➤ Format ➤ Layer....

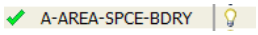
5. Alternatively, enter LAYER at the command prompt.

   The Layer Properties Manager palette appears.

6. Select A-AREA-SPCE-BDRY, and click Set Current to set it as the current layer.

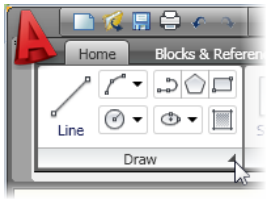


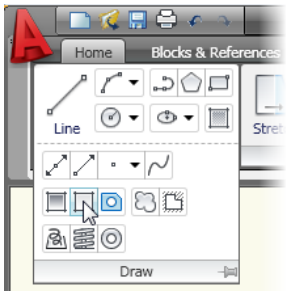
A green tick mark appears against the layer to denote it as the current layer.




7 Click the Close button to close the palette.

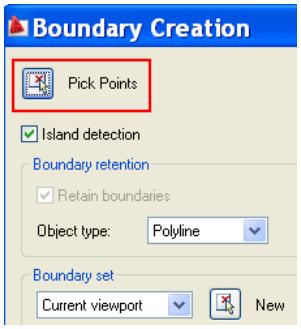
8 Click Home tab ➤ Draw panel ➤ ➤ Boundary.




The Boundary Creation dialog box appears.

9 Verify that the Object type is set to polyline, and then click the Pick Points button.




10 Click in each of the three empty spaces on the plan as shown.

When you click within the area, the selection changes as depicted in the graphic.

11 Press Enter.

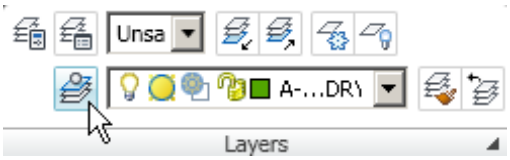
The area has now been selected as the boundary.

12 Click Home tab ➤ Layers panel ➤ Layer Control.

13 Click the Freeze icon in the drop-down list against A-AREA-SPCE-LOUT.

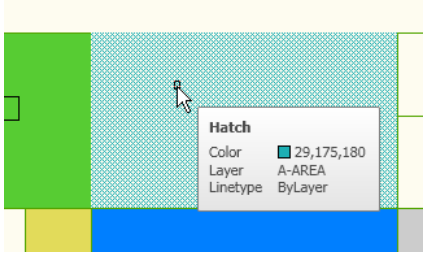

The icon changes to  denoting the layer is frozen.

14 Click Home tab ➤ Layers panel ➤ Make Object's Layer Current. 

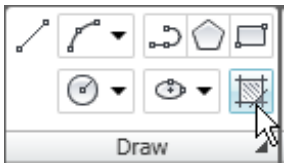



15 Click one of the hatches in the drawing to set the current layer to A-Area.

Move the cursor over each boundary until the display changes to a hatch, and then click it. For example:




**16** Click Home tab ➤ Draw panel ➤ Hatch.

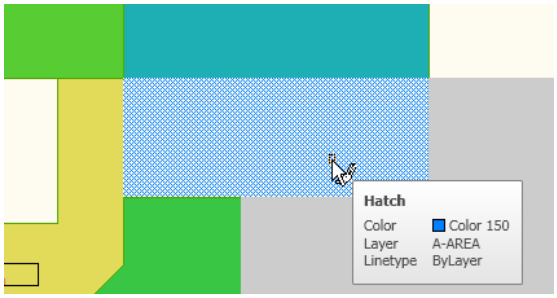



The Hatch and Gradient dialog box appears.

**17** In the Hatch tab, do the following:

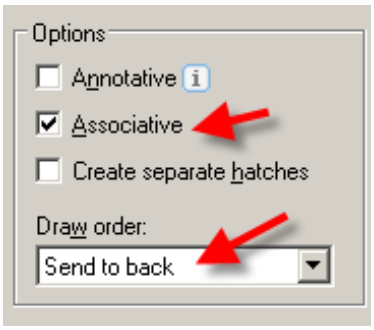
i. Click the Inherit properties button.

ii. Click the blue hatch in the drawing. The icon should change to denoting the properties are inherited.



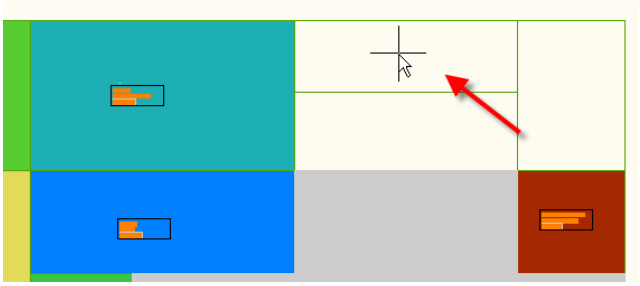

iii. Press the [Enter] key.

iv. In the Options group, make the following selections:




iv. In the Boundaries group, click the Add: Pick points button.

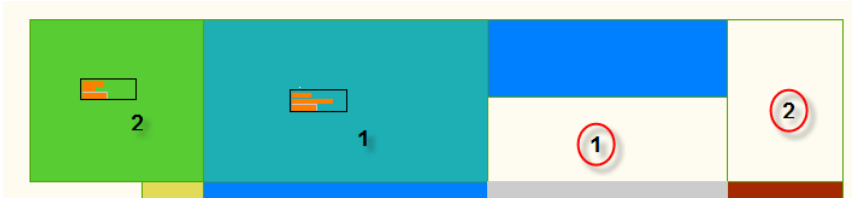
v. Click in the top horizontal space. The boundary should change to a dotted line.



vi. Press the [Enter] key.

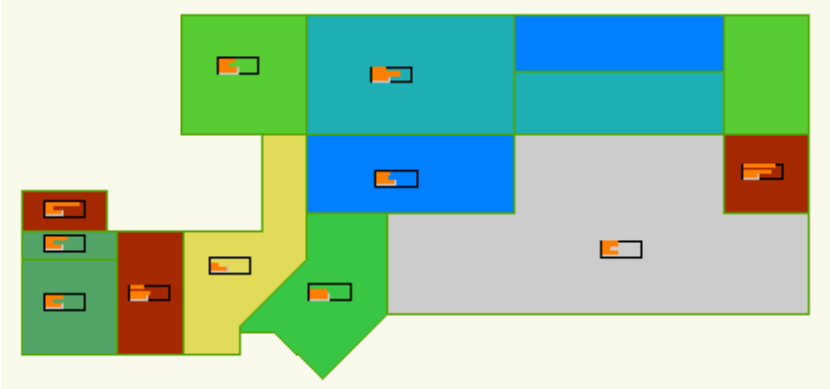
vi. Click OK. The selected area now contains the inherited hatch.

**18** Repeat the preceding steps and add hatches to the other two areas as specified in the following graphic:



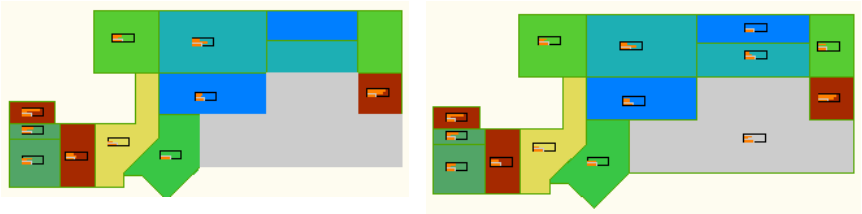

The lower left horizontal space is open office and matches the space immediately to the left. The space on the right is support area and matches the area at the top left of the plan.

The final drawing should appear like the following:



**Next Lesson:** Lesson 2: Adding Space Tags on page 8

# Lesson 2: Adding Space Tags



The preceding images show the starting and ending point of this exercise.

**File Name**: *1st_floor_space_plan_m_start.dwg*

**Commands used:** INSERT, INSERT FIELD, STRETCH.

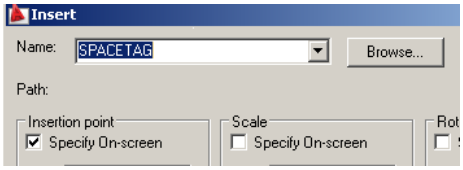
In this portion of the lesson, you will add a space tag to each of the areas you hatched in the previous lesson. To each tags you will add a field to report the area of the polyline that surrounds the space.

At the end of this lesson, you will stretch the right end of the building 10 feet to the right and update the space tags.

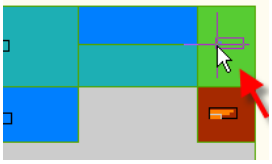
1. Ensure that you have the *1st_floor_space_plan_i_start.dwg* open in AutoCAD, and have inserted the hatches as described in Lesson 1: Adding Spaces As Polylines And Hatches on page 2.

2 Click Blocks and References tab ➤ Block panel ➤ Insert. 
The Insert dialog box appears.

3 Enter **SPACETAG** as the name, and click OK.



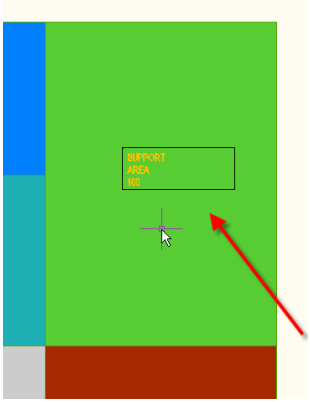

4 Click in the newly filled greenhatch.



5 Enter the following values for the block insertion prompts:

| | |
|---|---|
| ROOM NAME TOP LINE: | SUPPORT |
| ROOM NAME 2ND LINE: | AREA |
| FIELD, PICK POLYLINE FOR VALUE <100>:< | Press ENTER to accept the default |

The block is now inserted. Move the cursor over the area to view the block.



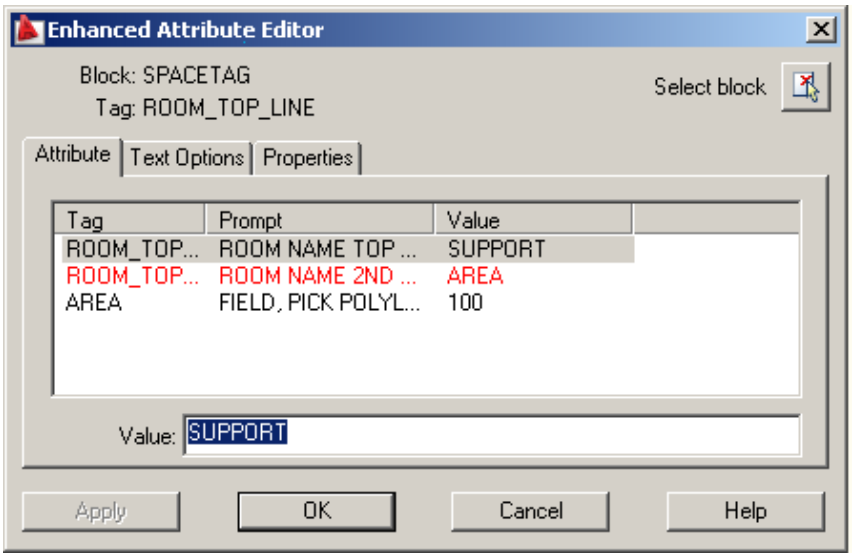

6 Insert two more blocks in the hatches: with the values specified:


| | |
|---|---|
| Hatch 1 | OFFICE |
| Hatch 2 | OPEN<br>OFFICES |

The hatches should now contain blocks with content like the following:

7 Click the upper right block (green hatch) to select it,.

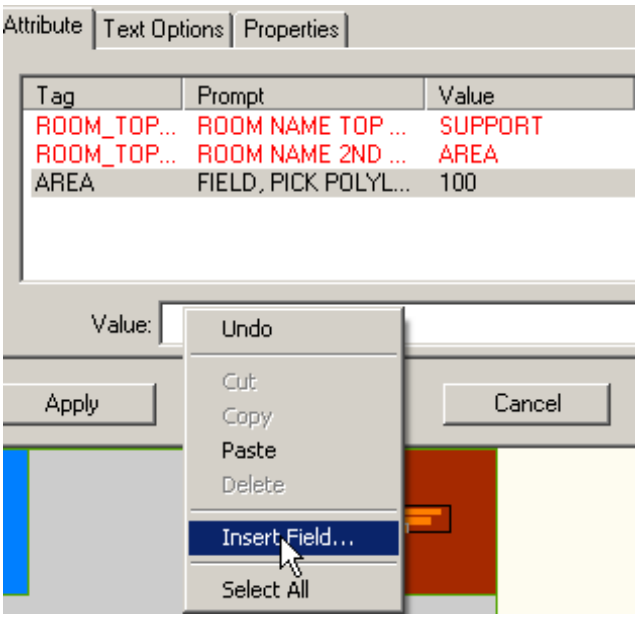
8 Double-click the block to open the attribute edit dialog box.




9 In the Attribute tab, click the Area attribute to select it.

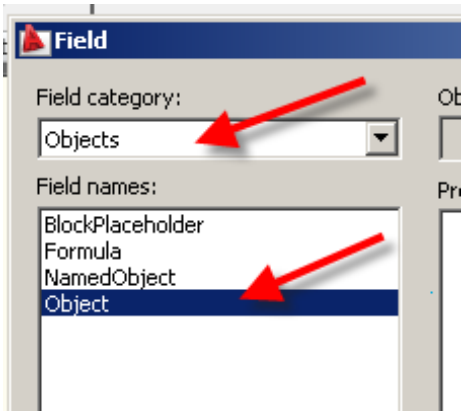
10 Delete the value 100 for the attribute tag.

11 Right-click in the Value field. Click Insert Field.



The Field dialog box appears.

12 Make the following sections highlighted in the graphic:



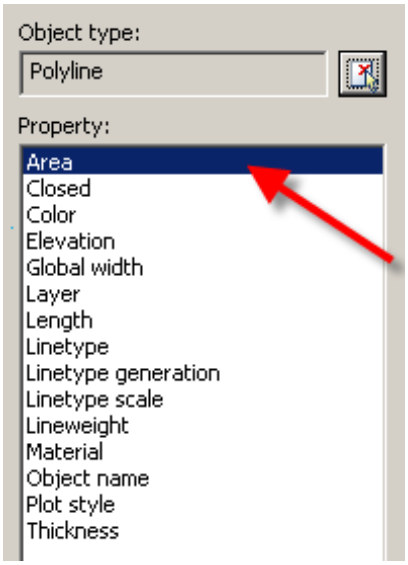

**NOTE** Do not click OK yet, you still need to tell the field which object you want to report properties from.

13 In the Object type column, click the Select Object button.

14 Click the hatch's boundary polyline (green hatch). When you move the cursor over the boundary, the selection changes to a dotted line.

The available property values for the selected object is displayed.

15 Verify that Area is selected in the Property field.




16 In the right pane, select Current units.

17 Click Additional Format, and do the following:

a Set the Conversion factor to .000001.

b Click OK.

18 Click OK to return to the Enhanced Attribute Editor dialog box.

The area of the polyline (70.5111 SQ FT) should now appear as the value of the attribute. It should also be shaded as an indicator that this is a field value and not simple text.

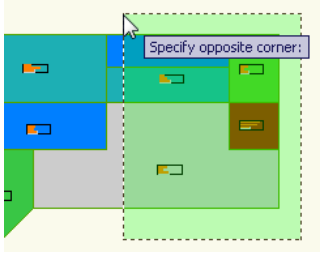
19 Click OK to return to the drawing. The tag is now linked to the polyline boundary of the hatch.

20 Repeat steps 8-18 for the other two tags you placed.

### Stretch The Building

1 Click Home tab ➤ Modify panel ➤ Stretch. 

2 Click two points as shown from right to left (crossing window) to select the office areas, and then press the [Enter] key.




3 Click the base of the drawing, move your cursor to the right, and enter in 10' for the distance.

4 If your tags disappear, select the hatches, and right-click. Click Draw Order menu ➤ Send to Back.

Fields will not regenerate themselves automatically and you will see the same values after you stretched the building. To refresh the fields you can perform a regenerate on the view.

5 To regenerate the view, click ➤ View menu ➤ Regen.

6 Check to see if the fields regenerated and your area values have changed. Save your document.

To learn more about hatches, boundaries, and blocks, refer to the AutoCAD help documentation.

If you do a lot of this kind of work, we have some tools that would make this easier. *Click this link for more information.*