

## Text and Hatching

### Objectives:

- To recognise and create text styles.
- To create and edit single-line and multi-line text in drawings.
- To define hatching and associative hatching.
- To recognise and apply different types/industrial standards of hatch patterns.
- To hatch an enclosed and a non-enclosed area.

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### Subject Matters:

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#### Text toolbar

The **Text** toolbar can be called for use in the same way as other toolbars.



This toolbar shows the following text related tools:

Multiline Text	Single Line Text
Exit Text	Find and Replace
Text Style	Scale Text
Justify Text	Convert distance between spaces

#### Text style

AutoCAD provides ways to create text of various character patterns or fonts. All text in a drawing has a style associated with it. A text style controls the types of font, font style and height, font's width and angle and the orientation of text. By default, the **STANDARD** text style is used.

#### Creating a text style

Text style other than the default **STANDARD** style can be created before adding text to a drawing.  
Calling command to create text style:



Format menu: Text Style

Command line: **style** (or '**style** for transparent use)

Procedure:


- (i) From the **Format** menu, choose **Text Style...**. The **Text Style** dialogue box appears (or enter **style** on the command line to call the **Text Style** dialogue box).
- (ii) Click **New...** and enter a style name in the **New Text Style** dialogue box.
- (iii) Choose **OK** to return to the **Text Style** dialogue box.
- (iv) Under **Font Name**, select a suitable type of font.

- (v) Under **Font Style**, select a style for the font chosen.
- (vi) Under **Height**, enter a value.
- (vii) Click, if appropriate, the check boxes under **Effects**.
- (viii) Enter values for **Width Factor** and **Oblique Angle**.
- (ix) Click **Apply** and **Close** to return to the drawing window.

### Creating single line text

This method of creating text allows several lines of text be created without restarting the command. Each line of text is a separate object.

Calling the **Single Line Text** command into action by:

 **Draw menu:** Text > Single Line Text

 **Command line:** text

#### Options: Justify/Style

Procedure (**no option is selected**):

- (i) From the **Draw** menu, choose **Text** ⇒ **Single Line Text** to call the **Single Line Text** command.
- (ii) Specify start point of text.
- (iii) Specify rotation angle of text.
- (iv) Enter required text.
- (v) Press **Enter** ↵ to change line and continue typing text.
- (vi) To quit the command, press **Enter** ↵ twice.

Procedure (**option is selected**):

- (i) From the **Draw** menu, choose **Text** ⇒ **Single Line Text** to call the **Single Line Text** command.
- (ii) Enter **s** to select text style, if **STANDARD** style is not used.
- (iii) Enter **j** to select text justification.
- (iv) Enter **a** to select “**Align**” listed within [ ] for the text justification options.
- (v) Specify first endpoint of text baseline.
- (vi) Specify second endpoint of text baseline.
- (vii) Enter required text.
- (viii) Press **Enter** ↵ to change line and continue typing text.
- (ix) To quit the command, press **Enter** ↵ twice.

### Creating multiline text

This method creates text in the **Multiline Text Editor**. Before entering text, specify two points on the drawing window forming a non-printing boundary where the multi-line text or paragraphs are fitted. Each multiline text object is a single object, regardless of the number of lines it contains.

Calling the **Multiline Text** command into action by:

 **Draw toolbar:** 

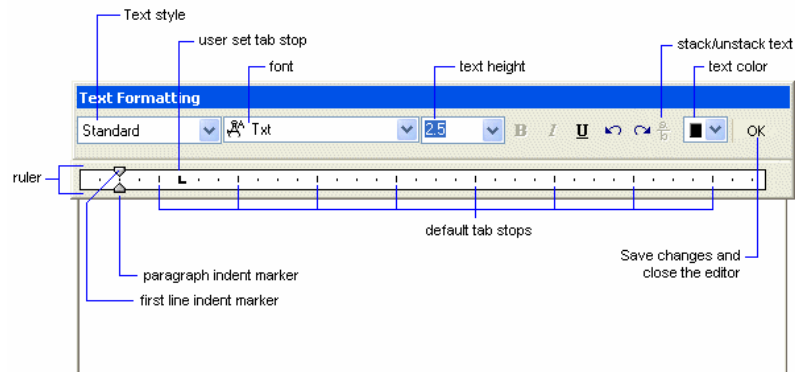
**Draw menu:** Text > Multiline Text

 **Command line:** mtext

**Options:** [Height/Justify/Line spacing/Rotation/Style/Width]

Procedure:

- (i) Click **A** to call the **Multiline Text** command.
- (ii) Specify the first corner for the non-printing text boundary.
- (iii) Choose options if required, or specify the opposite corner for the text boundary.
- (iv) The **Multiline Text Editor** is invoked.



- ◆ The **Multiline Text Editor** includes a **Text Formatting** toolbar and a shortcut menu.
  - ◆ The **Text Formatting** toolbar controls text style for the multiline text object and the character formatting for selected text.
  - ◆ The shortcut menu provides editing options and options specific to multiline text. Right-click in the **Multiline Text Editor** to display the shortcut menu.
- (v) Select or specify text style, type of font, font size, appearance, and colour in the **Text Formatting** toolbar.
  - (vi) Right-click to invoke the shortcut menu, select basic editing options (**Undo**, **Redo**, **Cut**, **Copy** and **Paste**), text justification, symbols, or other **Multiline Text Editor** options.
  - (vii) Type the text content in the Editor.
  - (viii) Choose **OK** to close the Editor.

## Editing text

Text is a drawing object. Like any other objects, text can be moved, erased, copied, mirrored and rotated. The content of single line text or multiline text can also be edited.

Calling the **Edit Text** command into action by:



**Shortcut menu:** Select a text object, right-click in the drawing area, and choose Mtext Edit or Text Edit.

**Command line:** `ddedit`

**Options:** **Undo**

**Procedure:**

- (i) Click **A** or enter `ddedit` in the command window to call the **Edit Text** command.
- (ii) Select text for editing.

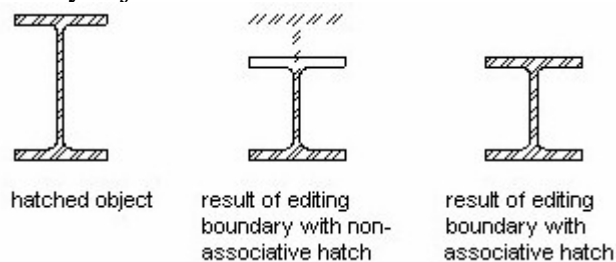
- (iii) The **Edit Text** dialogue box (for single line text) or the **Multiline Text Editor** (for multiline text) appears.
- (iv) Edit the text content.
- (v) Choose **OK** to close the dialogue box or Editor.
- (vi) Press **Enter**  $\leftarrow$  to quit the command.

## Hatching

**Hatching** is a technique of filling a specified boundary with a pattern. When sectioning is used in engineering drawing, it is required to use hatching lines (hatch pattern) to fill up the area which is cut by a sectional plane.

## Associative hatching

**Associative hatching** is hatching that conforms to its bounding objects such that modifying the bounding objects automatically adjusts the hatch.

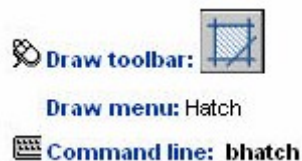


## Hatch pattern

AutoCAD provides more than 100 industrial standard hatch patterns; some of them conform to ISO, ANSI or other standards. These hatch patterns can be chosen from the **Hatch Pattern Palette** dialogue box. AutoCAD also allows import of external pattern library or user-defined hatch patterns.

## Hatching command

Hatching can be applied to an object or objects that completely enclosed an area. It can also be applied to an area that does not have a closed boundary. The command creates an associative hatching, which updates when its boundaries are modified, or a non-associative hatching, which is independent of its boundaries. By default, associative hatching is applied  
Calling the **Hatch** command into action by:




The **Boundary Hatch and Fill** dialogue box appears.

## Hatching an enclosed area

An enclosed area is a boundary that consists of an object or objects that completely enclose an area. If the boundary is made up of multiple objects, their endpoints must coincide with each other.

Procedure:



- (i) Click  to invoke the **Boundary Hatch and Fill** dialogue box.

- (ii) Under **Hatch** tab, select **Predefined** in the **Type** box.
- (iii) Select a hatch pattern from the **Pattern** box. The selected hatch pattern shows in the **Swatch** box.
- (iv) Choose an appropriate angle and scale for the hatch pattern, if necessary.
- (v) Click  (**Pick Points**) and returns to the drawing window.
- (vi) Drag the cross hair cursor to the internal point of the desired object, left-click to select the enclosed area.
- (vii) Right-click to invoke a shortcut menu, select **Enter** to return to the **Boundary Hatch and Fill** dialogue box.
- (viii) Click **Preview** to preview the hatched area or **OK** to finish and quit the command.

### Hatching a non-enclosed area

When hatching a non-enclosed area, the hatch boundary is defined by specifying a polyline made up from other objects.

Procedure:

- (i) Click  to invoke the **Boundary Hatch and Fill** dialogue box.
- (ii) Under **Hatch** tab, select **Predefined** in the **Type** box.
- (iii) Select a hatch pattern from the **Pattern** box. The selected hatch pattern shows in the **Swatch** box.
- (iv) Choose an appropriate angle and scale for the hatch pattern, if necessary.
- (v) Click  (**Select Objects**) and returns to the drawing window.
- (vi) Drag the pick box to each of the objects forming the hatch boundary polyline, left-click to select the object.
- (vii) Right-click to invoke a shortcut menu, select **Enter** to return to the **Boundary Hatch and Fill** dialogue box.
- (viii) Click **Preview** to preview the hatched area or **OK** to finish and quit the command.

### Editing hatching

Hatch boundaries and hatch patterns can be edited. Like other drawing objects, hatch boundaries can be copied, moved, stretched, and so on.

Calling the **Edit Hatch** command into action by:



**Modify menu:** Object > Hatch

**Shortcut menu:** Select a hatch object to edit, right-click in the drawing area, and choose Hatch Edit.

 **Command line:** hatchedit

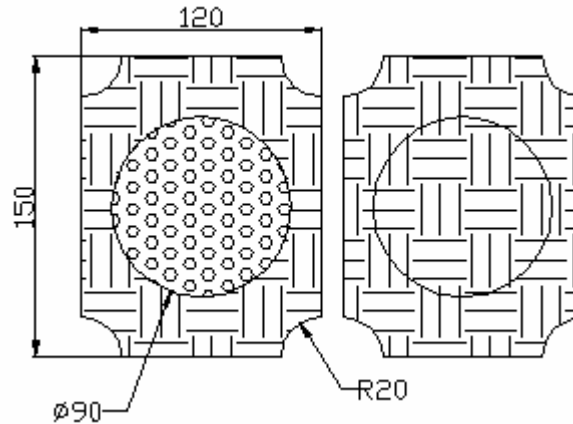
Procedure (using grip mode):

- (i) Left-click a hatch object to edit, then right-click in the drawing area to invoke a shortcut menu.
- (ii) Select **Hatch Edit...** to call the **Hatch Edit** dialogue box.

- (iii) Change the type of hatch pattern, pattern properties, attributes, where appropriate.
- (iv) Click **OK** to finish and quit hatch editing.

**Hands on practice**

1. Using appropriate drawing tools, construct the following figures. Hatch the areas as shown. Note that the one on the right ignores the center circle in hatching.



2. Create a text style with the following requirement and name it as “textstyle”:  
Font: Arial                      Font Style: Regular  
Height: 6 mm                    Oblique Angle: 30°  
Height: 6 mm
3. Using the created text style, add the following text to the figure in Q1:  
“Demonstration hatching with removed island.”
4. Create the following text using appropriate text style.

This is RomanD text of height 10

*This is italic text of height 8*

RomanS text height 12

This is Romantic text of heights 8

**This is Sans Serif text of height 10**

Standard (txt.shx) of height 10

***Times New Roman - width 1.5, oblique 10***

5. Using appropriate drawing tools, construct the following figure.

