

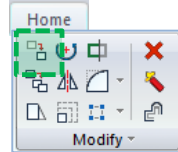
ENTITY EDIT

CADian 2020

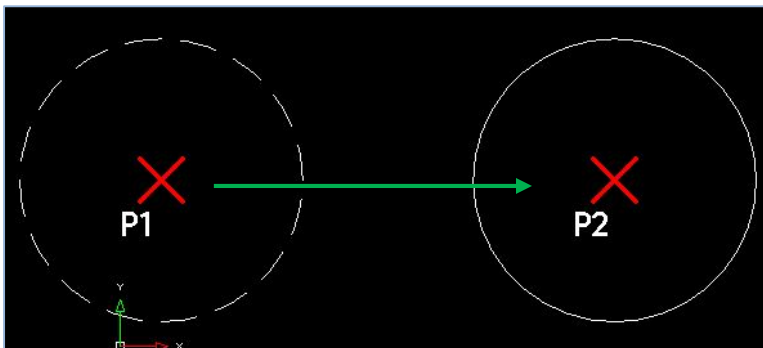


Move

command : m (MOVE)



_MOVE
Select entities to move:
Opposite corner:
1 found
Select entities to move:
Specify base point or [Displacement] <Displacement>:
Specify second point or <use first point as displacement>:



Execution Process

*. move.dwg File OPEN

1. "command : "m input and SPACE

2. "Select entites to move : "
P1 Circle Select and SPACE

3. "~[Displacement(D)]<Displacement>: " P1 CLICK

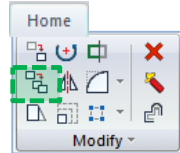
4."~<Use first point as displacement>: " P2 CLICK

NOTE

- When you are finished selecting entities in step 2, press the space bar.
-> Steps to verify that entity selection is complete
- In step 3, You can input the coordinates .
- In step 4, You can enter the distance you want to move.

Copy

command : co (COPY)



_COPY
Select entities to copy:
Opposite corner:
1 found
Select entities to copy:
Current settings: Copy mode = Multiple
Specify base point or [Displacement/mOde] <Displacement>:
Specify second point or [Array] <use first point as displacement>:
Specify second point or [Array/Undo/Exit] <Exit>:



Execution Process

*. copy.dwg File OPEN

1. "command : "co input and SPACE

2. "Select entities to copy : "
P1 Circle Select and SPACE

3. "~[Displacement(D)]<Displacement>: " P1 CLICK

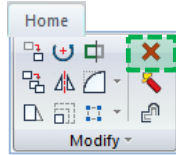
4. "~<Use first point as displacement>: " P2 CLICK

NOTE

- When you are finished selecting entities in step 2, press the space bar.
 - > Steps to verify that entity selection is complete
- In step 3, You can input the coordinates .
- In step 4, You can enter the distance you want to move.

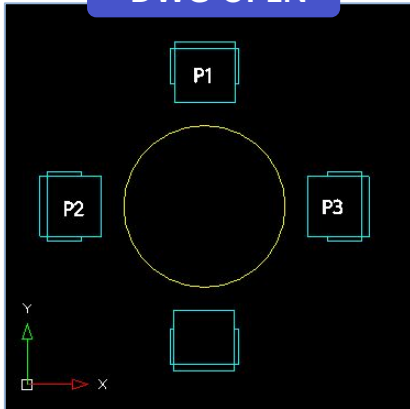
Erase

command : e (Erase)

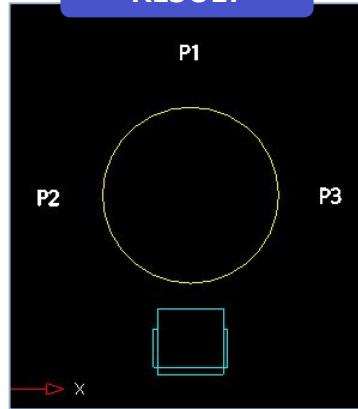


Command: e
ERASE
Select entities to delete:
Opposite corner:
2 found
Select entities to delete:

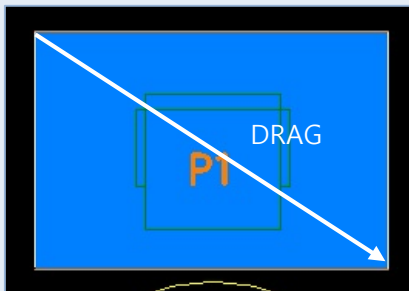
DWG OPEN



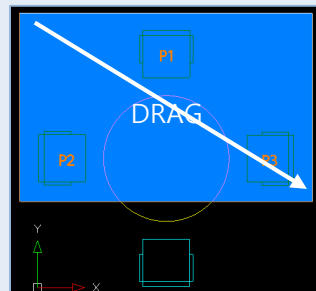
RESULT



SIGLE SELECT



MULTI SELECT



Execution Process

*. erase.dwg File OPEN

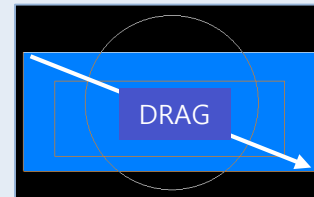
1. "command : "e input and SPACE

2. "Select entities to delete : "
P1,P2,P3 chair Select and SPACE

NOTE

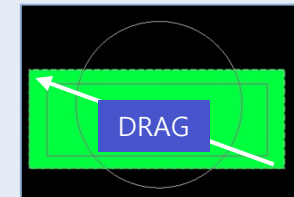
- In step 2, When selecting an entity, drag from the **top left** to the **bottom right** to select it.
- Select Type

Window Select



Only the rectangle in the area is selected.

Cross Select

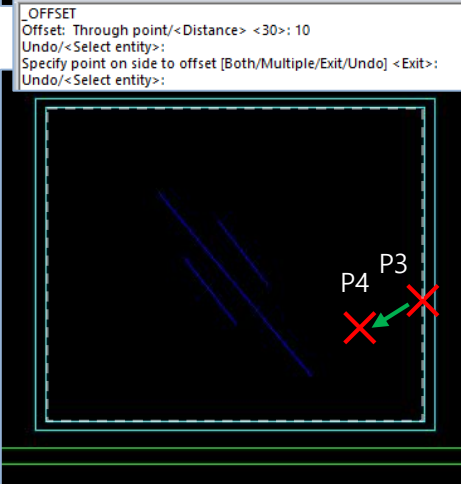
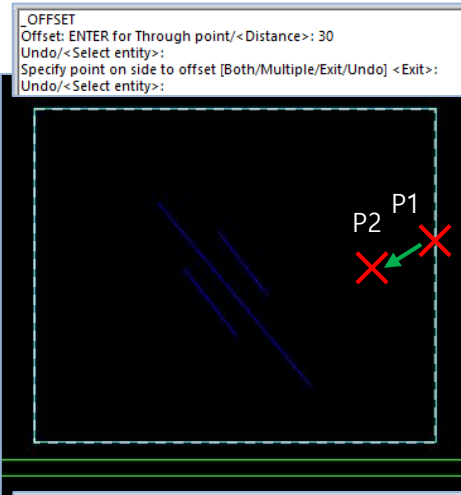
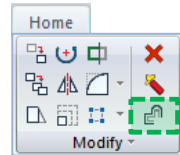


All the rectangles and circles included in the area are selected.

- You can also delete an entity by pressing [DELETE] key.

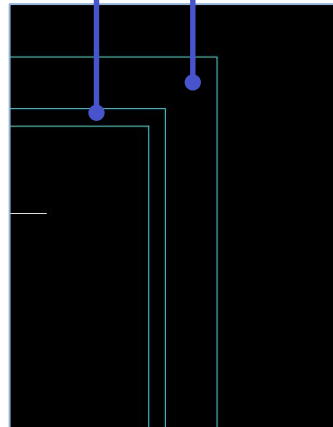
Offset -1

command : o (Offset)



GLASS FRAME

WINDOW FRAME



Execution Process

*. offset.dwg File OPEN

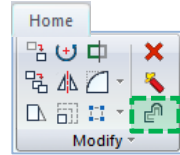
1. "command : "o input and SPACE
2. "~ Through point(T)/ <Distance> : " 30 input and SPACE
3. "~ <Select entity> : "P1 Select and SPACE
4. "~<Exit>:" P2 Select and SPACE
5. SPACE (Run previous command)
6. "~ Through point(T)/ <Distance> : " 10 input and SPACE
7. "~ <Select entity> : "P3 Select and SPACE
8. "~<Exit>:"P4 Select and SPACE

NOTE

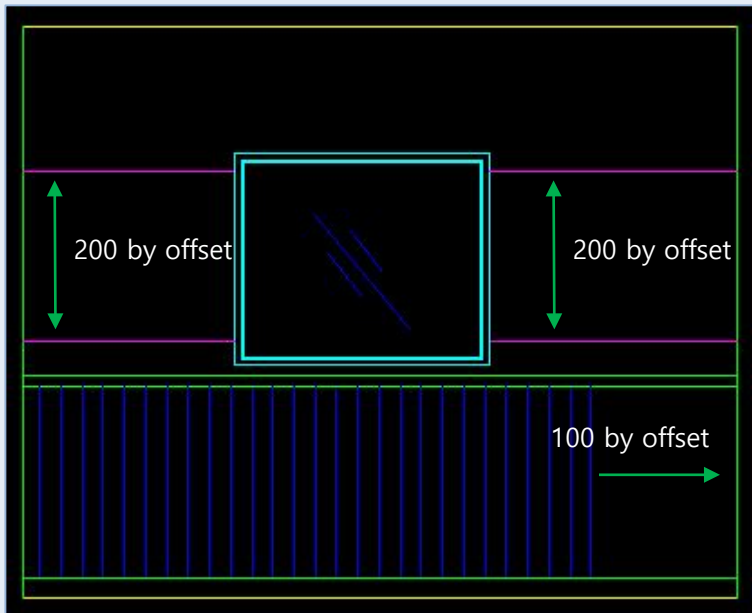
- In step 5, Exit the command and **press SPACE BAR again** to execute the previous command.

Offset -2

command : o (Offset)



Training



Execution Process

*. offset.dwg File OPEN

1. "command : "o input and SPACE

2. "~ Through point(T)/ <Distance> : "
Distance value input and SPACE

3. "~ <Select entity> : "Select Entity to be offsetted

4. "~<Exit>:" Mouse click to move

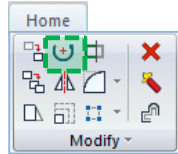
NOTE

<Step 4 Options> [Both(B)/Multiple(M)/Exit(E)/Undo(U)] <Exit>:

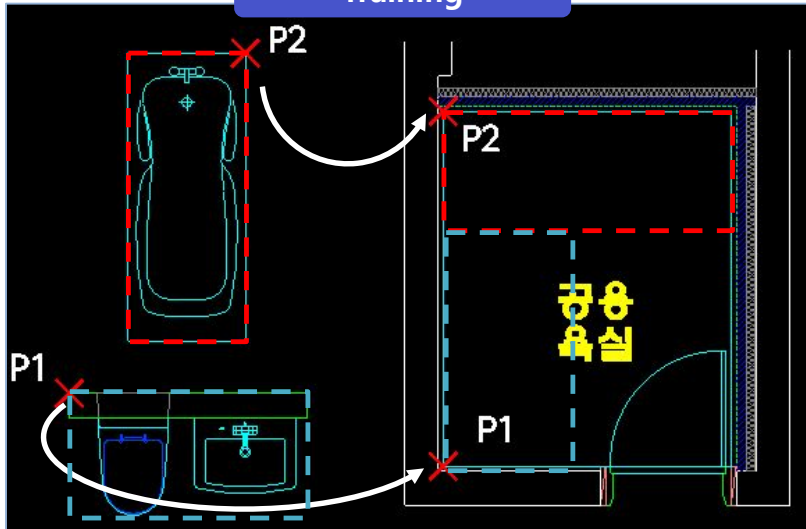
- Both(B) : Offset to both sides
- Multiple(M) : Skip step 3 and execute the offset command in succession.

Rotate -1

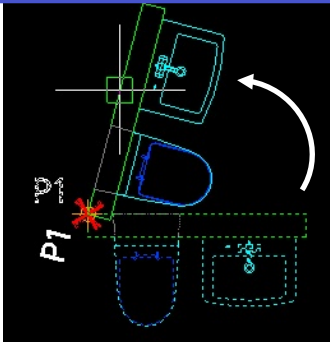
command : ro (rotate)



Training



Rotate with the mouse



Input angle value

```
Command: RO
_ROTATE
Select entities to rotate:
Opposite corner:
4 found
Select entities to rotate:
Rotation point:
Rotation angle or [Copy/Base angle] <0>: 90
```

Execution Process

*. rotate-1.dwg File OPEN

1. "command : "ro input and SPACE

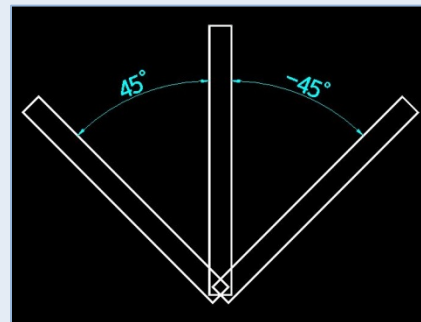
2. "Select entities to rotate: "
P1 Washbasin Select and SPACE

3. "Rotation point : "P1 CLICK

4. "[Copy(C)/Base angle(B)] <270>:"
90 input and SPACE

*. Run the P2 bath the same way.

NOTE

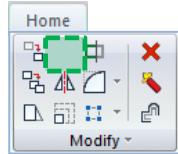


-. Angle direction
Clockwise :
(-) Angle value
Counterclockwise :
(+) Angle value
(+ can be omitted)

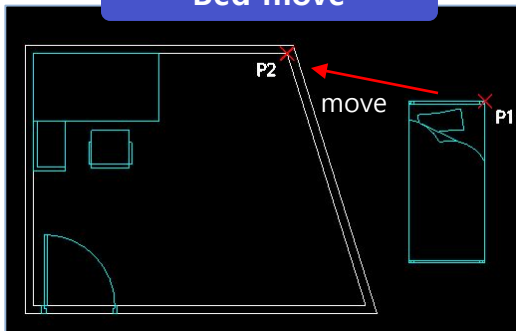
-. In Step4, copy(c) select to rotate while copying the original entity.

Rotate -2

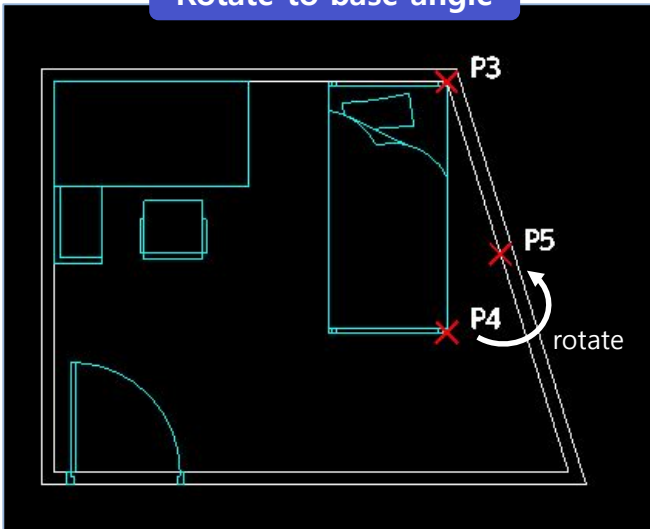
command : ro (rotate)



Bed move



Rotate to base angle



Execution Process

*. rotate-2.dwg File OPEN

1. "command : "ro input and SPACE

2. "select entities to rotate: "Bed Select and SPACE

3. "Rotation point : "P3 CLICK

4. "[Copy(C)/Base angle(B)] <270>:"
R input and SPACE

5. "Base angle(B) <0>: "P3 CLICK

6. "Second point: "P4 CLICK

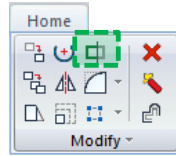
7. "Point(P)/New angle(N): "P5 CLICK

NOTE

- . It is difficult at first, so you have to practice continuously.
- . If there are many decimal places like 44.33318..., it is difficult to input directly.
So if you use the base angle function, you can rotate accurately.

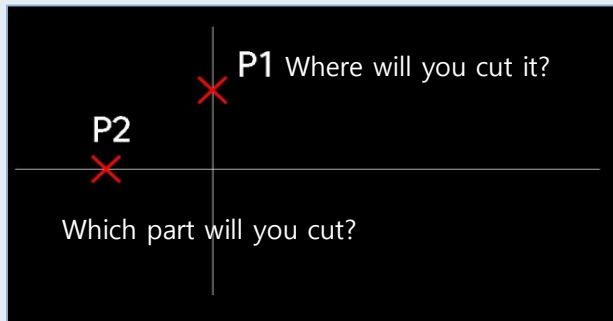
Trim -1

command : tr (trim)



```
TRIM
Select cutting entities for trim <ENTER to select all>:
Opposite corner:
1 found
Select cutting entities for trim <ENTER to select all>:
[Fence/Crossing/Project/Edge/eRase/Undo]/<Select entity to trim or shift-select to extend>:
Opposite corner:
[Fence/Crossing/Project/Edge/eRase/Undo]/<Select entity to trim or shift-select to extend>:
```

TRIM Basic principle



Execution Process

*. trim-1.dwg File OPEN

1. "command : "tr input and SPACE

2. "~<ENTER to select all>: "
P1 Select and SPACE

3. "~<Select entity to trim or shift-select to extend>:" P2 Select and SPACE

NOTE

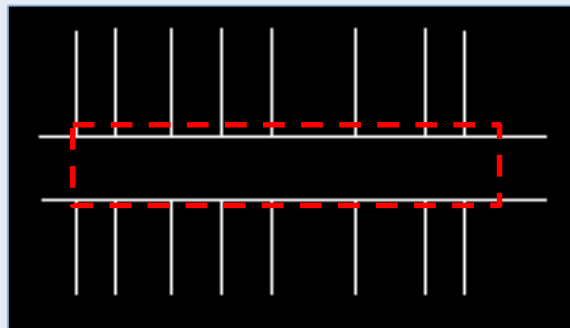
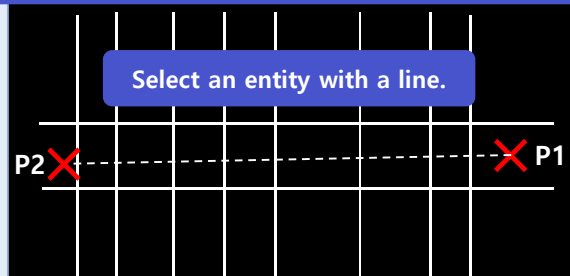
-. In step 2, If you do not select P1 and press SPACE, you can cut without selecting an object.
(But if you have a lot of entities, it will slow down.)

Trim -2

Useful Sub Options

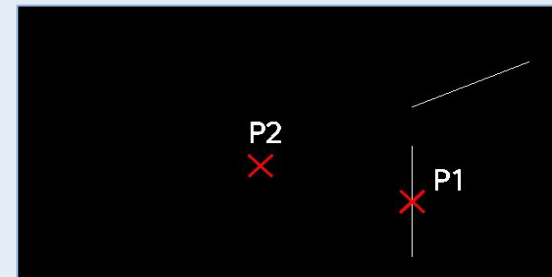
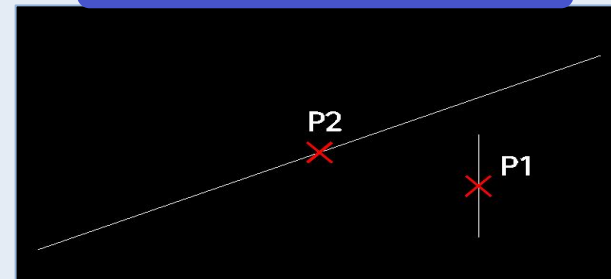
TRIM (Fence)

It is used for trimming in narrow spaces.



TRIM (Edge)

Trim without crossing lines



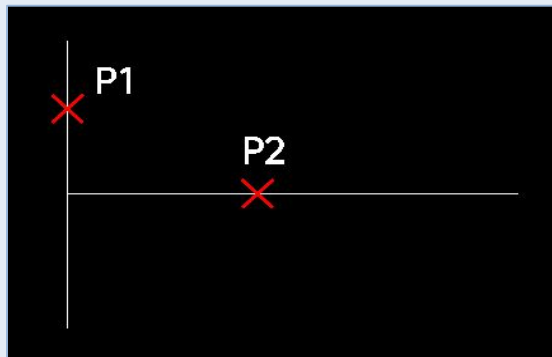
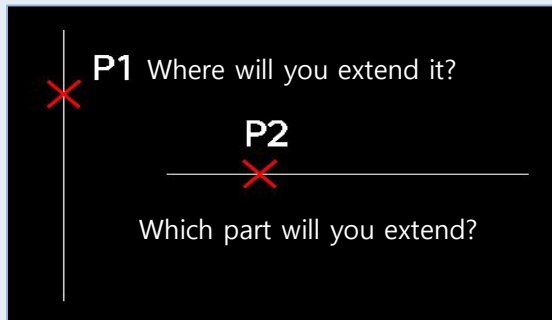
Extend(E)/No extend(N) <No extend>: e

Extend -1

command : ex (extend)

```
Command: ex
_EXTEND
Select boundary entities for extend <ENTER to select all>:
Opposite corner:
1 found
Select boundary entities for extend <ENTER to select all>:
[Fence/Crossing/Project/Edge/eRase/Undo]/<Select entity to extend or shift-select to trim>:
Opposite corner:
[Fence/Crossing/Project/Edge/eRase/Undo]/<Select entity to extend or shift-select to trim>:
```

EXTEND Basic principle



Execution Process

*. extend-1.dwg File OPEN

1. "command : "ex input and SPACE

2. "~<ENTER to select all>: "
P1 Select and SPACE

3. "~<Select entity to trim or shift-select to
extend>:" P2 Select and SPACE

NOTE

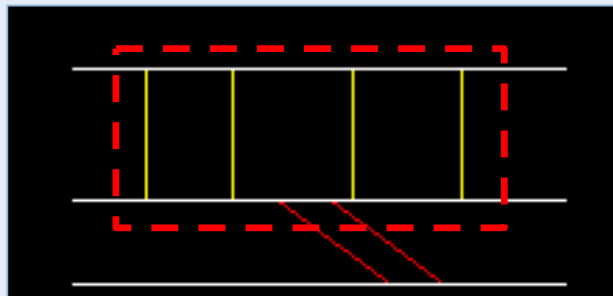
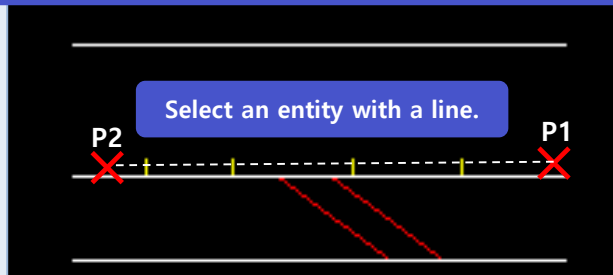
- In step 2, If you do not select P1 and press SPACE, you can cut without selecting an object. (But if you have a lot of entities, it will slow down.)

Extend -2

Useful Sub Options

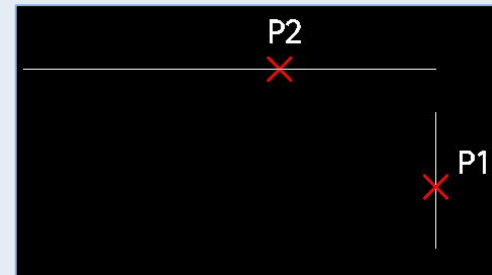
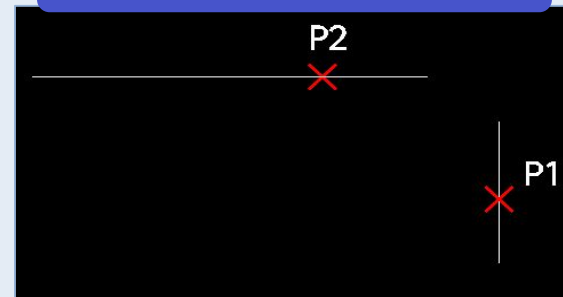
EXTEND (Fence)

It is used for extending in narrow spaces.



EXTEND (Edge)

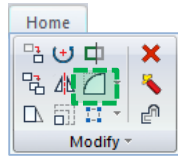
Extend without crossing lines



Extend(E)/No extend(N) <No extend>: e

Fillet -1

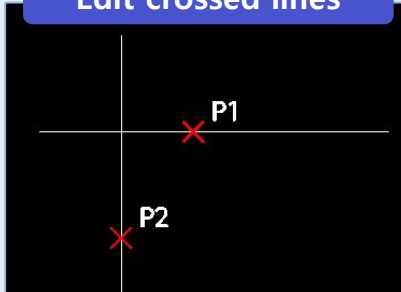
command : f (fillet)



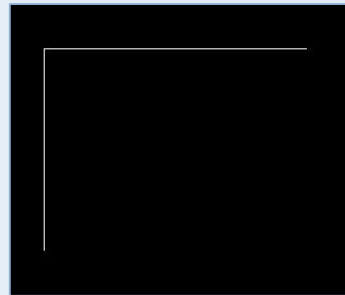
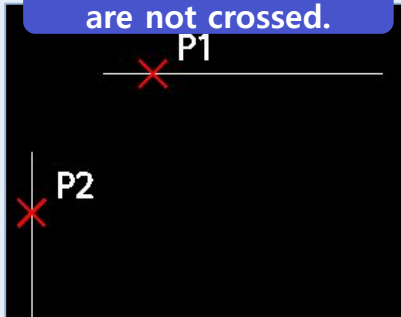
Command: f
_FILLET
Current settings: mode = TRIM, radius = 0
Fillet: Undo/Polyline/Radius/Trim/Multiple/<Select first entity>:
Select second line or shift-select to apply corner:

FILLET Basic principle

Edit crossed lines



Edit the lines that are not crossed.



Execution Process

*. fillet-1.dwg File OPEN

1. "command : "f input and SPACE

2. "~<Select first entity>: " P1 CLICK

3. "~ Select second line or shift-select to apply corner : " P2 Select and SPACE

FILLET (Radius)

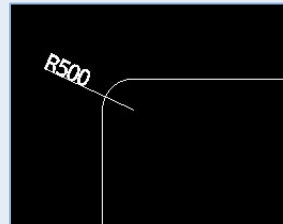
1. "command : "f 입력

2. "~<Select first entity>: " R input and SPACE

3. "Fillet radius <0>: " 500 input and SPACE

4. "~<첫 번째 엔티티 선택>: " P1 선택 후 엔터

5. "~Select second line or shift-select to apply corner: " P2 Select and SPACE



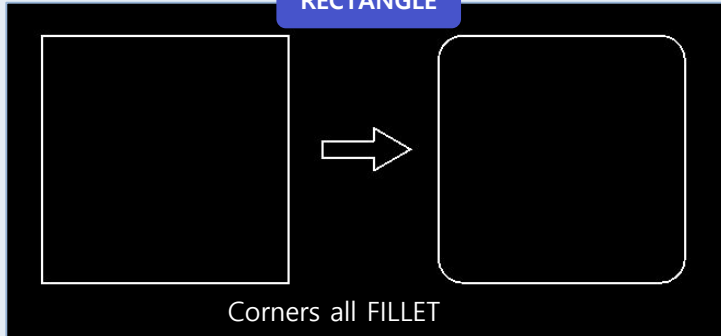
Fillet -2

Useful Sub Options

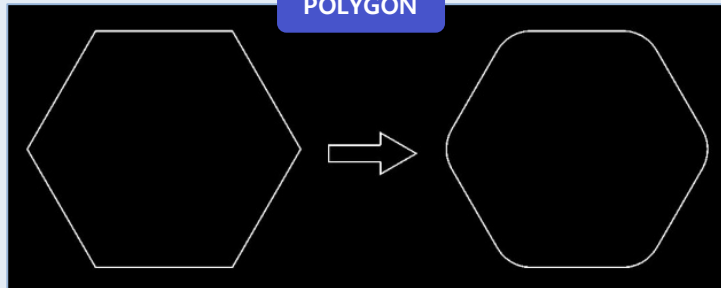
FILLET (Polyline)

A polyline entity can fillet at one time.

RECTANGLE

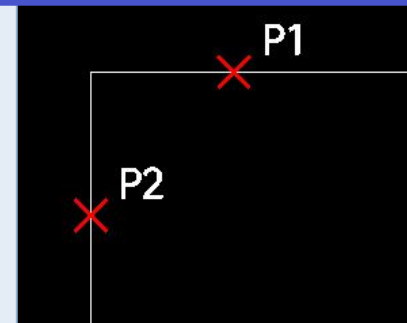


POLYGON

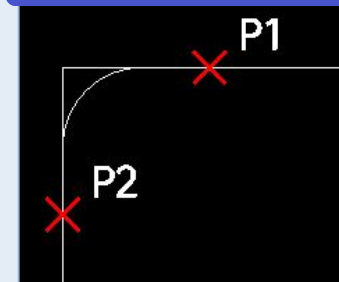


FILLET (Trim)

Do not trim when FILLET



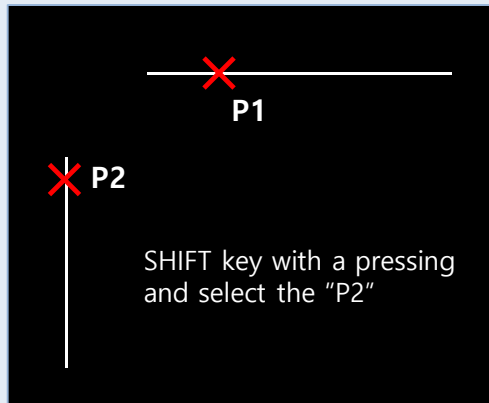
No trim(N)/<Trim>: n



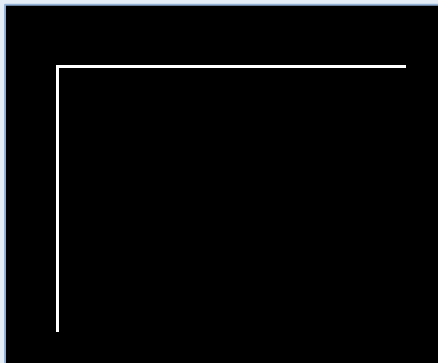
Fillet -3

Useful Sub Options

FILLET (SHIFT key with a pressing)



SHIFT key with a pressing
and select the "P2"



When the radius value is set,
It can be changed temporarily
at right angles.

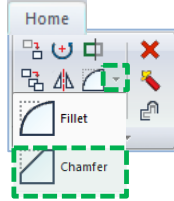
FILLET (Multi)

- You can continue to fillet with the set values.
- You can reduce the number of SPACE BAR presses.

Chamfer -1

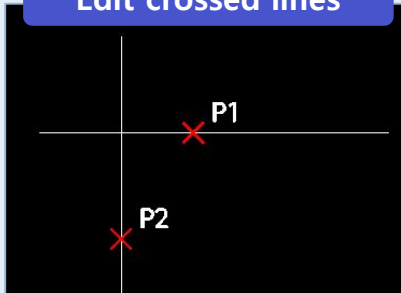
command : cha (Chamfer)

Command: cha
_CHAMFER
Current settings: mode = TRIM, dist1 = 500, dist2 = 600
Select first line or [Undo(Polyline(Distance(A)/Trim(T)/Method(E)/Multiple(M))]: d
Chamfer mode now set to Distance method.
Chamfer distance on first entity <500>: 500
Chamfer distance on second entity <500>: 600
Select first line or [Undo(Polyline(Distance(A)/Trim(T)/Method(E)/Multiple(M))]:
Select second line or shift-select to apply corner:

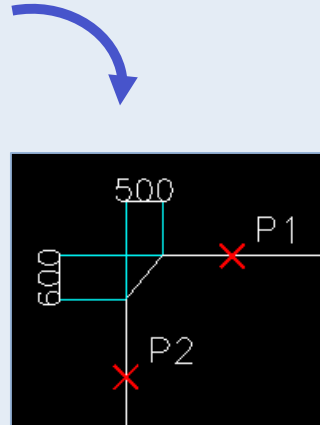
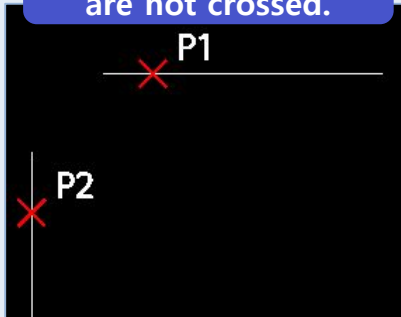


CHAMFER Basic principle

Edit crossed lines



Edit the lines that are not crossed.



Execution Process (DISTANCE)

*. chamfer-1.dwg File OPEN

1. "command : "cha input and SPACE

2. "~ [Undo(U)/Polyline(P)/Distance(D)/Angle(A)/Trim(T)/Method(E)/Multiple(M)]: " d input and SPACE

3. "~ distance on first entity<10>:" 500 input and SPACE

4. "~ distance on second entity<10>:" 600 input and SPACE

5. "~ [Undo(U)/Polyline(P)/Distance(D)/Angle(A)/Trim(T)/Method(E)/Multiple(M)]: " P1 CLICK

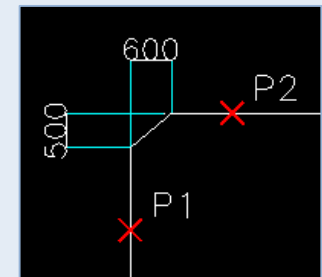
6. "Select second line or shift-select to apply corner:" P2 CLICK

NOTE

-. 3~6 STEP

If you click in the opposite direction,
The results of the right picture appear.

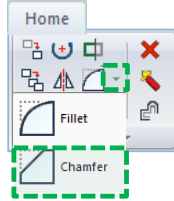
Distance from first entity = STEP 5
Distance from second entity = STEP 6



Chamfer -2

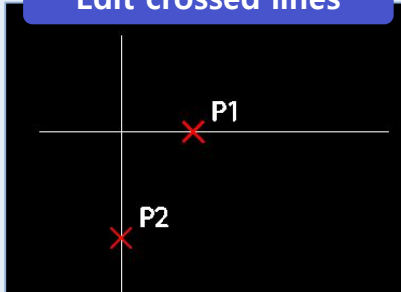
command : cha (Chamfer)

Command: cha
_CHAMFER
Current settings: mode = TRIM, dist1 = 500, dist2 = 600
Select first line or [Undo/Polyline/Distance/Angle/Trim/Method/Multiple]: a
Chamfer mode now set to Angle method.
Length on first line <0>: 500
Angle relative to first line <0>: 30
Select first line or [Undo/Polyline/Distance/Angle/Trim/Method/Multiple]:
Select second line or shift-select to apply corner:

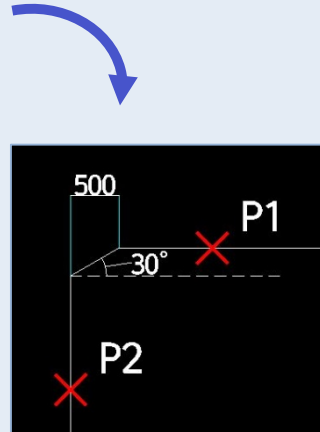
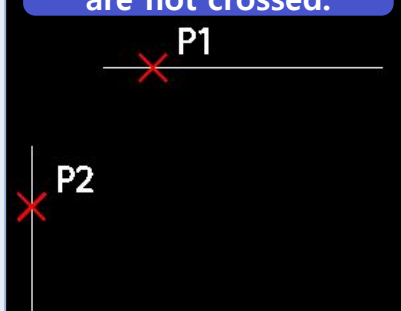


CHAMFER Angle Execution

Edit crossed lines



Edit the lines that are not crossed.



Execution Process (ANGLE)

*. chamfer-1.dwg File OPEN

1. "command : "cha input and SPACE

2. "~ [Undo(U)/Polyline(P)/Distance(D)/Angle(A)/Trim(T)/Method(E)/Multiple(M)]: " a input and SPACE

3. "Length on first line<500>:" 500 input and SPACE

4. "Angle relative to first line<0>:" 30 input and SPACE

5. "~ [Undo(U)/Polyline(P)/Distance(D)/Angle(A)/Trim(T)/Method(E)/Multiple(M)]: " P1 CLICK

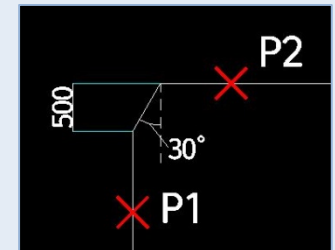
6. "Select second line or shift-select to apply corner:" P2 CLICK

NOTE

-. 3~6 STEP

If you click in the opposite direction,
The results of the right picture appear.

Distance and angle of the first line = STEP 5
Distance and angle of the second line = STEP 6



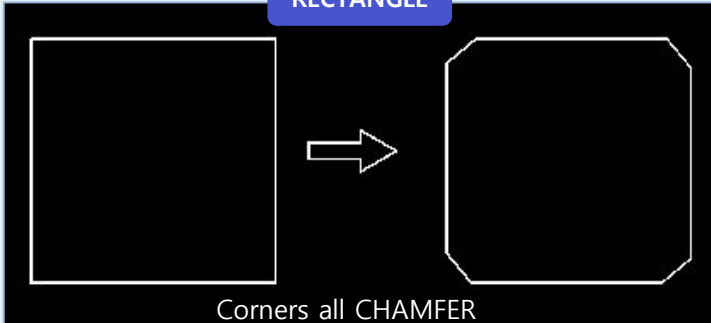
Chamfer -3

Useful Sub Options

CHAMFER (Polyline)

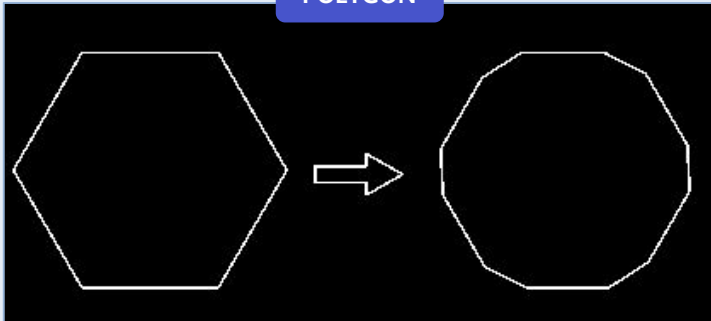
A polyline entity can chamfer at one time.

RECTANGLE



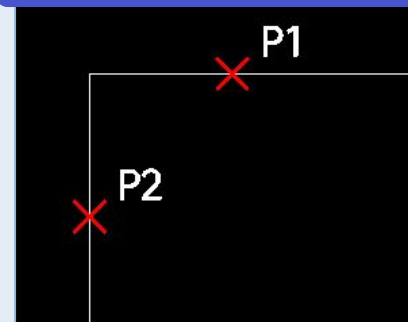
Corners all CHAMFER

POLYGON

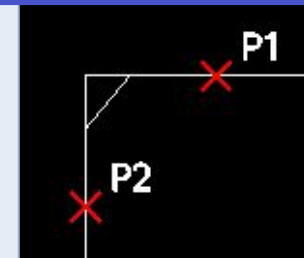


CHAMFER (Trim)

Do not trim when FILLET



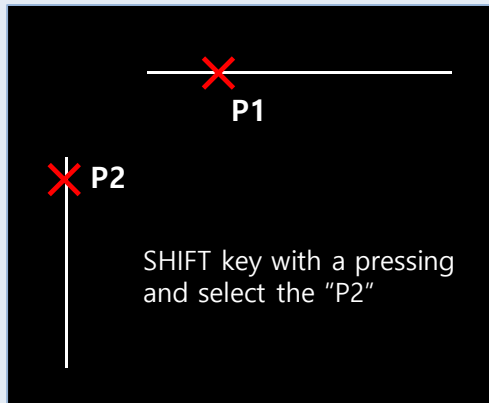
No trim(N)/<Trim>: n



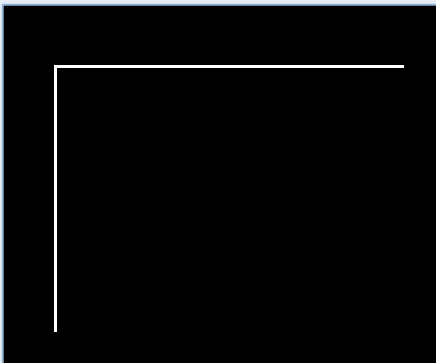
Chamfer -4

Useful Sub Options

FILLET (SHIFT key with a pressing)



SHIFT key with a pressing
and select the "P2"



When the radius value is set,
It can be changed temporarily
at right angles.

CHAMPER (Multi)

- You can continue to chamfer with the set values.
- You can reduce the number of SPACE BAR presses.

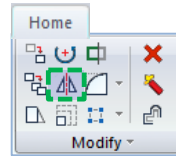
CHAMFER(mEthod)

- Select the distance and angle from the chamfer mode.
- Once the mode is determined and executed, the determined mode is executed first.

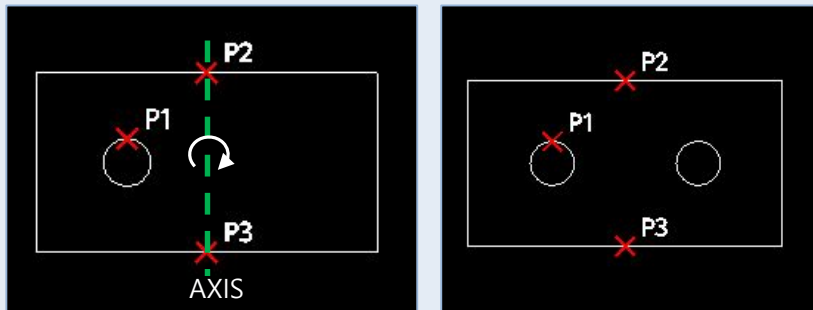
Mirror -1

command : mi (Mirror)

```
Command: mi
_MIRROR
Select entities to mirror:
Opposite corner:
1 found
Select entities to mirror:
Start of mirror line:
End of mirror line:
Delete the original entities? <N>
```



MIRROR Basic principle



Execution Process

*. mirror.dwg File OPEN

1. "command : "mi input and SPACE

2. "~ to mirror: " P1 select and SPACE

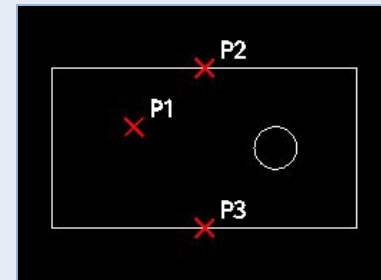
3. "Start of mirror line: " P2 select and SPACE

4. "End of mirror line : " P3 select and SPACE

5. "Delete the original entities? <N> : " SPACE

NOTE

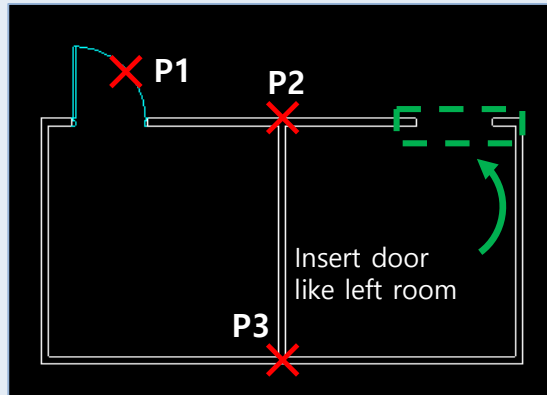
-. In step5, If "n" is selected,
the original object is deleted as shown below.



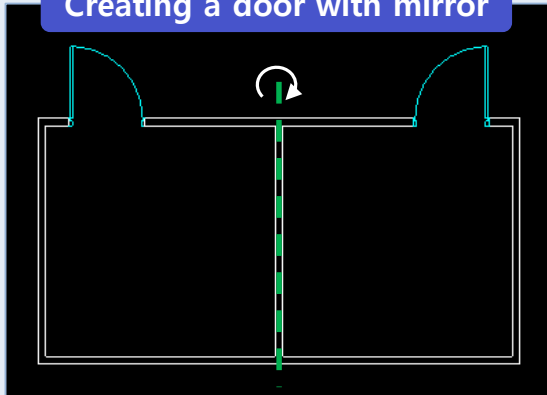
Mirror -2

Useful Sub Options

Same entity + Same distance

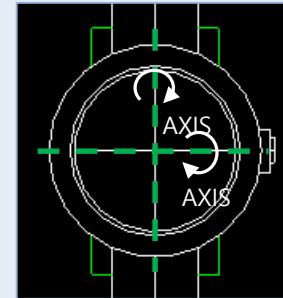
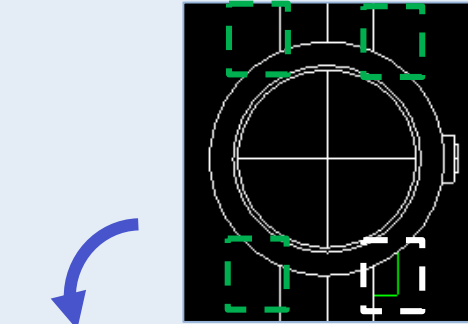


Creating a door with mirror



If room size is the same,
mirror P2 and P3 with axis.

Watch hooks



If you run mirror 2 times,
the clock link is completed.

MIRRTEXT

Original



ON



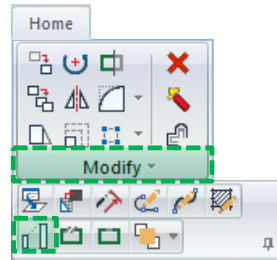
OFF



When you run mirror,
it determines if it contains text.

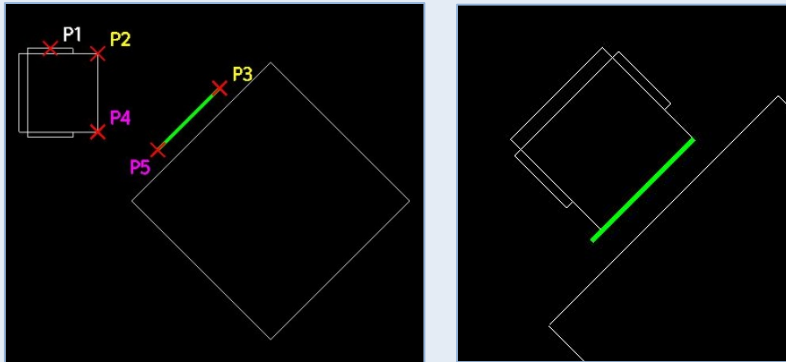
Align

command : al (Align)



```
_ALIGN
Select entities:
Opposite corner:
1 found
Select entities:
Specify first source point:
Specify first destination point:
Specify second source point:
Specify second destination point:
Specify third source point:
Scale objects based on alignment points [Yes/No] <No>:
```

ALIGN Basic principle



Execution Process

*. align.dwg File OPEN

1. "command : "al input and SPACE

2. "Select Entities: " P1 (chair) Select and SPACE

3. "~ first source point: " P2 Select

4. "~ first destination point: " P3 Select

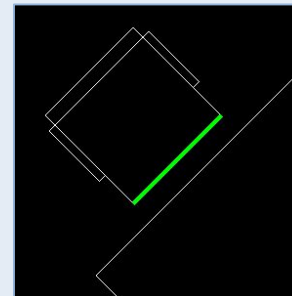
5. "~ second source point: " P4 Select

6. "~ second destination point: " P5 select

7. "~ third source point : " SPACE

8. "~[Yes/No] <No>:" SPACE

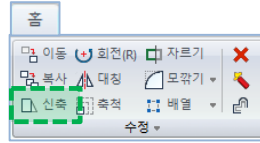
NOTE



-. In step 8, If you select "y", adjust the scale by entity distance as shown on the left.

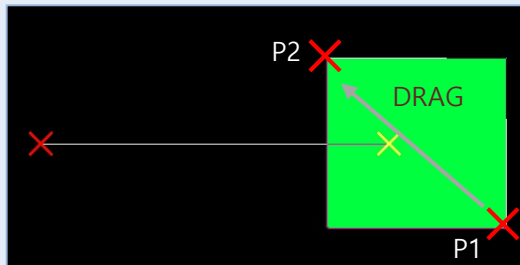
Stretch -1

command : s (Stretch)



```
Command: s
_STRETCH
Select objects to stretch by crossing-window or crossing-polygon...
Select objects:
Opposite corner:
1 found
Select objects:
Specify base point or [Displacement] <Displacement>:
Specify second point or <use first point as displacement>:
```

STRETCH Basic principle



Stretch as much as you click at the base point

Execution Process

*. stretch.dwg File OPEN

1. "command : "s input and SPACE

2. "~Select object:" P1 Select

3. "Opposite corner:" P2 Select and SPACE

4. "~< Displacement > " P3 Select

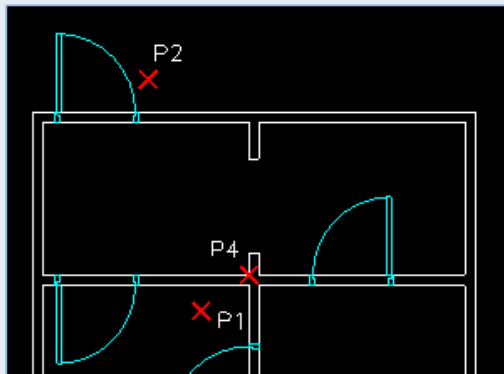
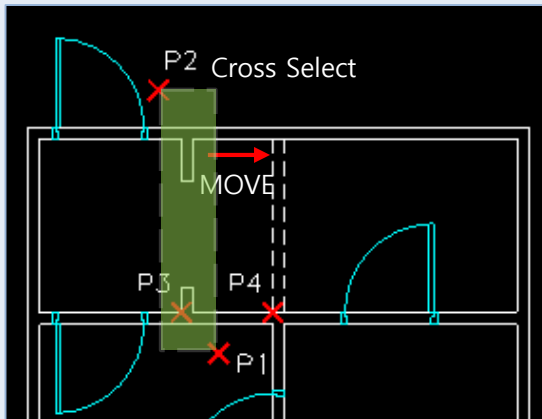
5. "Specify second point ~:" P4 Select

NOTE

- In step4, Entering a value will stretch as much as the value.
- When you run stretch, you have to select it by cross select method. (Window Select X)

Stretch -2

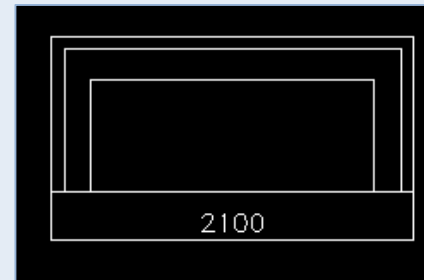
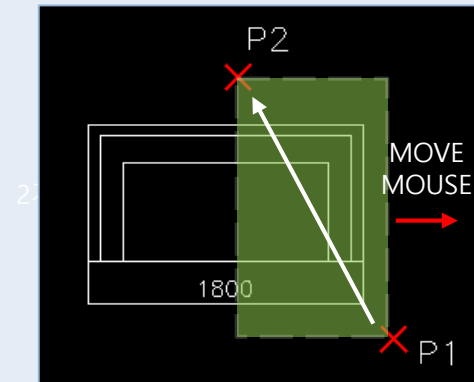
Move the wall



Stretch the connected wall and perform it at once.

If you execute move, you have to edit the wall again.

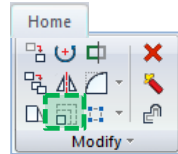
Change Size



If you input 300 as shown in the picture by cross select, the sofa will stretch at 2100 size.

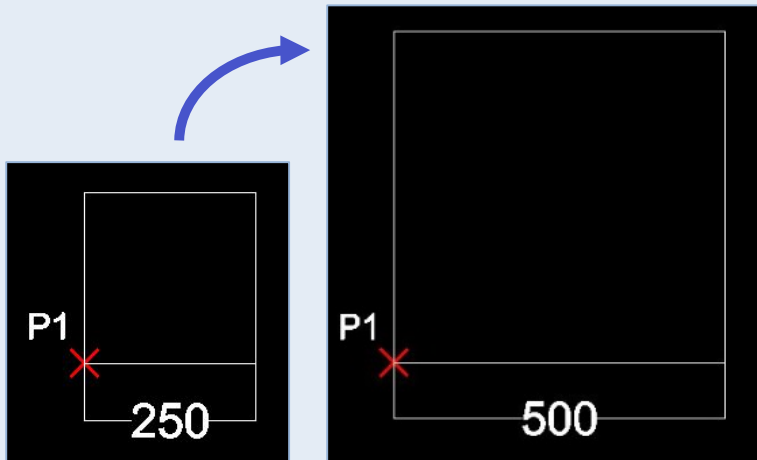
Scale -1

command : sc (Scale)



```
Command: sc
_SCALE
Select entities to scale:
Opposite corner:
1 found
Select entities to scale:
Base point:
Base scale/Copy/Reference/<Scale factor>: 2
```

SCALE Basic principle



Execution Process

*. scale.dwg File OPEN

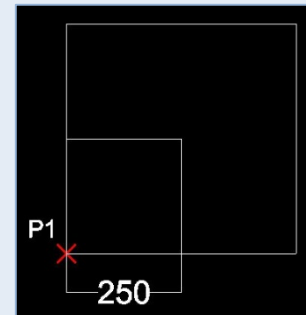
1. "command : "sc input and SPACE

2. "~ to scale:" RECTANGLE Select and SPACE

3. "Base Point:" P1 SELECT

4. "Base scale(B)/Copy(C)/Reference(R)/<Scale factor(S)>:" 2 input and SPACE

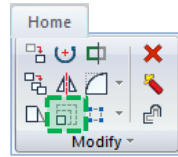
NOTE



- . In step4, If "c" is selected, the original object does not disappear as shown in the picture on the left.

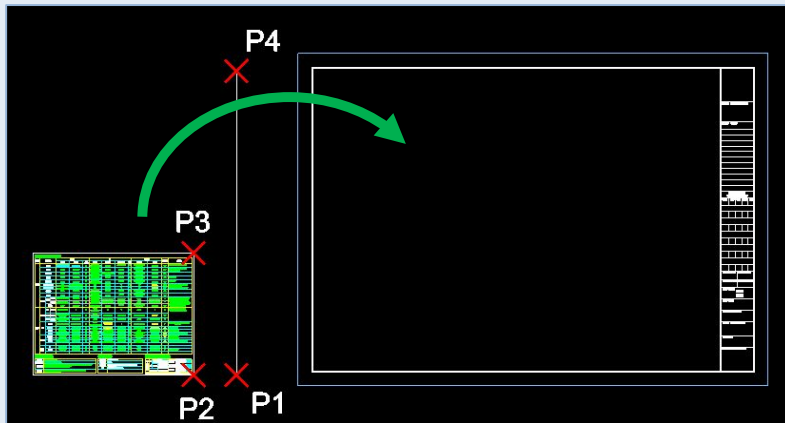
Scale -2

command : sc (Scale)



```
Command: sc
_SCALE
Select entities to scale:
Opposite corner:
1 found
Select entities to scale:
Base point:
Base scale/Copy/Reference/<Scale factor>: r
Base scale <1>:
Second point:
Point/<Specify new length>:
```

SCALE Reference Execution



Execution Process

*. scale.dwg File OPEN

1. "command : "sc input and SPACE

2. "~ entities to scale:" **TABLE** SELECT and SPACE

3. "Base point:" **P1** SELECT

4. "Base scale(B)/Copy(C)/Reference(R)/
<Scale factor(S)>:" **r** input and SPACE

5. "Base scale(B) <1>:" **P2** SELECT

6. "Second Point:" **P3** SELECT

7. "Point(P)/<Specify new length>:" **P4** SELECT

NOTE

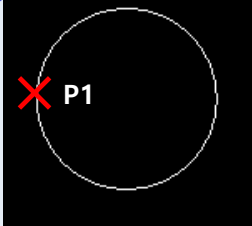
- It is difficult at first, so you have to practice continuously.
- If there are many decimal places like 5.43291..., it is difficult to input directly. So if you use the reference function, you can scale accurately.

Divide

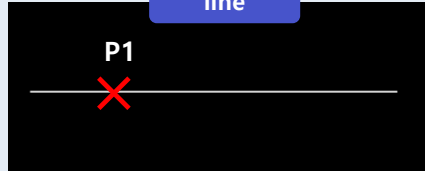
command : div (Divide)

DIVIDE Basic principle

1 circle



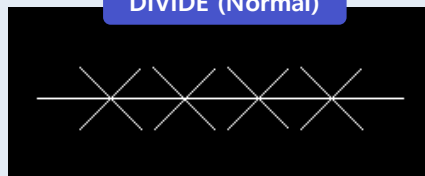
line



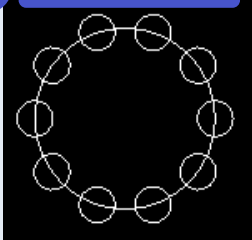
2 DIVIDE (Normal)



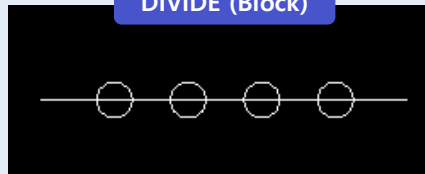
DIVIDE (Normal)



3 DIVIDE (Block)



DIVIDE (Block)



Execution Process

*. divide.dwg File OPEN

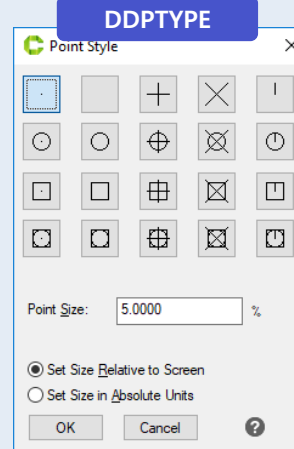
1. "command : "div input and SPACE

2. "Select entity to divide:" P1 SELECT

3. "~ or [Block(B)]:" 5 input and SPACE

NOTE

- In step3, If block (b) is used, the block is inserted at the divide point.



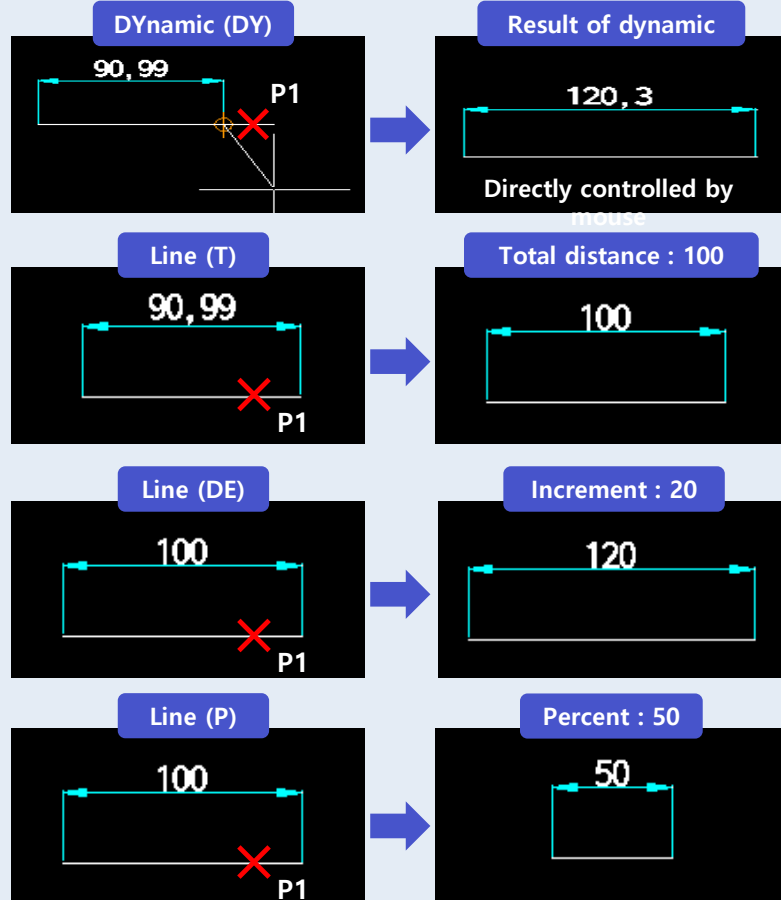
- The node snap must be checked in osnap.

- The point display can be changed in the dialog box.

Lengthen

command : len (Lengthen)

Lengthen Basic principle



Execution Process

*. lengthen.dwg File OPEN

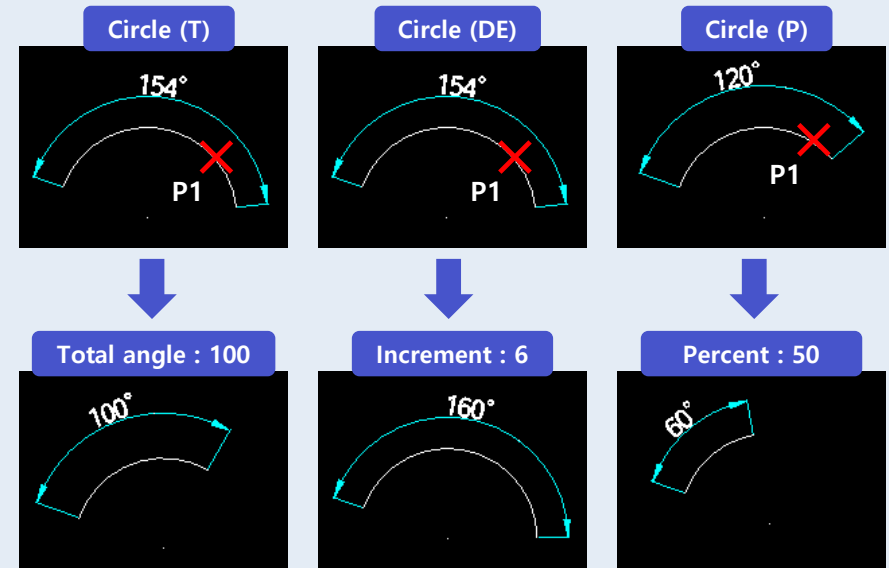
1. "command : "len input and SPACE

2. "Edit length: ~ length>" t input and SPACE
(Dynamic/Delta/Percent/Total)

3. "~total length(Actual length)>:" value input and SPACE

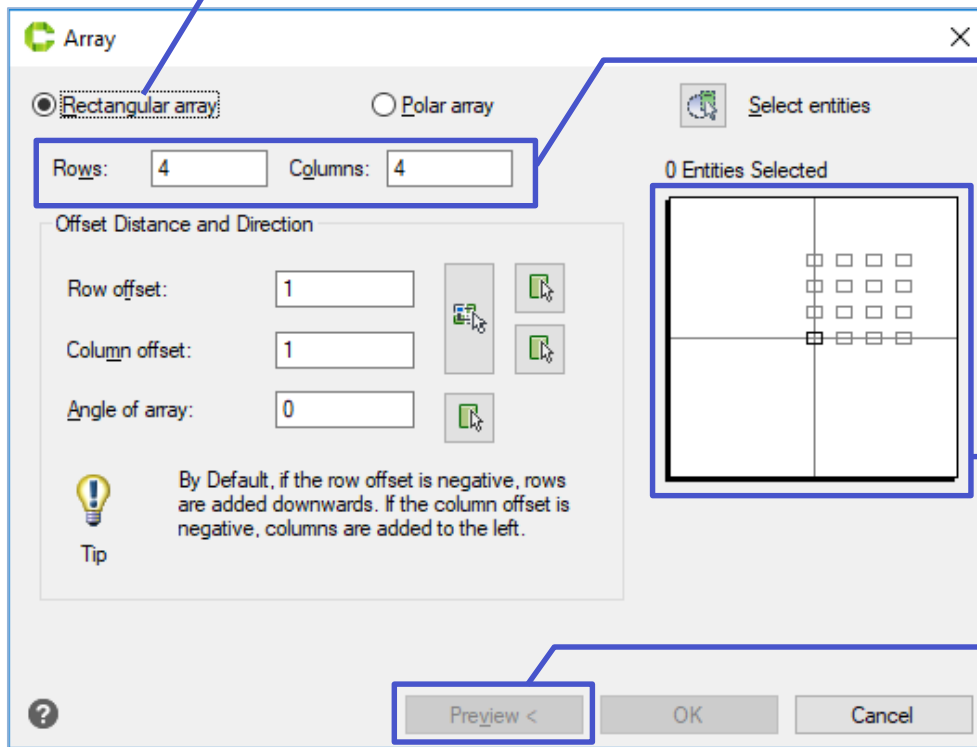
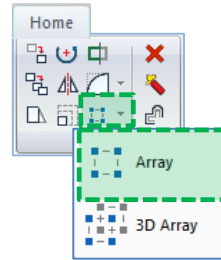
4. "~<entity to change>:" P1 Click and SPACE
(Change from center to selected direction)

Lengthen (Angle) Basic principle



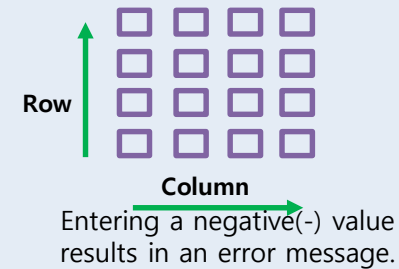
ARRAY (RECTANGLE) -1

command : ar (Array)



Array type (Rectangle)

Rows / Columns



Array preview

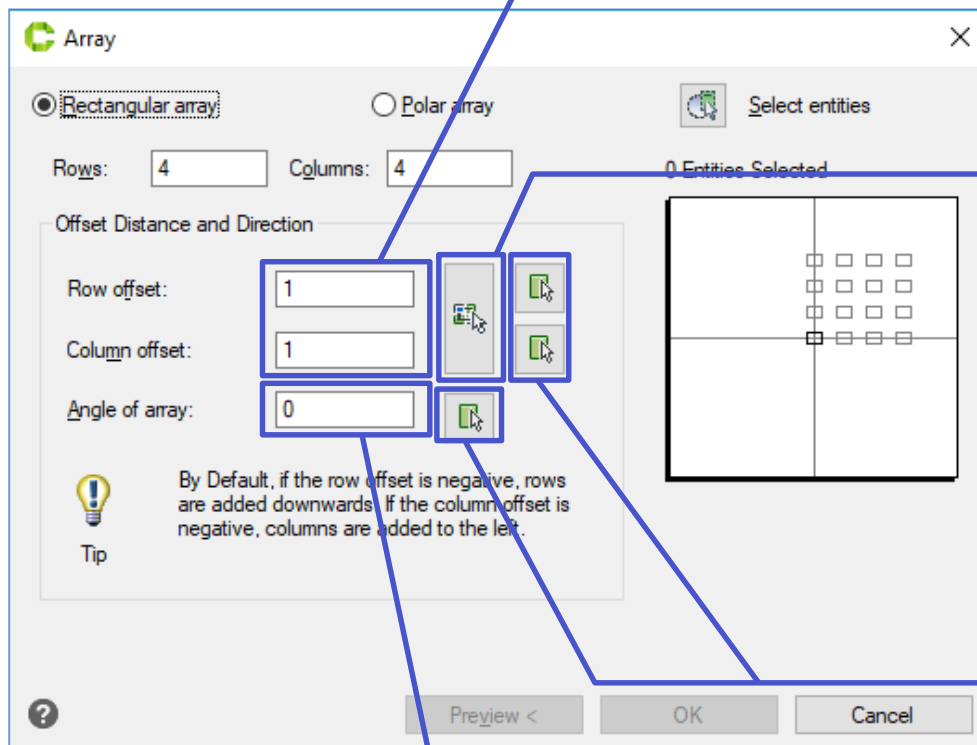
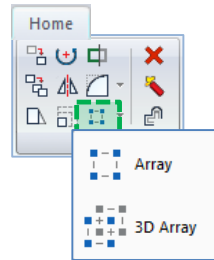
Show rows and columns when you input.

Preview

Set the distance and preview on the model.

ARRAY (RECTANGLE) -2

command : ar (Array)

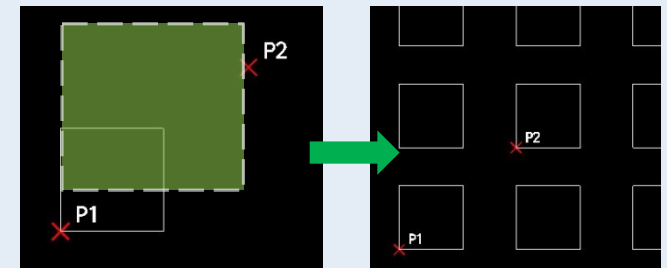


Enter row and column distance values

If you input a negative value, offset is performed in the opposite direction.

Select rows and columns at once

Select the distance between the row and column directly in the model.



COMMON (Each Item)

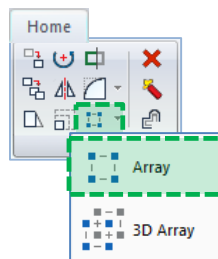


Specify the distance directly from the model

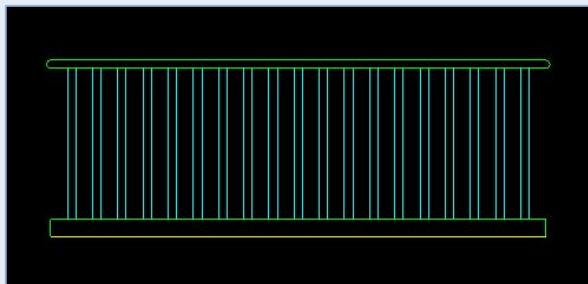
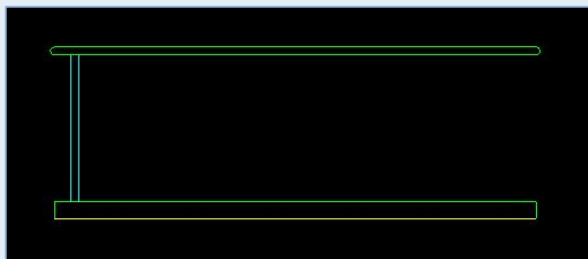
Enter the array angle

ARRAY (RECTANGLE) -3

command : ar (Array)



Drawing Balcony



Dialog Settings

Rows: 1 Columns: 19

Offset Distance and Direction

Row offset: 1

Column offset: 150

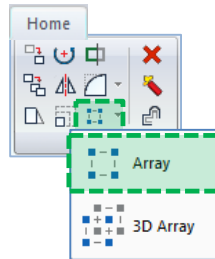
Angle of array: 0

Pipes 19EA

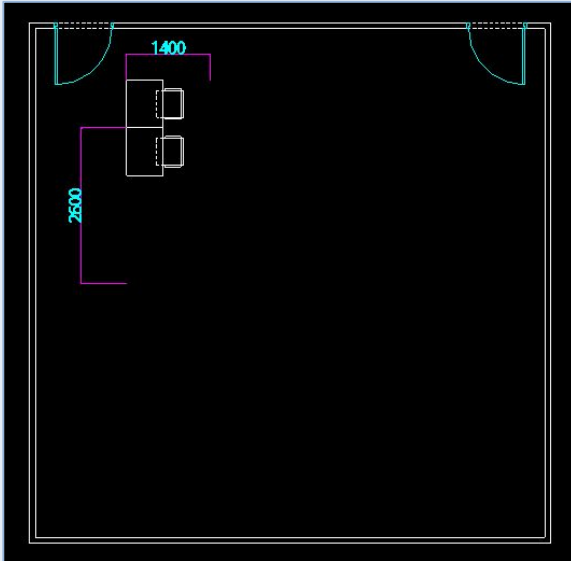
Offset by 150

ARRAY (RECTANGLE) -4

command : ar (Array)



Arrange the desk in
3 rows and 4 columns



Dialog Settings

Rows: 3 Columns: 4

Offset Distance and Direction

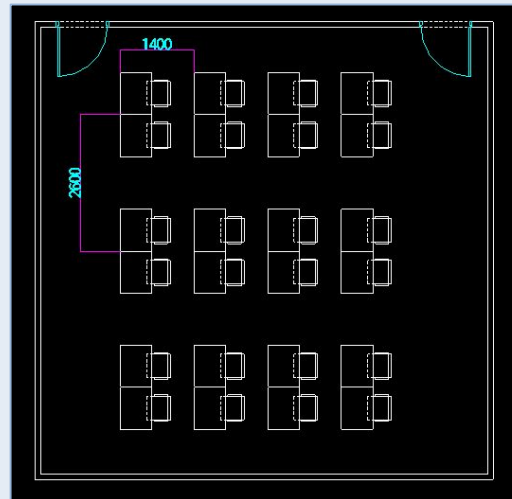
Row offset: -2600

Column offset: 1400

Angle of array: 0

Enter a negative value
because
you need to array down
in the drawing.

NOTE

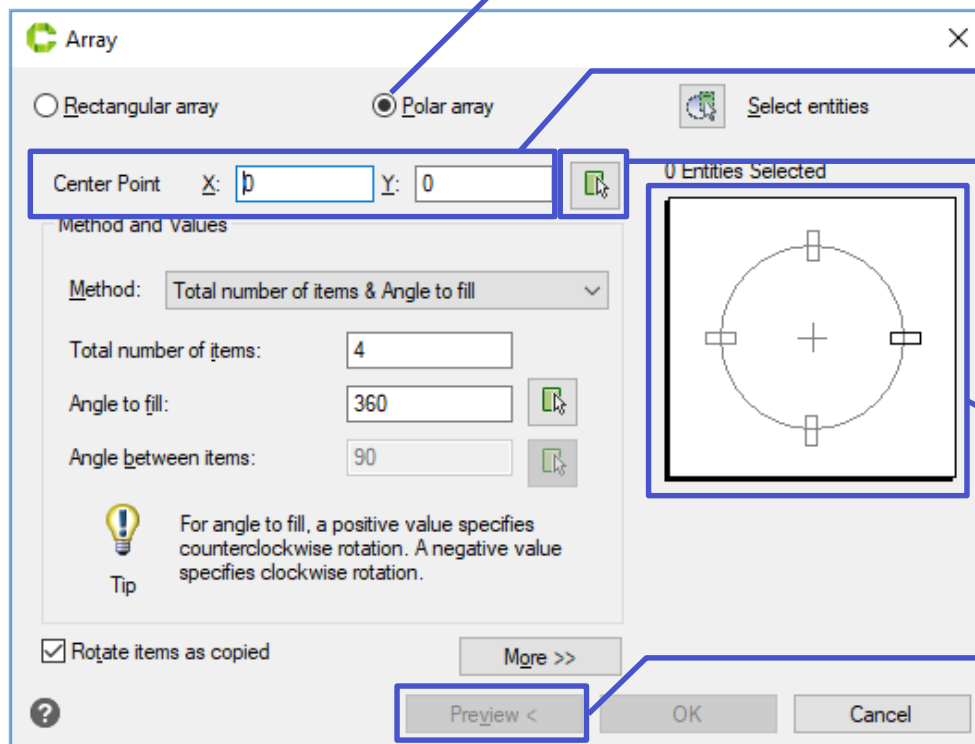
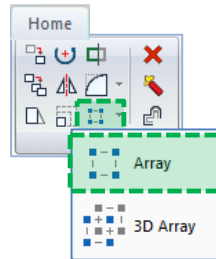


This can be done with
COPY or MIRROR.

However, if you know the
distance and the number,
you can work with ARRAY at once.

ARRAY (POLAR) -1

command : ar (Array)



Array type (Polar)

Center Point

COMMON (Each Item)



Specify the center point directly from the model

Array preview

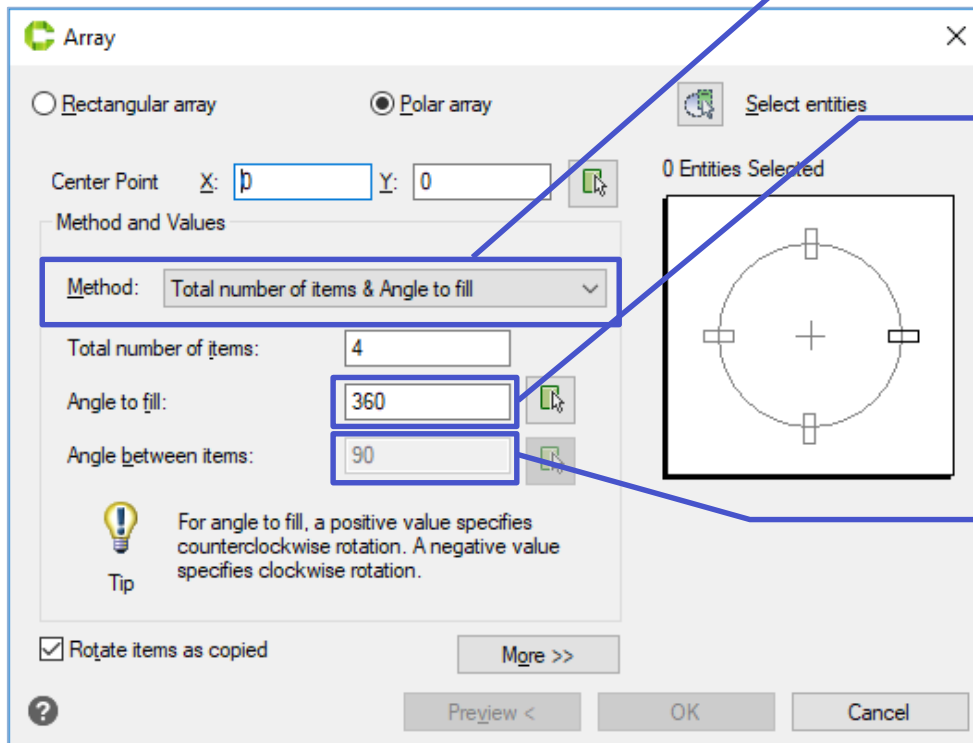
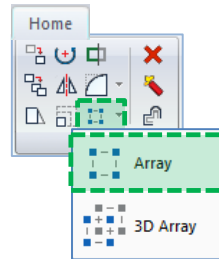
Show the results of each item when entered.

Preview

Set the each item and preview on the model.

ARRAY (POLAR) -1

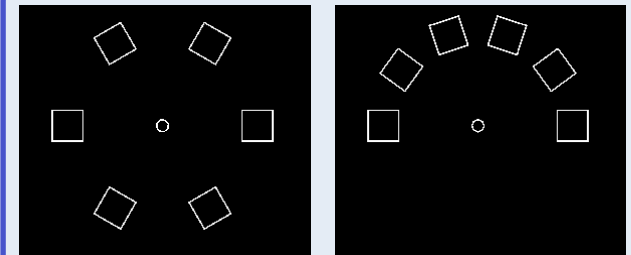
command : ar (Array)



Polar array method

Total number of items & Angle to fill
Total number of items & Angle to fill
Total number of items & Angle between items
Angle to fill & Angle between items

Angle to fill (extent)

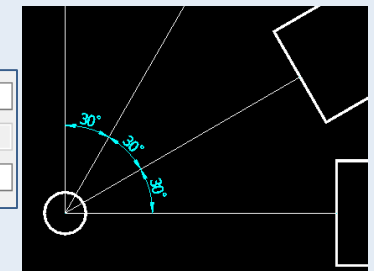


360도

180도

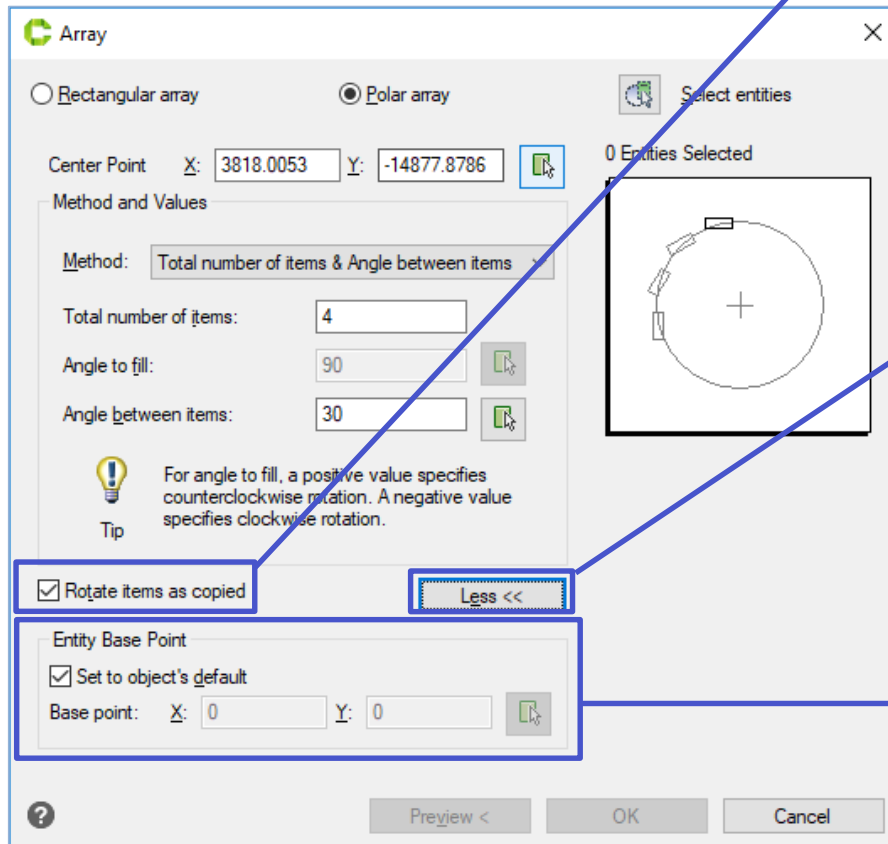
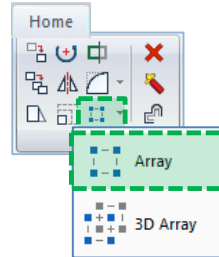
Angle between items

Total number of items: 4
Angle to fill: 90
Angle between items: 30

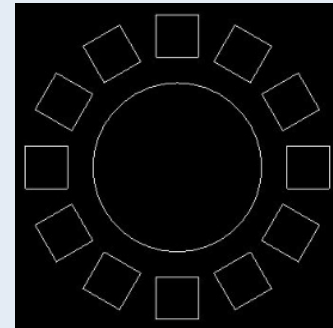


ARRAY (POLAR) -2

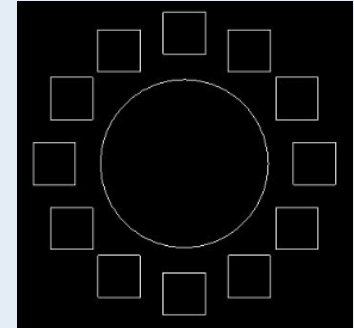
command : ar (Array)



Rotate items as copies



check

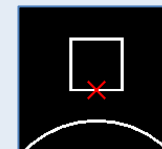


Uncheck

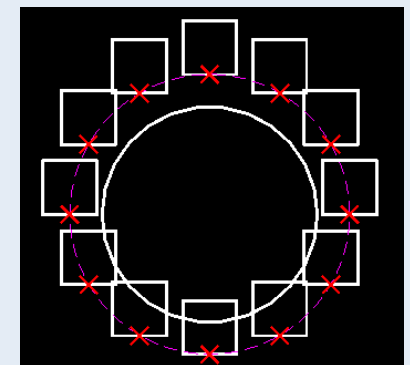
Expand menu



Entity base point to rotate



Click red point

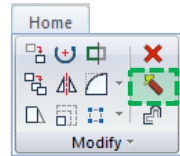


Only uncheck "Rotate items as copies"

It's not a popular feature, so just know how to use it.

Explode

command : x (explode)



Command: x
_EXPLODE
Select objects to explode:
Opposite corner:
1 found
Select objects to explode:
1 found

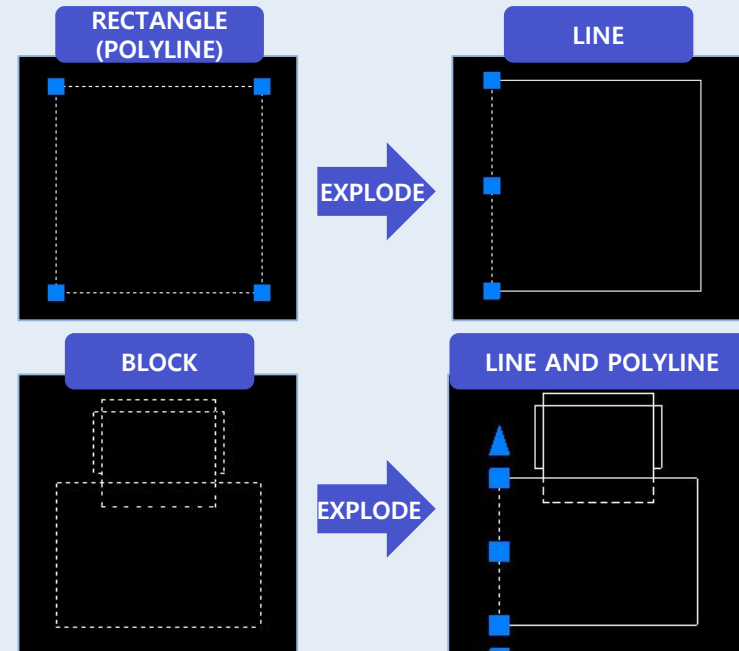
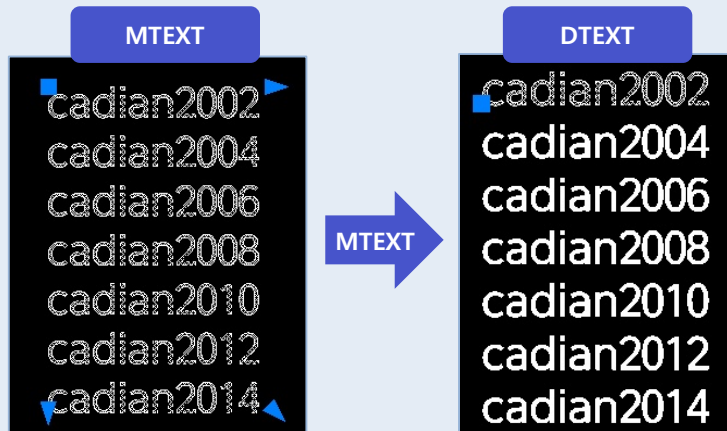
Execution Process

*. explode.dwg File OPEN

1. "command : "x input and SPACE

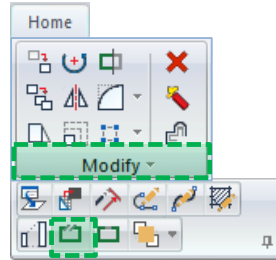
2. "Select objects to explode :"
Entity to explode Select and SPACE

EXPLODE Basic principle



Break

command : br (break)



Command: BR
_BREAK
Select entity to break:
First break point/<Second break point>:

Command: BR
_BREAK
Select entity to break:
First break point/<Second break point>: f
First break point:
Second break point:

BREAK Basic principle

Basic principle

The point you clicked to select the object
=
First break point

Break directly (F)

P1 P2

Execution Process

1. "command : "br input and SPACE
2. "First break point/ <Second break point>: "
P1 Select and SPACE

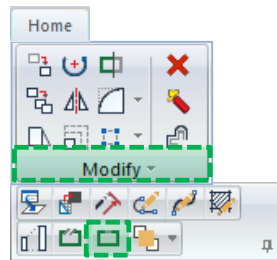
Break directly

1. "command : "br input and SPACE
2. "First break point/ <Second break point>: "
f Select and SPACE
3. "First break point : "P1 Select and SPACE
4. "Second break point : "P2 Select and SPACE

Join

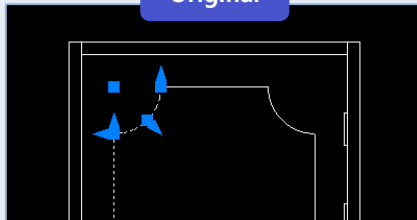
command : j (join)

Command: j
_JOIN
Select source object:
Opposite corner:
Select entities:
0 lines joined to source, 3 objects discarded from operation
3 segments added to polyline, 1 object discarded from operation

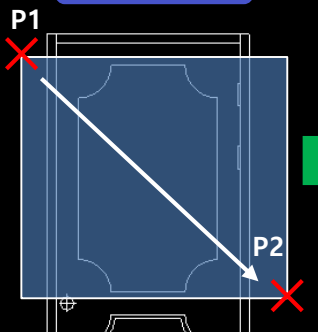


BREAK Basic principle

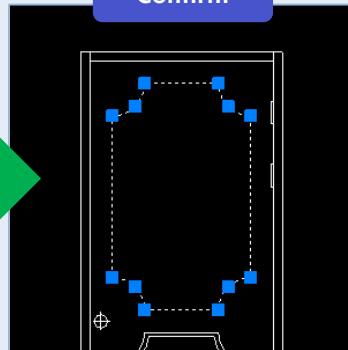
Original



JOIN execute



Confirm



Execution Process

1. "command : "j" input and SPACE
2. "Select source object:" P1 CLICK
3. "opposite corner:" P2 CLICK
4. "Select entities:" SPACE

NOTE

-. Only possible when entities are connected