



Building Technology III

New York City College of Technology

Autocad 2014 : Lesson 02

Zoning Studies

3D Modeling and using Flatshot

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<http://professorpaulking.wordpress.com/>

<http://students.autodesk.com/>

Lesson 02

Zoning Sheets

Assignment

- Sample 1
- Sample 2
- Sample 3
- Sample 4

- Autocad
3D Modeling
- Extrude 2D to 3D
 - Standard 3D Views
 - Vpoint 1,2,3
 - Solids & Boolean Operations

FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

- Grid and Snap Settings

Wrap up

Assignment



NEW YORK CITY
COLLEGE OF TECHNOLOGY
THE CITY UNIVERSITY OF NEW YORK

DEPARTMENT OF ARCHITECTURAL TECHNOLOGY

ARCH 2330 BUILDING TECHNOLOGY III

Assignment Name: Site Plan & Zoning Diagram

Computer Program(s): AutoCAD, Revit, Web Browser and Blackboard

Student Learning Objectives:

Upon successful completion of this assignment, the student will:

- Develop an understanding of NYC zoning codes and be able to interpret for a specific location.
- Construct scaled site plan showing block and lot site and format on Titleblock.
- Construct scaled Isometric drawing showing zoning

Student Skills Learning Objectives: (AutoCAD)

Upon successful completion of this assignment, the student will:

- Be able to draw an isometric line drawing using isometric grids
- Be able to draw an isometric 3d model
- Be able to add annotation and dimensions
- Understand the use of Paperspace/Modelspace and External References
- Under the use of layers, lineweights and linetypes
- Understand the use of variables including LTscale & PSLIScale

Assessment:

To evaluate the student's achievement of the learning objectives, the professor will do the following:

- Evaluate the student's site plan and zoning diagrams drawings
- Evaluate the student's use of annotation including drawing titles, notes and dimensions.
- Evaluate the student's understanding and correct interpretation of relevant zoning regulations.
- Drawing will be evaluated on its own and as part of the AutoCAD drawing set submission.

Project Description:

Students will develop a zoning study for the project site incorporating factors including but not limited to CSR, FAR, Setbacks, Sky Exposure Plane, Street wall requirements, available bonuses, use/type, etc. Students will be required to read and identify NYC Zoning code and determine what is relevant to the project and will produce an accurate zoning sheet for their drawing set.

Process:

- Locate Site using Oasisnyc.net
- Locate all relevant zoning related resources at NYC.gov. Site all sources (ie. ZR 33-12.3)
- Complete all necessary calculations.
- Produce Zoning sheet including site plan (1:20 or 1:30), Isometric Zoning Diagrams, sections and notes
- Keep all relevant sections of the zoning code in your teams' project binder.
- Post completed sheet as a pdf and as a drawing file by the assigned deadline & add description.

References:

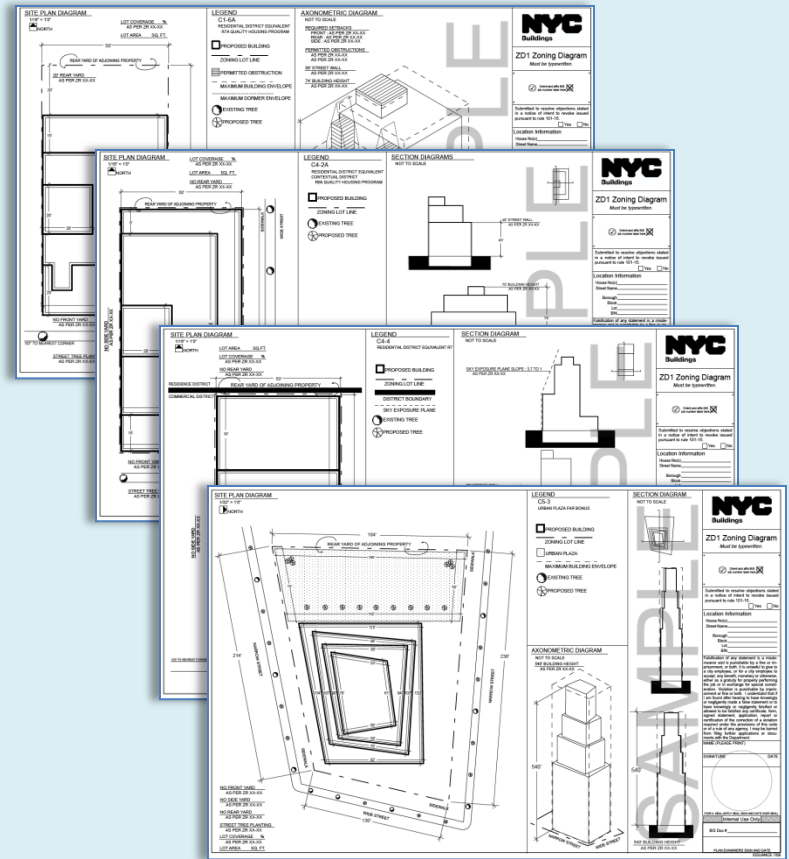
- NYC Zoning <http://www.nyc.gov/html/dcp/html/subcats/zoning.shtml>
- Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
- Oasis NYC Maps <http://oasisnyc.net/map.aspx>

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References:

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- Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
- Oasis NYC Maps <http://oasisnyc.net/map.aspx>



<p>SITE PLAN DIAGRAM</p> <p>1/16" = 10'</p> <p>NORTH</p> <p>LOT COVERAGE % AS PER ZR XX-XX</p> <p>LOT AREA SQ. FT.</p> <p>REAR YARD OF ADJOINING PROPERTY</p> <p>20' REAR YARD AS PER ZR XX-XX</p> <p>NO SIDE YARD AS PER ZR XX-XX</p> <p>NO FRONT YARD AS PER ZR XX-XX</p> <p>STREET TREE PLANTING AS PER ZR XX-XX</p> <p>107' TO NEAREST CORNER</p> <p>78' TO NEAREST CORNER</p> <p>NARROW STREET</p>	<p>LEGEND</p> <p>C1-6A RESIDENTIAL DISTRICT EQUIVALENT R7A QUALITY HOUSING PROGRAM</p> <p>PROPOSED BUILDING</p> <p>ZONING LOT LINE</p> <p>PERMITTED OBSTRUCTION</p> <p>MAXIMUM BUILDING ENVELOPE</p> <p>MAXIMUM DORMER ENVELOPE</p> <p>EXISTING TREE</p> <p>PROPOSED TREE</p>	<p>AXONOMETRIC DIAGRAM</p> <p>NOT TO SCALE</p> <p>REQUIRED SETBACKS FRONT : AS PER ZR XX-XX REAR : AS PER ZR XX-XX SIDE : AS PER ZR XX-XX</p> <p>PERMITTED OBSTRUCTIONS AS PER ZR XX-XX AS PER ZR XX-XX</p> <p>56' STREET WALL AS PER ZR XX-XX</p> <p>74' BUILDING HEIGHT AS PER ZR XX-XX</p> <p>NARROW STREET</p>
<p>SECTION DIAGRAM</p> <p>NOT TO SCALE</p> <p>56' STREET WALL AS PER ZR XX-XX</p> <p>74' BUILDING HEIGHT AS PER ZR XX-XX</p>		
<p>NYC Buildings</p> <p>ZD1 Zoning Diagram</p> <p>Must be typewritten.</p> <p>Orient and affix BIS job number label here</p> <p>Submitted to resolve objections stated in a notice of intent to revoke issued pursuant to rule 101-15.</p> <p>Yes No</p> <p>Location Information</p> <p>House No(s) _____</p> <p>Street Name _____</p> <p>Borough _____</p> <p>Block _____</p> <p>Lot _____</p> <p>BIN _____</p> <p>Falsification of any statement is a misdemeanor and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both. I understand that if I am found after hearing to have knowingly or negligently made a false statement or to have knowingly or negligently falsified or allowed to be falsified any certificate, form, signed statement, application, report or certification of the correction of a violation required under the provisions of this code or of a rule of any agency, I may be barred from filing further applications or documents with the Department.</p> <p>NAME (PLEASE PRINT) _____</p> <p>SIGNATURE _____ DATE _____</p> <p>P.B.R.A. SEAL (APPLY SEAL, SIGN AND DATE OVER SEAL)</p> <p>Internal Use Only</p> <p>BIS Doc # _____</p> <p>PLAN EXAMINERS SIGN AND DATE _____ ISSUANCE _____</p>		

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- FLATSHOT
- 3D to 2D dwgs
 - Insert & Rename
 - Scale Blocks

- 2D ISOMETRIC
- Grid and Snap Settings

Wrap up

Sample 2

References:

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2. Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
3. Oasis NYC Maps <http://oasisnyc.net/map.aspx>

SITE PLAN DIAGRAM
1/16" = 10'

LOT COVERAGE %
AS PER ZR XX-XX

LOT AREA SQ. FT.
NO REAR YARD
AS PER ZR XX-XX

REAR YARD OF ADJOINING PROPERTY

NO SIDE YARD
AS PER ZR XX-XX

NO FRONT YARD
AS PER ZR XX-XX

STREET TREE PLANTING
AS PER ZR XX-XX

WIDE STREET

NARROW STREET

SIDEWALK

PROPOSED BUILDING

EXISTING TREE

PROPOSED TREE

ZONING LOT LINE

LEGEND
C4-2A
RESIDENTIAL DISTRICT EQUIVALENT
CONTEXTUAL DISTRICT
R6A QUALITY HOUSING PROGRAM

☐ PROPOSED BUILDING

☐ EXISTING TREE

☐ PROPOSED TREE

ZONING LOT LINE

SECTION DIAGRAMS
NOT TO SCALE

40' STREET WALL
AS PER ZR XX-XX

70' BUILDING HEIGHT
AS PER ZR XX-XX

AXONOMETRIC DIAGRAM
NOT TO SCALE

REQUIRED SETBACKS
FRONT : AS PER ZR XX-XX
REAR : AS PER ZR XX-XX
SIDE : AS PER ZR XX-XX

40' STREET WALL
AS PER ZR XX-XX

70' BUILDING HEIGHT
AS PER ZR XX-XX

NYC Buildings

ZD1 Zoning Diagram
Must be typewritten.

☒ Orient and affix BIS job number label here ☐

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☐ Yes ☐ No

Location Information
House No(s) _____
Street Name _____
Borough _____
Block _____
Lot _____
BIN _____

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ISSUANCE 7/09

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2D ISOMETRIC

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Wrap up

Sample 3

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3. Oasis NYC Maps <http://oasisnyc.net/map.aspx>

SITE PLAN DIAGRAM
1/16" = 1'0"

NORTH

LOT AREA SQ. FT.
LOT COVERAGE %
AS PER ZR XX-XX

NO REAR YARD
AS PER ZR XX-XX

50'

REAR YARD OF ADJOINING PROPERTY

RESIDENCE DISTRICT

COMMERCIAL DISTRICT

30'

100'

100'

42'

20'

20'

NO SIDE YARD
AS PER ZR XX-XX

NO FRONT YARD
AS PER ZR XX-XX

SIDEWALK

230' TO NEAREST CORNER

SEE TO NEAREST CORNER

STREET TREE PLANTING
AS PER ZR XX-XX

NARROW STREET

LEGEND
C4-4
RESIDENTIAL DISTRICT EQUIVALENT R7

PROPOSED BUILDING

ZONING LOT LINE

DISTRICT BOUNDARY

SKY EXPOSURE PLANE

EXISTING TREE

PROPOSED TREE

SECTION DIAGRAM
NOT TO SCALE

SKY EXPOSURE PLANE SLOPE : 3.7 TO 1
AS PER ZR XX-XX

60' STREET WALL
AS PER ZR XX-XX

60'

AXONOMETRIC DIAGRAM
NOT TO SCALE

REQUIRED SETBACKS
FRONT : AS PER ZR XX-XX
REAR : AS PER ZR XX-XX
SIDE : AS PER ZR XX-XX

60' STREET WALL
AS PER ZR XX-XX

SKY EXPOSURE PLANE
AS PER ZR XX-XX

20'

30'

23'

60'

NARROW STREET

NYC Buildings

ZD1 Zoning Diagram
Must be typewritten.

Orient and affix BIS job number label here

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☐ Yes ☐ No

Location Information
House No(s) _____
Street Name _____
Borough _____
Block _____
Lot _____
BIN _____

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2D ISOMETRIC

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Wrap up

Sample 4

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2. Zoning Diagram Guide http://www.nyc.gov/html/dob/downloads/pdf/zd1_guide.pdf
3. Oasis NYC Maps <http://oasisnyc.net/map.aspx>

SITE PLAN DIAGRAM
1/32" = 1'0"
NORTH

NO FRONT YARD
AS PER ZR XX-XX
NO SIDE YARD
AS PER ZR XX-XX
NO REAR YARD
AS PER ZR XX-XX
STREET TREE PLANTING
AS PER ZR XX-XX
LOT COVERAGE %
AS PER ZR XX-XX
LOT AREA SQ. FT.

LEGEND
C5-3
URBAN PLAZA FAR BONUS

- PROPOSED BUILDING
- ZONING LOT LINE
- URBAN PLAZA
- MAXIMUM BUILDING ENVELOPE
- EXISTING TREE
- PROPOSED TREE

AXONOMETRIC DIAGRAM
NOT TO SCALE
540' BUILDING HEIGHT
AS PER ZR XX-XX

SECTION DIAGRAM
NOT TO SCALE

NYC Buildings
ZD1 Zoning Diagram
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FLATSHOT

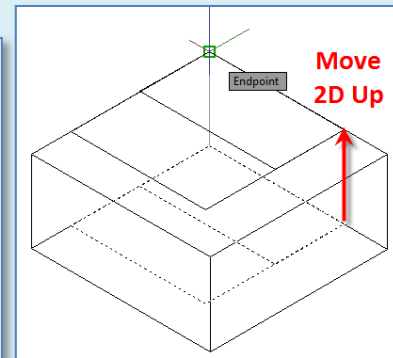
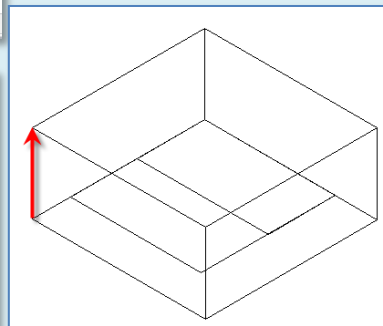
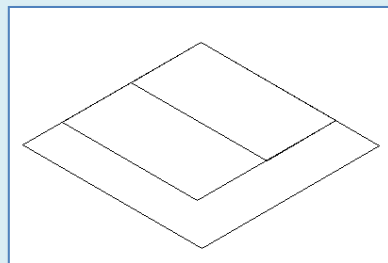
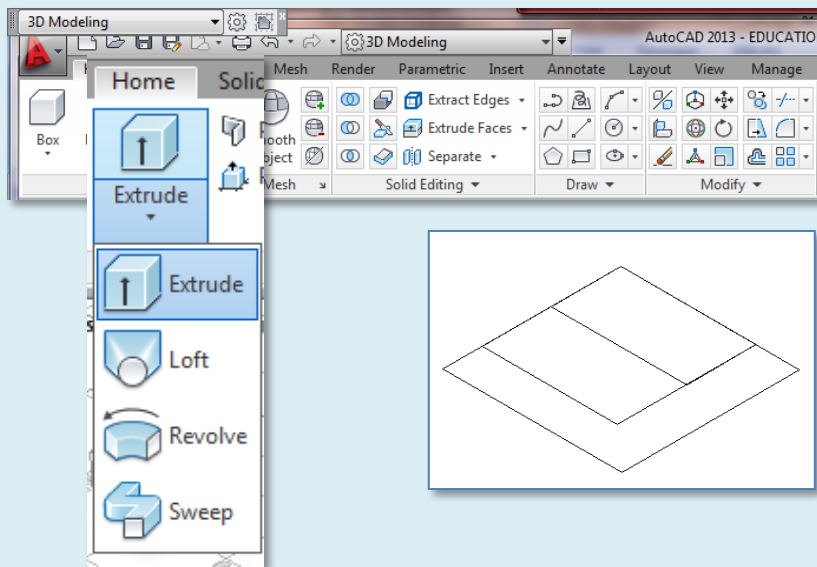
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2D ISOMETRIC

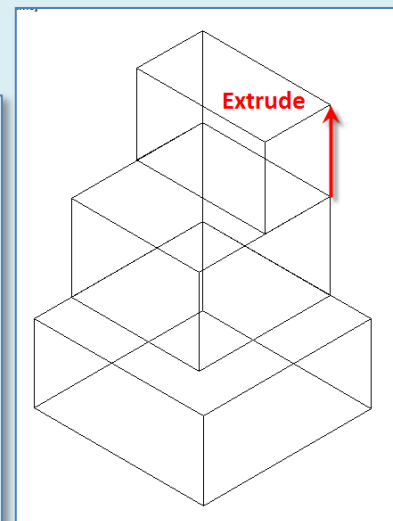
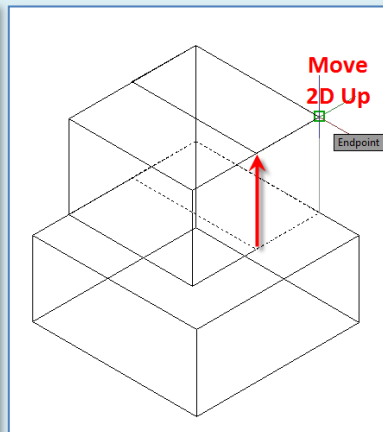
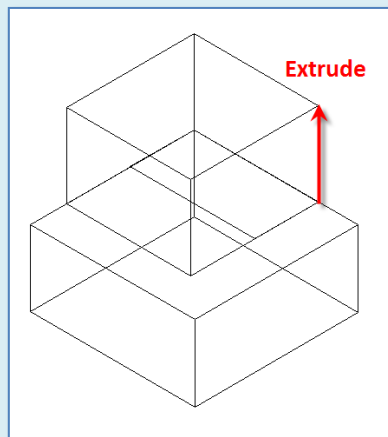
- Grid and Snap Settings

Wrap up

Extrude 2D Geometry to 3D Solids



- Draw 2D
- Extrude
- Move 2D Up
- Repeat Extrude
- Repeat Move



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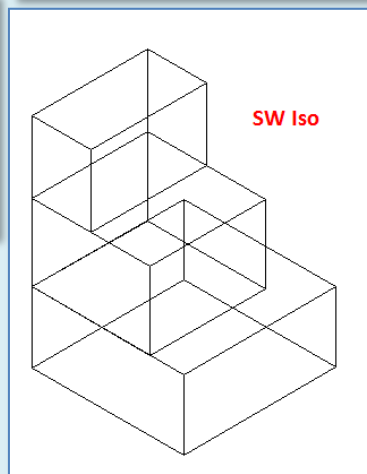
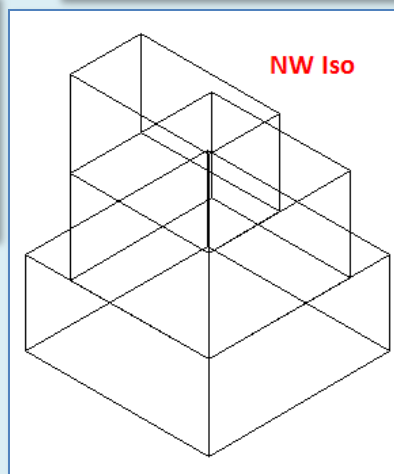
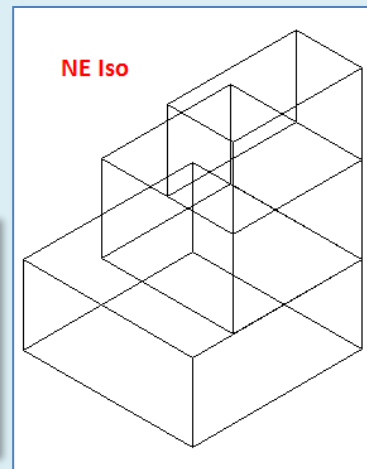
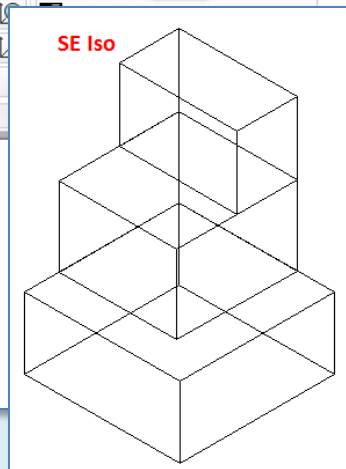
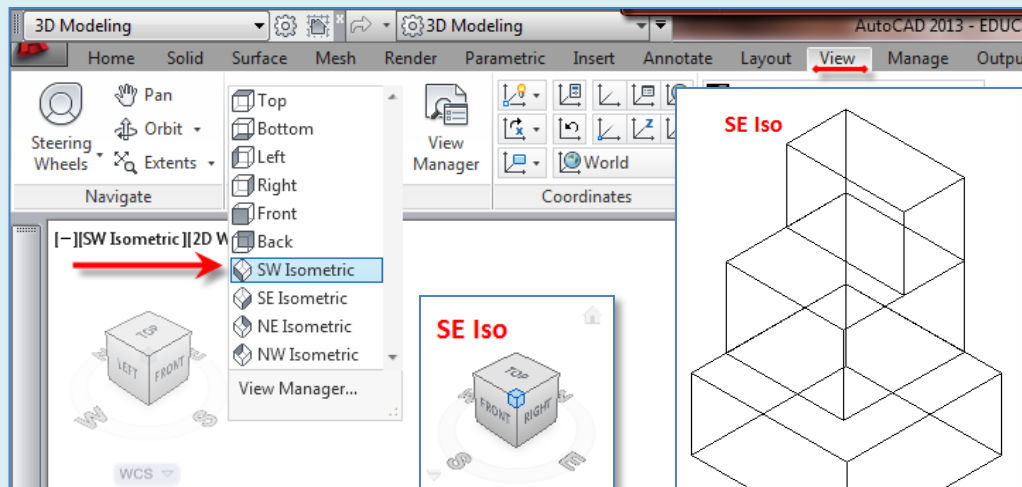
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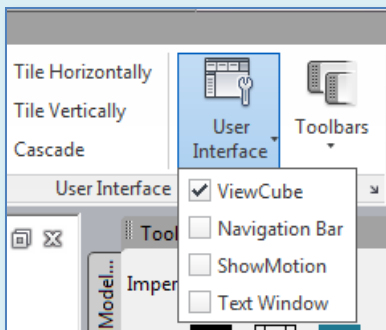
- Grid and Snap Settings

Wrap up

View Menu & Viewcube : Standard Isometric Views



• ViewCube



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Autocad 3D Modeling

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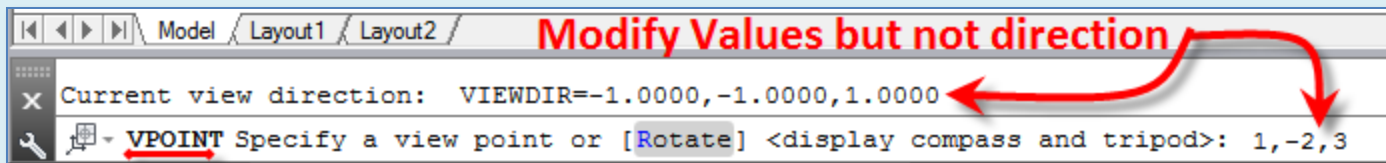
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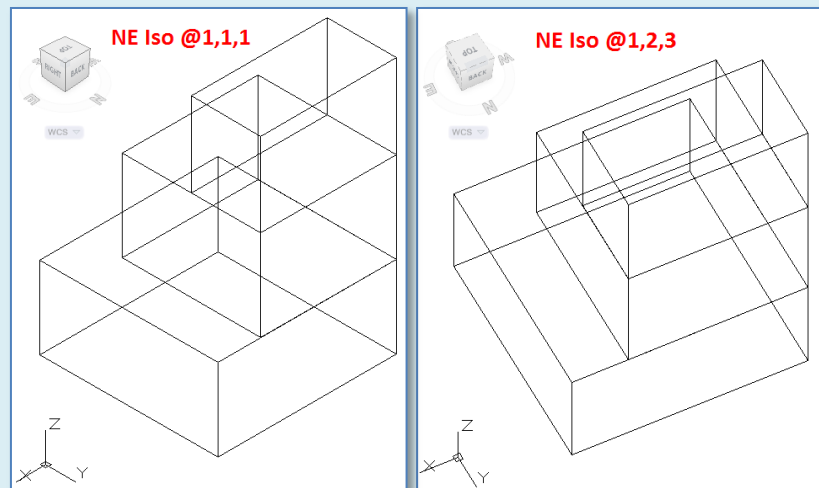
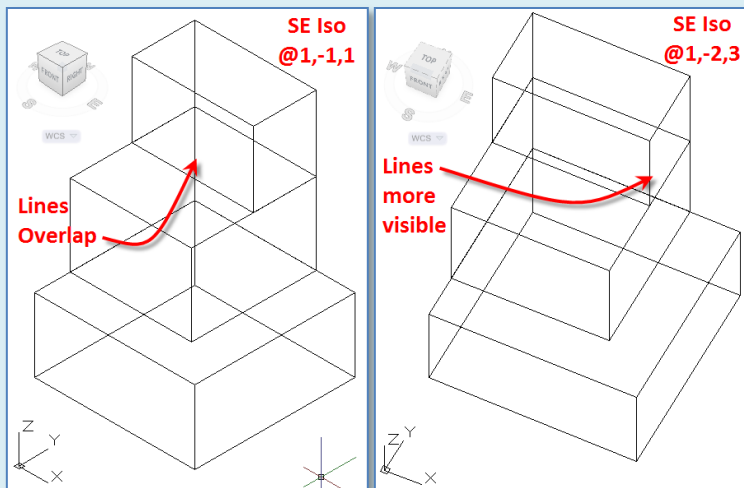
- Grid and Snap Settings

Wrap up

Vpoint Command 1,2,3 X,Y,Z



- SE Isometric
- At the Command Prompt
- Vpoint <1,-1,1> 1,-2,3



- NE Isometric
- At the Command Prompt
- Vpoint <1,1,1> 1,2,3

3D Solids & Boolean Operations : Overview

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Autocad 3D Modeling

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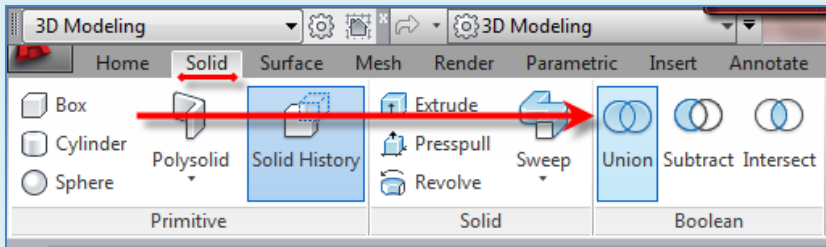
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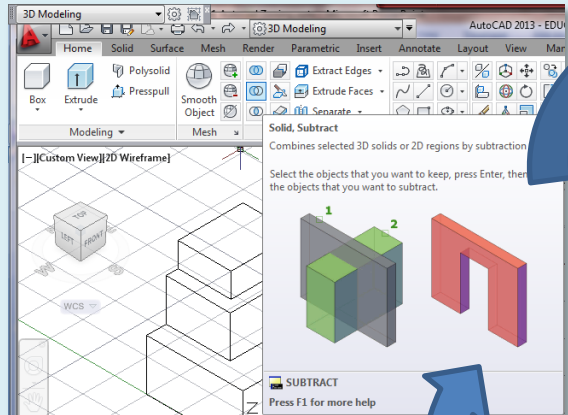
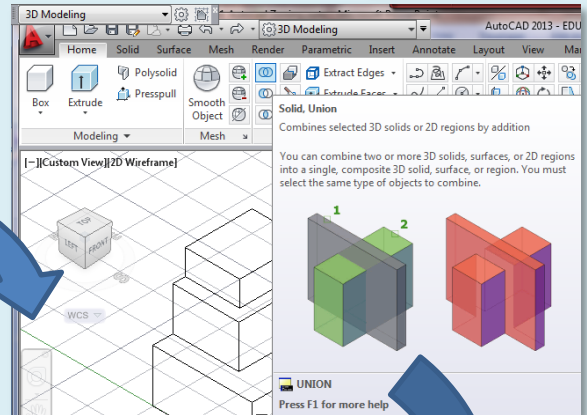
2D ISOMETRIC

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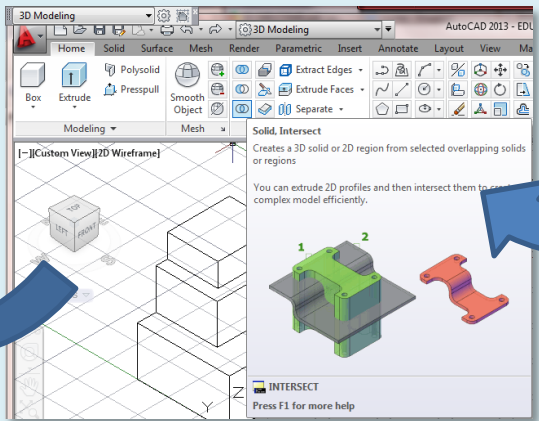
Wrap up



Union



Subtract



Intersect

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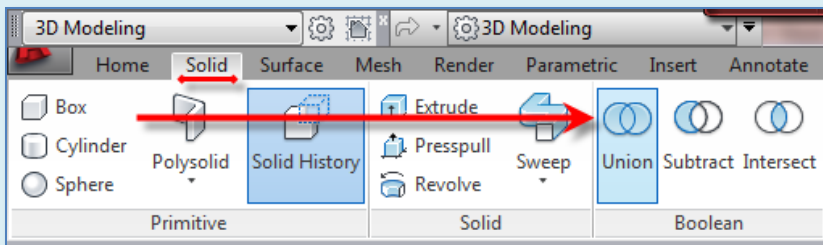
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2D ISOMETRIC

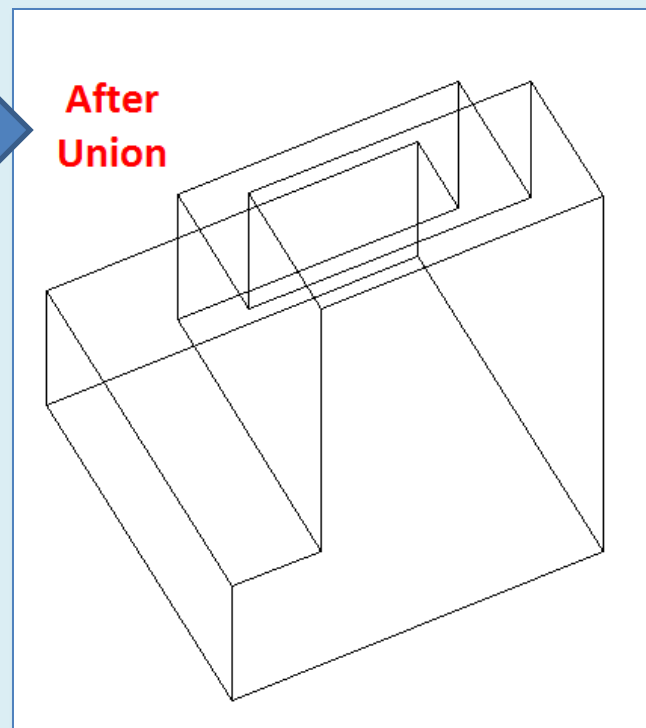
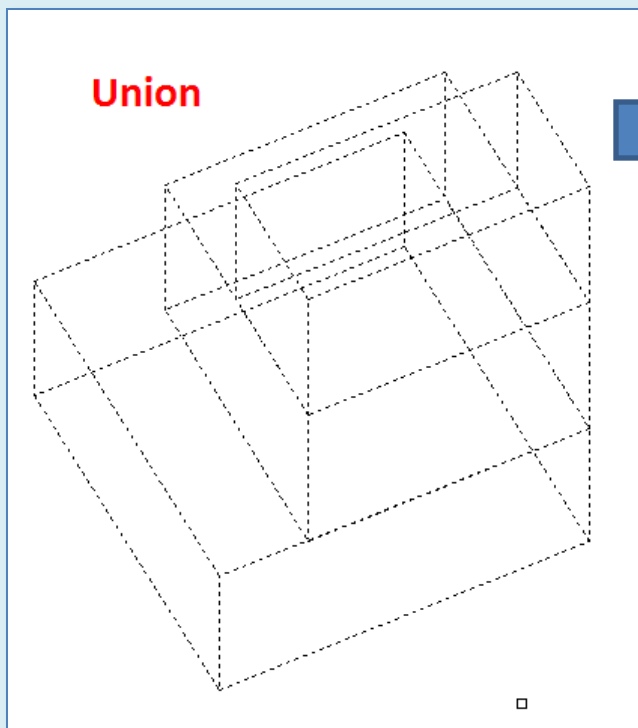
- Grid and Snap Settings

Wrap up

3D Solids & Boolean Operations : Union



- **Solid > Union**
- **Adjacent edges are gone**



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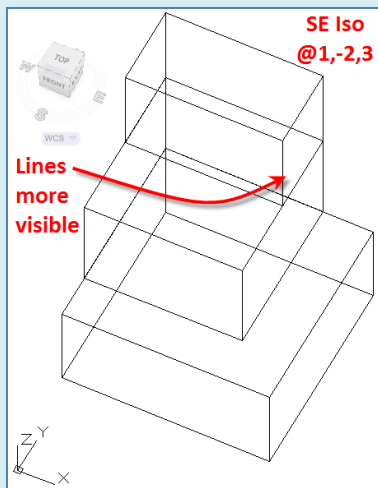
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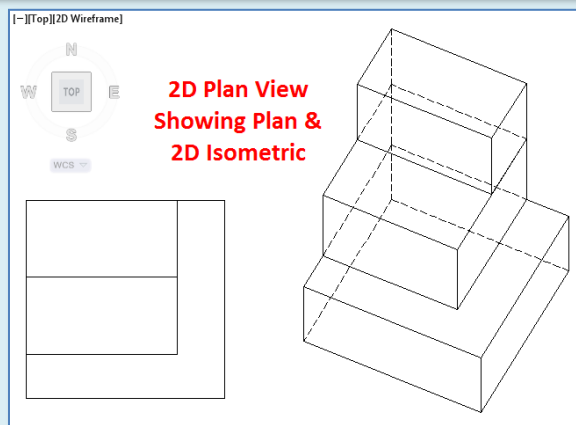
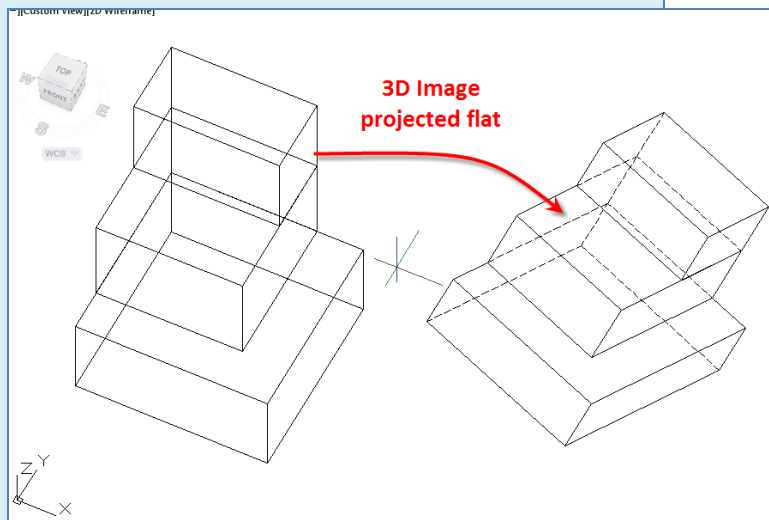
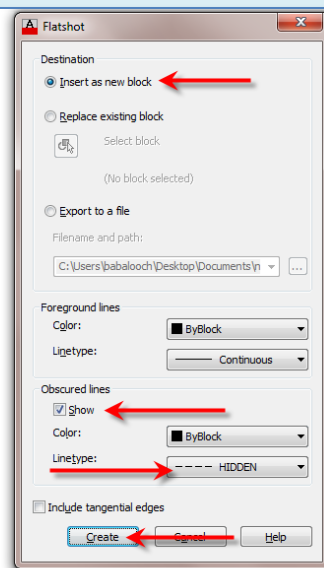
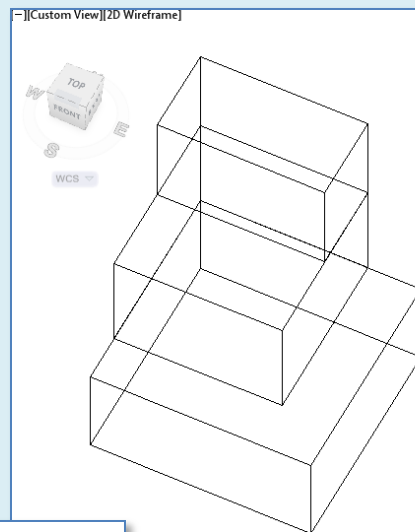
- Grid and Snap Settings

Wrap up

FlatShot : 3D Isometric to 2D Isometric Block



- SE Isometric
- Vpoint 1,-2,3
- Flatshot
- Obscured Lines (Show)
- Linetype (Hidden)
- Create



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Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

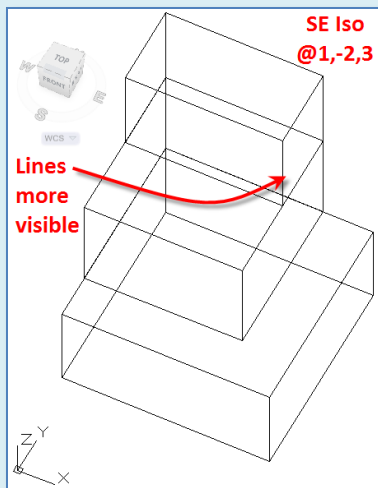
- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

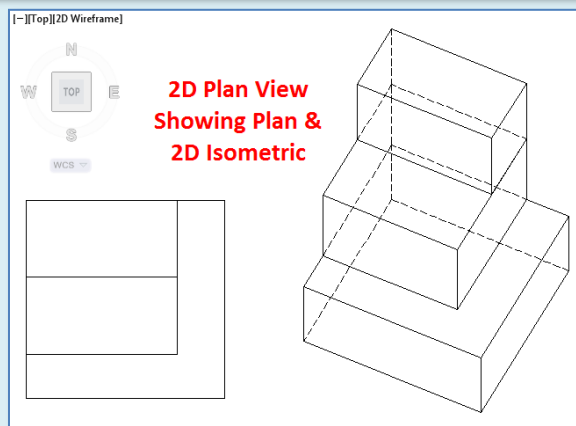
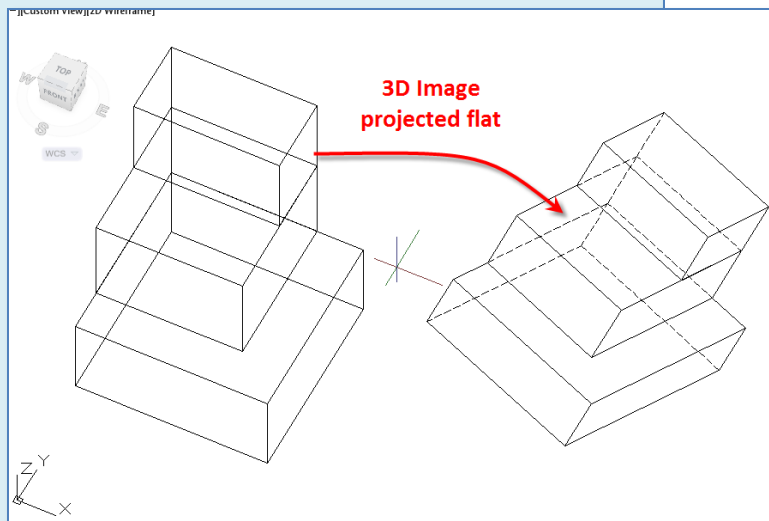
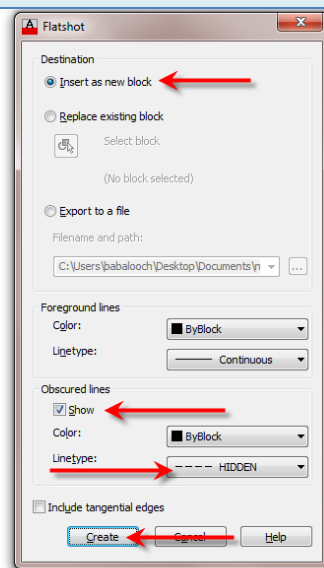
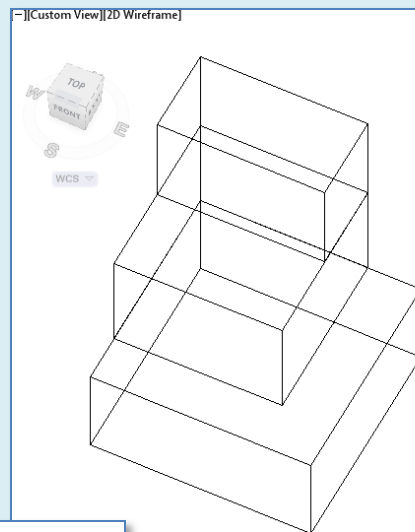
- Grid and Snap Settings

Wrap up

FlatShot : 3D Isometric to 2D Isometric Block



- SE Isometric
- Vpoint 1,-2,3
- Flatshot
- Obscured Lines (Show)
- Linetype (Hidden)
- Create



Lesson 02

Zoning Sheets

- Assignment
- Sample 1
- Sample 2
- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

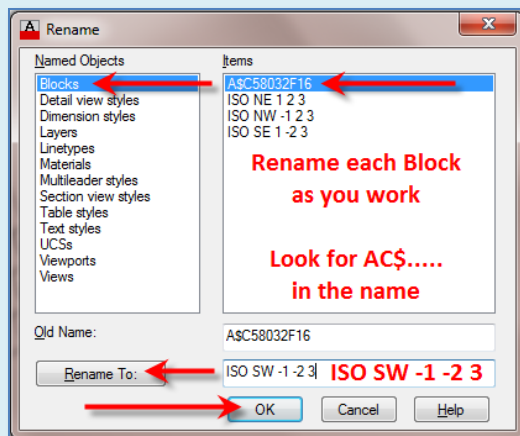
- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

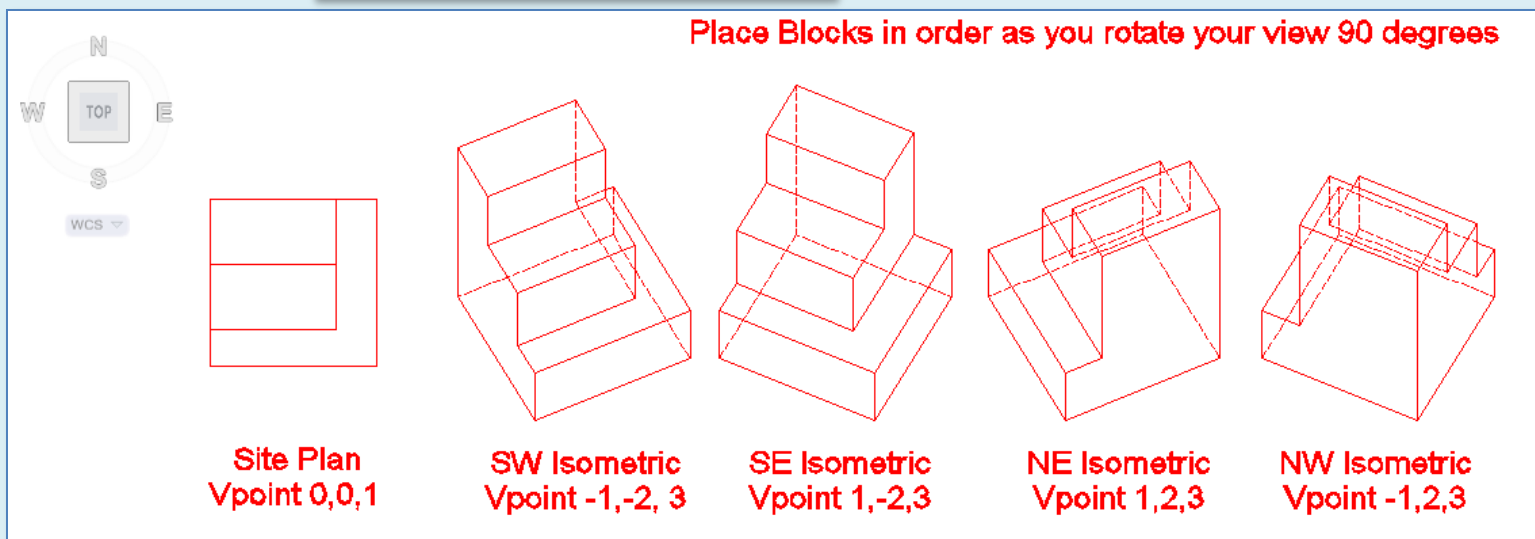
- Grid and Snap Settings

Wrap up

FlatShot : Insert and Rename Blocks



- Plan View
- Insert each as you go
- Place them in order
- Rename that one at a time



Lesson 02

Zoning Sheets

- Assignment
- Sample 1
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- Sample 3
- Sample 4

Autocad 3D Modeling

- Extrude 2D to 3D
- Standard 3D Views
- Vpoint 1,2,3
- Solids & Boolean Operations

FLATSHOT

- 3D to 2D dwgs
- Insert & Rename
- Scale Blocks

2D ISOMETRIC

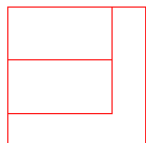
- Grid and Snap Settings

Wrap up

FlatShot : Scale Blocks

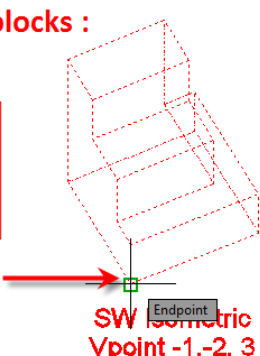
Select all blocks :

Scale



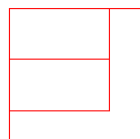
Basepoint

Site Plan
Vpoint 0,0,1



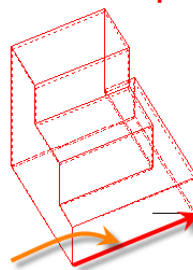
SW Isometric
Vpoint -1,-2, 3

Reference : Endpoint to Endpoint

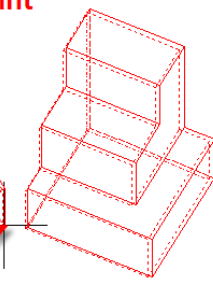


Snap to corners

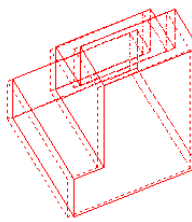
Site Plan
Vpoint 0,0,1



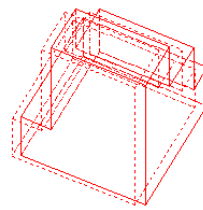
SW Isometric
Vpoint -1,-2, 3



SE Isometric
Vpoint 1,-2,3

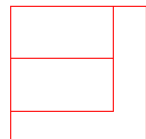


NE Isometric
Vpoint 1,2,3

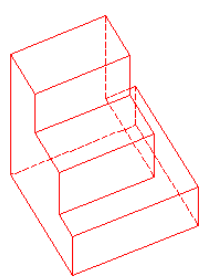


NW Isometric
Vpoint -1,2,3

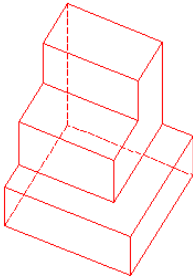
Adjusted to correct scale



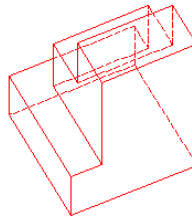
Site Plan
Vpoint 0,0,1



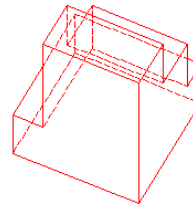
SW Isometric
Vpoint -1,-2, 3



SE Isometric
Vpoint 1,-2,3



NE Isometric
Vpoint 1,2,3



NW Isometric
Vpoint -1,2,3

- Requires known dimension

- Scale
- Select Objects
- Basepoint
- Snap to endpoints
- Enter new length

Lesson 02

Zoning Sheets

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Autocad

3D Modeling

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FLATSHOT

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2D ISOMETRIC

- Grid and Snap Settings

Wrap up

Drafting a 2D Isometric : Setting Grid & Snap

The image illustrates the process of setting up a 2D isometric grid and snap in AutoCAD. It consists of three main parts:

- Top Left:** A screenshot of the AutoCAD interface showing the 'Settings' menu. The 'Settings...' option is highlighted with an orange arrow. The menu also shows 'Enabled', 'Use Icons', and 'Display'.
- Bottom Left:** A 3D isometric drawing of a block. The top face is labeled 'Top', the left face is labeled 'Left Side', and the right face is labeled 'Right Side'. Above the drawing, the text 'F5 or Ctrl+E to Change Orientation' is written in red. A blue arrow points from this drawing towards the 'Drafting Settings' dialog box.
- Right:** The 'Drafting Settings' dialog box is shown with several tabs: 'Snap and Grid', 'Polar Tracking', 'Object Snap', '3D Object Snap', 'Dynamic Input', and 'Quick'. The 'Snap and Grid' tab is active. Annotations include:
 - 'Snap On (F9)' is checked, with an orange arrow pointing to it and the text 'Snap On' in red.
 - 'Grid On (F7)' is checked, with an orange arrow pointing to it and the text '2D Model Space' in red.
 - 'Snap spacing' is set to '0'-0 55/64" for X and '1/2"' for Y. An orange arrow points to the 'Snap X spacing' field with the text 'Isometric Snap' in red.
 - 'Grid style' is set to '2D model space', with an orange arrow pointing to it and the text 'Space' in red.
 - 'Grid spacing' is set to '0'-0 55/64" for X and '1/2"' for Y.
 - 'Major line every' is set to '5'.
 - 'Grid behavior' has 'Adaptive grid' checked.
 - 'Snap type' has 'Isometric snap' selected, with an orange arrow pointing to it and the text 'Isometric Snap' in red.

Lesson 02

Zoning Sheets

- Assignment
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Autocad

3D Modeling

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FLATSHOT

- 3D to 2D dwgs
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2D ISOMETRIC

- Grid and Snap Settings

Wrap up

Lesson 02 – Wrap up

- **Assignment**
- ***Develop isometric zoning diagrams***
- ***Extrude***
- ***Vpoint***
- ***Boolean Operations***
 - ***Union***
 - ***Subtract***
 - ***Intersect***
- ***Flatshot***
 - ***Obscure line – hidden***
 - ***Rename Blocks***
 - ***Scale Blocks accurately***
- ***2D Isometric drawings***
 - ***Grid & Snap***