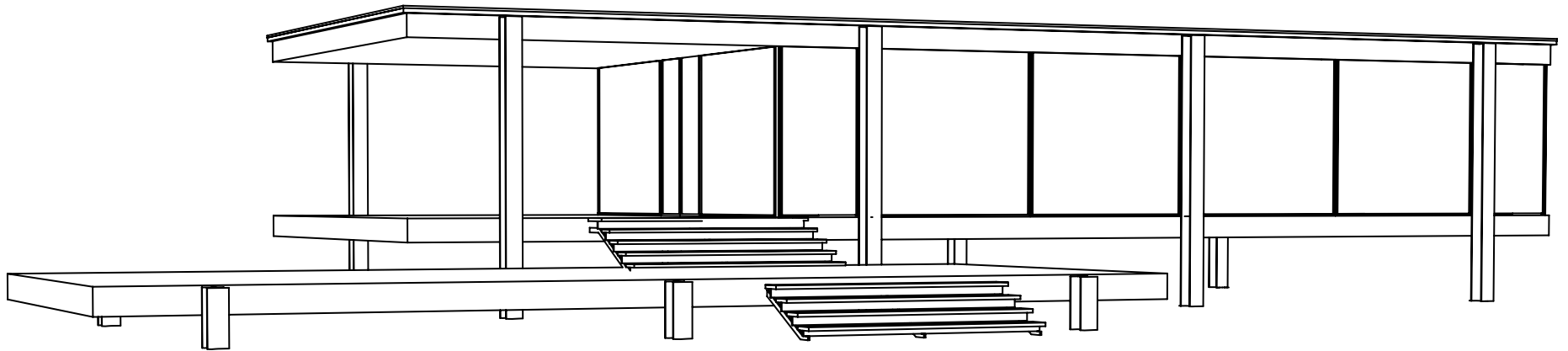


Rhino[®]

Workshop Outline:
Step-by-Step through Three Intro Workshops



Workshop Guides:
Tam Tran
Scott Leinweber

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Based on work at www.digitaltoolbox.info



Outline

September 23, 2009

Interface

Drafting

Beginning to Model

September 30, 2009

Modeling

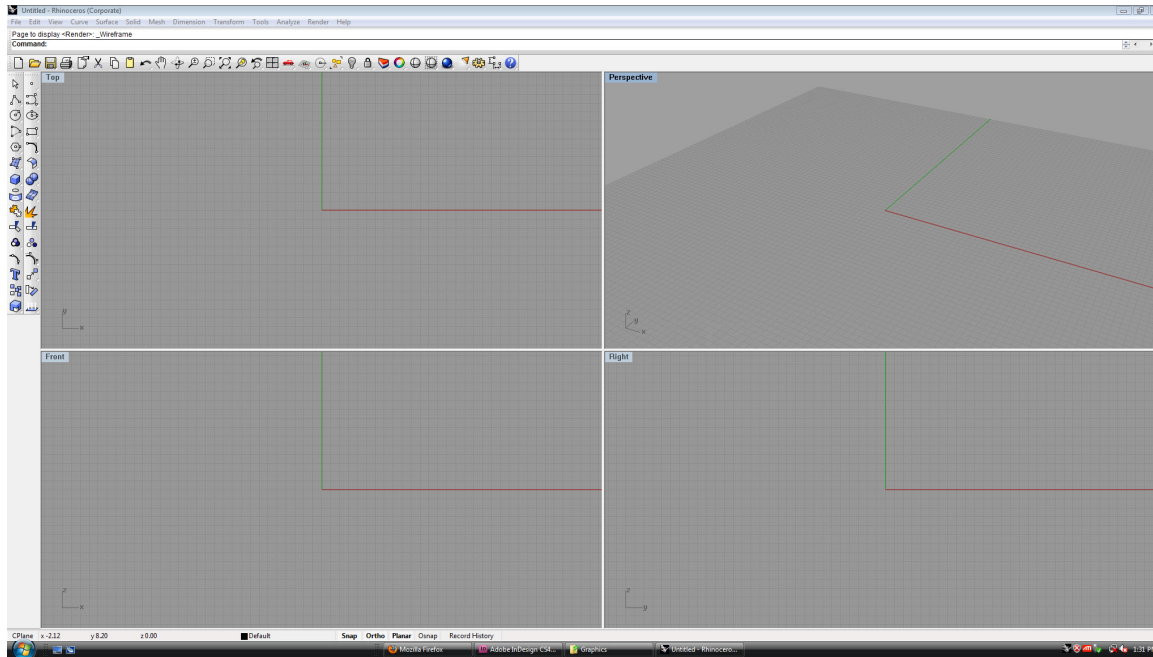
October 7, 2009

Representation

Interface

This is the basic Windows interface for Rhino.

The standard layout is a 4 view-port display under the Standard toolbar and Command Prompt Window.



Command Prompt:

Displays what commands the program has received and what input the command requires.

Standard toolbar:

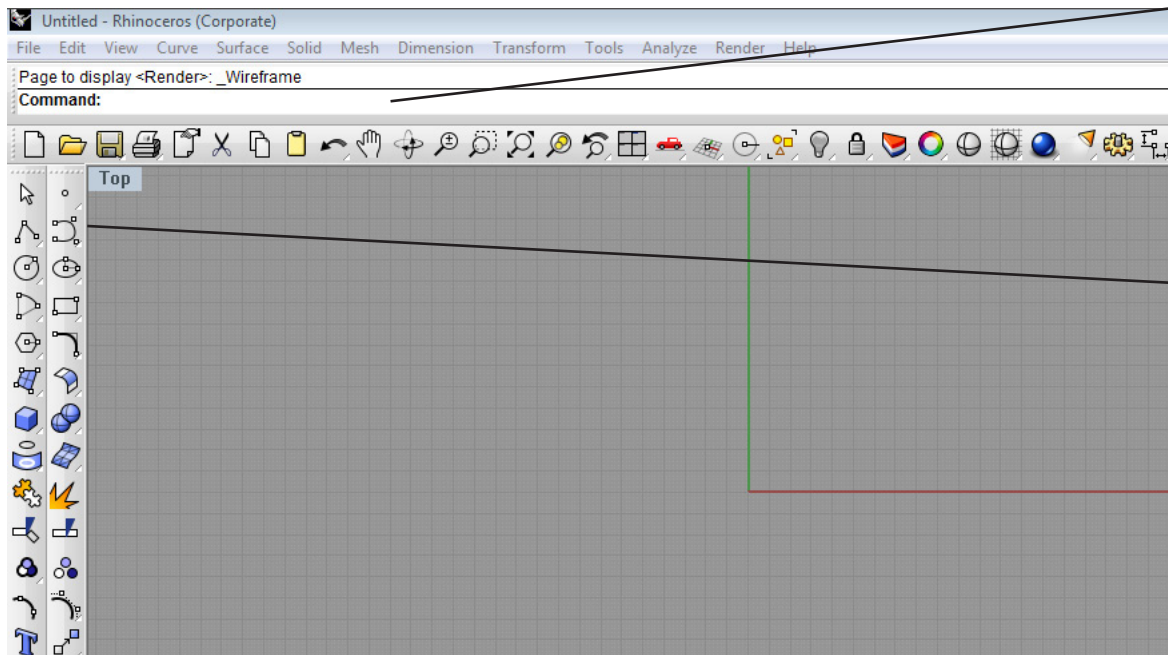
Displays navigational and file management basics.

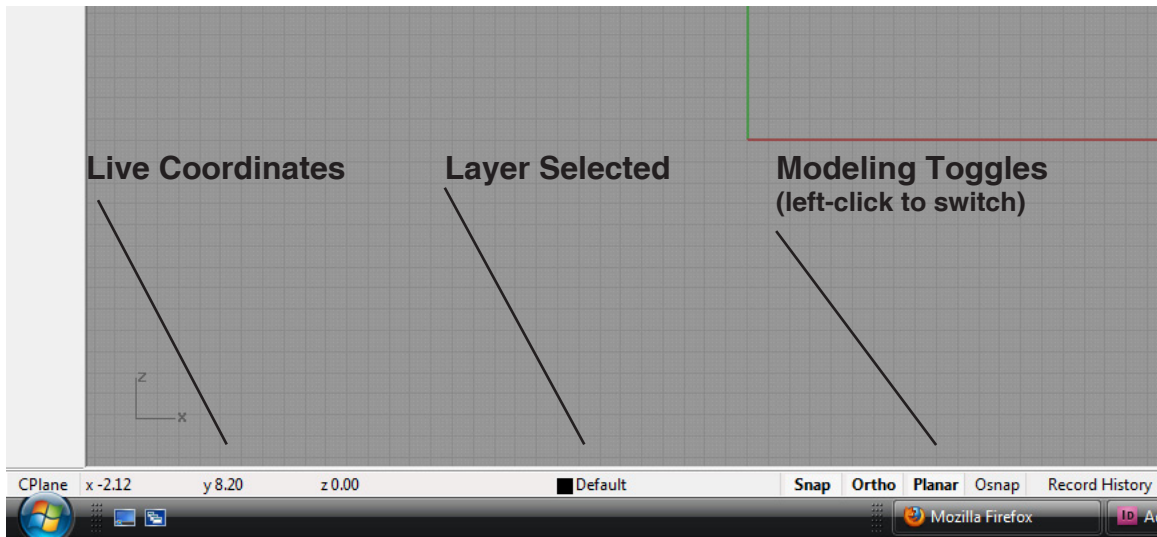
Modeling Toolbars:

Basic modeling toolbars display on the left side of the window. Right-click in the margin to display other, more specific toolbars.

link:

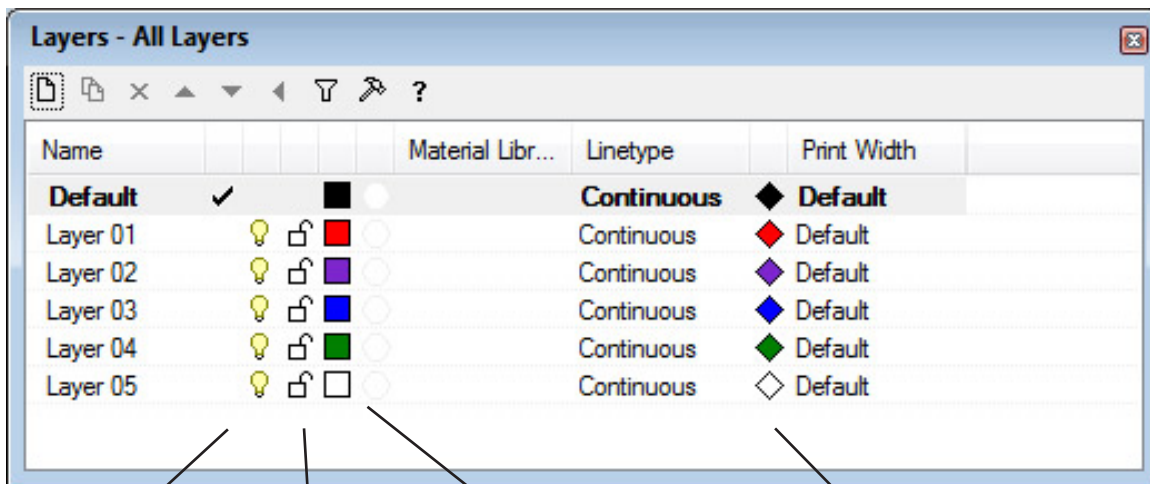
<http://www.digitaltoolbox.info/rhinoceros/interface.html>





Status Bar:

Displays pointer coordinates, what layer is selected, the construction plane, and toggles like ortho-snap, grid-snap, and object-snaps.



Layers Palette:

Open the layers palette by typing "Layer" into the command prompt and pressing enter. Utilizing layers is an organizational method for modeling workflow. Add a new layer or select different options by right-clicking a given layer.

Visibility

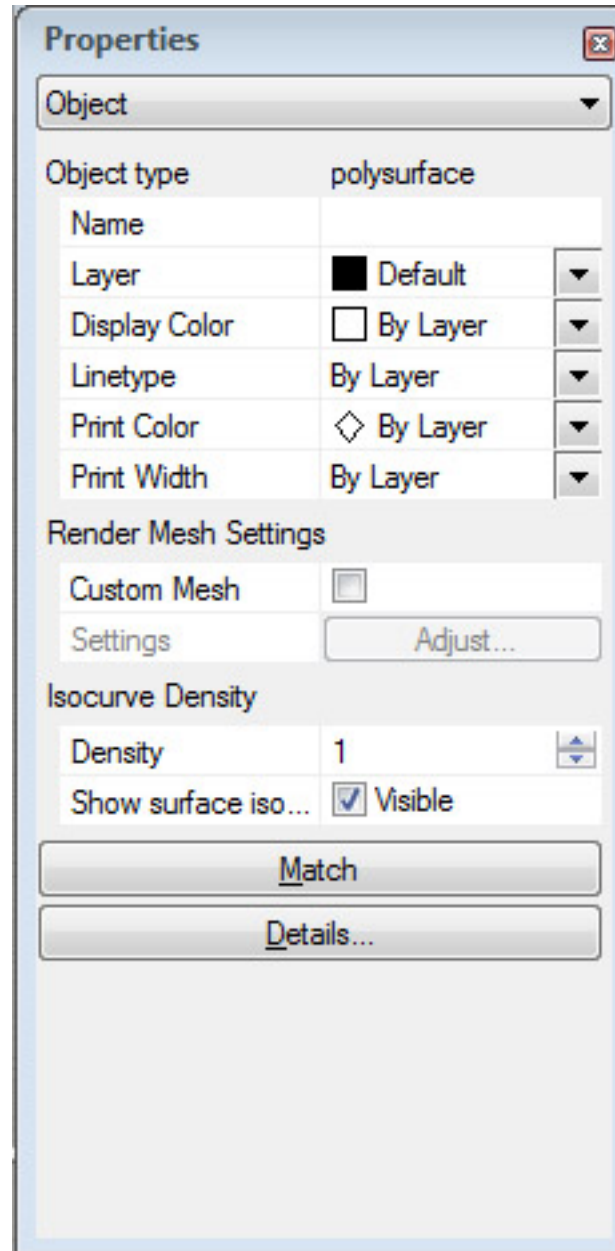
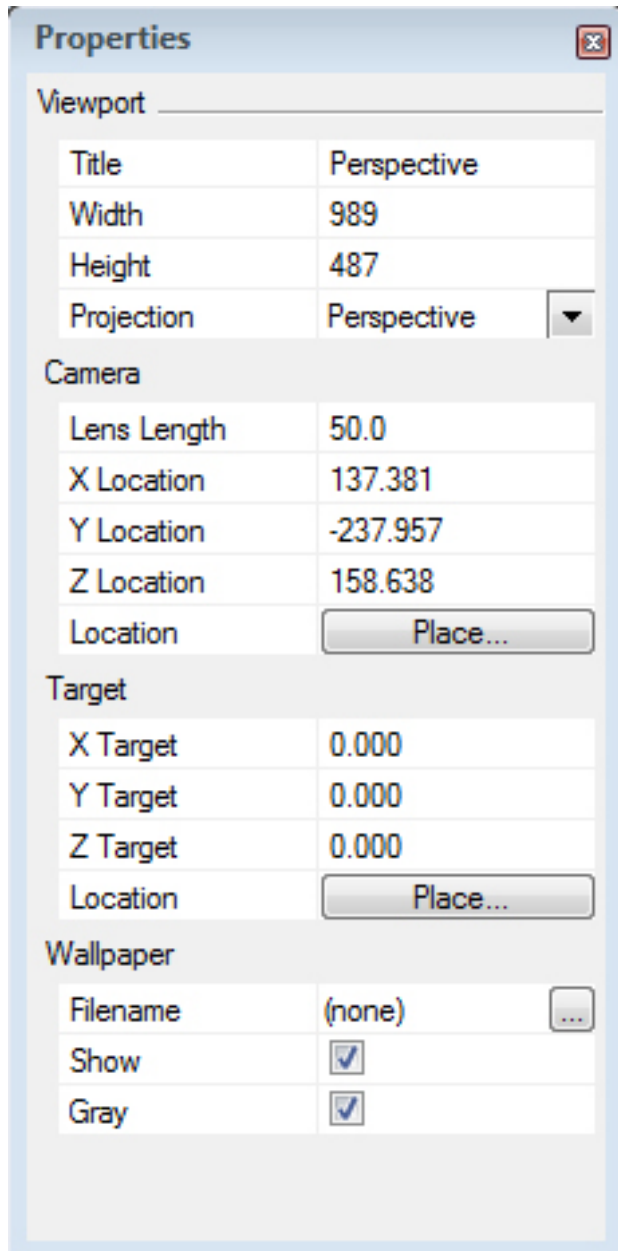
Lock (editability toggle)

Display Color

Printing Options

link:

<http://www.digitaltoolbox.info/rhinoceros/interface.html>



Properties Display:

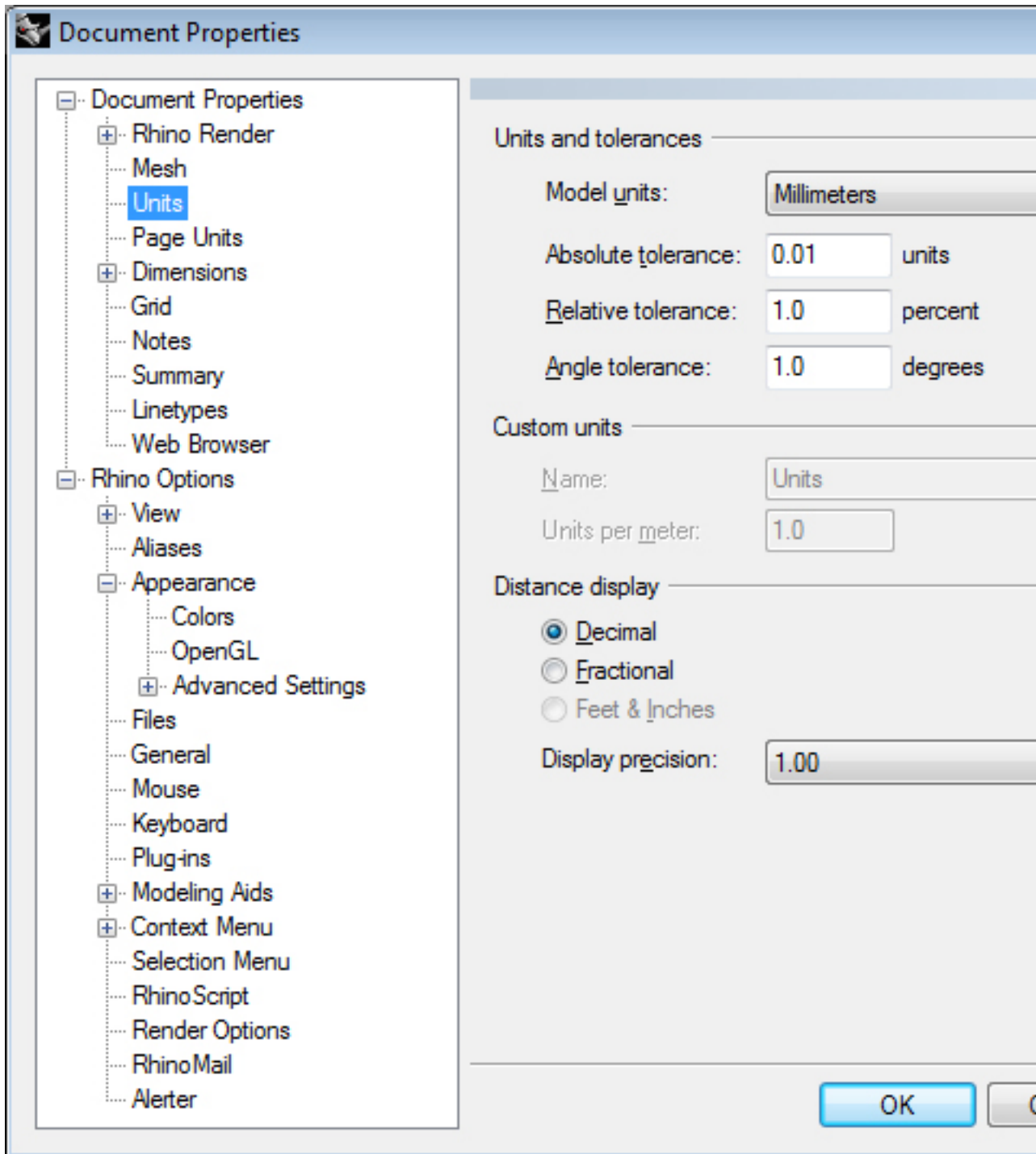
For the Properties window type and enter “Properties” into the command line. The Properties window appears on the right side of the screen under Layers by default.

If nothing is selected this window displays basic viewport and camera properties like projection and target. (Left image)

When an object is selected this window displays information specifically for this object like object type, the layer it’s on, and display properties. (Right image)

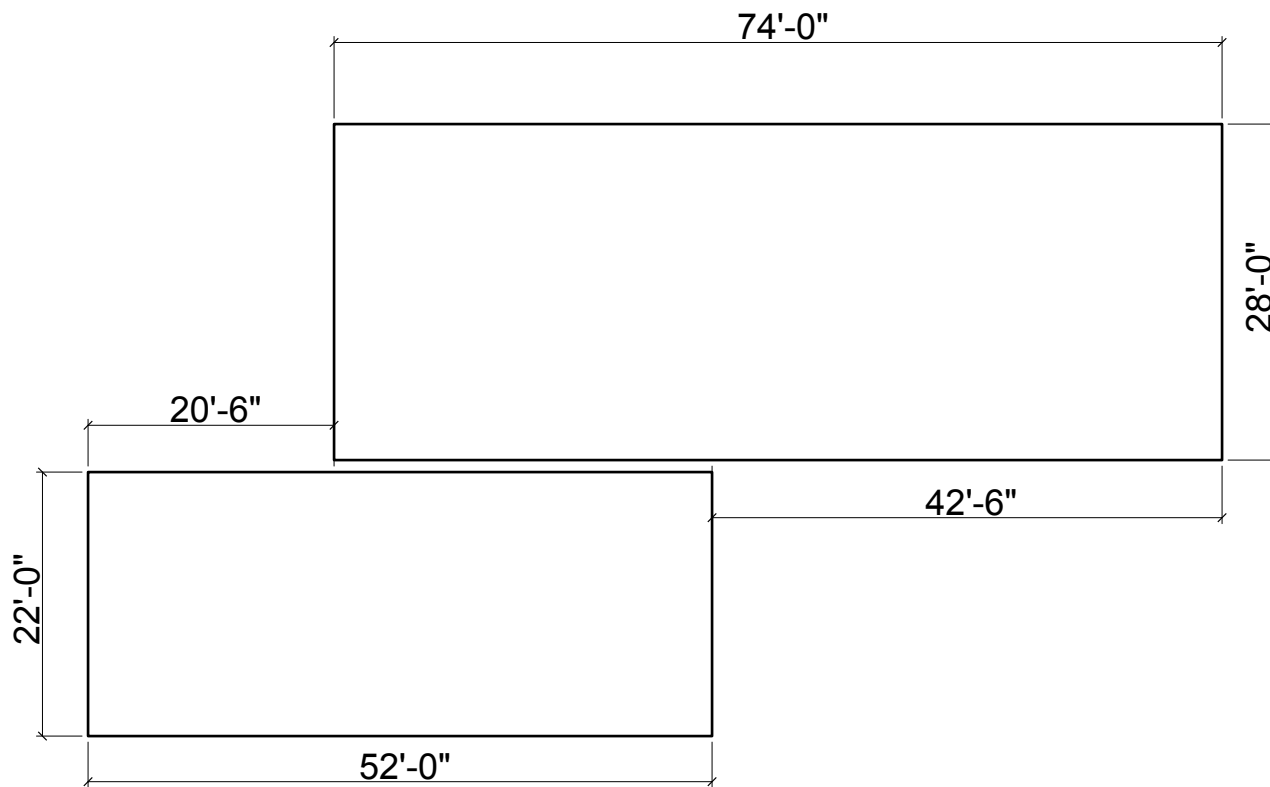
link:

http://www.digitaltoolbox.info/rhinoceros/custom_interface.html



Document Properties:
The Document Properties window (_DocumentProperties) controls all of the main aspects of the .3dm model from Units to Grid Options as well as Colors and Appearance.

link:
<http://www.digitaltoolbox.info/rhinoceros/template.html>



Step One:

Create two rectangles in the top view. These will become the two slabs.

Curve geometry Commands:

- _Rectangle
- _Polyline
- _Line

Translation Commands:

- _Move
- _Rotate

Active Layers

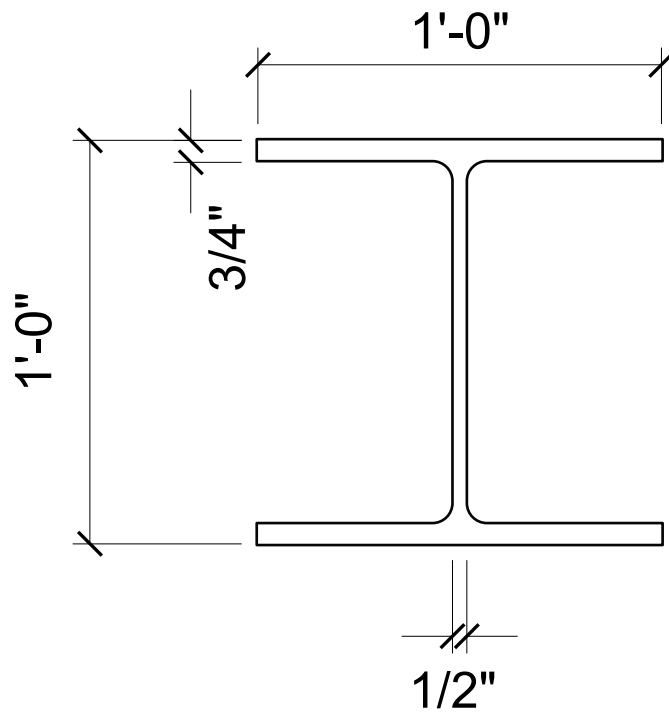
- floor plan
- slabs

link:

http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_02.html

other drafting tutorials:

http://www.digitaltoolbox.info/rhinoceros_basic.html



Step Two:

Draw a wide flange cross-section using:

- _Polyline
- _Rectangle
- _Trim
- _Fillet
- _Join

Translation Commands:

- _Move
- _Rotate

Active Layers

- floor plan
- slabs
- columns

link:

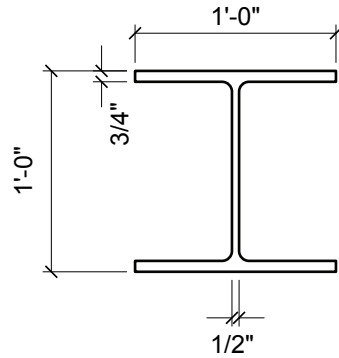
http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_03.html

Block tutorial:

<http://www.digitaltoolbox.info/rhinoceros/block.html>

other drafting tutorials:

http://www.digitaltoolbox.info/rhinoceros_basic.html



Block Definition Properties

Name:

Description

Hyperlink

Description:

URL:

OK Cancel

Step Three:

Set wide flange cross-section as a block :

`_Block`
`_BlockManager`

The BlockManager lets you organize multiple blocks per file. You can even set other files as a block.

Block Name

Description of Block

External File Link(as needed)

Active Layers

- floor plan
- slabs
- columns

link:

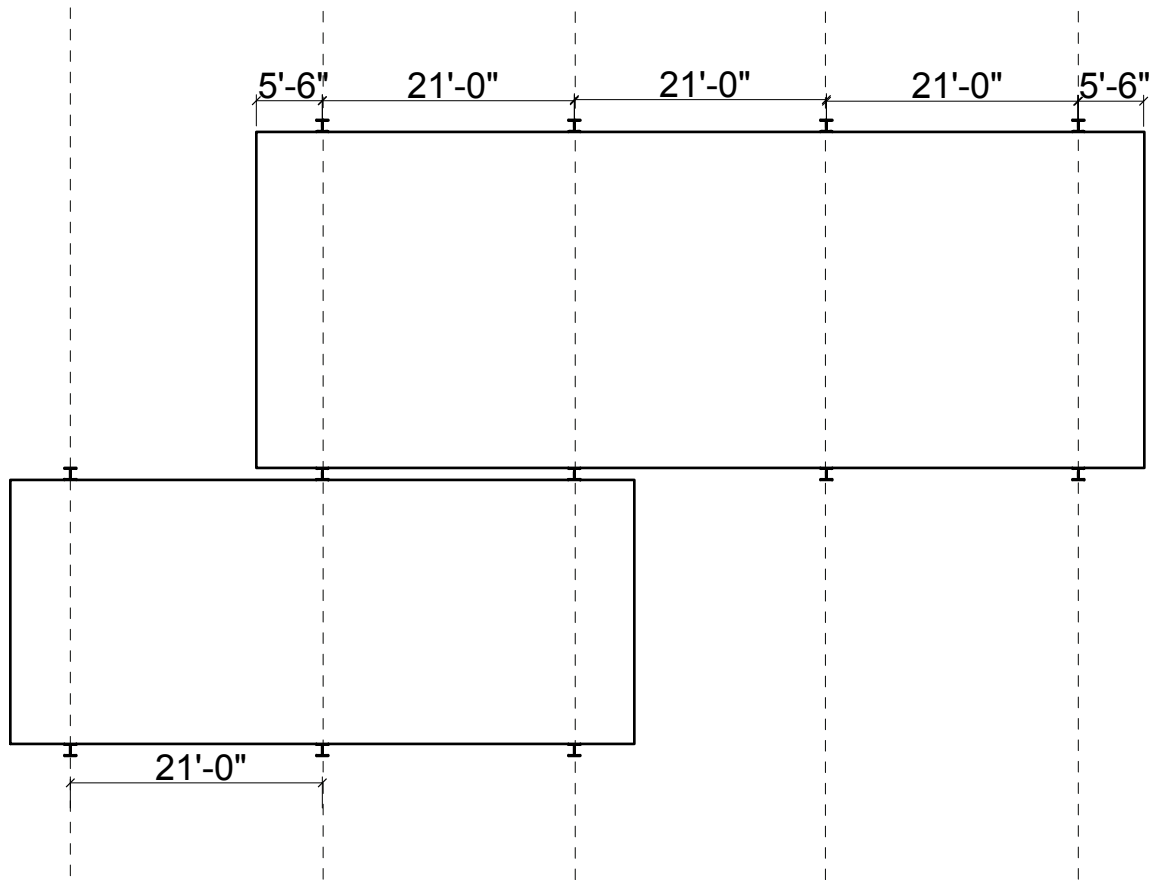
http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_03.html

Block tutorial:

<http://www.digitaltoolbox.info/rhinoceros/block.html>

other drafting tutorials:

http://www.digitaltoolbox.info/rhinoceros_basic.html



Step Four:

Copy and set blocks in place:

_ArrayCrv
_Copy
_Mirror

Extrude Floors

_ExtrudeCrv

Translation commands

_Move

Be careful to copy using the base-point set on the block. If placed correctly, updating will be easier.

Active Layers

-floor plan
-slabs
-columns
-floors
-EXT. f01

link:

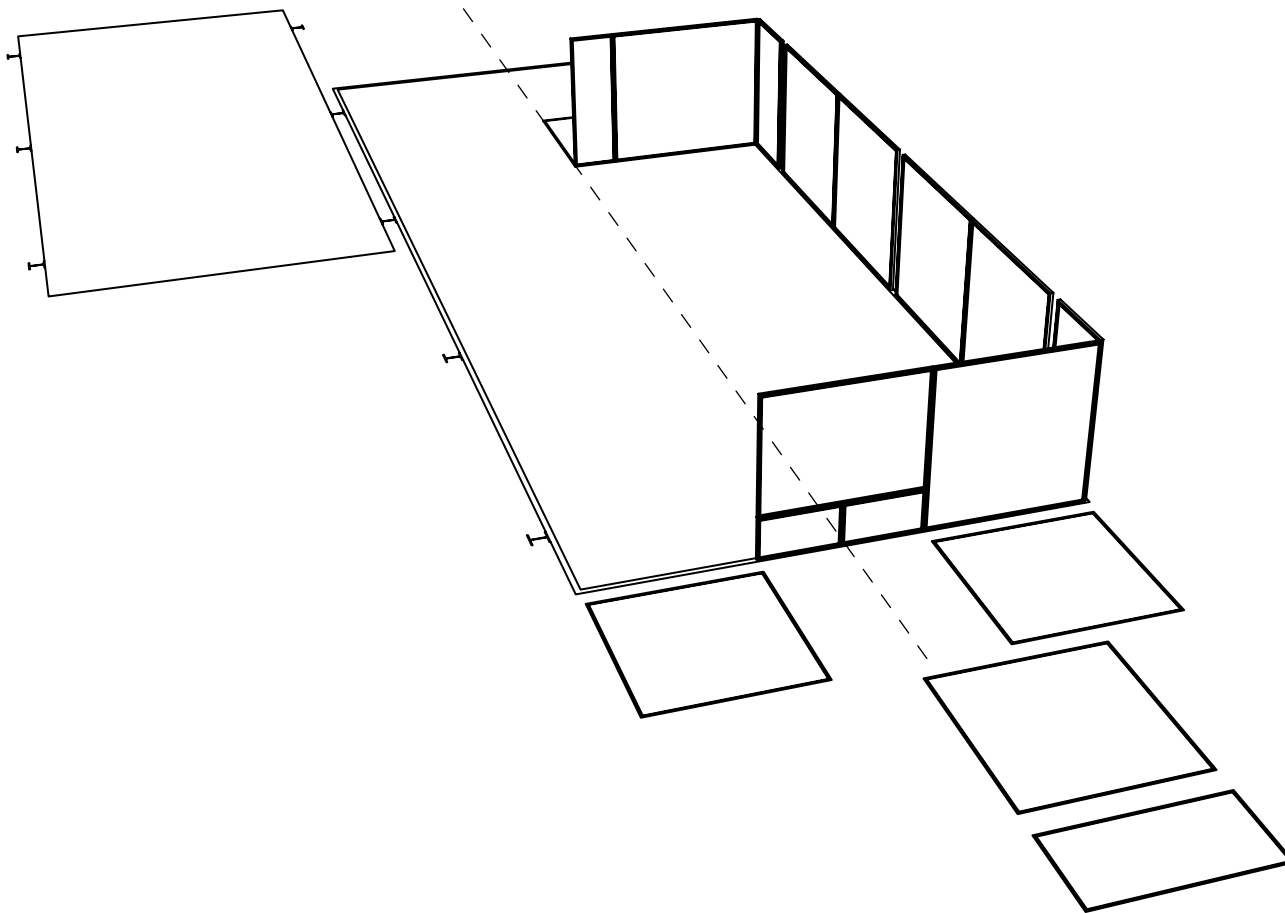
http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_03.html

Block tutorial:

<http://www.digitaltoolbox.info/rhinoceros/block.html>

other drafting tutorials:

http://www.digitaltoolbox.info/rhinoceros_basic.html



Step Five:

Create window curves:

- _Rectangle
- _OffSet

Extrude window curves:

- _ExtrudeCrv

Translation commands:

- _Move
- _Rotate
- _Mirror
- _Copy

Active Layers

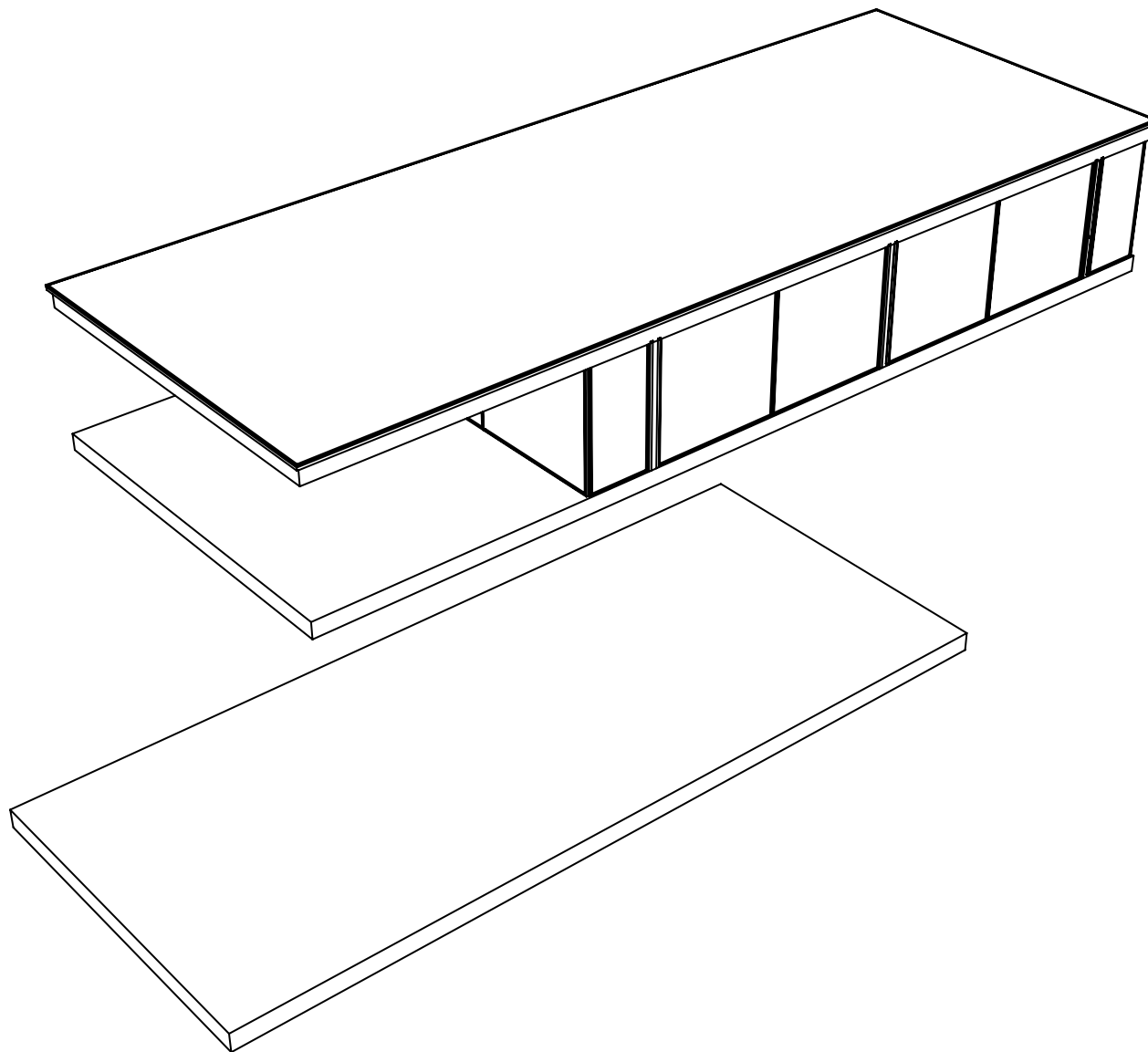
- window
- window outlines
- EXT. glazing
- EXT. framing

link:

http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_04.html

tutorials for farnsworth 04 to 08 goes into details on how to create all the glass walls.

digitaltoolbox.info



Step Six:

Create ceiling/roof slab curves

_Offset

Extrude ceiling/roof and floor slab

_ExtrudeCrv

_PlanarSrf

_ExtrudeSrf

-OffsetSrf

_MoveFace

_Scale1D

_Scale2D

Translation commands:

_Move

_Rotate

_Mirror

_Copy

Active Layers

-floors

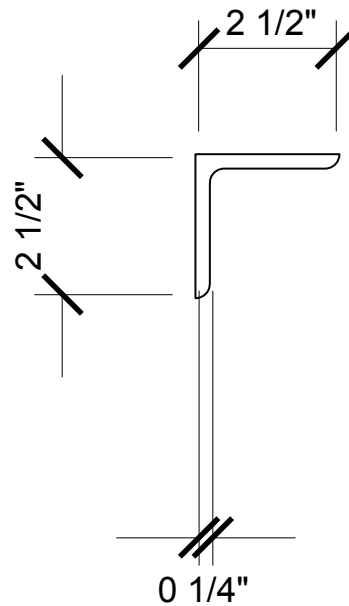
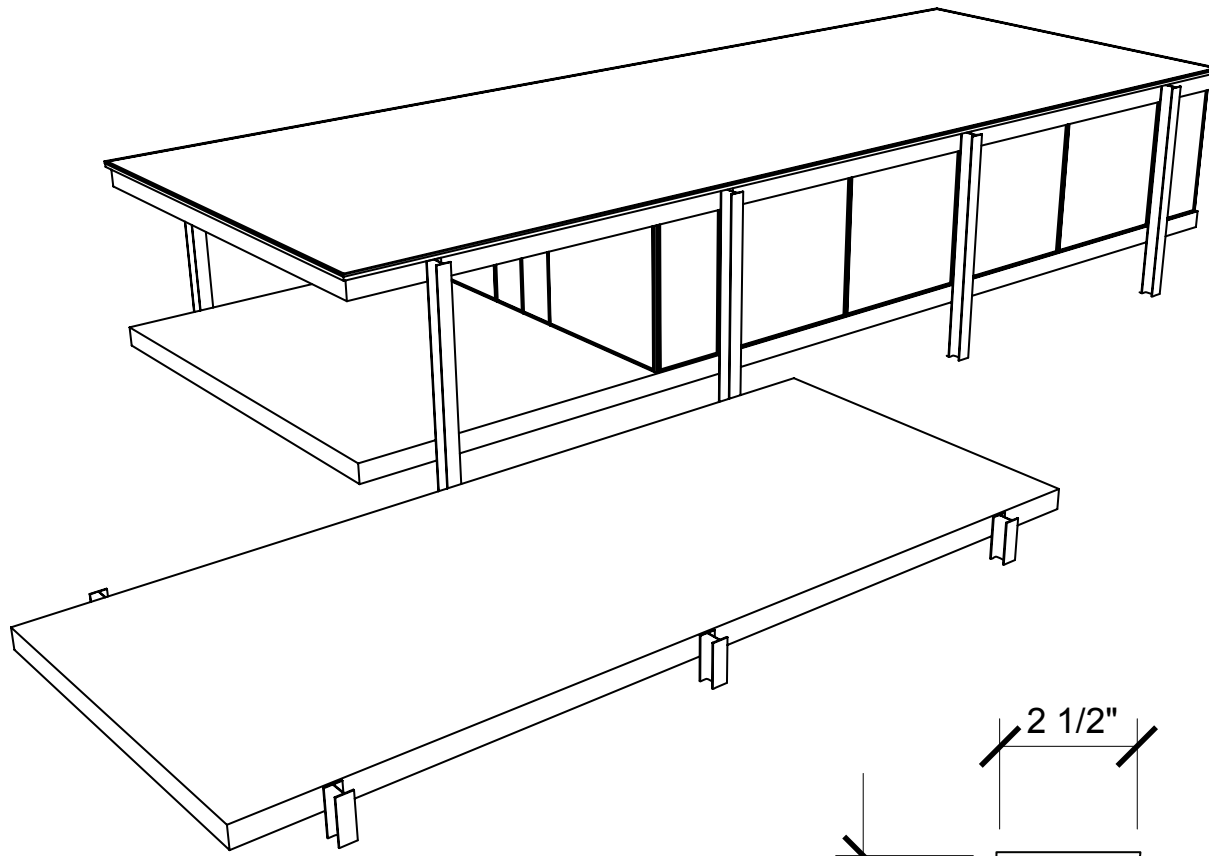
-EXT. f01

-roof

-roof01

link:

http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_10.html



Step Seven:

Extrude columns and steel angles:

_ExtrudeCrv
 _PlanarSrf
 _ExtrudeSrf
 _MoveFace

Create a new block for steel angles:

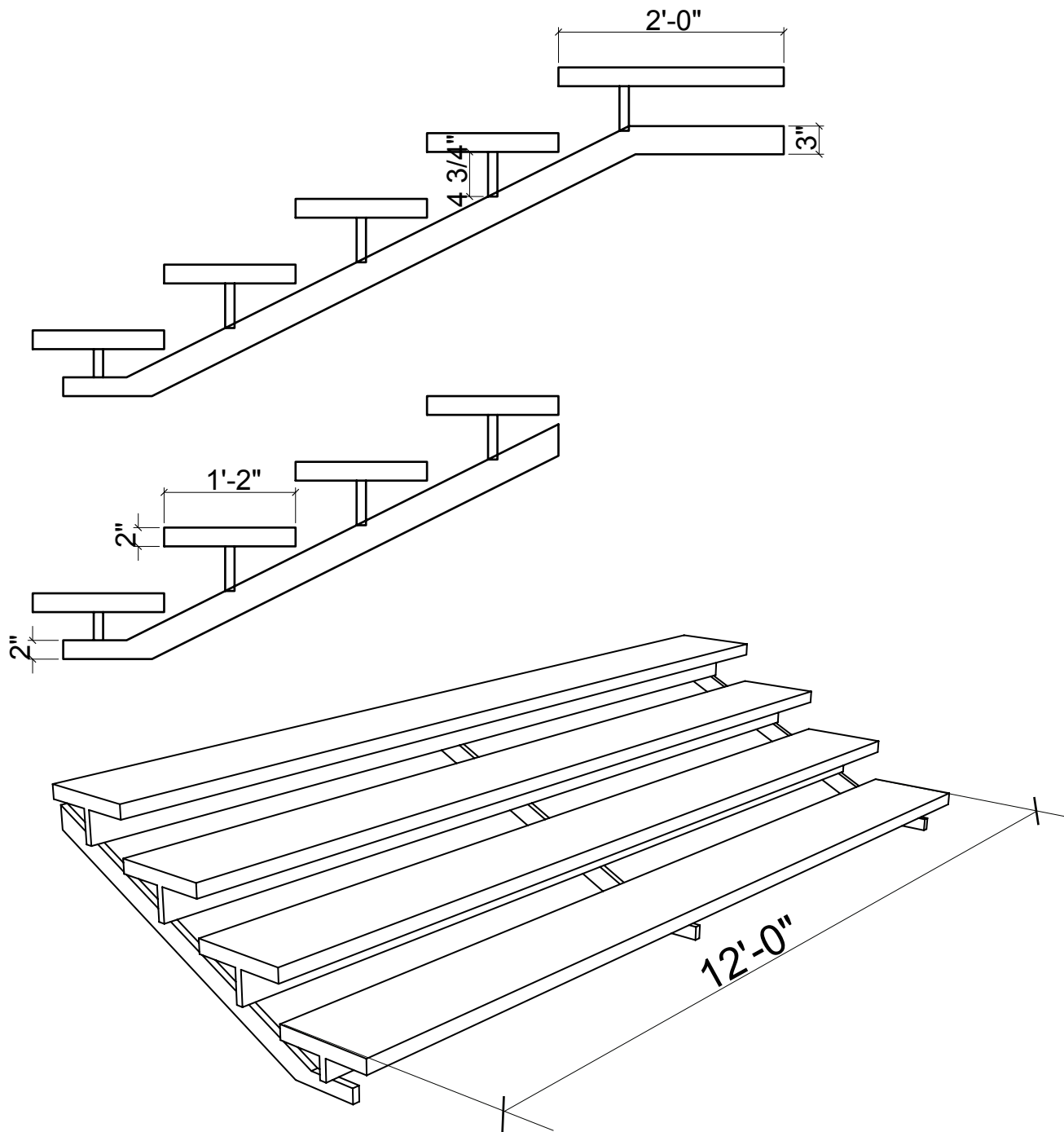
_Block

Active Layers

- floor plan
 - slabs
 - columns
 - steel angles
- structure
 - EXT. columns
 - EXT. steel angles
- window
 - window outlines
 - EXT. glazing
 - EXT. framing
- floors
 - EXT. f01
- roof
 - roof01

link:

http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_09.html



Step Eight:

Draw a set of stairs in Right view:

- _Rectangle
- _Polyline
- _Line
- _Trim
- _Scale1D

Extrude Set of Stairs:

- _ExtrudeCrv
- _PlanarSrf
- _ExtrudeSrf
- _MoveFace

Translation Commands:

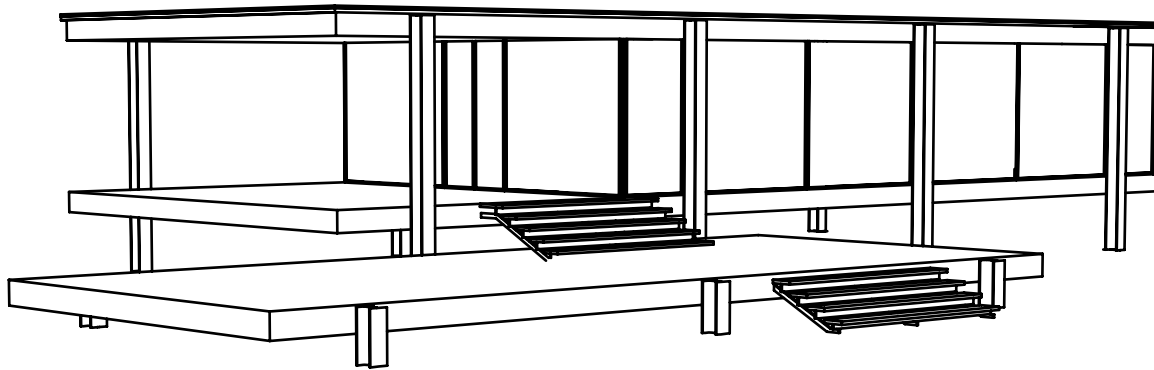
- _Move
- _Rotation
- _Copy
- _SetPt

Active Layers

- Stairs
 - stair curves
 - EXT. stairs

link:

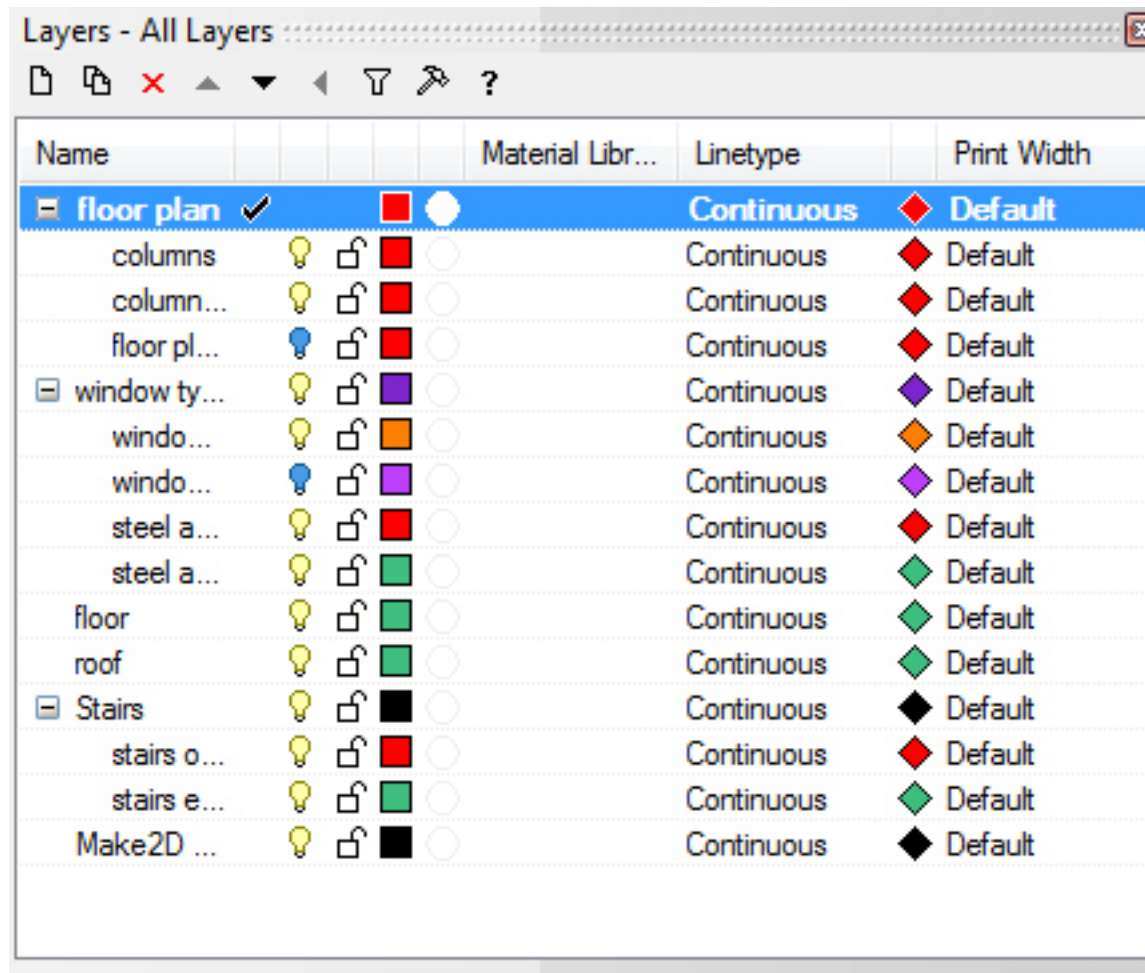
http://www.digitaltoolbox.info/rhinoceros/custom_interface.html



Step Nine:

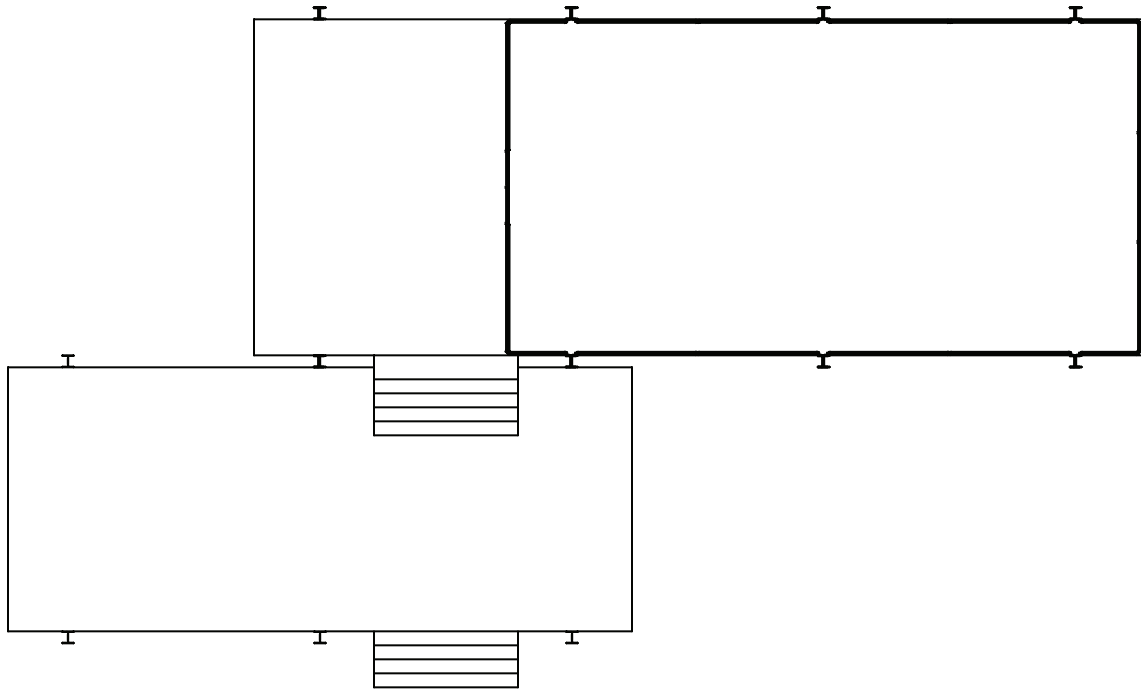
Cleaning Layers:

Make sure all your objects, curves, geometries are in the correct layer so you can edit them later with ease. Make sure objects, curves, geometries are grouped so you can move things quickly.



link:

http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_14.html



Step Ten:

Creating sections or plans:

- _Polyline
- _Line
- _CutPlane
- _Split
- _Make2D

Translation Commands:

- _Move
- _Rotation

REMEMBER to always SAVE AS a separate copy before creating sections or plans

link:

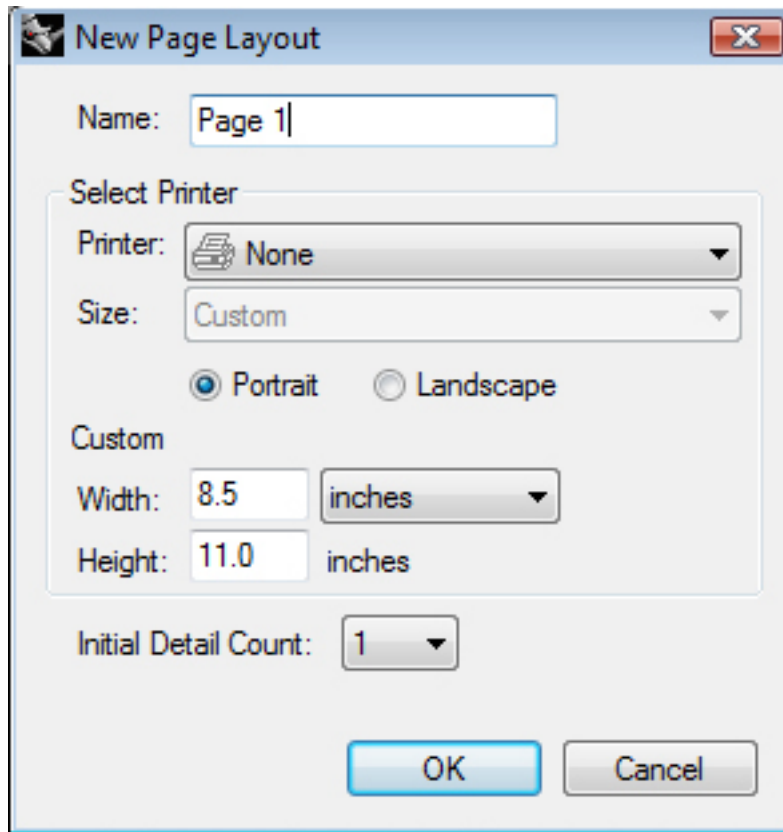
http://www.digitaltoolbox.info/case_studies/farnsworth/farnsworth_15.html

section tutorial:

<http://www.digitaltoolbox.info/rhinoceros/section.html>

Step Eleven

Creating sections or plans:
_Layout



link:
<http://www.digitaltoolbox.info/rhinoceros/layout.html>