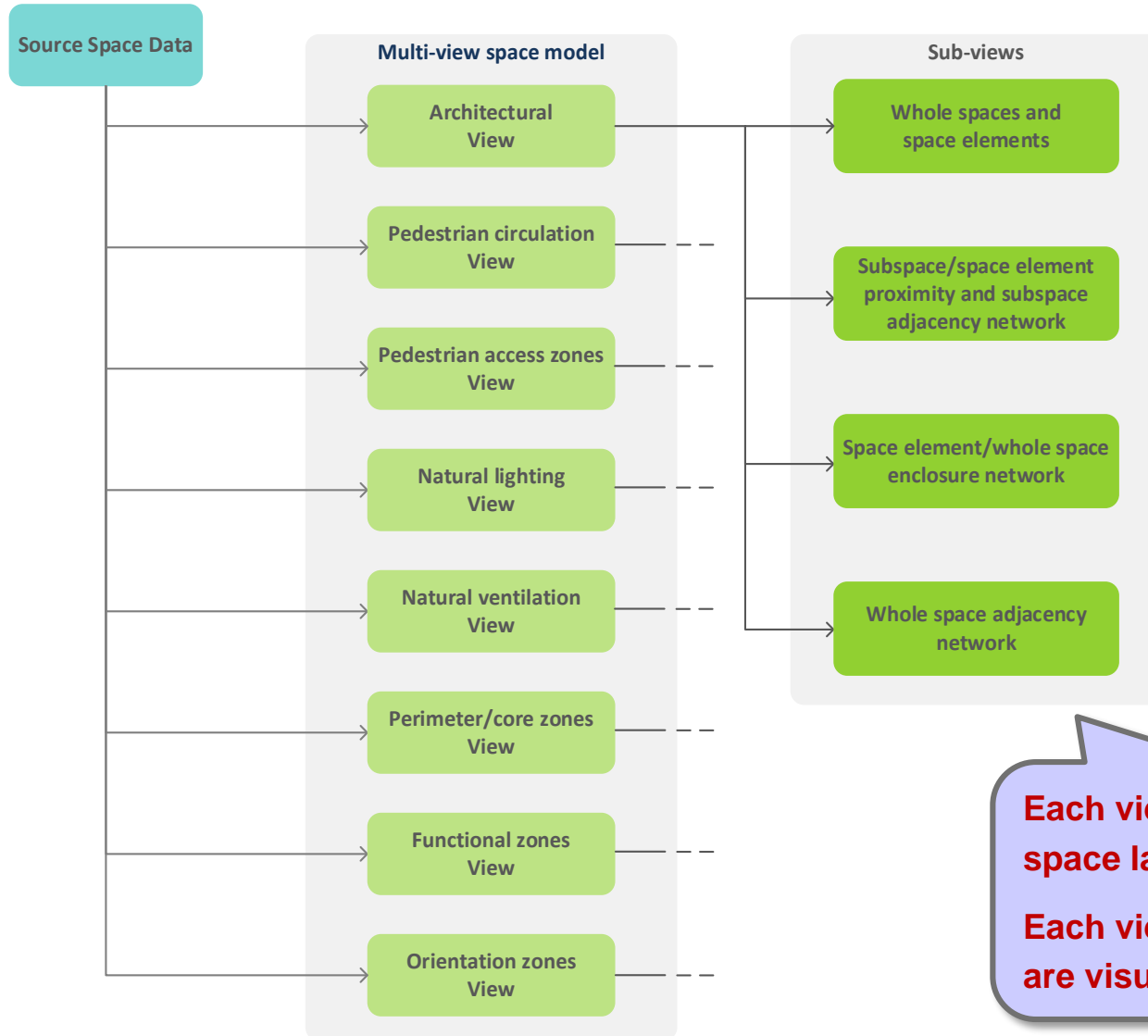


Space Modeler User Guide

Visualizing a space model

April 6, 2017

Space model visualization concepts



Each view is modeled by a space layout
Each view has sub-views that are visualized

Visualization workflow

1. Create input layout (source space data)

7. Visualize space model off-line

2. Upload input layout

3. Choose options

4. Start space model generation

User

Space
Layout
Viewer



dwg

User

Space
Patterns
Web App



5. Visualize space model on-line

6. Download space model for off-line visualization

Space model server

Space
Layout
Generator



Space model is generated

Space model visualization methods

1. On-line (Space Patterns web app)

- Side-by-side comparison of multiple views (small multiples visualization)
- Preconfigured visualization (e.g. fixed view points)
- Vector images (.svg)

2. Off-line (Space Layout Viewer plug-in for Autocad)

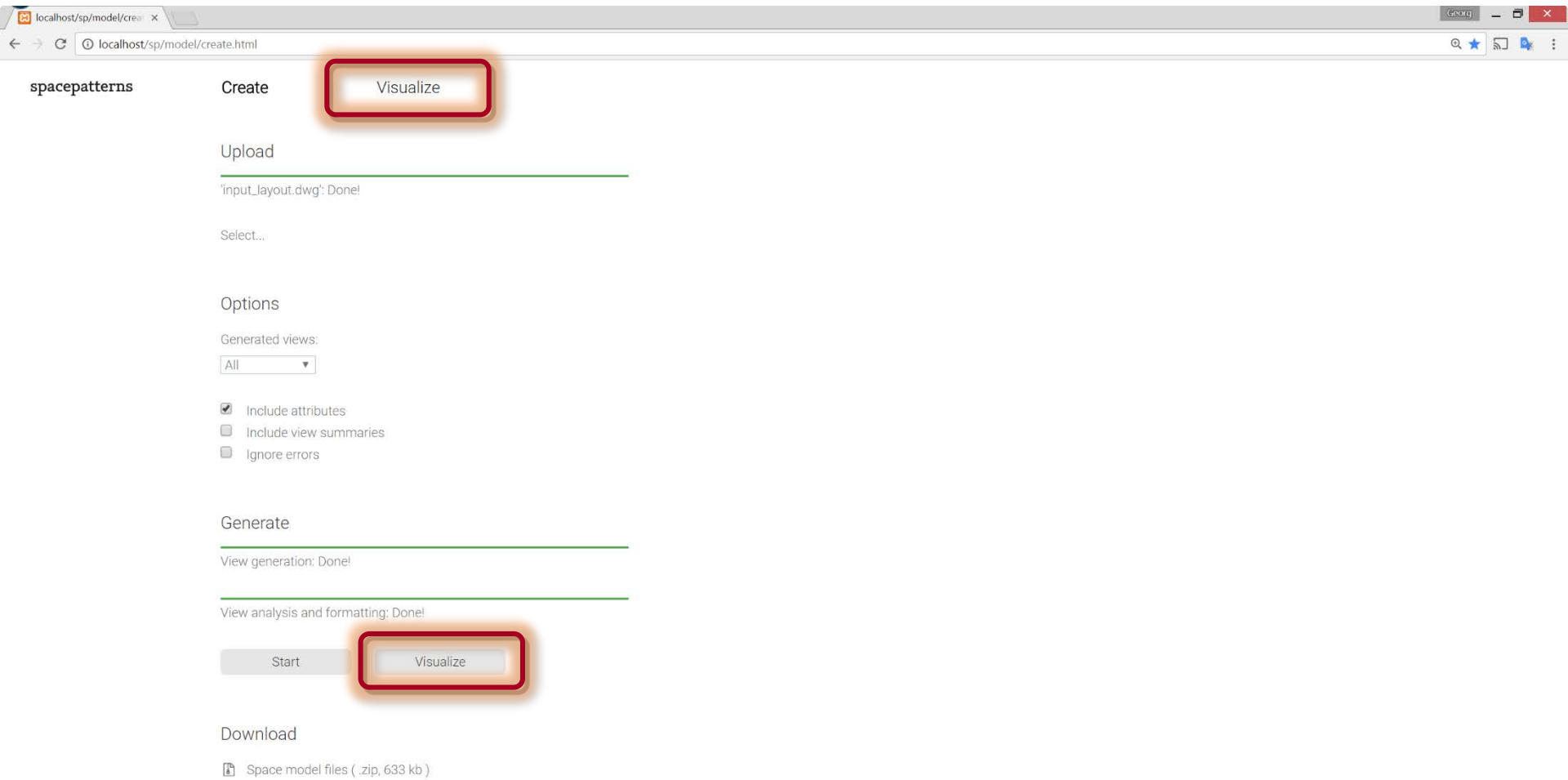
- Single view display
- CAD visualization (e.g. zoom, change view points)
- Drawing (.dwg)

Space model visualization methods

1. On-line (Space Patterns web app)

2. Off-line (Space Layout Viewer plug-in for Autocad)

'Visualize' button or 'Visualize' tab



Small multiples visualization of views and sub-views

localhost/sp/model/server/files/imra4426kmmqtqb26ealt1prv5/html/small_multiples.html

spacepatterns Create Visualize

Pedestrian access zone sub-views

ext air
Elev
CMain
Duct
RUnit
Duct
ext air

5.30m²
0.57m²
153.32m²
0.57m²

0
1
0
0

Pedestrian access zones, primary space property

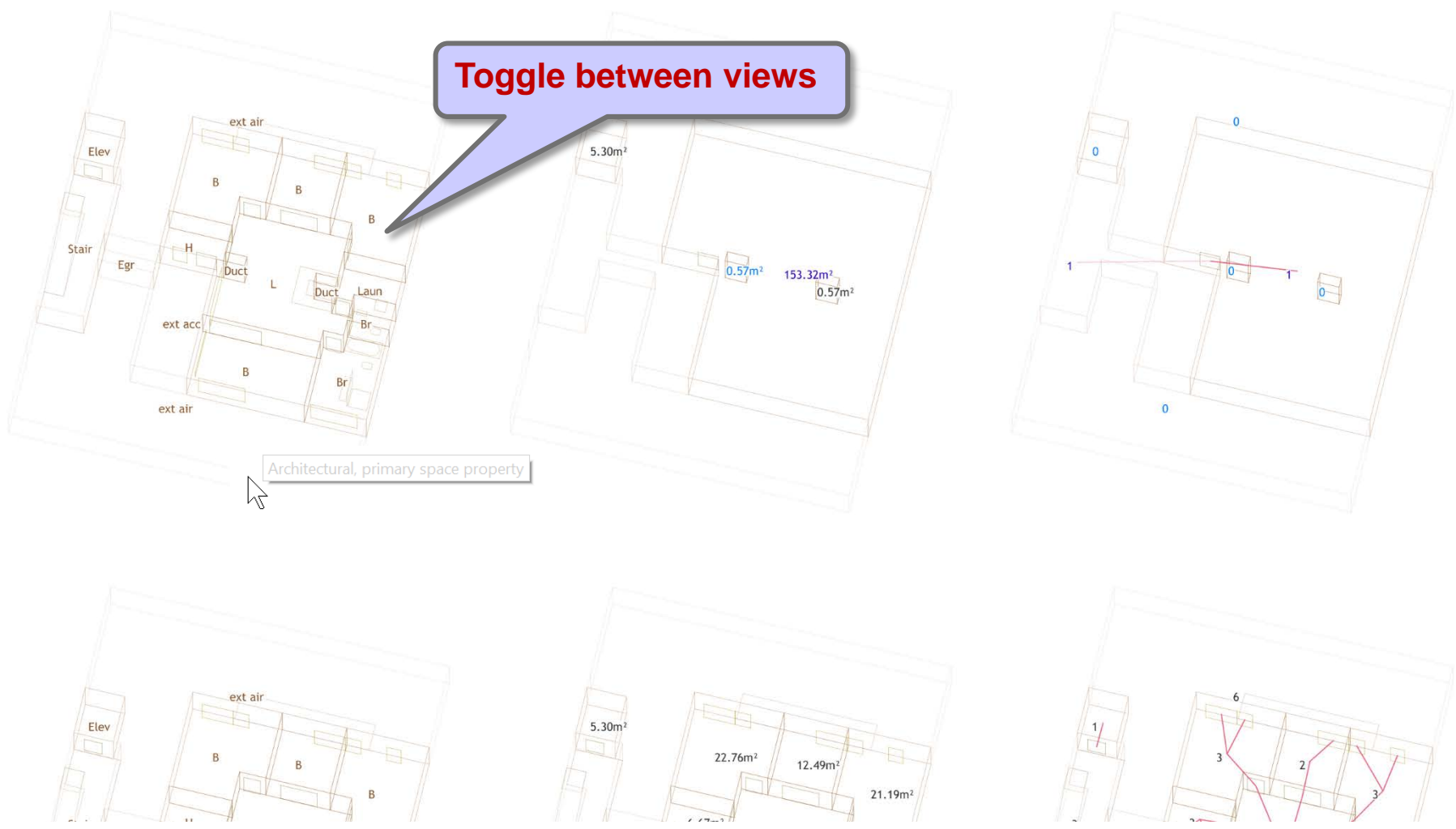
Architectural sub-views

ext air
Elev
B
B
B

5.30m²
22.76m²
12.49m²

Additional sub-views ...

6
1
3
2
3



Space model visualization methods

1. On-line (Space Patterns web app)
2. **Off-line (Space Layout Viewer plug-in for Autocad)**

Download space model files

The screenshot shows a web browser window with the URL `localhost/sp/model/create.html`. The page has a navigation bar with three tabs: **spacepatterns**, **Create**, and **Visualize**. The **Create** tab is active. The page content is organized into sections: **Upload**, **Options**, **Generate**, and **Download**. The **Upload** section shows a message `'input_layout.dwg': Done!` and a `Select...` button. The **Options** section includes a `Generated views:` dropdown menu set to `All`, and three checkboxes: `Include attributes` (checked), `Include view summaries` (unchecked), and `Ignore errors` (unchecked). The **Generate** section shows two messages: `View generation: Done!` and `View analysis and formatting: Done!`, with `Start` and `Visualize` buttons below. The **Download** section is highlighted with a red box and contains a link: `Download _Space model files (.zip, 633 kb)`. At the bottom of the browser window, a file path is visible: `localhost/sp/model/server/files/m59k44rftuo6eedr4qf4r5ou3/output_layouts.7z`.

Download space model files

The screenshot shows a web browser window with the URL `localhost/sp/model/create.html`. The page has a navigation bar with `spacepatterns`, `Create`, and `Visualize`. The `Create` tab is active. The page content includes:

- Upload**: A green progress bar and the text `'input_layout.dwg': Done!`. Below it is a `Select...` button.
- Options**: A section titled `Generated views:` with a dropdown menu set to `All`. Below are three checkboxes: `Include attributes` (checked), `Include view summaries` (unchecked), and `Ignore errors` (unchecked).
- Generate**: A green progress bar and the text `View generation: Done!`. Below it is another green progress bar and the text `View analysis and formatting: Done!`.
- Buttons**: Two buttons labeled `Start` and `Visualize`.
- Download**: A section with a download icon and the text `_Space model files (.zip, 633 kb)`.

At the bottom of the browser window, a download notification bar is visible, showing a file named `output_layouts (29).7z` with a red box around it. A `Show all` button is also present in the notification bar.

Move 'output_layouts.zip' to project folder

The screenshot displays the Space Modeler web interface and a Windows File Explorer window. The web interface is in the 'Create' tab, showing the 'Upload' section with 'input_layout.dwg' successfully uploaded. The 'Options' section includes checkboxes for 'Include attributes' (checked), 'Include view summaries', and 'Ignore errors'. The 'Generate' section shows 'View generation: Done!' and 'View analysis and formatting: Done!'. The 'Download' section shows 'Space model files (.zip, 633 kb)'. A red arrow points from the 'Download' section to a Windows File Explorer window showing the 'input_layout.dwg' file in the project folder.

Windows File Explorer window: test_user_16

Name	Date modified	Type	Size
clean_all_except_input_layout	11/6/2016 6:26 PM	Windows Batch File	1 KB
input_layout	12/8/2016 12:31 AM	DWG File	313 KB

Extract 'output_layouts.zip' to project folder

The screenshot shows the Space Modeler web interface on the left and a Windows File Explorer window on the right. The web interface has tabs for 'spacepatterns', 'Create', and 'Visualize'. Under 'Create', there is an 'Upload' section with a green progress bar and the text 'input_layout.dwg: Done!'. Below that is an 'Options' section with a 'Generated views:' dropdown set to 'All' and three checkboxes: 'Include attributes' (checked), 'Include view summaries' (unchecked), and 'Ignore errors' (unchecked). A 'Generate' section follows with another green progress bar and the text 'View generation: Done!'. Below that is a 'Download' section with a green progress bar and the text 'View analysis and formatting: Done!'. At the bottom of the web interface are 'Start' and 'Visualize' buttons, and a download link for 'Space model files (.zip, 633 kb)'. The File Explorer window shows the path 'Computer > GEORG_5 (H:) > Dropbox > SpaceModeler > users > housing_kaden_klingbeil_berlin'. It contains a table of files:

Name	Date modified	Type	Size
clean_all_except_input_layout	11/6/2016 6:26 PM	Windows Batch File	1 KB
input_layout	12/8/2016 12:31 AM	DWG File	313 KB
output_layouts	12/8/2016 12:12 PM	WinZip File	633 KB

A context menu is open over the 'output_layouts' file, with the 'Extract to...' option highlighted. A red box highlights the 'Extract to...' menu items: 'Extract to...', 'Extract to here', 'Extract to folder H:\Dropbox\SpaceModeler\users\test_user_16\output_layouts (30)', 'Extract to folder', 'E-Mail output_layouts (30).7z', and 'Configure'. The 'Extract to folder H:\Dropbox\SpaceModeler\users\test_user_16\output_layouts (30)' option is selected. At the bottom of the screenshot, a taskbar shows the file '.output_layouts (30).7z'.

7-Zip file archiver
<http://www.7-zip.org/>

Project folder overview

Project folder

The screenshot shows a Windows File Explorer window titled 'housing_kaden_klingbeil_berlin'. The address bar shows the path: Computer > GEORG_5 (H:) > Dropbox > SpaceModeler > users > 012345 > housing_kaden_klingbeil_berlin. The folder name is highlighted with a red box. The left sidebar shows the navigation pane with 'Computer' selected. The main pane displays a list of files and folders:

Name	Date modified	Type	Size
css	4/6/2017 5:45 PM	File folder	
html	4/6/2017 5:45 PM	File folder	
input_layout	4/6/2017 5:45 PM	File folder	
input_layout_svg	4/6/2017 5:45 PM	File folder	
js	4/6/2017 5:45 PM	File folder	
output_layouts	4/6/2017 5:45 PM	File folder	
output_layouts_svg	4/6/2017 5:45 PM	File folder	
clean_all_except_input_layout	4/6/2017 11:56 AM	Windows Batch File	1 KB
input_layout	12/3/2016 1:35 AM	DWG File	265 KB
output_layouts	4/6/2017 5:44 PM	WinZip File	330 KB
output_layouts	3/26/2015 12:32 AM	DWG File	148 KB
output_layouts_open_autocad	3/19/2016 11:26 AM	Windows Batch File	2 KB
template_output_layouts	3/26/2015 12:32 AM	DWG File	148 KB
unzip_output_layouts_zip	11/6/2015		
visualize			

Two callouts are present:

- A callout pointing to the folder name: **Project folder**
- A callout pointing to the 'clean_all_except_input_layout' file: **This script opens output_layouts.dwg in Autocad (see next slides)**

A large callout at the bottom left points to the 'visualize' file:

This link opens space model views (see previous slides) locally in Web browser

Steps

1. **Run script 'output_layouts_open_autocad.bat'**
2. 'SLIM_IMPORT_LAYOUT' command
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. 'SLFV_FORMAT_VALUES' command
5. 'SLFA_FORMAT_ATTRIBUTES' command
6. 'SLGN_GUIDE_NEXT' command
7. 'SLGN_GUIDE_MORE' command
8. 'SLGN_GUIDE_PREVIOUS' command
9. 'SLPA_PRINT_ALL_VIEWS' command

Run 'output_layouts_open_autocad' script

The screenshot shows a Windows File Explorer window titled 'test_user_16' with the address bar showing the path: Computer > GEORG_5 (H:) > Dropbox > SpaceModeler > users > housing_kaden_klingbell_berlin. The file list includes folders like 'css', 'input_layout', 'input_layout_pdf', 'js', 'output_layouts', 'output_layouts_pdf', 'output_layouts_svg', and files like 'clean_all_except_input_layout', 'output_layouts (29)', 'output_layouts', 'output_layouts_open_autocad', and 'regenerate_output_layouts'. The file 'output_layouts_open_autocad' is highlighted with a red box.

A callout box contains the following text:

- Starts Autocad**
- Drawing is initially empty**
- Space Layout Viewer plugin is loaded in background**
(see User Guide 'Installation')

Below the callout is a screenshot of the AutoCAD interface. The drawing area is empty. The command line shows the following text:

```
Autodesk DWG. This file is a TrustedDWG last saved by an Autodesk licensed application.  
Command:  
Command:  
Type a command
```

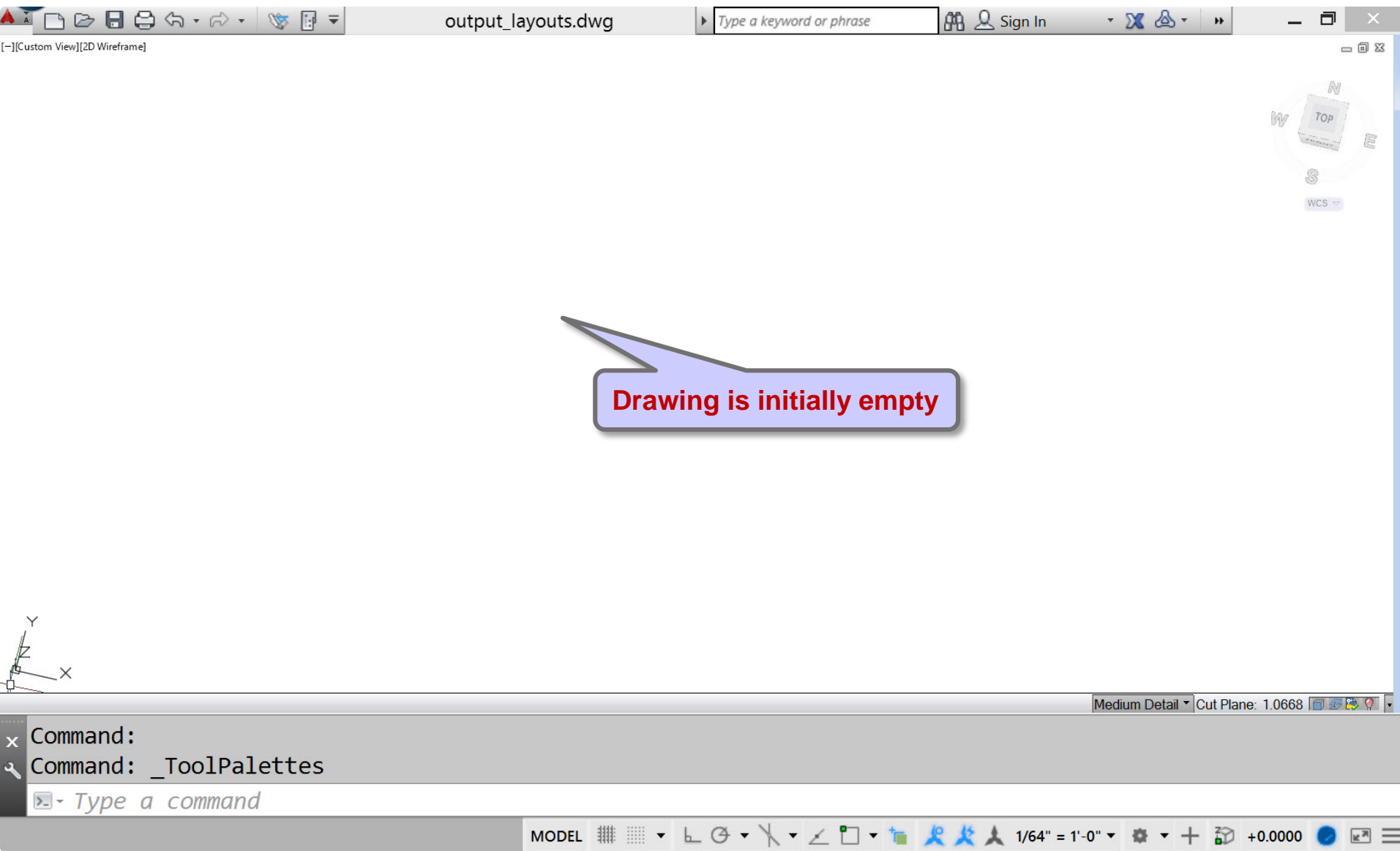
Space Layout Viewer commands

Command group	Command name	Comments
Input layout checking commands	SLHN_HIGHLIGHT_LAYER_NEXT	Highlight next 'sl' layer (for input layout error checking)
	SLHP_HIGHLIGHT_LAYER_PREVIOUS	Highlight previous 'sl' layer (for input layout error checking)
Import/export commands	SLEX_EXPORT_LAYOUT	Export an input layout to the 'input_layout' folder
	SLEX_EXPORT_LAYOUT_CHECK_NO_FAIL	Export an input layout to the 'input_layout' folder regardless of errors
	SLEX_EXPORT_LAYOUT_NO_CHECK	Export an input layout to the 'input_layout' folder without checking for errors
	SLEV_EXPORT_VIEW	Export the layout shown in the current view with derived attribute data
	SLIM_IMPORT_LAYOUT	Import an output layout from the 'output_layout' folder
	SLIG_IMPORT_GEOMETRY_ONLY	Import geometry data only. Viewing is feasible, but no attributes are shown or distances computed
	SLIP_IMPORT_PRINT_BATCH	
	SLIS_IMPORT_SOURCES	Import input or output layout data from multiple sources and put them on input_layout layers
Guide commands	SLGN_GUIDE_NEXT	Iterate over a representative sub-view in each view
	SLGM_GUIDE_MORE	Iterate over additional sub-views
	SLGP_GUIDE_PREVIOUS	Iterate over sub-views in reverse order
	SLGS_GUIDE_SWAP	Switches back and forth between previous and current sub-view
View commands	SLVL_VIEW_LOCAL_NEXT	Iterate over sub-views in current view
	SLVG_VIEW_GLOBAL_NEXT	Iterate over all views
	SLVS_VIEW_SAME_NEXT	Iterate over the same sub-view in each view
Attribute value navigation commands	SLAN_ATTRIBUTES_NEXT	Iterate over element attributes in a view
	SLDN_DISTANCE_NEXT	Compute distance_nearest for next level
	SLDC_DISTANCE_CHANGE_MEASURE	Change from path length to path weight, or vice versa
	SLMN_MIN_MAX_NEXT	Iterate over min/max in view summary
Turn on/off attributes of specific elements commands	SLTA_TOGGLE_ALL_ATTRIBUTES	Turn on/off all attributes
	SLTWS_TOGGLE_WHOLE_SPACE_ATTRIBUTES	Turn on/off whole space attributes
	SLTSS_TOGGLE_SUBSPACE_ATTRIBUTES	Turn on/off subspace attributes
	SLTSE_TOGGLE_SPACE_ELEMENT_ATTRIBUTES	Turn on/off space element attributes
	SLTSR_TOGGLE_SPATIAL_RELATION_ATTRIBUTES	Turn on/off spatial relation attributes
	SLTVS_TOGGLE_VIEW_SUMMARY	Turn on/off view summary
Format attributes, values, and units commands	SLFA_FORMAT_ATTRIBUTES	Iterate over attribute formats
	SLFV_FORMAT_VALUES	Iterate over value formats
	SLFQ_FORMAT_QUANTITATIVE_VALUES	Switches between showing min/max values only or showing all values
	SLFU_FORMAT_UNITS	Iterate over unit formats
Format text commands	SLFTM_FORMAT_TEXT_MASK	Turn on/off text mask (for faster refresh of views)
	SLFTT_FORMAT_TEXT_MASK_TRANSPARENCY	Iterate over text mask transparencies
	SLFTR_FORMAT_TEXT_REGEN	Regenerates view - useful after zoom commands
	SLFTS_FORMAT_TEXT_SIZE	Iterate over text sizes
	SLFTP_FORMAT_TEXT_POSITION_VIEW_SUMMARY	Iterate over view summary positions
Format network commands	SLFNC_FORMAT_NETWORK_COLOR	Iterate over network coloring schemes
	SLFNE_FORMAT_NETWORK_EDGE_THICKNESS	Iterate over edge thickening schemes
Format whole space and spatial relation transparency commands	SLFIW_FORMAT_INTERNAL_WHOLE_SPACE_TRANSPARENCY	Iterate over internal whole space transparencies
	SLFEW_FORMAT_EXTERNAL_WHOLE_SPACE_TRANSPARENCY	Iterate over external whole space transparencies
	SLFIS_FORMAT_INTERNAL_SPATIAL_RELATION_TRANSPARENCY	Iterate over internal spatial relation transparencies
	SLFES_FORMAT_EXTERNAL_SPATIAL_RELATION_TRANSPARENCY	Iterate over external spatial relation transparencies
Print commands	SLPA_PRINT_ALL_VIEWS	Print all (sub-)views
	SLPS_PRINT_ALL_VIEWS_TO_SCALE	Print all (sub-)views to scale
	SLPC_PRINT_CURRENT_VIEW	Print current (sub-)view
	SLPU_PRINT_CURRENT_VIEW_CUSTOM	Print current custom view
	SLPI_PRINT_INPUT_LAYOUT	Print input layout

[Minimal command set](#)

[Extended command set](#)

'output_layouts.dwg'



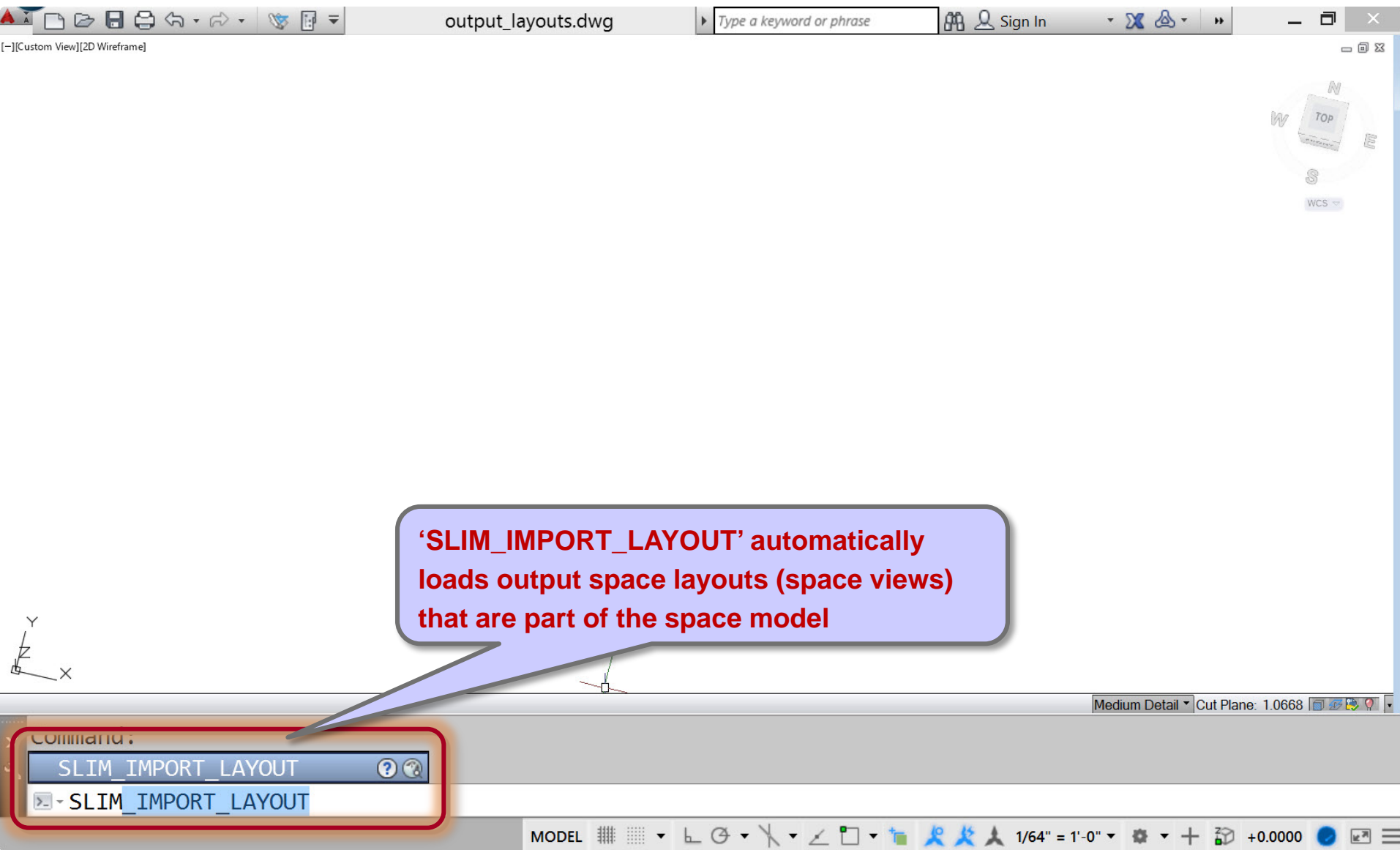
Steps

1. Run script 'open_output_layouts.bat'
- 2. 'SLIM_IMPORT_LAYOUT' command**
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. 'SLFV_FORMAT_VALUES' command
5. 'SLFA_FORMAT_ATTRIBUTES' command
6. 'SLGN_GUIDE_NEXT' command
7. 'SLGN_GUIDE_MORE' command
8. 'SLGN_GUIDE_PREVIOUS' command
9. 'SLPA_PRINT_ALL_VIEWS' command

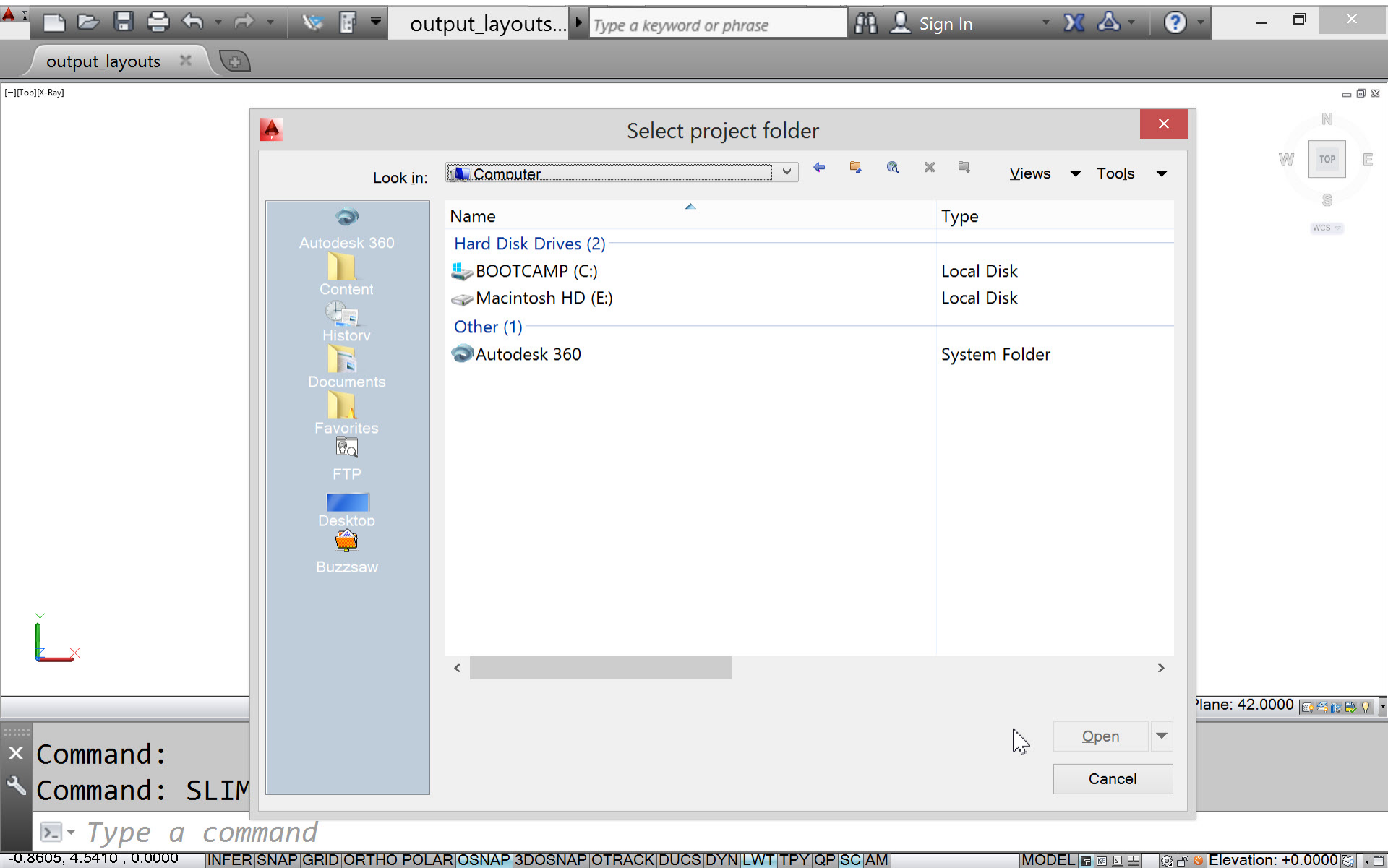


**Load the space model into
Autocad**

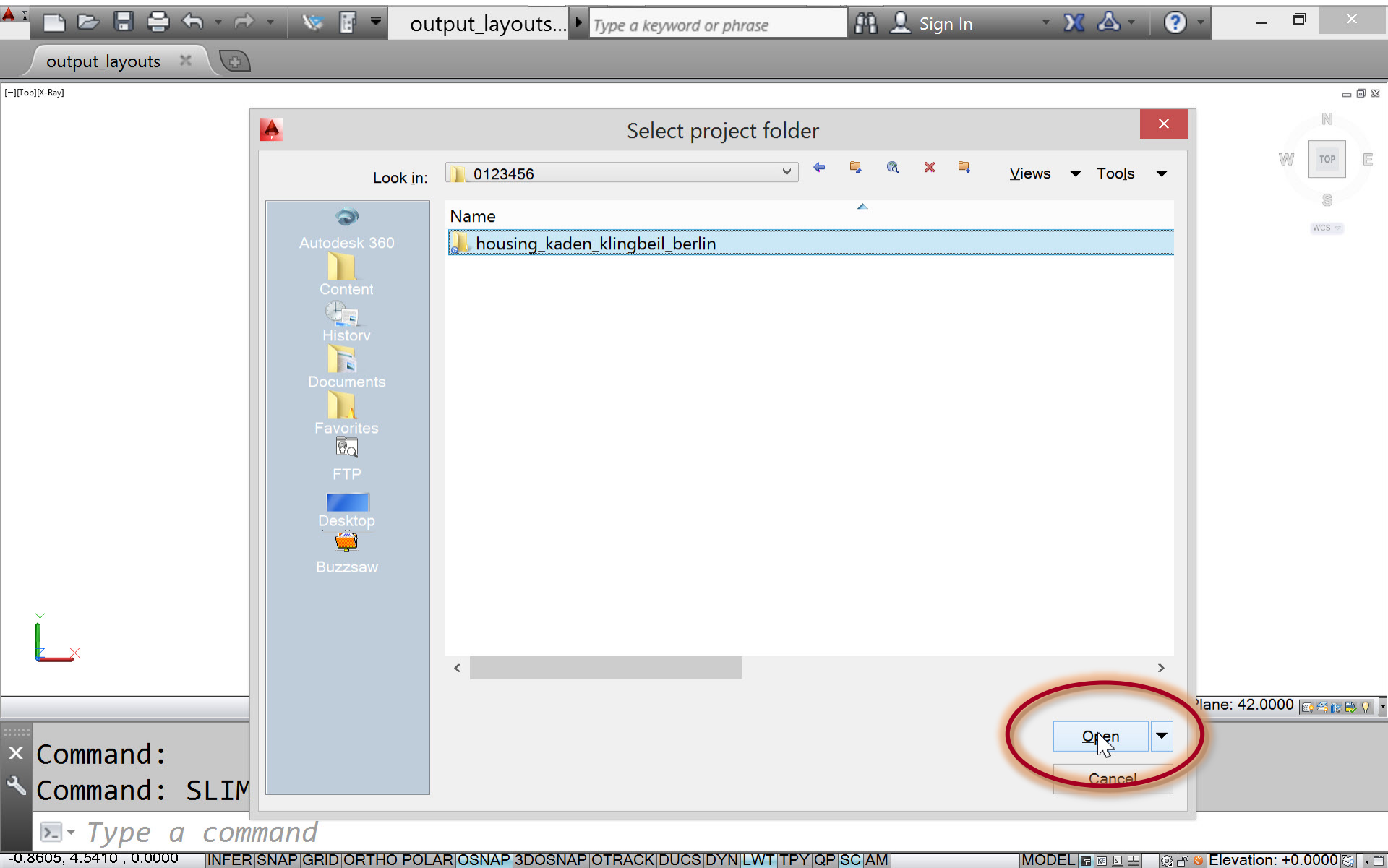
'SLIM_IMPORT_LAYOUT' command



Select project folder (only required if dialog pops up)



Select project folder (only required if dialog pops up)



Space model layouts are loaded

output_layouts.dwg

Architectural view

Element properties:
Whole space, primary space property

Spatial relations:
None

Spatial relation network properties:
Number of components:
Number of faces:
Number of edges:
Number of vertices:

Architectural view is the default view

ext air

Elev

B

B

B

Stair

Duct

L

Duct

Laun

Br

Br

ext air

Medium Detail | Cut Plane: 1.0668

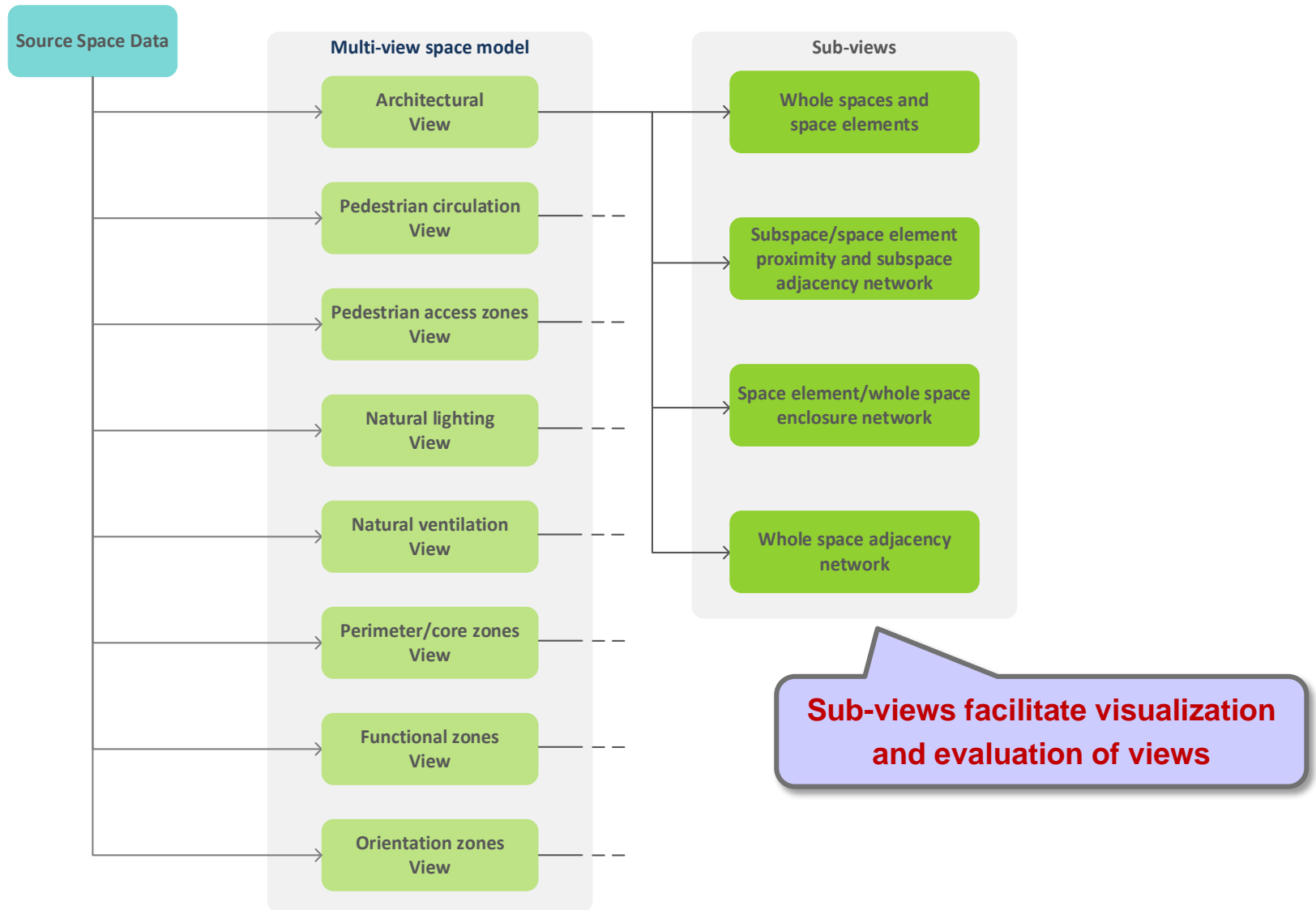
```
>>> SLViewer: SLIM_IMPORT_LAYOUT successful!  
>>> SLViewer: 1: Architectural view > 1: Whole space and space element
```

MODEL

1/64" = 1'-0"

+0.0000

Views and sub-views



Summary

Architectural view

Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

View

t_layouts.dwg | Type a keyword or phrase | Sign In

ext air
B
Duct L
Laun
Br
Stair
Elev
ext air
B
Br

WCS

Medium Detail | Cut Plane: 1.0668

```
>>> SLViewer: SLIM_IMPORT_LAYOUT successful!  
>>> SLViewer: 1: Architectural view > 1: Whole space and space element
```

MODEL | 1/64" = 1'-0" | +0.0000

Summary

output_layouts.dwg

[-][Custom View][2D Wireframe]
Architectural view

Element properties:
Whole space, primary space property

Spatial relations:
None

Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

Sub-view

ext air

Elev

Stair

Duct L

Duct

Laun

Br

B

ext air

Medium Detail | Cut Plane: 1.0668

>>> SLViewer: SLIM_IMPORT_LAYOUT successful!
>>> SLViewer: 1: Architectural view > 1: Whole space and space element

MODEL

1/64" = 1'-0"

+0.0000

Summary

output_layouts.dwg | Type a keyword or phrase | Sign In

[-] Custom View | [2D Wireframe] | Architectural view

Element properties:

- Whole space, primary space property
- None

Spatial relation network properties:

- Number of components = 45
- Number of cycles = 0
- Number of whole spaces = 14
- Number of subspaces = 0
- Number of space elements = 31

Primary space property

Labels in model: ext air, Elev, Stair, B, Duct L, Duct, Laun, Br, ext air

Medium Detail | Cut Plane: 1.0668

```
>>> SLViewer: SLIM_IMPORT_LAYOUT successful!  
>>> SLViewer: 1: Architectural view > 1: Whole space and space element
```

MODEL | 1/64" = 1'-0" | +0.0000

Summary

output_layouts.dwg | Type a keyword or phrase | Sign In

[-]Custom View|[2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

Properties of sub-view's spatial relation network

No spatial relations are included in this sub-view

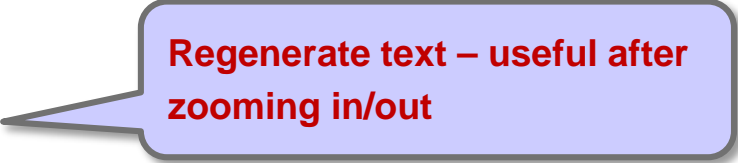
Labels in 3D view: Elev, Stair, ext air, B, Duct, Duct L, Laun, Br, Br.

Console:
>>> SLViewer: SLIM_IMPORT_LAYOUT successful!
>>> SLViewer: 1: Architectural view > 1: Whole space and space element

MODEL | 1/64" = 1'-0" | +0.0000

Steps

1. Run script 'open_output_layouts.bat'
2. 'SLIM_IMPORT_LAYOUT' command
3. **'SLFTR_FORMAT_TEXT_REGEN' command**
4. 'SLFV_FORMAT_VALUES' command
5. 'SLFA_FORMAT_ATTRIBUTES' command
6. 'SLGN_GUIDE_NEXT' command
7. 'SLGN_GUIDE_MORE' command
8. 'SLGN_GUIDE_PREVIOUS' command
9. 'SLPA_PRINT_ALL_VIEWS' command



Regenerate text – useful after zooming in/out

ZOOM (Autocad)

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]

Architectural view

Element properties:
Whole space, primary space property

Spatial relations:
None

Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

Labels in wireframe: Elev, Stair, Duct_L, Duct Laun, Br, B, ext air

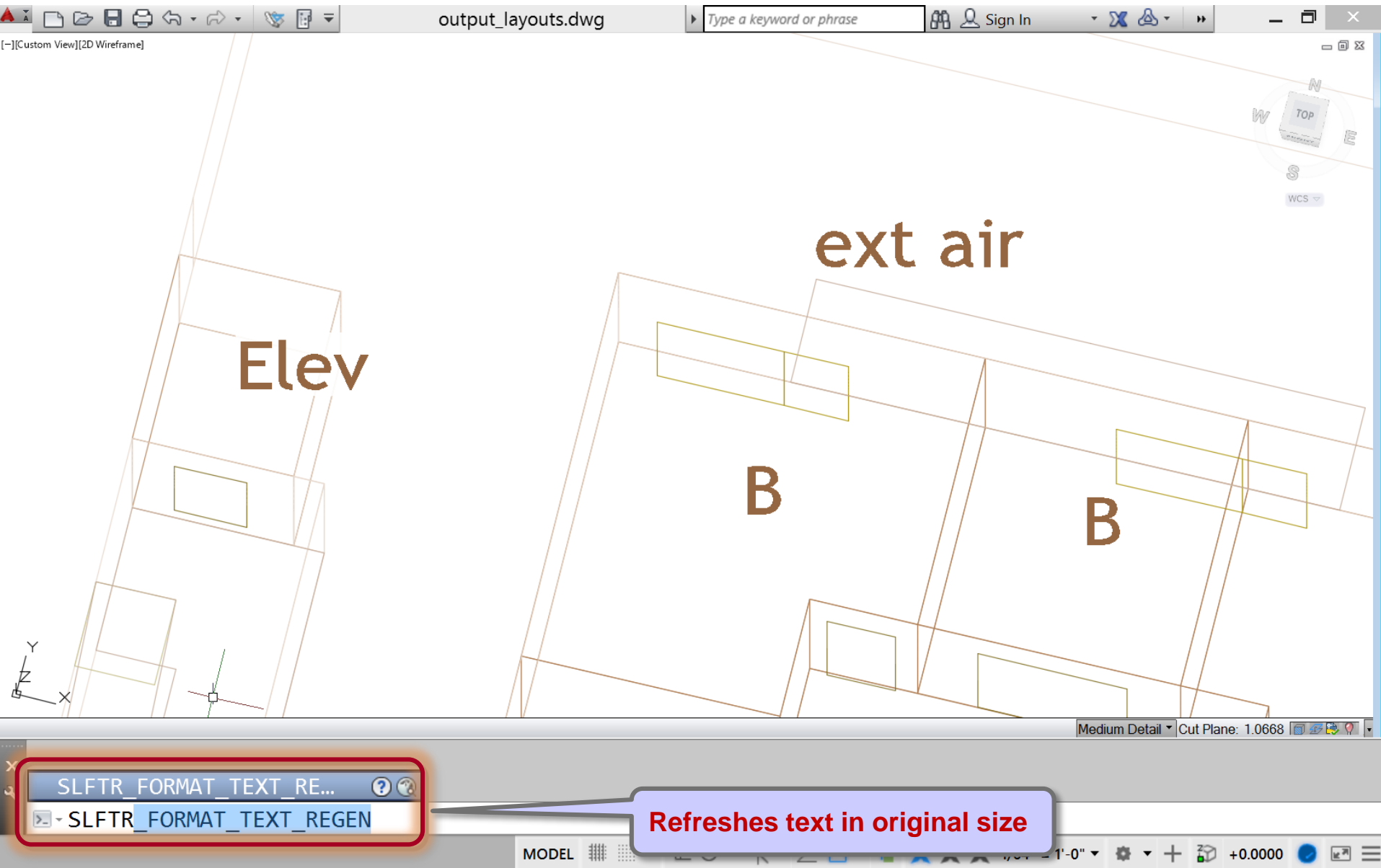
Search: [Duct Laun]

Medium Detail | Cut Plane: 1.0668

[All/Center/Dynamic/Extents/Previous/Scale/Window/Object] <real time>:
ZOOM Specify opposite corner:

MODEL | 1/64" = 1'-0" | +0.0000

SLFTR_FORMAT_TEXT_REGEN



[Custom View][2D Wireframe]

Architectural view

Element properties:

Whole space, primary space property

Spatial relations:

None

Spatial relation network properties:

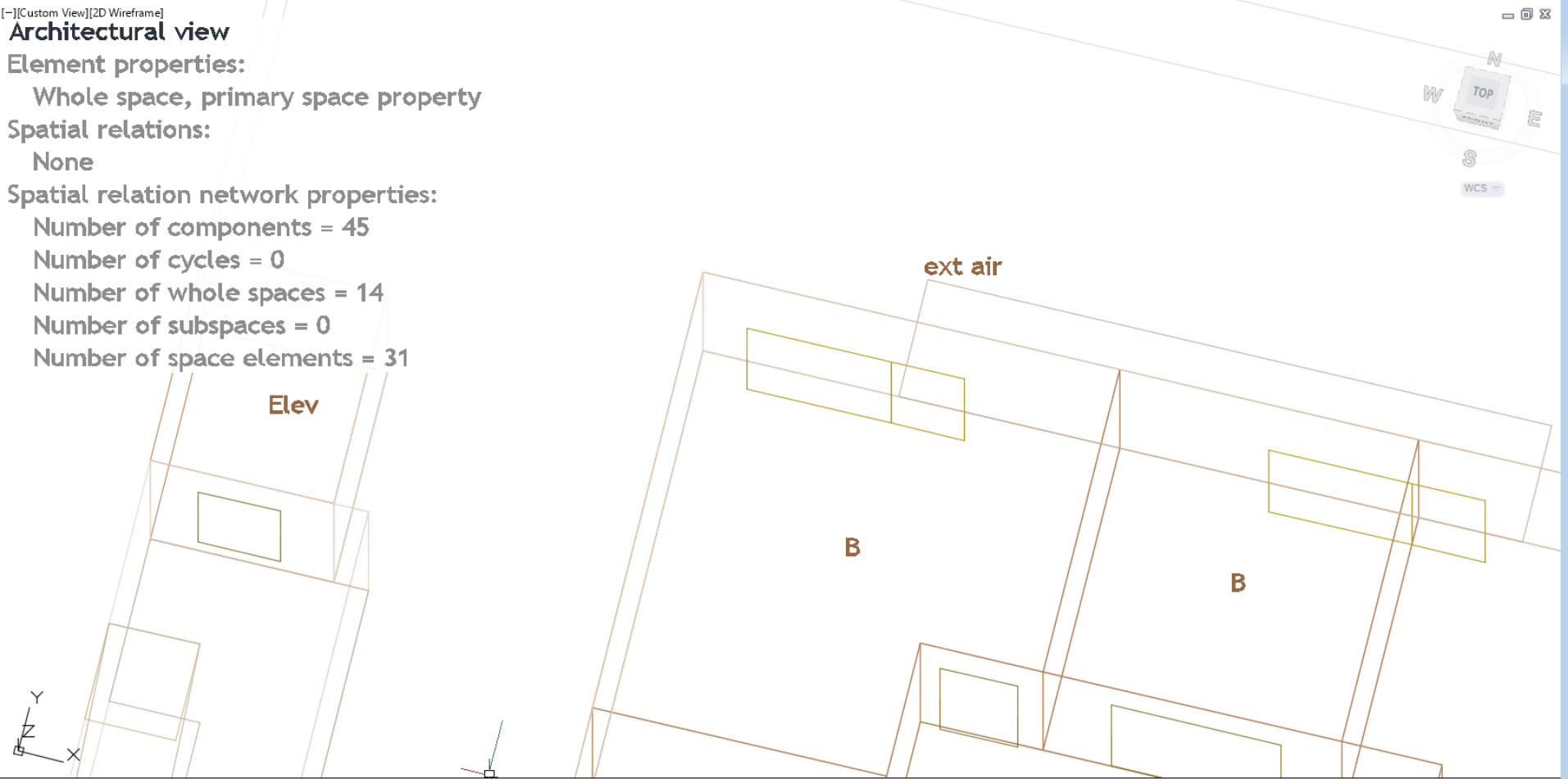
Number of components = 45

Number of cycles = 0

Number of whole spaces = 14

Number of subspaces = 0

Number of space elements = 31

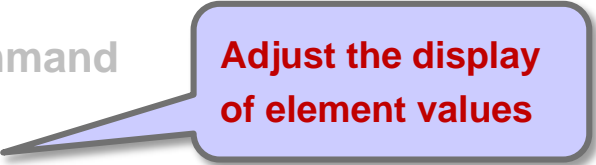


Medium Detail | Cut Plane: 1.0668

Enter object ordering option [Above objects/Under objects/Front/Back] <Back>: _Back

Steps

1. Run script 'open_output_layouts.bat'
2. 'SLIM_IMPORT_LAYOUT' command
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. **'SLFV_FORMAT_VALUES' command**
5. 'SLFA_FORMAT_ATTRIBUTES' command
6. 'SLGN_GUIDE_NEXT' command
7. 'SLGN_GUIDE_MORE' command
8. 'SLGN_GUIDE_PREVIOUS' command
9. 'SLPA_PRINT_ALL_VIEWS' command



**Adjust the display
of element values**

SLFV_FORMAT_VALUES

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

ext air
Elev
Stair
B
Duct L
Duct
Laun
Br
B
Br
ext air

Medium Detail | Cut Plane: 1.0668

>>> SLViewer: SLIM IMPORT LAYOUT successful!
SLFV_FORMAT_VALUES view > 1: Whole space and space element
- SLFV_FORMAT_VALUES

MODEL | 1/64" = 1'-0" | +0.0000

SLFV_FORMAT_VALUES

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

external air
elevator
bedroom
bedroom
bedroom
stairway
duct
living room
duct
laundry room
bathroom
bathroom
external air

Medium Detail | Cut Plane: 1.0668

Select objects:
SLFV_FORMAT_VALUES Above objects/Under objects/Front/Back] <Back>: _Back
- SLFV_FORMAT_VALUES

MODEL | 1/64" = 1'-0" | +0.0000

SLFV_FORMAT_VALUES

output_layouts.dwg | Type a keyword or phrase | Sign In

[Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

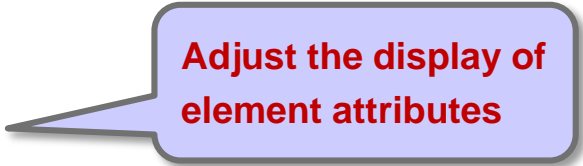
Medium Detail | Cut Plane: 1.0668

Select objects:
Enter object ordering option [Above objects/Under objects/Front/Back] <Back>: _Back

MODEL | 1/64" = 1'-0" | +0.0000

Steps

1. Run script 'open_output_layouts.bat'
2. 'SLIM_IMPORT_LAYOUT' command
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. 'SLFV_FORMAT_VALUES' command
5. **'SLFA_FORMAT_ATTRIBUTES' command**
6. 'SLGN_GUIDE_NEXT' command
7. 'SLGN_GUIDE_MORE' command
8. 'SLGN_GUIDE_PREVIOUS' command
9. 'SLPA_PRINT_ALL_VIEWS' command




**Adjust the display of
element attributes**

SLFA_FORMAT_ATTRIBUTES

output_layouts.dwg | Type a keyword or phrase | Sign In

[Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31



Medium Detail | Cut Plane: 1.0668

Select objects:
SLFA_FORMAT_ATTRIBUT... Above objects/Under objects/Front/Back] <Back>: _Back
- SLFA_FORMAT_ATTRIBUTES

MODEL | 1/64" = 1'-0" | +0.0000

SLFA_FORMAT_ATTRIBUTES

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

primary space property = ext air
primary space property = Elev
primary space property = R
primary space property = B
primary space property = B
primary space property = Stair
primary space property = Duct
primary space property = L
primary space property = Ducty = Laun
primary space property = Br
primary space property = B
primary space property = Br
primary space property = ext air

Medium Detail | Cut Plane: 1.0668

Select objects:
SLFA_FORMAT_ATTRIBUT... Above objects/Under objects/Front/Back] <Back>: _Back
- SLFA_FORMAT_ATTRIBUTES

MODEL [Grid] [Isometric] [Orthographic] [3D] [2D] [Wireframe] [Hidden] [Visible] [1/64" = 1'-0"] [0.0000]

SLFA_FORMAT_ATTRIBUTES

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

output_layouts.dwg | Type a keyword or phrase | Sign In

psp = external air
psp = elevator
psp = bedroom
psp = bedroom
psp = bedroom
psp = stairway
psp = duct
psp = living room
psp = duct = laundry room
psp = bathroom
psp = bedroom
psp = bathroom
psp = external air

Medium Detail | Cut Plane: 1.0668

Select objects:
SLFA_FORMAT_ATTRIBUT... Above objects/Under objects/Front/Back] <Back>: _Back
- SLFA_FORMAT_ATTRIBUTES

MODEL | 1/64" = 1'-0" | +0.0000

SLFA_FORMAT_ATTRIBUTES

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

external air
elevator
bedroom
bedroom
bedroom
stairway
duct
living room
duct
laundry room
bathroom
bathroom
external air

Medium Detail | Cut Plane: 1.0668

Select objects:
Enter object ordering option [Above objects/Under objects/Front/Back] <Back>: _Back

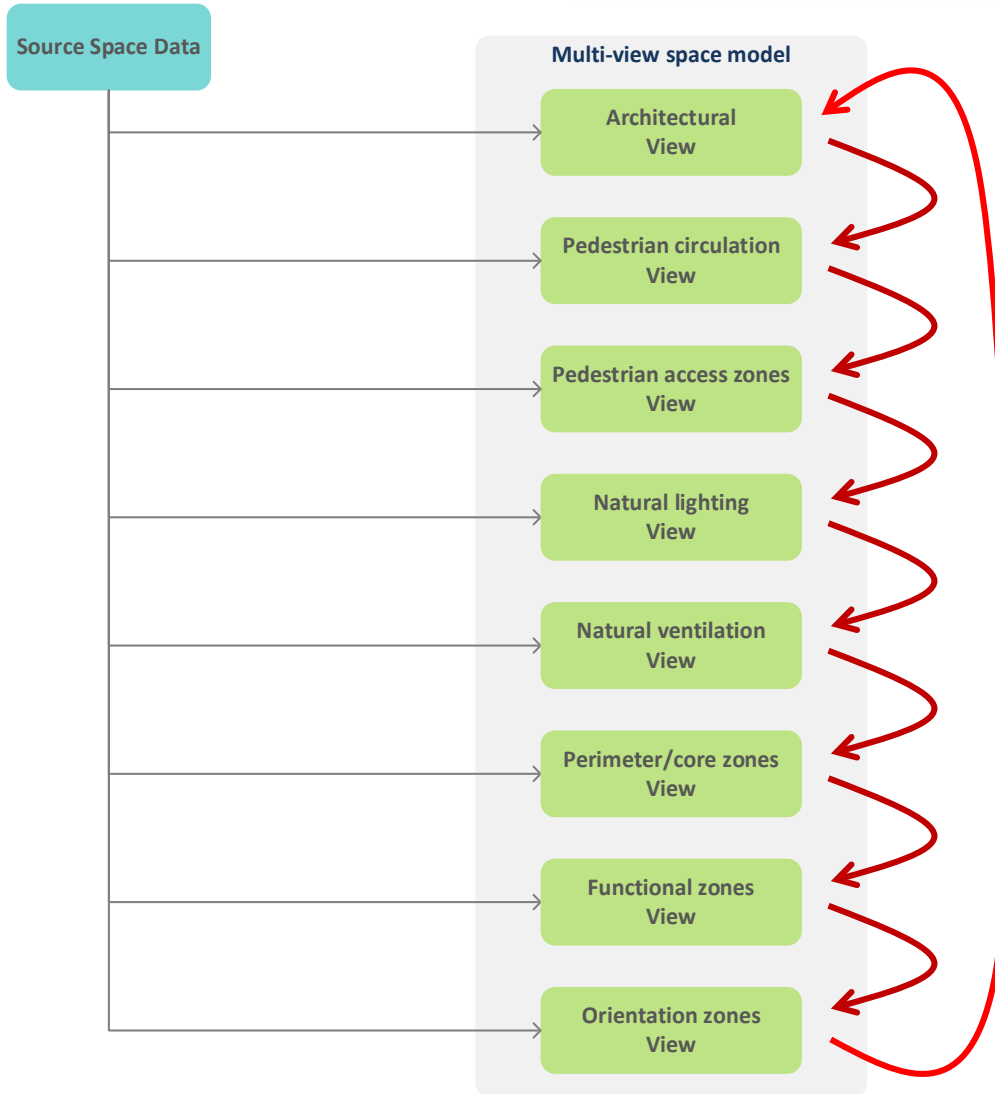
MODEL | 1/64" = 1'-0" | +0.0000

Steps

1. Run script 'open_output_layouts.bat'
2. 'SLIM_IMPORT_LAYOUT' command
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. 'SLFV_FORMAT_VALUES' command
5. 'SLFA_FORMAT_ATTRIBUTES' command
- 6. 'SLGN_GUIDE_NEXT' command**
7. 'SLGN_GUIDE_MORE' command
8. 'SLGN_GUIDE_PREVIOUS' command
9. 'SLPA_PRINT_ALL_VIEWS' command

Guides user through a sample sub-view of each view

SLGN_GUIDE_NEXT guides a user through a sample sub-view of each view



SLGN_GUIDE_NEXT



[Custom View][2D Wireframe]

Architectural view

Element properties:

Whole space, primary space property

Spatial relations:

None

Spatial relation network properties:

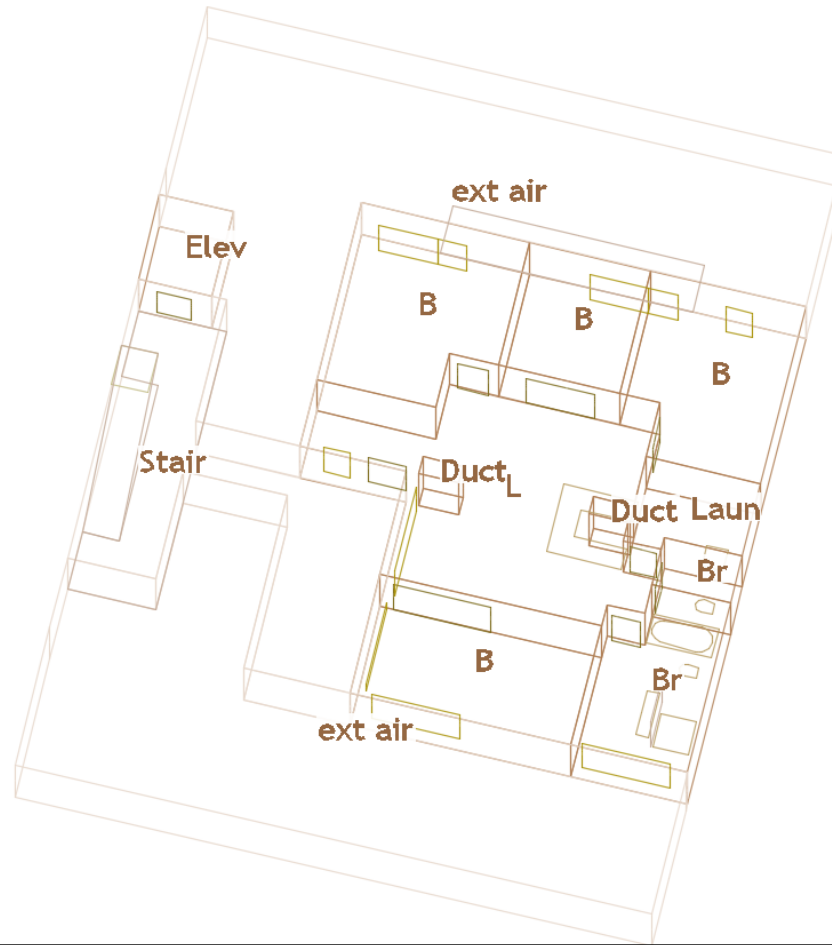
Number of components = 45

Number of cycles = 0

Number of whole spaces = 14

Number of subspaces = 0

Number of space elements = 31



Y

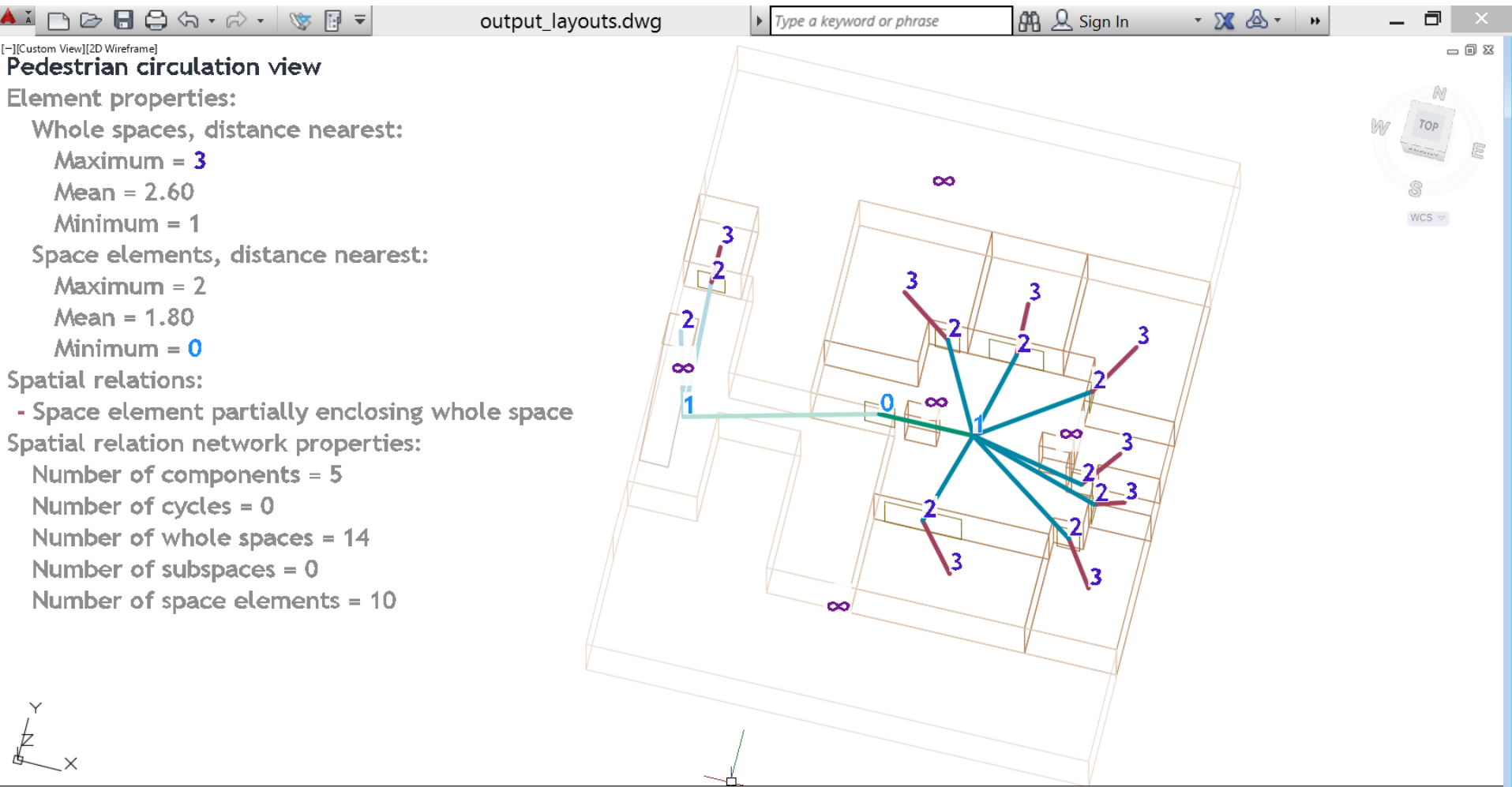
- SLGN_GUIDE_NEXT
- SLGM_GUIDE_MORE
- SLGP_GUIDE_PREVIOUS
- SLGS_GUIDE_SWAP
- SLGN_GUIDE_NEXT**

Medium Detail | Cut Plane: 1.0668

view > 1: Whole space and space element



SLGN_GUIDE_NEXT



SLGN_GUIDE_NEXT



Pedestrian circulation view > 3: Space element partially enclosing whole space

- SLGN_GUIDE_NEXT

MODEL



1/64" = 1'-0"

+0.0000

SLGN_GUIDE_NEXT

output_layouts.dwg | Type a keyword or phrase | Sign In

[Custom View][2D Wireframe]

Pedestrian access zones view

Element properties:

Whole spaces, degree:

- Maximum = 1
- Mean = 0.28
- Minimum = 0

Space elements, degree:

- Maximum = 2
- Mean = 2
- Minimum = 2

Spatial relations:

- Space element partially enclosing whole space

Spatial relation network properties:

- Number of components = 6
- Number of cycles = 0
- Number of whole spaces = 7
- Number of subspaces = 0
- Number of space elements = 1

Medium Detail | Cut Plane: 1.0668

SLGN_GUIDE_NEXT | Pedestrian access zones view > 3: Space element partially enclosing whole space

MODEL | 1/64" = 1'-0" | +0.0000

SLGN_GUIDE_NEXT



[Custom View][2D Wireframe]

Natural lighting view

Element properties:

Whole spaces, distance nearest:

Maximum = 2

Mean = 0.75

Minimum = 0

Space elements, distance nearest:

Maximum = 1

Mean = 1

Minimum = 1

Spatial relations:

- Space element partially enclosing whole space

Spatial relation network properties:

Number of components = 11

Number of cycles = 3

Number of whole spaces = 18

Number of subspaces = 0

Number of space elements = 11



Medium Detail | Cut Plane: 1.0668



ing view > 3: Space element partially enclosing whole space



SLGN_GUIDE_NEXT



[Custom View][2D Wireframe]

Natural ventilation view

Element properties:

Whole spaces, internal, distance must pass:

Maximum = 22.04m

Mean = 13.00m

Minimum = 4.88m

Space elements, distance must pass:

Maximum = 19.80m

Mean = 11.38m

Minimum = 4.88m

Spatial relations:

- Space element partially enclosing whole space

Spatial relation network properties:

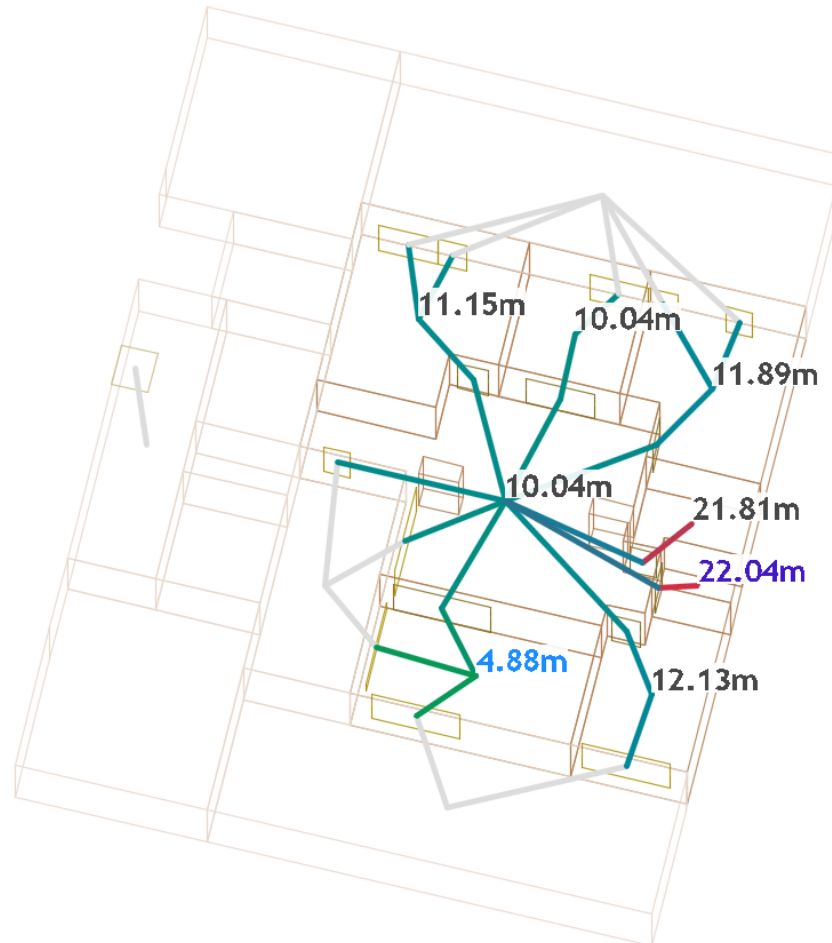
Number of components = 8

Number of cycles = 7

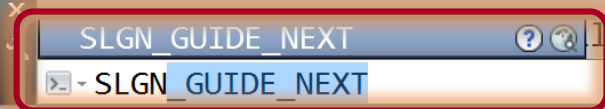
Number of whole spaces = 18

Number of subspaces = 0

Number of space elements = 18



Medium Detail | Cut Plane: 1.0668



ation view > 3: Space element partially enclosing whole space



SLGN_GUIDE_NEXT

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]

Perimeter core zones view

Element properties:

Whole spaces, distance nearest:

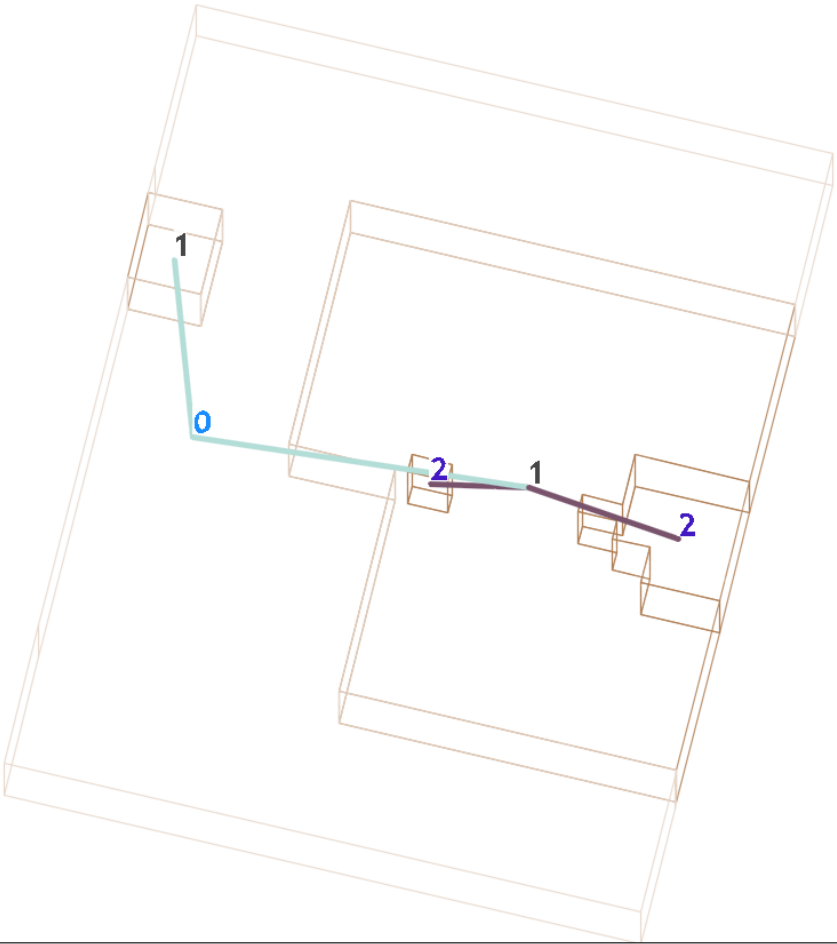
- Maximum = 2
- Mean = 1.19
- Minimum = 0

Spatial relations:

- Whole space adjacency

Spatial relation network properties:

- Number of components = 1
- Number of cycles = 0
- Number of whole spaces = 5
- Number of subspaces = 0
- Number of space elements = 0



Medium Detail | Cut Plane: 1.0668

SLGN_GUIDE_NEXT | Perimeter core zones view > 4: Whole space adjacency

SLGN_GUIDE_NEXT

MODEL | 1/64" = 1'-0" | +0.0000

SLGN_GUIDE_NEXT



[Custom View][2D Wireframe]

Functional zones view

Element properties:

Whole space, primary space property

Spatial relations:

None

Spatial relation network properties:

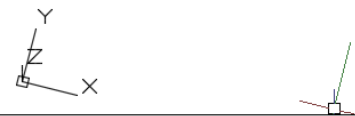
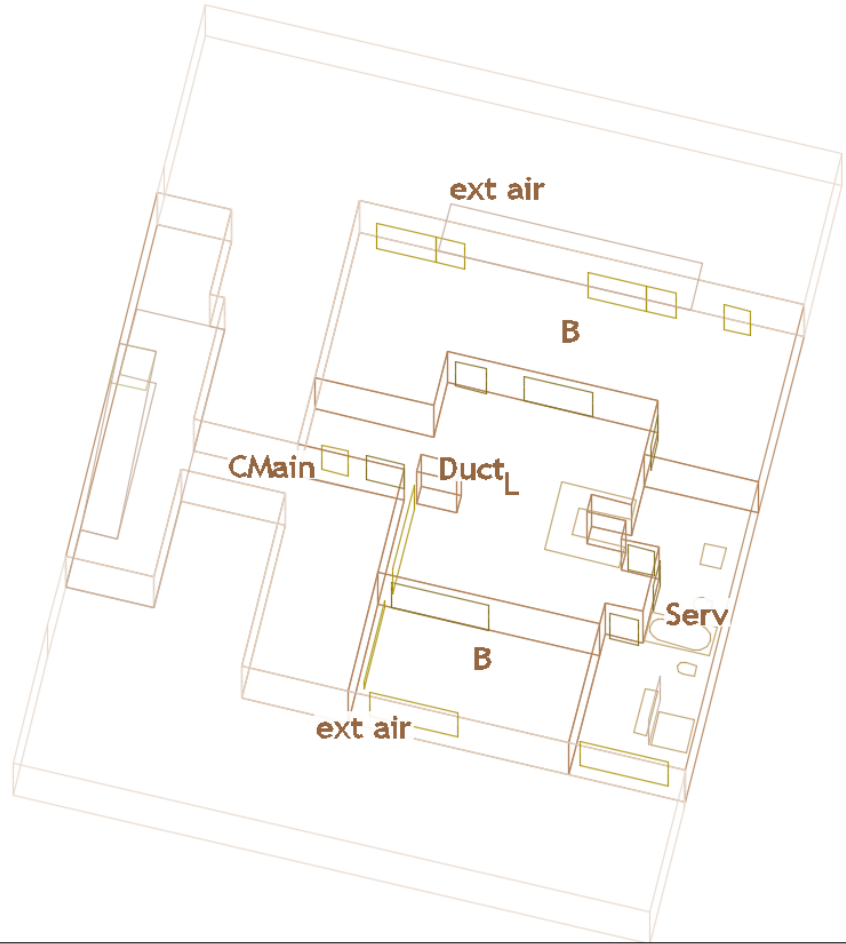
Number of components = 38

Number of cycles = 0

Number of whole spaces = 8

Number of subspaces = 0

Number of space elements = 30



Medium Detail | Cut Plane: 1.0668



Functional zones view > 1: Whole space and space element



SLGN_GUIDE_NEXT



[Custom View][2D Wireframe]

Orientation zones view

Element properties:

Whole space, primary space property

Spatial relations:

None

Spatial relation network properties:

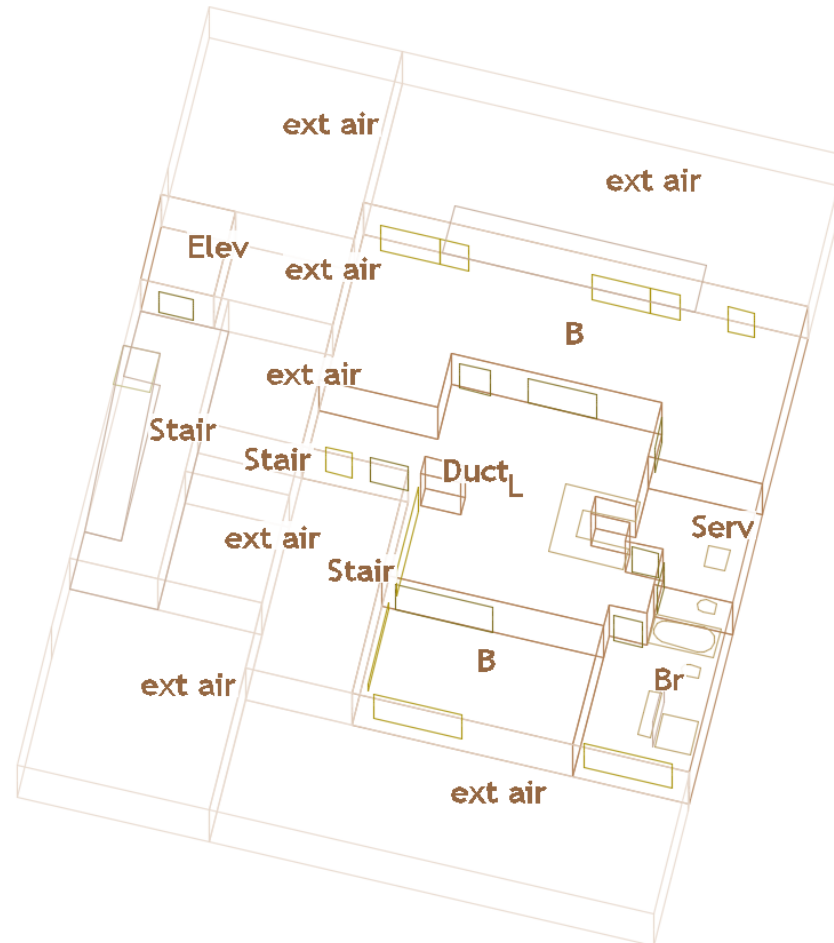
Number of components = 48

Number of cycles = 0

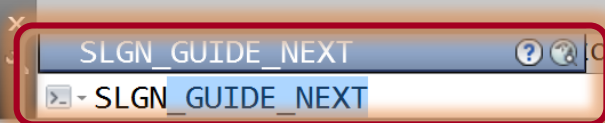
Number of whole spaces = 17

Number of subspaces = 0

Number of space elements = 31



Medium Detail | Cut Plane: 1.0668



Orientation zones view > 1: Whole space and space element



Back to 'Architectural view'

output_layouts.dwg | Type a keyword or phrase | Sign In

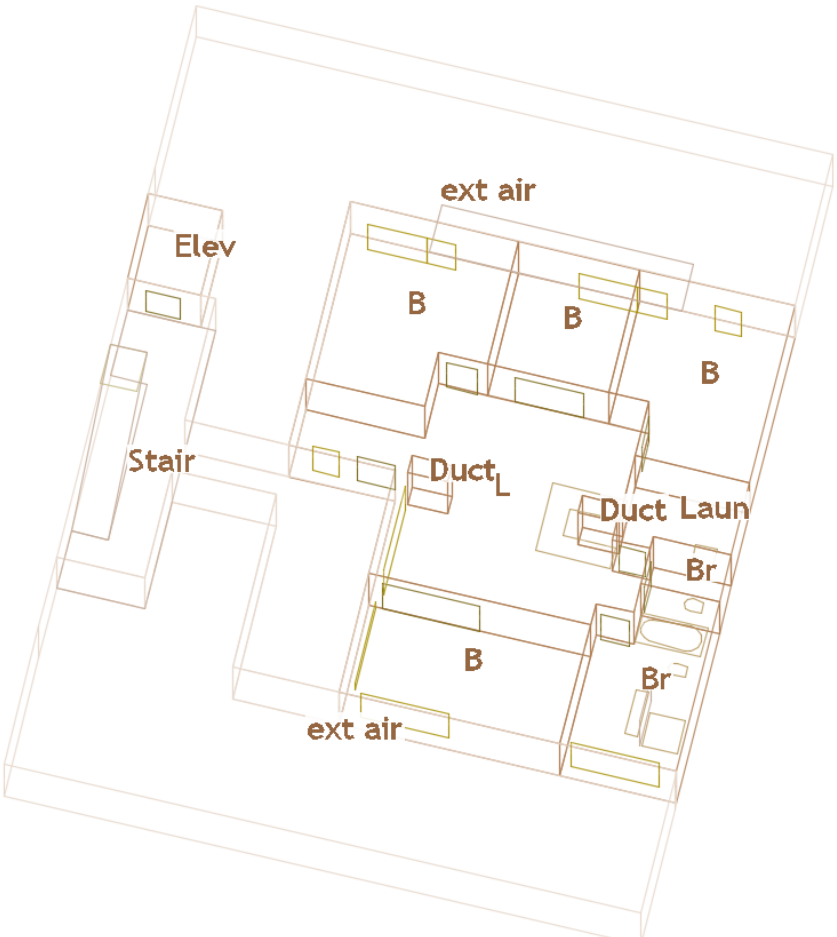
[-][Custom View][2D Wireframe]

Architectural view

Element properties:
Whole space, primary space property

Spatial relations:
None

Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31




Medium Detail | Cut Plane: 1.0668

>>> SLViewer: 1: Architectural view > 1: Whole space and space element

MODEL | 1/64" = 1'-0" | +0.0000

Steps

1. Run script 'open_output_layouts.bat'
2. 'SLIM_IMPORT_LAYOUT' command
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. 'SLFV_FORMAT_VALUES' command
5. 'SLFA_FORMAT_ATTRIBUTES' command
6. 'SLGN_GUIDE_NEXT' command
7. **'SLGN_GUIDE_MORE' command**
8. 'SLGN_GUIDE_PREVIOUS' command
9. 'SLPA_PRINT_ALL_VIEWS' command



Guides a user through additional sub-views

SLGM_GUIDE_MORE

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

ext air
Elev
Stair
B
Duct L
Duct
Laun
Br
B
Br
ext air

Y
Z
X

Select objects:
Enter object ordering option [Above object | Under object]
Type a command

SLGN_GUIDE_MORE guides through additional sub-views

MODEL | 1/64" = 1'-0" | +0.0000

SLGM_GUIDE_MORE

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Spatial relations:
- Whole space adjacency
Spatial relation network properties:
Number of components = 1
Number of cycles = 15
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 0

**All views visited by
'SLGN_GUIDE_NEXT' are
also visited by
'SLGN_GUIDE_MORE'**


Medium Detail | Cut Plane: 1.0668

Enter object ordering option [Above objects/Under objects/Front/Back] <Back>: _Back
>>> SLViewer: 1: Architectural view > 4: Whole space adjacency

MODEL | 1/64" = 1'-0" | +0.0000

Steps

1. Run script 'open_output_layouts.bat'
2. 'SLIM_IMPORT_LAYOUT' command
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. 'SLFV_FORMAT_VALUES' command
5. 'SLFA_FORMAT_ATTRIBUTES' command
6. 'SLGN_GUIDE_NEXT' command
7. 'SLGN_GUIDE_MORE' command
8. **'SLGN_GUIDE_PREVIOUS' command**
9. 'SLPA_PRINT_ALL_VIEWS' command



**Guide through sub-views
in the opposite direction**

SLGP_GUIDE_PREVIOUS

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Spatial relations:
- Whole space adjacency
Spatial relation network properties:
Number of components = 1
Number of cycles = 15
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 0

Medium Detail | Cut Plane: 1.0668

Enter object ordering option [Above objects/Under objects/Front/Back] <Back>: _Back
SLGP_GUIDE_PREVIOUS view > 4: Whole space adjacency
- SLGP_GUIDE_PREVIOUS

Go back to previous sub-view

SLGP_GUIDE_PREVIOUS

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

Previous sub-view

Medium Detail | Cut Plane: 1.0668

Select objects:
Enter object ordering option [Above objects/Under objects/Front/Back] <Back>: _Back
Type a command

MODEL | 1/64" = 1'-0" | +0.0000

Steps

1. Run script 'open_output_layouts.bat'
2. 'SLIM_IMPORT_LAYOUT' command
3. 'SLFTR_FORMAT_TEXT_REGEN' command
4. 'SLFV_FORMAT_VALUES' command
5. 'SLFA_FORMAT_ATTRIBUTES' command
6. 'SLGN_GUIDE_NEXT' command
7. 'SLGN_GUIDE_MORE' command
8. 'SLGN_GUIDE_PREVIOUS' command
9. **'SLPA_PRINT_ALL_VIEWS' command**

SLPA_PRINT_ALL_VIEWS

output_layouts.dwg | Type a keyword or phrase | Sign In

[-][Custom View][2D Wireframe]
Architectural view
Element properties:
Whole space, primary space property
Spatial relations:
None
Spatial relation network properties:
Number of components = 45
Number of cycles = 0
Number of whole spaces = 14
Number of subspaces = 0
Number of space elements = 31

Labels in 3D view: Elev, Stair, ext air, B, Duct L, Duct, Laun, Br, Br, ext air

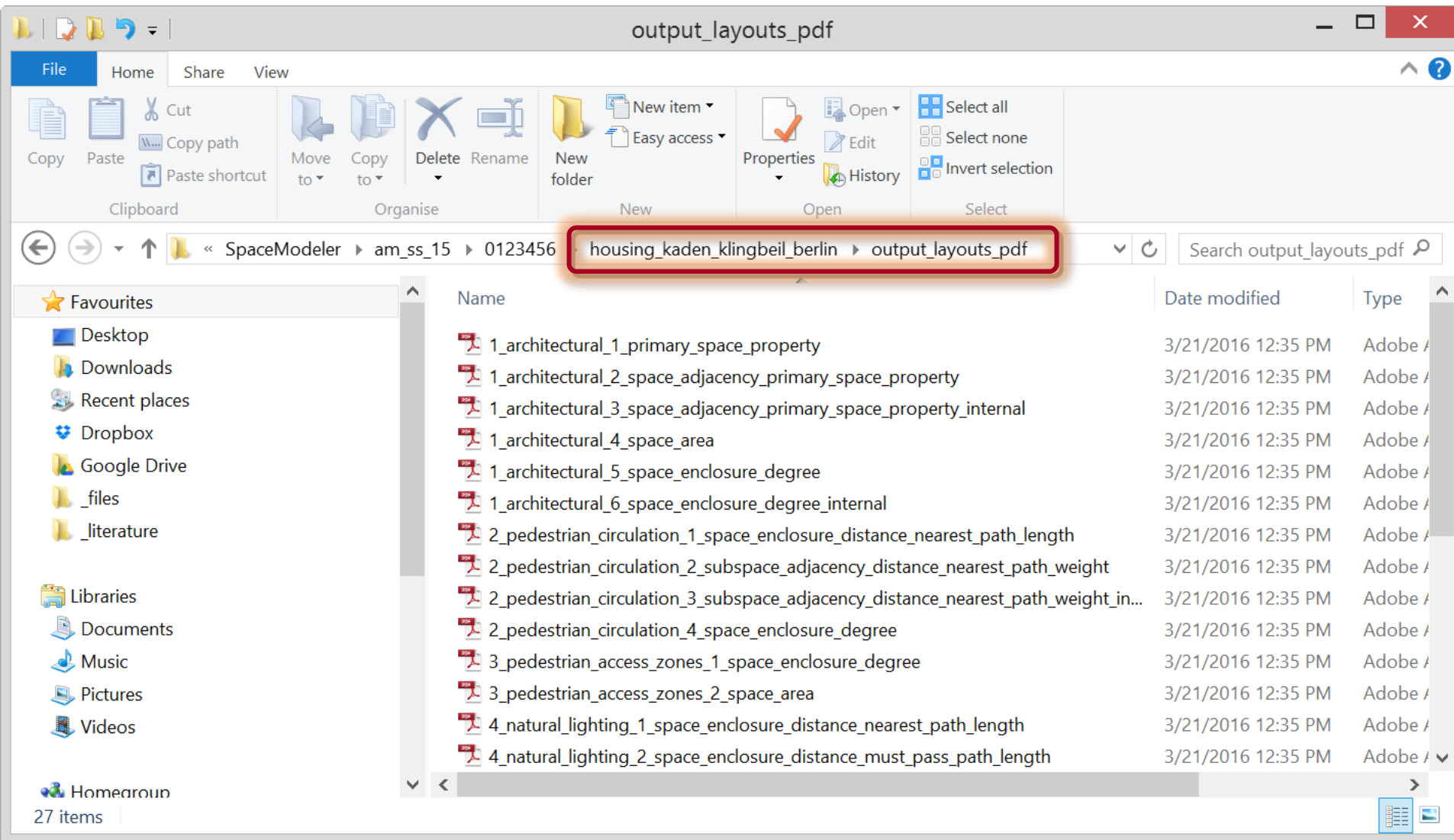
Medium Detail | Cut Plane: 1.0668

Select objects:
SLPA_PRINT_ALL_VIEWS Above objects/Under
SLPA_PRINT_ALL_VIEWS

All views are printed as 'pdf' files to the folder 'output_layouts_pdf'

MODEL | 1/64" = 1'-0" | +0.0000

SLPA_PRINT_ALL_VIEWS



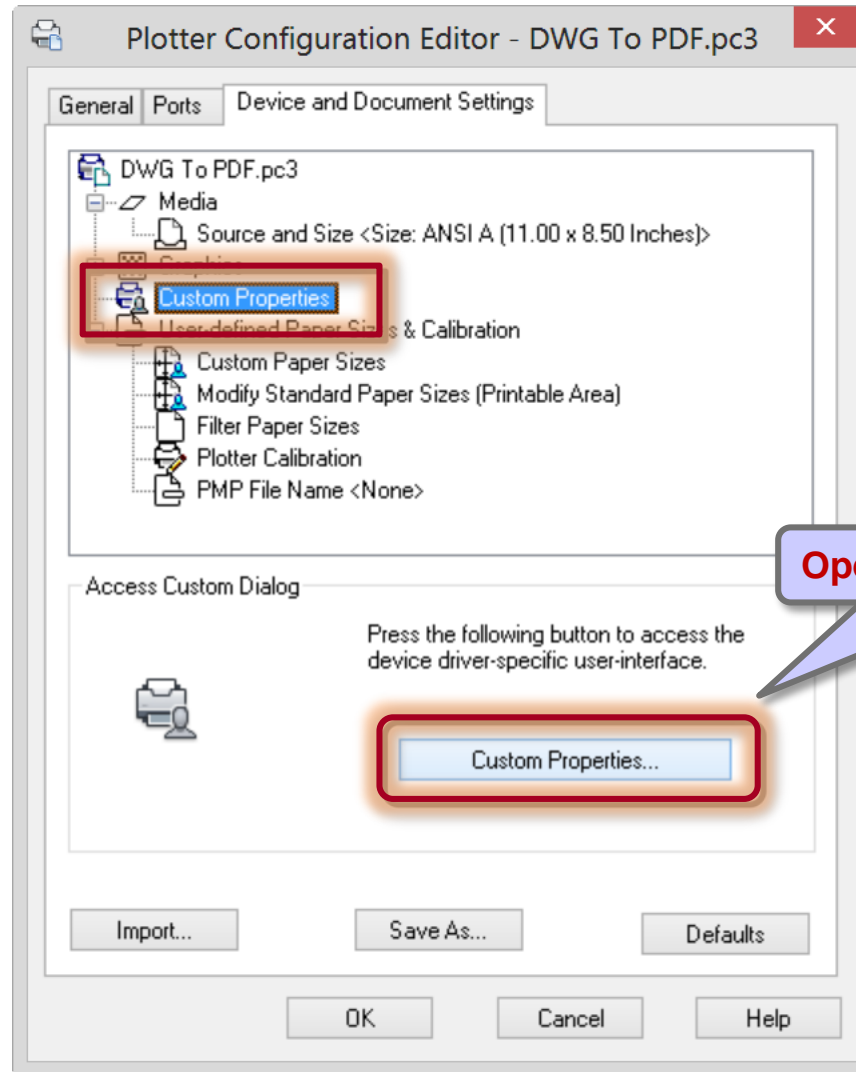
Printer setup to prevent opening of pdf files

The screenshot shows a Windows File Explorer window titled "Plotters" with the address bar displaying the path: `C:\ProgramData\Autodesk\ACA 2015\enu\Plotters`. The left sidebar shows the navigation pane with "Computer" expanded to "BOOTCAMP (C:) > ProgramData > Autodesk > ACA 2015 > enu > Plotters". The main pane displays a list of files and folders:

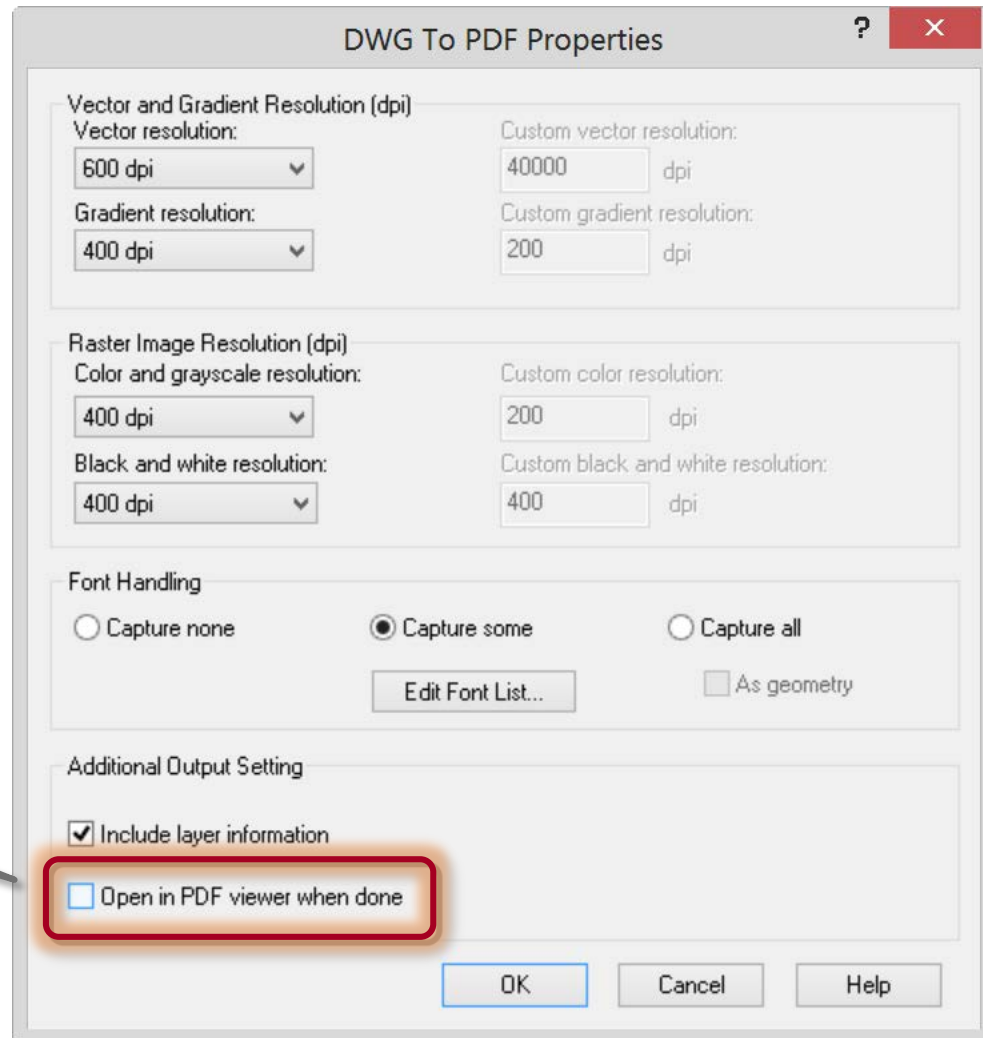
Name	Date modified	Type	Size
Plot Styles	8/7/2014 9:20 AM	File folder	
PMP Files	8/7/2014 9:20 AM	File folder	
Add-A-Plotter Wizard	8/7/2014 9:20 AM	Shortcut	2 KB
Default Windows System Printer	3/3/2003 5:36 PM	AutoCAD Plotter Co...	2 KB
DWF6 ePlot	7/29/2004 1:14 AM	AutoCAD Plotter Co...	5 KB
DWF55 ePlot (optimized for plotting)	10/29/2002 9:52 AM	AutoCAD Plotter Co...	2 KB
DWF55 eView (optimized for viewing)	10/29/2002 9:52 AM	AutoCAD Plotter Co...	2 KB
DWF6 ePlot (optimized for plotting)	6/21/2007 9:47 AM	AutoCAD Plotter Co...	5 KB
DWG To PDF	3/20/2016 3:01 PM	AutoCAD Plotter Co...	2 KB
PublishToWeb	Size: 1.07 KB	AutoCAD Plotter Co...	2 KB
PublishToWeb	Date modified: 3/20/2016 3:01 PM	AutoCAD Plotter Co...	1 KB
PublishToWeb	1/21/2000 9:18 PM	AutoCAD Plotter Co...	1 KB

A red callout bubble points to the "DWG To PDF" entry, and another callout bubble below it says "Open".

Printer setup to prevent opening of pdf files



Printer setup to prevent opening of pdf files



Printer setup to prevent opening of pdf files

