

Magicalad demo exercise

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Magicaad demo

SINGLE FAMILY HOUSE – VENTILATION DEMO

Magicad links

Magicad website:

<https://www.magicad.com/fi/>

Magicad BIM product library:

<https://www.magiccloud.com/>

Magicad portal

<https://portal.magicad.com/>

Magicad student license

<https://www.magicad.com/wp-content/uploads/2016/06/MagiCAD-opiskelijalisenssi-2016.pdf>



Single family house – exercise (2 floors)

The instruction is related with similar building as Archicad exercise but extended to 2 floors.

You will use your own Archicad exercise model for this demo.

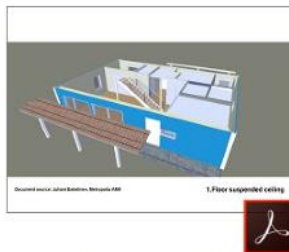
Also (Provided documents)

Architectural dwg files

AR_1.Floor.dwg

AR_2.Floor.dwg

1. Project ventilation details pdf file



Project ventilation details.pdf

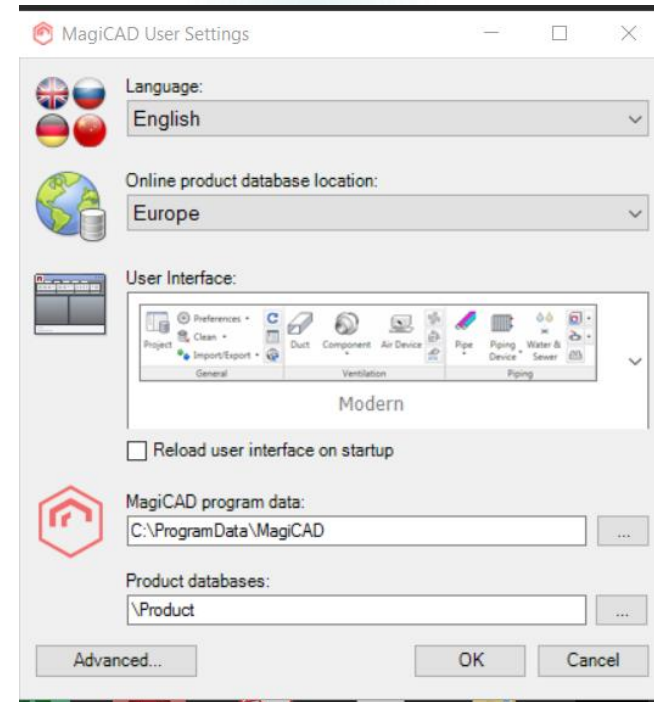
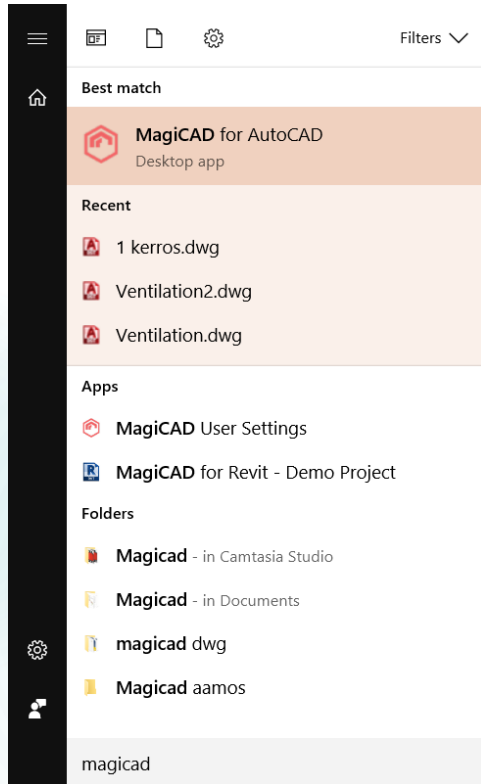


Required documents:

C:\ProgramData\MagiCAD\Templates\MagiCAD Ventilation and Piping\FIN

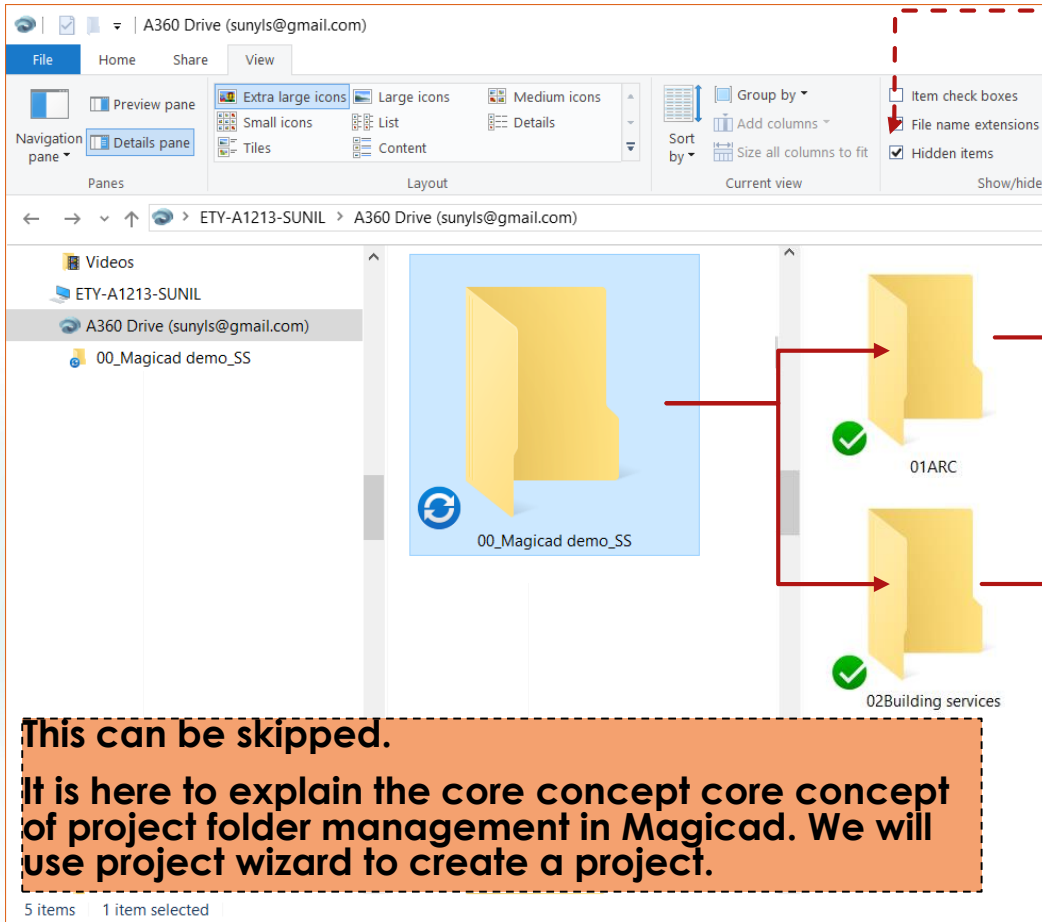
Run magicad

> Start Menu \ Programs \ MagiCAD



MagiCAD user settings can be accessed from start menu if not loaded properly

Folder structure and files



If "program data" is not visible, **turn on** the "hidden items" option in **windows explorer**

Copy the files from :
C:\ProgramData\MagiCAD\Templates\MagiCAD Ventilation and Piping\FIN

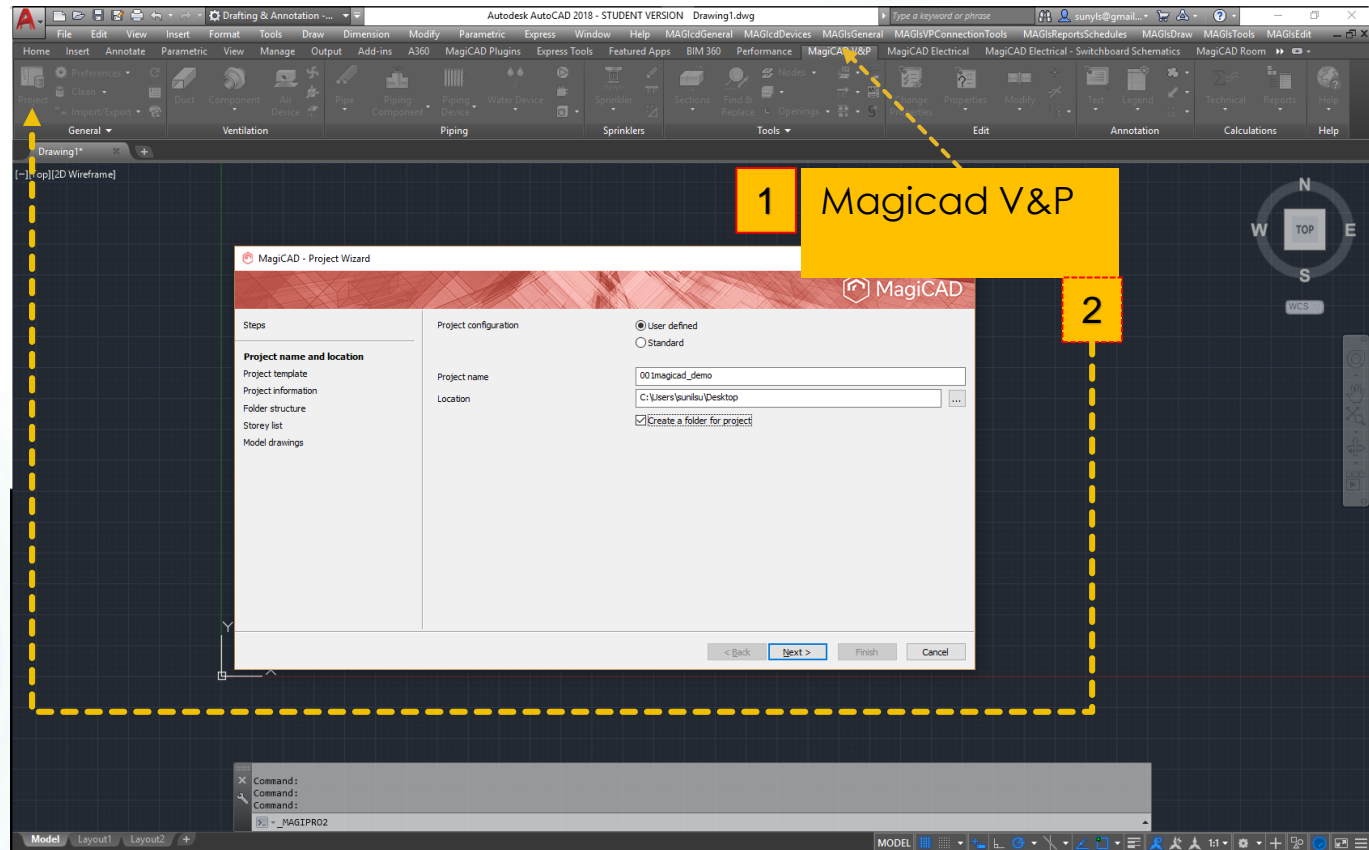
This can be skipped.
It is here to explain the core concept core concept of project folder management in Magicad. We will use project wizard to create a project.

Create Magicad project using project wizard

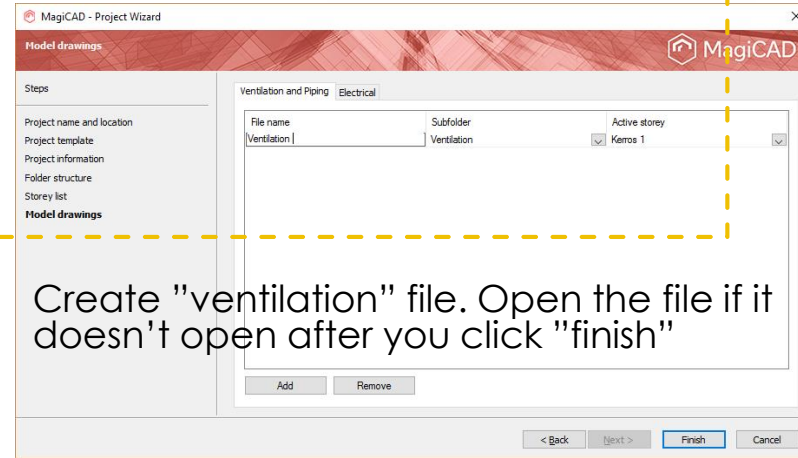
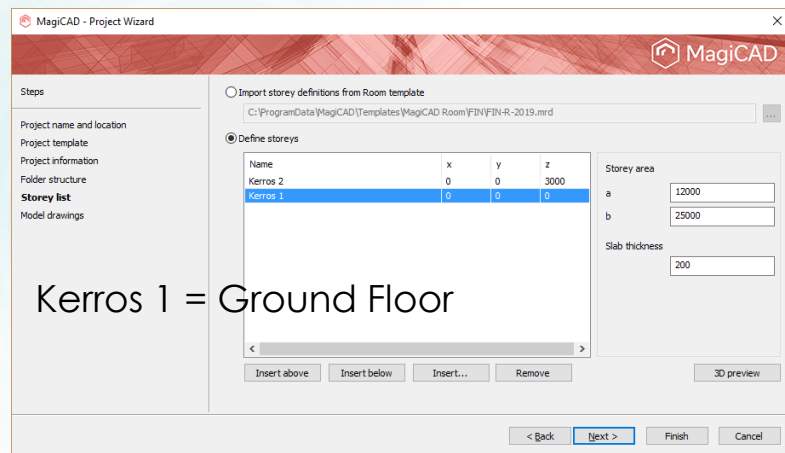
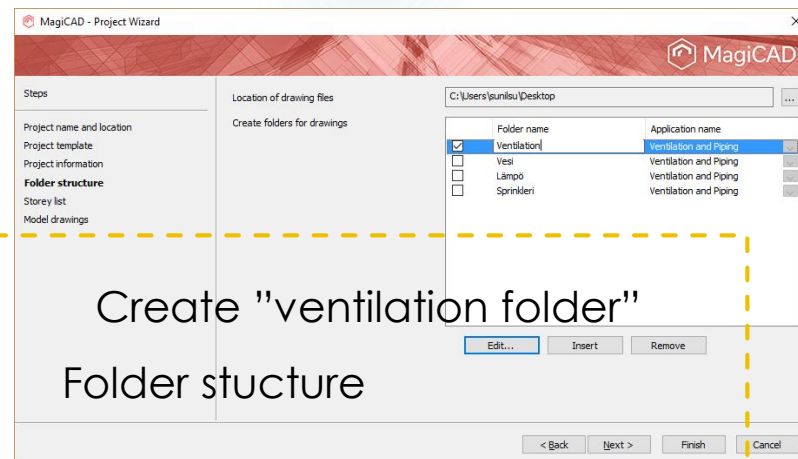
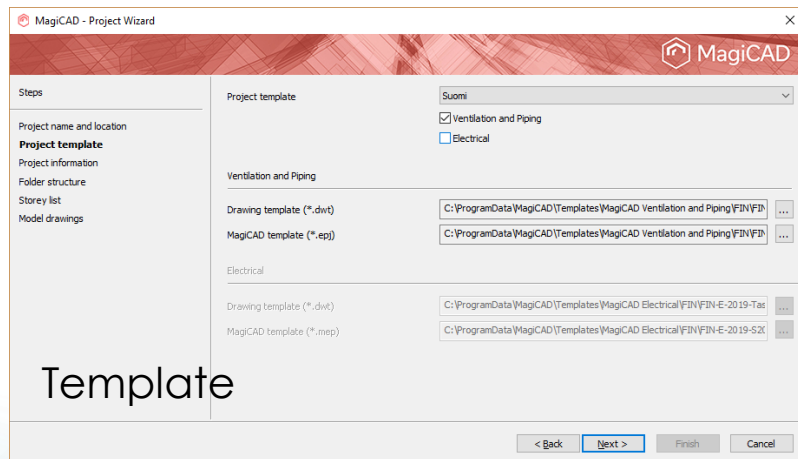
Open a new drawing using the drawing if not opened by default.

(Autocad application menu > new > drawing)

Create the project and input the needed information about the project.



Finnish template is selected in this instruction.



Magicad for autocad - settings

The screenshot displays the Autodesk AutoCAD 2017 interface with the Magicad menu and tools visible. The interface includes the standard AutoCAD ribbon (File, Edit, View, Insert, Format, Tools, Draw, Dimension, Modify, Parametric, Window, Help, Express) and the Magicad ribbon (MagiCAD V&P, MagiCAD Electrical, MagiCAD Electrical - Switchboard Schematics, MagiCAD Room). The Magicad ribbon contains various tools for piping, ventilation, and electrical systems. A dashed white arrow points from the Magicad ribbon to a yellow callout box. Another dashed white arrow points from the 'Format' ribbon to a yellow callout box. A white box highlights the Magicad menu and tools, with arrows pointing to a yellow callout box listing the visible tools.

1 Show Menu bar

2 Make tools visible

- Layers
- Views
- Visual styles

Magicad menu and tools (V&P)

Primary Settings

The image shows a screenshot of the AutoCAD software interface. The main workspace is a dark blue grid. A magnifying glass icon is visible in the upper right quadrant. At the bottom, the command line and ribbon are visible. Three yellow callout boxes with white text and arrows point to specific settings in the ribbon:

- Grid snap (on) (10,10 or 15,15)**: Points to the Grid Snap icon in the ribbon.
- Polar tracking (on) : (45, 90)**: Points to the Polar Tracking icon in the ribbon.
- Object snap tracking (on)**: Points to the Object Snap Tracking icon in the ribbon.

A yellow callout box in the top right corner contains the text: "• Right clicking will also provide different settings". A dashed white arrow points from this box to the ribbon area.

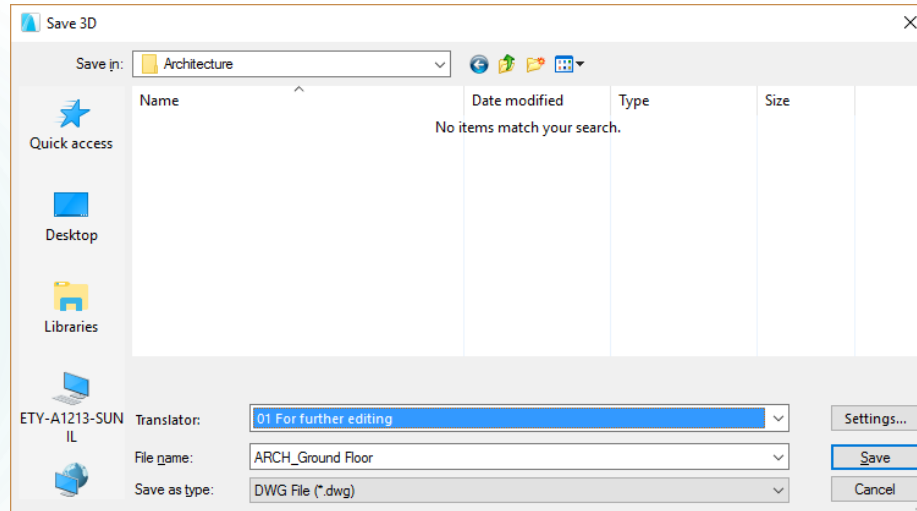
The bottom of the screen shows the Windows taskbar with several open applications: Stud..., Wor..., and Mag... The system tray on the right shows the date and time: FIN 13.53.

Floor plan (archicad exercise file)

Open your archicad exercise file of single family house.

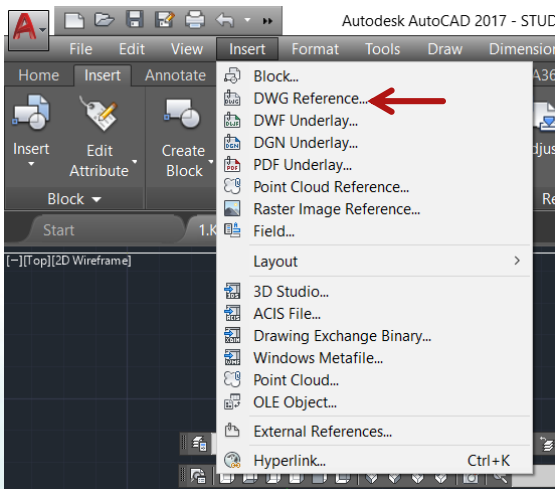
Save a dwg file from 3D window. Select the project folder and make "architecture" folder.

Name the document as required - ARCH_Ground Floor (referred in the instruction as AR_1.kerros.dwg)

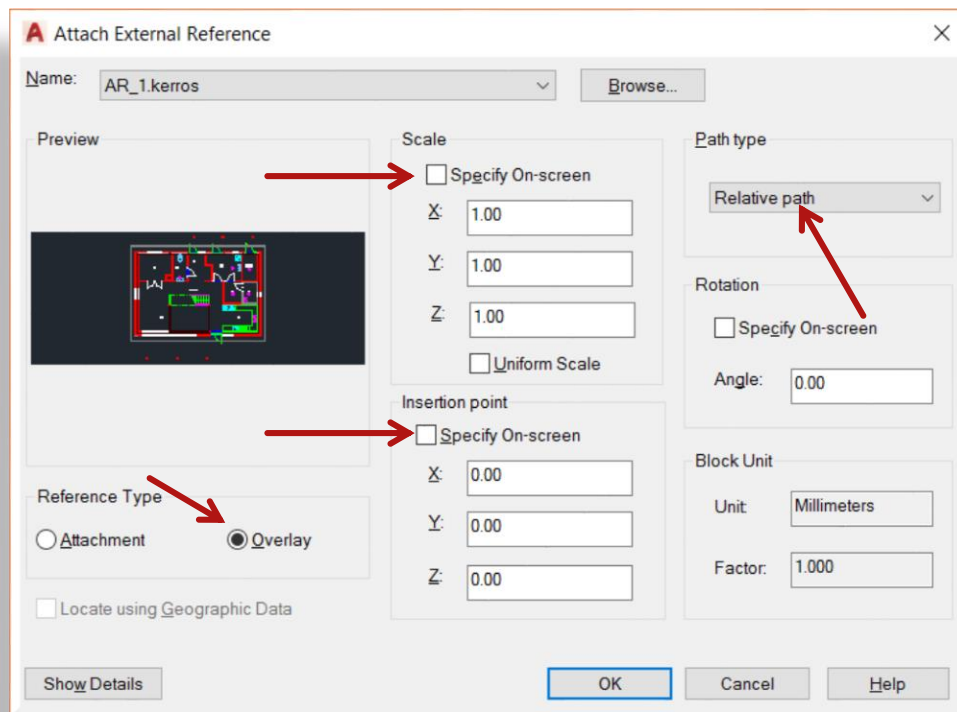
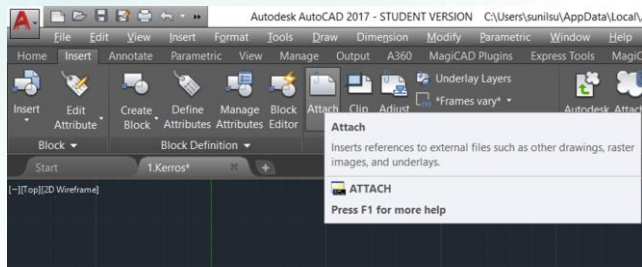


External reference

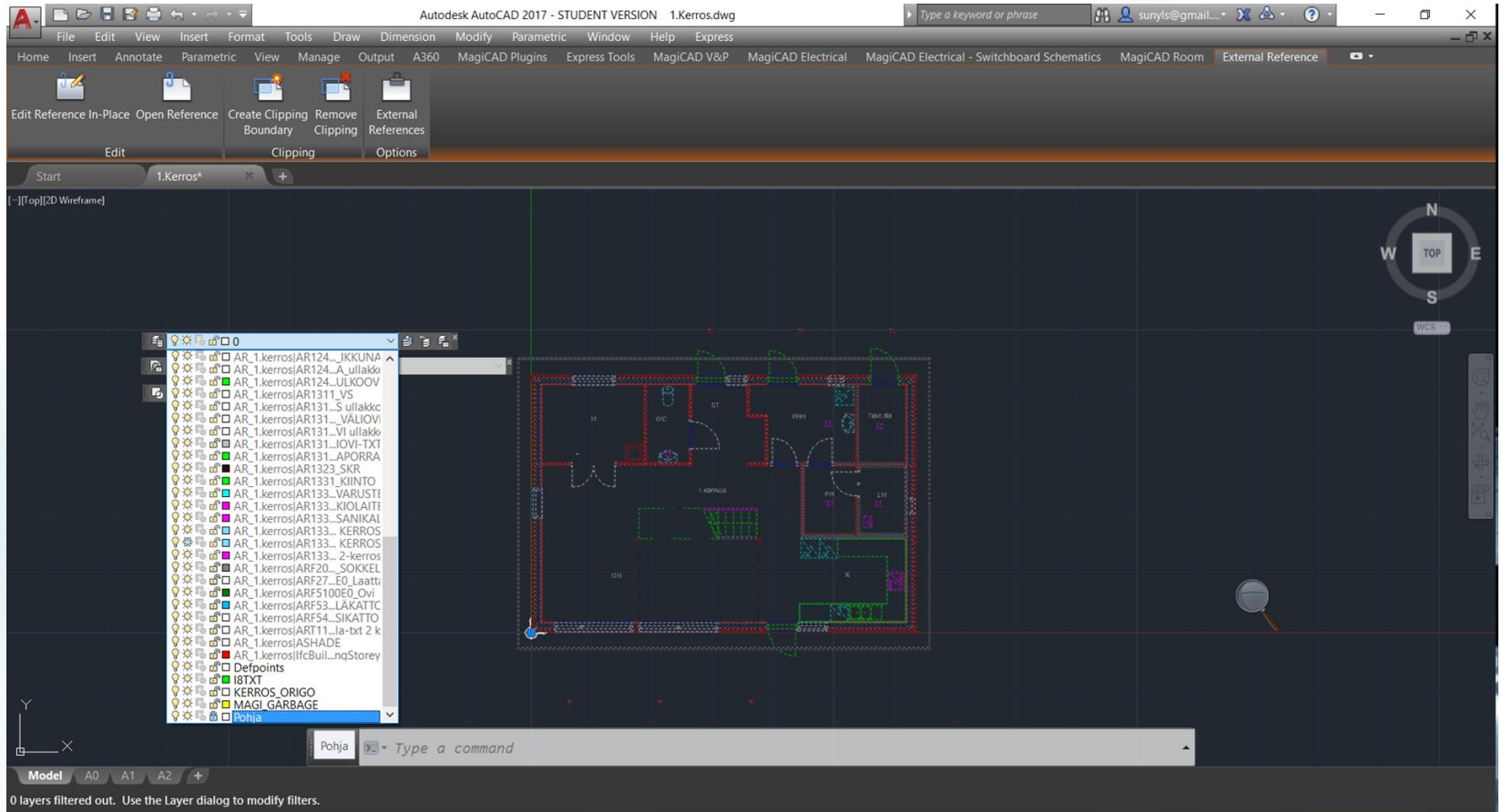
Insert the dwg created from archicad as external reference - AR 1.Kerros.dwg



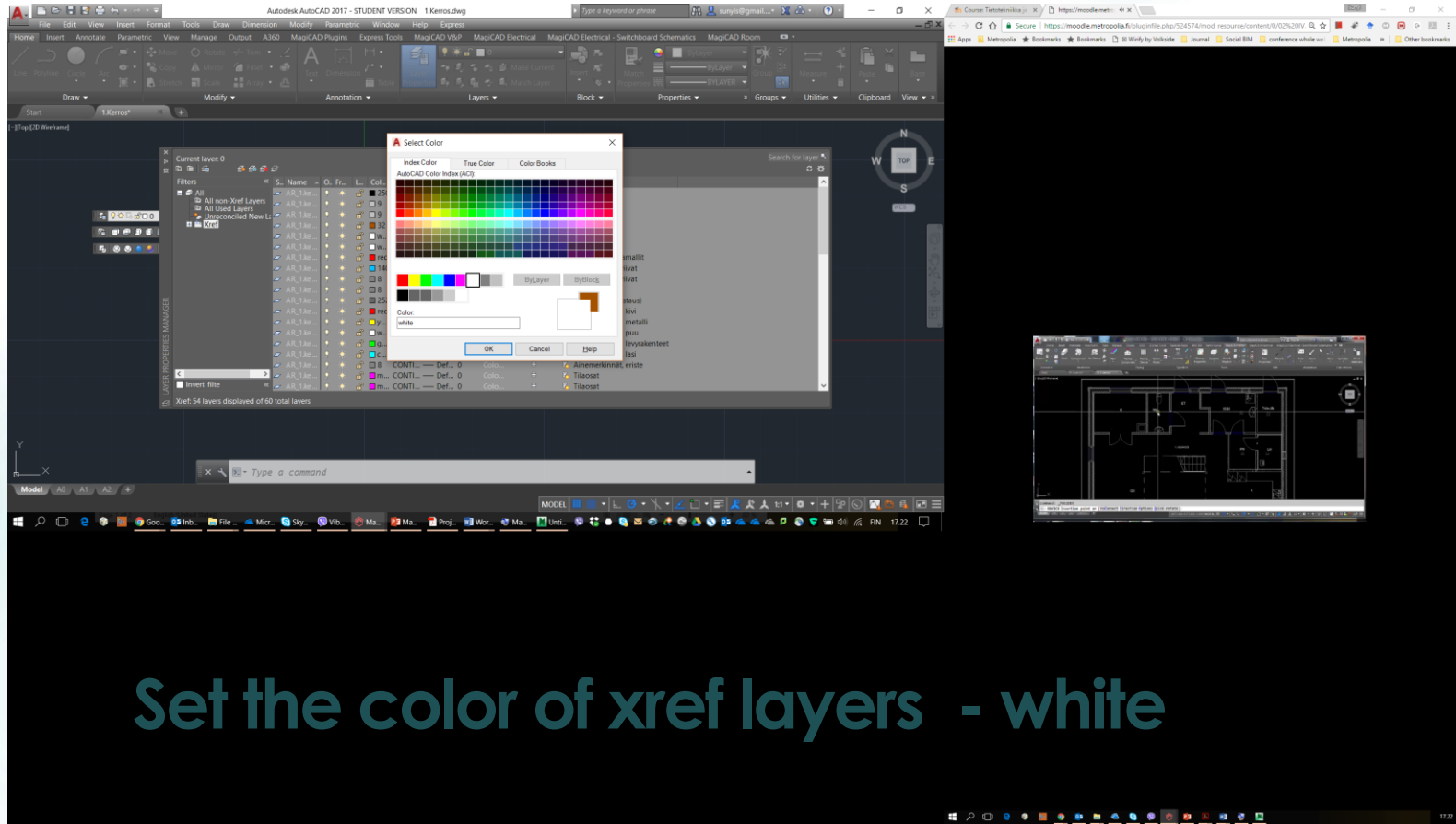
OR



Set the xref drawing to "locked layer" (pohja)



Change the visibility of reference dwg

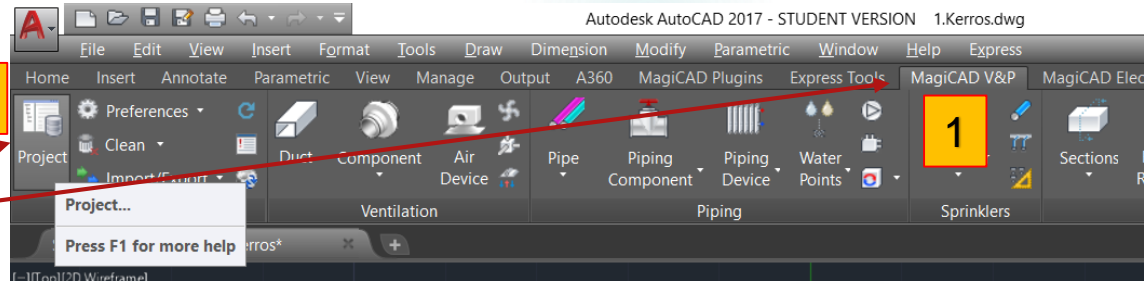


The screenshot displays the AutoCAD 2017 interface. A 'Select Color' dialog box is open, showing the 'Index Color' tab. The 'AutoCAD Color Index (ACI)' palette is visible, with the 'white' color selected. The 'Color' field in the dialog is set to 'white'. The background shows a CAD drawing with a layer manager on the left and a smaller window on the right displaying a reference drawing.

Set the color of xref layers - white

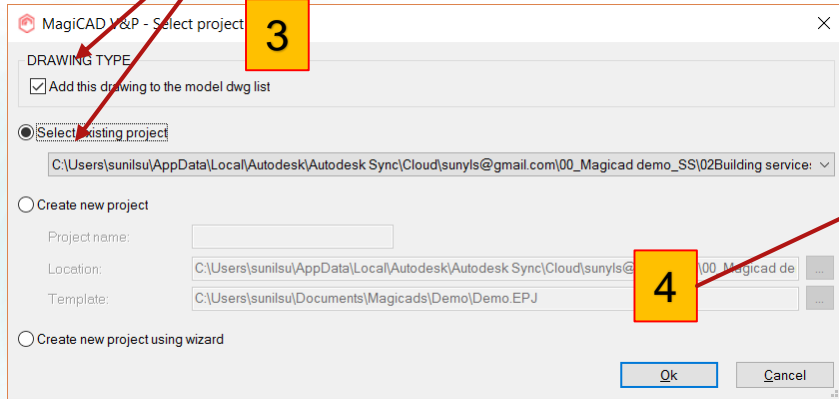
Save the project

2

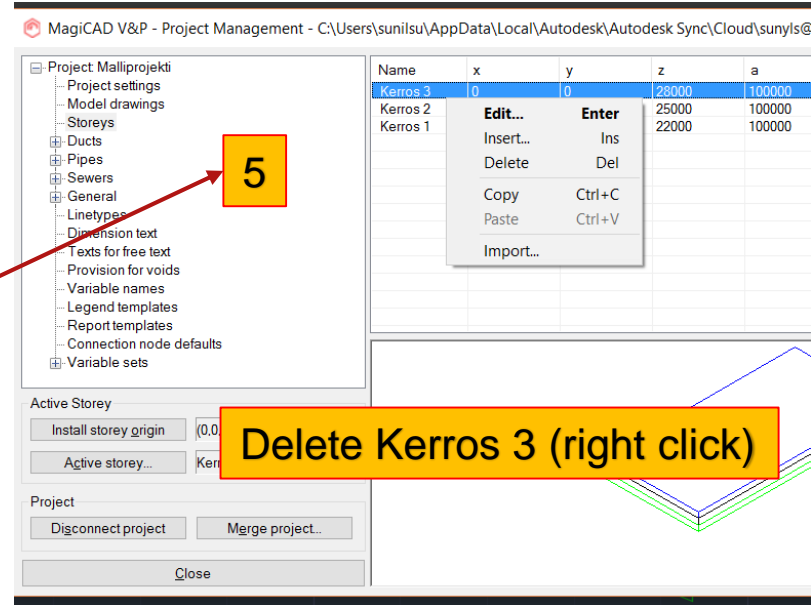


MagiCAD V&P > Click project
"select existing project" > ok

3



5



Edit story settings

MagiCAD V&P - Storey Data

ID: 1

Name: Kerros 1

Position: x: 0 y: 0 z: 22000

Room height (h): 2400

Note

Storey area

Rectangular

a: 13000 b: 10000

Polygonal

Based on room bounding

Ok Cancel

MagiCAD V&P - Storey Data

ID: 2

Name: Kerros 2

Position: x: 0 y: 0 z: 25000

Room height (h): 2400

Note

Storey area

Rectangular

a: 13000 b: 10000

Polygonal

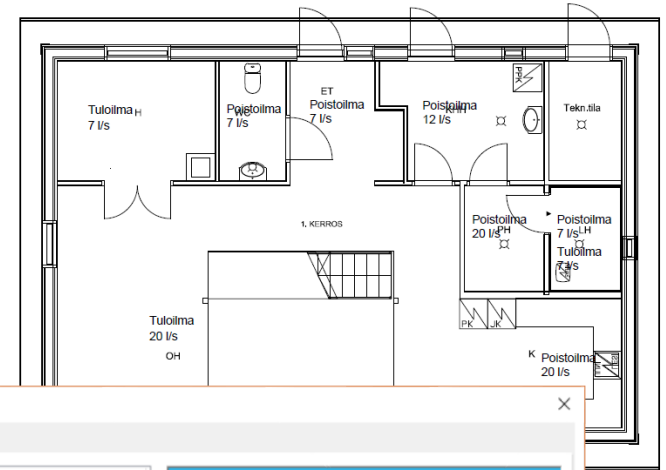
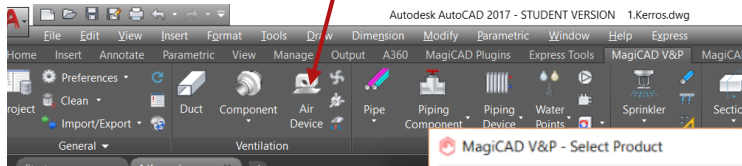
Based on room bounding

Ok Cancel

Supply air and extract air

Extract air:

Magiacad V&P > select "air device"



MagiCAD V&P - Select Product

Supply devices | Extract devices | Outdoor devices | Exhaust devices

User code	Product	Description
P1	EHC+TE	Exhaust air terminal device with connection...
P2	AVS	Grille
P3	KSO	Exhaust Valve
P4	URH	Valve
P5	AHD	Exhaust Grille
P6	RCN Roof Exhaust BIMBA-0	RCN
P7	RETRO	Extract valve
P8	SET	Extract valve
P9	LOV-A/1	Exhaust diffusor.
P10	PTX*	Cooked hood with regulator

Size: KSO-125

Flow: l/s => v m/s Collar length mm

Symbols

User Symbol... Reset Symbol

View mode: Rendered

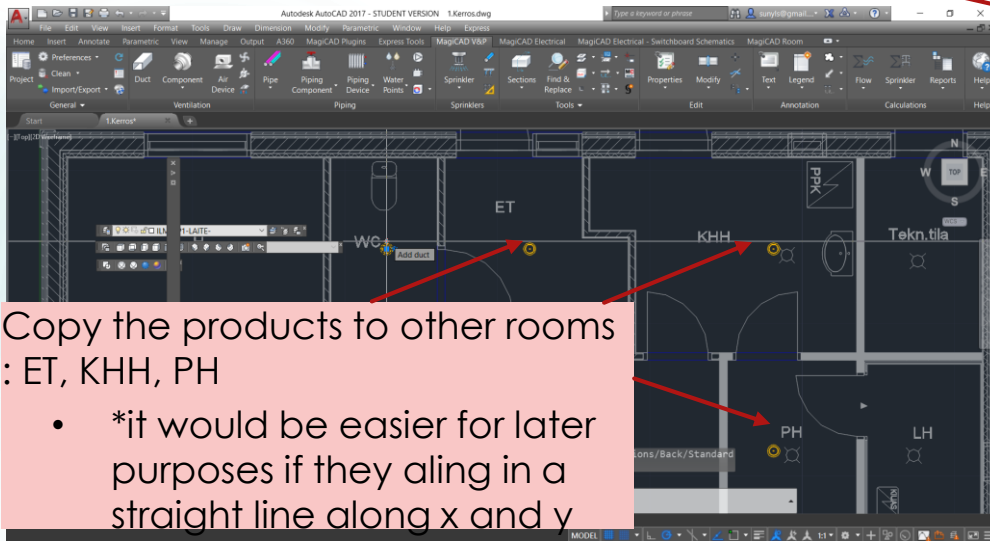
Placement: Ceiling Wall Sill Floor

Orientation: Free

Ok Cancel

Placing the product

- Specify its location by clicking in the room area as where that product is to be installed (example: WC; center of the room)
- Specify the system: P1 poistoilma
- Specify installation level : 2400mm



Copy the products to other rooms : ET, KHH, PH

- *it would be easier for later purposes if they align in a straight line along x and y axes

axes

MagiCAD V&P - Install product

Fill data from:

System: P1 Poistoilma 1

Status: Not defined

Description:

Height level in current floor coordinate system

Top level: 2400.0 mm

Connection level: 2400.0 mm

Installation level: 2400 mm

Bottom level: 2380.0 mm

Show this dialog between installation

User variables

UserVar 1:

UserVar 2:

UserVar 3:

UserVar 4:

Object Id

Override

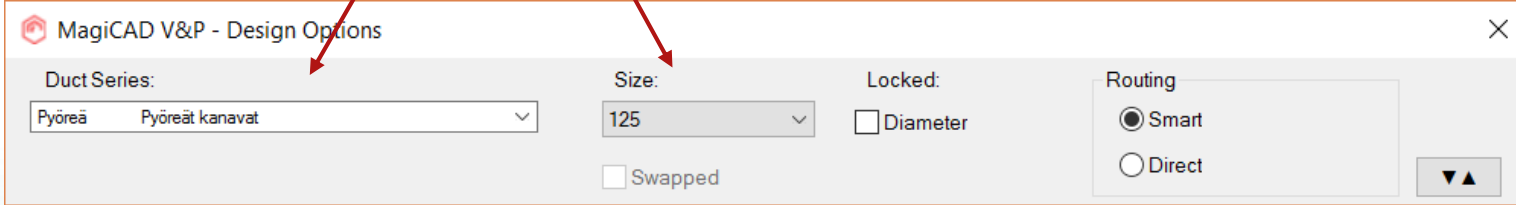
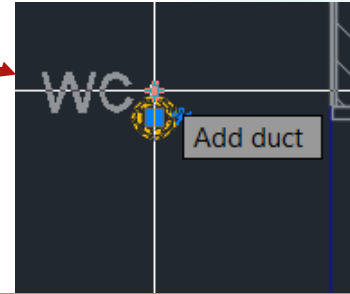
Coordinate system

Use current floor coordinate system

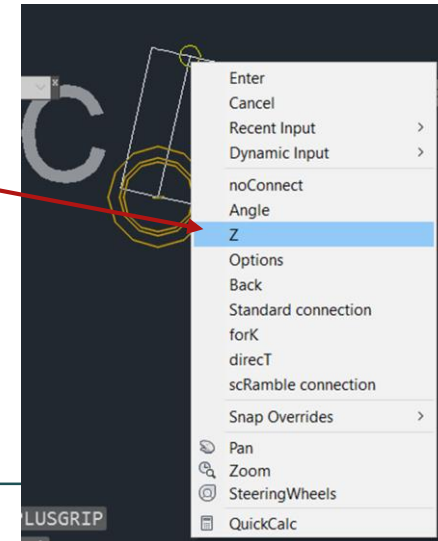
Use absolute coordinate system

Select "extract air device" and click on "+sign" to add duct

Modify the following settings

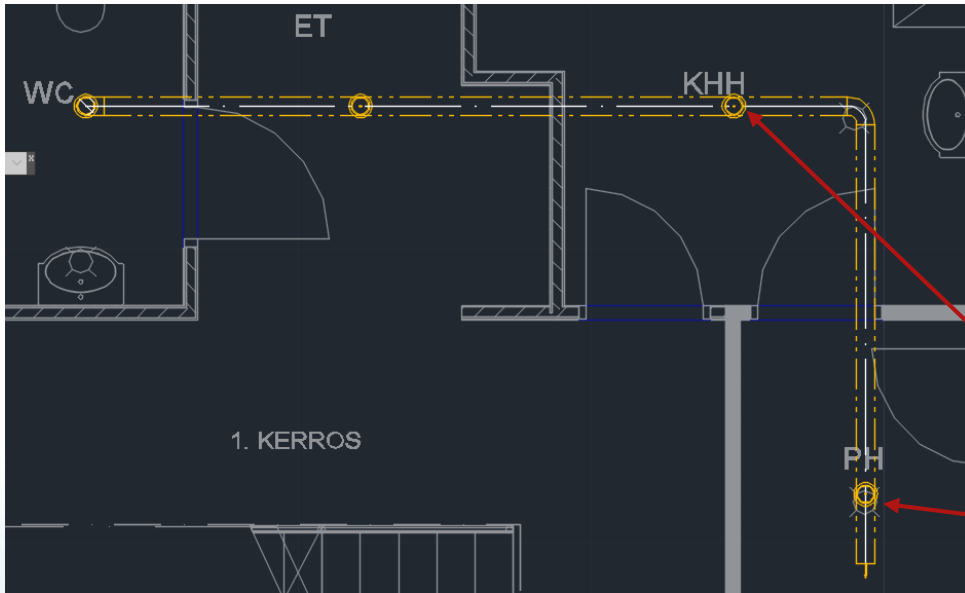


Right click on the autocad and specify z direction to go up



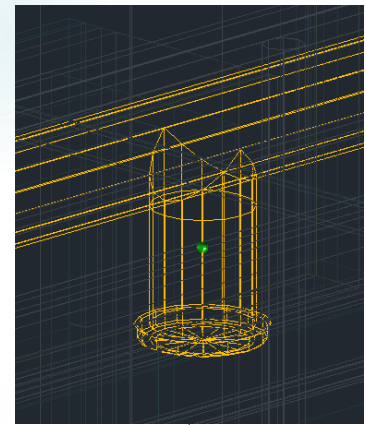
Specify installation height center level to be at 2625

Draw the duct connection to extend to x axis



Double click
the product
object to
modify airflow
parameter

12l/s
20l/s



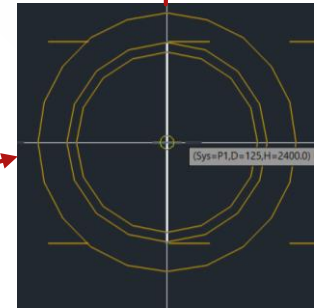
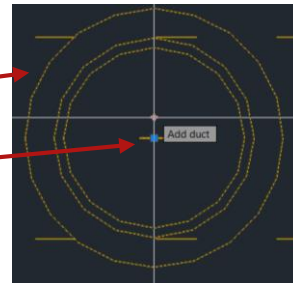
Connect other devices with the duct:

Select device

Select "+"

Click "on the center point"

Delete extra duct parts if needed

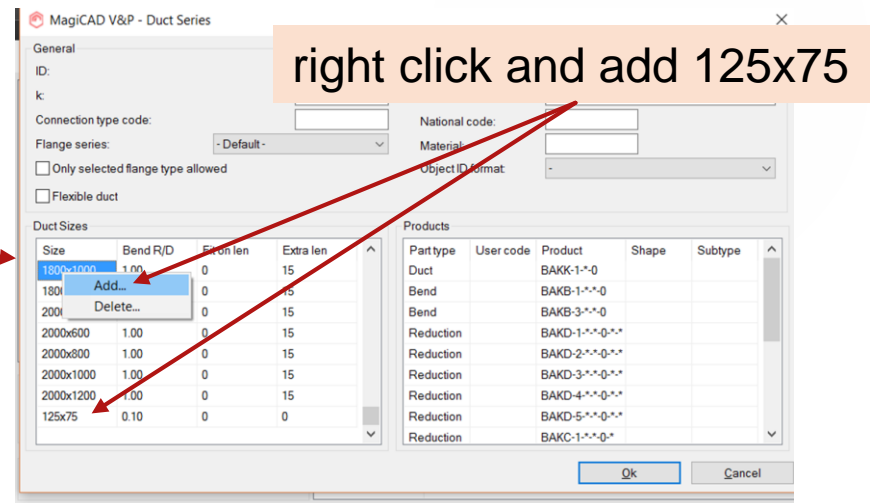
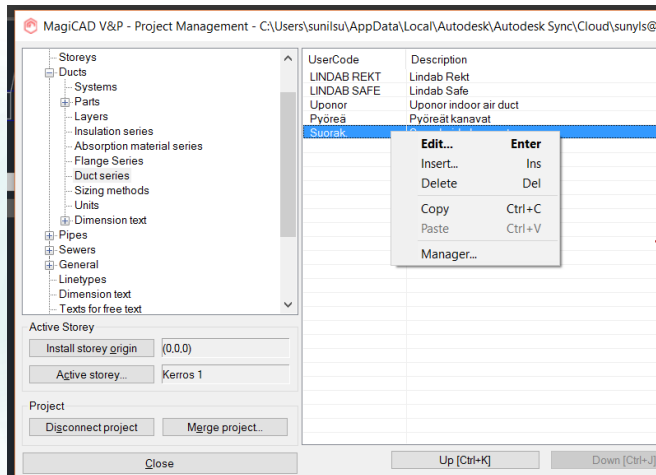


Sauna extract air device and duct

We will use rectangular and circular duct combination for this.

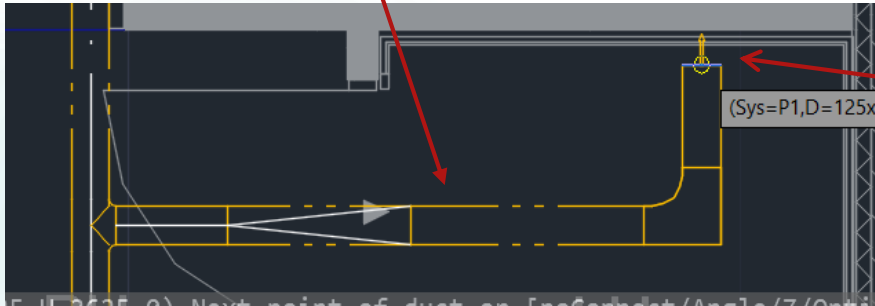
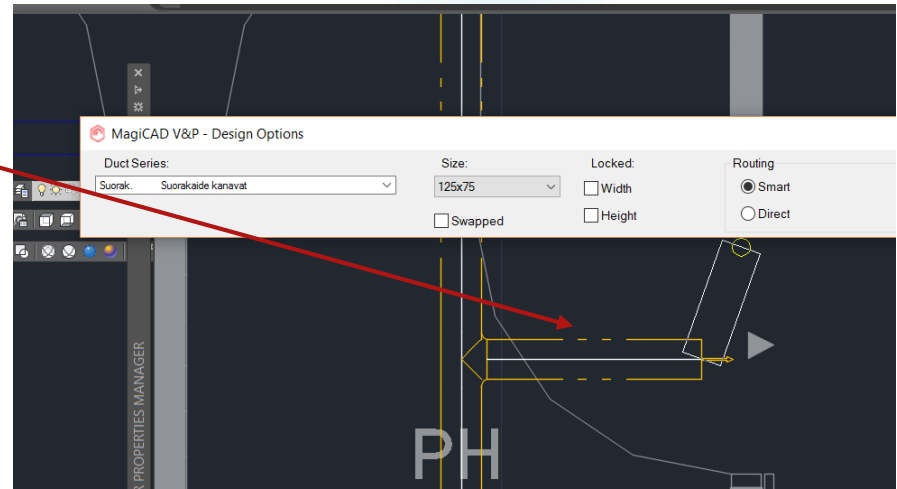
Go to project and make a rectangular duct of 125x75

Ducts > duct series > suorak. > right click and edit



Add circular duct first (until the top of door area) and change the ducty series and select the size 125x75

Continue drawing the rectangular duct



Right click at this point and select "z"

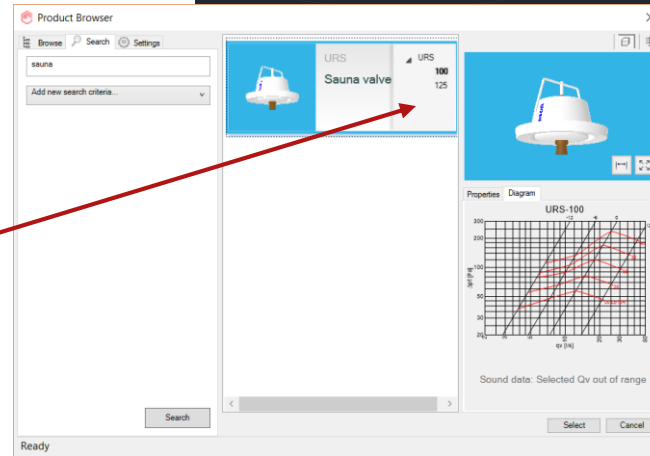
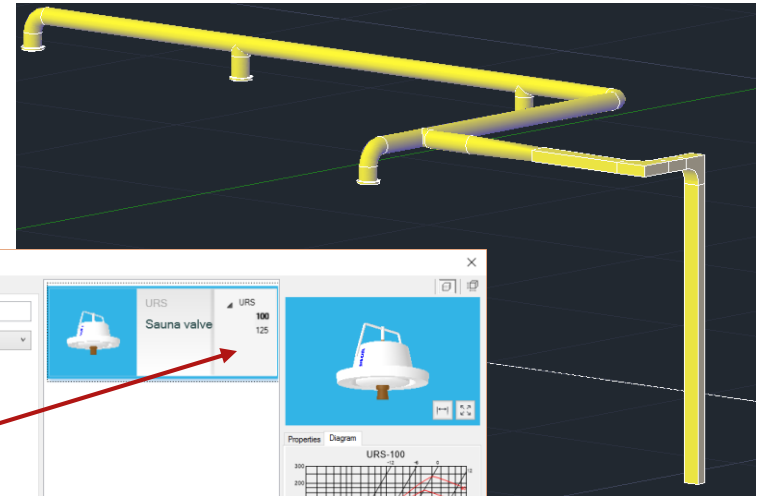
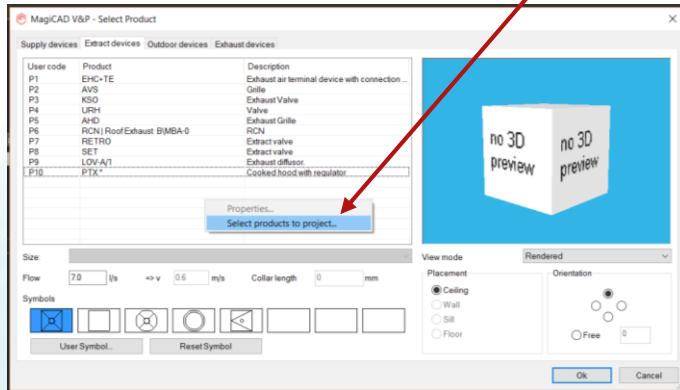
Provide the value of 400mm

Repeat right click and select plug to close the duct

Sauna extract air device

Select the "xref" and right click > isolate > hide object and check the ventilation model in 3d

Click "air device" and right click to "select products to project"



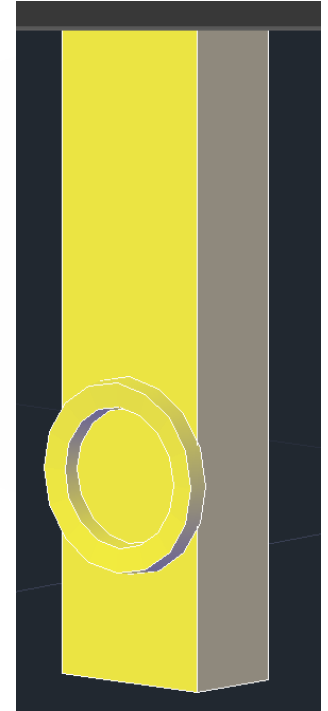
Search with "sauna" keyword and add the product to the project

Provide necessary ID (p11 in this example)

Provide necessary flow requirement

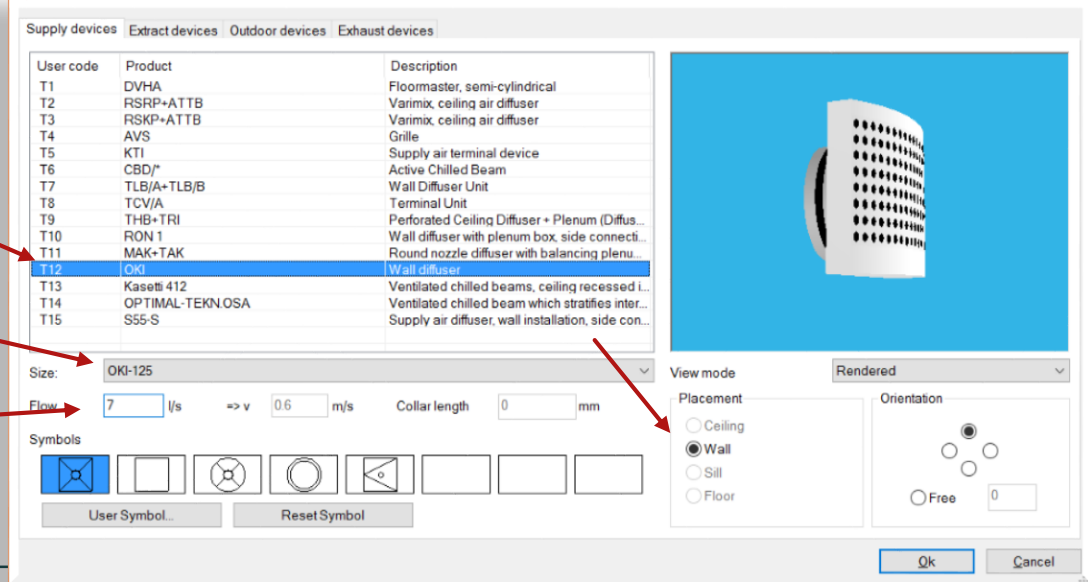
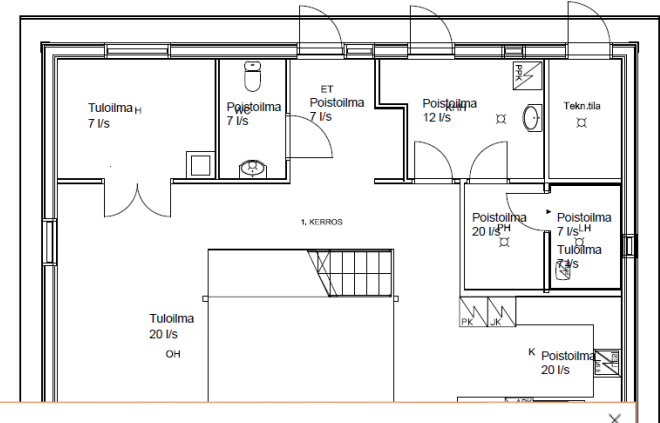
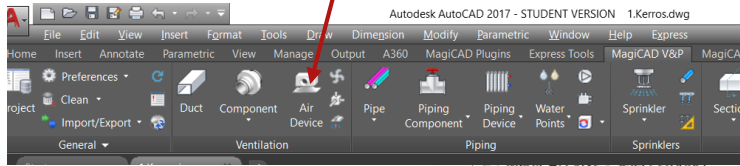
Click at an approximate end (around 200-300 mm height) of the vertical sauna exhaust duct end and specify direction to place the object

Go back to default view and make the "xref house" visible
right click > isolate > end object isolation



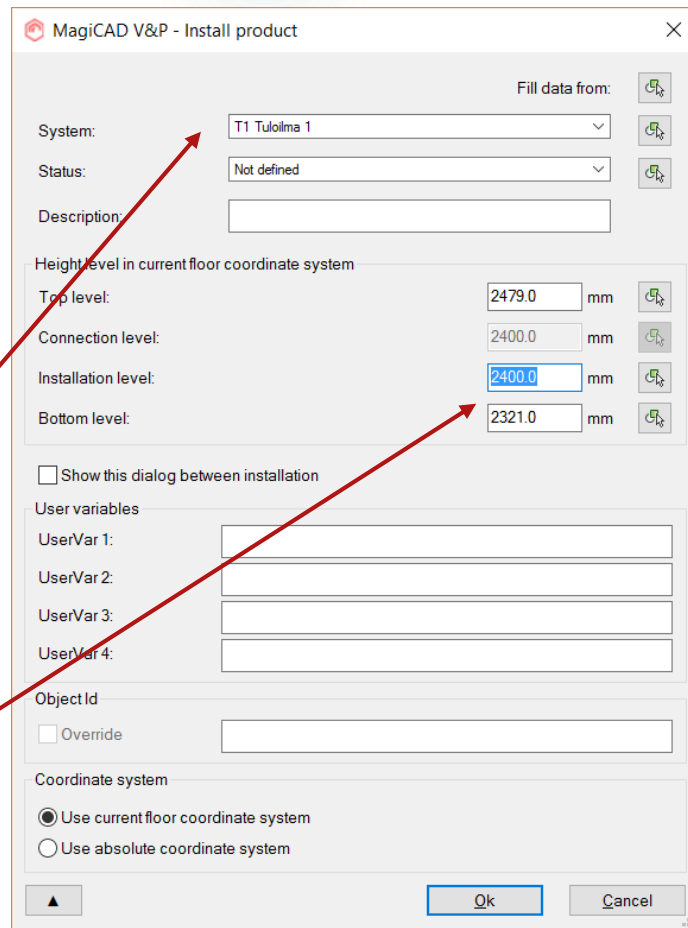
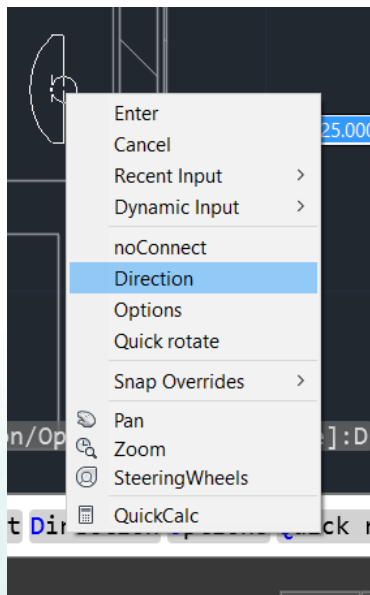
Supply air

Magicad V&P > select "air device" > "supply air"



Remember "flow"

Right click to change rotate direction if needed (before placement)



- Specify the system: T1 tuloilma
- Specify installation level : 2400mm

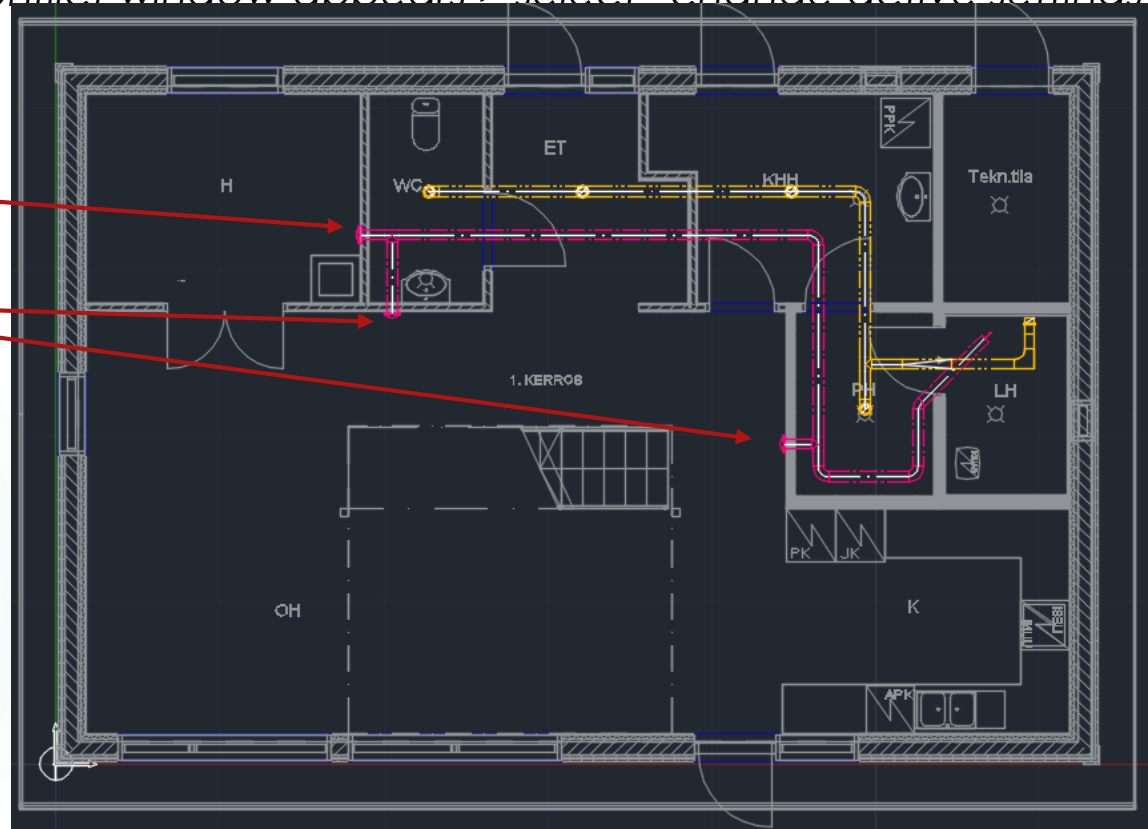
Modify the "flow" parameters of the devices

Define the location and also "add duct" as shown in the picture

(If magical V&P conflict window appears > select "change active settings" and click ok)

7l/s

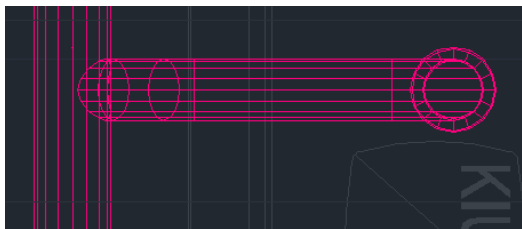
10l/s



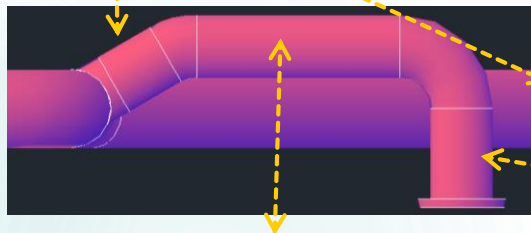
Sauna supply air duct and device

Remember to save the document – Ctrl +s

Add duct for the "PH" room (100mm circular is used in this case)



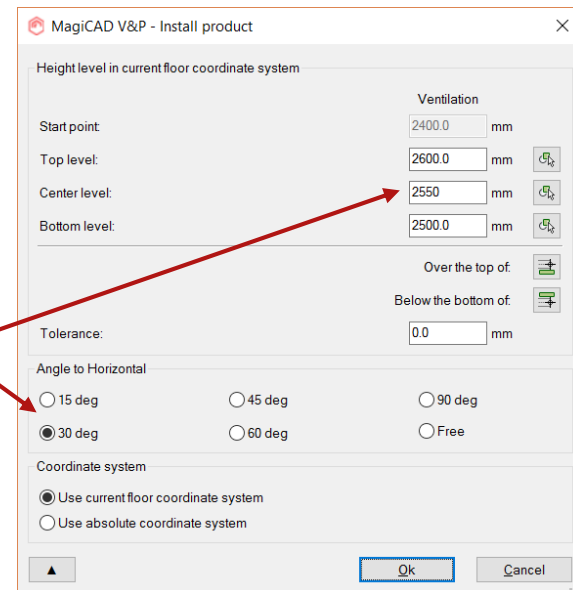
Click to define the starting point
Right click and select "z"



Raise the part with "2550 mm" installation level @30 degrees

Right click and select "z" again to drop it down @2400 @90 deg

Continue to draw the segment

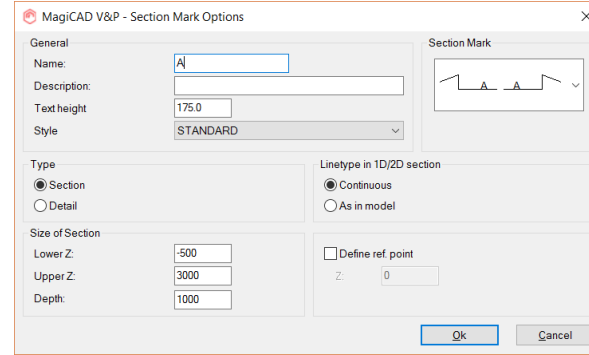
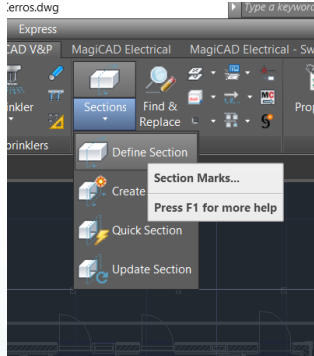


Click OK to automatically change "z vlaue" > right click and select "device". Assign a sauna valve for the end (if not available in the library, load it from the "product browser

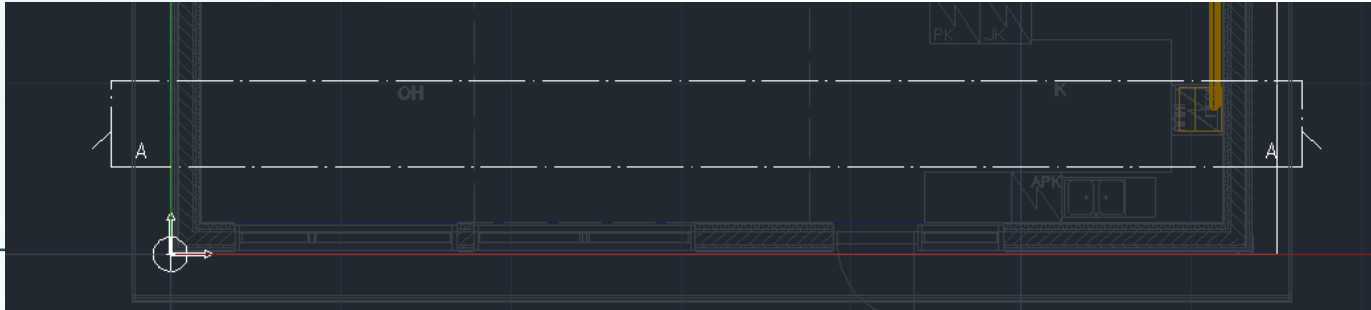
Documentation Magicaad

Section

Select "define section" and provide a name "A", Check type : section



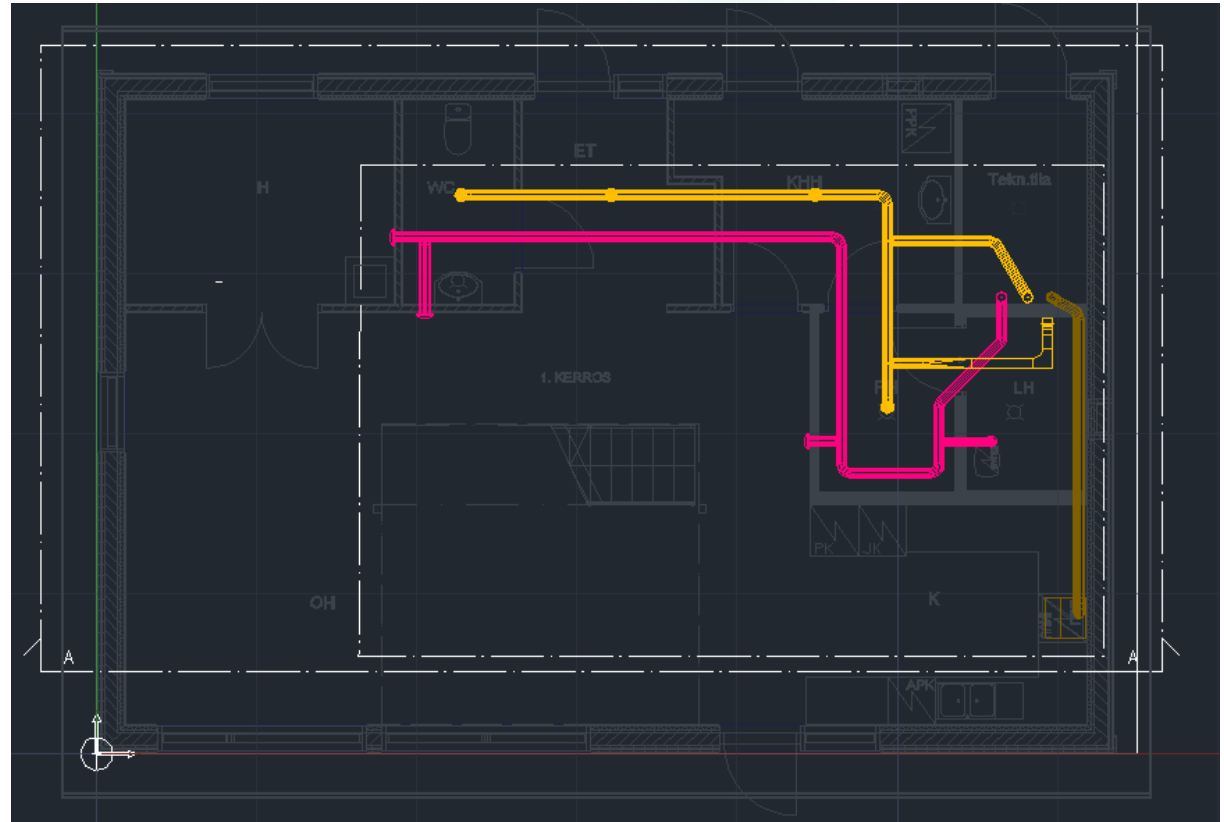
Define "two points by clicking" first point and second point along x-axis (the points define the starting and end point for section). Click enter and define direction by clicking towards "y-axis"

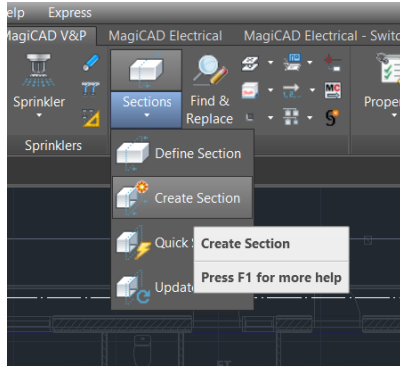


Select the section marker and extend its depth to include all the modeling elements

Select "define section" and provide a name "B",
Check type : detail

Define a rectangle by four point that will include all the modeling elements
(After the third point "right click" to connect it to first point)



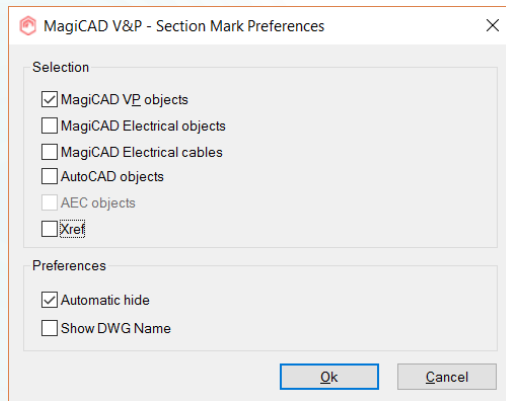
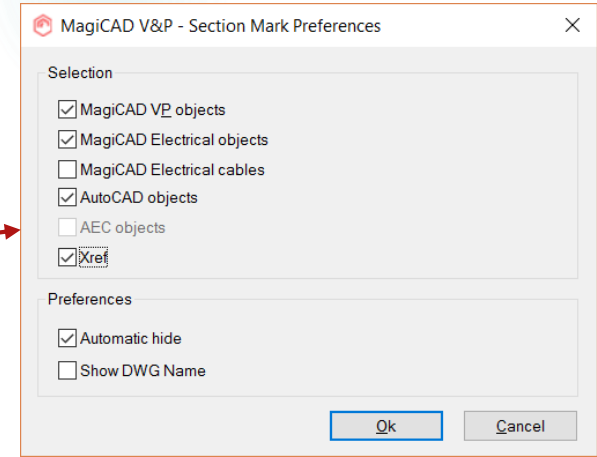


Select "create section" and "selection marker from the drawing"

For section A-A

(click ok and wait for the section generation at the cursor).

Place somewhere on the right side



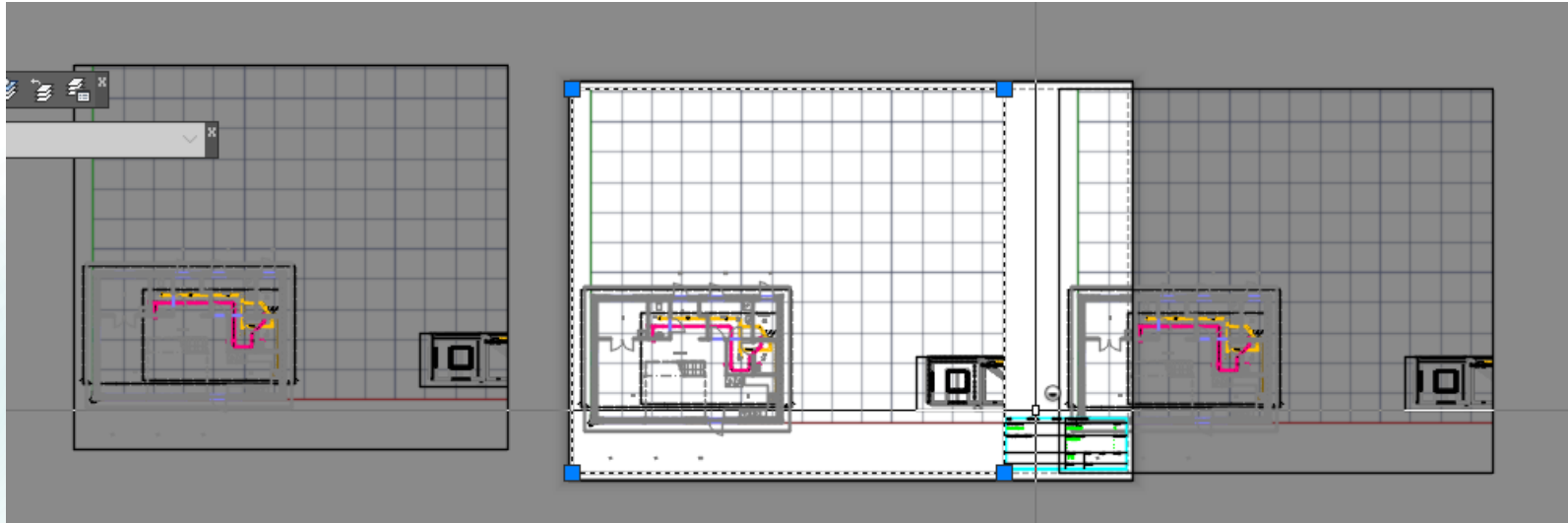
For section B-B

Place somewhere on the left

Layout – A1

Switch the view to layout "A1"

Copy two copies of model view port (select > right click > copy)



Select the viewport windows and drag the blue points to define its view boarder

Organize it in paper . (double click inside the section B-B, Change its view – shift + mouse roll to rotate and top left corner of the window to change the visual style.

double click outside of the window to exit

Right click on the name plate

Select "edit attributes" and

Enter your name

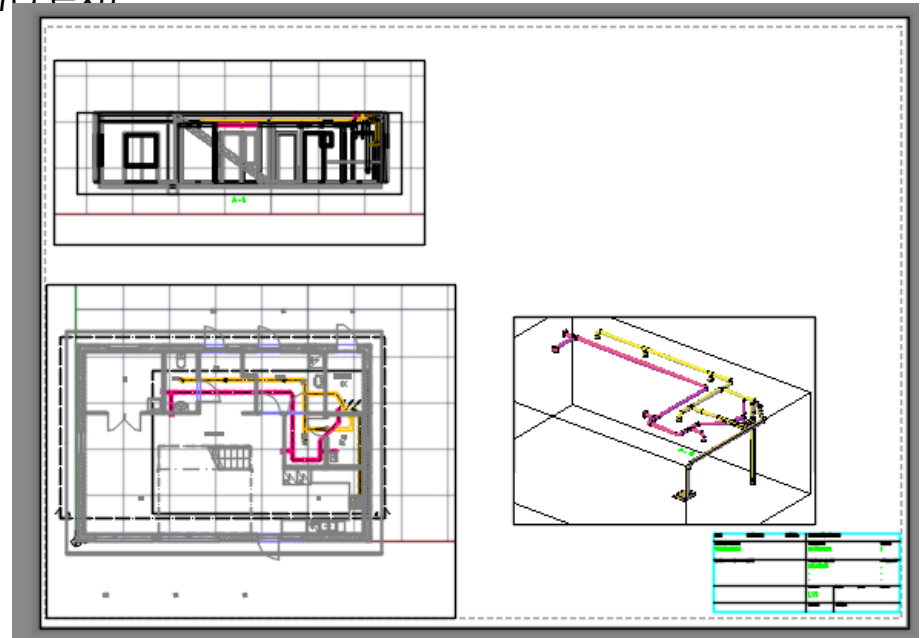
Enter the drawing contents

Floor plan 1.kerros

Section A-A

3D, BoM

(Piirustuksen sisältö)

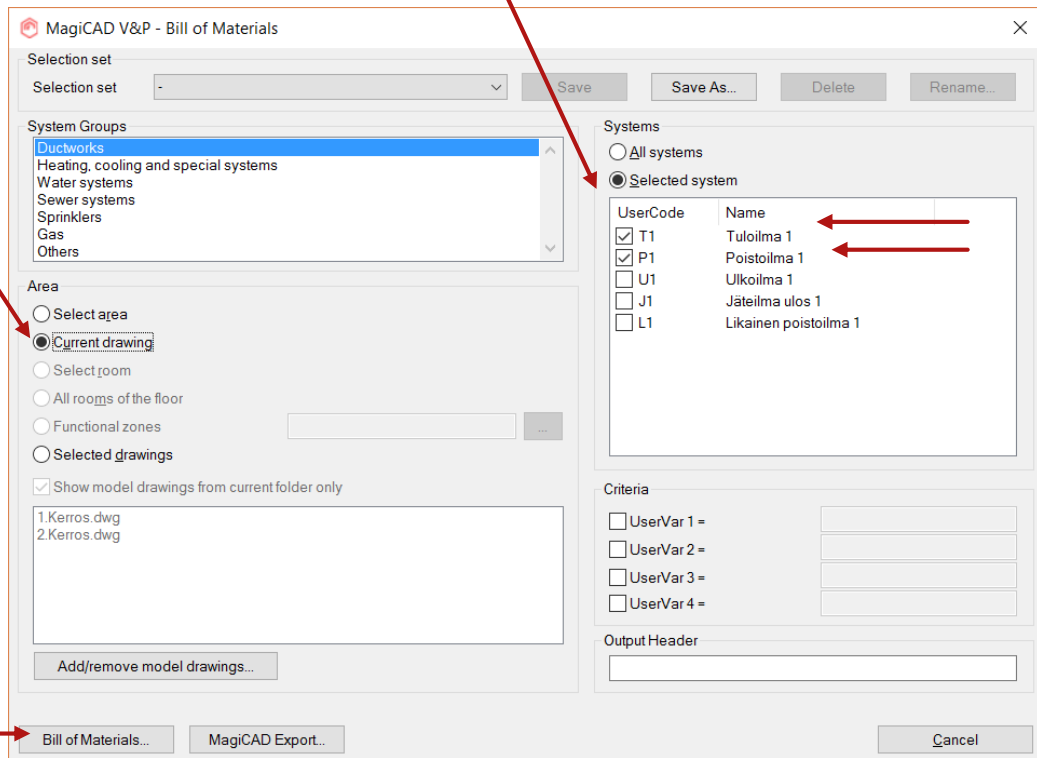
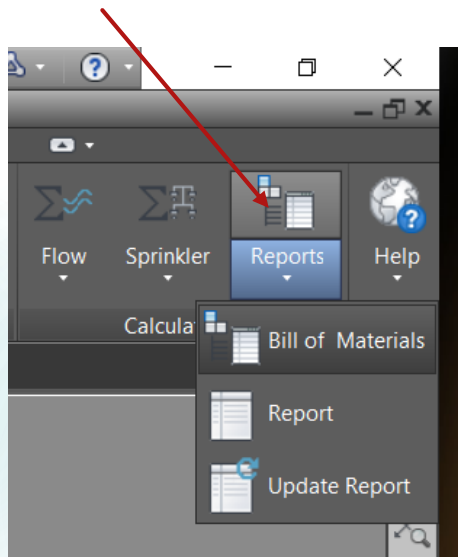


Remember to update its scale for plan and section

Bill of Materials (BoM)

Go to Model view

Calculate > reports > bill of materials



Copy the table (edit copy to clipboard)
and modify it in excel

Copy the modified excel (remember your
name

and paste to layout in autoacad)

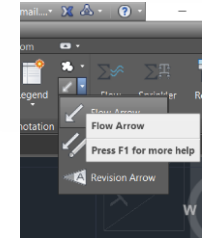
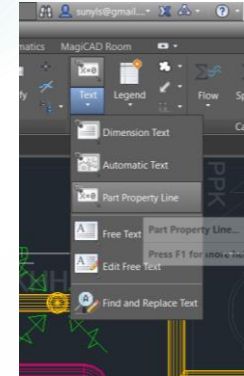
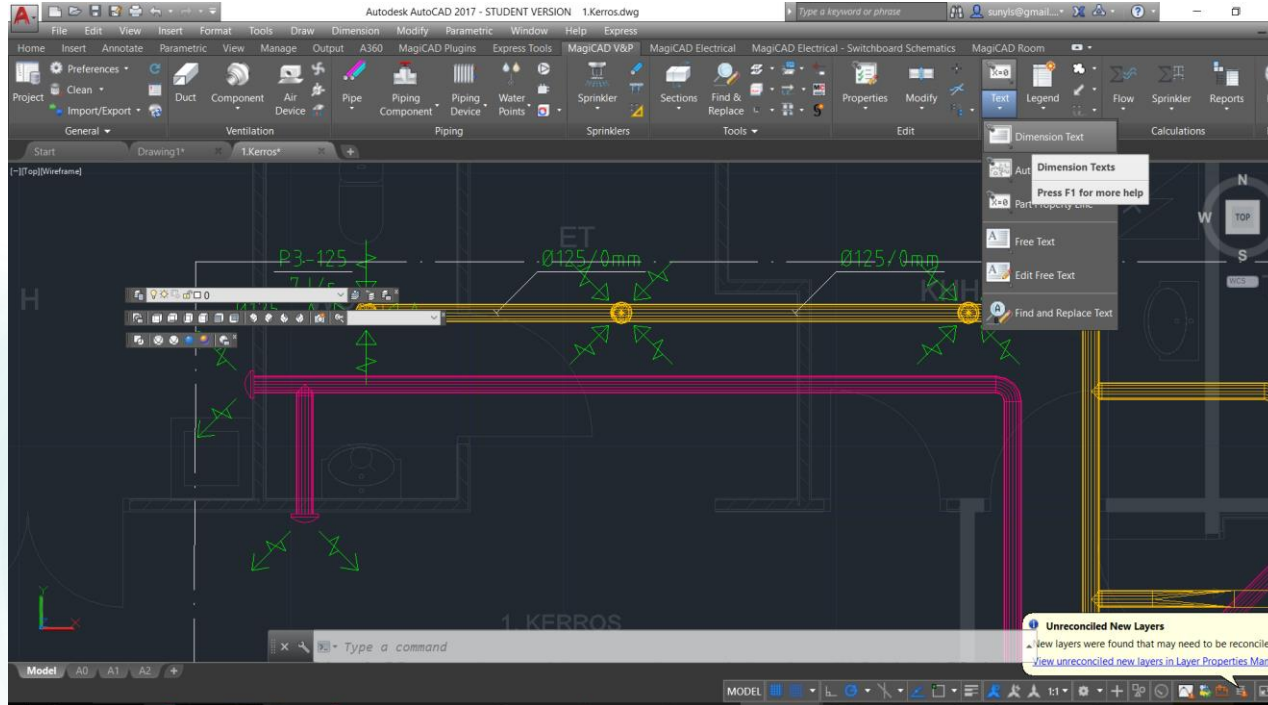
Organize the table in layout

Class	Size	Series	Product	N	L [m]	Insul A	s [mm]	Surface area
Duct	125				0.1			0 m²
Duct	125	LINDAB SAFE		2	14.3			5.6 m²
Duct	100	Pyöreä			0.5			0.2 m²
Duct	125	Pyöreä	BDEK-1-012	1	0.2			0.1 m²
Duct	125	Pyöreä	BDEK-1-012		10.2			4 m²
Duct	125x75	Suorak.			3.0			1.2 m²
Bend-30	100	Pyöreä	BDEB-30-010	1				0 m²
Bend-45	125	LINDAB SAFE		2				0.1 m²
Bend-60	125	LINDAB SAFE		1				0.1 m²
Bend-90	125			1				0.1 m²
Bend-90	125	LINDAB SAFE		3				0.3 m²
Bend-90	100	Pyöreä	BDEB-90-010	1				0.1 m²
Bend-90	125	Pyöreä	BDEB-90-012	1				0.1 m²
Bend-90	125	Pyöreä	BDEB-90-012	1				0.1 m²
Bend-90	75x125	Suorak.		1				0.1 m²
Bend-90	125x75	Suorak.		1				0.2 m²
Outlet	125/100	LINDAB SAFE		1				0.1 m²
Outlet	125/125	LINDAB SAFE		2				0.1 m²
Outlet	125/125	Pyöreä		6				0.4 m²
Joint part	100	Pyöreä	BDEM-1-010	1				0 m²
Reduction	125/125x75	Suorak.		1				0.2 m²
Plug	125x75	Suorak.		1				0.2 m²
Supply air device	125	T12	OKI-125	3				
Supply air device	100	T16	ULS-100	1				
Extract air device	100	P11	URS-100	1				
Extract air device	125	P3	KSO-125	4				

MagiCAD V&P - Bill of materials						
Project: Malliprojekti			Drawn by:		Your Name here	
Date: 17.03.2017						
Range: 1:kerros						
Class	Size	Series	Product	N	L [m]	Surface area
Duct	125				0.1	0 m²
Duct	125	LINDAB SAFE		2	14.3	5.6 m²
Duct	100	Pyöreä			0.5	0.2 m²
Duct	125	Pyöreä	BDEK-1-012	1	0.2	0.1 m²
Duct	125	Pyöreä	BDEK-1-012		10.2	4 m²
Duct	125x75	Suorak.			3.0	1.2 m²
Bend-30	100	Pyöreä	BDEB-30-010	1		0 m²
Bend-45	125	LINDAB SAFE		2		0.1 m²
Bend-60	125	LINDAB SAFE		1		0.1 m²
Bend-90	125			1		0.1 m²
Bend-90	125	LINDAB SAFE		3		0.3 m²
Bend-90	100	Pyöreä	BDEB-90-010	1		0.1 m²
Bend-90	125	Pyöreä	BDEB-90-012	1		0.1 m²
Bend-90	125	Pyöreä	BDEB-90-012	1		0.1 m²
Bend-90	75x125	Suorak.		1		0.1 m²
Bend-90	125x75	Suorak.		1		0.2 m²
Outlet	125/100	LINDAB SAFE		1		0.1 m²
Outlet	125/125	LINDAB SAFE		2		0.1 m²
Outlet	125/125	Pyöreä		6		0.4 m²
Joint part	100	Pyöreä	BDEM-1-010	1		0 m²
Reduction	125/125x75	Suorak.		1		0.2 m²
Plug	125x75	Suorak.		1		0.2 m²
Supply air device	125	T12	OKI-125	3		
Supply air device	100	T16	ULS-100	1		
Extract air device	100	P11	URS-100	1		
Extract air device	125	P3	KSO-125	4		

Annotatoin and calculation

Annotation to provide textual/graphical informations



Calculations

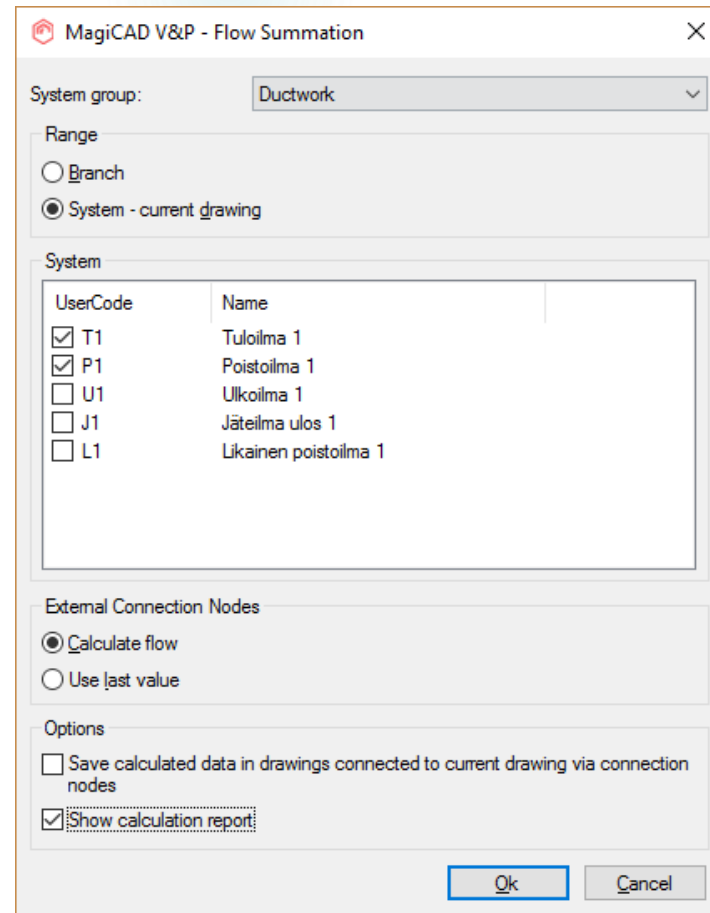
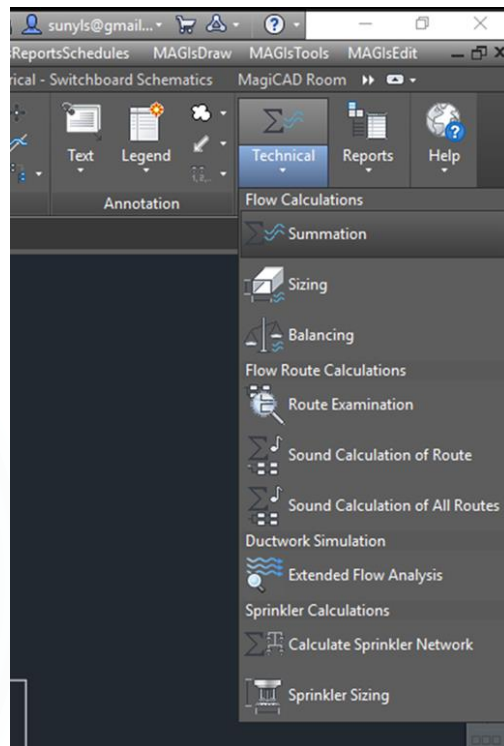
Calculations related to the models can be found in from calculation tab.

Try –

Summation

Sizing

Balancing



Might get errors:

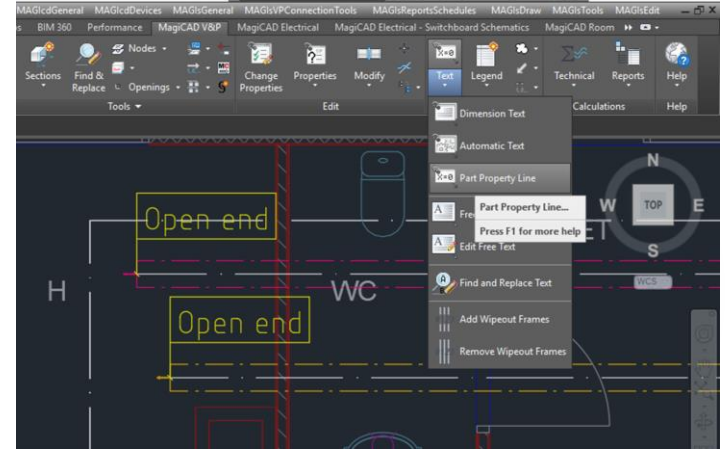
If there is more than one open end in the models

Errors

Find the open ends and resolve them for calculations

MagiCAD V&P - Show Messages (16 visible / 16 total)

System	Storey	Part type	Message	Pos (Floor)
P1 : P...	Kerro...	Open end/Uhsp...	Part outside of flowroutes	(11825.0, 5950.0, 2800.0)
P1 : P...	Kerro...	Duct	Part outside of flowroutes	(10951.4, 6184.1, 2800.0)
P1 : P...	Kerro...	Bend-15	Part outside of flowroutes	(10052.3, 6425.0, 2800.0)
P1 : P...	Kerro...	Duct	Part outside of flowroutes	(6475.5, 6425.0, 2800.0)
P1 : P...	Kerro...	Open end/Uhsp...	Part outside of flowroutes	(2925.0, 6425.0, 2800.0)
T1 : T...	Kerro...	Open end/Uhsp...	Part outside of flowroutes	(11612.5, 6287.5, 2800.0)
T1 : T...	Kerro...	Duct	Part outside of flowroutes	(10101.5, 5655.5, 2000.0)
T1 : T...	Kerro...	Bend-45	Part outside of flowroutes	(10350.0, 5025.0, 2800.0)
T1 : T...	Kerro...	Duct	Part outside of flowroutes	(10350.0, 4483.6, 2800.0)
T1 : T...	Kerro...	Bend-90	Part outside of flowroutes	(10350.0, 3825.0, 2800.0)
T1 : T...	Kerro...	Duct	Part outside of flowroutes	(9825.0, 3825.0, 2800.0)
T1 : T...	Kerro...	Bend-90	Part outside of flowroutes	(9300.0, 3825.0, 2800.0)
T1 : T...	Kerro...	Duct	Part outside of flowroutes	(9300.0, 5212.5, 2800.0)
T1 : T...	Kerro...	Bend-90	Part outside of flowroutes	(9300.0, 7200.0, 2000.0)
T1 : T...	Kerro...	Duct	Part outside of flowroutes	(5887.5, 7200.0, 2800.0)
T1 : T...	Kerro...	Open end/Uhsp...	Part outside of flowroutes	(2675.0, 7200.0, 2800.0)



Summation results example

MagiCAD - Ductwork Sizing Report

Extract

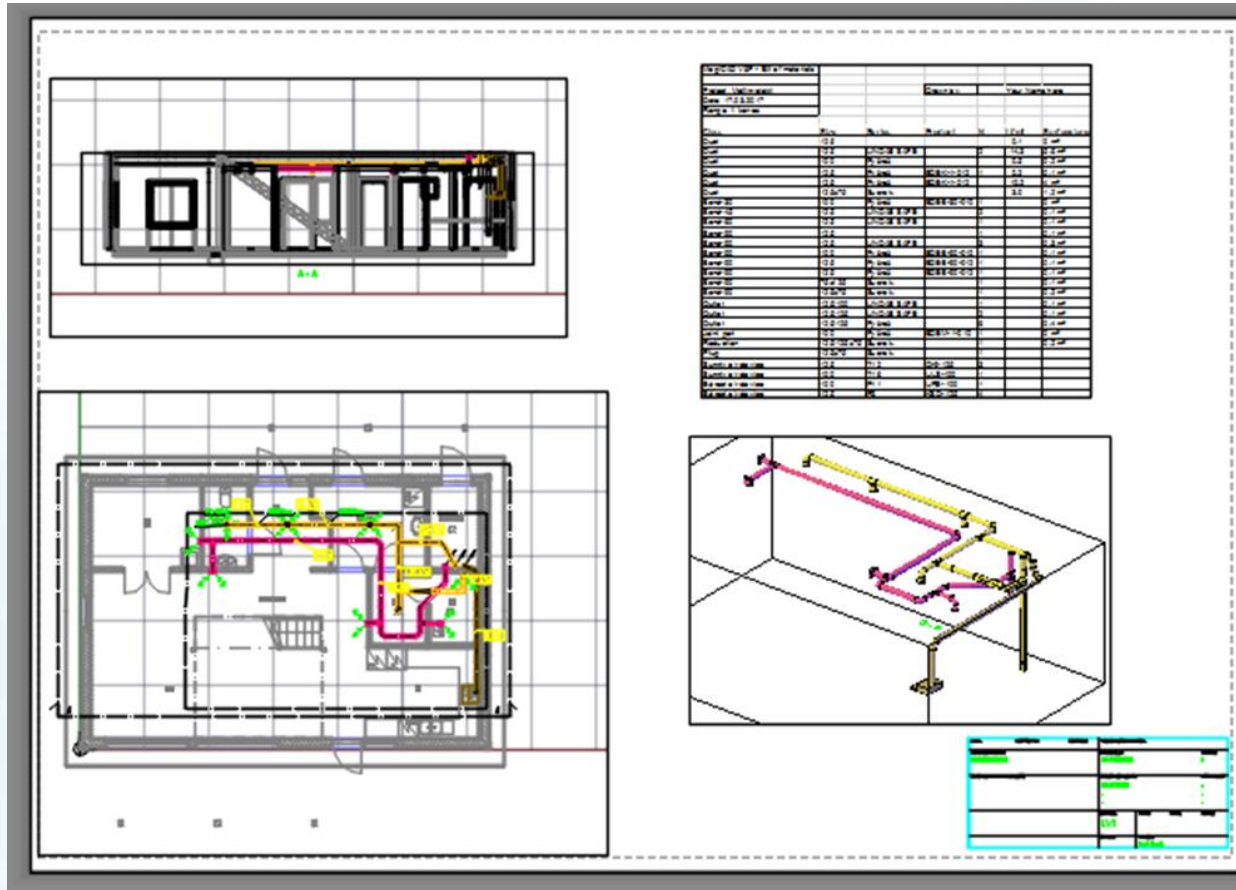
Location	Level	Node	System	Type	Series	Product	Size	L [m]	Insulation	qv [l/s]	v [m/s]	Warnings
	Kerro 1	1	P1	ROOT NODE								
	Kerro 1		P1	DUCT	Pyorea		200	1.8				
	Kerro 1		P1	BEND-15	Pyorea		200					
	Kerro 1		P1	DUCT	Pyorea		200	7.1				
	Kerro 1	2	P1	PLUG	Pyorea		200					

MagiCAD - Ductwork Sizing Report

Supply

Location	Level	Node	System	Type	Series	Product	Size	L [m]	Insulation	qv [l/s]	v [m/s]	Warnings
	Kerro 1	1	T1	ROOT NODE								
	Kerro 1		T1	DUCT	Pyorea		200	1.7				
	Kerro 1		T1	BEND-45	Pyorea		200					
	Kerro 1		T1	DUCT	Pyorea		200	0.9				
	Kerro 1		T1	BEND-90	Pyorea		200					
	Kerro 1		T1	DUCT	Pyorea		200	0.7				
	Kerro 1		T1	BEND-90	Pyorea		200					
	Kerro 1		T1	DUCT	Pyorea		200	3.0				
	Kerro 1		T1	BEND-90	Pyorea		200					
	Kerro 1		T1	DUCT	Pyorea		200	6.4				
	Kerro 1	2	T1	PLUG	Pyorea		200					

Layout



The image displays a set of architectural drawings for a building layout, enclosed in a dashed border. The drawings include:

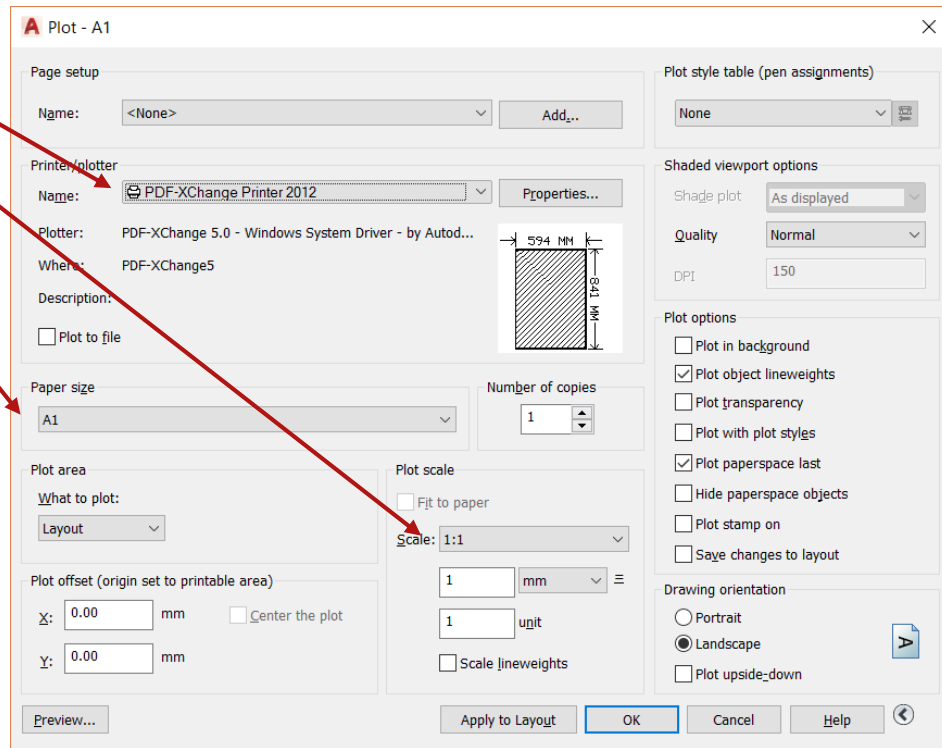
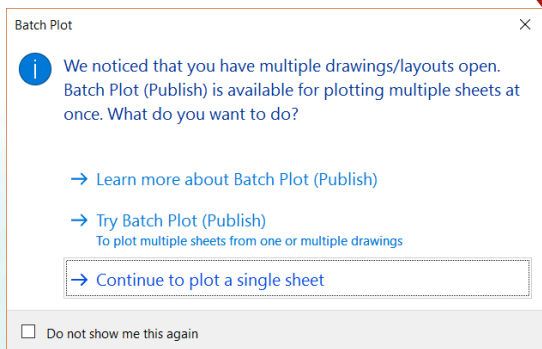
- Section View (Top Left):** A longitudinal section of a building structure, showing a staircase and various levels. A red line at the bottom is labeled "A-A".
- Floor Plan (Bottom Left):** A detailed floor plan showing the building's footprint, including a staircase. It features a complex network of colored lines (green, yellow, pink) representing MEP systems, with green arrows indicating flow directions.
- 3D Perspective (Middle Right):** A 3D perspective view of the MEP system, showing pipes and ducts in yellow and pink, supported by a metal structure within a 3D wireframe box.
- Table (Top Right):** A table titled "STRUCTURAL ELEMENTS" listing various structural components and their properties.

STRUCTURAL ELEMENTS							
Code	Material	Section	Area	Volume	Weight	Stiffness	Frequency
001	Concrete	100x100	10000	1000000	2500000	100000000	100000000
002	Concrete	200x200	40000	4000000	10000000	400000000	400000000
003	Concrete	300x300	90000	9000000	22500000	900000000	900000000
004	Concrete	400x400	160000	16000000	40000000	1600000000	1600000000
005	Concrete	500x500	250000	25000000	62500000	2500000000	2500000000
006	Concrete	600x600	360000	36000000	90000000	3600000000	3600000000
007	Concrete	700x700	490000	49000000	122500000	4900000000	4900000000
008	Concrete	800x800	640000	64000000	160000000	6400000000	6400000000
009	Concrete	900x900	810000	81000000	202500000	8100000000	8100000000
010	Concrete	1000x1000	1000000	100000000	250000000	10000000000	10000000000
011	Concrete	1200x1200	1440000	144000000	360000000	14400000000	14400000000
012	Concrete	1500x1500	2250000	225000000	562500000	22500000000	22500000000
013	Concrete	1800x1800	3240000	324000000	810000000	32400000000	32400000000
014	Concrete	2000x2000	4000000	400000000	1000000000	40000000000	40000000000
015	Concrete	2500x2500	6250000	625000000	1562500000	62500000000	62500000000
016	Concrete	3000x3000	9000000	900000000	2250000000	90000000000	90000000000
017	Concrete	3500x3500	12250000	1225000000	3062500000	122500000000	122500000000
018	Concrete	4000x4000	16000000	1600000000	4000000000	160000000000	160000000000
019	Concrete	4500x4500	20250000	2025000000	5062500000	202500000000	202500000000
020	Concrete	5000x5000	25000000	2500000000	6250000000	250000000000	250000000000
021	Concrete	5500x5500	30250000	3025000000	7562500000	302500000000	302500000000
022	Concrete	6000x6000	36000000	3600000000	9000000000	360000000000	360000000000
023	Concrete	6500x6500	42250000	4225000000	10562500000	422500000000	422500000000
024	Concrete	7000x7000	49000000	4900000000	12250000000	490000000000	490000000000
025	Concrete	7500x7500	56250000	5625000000	14062500000	562500000000	562500000000
026	Concrete	8000x8000	64000000	6400000000	16000000000	640000000000	640000000000
027	Concrete	8500x8500	72250000	7225000000	18062500000	722500000000	722500000000
028	Concrete	9000x9000	81000000	8100000000	20250000000	810000000000	810000000000
029	Concrete	9500x9500	90250000	9025000000	22562500000	902500000000	902500000000
030	Concrete	10000x10000	100000000	10000000000	25000000000	1000000000000	1000000000000
031	Concrete	11000x11000	121000000	12100000000	30625000000	1210000000000	1210000000000
032	Concrete	12000x12000	144000000	14400000000	36000000000	1440000000000	1440000000000
033	Concrete	13000x13000	169000000	16900000000	42062500000	1690000000000	1690000000000
034	Concrete	14000x14000	196000000	19600000000	49000000000	1960000000000	1960000000000
035	Concrete	15000x15000	225000000	22500000000	56250000000	2250000000000	2250000000000
036	Concrete	16000x16000	256000000	25600000000	64000000000	2560000000000	2560000000000
037	Concrete	17000x17000	289000000	28900000000	72062500000	2890000000000	2890000000000
038	Concrete	18000x18000	324000000	32400000000	81000000000	3240000000000	3240000000000
039	Concrete	19000x19000	361000000	36100000000	90062500000	3610000000000	3610000000000
040	Concrete	20000x20000	400000000	40000000000	100000000000	4000000000000	4000000000000
041	Concrete	21000x21000	441000000	44100000000	110062500000	4410000000000	4410000000000
042	Concrete	22000x22000	484000000	48400000000	121000000000	4840000000000	4840000000000
043	Concrete	23000x23000	529000000	52900000000	132062500000	5290000000000	5290000000000
044	Concrete	24000x24000	576000000	57600000000	144000000000	5760000000000	5760000000000
045	Concrete	25000x25000	625000000	62500000000	156250000000	6250000000000	6250000000000
046	Concrete	26000x26000	676000000	67600000000	170000000000	6760000000000	6760000000000
047	Concrete	27000x27000	729000000	72900000000	185062500000	7290000000000	7290000000000
048	Concrete	28000x28000	784000000	78400000000	198400000000	7840000000000	7840000000000
049	Concrete	29000x29000	841000000	84100000000	210062500000	8410000000000	8410000000000
050	Concrete	30000x30000	900000000	90000000000	225000000000	9000000000000	9000000000000
051	Concrete	31000x31000	961000000	96100000000	240062500000	9610000000000	9610000000000
052	Concrete	32000x32000	1024000000	102400000000	256000000000	10240000000000	10240000000000
053	Concrete	33000x33000	1089000000	108900000000	273062500000	10890000000000	10890000000000
054	Concrete	34000x34000	1156000000	115600000000	291000000000	11560000000000	11560000000000
055	Concrete	35000x35000	1225000000	122500000000	310000000000	12250000000000	12250000000000
056	Concrete	36000x36000	1296000000	129600000000	330000000000	12960000000000	12960000000000
057	Concrete	37000x37000	1369000000	136900000000	351000000000	13690000000000	13690000000000
058	Concrete	38000x38000	1444000000	144400000000	373000000000	14440000000000	14440000000000
059	Concrete	39000x39000	1521000000	152100000000	396000000000	15210000000000	15210000000000
060	Concrete	40000x40000	1600000000	160000000000	420000000000	16000000000000	16000000000000
061	Concrete	41000x41000	1681000000	168100000000	445000000000	16810000000000	16810000000000
062	Concrete	42000x42000	1764000000	176400000000	471000000000	17640000000000	17640000000000
063	Concrete	43000x43000	1849000000	184900000000	498000000000	18490000000000	18490000000000
064	Concrete	44000x44000	1936000000	193600000000	526000000000	19360000000000	19360000000000
065	Concrete	45000x45000	2025000000	202500000000	556000000000	20250000000000	20250000000000
066	Concrete	46000x46000	2116000000	211600000000	587000000000	21160000000000	21160000000000
067	Concrete	47000x47000	2209000000	220900000000	619000000000	22090000000000	22090000000000
068	Concrete	48000x48000	2304000000	230400000000	652000000000	23040000000000	23040000000000
069	Concrete	49000x49000	2401000000	240100000000	686000000000	24010000000000	24010000000000
070	Concrete	50000x50000	2500000000	250000000000	721000000000	25000000000000	25000000000000
071	Concrete	51000x51000	2601000000	260100000000	757000000000	26010000000000	26010000000000
072	Concrete	52000x52000	2704000000	270400000000	794000000000	27040000000000	27040000000000
073	Concrete	53000x53000	2809000000	280900000000	832000000000	28090000000000	28090000000000
074	Concrete	54000x54000	2916000000	291600000000	871000000000	29160000000000	29160000000000
075	Concrete	55000x55000	3025000000	302500000000	911000000000	30250000000000	30250000000000
076	Concrete	56000x56000	3136000000	313600000000	952000000000	31360000000000	31360000000000
077	Concrete	57000x57000	3249000000	324900000000	994000000000	32490000000000	32490000000000
078	Concrete	58000x58000	3364000000	336400000000	1037000000000	33640000000000	33640000000000
079	Concrete	59000x59000	3481000000	348100000000	1081000000000	34810000000000	34810000000000
080	Concrete	60000x60000	3600000000	360000000000	1126000000000	36000000000000	36000000000000
081	Concrete	61000x61000	3721000000	372100000000	1172000000000	37210000000000	37210000000000
082	Concrete	62000x62000	3844000000	384400000000	1219000000000	38440000000000	38440000000000
083	Concrete	63000x63000	3969000000	396900000000	1267000000000	39690000000000	39690000000000
084	Concrete	64000x64000	4096000000	409600000000	1316000000000	40960000000000	40960000000000
085	Concrete	65000x65000	4225000000	422500000000	1366000000000	42250000000000	42250000000000
086	Concrete	66000x66000	4356000000	435600000000	1417000000000	43560000000000	43560000000000
087	Concrete	67000x67000	4489000000	448900000000	1469000000000	44890000000000	44890000000000
088	Concrete	68000x68000	4624000000	462400000000	1522000000000	46240000000000	46240000000000
089	Concrete	69000x69000	4761000000	476100000000	1576000000000	47610000000000	47610000000000
090	Concrete	70000x70000	4900000000	490000000000	1631000000000	49000000000000	49000000000000
091	Concrete	71000x71000	5041000000	504100000000	1687000000000	50410000000000	50410000000000
092	Concrete	72000x72000	5184000000	518400000000	1744000000000	51840000000000	51840000000000
093	Concrete	73000x73000	5329000000	532900000000	1802000000000	53290000000000	53290000000000
094	Concrete	74000x74000	5476000000	547600000000	1861000000000	54760000000000	54760000000000
095	Concrete	75000x75000	5625000000	562500000000	1921000000000	56250000000000	56250000000000
096	Concrete	76000x76000	5776000000	577600000000	1982000000000	57760000000000	57760000000000
097	Concrete	77000x77000	5929000000	592900000000	2044000000000	59290000000000	59290000000000
098	Concrete	78000x78000	6084000000	608400000000	2107000000000	60840000000000	60840000000000
099	Concrete	79000x79000	6241000000	624100000000	2171000000000	62410000000000	62410000000000
100	Concrete	80000x80000	6400000000	640000000000	2236000000000	64000000000000	64000000000000

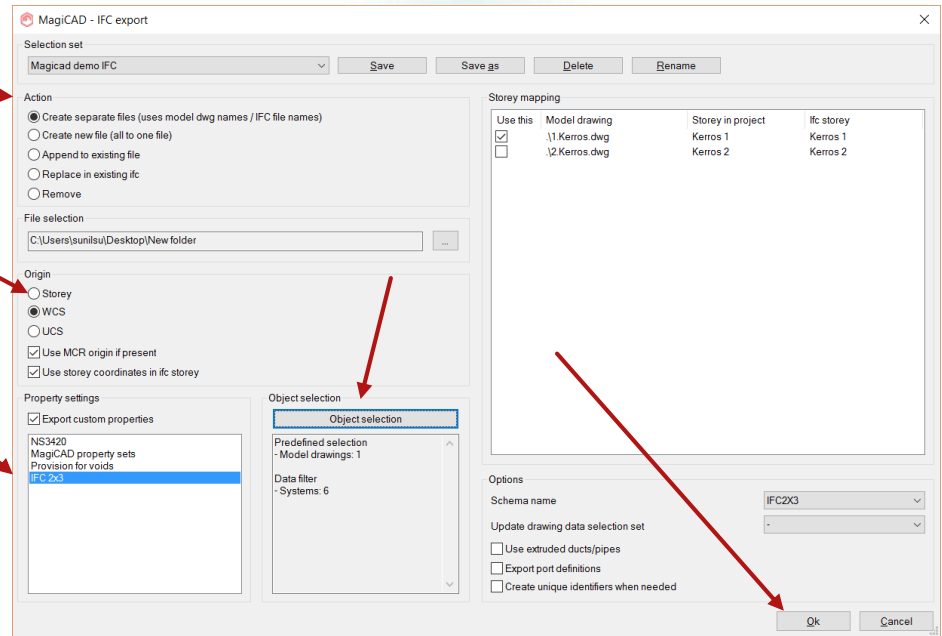
Print as pdf

Ctrl +P - (ignore if there is info about layer) – single plot

Select pdf printer and plot it



Saving as IFC

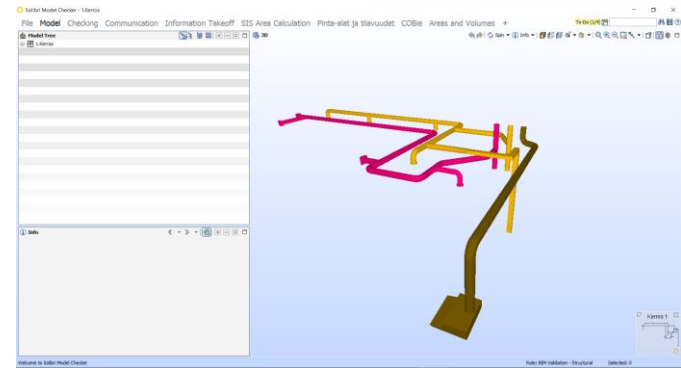


Submission files

• IFC – ventilation model

• PDF - A1 pdf of 1.Floor

• Contents: floor plan, section, 3d, BoM



Thank you