# AUTOFLUID

User guide M09 RELEASE

The application suite for fluid professionals

# TABLE OF CONTENTS 1/2



Basic settings03	3
Treatment of architectural files05	5
Calculation of air network duct sizes	5
Calculation of sanitary network pipe sizes07	7
Handling thicknesses	8
Introduction to double line drawing09	>
Structure of a conduit10	)
Operations on conduits11	
Double line air networks drafting12	2
Double and single line drain drawing16	5
Drawing a single line set of pipes20	)
Drawing under slab piping25	5
Network crossings	>
Defining zones	)
Network bills	

Equipment bills
Computations and texts of water levels
Text
Dimensioning
Modification commands
Swapping one object with another
Changing pipe sizes41
Modify texts
Deleting an object43
Moving an object or a conduit43
Openings
Terminals
Layout
Calculation of pressure drops in a network
Creation of a cross section

...

# TABLE OF CONTENTS 2/2

3D Transformation	52
Link with Revit - RVT-CONNECT	52
Link with Revit - How to export 2D plans	53
2D network quality	56
Definition of terms	57
Annotating the 2D network (levels)	61
Annotating the 2D network (water levels)	64
3D network creation	65
Creating 3D architectural elements	68
3D views snapshots	69
Modeling	70
Link with Revit - Importing a 3D network	71
Contact (technical support, trainings)	73



# BASIC SETTINGS 1/2



### Set up AUTOFLUID for the floor plan you are going to work on.

### Two parameters must be set first:

ASE
ASE
_
Modify
ince file
nce file
e

### 1 - The working unit of the architect's drawing

To find this value you can measure a simple door with the command <code>«DIST»</code> in your CAD software.

If the value reads approximately:

0.80 then the unit is METER80.0 then the unit is CENTIMETER800.0 then the unit is MILLIMETER

### 2 - The scale of the drawing

This is the scale that you will specify in the title block of your plan.

A few examples of the parameters AUTOFLUID can adjust, thanks to these 2 values:

- The size of texts
- The appearance of dimensioning
- The appearance of frames and leader lines
- The calculation of levels.

And more...

# BASIC SETTINGS 2/2



and name the

Other parameters can be set.

For instance:

- The list of layers
- Colors, types of lines and thicknesses
- The graphic style of the network
- Texts
- Units
- Etc.

To change these parameters you must create a new preference file.

The preference file contains all the settings which run the AUTOFLUID package.

The file extension is «PREF» settings.

You will use these as a basis to create your OWN preference.

AUTOFI UID runs with default BASE file.

Create a new preference file Click on new file.

Change it according to your needs by navigating the preference settings. Once the changes are made the file can be imported by other users. It is possible to come back and modify your preferences further at a later stage.

Changes made on a .PREF file are not automatically updated in the DWG.



Create a new preference file



Change the list of layers

# TREATMENT OF ARCHITECTURAL FILES



🛛 🕺 🗒 🚺	4	🛨 🗮 📜 📴 🗳 🕼 🗡	
---------	---	---------------	--

UTOFLUID: File treatment	22			
File status System :Métrique (acadiso)	Treatment			
UCS :Général	<ul> <li>Thorough treatment (longer)</li> <li>Change layer color</li> </ul>			
TP scale :1.000	Click to choose the color			
Z coordinates :0 entité(s) trouvée(s)	Resetting Z dimension			
Layer 0 :0 entité(s) trouvée(s)	<ul> <li>Isolate texts</li> <li>Isolate hatches</li> </ul>			
FROZEN Layer :0 trouvé(s)	Isolate dimensions			
TURN OFF Layer :0 trouvé(s)	Prefix for all layers			
LOCKED Layer :0 trouvé(s)	Purge by WBLOC			
UNPRINTED Layer :0 trouvé(s)	Other treatments			
Proceeding				
Treat into a copy     Start treatment				
O Directly into this file				

This module allows you to amend the structure of a file.

It is possible to change colours, to handle the Z coordinate of entities, to isolate texts, hatches, dimensioning, etc...



Example:

File to work on: C:\archi\floor3.dwg

- 1. Open the file to treat. «C:\archi\floor3.dwg»
- 2. Launch the command
- 3. Choose options
- 4. Launch treatment.

At the end of the operation, verify that the file «C:\archi\Files treated by AUTOFLUID\floor3.dwg» is correct and save it.

NB: The « Purge by WBLOCK » option will save the file under the same name.

# CALCULATION OF AIR NETWORK DUCT SIZES





# CALCULATION OF SANITARY NETWORK PIPE SIZES





# HANDLING THICKNESSES



The thickness of each entity drafted with AUTOFLUID is automatically managed to be compatible with basic CTB files (acad.ctb or monochrome. ctb.)

AUTOFLUID: Preference	file	<u> </u>
	)aalataa \ I Jaar ay iida amf	
Current configuration	vesktop (user guide,prei	
	Architect drawings unit	
AUTOFLUID	MILLIMETER O'CE	
	[+] Layer management	<u>^</u>
C AUTOGAINE	[-] Graphic variables	
© AUTOTUBE	-> Lineweight	
AUTOSAN		
	Scale :	1/100th 1/50th 1/20th
DZETACAD	Weight of LARGE lines :	
○ AUTOCOUPE	For the duct :	0.35 • 0.50 • 0.60 •
	For the pipe :	0.25 • 0.35 • 0.50 •
Specific Release	For single line (line):	
	For the openings .	0.35 • 0.50 • 0.60 •
	Weight of AVERAGE lines :	0.25 • 0.35 • 0.40 •
	Weight of FINE lines :	0.15 • 0.20 • 0.25 •
	Show lineweight in Model space.	
	Show lineweight in Paper space.	
	In the C	TB : "Use object lineweight"
	As in version 4	Ok Stop

Whether in color or not, the relief of your drawing will be preserved.

The above settings must be adjusted BEFORE drawing.

If you would like to change thicknesses AFTER drawing you can modify them by using the following command:



AUTOFLUID: Modify lineWeight			22
Weight of LARGE lines :			
For the duct :	18 found(s).	0.50 mm	ByLayer 🔻
For the pipe :	0 found.	-	ByLayer 🔻
For single line (line):	0 found.	-	ByLayer 👻
For the openings :	0 found.	-	ByLayer 🔻
Weight of AVERAGE lines :	0 found.	-	ByLayer 🔻
Weight of axis lines :	9 found(s).	0.20 mm	ByLayer 👻
Weight of hidden lines :	4 found(s).	0.20 mm	ByLayer 👻
Weight of detail lines :	8 found(s).	0.20 mm	ByLayer 🔻
Weight of arrow lines :	0 found.	-	ByLayer 💌
Ok		Stop	

# INTRODUCTION TO DOUBLE LINE DRAWING



GRAPHIC STRUCTURE OF A NETWORK DRAFTED WITH AUTOFLUID Each entity created belongs to only one object. There are 3 types of objects:

- Conduits (colored black)
- Parts (colored blue)
- Equipment (colored green)



Each object contains information serving the following purposes:

- Modifications on a network
- Modifications on text
- Network bill
- Calculation of pressure drops

### Each part must be created using the appropriate command.

Otherwise the part may seem right graphically but the bill will be wrong and the commands for quick modifications may not work correctly.



Structure of a network

# **STRUCTURE OF A CONDUIT**



Table of contents - 10

### THERE ARE 3 TYPES OF CONDUITS:

- 3 lines with 1 axis
- (circular duct or tube)

• 2 lines

(rectangular duct)

- 1 line or 1 polyline
- (single line)

When a circular conduit contains no additional information, it will only be composed of 3 independent lines.

In AUTOFLUID, each line of the conduit acknowledges the 2 others.

For this reason all conduits must be properly structured.

### FACTORS THAT CAN ALTER THE STRUCTURE OF A CONDUIT:

• Crossings



• The «ADJUST» and the «BREAK» commands in your CAD software



A partially cut conduit (2 out of 3 lines) will generate 2 conduits composed of 3 lines.

• Text on a line

If only the centre line of a conduit is cut with the "BREAK" command in your CAD software then AUTOFLUID will generate 2 conduits composed of 3 lines.



# **OPERATIONS ON CONDUITS**



### RE-BUILDING A CONDUIT OUT OF 2 PARTS



Select two conduits with a similar size and form one out of the two.

### PREVIEWING THE STRUCTURE OF A CONDUIT



This allows all the conduits to turn into one colour and all the parts into another colour. If a conduit contains wrong information or if it is badly structured then it will turn red.

When this happens you must re-structure the conduit.

### **RE-STRUCTURING A CONDUIT:**



Select the lines that form the conduit and specify the pipe size. This information will be updated and the conduit will be acknowledged by all the commands.



Operations on aeraulic and hydraulic conduits

# **DOUBLE LINE AIR NETWORKS DRAFTING** 1/4



## ◎ 🔮 🚍 🖶 | Ⅲ | � 🖢 ☜ | 〒 | 占 ☜ 🕥 | Ũ 📍 🗲 🖾 🚳 | ∅ 🖬 Ѽ 🖊 Ø | ୨ | \*

### LET'S USE THE EXAMPLE OF A CIRCULAR DUCT

There are 3 types of commands in this tool bar:



The routing command lets you draft circular ducts regardless of the shape of the network.

It contains many options (elbows, reducers, etc.) to model ducts while building them.

The command also takes into account layer management when drafting and allows the insertion of text relating to the drawing.



The pick up commands allow you to «hook» onto a pipe you've already drawn and then continue building on it.

3. All the other commands are intermittent or dressing commands.

Examples: Elbow, Tee, Break... Damper, Insulation, Fire protection... The duct below can be drafted in 4 steps:



# DOUBLE LINE DRAFTING AIR NETWORKS 2/4



Step 1

Start with the longest section and continue to the end of a branch (All the way to the cap).



Pick up again from a diverging piece and as in part 1, continue until the end of the branch.





Double line air networks drafting 1/10



# DOUBLE LINE DRAFTING AIR NETWORKS 3/4



### Step 3

Create each of the branches - This can be done in 2 ways:

- 1. Start from the register and work your way towards the main duct (it is compulsory in the case of a flexible duct).
- 2. Start from the main duct and work your way towards the register.



# **DOUBLE LINE DRAFTING AIR NETWORKS 4/4**



Step 4

Dress the duct with equipment: valve, damper, fire proofing, registers on networks...



# DOUBLE AND SINGLE LINE DRAIN DRAWING 1/4





There are 3 types of commands in this toolbar:

The routing command lets you draft circular ducts whatever the shape of the network.

It contains many options (elbows, reducers, etc.) to model ducts while building them.

The command also takes into account layer management when drafting and allows the insertion of text relating to the drawing.



The pick up commands allow you to «hook» onto a pipe you've already drawn and then continue building on it.

3. All the other commands are intermittent or dressing commands.

Examples:

Elbow, Reducer... Inspection plug... Several steps are necessary to draw the network below:



# DOUBLE AND SINGLE LINE DRAIN DRAWING 2/4



### Step 1

Start from the furthest point and continue towards the end of the network.



### Step 2

Make each connection - This can be done in 2 ways:

- 1. Start from a symbol and continue towards the main sewer.
- 2. Start from the main sewer and continue towards the symbol.



# DOUBLE AND SINGLE LINE DRAIN DRAWING 3/4



AUTOFLUI

# DOUBLE AND SINGLE LINE DRAIN DRAWING 4/4





AUTOF

# **DRAWING A SINGLE LINE SET OF PIPES** 1/5





This toolbar helps you draw several single line networks side by side simultaneously.

These commands produce the same graphics and information as the one contained in the toolbar below:



The routing command lets you draft circular ducts regardless of the shape of the network.

It contains many options (elbows, reducers, etc.) to model ducts while building them. The command also takes into account layer management when drafting and allows the insertion of text relating to the drawing.

The pick up commands allow you to «hook» onto a pipe you've already drawn and then continue building onto it.

3. All the other commands are intermittent or dressing commands.

Examples: Elbow, Reducer...

Gates, Thermometers...

These commands are intermittent and are used to dress the drawing generated by the Set of pipes command:



# DRAWING A SINGLE LINE SET OF PIPES 2/5



Several steps are necessary to draw the set of pipes below:



# DRAWING A SINGLE LINE SET OF PIPES 3/5



### Step 1: Define the set of pipes

ITOFLUID: Description of set of pipelines	23
Layer selection :  Set of pipelines 1  set of pipelines 2  set of pipelines 3  Add/mod	fy
>>>	
Pipe 1       Image: O Hot water n°1     Image: STEEL     Image: NPS10     Image: Thickness	30
Pipe 2           Image: Constraint of the state	30
Pipe 3 ✓ O Chilled water n°1	45
Pipe 4 ▼ 0 Hot water n°2 ▼ PLASTIC ▼ PVC 40 ▼ Thickness	45
Pipe 5       Image: Second condensate <ul> <li>PLASTIC</li> <li>PVC 40</li> <li>Thickness</li> </ul> <ul> <li>PVC 40</li> <li>Thickness</li> </ul>	
Pipe 6       O     Chilled water n°1       PLASTIC     PVC 40       Thickness	
Gap between two insulated pipes [mm] 50	
From 1 to 2         From 2 to 3         From 3 to 4         From 4 to 5         From 5 to 6           139         165         180         135         90	
Minimum between-axes distance recommended: 240	
Ok	

### You must specify:

- 1. The number of tubes
- 2. And for each tube:
  - the name of the network (layer)
  - the specification
  - the pipe size
  - the thickness of insulation (if applicable)
- 3. The distance between each tube.



### Single line set of pipes 1/5

# DRAWING A SINGLE LINE SET OF PIPES 4/5





# DRAWING A SINGLE LINE SET OF PIPES 5/5









Single line set of pipes 5/5

Table of contents - 24

# DRAWING UNDER SLAB PIPING 1/4





The pipe set below can be drafted in a few steps:



# **DRAWING UNDER SLAB PIPING 2/4**



### Step: Position the distribution boxes.





### Step 2: Position the distribution manifold.





Step 3: Routing pipe set.



Start to draw from the manifold towards one of the entry points.





Under slab piping 3/5

# DRAWING UNDER SLAB PIPING 3/4



Step 4



Feed each entry point using the pick up commands.



# DRAWING UNDER SLAB PIPING 4/4





A drafted network can be repositioned.





Reposition under slab pipes

Once the network is designed, specify the diameters.



Now the bill of materials can be produced.



### MULTI-LAYER PIPE

Naming	Dim.1	Dim.2	Dim.3	Quantity [m]	Area [m²]	weight[Kg]
CONDUIT	20			41.40	-	-
CONDUIT	25			119.68	-	-



Under slab piping bill of materials

Table of contents - 28

# NETWORK CROSSINGS



### THERE ARE 2 POSSIBLE MODES:

- With dotted lines
- Cuts with gaps

THERE ARE 2 WAYS TO OPERATE (regardless of the chosen mode):

- Simple case: one conduit crosses another
  - Select the conduit to modify (the one below).
  - Select the boundary conduit (the one above).
- Other cases (colored red)
  - Select the conduit to modify (the one below).
  - Confirm (to alter the selected entity).
  - Click on the first and the second intersection.





# **DEFINING ZONES**



### ZONES WILL BE USED TO QUANTIFY NETWORKS AND MATERIALS.

Bills can be based on layers (frozen or not) and zones.



To create a zone:

AUTOFLUID: Zone	
Zone ALL Zone 1	
AUTOFLUID: New Zone	<u> </u>
Name of the zone to define :	Zone 2
Ok	Stop
Add Delete	
Keep all zones visible	
Close	

Once the new zone is named, select the points forming the outline of this zone. If the last point clicked is different to the first, then the zone will close automatically.





Table of contents - 30

# **NETWORK BILLS**



Objects drawn on FROZEN layers won't be taken into account.

You can create a bill based on zones or networks (via layers).

Once the drawing is complete you can create a table listing all the different objects created in the «Model space»:



- 1. Click on «NETWORK QUANTITY»
- 2. Choose the appropriate zone
- 3. Choose the type of table (in the paper space of your CAD software or in Excel)
- 4. Click OK and place the table.

The table will not automatically update with new changes to your drawing.

If you have to make amends to your drawing, delete the existing table and create a new one.

Title	Sorting n°1	Sorting n°2
NETWORK QUANTITY		
Fire damper		
Damper		
Supply grids		
Extraction grids		
Return grids		
Transfer grids		
Valving		
Terminals		
Others		
2 Zone concerne	d 3 Type of table	
	AutoCAD table	4 Ok
TOUT	Excel table	



Network bills

# EQUIPMENT BILLS 1/2



To create an equipment bill (registers, valves, dampers, etc.) you must tag the equipment first.

In order to do this you need to use assigned blocks.

A few ready-made assigned blocks come with AUTOFLUID. You can use them as they are or use them as a basis to create new ones.

To tag equipment while drawing you must assign blocks to equipment pieces:

i   ∞ 🕞 😌   🕮 *	
AUTOFLUID: Property tags	JID: Property tags
Fire dampers       I     AF_FD	Dampers
Air supply registers	Air retum regi
Exhaust registers	Transfer grids

Select the assigned block with which to tag the equipment:

AF-CCF	-
AF-COL AF-EXT AF-MAT AF-REG AF-REP	
AF-RESA-SIA AF-RESA	

If the box 📝 is ticked, then the tag will be inserted whilst the equipment is added to the drawing.

The button lets you insert blocks once the equipment has been added to the drawing.



# EQUIPMENT BILLS 2/2



When the equipment has been tagged it can be listed into a table.



- 1. Select the equipment you wish to list
- 2. Choose the zone affected
- 3. Choose the type of table (In the paper space of your CAD software or in Excel)
- 4. Click OK and place your table.

Objects drawn onto a FROZEN layer will not be taken into account. Therefore you can create a bill according to zones and networks (via layers).

The table will not automatically update with new changes to your drawing.

If you have to make amends to your drawing, delete the existing table and create a new one.



Equipment bills 2/2



This command lets you compute different levels of a drain network. Indicate a few key points in order to calculate the new water level in relation to the network's segments.



AUTOFLU







AUTOFLUID: Text				
Select:			Justification:	Height:
Text 1	Exhaust		O Left	Small
Circular size		710	Right	Medium
	[Cm]		Middle	Carge
Upperside level	[=]	71.0	Frame	Leader line
Center line level	[Cm]	35.5	Fine	Point
Underside level	[Cm]	0.0	Thick	Arrow
Air Flow	[m3/h]		Shaded	Variables
		<u> </u>	Quantity of line(s):	
lext 2	Commentaire		◎1 ◎2 ◎	3 0 4 0 5
Multiple 3 Frame Leader line Frame + line Text only Stop				
# **TEXT** 2/2



- 1. Choose texts to write: tick the box beside the text you would like to include.
- 2. Choose the text appearance:
  - Height and justification
  - Type of frame
  - Type of leader line
  - Number of lines.
- 3. Choose options of presentation:
  - Text only
  - Framed text
  - Underlined text with leader line
  - Framed text with leader line.

### N.B.

When calculating one level in relation to another level and according to the pipe size, check the level's unit in the preferences panel (calculation variables) to ensure the calculation is right.

Types of default values and values that can be changed in the preferences

panel (or by clicking: Variables

- Text style
- Type of text (simple or paragraph)
- Height and justification
- Pipe size format
- Prefixes and suffixes
- Type of frame.





Text variables

DIMENSIONING					
	MEI	NDI	Uľ	NIIN	U



🛛 🕄 🖶 🗮 🗮 🗓 🖪 🖳 🗊 🕼 👫 🗙 » 🎾	🚜 T 🛏 🖸 🖽   ζ,   🤤 ≡   ≭ 📴 👁   📚 🕤 ″
<b>N</b> € ₩%, <u>4</u>	
AUTOFLUID: Dimension	AUTOFLUID manages most of the dimenisioning variables featured in your CAD software.
Dimension text	The following variables can be changed:
Style	Style of dimensioning text
Height [mm]	Height of text
Dimensioning unit:	Unit of dimensioning text
○ Meter ○ CM	Appearance of tags
Arrowheads	• The dimensions of tags
O Point O Arrow O Line	The zero before a decimal point
	<ul> <li>The display of extension lines.</li> </ul>
Remove the zero before a decimal point     Suppress extensions lines	
	N.B.
Number decimals     0       Arrows size     1	To add a new style to the list simply create a new style with the «STYLE» command of your CAD software. (Height must be 0).
Ok Stop	The height of the text will stay the same on screen as on the printed drawing since it is related to the UNIT and the SCALE of the drawing.

## MODIFICATION COMMANDS 1/6



#### «MODIFY» COMMAND

### 🔍 | 🖳 🥣 🛨 🗮 📜 📴 | 🖳 🗊 🗊 | 🌾 🗙 ≫ 🌌 🗉

- Swapping one object with another.
- Changing pipe sizes:
  - On a duct
  - On a part.
- Modify texts:
  - Change text with automatic update of the frame and/or the leader line
  - Move text with automatic update of the lead er line
  - Move a leader line.

#### «DELETE» COMMAND



• Delete an object (elbow, conduit or valve) and adjust surrounding graphics.

#### «MOVE» COMMAND



- Move an object on a conduit (valve, reducer, insulation...) and adjust surrounding graphics.
- Move a conduit between two objects and adjust surrounding graphics.

## MODIFICATION COMMANDS 2/6





Click on:	It will change into:
An elbow	A descent
A descent	An ascent
An ascent	An elbow

#### Other Examples:



Click on:	It will change into:
An elbow going upward	An elbow going downward
An elbow going downward	Асар
Асар	An end
An end	An elbow going upward

This command works on a wide range of AUTOFLUID objects and on all types of routing commands (circular, rectangular, tube, drain, as well as single line drawings).

# MODIFICATION COMMANDS 3/6



It operates in two ways: in a loop as already described OR via drop down menus:



In this particular example the angle of the Tee is wrong. Simply click on it to change its direction:











## MODIFICATION COMMANDS 4/6



### MODIFY PIPE SIZES

Change a pipe sizes directly on the conduit. The parts will then adapt to it.

It is not possible to change the pipe size of a part directly without changing the size of the conduit

1. First click on a conduit, choose the new pipe size and then the modification will take place.

The clicked line doesn't move. Instead the two others adapt.

2. Then click on the objects adjacent to the already modified conduits to change them.





# MODIFICATION COMMANDS 5/6



### MODIFY TEXT

Depending on where you click, suitable actions will be triggered:



- 1. Amend the text with the modify command in your CAD software. The frame and the leader line adjust automatically.
- 2. Vertical edge of the frame. Lets you drag the whole content. (Text, frame, leader line).
- Horizontal edge of the frame. Lets you drag the text and frame. The leader line adjusts automatically.
- 4. Lets you move the start of the leader line without changing the other segments.
- 5. Lets you move the intersection of the two segments of the leader line without changing neither the start nor the tip.
- 6. Allows you to move the tip of the leader line without changing the other segments.



# MODIFICATION COMMANDS 6/6





### OPENINGS 1/2



#### **OPENINGS WITH NETWORKS**

2	🖩   🥌 🛨 🗮 🤃 📴 🗊 🗊   🌾 🗙 »
	Rectangular opening in a wall
0	Circular opening in a wall
♦	Rectangular opening in a slab
0	Circular opening in a slab
	Triangular opening in a slab
×	
<u></u>	



First define the distance between the conduit and the edge of the opening (in the preferences panel). Then simply select 3 points that belong to the conduit and to the wall. The command will automatically calculate the dimensions of the opening, draw it, and tag it.

Tagging allows you to list the openings in an Excel or in a table in your CAD software.



### OPENINGS 2/2



#### FREE OPENINGS (WITHOUT NETWORKS)

### 

This opening is drafted and tagged in the same way as the 'openings with networks'.

Tagging allows you to list the openings in Excel or in a table in your CAD software.



AUTOFLUID: Openings	
	Position of the opening <ul> <li>In the slab</li> <li>In the wall</li> </ul>
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Opening shape Square / Rectangular Circular Triangular
2 3	Dimensions in CM           d1         15         L1         50           d2         15         L2         50           D         50         Unsl         0           Level unit:MILLIMETER
Dimension: The opening Its position I to the center	Layers A-RES ▼ A-RES-COT ▼
Ok	Stop

### TERMINALS





- 1. Indicate the position of the equipment part
- 2. Choose the type of equipment
- 3. Choose the desired thickness

Click on the image to position the element.

The element's position is indicated (centered between 2 points or in a corner): this will guide you to place the 3 points correctly.



LAYOUT



🔍 🔍 🥌 🛨 🗮 📜 💽	🖳 🗊 🗊   🕅 🗙 » 🎾	🛛 式 🎮 🔲 🖪
AUTOFLUID: Formatting		
Layout1	•	New layout
		4
	3	
● A0 ◎ A1 ◎ A2 ◎ A3	With a viewport	Ok
Margin [in mm] 5	Printed     Nonprinted	
<ul> <li>Dase point</li> <li>0,0,0</li> <li>Other</li> </ul>	To [1/50 ▼]	Stop
		]

1. Choose a presentation or create a new one.

2. Choose a format.

3. Choose 'to print' or 'not print' the window (on a layer that won't print).

You can create a quick layout with the following settings:

- double frame
- window (automatic scaling)
- title block (if the name is specified).

N.B. The title block has to be made as a block.

The bottom right hand corner of the outer frame of the title block must have the coordinates (0,0).

This point will overlap the bottom right hand corner of the inner frame of the page.



# CALCULATION OF PRESSURE DROPS





### SIEPS ARE NEEDED:

- 1. 💿 Check the connections:
  - 1.1. Save your file under a new name
  - 1.2. Isolate the network that you would like to compute
  - 1.3. Check the connections:
    - 1.3.1. Check the conduits (colored white). If they appear in red then re-build them.
    - 1.3.2. Rebuild the conduits that might have been cut for display reasons.
    - 1.3.3. Delete flocking and insulation...

# 2. Annotate the network: After having drafted the network you must add any missing information.

### 2.1. Flow rate:

Click on any element of a branch (duct, elbow,...). BEFORE clicking on an intersection (tee, cross, wye) all adjacent branches must be informed.

- 2.2. Flow direction: In intersections, reductions, transformations.
- 2.3. Vertical duct lengths: for descents, through floors, or in topside and underside connections...
- 2.4. The manufacturer data for the equipment: valves, dampers ...

- 3. Solution 2. Sol
  - Select the network branch by branch from the terminal to the source or in the opposite direction.
  - A check up table lets you highlight any missing part in the previous step.
  - You can name your network in this table.
  - The described network will be redrawn in a presentation with the same name.

### 4. 🗙 Exporting to Excel:

- Export the calculations to Excel from the presentation. If Excel requests that you activate macros when it starts automatically, please do so.
- The macro will run an automatic formatting of the table.
- You will then be able to edit all the parts of this file as if you had created it yourself.





Annotate the tees, grids...



Limits of the software (tips to get around them)

# CREATION OF A CROSS SECTION 1/3



### 🖻 ii 🖹 🌽 🖬 🔤 👫 \*

Four steps are required to draw a cross section from a plan view :

- 1. Place the cutting plane
- 2. Annotate the cutting plane
- 3. Annotate the elements of the plan view
- 4. Build and place the cross section

Step 1 : Place the cutting plane

### 🖻 i X 🖊 🗟 📼 🖪 \*

This is the line (linking the 2 arrows) which contains all the informations in Step 2. The length of this line defines the length of the cross section.



#### Step 2 : Annotate the cutting plane

### 🕒 🚺 🗙 🌽 🗟 🔤 🗜

In this dialog box, you will set the horizontal elements of your background :

- the upper slab
- the false ceiling
- the technical floor
- the lower slab

Levels and thicknesses have to be set for each object.



If there are several levels : Define the most common one, the setting can be refined afterwards.



# CREATION OF A CROSS SECTION 2/3



#### Step 3 : Annotate the elements of the plan view

### 🕒 🚺 🕺 🌽 🔊 📼 🗜 🎽

In this dialog box, you will define each object's size and position by selecting only one part of this object.

		Section
Aide sur les p	ooints gris	Choisir 200
		Isolant
•		⊙ Calo. ○ Floc.     0
		Arases Unité : CENTIMETRE
		20.0 25.0
T.	No IT	10.0 + / · en mm 50
		0.0 -5.0
		0.0 -5.0
		0.0 5.0 Arase de l'isolant
	<b>)</b> .	0.0 -5.0 Arase de l'isolant Dimensions Largeur en mm
Choix de l	l'objet	0.0 -5.0 Arase de l'isolant Dimensions Largeur en mm 0 Hauteur en mm 0
Choix de l	l'objet	0.0 [-5.0 Arase de l'Isolant Dimensions Largeur en mm 0 Hauteur en mm 0
Choix de l Textes à écrire:	l'objet	
Choix de l extes à écrire: ] Ne rien écrire	l'objet □ Comment ☑ Section	
Choix de l extes à écrire: Ne rien écrire	l'objet Comment Section	0.0 [-5.0 Arase de l'isolant Dimensions Largeur en mm Hauteur en mm 0 taire Arase Supérieur Arase Centre ☑ Arase Inférieure

#### Example on a circular duct :

-> Click on one of the three lines



-> Choose the corresponding image



-> Set the size

-> Click on one of the grey dots and it will turn red. The dot shows two elements :

- 1) The line you have selected
- 2) The level you will have to specify
- -> Set the level
- -> Choose the texts to write

Textes à écrire:		
🗖 Ne rien écrire	Commentaire	🦳 Arase Supérieure
	🔽 Section	🔲 Arase Centre
Extraction	🔲 Isolant	🔽 Arase Inférieure
%%c250 - Ai:2350		

Repeat these operations for each object that should appear in the cross-sectional.

# CREATION OF A CROSS SECTION 3/3



#### Step 4 : Build and place the cross section

To build the section : make a simple capture of the predefined elements and of the section line's letter. You can verify the objects lateral position by hovering your mouse over the top view.

-> (p1)

-> (p2) To get this overview of your cross section, slowly hover your mouse from the top to the bottom and vice versa.

-> (p3) or Enter and the cut will disappear.

A cross section block is created. It is named AF-COUPE-A.

You can then zoom on the plan zone dedicated to crosssectional views, and use the command to position the cross-section drawing.



WARNING : You must only select the section A elements. It might happen that an element from section B is in you selection field: do not select it.

### RED DOT PRINCIPLE

It shows the positioning and the level you wish to specify:





### **3D TRANSFORMATION 1/21**



#### RVT-CONNECT: AUTOFLUID'S REVIT RIBBON

File	Arch	itecture	e Str	ucture Steel	Syste	ems Inser	t Anr	notate A	nalyze	Massin	ng & Sit	e Collab	orate View	Manage	Add-Ins	AUTOFLUID
		8					<b>F</b>	ſ.		A	$[\widehat{\mathbb{O}}]$	Eshadula/				
CAD	CAD	IFC	Revit	management	DWG	properties	IFC	IFC list	RVT	Text	Tag	Quantities	check	Teamviewer	RVT-Conne	ct
	Basi	c Revit	integra	tion	Bas	e plans	C	ouct netwo	rk			Other				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

**1.** Import a DWG 3D duct network into a current model. It will be imported as a 'block' which cannot be modified inside the current model. *Read more...* 

**2.** Link a .DWG 3D duct network into the current model. It will be embedded as an 'external reference', which cannot be modified. However, it will automatically update if the linked .IFC is modified. *Read more...* 

**3.** Link a .IFC 3D duct network into the current model. It will be embedded as an 'external reference', which cannot be modified. However, it will automatically update if the linked .IFC file is modified. *Read more...* 

**4.** Link a .RVT 3D duct network into the current model. It will be embedded as an 'external reference', which cannot be modified. However, it will automatically update if the linked .RVT file is modified. *Read more...* 

5. Manage external linked or imported files (.DWG - .IFC - .RVT - ...)

**6.** Generate 2D plans from the model. This command lists all the model views and levels. Select the views to generate and then choose a destination directory where the new .DWG files will be created. *Read more...* 

**7.** Generate a linked file that feeds into the AUTOFLUID preference file. This command lists all the model floors. Select the floor(s) you need and then choose a destination directory where the new .LST file will be created. Next, import this

file into your CAD software preferences. This step informs your preferences with the model's floor names and levels. From then, the connection between the two softwares is set up. *Read more...* 

**8.** Once your 2D plans and duct network are designed in your CAD software, export them in IFC format and use this command to incorporate them in the model. They will be automatically located at the right place with the correct height. *Read more...* 

9. List and select embedded duct network with the 'embed IFC' command.

**10.** To send .RVT files to your clients, embed your duct network into a blank model and then save it in .RVT format. *Read more...* 

**11.** Create a text using the information provided in each duct network objects.

**13.** Generate detailed bills of materials from your .IFC duct network.

**14.** Show possible interferences between the AUTOFLUID .IFC duct network and the architecture or any other object in the model.

**15.** TeamViewer module for hotline service assistance.

16. Information about the software.

### 3D TRANSFORMATION 2/21



#### RVT-CONNECT - HOW TO EXPORT 2D PLANS

#### 1. Create DWG

From the model, you can generate 2D plans of each floors then integrate their level into AUTOFLUID. With the AUTOFLUID toolbar in REVIT, ensure the compatibility between your CAD software to the model.

Click on 'Create DWG' and select the 2D plans you wish to extract. Click on 'Save' and select a destination directory.



	Floor 👻	Project's elevation	View's name	
$\checkmark$	D - Sous-sol	-28	Plan d'étage: D - Sous-sol	
	D - Sous-sol	-28	5 Plan d'étage: Plan Masse	
	D - Sous-sol	-28	5 Plan d'étage: D SS Revêtements de sols	
	D - Sous-sol	-28	Plan d'étage: D SS Température	
~	C - RDC	-1	7 Plan d'étage: C - RDC	
	C - RDC	-1	7 Plan d'étage: C RDC Revêtements de sols	
	C - RDC	-1	7 Plan d'étage: C RDC Température	
$\sim$	B - Niveau 1	28	) Plan d'étage: B - Niveau 1	
	B - Niveau 1	28	Plan d'étage: B Niv1 Revêtements de sols	
	B - Niveau 1	28	Plan d'étage: B Niv1 Température	
$\checkmark$	A - Toiture	57	5 Plan d'étage: A - Toiture	
	01F	-27	5 Plan d'étage: 01F	
	00F	(	Plan d'étage: 00F	



## **3D TRANSFORMATION 3/21**



#### 2. Floors properties

This tool makes you export all the informations about the levels in a .LST file.

Click on 'Floors properties', select the levels. Click on 'Export' then choose a folder.

	Name	Élévation	Élévation	٦	Organiser 🔻 Nouv	veau dossier			
	A - Toiture	5125	57	5	Assistance Tech	chnique	📄 Maquette Proj	et AF.Ist	
	10F	4845	29	5	Maquette REV				
	B - Niveau 1	4830	28	0	Fond de Pla	ans Archi 2D			
	00F	4550	(	D	Plan CVC				
$\checkmark$	C - RDC	4533	-1	7	Keseaux 3D	×			
	01F	4275	-27	5	Nom du fichier : M	Maquette Projet AF.Ist			
$\checkmark$	D - Sous-sol	4265	-28	5	Type: Fi	ichiers lst (*.lst)			
					<ul> <li>Masquer les dossiers</li> </ul>	5		Save	Cancel

## **3D TRANSFORMATION 4/21**



3. Import the floor properties

Open your CAD software then import this file in the AUTOFLUID preferences :

Loading and settings							
AUTOFLUID: Preference file X	AUTOFLUID: Names and floors levels	×	🛕 Import REVIT F	loors properties			×
C:\AUTOFLUID10\base.pref Current configuration	<u>Niveau du projet = a</u>	rase du sol brut	Regarder dans :	Fond de Plans Arch	i 2D 🗸 🌀 🤌	۲ 🥙	(à 🔁 🛃
Architect drawings unit	Impor	t	Nom	^	Modifié le	Туре	$\bigcirc$
AUTOFLUID	Floors Name Project le 6, Telume 5, 750	Topographic level	Maquette Proj	et AF.Ist	18/09/2019 12:03	Fichier LST	4
O AUTOGAINE     O AUTOGAI	B - Niveau 1 2.800 C - RDC -0.170	48.300 45.330					
AUTOTUBE     -> Model general variables     -> New object variables	D - Sous-sol -2.850	42.650					
○ AUTOSAN							
O DZETACAD							
O AUTOCOUPE	Un	t:METER Unit:METER	<			×	
	Go up	Add	Nom du fichier :	Maquette Projet AF.Ist	~	Open	
O Specific Release		Modity	Types de fichiers :	*.lst	~	Cancel	
	Go down	Delete					
Close	Ok	Stop			Locate	Find file	

The connection with the model is set up. Use the 2D plan for background to work on as usually :

- as an XREF (recommended)
- as a block
- by opening it

If necessary, perform a file treatment as you would on a usual architectural plan (see page 5). You can now draw with all the AUTOFLUID modules on your 2D plans.

## **3D TRANSFORMATION 5/21**



#### 2D NETWORK QUALITY

The 2D network structure must be correct, in order to ensure AUTOBIM3D functions properly.

Do not forget to rebuild the conduits that you may have cut fto improve visibility.

#### See chapters:

- p.9: INTRODUCTION TO DOUBLE LINE DRAWING
- p.10: STRUCTURE OF A CONDUIT
- p.1: OPERATIONS ON CONDUITS



#### N.B.

- The following parts must be drafted with AUTOFLUID c.12 patch version and later to be compatible with AUTOBIM3D or AUTOCOUPE:
  - Vertical dampers
  - Vertical fire dampers
  - Flocking and insulation
  - Tap fittings
  - Sanitary connections.
- All parts must be surrounded by their conduits.

#### Examples:

- A Tee must be surrounded by 3 conduits
- A 'flat' Elbow > 2 conduits, etc...
- The oblique conduits must be linked to at least 1 horizontal conduit.

## **3D TRANSFORMATION 6/21**



#### **DEFINITION OF TERMS**

#### • The network

It is composed of graphical objects such as conduits, elbows, reducers, connections...

• 'On line' equipment

These are the small pieces linked to the networks: fire dampers, dampers, grids, tap fittings...

This type of equipment is 'made' on demand while routing the networks, in order to be drafted quickly and to fit any network sizes. It looks graphically simple, or even schematic, however it is sized at the required dimensions. It can be automatically replaced by more detailed graphic blocks if needed.

Main equipment

Main equipment blocks aren't provided with AUTOFLUID. Many users already have their own block libraries. Nowadays manufacturers themselves provide the needed elements in different formats (DWG, RFA, IFC...) for integration of their pieces into your plans and models.

Graphical objects

They represent the network routing.

For example: a 'flat' elbow, an elbow going 'through upper floor', a connection...

One graphical object may contain several elements.

#### Example below:

- 1. The 'topside connection' graphical object contains 3 elements: ELBOW / CONDUIT / TEE
- 2. The 'flat elbow' graphical object contains 1element: ELBOW



Elements

See example above.

They contain the information that allows:

- Quick modifications of graphical objects
- Pressure drop calculation
- 3D model creation.

# **3D TRANSFORMATION 7/21**



#### **DEFINITION OF TERMS**

- Horizontal conduits
  - Circular Rectangular Smoke exhaust rectangular Single line
- Represented by:
- > 3 lines
- > 2 lines
- > 4 lines
- > 1 line (according to the routing command used: line/polyline)

• Vertical conduits

### Represented by:

- Circular Rectangular Smoke exhaust rectangular Single line
- > 1 circle
- > 1 square/1 rectangle
- > 1 doubled square/rectangle
- > 1 circle
- Sanitary conduits (drain)
  - The drain conduits are by definition slightly oblique.
  - The drain networks have always been graphically drafted as the horizontal ones.
  - The slight slope generates ellipses on connection pieces that are so thin that they are ignored (elbows, wye branches...).
  - The angle of a slightly sloping conduit needs not be given.



#### • Oblique conduits

They are represented as the horizontal ones plus the angle information.

There are 2 possibilities to get oblique conduits:

- using the «Break» local commands or routing commands option
- transforming a horizontal conduit

In order to create them using an already existing conduit, run the « REVERSE AN OBLIQUE / HORIZONTAL PIPE » Command. Then run the « MODIFY 1 OBJECT » command to adapt the adjacent pieces. (See Exercise in 9 steps p.62)

### **3D TRANSFORMATION 8/21**



#### **DEFINITION OF TERMS**

#### • Branches

A branch is a segment in a network. It is defined by its extremities: a diversion, a terminal or a level breakage. Example: a Tee to a Grid, a Wye branch to an Elbow 'Through lower floor'.

#### Example: In the draft below, 3 branches can be identified:



#### • Spread

It means giving an information to a graphical object and then spread this information to all the branch's graphical objects. Each branch must be annotated: the information does not automatically go from one branch to another.

# **3D TRANSFORMATION 9/21**



#### INFORMATION AND TEXTS

Be careful to differentiate the «TEXT» command from the «Information» commands.

The «Information» commands allow you to read or assign some information to the elements composing the «graphical objects». The «TEXT» command lets you retrieve information and allows you to complete it with more text. Texts can be framed and/or can come with a leader line.

• The «Information» commands:

4 commands will allow you to get some information or assign some information to a network:

- EQUIPMENT BILLS:	<b>i</b> 🕶 🖶 😌   🕮 *
- DZETACAD:	20 🔀 🔀 🕺
- AUTOCOUPE:	i 4 🔨 🗗 🎾 🖬 🕂
- AUTOBIM3D:	S

These 4 dialog boxes are adapted to the corresponding modules:

As far as DZETACAD is concerned, the main information is Flow, whereas with AUTOCOUPE and AUTOBIM3D, it is the Level and the Water level that matter the most.

A value information that was confirmed in one of the dialog boxes is valid for the others.

### **3D TRANSFORMATION 10/21**



#### ANNOTATING THE 2D NETWORK (LEVELS)

### Ŝ Ð I 🗊 i 🕨 🖊 🤁 S 🕒 ⋬ | O 🧶 🍮 X | 🔟 🖓 🏻

UTOFLUID: Network information	23
Sizes Ø 500 × s1	Insulation Insulation Flocking Insulation [Mm]
(	Levels Upsl 295.7 [Cm] >
	Opsi         235.7         [Cm]         >           Cl         277.9         [Cm]         >           Unsl         260.1         [Cm]         >
Conduit at	Unsl 260.1 [Cm] >
0 [Cm]	above this 260.1 [Cm]
Spreading	Ok Stop

The levels are given branch by branch.

The selected branches levels can be quickly specified, either by typing the level value directly, or by retrieving the level from another conduit.

The level information must mainly be given to the horizontal conduits. The levels of the other graphical objects will automatically derive from the adjacent conduits level.

*Example:* spreading the level along a network that contains a level breakage.

The missing or false levels may be automatically replaced by levels allowing a correct 3D modeling.

The 2D insulation drafted (Insulation / Flocking) will not generate a 3D insulation.

Check the « INSULATION » box if you wish to integrate it into your 3D model.



# **3D TRANSFORMATION 11/21**



#### Exercise

In this exercise, you will learn how to assign information to the oblique conduits, how to add and adjust adjacent pieces (breaks, elbows...) and therefore how to get a 2D network that can be 'transformed' into 3D.

This exercise contains all of the difficulties you may face when giving information to the 2D network.

Drafting and annotating the conduits below can be done in 9 steps.



#### Steps 1-2-3

Draft the conduits and add a « BREAK » using the local command.





# 3D TRANSFORMATION 12/21





### **3D TRANSFORMATION 13/21**



#### ANNOTATING THE 2D NETWORK (WATER LEVELS)

In order to assign the levels to sanitary conduits, run the same « NETWORK INFORMATION » command as for the other networks.

S 🔁 I 🖬 🚺 🎽 🥵 🖻 🕯	) o 🥌 🤮 🛠 🔟 🗗	
AUTOFLUID: Network information		Using this command, yo
Sizes         100         ×         PVC 100           Ø         PLASTIC         ▼	Insulation  Insulation  Flocking  Insulation  Insulati	Choose the starting poir as well as the slope valu or upwards along the br automatically calculated
	Levels Upsl 268.9 [Cm] >	The water level settings See video p.60.
	Upsl         268.9         [Cm]         >           Cl         263.9         [Cm]         >           Unsl         258.9         [Cm]         >	Specifying the w
SLOPE 1.5 cm/meter	Unsl 258.9 [Cm] >	
Conduit at 0 [Cm] © above © below	this 258.9 [Cm]	
Ok	Stop	ļ

ou will quickly specify the water levels:

nt for the water level and type its value ue, then click progressively downwards ranch. The adjacent water levels are thus

of a network can be modified.



ater levels

## **3D TRANSFORMATION 14/21**



3D NETWORK CREATION

Selection

The 3D network is created by simply selecting the 2D network.





The whole network does not have to be selected at one time. It is recommended to break up the process and select one network part at a time. For Deleting / Merging / Renaming / Exporting networks, see p.64, chapter 'MODELLING - 3D NETWORKS MANAGEMENT'.

# 3D TRANSFORMATION 15/21



### CHANGING WATER LEVEL SETTINGS OF A NETWORK 🔄 🔁 I 🖬 🚺 » 🥕 👎 🗇 🗛 🗠 🌰 🎱 🖾 🌾 😂 23 AUTOFLUID: Network information 0.0 [Cm] Water line level 1.5 cm/meter SLOPE Options Ajouter en montant à partir de ... Ajouter en descendant à partir de ... Changer ponctuellement la pente 3.0 Redo Mise à jour Stop

When network graphics are modified, corresponding water level settings can also be changed.

Click on the logo/text of the water level in order to:

- Redefine the starting point of the water level
- Redefine the slope
- Add/delete a branch
- Redefine the slope of a segment.



### **3D TRANSFORMATION 16/21**



#### VISUALISATION

• 3D Orbit:



Allows orbiting in any direction around your network. It is the native command of the CAD software you use (see your CAD software User Guide).

• Plan view:



Allows going back to plan view with a zoom onto the selected entity (prevents the Zoom Extents activation of your CAD software command).

• Visual styles:



- 2D Wireframe
- Conceptual style, with visible edges
- Realistic style: this is the most appropriate aspect for creating 3D snapshots.

# **3D TRANSFORMATION 17/21**



### **CREATING 3D ARCHITECTURAL ELEMENTS** 🛯 🕆 🔁 I 🗊 i 🚿 🥕 👎 🌾 🗗 🖧 | O 🥥 🍪 | 🖾 🖓 📲 23 AUTOFLUID: Architecture Walls Posts O Upper slab False ceiling False floor Cover slab Opper and Lower slab O Dropout beam 200.00 [Mm] OK

This is not an architectural design software, but a tool that will enable you to make 3D elevations of the most common architectural elements drafted in 2D.

You will thus be able to visualize the networks in their environment without having to transfer them into the 3D model. This tool can also be used to design the structure of machine rooms.

### The transparency of architectural elements can be set in the Preferences file.

### An example of a bottom view:





# **3D TRANSFORMATION 18/21**



#### 3D SNAPSHOTS - CREATION



The « SNAPSHOT » command allows you to enrich your 2D plan presentation. It is not part of the modeling process.

After choosing the view using the visualisation tools (positioning and aspect), run the « TAKE A SNAPSHOT » command, position the marker and select the 3D elements.

- The orientation of the marker number corresponds to the initial UCS
- Make sure to position the marker accordingly to the plan view: it must indicate the 2D views elements.

The marker « 2 » below is incorrect as it points to the 3D network in Orbit view, but it is placed behind the 2D network in Plan view:





#### 3D SNAPSHOTS - POSITIONING

Position the 3D view snapshot in Model or Layout space.



Visual 1



## 3D TRANSFORMATION 19/21



#### MODELING - 3D NETWORKS MANAGEMENT

👎 i » 🖊 I 🕏 🔁 🗞 🛩 😚 🗊 🗄	E 🕼 O 🧶 🕒   🏵 🌣 🍜 🍜 🍯   🖻 💕 *
AF: 3D networks management	×
Upper slab underside level. RELATIVE : 2800 [Mm] - PROJECT : 13	1.920 [Me]
Réseau 3D	Selected network information:
Chilled water 1 Exhaust SUP Supply air	Nom du réseau : Chilled water 1 Nom du calque : 3D-W-CHW1 Nombre d'éléments : 5
	DWG Export
List update	IEC Evport
Nombre de réseaux :3 - 1 sélectionné(s).	in di Export
Add Merge	
Delete Rename	Close
Lower slab upperside level. RELATIVE : 0 [Mm] - PROJECT : 129.12	20 [Me]

This command will allow you to merge the different segments of a network (from the same layer). Networks can also be renamed or deleted. Lastly, select the desired networks and click on «DWG Export». The selected networks will be automatically combined into one DWG or IFC file.

When saving, a default folder and file name are suggested - they can be modified. The resulting IFC can then be imported into a modelling software like Revit.



## 3D TRANSFORMATION 20/21



#### LINK WITH REVIT : IMPORTING 3D DUCT NETWORKS INTO REVIT MODELS

When your duct networks are completed, import them in REVIT. There are several ways they can be imported:

- 1. Import or link your 3D duct network in a .DWG or .IFC format
- 2. Embed your IFC files into the model
- 3. Create a .RVT file that will be 'linked' inside the model

The purpose of AUTOBIM3D is to use your 2D plans as a key part of the production process. All changes to the 3D model will have to be done through the 2D plan first in order to be reflected in the modified 3D model part.

CAD	8		
Link CAD	Link IFC	Link Revit	REV/

If you use the 'Link...' tools update the model.

, REVIT will automatically

#### 1. How to import or link your 3D duct network in a .DWG format

- 1. Open the project (.RVT file)
- 2. In the project path window, select the floor plan matching the AUTOBIM3D model to import (the positioning is automatic)



3. In the AUTOFLUID toolbar

<b>a</b>	CAD	1	8	I
mport	Link	1	Link	L
CAD	CAD		IFC	R

- «Import CAD» DWG file - «Link CAD» .DWG file - «Link IFC» .IFC file

The REVIT «Link...» tool is equivalent to the XREF command in AUTOCAD.

-> Now you can see your duct networks inside the model. However they cannot be modified directly.
# 3D TRANSFORMATION 21/21



### 2. Embed your .IFC files into the model

- Open the architect's model
- Embed your .IFC files

F	ile	Architecture		Structure		Steel	Systems		Insert Annota		otate /	tate Analyze		ng & Site	e Collabo
	AD	CAD	8	RVT	8		4	-	- (	F.	ſ.		A	$\widehat{\mathbb{O}}_{1}$	•
lm C	port AD	Link CAD	Link IFC	Link Revit	Lini manage	ks ement	Create DWG	Floor	rs ties	Embed IFC	Embedde IFC list	ed Save RVT	Text	Tag	Schedule/ In Quantities
Basic Revit integration							Base plans			Duct network					Other

Select your files (multiple selection is possible)Click 'Open'

R Import IFC					×
← → → ↑ 📙 « Maquette REVIT → Rés	Rechercher dans : Résea	ux 3D	P		
Organiser 🔻 Nouveau dossier					?
Litraceo-asstech Assistance Technique Assistance Technique Assistance Technique Assistance LM Assistance RLM Auguette REVIT Auguette REVIT Fond de Plans Archi 2 Plan CVC	au 1.ifc .ifc sol.ifc ure.ifc				
Nom du fichier : "Toiture.ifc" "Nive	u 1.ifc" "RDC.ifc" "So	ous- ∨	Fichiers ifc (*.ifc) Open	Cancel	~

-> Your duct networks are reachable, able to be modified and you'll find all the elements information according to the BIM standard.

### 3. Create an .RVT to 'Link' it into the model

- Open a new project using the 'AUTOFLUID 20xx.rte' template

	File	Archited	cture	Structure	Steel	Systems	Insert	Annotate					
		ė	) e	Creates a	n Revit file	è.							
		New	×		Project Creates a	a Revit projec	t file.						
		Open	+		Fan Cre Ne to i	w Project						×	
						emplate file							
						Gabarit de	génie clim	atique		$\sim$	Browse	•	
					-	reate new							
						Project			() Proje	ct template			
								ок С	Ca	incel	Help	)	
													-
File	Archi	tecture	Stre	ucture	Steel	Systems	Inser	t Anno	tate A	Analyze	Massing	& Site	Collabo
Ð	2	<b>e</b>		¢.	1	8	£		r		A	-0	-
mport	Link	Link	Link	Link	s (	Sreate F	∎≡ loors	Embed E	mbedde	d Save	Text	Tag S	chedule/ In
CAD	CAD	IFC	Revit	managei	ment	DWG pro	perties	IFC	IFC list	RVT		Q	uantities
	Basi	c Revit ir	ntegrat	tion		Base pl	ans	Du	ct netwo	ork			Other
			6							6			
		(	3	/				U		Ľ	)		

- Compile the different floors of your IFC duct networks (1)
- Save your compilation as an .RVT file (2)
- Open the architect's model
- Link your .RVT file (3)

# CONTACT



### TECHNICAL SUPPORT

Are you not finding the answers you're looking for in this manual? Are you having trouble using our software?

Visit www.autofluid.fr -> Hotline

You will find:

- Frequently Asked Questions and a 'How to' section. For topics such as:
  - 'How to add a type of line'
  - 'How to add or modify an assigned tag'
  - Etc...
- The form to fill in in order to be called back by a technician.

Technical support can also be contacted at hotline@traceocad.fr

### YOUTUBE CHANNEL

Follow us on the Tracéocad channel and receive the latest videos as soon as they're posted.



### TRAINING

To ensure that you will yield 100% of AUTOFLUID's benefits in your field we provide training programs designed specifically for our users. They are aimed at beginners as well as confirmed users and they can take place at your offices or in ours during mixed companies sessions.

Whichever your level you will be trained by instructors who are specialised in the field. Traceocad's instructors are professionals in the field of CAD for fluid engineering.

To request a quote for training sessions, please contact us on:

Sales Department contact@traceocad.fr Tel: 0033 486 79 20 00

